

TOTAL DOSE RADIATION TEST REPORT

ESA study: "Survey of Critical Components for 150 kRad Power Systems"

ESTEC Contract N° 22831/09/NL/AF refers




Contract extension up to 400 kRad as per CCN: ATGSP-CN-0004 IS. 3

Final Report

<p>Part Type : IS-139ASRH</p> <p>Package : FP-20</p> <p>Description : Single Event Radiation Hardened Quad Voltage Comparator</p> <p>Manufacturer : Intersil</p>
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Alter Technology Purchase Order N° ATGSP-TL-09-JC-CO-9 dated 11/27/2012

Alter Technology Project Manager: David NUNEZ

Hirex reference :	HRX/TID/1015	Issue : 02	Date :	April 20 th , 2011
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Hirex Engineering	Total Dose Radiation Test Report		Ref.:	HRX/TID/1015
	IS-139ASRH	Intersil	Issue:	02

CHANGE RECORD

ISSUE	DATE	PAGE	DESCRIPTION OF CHANGES
01	January 18th, 2011	All	Original Issue
02	April 20th, 2011	5	Serial numbers updated

Hirex Engineering	Total Dose Radiation Test Report		Ref.:	HRX/TID/1015
	IS-139ASRH	Intersil	Issue:	02

TOTAL DOSE RADIATION TEST REPORT
on
Intersil
IS-139ASRH
Single Event Radiation Hardened Quad Voltage Comparator

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1 Introduction

In the scope of the ESA study: "Survey of Critical Components for 150kRad Power Systems", a total dose characterization test of the Intersil IS-139ASRH, Single Event Radiation Hardened Quad Voltage Comparator has been performed with an accumulated dose of about 442 kRad(Si) at different dose rates of 36 , 100, 300 rad(Si)/hour, in response to Alter Technology purchase order reference ATGSP-TL-09-JC-CO-9.

An Interim report, HRX/TID/0931 Issue 01, corresponding to the irradiation up to 163 Krad(Si) steps has been provided.

The purpose of this test was to evaluate total dose withstanding of this component, to investigate its suitability for being used in space applications. This test was conducted on samples provided by Alter Technology.

Test has been performed in accordance with Hirex Engineering Radiation Test Plan HRX/SPE/0234 issue 3 dated 09/24/2010.

A complete set of electrical measurements together with graphical representation of measured parameters with respect to total dose received, are provided for all samples.

2 Applicable and Reference Documents

2.1 Applicable Documents

- Hirex Engineering proposal: HRX/SPE/0234 issue 3 dated 09/24/2010
- Alter Technology Proposal: ATGSP-OF-648/2009 Issue 1
- Minutes of Meeting: MM-SRP-ATG-0001 dated 29/10/2009
- Hirex internal specification: Total Ionizing dose test general procedure.
- SMD detail specification: 5962-01510

2.2 Reference Documents

- Intersil datasheet: Doc ID FN9000.2 dated September 2002

3 Test Samples

13 samples of the IS-139ASRH device were tested (6 ON + 6 OFF + 1 control sample).

12 samples (including the 6 samples already submitted to protons test: see report HRX/TID/0930) have been biased according to the flow diagram given in Figure 1.

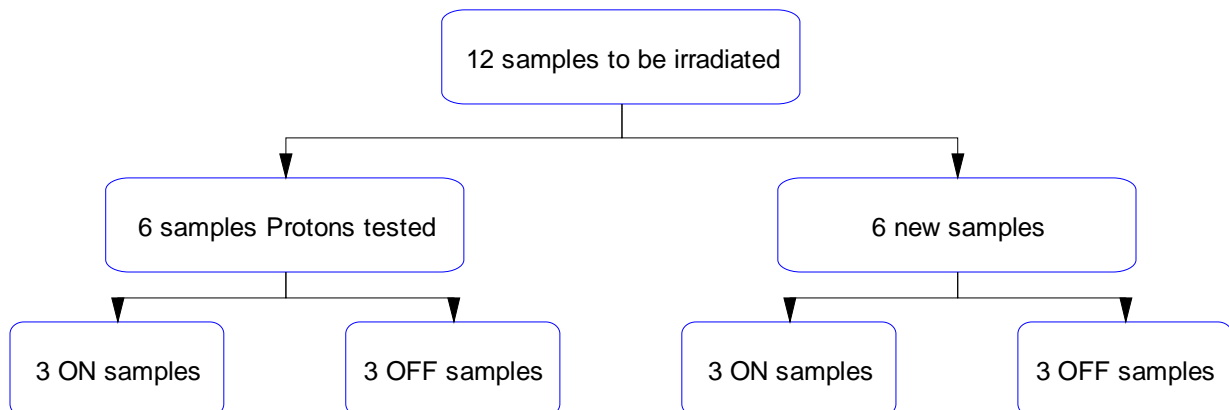


Figure 1 : Samples bias flow diagram

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Samples were allocated into the bias conditions during exposures and annealing as provided in the following table. The different samples groups are also identified for an easier plots reading.

SN attributed by Hirex	Samples Allocation	Samples Group Naming
1	Control sample	REF
2	Biased ON	ON_PROTON
3	Biased ON	ON_PROTON
4	Biased ON	ON_PROTON
5	Biased OFF	OFF_PROTON
7	Biased OFF	OFF_PROTON
14	Biased OFF	OFF_PROTON
8	Biased ON	ON_TID
9	Biased ON	ON_TID
10	Biased ON	ON_TID
11	Biased OFF	OFF_TID
12	Biased OFF	OFF_TID
13	Biased OFF	OFF_TID

Identification of the IS-139ASRH is given below:

Part Number: IS9-139ASRH

Top Marking: logo IS9-139ASRH delta /PROTO

Bottom Marking: -

Date Code: -

4 Experimental Conditions

4.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at UCL in Louvain (Belgium). In this irradiation facility, a Cobalt 60 source is used with the possibility to vary the dose rate by simply adjusting the distance to the source. During the dose exposures, devices under test have been irradiated in an ambient temperature of 24°C ±6°C.

The dose received by the devices has been controlled by the measurement of one Alanine pellet dosimeter placed onto the bias board.

Resulting test conditions are provided below.

Irradiation Steps requested	Pellet dosimetry data	Dose rate	Annealing steps	Temperature
kRad	kRad	Rad/h	Hours	°C
0	0			
10	8.1	36		Room
20	22.5	36		Room
50	54	36		Room
100	108.9	36		Room
150	162.9	100 [1]		Room
200	198	300 [1]		Room
250	238.5	300 [1]		Room
300	279.9	300 [1]		Room
350	351	300 [1]		Room
400	442.8	300 [1]		Room
			24	Room
			168	100

Note [1]: Due to the maintenance period planned at UCL at the end of December and in order to perform subsequent requested exposures steps up to 400 Krad(Si), the dose rates of several steps have been changed, in agreement with ESA, from 36 rad(Si)/h to 100 rad(Si)/h and from 100 rad(Si)/h to 300 rad(Si)/h as indicated.

4.2 Bias during Dose Exposures and Measurements conditions

4.2.1 Bias conditions

During exposures test board allowed to bias 6 samples in accordance with the electrical circuit provided in Figure 2. 6 other samples were biased OFF with all pins connected to ground.

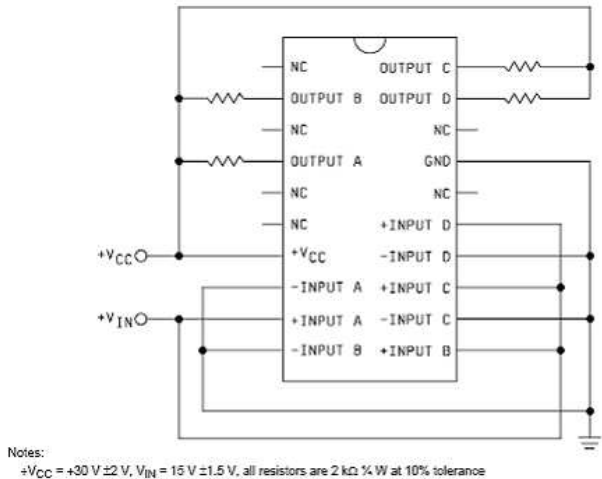


Figure 2 : Bias Conditions during Irradiation Exposures

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4.2.2 Electrical Measurements

Electrical parameters test program principle for IS-139ASRH is provided in Figure 3.

A HP4142 DC tester, a HP33120 waveform generator and an Infinium Scope were used to perform required measurements.

A dedicated test fixture was designed to ensure proper measurement conditions. In addition a faraday cage was used to ensure optimum conditions for low level measurements.

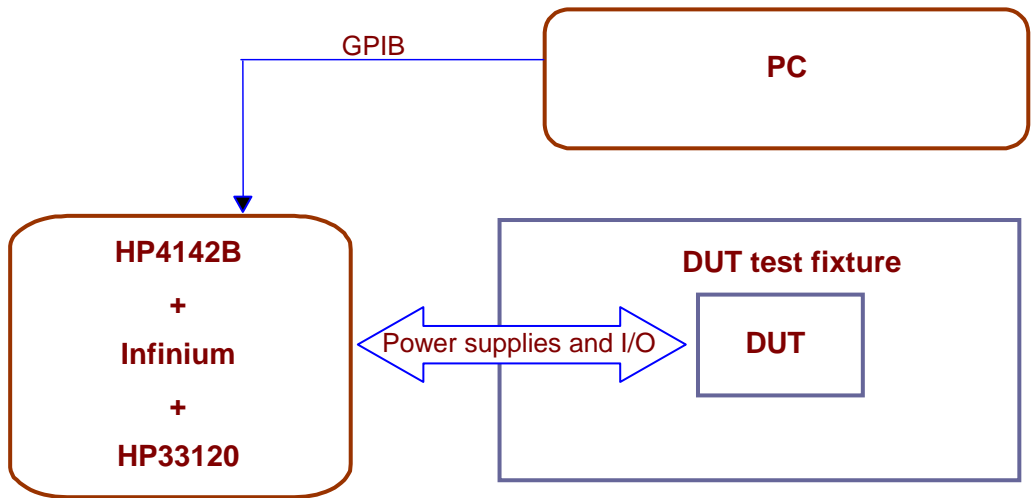


Figure 3 : IS-139ASRH test program principle

Hirex Engineering	Total Dose Radiation Test Report		Ref.:	HRX/TID/1015
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Electrical parameters test conditions and limits used for performing this test are given in Table 1.

PARAMETERS	SYMBOLS	TEST CONDITIONS	MIN	MAX	UNITS
Input Offset Voltage	VIO1	Vref=1.4V. VCC=9V	-5.0	5.0	mV
Input Offset Voltage	VIO2	Vref=1.4V. VCC=30V	-5.0	5.0	mV
Saturation Voltage	VSAT	-VIN=1V. +VIN=0V. Isink=4mA		300.0	mV
Input Offset Current	IIO1	VCC=9V	-150.0	150.0	nA
Input Offset Current	IIO2	VCC=30V	-150.0	150.0	nA
Input Bias Current	IIB1+	VCC=9V	-400.0	400.0	nA
Input Bias Current	IIB1-	VCC=9V	-400.0	400.0	nA
Input Bias Current	IIB2+	VCC=9V	-400.0	400.0	nA
Input Bias Current	IIB2-	VCC=9V	-400.0	400.0	nA
Total Supply Current	ICC1	RL=Infinite. VCC=9V		3.0	mA
Total Supply Current	ICC2	RL=Infinite. VCC=30V		3.0	mA
Input Voltage Common Mode Rejection Ratio	CMRR	VCC=30V. VCM=0V to 27.5V. RL=15K	70.00		dB
Output Leakage Current	ICEX	+IN>1V. -IN=0V. VOUT=30V		500.0	nA
Output Sink Current	IOSK	-IN>1V. +IN=0V. VOUT<1.5V	12.0		mA
Voltage Gain	AOL	RL>15K. VCC=15V	25.0		V/mV
Response Time High To Low	TPHL	VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K		4.0	µs
Response Time Low To High	TPLH	VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K		5.0	µs

Table 1 : Measured electrical parameters

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5 Conclusion

A Total Ionizing Dose verification test was carried out by Hirex Engineering under Alter Technology contract on the Intersil IS-139ASRH Single Event Radiation Hardened Quad Voltage Comparator in FP-20 package.

12 samples plus one control sample were used during testing. They were exposed to radiation using different dose rates of 36,100 & 300 rad(Si)/hour at room temperature.

A summary of failed parameters is provided in the following table. The behavior of each parameter is recorded for both biased On and biased Off samples of each group. Parameters not listed remained within specification limits all along testing or had no limits specified. Detail test results are presented in next section.

Parameters	Failure Level between :		Annealing Recovery [Note 1]					Comments
			NA	No	Partial	Complete	Rebound	
VIO1	ON_PROTON	0 & 8.1 kRad(Si)		X				[Note 2]
	ON_TID	8.1 & 22.5 kRad(Si)		X				[Note 2]
	OFF_PROTON	No Failure	X					
	OFF_TID	No Failure	X					
VIO2	ON_PROTON	8.1 & 22.5 kRad(Si)		X				[Note 2]
	ON_TID	8.1 & 22.5 kRad(Si)		X				[Note 2]
	OFF_PROTON	No Failure	X					
	OFF_TID	No Failure	X					
IIO1	ON_PROTON	22.5 & 54 kRad(Si)		X				[Note 2]
	ON_TID	22.5 & 54 kRad(Si)		X				[Note 2]
	OFF_PROTON	No Failure	X					
	OFF_TID	No Failure	X					
IIO2	ON_PROTON	8.1 & 22.5 kRad(Si)		X				[Note 2]
	ON_TID	22.5 & 54 kRad(Si)		X				[Note 2]
	OFF_PROTON	No Failure	X					
	OFF_TID	No Failure	X					
IIB1	ON_PROTON	0 & 8.1 kRad(Si)		X				[Note 2]
	ON_TID	0 & 8.1 kRad(Si)		X				[Note 2]
	OFF_PROTON	-		X				[Note 2, 3]
	OFF_TID	0 & 8.1 kRad(Si)		X				[Note 2]
IIB2	ON_PROTON	0 & 8.1 kRad(Si)		X				[Note 2]
	ON_TID	0 & 8.1 kRad(Si)		X				[Note 2]
	OFF_PROTON	0 & 8.1 kRad(Si)		X				[Note 2]
	OFF_TID	0 & 8.1 kRad(Si)		X				[Note 2]

Parameters	Failure Level between :		Annealing Recovery [Note 1]					Comments
			NA	No	Partial	Complete	Rebound	
ICC2	ON_PROTON	No Failure	X					
	ON_TID	No Failure	X					
	OFF_PROTON	8.1 & 22.5 kRad(Si)			X			
	OFF_TID	No Failure	X					
CMRR	ON_PROTON	No Failure		X				[Note 2]
	ON_TID	No Failure		X				[Note 2]
	OFF_PROTON	No Failure		X				[Note 2]
	OFF_TID	No Failure		X				[Note 2]
AOL	ON_PROTON	-		X				[Note 2, 4]
	ON_TID	-		X				[Note 2, 4]
	OFF_PROTON	-			X			[Note 2, 4]
	OFF_TID	-				X		[Note 2, 4]
TPHL	ON_PROTON	-						[Note 2]
	ON_TID	-						[Note 2]
	OFF_PROTON	-						[Note 2]
	OFF_TID	No Failure	X					
TPLH	ON_PROTON	54 & 108.9 kRad(Si)		X				[Note 2]
	ON_TID	279.9 & 351 kRad(Si)		X				[Note 2]
	OFF_PROTON	No Failure		X				[Note 2]
	OFF_TID	No Failure		X				[Note 2]

[Note 1]: **NA** = Not applicable, **No**: means no sample has recovered, **Partial**: means at least one sample has recovered, **Complete**: means all samples have recovered, **Rebound**: means rebound has been observed on at least one sample.

[Note 2]: Drift of VIO parameters was limited by the measurement system up to 13.6mV. Consequently some parameters depending on VIO have been also limited in case of important drift, they include: IIB, IIO, CMRR, PSRR, AOL, TPLH and TPHL. In order to overcome this problem, a test program modification was done for the 168 hours annealing step. Consequently drifts observed during annealing 100°C should be attributed to this change.

[Note 3]: Some samples failed after protons exposures were still failed at initial measurements of TID testing.

[Note 4]: AOL parameter was not measurable on several samples. Further analysis has shown correct measurements on a different batch of the same part type that Hirex had in stock. This problem is more likely due to the particular behavior of these prototypes samples.

Table 2 : Summary of parameters failure levels

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6 Test Results

Test results including tables and graphics are provided in this section for each measured parameter.

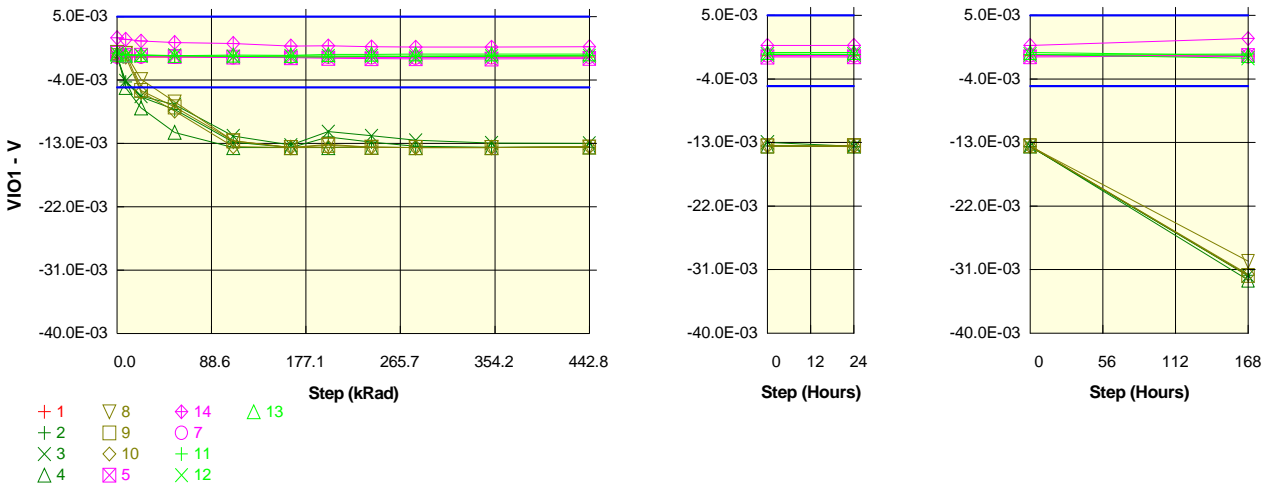
Statistics are provided separately for bias ON & bias OFF samples of each group.

For each parameter, a drift calculation table is provided computing the drift between a given exposure step with respect to initial readings:

$$\Delta(\text{Parameter value}) = (\text{Parameter value}_{\text{POSTRAD}}) - (\text{Parameter value}_{\text{PRERAD}})$$

In some cases, it may appear missing points in tables and graphs, this situation corresponds to a failure corresponding to an out of range measurement or a lost of functionality.

Parameter : Input Offset Voltage : VIO1DUT1
 Test conditions : Vref=1.4V. VCC=9V
 Unit : V
 Spec Limit Min : -5.0E-03
 Spec Limit Max : 5.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-695.0E-06	-722.2E-06	-720.4E-06	-713.9E-06	-719.4E-06	-690.9E-06	-710.5E-06	-711.5E-06	-706.9E-06	-713.2E-06	-716.1E-06	-708.9E-06	-745.2E-06
ON_PROTON samples													
2	-826.5E-06	-4.3E-03	-6.4E-03	-8.2E-03	-12.8E-03	-13.6E-03	-12.1E-03	-12.8E-03	-13.4E-03	-13.5E-03	-13.5E-03	-13.6E-03	-31.8E-03
3	-653.5E-06	-4.1E-03	-6.3E-03	-7.5E-03	-11.9E-03	-13.2E-03	-11.3E-03	-11.9E-03	-12.5E-03	-12.9E-03	-13.0E-03	-13.5E-03	-31.9E-03
4	-226.2E-06	-5.1E-03	-7.9E-03	-11.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.5E-03
Statistics													
Min	-826.5E-06	-5.1E-03	-7.9E-03	-11.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-32.5E-03
Max	-226.2E-06	-4.1E-03	-6.3E-03	-7.5E-03	-11.9E-03	-13.2E-03	-11.3E-03	-11.9E-03	-12.5E-03	-12.9E-03	-13.0E-03	-13.5E-03	-31.8E-03
Average	-568.7E-06	-4.5E-03	-6.9E-03	-9.0E-03	-12.8E-03	-13.5E-03	-12.3E-03	-12.7E-03	-13.2E-03	-13.3E-03	-13.3E-03	-13.5E-03	-32.3E-03
Sigma	252.3E-06	415.0E-06	756.5E-06	1.7E-03	660.8E-06	167.7E-06	948.3E-06	668.7E-06	455.2E-06	298.1E-06	249.4E-06	19.9E-06	301.5E-06

Drift Calculation

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-3.4E-03	-5.6E-03	-7.3E-03	-12.0E-03	-12.8E-03	-11.3E-03	-12.0E-03	-12.6E-03	-12.7E-03	-12.7E-03	-12.7E-03	-31.0E-03
3	-	-3.5E-03	-5.6E-03	-6.8E-03	-11.3E-03	-12.6E-03	-10.7E-03	-11.3E-03	-11.9E-03	-12.3E-03	-12.3E-03	-12.9E-03	-31.2E-03
4	-	-4.8E-03	-7.7E-03	-11.2E-03	-13.3E-03	-13.3E-03	-13.4E-03	-13.3E-03	-13.4E-03	-13.3E-03	-13.3E-03	-13.3E-03	-32.3E-03
Average	-	-3.9E-03	-6.3E-03	-8.5E-03	-12.2E-03	-12.9E-03	-11.8E-03	-12.2E-03	-12.6E-03	-12.8E-03	-12.8E-03	-13.0E-03	-31.5E-03
Sigma	-	653.4E-06	997.3E-06	1.9E-03	848.1E-06	323.2E-06	1.2E-03	856.1E-06	606.1E-06	436.3E-06	392.3E-06	240.1E-06	551.3E-06

Measurements

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-695.0E-06	-722.2E-06	-720.4E-06	-713.9E-06	-719.4E-06	-690.9E-06	-710.5E-06	-711.5E-06	-706.9E-06	-713.2E-06	-716.1E-06	-708.9E-06	-745.2E-06
ON_TID samples													
8	-516.5E-06	-220.4E-06	-3.9E-03	-7.1E-03	-12.6E-03	-13.6E-03	-13.1E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-29.8E-03
9	-58.2E-06	-176.5E-06	-5.5E-03	-7.8E-03	-12.6E-03	-13.6E-03	-13.3E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.4E-03	-31.8E-03
10	-648.9E-06	-723.5E-06	-5.7E-03	-8.4E-03	-13.4E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.6E-03
Statistics													
Min	-648.9E-06	-723.5E-06	-5.7E-03	-8.4E-03	-13.4E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.8E-03
Max	-58.2E-06	-176.5E-06	-3.9E-03	-7.1E-03	-12.6E-03	-13.6E-03	-13.1E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.4E-03	-29.8E-03
Average	-407.9E-06	-373.5E-06	-5.0E-03	-7.8E-03	-12.9E-03	-13.6E-03	-13.3E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.1E-03
Sigma	253.1E-06	248.1E-06	796.3E-06	536.9E-06	389.6E-06	1.5E-06	172.5E-06	11.4E-06	2.3E-06	864.0E-09	679.8E-09	45.2E-06	905.3E-06

Drift Calculation

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	296.1E-06	-3.4E-03	-6.6E-03	-12.1E-03	-13.0E-03	-12.6E-03	-13.0E-03	-13.0E-03	-13.0E-03	-13.0E-03	-13.0E-03	-29.3E-03
9	-	-118.2E-06	-5.4E-03	-7.7E-03	-12.6E-03	-13.5E-03	-13.2E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.4E-03	-13.4E-03	-31.8E-03
10	-	-74.6E-06	-5.0E-03	-7.7E-03	-12.8E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-31.0E-03
Average	-	34.4E-06	-4.6E-03	-7.3E-03	-12.5E-03	-13.2E-03	-12.9E-03	-13.1E-03	-13.2E-03	-13.2E-03	-13.1E-03	-13.1E-03	-30.7E-03
Sigma	-	185.9E-06	880.7E-06	553.9E-06	299.9E-06	253.0E-06	246.2E-06	256.6E-06	254.9E-06	253.2E-06	252.5E-06	209.0E-06	1.0E-03

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Measurements

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-695.0E-06	-722.2E-06	-720.4E-06	-713.9E-06	-719.4E-06	-690.9E-06	-710.5E-06	-711.5E-06	-706.9E-06	-713.2E-06	-716.1E-06	-708.9E-06	-745.2E-06
OFF PROTON samples													
5	-186.0E-06	-511.0E-06	-450.0E-06	-642.0E-06	-729.4E-06	-805.9E-06	-878.5E-06	-956.1E-06	-961.6E-06	-987.4E-06	-906.2E-06	-876.3E-06	-702.2E-06
14	2.0E-03	1.8E-03	1.6E-03	1.4E-03	1.2E-03	845.2E-06	855.7E-06	731.0E-06	692.2E-06	687.2E-06	761.2E-06	737.3E-06	1.7E-03
7	-682.7E-06	-574.2E-06	-659.4E-06	-681.8E-06	-771.2E-06	-728.4E-06	-675.7E-06	-764.2E-06	-810.0E-06	-759.8E-06	-690.7E-06	-672.3E-06	-793.3E-06
Statistics													
Min	-682.7E-06	-574.2E-06	-659.4E-06	-681.8E-06	-771.2E-06	-805.9E-06	-878.5E-06	-956.1E-06	-961.6E-06	-987.4E-06	-906.2E-06	-876.3E-06	-793.3E-06
Max	2.0E-03	1.8E-03	1.6E-03	1.4E-03	1.2E-03	845.2E-06	855.7E-06	731.0E-06	692.2E-06	687.2E-06	761.2E-06	737.3E-06	1.7E-03
Average	387.4E-06	241.4E-06	149.3E-06	12.1E-06	-97.6E-06	-229.7E-06	-232.9E-06	-329.8E-06	-359.8E-06	-353.3E-06	-278.6E-06	-270.4E-06	76.7E-06
Sigma	1.2E-03	1.1E-03	999.3E-06	953.4E-06	923.2E-06	760.7E-06	774.1E-06	754.2E-06	746.5E-06	741.6E-06	740.5E-06	717.4E-06	1.2E-03

Drift Calculation

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-325.0E-06	-264.0E-06	-456.0E-06	-543.4E-06	-619.8E-06	-692.5E-06	-770.0E-06	-775.5E-06	-801.4E-06	-720.1E-06	-690.3E-06	-516.2E-06
14	-	-221.3E-06	-473.4E-06	-670.7E-06	-823.2E-06	-1.2E-03	-1.2E-03	-1.3E-03	-1.3E-03	-1.3E-03	-1.3E-03	-1.3E-03	-305.3E-06
7	-	108.5E-06	23.3E-06	880.0E-09	-88.4E-06	-45.7E-06	7.0E-06	-81.5E-06	-127.3E-06	-77.0E-06	-8.0E-06	10.4E-06	-110.6E-06
Average	-	-145.9E-06	-238.0E-06	-375.3E-06	-485.0E-06	-617.1E-06	-620.2E-06	-717.1E-06	-747.1E-06	-740.7E-06	-665.9E-06	-657.8E-06	-310.7E-06
Sigma	-	184.8E-06	203.6E-06	280.0E-06	302.8E-06	465.4E-06	485.3E-06	498.8E-06	494.9E-06	518.9E-06	516.5E-06	532.8E-06	165.6E-06

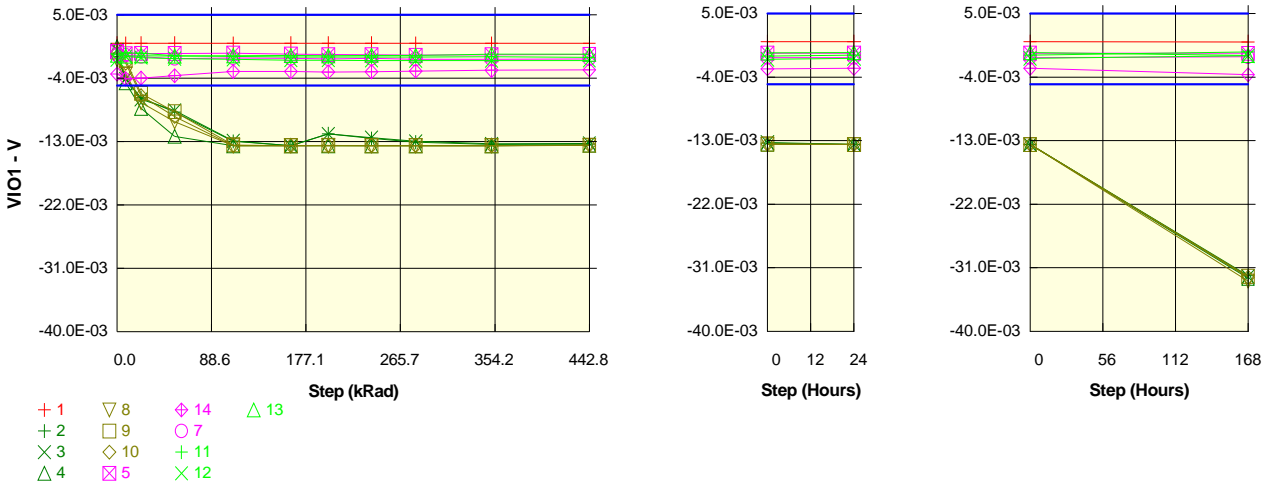
Measurements

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-695.0E-06	-722.2E-06	-720.4E-06	-713.9E-06	-719.4E-06	-690.9E-06	-710.5E-06	-711.5E-06	-706.9E-06	-713.2E-06	-716.1E-06	-708.9E-06	-745.2E-06
OFF TID samples													
11	-169.0E-06	-395.0E-06	-450.7E-06	-577.9E-06	-600.2E-06	-698.0E-06	-679.7E-06	-639.4E-06	-591.0E-06	-505.6E-06	-486.2E-06	-516.3E-06	-491.9E-06
12	-237.9E-06	-535.8E-06	-517.7E-06	-462.6E-06	-627.6E-06	-526.6E-06	-565.3E-06	-558.8E-06	-658.1E-06	-596.4E-06	-544.1E-06	-539.1E-06	-1.1E-03
13	-292.8E-06	-423.1E-06	-386.0E-06	-510.9E-06	-419.1E-06	-470.3E-06	-362.0E-06	-312.2E-06	-277.9E-06	-264.2E-06	-266.8E-06	-242.4E-06	-664.4E-06
Statistics													
Min	-292.8E-06	-535.8E-06	-517.7E-06	-577.9E-06	-627.6E-06	-698.0E-06	-679.7E-06	-639.4E-06	-658.1E-06	-596.4E-06	-544.1E-06	-539.1E-06	-1.1E-03
Max	-169.0E-06	-395.0E-06	-386.0E-06	-462.6E-06	-419.1E-06	-470.3E-06	-362.0E-06	-312.2E-06	-277.9E-06	-264.2E-06	-266.8E-06	-242.4E-06	-491.9E-06
Average	-233.3E-06	-451.3E-06	-451.4E-06	-517.1E-06	-549.0E-06	-565.0E-06	-535.7E-06	-503.4E-06	-509.0E-06	-455.4E-06	-432.4E-06	-432.6E-06	-738.4E-06
Sigma	50.6E-06	60.8E-06	53.8E-06	47.3E-06	92.5E-06	96.9E-06	131.4E-06	139.2E-06	165.7E-06	140.2E-06	119.4E-06	134.8E-06	237.3E-06

Drift Calculation

VIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-225.9E-06	-281.6E-06	-408.9E-06	-431.2E-06	-529.0E-06	-510.6E-06	-470.3E-06	-422.0E-06	-336.5E-06	-317.2E-06	-347.2E-06	-322.8E-06
12	-	-297.8E-06	-279.8E-06	-224.6E-06	-389.7E-06	-288.6E-06	-327.4E-06	-320.8E-06	-420.2E-06	-358.4E-06	-306.2E-06	-301.2E-06	-821.0E-06
13	-	-130.3E-06	-93.2E-06	-218.1E-06	-126.3E-06	-177.5E-06	-69.2E-06	-19.4E-06	14.9E-06	28.6E-06	26.0E-06	50.4E-06	-371.6E-06
Average	-	-218.0E-06	-218.2E-06	-283.9E-06	-315.7E-06	-331.7E-06	-302.4E-06	-270.2E-06	-275.8E-06	-222.1E-06	-199.1E-06	-199.3E-06	-505.1E-06
Sigma	-	68.6E-06	88.4E-06	88.4E-06	135.0E-06	146.7E-06	181.1E-06	187.6E-06	205.5E-06	177.5E-06	159.2E-06	177.6E-06	224.2E-06

Parameter : Input Offset Voltage : VIO1DUT2
 Test conditions : Vref=1.4V. VCC=9V
 Unit : V
 Spec Limit Min : -5.0E-03
 Spec Limit Max : 5.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	992.9E-06	977.2E-06	994.5E-06	997.0E-06	977.2E-06	992.2E-06	989.0E-06	1.0E-03	974.2E-06	975.6E-06	998.7E-06	987.0E-06	971.5E-06
ON PROTON samples													
2	-903.7E-06	-4.1E-03	-6.7E-03	-8.8E-03	-13.0E-03	-13.6E-03	-11.9E-03	-12.5E-03	-13.1E-03	-13.4E-03	-13.4E-03	-13.5E-03	-32.1E-03
3	56.8E-06	-4.1E-03	-7.0E-03	-8.6E-03	-12.9E-03	-13.6E-03	-11.9E-03	-12.4E-03	-13.0E-03	-13.3E-03	-13.3E-03	-13.5E-03	-32.3E-03
4	471.3E-06	-4.6E-03	-8.3E-03	-12.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.5E-03
Statistics													
Min	-903.7E-06	-4.6E-03	-8.3E-03	-12.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.5E-03
Max	471.3E-06	-4.1E-03	-6.7E-03	-8.6E-03	-12.9E-03	-13.6E-03	-11.9E-03	-12.4E-03	-13.0E-03	-13.3E-03	-13.3E-03	-13.5E-03	-32.1E-03
Average	-125.2E-06	-4.3E-03	-7.3E-03	-9.9E-03	-13.1E-03	-13.6E-03	-12.5E-03	-12.8E-03	-13.2E-03	-13.4E-03	-13.4E-03	-13.5E-03	-32.3E-03
Sigma	575.9E-06	252.5E-06	672.2E-06	1.7E-03	303.9E-06	3.4E-06	780.8E-06	508.8E-06	263.7E-06	104.8E-06	100.9E-06	1.3E-06	148.0E-06

Drift Calculation

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-3.2E-03	-5.8E-03	-7.9E-03	-12.0E-03	-12.7E-03	-11.0E-03	-11.6E-03	-12.2E-03	-12.5E-03	-12.4E-03	-12.6E-03	-31.2E-03
3	-	-4.1E-03	-7.0E-03	-8.6E-03	-12.9E-03	-13.6E-03	-12.0E-03	-12.5E-03	-13.0E-03	-13.4E-03	-13.6E-03	-13.6E-03	-32.3E-03
4	-	-5.1E-03	-8.7E-03	-12.7E-03	-14.0E-03	-14.0E-03	-14.0E-03	-14.0E-03	-14.0E-03	-14.0E-03	-14.0E-03	-14.0E-03	-33.0E-03
Average	-	-4.1E-03	-7.2E-03	-9.7E-03	-13.0E-03	-13.4E-03	-12.3E-03	-12.7E-03	-13.1E-03	-13.3E-03	-13.2E-03	-13.4E-03	-32.2E-03
Sigma	-	770.6E-06	1.2E-03	2.1E-03	810.5E-06	577.0E-06	1.3E-03	991.5E-06	762.0E-06	628.7E-06	624.0E-06	577.2E-06	716.3E-06

Measurements

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	992.9E-06	977.2E-06	994.5E-06	997.0E-06	977.2E-06	992.2E-06	989.0E-06	1.0E-03	974.2E-06	975.6E-06	998.7E-06	987.0E-06	971.5E-06
ON TID samples													
8	-1.4E-03	-3.4E-03	-7.4E-03	-10.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.9E-03
9	-251.8E-06	-1.4E-03	-6.1E-03	-8.7E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.2E-03
10	-367.7E-06	-1.8E-03	-6.5E-03	-9.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.3E-03
Statistics													
Min	-1.4E-03	-3.4E-03	-7.4E-03	-10.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.9E-03
Max	-251.8E-06	-1.4E-03	-6.1E-03	-8.7E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.2E-03
Average	-660.1E-06	-2.2E-03	-6.7E-03	-9.4E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.5E-03
Sigma	497.7E-06	822.9E-06	544.7E-06	592.4E-06	51.3E-06	653.2E-09	18.3E-06	326.6E-09	821.8E-09	822.1E-09	864.0E-09	498.7E-09	291.0E-06

Drift Calculation

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-2.0E-03	-6.1E-03	-8.8E-03	-12.2E-03	-12.2E-03	-12.2E-03	-12.2E-03	-12.2E-03	-12.2E-03	-12.1E-03	-12.2E-03	-31.5E-03
9	-	-1.2E-03	-5.9E-03	-8.5E-03	-13.2E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.3E-03	-32.0E-03
10	-	-1.5E-03	-6.1E-03	-9.1E-03	-13.2E-03	-13.2E-03	-13.2E-03	-13.2E-03	-13.2E-03	-13.2E-03	-13.1E-03	-13.2E-03	-32.0E-03
Average	-	-1.6E-03	-6.0E-03	-8.8E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.8E-03	-12.9E-03	-31.8E-03
Sigma	-	332.8E-06	97.7E-06	240.5E-06	469.8E-06	498.2E-06	487.6E-06	498.0E-06	498.4E-06	498.4E-06	497.5E-06	498.0E-06	208.2E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	992.9E-06	977.2E-06	994.5E-06	997.0E-06	977.2E-06	992.2E-06	989.0E-06	1.0E-03	974.2E-06	975.6E-06	998.7E-06	987.0E-06	971.5E-06
OFF-PROTON samples													
5	-167.8E-06	-502.7E-06	-457.4E-06	-489.0E-06	-434.1E-06	-552.5E-06	-644.8E-06	-651.1E-06	-715.2E-06	-657.2E-06	-611.3E-06	-618.7E-06	-638.5E-06
14	-3.4E-03	-4.1E-03	-4.0E-03	-3.6E-03	-3.0E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.0E-03	-2.9E-03	-2.8E-03	-2.8E-03	-3.7E-03
7	-688.6E-06	-700.8E-06	-920.5E-06	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.3E-03	-1.3E-03	-1.2E-03	-1.2E-03	-1.1E-03
Statistics													
Min	-3.4E-03	-4.1E-03	-4.0E-03	-3.6E-03	-3.0E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.0E-03	-2.9E-03	-2.8E-03	-2.8E-03	-3.7E-03
Max	-167.8E-06	-502.7E-06	-457.4E-06	-489.0E-06	-434.1E-06	-552.5E-06	-644.8E-06	-651.1E-06	-715.2E-06	-657.2E-06	-611.3E-06	-618.7E-06	-638.5E-06
Average	-1.4E-03	-1.8E-03	-1.8E-03	-1.8E-03	-1.5E-03	-1.6E-03	-1.7E-03	-1.6E-03	-1.7E-03	-1.6E-03	-1.6E-03	-1.5E-03	-1.8E-03
Sigma	1.4E-03	1.6E-03	1.6E-03	1.3E-03	1.1E-03	1.1E-03	1.0E-03	1.0E-03	954.2E-06	932.6E-06	929.1E-06	906.5E-06	1.3E-03

Drift Calculation

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-PROTON samples													
5	-	-334.9E-06	-289.7E-06	-321.3E-06	-266.4E-06	-384.8E-06	-477.0E-06	-483.3E-06	-547.4E-06	-489.4E-06	-443.6E-06	-451.0E-06	-470.8E-06
14	-	-664.0E-06	-580.4E-06	-236.4E-06	348.8E-06	346.0E-06	313.6E-06	320.4E-06	434.8E-06	527.2E-06	580.4E-06	624.4E-06	-262.8E-06
7	-	-12.1E-06	-231.8E-06	-521.4E-06	-410.1E-06	-489.4E-06	-548.8E-06	-490.9E-06	-595.4E-06	-585.1E-06	-540.6E-06	-541.9E-06	-439.1E-06
Average	-	-337.0E-06	-367.3E-06	-359.7E-06	-109.2E-06	-176.0E-06	-237.4E-06	-217.9E-06	-236.0E-06	-182.4E-06	-134.6E-06	-122.8E-06	-390.9E-06
Sigma	-	266.1E-06	152.5E-06	119.5E-06	329.1E-06	371.6E-06	390.7E-06	380.7E-06	474.7E-06	503.3E-06	507.1E-06	529.7E-06	91.5E-06

Measurements

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	992.9E-06	977.2E-06	994.5E-06	997.0E-06	977.2E-06	992.2E-06	989.0E-06	1.0E-03	974.2E-06	975.6E-06	998.7E-06	987.0E-06	971.5E-06
OFF-TID samples													
11	-578.1E-06	-400.3E-06	-431.6E-06	-779.8E-06	-873.4E-06	-1.0E-03	-989.4E-06	-985.3E-06	-975.7E-06	-934.3E-06	-1.0E-03	-906.1E-06	-426.3E-06
12	-1.4E-03	-897.9E-06	-1.1E-03	-1.2E-03	-1.3E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.0E-03
13	-707.8E-06	-847.4E-06	-811.0E-06	-837.6E-06	-781.6E-06	-764.6E-06	-810.7E-06	-737.1E-06	-743.0E-06	-562.0E-06	-584.4E-06	-547.2E-06	-960.7E-06
Statistics													
Min	-1.4E-03	-897.9E-06	-1.1E-03	-1.2E-03	-1.3E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.0E-03
Max	-578.1E-06	-400.3E-06	-431.6E-06	-779.8E-06	-873.4E-06	-764.6E-06	-810.7E-06	-737.1E-06	-743.0E-06	-562.0E-06	-584.4E-06	-547.2E-06	-426.3E-06
Average	-883.5E-06	-715.2E-06	-766.0E-06	-942.8E-06	-985.6E-06	-1.1E-03	-1.1E-03	-1.1E-03	-1.1E-03	-990.2E-06	-1.0E-03	-931.6E-06	-799.9E-06
Sigma	344.3E-06	223.6E-06	256.7E-06	191.2E-06	226.7E-06	265.2E-06	249.2E-06	297.3E-06	313.0E-06	374.5E-06	357.1E-06	324.7E-06	265.0E-06

Drift Calculation

VIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-TID samples													
11	-	177.8E-06	146.5E-06	-201.7E-06	-295.3E-06	-426.1E-06	-411.3E-06	-407.2E-06	-397.6E-06	-356.2E-06	-438.0E-06	-328.0E-06	151.8E-06
12	-	466.7E-06	309.1E-06	153.5E-06	62.8E-06	-42.7E-06	-40.9E-06	-89.6E-06	-127.4E-06	-109.6E-06	-94.5E-06	23.2E-06	352.0E-06
13	-	-139.6E-06	-103.2E-06	-129.8E-06	-73.8E-06	-56.8E-06	-102.9E-06	-29.3E-06	-35.2E-06	145.8E-06	123.3E-06	160.5E-06	-253.0E-06
Average	-	168.3E-06	117.5E-06	-59.3E-06	-102.1E-06	-175.2E-06	-185.0E-06	-175.4E-06	-186.8E-06	-106.7E-06	-136.4E-06	-48.1E-06	83.6E-06
Sigma	-	247.6E-06	169.6E-06	153.3E-06	147.6E-06	177.5E-06	162.0E-06	165.7E-06	153.8E-06	204.9E-06	231.1E-06	205.7E-06	251.7E-06

Parameter : Input Offset Voltage : VIO1DUT3

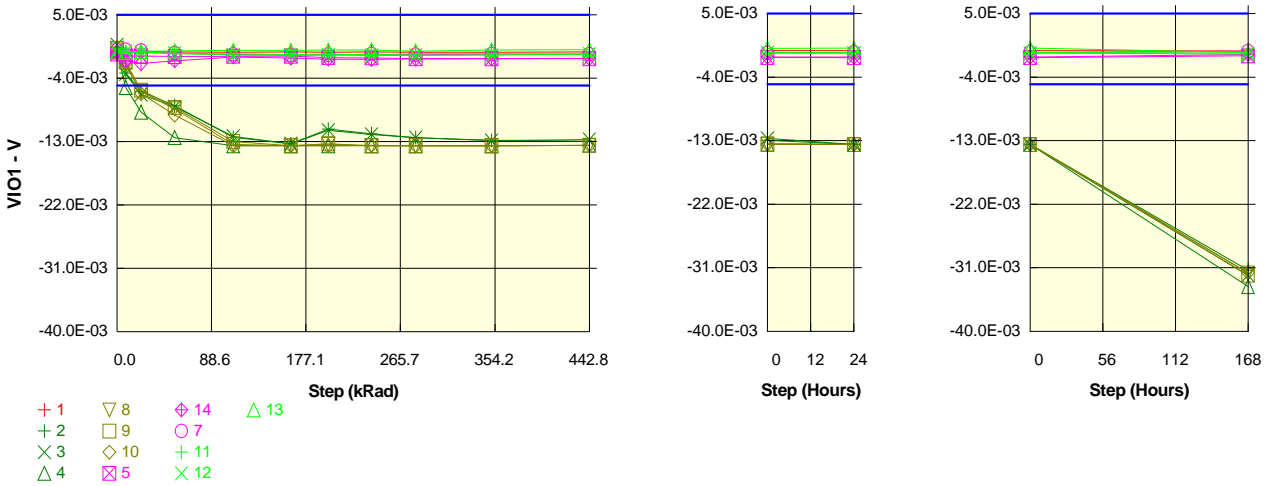
Test conditions : Vref=1.4V. VCC=9V

Unit : V

Spec Limit Min : -5.0E-03

Spec Limit Max : 5.0E-03

Spec limits are represented in bold lines on the graphic.



Measurements

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-251.5E-06	-276.8E-06	-255.6E-06	-255.3E-06	-271.0E-06	-249.6E-06	-262.1E-06	-247.3E-06	-266.7E-06	-277.0E-06	-248.7E-06	-252.2E-06	-311.1E-06
ON PROTON samples													
2	-579.2E-06	-3.2E-03	-5.9E-03	-7.9E-03	-12.4E-03	-13.3E-03	-11.2E-03	-11.9E-03	-12.4E-03	-12.8E-03	-12.9E-03	-13.5E-03	-31.3E-03
3	769.0E-06	-3.4E-03	-6.3E-03	-8.0E-03	-12.2E-03	-13.3E-03	-11.4E-03	-12.0E-03	-12.4E-03	-12.8E-03	-12.7E-03	-13.5E-03	-32.1E-03
4	-106.0E-06	-5.3E-03	-8.8E-03	-12.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-33.7E-03
Statistics													
Min	-579.2E-06	-5.3E-03	-8.8E-03	-12.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-33.7E-03
Max	769.0E-06	-3.2E-03	-5.9E-03	-7.9E-03	-12.2E-03	-13.3E-03	-11.2E-03	-11.9E-03	-12.4E-03	-12.8E-03	-12.7E-03	-13.5E-03	-31.3E-03
Average	28.0E-06	-4.0E-03	-7.0E-03	-9.4E-03	-12.7E-03	-13.4E-03	-12.0E-03	-12.5E-03	-12.8E-03	-13.1E-03	-13.0E-03	-13.5E-03	-32.4E-03
Sigma	558.5E-06	946.0E-06	1.3E-03	2.1E-03	589.3E-06	128.9E-06	1.1E-03	770.7E-06	535.2E-06	345.7E-06	337.8E-06	6.0E-06	977.2E-06

Drift Calculation

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-2.7E-03	-5.3E-03	-7.3E-03	-11.8E-03	-12.7E-03	-10.6E-03	-11.3E-03	-11.9E-03	-12.2E-03	-12.3E-03	-13.0E-03	-30.8E-03
3	-	-4.1E-03	-7.1E-03	-8.8E-03	-13.0E-03	-14.1E-03	-12.7E-03	-13.2E-03	-13.2E-03	-13.6E-03	-13.5E-03	-14.3E-03	-32.8E-03
4	-	-5.2E-03	-8.7E-03	-12.3E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.4E-03	-13.4E-03	-33.6E-03
Average	-	-4.0E-03	-7.0E-03	-9.5E-03	-12.8E-03	-13.4E-03	-12.1E-03	-12.5E-03	-12.8E-03	-13.1E-03	-13.1E-03	-13.6E-03	-32.4E-03
Sigma	-	1.0E-03	1.4E-03	2.1E-03	693.6E-06	543.3E-06	1.2E-03	887.5E-06	704.3E-06	609.9E-06	515.2E-06	557.8E-06	1.2E-03

Measurements

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-251.5E-06	-276.8E-06	-255.6E-06	-255.3E-06	-271.0E-06	-249.6E-06	-262.1E-06	-247.3E-06	-266.7E-06	-277.0E-06	-248.7E-06	-252.2E-06	-311.1E-06
ON TID samples													
8	275.5E-06	-2.2E-03	-5.9E-03	-8.3E-03	-13.4E-03	-13.6E-03	-13.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.8E-03
9	44.2E-06	-1.7E-03	-5.7E-03	-8.1E-03	-13.0E-03	-13.6E-03	-13.3E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.1E-03
10	-527.1E-06	-1.9E-03	-6.2E-03	-9.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.7E-03
Statistics													
Min	-527.1E-06	-2.2E-03	-6.2E-03	-9.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.1E-03
Max	275.5E-06	-1.7E-03	-5.7E-03	-8.1E-03	-13.0E-03	-13.6E-03	-13.3E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.7E-03
Average	-69.1E-06	-1.9E-03	-5.9E-03	-8.6E-03	-13.3E-03	-13.6E-03	-13.4E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.9E-03
Sigma	337.3E-06	211.3E-06	205.0E-06	473.3E-06	245.1E-06	652.8E-09	109.1E-06	4.9E-06	821.7E-09	679.8E-09	498.7E-09	498.7E-09	151.6E-06

Drift Calculation

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-2.5E-03	-6.2E-03	-8.6E-03	-13.7E-03	-13.8E-03	-13.7E-03	-13.8E-03	-13.8E-03	-13.8E-03	-13.8E-03	-13.8E-03	-32.0E-03
9	-	-1.7E-03	-5.7E-03	-8.2E-03	-13.0E-03	-13.6E-03	-13.3E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-32.1E-03
10	-	-1.4E-03	-5.6E-03	-8.7E-03	-13.0E-03	-13.6E-03	-13.0E-03	-13.0E-03	-13.0E-03	-13.0E-03	-13.0E-03	-13.0E-03	-31.2E-03
Average	-	-1.9E-03	-5.8E-03	-8.5E-03	-13.2E-03	-13.5E-03	-13.3E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.4E-03	-13.5E-03	-31.8E-03
Sigma	-	458.3E-06	228.9E-06	231.4E-06	303.1E-06	336.7E-06	260.8E-06	341.9E-06	336.6E-06	336.7E-06	337.8E-06	336.8E-06	412.2E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-251.5E-06	-276.8E-06	-255.6E-06	-255.3E-06	-271.0E-06	-249.6E-06	-262.1E-06	-247.3E-06	-266.7E-06	-277.0E-06	-248.7E-06	-252.2E-06	-311.1E-06
OFF PROTON samples													
5	-567.2E-06	-831.0E-06	-842.0E-06	-887.4E-06	-867.4E-06	-853.6E-06	-1.1E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-997.8E-06
14	-412.9E-06	-1.5E-03	-1.9E-03	-1.5E-03	-973.0E-06	-1.1E-03	-1.3E-03	-1.3E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03	-805.6E-06
7	-29.3E-06	66.0E-06	-68.5E-06	-420.4E-06	-618.2E-06	-677.5E-06	-659.8E-06	-549.1E-06	-665.7E-06	-589.4E-06	-585.7E-06	-513.8E-06	-360.0E-06
Statistics													
Min	-567.2E-06	-1.5E-03	-1.9E-03	-1.5E-03	-973.0E-06	-1.1E-03	-1.3E-03	-1.3E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-997.8E-06
Max	-29.3E-06	66.0E-06	-68.5E-06	-420.4E-06	-618.2E-06	-677.5E-06	-659.8E-06	-549.1E-06	-665.7E-06	-589.4E-06	-585.7E-06	-513.8E-06	-360.0E-06
Average	-336.5E-06	-761.5E-06	-932.9E-06	-941.3E-06	-819.5E-06	-889.8E-06	-998.4E-06	-983.6E-06	-1.0E-03	-1.0E-03	-987.9E-06	-967.8E-06	-721.1E-06
Sigma	226.1E-06	649.2E-06	745.6E-06	448.9E-06	148.7E-06	189.9E-06	258.0E-06	317.9E-06	262.4E-06	291.2E-06	284.6E-06	323.1E-06	267.1E-06

Drift Calculation

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-263.9E-06	-274.9E-06	-320.2E-06	-300.2E-06	-286.5E-06	-483.1E-06	-534.2E-06	-626.3E-06	-636.1E-06	-635.0E-06	-672.8E-06	-430.6E-06
14	-	-1.1E-03	-1.5E-03	-1.1E-03	-560.1E-06	-725.4E-06	-872.3E-06	-887.6E-06	-834.4E-06	-798.1E-06	-762.8E-06	-736.8E-06	-392.6E-06
7	-	95.4E-06	-39.2E-06	-391.1E-06	-588.9E-06	-648.2E-06	-630.4E-06	-519.8E-06	-636.4E-06	-560.1E-06	-556.4E-06	-484.5E-06	-330.7E-06
Average	-	-425.1E-06	-596.4E-06	-604.8E-06	-483.1E-06	-553.4E-06	-661.9E-06	-647.2E-06	-699.0E-06	-664.8E-06	-651.4E-06	-631.4E-06	-384.6E-06
Sigma	-	503.8E-06	628.8E-06	353.6E-06	129.8E-06	191.3E-06	160.4E-06	170.1E-06	95.8E-06	99.2E-06	85.1E-06	107.1E-06	41.2E-06

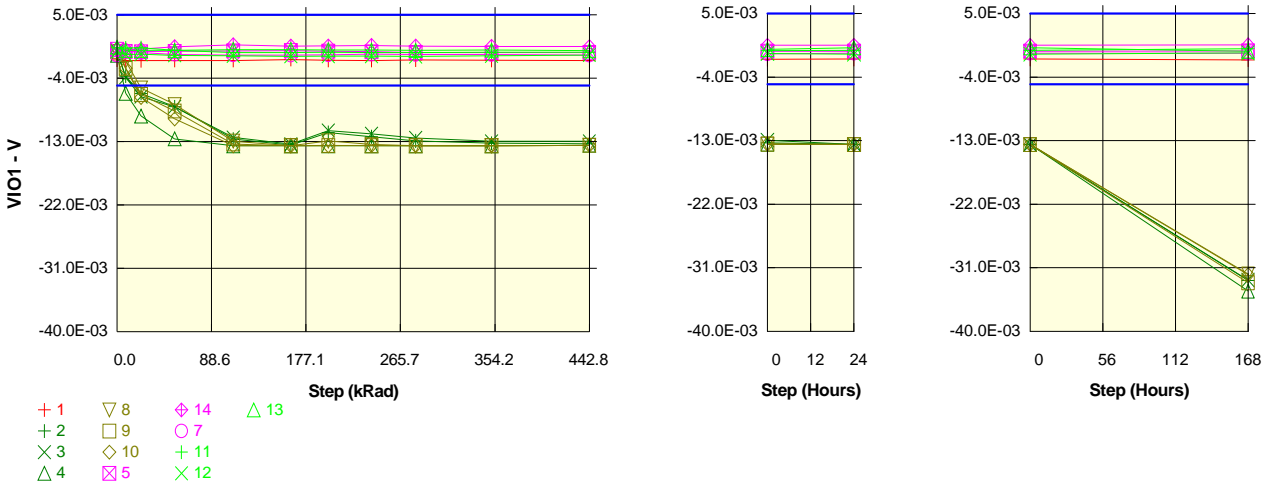
Measurements

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-251.5E-06	-276.8E-06	-255.6E-06	-255.3E-06	-271.0E-06	-249.6E-06	-262.1E-06	-247.3E-06	-266.7E-06	-277.0E-06	-248.7E-06	-252.2E-06	-311.1E-06
OFF TID samples													
11	156.8E-06	-246.6E-06	-251.3E-06	-455.8E-06	-529.3E-06	-626.2E-06	-555.9E-06	-651.7E-06	-517.5E-06	-517.4E-06	-554.5E-06	-504.1E-06	-425.2E-06
12	-224.5E-06	-185.3E-06	-334.4E-06	-485.7E-06	-689.7E-06	-696.7E-06	-698.6E-06	-751.8E-06	-736.0E-06	-708.2E-06	-570.4E-06	-626.2E-06	-696.7E-06
13	-293.6E-06	-325.2E-06	-166.1E-06	-83.8E-06	-28.4E-06	-36.8E-06	13.1E-06	37.0E-06	-137.0E-06	29.6E-06	73.4E-06	98.0E-06	-531.9E-06
Statistics													
Min	-293.6E-06	-325.2E-06	-334.4E-06	-485.7E-06	-689.7E-06	-696.7E-06	-698.6E-06	-751.8E-06	-736.0E-06	-708.2E-06	-570.4E-06	-626.2E-06	-696.7E-06
Max	156.8E-06	-185.3E-06	-166.1E-06	-83.8E-06	-28.4E-06	-36.8E-06	13.1E-06	37.0E-06	-137.0E-06	29.6E-06	73.4E-06	98.0E-06	-425.2E-06
Average	-120.4E-06	-252.4E-06	-250.6E-06	-341.8E-06	-415.8E-06	-453.2E-06	-413.8E-06	-455.5E-06	-463.5E-06	-398.7E-06	-350.5E-06	-344.1E-06	-551.2E-06
Sigma	198.0E-06	57.3E-06	68.7E-06	182.8E-06	281.6E-06	295.9E-06	307.4E-06	350.7E-06	247.5E-06	312.7E-06	299.8E-06	316.6E-06	111.7E-06

Drift Calculation

VIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-403.3E-06	-408.0E-06	-612.6E-06	-686.1E-06	-783.0E-06	-712.6E-06	-808.5E-06	-674.2E-06	-674.1E-06	-711.3E-06	-660.9E-06	-581.9E-06
12	-	39.2E-06	-110.0E-06	-261.2E-06	-465.2E-06	-472.2E-06	-474.1E-06	-527.3E-06	-511.6E-06	-483.7E-06	-345.9E-06	-401.8E-06	-472.2E-06
13	-	-31.6E-06	127.5E-06	209.8E-06	265.2E-06	256.8E-06	306.7E-06	330.6E-06	156.6E-06	323.2E-06	367.0E-06	391.6E-06	-238.3E-06
Average	-	-131.9E-06	-130.2E-06	-221.3E-06	-295.4E-06	-332.8E-06	-293.3E-06	-335.0E-06	-343.1E-06	-278.2E-06	-230.0E-06	-223.7E-06	-430.8E-06
Sigma	-	194.1E-06	219.1E-06	336.9E-06	406.5E-06	435.8E-06	435.3E-06	484.5E-06	359.5E-06	432.3E-06	447.8E-06	447.7E-06	143.3E-06

Parameter : Input Offset Voltage : VIO1DUT4
 Test conditions : Vref=1.4V. VCC=9V
 Unit : V
 Spec Limit Min : -5.0E-03
 Spec Limit Max : 5.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.5E-03
ON PROTON samples													
2	-466.4E-06	-3.7E-03	-6.1E-03	-8.0E-03	-12.6E-03	-13.5E-03	-11.7E-03	-12.3E-03	-12.9E-03	-13.2E-03	-13.3E-03	-13.5E-03	-32.8E-03
3	120.0E-09	-3.9E-03	-6.6E-03	-8.1E-03	-12.4E-03	-13.4E-03	-11.4E-03	-11.9E-03	-12.5E-03	-12.9E-03	-12.9E-03	-12.9E-03	-13.5E-03
4	-701.8E-06	-6.1E-03	-9.3E-03	-12.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-34.3E-03
Statistics													
Min	-701.8E-06	-6.1E-03	-9.3E-03	-12.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-34.3E-03
Max	120.0E-09	-3.7E-03	-6.1E-03	-8.0E-03	-12.4E-03	-13.4E-03	-11.4E-03	-11.9E-03	-12.5E-03	-12.9E-03	-12.9E-03	-13.5E-03	-32.7E-03
Average	-389.4E-06	-4.6E-03	-7.4E-03	-9.6E-03	-12.9E-03	-13.5E-03	-12.2E-03	-12.6E-03	-13.0E-03	-13.2E-03	-13.2E-03	-13.5E-03	-33.3E-03
Sigma	291.7E-06	1.1E-03	1.4E-03	2.2E-03	498.3E-06	87.1E-06	953.9E-06	708.7E-06	443.7E-06	254.3E-06	234.3E-06	1.1E-06	717.4E-06

Drift Calculation

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-3.2E-03	-5.7E-03	-7.6E-03	-12.2E-03	-13.0E-03	-11.2E-03	-11.8E-03	-12.4E-03	-12.8E-03	-12.8E-03	-13.1E-03	-32.4E-03
3	-	-3.9E-03	-6.6E-03	-8.1E-03	-12.4E-03	-13.4E-03	-11.4E-03	-11.9E-03	-12.5E-03	-12.9E-03	-12.9E-03	-13.5E-03	-32.7E-03
4	-	-5.4E-03	-8.6E-03	-11.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.9E-03	-12.8E-03	-12.8E-03	-33.6E-03
Average	-	-4.2E-03	-7.0E-03	-9.2E-03	-12.5E-03	-13.1E-03	-11.8E-03	-12.2E-03	-12.6E-03	-12.9E-03	-12.9E-03	-13.2E-03	-32.9E-03
Sigma	-	916.2E-06	1.2E-03	1.9E-03	284.2E-06	207.9E-06	730.3E-06	468.9E-06	194.0E-06	72.4E-06	57.6E-06	291.2E-06	520.6E-06

Measurements

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.5E-03
ON TID samples													
8	-170.6E-06	-1.6E-03	-5.4E-03	-7.7E-03	-12.9E-03	-13.6E-03	-12.9E-03	-13.4E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.9E-03
9	-157.6E-06	-2.6E-03	-6.3E-03	-8.6E-03	-13.3E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-33.1E-03
10	192.9E-06	-2.6E-03	-6.7E-03	-9.8E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.0E-03
Statistics													
Min	-170.6E-06	-2.6E-03	-6.7E-03	-9.8E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-33.1E-03
Max	192.9E-06	-1.6E-03	-5.4E-03	-7.7E-03	-12.9E-03	-13.6E-03	-12.9E-03	-13.4E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-31.9E-03
Average	-45.1E-06	-2.2E-03	-6.1E-03	-8.7E-03	-13.3E-03	-13.6E-03	-13.3E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-32.2E-03
Sigma	168.4E-06	474.4E-06	559.2E-06	838.0E-06	265.1E-06	679.8E-09	314.2E-06	70.5E-06	9.2E-06	864.2E-09	679.5E-09	326.6E-09	557.3E-06

Drift Calculation

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-1.4E-03	-5.2E-03	-7.6E-03	-12.8E-03	-13.4E-03	-12.7E-03	-13.2E-03	-13.4E-03	-13.4E-03	-13.3E-03	-13.4E-03	-31.7E-03
9	-	-2.4E-03	-6.1E-03	-8.5E-03	-13.2E-03	-13.4E-03	-13.4E-03	-13.4E-03	-13.4E-03	-13.4E-03	-13.3E-03	-13.4E-03	-33.0E-03
10	-	-2.7E-03	-6.9E-03	-10.0E-03	-13.8E-03	-13.8E-03	-13.8E-03	-13.7E-03	-13.8E-03	-13.8E-03	-13.7E-03	-13.7E-03	-32.2E-03
Average	-	-2.2E-03	-6.1E-03	-8.7E-03	-13.2E-03	-13.5E-03	-13.3E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.5E-03	-13.5E-03	-32.3E-03
Sigma	-	577.8E-06	696.4E-06	993.4E-06	410.4E-06	168.9E-06	429.8E-06	210.9E-06	177.6E-06	169.0E-06	167.7E-06	168.7E-06	514.8E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.5E-03
OFF-PROTON samples													
5	103.9E-06	-184.4E-06	-225.4E-06	-167.3E-06	-90.6E-06	-56.5E-06	-140.4E-06	-230.4E-06	-338.0E-06	-361.8E-06	-320.3E-06	-321.7E-06	-301.9E-06
14	71.0E-06	27.7E-06	134.0E-06	470.2E-06	753.1E-06	584.0E-06	596.5E-06	657.4E-06	568.4E-06	518.5E-06	508.1E-06	491.3E-06	590.7E-06
7	-738.4E-06	-129.8E-06	-350.0E-06	-597.9E-06	-683.4E-06	-707.8E-06	-654.3E-06	-579.3E-06	-644.0E-06	-643.2E-06	-719.2E-06	-631.6E-06	-628.1E-06
Statistics													
Min	-738.4E-06	-184.4E-06	-350.0E-06	-597.9E-06	-683.4E-06	-707.8E-06	-654.3E-06	-579.3E-06	-644.0E-06	-643.2E-06	-719.2E-06	-631.6E-06	-628.1E-06
Max	103.9E-06	27.7E-06	134.0E-06	470.2E-06	753.1E-06	584.0E-06	596.5E-06	657.4E-06	568.4E-06	518.5E-06	508.1E-06	491.3E-06	590.7E-06
Average	-187.9E-06	-95.5E-06	-147.1E-06	-98.3E-06	-7.0E-06	-60.1E-06	-66.1E-06	-50.8E-06	-137.9E-06	-162.1E-06	-177.2E-06	-154.0E-06	-113.1E-06
Sigma	389.5E-06	89.9E-06	205.2E-06	438.7E-06	589.4E-06	527.3E-06	513.3E-06	520.6E-06	514.8E-06	494.8E-06	511.2E-06	473.5E-06	515.2E-06

Drift Calculation

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-PROTON samples													
5	-	-288.2E-06	-329.3E-06	-271.2E-06	-194.5E-06	-160.4E-06	-244.3E-06	-334.3E-06	-441.8E-06	-465.6E-06	-424.2E-06	-425.6E-06	-405.7E-06
14	-	-43.3E-06	63.1E-06	399.2E-06	682.1E-06	513.0E-06	525.6E-06	586.4E-06	497.4E-06	447.6E-06	437.1E-06	420.4E-06	519.8E-06
7	-	608.6E-06	388.5E-06	140.6E-06	55.0E-06	30.7E-06	84.2E-06	159.1E-06	94.4E-06	95.2E-06	19.2E-06	106.9E-06	110.3E-06
Average	-	92.4E-06	40.8E-06	89.5E-06	180.9E-06	127.8E-06	121.8E-06	137.1E-06	50.0E-06	25.7E-06	10.7E-06	33.9E-06	74.8E-06
Sigma	-	378.5E-06	293.4E-06	276.1E-06	368.8E-06	283.3E-06	315.4E-06	376.2E-06	384.7E-06	376.0E-06	351.7E-06	349.2E-06	378.7E-06

Measurements

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.4E-03	-1.5E-03
OFF-TID samples													
11	348.1E-06	295.0E-06	345.7E-06	-17.7E-06	-328.4E-06	-312.3E-06	-278.8E-06	-329.8E-06	-317.8E-06	-261.0E-06	-275.8E-06	-229.6E-06	37.8E-06
12	-163.3E-06	-607.0E-06	-574.9E-06	-742.1E-06	-792.3E-06	-877.1E-06	-847.2E-06	-843.6E-06	-897.2E-06	-817.2E-06	-675.0E-06	-748.8E-06	-570.4E-06
13	425.7E-06	-31.8E-06	-36.5E-06	-44.6E-06	82.7E-06	90.4E-06	36.7E-06	1.6E-06	-48.2E-06	200.0E-09	-67.4E-06	126.8E-06	-353.0E-06
Statistics													
Min	-163.3E-06	-607.0E-06	-574.9E-06	-742.1E-06	-792.3E-06	-877.1E-06	-847.2E-06	-843.6E-06	-897.2E-06	-817.2E-06	-675.0E-06	-748.8E-06	-570.4E-06
Max	425.7E-06	295.0E-06	345.7E-06	-17.7E-06	82.7E-06	90.4E-06	36.7E-06	1.6E-06	-48.2E-06	200.0E-09	-67.4E-06	126.8E-06	37.8E-06
Average	203.5E-06	-114.6E-06	-88.6E-06	-268.1E-06	-346.0E-06	-366.3E-06	-363.1E-06	-390.6E-06	-421.1E-06	-359.4E-06	-339.4E-06	-283.9E-06	-295.2E-06
Sigma	261.3E-06	372.9E-06	377.6E-06	335.3E-06	357.5E-06	396.8E-06	365.7E-06	347.7E-06	354.2E-06	340.9E-06	252.1E-06	359.5E-06	251.6E-06

Drift Calculation

VIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-TID samples													
11	-	-53.1E-06	-2.4E-06	-365.8E-06	-676.4E-06	-660.4E-06	-626.9E-06	-677.9E-06	-665.9E-06	-609.1E-06	-623.9E-06	-577.7E-06	-310.3E-06
12	-	-443.7E-06	-411.6E-06	-578.8E-06	-629.0E-06	-713.8E-06	-683.8E-06	-680.3E-06	-733.8E-06	-653.9E-06	-511.7E-06	-585.5E-06	-407.1E-06
13	-	-457.5E-06	-462.2E-06	-470.3E-06	-343.0E-06	-335.3E-06	-389.0E-06	-424.2E-06	-474.0E-06	-425.5E-06	-493.2E-06	-298.9E-06	-778.7E-06
Average	-	-318.1E-06	-292.1E-06	-471.6E-06	-549.5E-06	-569.8E-06	-566.6E-06	-594.1E-06	-624.6E-06	-562.9E-06	-542.9E-06	-487.4E-06	-498.7E-06
Sigma	-	187.5E-06	205.9E-06	87.0E-06	147.3E-06	167.3E-06	127.7E-06	120.2E-06	110.1E-06	98.8E-06	57.8E-06	133.3E-06	201.9E-06

Parameter : Input Offset Voltage : VIO2DUT1

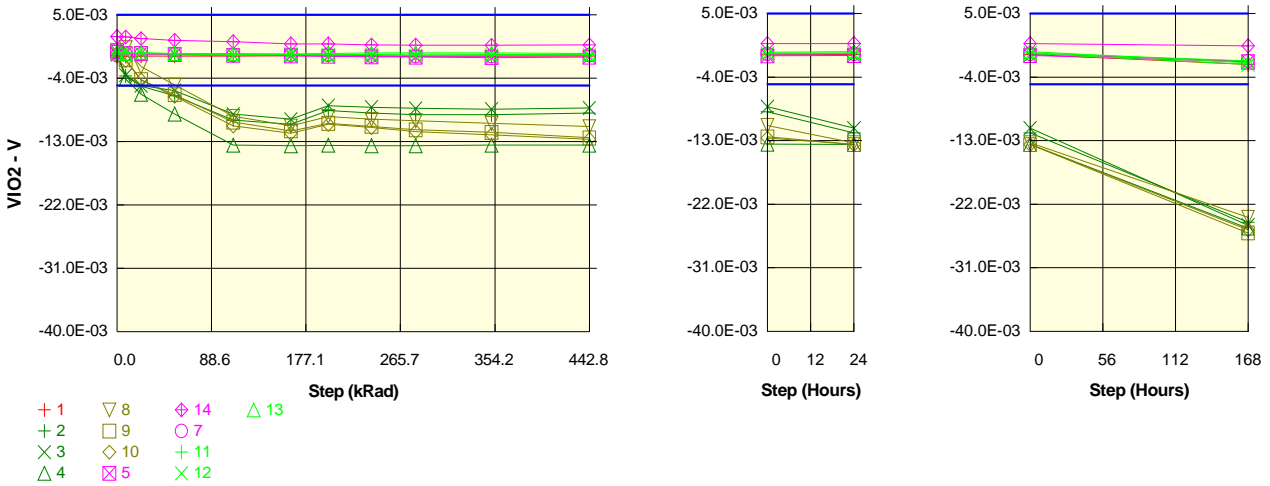
Test conditions : Vref=1.4V. VCC=30V

Unit : V

Spec Limit Min : -5.0E-03

Spec Limit Max : 5.0E-03

Spec limits are represented in bold lines on the graphic.



Measurements

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-822.0E-06	-903.6E-06	-841.5E-06	-834.6E-06	-844.7E-06	-814.4E-06	-823.9E-06	-832.6E-06	-833.2E-06	-830.3E-06	-837.0E-06	-826.6E-06	-2.2E-03
ON PROTON samples													
2	-816.3E-06	-3.7E-03	-5.1E-03	-6.5E-03	-9.9E-03	-10.5E-03	-8.6E-03	-8.9E-03	-9.1E-03	-9.2E-03	-8.9E-03	-11.9E-03	-24.6E-03
3	-600.5E-06	-3.5E-03	-5.0E-03	-5.8E-03	-9.1E-03	-9.8E-03	-7.9E-03	-8.1E-03	-8.3E-03	-8.4E-03	-8.2E-03	-11.2E-03	-25.0E-03
4	-273.0E-06	-4.1E-03	-6.3E-03	-9.1E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.5E-03	-25.4E-03
Statistics													
Min	-816.3E-06	-4.1E-03	-6.3E-03	-9.1E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.5E-03	-25.4E-03
Max	-273.0E-06	-3.5E-03	-5.0E-03	-5.8E-03	-9.1E-03	-9.8E-03	-7.9E-03	-8.1E-03	-8.3E-03	-8.4E-03	-8.2E-03	-11.2E-03	-24.6E-03
Average	-563.3E-06	-3.8E-03	-5.5E-03	-7.1E-03	-10.8E-03	-11.3E-03	-10.0E-03	-10.2E-03	-10.3E-03	-10.4E-03	-10.2E-03	-12.2E-03	-25.0E-03
Sigma	223.4E-06	260.4E-06	559.1E-06	1.4E-03	1.9E-03	1.6E-03	2.5E-03	2.4E-03	2.3E-03	2.3E-03	2.3E-03	970.4E-06	348.0E-06

Drift Calculation

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-2.8E-03	-4.3E-03	-5.7E-03	-9.1E-03	-9.7E-03	-7.8E-03	-8.1E-03	-8.3E-03	-8.4E-03	-8.1E-03	-11.1E-03	-23.7E-03
3	-	-2.9E-03	-4.4E-03	-5.2E-03	-8.5E-03	-9.2E-03	-7.3E-03	-7.5E-03	-7.7E-03	-7.8E-03	-7.6E-03	-10.6E-03	-24.4E-03
4	-	-3.9E-03	-6.0E-03	-8.8E-03	-13.2E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.3E-03	-13.2E-03	-13.2E-03	-13.3E-03	-25.1E-03
Average	-	-3.2E-03	-4.9E-03	-6.5E-03	-10.3E-03	-10.7E-03	-9.4E-03	-9.6E-03	-9.8E-03	-9.8E-03	-9.6E-03	-11.7E-03	-24.4E-03
Sigma	-	461.5E-06	763.0E-06	1.6E-03	2.1E-03	1.8E-03	2.7E-03	2.6E-03	2.5E-03	2.4E-03	2.5E-03	1.2E-03	569.8E-06

Measurements

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-822.0E-06	-903.6E-06	-841.5E-06	-834.6E-06	-844.7E-06	-814.4E-06	-823.9E-06	-832.6E-06	-833.2E-06	-830.3E-06	-837.0E-06	-826.6E-06	-2.2E-03
ON TID samples													
8	-331.4E-06	358.2E-06	-2.4E-03	-4.9E-03	-9.4E-03	-10.8E-03	-9.4E-03	-9.8E-03	-10.0E-03	-10.4E-03	-10.9E-03	-13.3E-03	-23.9E-03
9	-44.5E-06	-1.4E-03	-4.2E-03	-6.3E-03	-10.2E-03	-11.5E-03	-10.4E-03	-10.8E-03	-11.3E-03	-11.7E-03	-12.5E-03	-13.5E-03	-26.1E-03
10	-784.9E-06	-1.5E-03	-4.2E-03	-6.6E-03	-10.8E-03	-11.8E-03	-10.6E-03	-11.0E-03	-11.6E-03	-12.0E-03	-12.7E-03	-13.5E-03	-25.6E-03
Statistics													
Min	-784.9E-06	-1.5E-03	-4.2E-03	-6.6E-03	-10.8E-03	-11.8E-03	-10.6E-03	-11.0E-03	-11.6E-03	-12.0E-03	-12.7E-03	-13.5E-03	-26.1E-03
Max	-44.5E-06	358.2E-06	-2.4E-03	-4.9E-03	-9.4E-03	-10.8E-03	-9.4E-03	-9.8E-03	-10.0E-03	-10.4E-03	-10.9E-03	-13.3E-03	-23.9E-03
Average	-386.9E-06	-830.1E-06	-3.6E-03	-5.9E-03	-10.1E-03	-11.3E-03	-10.1E-03	-10.5E-03	-11.0E-03	-11.4E-03	-12.0E-03	-13.5E-03	-25.2E-03
Sigma	304.8E-06	841.9E-06	874.8E-06	710.2E-06	566.8E-06	433.1E-06	497.1E-06	517.9E-06	685.0E-06	693.3E-06	807.9E-06	104.3E-06	951.0E-06

Drift Calculation

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	689.7E-06	-2.0E-03	-4.6E-03	-9.1E-03	-10.4E-03	-9.1E-03	-9.5E-03	-9.7E-03	-10.1E-03	-10.5E-03	-13.0E-03	-23.5E-03
9	-	-1.3E-03	-4.1E-03	-6.3E-03	-10.2E-03	-11.4E-03	-10.3E-03	-10.8E-03	-11.3E-03	-11.6E-03	-12.4E-03	-13.5E-03	-26.0E-03
10	-	-704.0E-06	-3.4E-03	-5.8E-03	-10.0E-03	-11.0E-03	-9.8E-03	-10.2E-03	-10.8E-03	-11.2E-03	-11.9E-03	-12.8E-03	-24.9E-03
Average	-	-443.1E-06	-3.2E-03	-5.6E-03	-9.7E-03	-11.0E-03	-9.7E-03	-10.2E-03	-10.6E-03	-11.0E-03	-11.6E-03	-13.1E-03	-24.8E-03
Sigma	-	839.0E-06	884.3E-06	696.5E-06	479.5E-06	406.2E-06	509.8E-06	532.2E-06	663.9E-06	662.1E-06	797.9E-06	308.8E-06	1.0E-03

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015	
	IS-139ASRH					Intersil				Issue:	02	

Measurements

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-822.0E-06	-903.6E-06	-841.5E-06	-834.6E-06	-844.7E-06	-814.4E-06	-823.9E-06	-832.6E-06	-833.2E-06	-830.3E-06	-837.0E-06	-826.6E-06	-2.2E-03
OFF PROTON samples													
5	-227.2E-06	-484.8E-06	-471.6E-06	-623.0E-06	-710.1E-06	-803.0E-06	-867.8E-06	-945.2E-06	-1.0E-03	-1.1E-03	-992.5E-06	-936.9E-06	-1.8E-03
14	1.9E-03	1.9E-03	1.6E-03	1.4E-03	1.2E-03	890.8E-06	880.2E-06	735.4E-06	715.1E-06	692.3E-06	737.0E-06	738.0E-06	414.8E-06
7	-748.7E-06	-556.7E-06	-591.0E-06	-627.8E-06	-736.3E-06	-683.6E-06	-657.5E-06	-802.2E-06	-858.8E-06	-832.9E-06	-737.8E-06	-722.6E-06	-1.7E-03
Statistics													
Min	-748.7E-06	-556.7E-06	-591.0E-06	-627.8E-06	-736.3E-06	-803.0E-06	-867.8E-06	-945.2E-06	-1.0E-03	-1.1E-03	-992.5E-06	-936.9E-06	-1.8E-03
Max	1.9E-03	1.9E-03	1.6E-03	1.4E-03	1.2E-03	890.8E-06	880.2E-06	735.4E-06	715.1E-06	692.3E-06	737.0E-06	738.0E-06	414.8E-06
Average	320.9E-06	276.5E-06	191.9E-06	56.5E-06	-78.8E-06	-198.6E-06	-215.0E-06	-337.3E-06	-383.8E-06	-399.2E-06	-331.1E-06	-307.2E-06	-1.0E-03
Sigma	1.2E-03	1.1E-03	1.0E-03	964.3E-06	911.4E-06	771.8E-06	779.2E-06	760.8E-06	779.4E-06	777.2E-06	762.4E-06	744.2E-06	1.0E-03

Drift Calculation

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-257.6E-06	-244.4E-06	-395.8E-06	-482.9E-06	-575.8E-06	-640.6E-06	-718.0E-06	-780.5E-06	-829.7E-06	-765.3E-06	-709.7E-06	-1.6E-03
14	-	-67.7E-06	-300.1E-06	-518.5E-06	-728.6E-06	-1.0E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.5E-03
7	-	192.0E-06	157.7E-06	121.0E-06	12.4E-06	65.1E-06	91.2E-06	-53.5E-06	-110.1E-06	-84.2E-06	10.9E-06	26.1E-06	-967.9E-06
Average	-	-44.4E-06	-128.9E-06	-264.4E-06	-399.7E-06	-519.5E-06	-535.9E-06	-658.2E-06	-704.7E-06	-720.1E-06	-652.0E-06	-628.1E-06	-1.4E-03
Sigma	-	184.3E-06	203.9E-06	277.1E-06	308.2E-06	456.1E-06	475.1E-06	471.3E-06	457.7E-06	480.7E-06	501.5E-06	504.1E-06	283.1E-06

Measurements

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-822.0E-06	-903.6E-06	-841.5E-06	-834.6E-06	-844.7E-06	-814.4E-06	-823.9E-06	-832.6E-06	-833.2E-06	-830.3E-06	-837.0E-06	-826.6E-06	-2.2E-03
OFF TID samples													
11	-253.4E-06	-372.1E-06	-492.1E-06	-543.4E-06	-626.1E-06	-655.3E-06	-638.7E-06	-643.0E-06	-590.9E-06	-607.1E-06	-614.2E-06	-582.4E-06	-1.7E-03
12	-303.3E-06	-386.1E-06	-457.0E-06	-514.2E-06	-727.4E-06	-611.3E-06	-703.8E-06	-667.6E-06	-819.8E-06	-736.8E-06	-717.4E-06	-669.2E-06	-2.2E-03
13	-345.9E-06	-501.4E-06	-324.8E-06	-470.1E-06	-477.7E-06	-520.3E-06	-446.9E-06	-404.4E-06	-377.9E-06	-403.4E-06	-473.4E-06	-400.5E-06	-2.0E-03
Statistics													
Min	-345.9E-06	-501.4E-06	-492.1E-06	-543.4E-06	-727.4E-06	-655.3E-06	-703.8E-06	-667.6E-06	-819.8E-06	-736.8E-06	-717.4E-06	-669.2E-06	-2.2E-03
Max	-253.4E-06	-372.1E-06	-324.8E-06	-470.1E-06	-477.7E-06	-520.3E-06	-446.9E-06	-404.4E-06	-377.9E-06	-403.4E-06	-473.4E-06	-400.5E-06	-1.7E-03
Average	-300.9E-06	-419.8E-06	-424.7E-06	-509.2E-06	-610.4E-06	-595.6E-06	-596.4E-06	-571.6E-06	-596.2E-06	-582.4E-06	-601.7E-06	-550.7E-06	-1.9E-03
Sigma	37.8E-06	57.9E-06	72.0E-06	30.1E-06	102.5E-06	56.2E-06	109.0E-06	118.7E-06	180.5E-06	137.2E-06	100.0E-06	112.0E-06	198.8E-06

Drift Calculation

VIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-118.6E-06	-238.7E-06	-289.9E-06	-372.7E-06	-401.9E-06	-385.2E-06	-389.5E-06	-337.5E-06	-353.7E-06	-360.8E-06	-329.0E-06	-1.4E-03
12	-	-82.8E-06	-153.8E-06	-210.9E-06	-424.2E-06	-308.0E-06	-400.5E-06	-364.3E-06	-516.5E-06	-433.5E-06	-414.1E-06	-365.9E-06	-1.9E-03
13	-	-155.4E-06	21.1E-06	-124.2E-06	-131.8E-06	-174.4E-06	-101.0E-06	-58.5E-06	-32.0E-06	-57.5E-06	-127.4E-06	-54.6E-06	-1.6E-03
Average	-	-119.0E-06	-123.8E-06	-208.3E-06	-309.5E-06	-294.7E-06	-295.6E-06	-270.8E-06	-295.3E-06	-281.5E-06	-300.8E-06	-249.8E-06	-1.6E-03
Sigma	-	29.7E-06	108.2E-06	67.7E-06	127.4E-06	93.4E-06	137.7E-06	150.5E-06	200.1E-06	161.8E-06	124.5E-06	138.9E-06	179.9E-06

Parameter : Input Offset Voltage : VIO2DUT2

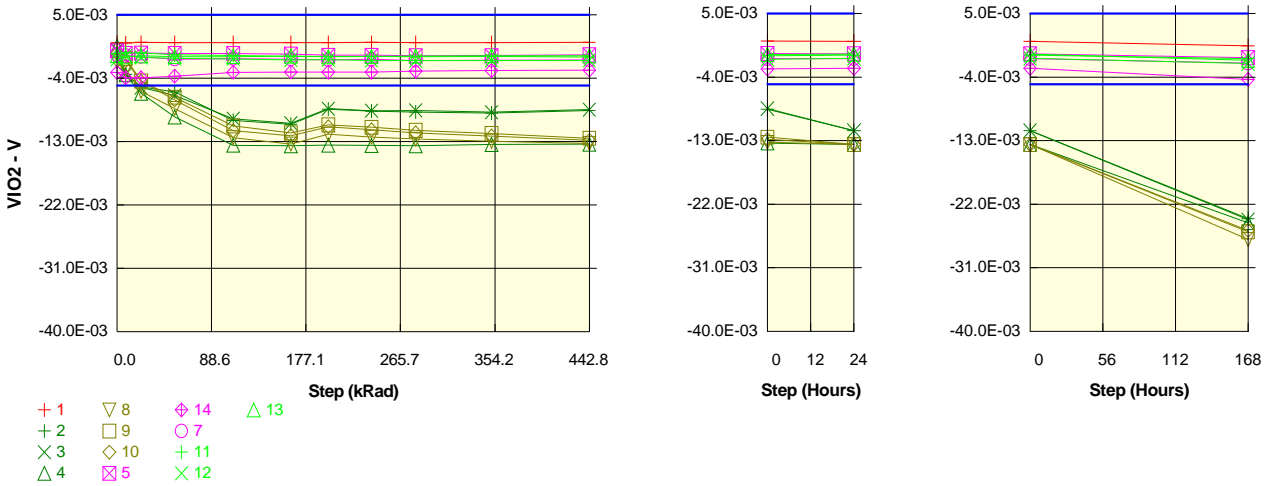
Test conditions : Vref=1.4V. VCC=30V

Unit : V

Spec Limit Min : -5.0E-03

Spec Limit Max : 5.0E-03

Spec limits are represented in bold lines on the graphic.



Measurements

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	1.1E-03	1.0E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	424.1E-06
ON PROTON samples													
2	-835.6E-06	-3.4E-03	-5.2E-03	-5.9E-03	-10.0E-03	-10.5E-03	-8.4E-03	-8.7E-03	-8.8E-03	-8.9E-03	-8.6E-03	-11.6E-03	-24.1E-03
3	61.3E-06	-3.4E-03	-5.3E-03	-6.4E-03	-9.7E-03	-10.4E-03	-8.3E-03	-8.6E-03	-8.6E-03	-8.8E-03	-8.5E-03	-11.6E-03	-24.2E-03
4	543.2E-06	-3.5E-03	-6.1E-03	-9.5E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.6E-03	-13.4E-03	-13.3E-03	-13.5E-03	-24.6E-03
Statistics													
Min	-835.6E-06	-3.5E-03	-6.1E-03	-9.5E-03	-13.5E-03	-13.6E-03	-13.5E-03	-13.5E-03	-13.6E-03	-13.4E-03	-13.3E-03	-13.5E-03	-24.6E-03
Max	543.2E-06	-3.4E-03	-5.2E-03	-5.9E-03	-9.7E-03	-10.4E-03	-8.3E-03	-8.6E-03	-8.6E-03	-8.8E-03	-8.5E-03	-11.6E-03	-24.1E-03
Average	-77.0E-06	-3.4E-03	-5.5E-03	-7.3E-03	-11.1E-03	-11.5E-03	-10.1E-03	-10.3E-03	-10.3E-03	-10.4E-03	-10.1E-03	-12.2E-03	-24.3E-03
Sigma	571.3E-06	48.7E-06	410.0E-06	1.6E-03	1.7E-03	1.5E-03	2.4E-03	2.3E-03	2.3E-03	2.1E-03	2.3E-03	918.6E-06	236.3E-06

Drift Calculation

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-2.6E-03	-4.4E-03	-5.1E-03	-9.1E-03	-9.7E-03	-7.5E-03	-7.8E-03	-7.9E-03	-8.1E-03	-7.7E-03	-10.8E-03	-23.2E-03
3	-	-3.5E-03	-5.4E-03	-6.5E-03	-9.8E-03	-10.4E-03	-8.4E-03	-8.7E-03	-8.6E-03	-8.9E-03	-11.6E-03	-24.3E-03	-25.3E-03
4	-	-4.1E-03	-6.7E-03	-10.0E-03	-14.1E-03	-14.1E-03	-14.0E-03	-14.1E-03	-14.1E-03	-13.9E-03	-13.9E-03	-14.1E-03	-25.2E-03
Average	-	-3.4E-03	-5.5E-03	-7.2E-03	-11.0E-03	-11.4E-03	-10.0E-03	-10.2E-03	-10.2E-03	-10.3E-03	-10.0E-03	-12.2E-03	-24.2E-03
Sigma	-	606.6E-06	941.1E-06	2.1E-03	2.2E-03	1.9E-03	2.9E-03	2.8E-03	2.8E-03	2.6E-03	2.7E-03	1.4E-03	790.3E-06

Measurements

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	1.1E-03	1.0E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	424.1E-06
ON TID samples													
8	-1.6E-03	-2.8E-03	-5.8E-03	-8.3E-03	-12.4E-03	-13.3E-03	-11.9E-03	-12.4E-03	-12.6E-03	-12.9E-03	-13.2E-03	-13.5E-03	-27.0E-03
9	-76.6E-06	-1.2E-03	-4.4E-03	-6.7E-03	-10.7E-03	-11.8E-03	-10.6E-03	-10.9E-03	-11.4E-03	-11.8E-03	-12.5E-03	-13.5E-03	-25.9E-03
10	-448.3E-06	-1.5E-03	-4.4E-03	-7.0E-03	-11.4E-03	-12.2E-03	-10.9E-03	-11.3E-03	-11.7E-03	-12.2E-03	-12.8E-03	-13.5E-03	-25.7E-03
Statistics													
Min	-1.6E-03	-2.8E-03	-5.8E-03	-8.3E-03	-12.4E-03	-13.3E-03	-11.9E-03	-12.4E-03	-12.6E-03	-12.9E-03	-13.2E-03	-13.5E-03	-27.0E-03
Max	-76.6E-06	-1.2E-03	-4.4E-03	-6.7E-03	-10.7E-03	-11.8E-03	-10.6E-03	-10.9E-03	-11.4E-03	-11.8E-03	-12.5E-03	-13.5E-03	-25.7E-03
Average	-710.2E-06	-1.8E-03	-4.9E-03	-7.3E-03	-11.5E-03	-12.4E-03	-11.1E-03	-11.5E-03	-11.9E-03	-12.3E-03	-12.9E-03	-13.5E-03	-26.2E-03
Sigma	651.2E-06	693.8E-06	668.2E-06	683.6E-06	694.6E-06	664.4E-06	564.1E-06	597.2E-06	523.0E-06	458.7E-06	301.2E-06	498.7E-09	561.2E-06

Drift Calculation

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-1.2E-03	-4.2E-03	-6.7E-03	-10.8E-03	-11.7E-03	-10.3E-03	-10.8E-03	-11.0E-03	-11.3E-03	-11.6E-03	-11.9E-03	-25.4E-03
9	-	-1.1E-03	-4.3E-03	-6.6E-03	-10.7E-03	-11.7E-03	-10.6E-03	-10.9E-03	-11.3E-03	-11.8E-03	-12.4E-03	-13.5E-03	-25.8E-03
10	-	-1.0E-03	-4.0E-03	-6.6E-03	-11.0E-03	-11.7E-03	-10.4E-03	-10.9E-03	-11.3E-03	-11.7E-03	-12.4E-03	-13.1E-03	-25.3E-03
Average	-	-1.1E-03	-4.2E-03	-6.6E-03	-10.8E-03	-11.7E-03	-10.4E-03	-10.8E-03	-11.2E-03	-11.6E-03	-12.1E-03	-12.8E-03	-25.5E-03
Sigma	-	59.4E-06	126.4E-06	37.9E-06	136.0E-06	13.7E-06	94.6E-06	56.7E-06	129.1E-06	198.1E-06	360.4E-06	651.5E-06	246.1E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.1E-03	1.0E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	424.1E-06
OFF PROTON samples													
5	-90.5E-06	-451.3E-06	-393.6E-06	-450.6E-06	-444.6E-06	-570.5E-06	-702.4E-06	-720.1E-06	-777.0E-06	-760.4E-06	-669.5E-06	-686.3E-06	-1.3E-03
14	-3.2E-03	-3.9E-03	-3.9E-03	-3.7E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.0E-03	-2.9E-03	-2.8E-03	-2.8E-03	-4.3E-03
7	-689.8E-06	-767.7E-06	-929.2E-06	-1.3E-03	-1.2E-03	-1.3E-03	-1.4E-03	-1.3E-03	-1.5E-03	-1.4E-03	-1.4E-03	-1.4E-03	-2.0E-03
Statistics													
Min	-3.2E-03	-3.9E-03	-3.9E-03	-3.7E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.1E-03	-3.0E-03	-2.9E-03	-2.8E-03	-2.8E-03	-4.3E-03
Max	-90.5E-06	-451.3E-06	-393.6E-06	-450.6E-06	-444.6E-06	-570.5E-06	-702.4E-06	-720.1E-06	-777.0E-06	-760.4E-06	-669.5E-06	-686.3E-06	-1.3E-03
Average	-1.3E-03	-1.7E-03	-1.7E-03	-1.8E-03	-1.6E-03	-1.6E-03	-1.7E-03	-1.7E-03	-1.7E-03	-1.7E-03	-1.6E-03	-1.6E-03	-2.5E-03
Sigma	1.3E-03	1.6E-03	1.5E-03	1.4E-03	1.1E-03	1.1E-03	1.0E-03	1.0E-03	924.8E-06	886.6E-06	900.9E-06	867.3E-06	1.3E-03

Drift Calculation

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-360.8E-06	-303.0E-06	-360.1E-06	-354.0E-06	-480.0E-06	-611.8E-06	-629.6E-06	-686.5E-06	-669.8E-06	-579.0E-06	-595.8E-06	-1.2E-03
14	-	-752.0E-06	-744.0E-06	-513.2E-06	29.2E-06	90.8E-06	54.8E-06	51.6E-06	184.0E-06	283.6E-06	334.0E-06	397.6E-06	-1.2E-03
7	-	-77.8E-06	-239.3E-06	-593.0E-06	-518.2E-06	-578.6E-06	-684.6E-06	-620.3E-06	-762.4E-06	-755.7E-06	-705.8E-06	-697.5E-06	-1.4E-03
Average	-	-396.9E-06	-428.8E-06	-488.8E-06	-281.0E-06	-322.6E-06	-413.9E-06	-399.4E-06	-421.6E-06	-380.6E-06	-316.9E-06	-298.6E-06	-1.2E-03
Sigma	-	276.4E-06	224.4E-06	96.6E-06	229.4E-06	295.1E-06	332.7E-06	318.9E-06	429.4E-06	471.0E-06	463.2E-06	494.0E-06	89.8E-06

Measurements

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.1E-03	1.0E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	1.1E-03	424.1E-06
OFF TID samples													
11	-477.0E-06	-380.3E-06	-404.5E-06	-671.0E-06	-734.9E-06	-880.8E-06	-897.7E-06	-891.4E-06	-931.7E-06	-888.3E-06	-991.8E-06	-869.6E-06	-1.4E-03
12	-1.3E-03	-825.6E-06	-1.0E-03	-1.2E-03	-1.2E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-2.1E-03
13	-751.6E-06	-935.6E-06	-815.6E-06	-929.6E-06	-915.3E-06	-850.6E-06	-951.6E-06	-897.4E-06	-843.0E-06	-788.4E-06	-793.5E-06	-742.6E-06	-1.6E-03
Statistics													
Min	-1.3E-03	-935.6E-06	-1.0E-03	-1.2E-03	-1.2E-03	-1.4E-03	-1.4E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.5E-03	-1.3E-03	-2.1E-03
Max	-477.0E-06	-380.3E-06	-404.5E-06	-671.0E-06	-734.9E-06	-880.8E-06	-897.7E-06	-891.4E-06	-843.0E-06	-788.4E-06	-793.5E-06	-742.6E-06	-1.4E-03
Average	-857.3E-06	-713.8E-06	-750.4E-06	-928.2E-06	-960.8E-06	-1.0E-03	-1.1E-03	-1.1E-03	-1.1E-03	-1.0E-03	-1.1E-03	-979.9E-06	-1.7E-03
Sigma	361.5E-06	240.1E-06	259.9E-06	209.4E-06	205.5E-06	249.0E-06	208.8E-06	264.4E-06	288.4E-06	293.2E-06	279.8E-06	251.2E-06	282.9E-06

Drift Calculation

VIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	96.7E-06	72.5E-06	-194.0E-06	-257.9E-06	-403.8E-06	-420.7E-06	-414.4E-06	-454.7E-06	-411.3E-06	-514.8E-06	-392.6E-06	-900.8E-06
12	-	517.8E-06	312.3E-06	159.3E-06	111.2E-06	-49.8E-06	-21.8E-06	-111.9E-06	-150.9E-06	-110.9E-06	-117.4E-06	16.0E-06	-718.9E-06
13	-	-184.0E-06	-64.0E-06	-178.0E-06	-163.7E-06	-99.0E-06	-200.1E-06	-145.9E-06	-91.4E-06	-36.8E-06	-42.0E-06	9.0E-06	-875.1E-06
Average	-	143.5E-06	106.9E-06	-70.9E-06	-103.5E-06	-184.2E-06	-214.2E-06	-224.1E-06	-232.3E-06	-186.3E-06	-224.7E-06	-122.5E-06	-831.6E-06
Sigma	-	288.4E-06	155.5E-06	162.9E-06	156.6E-06	156.5E-06	163.2E-06	135.3E-06	159.1E-06	161.9E-06	207.4E-06	190.9E-06	80.4E-06

Parameter : Input Offset Voltage : VIO2DUT3

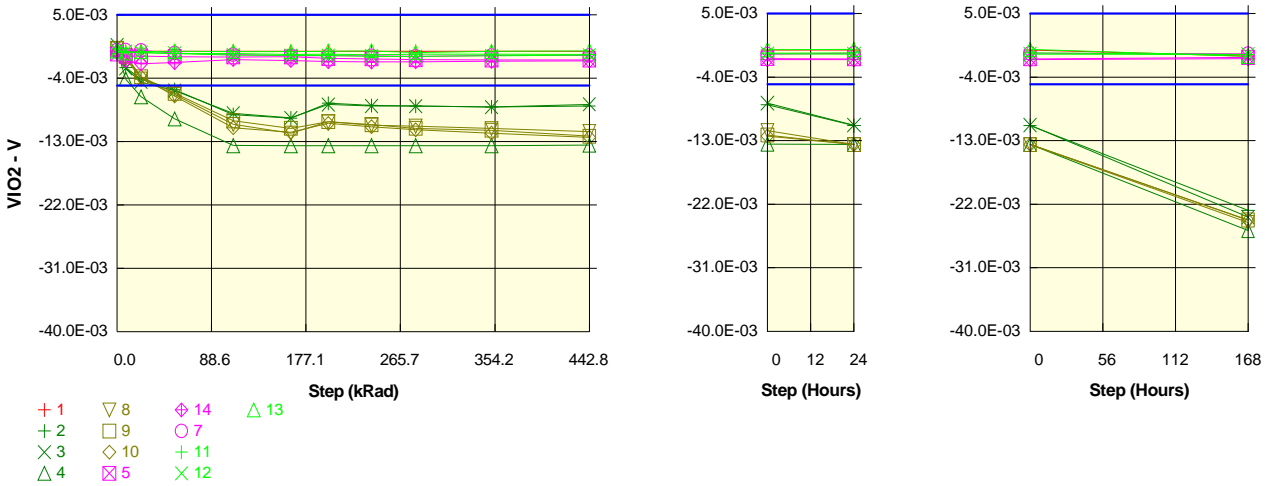
Test conditions : Vref=1.4V. VCC=30V

Unit : V

Spec Limit Min : -5.0E-03

Spec Limit Max : 5.0E-03

Spec limits are represented in bold lines on the graphic.



Measurements

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-158.5E-06	-207.0E-06	-144.4E-06	-153.9E-06	-158.6E-06	-162.3E-06	-152.2E-06	-145.8E-06	-166.2E-06	-165.9E-06	-141.3E-06	-149.7E-06	-1.0E-03
ON PROTON samples													
2	-501.1E-06	-2.5E-03	-4.1E-03	-5.6E-03	-9.1E-03	-9.6E-03	-7.5E-03	-7.8E-03	-7.9E-03	-8.1E-03	-7.9E-03	-10.9E-03	-22.9E-03
3	707.4E-06	-2.6E-03	-4.5E-03	-5.7E-03	-9.0E-03	-9.6E-03	-7.7E-03	-7.9E-03	-8.0E-03	-8.1E-03	-7.7E-03	-10.8E-03	-23.9E-03
4	31.2E-06	-4.1E-03	-6.6E-03	-9.8E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-25.7E-03
Statistics													
Min	-501.1E-06	-4.1E-03	-6.6E-03	-9.8E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-25.7E-03
Max	707.4E-06	-2.5E-03	-4.1E-03	-5.6E-03	-9.0E-03	-9.6E-03	-7.5E-03	-7.8E-03	-7.9E-03	-8.1E-03	-7.7E-03	-10.8E-03	-22.9E-03
Average	79.2E-06	-3.1E-03	-5.1E-03	-7.0E-03	-10.6E-03	-10.9E-03	-9.6E-03	-9.8E-03	-9.8E-03	-9.9E-03	-9.7E-03	-11.7E-03	-24.2E-03
Sigma	494.5E-06	729.7E-06	1.1E-03	1.9E-03	2.1E-03	1.9E-03	2.8E-03	2.7E-03	2.6E-03	2.6E-03	2.7E-03	1.3E-03	1.2E-03

Drift Calculation

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-2.0E-03	-3.6E-03	-5.1E-03	-8.6E-03	-9.1E-03	-7.0E-03	-7.3E-03	-7.4E-03	-7.6E-03	-7.4E-03	-10.4E-03	-22.4E-03
3	-	-3.3E-03	-5.2E-03	-6.5E-03	-9.7E-03	-10.3E-03	-8.4E-03	-8.6E-03	-8.7E-03	-8.8E-03	-8.4E-03	-11.5E-03	-24.6E-03
4	-	-4.1E-03	-6.7E-03	-9.8E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.6E-03	-25.8E-03
Average	-	-3.1E-03	-5.2E-03	-7.1E-03	-10.6E-03	-11.0E-03	-9.7E-03	-9.9E-03	-9.9E-03	-10.0E-03	-9.8E-03	-11.8E-03	-24.2E-03
Sigma	-	872.1E-06	1.2E-03	2.0E-03	2.1E-03	1.9E-03	2.8E-03	2.7E-03	2.7E-03	2.6E-03	2.7E-03	1.3E-03	1.4E-03

Measurements

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-158.5E-06	-207.0E-06	-144.4E-06	-153.9E-06	-158.6E-06	-162.3E-06	-152.2E-06	-145.8E-06	-166.2E-06	-165.9E-06	-141.3E-06	-149.7E-06	-1.0E-03
ON TID samples													
8	262.7E-06	-1.2E-03	-4.1E-03	-6.3E-03	-10.5E-03	-11.8E-03	-10.2E-03	-10.6E-03	-10.8E-03	-11.1E-03	-11.6E-03	-13.5E-03	-24.6E-03
9	183.5E-06	-792.3E-06	-3.8E-03	-6.1E-03	-10.0E-03	-11.1E-03	-10.1E-03	-10.6E-03	-11.1E-03	-11.4E-03	-12.2E-03	-13.5E-03	-24.2E-03
10	-278.8E-06	-1.1E-03	-3.8E-03	-6.5E-03	-11.0E-03	-11.7E-03	-10.4E-03	-10.9E-03	-11.3E-03	-11.8E-03	-12.4E-03	-13.5E-03	-24.3E-03
Statistics													
Min	-278.8E-06	-1.2E-03	-4.1E-03	-6.5E-03	-11.0E-03	-11.8E-03	-10.4E-03	-10.9E-03	-11.3E-03	-11.8E-03	-12.4E-03	-13.5E-03	-24.6E-03
Max	262.7E-06	-792.3E-06	-3.8E-03	-6.1E-03	-10.0E-03	-11.1E-03	-10.1E-03	-10.6E-03	-10.8E-03	-11.1E-03	-11.6E-03	-13.5E-03	-24.2E-03
Average	55.8E-06	-1.0E-03	-3.9E-03	-6.3E-03	-10.5E-03	-11.5E-03	-10.2E-03	-10.7E-03	-11.1E-03	-11.4E-03	-12.1E-03	-13.5E-03	-24.4E-03
Sigma	238.8E-06	158.9E-06	139.2E-06	164.3E-06	398.4E-06	301.1E-06	122.5E-06	133.9E-06	215.2E-06	272.3E-06	336.8E-06	653.2E-09	164.4E-06

Drift Calculation

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-1.4E-03	-4.3E-03	-6.6E-03	-10.8E-03	-12.0E-03	-10.4E-03	-10.9E-03	-11.1E-03	-11.4E-03	-11.8E-03	-13.8E-03	-24.9E-03
9	-	-975.8E-06	-3.9E-03	-6.3E-03	-10.2E-03	-11.3E-03	-10.3E-03	-10.8E-03	-11.3E-03	-11.6E-03	-12.4E-03	-13.7E-03	-24.4E-03
10	-	-776.6E-06	-3.5E-03	-6.2E-03	-10.7E-03	-11.4E-03	-10.1E-03	-10.6E-03	-11.0E-03	-11.5E-03	-12.1E-03	-13.3E-03	-24.0E-03
Average	-	-1.1E-03	-3.9E-03	-6.4E-03	-10.6E-03	-11.6E-03	-10.3E-03	-10.7E-03	-11.1E-03	-11.5E-03	-12.1E-03	-13.6E-03	-24.4E-03
Sigma	-	275.7E-06	334.7E-06	146.5E-06	261.4E-06	337.4E-06	123.8E-06	121.0E-06	119.6E-06	69.5E-06	222.7E-06	238.2E-06	352.7E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015	
	IS-139ASRH					Intersil				Issue:	02	

Measurements

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-158.5E-06	-207.0E-06	-144.4E-06	-153.9E-06	-158.6E-06	-162.3E-06	-152.2E-06	-145.8E-06	-166.2E-06	-165.9E-06	-141.3E-06	-149.7E-06	-1.0E-03
OFF PROTON samples													
5	-542.7E-06	-851.6E-06	-846.2E-06	-931.2E-06	-962.1E-06	-953.4E-06	-1.2E-03	-1.2E-03	-1.4E-03	-1.4E-03	-1.4E-03	-1.4E-03	-1.2E-03
14	-347.2E-06	-1.5E-03	-2.0E-03	-1.8E-03	-1.3E-03	-1.5E-03	-1.6E-03	-1.7E-03	-1.7E-03	-1.6E-03	-1.5E-03	-1.5E-03	-1.4E-03
7	-24.4E-06	-10.2E-06	-50.0E-06	-426.2E-06	-645.6E-06	-817.8E-06	-786.9E-06	-825.6E-06	-878.5E-06	-758.0E-06	-767.8E-06	-642.0E-06	-694.4E-06
Statistics													
Min	-542.7E-06	-1.5E-03	-2.0E-03	-1.8E-03	-1.3E-03	-1.5E-03	-1.6E-03	-1.7E-03	-1.7E-03	-1.6E-03	-1.5E-03	-1.5E-03	-1.4E-03
Max	-24.4E-06	-10.2E-06	-50.0E-06	-426.2E-06	-645.6E-06	-817.8E-06	-786.9E-06	-825.6E-06	-878.5E-06	-758.0E-06	-767.8E-06	-642.0E-06	-694.4E-06
Average	-304.8E-06	-791.9E-06	-950.7E-06	-1.0E-03	-981.7E-06	-1.1E-03	-1.2E-03	-1.2E-03	-1.3E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03
Sigma	213.7E-06	615.2E-06	781.6E-06	545.8E-06	282.8E-06	281.1E-06	343.6E-06	338.9E-06	319.0E-06	345.0E-06	329.1E-06	391.2E-06	291.8E-06

Drift Calculation

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-308.9E-06	-303.5E-06	-388.5E-06	-419.4E-06	-410.7E-06	-636.8E-06	-684.1E-06	-819.6E-06	-836.8E-06	-835.7E-06	-864.1E-06	-662.8E-06
14	-	-1.2E-03	-1.6E-03	-1.4E-03	-990.2E-06	-1.1E-03	-1.3E-03	-1.3E-03	-1.3E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.0E-03
7	-	14.2E-06	-25.5E-06	-401.7E-06	-621.2E-06	-793.3E-06	-762.4E-06	-801.2E-06	-854.0E-06	-733.6E-06	-743.3E-06	-617.5E-06	-670.0E-06
Average	-	-487.1E-06	-645.9E-06	-731.3E-06	-676.9E-06	-775.7E-06	-893.3E-06	-931.2E-06	-992.7E-06	-929.3E-06	-920.2E-06	-886.2E-06	-789.4E-06
Sigma	-	498.2E-06	690.2E-06	475.4E-06	236.4E-06	291.1E-06	278.7E-06	270.9E-06	220.9E-06	208.1E-06	188.6E-06	228.9E-06	173.9E-06

Measurements

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-158.5E-06	-207.0E-06	-144.4E-06	-153.9E-06	-158.6E-06	-162.3E-06	-152.2E-06	-145.8E-06	-166.2E-06	-165.9E-06	-141.3E-06	-149.7E-06	-1.0E-03
OFF TID samples													
11	220.0E-06	-300.8E-06	-340.3E-06	-454.2E-06	-484.5E-06	-616.5E-06	-574.0E-06	-651.5E-06	-565.7E-06	-557.5E-06	-619.0E-06	-549.7E-06	-824.4E-06
12	-130.1E-06	-199.0E-06	-323.2E-06	-491.5E-06	-675.4E-06	-753.4E-06	-773.8E-06	-855.6E-06	-890.6E-06	-821.8E-06	-705.9E-06	-731.2E-06	-787.8E-06
13	-104.0E-06	-397.2E-06	-214.9E-06	-155.8E-06	-186.7E-06	-214.5E-06	-149.6E-06	-84.6E-06	-327.7E-06	-165.7E-06	-124.8E-06	-73.4E-06	-1.1E-03
Statistics													
Min	-130.1E-06	-397.2E-06	-340.3E-06	-491.5E-06	-675.4E-06	-753.4E-06	-773.8E-06	-855.6E-06	-890.6E-06	-821.8E-06	-705.9E-06	-731.2E-06	-1.1E-03
Max	220.0E-06	-199.0E-06	-214.9E-06	-155.8E-06	-186.7E-06	-214.5E-06	-149.6E-06	-84.6E-06	-327.7E-06	-165.7E-06	-124.8E-06	-73.4E-06	-787.8E-06
Average	-4.7E-06	-299.0E-06	-292.8E-06	-367.1E-06	-448.9E-06	-528.1E-06	-499.1E-06	-530.5E-06	-594.7E-06	-515.0E-06	-483.2E-06	-451.5E-06	-900.0E-06
Sigma	159.3E-06	80.9E-06	55.5E-06	150.2E-06	201.1E-06	228.7E-06	260.3E-06	326.2E-06	230.7E-06	269.5E-06	255.9E-06	277.4E-06	133.6E-06

Drift Calculation

VIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-520.8E-06	-560.4E-06	-674.2E-06	-704.6E-06	-836.6E-06	-794.0E-06	-871.5E-06	-785.7E-06	-777.6E-06	-839.0E-06	-769.8E-06	-1.0E-03
12	-	-69.0E-06	-193.1E-06	-361.4E-06	-545.3E-06	-623.3E-06	-643.7E-06	-725.5E-06	-760.6E-06	-691.7E-06	-575.8E-06	-601.2E-06	-657.7E-06
13	-	-293.2E-06	-110.9E-06	-51.8E-06	-82.7E-06	-110.5E-06	-45.6E-06	19.4E-06	-223.7E-06	-61.7E-06	-20.8E-06	30.6E-06	-983.8E-06
Average	-	-294.3E-06	-288.1E-06	-362.5E-06	-444.2E-06	-523.5E-06	-494.4E-06	-525.9E-06	-590.0E-06	-510.3E-06	-478.5E-06	-446.8E-06	-895.3E-06
Sigma	-	184.5E-06	195.4E-06	254.1E-06	263.8E-06	304.7E-06	323.3E-06	390.2E-06	259.2E-06	319.1E-06	341.0E-06	344.5E-06	169.8E-06

Parameter : Input Offset Voltage : VIO2DUT4

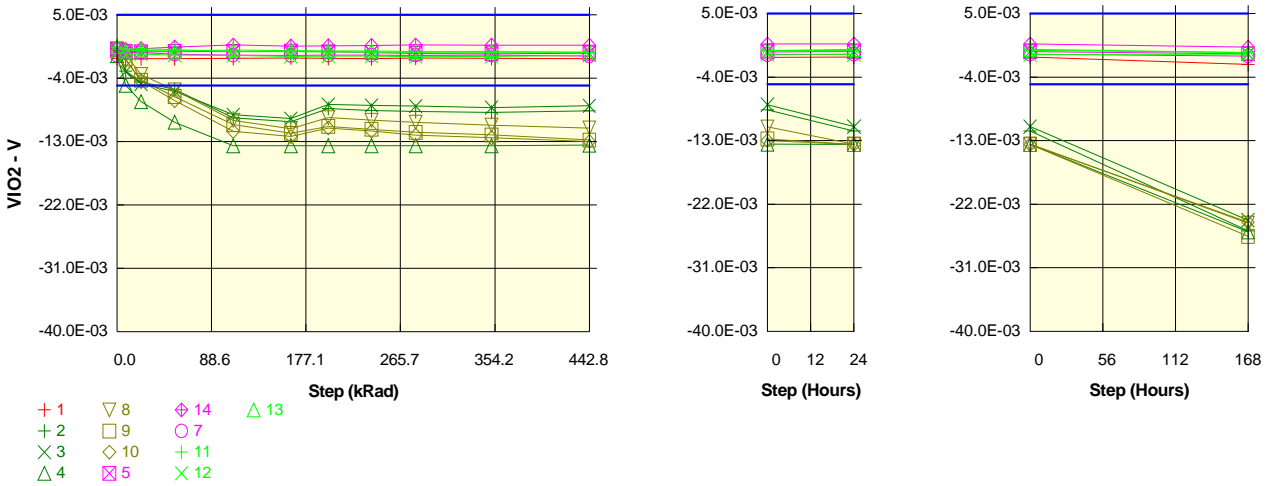
Test conditions : Vref=1.4V. VCC=30V

Unit : V

Spec Limit Min : -5.0E-03

Spec Limit Max : 5.0E-03

Spec limits are represented in bold lines on the graphic.



Measurements

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-2.2E-03
ON PROTON samples													
2	-422.7E-06	-3.0E-03	-4.5E-03	-5.5E-03	-9.6E-03	-10.2E-03	-8.3E-03	-8.6E-03	-8.7E-03	-8.8E-03	-8.6E-03	-11.6E-03	-25.8E-03
3	-5.3E-06	-3.0E-03	-4.8E-03	-5.8E-03	-9.2E-03	-9.7E-03	-7.7E-03	-7.8E-03	-8.0E-03	-8.1E-03	-7.9E-03	-11.0E-03	-24.2E-03
4	-749.6E-06	-5.0E-03	-7.3E-03	-10.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-25.9E-03
Statistics													
Min	-749.6E-06	-5.0E-03	-7.3E-03	-10.2E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.6E-03	-13.5E-03	-13.5E-03	-25.9E-03
Max	-5.3E-06	-3.0E-03	-4.5E-03	-5.5E-03	-9.2E-03	-9.7E-03	-7.7E-03	-7.8E-03	-8.0E-03	-8.1E-03	-7.9E-03	-11.0E-03	-24.2E-03
Average	-392.5E-06	-3.7E-03	-5.5E-03	-7.2E-03	-10.8E-03	-11.2E-03	-9.9E-03	-10.0E-03	-10.1E-03	-10.2E-03	-10.0E-03	-12.1E-03	-25.3E-03
Sigma	304.6E-06	938.7E-06	1.2E-03	2.1E-03	2.0E-03	1.7E-03	2.6E-03	2.5E-03	2.5E-03	2.4E-03	2.5E-03	1.1E-03	752.7E-06

Drift Calculation

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-2.5E-03	-4.1E-03	-5.1E-03	-9.2E-03	-9.8E-03	-7.9E-03	-8.1E-03	-8.3E-03	-8.4E-03	-8.2E-03	-11.2E-03	-25.3E-03
3	-	-3.0E-03	-4.8E-03	-5.8E-03	-9.2E-03	-9.7E-03	-7.7E-03	-7.8E-03	-8.0E-03	-8.1E-03	-7.9E-03	-11.0E-03	-24.2E-03
4	-	-4.2E-03	-6.6E-03	-9.5E-03	-12.8E-03	-12.8E-03	-12.8E-03	-12.8E-03	-12.8E-03	-12.8E-03	-12.8E-03	-12.8E-03	-25.2E-03
Average	-	-3.3E-03	-5.2E-03	-6.8E-03	-10.4E-03	-10.8E-03	-9.5E-03	-9.6E-03	-9.7E-03	-9.8E-03	-9.6E-03	-11.7E-03	-24.9E-03
Sigma	-	715.5E-06	1.0E-03	1.9E-03	1.7E-03	1.5E-03	2.4E-03	2.3E-03	2.2E-03	2.1E-03	2.2E-03	798.4E-06	481.0E-06

Measurements

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-2.2E-03
ON TID samples													
8	113.9E-06	-605.0E-06	-3.5E-03	-5.7E-03	-10.0E-03	-11.2E-03	-9.6E-03	-9.9E-03	-10.2E-03	-10.7E-03	-11.1E-03	-13.5E-03	-24.7E-03
9	32.2E-06	-1.3E-03	-4.3E-03	-6.6E-03	-10.6E-03	-11.8E-03	-10.8E-03	-11.2E-03	-11.7E-03	-12.0E-03	-12.8E-03	-13.5E-03	-26.5E-03
10	342.5E-06	-1.3E-03	-4.4E-03	-7.2E-03	-11.5E-03	-12.3E-03	-11.1E-03	-11.5E-03	-12.1E-03	-12.4E-03	-13.0E-03	-13.5E-03	-24.6E-03
Statistics													
Min	32.2E-06	-1.3E-03	-4.4E-03	-7.2E-03	-11.5E-03	-12.3E-03	-11.1E-03	-11.5E-03	-12.1E-03	-12.4E-03	-13.0E-03	-13.5E-03	-26.5E-03
Max	342.5E-06	-605.0E-06	-3.5E-03	-5.7E-03	-10.0E-03	-11.2E-03	-9.6E-03	-9.9E-03	-10.2E-03	-10.7E-03	-11.1E-03	-13.5E-03	-24.6E-03
Average	162.8E-06	-1.1E-03	-4.0E-03	-6.5E-03	-10.7E-03	-11.7E-03	-10.5E-03	-10.9E-03	-11.3E-03	-11.7E-03	-12.3E-03	-13.5E-03	-25.3E-03
Sigma	131.3E-06	330.6E-06	409.5E-06	626.7E-06	634.5E-06	455.4E-06	651.1E-06	677.4E-06	787.9E-06	767.1E-06	858.6E-06	32.8E-06	897.5E-06

Drift Calculation

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-718.9E-06	-3.6E-03	-5.8E-03	-10.1E-03	-11.3E-03	-9.7E-03	-10.1E-03	-10.3E-03	-10.8E-03	-11.2E-03	-13.6E-03	-24.8E-03
9	-	-1.3E-03	-4.3E-03	-6.6E-03	-10.6E-03	-11.8E-03	-10.9E-03	-11.3E-03	-11.7E-03	-12.1E-03	-12.8E-03	-13.6E-03	-26.6E-03
10	-	-1.7E-03	-4.7E-03	-7.5E-03	-11.9E-03	-12.6E-03	-11.4E-03	-11.8E-03	-12.4E-03	-12.8E-03	-13.3E-03	-13.9E-03	-24.9E-03
Average	-	-1.2E-03	-4.2E-03	-6.6E-03	-10.9E-03	-11.9E-03	-10.7E-03	-11.1E-03	-11.5E-03	-11.9E-03	-12.4E-03	-13.7E-03	-25.4E-03
Sigma	-	394.5E-06	471.2E-06	713.2E-06	743.4E-06	549.9E-06	713.1E-06	740.5E-06	855.4E-06	835.5E-06	913.6E-06	143.8E-06	804.1E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02	

Measurements

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-2.2E-03
OFF PROTON samples													
5	158.8E-06	-178.4E-06	-240.3E-06	-202.4E-06	-190.8E-06	-148.2E-06	-224.0E-06	-331.2E-06	-464.4E-06	-498.4E-06	-435.8E-06	-406.6E-06	-690.7E-06
14	286.8E-06	116.0E-06	222.4E-06	463.2E-06	724.1E-06	591.6E-06	639.2E-06	660.6E-06	737.5E-06	716.4E-06	692.7E-06	672.9E-06	236.7E-06
7	-774.2E-06	-252.3E-06	-357.9E-06	-568.8E-06	-713.8E-06	-750.6E-06	-708.8E-06	-715.0E-06	-744.2E-06	-720.9E-06	-849.5E-06	-770.1E-06	-1.0E-03
Statistics													
Min	-774.2E-06	-252.3E-06	-357.9E-06	-568.8E-06	-713.8E-06	-750.6E-06	-708.8E-06	-715.0E-06	-744.2E-06	-720.9E-06	-849.5E-06	-770.1E-06	-1.0E-03
Max	286.8E-06	116.0E-06	222.4E-06	463.2E-06	724.1E-06	591.6E-06	639.2E-06	660.6E-06	737.5E-06	716.4E-06	692.7E-06	672.9E-06	236.7E-06
Average	-109.5E-06	-104.9E-06	-125.3E-06	-102.7E-06	-60.2E-06	-102.4E-06	-97.9E-06	-128.5E-06	-157.0E-06	-167.7E-06	-197.5E-06	-168.0E-06	-496.7E-06
Sigma	472.9E-06	159.1E-06	250.5E-06	427.2E-06	594.2E-06	548.9E-06	557.5E-06	579.6E-06	642.8E-06	631.7E-06	651.8E-06	612.8E-06	537.4E-06

Drift Calculation

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-337.1E-06	-399.0E-06	-361.1E-06	-349.6E-06	-306.9E-06	-382.8E-06	-490.0E-06	-623.2E-06	-657.2E-06	-594.6E-06	-565.4E-06	-849.5E-06
14	-	-170.8E-06	-64.4E-06	176.4E-06	437.3E-06	304.8E-06	352.4E-06	373.8E-06	450.7E-06	429.6E-06	405.9E-06	386.1E-06	-50.1E-06
7	-	521.9E-06	416.3E-06	205.4E-06	60.4E-06	23.6E-06	65.4E-06	59.2E-06	30.0E-06	53.3E-06	-75.3E-06	4.1E-06	-261.7E-06
Average	-	4.7E-06	-15.7E-06	6.9E-06	49.4E-06	7.2E-06	11.7E-06	-19.0E-06	-47.5E-06	-58.1E-06	-88.0E-06	-58.4E-06	-387.1E-06
Sigma	-	372.0E-06	334.6E-06	260.5E-06	321.3E-06	250.0E-06	302.6E-06	357.0E-06	441.8E-06	450.6E-06	408.6E-06	390.9E-06	338.2E-06

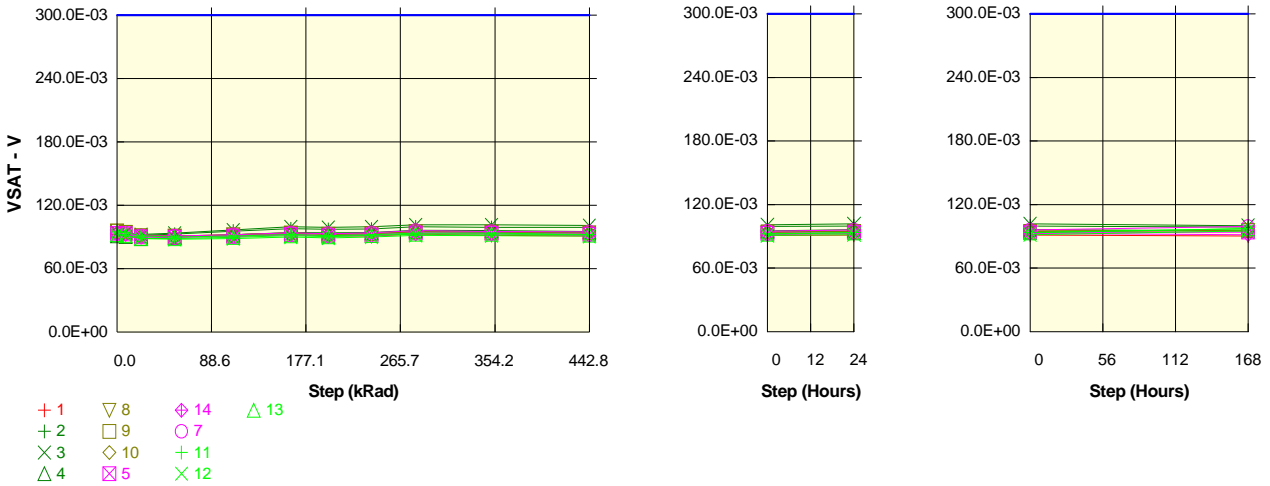
Measurements

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.1E-03	-1.2E-03	-1.2E-03	-1.2E-03	-2.2E-03
OFF TID samples													
11	375.0E-06	121.8E-06	214.8E-06	75.8E-06	-212.1E-06	-219.2E-06	-241.1E-06	-297.7E-06	-298.5E-06	-287.4E-06	-286.4E-06	-199.3E-06	-499.3E-06
12	-136.0E-06	-594.5E-06	-550.7E-06	-701.6E-06	-759.0E-06	-896.8E-06	-853.8E-06	-853.5E-06	-922.2E-06	-896.9E-06	-736.6E-06	-790.2E-06	-750.0E-06
13	521.4E-06	-125.7E-06	-34.8E-06	-103.7E-06	29.6E-06	-54.9E-06	-95.0E-06	-105.5E-06	-213.4E-06	-183.5E-06	-287.6E-06	-60.5E-06	-498.5E-06
Statistics													
Min	-136.0E-06	-594.5E-06	-550.7E-06	-701.6E-06	-759.0E-06	-896.8E-06	-853.8E-06	-853.5E-06	-922.2E-06	-896.9E-06	-736.6E-06	-790.2E-06	-750.0E-06
Max	521.4E-06	121.8E-06	214.8E-06	75.8E-06	29.6E-06	-54.9E-06	-95.0E-06	-105.5E-06	-213.4E-06	-183.5E-06	-286.4E-06	-60.5E-06	-498.5E-06
Average	253.5E-06	-199.5E-06	-123.6E-06	-243.2E-06	-313.9E-06	-390.3E-06	-396.6E-06	-418.9E-06	-478.0E-06	-455.9E-06	-436.9E-06	-350.0E-06	-582.6E-06
Sigma	281.8E-06	297.0E-06	318.8E-06	332.3E-06	329.9E-06	364.4E-06	328.8E-06	317.2E-06	316.0E-06	314.7E-06	212.0E-06	316.4E-06	118.4E-06

Drift Calculation

VIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-253.2E-06	-160.2E-06	-299.2E-06	-587.1E-06	-594.2E-06	-616.1E-06	-672.7E-06	-673.5E-06	-662.4E-06	-661.4E-06	-574.3E-06	-874.3E-06
12	-	-458.5E-06	-414.7E-06	-565.6E-06	-623.0E-06	-760.8E-06	-717.8E-06	-717.5E-06	-786.2E-06	-760.9E-06	-600.6E-06	-654.2E-06	-614.0E-06
13	-	-647.1E-06	-556.3E-06	-625.1E-06	-491.8E-06	-576.3E-06	-616.4E-06	-626.9E-06	-734.8E-06	-704.9E-06	-809.0E-06	-582.0E-06	-1.0E-03
Average	-	-453.0E-06	-377.1E-06	-496.7E-06	-567.3E-06	-643.8E-06	-650.1E-06	-672.4E-06	-731.5E-06	-709.4E-06	-690.4E-06	-603.5E-06	-836.1E-06
Sigma	-	160.8E-06	163.9E-06	141.7E-06	55.4E-06	83.1E-06	47.9E-06	37.0E-06	46.1E-06	40.3E-06	87.5E-06	36.0E-06	167.9E-06

Parameter : Saturation Voltage : VSATDUT1
 Test conditions : -VIN=1V. +VIN=0V. Isink=4mA
 Unit : V
 Spec Limit Max : 300.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	92.0E-03	93.6E-03	90.8E-03	91.2E-03	91.6E-03	92.4E-03	91.2E-03	90.8E-03	92.8E-03	91.6E-03	90.8E-03	91.2E-03	90.4E-03
ON_PROTON samples													
2	94.8E-03	94.4E-03	91.6E-03	92.8E-03	95.6E-03	98.0E-03	97.2E-03	97.6E-03	99.6E-03	99.2E-03	99.2E-03	99.6E-03	98.8E-03
3	94.8E-03	94.4E-03	92.4E-03	93.6E-03	96.8E-03	99.6E-03	99.2E-03	99.6E-03	101.6E-03	101.6E-03	100.8E-03	101.6E-03	100.0E-03
4	91.2E-03	90.8E-03	88.4E-03	89.6E-03	92.0E-03	94.4E-03	94.0E-03	94.4E-03	96.4E-03	96.0E-03	95.2E-03	96.4E-03	95.2E-03
Statistics													
Min	91.2E-03	90.8E-03	88.4E-03	89.6E-03	92.0E-03	94.4E-03	94.0E-03	94.4E-03	96.4E-03	96.0E-03	95.2E-03	96.4E-03	95.2E-03
Max	94.8E-03	94.4E-03	92.4E-03	93.6E-03	96.8E-03	99.6E-03	99.2E-03	99.6E-03	101.6E-03	101.6E-03	100.8E-03	101.6E-03	100.0E-03
Average	93.6E-03	93.2E-03	90.8E-03	92.0E-03	94.8E-03	97.3E-03	96.8E-03	97.2E-03	99.2E-03	98.9E-03	98.4E-03	99.2E-03	98.0E-03
Sigma	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.0E-03	2.2E-03	2.1E-03	2.1E-03	2.1E-03	2.3E-03	2.4E-03	2.1E-03	2.0E-03

Drift Calculation

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-400.0E-06	-3.2E-03	-2.0E-03	800.0E-06	3.2E-03	2.4E-03	2.8E-03	4.8E-03	4.4E-03	4.4E-03	4.8E-03	4.0E-03
3	-	-400.0E-06	-2.4E-03	-1.2E-03	2.0E-03	4.8E-03	4.4E-03	4.8E-03	6.8E-03	6.8E-03	6.0E-03	6.8E-03	5.2E-03
4	-	-400.0E-06	-2.8E-03	-1.6E-03	800.0E-06	3.2E-03	2.8E-03	3.2E-03	5.2E-03	4.8E-03	4.0E-03	5.2E-03	4.0E-03
Average	-	-400.0E-06	-2.8E-03	-1.6E-03	1.2E-03	3.7E-03	3.2E-03	3.6E-03	5.6E-03	5.3E-03	4.8E-03	5.6E-03	4.4E-03
Sigma	-	5.1E-12	326.6E-06	326.6E-06	565.7E-06	754.2E-06	864.1E-06	864.1E-06	864.1E-06	1.0E-03	864.1E-06	864.1E-06	565.7E-06

Measurements

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	92.0E-03	93.6E-03	90.8E-03	91.2E-03	91.6E-03	92.4E-03	91.2E-03	90.8E-03	92.8E-03	91.6E-03	90.8E-03	91.2E-03	90.4E-03
ON_TID samples													
8	95.6E-03	94.4E-03	91.2E-03	90.8E-03	92.0E-03	93.6E-03	92.8E-03	93.2E-03	95.2E-03	94.8E-03	94.0E-03	94.8E-03	95.6E-03
9	95.6E-03	94.4E-03	91.2E-03	90.8E-03	92.0E-03	94.0E-03	92.8E-03	93.2E-03	95.2E-03	94.4E-03	94.0E-03	94.8E-03	95.6E-03
10	94.0E-03	94.0E-03	91.2E-03	90.4E-03	92.0E-03	93.6E-03	92.4E-03	92.8E-03	94.8E-03	94.4E-03	93.6E-03	94.8E-03	95.2E-03
Statistics													
Min	94.0E-03	94.0E-03	91.2E-03	90.4E-03	92.0E-03	93.6E-03	92.4E-03	92.8E-03	94.8E-03	94.4E-03	93.6E-03	94.8E-03	95.2E-03
Max	95.6E-03	94.4E-03	91.2E-03	90.8E-03	92.0E-03	94.0E-03	92.8E-03	93.2E-03	95.2E-03	94.8E-03	94.0E-03	94.8E-03	95.6E-03
Average	95.1E-03	94.3E-03	91.2E-03	90.7E-03	92.0E-03	93.7E-03	92.7E-03	93.1E-03	95.1E-03	94.5E-03	93.9E-03	94.8E-03	95.5E-03
Sigma	754.2E-06	188.6E-06	0.0E+00	188.6E-06	1.5E-09	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	1.7E-09	188.6E-06

Drift Calculation

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.2E-03	-4.4E-03	-4.8E-03	-3.6E-03	-2.0E-03	-2.8E-03	-2.4E-03	-400.0E-06	-800.0E-06	-1.6E-03	-800.0E-06	0.0E+00
9	-	-1.2E-03	-4.4E-03	-4.8E-03	-3.6E-03	-1.6E-03	-2.8E-03	-2.4E-03	-400.0E-06	-1.2E-03	-1.6E-03	-800.0E-06	0.0E+00
10	-	0.0E+00	-2.8E-03	-3.6E-03	-2.0E-03	-400.0E-06	-1.6E-03	-1.2E-03	800.0E-06	400.0E-06	-400.0E-06	800.0E-06	1.2E-03
Average	-	-800.0E-06	-3.9E-03	-4.4E-03	-3.1E-03	-1.3E-03	-2.4E-03	-2.0E-03	2.5E-09	-533.3E-06	-1.2E-03	-266.7E-06	400.0E-06
Sigma	-	565.7E-06	754.2E-06	565.7E-06	754.2E-06	679.9E-06	565.7E-06	565.7E-06	565.7E-06	679.9E-06	565.7E-06	754.2E-06	565.7E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	92.0E-03	93.6E-03	90.8E-03	91.2E-03	91.6E-03	92.4E-03	91.2E-03	90.8E-03	92.8E-03	91.6E-03	90.8E-03	91.2E-03	90.4E-03
OFF PROTON samples													
5	93.6E-03	93.2E-03	90.4E-03	90.0E-03	90.8E-03	92.4E-03	91.2E-03	92.0E-03	94.0E-03	93.6E-03	92.8E-03	93.6E-03	94.0E-03
14	93.2E-03	92.8E-03	90.0E-03	89.6E-03	90.4E-03	92.0E-03	90.8E-03	91.2E-03	93.2E-03	92.8E-03	91.6E-03	92.8E-03	91.6E-03
7	93.6E-03	93.6E-03	90.8E-03	90.8E-03	92.0E-03	94.0E-03	93.2E-03	94.0E-03	96.0E-03	95.2E-03	94.8E-03	96.0E-03	99.2E-03
Statistics													
Min	93.2E-03	92.8E-03	90.0E-03	89.6E-03	90.4E-03	92.0E-03	90.8E-03	91.2E-03	93.2E-03	92.8E-03	91.6E-03	92.8E-03	91.6E-03
Max	93.6E-03	93.6E-03	90.8E-03	90.8E-03	92.0E-03	94.0E-03	93.2E-03	94.0E-03	96.0E-03	95.2E-03	94.8E-03	96.0E-03	99.2E-03
Average	93.5E-03	93.2E-03	90.4E-03	90.1E-03	91.1E-03	92.8E-03	91.7E-03	92.4E-03	94.4E-03	93.9E-03	93.1E-03	94.1E-03	94.9E-03
Sigma	188.6E-06	326.6E-06	326.6E-06	498.9E-06	679.9E-06	864.1E-06	1.0E-03	1.2E-03	1.2E-03	997.8E-06	1.3E-03	1.4E-03	3.2E-03

Drift Calculation

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-400.0E-06	-3.2E-03	-3.6E-03	-2.8E-03	-1.2E-03	-2.4E-03	-1.6E-03	400.0E-06	0.0E+00	-800.0E-06	0.0E+00	400.0E-06
14	-	-400.0E-06	-3.2E-03	-3.6E-03	-2.8E-03	-1.2E-03	-2.4E-03	-2.0E-03	0.0E+00	-400.0E-06	-1.6E-03	-400.0E-06	-1.6E-03
7	-	0.0E+00	-2.8E-03	-2.8E-03	-1.6E-03	400.0E-06	-400.0E-06	400.0E-06	2.4E-03	1.6E-03	1.2E-03	2.4E-03	5.6E-03
Average	-	-266.7E-06	-3.1E-03	-3.3E-03	-2.4E-03	-666.7E-06	-1.7E-03	-1.1E-03	933.3E-06	400.0E-06	-400.0E-06	666.7E-06	1.5E-03
Sigma	-	188.6E-06	188.6E-06	377.1E-06	565.7E-06	754.2E-06	942.8E-06	1.0E-03	1.0E-03	864.1E-06	1.2E-03	1.2E-03	3.0E-03

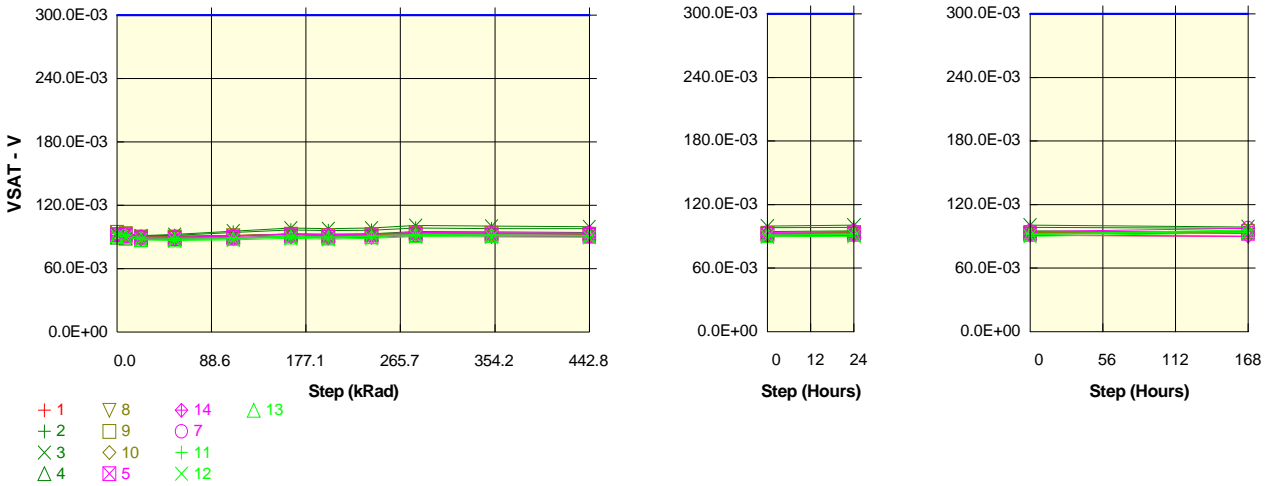
Measurements

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	92.0E-03	93.6E-03	90.8E-03	91.2E-03	91.6E-03	92.4E-03	91.2E-03	90.8E-03	92.8E-03	91.6E-03	90.8E-03	91.2E-03	90.4E-03
OFF TID samples													
11	94.8E-03	94.0E-03	90.8E-03	90.0E-03	90.8E-03	92.4E-03	91.2E-03	92.0E-03	93.6E-03	93.6E-03	92.4E-03	93.6E-03	97.2E-03
12	92.4E-03	91.6E-03	88.4E-03	88.0E-03	88.4E-03	90.0E-03	89.2E-03	90.0E-03	91.6E-03	91.2E-03	90.8E-03	91.6E-03	95.2E-03
13	92.4E-03	91.6E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.4E-03	91.6E-03	92.8E-03	92.8E-03	92.0E-03	93.2E-03	97.2E-03
Statistics													
Min	92.4E-03	91.6E-03	88.4E-03	88.0E-03	88.4E-03	90.0E-03	89.2E-03	90.0E-03	91.6E-03	91.2E-03	90.8E-03	91.6E-03	95.2E-03
Max	94.8E-03	94.0E-03	90.8E-03	90.0E-03	90.8E-03	92.4E-03	91.2E-03	92.0E-03	93.6E-03	93.6E-03	92.4E-03	93.6E-03	97.2E-03
Average	93.2E-03	92.4E-03	89.3E-03	88.8E-03	89.6E-03	91.2E-03	90.3E-03	91.2E-03	92.7E-03	92.5E-03	91.7E-03	92.8E-03	96.5E-03
Sigma	1.1E-03	1.1E-03	1.0E-03	864.1E-06	979.8E-06	979.8E-06	821.9E-06	864.1E-06	821.9E-06	997.8E-06	679.9E-06	864.1E-06	942.8E-06

Drift Calculation

VSATDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-800.0E-06	-4.0E-03	-4.8E-03	-4.0E-03	-2.4E-03	-3.6E-03	-2.8E-03	-1.2E-03	-1.2E-03	-2.4E-03	-1.2E-03	2.4E-03
12	-	-800.0E-06	-4.0E-03	-4.4E-03	-4.0E-03	-2.4E-03	-3.2E-03	-2.4E-03	-800.0E-06	-1.2E-03	-1.6E-03	-800.0E-06	2.8E-03
13	-	-800.0E-06	-3.6E-03	-4.0E-03	-2.8E-03	-1.2E-03	-2.0E-03	-800.0E-06	400.0E-06	400.0E-06	-400.0E-06	800.0E-06	4.8E-03
Average	-	-800.0E-06	-3.9E-03	-4.4E-03	-3.6E-03	-2.0E-03	-2.9E-03	-2.0E-03	-533.3E-06	-666.7E-06	-1.5E-03	-400.0E-06	3.3E-03
Sigma	-	3.5E-09	188.6E-06	326.6E-06	565.7E-06	565.7E-06	679.9E-06	864.1E-06	679.9E-06	754.2E-06	821.9E-06	864.1E-06	1.0E-03

Parameter : Saturation Voltage : VSATDUT2
 Test conditions : -VIN=1V. +VIN=0V. Isink=4mA
 Unit : V
 Spec Limit Max : 300.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	91.6E-03	92.8E-03	90.4E-03	90.8E-03	91.6E-03	92.4E-03	90.8E-03	90.8E-03	92.4E-03	91.2E-03	90.4E-03	90.8E-03	90.0E-03
ON_PROTON samples													
2	93.6E-03	92.8E-03	90.8E-03	91.6E-03	94.4E-03	96.8E-03	96.0E-03	96.4E-03	98.4E-03	98.0E-03	98.0E-03	98.4E-03	97.6E-03
3	93.6E-03	93.2E-03	91.2E-03	92.4E-03	95.6E-03	98.4E-03	98.0E-03	98.4E-03	100.8E-03	100.4E-03	99.6E-03	100.4E-03	98.8E-03
4	90.0E-03	89.2E-03	87.6E-03	88.4E-03	90.8E-03	93.2E-03	92.8E-03	93.2E-03	95.2E-03	94.8E-03	94.4E-03	95.2E-03	94.0E-03
Statistics													
Min	90.0E-03	89.2E-03	87.6E-03	88.4E-03	90.8E-03	93.2E-03	92.8E-03	93.2E-03	95.2E-03	94.8E-03	94.4E-03	95.2E-03	94.0E-03
Max	93.6E-03	93.2E-03	91.2E-03	92.4E-03	95.6E-03	98.4E-03	98.0E-03	98.4E-03	100.8E-03	100.4E-03	99.6E-03	100.4E-03	98.8E-03
Average	92.4E-03	91.7E-03	89.9E-03	90.8E-03	93.6E-03	96.1E-03	95.6E-03	96.0E-03	98.1E-03	97.7E-03	97.3E-03	98.0E-03	96.8E-03
Sigma	1.7E-03	1.8E-03	1.6E-03	1.7E-03	2.0E-03	2.2E-03	2.1E-03	2.1E-03	2.3E-03	2.3E-03	2.2E-03	2.1E-03	2.0E-03

Drift Calculation

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-800.0E-06	-2.8E-03	-2.0E-03	800.0E-06	3.2E-03	2.4E-03	2.8E-03	4.8E-03	4.4E-03	4.4E-03	4.8E-03	4.0E-03
3	-	-400.0E-06	-2.4E-03	-1.2E-03	2.0E-03	4.8E-03	4.4E-03	4.8E-03	7.2E-03	6.8E-03	6.0E-03	6.8E-03	5.2E-03
4	-	-800.0E-06	-2.4E-03	-1.6E-03	800.0E-06	3.2E-03	2.8E-03	3.2E-03	5.2E-03	4.8E-03	4.4E-03	5.2E-03	4.0E-03
Average	-	-666.7E-06	-2.5E-03	-1.6E-03	1.2E-03	3.7E-03	3.2E-03	3.6E-03	5.7E-03	5.3E-03	4.9E-03	5.6E-03	4.4E-03
Sigma	-	188.6E-06	188.6E-06	326.6E-06	565.7E-06	754.2E-06	864.1E-06	864.1E-06	1.0E-03	1.0E-03	754.2E-06	864.1E-06	565.7E-06

Measurements

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	91.6E-03	92.8E-03	90.4E-03	90.8E-03	91.6E-03	92.4E-03	90.8E-03	90.8E-03	92.4E-03	91.2E-03	90.4E-03	90.8E-03	90.0E-03
ON_TID samples													
8	94.4E-03	92.8E-03	90.0E-03	90.0E-03	91.2E-03	92.8E-03	91.6E-03	92.0E-03	94.0E-03	93.6E-03	92.8E-03	93.6E-03	94.4E-03
9	94.4E-03	93.2E-03	90.0E-03	90.0E-03	91.2E-03	92.8E-03	91.6E-03	92.4E-03	94.0E-03	93.6E-03	92.8E-03	93.6E-03	94.8E-03
10	92.8E-03	92.8E-03	90.0E-03	89.6E-03	90.8E-03	92.4E-03	91.2E-03	92.0E-03	93.6E-03	93.2E-03	92.4E-03	93.2E-03	94.0E-03
Statistics													
Min	92.8E-03	92.8E-03	90.0E-03	89.6E-03	90.8E-03	92.4E-03	91.2E-03	92.0E-03	93.6E-03	93.2E-03	92.4E-03	93.2E-03	94.0E-03
Max	94.4E-03	93.2E-03	90.0E-03	90.0E-03	91.2E-03	92.8E-03	91.6E-03	92.4E-03	94.0E-03	93.6E-03	92.8E-03	93.6E-03	94.8E-03
Average	93.9E-03	92.9E-03	90.0E-03	89.9E-03	91.1E-03	92.7E-03	91.5E-03	92.1E-03	93.9E-03	93.5E-03	92.7E-03	93.5E-03	94.4E-03
Sigma	754.2E-06	188.6E-06	760.4E-12	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	326.6E-06

Drift Calculation

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.6E-03	-4.4E-03	-4.4E-03	-3.2E-03	-1.6E-03	-2.8E-03	-2.4E-03	-400.0E-06	-800.0E-06	-1.6E-03	-800.0E-06	0.0E+00
9	-	-1.2E-03	-4.4E-03	-4.4E-03	-3.2E-03	-1.6E-03	-2.8E-03	-2.0E-03	-400.0E-06	-800.0E-06	-1.6E-03	-800.0E-06	400.0E-06
10	-	0.0E+00	-2.8E-03	-3.2E-03	-2.0E-03	-400.0E-06	-1.6E-03	-800.0E-06	400.0E-06	400.0E-06	-400.0E-06	400.0E-06	1.2E-03
Average	-	-933.3E-06	-3.9E-03	-4.0E-03	-2.8E-03	-1.2E-03	-2.4E-03	-1.7E-03	-5.0E-09	-400.0E-06	-1.2E-03	-400.0E-06	533.3E-06
Sigma	-	679.9E-06	754.2E-06	565.7E-06	565.7E-06	565.7E-06	565.7E-06	679.9E-06	565.7E-06	565.7E-06	565.7E-06	565.7E-06	498.9E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	91.6E-03	92.8E-03	90.4E-03	90.8E-03	91.6E-03	92.4E-03	90.8E-03	90.8E-03	92.4E-03	91.2E-03	90.4E-03	90.8E-03	90.0E-03
OFF PROTON samples													
5	92.4E-03	91.6E-03	89.2E-03	88.8E-03	89.6E-03	91.2E-03	90.0E-03	90.8E-03	92.4E-03	92.0E-03	91.6E-03	92.4E-03	92.8E-03
14	91.6E-03	90.8E-03	88.4E-03	88.0E-03	88.4E-03	90.4E-03	89.2E-03	89.6E-03	91.2E-03	90.8E-03	90.4E-03	91.2E-03	90.0E-03
7	92.4E-03	91.6E-03	89.6E-03	89.6E-03	90.8E-03	92.8E-03	92.0E-03	92.8E-03	94.4E-03	94.0E-03	93.6E-03	94.4E-03	97.6E-03
Statistics													
Min	91.6E-03	90.8E-03	88.4E-03	88.0E-03	88.4E-03	90.4E-03	89.2E-03	89.6E-03	91.2E-03	90.8E-03	90.4E-03	91.2E-03	90.0E-03
Max	92.4E-03	91.6E-03	89.6E-03	89.6E-03	90.8E-03	92.8E-03	92.0E-03	92.8E-03	94.4E-03	94.0E-03	93.6E-03	94.4E-03	97.6E-03
Average	92.1E-03	91.3E-03	89.1E-03	88.8E-03	89.6E-03	91.5E-03	90.4E-03	91.1E-03	92.7E-03	92.3E-03	91.9E-03	92.7E-03	93.5E-03
Sigma	377.1E-06	377.1E-06	498.9E-06	653.2E-06	979.8E-06	997.8E-06	1.2E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	1.3E-03	3.1E-03

Drift Calculation

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-800.0E-06	-3.2E-03	-3.6E-03	-2.8E-03	-1.2E-03	-2.4E-03	-1.6E-03	0.0E+00	-400.0E-06	-800.0E-06	0.0E+00	400.0E-06
14	-	-800.0E-06	-3.2E-03	-3.6E-03	-3.2E-03	-1.2E-03	-2.4E-03	-2.0E-03	-400.0E-06	-800.0E-06	-1.2E-03	-400.0E-06	-1.6E-03
7	-	-800.0E-06	-2.8E-03	-2.8E-03	-1.6E-03	400.0E-06	-400.0E-06	400.0E-06	2.0E-03	1.6E-03	1.2E-03	2.0E-03	5.2E-03
Average	-	-800.0E-06	-3.1E-03	-3.3E-03	-2.5E-03	-666.7E-06	-1.7E-03	-1.1E-03	533.3E-06	133.3E-06	-266.7E-06	533.3E-06	1.3E-03
Sigma	-	0.0E+00	188.6E-06	377.1E-06	679.9E-06	754.2E-06	942.8E-06	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	2.9E-03

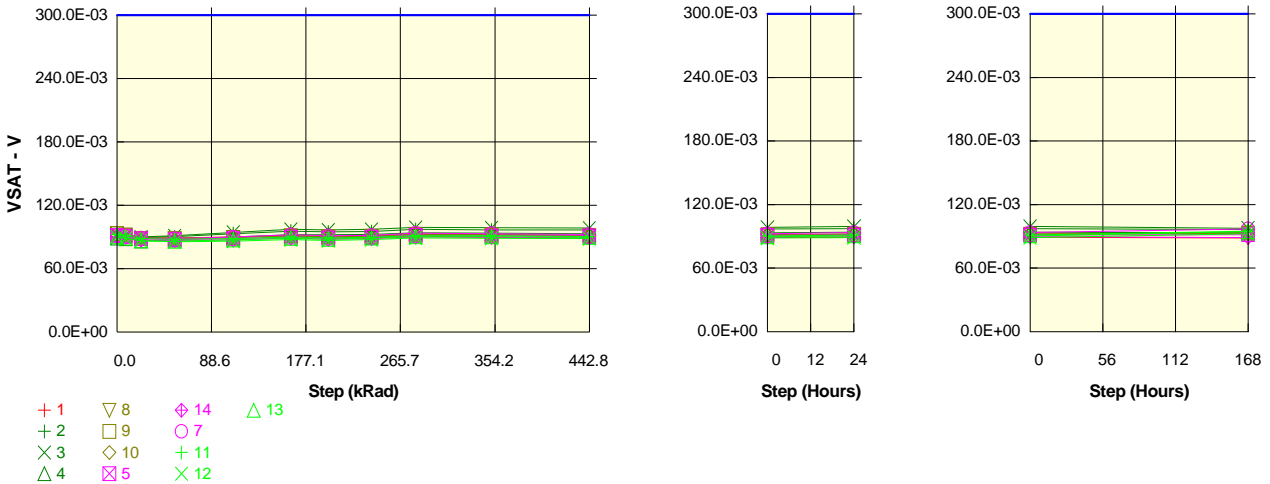
Measurements

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	91.6E-03	92.8E-03	90.4E-03	90.8E-03	91.6E-03	92.4E-03	90.8E-03	90.8E-03	92.4E-03	91.2E-03	90.4E-03	90.8E-03	90.0E-03
OFF TID samples													
11	93.6E-03	92.0E-03	89.2E-03	88.8E-03	89.2E-03	90.8E-03	90.0E-03	90.8E-03	92.4E-03	92.0E-03	91.2E-03	92.0E-03	96.0E-03
12	91.2E-03	90.0E-03	87.2E-03	86.8E-03	87.2E-03	88.8E-03	88.0E-03	88.8E-03	90.4E-03	90.0E-03	89.6E-03	90.0E-03	93.6E-03
13	91.2E-03	90.4E-03	87.6E-03	87.2E-03	88.4E-03	90.0E-03	89.2E-03	90.4E-03	91.6E-03	91.6E-03	90.8E-03	91.6E-03	95.2E-03
Statistics													
Min	91.2E-03	90.0E-03	87.2E-03	86.8E-03	87.2E-03	88.8E-03	88.0E-03	88.8E-03	90.4E-03	90.0E-03	89.6E-03	90.0E-03	93.6E-03
Max	93.6E-03	92.0E-03	89.2E-03	88.8E-03	89.2E-03	90.8E-03	90.0E-03	90.8E-03	92.4E-03	92.0E-03	91.2E-03	92.0E-03	96.0E-03
Average	92.0E-03	90.8E-03	88.0E-03	87.6E-03	88.3E-03	89.9E-03	89.1E-03	90.0E-03	91.5E-03	91.2E-03	90.5E-03	91.2E-03	94.9E-03
Sigma	1.1E-03	864.1E-06	864.1E-06	864.1E-06	821.9E-06	821.9E-06	821.9E-06	864.1E-06	821.9E-06	864.1E-06	679.9E-06	864.1E-06	997.8E-06

Drift Calculation

VSATDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.6E-03	-4.4E-03	-4.8E-03	-4.4E-03	-2.8E-03	-3.6E-03	-2.8E-03	-1.2E-03	-1.6E-03	-2.4E-03	-1.6E-03	2.4E-03
12	-	-1.2E-03	-4.0E-03	-4.4E-03	-4.0E-03	-2.4E-03	-3.2E-03	-2.4E-03	-800.0E-06	-1.2E-03	-1.6E-03	-1.2E-03	2.4E-03
13	-	-800.0E-06	-3.6E-03	-4.0E-03	-2.8E-03	-1.2E-03	-2.0E-03	-800.0E-06	400.0E-06	400.0E-06	-400.0E-06	400.0E-06	4.0E-03
Average	-	-1.2E-03	-4.0E-03	-4.4E-03	-3.7E-03	-2.1E-03	-2.9E-03	-2.0E-03	-533.3E-06	-800.0E-06	-1.5E-03	-800.0E-06	2.9E-03
Sigma	-	326.6E-06	326.6E-06	326.6E-06	679.9E-06	679.9E-06	679.9E-06	864.1E-06	679.9E-06	864.1E-06	821.9E-06	864.1E-06	754.2E-06

Parameter : Saturation Voltage : VSATDUT3
 Test conditions : -VIN=1V. +VIN=0V. Isink=4mA
 Unit : V
 Spec Limit Max : 300.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	90.0E-03	91.6E-03	89.2E-03	89.2E-03	90.0E-03	90.8E-03	89.2E-03	89.2E-03	90.8E-03	89.6E-03	88.8E-03	89.2E-03	88.4E-03
ON_PROTON samples													
2	92.4E-03	91.6E-03	89.6E-03	90.4E-03	93.2E-03	95.6E-03	94.8E-03	95.2E-03	97.2E-03	96.8E-03	96.8E-03	97.2E-03	96.4E-03
3	92.8E-03	92.0E-03	90.0E-03	91.2E-03	94.4E-03	97.2E-03	96.8E-03	97.2E-03	99.2E-03	98.8E-03	98.4E-03	99.2E-03	97.6E-03
4	89.2E-03	88.4E-03	86.4E-03	87.2E-03	90.0E-03	92.0E-03	92.0E-03	92.4E-03	94.0E-03	93.6E-03	93.2E-03	94.0E-03	93.2E-03
Statistics													
Min	89.2E-03	88.4E-03	86.4E-03	87.2E-03	90.0E-03	92.0E-03	92.0E-03	92.4E-03	94.0E-03	93.6E-03	93.2E-03	94.0E-03	93.2E-03
Max	92.8E-03	92.0E-03	90.0E-03	91.2E-03	94.4E-03	97.2E-03	96.8E-03	97.2E-03	99.2E-03	98.8E-03	98.4E-03	99.2E-03	97.6E-03
Average	91.5E-03	90.7E-03	88.7E-03	89.6E-03	92.5E-03	94.9E-03	94.5E-03	94.9E-03	96.8E-03	96.4E-03	96.1E-03	96.8E-03	95.7E-03
Sigma	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.9E-03	2.2E-03	2.0E-03	2.0E-03	2.1E-03	2.1E-03	2.2E-03	2.1E-03	1.9E-03

Drift Calculation

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-800.0E-06	-2.8E-03	-2.0E-03	800.0E-06	3.2E-03	2.4E-03	2.8E-03	4.8E-03	4.4E-03	4.4E-03	4.8E-03	4.0E-03
3	-	-800.0E-06	-2.8E-03	-1.6E-03	1.6E-03	4.4E-03	4.0E-03	4.4E-03	6.4E-03	6.0E-03	5.6E-03	6.4E-03	4.8E-03
4	-	-800.0E-06	-2.8E-03	-2.0E-03	800.0E-06	2.8E-03	2.8E-03	3.2E-03	4.8E-03	4.4E-03	4.0E-03	4.8E-03	4.0E-03
Average	-	-800.0E-06	-2.8E-03	-1.9E-03	1.1E-03	3.5E-03	3.1E-03	3.5E-03	5.3E-03	4.9E-03	4.7E-03	5.3E-03	4.3E-03
Sigma	-	0.0E+00	3.5E-09	188.6E-06	377.1E-06	679.9E-06	679.9E-06	679.9E-06	754.2E-06	754.2E-06	679.9E-06	754.2E-06	377.1E-06

Measurements

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	90.0E-03	91.6E-03	89.2E-03	89.2E-03	90.0E-03	90.8E-03	89.2E-03	89.2E-03	90.8E-03	89.6E-03	88.8E-03	89.2E-03	88.4E-03
ON_TID samples													
8	93.2E-03	91.6E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.4E-03	90.4E-03	92.4E-03	92.0E-03	91.2E-03	92.0E-03	92.8E-03
9	93.2E-03	92.0E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.4E-03	90.8E-03	92.8E-03	92.0E-03	91.6E-03	92.0E-03	93.2E-03
10	91.6E-03	91.6E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.0E-03	90.8E-03	92.4E-03	92.0E-03	91.6E-03	92.0E-03	92.8E-03
Statistics													
Min	91.6E-03	91.6E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.0E-03	90.4E-03	92.4E-03	92.0E-03	91.2E-03	92.0E-03	92.8E-03
Max	93.2E-03	92.0E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.4E-03	90.8E-03	92.8E-03	92.0E-03	91.6E-03	92.0E-03	93.2E-03
Average	92.7E-03	91.7E-03	88.8E-03	88.4E-03	89.6E-03	91.2E-03	90.3E-03	90.7E-03	92.5E-03	92.0E-03	91.5E-03	92.0E-03	92.9E-03
Sigma	754.2E-06	188.6E-06	0.0E+00	760.4E-12	0.0E+00	0.0E+00	188.6E-06	188.6E-06	188.6E-06	1.5E-09	188.6E-06	1.5E-09	188.6E-06

Drift Calculation

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.6E-03	-4.4E-03	-4.8E-03	-3.6E-03	-2.0E-03	-2.8E-03	-2.8E-03	-800.0E-06	-1.2E-03	-2.0E-03	-1.2E-03	-400.0E-06
9	-	-1.2E-03	-4.4E-03	-4.8E-03	-3.6E-03	-2.0E-03	-2.8E-03	-2.4E-03	-400.0E-06	-1.2E-03	-1.6E-03	-1.2E-03	0.0E+00
10	-	0.0E+00	-2.8E-03	-3.2E-03	-2.0E-03	-400.0E-06	-1.6E-03	-800.0E-06	400.0E-06	0.0E+00	400.0E-06	1.2E-03	2.0E-03
Average	-	-933.3E-06	-3.9E-03	-4.3E-03	-3.1E-03	-1.5E-03	-2.4E-03	-2.0E-03	-133.3E-06	-666.7E-06	-1.2E-03	-666.7E-06	266.7E-06
Sigma	-	679.9E-06	754.2E-06	754.2E-06	754.2E-06	754.2E-06	565.7E-06	864.1E-06	679.9E-06	754.2E-06	864.1E-06	754.2E-06	679.9E-06

Hirex Engineering	Total Dose Radiation Test Report								Ref.:	HRX/TID/1015			
	IS-139ASRH				Intersil				Issue:	02			

Measurements

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	90.0E-03	91.6E-03	89.2E-03	89.2E-03	90.0E-03	90.8E-03	89.2E-03	89.2E-03	90.8E-03	89.6E-03	88.8E-03	89.2E-03	88.4E-03
OFF PROTON samples													
5	91.6E-03	90.8E-03	88.4E-03	87.6E-03	88.4E-03	90.0E-03	89.2E-03	89.6E-03	91.6E-03	90.8E-03	90.8E-03	91.2E-03	91.6E-03
14	90.4E-03	89.6E-03	87.2E-03	86.8E-03	87.2E-03	89.2E-03	88.0E-03	88.4E-03	90.0E-03	89.6E-03	89.2E-03	89.6E-03	88.8E-03
7	91.6E-03	90.8E-03	88.4E-03	88.4E-03	90.0E-03	92.0E-03	91.2E-03	91.6E-03	93.6E-03	93.2E-03	92.4E-03	93.6E-03	96.8E-03
Statistics													
Min	90.4E-03	89.6E-03	87.2E-03	86.8E-03	87.2E-03	89.2E-03	88.0E-03	88.4E-03	90.0E-03	89.6E-03	89.2E-03	89.6E-03	88.8E-03
Max	91.6E-03	90.8E-03	88.4E-03	88.4E-03	90.0E-03	92.0E-03	91.2E-03	91.6E-03	93.6E-03	93.2E-03	92.4E-03	93.6E-03	96.8E-03
Average	91.2E-03	90.4E-03	88.0E-03	87.6E-03	88.5E-03	90.4E-03	89.5E-03	89.9E-03	91.7E-03	91.2E-03	90.8E-03	91.5E-03	92.4E-03
Sigma	565.7E-06	565.7E-06	565.7E-06	653.2E-06	1.1E-03	1.2E-03	1.3E-03	1.3E-03	1.5E-03	1.5E-03	1.3E-03	1.6E-03	3.3E-03

Drift Calculation

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-800.0E-06	-3.2E-03	-4.0E-03	-3.2E-03	-1.6E-03	-2.4E-03	-2.0E-03	0.0E+00	-800.0E-06	-800.0E-06	-400.0E-06	0.0E+00
14	-	-800.0E-06	-3.2E-03	-3.6E-03	-3.2E-03	-1.2E-03	-2.4E-03	-2.0E-03	-400.0E-06	-800.0E-06	-1.2E-03	-800.0E-06	-1.6E-03
7	-	-800.0E-06	-3.2E-03	-3.2E-03	-1.6E-03	400.0E-06	-400.0E-06	0.0E+00	2.0E-03	1.6E-03	800.0E-06	2.0E-03	5.2E-03
Average	-	-800.0E-06	-3.2E-03	-3.6E-03	-2.7E-03	-800.0E-06	-1.7E-03	-1.3E-03	533.3E-06	-2.5E-09	-400.0E-06	266.7E-06	1.2E-03
Sigma	-	3.5E-09	0.0E+00	326.6E-06	754.2E-06	864.1E-06	942.8E-06	942.8E-06	1.0E-03	1.1E-03	864.1E-06	1.2E-03	2.9E-03

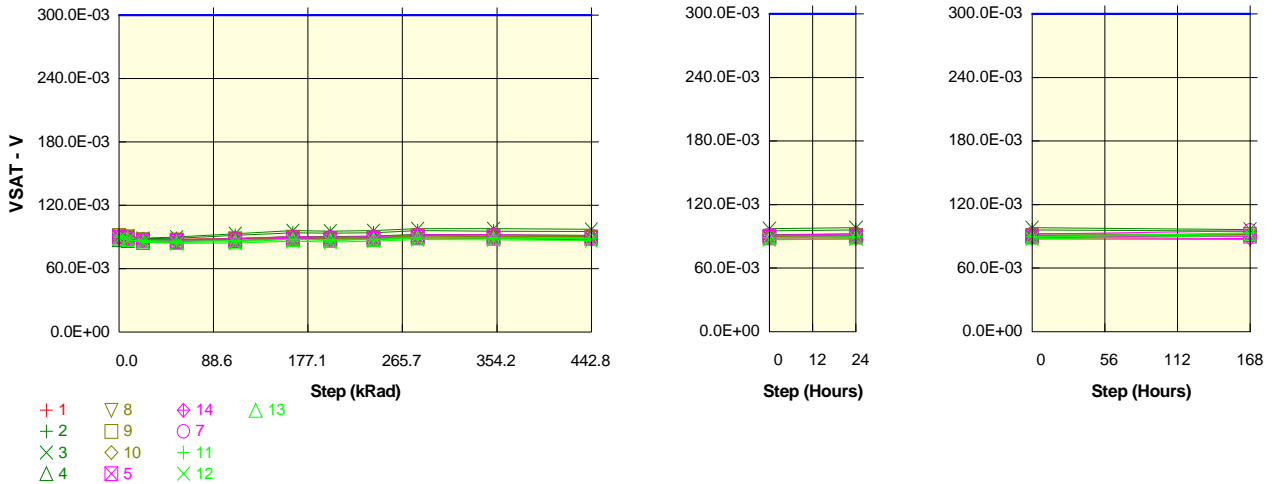
Measurements

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	90.0E-03	91.6E-03	89.2E-03	89.2E-03	90.0E-03	90.8E-03	89.2E-03	89.2E-03	90.8E-03	89.6E-03	88.8E-03	89.2E-03	88.4E-03
OFF TID samples													
11	92.4E-03	91.2E-03	88.4E-03	88.0E-03	88.4E-03	90.0E-03	89.2E-03	89.6E-03	91.2E-03	91.2E-03	90.4E-03	91.2E-03	94.8E-03
12	90.0E-03	88.8E-03	86.4E-03	85.6E-03	86.0E-03	87.6E-03	86.8E-03	87.6E-03	89.2E-03	88.8E-03	88.4E-03	88.8E-03	92.4E-03
13	90.4E-03	89.2E-03	86.4E-03	86.0E-03	87.2E-03	88.8E-03	88.0E-03	89.2E-03	90.4E-03	90.4E-03	89.6E-03	90.4E-03	94.4E-03
Statistics													
Min	90.0E-03	88.8E-03	86.4E-03	85.6E-03	86.0E-03	87.6E-03	86.8E-03	87.6E-03	89.2E-03	88.8E-03	88.4E-03	88.8E-03	92.4E-03
Max	92.4E-03	91.2E-03	88.4E-03	88.0E-03	88.4E-03	90.0E-03	89.2E-03	89.6E-03	91.2E-03	91.2E-03	90.4E-03	91.2E-03	94.8E-03
Average	90.9E-03	89.7E-03	87.1E-03	86.5E-03	87.2E-03	88.8E-03	88.0E-03	88.8E-03	90.3E-03	90.1E-03	89.5E-03	90.1E-03	93.9E-03
Sigma	1.0E-03	1.0E-03	942.8E-06	1.0E-03	979.8E-06	979.8E-06	979.8E-06	864.1E-06	821.9E-06	997.8E-06	821.9E-06	997.8E-06	1.0E-03

Drift Calculation

VSATDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.2E-03	-4.0E-03	-4.4E-03	-4.0E-03	-2.4E-03	-3.2E-03	-2.8E-03	-1.2E-03	-1.2E-03	-2.0E-03	-1.2E-03	2.4E-03
12	-	-1.2E-03	-3.6E-03	-4.4E-03	-4.0E-03	-2.4E-03	-3.2E-03	-2.4E-03	-800.0E-06	-1.2E-03	-1.6E-03	-1.2E-03	2.4E-03
13	-	-1.2E-03	-4.0E-03	-4.4E-03	-3.2E-03	-1.6E-03	-2.4E-03	-1.2E-03	0.0E+00	0.0E+00	-800.0E-06	0.0E+00	4.0E-03
Average	-	-1.2E-03	-3.9E-03	-4.4E-03	-3.7E-03	-2.1E-03	-2.9E-03	-2.1E-03	-666.7E-06	-800.0E-06	-1.5E-03	-800.0E-06	2.9E-03
Sigma	-	3.5E-09	188.6E-06	58.2E-12	377.1E-06	377.1E-06	377.1E-06	679.9E-06	498.9E-06	565.7E-06	498.9E-06	565.7E-06	754.2E-06

Parameter : Saturation Voltage : VSATDUT4
 Test conditions : -VIN=1V. +VIN=0V. Isink=4mA
 Unit : V
 Spec Limit Max : 300.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	88.4E-03	90.0E-03	87.6E-03	88.0E-03	88.4E-03	89.2E-03	88.0E-03	87.6E-03	89.2E-03	88.4E-03	87.2E-03	87.6E-03	87.2E-03
ON_PROTON samples													
2	90.8E-03	90.4E-03	88.4E-03	88.8E-03	91.6E-03	94.0E-03	93.6E-03	94.0E-03	96.0E-03	95.6E-03	95.2E-03	96.0E-03	94.8E-03
3	91.2E-03	90.8E-03	88.8E-03	90.0E-03	93.2E-03	96.0E-03	95.6E-03	96.0E-03	98.0E-03	98.0E-03	97.2E-03	98.0E-03	96.4E-03
4	87.6E-03	86.8E-03	84.8E-03	85.6E-03	88.4E-03	90.4E-03	90.4E-03	90.8E-03	92.4E-03	92.0E-03	91.6E-03	92.4E-03	91.6E-03
Statistics													
Min	87.6E-03	86.8E-03	84.8E-03	85.6E-03	88.4E-03	90.4E-03	90.4E-03	90.8E-03	92.4E-03	92.0E-03	91.6E-03	92.4E-03	91.6E-03
Max	91.2E-03	90.8E-03	88.8E-03	90.0E-03	93.2E-03	96.0E-03	95.6E-03	96.0E-03	98.0E-03	98.0E-03	97.2E-03	98.0E-03	96.4E-03
Average	89.9E-03	89.3E-03	87.3E-03	88.1E-03	91.1E-03	93.5E-03	93.2E-03	93.6E-03	95.5E-03	95.2E-03	94.7E-03	95.5E-03	94.3E-03
Sigma	1.6E-03	1.8E-03	1.8E-03	1.9E-03	2.0E-03	2.3E-03	2.1E-03	2.1E-03	2.3E-03	2.5E-03	2.3E-03	2.3E-03	2.0E-03

Drift Calculation

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-400.0E-06	-2.4E-03	-2.0E-03	800.0E-06	3.2E-03	2.8E-03	3.2E-03	5.2E-03	4.8E-03	4.4E-03	5.2E-03	4.0E-03
3	-	-400.0E-06	-2.4E-03	-1.2E-03	2.0E-03	4.8E-03	4.4E-03	4.8E-03	6.8E-03	6.8E-03	6.0E-03	6.8E-03	5.2E-03
4	-	-800.0E-06	-2.8E-03	-2.0E-03	800.0E-06	2.8E-03	2.8E-03	3.2E-03	4.8E-03	4.4E-03	4.0E-03	4.8E-03	4.0E-03
Average	-	-533.3E-06	-2.5E-03	-1.7E-03	1.2E-03	3.6E-03	3.3E-03	3.7E-03	5.6E-03	5.3E-03	4.8E-03	5.6E-03	4.4E-03
Sigma	-	188.6E-06	188.6E-06	377.1E-06	565.7E-06	864.1E-06	754.2E-06	754.2E-06	864.1E-06	1.0E-03	864.1E-06	864.1E-06	565.7E-06

Measurements

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	88.4E-03	90.0E-03	87.6E-03	88.0E-03	88.4E-03	89.2E-03	88.0E-03	87.6E-03	89.2E-03	88.4E-03	87.2E-03	87.6E-03	87.2E-03
ON_TID samples													
8	91.6E-03	90.4E-03	87.6E-03	87.2E-03	88.4E-03	90.0E-03	88.8E-03	89.2E-03	91.2E-03	90.8E-03	90.0E-03	90.8E-03	91.6E-03
9	91.2E-03	90.0E-03	87.2E-03	86.8E-03	88.0E-03	89.6E-03	88.4E-03	88.8E-03	90.8E-03	90.4E-03	90.0E-03	90.4E-03	91.6E-03
10	90.4E-03	90.4E-03	87.6E-03	87.2E-03	88.4E-03	90.0E-03	88.8E-03	89.6E-03	91.2E-03	90.8E-03	90.4E-03	90.8E-03	91.6E-03
Statistics													
Min	90.4E-03	90.0E-03	87.2E-03	86.8E-03	88.0E-03	89.6E-03	88.4E-03	88.8E-03	90.8E-03	90.4E-03	90.0E-03	90.4E-03	91.6E-03
Max	91.6E-03	90.4E-03	87.6E-03	87.2E-03	88.4E-03	90.0E-03	88.8E-03	89.6E-03	91.2E-03	90.8E-03	90.4E-03	90.8E-03	91.6E-03
Average	91.1E-03	90.3E-03	87.5E-03	87.1E-03	88.3E-03	89.9E-03	88.7E-03	89.2E-03	91.1E-03	90.7E-03	90.1E-03	90.7E-03	91.6E-03
Sigma	498.9E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	326.6E-06	188.6E-06	188.6E-06	188.6E-06	188.6E-06	760.4E-12

Drift Calculation

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.2E-03	-4.0E-03	-4.4E-03	-3.2E-03	-1.6E-03	-2.8E-03	-2.4E-03	-400.0E-06	-800.0E-06	-1.6E-03	-800.0E-06	0.0E+00
9	-	-1.2E-03	-4.0E-03	-4.4E-03	-3.2E-03	-1.6E-03	-2.8E-03	-2.4E-03	-400.0E-06	-800.0E-06	-1.2E-03	-800.0E-06	400.0E-06
10	-	0.0E+00	-2.8E-03	-3.2E-03	-2.0E-03	-400.0E-06	-1.6E-03	-800.0E-06	400.0E-06	400.0E-06	0.0E+00	400.0E-06	1.2E-03
Average	-	-800.0E-06	-3.6E-03	-4.0E-03	-2.8E-03	-1.2E-03	-2.4E-03	-1.9E-03	0.0E+00	-400.0E-06	-933.3E-06	-400.0E-06	533.3E-06
Sigma	-	565.7E-06	565.7E-06	565.7E-06	565.7E-06	565.7E-06	565.7E-06	754.2E-06	565.7E-06	565.7E-06	679.9E-06	565.7E-06	498.9E-06

Hirex Engineering	Total Dose Radiation Test Report								Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02

Measurements

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	88.4E-03	90.0E-03	87.6E-03	88.0E-03	88.4E-03	89.2E-03	88.0E-03	87.6E-03	89.2E-03	88.4E-03	87.2E-03	87.6E-03	87.2E-03
OFF PROTON samples													
5	90.0E-03	88.8E-03	86.4E-03	86.0E-03	86.8E-03	88.4E-03	87.2E-03	88.0E-03	89.6E-03	89.2E-03	88.8E-03	89.6E-03	90.0E-03
14	90.0E-03	89.2E-03	86.8E-03	86.4E-03	86.8E-03	88.8E-03	87.2E-03	88.0E-03	89.6E-03	89.2E-03	88.4E-03	89.2E-03	88.0E-03
7	90.0E-03	89.2E-03	87.2E-03	87.2E-03	88.4E-03	90.4E-03	89.6E-03	90.4E-03	92.0E-03	92.0E-03	91.2E-03	92.0E-03	95.2E-03
Statistics													
Min	90.0E-03	88.8E-03	86.4E-03	86.0E-03	86.8E-03	88.4E-03	87.2E-03	88.0E-03	89.6E-03	89.2E-03	88.4E-03	89.2E-03	88.0E-03
Max	90.0E-03	89.2E-03	87.2E-03	87.2E-03	88.4E-03	90.4E-03	89.6E-03	90.4E-03	92.0E-03	92.0E-03	91.2E-03	92.0E-03	95.2E-03
Average	90.0E-03	89.1E-03	86.8E-03	86.5E-03	87.3E-03	89.2E-03	88.0E-03	88.8E-03	90.4E-03	90.1E-03	89.5E-03	90.3E-03	91.1E-03
Sigma	760.4E-12	188.6E-06	326.6E-06	498.9E-06	754.2E-06	864.1E-06	1.1E-03	1.1E-03	1.1E-03	1.3E-03	1.2E-03	1.2E-03	3.0E-03

Drift Calculation

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-1.2E-03	-3.6E-03	-4.0E-03	-3.2E-03	-1.6E-03	-2.8E-03	-2.0E-03	-400.0E-06	-800.0E-06	-1.2E-03	-400.0E-06	0.0E+00
14	-	-800.0E-06	-3.2E-03	-3.6E-03	-3.2E-03	-1.2E-03	-2.8E-03	-2.0E-03	-400.0E-06	-800.0E-06	-1.6E-03	-800.0E-06	-2.0E-03
7	-	-800.0E-06	-2.8E-03	-2.8E-03	-1.6E-03	400.0E-06	-400.0E-06	400.0E-06	2.0E-03	2.0E-03	1.2E-03	2.0E-03	5.2E-03
Average	-	-933.3E-06	-3.2E-03	-3.5E-03	-2.7E-03	-800.0E-06	-2.0E-03	-1.2E-03	400.0E-06	133.3E-06	-533.3E-06	266.7E-06	1.1E-03
Sigma	-	188.6E-06	326.6E-06	498.9E-06	754.2E-06	864.1E-06	1.1E-03	1.1E-03	1.1E-03	1.3E-03	1.2E-03	1.2E-03	3.0E-03

Measurements

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	88.4E-03	90.0E-03	87.6E-03	88.0E-03	88.4E-03	89.2E-03	88.0E-03	87.6E-03	89.2E-03	88.4E-03	87.2E-03	87.6E-03	87.2E-03
OFF TID samples													
11	90.8E-03	89.6E-03	86.8E-03	86.0E-03	86.8E-03	88.0E-03	87.6E-03	88.0E-03	89.6E-03	89.2E-03	88.8E-03	89.6E-03	93.2E-03
12	88.4E-03	87.2E-03	84.8E-03	84.0E-03	84.4E-03	86.0E-03	85.2E-03	86.0E-03	87.6E-03	87.2E-03	86.8E-03	87.6E-03	90.8E-03
13	88.8E-03	87.6E-03	85.2E-03	84.8E-03	85.6E-03	87.6E-03	86.8E-03	87.6E-03	89.2E-03	88.8E-03	88.4E-03	89.2E-03	92.8E-03
Statistics													
Min	88.4E-03	87.2E-03	84.8E-03	84.0E-03	84.4E-03	86.0E-03	85.2E-03	86.0E-03	87.6E-03	87.2E-03	86.8E-03	87.6E-03	90.8E-03
Max	90.8E-03	89.6E-03	86.8E-03	86.0E-03	86.8E-03	88.0E-03	87.6E-03	88.0E-03	89.6E-03	89.2E-03	88.8E-03	89.6E-03	93.2E-03
Average	89.3E-03	88.1E-03	85.6E-03	84.9E-03	85.6E-03	87.2E-03	86.5E-03	87.2E-03	88.8E-03	88.4E-03	88.0E-03	88.8E-03	92.3E-03
Sigma	1.0E-03	1.0E-03	864.1E-06	821.9E-06	979.8E-06	864.1E-06	997.8E-06	864.1E-06	864.1E-06	864.1E-06	864.1E-06	864.1E-06	1.0E-03

Drift Calculation

VSATDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.2E-03	-4.0E-03	-4.8E-03	-4.0E-03	-2.8E-03	-3.2E-03	-2.8E-03	-1.2E-03	-1.6E-03	-2.0E-03	-1.2E-03	2.4E-03
12	-	-1.2E-03	-3.6E-03	-4.4E-03	-4.0E-03	-2.4E-03	-3.2E-03	-2.4E-03	-800.0E-06	-1.2E-03	-1.6E-03	-800.0E-06	2.4E-03
13	-	-1.2E-03	-3.6E-03	-4.0E-03	-3.2E-03	-1.2E-03	-2.0E-03	-1.2E-03	400.0E-06	0.0E+00	-400.0E-06	400.0E-06	4.0E-03
Average	-	-1.2E-03	-3.7E-03	-4.4E-03	-3.7E-03	-2.1E-03	-2.8E-03	-2.1E-03	-533.3E-06	-933.3E-06	-1.3E-03	-533.3E-06	2.9E-03
Sigma	-	3.5E-09	188.6E-06	326.6E-06	377.1E-06	679.9E-06	565.7E-06	679.9E-06	679.9E-06	679.9E-06	679.9E-06	679.9E-06	754.2E-06

Parameter : Input Offset Current : IIO1DUT1

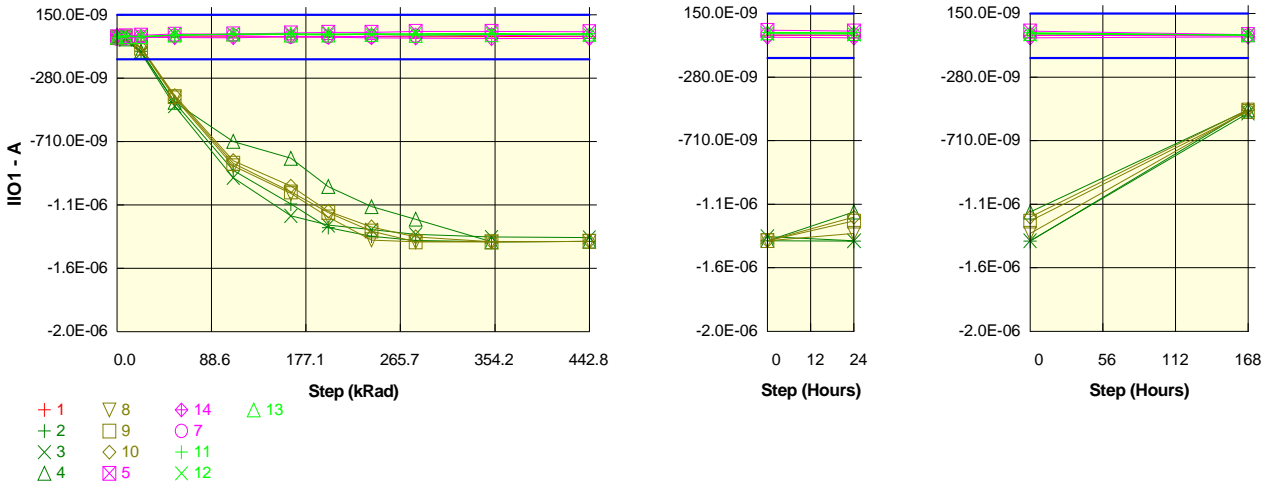
Test conditions : VCC=9V

Unit : A

Spec Limit Min : -150.0E-09

Spec Limit Max : 150.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.6E-09	3.2E-09	-880.0E-12	2.4E-09	2.4E-09	2.5E-09	2.4E-09	2.8E-09	2.3E-09	2.6E-09	3.0E-09	2.7E-09	6.2E-09
ON_PROTON samples													
2	9.5E-09	-6.4E-09	-95.4E-09	-444.5E-09	-905.6E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-504.6E-09
3	310.0E-12	-17.6E-09	-108.2E-09	-467.2E-09	-954.0E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-523.3E-09
4	9.3E-09	-11.6E-09	-97.6E-09	-442.2E-09	-708.8E-09	-822.0E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-501.9E-09
Statistics													
Min	310.0E-12	-17.6E-09	-108.2E-09	-467.2E-09	-954.0E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-523.3E-09
Max	9.5E-09	-6.4E-09	-95.4E-09	-442.2E-09	-708.8E-09	-822.0E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-501.9E-09
Average	6.4E-09	-11.9E-09	-100.4E-09	-451.3E-09	-856.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-509.9E-09
Sigma	4.3E-09	4.6E-09	5.6E-09	11.3E-09	106.0E-09	168.6E-09	127.3E-09	85.8E-09	60.9E-09	14.9E-09	12.5E-09	93.2E-09	9.5E-09

Drift Calculation

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-15.9E-09	-104.9E-09	-454.0E-09	-915.1E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-514.2E-09
3	-	-17.9E-09	-108.5E-09	-467.5E-09	-954.3E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-523.6E-09
4	-	-20.9E-09	-106.9E-09	-451.5E-09	-718.1E-09	-831.3E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-511.1E-09
Average	-	-18.3E-09	-106.8E-09	-457.7E-09	-862.5E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-516.3E-09
Sigma	-	2.1E-09	1.5E-09	7.0E-09	103.4E-09	165.8E-09	125.4E-09	84.6E-09	60.2E-09	19.2E-09	16.8E-09	91.2E-09	5.3E-09

Measurements

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.6E-09	3.2E-09	-880.0E-12	2.4E-09	2.4E-09	2.5E-09	2.4E-09	2.8E-09	2.3E-09	2.6E-09	3.0E-09	2.7E-09	6.2E-09
ON_TID samples													
8	-6.9E-09	124.0E-12	-79.9E-09	-413.5E-09	-873.6E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-503.0E-09
9	-3.2E-09	0.0E+00	-74.2E-09	-404.3E-09	-857.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-511.9E-09
10	-1.5E-09	0.0E+00	-70.5E-09	-397.7E-09	-838.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-499.6E-09
Statistics													
Min	-6.9E-09	0.0E+00	-79.9E-09	-413.5E-09	-873.6E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-511.9E-09
Max	-1.5E-09	124.0E-12	-70.5E-09	-397.7E-09	-838.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-499.6E-09
Average	-3.9E-09	41.3E-12	-74.9E-09	-405.2E-09	-856.4E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-504.8E-09
Sigma	2.2E-09	58.5E-12	3.9E-09	6.5E-09	14.3E-09	21.7E-09	17.1E-09	36.9E-09	16.1E-09	58.9E-12	24.9E-12	46.7E-09	5.2E-09

Drift Calculation

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	7.0E-09	-73.0E-09	-406.6E-09	-866.7E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-496.0E-09
9	-	3.2E-09	-70.9E-09	-401.0E-09	-853.9E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-508.6E-09
10	-	1.5E-09	-69.0E-09	-396.2E-09	-836.9E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-498.1E-09
Average	-	3.9E-09	-71.0E-09	-401.3E-09	-852.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-500.9E-09
Sigma	-	2.3E-09	1.6E-09	4.2E-09	12.2E-09	19.8E-09	14.9E-09	34.7E-09	14.5E-09	2.3E-09	2.3E-09	44.4E-09	5.5E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-09	3.2E-09	-880.0E-12	2.4E-09	2.4E-09	2.5E-09	2.4E-09	2.8E-09	2.3E-09	2.6E-09	3.0E-09	2.7E-09	6.2E-09
OFF PROTON samples													
5	1.5E-09	8.3E-09	13.4E-09	20.3E-09	21.8E-09	28.3E-09	32.1E-09	31.1E-09	39.0E-09	39.4E-09	36.9E-09	32.1E-09	7.3E-09
14	11.1E-09	4.1E-09	-1.1E-09	-3.5E-09	-3.8E-09	3.7E-09	-2.0E-09	-4.1E-09	-6.8E-09	-10.9E-09	-10.0E-09	-14.6E-09	-8.5E-09
7	-11.2E-09	-5.6E-09	1.5E-09	7.8E-09	10.0E-09	2.2E-09	2.3E-09	5.8E-09	8.3E-09	12.0E-09	6.1E-09	3.3E-09	-574.1E-12
Statistics													
Min	-11.2E-09	-5.6E-09	-1.1E-09	-3.5E-09	-3.8E-09	2.2E-09	-2.0E-09	-4.1E-09	-6.8E-09	-10.9E-09	-10.0E-09	-14.6E-09	-8.5E-09
Max	11.1E-09	8.3E-09	13.4E-09	20.3E-09	21.8E-09	28.3E-09	32.1E-09	31.1E-09	39.0E-09	39.4E-09	36.9E-09	32.1E-09	7.3E-09
Average	478.7E-12	2.3E-09	4.6E-09	8.2E-09	9.3E-09	11.4E-09	10.8E-09	10.9E-09	13.5E-09	13.5E-09	11.0E-09	7.0E-09	-617.3E-12
Sigma	9.1E-09	5.8E-09	6.3E-09	9.7E-09	10.5E-09	12.0E-09	15.2E-09	14.8E-09	19.0E-09	20.6E-09	19.4E-09	19.2E-09	6.4E-09

Drift Calculation

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	6.9E-09	12.0E-09	18.9E-09	20.3E-09	26.9E-09	30.6E-09	29.6E-09	37.5E-09	38.0E-09	35.4E-09	30.7E-09	5.8E-09
14	-	-7.0E-09	-12.2E-09	-14.6E-09	-15.0E-09	-7.4E-09	-13.2E-09	-15.3E-09	-17.9E-09	-22.1E-09	-21.1E-09	-25.7E-09	-19.7E-09
7	-	5.5E-09	12.6E-09	18.9E-09	21.2E-09	13.3E-09	13.4E-09	17.0E-09	19.4E-09	23.2E-09	17.3E-09	14.4E-09	10.6E-09
Average	-	1.8E-09	4.1E-09	7.7E-09	8.8E-09	10.9E-09	10.3E-09	10.4E-09	13.0E-09	13.0E-09	10.5E-09	6.5E-09	-1.1E-09
Sigma	-	6.2E-09	11.6E-09	15.8E-09	16.8E-09	14.1E-09	18.0E-09	18.9E-09	23.1E-09	25.6E-09	23.6E-09	23.7E-09	13.3E-09

Measurements

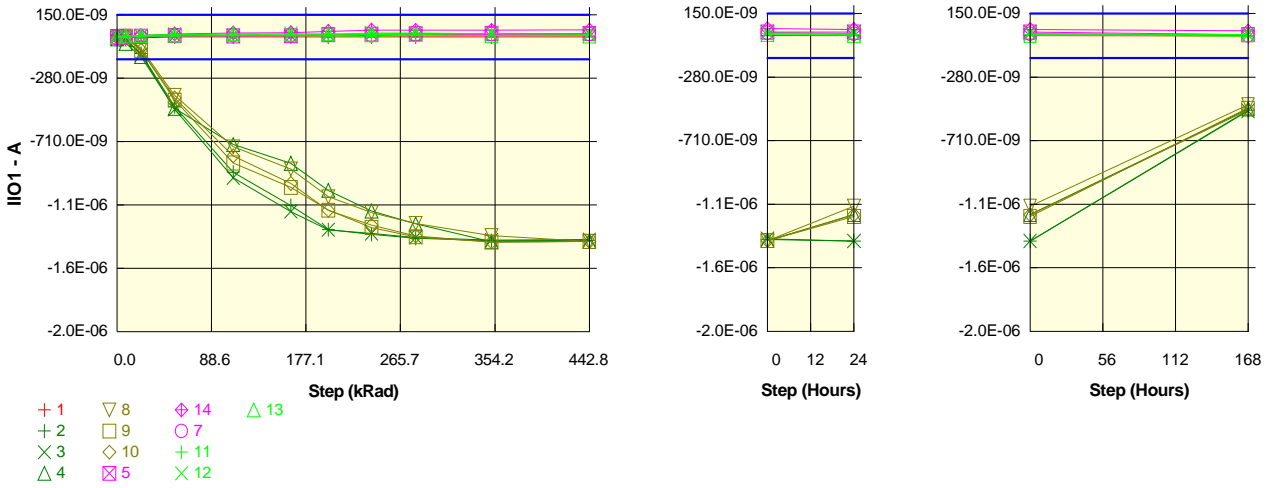
IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-09	3.2E-09	-880.0E-12	2.4E-09	2.4E-09	2.5E-09	2.4E-09	2.8E-09	2.3E-09	2.6E-09	3.0E-09	2.7E-09	6.2E-09
OFF TID samples													
11	-204.0E-12	6.8E-09	4.6E-09	12.3E-09	17.5E-09	23.4E-09	19.1E-09	24.7E-09	17.6E-09	19.4E-09	22.7E-09	19.4E-09	1.8E-09
12	-706.0E-12	4.4E-09	2.4E-09	14.5E-09	20.7E-09	17.9E-09	21.9E-09	17.9E-09	23.3E-09	25.1E-09	14.2E-09	10.6E-09	4.7E-09
13	372.0E-12	3.5E-09	3.1E-09	14.3E-09	19.5E-09	14.9E-09	14.2E-09	18.1E-09	11.7E-09	15.1E-09	20.1E-09	15.5E-09	5.9E-09
Statistics													
Min	-706.0E-12	3.5E-09	2.4E-09	12.3E-09	17.5E-09	14.9E-09	14.2E-09	17.9E-09	11.7E-09	15.1E-09	14.2E-09	10.6E-09	1.8E-09
Max	372.0E-12	6.8E-09	4.6E-09	14.5E-09	20.7E-09	23.4E-09	21.9E-09	24.7E-09	23.3E-09	25.1E-09	22.7E-09	19.4E-09	5.9E-09
Average	-179.3E-12	4.9E-09	3.4E-09	13.7E-09	19.2E-09	18.7E-09	18.4E-09	20.2E-09	17.5E-09	19.9E-09	19.0E-09	15.2E-09	4.2E-09
Sigma	440.4E-12	1.4E-09	941.5E-12	995.8E-12	1.3E-09	3.5E-09	3.2E-09	3.1E-09	4.8E-09	4.1E-09	3.5E-09	3.6E-09	1.7E-09

Drift Calculation

IIO1DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	7.0E-09	4.8E-09	12.5E-09	17.8E-09	23.6E-09	19.3E-09	24.9E-09	17.8E-09	19.6E-09	22.9E-09	19.6E-09	2.0E-09
12	-	5.1E-09	3.1E-09	15.2E-09	21.4E-09	18.6E-09	22.6E-09	18.6E-09	24.0E-09	25.9E-09	14.9E-09	11.3E-09	5.4E-09
13	-	3.1E-09	2.8E-09	13.9E-09	19.1E-09	14.5E-09	13.8E-09	17.7E-09	11.3E-09	14.8E-09	19.7E-09	15.1E-09	5.6E-09
Average	-	5.1E-09	3.6E-09	13.9E-09	19.4E-09	18.9E-09	18.6E-09	20.4E-09	17.7E-09	20.1E-09	19.2E-09	15.3E-09	4.3E-09
Sigma	-	1.6E-09	915.2E-12	1.1E-09	1.5E-09	3.7E-09	3.6E-09	3.2E-09	5.2E-09	4.5E-09	3.3E-09	3.4E-09	1.6E-09

Parameter : Input Offset Current : IIO1DUT2
 Test conditions : VCC=9V

Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	864.0E-12	-16.0E-12	-5.0E-09	1.0E-09	1.3E-09	936.0E-12	968.0E-12	1.1E-09	1.1E-09	1.1E-09	968.0E-12	694.0E-12	-537.0E-12
ON PROTON samples													
2	10.1E-09	-16.1E-09	-110.6E-09	-472.7E-09	-917.0E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-503.0E-09
3	8.7E-09	-21.5E-09	-117.3E-09	-490.5E-09	-954.1E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-508.0E-09
4	-11.4E-09	-42.7E-09	-132.5E-09	-483.3E-09	-729.6E-09	-857.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-494.4E-09
Statistics													
Min	-11.4E-09	-42.7E-09	-132.5E-09	-490.5E-09	-954.1E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-508.0E-09
Max	10.1E-09	-16.1E-09	-110.6E-09	-472.7E-09	-729.6E-09	-857.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-494.4E-09
Average	2.5E-09	-26.8E-09	-120.2E-09	-482.2E-09	-866.9E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-501.8E-09
Sigma	9.8E-09	11.5E-09	9.2E-09	7.3E-09	98.3E-09	145.4E-09	125.5E-09	72.9E-09	44.6E-09	5.2E-09	5.1E-09	83.6E-09	5.6E-09

Drift Calculation

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-26.2E-09	-120.7E-09	-482.8E-09	-927.1E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-513.0E-09
3	-	-30.2E-09	-126.0E-09	-499.2E-09	-962.8E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-516.7E-09
4	-	-31.3E-09	-121.1E-09	-471.9E-09	-718.2E-09	-846.1E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-483.0E-09
Average	-	-29.2E-09	-122.6E-09	-484.6E-09	-869.4E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-504.2E-09
Sigma	-	2.2E-09	2.4E-09	11.2E-09	107.9E-09	155.1E-09	135.3E-09	82.7E-09	54.4E-09	5.5E-09	5.7E-09	93.4E-09	15.1E-09

Measurements

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	864.0E-12	-16.0E-12	-5.0E-09	1.0E-09	1.3E-09	936.0E-12	968.0E-12	1.1E-09	1.1E-09	1.1E-09	968.0E-12	694.0E-12	-537.0E-12
ON TID samples													
8	4.8E-09	920.0E-12	-75.9E-09	-395.8E-09	-744.9E-09	-894.7E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06	-466.1E-09
9	730.0E-12	0.0E+00	-90.4E-09	-427.0E-09	-854.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-490.2E-09
10	1.2E-09	0.0E+00	-88.4E-09	-413.9E-09	-806.3E-09	-993.4E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-502.2E-09
Statistics													
Min	730.0E-12	0.0E+00	-90.4E-09	-427.0E-09	-854.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-502.2E-09
Max	4.8E-09	920.0E-12	-75.9E-09	-395.8E-09	-744.9E-09	-894.7E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06	-466.1E-09
Average	2.2E-09	306.7E-12	-84.9E-09	-412.2E-09	-801.9E-09	-969.2E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-486.2E-09
Sigma	1.8E-09	433.7E-12	6.4E-09	12.8E-09	44.8E-09	53.8E-09	43.6E-09	45.0E-09	42.0E-09	20.1E-09	52.5E-12	30.2E-09	15.0E-09

Drift Calculation

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-3.9E-09	-80.8E-09	-400.6E-09	-749.7E-09	-899.5E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-470.9E-09
9	-	-730.0E-12	-91.2E-09	-427.8E-09	-855.2E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-490.9E-09
10	-	-1.2E-09	-89.6E-09	-415.1E-09	-807.5E-09	-994.6E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-503.4E-09
Average	-	-1.9E-09	-87.2E-09	-414.5E-09	-804.1E-09	-971.5E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-488.4E-09
Sigma	-	1.4E-09	4.6E-09	11.1E-09	43.1E-09	52.0E-09	41.8E-09	43.2E-09	40.2E-09	18.3E-09	1.8E-09	28.3E-09	13.4E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	864.0E-12	-16.0E-12	-5.0E-09	1.0E-09	1.3E-09	936.0E-12	968.0E-12	1.1E-09	1.1E-09	1.1E-09	968.0E-12	694.0E-12	-537.0E-12
OFF_PROTON samples													
5	392.0E-12	5.0E-09	6.6E-09	10.0E-09	7.7E-09	9.5E-09	16.3E-09	19.9E-09	24.1E-09	25.4E-09	23.8E-09	23.9E-09	6.7E-09
14	-1.7E-09	-2.4E-09	8.8E-09	21.5E-09	28.2E-09	30.1E-09	38.3E-09	47.0E-09	46.1E-09	46.9E-09	48.4E-09	43.2E-09	32.3E-09
7	-8.5E-09	-3.7E-09	736.0E-12	8.0E-09	12.0E-09	10.7E-09	14.2E-09	11.0E-09	16.1E-09	18.8E-09	19.1E-09	13.6E-09	2.3E-09
Statistics													
Min	-8.5E-09	-3.7E-09	736.0E-12	8.0E-09	7.7E-09	9.5E-09	14.2E-09	11.0E-09	16.1E-09	18.8E-09	19.1E-09	13.6E-09	2.3E-09
Max	392.0E-12	5.0E-09	8.8E-09	21.5E-09	28.2E-09	30.1E-09	38.3E-09	47.0E-09	46.1E-09	46.9E-09	48.4E-09	43.2E-09	32.3E-09
Average	-3.3E-09	-380.0E-12	5.4E-09	13.2E-09	15.9E-09	16.8E-09	23.0E-09	26.0E-09	28.8E-09	30.4E-09	30.4E-09	26.9E-09	13.8E-09
Sigma	3.8E-09	3.8E-09	3.4E-09	6.0E-09	8.8E-09	9.4E-09	10.9E-09	15.3E-09	12.7E-09	12.0E-09	12.9E-09	12.3E-09	13.2E-09

Drift Calculation

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_PROTON samples													
5	-	4.6E-09	6.2E-09	9.6E-09	7.3E-09	9.1E-09	15.9E-09	19.5E-09	23.7E-09	25.0E-09	23.4E-09	23.5E-09	6.3E-09
14	-	-720.0E-12	10.5E-09	23.2E-09	29.9E-09	31.8E-09	40.0E-09	48.8E-09	47.9E-09	48.6E-09	50.1E-09	44.9E-09	34.1E-09
7	-	4.8E-09	9.2E-09	16.5E-09	20.5E-09	19.2E-09	22.7E-09	19.5E-09	24.6E-09	27.3E-09	27.6E-09	22.1E-09	10.8E-09
Average	-	2.9E-09	8.7E-09	16.4E-09	19.2E-09	20.0E-09	26.2E-09	29.2E-09	32.1E-09	33.6E-09	33.7E-09	30.2E-09	17.1E-09
Sigma	-	2.6E-09	1.8E-09	5.6E-09	9.3E-09	9.3E-09	10.1E-09	13.8E-09	11.2E-09	10.6E-09	11.7E-09	10.4E-09	12.2E-09

Measurements

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	864.0E-12	-16.0E-12	-5.0E-09	1.0E-09	1.3E-09	936.0E-12	968.0E-12	1.1E-09	1.1E-09	1.1E-09	968.0E-12	694.0E-12	-537.0E-12
OFF_TID samples													
11	-896.0E-12	-1.3E-09	3.9E-09	6.3E-09	11.2E-09	10.2E-09	6.4E-09	5.8E-09	12.4E-09	9.3E-09	13.1E-09	8.0E-09	-4.0E-09
12	2.9E-09	5.2E-09	11.8E-09	18.8E-09	14.2E-09	24.2E-09	18.5E-09	27.1E-09	28.1E-09	22.6E-09	17.8E-09	14.0E-09	6.4E-09
13	4.8E-09	7.8E-09	9.4E-09	14.7E-09	23.2E-09	19.4E-09	21.1E-09	17.1E-09	18.0E-09	10.7E-09	8.7E-09	2.2E-09	6.6E-09
Statistics													
Min	-896.0E-12	-1.3E-09	3.9E-09	6.3E-09	11.2E-09	10.2E-09	6.4E-09	5.8E-09	12.4E-09	9.3E-09	8.7E-09	2.2E-09	-4.0E-09
Max	4.8E-09	7.8E-09	11.8E-09	18.8E-09	23.2E-09	24.2E-09	21.1E-09	27.1E-09	28.1E-09	22.6E-09	17.8E-09	14.0E-09	6.6E-09
Average	2.3E-09	3.9E-09	8.4E-09	13.3E-09	16.2E-09	17.9E-09	15.3E-09	16.7E-09	19.5E-09	14.2E-09	13.2E-09	8.1E-09	3.0E-09
Sigma	2.4E-09	3.8E-09	3.3E-09	5.2E-09	5.1E-09	5.8E-09	6.4E-09	8.7E-09	6.5E-09	6.0E-09	3.7E-09	4.8E-09	4.9E-09

Drift Calculation

IIO1DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_TID samples													
11	-	-452.0E-12	4.8E-09	7.2E-09	12.0E-09	11.1E-09	7.3E-09	6.7E-09	13.3E-09	10.2E-09	14.0E-09	8.9E-09	-3.1E-09
12	-	2.3E-09	8.9E-09	15.8E-09	11.3E-09	21.3E-09	15.6E-09	24.2E-09	25.2E-09	19.7E-09	14.9E-09	11.1E-09	3.5E-09
13	-	3.0E-09	4.7E-09	10.0E-09	18.5E-09	14.6E-09	16.4E-09	12.3E-09	13.2E-09	6.0E-09	3.9E-09	-2.5E-09	1.8E-09
Average	-	1.6E-09	6.1E-09	11.0E-09	13.9E-09	15.7E-09	13.1E-09	14.4E-09	17.2E-09	12.0E-09	11.0E-09	5.8E-09	745.5E-12
Sigma	-	1.5E-09	2.0E-09	3.6E-09	3.2E-09	4.3E-09	4.1E-09	7.3E-09	5.6E-09	5.7E-09	5.0E-09	6.0E-09	2.8E-09

Parameter : Input Offset Current : IIO1DUT3

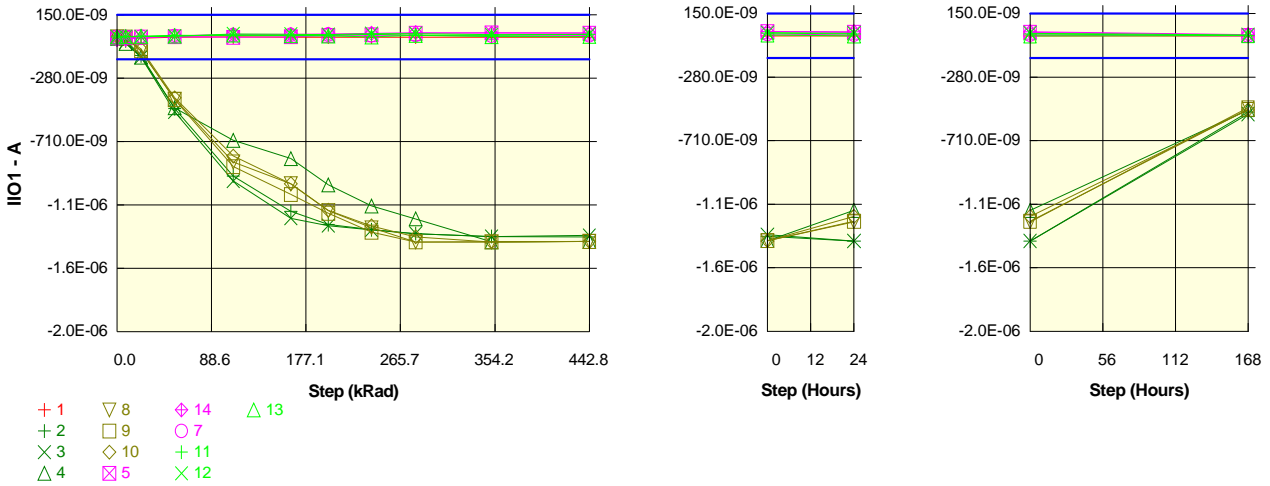
Test conditions : VCC=9V

Unit : A

Spec Limit Min : -150.0E-09

Spec Limit Max : 150.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-64.0E-12	-1.6E-09	-6.6E-09	-568.0E-12	168.0E-12	-54.0E-12	-320.0E-12	-142.0E-12	6.0E-12	24.0E-12	-448.0E-12	-424.0E-12	-2.0E-09
ON PROTON samples													
2	6.7E-09	-25.1E-09	-125.9E-09	-486.2E-09	-943.7E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-517.6E-09
3	428.0E-12	-35.3E-09	-136.5E-09	-507.2E-09	-977.3E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.4E-06	-528.9E-09
4	-7.3E-09	-43.3E-09	-135.9E-09	-480.3E-09	-701.4E-09	-824.9E-09	-1.0E-06	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-501.5E-09
Statistics													
Min	-7.3E-09	-43.3E-09	-136.5E-09	-507.2E-09	-977.3E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-528.9E-09
Max	6.7E-09	-25.1E-09	-125.9E-09	-480.3E-09	-701.4E-09	-824.9E-09	-1.0E-06	-1.1E-06	-1.2E-06	-1.4E-06	-1.3E-06	-1.2E-06	-501.5E-09
Average	-72.0E-12	-34.6E-09	-132.8E-09	-491.2E-09	-874.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-516.0E-09
Sigma	5.7E-09	7.4E-09	4.8E-09	11.5E-09	122.9E-09	181.1E-09	129.0E-09	76.2E-09	46.7E-09	17.3E-09	16.9E-09	97.0E-09	11.2E-09

Drift Calculation

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-31.8E-09	-132.6E-09	-492.9E-09	-950.4E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-524.3E-09
3	-	-35.7E-09	-136.9E-09	-507.6E-09	-977.7E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.4E-06	-529.3E-09
4	-	-35.9E-09	-128.6E-09	-473.0E-09	-694.0E-09	-817.6E-09	-995.2E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-494.1E-09
Average	-	-34.5E-09	-132.7E-09	-491.2E-09	-874.0E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-515.9E-09
Sigma	-	1.9E-09	3.4E-09	14.2E-09	127.8E-09	185.9E-09	134.1E-09	81.4E-09	51.9E-09	12.4E-09	13.2E-09	102.2E-09	15.5E-09

Measurements

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-64.0E-12	-1.6E-09	-6.6E-09	-568.0E-12	168.0E-12	-54.0E-12	-320.0E-12	-142.0E-12	6.0E-12	24.0E-12	-448.0E-12	-424.0E-12	-2.0E-09
ON TID samples													
8	132.0E-12	0.0E+00	-93.8E-09	-420.3E-09	-848.4E-09	-996.0E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-487.4E-09
9	26.0E-12	-5.2E-09	-93.4E-09	-424.5E-09	-879.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-498.3E-09
10	2.2E-09	0.0E+00	-82.6E-09	-412.1E-09	-808.0E-09	-995.6E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-501.5E-09
Statistics													
Min	26.0E-12	-5.2E-09	-93.8E-09	-424.5E-09	-879.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-501.5E-09
Max	2.2E-09	0.0E+00	-82.6E-09	-412.1E-09	-808.0E-09	-995.6E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-487.4E-09
Average	779.3E-12	-1.7E-09	-89.9E-09	-418.9E-09	-845.2E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-495.7E-09
Sigma	991.4E-12	2.5E-09	5.2E-09	5.2E-09	29.1E-09	34.2E-09	9.0E-09	17.8E-09	16.4E-09	43.2E-12	34.0E-12	16.3E-09	6.0E-09

Drift Calculation

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-132.0E-12	-94.0E-09	-420.4E-09	-848.6E-09	-996.1E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-487.5E-09
9	-	-5.2E-09	-93.4E-09	-424.5E-09	-879.1E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-498.4E-09
10	-	-2.2E-09	-84.8E-09	-414.2E-09	-810.2E-09	-997.8E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-503.7E-09
Average	-	-2.5E-09	-90.7E-09	-419.7E-09	-846.0E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-496.5E-09
Sigma	-	2.1E-09	4.2E-09	4.2E-09	28.2E-09	33.6E-09	8.4E-09	17.1E-09	15.4E-09	1.0E-09	958.8E-12	15.3E-09	6.7E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-64.0E-12	-1.6E-09	-6.6E-09	-568.0E-12	168.0E-12	-54.0E-12	-320.0E-12	-142.0E-12	6.0E-12	24.0E-12	-448.0E-12	-424.0E-12	-2.0E-09
OFF_PROTON samples													
5	-4.2E-09	-1.5E-09	142.0E-12	2.5E-09	-1.7E-09	1.4E-09	10.7E-09	15.7E-09	25.0E-09	28.5E-09	27.1E-09	23.3E-09	1.4E-09
14	-16.3E-09	-13.9E-09	-4.5E-09	6.7E-09	18.1E-09	18.0E-09	20.4E-09	25.8E-09	30.4E-09	26.2E-09	27.5E-09	26.2E-09	7.1E-09
7	-56.0E-12	-1.0E-09	1.4E-09	5.0E-09	13.1E-09	14.0E-09	16.2E-09	11.7E-09	12.8E-09	7.9E-09	10.9E-09	6.0E-09	-611.1E-12
Statistics													
Min	-16.3E-09	-13.9E-09	-4.5E-09	2.5E-09	-1.7E-09	1.4E-09	10.7E-09	11.7E-09	12.8E-09	7.9E-09	10.9E-09	6.0E-09	-611.1E-12
Max	-56.0E-12	-1.0E-09	1.4E-09	6.7E-09	18.1E-09	18.0E-09	20.4E-09	25.8E-09	30.4E-09	28.5E-09	27.5E-09	26.2E-09	7.1E-09
Average	-6.9E-09	-5.5E-09	-974.0E-12	4.7E-09	9.8E-09	11.1E-09	15.7E-09	17.7E-09	22.7E-09	20.9E-09	21.8E-09	18.5E-09	2.7E-09
Sigma	6.9E-09	5.9E-09	2.5E-09	1.7E-09	8.4E-09	7.1E-09	4.0E-09	5.9E-09	7.4E-09	9.2E-09	7.7E-09	8.9E-09	3.3E-09

Drift Calculation

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_PROTON samples													
5	-	2.7E-09	4.3E-09	6.6E-09	2.5E-09	5.6E-09	14.9E-09	19.9E-09	29.2E-09	32.7E-09	31.2E-09	27.5E-09	5.6E-09
14	-	2.5E-09	11.8E-09	23.0E-09	34.4E-09	34.3E-09	36.7E-09	42.1E-09	46.7E-09	42.5E-09	43.8E-09	42.5E-09	23.4E-09
7	-	-966.0E-12	1.5E-09	5.0E-09	13.2E-09	14.0E-09	16.2E-09	11.7E-09	12.8E-09	8.0E-09	10.9E-09	6.1E-09	-555.1E-12
Average	-	1.4E-09	5.9E-09	11.6E-09	16.7E-09	18.0E-09	22.6E-09	24.6E-09	29.6E-09	27.7E-09	28.7E-09	25.4E-09	9.5E-09
Sigma	-	1.7E-09	4.4E-09	8.1E-09	13.2E-09	12.1E-09	10.0E-09	12.8E-09	13.8E-09	14.5E-09	13.6E-09	15.0E-09	10.2E-09

Measurements

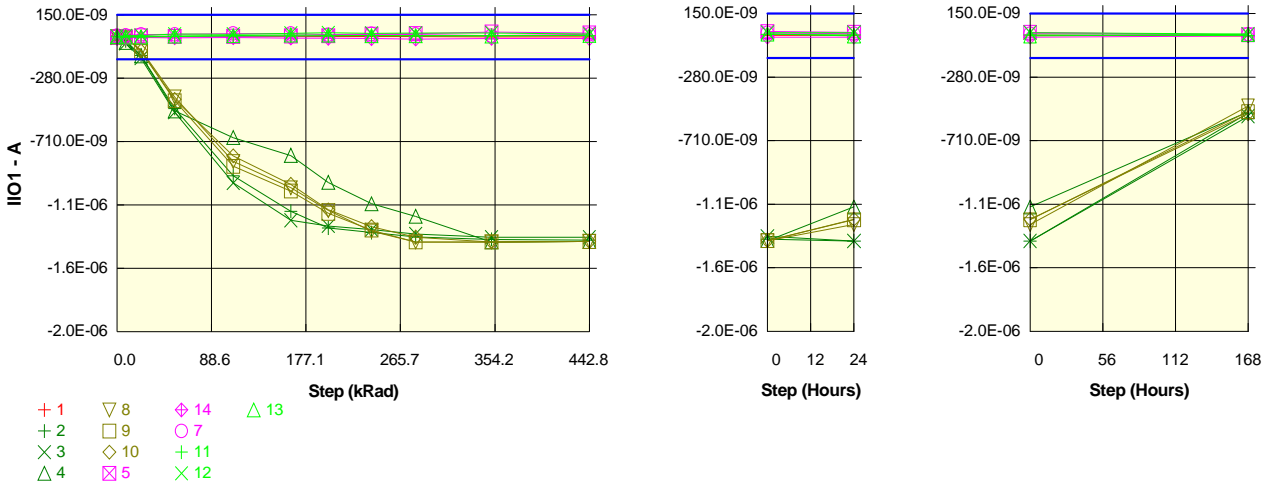
IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-64.0E-12	-1.6E-09	-6.6E-09	-568.0E-12	168.0E-12	-54.0E-12	-320.0E-12	-142.0E-12	6.0E-12	24.0E-12	-448.0E-12	-424.0E-12	-2.0E-09
OFF_TID samples													
11	302.0E-12	3.7E-09	5.5E-09	12.5E-09	9.2E-09	9.3E-09	13.5E-09	18.4E-09	12.7E-09	12.8E-09	18.0E-09	11.7E-09	1.0E-09
12	1.5E-09	1.7E-09	3.7E-09	5.8E-09	21.2E-09	19.1E-09	16.8E-09	22.9E-09	22.9E-09	15.0E-09	18.9E-09	16.8E-09	5.4E-09
13	-86.0E-12	3.6E-09	4.7E-09	8.3E-09	14.3E-09	9.4E-09	6.7E-09	718.0E-12	11.6E-09	2.6E-09	4.2E-09	-1.7E-09	222.2E-12
Statistics													
Min	-86.0E-12	1.7E-09	3.7E-09	5.8E-09	9.2E-09	9.3E-09	6.7E-09	718.0E-12	11.6E-09	2.6E-09	4.2E-09	-1.7E-09	222.2E-12
Max	1.5E-09	3.7E-09	5.5E-09	12.5E-09	21.2E-09	19.1E-09	16.8E-09	22.9E-09	22.9E-09	15.0E-09	18.9E-09	16.8E-09	5.4E-09
Average	563.3E-12	3.0E-09	4.6E-09	8.9E-09	14.9E-09	12.6E-09	12.3E-09	14.0E-09	15.7E-09	10.1E-09	13.7E-09	8.9E-09	2.2E-09
Sigma	663.1E-12	940.1E-12	735.1E-12	2.8E-09	4.9E-09	4.6E-09	4.2E-09	9.6E-09	5.1E-09	5.4E-09	6.7E-09	7.8E-09	2.3E-09

Drift Calculation

IIO1DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_TID samples													
11	-	3.4E-09	5.2E-09	12.2E-09	8.9E-09	9.0E-09	13.2E-09	18.1E-09	12.4E-09	12.5E-09	17.7E-09	11.4E-09	735.0E-12
12	-	226.0E-12	2.2E-09	4.3E-09	19.7E-09	17.7E-09	15.4E-09	21.4E-09	21.4E-09	13.5E-09	17.4E-09	15.3E-09	3.9E-09
13	-	3.7E-09	4.8E-09	8.3E-09	14.4E-09	9.5E-09	6.8E-09	804.0E-12	11.7E-09	2.7E-09	4.3E-09	-1.6E-09	308.2E-12
Average	-	2.5E-09	4.1E-09	8.3E-09	14.3E-09	12.0E-09	11.8E-09	13.4E-09	15.2E-09	9.6E-09	13.1E-09	8.4E-09	1.7E-09
Sigma	-	1.6E-09	1.3E-09	3.2E-09	4.4E-09	4.0E-09	3.7E-09	9.0E-09	4.4E-09	4.9E-09	6.2E-09	7.2E-09	1.6E-09

Parameter : Input Offset Current : IIO1DUT4
 Test conditions : VCC=9V

Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.6E-09	230.0E-12	-2.1E-09	2.7E-09	2.6E-09	3.1E-09	2.7E-09	2.7E-09	2.6E-09	2.2E-09	1.6E-09	2.4E-09	-592.6E-12
ON PROTON samples													
2	6.9E-09	-25.9E-09	-124.1E-09	-485.3E-09	-942.4E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-523.5E-09
3	-7.1E-09	-42.9E-09	-144.0E-09	-509.5E-09	-990.2E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-543.9E-09
4	-276.0E-12	-36.5E-09	-127.1E-09	-500.4E-09	-682.7E-09	-803.2E-09	-986.3E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-514.4E-09
Statistics													
Min	-7.1E-09	-42.9E-09	-144.0E-09	-509.5E-09	-990.2E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-543.9E-09
Max	6.9E-09	-25.9E-09	-124.1E-09	-485.3E-09	-682.7E-09	-803.2E-09	-986.3E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-514.4E-09
Average	-161.3E-12	-35.1E-09	-131.7E-09	-498.4E-09	-871.8E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-527.3E-09
Sigma	5.7E-09	7.0E-09	8.7E-09	10.0E-09	135.1E-09	194.8E-09	142.9E-09	87.6E-09	61.8E-09	12.7E-09	11.7E-09	108.4E-09	12.3E-09

Drift Calculation

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-32.8E-09	-131.0E-09	-492.3E-09	-949.3E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-530.4E-09
3	-	-35.8E-09	-136.8E-09	-502.4E-09	-983.1E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-536.8E-09
4	-	-36.2E-09	-126.8E-09	-500.2E-09	-682.4E-09	-802.9E-09	-986.1E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-514.2E-09
Average	-	-34.9E-09	-131.6E-09	-498.3E-09	-871.6E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.3E-06	-527.1E-09
Sigma	-	1.5E-09	4.1E-09	4.3E-09	134.5E-09	194.3E-09	143.3E-09	88.4E-09	62.9E-09	16.1E-09	16.0E-09	108.6E-09	9.5E-09

Measurements

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.6E-09	230.0E-12	-2.1E-09	2.7E-09	2.6E-09	3.1E-09	2.7E-09	2.7E-09	2.6E-09	2.2E-09	1.6E-09	2.4E-09	-592.6E-12
ON TID samples													
8	2.6E-09	-6.5E-09	-87.8E-09	-406.6E-09	-844.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-475.9E-09
9	338.0E-12	0.0E+00	-96.6E-09	-432.4E-09	-877.0E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-512.8E-09
10	-3.4E-09	0.0E+00	-92.9E-09	-422.7E-09	-805.8E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-528.1E-09
Statistics													
Min	-3.4E-09	-6.5E-09	-96.6E-09	-432.4E-09	-877.0E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-528.1E-09
Max	2.6E-09	0.0E+00	-87.8E-09	-406.6E-09	-805.8E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-475.9E-09
Average	-162.0E-12	-2.2E-09	-92.4E-09	-420.5E-09	-842.4E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-505.6E-09
Sigma	2.5E-09	3.1E-09	3.6E-09	10.6E-09	29.1E-09	18.0E-09	10.0E-09	13.0E-09	15.2E-09	58.9E-12	43.2E-12	15.9E-09	21.9E-09

Drift Calculation

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-9.1E-09	-90.3E-09	-409.2E-09	-847.0E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-478.5E-09
9	-	-338.0E-12	-96.9E-09	-432.7E-09	-877.4E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-513.1E-09
10	-	3.4E-09	-89.5E-09	-419.3E-09	-802.4E-09	-997.0E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-524.8E-09
Average	-	-2.0E-09	-92.2E-09	-420.4E-09	-842.3E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06	-505.5E-09
Sigma	-	5.2E-09	3.3E-09	9.6E-09	30.8E-09	19.6E-09	11.1E-09	15.5E-09	17.5E-09	2.4E-09	2.5E-09	18.0E-09	19.7E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-09	230.0E-12	-2.1E-09	2.7E-09	2.6E-09	3.1E-09	2.7E-09	2.7E-09	2.6E-09	2.2E-09	1.6E-09	2.4E-09	-592.6E-12
OFF_PROTON samples													
5	1.0E-09	3.4E-09	7.8E-09	4.4E-09	5.0E-09	8.0E-09	9.5E-09	18.8E-09	23.9E-09	33.7E-09	27.7E-09	23.6E-09	5.1E-09
14	-8.0E-09	-5.9E-09	-3.5E-09	-4.5E-09	-3.3E-09	-7.1E-09	-8.5E-09	-10.6E-09	-13.2E-09	-8.8E-09	-9.8E-09	-9.0E-09	-981.5E-12
7	8.8E-09	11.8E-09	16.2E-09	18.2E-09	24.0E-09	22.5E-09	15.7E-09	21.1E-09	17.1E-09	9.6E-09	18.3E-09	12.9E-09	8.3E-09
Statistics													
Min	-8.0E-09	-5.9E-09	-3.5E-09	-4.5E-09	-3.3E-09	-7.1E-09	-8.5E-09	-10.6E-09	-13.2E-09	-8.8E-09	-9.8E-09	-9.0E-09	-981.5E-12
Max	8.8E-09	11.8E-09	16.2E-09	18.2E-09	24.0E-09	22.5E-09	15.7E-09	21.1E-09	23.9E-09	33.7E-09	27.7E-09	23.6E-09	8.3E-09
Average	633.3E-12	3.1E-09	6.8E-09	6.0E-09	8.6E-09	7.8E-09	5.6E-09	9.8E-09	9.2E-09	11.5E-09	12.1E-09	9.2E-09	4.1E-09
Sigma	6.9E-09	7.2E-09	8.1E-09	9.4E-09	11.4E-09	12.1E-09	10.2E-09	14.4E-09	16.1E-09	17.4E-09	15.9E-09	13.6E-09	3.9E-09

Drift Calculation

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_PROTON samples													
5	-	2.3E-09	6.7E-09	3.3E-09	3.9E-09	7.0E-09	8.5E-09	17.8E-09	22.8E-09	32.7E-09	26.7E-09	22.6E-09	4.1E-09
14	-	2.1E-09	4.5E-09	3.4E-09	4.7E-09	850.0E-12	-486.0E-12	-2.6E-09	-5.3E-09	-858.0E-12	-1.8E-09	-1.1E-09	7.0E-09
7	-	2.9E-09	7.4E-09	9.4E-09	15.2E-09	13.7E-09	6.9E-09	12.2E-09	8.3E-09	766.0E-12	9.4E-09	4.1E-09	-521.7E-12
Average	-	2.4E-09	6.2E-09	5.4E-09	8.0E-09	7.2E-09	5.0E-09	9.1E-09	8.6E-09	10.9E-09	11.4E-09	8.5E-09	3.5E-09
Sigma	-	358.0E-12	1.2E-09	2.8E-09	5.2E-09	5.2E-09	3.9E-09	8.6E-09	11.5E-09	15.4E-09	11.7E-09	10.1E-09	3.1E-09

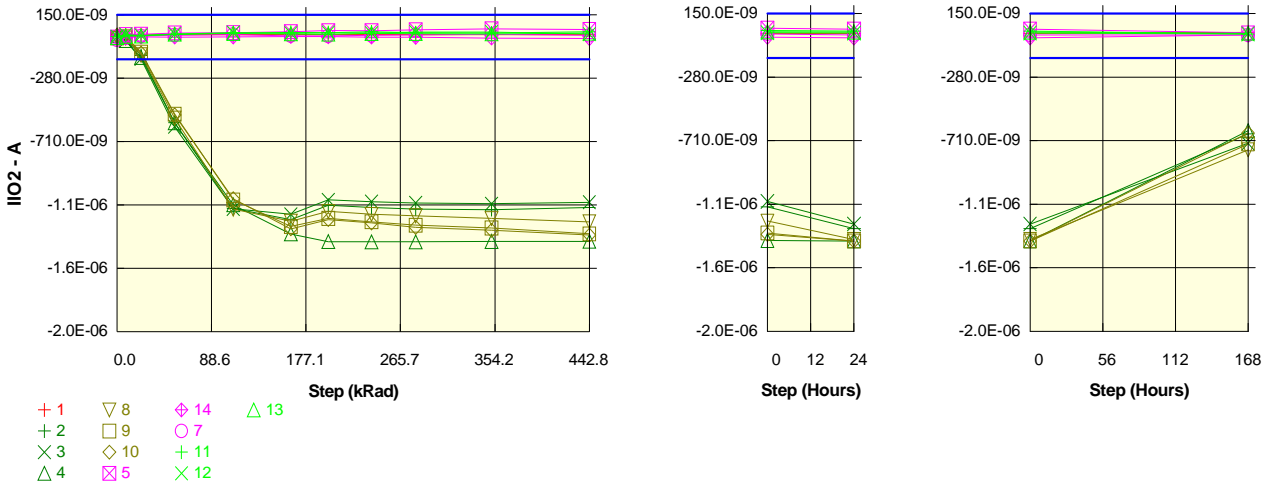
Measurements

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-09	230.0E-12	-2.1E-09	2.7E-09	2.6E-09	3.1E-09	2.7E-09	2.7E-09	2.6E-09	2.2E-09	1.6E-09	2.4E-09	-592.6E-12
OFF_TID samples													
11	2.0E-09	1.6E-09	1.3E-09	3.0E-09	6.6E-09	7.1E-09	7.6E-09	9.2E-09	7.2E-09	10.9E-09	9.3E-09	5.1E-09	1.0E-09
12	5.7E-09	8.9E-09	10.8E-09	19.9E-09	19.3E-09	24.9E-09	29.0E-09	25.4E-09	26.7E-09	28.1E-09	20.4E-09	21.1E-09	10.0E-09
13	1.9E-09	156.0E-12	796.0E-12	8.6E-09	8.8E-09	14.3E-09	13.0E-09	8.9E-09	9.0E-09	7.3E-09	12.4E-09	-1.8E-09	9.2E-09
Statistics													
Min	1.9E-09	156.0E-12	796.0E-12	3.0E-09	6.6E-09	7.1E-09	7.6E-09	8.9E-09	7.2E-09	7.3E-09	9.3E-09	-1.8E-09	1.0E-09
Max	5.7E-09	8.9E-09	10.8E-09	19.9E-09	19.3E-09	24.9E-09	29.0E-09	25.4E-09	26.7E-09	28.1E-09	20.4E-09	21.1E-09	10.0E-09
Average	3.2E-09	3.6E-09	4.3E-09	10.5E-09	11.6E-09	15.4E-09	16.5E-09	14.5E-09	14.3E-09	15.4E-09	14.0E-09	8.1E-09	6.8E-09
Sigma	1.8E-09	3.8E-09	4.6E-09	7.0E-09	5.5E-09	7.3E-09	9.1E-09	7.7E-09	8.8E-09	9.1E-09	4.7E-09	9.6E-09	4.1E-09

Drift Calculation

IIO1DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_TID samples													
11	-	-388.0E-12	-684.0E-12	1.0E-09	4.6E-09	5.2E-09	5.6E-09	7.3E-09	5.2E-09	8.9E-09	7.3E-09	3.1E-09	-955.5E-12
12	-	3.2E-09	5.1E-09	14.2E-09	13.6E-09	19.2E-09	23.3E-09	19.6E-09	20.9E-09	22.4E-09	14.7E-09	15.4E-09	4.3E-09
13	-	-1.8E-09	-1.1E-09	6.7E-09	6.9E-09	12.4E-09	11.0E-09	7.0E-09	7.1E-09	5.3E-09	10.5E-09	-3.7E-09	7.3E-09
Average	-	356.7E-12	1.1E-09	7.3E-09	8.4E-09	12.2E-09	13.3E-09	11.3E-09	11.1E-09	12.2E-09	10.8E-09	4.9E-09	3.6E-09
Sigma	-	2.1E-09	2.8E-09	5.4E-09	3.8E-09	5.7E-09	7.4E-09	5.9E-09	7.0E-09	7.4E-09	3.0E-09	7.9E-09	3.4E-09

Parameter : Input Offset Current : IIO2DUT1
 Test conditions : VCC=30V
 Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	15.9E-09	14.5E-09	13.9E-09	16.2E-09	15.9E-09	16.0E-09	16.5E-09	16.4E-09	15.3E-09	16.1E-09	16.9E-09	16.8E-09	21.5E-09
ON PROTON samples													
2	9.2E-09	-7.5E-09	-125.3E-09	-581.8E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-663.2E-09
3	-280.0E-12	-23.6E-09	-147.5E-09	-608.7E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-727.7E-09
4	10.7E-09	-24.3E-09	-137.8E-09	-582.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-642.0E-09
Statistics													
Min	-280.0E-12	-24.3E-09	-147.5E-09	-608.7E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-727.7E-09
Max	10.7E-09	-7.5E-09	-125.3E-09	-581.8E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-642.0E-09
Average	6.5E-09	-18.5E-09	-136.9E-09	-590.9E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-677.6E-09
Sigma	4.9E-09	7.7E-09	9.1E-09	12.6E-09	11.9E-09	56.6E-09	125.7E-09	120.2E-09	116.0E-09	112.5E-09	117.0E-09	48.5E-09	36.5E-09

Drift Calculation

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-16.7E-09	-134.4E-09	-591.0E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-672.4E-09
3	-	-23.3E-09	-147.2E-09	-608.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-727.4E-09
4	-	-35.0E-09	-148.5E-09	-592.7E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-652.7E-09
Average	-	-25.0E-09	-143.4E-09	-597.4E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-684.2E-09
Sigma	-	7.6E-09	6.4E-09	7.8E-09	9.2E-09	60.5E-09	129.2E-09	123.7E-09	119.6E-09	116.0E-09	120.5E-09	52.5E-09	31.6E-09

Measurements

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	15.9E-09	14.5E-09	13.9E-09	16.2E-09	15.9E-09	16.0E-09	16.5E-09	16.4E-09	15.3E-09	16.1E-09	16.9E-09	16.8E-09	21.5E-09
ON TID samples													
8	-7.2E-09	-7.0E-09	-119.9E-09	-550.7E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-772.0E-09
9	-5.1E-09	3.2E-09	-103.0E-09	-523.5E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-732.7E-09
10	12.6E-09	-4.1E-09	-109.8E-09	-528.2E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-658.3E-09
Statistics													
Min	-7.2E-09	-7.0E-09	-119.9E-09	-550.7E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-772.0E-09
Max	12.6E-09	3.2E-09	-103.0E-09	-523.5E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-658.3E-09
Average	104.0E-12	-2.6E-09	-110.9E-09	-534.1E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.4E-06	-721.0E-09
Sigma	8.9E-09	4.3E-09	6.9E-09	11.9E-09	31.6E-09	21.7E-09	24.8E-09	25.9E-09	34.3E-09	34.7E-09	40.4E-09	5.2E-09	47.1E-09

Drift Calculation

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	152.0E-12	-112.7E-09	-543.5E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.4E-06	-764.8E-09
9	-	8.3E-09	-97.8E-09	-518.4E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-727.5E-09
10	-	-16.7E-09	-122.4E-09	-540.8E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-670.9E-09
Average	-	-2.7E-09	-111.0E-09	-534.2E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-721.1E-09
Sigma	-	10.4E-09	10.1E-09	11.3E-09	26.6E-09	29.3E-09	31.6E-09	32.5E-09	41.0E-09	41.6E-09	46.7E-09	12.6E-09	38.6E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	15.9E-09	14.5E-09	13.9E-09	16.2E-09	15.9E-09	16.0E-09	16.5E-09	16.4E-09	15.3E-09	16.1E-09	16.9E-09	16.8E-09	21.5E-09
OFF PROTON samples													
5	706.0E-12	18.3E-09	19.7E-09	27.6E-09	30.1E-09	36.5E-09	43.3E-09	42.8E-09	50.2E-09	55.6E-09	50.8E-09	44.2E-09	19.6E-09
14	-6.7E-09	3.0E-09	1.1E-09	-796.0E-12	266.0E-12	4.9E-09	2.6E-09	-342.0E-12	-1.7E-09	-7.0E-09	-10.3E-09	-13.7E-09	4.8E-09
7	-18.6E-09	-6.2E-09	6.5E-09	12.7E-09	16.4E-09	8.6E-09	7.3E-09	11.6E-09	14.3E-09	18.4E-09	11.8E-09	6.2E-09	4.4E-09
Statistics													
Min	-18.6E-09	-6.2E-09	1.1E-09	-796.0E-12	266.0E-12	4.9E-09	2.6E-09	-342.0E-12	-1.7E-09	-7.0E-09	-10.3E-09	-13.7E-09	4.4E-09
Max	706.0E-12	18.3E-09	19.7E-09	27.6E-09	30.1E-09	36.5E-09	43.3E-09	42.8E-09	50.2E-09	55.6E-09	50.8E-09	44.2E-09	19.6E-09
Average	-8.2E-09	5.0E-09	9.1E-09	13.2E-09	15.6E-09	16.7E-09	17.7E-09	18.0E-09	21.0E-09	22.3E-09	17.4E-09	12.2E-09	9.6E-09
Sigma	8.0E-09	10.1E-09	7.8E-09	11.6E-09	12.2E-09	14.1E-09	18.2E-09	18.2E-09	21.7E-09	25.7E-09	25.2E-09	24.0E-09	7.1E-09

Drift Calculation

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	17.6E-09	19.0E-09	26.9E-09	29.4E-09	35.8E-09	42.6E-09	42.1E-09	49.5E-09	54.9E-09	50.1E-09	43.5E-09	18.9E-09
14	-	9.6E-09	7.8E-09	5.9E-09	6.9E-09	11.6E-09	9.2E-09	6.3E-09	5.0E-09	-388.0E-12	-3.6E-09	-7.0E-09	11.4E-09
7	-	12.4E-09	25.1E-09	31.3E-09	35.0E-09	27.2E-09	25.9E-09	30.2E-09	32.9E-09	37.0E-09	30.4E-09	24.8E-09	23.0E-09
Average	-	13.2E-09	17.3E-09	21.4E-09	23.8E-09	24.9E-09	25.9E-09	26.2E-09	29.1E-09	30.5E-09	25.6E-09	20.4E-09	17.8E-09
Sigma	-	3.3E-09	7.2E-09	11.1E-09	12.1E-09	10.0E-09	13.6E-09	14.9E-09	18.4E-09	23.0E-09	22.2E-09	20.8E-09	4.8E-09

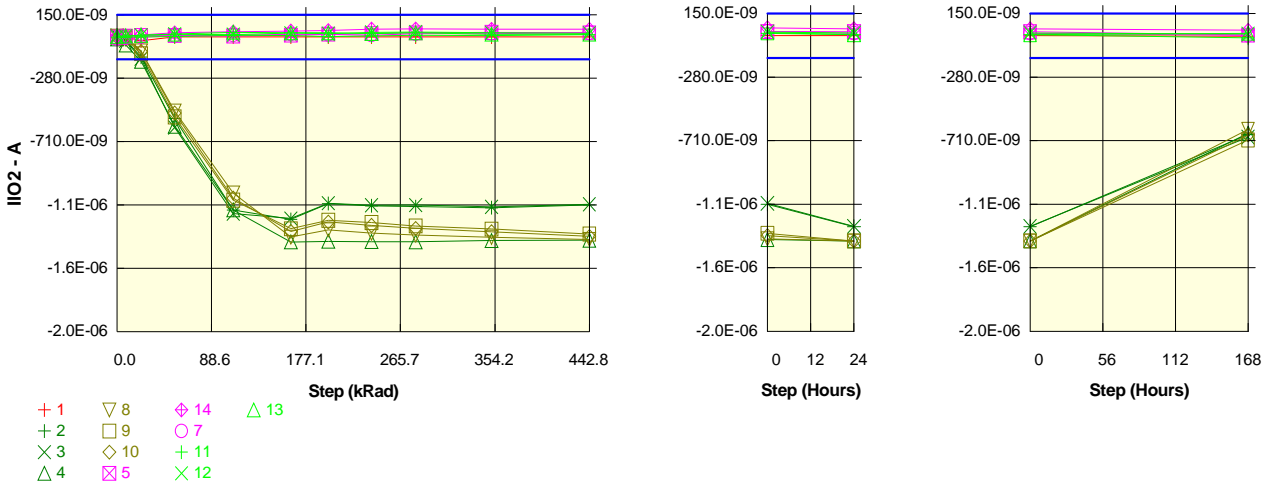
Measurements

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	15.9E-09	14.5E-09	13.9E-09	16.2E-09	15.9E-09	16.0E-09	16.5E-09	16.4E-09	15.3E-09	16.1E-09	16.9E-09	16.8E-09	21.5E-09
OFF TID samples													
11	4.4E-09	12.4E-09	8.8E-09	19.2E-09	27.6E-09	31.8E-09	29.9E-09	35.4E-09	28.6E-09	28.1E-09	35.6E-09	29.9E-09	10.4E-09
12	2.7E-09	16.1E-09	10.6E-09	20.2E-09	30.2E-09	25.0E-09	30.4E-09	26.1E-09	33.6E-09	34.5E-09	20.0E-09	18.2E-09	12.0E-09
13	-3.7E-09	5.5E-09	8.0E-09	19.4E-09	25.6E-09	21.8E-09	19.1E-09	25.6E-09	24.1E-09	21.8E-09	27.2E-09	23.8E-09	17.1E-09
Statistics													
Min	-3.7E-09	5.5E-09	8.0E-09	19.2E-09	25.6E-09	21.8E-09	19.1E-09	25.6E-09	24.1E-09	21.8E-09	20.0E-09	18.2E-09	10.4E-09
Max	4.4E-09	16.1E-09	10.6E-09	20.2E-09	30.2E-09	31.8E-09	30.4E-09	35.4E-09	33.6E-09	34.5E-09	35.6E-09	29.9E-09	17.1E-09
Average	1.1E-09	11.3E-09	9.1E-09	19.6E-09	27.8E-09	26.2E-09	26.5E-09	29.0E-09	28.7E-09	28.2E-09	27.6E-09	24.0E-09	13.2E-09
Sigma	3.5E-09	4.4E-09	1.1E-09	428.1E-12	1.9E-09	4.2E-09	5.2E-09	4.5E-09	3.9E-09	5.2E-09	6.4E-09	4.8E-09	2.9E-09

Drift Calculation

IIO2DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	8.0E-09	4.3E-09	14.8E-09	23.2E-09	27.4E-09	25.5E-09	31.0E-09	24.2E-09	23.7E-09	31.2E-09	25.5E-09	6.0E-09
12	-	13.3E-09	7.8E-09	17.5E-09	27.5E-09	22.2E-09	27.7E-09	23.4E-09	30.9E-09	31.8E-09	17.3E-09	15.4E-09	9.3E-09
13	-	9.2E-09	11.8E-09	23.1E-09	29.3E-09	25.5E-09	22.9E-09	29.3E-09	27.8E-09	25.5E-09	30.9E-09	27.5E-09	20.9E-09
Average	-	10.2E-09	8.0E-09	18.5E-09	26.7E-09	25.0E-09	25.4E-09	27.9E-09	27.6E-09	27.0E-09	26.4E-09	22.8E-09	12.1E-09
Sigma	-	2.3E-09	3.0E-09	3.5E-09	2.6E-09	2.1E-09	2.0E-09	3.3E-09	2.7E-09	3.5E-09	6.5E-09	5.3E-09	6.4E-09

Parameter : Input Offset Current : IIO2DUT2
 Test conditions : VCC=30V
 Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	252.0E-12	-296.0E-12	-25.7E-09	206.0E-12	312.0E-12	262.0E-12	176.0E-12	240.0E-12	318.0E-12	174.0E-12	190.0E-12	204.0E-12	-3.8E-09
ON PROTON samples													
2	12.7E-09	-18.4E-09	-136.8E-09	-552.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.3E-06	-667.9E-09
3	10.6E-09	-26.9E-09	-146.7E-09	-613.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-685.9E-09
4	-13.0E-09	-53.2E-09	-164.2E-09	-604.2E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-659.6E-09
Statistics													
Min	-13.0E-09	-53.2E-09	-164.2E-09	-613.5E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-685.9E-09
Max	12.7E-09	-18.4E-09	-136.8E-09	-552.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-659.6E-09
Average	3.4E-09	-32.8E-09	-149.2E-09	-590.1E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-671.1E-09
Sigma	11.7E-09	14.8E-09	11.3E-09	26.8E-09	11.5E-09	73.6E-09	121.2E-09	115.6E-09	115.4E-09	106.5E-09	114.1E-09	45.9E-09	11.0E-09

Drift Calculation

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-31.0E-09	-149.4E-09	-565.2E-09	-1.2E-06	-1.3E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-680.5E-09
3	-	-37.5E-09	-157.3E-09	-624.1E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.3E-06	-696.5E-09
4	-	-40.2E-09	-151.1E-09	-591.1E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-646.6E-09
Average	-	-36.2E-09	-152.6E-09	-593.5E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-674.5E-09
Sigma	-	3.8E-09	3.4E-09	24.1E-09	19.8E-09	62.0E-09	109.6E-09	104.0E-09	103.8E-09	94.9E-09	102.5E-09	34.4E-09	20.8E-09

Measurements

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	252.0E-12	-296.0E-12	-25.7E-09	206.0E-12	312.0E-12	262.0E-12	176.0E-12	240.0E-12	318.0E-12	174.0E-12	190.0E-12	204.0E-12	-3.8E-09
ON TID samples													
8	5.4E-09	2.1E-09	-93.6E-09	-501.8E-09	-1.1E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-633.6E-09
9	752.0E-12	-6.5E-09	-113.6E-09	-542.1E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-705.8E-09
10	824.0E-12	-4.4E-09	-98.2E-09	-516.1E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-672.1E-09
Statistics													
Min	752.0E-12	-6.5E-09	-113.6E-09	-542.1E-09	-1.1E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-705.8E-09
Max	5.4E-09	2.1E-09	-93.6E-09	-501.8E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-633.6E-09
Average	2.3E-09	-2.9E-09	-101.8E-09	-520.0E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-670.5E-09
Sigma	2.2E-09	3.6E-09	8.5E-09	16.7E-09	20.3E-09	24.0E-09	28.2E-09	29.9E-09	26.1E-09	22.9E-09	15.1E-09	34.0E-12	29.5E-09

Drift Calculation

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-3.3E-09	-99.0E-09	-507.2E-09	-1.1E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-639.0E-09
9	-	-7.3E-09	-114.3E-09	-542.8E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-706.5E-09
10	-	-5.2E-09	-99.0E-09	-517.0E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-672.9E-09
Average	-	-5.3E-09	-104.1E-09	-522.3E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-672.8E-09
Sigma	-	1.6E-09	7.2E-09	15.0E-09	18.2E-09	26.0E-09	30.4E-09	32.0E-09	28.2E-09	25.0E-09	17.1E-09	2.1E-09	27.6E-09

Hirex Engineering	Total Dose Radiation Test Report								Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02

Measurements

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	252.0E-12	-296.0E-12	-25.7E-09	206.0E-12	312.0E-12	262.0E-12	176.0E-12	240.0E-12	318.0E-12	174.0E-12	190.0E-12	204.0E-12	-3.8E-09
OFF PROTON samples													
5	136.0E-12	5.2E-09	10.6E-09	10.5E-09	8.1E-09	13.1E-09	19.2E-09	24.3E-09	28.9E-09	31.3E-09	28.6E-09	26.9E-09	4.7E-09
14	6.7E-09	6.2E-09	14.4E-09	29.2E-09	35.1E-09	39.6E-09	43.5E-09	54.2E-09	54.6E-09	52.9E-09	52.7E-09	47.1E-09	36.2E-09
7	-12.2E-09	-6.8E-09	-318.0E-12	8.1E-09	13.2E-09	18.8E-09	17.5E-09	13.6E-09	22.5E-09	24.5E-09	29.8E-09	16.8E-09	1.7E-09
Statistics													
Min	-12.2E-09	-6.8E-09	-318.0E-12	8.1E-09	8.1E-09	13.1E-09	17.5E-09	13.6E-09	22.5E-09	24.5E-09	28.6E-09	16.8E-09	1.7E-09
Max	6.7E-09	6.2E-09	14.4E-09	29.2E-09	35.1E-09	39.6E-09	43.5E-09	54.2E-09	54.6E-09	52.9E-09	52.7E-09	47.1E-09	36.2E-09
Average	-1.8E-09	1.5E-09	8.2E-09	15.9E-09	18.8E-09	23.8E-09	26.7E-09	30.7E-09	35.3E-09	36.3E-09	37.0E-09	30.3E-09	14.2E-09
Sigma	7.8E-09	5.9E-09	6.2E-09	9.4E-09	11.7E-09	11.4E-09	11.9E-09	17.2E-09	13.9E-09	12.1E-09	11.1E-09	12.6E-09	15.6E-09

Drift Calculation

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	5.1E-09	10.5E-09	10.4E-09	8.0E-09	12.9E-09	19.0E-09	24.2E-09	28.7E-09	31.2E-09	28.5E-09	26.7E-09	4.6E-09
14	-	-480.0E-12	7.7E-09	22.5E-09	28.4E-09	32.9E-09	36.8E-09	47.5E-09	47.9E-09	46.2E-09	46.0E-09	40.4E-09	29.5E-09
7	-	5.4E-09	11.9E-09	20.2E-09	25.4E-09	31.0E-09	29.6E-09	25.8E-09	34.7E-09	36.7E-09	41.9E-09	29.0E-09	13.9E-09
Average	-	3.3E-09	10.0E-09	17.7E-09	20.6E-09	25.6E-09	28.5E-09	32.5E-09	37.1E-09	38.0E-09	38.8E-09	32.0E-09	16.0E-09
Sigma	-	2.7E-09	1.7E-09	5.3E-09	9.0E-09	9.0E-09	7.3E-09	10.6E-09	8.0E-09	6.2E-09	7.5E-09	6.0E-09	10.3E-09

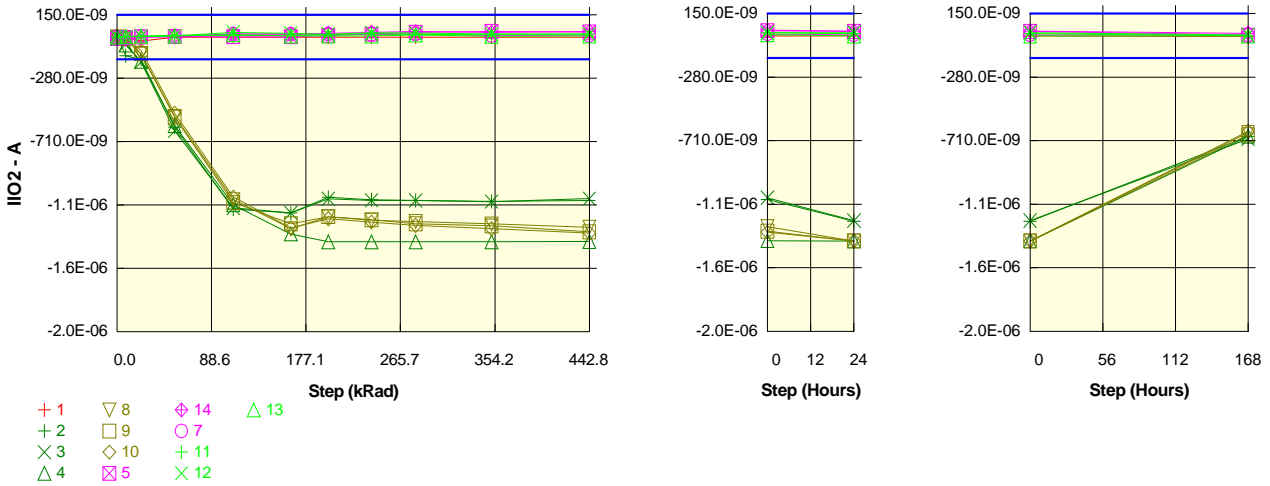
Measurements

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	252.0E-12	-296.0E-12	-25.7E-09	206.0E-12	312.0E-12	262.0E-12	176.0E-12	240.0E-12	318.0E-12	174.0E-12	190.0E-12	204.0E-12	-3.8E-09
OFF TID samples													
11	-1.7E-09	-1.0E-09	1.5E-09	3.6E-09	11.2E-09	9.1E-09	4.3E-09	6.9E-09	11.2E-09	10.2E-09	15.6E-09	7.2E-09	-13.6E-09
12	3.0E-09	5.7E-09	13.1E-09	19.2E-09	16.2E-09	26.7E-09	23.0E-09	32.0E-09	34.2E-09	29.5E-09	25.0E-09	17.7E-09	12.0E-09
13	6.1E-09	8.7E-09	12.4E-09	19.9E-09	32.3E-09	29.2E-09	29.2E-09	23.7E-09	29.0E-09	18.7E-09	19.0E-09	6.6E-09	16.4E-09
Statistics													
Min	-1.7E-09	-1.0E-09	1.5E-09	3.6E-09	11.2E-09	9.1E-09	4.3E-09	6.9E-09	11.2E-09	10.2E-09	15.6E-09	6.6E-09	-13.6E-09
Max	6.1E-09	8.7E-09	13.1E-09	19.9E-09	32.3E-09	29.2E-09	29.2E-09	32.0E-09	34.2E-09	29.5E-09	25.0E-09	17.7E-09	16.4E-09
Average	2.5E-09	4.5E-09	9.0E-09	14.2E-09	19.9E-09	21.7E-09	18.8E-09	20.8E-09	24.8E-09	19.5E-09	19.9E-09	10.5E-09	4.9E-09
Sigma	3.2E-09	4.1E-09	5.3E-09	7.5E-09	9.0E-09	9.0E-09	10.6E-09	10.4E-09	9.9E-09	7.9E-09	3.9E-09	5.1E-09	13.3E-09

Drift Calculation

IIO2DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	690.0E-12	3.2E-09	5.3E-09	12.9E-09	10.8E-09	6.0E-09	8.6E-09	12.9E-09	11.9E-09	17.4E-09	8.9E-09	-11.9E-09
12	-	2.7E-09	10.1E-09	16.2E-09	13.1E-09	23.7E-09	19.9E-09	28.9E-09	31.1E-09	26.5E-09	21.9E-09	14.7E-09	9.0E-09
13	-	2.6E-09	6.3E-09	13.8E-09	26.2E-09	23.2E-09	23.1E-09	17.6E-09	23.0E-09	12.6E-09	13.0E-09	536.0E-12	10.4E-09
Average	-	2.0E-09	6.6E-09	11.8E-09	17.4E-09	19.2E-09	16.4E-09	18.4E-09	22.3E-09	17.0E-09	17.4E-09	8.0E-09	2.5E-09
Sigma	-	927.0E-12	2.8E-09	4.7E-09	6.2E-09	5.9E-09	7.4E-09	8.3E-09	7.4E-09	6.7E-09	3.7E-09	5.8E-09	10.2E-09

Parameter : Input Offset Current : IIO2DUT3
 Test conditions : VCC=30V
 Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-720.0E-12	-2.0E-09	-28.3E-09	-2.1E-09	-856.0E-12	-732.0E-12	-962.0E-12	-874.0E-12	-780.0E-12	-882.0E-12	-1.1E-09	-1.0E-09	-6.6E-09
ON PROTON samples													
2	8.2E-09	-126.8E-09	-152.7E-09	-611.7E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-681.9E-09
3	1.8E-09	-46.0E-09	-168.8E-09	-635.2E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-697.9E-09
4	-8.6E-09	-53.5E-09	-165.1E-09	-600.5E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-680.4E-09
Statistics													
Min	-8.6E-09	-126.8E-09	-168.8E-09	-635.2E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-697.9E-09
Max	8.2E-09	-46.0E-09	-152.7E-09	-600.5E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-680.4E-09
Average	468.7E-12	-75.4E-09	-162.2E-09	-615.8E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-686.7E-09
Sigma	6.9E-09	36.4E-09	6.9E-09	14.5E-09	12.6E-09	67.4E-09	139.9E-09	133.7E-09	132.2E-09	129.2E-09	134.0E-09	63.7E-09	7.9E-09

Drift Calculation

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-135.0E-09	-160.9E-09	-619.9E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-690.1E-09
3	-	-47.8E-09	-170.6E-09	-637.0E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-699.7E-09
4	-	-44.9E-09	-156.5E-09	-591.9E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-671.8E-09
Average	-	-75.9E-09	-162.7E-09	-616.3E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-687.2E-09
Sigma	-	41.8E-09	5.9E-09	18.6E-09	19.4E-09	61.0E-09	133.4E-09	127.2E-09	125.9E-09	122.9E-09	127.7E-09	57.4E-09	11.6E-09

Measurements

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-720.0E-12	-2.0E-09	-28.3E-09	-2.1E-09	-856.0E-12	-732.0E-12	-962.0E-12	-874.0E-12	-780.0E-12	-882.0E-12	-1.1E-09	-1.0E-09	-6.6E-09
ON TID samples													
8	-832.0E-12	-12.5E-09	-115.5E-09	-537.8E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-654.3E-09
9	-376.0E-12	-8.6E-09	-112.4E-09	-543.1E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-670.8E-09
10	3.4E-09	-3.6E-09	-91.6E-09	-516.8E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-646.8E-09
Statistics													
Min	-832.0E-12	-12.5E-09	-115.5E-09	-543.1E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-670.8E-09
Max	3.4E-09	-3.6E-09	-91.6E-09	-516.8E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-646.8E-09
Average	730.7E-12	-8.2E-09	-106.5E-09	-532.5E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-657.3E-09
Sigma	1.9E-09	3.6E-09	10.6E-09	11.4E-09	15.1E-09	15.1E-09	6.1E-09	6.7E-09	10.8E-09	13.6E-09	16.8E-09	41.1E-12	10.0E-09

Drift Calculation

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-11.7E-09	-114.6E-09	-536.9E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-653.5E-09
9	-	-8.2E-09	-112.1E-09	-542.7E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-670.4E-09
10	-	-7.0E-09	-95.0E-09	-520.2E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-650.2E-09
Average	-	-9.0E-09	-107.2E-09	-533.3E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-658.0E-09
Sigma	-	2.0E-09	8.7E-09	9.6E-09	13.6E-09	15.7E-09	8.0E-09	8.5E-09	12.4E-09	15.5E-09	18.3E-09	1.9E-09	8.9E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-720.0E-12	-2.0E-09	-28.3E-09	-2.1E-09	-856.0E-12	-732.0E-12	-962.0E-12	-874.0E-12	-780.0E-12	-882.0E-12	-1.1E-09	-1.0E-09	-6.6E-09
OFF_PROTON samples													
5	-6.0E-09	-2.2E-09	1.2E-09	4.4E-09	1.8E-09	1.9E-09	10.9E-09	20.8E-09	32.3E-09	38.3E-09	34.1E-09	29.4E-09	3.9E-09
14	-12.9E-09	-12.1E-09	-2.7E-09	8.3E-09	21.0E-09	22.1E-09	25.2E-09	32.3E-09	38.0E-09	31.3E-09	38.3E-09	31.3E-09	16.8E-09
7	-858.0E-12	-500.0E-12	1.6E-09	1.8E-09	20.9E-09	19.7E-09	19.7E-09	16.8E-09	20.1E-09	9.8E-09	11.6E-09	6.2E-09	4.0E-09
Statistics													
Min	-12.9E-09	-12.1E-09	-2.7E-09	1.8E-09	1.8E-09	1.9E-09	10.9E-09	16.8E-09	20.1E-09	9.8E-09	11.6E-09	6.2E-09	3.9E-09
Max	-858.0E-12	-500.0E-12	1.6E-09	8.3E-09	21.0E-09	22.1E-09	25.2E-09	32.3E-09	38.0E-09	38.3E-09	38.3E-09	31.3E-09	16.8E-09
Average	-6.6E-09	-4.9E-09	50.0E-12	4.8E-09	14.6E-09	14.5E-09	18.6E-09	23.3E-09	30.1E-09	26.5E-09	28.0E-09	22.3E-09	8.2E-09
Sigma	4.9E-09	5.1E-09	1.9E-09	2.7E-09	9.0E-09	9.0E-09	5.9E-09	6.6E-09	7.5E-09	12.1E-09	11.7E-09	11.4E-09	6.0E-09

Drift Calculation

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_PROTON samples													
5	-	3.9E-09	7.3E-09	10.4E-09	7.9E-09	7.9E-09	16.9E-09	26.9E-09	38.4E-09	44.3E-09	40.1E-09	35.4E-09	9.9E-09
14	-	786.0E-12	10.3E-09	21.2E-09	34.0E-09	35.0E-09	38.2E-09	45.3E-09	50.9E-09	44.3E-09	51.3E-09	44.2E-09	29.7E-09
7	-	358.0E-12	2.4E-09	2.6E-09	21.7E-09	20.5E-09	20.6E-09	17.6E-09	20.9E-09	10.7E-09	12.5E-09	7.1E-09	4.9E-09
Average	-	1.7E-09	6.7E-09	11.4E-09	21.2E-09	21.2E-09	25.2E-09	29.9E-09	36.7E-09	33.1E-09	34.6E-09	28.9E-09	14.8E-09
Sigma	-	1.6E-09	3.2E-09	7.6E-09	10.7E-09	11.1E-09	9.3E-09	11.5E-09	12.3E-09	15.8E-09	16.3E-09	15.9E-09	10.7E-09

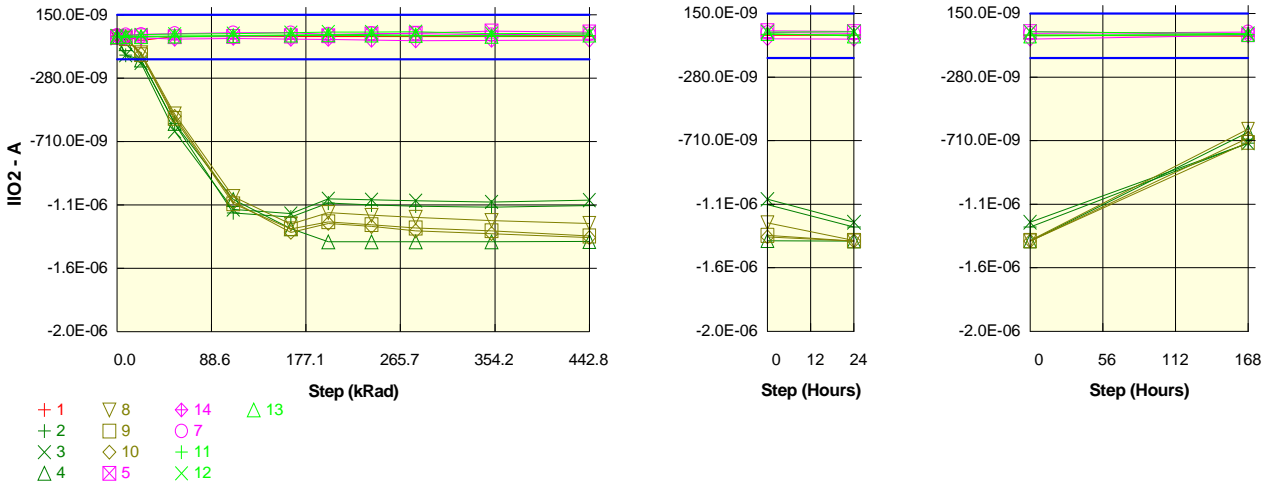
Measurements

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-720.0E-12	-2.0E-09	-28.3E-09	-2.1E-09	-856.0E-12	-732.0E-12	-962.0E-12	-874.0E-12	-780.0E-12	-882.0E-12	-1.1E-09	-1.0E-09	-6.6E-09
OFF_TID samples													
11	346.0E-12	3.1E-09	5.2E-09	12.3E-09	10.9E-09	11.7E-09	15.6E-09	23.8E-09	15.9E-09	18.9E-09	20.2E-09	13.9E-09	-1.6E-09
12	1.1E-09	366.0E-12	4.8E-09	7.1E-09	31.1E-09	25.9E-09	18.7E-09	28.6E-09	26.6E-09	19.9E-09	20.8E-09	20.8E-09	5.5E-09
13	-546.0E-12	3.5E-09	5.6E-09	7.5E-09	15.1E-09	6.8E-09	7.0E-09	6.5E-09	14.0E-09	5.1E-09	6.5E-09	-2.2E-09	-1.8E-09
Statistics													
Min	-546.0E-12	366.0E-12	4.8E-09	7.1E-09	10.9E-09	6.8E-09	7.0E-09	6.5E-09	14.0E-09	5.1E-09	6.5E-09	-2.2E-09	-1.8E-09
Max	1.1E-09	3.5E-09	5.6E-09	12.3E-09	31.1E-09	25.9E-09	18.7E-09	28.6E-09	26.6E-09	19.9E-09	20.8E-09	20.8E-09	5.5E-09
Average	299.3E-12	2.3E-09	5.2E-09	9.0E-09	19.1E-09	14.8E-09	13.8E-09	19.6E-09	18.8E-09	14.6E-09	15.9E-09	10.8E-09	697.5E-12
Sigma	672.0E-12	1.4E-09	334.8E-12	2.3E-09	8.7E-09	8.1E-09	4.9E-09	9.5E-09	5.5E-09	6.7E-09	6.6E-09	9.6E-09	3.4E-09

Drift Calculation

IIO2DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_TID samples													
11	-	2.8E-09	4.9E-09	12.0E-09	10.6E-09	11.4E-09	15.3E-09	23.5E-09	15.5E-09	18.6E-09	19.9E-09	13.6E-09	-2.0E-09
12	-	-732.0E-12	3.7E-09	6.0E-09	30.0E-09	24.8E-09	17.6E-09	27.5E-09	25.5E-09	18.8E-09	19.7E-09	19.7E-09	4.4E-09
13	-	4.1E-09	6.2E-09	8.1E-09	15.7E-09	7.3E-09	7.6E-09	7.0E-09	14.6E-09	5.7E-09	7.1E-09	-1.6E-09	-1.2E-09
Average	-	2.0E-09	4.9E-09	8.7E-09	18.8E-09	14.5E-09	13.5E-09	19.3E-09	18.5E-09	14.3E-09	15.6E-09	10.5E-09	398.2E-12
Sigma	-	2.0E-09	1.0E-09	2.5E-09	8.2E-09	7.5E-09	4.3E-09	8.9E-09	4.9E-09	6.1E-09	6.0E-09	9.0E-09	2.8E-09

Parameter : Input Offset Current : IIO2DUT4
 Test conditions : VCC=30V
 Unit : A
 Spec Limit Min : -150.0E-09
 Spec Limit Max : 150.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.9E-09	1.5E-09	-21.5E-09	3.0E-09	3.3E-09	3.3E-09	3.4E-09	3.5E-09	3.0E-09	3.4E-09	3.2E-09	3.1E-09	-3.6E-09
ON PROTON samples													
2	7.9E-09	-122.8E-09	-153.0E-09	-588.1E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-725.9E-09
3	-9.2E-09	-122.2E-09	-176.3E-09	-639.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-726.4E-09
4	110.0E-12	-45.1E-09	-154.8E-09	-585.5E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-652.9E-09
Statistics													
Min	-9.2E-09	-122.8E-09	-176.3E-09	-639.5E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-726.4E-09
Max	7.9E-09	-45.1E-09	-153.0E-09	-585.5E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-652.9E-09
Average	-398.0E-12	-96.7E-09	-161.4E-09	-604.4E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-701.7E-09
Sigma	7.0E-09	36.5E-09	10.6E-09	24.8E-09	38.6E-09	43.9E-09	131.4E-09	127.0E-09	124.1E-09	120.4E-09	124.1E-09	53.9E-09	34.5E-09

Drift Calculation

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-130.7E-09	-160.8E-09	-596.0E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-733.8E-09
3	-	-113.1E-09	-167.2E-09	-630.3E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-717.2E-09
4	-	-45.2E-09	-154.9E-09	-585.7E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-653.0E-09
Average	-	-96.3E-09	-161.0E-09	-604.0E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-701.3E-09
Sigma	-	36.9E-09	5.0E-09	19.1E-09	40.5E-09	46.2E-09	132.6E-09	128.3E-09	125.5E-09	121.7E-09	125.4E-09	56.3E-09	34.9E-09

Measurements

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	2.9E-09	1.5E-09	-21.5E-09	3.0E-09	3.3E-09	3.3E-09	3.4E-09	3.5E-09	3.0E-09	3.4E-09	3.2E-09	3.1E-09	-3.6E-09
ON TID samples													
8	3.3E-09	-6.7E-09	-107.0E-09	-521.9E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-632.4E-09
9	-12.0E-12	-10.4E-09	-118.7E-09	-551.3E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-721.1E-09
10	-756.0E-12	-10.8E-09	-114.9E-09	-538.2E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-691.2E-09
Statistics													
Min	-756.0E-12	-10.8E-09	-118.7E-09	-551.3E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-721.1E-09
Max	3.3E-09	-6.7E-09	-107.0E-09	-521.9E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-632.4E-09
Average	827.3E-12	-9.3E-09	-113.5E-09	-537.1E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-681.5E-09
Sigma	1.7E-09	1.9E-09	4.8E-09	12.0E-09	20.8E-09	22.8E-09	32.5E-09	33.9E-09	39.4E-09	38.4E-09	42.9E-09	1.6E-09	36.9E-09

Drift Calculation

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-9.9E-09	-110.3E-09	-525.2E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-635.6E-09
9	-	-10.4E-09	-118.6E-09	-551.2E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-721.1E-09
10	-	-10.0E-09	-114.2E-09	-537.4E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-690.4E-09
Average	-	-10.1E-09	-114.4E-09	-538.0E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-682.4E-09
Sigma	-	205.9E-12	3.4E-09	10.7E-09	19.3E-09	21.1E-09	30.8E-09	32.1E-09	37.7E-09	36.6E-09	41.2E-09	287.4E-12	35.3E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.9E-09	1.5E-09	-21.5E-09	3.0E-09	3.3E-09	3.3E-09	3.4E-09	3.5E-09	3.0E-09	3.4E-09	3.2E-09	3.1E-09	-3.6E-09
OFF_PROTON samples													
5	522.0E-12	3.6E-09	7.6E-09	2.5E-09	4.5E-09	8.8E-09	9.7E-09	21.6E-09	27.0E-09	39.7E-09	33.8E-09	27.8E-09	5.6E-09
14	194.0E-12	-5.0E-09	-4.9E-09	-14.7E-09	-9.4E-09	-14.7E-09	-15.8E-09	-20.0E-09	-25.6E-09	-21.5E-09	-19.8E-09	-22.9E-09	1.5E-09
7	11.5E-09	13.6E-09	17.8E-09	22.9E-09	29.3E-09	29.3E-09	18.9E-09	23.9E-09	24.4E-09	15.8E-09	21.5E-09	15.6E-09	25.1E-09
Statistics													
Min	194.0E-12	-5.0E-09	-4.9E-09	-14.7E-09	-9.4E-09	-14.7E-09	-15.8E-09	-20.0E-09	-25.6E-09	-21.5E-09	-19.8E-09	-22.9E-09	1.5E-09
Max	11.5E-09	13.6E-09	17.8E-09	22.9E-09	29.3E-09	29.3E-09	18.9E-09	23.9E-09	27.0E-09	39.7E-09	33.8E-09	27.8E-09	25.1E-09
Average	4.1E-09	4.1E-09	6.9E-09	3.5E-09	8.1E-09	7.8E-09	4.3E-09	8.5E-09	8.6E-09	11.3E-09	11.8E-09	6.8E-09	10.7E-09
Sigma	5.3E-09	7.6E-09	9.3E-09	15.4E-09	16.0E-09	18.0E-09	14.7E-09	20.2E-09	24.2E-09	25.2E-09	22.9E-09	21.6E-09	10.3E-09

Drift Calculation

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_PROTON samples													
5	-	3.1E-09	7.1E-09	2.0E-09	4.0E-09	8.2E-09	9.1E-09	21.0E-09	26.5E-09	39.2E-09	33.2E-09	27.3E-09	5.0E-09
14	-	-5.2E-09	-5.1E-09	-14.9E-09	-9.6E-09	-14.9E-09	-16.0E-09	-20.2E-09	-25.8E-09	-21.7E-09	-20.0E-09	-23.1E-09	1.3E-09
7	-	2.1E-09	6.3E-09	11.4E-09	17.8E-09	17.8E-09	7.4E-09	12.4E-09	12.8E-09	4.3E-09	10.0E-09	4.1E-09	13.6E-09
Average	-	-24.7E-12	2.8E-09	-542.0E-12	4.1E-09	3.7E-09	192.7E-12	4.4E-09	4.5E-09	7.3E-09	7.7E-09	2.8E-09	6.6E-09
Sigma	-	3.7E-09	5.6E-09	10.9E-09	11.1E-09	13.7E-09	11.4E-09	17.7E-09	22.1E-09	24.9E-09	21.8E-09	20.6E-09	5.2E-09

Measurements

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.9E-09	1.5E-09	-21.5E-09	3.0E-09	3.3E-09	3.3E-09	3.4E-09	3.5E-09	3.0E-09	3.4E-09	3.2E-09	3.1E-09	-3.6E-09
OFF_TID samples													
11	1.5E-09	-678.0E-12	2.3E-09	302.0E-12	8.7E-09	9.0E-09	11.4E-09	9.8E-09	8.3E-09	9.6E-09	9.0E-09	5.6E-09	8.1E-09
12	7.5E-09	11.2E-09	15.3E-09	20.0E-09	24.0E-09	30.5E-09	34.2E-09	34.6E-09	36.7E-09	23.2E-09	26.1E-09	27.3E-09	14.6E-09
13	1.7E-09	1.7E-09	3.1E-09	7.9E-09	9.1E-09	14.1E-09	15.9E-09	14.9E-09	12.4E-09	5.8E-09	13.8E-09	-1.6E-09	8.2E-09
Statistics													
Min	1.5E-09	-678.0E-12	2.3E-09	302.0E-12	8.7E-09	9.0E-09	11.4E-09	9.8E-09	8.3E-09	5.8E-09	9.0E-09	-1.6E-09	8.1E-09
Max	7.5E-09	11.2E-09	15.3E-09	20.0E-09	24.0E-09	30.5E-09	34.2E-09	34.6E-09	36.7E-09	23.2E-09	26.1E-09	27.3E-09	14.6E-09
Average	3.6E-09	4.1E-09	6.9E-09	9.4E-09	13.9E-09	17.9E-09	20.5E-09	19.8E-09	19.1E-09	12.9E-09	16.3E-09	10.4E-09	10.3E-09
Sigma	2.8E-09	5.1E-09	5.9E-09	8.1E-09	7.1E-09	9.1E-09	9.8E-09	10.7E-09	12.5E-09	7.5E-09	7.2E-09	12.3E-09	3.0E-09

Drift Calculation

IIO2DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF_TID samples													
11	-	-2.2E-09	798.0E-12	-1.2E-09	7.1E-09	7.5E-09	9.9E-09	8.3E-09	6.8E-09	8.1E-09	7.5E-09	4.0E-09	6.6E-09
12	-	3.6E-09	7.7E-09	12.5E-09	16.4E-09	22.9E-09	26.6E-09	27.1E-09	29.2E-09	15.6E-09	18.5E-09	19.7E-09	7.1E-09
13	-	-26.0E-12	1.3E-09	6.2E-09	7.3E-09	12.4E-09	14.2E-09	13.2E-09	10.7E-09	4.1E-09	12.1E-09	-3.4E-09	6.5E-09
Average	-	468.0E-12	3.3E-09	5.8E-09	10.3E-09	14.3E-09	16.9E-09	16.2E-09	15.5E-09	9.3E-09	12.7E-09	6.8E-09	6.7E-09
Sigma	-	2.4E-09	3.1E-09	5.6E-09	4.3E-09	6.4E-09	7.1E-09	8.0E-09	9.8E-09	4.8E-09	4.5E-09	9.6E-09	248.3E-12

Parameter : Input Bias Current : IIB1+DUT1

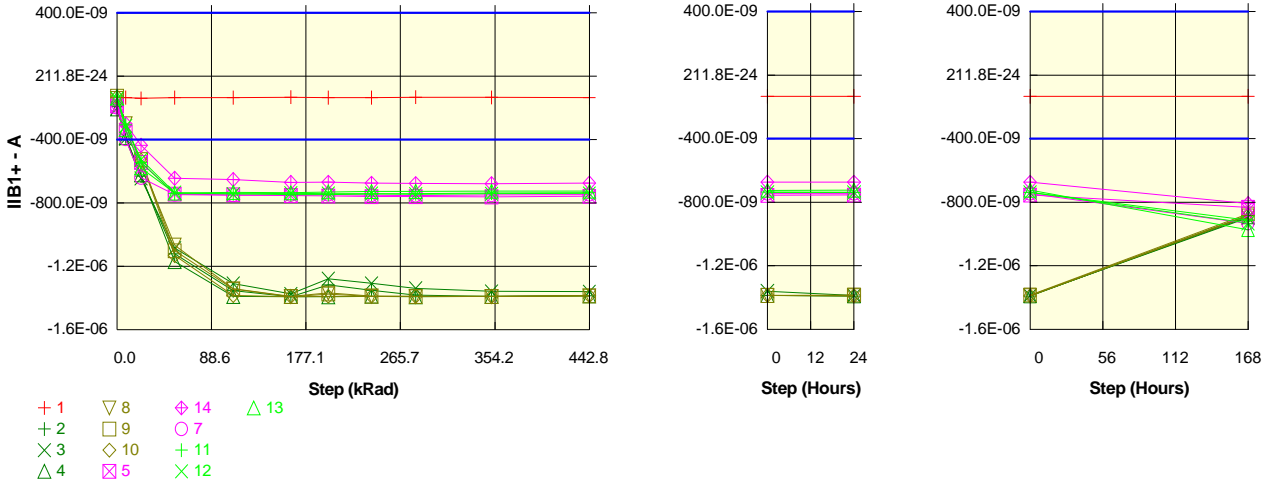
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-132.6E-09	-134.6E-09	-139.3E-09	-134.8E-09	-134.2E-09	-132.4E-09	-133.8E-09	-134.3E-09	-132.3E-09	-133.4E-09	-134.4E-09	-133.7E-09	-133.6E-09
ON PROTON samples													
2	-192.3E-09	-381.4E-09	-629.6E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-882.8E-09
3	-201.2E-09	-393.5E-09	-645.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-897.5E-09
4	-206.5E-09	-386.9E-09	-621.5E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-890.7E-09
Statistics													
Min	-206.5E-09	-393.5E-09	-645.0E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-897.5E-09
Max	-192.3E-09	-381.4E-09	-621.5E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-882.8E-09
Average	-200.0E-09	-387.3E-09	-632.0E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-890.4E-09
Sigma	5.8E-09	5.0E-09	9.8E-09	34.4E-09	33.1E-09	8.4E-09	47.5E-09	33.5E-09	22.7E-09	14.9E-09	12.5E-09	989.2E-12	6.0E-09

Drift Calculation

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-189.0E-09	-437.2E-09	-927.8E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-690.5E-09
3	-	-192.3E-09	-443.8E-09	-884.1E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-696.3E-09
4	-	-180.4E-09	-415.0E-09	-962.6E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-684.2E-09
Average	-	-187.2E-09	-432.0E-09	-924.8E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-690.3E-09
Sigma	-	5.0E-09	12.3E-09	32.1E-09	31.6E-09	11.3E-09	44.6E-09	32.0E-09	23.2E-09	16.7E-09	14.6E-09	6.7E-09	5.0E-09

Measurements

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-132.6E-09	-134.6E-09	-139.3E-09	-134.8E-09	-134.2E-09	-132.4E-09	-133.8E-09	-134.3E-09	-132.3E-09	-133.4E-09	-134.4E-09	-133.7E-09	-133.6E-09
ON TID samples													
8	-140.5E-09	-300.1E-09	-544.7E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-886.0E-09
9	-125.3E-09		-525.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-873.8E-09
10	-129.7E-09		-529.5E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-882.2E-09
Statistics													
Min	-140.5E-09	-300.1E-09	-544.7E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-886.0E-09
Max	-125.3E-09	-300.1E-09	-525.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-873.8E-09
Average	-131.8E-09	-300.1E-09	-533.1E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-880.7E-09
Sigma	6.4E-09	0.0E+00	8.4E-09	26.8E-09	19.5E-09	83.8E-12	8.6E-09	570.4E-12	122.6E-12	58.9E-12	34.0E-12	2.3E-09	5.1E-09

Drift Calculation

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-159.6E-09	-404.2E-09	-925.1E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-745.5E-09
9	-		-399.7E-09	-975.8E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-748.5E-09
10	-		-399.8E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-752.5E-09
Average	-	-159.6E-09	-401.3E-09	-967.4E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-748.8E-09
Sigma	-	0.0E+00	2.1E-09	31.8E-09	22.1E-09	6.5E-09	13.3E-09	6.9E-09	6.5E-09	6.4E-09	6.4E-09	5.0E-09	2.8E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-132.6E-09	-134.6E-09	-139.3E-09	-134.8E-09	-134.2E-09	-132.4E-09	-133.8E-09	-134.3E-09	-132.3E-09	-133.4E-09	-134.4E-09	-133.7E-09	-133.6E-09
OFF PROTON samples													
5	-187.8E-09	-351.3E-09	-543.8E-09	-743.6E-09	-748.2E-09	-752.3E-09	-755.6E-09	-759.5E-09	-760.0E-09	-761.2E-09	-756.9E-09	-755.6E-09	-832.6E-09
14	-184.6E-09	-300.0E-09	-435.3E-09	-643.5E-09	-651.3E-09	-669.7E-09	-668.9E-09	-675.2E-09	-677.3E-09	-677.5E-09	-673.5E-09	-674.9E-09	-808.4E-09
7	-195.8E-09	-396.8E-09	-640.0E-09	-745.7E-09	-750.3E-09	-748.4E-09	-745.4E-09	-749.9E-09	-752.4E-09	-749.9E-09	-746.1E-09	-745.4E-09	-933.2E-09
Statistics													
Min	-195.8E-09	-396.8E-09	-640.0E-09	-745.7E-09	-750.3E-09	-752.3E-09	-755.6E-09	-759.5E-09	-760.0E-09	-761.2E-09	-756.9E-09	-755.6E-09	-933.2E-09
Max	-184.6E-09	-300.0E-09	-435.3E-09	-643.5E-09	-651.3E-09	-669.7E-09	-668.9E-09	-675.2E-09	-677.3E-09	-677.5E-09	-673.5E-09	-674.9E-09	-808.4E-09
Average	-189.4E-09	-349.4E-09	-539.7E-09	-710.9E-09	-716.6E-09	-723.4E-09	-723.3E-09	-728.2E-09	-729.9E-09	-729.5E-09	-725.5E-09	-725.3E-09	-858.0E-09
Sigma	4.7E-09	39.5E-09	83.6E-09	47.7E-09	46.2E-09	38.0E-09	38.7E-09	37.7E-09	37.3E-09	37.1E-09	37.0E-09	35.9E-09	54.0E-09

Drift Calculation

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-163.5E-09	-356.0E-09	-555.9E-09	-560.4E-09	-564.5E-09	-567.8E-09	-571.7E-09	-572.2E-09	-573.5E-09	-569.1E-09	-567.8E-09	-644.8E-09
14	-	-115.5E-09	-250.8E-09	-459.0E-09	-466.7E-09	-485.1E-09	-484.3E-09	-490.6E-09	-492.8E-09	-493.0E-09	-488.9E-09	-490.4E-09	-623.8E-09
7	-	-201.0E-09	-444.2E-09	-549.8E-09	-554.4E-09	-552.5E-09	-549.6E-09	-554.1E-09	-556.6E-09	-554.0E-09	-550.2E-09	-549.6E-09	-737.3E-09
Average	-	-160.0E-09	-350.3E-09	-521.6E-09	-527.2E-09	-534.1E-09	-533.9E-09	-538.8E-09	-540.5E-09	-540.2E-09	-536.1E-09	-535.9E-09	-668.7E-09
Sigma	-	35.0E-09	79.1E-09	44.3E-09	42.8E-09	34.9E-09	35.8E-09	34.8E-09	34.4E-09	34.3E-09	34.2E-09	33.1E-09	49.3E-09

Measurements

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-132.6E-09	-134.6E-09	-139.3E-09	-134.8E-09	-134.2E-09	-132.4E-09	-133.8E-09	-134.3E-09	-132.3E-09	-133.4E-09	-134.4E-09	-133.7E-09	-133.6E-09
OFF TID samples													
11	-125.3E-09	-306.6E-09	-544.7E-09	-740.5E-09	-741.7E-09	-746.9E-09	-745.7E-09	-743.7E-09	-741.5E-09	-737.2E-09	-735.9E-09	-737.6E-09	-913.3E-09
12	-141.2E-09	-313.9E-09	-524.8E-09	-734.7E-09	-743.1E-09	-738.3E-09	-740.0E-09	-739.7E-09	-744.8E-09	-741.7E-09	-738.8E-09	-738.8E-09	-931.2E-09
13	-136.5E-09	-335.4E-09	-578.0E-09	-737.1E-09	-732.7E-09	-735.5E-09	-729.8E-09	-727.3E-09	-725.9E-09	-725.1E-09	-724.9E-09	-723.9E-09	-972.9E-09
Statistics													
Min	-141.2E-09	-335.4E-09	-578.0E-09	-740.5E-09	-743.1E-09	-746.9E-09	-745.7E-09	-743.7E-09	-744.8E-09	-741.7E-09	-738.8E-09	-738.8E-09	-972.9E-09
Max	-125.3E-09	-306.6E-09	-524.8E-09	-734.7E-09	-732.7E-09	-735.5E-09	-729.8E-09	-727.3E-09	-725.9E-09	-725.1E-09	-724.9E-09	-723.9E-09	-913.3E-09
Average	-134.3E-09	-318.6E-09	-549.2E-09	-737.4E-09	-739.2E-09	-740.2E-09	-738.5E-09	-736.9E-09	-737.4E-09	-734.7E-09	-733.2E-09	-733.4E-09	-939.1E-09
Sigma	6.7E-09	12.2E-09	21.9E-09	2.4E-09	4.6E-09	4.8E-09	6.6E-09	7.0E-09	8.3E-09	7.0E-09	6.0E-09	6.7E-09	25.0E-09

Drift Calculation

IIB1+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-181.3E-09	-419.4E-09	-615.2E-09	-616.4E-09	-621.6E-09	-620.4E-09	-618.4E-09	-616.2E-09	-611.9E-09	-610.6E-09	-612.3E-09	-788.0E-09
12	-	-172.7E-09	-383.7E-09	-593.6E-09	-601.9E-09	-597.2E-09	-598.8E-09	-598.5E-09	-603.7E-09	-600.5E-09	-597.6E-09	-597.6E-09	-790.0E-09
13	-	-198.9E-09	-441.5E-09	-600.6E-09	-596.2E-09	-599.0E-09	-593.3E-09	-590.8E-09	-589.4E-09	-588.6E-09	-588.4E-09	-587.4E-09	-836.4E-09
Average	-	-184.3E-09	-414.9E-09	-603.1E-09	-604.9E-09	-605.9E-09	-604.2E-09	-602.6E-09	-603.1E-09	-600.3E-09	-598.9E-09	-599.1E-09	-804.8E-09
Sigma	-	10.9E-09	23.8E-09	9.0E-09	8.5E-09	11.1E-09	11.7E-09	11.6E-09	11.0E-09	9.5E-09	9.1E-09	10.2E-09	22.4E-09

Parameter : Input Bias Current : IIB1+DUT2

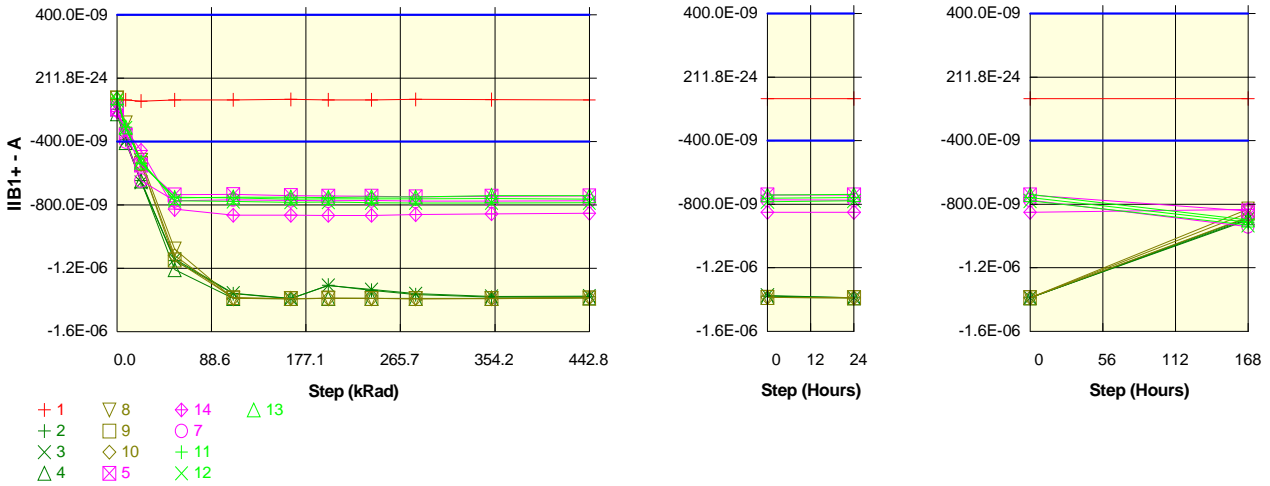
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-134.0E-09	-135.7E-09	-143.1E-09	-136.0E-09	-135.4E-09	-133.4E-09	-135.3E-09	-135.7E-09	-133.7E-09	-134.8E-09	-136.0E-09	-135.3E-09	-135.8E-09
ON PROTON samples													
2	-194.4E-09	-386.7E-09	-645.5E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-899.2E-09
3	-197.2E-09	-393.9E-09	-656.3E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-893.3E-09
4	-223.4E-09	-406.1E-09	-648.3E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-885.8E-09
Statistics													
Min	-223.4E-09	-406.1E-09	-656.3E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-899.2E-09
Max	-194.4E-09	-386.7E-09	-645.5E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-885.8E-09
Average	-205.0E-09	-395.6E-09	-650.1E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-892.8E-09
Sigma	13.0E-09	8.0E-09	4.6E-09	29.5E-09	15.2E-09	180.6E-12	39.1E-09	25.5E-09	13.2E-09	5.2E-09	5.1E-09	81.6E-12	5.5E-09

Drift Calculation

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-192.3E-09	-451.1E-09	-956.3E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-704.7E-09
3	-	-196.7E-09	-459.1E-09	-943.7E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-696.1E-09
4	-	-182.7E-09	-424.9E-09	-984.4E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-662.4E-09
Average	-	-190.6E-09	-445.0E-09	-961.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-687.8E-09
Sigma	-	5.8E-09	14.6E-09	17.0E-09	3.3E-09	12.9E-09	26.1E-09	12.8E-09	3.6E-09	8.6E-09	8.9E-09	13.0E-09	18.3E-09

Measurements

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-134.0E-09	-135.7E-09	-143.1E-09	-136.0E-09	-135.4E-09	-133.4E-09	-135.3E-09	-135.7E-09	-133.7E-09	-134.8E-09	-136.0E-09	-135.3E-09	-135.8E-09
ON TID samples													
8	-123.7E-09	-280.9E-09	-518.7E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-830.4E-09
9	-125.1E-09		-537.6E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-855.3E-09
10	-129.7E-09		-542.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-882.3E-09
Statistics													
Min	-129.7E-09	-280.9E-09	-542.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-882.3E-09
Max	-123.7E-09	-280.9E-09	-518.7E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-830.4E-09
Average	-126.2E-09	-280.9E-09	-533.0E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-856.0E-09
Sigma	2.6E-09	0.0E+00	10.4E-09	28.3E-09	2.6E-09	41.1E-12	933.5E-12	25.0E-12	57.4E-12	57.3E-12	43.2E-12	34.0E-12	21.2E-09

Drift Calculation

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-157.2E-09	-395.0E-09	-954.2E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-706.7E-09
9	-		-412.5E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-730.2E-09
10	-		-413.0E-09	-989.2E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-752.6E-09
Average	-	-157.2E-09	-406.9E-09	-988.4E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-729.8E-09
Sigma	-	0.0E+00	8.4E-09	27.5E-09	3.1E-09	2.5E-09	2.5E-09	2.6E-09	2.5E-09	2.5E-09	2.6E-09	2.5E-09	18.7E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-134.0E-09	-135.7E-09	-143.1E-09	-136.0E-09	-135.4E-09	-133.4E-09	-135.3E-09	-135.7E-09	-133.7E-09	-134.8E-09	-136.0E-09	-135.3E-09	-135.8E-09
OFF PROTON samples													
5	-193.2E-09	-356.7E-09	-546.6E-09	-736.0E-09	-733.4E-09	-739.6E-09	-743.9E-09	-744.2E-09	-747.7E-09	-744.7E-09	-742.1E-09	-742.7E-09	-842.4E-09
14	-209.5E-09	-322.5E-09	-454.6E-09	-826.9E-09	-864.1E-09	-864.5E-09	-865.9E-09	-865.6E-09	-860.1E-09	-855.4E-09	-852.4E-09	-850.5E-09	-832.5E-09
7	-197.6E-09	-399.7E-09	-645.8E-09	-772.1E-09	-766.6E-09	-770.9E-09	-773.5E-09	-770.7E-09	-776.1E-09	-775.6E-09	-773.0E-09	-773.3E-09	-940.5E-09
Statistics													
Min	-209.5E-09	-399.7E-09	-645.8E-09	-826.9E-09	-864.1E-09	-864.5E-09	-865.9E-09	-865.6E-09	-860.1E-09	-855.4E-09	-852.4E-09	-850.5E-09	-940.5E-09
Max	-193.2E-09	-322.5E-09	-454.6E-09	-736.0E-09	-733.4E-09	-739.6E-09	-743.9E-09	-744.2E-09	-747.7E-09	-744.7E-09	-742.1E-09	-742.7E-09	-832.5E-09
Average	-200.1E-09	-359.6E-09	-549.0E-09	-778.3E-09	-788.1E-09	-791.7E-09	-794.4E-09	-793.5E-09	-794.6E-09	-791.9E-09	-789.2E-09	-788.8E-09	-871.8E-09
Sigma	6.9E-09	31.6E-09	78.1E-09	37.4E-09	55.5E-09	53.1E-09	51.9E-09	52.1E-09	47.7E-09	46.6E-09	46.5E-09	45.3E-09	48.8E-09

Drift Calculation

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-163.4E-09	-353.3E-09	-542.7E-09	-540.2E-09	-546.3E-09	-550.6E-09	-551.0E-09	-554.4E-09	-551.5E-09	-548.9E-09	-549.5E-09	-649.2E-09
14	-	-113.0E-09	-245.0E-09	-617.3E-09	-654.6E-09	-655.0E-09	-656.3E-09	-656.0E-09	-650.5E-09	-645.8E-09	-642.9E-09	-640.9E-09	-623.0E-09
7	-	-202.1E-09	-448.2E-09	-574.4E-09	-569.0E-09	-573.2E-09	-575.9E-09	-573.1E-09	-578.5E-09	-577.9E-09	-575.4E-09	-575.7E-09	-742.9E-09
Average	-	-159.5E-09	-348.8E-09	-578.2E-09	-587.9E-09	-591.5E-09	-594.3E-09	-593.4E-09	-594.5E-09	-591.7E-09	-589.0E-09	-588.7E-09	-671.7E-09
Sigma	-	36.5E-09	83.0E-09	30.6E-09	48.6E-09	46.2E-09	45.1E-09	45.2E-09	40.8E-09	39.8E-09	39.6E-09	38.5E-09	51.5E-09

Measurements

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-134.0E-09	-135.7E-09	-143.1E-09	-136.0E-09	-135.4E-09	-133.4E-09	-135.3E-09	-135.7E-09	-133.7E-09	-134.8E-09	-136.0E-09	-135.3E-09	-135.8E-09
OFF TID samples													
11	-126.5E-09	-308.3E-09	-537.1E-09	-750.6E-09	-755.4E-09	-762.2E-09	-761.1E-09	-761.0E-09	-760.7E-09	-758.6E-09	-762.4E-09	-757.1E-09	-914.6E-09
12	-139.6E-09	-313.6E-09	-520.4E-09	-772.1E-09	-776.8E-09	-782.3E-09	-782.0E-09	-784.4E-09	-786.5E-09	-785.6E-09	-784.5E-09	-778.9E-09	-931.4E-09
13	-123.8E-09	-307.6E-09	-529.3E-09	-753.5E-09	-750.8E-09	-750.2E-09	-752.2E-09	-748.6E-09	-749.1E-09	-740.0E-09	-740.8E-09	-739.1E-09	-899.4E-09
Statistics													
Min	-139.6E-09	-313.6E-09	-537.1E-09	-772.1E-09	-776.8E-09	-782.3E-09	-782.0E-09	-784.4E-09	-786.5E-09	-785.6E-09	-784.5E-09	-778.9E-09	-931.4E-09
Max	-123.8E-09	-307.6E-09	-520.4E-09	-750.6E-09	-750.8E-09	-750.2E-09	-752.2E-09	-748.6E-09	-749.1E-09	-740.0E-09	-740.8E-09	-739.1E-09	-899.4E-09
Average	-130.0E-09	-309.8E-09	-528.9E-09	-758.7E-09	-761.0E-09	-764.9E-09	-765.1E-09	-764.7E-09	-765.5E-09	-761.4E-09	-762.6E-09	-758.4E-09	-915.1E-09
Sigma	6.9E-09	2.7E-09	6.8E-09	9.6E-09	11.3E-09	13.3E-09	12.5E-09	14.9E-09	15.7E-09	18.7E-09	17.9E-09	16.2E-09	13.0E-09

Drift Calculation

IIB1+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-181.7E-09	-410.6E-09	-624.0E-09	-628.9E-09	-635.6E-09	-634.6E-09	-634.5E-09	-634.2E-09	-632.1E-09	-635.8E-09	-630.6E-09	-788.1E-09
12	-	-174.0E-09	-380.8E-09	-632.5E-09	-637.2E-09	-642.7E-09	-642.4E-09	-644.8E-09	-646.9E-09	-646.0E-09	-644.9E-09	-639.3E-09	-791.8E-09
13	-	-183.8E-09	-405.5E-09	-629.7E-09	-627.0E-09	-626.4E-09	-628.4E-09	-624.8E-09	-625.3E-09	-616.2E-09	-617.0E-09	-615.4E-09	-775.6E-09
Average	-	-179.8E-09	-398.9E-09	-628.8E-09	-631.0E-09	-634.9E-09	-635.1E-09	-634.7E-09	-635.5E-09	-631.4E-09	-632.6E-09	-628.4E-09	-785.2E-09
Sigma	-	4.2E-09	13.0E-09	3.5E-09	4.4E-09	6.7E-09	5.7E-09	8.2E-09	8.9E-09	12.2E-09	11.6E-09	9.9E-09	6.9E-09

Parameter : Input Bias Current : IIB1+DUT3

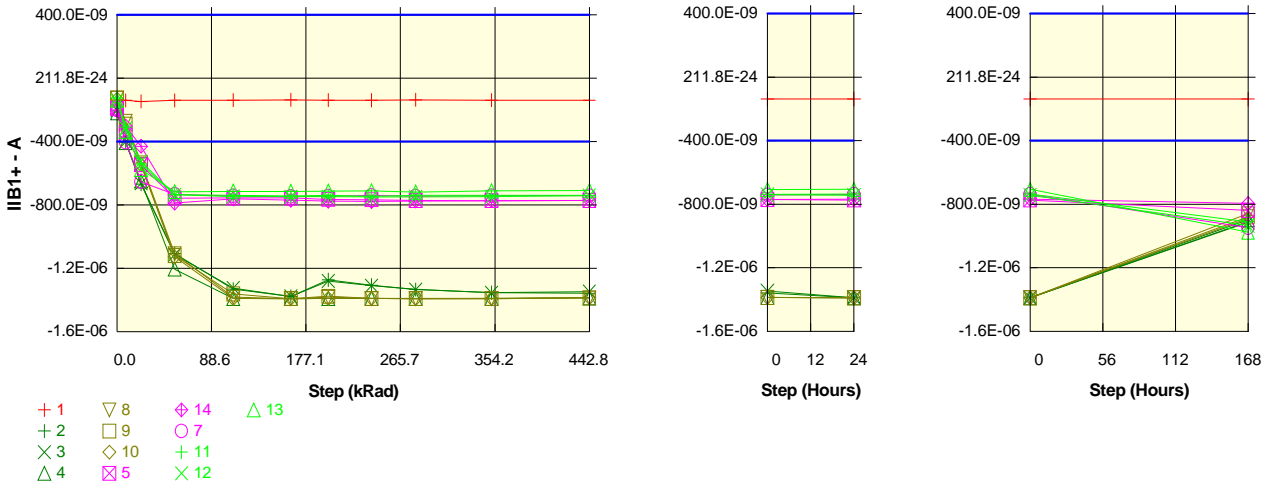
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.3E-09	-138.9E-09	-146.2E-09	-139.2E-09	-138.1E-09	-135.8E-09	-138.0E-09	-138.3E-09	-135.9E-09	-137.4E-09	-138.9E-09	-137.7E-09	-138.8E-09
ON PROTON samples													
2	-205.6E-09	-402.5E-09	-667.5E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-909.9E-09
3	-202.0E-09	-400.2E-09	-663.2E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.4E-06	-913.0E-09
4	-218.7E-09	-406.5E-09	-649.5E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-897.1E-09
Statistics													
Min	-218.7E-09	-406.5E-09	-667.5E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-913.0E-09
Max	-202.0E-09	-400.2E-09	-649.5E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.4E-06	-897.1E-09
Average	-208.8E-09	-403.1E-09	-660.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-906.7E-09
Sigma	7.2E-09	2.6E-09	7.7E-09	45.0E-09	29.5E-09	6.5E-09	53.7E-09	38.6E-09	26.8E-09	17.3E-09	16.9E-09	316.8E-12	6.9E-09

Drift Calculation

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-196.9E-09	-461.9E-09	-900.4E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-704.2E-09
3	-	-198.2E-09	-461.2E-09	-910.6E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.2E-06	-711.0E-09
4	-	-187.8E-09	-430.7E-09	-985.9E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-678.4E-09
Average	-	-194.3E-09	-451.3E-09	-932.3E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-697.9E-09
Sigma	-	4.6E-09	14.5E-09	38.1E-09	22.3E-09	1.2E-09	46.8E-09	31.6E-09	19.8E-09	10.4E-09	9.7E-09	6.9E-09	14.1E-09

Measurements

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.3E-09	-138.9E-09	-146.2E-09	-139.2E-09	-138.1E-09	-135.8E-09	-138.0E-09	-138.3E-09	-135.9E-09	-137.4E-09	-138.9E-09	-137.7E-09	-138.8E-09
ON TID samples													
8	-124.5E-09	-271.4E-09	-532.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-860.1E-09
9	-125.6E-09	-288.7E-09	-543.1E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-880.1E-09
10	-131.1E-09		-545.9E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-889.7E-09
Statistics													
Min	-131.1E-09	-288.7E-09	-545.9E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-889.7E-09
Max	-124.5E-09	-271.4E-09	-532.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-860.1E-09
Average	-127.1E-09	-280.0E-09	-540.6E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-876.7E-09
Sigma	2.9E-09	8.7E-09	5.6E-09	8.8E-09	12.3E-09	41.1E-12	5.5E-09	241.7E-12	57.3E-12	41.1E-12	25.0E-12	34.0E-12	12.4E-09

Drift Calculation

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-146.9E-09	-408.3E-09	-981.9E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-735.6E-09
9	-	-163.1E-09	-417.5E-09	-992.4E-09	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-754.6E-09
10	-		-414.8E-09	-996.8E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-758.6E-09
Average	-	-155.0E-09	-413.5E-09	-990.4E-09	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-749.6E-09
Sigma	-	8.1E-09	3.9E-09	6.3E-09	10.7E-09	2.9E-09	3.3E-09	3.1E-09	2.9E-09	2.9E-09	2.9E-09	2.9E-09	10.1E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.3E-09	-138.9E-09	-146.2E-09	-139.2E-09	-138.1E-09	-135.8E-09	-138.0E-09	-138.3E-09	-135.9E-09	-137.4E-09	-138.9E-09	-137.7E-09	-138.8E-09
OFF PROTON samples													
5	-190.8E-09	-355.3E-09	-545.7E-09	-755.9E-09	-755.1E-09	-754.6E-09	-764.2E-09	-766.7E-09	-771.6E-09	-772.0E-09	-771.7E-09	-773.8E-09	-838.8E-09
14	-198.6E-09	-302.4E-09	-428.5E-09	-787.3E-09	-760.3E-09	-768.9E-09	-775.9E-09	-776.7E-09	-774.3E-09	-772.4E-09	-770.3E-09	-769.3E-09	-795.8E-09
7	-200.2E-09	-403.6E-09	-652.2E-09	-742.6E-09	-742.6E-09	-745.8E-09	-744.6E-09	-739.2E-09	-745.2E-09	-741.4E-09	-740.8E-09	-737.5E-09	-947.4E-09
Statistics													
Min	-200.2E-09	-403.6E-09	-652.2E-09	-787.3E-09	-760.3E-09	-768.9E-09	-775.9E-09	-776.7E-09	-774.3E-09	-772.4E-09	-771.7E-09	-773.8E-09	-947.4E-09
Max	-190.8E-09	-302.4E-09	-428.5E-09	-732.6E-09	-742.6E-09	-745.8E-09	-744.6E-09	-739.2E-09	-745.2E-09	-741.4E-09	-740.8E-09	-737.5E-09	-795.8E-09
Average	-196.5E-09	-353.8E-09	-542.1E-09	-758.6E-09	-752.7E-09	-756.5E-09	-761.6E-09	-760.9E-09	-763.7E-09	-761.9E-09	-760.9E-09	-760.2E-09	-860.7E-09
Sigma	4.1E-09	41.4E-09	91.4E-09	22.4E-09	7.4E-09	9.5E-09	12.9E-09	15.9E-09	13.1E-09	14.6E-09	14.2E-09	16.2E-09	63.8E-09

Drift Calculation

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-164.5E-09	-354.9E-09	-565.1E-09	-564.3E-09	-563.9E-09	-573.4E-09	-576.0E-09	-580.8E-09	-581.2E-09	-580.9E-09	-583.0E-09	-648.1E-09
14	-	-103.8E-09	-229.9E-09	-588.8E-09	-561.7E-09	-570.3E-09	-577.3E-09	-578.1E-09	-575.7E-09	-573.8E-09	-571.8E-09	-570.7E-09	-597.2E-09
7	-	-203.4E-09	-452.0E-09	-532.4E-09	-542.4E-09	-545.6E-09	-544.4E-09	-539.0E-09	-545.0E-09	-541.1E-09	-540.6E-09	-537.3E-09	-747.2E-09
Average	-	-157.3E-09	-345.6E-09	-562.1E-09	-556.1E-09	-559.9E-09	-565.0E-09	-564.4E-09	-567.2E-09	-565.4E-09	-564.4E-09	-563.7E-09	-664.1E-09
Sigma	-	41.0E-09	90.9E-09	23.1E-09	9.8E-09	10.4E-09	14.7E-09	18.0E-09	15.8E-09	17.4E-09	17.2E-09	19.3E-09	62.3E-09

Measurements

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.3E-09	-138.9E-09	-146.2E-09	-139.2E-09	-138.1E-09	-135.8E-09	-138.0E-09	-138.3E-09	-135.9E-09	-137.4E-09	-138.9E-09	-137.7E-09	-138.8E-09
OFF TID samples													
11	-125.5E-09	-307.3E-09	-540.1E-09	-734.4E-09	-738.2E-09	-743.3E-09	-739.5E-09	-744.3E-09	-737.8E-09	-737.7E-09	-739.3E-09	-737.0E-09	-912.5E-09
12	-141.6E-09	-316.4E-09	-525.5E-09	-735.9E-09	-746.2E-09	-746.8E-09	-746.6E-09	-749.3E-09	-748.7E-09	-747.3E-09	-740.1E-09	-743.1E-09	-934.0E-09
13	-136.2E-09	-334.6E-09	-575.7E-09	-715.8E-09	-713.2E-09	-713.8E-09	-711.0E-09	-709.9E-09	-718.8E-09	-710.4E-09	-707.9E-09	-706.9E-09	-977.0E-09
Statistics													
Min	-141.6E-09	-334.6E-09	-575.7E-09	-735.9E-09	-746.2E-09	-746.8E-09	-746.6E-09	-749.3E-09	-748.7E-09	-747.3E-09	-740.1E-09	-743.1E-09	-977.0E-09
Max	-125.5E-09	-307.3E-09	-525.5E-09	-715.8E-09	-713.2E-09	-713.8E-09	-711.0E-09	-709.9E-09	-718.8E-09	-710.4E-09	-707.9E-09	-706.9E-09	-912.5E-09
Average	-134.4E-09	-319.5E-09	-547.1E-09	-728.7E-09	-732.5E-09	-734.6E-09	-732.4E-09	-734.5E-09	-735.1E-09	-731.8E-09	-729.1E-09	-729.0E-09	-941.2E-09
Sigma	6.7E-09	11.3E-09	21.1E-09	9.1E-09	14.1E-09	14.8E-09	15.4E-09	17.5E-09	12.4E-09	15.6E-09	15.0E-09	15.8E-09	26.8E-09

Drift Calculation

IIB1+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-181.9E-09	-414.7E-09	-608.9E-09	-612.7E-09	-617.8E-09	-614.0E-09	-618.8E-09	-612.4E-09	-612.3E-09	-613.8E-09	-611.5E-09	-787.0E-09
12	-	-174.9E-09	-383.9E-09	-594.3E-09	-604.6E-09	-605.3E-09	-605.1E-09	-607.7E-09	-607.2E-09	-605.7E-09	-598.5E-09	-601.5E-09	-792.5E-09
13	-	-198.3E-09	-439.5E-09	-579.5E-09	-576.9E-09	-577.6E-09	-574.8E-09	-573.6E-09	-582.5E-09	-574.2E-09	-571.7E-09	-570.6E-09	-840.7E-09
Average	-	-185.0E-09	-412.7E-09	-594.3E-09	-598.1E-09	-600.2E-09	-598.0E-09	-600.1E-09	-600.7E-09	-597.4E-09	-594.7E-09	-594.6E-09	-806.7E-09
Sigma	-	9.8E-09	22.7E-09	12.0E-09	15.3E-09	16.8E-09	16.8E-09	19.2E-09	13.0E-09	16.6E-09	17.4E-09	17.4E-09	24.2E-09

Parameter : Input Bias Current : IIB1+DUT4

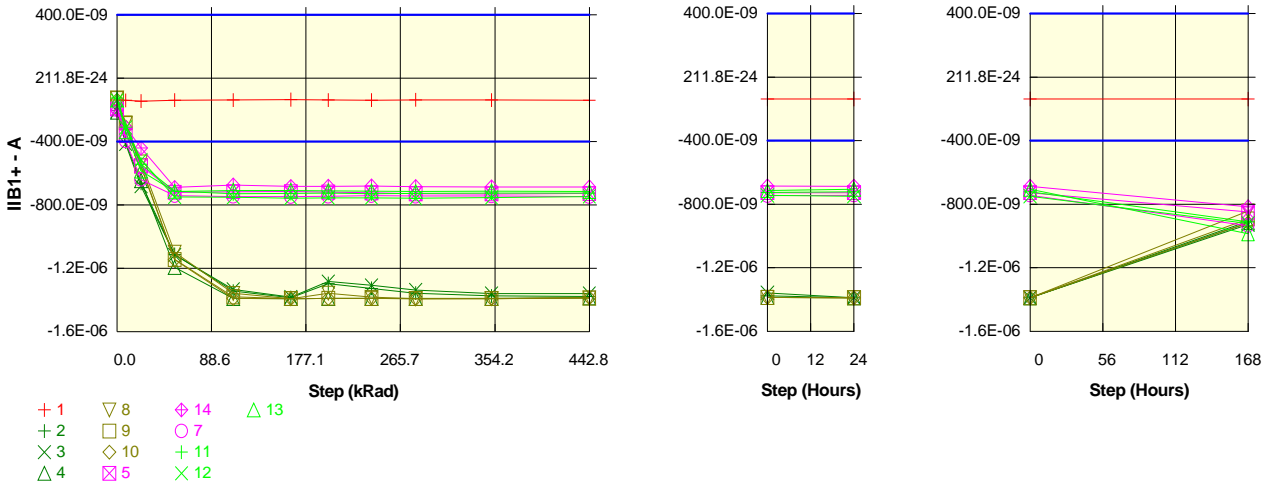
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.2E-09	-139.2E-09	-143.3E-09	-137.7E-09	-137.0E-09	-134.9E-09	-137.1E-09	-137.6E-09	-135.6E-09	-136.9E-09	-138.2E-09	-137.1E-09	-138.7E-09
ON PROTON samples													
2	-202.2E-09	-401.7E-09	-662.4E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-907.5E-09
3	-208.3E-09	-414.5E-09	-681.0E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-928.2E-09
4	-214.1E-09		-645.3E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-917.4E-09
Statistics													
Min	-214.1E-09	-414.5E-09	-681.0E-09	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-928.2E-09
Max	-202.2E-09	-401.7E-09	-645.3E-09	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-907.5E-09
Average	-208.2E-09	-408.1E-09	-662.9E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-917.4E-09
Sigma	4.9E-09	6.4E-09	14.6E-09	37.7E-09	24.9E-09	4.4E-09	47.8E-09	35.5E-09	22.2E-09	12.7E-09	11.7E-09	73.6E-12	8.5E-09

Drift Calculation

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-199.5E-09	-460.2E-09	-910.9E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-705.3E-09
3	-	-206.3E-09	-472.7E-09	-906.3E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-719.9E-09
4	-		-431.1E-09	-979.7E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-702.3E-09
Average	-	-202.9E-09	-454.7E-09	-932.3E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-709.2E-09
Sigma	-	3.4E-09	17.4E-09	33.6E-09	21.5E-09	4.5E-09	44.0E-09	32.1E-09	19.5E-09	11.0E-09	11.1E-09	4.8E-09	7.7E-09

Measurements

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.2E-09	-139.2E-09	-143.3E-09	-137.7E-09	-137.0E-09	-134.9E-09	-137.1E-09	-137.6E-09	-135.6E-09	-136.9E-09	-138.2E-09	-137.1E-09	-138.7E-09
ON TID samples													
8	-123.5E-09	-285.7E-09	-528.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-842.3E-09
9	-127.3E-09	-281.9E-09	-553.0E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-892.7E-09
10	-136.5E-09	-308.5E-09	-559.6E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-916.6E-09
Statistics													
Min	-136.5E-09	-308.5E-09	-559.6E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-916.6E-09
Max	-123.5E-09	-281.9E-09	-528.8E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-842.3E-09
Average	-129.1E-09	-292.1E-09	-547.1E-09	-1.1E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-883.9E-09
Sigma	5.5E-09	11.8E-09	13.3E-09	22.0E-09	13.3E-09	41.1E-12	15.7E-09	3.5E-09	471.7E-12	52.6E-12	34.0E-12	25.0E-12	30.9E-09

Drift Calculation

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-162.2E-09	-405.3E-09	-974.4E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-718.9E-09
9	-	-154.7E-09	-425.7E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-765.4E-09
10	-	-172.0E-09	-423.1E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-780.1E-09
Average	-	-163.0E-09	-418.1E-09	-999.8E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-754.8E-09
Sigma	-	7.1E-09	9.1E-09	18.3E-09	8.5E-09	5.4E-09	12.2E-09	4.0E-09	5.0E-09	5.4E-09	5.5E-09	5.5E-09	26.1E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.2E-09	-139.2E-09	-143.3E-09	-137.7E-09	-137.0E-09	-134.9E-09	-137.1E-09	-137.6E-09	-135.6E-09	-136.9E-09	-138.2E-09	-137.1E-09	-138.7E-09
OFF PROTON samples													
5	-194.5E-09	-361.1E-09	-552.6E-09	-719.9E-09	-716.2E-09	-714.8E-09	-718.7E-09	-723.2E-09	-728.8E-09	-729.9E-09	-727.6E-09	-727.9E-09	-848.9E-09
14	-200.6E-09	-308.9E-09	-440.3E-09	-688.0E-09	-674.0E-09	-682.8E-09	-681.8E-09	-678.8E-09	-683.5E-09	-686.0E-09	-686.2E-09	-687.2E-09	-816.5E-09
7	-190.8E-09	-395.3E-09	-639.1E-09	-741.5E-09	-745.9E-09	-747.3E-09	-744.4E-09	-740.7E-09	-744.1E-09	-744.0E-09	-747.5E-09	-743.4E-09	-934.5E-09
Statistics													
Min	-200.6E-09	-395.3E-09	-639.1E-09	-741.5E-09	-745.9E-09	-747.3E-09	-744.4E-09	-740.7E-09	-744.1E-09	-744.0E-09	-747.5E-09	-743.4E-09	-934.5E-09
Max	-190.8E-09	-308.9E-09	-440.3E-09	-688.0E-09	-674.0E-09	-682.8E-09	-681.8E-09	-678.8E-09	-683.5E-09	-686.0E-09	-686.2E-09	-687.2E-09	-816.5E-09
Average	-195.3E-09	-355.1E-09	-544.0E-09	-716.5E-09	-712.0E-09	-715.0E-09	-715.0E-09	-714.2E-09	-718.8E-09	-720.0E-09	-720.4E-09	-719.5E-09	-866.6E-09
Sigma	4.1E-09	35.5E-09	81.4E-09	21.9E-09	29.5E-09	26.4E-09	25.7E-09	26.0E-09	25.7E-09	24.7E-09	25.5E-09	23.7E-09	49.8E-09

Drift Calculation

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-166.6E-09	-358.1E-09	-525.4E-09	-521.7E-09	-520.3E-09	-524.2E-09	-528.7E-09	-534.3E-09	-535.5E-09	-533.1E-09	-533.4E-09	-654.4E-09
14	-	-108.2E-09	-239.6E-09	-487.4E-09	-473.4E-09	-482.1E-09	-481.2E-09	-478.2E-09	-482.9E-09	-485.3E-09	-485.5E-09	-486.6E-09	-615.8E-09
7	-	-204.5E-09	-448.3E-09	-550.7E-09	-555.1E-09	-556.6E-09	-553.6E-09	-549.9E-09	-553.4E-09	-553.3E-09	-556.7E-09	-552.6E-09	-743.7E-09
Average	-	-159.8E-09	-348.7E-09	-521.2E-09	-516.7E-09	-519.7E-09	-519.7E-09	-518.9E-09	-523.5E-09	-524.7E-09	-525.1E-09	-524.2E-09	-671.3E-09
Sigma	-	39.6E-09	85.5E-09	26.0E-09	33.5E-09	30.4E-09	29.7E-09	30.1E-09	29.8E-09	28.8E-09	29.6E-09	27.7E-09	53.6E-09

Measurements

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.2E-09	-139.2E-09	-143.3E-09	-137.7E-09	-137.0E-09	-134.9E-09	-137.1E-09	-137.6E-09	-135.6E-09	-136.9E-09	-138.2E-09	-137.1E-09	-138.7E-09
OFF TID samples													
11	-124.7E-09	-308.9E-09	-542.5E-09	-712.5E-09	-728.1E-09	-727.6E-09	-725.6E-09	-728.2E-09	-727.8E-09	-724.9E-09	-725.4E-09	-723.3E-09	-911.2E-09
12	-138.7E-09	-309.7E-09	-514.5E-09	-748.7E-09	-751.3E-09	-755.8E-09	-754.1E-09	-753.9E-09	-756.8E-09	-752.7E-09	-745.3E-09	-749.2E-09	-920.8E-09
13	-137.1E-09	-336.3E-09	-585.0E-09	-713.8E-09	-707.6E-09	-707.5E-09	-709.9E-09	-711.6E-09	-714.4E-09	-711.9E-09	-715.0E-09	-705.4E-09	-985.2E-09
Statistics													
Min	-138.7E-09	-336.3E-09	-585.0E-09	-748.7E-09	-751.3E-09	-755.8E-09	-754.1E-09	-753.9E-09	-756.8E-09	-752.7E-09	-745.3E-09	-749.2E-09	-985.2E-09
Max	-124.7E-09	-308.9E-09	-514.5E-09	-712.5E-09	-707.6E-09	-707.5E-09	-709.9E-09	-711.6E-09	-714.4E-09	-711.9E-09	-715.0E-09	-705.4E-09	-911.2E-09
Average	-133.5E-09	-318.3E-09	-547.3E-09	-725.0E-09	-729.0E-09	-730.3E-09	-729.8E-09	-731.3E-09	-733.0E-09	-729.8E-09	-728.5E-09	-726.0E-09	-939.1E-09
Sigma	6.3E-09	12.7E-09	29.0E-09	16.8E-09	17.9E-09	19.8E-09	18.3E-09	17.4E-09	17.7E-09	17.0E-09	12.6E-09	18.0E-09	32.9E-09

Drift Calculation

IIB1+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-184.2E-09	-417.8E-09	-587.8E-09	-603.5E-09	-602.9E-09	-600.9E-09	-603.5E-09	-603.2E-09	-600.3E-09	-600.7E-09	-598.6E-09	-786.6E-09
12	-	-171.0E-09	-375.8E-09	-610.0E-09	-612.6E-09	-617.1E-09	-615.3E-09	-615.2E-09	-618.1E-09	-614.0E-09	-606.6E-09	-610.5E-09	-782.1E-09
13	-	-199.2E-09	-447.9E-09	-576.7E-09	-570.5E-09	-570.4E-09	-572.8E-09	-574.5E-09	-577.3E-09	-574.8E-09	-577.9E-09	-568.3E-09	-848.1E-09
Average	-	-184.8E-09	-413.8E-09	-591.5E-09	-595.5E-09	-596.8E-09	-596.4E-09	-599.8E-09	-599.5E-09	-596.3E-09	-595.0E-09	-592.5E-09	-805.6E-09
Sigma	-	11.5E-09	29.6E-09	13.8E-09	18.1E-09	19.6E-09	17.7E-09	17.1E-09	16.9E-09	16.3E-09	12.4E-09	17.8E-09	30.1E-09

Parameter : Input Bias Current : IIB1-DUT1

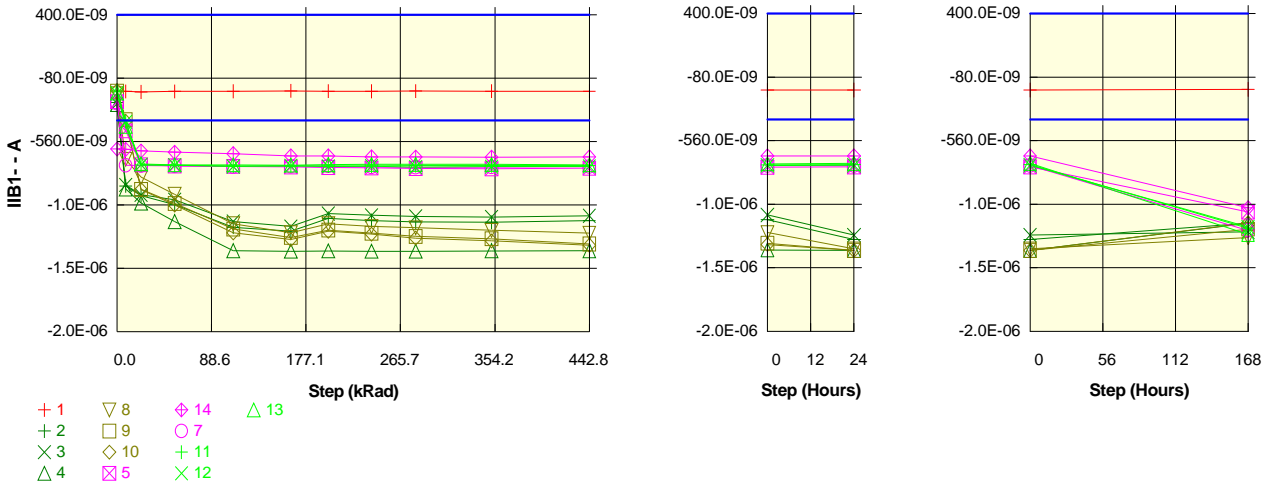
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-176.1E-09	-178.8E-09	-183.8E-09	-179.0E-09	-178.4E-09	-175.5E-09	-177.3E-09	-178.4E-09	-176.3E-09	-177.4E-09	-178.3E-09	-177.1E-09	-173.3E-09
ON PROTON samples													
2	-262.3E-09	-894.7E-09	-968.9E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06
3	-271.4E-09	-888.2E-09	-962.7E-09	-999.7E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
4	-277.9E-09	-918.5E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-277.9E-09	-918.5E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Max	-262.3E-09	-888.2E-09	-962.7E-09	-999.7E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
Average	-270.6E-09	-900.5E-09	-985.5E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06
Sigma	6.4E-09	13.0E-09	28.0E-09	71.2E-09	95.3E-09	81.4E-09	125.7E-09	120.2E-09	116.0E-09	112.5E-09	117.0E-09	48.5E-09	30.9E-09

Drift Calculation

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-632.4E-09	-706.5E-09	-773.8E-09	-945.2E-09	-976.1E-09	-878.4E-09	-894.7E-09	-906.3E-09	-908.1E-09	-895.2E-09	-1.0E-06	-920.8E-09
3	-	-616.8E-09	-691.3E-09	-728.2E-09	-894.4E-09	-931.2E-09	-833.9E-09	-845.5E-09	-853.6E-09	-859.4E-09	-850.4E-09	-1.0E-06	-977.1E-09
4	-	-640.7E-09	-747.0E-09	-887.7E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-904.9E-09
Average	-	-630.0E-09	-715.0E-09	-796.6E-09	-982.5E-09	-1.0E-06	-940.8E-09	-950.6E-09	-957.3E-09	-958.8E-09	-951.2E-09	-1.1E-06	-934.3E-09
Sigma	-	9.9E-09	23.5E-09	67.1E-09	91.0E-09	77.1E-09	121.1E-09	115.7E-09	111.6E-09	108.0E-09	112.4E-09	44.9E-09	31.0E-09

Measurements

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-176.1E-09	-178.8E-09	-183.8E-09	-179.0E-09	-178.4E-09	-175.5E-09	-177.3E-09	-178.4E-09	-176.3E-09	-177.4E-09	-178.3E-09	-177.1E-09	-173.3E-09
ON TID samples													
8	-195.2E-09	-694.0E-09	-829.4E-09	-958.8E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.3E-06
9	-178.5E-09	-392.9E-09	-921.4E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
10	-173.5E-09	-404.8E-09	-922.9E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-195.2E-09	-694.0E-09	-922.9E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.3E-06
Max	-173.5E-09	-392.9E-09	-829.4E-09	-958.8E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.2E-06
Average	-182.4E-09	-497.2E-09	-891.2E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Sigma	9.3E-09	139.2E-09	43.7E-09	35.5E-09	28.3E-09	21.7E-09	24.8E-09	25.9E-09	34.3E-09	34.7E-09	40.4E-09	5.2E-09	45.8E-09

Drift Calculation

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-498.7E-09	-634.1E-09	-763.5E-09	-986.4E-09	-1.1E-06	-987.5E-09	-1.0E-06	-1.0E-06	-1.0E-06	-1.1E-06	-1.2E-06	-1.1E-06
9	-	-214.4E-09	-742.9E-09	-849.2E-09	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
10	-	-231.2E-09	-749.4E-09	-865.7E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
Average	-	-314.8E-09	-708.8E-09	-826.1E-09	-1.0E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06
Sigma	-	130.3E-09	52.9E-09	44.8E-09	37.5E-09	30.9E-09	34.1E-09	35.1E-09	43.5E-09	44.0E-09	49.6E-09	14.4E-09	36.8E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-176.1E-09	-178.8E-09	-183.8E-09	-179.0E-09	-178.4E-09	-175.5E-09	-177.3E-09	-178.4E-09	-176.3E-09	-177.4E-09	-178.3E-09	-177.1E-09	-173.3E-09
OFF-PROTON samples													
5	-257.2E-09	-477.5E-09	-735.3E-09	-742.7E-09	-747.2E-09	-752.1E-09	-755.0E-09	-758.9E-09	-762.3E-09	-764.7E-09	-761.2E-09	-758.6E-09	-1.1E-06
14	-615.0E-09	-618.4E-09	-629.8E-09	-640.5E-09	-651.2E-09	-667.4E-09	-667.6E-09	-674.9E-09	-676.2E-09	-677.2E-09	-674.7E-09	-674.9E-09	-1.1E-06
7	-269.6E-09	-739.7E-09	-741.3E-09	-742.9E-09	-748.5E-09	-746.1E-09	-744.5E-09	-751.8E-09	-754.9E-09	-753.5E-09	-748.4E-09	-747.9E-09	-1.2E-06
Statistics													
Min	-615.0E-09	-739.7E-09	-741.3E-09	-742.9E-09	-748.5E-09	-752.1E-09	-755.0E-09	-758.9E-09	-762.3E-09	-764.7E-09	-761.2E-09	-758.6E-09	-1.2E-06
Max	-257.2E-09	-477.5E-09	-629.8E-09	-640.5E-09	-651.2E-09	-667.4E-09	-667.6E-09	-674.9E-09	-676.2E-09	-677.2E-09	-674.7E-09	-674.9E-09	-1.1E-06
Average	-380.6E-09	-611.8E-09	-702.1E-09	-708.7E-09	-715.6E-09	-721.9E-09	-722.4E-09	-728.6E-09	-731.1E-09	-731.8E-09	-728.1E-09	-727.1E-09	-1.1E-06
Sigma	165.8E-09	107.2E-09	51.2E-09	48.2E-09	45.6E-09	38.6E-09	39.0E-09	38.0E-09	39.0E-09	38.9E-09	38.1E-09	37.2E-09	74.1E-09

Drift Calculation

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-PROTON samples													
5	-	-220.3E-09	-478.1E-09	-485.5E-09	-490.0E-09	-494.9E-09	-497.8E-09	-501.7E-09	-505.1E-09	-507.5E-09	-504.0E-09	-501.4E-09	-840.4E-09
14	-	-3.3E-09	-14.8E-09	-25.5E-09	-36.2E-09	-52.4E-09	-52.6E-09	-59.9E-09	-61.2E-09	-62.2E-09	-59.7E-09	-59.9E-09	-453.0E-09
7	-	-470.2E-09	-471.7E-09	-473.4E-09	-478.9E-09	-476.6E-09	-475.0E-09	-482.3E-09	-485.3E-09	-484.0E-09	-478.8E-09	-478.3E-09	-968.3E-09
Average	-	-231.3E-09	-321.6E-09	-328.1E-09	-335.0E-09	-341.3E-09	-341.8E-09	-348.0E-09	-350.5E-09	-351.2E-09	-347.5E-09	-346.5E-09	-753.9E-09
Sigma	-	190.7E-09	216.9E-09	214.0E-09	211.4E-09	204.4E-09	204.7E-09	203.8E-09	204.8E-09	204.6E-09	203.8E-09	202.9E-09	219.1E-09

Measurements

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-176.1E-09	-178.8E-09	-183.8E-09	-179.0E-09	-178.4E-09	-175.5E-09	-177.3E-09	-178.4E-09	-176.3E-09	-177.4E-09	-178.3E-09	-177.1E-09	-173.3E-09
OFF-TID samples													
11	-174.6E-09	-408.7E-09	-736.4E-09	-738.7E-09	-743.0E-09	-744.7E-09	-743.6E-09	-743.9E-09	-741.5E-09	-742.2E-09	-742.3E-09	-740.9E-09	-1.2E-06
12	-192.6E-09	-409.3E-09	-734.6E-09	-737.3E-09	-748.1E-09	-742.5E-09	-746.9E-09	-745.1E-09	-752.9E-09	-748.7E-09	-747.4E-09	-745.3E-09	-1.2E-06
13	-190.3E-09	-444.5E-09	-728.0E-09	-735.1E-09	-735.6E-09	-738.0E-09	-734.0E-09	-731.9E-09	-730.8E-09	-732.1E-09	-735.2E-09	-731.8E-09	-1.3E-06
Statistics													
Min	-192.6E-09	-444.5E-09	-736.4E-09	-738.7E-09	-748.1E-09	-744.7E-09	-746.9E-09	-745.1E-09	-752.9E-09	-748.7E-09	-747.4E-09	-745.3E-09	-1.3E-06
Max	-174.6E-09	-408.7E-09	-728.0E-09	-735.1E-09	-735.6E-09	-738.0E-09	-734.0E-09	-731.9E-09	-730.8E-09	-732.1E-09	-735.2E-09	-731.8E-09	-1.2E-06
Average	-185.8E-09	-420.8E-09	-733.0E-09	-737.0E-09	-742.2E-09	-741.8E-09	-741.5E-09	-740.3E-09	-741.8E-09	-741.0E-09	-741.7E-09	-739.3E-09	-1.2E-06
Sigma	8.0E-09	16.7E-09	3.6E-09	1.5E-09	5.1E-09	2.8E-09	5.4E-09	5.9E-09	9.0E-09	6.9E-09	5.0E-09	5.6E-09	24.2E-09

Drift Calculation

IIB1-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF-TID samples													
11	-	-234.1E-09	-561.8E-09	-564.2E-09	-568.5E-09	-570.2E-09	-569.1E-09	-569.3E-09	-566.9E-09	-567.7E-09	-567.7E-09	-566.4E-09	-1.0E-06
12	-	-216.6E-09	-542.0E-09	-544.7E-09	-555.5E-09	-549.9E-09	-554.3E-09	-552.5E-09	-560.3E-09	-556.1E-09	-554.8E-09	-552.6E-09	-1.0E-06
13	-	-254.2E-09	-537.7E-09	-544.8E-09	-545.3E-09	-547.7E-09	-543.7E-09	-541.6E-09	-540.5E-09	-541.7E-09	-544.9E-09	-541.5E-09	-1.1E-06
Average	-	-235.0E-09	-547.2E-09	-551.2E-09	-556.4E-09	-555.9E-09	-555.7E-09	-554.5E-09	-555.9E-09	-555.2E-09	-555.8E-09	-553.5E-09	-1.0E-06
Sigma	-	15.3E-09	10.5E-09	9.2E-09	9.5E-09	10.1E-09	10.4E-09	11.4E-09	11.2E-09	10.6E-09	9.3E-09	10.2E-09	23.4E-09

Parameter : Input Bias Current : IIB1-DUT2

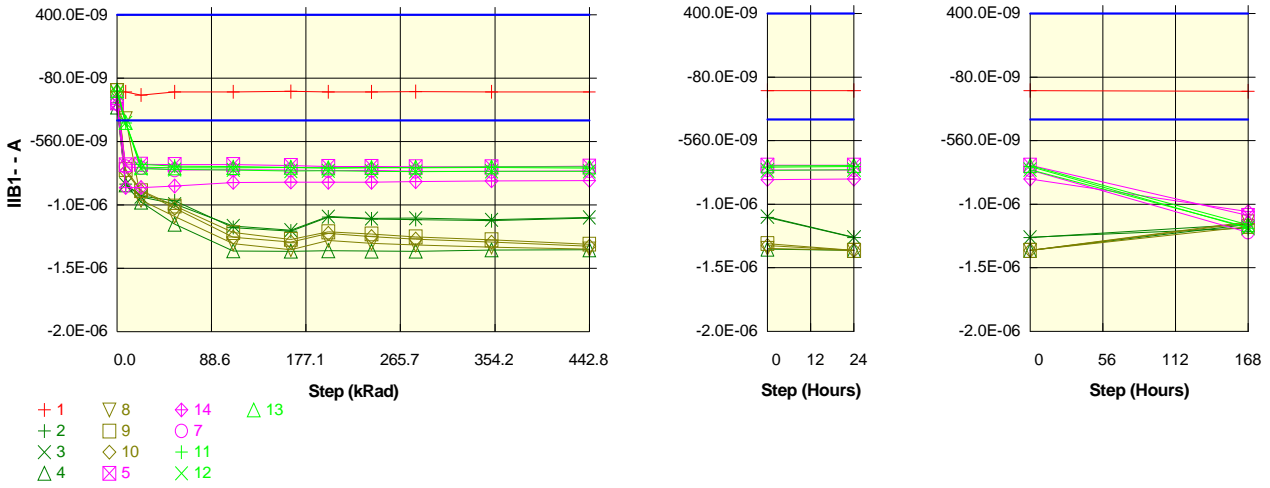
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-180.5E-09	-183.4E-09	-206.3E-09	-183.1E-09	-182.5E-09	-179.8E-09	-182.2E-09	-182.8E-09	-180.2E-09	-181.7E-09	-183.0E-09	-181.9E-09	-186.7E-09
ON PROTON samples													
2	-266.0E-09	-882.7E-09	-971.8E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-1.2E-06
3	-267.5E-09	-882.1E-09	-977.5E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-1.2E-06
4	-297.2E-09	-887.6E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-297.2E-09	-887.6E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Max	-266.0E-09	-882.1E-09	-971.8E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.1E-06	-1.3E-06	-1.2E-06
Average	-276.9E-09	-884.1E-09	-989.1E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06
Sigma	14.4E-09	2.4E-09	20.5E-09	78.3E-09	86.3E-09	73.6E-09	121.2E-09	115.7E-09	115.4E-09	106.4E-09	114.1E-09	45.9E-09	13.6E-09

Drift Calculation

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-616.7E-09	-705.8E-09	-741.7E-09	-944.5E-09	-971.8E-09	-864.4E-09	-878.6E-09	-884.7E-09	-892.8E-09	-873.6E-09	-1.0E-06	-924.1E-09
3	-	-614.6E-09	-710.0E-09	-766.1E-09	-930.6E-09	-963.5E-09	-859.6E-09	-874.3E-09	-872.4E-09	-884.4E-09	-866.9E-09	-1.0E-06	-953.1E-09
4	-	-590.3E-09	-720.7E-09	-887.9E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-896.2E-09
Average	-	-607.2E-09	-712.2E-09	-798.6E-09	-988.3E-09	-1.0E-06	-937.5E-09	-948.1E-09	-949.9E-09	-953.7E-09	-940.7E-09	-1.0E-06	-924.5E-09
Sigma	-	12.0E-09	6.3E-09	64.0E-09	72.0E-09	59.3E-09	106.8E-09	101.3E-09	101.1E-09	92.1E-09	99.7E-09	31.6E-09	23.2E-09

Measurements

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-180.5E-09	-183.4E-09	-206.3E-09	-183.1E-09	-182.5E-09	-179.8E-09	-182.2E-09	-182.8E-09	-180.2E-09	-181.7E-09	-183.0E-09	-181.9E-09	-186.7E-09
ON TID samples													
8	-173.5E-09	-385.0E-09	-1.0E-06	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
9	-172.3E-09	-771.2E-09	-930.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
10	-181.1E-09	-785.8E-09	-934.1E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-181.1E-09	-785.8E-09	-1.0E-06	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Max	-172.3E-09	-385.0E-09	-930.5E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Average	-175.6E-09	-647.3E-09	-955.9E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06
Sigma	3.9E-09	185.6E-09	33.4E-09	34.2E-09	34.7E-09	33.2E-09	28.2E-09	29.8E-09	26.1E-09	22.9E-09	15.1E-09	34.0E-12	15.9E-09

Drift Calculation

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-211.6E-09	-829.6E-09	-952.5E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-998.9E-09
9	-	-598.9E-09	-758.2E-09	-874.1E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
10	-	-604.8E-09	-753.1E-09	-882.5E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-998.1E-09
Average	-	-471.7E-09	-780.3E-09	-903.0E-09	-1.1E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.0E-06
Sigma	-	184.0E-09	34.9E-09	35.1E-09	34.8E-09	34.0E-09	29.3E-09	30.6E-09	27.0E-09	23.5E-09	15.4E-09	3.9E-09	18.0E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-180.5E-09	-183.4E-09	-206.3E-09	-183.1E-09	-182.5E-09	-179.8E-09	-182.2E-09	-182.8E-09	-180.2E-09	-181.7E-09	-183.0E-09	-181.9E-09	-186.7E-09
OFF PROTON samples													
5	-266.7E-09	-734.5E-09	-731.4E-09	-734.1E-09	-733.9E-09	-740.5E-09	-746.8E-09	-747.7E-09	-750.8E-09	-749.9E-09	-745.0E-09	-746.1E-09	-1.1E-06
14	-279.1E-09	-908.1E-09	-907.5E-09	-895.8E-09	-868.8E-09	-866.0E-09	-867.5E-09	-867.7E-09	-861.3E-09	-856.3E-09	-853.4E-09	-850.5E-09	-1.1E-06
7	-271.7E-09	-750.3E-09	-758.2E-09	-775.7E-09	-772.1E-09	-775.4E-09	-780.4E-09	-777.2E-09	-784.6E-09	-784.2E-09	-781.3E-09	-781.2E-09	-1.3E-06
Statistics													
Min	-279.1E-09	-908.1E-09	-907.5E-09	-895.8E-09	-868.8E-09	-866.0E-09	-867.5E-09	-867.7E-09	-861.3E-09	-856.3E-09	-853.4E-09	-850.5E-09	-1.3E-06
Max	-266.7E-09	-734.5E-09	-731.4E-09	-734.1E-09	-733.9E-09	-740.5E-09	-746.8E-09	-747.7E-09	-750.8E-09	-749.9E-09	-745.0E-09	-746.1E-09	-1.1E-06
Average	-272.5E-09	-797.6E-09	-799.0E-09	-801.8E-09	-791.6E-09	-793.9E-09	-798.2E-09	-797.5E-09	-798.9E-09	-796.8E-09	-793.3E-09	-792.6E-09	-1.2E-06
Sigma	5.1E-09	78.4E-09	77.5E-09	68.5E-09	56.8E-09	52.9E-09	50.9E-09	51.0E-09	46.2E-09	44.3E-09	45.0E-09	43.4E-09	67.9E-09

Drift Calculation

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-467.8E-09	-464.7E-09	-467.3E-09	-467.2E-09	-473.8E-09	-480.0E-09	-481.0E-09	-484.0E-09	-483.2E-09	-478.3E-09	-479.4E-09	-859.7E-09
14	-	-628.9E-09	-628.4E-09	-616.6E-09	-589.7E-09	-586.9E-09	-588.4E-09	-588.6E-09	-582.2E-09	-577.1E-09	-574.3E-09	-571.4E-09	-816.7E-09
7	-	-478.6E-09	-486.5E-09	-504.0E-09	-500.4E-09	-503.7E-09	-508.7E-09	-505.5E-09	-512.9E-09	-512.5E-09	-509.6E-09	-509.5E-09	-981.0E-09
Average	-	-525.1E-09	-526.5E-09	-529.3E-09	-519.1E-09	-521.4E-09	-525.7E-09	-525.0E-09	-526.4E-09	-524.3E-09	-520.7E-09	-520.1E-09	-885.8E-09
Sigma	-	73.6E-09	72.6E-09	63.5E-09	51.7E-09	47.8E-09	45.8E-09	46.0E-09	41.2E-09	39.3E-09	40.0E-09	38.3E-09	69.6E-09

Measurements

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-180.5E-09	-183.4E-09	-206.3E-09	-183.1E-09	-182.5E-09	-179.8E-09	-182.2E-09	-182.8E-09	-180.2E-09	-181.7E-09	-183.0E-09	-181.9E-09	-186.7E-09
OFF TID samples													
11	-175.5E-09	-417.3E-09	-732.0E-09	-745.1E-09	-748.5E-09	-756.0E-09	-756.6E-09	-756.3E-09	-758.5E-09	-756.3E-09	-761.2E-09	-755.3E-09	-1.2E-06
12	-189.8E-09	-416.2E-09	-763.3E-09	-770.8E-09	-773.3E-09	-781.6E-09	-780.0E-09	-784.5E-09	-786.7E-09	-784.6E-09	-784.6E-09	-778.2E-09	-1.2E-06
13	-170.2E-09	-414.0E-09	-752.6E-09	-758.1E-09	-757.5E-09	-754.5E-09	-759.3E-09	-756.6E-09	-754.1E-09	-751.3E-09	-751.3E-09	-748.9E-09	-1.2E-06
Statistics													
Min	-189.8E-09	-417.3E-09	-763.3E-09	-770.8E-09	-773.3E-09	-781.6E-09	-780.0E-09	-784.5E-09	-786.7E-09	-784.6E-09	-784.6E-09	-778.2E-09	-1.2E-06
Max	-170.2E-09	-414.0E-09	-732.0E-09	-745.1E-09	-748.5E-09	-754.5E-09	-756.6E-09	-756.3E-09	-754.1E-09	-751.3E-09	-751.3E-09	-748.9E-09	-1.2E-06
Average	-178.5E-09	-415.8E-09	-749.3E-09	-758.0E-09	-759.8E-09	-764.1E-09	-765.3E-09	-765.8E-09	-766.4E-09	-764.1E-09	-765.7E-09	-760.8E-09	-1.2E-06
Sigma	8.3E-09	1.4E-09	13.0E-09	10.5E-09	10.3E-09	12.4E-09	10.4E-09	13.2E-09	14.4E-09	14.7E-09	14.0E-09	12.6E-09	12.0E-09

Drift Calculation

IIB1-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-241.8E-09	-556.5E-09	-569.6E-09	-572.9E-09	-580.5E-09	-581.0E-09	-580.8E-09	-583.0E-09	-580.8E-09	-585.6E-09	-579.7E-09	-1.0E-06
12	-	-226.5E-09	-573.5E-09	-581.0E-09	-583.5E-09	-591.8E-09	-590.2E-09	-594.7E-09	-596.9E-09	-594.8E-09	-594.8E-09	-588.4E-09	-1.0E-06
13	-	-243.8E-09	-582.3E-09	-587.9E-09	-587.3E-09	-584.3E-09	-589.1E-09	-586.4E-09	-583.9E-09	-581.1E-09	-581.0E-09	-578.7E-09	-1.0E-06
Average	-	-237.3E-09	-570.8E-09	-579.5E-09	-581.3E-09	-585.5E-09	-586.8E-09	-587.3E-09	-587.9E-09	-585.6E-09	-587.2E-09	-582.3E-09	-1.0E-06
Sigma	-	7.7E-09	10.7E-09	7.5E-09	6.1E-09	4.7E-09	4.1E-09	5.7E-09	6.3E-09	6.5E-09	5.7E-09	4.3E-09	10.4E-09

Parameter : Input Bias Current : IIB1-DUT3

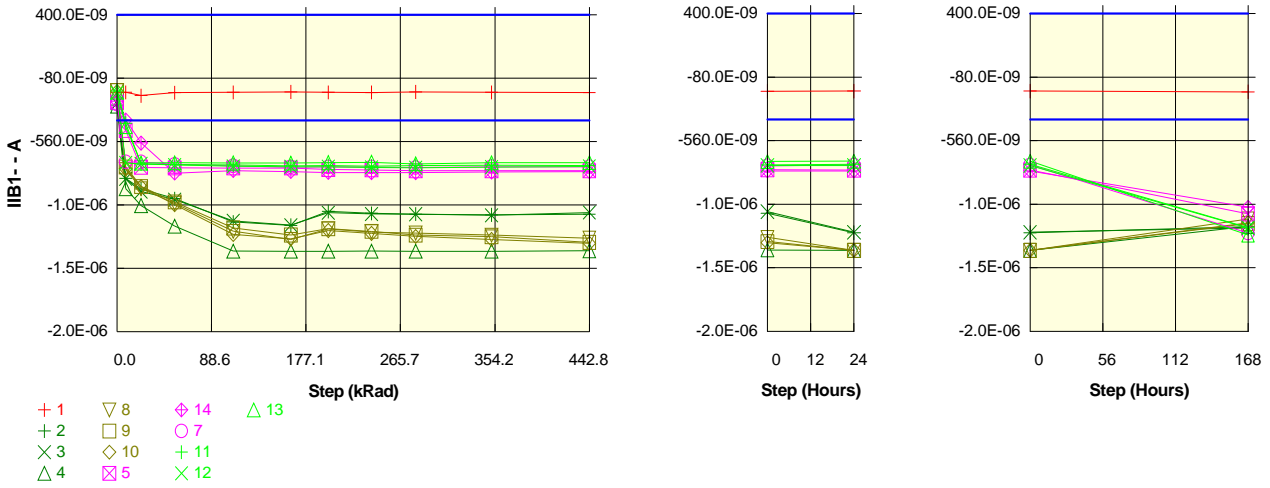
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-184.3E-09	-186.0E-09	-211.5E-09	-188.4E-09	-186.4E-09	-183.6E-09	-186.1E-09	-186.8E-09	-183.8E-09	-185.4E-09	-187.2E-09	-185.8E-09	-190.7E-09
ON PROTON samples													
2	-282.9E-09	-836.8E-09	-917.6E-09	-991.2E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
3	-269.2E-09	-840.9E-09	-937.9E-09	-999.0E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
4	-291.4E-09	-916.2E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-291.4E-09	-916.2E-09	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Max	-269.2E-09	-836.8E-09	-917.6E-09	-991.2E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
Average	-281.2E-09	-864.7E-09	-966.4E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06
Sigma	9.1E-09	36.5E-09	55.4E-09	96.3E-09	106.2E-09	92.7E-09	139.9E-09	133.7E-09	132.2E-09	129.2E-09	134.0E-09	63.7E-09	5.5E-09

Drift Calculation

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-553.9E-09	-634.7E-09	-708.3E-09	-885.4E-09	-911.4E-09	-805.6E-09	-820.7E-09	-826.4E-09	-831.9E-09	-825.3E-09	-972.7E-09	-925.4E-09
3	-	-571.7E-09	-668.6E-09	-729.7E-09	-890.9E-09	-924.0E-09	-828.3E-09	-838.9E-09	-840.4E-09	-847.3E-09	-827.4E-09	-982.6E-09	-950.5E-09
4	-	-624.8E-09	-752.5E-09	-907.9E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-916.4E-09
Average	-	-583.5E-09	-685.3E-09	-782.0E-09	-958.1E-09	-978.2E-09	-910.7E-09	-919.2E-09	-921.8E-09	-925.9E-09	-915.9E-09	-1.0E-06	-930.8E-09
Sigma	-	30.1E-09	49.5E-09	89.5E-09	98.9E-09	85.6E-09	132.9E-09	126.6E-09	125.1E-09	122.2E-09	126.6E-09	56.6E-09	14.4E-09

Measurements

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-184.3E-09	-186.0E-09	-211.5E-09	-188.4E-09	-186.4E-09	-183.6E-09	-186.1E-09	-186.8E-09	-183.8E-09	-185.4E-09	-187.2E-09	-185.8E-09	-190.7E-09
ON TID samples													
8	-172.5E-09	-770.5E-09	-915.2E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
9	-172.7E-09	-751.5E-09	-899.7E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
10	-178.7E-09	-764.7E-09	-901.3E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-178.7E-09	-770.5E-09	-915.2E-09	-1.0E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Max	-172.5E-09	-751.5E-09	-899.7E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Average	-174.6E-09	-762.2E-09	-905.4E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Sigma	2.9E-09	7.9E-09	7.0E-09	8.2E-09	19.9E-09	15.1E-09	6.1E-09	6.7E-09	10.8E-09	13.6E-09	16.8E-09	41.1E-12	15.0E-09

Drift Calculation

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-598.0E-09	-742.7E-09	-854.3E-09	-1.1E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-979.0E-09
9	-	-578.8E-09	-727.0E-09	-844.2E-09	-1.0E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.0E-06
10	-	-586.0E-09	-722.7E-09	-858.4E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
Average	-	-587.6E-09	-730.8E-09	-852.3E-09	-1.1E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-998.0E-09
Sigma	-	7.9E-09	8.6E-09	6.0E-09	17.6E-09	14.4E-09	3.3E-09	4.0E-09	8.6E-09	11.0E-09	15.0E-09	2.8E-09	13.9E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-184.3E-09	-186.0E-09	-211.5E-09	-188.4E-09	-186.4E-09	-183.6E-09	-186.1E-09	-186.8E-09	-183.8E-09	-185.4E-09	-187.2E-09	-185.8E-09	-190.7E-09
OFF PROTON samples													
5	-261.2E-09	-474.8E-09	-754.1E-09	-758.1E-09	-759.8E-09	-759.6E-09	-770.6E-09	-773.0E-09	-780.0E-09	-780.8E-09	-780.5E-09	-782.1E-09	-1.1E-06
14	-253.5E-09	-394.8E-09	-570.2E-09	-799.1E-09	-778.6E-09	-785.5E-09	-793.1E-09	-794.5E-09	-794.5E-09	-790.1E-09	-788.0E-09	-788.0E-09	-1.1E-06
7	-276.2E-09	-712.4E-09	-714.3E-09	-744.0E-09	-744.0E-09	-752.8E-09	-751.0E-09	-753.0E-09	-755.9E-09	-749.8E-09	-749.9E-09	-743.9E-09	-1.3E-06
Statistics													
Min	-276.2E-09	-712.4E-09	-754.1E-09	-799.1E-09	-778.6E-09	-785.5E-09	-793.1E-09	-794.5E-09	-794.5E-09	-790.1E-09	-788.0E-09	-788.0E-09	-1.3E-06
Max	-253.5E-09	-394.8E-09	-570.2E-09	-732.9E-09	-744.0E-09	-752.8E-09	-751.0E-09	-753.0E-09	-755.9E-09	-749.8E-09	-749.9E-09	-743.9E-09	-1.1E-06
Average	-263.6E-09	-527.4E-09	-679.5E-09	-763.3E-09	-760.8E-09	-766.0E-09	-771.6E-09	-773.5E-09	-776.8E-09	-773.6E-09	-772.8E-09	-771.3E-09	-1.1E-06
Sigma	9.4E-09	134.9E-09	79.0E-09	27.3E-09	14.1E-09	14.1E-09	17.2E-09	16.9E-09	15.9E-09	17.2E-09	16.5E-09	19.6E-09	82.3E-09

Drift Calculation

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-213.6E-09	-492.9E-09	-496.9E-09	-498.6E-09	-498.5E-09	-509.4E-09	-511.9E-09	-518.9E-09	-519.7E-09	-519.3E-09	-520.9E-09	-852.2E-09
14	-	-141.3E-09	-316.6E-09	-545.5E-09	-525.0E-09	-531.9E-09	-539.5E-09	-540.9E-09	-541.0E-09	-536.6E-09	-534.5E-09	-534.5E-09	-810.5E-09
7	-	-436.2E-09	-438.1E-09	-456.7E-09	-467.8E-09	-476.7E-09	-474.8E-09	-476.8E-09	-479.7E-09	-473.6E-09	-473.7E-09	-467.7E-09	-981.9E-09
Average	-	-263.7E-09	-415.9E-09	-499.7E-09	-497.1E-09	-502.3E-09	-507.9E-09	-509.9E-09	-513.2E-09	-509.9E-09	-509.2E-09	-507.7E-09	-881.6E-09
Sigma	-	125.5E-09	73.6E-09	36.3E-09	23.4E-09	22.7E-09	26.4E-09	26.2E-09	25.3E-09	26.6E-09	25.8E-09	28.8E-09	73.0E-09

Measurements

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-184.3E-09	-186.0E-09	-211.5E-09	-188.4E-09	-186.4E-09	-183.6E-09	-186.1E-09	-186.8E-09	-183.8E-09	-185.4E-09	-187.2E-09	-185.8E-09	-190.7E-09
OFF TID samples													
11	-174.5E-09	-419.9E-09	-728.8E-09	-734.3E-09	-735.9E-09	-742.8E-09	-740.4E-09	-744.3E-09	-740.2E-09	-739.8E-09	-742.5E-09	-739.3E-09	-1.2E-06
12	-190.2E-09	-721.9E-09	-727.9E-09	-736.2E-09	-745.5E-09	-749.6E-09	-750.4E-09	-754.5E-09	-756.5E-09	-753.0E-09	-746.9E-09	-748.4E-09	-1.2E-06
13	-185.0E-09	-445.7E-09	-722.5E-09	-719.4E-09	-721.1E-09	-722.7E-09	-719.2E-09	-715.9E-09	-728.3E-09	-720.2E-09	-717.8E-09	-715.5E-09	-1.3E-06
Statistics													
Min	-190.2E-09	-721.9E-09	-728.8E-09	-736.2E-09	-745.5E-09	-749.6E-09	-750.4E-09	-754.5E-09	-756.5E-09	-753.0E-09	-746.9E-09	-748.4E-09	-1.3E-06
Max	-174.5E-09	-419.9E-09	-722.5E-09	-719.4E-09	-721.1E-09	-722.7E-09	-719.2E-09	-715.9E-09	-728.3E-09	-720.2E-09	-717.8E-09	-715.5E-09	-1.2E-06
Average	-183.2E-09	-529.2E-09	-726.4E-09	-730.0E-09	-734.2E-09	-738.4E-09	-736.6E-09	-738.2E-09	-741.7E-09	-737.6E-09	-735.7E-09	-734.4E-09	-1.2E-06
Sigma	6.5E-09	136.7E-09	2.8E-09	7.5E-09	10.0E-09	11.4E-09	13.0E-09	16.3E-09	11.5E-09	13.5E-09	12.8E-09	13.9E-09	26.5E-09

Drift Calculation

IIB1-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-245.4E-09	-554.3E-09	-559.8E-09	-561.4E-09	-568.3E-09	-565.8E-09	-569.8E-09	-565.7E-09	-565.2E-09	-568.0E-09	-564.7E-09	-1.0E-06
12	-	-531.7E-09	-537.8E-09	-546.0E-09	-555.3E-09	-559.5E-09	-560.2E-09	-564.3E-09	-566.3E-09	-562.8E-09	-556.7E-09	-558.2E-09	-1.0E-06
13	-	-260.7E-09	-537.5E-09	-534.3E-09	-536.0E-09	-537.7E-09	-534.1E-09	-530.9E-09	-543.3E-09	-535.1E-09	-532.8E-09	-530.4E-09	-1.1E-06
Average	-	-345.9E-09	-543.2E-09	-546.7E-09	-550.9E-09	-555.1E-09	-553.4E-09	-555.0E-09	-558.4E-09	-554.4E-09	-552.5E-09	-551.1E-09	-1.1E-06
Sigma	-	131.5E-09	7.8E-09	10.4E-09	10.8E-09	12.9E-09	13.8E-09	17.2E-09	10.7E-09	13.7E-09	14.7E-09	14.9E-09	25.8E-09

Parameter : Input Bias Current : IIB1-DUT4

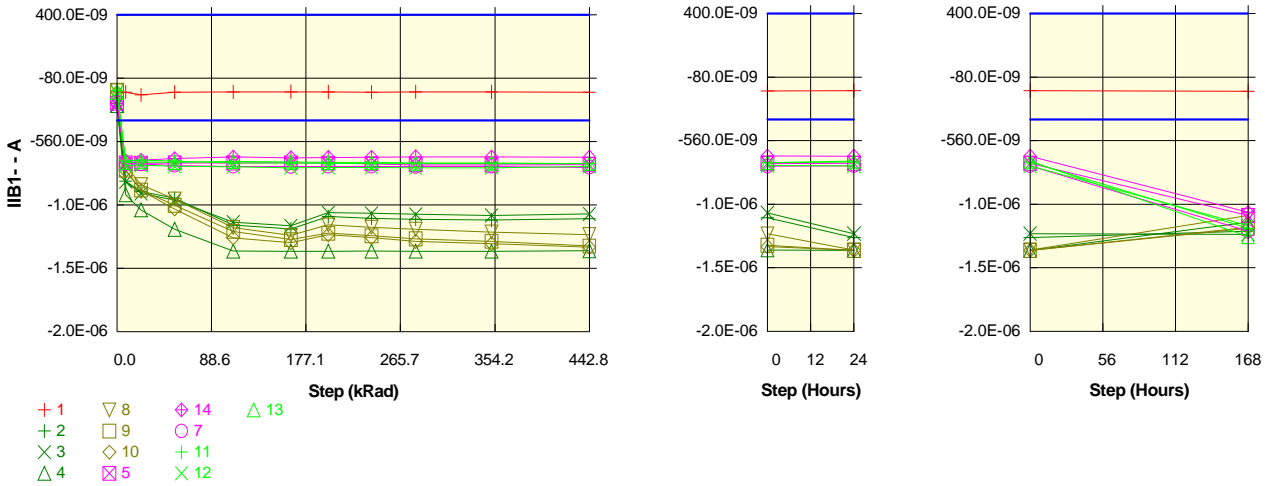
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-182.3E-09	-184.5E-09	-205.9E-09	-185.1E-09	-183.7E-09	-181.2E-09	-183.2E-09	-184.3E-09	-181.7E-09	-182.8E-09	-184.5E-09	-183.3E-09	-188.8E-09
ON PROTON samples													
2	-271.2E-09	-859.6E-09	-938.5E-09	-988.9E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
3	-282.7E-09	-863.8E-09	-951.7E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.3E-06
4	-285.3E-09	-961.2E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-285.3E-09	-961.2E-09	-1.1E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.3E-06
Max	-271.2E-09	-859.6E-09	-938.5E-09	-988.9E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.3E-06	-1.2E-06
Average	-279.8E-09	-894.9E-09	-989.1E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06
Sigma	6.1E-09	47.0E-09	62.5E-09	107.4E-09	98.4E-09	85.9E-09	131.4E-09	127.0E-09	124.1E-09	120.4E-09	124.1E-09	53.9E-09	38.2E-09

Drift Calculation

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-588.4E-09	-667.3E-09	-717.7E-09	-922.3E-09	-949.7E-09	-855.4E-09	-869.0E-09	-876.3E-09	-882.3E-09	-871.9E-09	-1.0E-06	-971.7E-09
3	-	-581.1E-09	-669.0E-09	-720.4E-09	-887.1E-09	-915.0E-09	-814.9E-09	-820.9E-09	-827.3E-09	-836.5E-09	-824.4E-09	-979.3E-09	-984.7E-09
4	-	-675.9E-09	-791.7E-09	-938.3E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-891.6E-09
Average	-	-615.1E-09	-709.3E-09	-792.1E-09	-971.1E-09	-989.9E-09	-924.9E-09	-931.3E-09	-936.1E-09	-941.2E-09	-932.5E-09	-1.0E-06	-949.3E-09
Sigma	-	43.1E-09	58.3E-09	103.3E-09	95.1E-09	82.7E-09	128.0E-09	123.7E-09	120.9E-09	117.1E-09	120.8E-09	51.4E-09	41.2E-09

Measurements

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-182.3E-09	-184.5E-09	-205.9E-09	-185.1E-09	-183.7E-09	-181.2E-09	-183.2E-09	-184.3E-09	-181.7E-09	-182.8E-09	-184.5E-09	-183.3E-09	-188.8E-09
ON TID samples													
8	-170.5E-09	-742.1E-09	-885.1E-09	-994.3E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.1E-06
9	-175.7E-09	-775.6E-09	-926.2E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06
10	-185.5E-09	-778.6E-09	-930.5E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06
Statistics													
Min	-185.5E-09	-778.6E-09	-930.5E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06
Max	-170.5E-09	-742.1E-09	-885.1E-09	-994.3E-09	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.3E-06	-1.4E-06	-1.1E-06
Average	-177.2E-09	-765.5E-09	-913.9E-09	-1.0E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06
Sigma	6.2E-09	16.5E-09	20.5E-09	31.3E-09	31.7E-09	22.8E-09	32.6E-09	33.9E-09	39.4E-09	38.4E-09	42.9E-09	1.7E-09	44.5E-09

Drift Calculation

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-571.6E-09	-714.6E-09	-823.8E-09	-1.0E-06	-1.1E-06	-1.0E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-954.8E-09
9	-	-599.9E-09	-750.5E-09	-866.4E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
10	-	-593.2E-09	-745.0E-09	-884.8E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06
Average	-	-588.2E-09	-736.7E-09	-858.3E-09	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.0E-06
Sigma	-	12.1E-09	15.8E-09	25.5E-09	25.5E-09	16.9E-09	27.5E-09	28.8E-09	34.1E-09	33.0E-09	38.0E-09	5.1E-09	40.3E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015		
	IS-139ASRH					Intersil				Issue:	02		

Measurements

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-182.3E-09	-184.5E-09	-205.9E-09	-185.1E-09	-183.7E-09	-181.2E-09	-183.2E-09	-184.3E-09	-181.7E-09	-182.8E-09	-184.5E-09	-183.3E-09	-188.8E-09
OFF PROTON samples													
5	-268.8E-09	-720.8E-09	-723.8E-09	-721.7E-09	-721.2E-09	-719.4E-09	-722.8E-09	-728.3E-09	-735.1E-09	-736.8E-09	-733.4E-09	-732.1E-09	-1.1E-06
14	-269.3E-09	-706.1E-09	-700.6E-09	-688.4E-09	-675.5E-09	-682.4E-09	-679.7E-09	-678.7E-09	-675.1E-09	-676.1E-09	-676.9E-09	-678.2E-09	-1.1E-06
7	-259.5E-09	-724.5E-09	-729.7E-09	-740.0E-09	-747.4E-09	-749.5E-09	-747.1E-09	-747.5E-09	-749.1E-09	-747.9E-09	-754.0E-09	-750.3E-09	-1.2E-06
Statistics													
Min	-269.3E-09	-724.5E-09	-729.7E-09	-740.0E-09	-747.4E-09	-749.5E-09	-747.1E-09	-747.5E-09	-749.1E-09	-747.9E-09	-754.0E-09	-750.3E-09	-1.2E-06
Max	-259.5E-09	-706.1E-09	-700.6E-09	-688.4E-09	-675.5E-09	-682.4E-09	-679.7E-09	-678.7E-09	-675.1E-09	-676.1E-09	-676.9E-09	-678.2E-09	-1.1E-06
Average	-265.8E-09	-717.2E-09	-718.0E-09	-716.7E-09	-714.7E-09	-717.1E-09	-716.5E-09	-718.1E-09	-719.8E-09	-720.3E-09	-721.4E-09	-720.2E-09	-1.2E-06
Sigma	4.5E-09	7.9E-09	12.5E-09	21.4E-09	29.7E-09	27.4E-09	27.9E-09	29.0E-09	32.1E-09	31.6E-09	32.6E-09	30.6E-09	62.2E-09

Drift Calculation

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-452.1E-09	-455.0E-09	-452.9E-09	-452.5E-09	-450.6E-09	-454.1E-09	-459.5E-09	-466.4E-09	-468.0E-09	-464.6E-09	-463.4E-09	-857.3E-09
14	-	-436.9E-09	-431.4E-09	-419.1E-09	-406.2E-09	-413.1E-09	-410.4E-09	-409.4E-09	-405.8E-09	-406.8E-09	-407.7E-09	-408.9E-09	-832.6E-09
7	-	-465.0E-09	-470.1E-09	-480.5E-09	-487.9E-09	-490.0E-09	-487.6E-09	-488.0E-09	-489.6E-09	-488.4E-09	-494.5E-09	-490.8E-09	-984.7E-09
Average	-	-451.3E-09	-452.2E-09	-450.8E-09	-448.9E-09	-451.2E-09	-450.7E-09	-452.3E-09	-453.9E-09	-454.4E-09	-455.6E-09	-454.3E-09	-891.5E-09
Sigma	-	11.5E-09	16.0E-09	25.1E-09	33.4E-09	31.4E-09	31.6E-09	32.5E-09	35.3E-09	34.7E-09	36.0E-09	34.0E-09	66.6E-09

Measurements

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-182.3E-09	-184.5E-09	-205.9E-09	-185.1E-09	-183.7E-09	-181.2E-09	-183.2E-09	-184.3E-09	-181.7E-09	-182.8E-09	-184.5E-09	-183.3E-09	-188.8E-09
OFF TID samples													
11	-173.4E-09	-705.9E-09	-701.0E-09	-707.8E-09	-722.3E-09	-722.9E-09	-723.7E-09	-726.6E-09	-726.9E-09	-726.2E-09	-725.9E-09	-721.8E-09	-1.2E-06
12	-186.8E-09	-741.7E-09	-739.3E-09	-746.7E-09	-749.7E-09	-756.8E-09	-754.4E-09	-754.4E-09	-758.1E-09	-756.7E-09	-748.4E-09	-751.3E-09	-1.2E-06
13	-185.4E-09	-718.2E-09	-713.5E-09	-716.8E-09	-710.3E-09	-714.7E-09	-716.4E-09	-717.0E-09	-722.6E-09	-721.1E-09	-726.0E-09	-714.8E-09	-1.3E-06
Statistics													
Min	-186.8E-09	-741.7E-09	-739.3E-09	-746.7E-09	-749.7E-09	-756.8E-09	-754.4E-09	-754.4E-09	-758.1E-09	-756.7E-09	-748.4E-09	-751.3E-09	-1.3E-06
Max	-173.4E-09	-705.9E-09	-701.0E-09	-707.8E-09	-710.3E-09	-714.7E-09	-716.4E-09	-717.0E-09	-722.6E-09	-721.1E-09	-725.9E-09	-714.8E-09	-1.2E-06
Average	-181.9E-09	-721.9E-09	-718.0E-09	-723.8E-09	-727.4E-09	-731.5E-09	-731.5E-09	-732.7E-09	-735.9E-09	-734.7E-09	-733.4E-09	-729.3E-09	-1.2E-06
Sigma	6.0E-09	14.9E-09	15.9E-09	16.6E-09	16.5E-09	18.2E-09	16.4E-09	15.9E-09	15.8E-09	15.7E-09	10.6E-09	15.8E-09	34.9E-09

Drift Calculation

IIB1-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-532.5E-09	-527.7E-09	-534.4E-09	-549.0E-09	-549.6E-09	-550.4E-09	-553.2E-09	-553.5E-09	-552.9E-09	-552.5E-09	-548.4E-09	-1.0E-06
12	-	-554.8E-09	-552.5E-09	-559.8E-09	-562.8E-09	-570.0E-09	-567.6E-09	-567.6E-09	-571.2E-09	-569.9E-09	-561.6E-09	-564.5E-09	-1.0E-06
13	-	-532.8E-09	-528.1E-09	-531.3E-09	-524.8E-09	-529.3E-09	-531.0E-09	-531.5E-09	-537.2E-09	-535.6E-09	-540.5E-09	-529.4E-09	-1.1E-06
Average	-	-540.0E-09	-536.1E-09	-541.9E-09	-545.5E-09	-549.6E-09	-549.6E-09	-550.8E-09	-554.0E-09	-552.8E-09	-551.5E-09	-547.4E-09	-1.1E-06
Sigma	-	10.5E-09	11.6E-09	12.8E-09	15.7E-09	16.6E-09	14.9E-09	14.8E-09	13.9E-09	14.0E-09	8.6E-09	14.3E-09	34.3E-09

Parameter : Input Bias Current : IIB2+DUT1

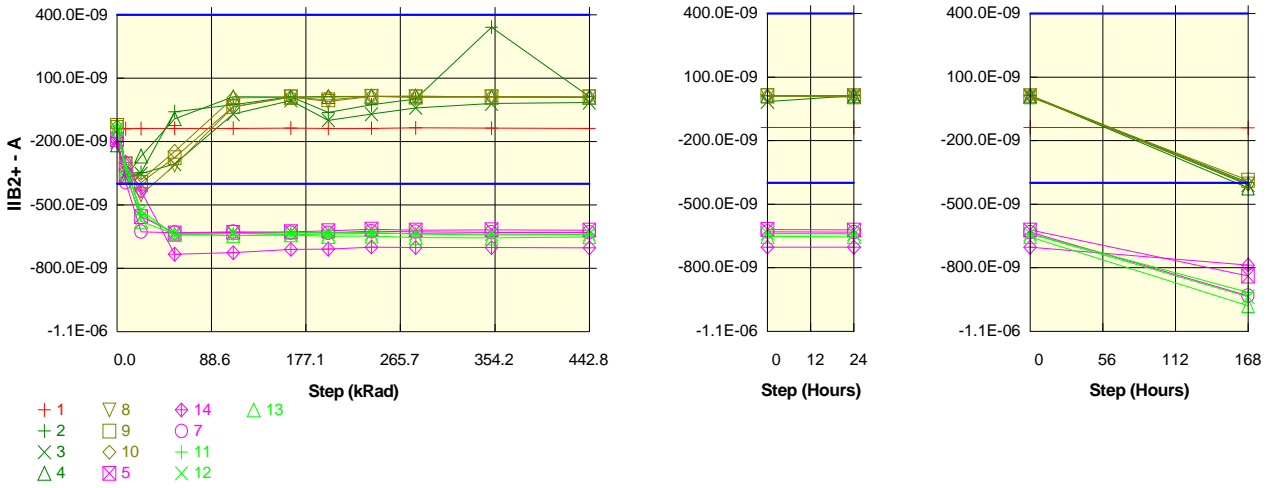
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-135.6E-09	-138.4E-09	-138.1E-09	-137.3E-09	-136.8E-09	-134.9E-09	-136.7E-09	-137.1E-09	-134.8E-09	-136.5E-09	-137.7E-09	-136.9E-09	-140.0E-09
ON PROTON samples													
2	-202.1E-09	-369.8E-09	-345.7E-09	-57.8E-09	-24.6E-09	13.4E-09	-60.9E-09	-25.6E-09	2.7E-09	342.1E-09	11.9E-09	13.6E-09	-398.3E-09
3	-201.4E-09	-371.6E-09	-351.9E-09	-306.1E-09	-68.8E-09	-5.2E-09	-99.0E-09	-69.7E-09	-39.4E-09	-20.1E-09	-14.9E-09	11.4E-09	-408.1E-09
4	-215.3E-09	-366.4E-09	-268.8E-09	-91.5E-09	12.4E-09	11.6E-09	14.3E-09	15.1E-09	16.5E-09	11.7E-09	11.2E-09	11.5E-09	-424.3E-09
Statistics													
Min	-215.3E-09	-371.6E-09	-351.9E-09	-306.1E-09	-68.8E-09	-5.2E-09	-99.0E-09	-69.7E-09	-39.4E-09	-20.1E-09	-14.9E-09	11.4E-09	-424.3E-09
Max	-201.4E-09	-366.4E-09	-268.8E-09	-57.8E-09	12.4E-09	13.4E-09	14.3E-09	15.1E-09	16.5E-09	342.1E-09	11.9E-09	13.6E-09	-398.3E-09
Average	-206.3E-09	-369.3E-09	-322.1E-09	-151.8E-09	-27.0E-09	6.6E-09	-48.5E-09	-26.7E-09	-6.7E-09	111.2E-09	2.7E-09	12.2E-09	-410.2E-09
Sigma	6.4E-09	2.2E-09	37.8E-09	110.0E-09	33.2E-09	8.4E-09	47.0E-09	34.7E-09	23.8E-09	163.8E-09	12.5E-09	1.0E-09	10.7E-09

Drift Calculation

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-167.7E-09	-143.6E-09	144.3E-09	177.6E-09	215.5E-09	141.2E-09	176.6E-09	204.8E-09	544.2E-09	214.0E-09	215.8E-09	-196.2E-09
3	-	-170.2E-09	-150.5E-09	-104.6E-09	132.6E-09	196.2E-09	102.4E-09	131.7E-09	162.0E-09	181.3E-09	186.6E-09	212.8E-09	-206.7E-09
4	-	-151.1E-09	-53.5E-09	123.9E-09	227.7E-09	226.9E-09	229.6E-09	230.4E-09	231.9E-09	227.0E-09	226.6E-09	226.9E-09	-208.9E-09
Average	-	-163.0E-09	-115.8E-09	54.5E-09	179.3E-09	212.9E-09	157.8E-09	179.6E-09	199.6E-09	317.5E-09	209.0E-09	218.5E-09	-204.0E-09
Sigma	-	8.5E-09	44.2E-09	112.8E-09	38.9E-09	12.7E-09	53.2E-09	40.4E-09	28.7E-09	161.4E-09	16.7E-09	6.0E-09	5.6E-09

Measurements

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-135.6E-09	-138.4E-09	-138.1E-09	-137.3E-09	-136.8E-09	-134.9E-09	-136.7E-09	-137.1E-09	-134.8E-09	-136.5E-09	-137.7E-09	-136.9E-09	-140.0E-09
ON TID samples													
8	-132.9E-09	-305.3E-09	-450.4E-09	-311.2E-09	-35.4E-09	11.2E-09	-9.3E-09	14.0E-09	11.2E-09	11.9E-09	11.2E-09	11.5E-09	-403.7E-09
9	-122.3E-09	-307.3E-09	-392.7E-09	-275.6E-09	-33.3E-09	11.4E-09	-2.0E-09	15.7E-09	11.4E-09	11.9E-09	11.1E-09	6.7E-09	-386.5E-09
10	-128.9E-09	-309.4E-09	-381.5E-09	-245.4E-09	6.7E-09	11.4E-09	11.6E-09	15.1E-09	11.2E-09	11.9E-09	10.8E-09	11.5E-09	-405.6E-09
Statistics													
Min	-132.9E-09	-309.4E-09	-450.4E-09	-311.2E-09	-35.4E-09	11.2E-09	-9.3E-09	14.0E-09	11.2E-09	11.9E-09	10.8E-09	6.7E-09	-405.6E-09
Max	-122.3E-09	-305.3E-09	-381.5E-09	-245.4E-09	6.7E-09	11.4E-09	11.6E-09	15.7E-09	11.4E-09	11.9E-09	11.2E-09	11.5E-09	-386.5E-09
Average	-128.0E-09	-307.3E-09	-408.2E-09	-277.4E-09	-20.7E-09	11.3E-09	113.3E-12	14.9E-09	11.3E-09	11.9E-09	11.1E-09	9.9E-09	-398.6E-09
Sigma	4.4E-09	1.7E-09	30.2E-09	26.9E-09	19.4E-09	68.0E-12	8.6E-09	684.3E-12	105.0E-12	16.4E-12	166.8E-12	2.3E-09	8.6E-09

Drift Calculation

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-172.4E-09	-317.4E-09	-178.3E-09	97.5E-09	144.2E-09	123.7E-09	147.0E-09	144.1E-09	144.8E-09	144.1E-09	144.4E-09	-270.8E-09
9	-	-185.0E-09	-270.4E-09	-153.3E-09	89.0E-09	133.6E-09	120.3E-09	137.9E-09	133.7E-09	134.2E-09	133.4E-09	129.0E-09	-264.2E-09
10	-	-180.5E-09	-252.6E-09	-116.5E-09	135.7E-09	140.3E-09	140.5E-09	144.1E-09	140.1E-09	140.8E-09	139.7E-09	140.4E-09	-276.6E-09
Average	-	-179.3E-09	-280.1E-09	-149.4E-09	107.4E-09	139.4E-09	128.2E-09	143.0E-09	139.3E-09	139.9E-09	139.1E-09	137.9E-09	-270.5E-09
Sigma	-	5.2E-09	27.4E-09	25.4E-09	20.3E-09	4.3E-09	8.8E-09	3.8E-09	4.3E-09	4.4E-09	4.4E-09	6.5E-09	5.1E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-135.6E-09	-138.4E-09	-138.1E-09	-137.3E-09	-136.8E-09	-134.9E-09	-136.7E-09	-137.1E-09	-134.8E-09	-136.5E-09	-137.7E-09	-136.9E-09	-140.0E-09
OFF PROTON samples													
5	-189.8E-09	-358.8E-09	-554.1E-09	-632.9E-09	-629.0E-09	-626.5E-09	-622.0E-09	-614.2E-09	-619.1E-09	-617.4E-09	-619.3E-09	-622.1E-09	-838.8E-09
14	-181.2E-09	-297.3E-09	-432.5E-09	-733.1E-09	-725.9E-09	-709.2E-09	-708.8E-09	-698.7E-09	-701.8E-09	-701.3E-09	-702.5E-09	-702.8E-09	-786.6E-09
7	-183.7E-09	-391.8E-09	-626.6E-09	-631.0E-09	-626.9E-09	-630.6E-09	-632.0E-09	-623.8E-09	-626.6E-09	-628.9E-09	-629.6E-09	-632.3E-09	-932.6E-09
Statistics													
Min	-189.8E-09	-391.8E-09	-626.6E-09	-733.1E-09	-725.9E-09	-709.2E-09	-708.8E-09	-698.7E-09	-701.8E-09	-701.3E-09	-702.5E-09	-702.8E-09	-932.6E-09
Max	-181.2E-09	-297.3E-09	-432.5E-09	-631.0E-09	-626.9E-09	-626.5E-09	-622.0E-09	-614.2E-09	-619.1E-09	-617.4E-09	-619.3E-09	-622.1E-09	-786.6E-09
Average	-184.9E-09	-349.3E-09	-537.7E-09	-665.7E-09	-660.6E-09	-655.4E-09	-654.3E-09	-645.6E-09	-649.2E-09	-649.2E-09	-650.5E-09	-652.4E-09	-852.7E-09
Sigma	3.6E-09	39.2E-09	80.0E-09	47.7E-09	46.2E-09	38.0E-09	38.8E-09	37.8E-09	37.4E-09	37.1E-09	37.0E-09	35.9E-09	60.4E-09

Drift Calculation

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-169.0E-09	-364.3E-09	-443.1E-09	-439.2E-09	-436.8E-09	-432.2E-09	-424.4E-09	-429.3E-09	-427.7E-09	-429.5E-09	-432.3E-09	-649.1E-09
14	-	-116.1E-09	-251.4E-09	-551.9E-09	-544.7E-09	-528.0E-09	-527.6E-09	-517.5E-09	-520.6E-09	-520.1E-09	-521.3E-09	-521.6E-09	-605.4E-09
7	-	-208.1E-09	-442.9E-09	-447.3E-09	-443.3E-09	-446.9E-09	-448.3E-09	-440.1E-09	-442.9E-09	-445.2E-09	-445.9E-09	-448.6E-09	-748.9E-09
Average	-	-164.4E-09	-352.9E-09	-480.8E-09	-475.7E-09	-470.6E-09	-469.4E-09	-460.7E-09	-464.3E-09	-464.3E-09	-465.6E-09	-467.5E-09	-667.8E-09
Sigma	-	37.7E-09	78.6E-09	50.3E-09	48.8E-09	40.8E-09	41.7E-09	40.7E-09	40.2E-09	40.1E-09	40.0E-09	38.8E-09	60.0E-09

Measurements

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-135.6E-09	-138.4E-09	-138.1E-09	-137.3E-09	-136.8E-09	-134.9E-09	-136.7E-09	-137.1E-09	-134.8E-09	-136.5E-09	-137.7E-09	-136.9E-09	-140.0E-09
OFF TID samples													
11	-124.9E-09	-312.7E-09	-545.3E-09	-636.3E-09	-636.0E-09	-632.1E-09	-631.9E-09	-629.8E-09	-637.2E-09	-641.7E-09	-640.0E-09	-640.2E-09	-915.4E-09
12	-140.3E-09	-319.4E-09	-525.2E-09	-642.1E-09	-634.7E-09	-640.7E-09	-637.6E-09	-634.3E-09	-634.3E-09	-638.0E-09	-637.3E-09	-639.0E-09	-937.2E-09
13	-136.9E-09	-339.2E-09	-576.5E-09	-639.7E-09	-644.7E-09	-640.9E-09	-647.8E-09	-646.5E-09	-653.3E-09	-655.6E-09	-651.1E-09	-653.8E-09	-978.8E-09
Statistics													
Min	-140.3E-09	-339.2E-09	-576.5E-09	-642.1E-09	-644.7E-09	-640.9E-09	-647.8E-09	-646.5E-09	-653.3E-09	-655.6E-09	-651.1E-09	-653.8E-09	-978.8E-09
Max	-124.9E-09	-312.7E-09	-525.2E-09	-636.3E-09	-634.7E-09	-632.1E-09	-631.9E-09	-629.8E-09	-634.3E-09	-638.0E-09	-637.3E-09	-639.0E-09	-915.4E-09
Average	-134.1E-09	-323.7E-09	-549.0E-09	-639.4E-09	-638.5E-09	-637.9E-09	-639.1E-09	-636.9E-09	-641.6E-09	-645.1E-09	-642.8E-09	-644.3E-09	-943.8E-09
Sigma	6.6E-09	11.2E-09	21.1E-09	2.4E-09	4.4E-09	4.1E-09	6.6E-09	7.0E-09	8.3E-09	7.6E-09	6.0E-09	6.7E-09	26.3E-09

Drift Calculation

IIB2+DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-187.8E-09	-420.4E-09	-511.4E-09	-511.1E-09	-507.2E-09	-507.0E-09	-504.9E-09	-512.4E-09	-516.8E-09	-515.1E-09	-515.3E-09	-790.5E-09
12	-	-179.1E-09	-384.9E-09	-501.8E-09	-494.4E-09	-500.4E-09	-497.2E-09	-494.0E-09	-493.9E-09	-497.6E-09	-497.0E-09	-498.7E-09	-796.9E-09
13	-	-202.2E-09	-439.5E-09	-502.8E-09	-507.7E-09	-504.0E-09	-510.8E-09	-509.6E-09	-516.3E-09	-518.7E-09	-514.1E-09	-516.9E-09	-841.9E-09
Average	-	-189.7E-09	-414.9E-09	-505.3E-09	-504.4E-09	-503.9E-09	-505.0E-09	-502.8E-09	-507.5E-09	-511.0E-09	-508.7E-09	-510.3E-09	-809.8E-09
Sigma	-	9.6E-09	22.6E-09	4.3E-09	7.2E-09	2.8E-09	5.7E-09	6.5E-09	9.8E-09	9.5E-09	8.3E-09	8.2E-09	22.9E-09

Parameter : Input Bias Current : IIB2+DUT2

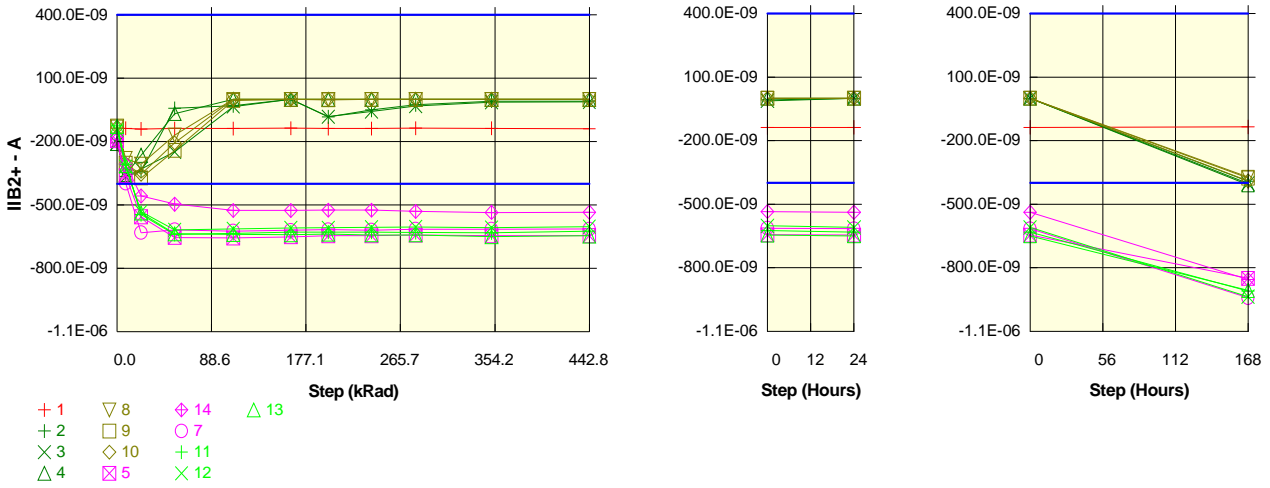
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.2E-09	-137.3E-09	-139.5E-09	-138.3E-09	-137.7E-09	-136.1E-09	-137.6E-09	-138.2E-09	-136.1E-09	-137.2E-09	-138.3E-09	-137.4E-09	-135.3E-09
ON PROTON samples													
2	-205.8E-09	-364.7E-09	-341.2E-09	-42.2E-09	-30.2E-09	-40.0E-12	-83.0E-09	-50.3E-09	-24.5E-09	-7.8E-09	-7.3E-09	-20.0E-12	-391.9E-09
3	-207.7E-09	-365.9E-09	-328.9E-09	-247.8E-09	-33.7E-09	-260.0E-12	-81.9E-09	-56.4E-09	-30.6E-09	-12.6E-09	-12.1E-09	40.0E-12	-402.2E-09
4	-209.8E-09	-355.8E-09	-264.6E-09	-66.9E-09	60.0E-12	60.0E-12	20.0E-12	0.0E+00	-60.0E-12	40.0E-12	40.0E-12	40.0E-12	-408.1E-09
Statistics													
Min	-209.8E-09	-365.9E-09	-341.2E-09	-247.8E-09	-33.7E-09	-260.0E-12	-83.0E-09	-56.4E-09	-30.6E-09	-12.6E-09	-12.1E-09	-20.0E-12	-408.1E-09
Max	-205.8E-09	-355.8E-09	-264.6E-09	-42.2E-09	60.0E-12	60.0E-12	20.0E-12	0.0E+00	-60.0E-12	40.0E-12	40.0E-12	40.0E-12	-391.9E-09
Average	-207.8E-09	-362.1E-09	-311.6E-09	-119.0E-09	-21.3E-09	-80.0E-12	-54.9E-09	-35.6E-09	-18.4E-09	-6.8E-09	-6.5E-09	20.0E-12	-400.7E-09
Sigma	1.6E-09	4.5E-09	33.6E-09	91.7E-09	15.1E-09	133.7E-12	38.9E-09	25.3E-09	13.2E-09	5.2E-09	5.0E-09	28.3E-12	6.7E-09

Drift Calculation

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-158.9E-09	-135.4E-09	163.6E-09	175.7E-09	205.8E-09	122.8E-09	155.5E-09	181.3E-09	198.0E-09	198.5E-09	205.8E-09	-186.0E-09
3	-	-158.2E-09	-121.2E-09	-40.1E-09	174.0E-09	207.5E-09	125.8E-09	151.3E-09	177.1E-09	195.1E-09	195.6E-09	207.8E-09	-194.5E-09
4	-	-146.0E-09	-54.9E-09	142.9E-09	209.8E-09	209.8E-09	209.8E-09	209.8E-09	209.7E-09	209.8E-09	209.8E-09	209.8E-09	-198.4E-09
Average	-	-154.4E-09	-103.8E-09	88.8E-09	186.5E-09	207.7E-09	152.8E-09	172.2E-09	189.4E-09	201.0E-09	201.3E-09	207.8E-09	-193.0E-09
Sigma	-	5.9E-09	35.1E-09	91.5E-09	16.5E-09	1.7E-09	40.3E-09	26.6E-09	14.5E-09	6.4E-09	6.1E-09	1.6E-09	5.2E-09

Measurements

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-136.2E-09	-137.3E-09	-139.5E-09	-138.3E-09	-137.7E-09	-136.1E-09	-137.6E-09	-138.2E-09	-136.1E-09	-137.2E-09	-138.3E-09	-137.4E-09	-135.3E-09
ON TID samples													
8	-130.0E-09	-279.0E-09	-307.0E-09	-168.8E-09	40.0E-12	60.0E-12	0.0E+00	0.0E+00	40.0E-12	20.0E-12	60.0E-12	60.0E-12	-372.6E-09
9	-126.1E-09	-301.6E-09	-371.4E-09	-241.4E-09	-5.4E-09	80.0E-12	-1.8E-09	0.0E+00	60.0E-12	40.0E-12	100.0E-12	40.0E-12	-376.3E-09
10	-130.8E-09	-304.8E-09	-354.2E-09	-206.2E-09	40.0E-12	80.0E-12	40.0E-12	-20.0E-12	60.0E-12	60.0E-12	0.0E+00	60.0E-12	-390.2E-09
Statistics													
Min	-130.8E-09	-304.8E-09	-371.4E-09	-241.4E-09	-5.4E-09	60.0E-12	-1.8E-09	-20.0E-12	40.0E-12	20.0E-12	0.0E+00	40.0E-12	-390.2E-09
Max	-126.1E-09	-279.0E-09	-307.0E-09	-168.8E-09	40.0E-12	80.0E-12	40.0E-12	0.0E+00	60.0E-12	60.0E-12	100.0E-12	60.0E-12	-372.6E-09
Average	-129.0E-09	-295.1E-09	-344.2E-09	-205.5E-09	-1.8E-09	73.3E-12	-600.0E-12	-6.7E-12	53.3E-12	40.0E-12	53.3E-12	53.3E-12	-379.7E-09
Sigma	2.1E-09	11.5E-09	27.2E-09	29.6E-09	2.6E-09	9.4E-12	877.0E-12	9.4E-12	9.4E-12	16.3E-12	41.1E-12	9.4E-12	7.6E-09

Drift Calculation

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-149.0E-09	-177.0E-09	-38.8E-09	130.0E-09	130.1E-09	130.0E-09	130.0E-09	130.0E-09	130.0E-09	130.1E-09	130.1E-09	-242.6E-09
9	-	-175.5E-09	-245.3E-09	-115.3E-09	120.7E-09	126.2E-09	124.3E-09	126.1E-09	126.2E-09	126.1E-09	126.2E-09	126.1E-09	-250.2E-09
10	-	-174.0E-09	-223.4E-09	-75.4E-09	130.8E-09	130.9E-09	130.8E-09	130.8E-09	130.9E-09	130.9E-09	130.8E-09	130.9E-09	-259.4E-09
Average	-	-166.2E-09	-215.2E-09	-76.5E-09	127.2E-09	129.0E-09	128.4E-09	129.0E-09	129.0E-09	129.0E-09	129.0E-09	129.0E-09	-250.7E-09
Sigma	-	12.2E-09	28.5E-09	31.2E-09	4.6E-09	2.1E-09	2.9E-09	2.1E-09	2.1E-09	2.1E-09	2.0E-09	2.1E-09	6.9E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.2E-09	-137.3E-09	-139.5E-09	-138.3E-09	-137.7E-09	-136.1E-09	-137.6E-09	-138.2E-09	-136.1E-09	-137.2E-09	-138.3E-09	-137.4E-09	-135.3E-09
OFF PROTON samples													
5	-195.9E-09	-361.3E-09	-555.5E-09	-653.2E-09	-656.3E-09	-651.0E-09	-645.7E-09	-645.4E-09	-642.6E-09	-645.5E-09	-644.7E-09	-646.2E-09	-850.1E-09
14	-189.9E-09	-307.6E-09	-456.4E-09	-496.0E-09	-525.5E-09	-526.1E-09	-523.8E-09	-524.1E-09	-530.3E-09	-534.9E-09	-534.4E-09	-538.5E-09	-856.3E-09
7	-190.7E-09	-396.1E-09	-631.3E-09	-617.2E-09	-623.1E-09	-619.7E-09	-616.1E-09	-619.0E-09	-614.2E-09	-614.7E-09	-613.7E-09	-615.6E-09	-942.1E-09
Statistics													
Min	-195.9E-09	-396.1E-09	-631.3E-09	-653.2E-09	-656.3E-09	-651.0E-09	-645.7E-09	-645.4E-09	-642.6E-09	-645.5E-09	-644.7E-09	-646.2E-09	-942.1E-09
Max	-189.9E-09	-307.6E-09	-456.4E-09	-496.0E-09	-525.5E-09	-526.1E-09	-523.8E-09	-524.1E-09	-530.3E-09	-534.9E-09	-534.4E-09	-538.5E-09	-850.1E-09
Average	-192.1E-09	-355.0E-09	-547.7E-09	-588.8E-09	-601.7E-09	-598.9E-09	-595.2E-09	-596.2E-09	-595.7E-09	-598.4E-09	-597.6E-09	-600.1E-09	-882.8E-09
Sigma	2.7E-09	36.4E-09	71.6E-09	67.3E-09	55.5E-09	53.1E-09	51.9E-09	52.1E-09	47.7E-09	46.6E-09	46.5E-09	45.3E-09	42.0E-09

Drift Calculation

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-165.4E-09	-359.6E-09	-457.4E-09	-460.4E-09	-455.1E-09	-449.8E-09	-449.5E-09	-446.7E-09	-449.6E-09	-448.8E-09	-450.3E-09	-654.2E-09
14	-	-117.7E-09	-266.6E-09	-306.1E-09	-335.7E-09	-336.2E-09	-333.9E-09	-334.2E-09	-340.4E-09	-345.0E-09	-344.5E-09	-348.6E-09	-666.5E-09
7	-	-205.4E-09	-440.6E-09	-426.6E-09	-432.4E-09	-429.1E-09	-425.4E-09	-428.3E-09	-423.5E-09	-424.0E-09	-423.0E-09	-424.9E-09	-751.4E-09
Average	-	-162.8E-09	-355.6E-09	-396.7E-09	-409.5E-09	-406.8E-09	-403.0E-09	-404.0E-09	-403.5E-09	-406.2E-09	-405.4E-09	-407.9E-09	-690.7E-09
Sigma	-	35.8E-09	71.1E-09	65.2E-09	53.4E-09	51.0E-09	49.9E-09	50.1E-09	45.6E-09	44.5E-09	44.3E-09	43.2E-09	43.3E-09

Measurements

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-136.2E-09	-137.3E-09	-139.5E-09	-138.3E-09	-137.7E-09	-136.1E-09	-137.6E-09	-138.2E-09	-136.1E-09	-137.2E-09	-138.3E-09	-137.4E-09	-135.3E-09
OFF TID samples													
11	-125.6E-09	-306.6E-09	-545.4E-09	-638.8E-09	-634.4E-09	-628.5E-09	-628.6E-09	-628.8E-09	-629.7E-09	-631.7E-09	-624.4E-09	-631.8E-09	-910.7E-09
12	-143.6E-09	-319.2E-09	-530.9E-09	-617.3E-09	-613.0E-09	-608.4E-09	-607.8E-09	-605.3E-09	-603.8E-09	-606.7E-09	-602.3E-09	-610.1E-09	-936.6E-09
13	-128.6E-09	-313.5E-09	-537.8E-09	-636.0E-09	-639.0E-09	-640.2E-09	-637.5E-09	-641.2E-09	-641.3E-09	-650.3E-09	-646.0E-09	-649.8E-09	-907.0E-09
Statistics													
Min	-143.6E-09	-319.2E-09	-545.4E-09	-638.8E-09	-639.0E-09	-640.2E-09	-637.5E-09	-641.2E-09	-641.3E-09	-650.3E-09	-646.0E-09	-649.8E-09	-936.6E-09
Max	-125.6E-09	-306.6E-09	-530.9E-09	-617.3E-09	-613.0E-09	-608.4E-09	-607.8E-09	-605.3E-09	-603.8E-09	-606.7E-09	-602.3E-09	-610.1E-09	-907.0E-09
Average	-132.6E-09	-313.1E-09	-538.0E-09	-630.7E-09	-628.8E-09	-625.7E-09	-624.6E-09	-625.1E-09	-624.9E-09	-629.6E-09	-624.2E-09	-630.6E-09	-918.1E-09
Sigma	7.9E-09	5.2E-09	5.9E-09	9.6E-09	11.3E-09	13.2E-09	12.5E-09	14.9E-09	15.7E-09	17.9E-09	17.8E-09	16.2E-09	13.2E-09

Drift Calculation

IIB2+DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-181.0E-09	-419.8E-09	-513.2E-09	-508.8E-09	-502.9E-09	-503.0E-09	-503.2E-09	-504.1E-09	-506.1E-09	-498.8E-09	-506.2E-09	-785.1E-09
12	-	-175.6E-09	-387.3E-09	-473.6E-09	-469.4E-09	-464.7E-09	-464.1E-09	-461.6E-09	-460.2E-09	-463.1E-09	-458.7E-09	-466.4E-09	-792.9E-09
13	-	-184.9E-09	-409.2E-09	-507.4E-09	-510.4E-09	-511.6E-09	-508.9E-09	-512.5E-09	-512.7E-09	-521.7E-09	-517.4E-09	-521.1E-09	-778.3E-09
Average	-	-180.5E-09	-405.4E-09	-498.1E-09	-496.2E-09	-493.1E-09	-492.0E-09	-492.4E-09	-492.3E-09	-497.0E-09	-491.6E-09	-497.9E-09	-785.5E-09
Sigma	-	3.8E-09	13.5E-09	17.4E-09	19.0E-09	20.4E-09	19.9E-09	22.1E-09	23.0E-09	24.8E-09	24.5E-09	23.1E-09	6.0E-09

Parameter : Input Bias Current : IIB2+DUT3

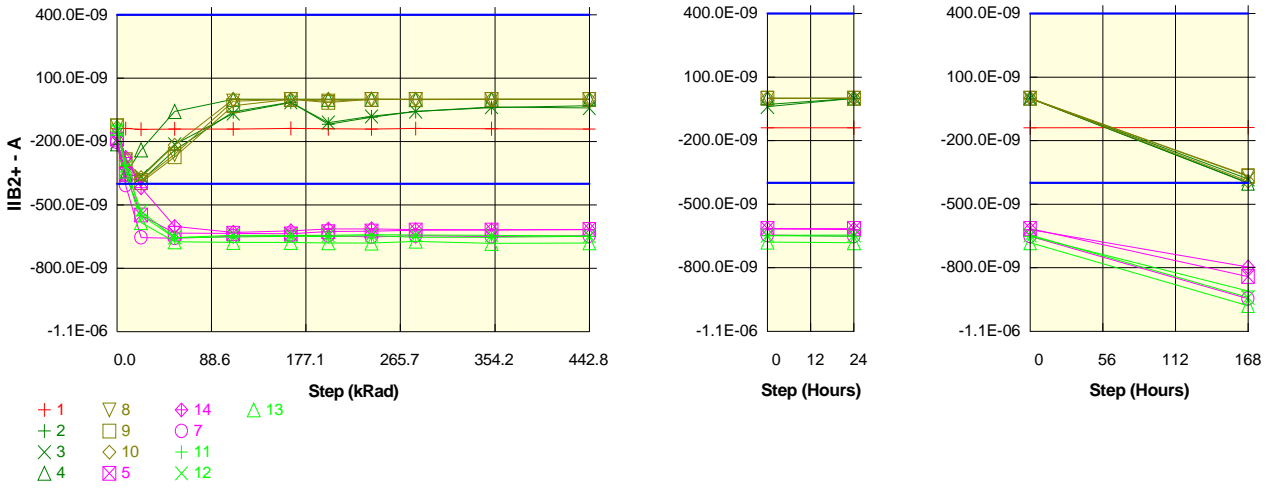
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-137.9E-09	-138.0E-09	-141.3E-09	-139.9E-09	-139.4E-09	-137.4E-09	-139.1E-09	-139.7E-09	-137.6E-09	-138.7E-09	-139.6E-09	-138.8E-09	-136.9E-09
ON PROTON samples													
2	-213.8E-09	-369.5E-09	-385.4E-09	-240.3E-09	-58.3E-09	-13.0E-09	-116.9E-09	-83.1E-09	-56.8E-09	-38.9E-09	-29.0E-09	-60.0E-12	-400.2E-09
3	-201.4E-09	-356.2E-09	-363.9E-09	-212.8E-09	-66.4E-09	-14.1E-09	-109.7E-09	-80.1E-09	-57.0E-09	-36.3E-09	-40.3E-09	-80.0E-12	-382.0E-09
4	-211.1E-09	-353.6E-09	-238.5E-09	-56.9E-09	-20.0E-12	0.0E+00	-40.0E-12	500.0E-12	-520.0E-12	-20.0E-12	-20.0E-12	500.0E-12	-401.1E-09
Statistics													
Min	-213.8E-09	-369.5E-09	-385.4E-09	-240.3E-09	-66.4E-09	-14.1E-09	-116.9E-09	-83.1E-09	-57.0E-09	-38.9E-09	-40.3E-09	-80.0E-12	-401.1E-09
Max	-201.4E-09	-353.6E-09	-238.5E-09	-56.9E-09	-20.0E-12	0.0E+00	-40.0E-12	500.0E-12	-520.0E-12	-20.0E-12	-20.0E-12	500.0E-12	-382.0E-09
Average	-208.8E-09	-359.8E-09	-329.3E-09	-170.0E-09	-41.6E-09	-9.0E-09	-75.6E-09	-54.3E-09	-38.1E-09	-25.1E-09	-23.1E-09	120.0E-12	-394.4E-09
Sigma	5.3E-09	6.9E-09	64.8E-09	80.7E-09	29.6E-09	6.4E-09	53.5E-09	38.7E-09	26.6E-09	17.8E-09	17.0E-09	268.8E-12	8.8E-09

Drift Calculation

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-155.7E-09	-171.6E-09	-26.5E-09	155.5E-09	200.8E-09	96.9E-09	130.7E-09	157.0E-09	174.9E-09	184.8E-09	213.7E-09	-186.4E-09
3	-	-154.8E-09	-162.5E-09	-11.3E-09	135.0E-09	187.4E-09	91.7E-09	121.3E-09	144.5E-09	165.1E-09	161.2E-09	201.4E-09	-180.6E-09
4	-	-142.6E-09	-27.4E-09	154.1E-09	211.0E-09	211.1E-09	211.0E-09	211.6E-09	210.5E-09	211.0E-09	211.0E-09	211.6E-09	-190.0E-09
Average	-	-151.0E-09	-120.5E-09	38.8E-09	167.2E-09	199.7E-09	133.2E-09	154.5E-09	170.7E-09	183.7E-09	185.7E-09	208.9E-09	-185.7E-09
Sigma	-	6.0E-09	65.9E-09	81.8E-09	32.1E-09	9.7E-09	55.1E-09	40.5E-09	28.7E-09	19.7E-09	20.4E-09	5.4E-09	3.9E-09

Measurements

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-137.9E-09	-138.0E-09	-141.3E-09	-139.9E-09	-139.4E-09	-137.4E-09	-139.1E-09	-139.7E-09	-137.6E-09	-138.7E-09	-139.6E-09	-138.8E-09	-136.9E-09
ON TID samples													
8	-125.0E-09	-291.0E-09	-383.5E-09	-260.5E-09	-8.3E-09	-20.0E-12	-8.2E-09	-60.0E-12	20.0E-12	-40.0E-12	-20.0E-12	-20.0E-12	-365.7E-09
9	-126.4E-09	-284.0E-09	-394.2E-09	-271.4E-09	-29.1E-09	0.0E+00	-13.4E-09	-40.0E-12	0.0E+00	-20.0E-12	-40.0E-12	-20.0E-12	-368.3E-09
10	-132.5E-09	-287.3E-09	-369.5E-09	-216.6E-09	-40.0E-12	20.0E-12	-40.0E-12	-40.0E-12	0.0E+00	-20.0E-12	-60.0E-12	0.0E+00	-392.0E-09
Statistics													
Min	-132.5E-09	-291.0E-09	-394.2E-09	-271.4E-09	-29.1E-09	-20.0E-12	-13.4E-09	-60.0E-12	0.0E+00	-40.0E-12	-60.0E-12	-20.0E-12	-392.0E-09
Max	-125.0E-09	-284.0E-09	-369.5E-09	-216.6E-09	-40.0E-12	20.0E-12	-40.0E-12	-40.0E-12	20.0E-12	-20.0E-12	-20.0E-12	0.0E+00	-365.7E-09
Average	-128.0E-09	-287.4E-09	-382.4E-09	-249.5E-09	-12.5E-09	0.0E+00	-7.2E-09	-46.7E-12	6.7E-12	-26.7E-12	-40.0E-12	-13.3E-12	-375.4E-09
Sigma	3.2E-09	2.8E-09	10.1E-09	23.7E-09	12.2E-09	16.3E-12	5.5E-09	9.4E-12	9.4E-12	9.4E-12	16.3E-12	9.4E-12	11.8E-09

Drift Calculation

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-165.9E-09	-258.4E-09	-135.4E-09	116.7E-09	125.0E-09	116.8E-09	125.0E-09	125.1E-09	125.0E-09	125.0E-09	125.0E-09	-240.7E-09
9	-	-157.6E-09	-267.7E-09	-145.0E-09	97.3E-09	126.4E-09	113.0E-09	126.4E-09	126.4E-09	126.4E-09	126.4E-09	126.4E-09	-241.9E-09
10	-	-154.8E-09	-237.0E-09	-84.1E-09	132.5E-09	132.5E-09	132.5E-09	132.5E-09	132.5E-09	132.5E-09	132.4E-09	132.5E-09	-259.5E-09
Average	-	-159.5E-09	-254.4E-09	-121.5E-09	115.5E-09	128.0E-09	120.8E-09	127.9E-09	128.0E-09	128.0E-09	127.9E-09	128.0E-09	-247.4E-09
Sigma	-	4.7E-09	12.9E-09	26.7E-09	14.4E-09	3.3E-09	8.4E-09	3.2E-09	3.2E-09	3.2E-09	3.2E-09	3.3E-09	8.6E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-137.9E-09	-138.0E-09	-141.3E-09	-139.9E-09	-139.4E-09	-137.4E-09	-139.1E-09	-139.7E-09	-137.6E-09	-138.7E-09	-139.6E-09	-138.8E-09	-136.9E-09
OFF PROTON samples													
5	-187.8E-09	-354.9E-09	-547.6E-09	-633.4E-09	-634.8E-09	-636.1E-09	-625.7E-09	-623.0E-09	-618.8E-09	-618.2E-09	-615.2E-09	-615.2E-09	-841.2E-09
14	-161.2E-09	-275.2E-09	-417.8E-09	-602.0E-09	-629.4E-09	-621.8E-09	-613.8E-09	-613.0E-09	-616.1E-09	-617.9E-09	-616.5E-09	-619.7E-09	-796.7E-09
7	-201.5E-09	-406.9E-09	-653.1E-09	-656.8E-09	-647.2E-09	-644.9E-09	-645.1E-09	-650.6E-09	-645.2E-09	-649.0E-09	-645.9E-09	-651.5E-09	-946.1E-09
Statistics													
Min	-201.5E-09	-406.9E-09	-653.1E-09	-656.8E-09	-647.2E-09	-644.9E-09	-645.1E-09	-650.6E-09	-645.2E-09	-649.0E-09	-645.9E-09	-651.5E-09	-946.1E-09
Max	-161.2E-09	-275.2E-09	-417.8E-09	-602.0E-09	-629.4E-09	-621.8E-09	-613.8E-09	-613.0E-09	-616.1E-09	-617.9E-09	-615.2E-09	-615.2E-09	-796.7E-09
Average	-183.5E-09	-345.7E-09	-539.5E-09	-630.8E-09	-637.1E-09	-634.3E-09	-628.2E-09	-628.9E-09	-626.7E-09	-628.4E-09	-625.9E-09	-628.8E-09	-861.3E-09
Sigma	16.7E-09	54.2E-09	96.2E-09	22.5E-09	7.4E-09	9.5E-09	12.9E-09	15.9E-09	13.1E-09	14.6E-09	14.2E-09	16.2E-09	62.6E-09

Drift Calculation

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-167.0E-09	-359.8E-09	-445.6E-09	-446.9E-09	-448.2E-09	-437.9E-09	-435.2E-09	-431.0E-09	-430.4E-09	-427.4E-09	-427.4E-09	-653.4E-09
14	-	-114.0E-09	-256.6E-09	-440.8E-09	-468.2E-09	-460.6E-09	-452.6E-09	-451.8E-09	-454.9E-09	-456.8E-09	-455.3E-09	-458.5E-09	-635.5E-09
7	-	-205.4E-09	-451.6E-09	-455.4E-09	-445.7E-09	-443.4E-09	-443.7E-09	-449.2E-09	-443.8E-09	-447.6E-09	-444.5E-09	-450.1E-09	-744.6E-09
Average	-	-162.2E-09	-356.0E-09	-447.3E-09	-453.6E-09	-450.8E-09	-444.7E-09	-445.4E-09	-443.2E-09	-444.9E-09	-442.4E-09	-445.3E-09	-677.8E-09
Sigma	-	37.5E-09	79.7E-09	6.1E-09	10.3E-09	7.3E-09	6.1E-09	7.3E-09	9.8E-09	10.9E-09	11.5E-09	13.2E-09	47.8E-09

Measurements

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-137.9E-09	-138.0E-09	-141.3E-09	-139.9E-09	-139.4E-09	-137.4E-09	-139.1E-09	-139.7E-09	-137.6E-09	-138.7E-09	-139.6E-09	-138.8E-09	-136.9E-09
OFF TID samples													
11	-126.0E-09	-310.8E-09	-547.1E-09	-655.1E-09	-651.7E-09	-647.5E-09	-650.3E-09	-645.5E-09	-652.7E-09	-652.6E-09	-647.6E-09	-652.0E-09	-910.0E-09
12	-144.2E-09	-317.2E-09	-528.8E-09	-653.7E-09	-643.7E-09	-644.0E-09	-643.2E-09	-640.5E-09	-641.7E-09	-643.0E-09	-646.8E-09	-645.9E-09	-940.7E-09
13	-136.7E-09	-339.0E-09	-582.8E-09	-673.8E-09	-676.8E-09	-677.0E-09	-678.9E-09	-680.0E-09	-671.7E-09	-681.7E-09	-679.0E-09	-682.1E-09	-979.0E-09
Statistics													
Min	-144.2E-09	-339.0E-09	-582.8E-09	-673.8E-09	-676.8E-09	-677.0E-09	-678.9E-09	-680.0E-09	-671.7E-09	-681.7E-09	-679.0E-09	-682.1E-09	-979.0E-09
Max	-126.0E-09	-310.8E-09	-528.8E-09	-653.7E-09	-643.7E-09	-644.0E-09	-643.2E-09	-640.5E-09	-641.7E-09	-643.0E-09	-646.8E-09	-645.9E-09	-910.0E-09
Average	-135.7E-09	-322.3E-09	-552.9E-09	-660.9E-09	-657.4E-09	-656.1E-09	-657.5E-09	-655.3E-09	-655.4E-09	-659.1E-09	-657.8E-09	-660.0E-09	-943.2E-09
Sigma	7.5E-09	12.1E-09	22.4E-09	9.2E-09	14.1E-09	14.8E-09	15.4E-09	17.5E-09	12.4E-09	16.4E-09	15.0E-09	15.8E-09	28.2E-09

Drift Calculation

IIB2+DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-184.8E-09	-421.1E-09	-529.1E-09	-525.7E-09	-521.4E-09	-524.3E-09	-519.5E-09	-526.6E-09	-526.6E-09	-521.5E-09	-526.0E-09	-784.0E-09
12	-	-173.0E-09	-384.6E-09	-509.5E-09	-499.5E-09	-499.8E-09	-499.1E-09	-496.3E-09	-497.5E-09	-498.8E-09	-502.6E-09	-501.8E-09	-796.5E-09
13	-	-202.3E-09	-446.0E-09	-537.1E-09	-540.1E-09	-540.2E-09	-542.1E-09	-543.2E-09	-534.9E-09	-544.9E-09	-542.3E-09	-545.4E-09	-842.2E-09
Average	-	-186.7E-09	-417.2E-09	-525.2E-09	-521.7E-09	-520.5E-09	-521.8E-09	-519.7E-09	-519.7E-09	-523.4E-09	-522.1E-09	-524.4E-09	-807.6E-09
Sigma	-	12.0E-09	25.2E-09	11.6E-09	16.8E-09	16.5E-09	17.7E-09	19.1E-09	16.0E-09	18.9E-09	16.2E-09	17.8E-09	25.0E-09

Parameter : Input Bias Current : IIB2+DUT4

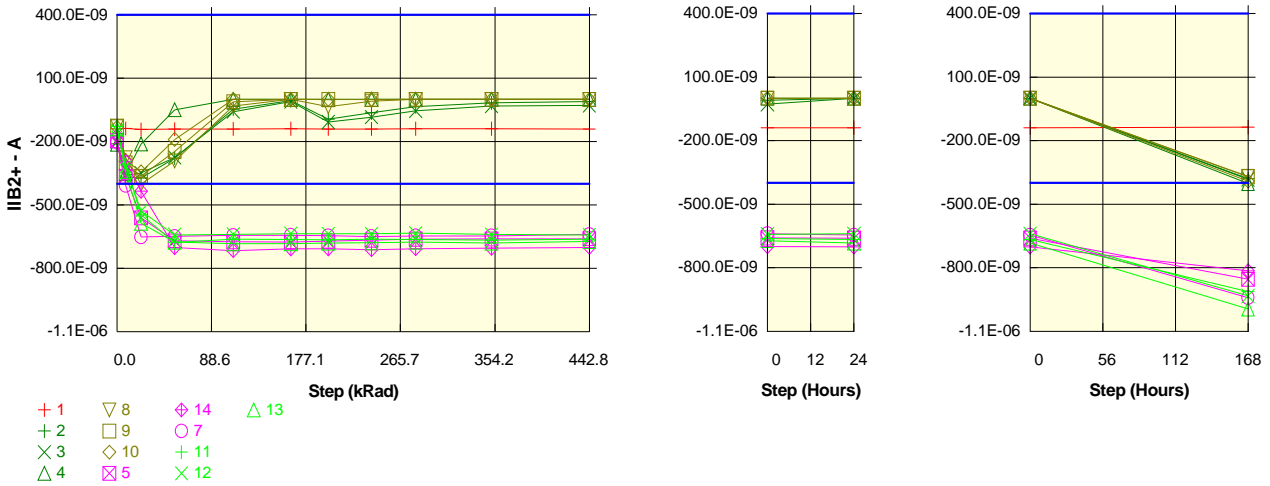
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-138.8E-09	-137.9E-09	-141.8E-09	-140.6E-09	-139.6E-09	-138.9E-09	-139.4E-09	-139.8E-09	-138.4E-09	-138.7E-09	-139.3E-09	-138.9E-09	-136.2E-09
ON PROTON samples													
2	-209.1E-09	-366.8E-09	-371.1E-09	-277.2E-09	-45.9E-09	-5.7E-09	-93.2E-09	-62.9E-09	-33.9E-09	-16.6E-09	-9.9E-09	-80.0E-12	-380.4E-09
3	-201.4E-09	-360.6E-09	-348.2E-09	-274.7E-09	-57.7E-09	-10.6E-09	-107.2E-09	-83.2E-09	-53.9E-09	-31.1E-09	-28.3E-09	-40.0E-12	-382.6E-09
4	-211.5E-09	-351.8E-09	-211.3E-09	-49.4E-09	-40.0E-12	-20.0E-12	-100.0E-12	500.0E-12	-100.0E-12	-40.0E-12	-40.0E-12	-40.0E-12	-402.6E-09
Statistics													
Min	-211.5E-09	-366.8E-09	-371.1E-09	-277.2E-09	-57.7E-09	-10.6E-09	-107.2E-09	-83.2E-09	-53.9E-09	-31.1E-09	-28.3E-09	-80.0E-12	-402.6E-09
Max	-201.4E-09	-351.8E-09	-211.3E-09	-49.4E-09	-40.0E-12	-20.0E-12	-100.0E-12	500.0E-12	-100.0E-12	-40.0E-12	-40.0E-12	-40.0E-12	-380.4E-09
Average	-207.3E-09	-359.8E-09	-310.2E-09	-200.5E-09	-34.5E-09	-5.4E-09	-66.8E-09	-48.5E-09	-29.3E-09	-15.9E-09	-12.7E-09	-53.3E-12	-388.5E-09
Sigma	4.3E-09	6.2E-09	70.6E-09	106.8E-09	24.9E-09	4.3E-09	47.5E-09	35.6E-09	22.2E-09	12.7E-09	11.7E-09	18.9E-12	10.0E-09

Drift Calculation

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-157.8E-09	-162.0E-09	-68.2E-09	163.2E-09	203.4E-09	115.9E-09	146.2E-09	175.1E-09	192.4E-09	199.2E-09	209.0E-09	-171.3E-09
3	-	-159.2E-09	-146.8E-09	-73.3E-09	143.7E-09	190.8E-09	94.2E-09	118.2E-09	147.5E-09	170.3E-09	173.1E-09	201.4E-09	-181.2E-09
4	-	-140.3E-09	250.0E-12	162.1E-09	211.5E-09	211.5E-09	211.4E-09	212.0E-09	211.4E-09	211.5E-09	211.5E-09	211.5E-09	-191.1E-09
Average	-	-152.4E-09	-102.9E-09	6.9E-09	172.8E-09	201.9E-09	140.5E-09	158.8E-09	178.0E-09	191.4E-09	194.6E-09	207.3E-09	-181.2E-09
Sigma	-	8.6E-09	73.2E-09	109.8E-09	28.5E-09	8.5E-09	50.9E-09	39.3E-09	26.2E-09	16.8E-09	16.0E-09	4.3E-09	8.1E-09

Measurements

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-138.8E-09	-137.9E-09	-141.8E-09	-140.6E-09	-139.6E-09	-138.9E-09	-139.4E-09	-139.8E-09	-138.4E-09	-138.7E-09	-139.3E-09	-138.9E-09	-136.2E-09
ON TID samples													
8	-126.3E-09	-276.6E-09	-401.4E-09	-291.6E-09	-32.0E-09	20.0E-12	-33.8E-09	-7.8E-09	-40.0E-12	-60.0E-12	-20.0E-12	-20.0E-12	-368.9E-09
9	-128.0E-09	-301.2E-09	-364.0E-09	-245.8E-09	-10.9E-09	0.0E+00	-760.0E-12	-40.0E-12	-20.0E-12	-20.0E-12	-40.0E-12	0.0E+00	-370.4E-09
10	-131.5E-09	-288.8E-09	-342.7E-09	-189.2E-09	-40.0E-12	-20.0E-12	-40.0E-12	-600.0E-12	900.0E-12	-20.0E-12	-80.0E-12	-20.0E-12	-391.5E-09
Statistics													
Min	-131.5E-09	-301.2E-09	-401.4E-09	-291.6E-09	-32.0E-09	-20.0E-12	-33.8E-09	-7.8E-09	-40.0E-12	-60.0E-12	-80.0E-12	-20.0E-12	-391.5E-09
Max	-126.3E-09	-276.6E-09	-342.7E-09	-189.2E-09	-40.0E-12	20.0E-12	-40.0E-12	-40.0E-12	900.0E-12	-20.0E-12	-20.0E-12	0.0E+00	-368.9E-09
Average	-128.6E-09	-288.9E-09	-369.4E-09	-242.2E-09	-14.3E-09	0.0E+00	-11.5E-09	-2.8E-09	280.0E-12	-33.3E-12	-46.7E-12	-13.4E-12	-376.9E-09
Sigma	2.2E-09	10.0E-09	24.2E-09	41.9E-09	13.3E-09	16.3E-12	15.7E-09	3.5E-09	438.5E-12	18.9E-12	24.9E-12	9.4E-12	10.3E-09

Drift Calculation

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-150.4E-09	-275.1E-09	-165.3E-09	94.3E-09	126.3E-09	92.5E-09	118.5E-09	126.2E-09	126.2E-09	126.2E-09	126.2E-09	-242.6E-09
9	-	-173.2E-09	-235.9E-09	-117.8E-09	117.1E-09	128.0E-09	127.3E-09	128.0E-09	128.0E-09	128.0E-09	128.0E-09	128.0E-09	-242.3E-09
10	-	-157.3E-09	-211.2E-09	-57.6E-09	131.5E-09	131.5E-09	131.5E-09	130.9E-09	132.4E-09	131.5E-09	131.4E-09	131.5E-09	-260.0E-09
Average	-	-160.3E-09	-240.8E-09	-113.6E-09	114.3E-09	128.6E-09	117.1E-09	125.8E-09	128.9E-09	128.6E-09	128.6E-09	128.6E-09	-248.3E-09
Sigma	-	9.5E-09	26.3E-09	44.1E-09	15.3E-09	2.2E-09	17.5E-09	5.3E-09	2.6E-09	2.2E-09	2.2E-09	2.2E-09	8.2E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-138.8E-09	-137.9E-09	-141.8E-09	-140.6E-09	-139.6E-09	-138.9E-09	-139.4E-09	-139.8E-09	-138.4E-09	-138.7E-09	-139.3E-09	-138.9E-09	-136.2E-09
OFF PROTON samples													
5	-194.8E-09	-364.1E-09	-560.1E-09	-669.5E-09	-673.7E-09	-676.0E-09	-671.0E-09	-666.6E-09	-661.6E-09	-660.4E-09	-659.4E-09	-661.2E-09	-854.0E-09
14	-173.3E-09	-293.8E-09	-434.1E-09	-701.4E-09	-715.8E-09	-708.0E-09	-707.9E-09	-711.0E-09	-707.0E-09	-704.4E-09	-700.8E-09	-701.8E-09	-814.8E-09
7	-202.4E-09	-407.7E-09	-651.3E-09	-648.0E-09	-643.4E-09	-643.4E-09	-645.4E-09	-649.1E-09	-646.3E-09	-646.4E-09	-639.3E-09	-645.7E-09	-941.6E-09
Statistics													
Min	-202.4E-09	-407.7E-09	-651.3E-09	-701.4E-09	-715.8E-09	-708.0E-09	-707.9E-09	-711.0E-09	-707.0E-09	-704.4E-09	-700.8E-09	-701.8E-09	-941.6E-09
Max	-173.3E-09	-293.8E-09	-434.1E-09	-648.0E-09	-644.0E-09	-643.4E-09	-645.4E-09	-649.1E-09	-646.3E-09	-646.4E-09	-639.3E-09	-645.7E-09	-814.8E-09
Average	-190.2E-09	-355.2E-09	-548.5E-09	-673.0E-09	-677.8E-09	-675.8E-09	-674.8E-09	-675.6E-09	-671.6E-09	-670.4E-09	-666.5E-09	-669.6E-09	-870.1E-09
Sigma	12.3E-09	46.9E-09	89.1E-09	21.9E-09	29.4E-09	26.4E-09	25.7E-09	26.0E-09	25.7E-09	24.7E-09	25.6E-09	23.7E-09	53.0E-09

Drift Calculation

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-169.3E-09	-365.3E-09	-474.7E-09	-478.9E-09	-481.2E-09	-476.2E-09	-471.8E-09	-466.8E-09	-465.6E-09	-464.6E-09	-466.4E-09	-659.2E-09
14	-	-120.5E-09	-260.7E-09	-528.0E-09	-542.4E-09	-534.7E-09	-534.6E-09	-537.6E-09	-533.6E-09	-531.1E-09	-527.4E-09	-528.5E-09	-641.5E-09
7	-	-205.3E-09	-449.0E-09	-445.6E-09	-441.6E-09	-441.0E-09	-443.0E-09	-446.8E-09	-444.0E-09	-444.0E-09	-436.9E-09	-443.3E-09	-739.2E-09
Average	-	-165.0E-09	-358.3E-09	-482.8E-09	-487.7E-09	-485.6E-09	-484.6E-09	-485.4E-09	-481.5E-09	-480.2E-09	-476.3E-09	-479.4E-09	-680.0E-09
Sigma	-	34.8E-09	77.0E-09	34.1E-09	41.6E-09	38.4E-09	37.9E-09	38.3E-09	38.0E-09	37.0E-09	37.9E-09	36.0E-09	42.5E-09

Measurements

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-138.8E-09	-137.9E-09	-141.8E-09	-140.6E-09	-139.6E-09	-138.9E-09	-139.4E-09	-139.8E-09	-138.4E-09	-138.7E-09	-139.3E-09	-138.9E-09	-136.2E-09
OFF TID samples													
11	-127.6E-09	-309.1E-09	-546.8E-09	-677.1E-09	-661.8E-09	-663.2E-09	-664.2E-09	-661.6E-09	-662.7E-09	-665.5E-09	-661.5E-09	-665.8E-09	-912.8E-09
12	-145.3E-09	-319.3E-09	-528.3E-09	-640.9E-09	-638.6E-09	-635.0E-09	-635.9E-09	-636.0E-09	-633.7E-09	-639.6E-09	-641.6E-09	-639.9E-09	-932.8E-09
13	-139.4E-09	-341.2E-09	-586.0E-09	-675.8E-09	-682.4E-09	-683.1E-09	-680.1E-09	-678.2E-09	-676.2E-09	-680.5E-09	-672.0E-09	-683.6E-09	-994.6E-09
Statistics													
Min	-145.3E-09	-341.2E-09	-586.0E-09	-677.1E-09	-682.4E-09	-683.1E-09	-680.1E-09	-678.2E-09	-676.2E-09	-680.5E-09	-672.0E-09	-683.6E-09	-994.6E-09
Max	-127.6E-09	-309.1E-09	-528.3E-09	-640.9E-09	-638.6E-09	-635.0E-09	-635.9E-09	-636.0E-09	-633.7E-09	-639.6E-09	-641.6E-09	-639.9E-09	-912.8E-09
Average	-137.4E-09	-323.2E-09	-553.7E-09	-664.6E-09	-660.9E-09	-660.5E-09	-660.1E-09	-658.6E-09	-657.5E-09	-661.9E-09	-658.4E-09	-663.1E-09	-946.7E-09
Sigma	7.3E-09	13.3E-09	24.1E-09	16.8E-09	17.9E-09	19.7E-09	18.3E-09	17.4E-09	17.7E-09	16.9E-09	12.6E-09	18.0E-09	34.8E-09

Drift Calculation

IIB2+DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-181.5E-09	-419.2E-09	-549.5E-09	-534.2E-09	-535.6E-09	-536.6E-09	-534.0E-09	-535.1E-09	-537.9E-09	-533.9E-09	-538.2E-09	-785.2E-09
12	-	-174.1E-09	-383.0E-09	-495.6E-09	-493.4E-09	-489.7E-09	-490.6E-09	-490.7E-09	-488.4E-09	-494.3E-09	-496.3E-09	-494.6E-09	-787.5E-09
13	-	-201.8E-09	-446.7E-09	-536.4E-09	-543.1E-09	-543.8E-09	-540.7E-09	-538.8E-09	-536.8E-09	-541.1E-09	-532.6E-09	-544.3E-09	-855.2E-09
Average	-	-185.8E-09	-416.3E-09	-527.2E-09	-523.5E-09	-523.0E-09	-522.6E-09	-521.2E-09	-520.1E-09	-524.4E-09	-521.0E-09	-525.7E-09	-809.3E-09
Sigma	-	11.7E-09	26.1E-09	22.9E-09	21.6E-09	23.8E-09	22.7E-09	21.7E-09	22.4E-09	21.3E-09	17.4E-09	22.1E-09	32.5E-09

Parameter : Input Bias Current : IIB2-DUT1

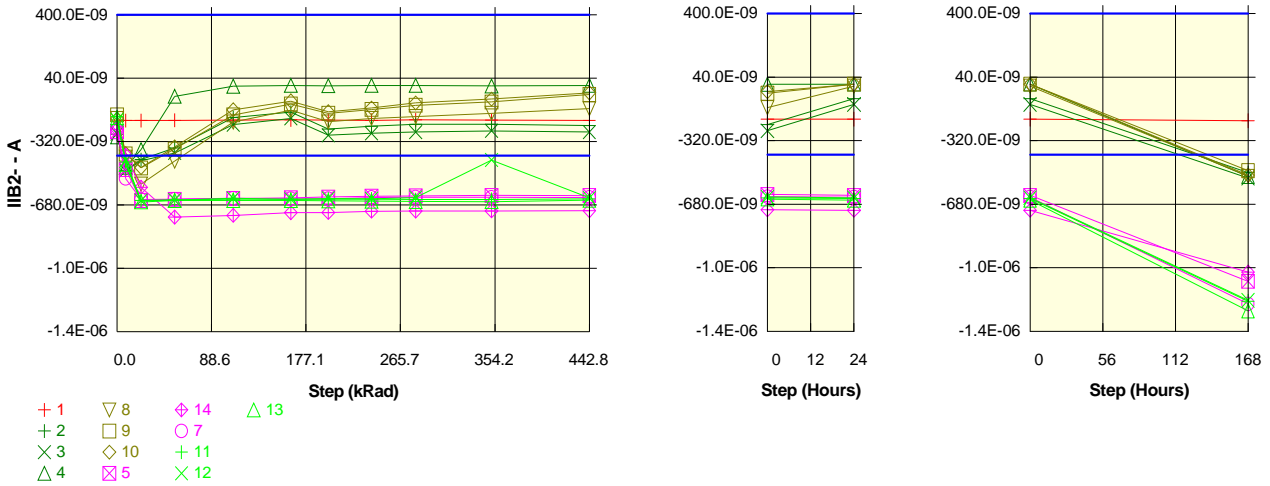
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-196.3E-09	-199.6E-09	-200.0E-09	-199.0E-09	-197.9E-09	-195.7E-09	-198.3E-09	-198.7E-09	-195.3E-09	-197.5E-09	-199.4E-09	-198.2E-09	-207.6E-09
ON PROTON samples													
2	-277.9E-09	-482.7E-09	-420.9E-09	-355.4E-09	-181.9E-09	-151.9E-09	-248.6E-09	-232.4E-09	-221.5E-09	-221.5E-09	-228.9E-09	-82.4E-09	-501.3E-09
3	-274.0E-09	-484.5E-09	-427.1E-09	-384.0E-09	-223.7E-09	-187.8E-09	-284.1E-09	-272.7E-09	-265.3E-09	-259.2E-09	-264.6E-09	-115.3E-09	-531.5E-09
4	-292.3E-09	-465.8E-09	-365.0E-09	-62.1E-09	-4.0E-09	-20.0E-12	-1.9E-09	60.0E-12	-120.0E-12	-3.2E-09	-620.0E-12	-40.0E-12	-523.9E-09
Statistics													
Min	-292.3E-09	-484.5E-09	-427.1E-09	-384.0E-09	-223.7E-09	-187.8E-09	-284.1E-09	-272.7E-09	-265.3E-09	-259.2E-09	-264.6E-09	-115.3E-09	-531.5E-09
Max	-274.0E-09	-465.8E-09	-365.0E-09	-62.1E-09	-4.0E-09	-20.0E-12	-1.9E-09	60.0E-12	-120.0E-12	-3.2E-09	-620.0E-12	-40.0E-12	-501.3E-09
Average	-281.4E-09	-477.7E-09	-404.3E-09	-267.1E-09	-136.6E-09	-113.3E-09	-178.2E-09	-168.3E-09	-162.3E-09	-161.3E-09	-164.7E-09	-65.9E-09	-518.9E-09
Sigma	7.9E-09	8.4E-09	27.9E-09	145.5E-09	95.3E-09	81.4E-09	125.5E-09	120.2E-09	116.1E-09	112.8E-09	117.0E-09	48.5E-09	12.8E-09

Drift Calculation

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-204.8E-09	-143.0E-09	-77.5E-09	96.0E-09	125.9E-09	29.3E-09	45.5E-09	56.4E-09	56.4E-09	49.0E-09	195.5E-09	-223.4E-09
3	-	-210.6E-09	-153.2E-09	-110.0E-09	50.2E-09	86.2E-09	-10.1E-09	1.3E-09	8.7E-09	14.8E-09	9.3E-09	158.6E-09	-257.5E-09
4	-	-173.4E-09	-72.7E-09	230.3E-09	288.3E-09	292.3E-09	290.5E-09	292.4E-09	292.2E-09	289.1E-09	291.7E-09	292.3E-09	-231.6E-09
Average	-	-196.3E-09	-122.9E-09	14.3E-09	144.8E-09	168.1E-09	103.2E-09	113.1E-09	119.1E-09	120.1E-09	116.7E-09	215.5E-09	-237.5E-09
Sigma	-	16.3E-09	35.8E-09	153.3E-09	103.2E-09	89.3E-09	133.4E-09	128.1E-09	123.9E-09	120.7E-09	124.8E-09	56.4E-09	14.5E-09

Measurements

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-196.3E-09	-199.6E-09	-200.0E-09	-199.0E-09	-197.9E-09	-195.7E-09	-198.3E-09	-198.7E-09	-195.3E-09	-197.5E-09	-199.4E-09	-198.2E-09	-207.6E-09
ON TID samples													
8	-187.0E-09	-408.3E-09	-560.5E-09	-430.5E-09	-208.1E-09	-140.5E-09	-206.8E-09	-187.3E-09	-177.6E-09	-158.5E-09	-132.5E-09	-11.1E-09	-520.9E-09
9	-166.7E-09	-390.5E-09	-468.5E-09	-361.7E-09	-168.1E-09	-105.4E-09	-158.7E-09	-136.4E-09	-112.9E-09	-94.7E-09	-51.8E-09	-40.0E-12	-490.0E-09
10	-190.3E-09	-387.3E-09	-467.0E-09	-350.1E-09	-138.9E-09	-88.7E-09	-150.4E-09	-128.8E-09	-99.1E-09	-78.1E-09	-42.6E-09	-20.0E-12	-515.0E-09
Statistics													
Min	-190.3E-09	-408.3E-09	-560.5E-09	-430.5E-09	-208.1E-09	-140.5E-09	-206.8E-09	-187.3E-09	-177.6E-09	-158.5E-09	-132.5E-09	-11.1E-09	-520.9E-09
Max	-166.7E-09	-387.3E-09	-467.0E-09	-350.1E-09	-138.9E-09	-88.7E-09	-150.4E-09	-128.8E-09	-99.1E-09	-78.1E-09	-42.6E-09	-20.0E-12	-490.0E-09
Average	-181.3E-09	-395.3E-09	-498.7E-09	-380.8E-09	-171.7E-09	-111.5E-09	-171.9E-09	-150.8E-09	-129.9E-09	-110.4E-09	-75.6E-09	-3.7E-09	-508.6E-09
Sigma	10.4E-09	9.2E-09	43.7E-09	35.5E-09	28.3E-09	21.6E-09	24.9E-09	26.0E-09	34.2E-09	34.6E-09	40.4E-09	5.2E-09	13.4E-09

Drift Calculation

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-221.2E-09	-373.5E-09	-243.5E-09	-21.0E-09	46.6E-09	-19.8E-09	-252.0E-12	9.4E-09	28.5E-09	54.5E-09	176.0E-09	-333.9E-09
9	-	-223.8E-09	-301.9E-09	-195.0E-09	-1.4E-09	61.3E-09	8.0E-09	30.3E-09	53.8E-09	72.0E-09	114.8E-09	166.6E-09	-323.3E-09
10	-	-197.0E-09	-276.8E-09	-159.8E-09	51.4E-09	101.6E-09	39.9E-09	61.5E-09	91.2E-09	112.1E-09	147.7E-09	190.3E-09	-324.7E-09
Average	-	-214.0E-09	-317.4E-09	-199.4E-09	9.6E-09	69.8E-09	9.4E-09	30.5E-09	51.4E-09	70.9E-09	105.7E-09	177.6E-09	-327.3E-09
Sigma	-	12.1E-09	41.0E-09	34.3E-09	30.6E-09	23.3E-09	24.4E-09	25.2E-09	33.4E-09	34.1E-09	38.6E-09	9.7E-09	4.7E-09

Hirex Engineering	Total Dose Radiation Test Report								Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02

Measurements

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-196.3E-09	-199.6E-09	-200.0E-09	-199.0E-09	-197.9E-09	-195.7E-09	-198.3E-09	-198.7E-09	-195.3E-09	-197.5E-09	-199.4E-09	-198.2E-09	-207.6E-09
OFF PROTON samples													
5	-262.7E-09	-477.7E-09	-654.6E-09	-646.6E-09	-642.7E-09	-638.5E-09	-634.7E-09	-630.7E-09	-628.0E-09	-625.4E-09	-625.7E-09	-630.3E-09	-1.1E-06
14	-249.7E-09	-396.6E-09	-578.8E-09	-748.7E-09	-738.5E-09	-723.2E-09	-722.0E-09	-714.9E-09	-714.2E-09	-713.0E-09	-712.1E-09	-714.1E-09	-1.1E-06
7	-251.3E-09	-529.5E-09	-648.8E-09	-646.4E-09	-641.3E-09	-644.5E-09	-645.2E-09	-637.9E-09	-635.5E-09	-636.8E-09	-637.2E-09	-641.0E-09	-1.2E-06
Statistics													
Min	-262.7E-09	-529.5E-09	-654.6E-09	-748.7E-09	-738.5E-09	-723.2E-09	-722.0E-09	-714.9E-09	-714.2E-09	-713.0E-09	-712.1E-09	-714.1E-09	-1.2E-06
Max	-249.7E-09	-396.6E-09	-578.8E-09	-646.4E-09	-641.3E-09	-638.5E-09	-634.7E-09	-630.7E-09	-628.0E-09	-625.4E-09	-625.7E-09	-630.3E-09	-1.1E-06
Average	-254.6E-09	-467.9E-09	-627.4E-09	-680.6E-09	-674.2E-09	-668.8E-09	-667.3E-09	-661.2E-09	-659.2E-09	-658.4E-09	-658.3E-09	-661.8E-09	-1.1E-06
Sigma	5.8E-09	54.7E-09	34.4E-09	48.2E-09	45.5E-09	38.6E-09	39.0E-09	38.1E-09	39.0E-09	38.9E-09	38.3E-09	37.2E-09	75.6E-09

Drift Calculation

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-215.0E-09	-391.9E-09	-383.9E-09	-380.0E-09	-375.8E-09	-372.0E-09	-368.0E-09	-365.3E-09	-362.7E-09	-363.0E-09	-367.6E-09	-854.2E-09
14	-	-146.8E-09	-329.1E-09	-499.0E-09	-488.8E-09	-473.5E-09	-472.3E-09	-465.2E-09	-464.5E-09	-463.3E-09	-462.4E-09	-464.3E-09	-815.2E-09
7	-	-278.2E-09	-397.6E-09	-395.1E-09	-390.0E-09	-393.2E-09	-393.9E-09	-386.6E-09	-384.2E-09	-385.5E-09	-385.9E-09	-389.7E-09	-993.6E-09
Average	-	-213.3E-09	-372.8E-09	-426.0E-09	-419.6E-09	-414.2E-09	-412.7E-09	-406.6E-09	-404.7E-09	-403.8E-09	-403.7E-09	-407.2E-09	-887.7E-09
Sigma	-	53.7E-09	31.0E-09	51.8E-09	49.1E-09	42.5E-09	43.1E-09	42.1E-09	43.0E-09	43.1E-09	42.5E-09	41.4E-09	76.6E-09

Measurements

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-196.3E-09	-199.6E-09	-200.0E-09	-199.0E-09	-197.9E-09	-195.7E-09	-198.3E-09	-198.7E-09	-195.3E-09	-197.5E-09	-199.4E-09	-198.2E-09	-207.6E-09
OFF TID samples													
11	-178.3E-09	-434.7E-09	-653.5E-09	-649.7E-09	-646.9E-09	-646.0E-09	-646.1E-09	-645.9E-09	-648.9E-09	-648.3E-09	-644.5E-09	-648.1E-09	-1.2E-06
12	-195.7E-09	-428.2E-09	-655.3E-09	-652.2E-09	-641.8E-09	-648.2E-09	-642.9E-09	-644.7E-09	-637.5E-09	-624.8E-09	-639.4E-09	-643.7E-09	-1.2E-06
13	-184.2E-09	-449.1E-09	-662.0E-09	-654.4E-09	-654.3E-09	-654.4E-09	-655.8E-09	-657.8E-09	-659.6E-09	-660.3E-09	-651.6E-09	-657.2E-09	-1.3E-06
Statistics													
Min	-195.7E-09	-449.1E-09	-662.0E-09	-654.4E-09	-654.3E-09	-654.4E-09	-655.8E-09	-657.8E-09	-659.6E-09	-660.3E-09	-651.6E-09	-657.2E-09	-1.3E-06
Max	-178.3E-09	-428.2E-09	-653.5E-09	-649.7E-09	-641.8E-09	-646.0E-09	-642.9E-09	-644.7E-09	-637.5E-09	-624.8E-09	-639.4E-09	-643.7E-09	-1.2E-06
Average	-186.1E-09	-437.3E-09	-656.9E-09	-652.1E-09	-647.7E-09	-649.5E-09	-648.3E-09	-649.5E-09	-648.7E-09	-577.8E-09	-645.2E-09	-649.7E-09	-1.2E-06
Sigma	7.2E-09	8.7E-09	3.6E-09	1.9E-09	5.1E-09	3.6E-09	5.5E-09	5.9E-09	9.0E-09	108.3E-09	5.0E-09	5.6E-09	27.3E-09

Drift Calculation

IIB2-DUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-256.3E-09	-475.1E-09	-471.3E-09	-468.6E-09	-467.6E-09	-467.8E-09	-467.5E-09	-470.6E-09	-470.0E-09	-466.2E-09	-469.7E-09	-1.1E-06
12	-	-232.5E-09	-459.6E-09	-456.5E-09	-446.1E-09	-452.5E-09	-447.3E-09	-449.0E-09	-441.8E-09	-229.1E-09	-443.8E-09	-448.1E-09	-1.0E-06
13	-	-264.9E-09	-477.8E-09	-470.2E-09	-470.1E-09	-470.3E-09	-471.6E-09	-473.7E-09	-475.4E-09	-476.1E-09	-467.4E-09	-473.0E-09	-1.1E-06
Average	-	-251.2E-09	-470.9E-09	-466.0E-09	-461.6E-09	-463.5E-09	-462.2E-09	-463.4E-09	-462.6E-09	-391.7E-09	-459.1E-09	-463.6E-09	-1.1E-06
Sigma	-	13.7E-09	8.0E-09	6.7E-09	11.0E-09	7.8E-09	10.7E-09	10.5E-09	14.8E-09	115.0E-09	10.9E-09	11.1E-09	29.9E-09

Parameter : Input Bias Current : IIB2-DUT2

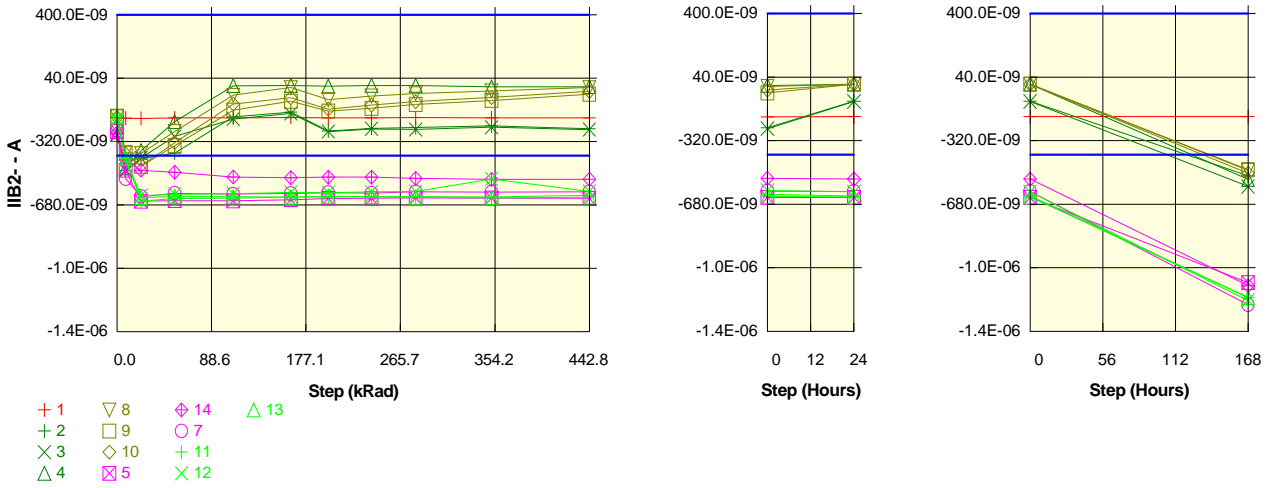
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-183.1E-09	-186.0E-09	-187.6E-09	-185.8E-09	-185.4E-09	-182.4E-09	-185.0E-09	-185.7E-09	-182.9E-09	-184.7E-09	-185.7E-09	-184.2E-09	-184.7E-09
ON PROTON samples													
2	-275.3E-09	-484.2E-09	-417.9E-09	-383.8E-09	-178.7E-09	-152.5E-09	-258.7E-09	-244.6E-09	-239.4E-09	-230.6E-09	-246.8E-09	-96.5E-09	-519.4E-09
3	-279.1E-09	-483.1E-09	-412.3E-09	-290.6E-09	-191.3E-09	-159.4E-09	-262.2E-09	-247.0E-09	-250.3E-09	-238.0E-09	-252.0E-09	-98.4E-09	-580.0E-09
4	-280.9E-09	-469.8E-09	-371.9E-09	-206.3E-09	-2.3E-09	-40.0E-12	-3.9E-09	-360.0E-12	-640.0E-12	-8.9E-09	-7.6E-09	-40.0E-12	-539.4E-09
Statistics													
Min	-280.9E-09	-484.2E-09	-417.9E-09	-383.8E-09	-191.3E-09	-159.4E-09	-262.2E-09	-247.0E-09	-250.3E-09	-238.0E-09	-252.0E-09	-98.4E-09	-580.0E-09
Max	-275.3E-09	-469.8E-09	-371.9E-09	-206.3E-09	-2.3E-09	-40.0E-12	-3.9E-09	-360.0E-12	-640.0E-12	-8.9E-09	-7.6E-09	-40.0E-12	-519.4E-09
Average	-278.4E-09	-479.1E-09	-400.7E-09	-293.6E-09	-124.1E-09	-104.0E-09	-175.0E-09	-164.0E-09	-163.4E-09	-159.2E-09	-168.8E-09	-65.0E-09	-546.3E-09
Sigma	2.4E-09	6.5E-09	20.5E-09	72.5E-09	86.3E-09	73.5E-09	121.0E-09	115.7E-09	115.2E-09	106.3E-09	114.0E-09	45.9E-09	25.2E-09

Drift Calculation

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-208.9E-09	-142.6E-09	-108.6E-09	96.6E-09	122.8E-09	16.5E-09	30.6E-09	35.9E-09	44.7E-09	28.5E-09	178.8E-09	-244.2E-09
3	-	-204.0E-09	-133.2E-09	-11.5E-09	87.9E-09	119.8E-09	16.9E-09	32.2E-09	28.9E-09	41.1E-09	27.1E-09	180.7E-09	-300.9E-09
4	-	-188.9E-09	-91.0E-09	74.6E-09	278.7E-09	280.9E-09	277.0E-09	280.6E-09	280.3E-09	272.1E-09	273.4E-09	280.9E-09	-258.5E-09
Average	-	-200.6E-09	-122.3E-09	-15.1E-09	154.4E-09	174.5E-09	103.5E-09	114.5E-09	115.0E-09	119.3E-09	109.6E-09	213.5E-09	-267.8E-09
Sigma	-	8.5E-09	22.4E-09	74.8E-09	88.0E-09	75.3E-09	122.7E-09	117.5E-09	116.9E-09	108.0E-09	115.8E-09	47.7E-09	24.1E-09

Measurements

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-183.1E-09	-186.0E-09	-187.6E-09	-185.8E-09	-185.4E-09	-182.4E-09	-185.0E-09	-185.7E-09	-182.9E-09	-184.7E-09	-185.7E-09	-184.2E-09	-184.7E-09
ON TID samples													
8	-179.1E-09	-381.8E-09	-386.8E-09	-263.2E-09	-56.2E-09	-12.3E-09	-81.4E-09	-59.8E-09	-46.4E-09	-31.5E-09	-12.9E-09	-40.0E-12	-488.1E-09
9	-174.1E-09	-385.1E-09	-459.4E-09	-342.8E-09	-140.9E-09	-90.4E-09	-146.3E-09	-130.5E-09	-108.3E-09	-86.5E-09	-49.6E-09	-40.0E-12	-484.8E-09
10	-181.5E-09	-390.4E-09	-455.7E-09	-325.6E-09	-105.7E-09	-71.0E-09	-134.4E-09	-111.5E-09	-91.8E-09	-68.8E-09	-34.3E-09	-20.0E-12	-503.9E-09
Statistics													
Min	-181.5E-09	-390.4E-09	-459.4E-09	-342.8E-09	-140.9E-09	-90.4E-09	-146.3E-09	-130.5E-09	-108.3E-09	-86.5E-09	-49.6E-09	-40.0E-12	-503.9E-09
Max	-174.1E-09	-381.8E-09	-386.8E-09	-263.2E-09	-56.2E-09	-12.3E-09	-81.4E-09	-59.8E-09	-46.4E-09	-31.5E-09	-12.9E-09	-20.0E-12	-484.8E-09
Average	-178.2E-09	-385.8E-09	-434.0E-09	-310.5E-09	-101.0E-09	-57.9E-09	-120.7E-09	-100.6E-09	-82.2E-09	-62.3E-09	-32.2E-09	-33.3E-12	-492.3E-09
Sigma	3.1E-09	3.6E-09	33.4E-09	34.2E-09	34.7E-09	33.2E-09	28.2E-09	29.9E-09	26.2E-09	23.0E-09	15.1E-09	9.4E-12	8.3E-09

Drift Calculation

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-202.6E-09	-207.6E-09	-84.1E-09	122.9E-09	166.9E-09	97.8E-09	119.4E-09	132.7E-09	147.7E-09	166.3E-09	179.1E-09	-309.0E-09
9	-	-211.1E-09	-285.3E-09	-168.7E-09	33.2E-09	83.7E-09	27.8E-09	43.6E-09	65.8E-09	87.6E-09	124.5E-09	174.0E-09	-310.7E-09
10	-	-208.9E-09	-274.2E-09	-144.1E-09	75.8E-09	110.5E-09	47.1E-09	70.0E-09	89.7E-09	112.7E-09	147.2E-09	181.5E-09	-322.4E-09
Average	-	-207.5E-09	-255.7E-09	-132.3E-09	77.3E-09	120.3E-09	57.6E-09	77.7E-09	96.1E-09	116.0E-09	146.0E-09	178.2E-09	-314.0E-09
Sigma	-	3.6E-09	34.3E-09	35.6E-09	36.7E-09	34.7E-09	29.5E-09	31.4E-09	27.7E-09	24.7E-09	17.1E-09	3.1E-09	5.9E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-183.1E-09	-186.0E-09	-187.6E-09	-185.8E-09	-185.4E-09	-182.4E-09	-185.0E-09	-185.7E-09	-182.9E-09	-184.7E-09	-185.7E-09	-184.2E-09	-184.7E-09
OFF PROTON samples													
5	-262.7E-09	-482.3E-09	-658.5E-09	-655.0E-09	-655.6E-09	-650.1E-09	-642.7E-09	-642.0E-09	-639.6E-09	-640.2E-09	-641.7E-09	-642.7E-09	-1.1E-06
14	-269.3E-09	-422.9E-09	-482.2E-09	-493.4E-09	-520.7E-09	-524.6E-09	-522.1E-09	-521.9E-09	-529.0E-09	-533.9E-09	-533.3E-09	-538.4E-09	-1.1E-06
7	-255.6E-09	-530.8E-09	-631.7E-09	-613.5E-09	-617.4E-09	-615.2E-09	-609.2E-09	-612.4E-09	-605.8E-09	-606.0E-09	-605.3E-09	-607.7E-09	-1.3E-06
Statistics													
Min	-269.3E-09	-530.8E-09	-658.5E-09	-655.0E-09	-655.6E-09	-650.1E-09	-642.7E-09	-642.0E-09	-639.6E-09	-640.2E-09	-641.7E-09	-642.7E-09	-1.3E-06
Max	-255.6E-09	-422.9E-09	-482.2E-09	-493.4E-09	-520.7E-09	-524.6E-09	-522.1E-09	-521.9E-09	-529.0E-09	-533.9E-09	-533.3E-09	-538.4E-09	-1.1E-06
Average	-262.5E-09	-478.7E-09	-590.8E-09	-587.3E-09	-597.9E-09	-596.6E-09	-591.3E-09	-592.1E-09	-591.5E-09	-593.4E-09	-593.4E-09	-596.3E-09	-1.2E-06
Sigma	5.6E-09	44.1E-09	77.6E-09	68.6E-09	56.8E-09	52.9E-09	50.8E-09	51.1E-09	46.3E-09	44.3E-09	45.0E-09	43.4E-09	56.0E-09

Drift Calculation

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-219.7E-09	-395.8E-09	-392.4E-09	-392.9E-09	-387.4E-09	-380.1E-09	-379.3E-09	-376.9E-09	-377.6E-09	-379.1E-09	-380.1E-09	-861.5E-09
14	-	-153.6E-09	-212.9E-09	-224.0E-09	-251.4E-09	-255.3E-09	-252.8E-09	-252.6E-09	-259.7E-09	-264.6E-09	-264.0E-09	-269.1E-09	-872.7E-09
7	-	-275.2E-09	-376.1E-09	-357.9E-09	-361.8E-09	-359.6E-09	-353.6E-09	-356.8E-09	-350.2E-09	-350.4E-09	-349.7E-09	-352.1E-09	-995.2E-09
Average	-	-216.2E-09	-328.3E-09	-324.8E-09	-335.4E-09	-334.1E-09	-328.8E-09	-329.5E-09	-328.9E-09	-330.9E-09	-330.9E-09	-333.8E-09	-909.8E-09
Sigma	-	49.7E-09	82.0E-09	72.6E-09	60.7E-09	56.9E-09	54.8E-09	55.2E-09	50.2E-09	48.1E-09	48.8E-09	47.1E-09	60.6E-09

Measurements

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-183.1E-09	-186.0E-09	-187.6E-09	-185.8E-09	-185.4E-09	-182.4E-09	-185.0E-09	-185.7E-09	-182.9E-09	-184.7E-09	-185.7E-09	-184.2E-09	-184.7E-09
OFF TID samples													
11	-174.2E-09	-416.8E-09	-657.9E-09	-644.1E-09	-641.1E-09	-634.6E-09	-633.1E-09	-633.4E-09	-631.8E-09	-634.0E-09	-625.6E-09	-633.6E-09	-1.2E-06
12	-195.5E-09	-421.7E-09	-626.6E-09	-618.5E-09	-616.3E-09	-609.0E-09	-609.7E-09	-605.2E-09	-603.7E-09	-532.4E-09	-602.2E-09	-610.7E-09	-1.2E-06
13	-177.6E-09	-416.6E-09	-637.4E-09	-631.3E-09	-632.1E-09	-636.4E-09	-630.4E-09	-632.5E-09	-636.2E-09	-638.9E-09	-635.5E-09	-640.0E-09	-1.2E-06
Statistics													
Min	-195.5E-09	-421.7E-09	-657.9E-09	-644.1E-09	-641.1E-09	-636.4E-09	-633.1E-09	-633.4E-09	-636.2E-09	-638.9E-09	-635.5E-09	-640.0E-09	-1.2E-06
Max	-174.2E-09	-416.6E-09	-626.6E-09	-618.5E-09	-616.3E-09	-609.0E-09	-609.7E-09	-605.2E-09	-603.7E-09	-532.4E-09	-602.2E-09	-610.7E-09	-1.2E-06
Average	-182.4E-09	-418.4E-09	-640.7E-09	-631.3E-09	-629.8E-09	-626.7E-09	-624.4E-09	-623.7E-09	-623.9E-09	-601.8E-09	-621.1E-09	-628.1E-09	-1.2E-06
Sigma	9.3E-09	2.3E-09	13.0E-09	10.5E-09	10.3E-09	12.5E-09	10.4E-09	13.1E-09	14.4E-09	49.1E-09	14.0E-09	12.6E-09	7.8E-09

Drift Calculation

IIB2-DUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-242.6E-09	-483.7E-09	-469.9E-09	-466.9E-09	-460.4E-09	-458.9E-09	-459.2E-09	-457.6E-09	-459.8E-09	-451.4E-09	-459.4E-09	-1.0E-06
12	-	-226.2E-09	-431.2E-09	-423.0E-09	-420.8E-09	-413.5E-09	-414.3E-09	-409.7E-09	-408.2E-09	-337.0E-09	-406.7E-09	-415.3E-09	-1.0E-06
13	-	-239.0E-09	-459.8E-09	-453.6E-09	-454.5E-09	-458.8E-09	-452.8E-09	-454.9E-09	-458.6E-09	-461.3E-09	-457.9E-09	-462.3E-09	-1.0E-06
Average	-	-236.0E-09	-458.2E-09	-448.9E-09	-447.4E-09	-444.3E-09	-442.0E-09	-441.2E-09	-441.5E-09	-419.4E-09	-438.6E-09	-445.7E-09	-1.0E-06
Sigma	-	7.0E-09	21.5E-09	19.4E-09	19.5E-09	21.7E-09	19.8E-09	22.4E-09	23.5E-09	58.3E-09	22.8E-09	21.5E-09	2.1E-09

Parameter : Input Bias Current : IIB2-DUT3

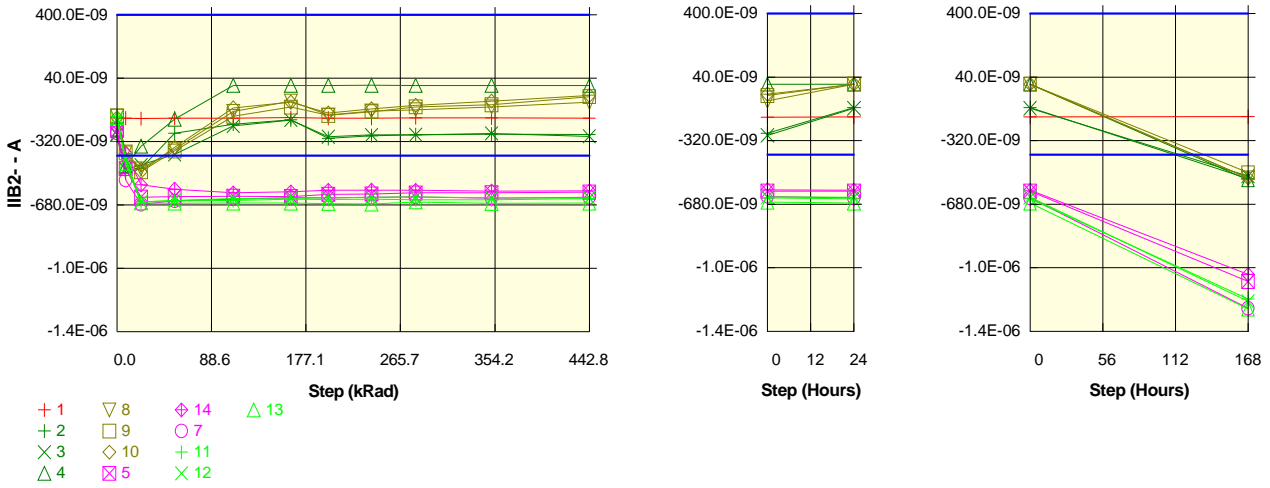
Test conditions :

Unit : A

Spec Limit Min : -400.0E-09

Spec Limit Max : 400.0E-09

Spec limits are represented in bold lines on the graphic.



Measurements

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-184.5E-09	-186.4E-09	-188.7E-09	-186.9E-09	-186.2E-09	-183.7E-09	-186.0E-09	-186.7E-09	-183.9E-09	-185.4E-09	-186.9E-09	-185.6E-09	-184.1E-09
ON PROTON samples													
2	-287.6E-09	-496.3E-09	-472.2E-09	-271.8E-09	-221.0E-09	-196.0E-09	-300.8E-09	-285.7E-09	-280.8E-09	-277.2E-09	-278.2E-09	-133.1E-09	-536.1E-09
3	-281.0E-09	-476.7E-09	-452.0E-09	-392.5E-09	-231.2E-09	-197.2E-09	-291.8E-09	-281.2E-09	-280.6E-09	-273.4E-09	-289.8E-09	-136.8E-09	-520.4E-09
4	-280.8E-09	-457.9E-09	-346.1E-09	-192.2E-09	-120.0E-12	-40.0E-12	-180.0E-12	480.0E-12	-100.0E-12	-160.0E-12	-140.0E-12	-40.0E-12	-542.4E-09
Statistics													
Min	-287.6E-09	-496.3E-09	-472.2E-09	-392.5E-09	-231.2E-09	-197.2E-09	-300.8E-09	-285.7E-09	-280.8E-09	-277.2E-09	-289.8E-09	-136.8E-09	-542.4E-09
Max	-280.8E-09	-457.9E-09	-346.1E-09	-192.2E-09	-120.0E-12	-40.0E-12	-180.0E-12	480.0E-12	-100.0E-12	-160.0E-12	-140.0E-12	-40.0E-12	-520.4E-09
Average	-283.1E-09	-477.0E-09	-423.4E-09	-285.5E-09	-150.8E-09	-131.1E-09	-197.6E-09	-188.8E-09	-187.1E-09	-183.6E-09	-189.4E-09	-90.0E-09	-533.0E-09
Sigma	3.2E-09	15.7E-09	55.3E-09	82.4E-09	106.6E-09	92.7E-09	139.6E-09	133.9E-09	132.3E-09	129.7E-09	133.9E-09	63.6E-09	9.3E-09

Drift Calculation

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-208.7E-09	-184.7E-09	15.7E-09	66.6E-09	91.6E-09	-13.2E-09	1.9E-09	6.8E-09	10.4E-09	9.4E-09	154.5E-09	-248.5E-09
3	-	-195.8E-09	-171.0E-09	-111.6E-09	49.8E-09	83.8E-09	-10.8E-09	-268.0E-12	372.0E-12	7.6E-09	-8.9E-09	144.1E-09	-239.4E-09
4	-	-177.1E-09	-65.2E-09	88.6E-09	280.7E-09	280.8E-09	280.6E-09	281.3E-09	280.7E-09	280.7E-09	280.7E-09	280.8E-09	-261.6E-09
Average	-	-193.9E-09	-140.3E-09	-2.4E-09	132.4E-09	152.1E-09	85.5E-09	94.3E-09	96.0E-09	99.5E-09	93.7E-09	193.1E-09	-249.8E-09
Sigma	-	13.0E-09	53.4E-09	82.7E-09	105.1E-09	91.1E-09	138.0E-09	132.2E-09	130.7E-09	128.1E-09	132.4E-09	62.1E-09	9.1E-09

Measurements

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-184.5E-09	-186.4E-09	-188.7E-09	-186.9E-09	-186.2E-09	-183.7E-09	-186.0E-09	-186.7E-09	-183.9E-09	-185.4E-09	-186.9E-09	-185.6E-09	-184.1E-09
ON TID samples													
8	-175.1E-09	-378.5E-09	-474.7E-09	-362.4E-09	-147.8E-09	-89.4E-09	-168.8E-09	-145.6E-09	-138.6E-09	-122.0E-09	-95.7E-09	-60.0E-12	-531.9E-09
9	-173.4E-09	-384.4E-09	-490.2E-09	-372.3E-09	-176.4E-09	-123.8E-09	-170.4E-09	-149.5E-09	-122.5E-09	-109.9E-09	-64.5E-09	-40.0E-12	-501.9E-09
10	-183.2E-09	-383.7E-09	-488.6E-09	-352.2E-09	-127.6E-09	-95.0E-09	-156.7E-09	-133.9E-09	-112.6E-09	-89.0E-09	-56.7E-09	0.0E+00	-531.9E-09
Statistics													
Min	-183.2E-09	-384.4E-09	-490.2E-09	-372.3E-09	-176.4E-09	-123.8E-09	-170.4E-09	-149.5E-09	-138.6E-09	-122.0E-09	-95.7E-09	-60.0E-12	-531.9E-09
Max	-173.4E-09	-378.5E-09	-474.7E-09	-352.2E-09	-127.6E-09	-89.4E-09	-156.7E-09	-133.9E-09	-112.6E-09	-89.0E-09	-56.7E-09	0.0E+00	-501.9E-09
Average	-177.2E-09	-382.2E-09	-484.5E-09	-362.3E-09	-150.6E-09	-102.7E-09	-165.3E-09	-143.0E-09	-124.5E-09	-107.0E-09	-72.3E-09	-33.3E-12	-521.9E-09
Sigma	4.3E-09	2.7E-09	7.0E-09	8.2E-09	20.0E-09	15.1E-09	6.1E-09	6.6E-09	10.7E-09	13.6E-09	16.8E-09	24.9E-12	14.1E-09

Drift Calculation

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-203.4E-09	-299.7E-09	-187.3E-09	27.3E-09	85.7E-09	6.3E-09	29.5E-09	36.5E-09	53.1E-09	79.4E-09	175.0E-09	-356.8E-09
9	-	-211.0E-09	-316.8E-09	-198.9E-09	-2.9E-09	49.6E-09	3.0E-09	23.9E-09	50.9E-09	63.6E-09	108.9E-09	173.4E-09	-328.4E-09
10	-	-200.5E-09	-305.4E-09	-168.9E-09	55.6E-09	88.3E-09	26.5E-09	49.3E-09	70.7E-09	94.2E-09	126.5E-09	183.2E-09	-348.6E-09
Average	-	-205.0E-09	-307.3E-09	-185.1E-09	26.7E-09	74.5E-09	11.9E-09	34.2E-09	52.7E-09	70.3E-09	104.9E-09	177.2E-09	-344.6E-09
Sigma	-	4.4E-09	7.1E-09	12.3E-09	23.9E-09	17.6E-09	10.4E-09	10.9E-09	14.0E-09	17.4E-09	19.5E-09	4.3E-09	11.9E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015	
	IS-139ASRH					Intersil				Issue:	02	

Measurements

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-184.5E-09	-186.4E-09	-188.7E-09	-186.9E-09	-186.2E-09	-183.7E-09	-186.0E-09	-186.7E-09	-183.9E-09	-185.4E-09	-186.9E-09	-185.6E-09	-184.1E-09
OFF PROTON samples													
5	-257.2E-09	-473.1E-09	-635.9E-09	-631.1E-09	-629.8E-09	-631.0E-09	-618.9E-09	-616.6E-09	-610.2E-09	-609.3E-09	-606.3E-09	-606.7E-09	-1.1E-06
14	-235.9E-09	-387.5E-09	-565.3E-09	-590.1E-09	-610.9E-09	-605.2E-09	-596.5E-09	-595.1E-09	-595.8E-09	-600.1E-09	-598.8E-09	-600.9E-09	-1.1E-06
7	-270.8E-09	-538.4E-09	-675.7E-09	-656.4E-09	-645.6E-09	-637.8E-09	-638.6E-09	-636.7E-09	-634.5E-09	-640.5E-09	-636.7E-09	-645.0E-09	-1.3E-06
Statistics													
Min	-270.8E-09	-538.4E-09	-675.7E-09	-656.4E-09	-645.6E-09	-637.8E-09	-638.6E-09	-636.7E-09	-634.5E-09	-640.5E-09	-636.7E-09	-645.0E-09	-1.3E-06
Max	-235.9E-09	-387.5E-09	-565.3E-09	-590.1E-09	-610.9E-09	-605.2E-09	-596.5E-09	-595.1E-09	-595.8E-09	-600.1E-09	-598.8E-09	-600.9E-09	-1.1E-06
Average	-254.6E-09	-466.3E-09	-625.6E-09	-625.8E-09	-628.7E-09	-624.6E-09	-618.0E-09	-616.1E-09	-613.5E-09	-616.6E-09	-613.9E-09	-617.5E-09	-1.2E-06
Sigma	14.3E-09	61.8E-09	45.6E-09	27.3E-09	14.2E-09	14.1E-09	17.2E-09	17.0E-09	15.9E-09	17.3E-09	16.4E-09	19.6E-09	82.5E-09

Drift Calculation

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-215.9E-09	-378.7E-09	-373.9E-09	-372.6E-09	-373.8E-09	-361.7E-09	-359.4E-09	-353.1E-09	-352.2E-09	-349.1E-09	-349.6E-09	-860.7E-09
14	-	-151.6E-09	-329.4E-09	-354.2E-09	-375.0E-09	-369.2E-09	-360.6E-09	-359.2E-09	-359.9E-09	-364.2E-09	-362.8E-09	-364.9E-09	-842.9E-09
7	-	-267.6E-09	-404.9E-09	-385.6E-09	-374.8E-09	-367.0E-09	-367.8E-09	-365.9E-09	-363.7E-09	-369.7E-09	-366.0E-09	-374.2E-09	-999.3E-09
Average	-	-211.7E-09	-371.0E-09	-371.2E-09	-374.1E-09	-370.0E-09	-363.4E-09	-361.5E-09	-358.9E-09	-362.0E-09	-359.3E-09	-362.9E-09	-901.0E-09
Sigma	-	47.5E-09	31.3E-09	13.0E-09	1.1E-09	2.8E-09	3.2E-09	3.1E-09	4.4E-09	7.3E-09	7.3E-09	10.2E-09	69.9E-09

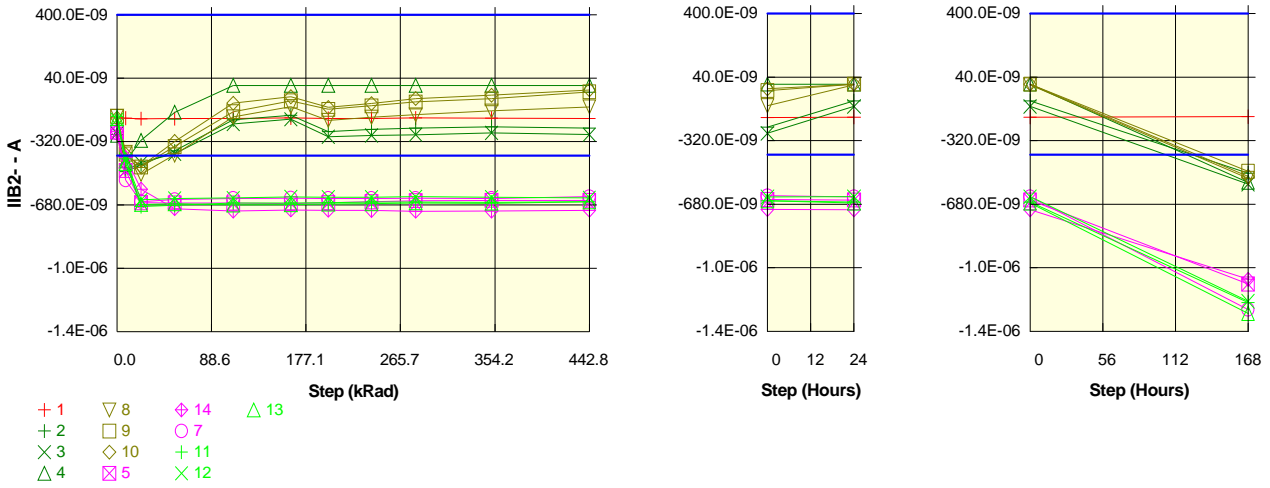
Measurements

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-184.5E-09	-186.4E-09	-188.7E-09	-186.9E-09	-186.2E-09	-183.7E-09	-186.0E-09	-186.7E-09	-183.9E-09	-185.4E-09	-186.9E-09	-185.6E-09	-184.1E-09
OFF TID samples													
11	-175.3E-09	-421.8E-09	-661.2E-09	-655.0E-09	-653.7E-09	-646.7E-09	-649.3E-09	-645.4E-09	-650.1E-09	-650.5E-09	-644.2E-09	-649.7E-09	-1.2E-06
12	-192.0E-09	-419.5E-09	-662.1E-09	-653.2E-09	-644.2E-09	-641.1E-09	-639.4E-09	-635.2E-09	-633.9E-09	-639.4E-09	-639.9E-09	-640.6E-09	-1.2E-06
13	-184.8E-09	-444.4E-09	-667.5E-09	-670.0E-09	-668.6E-09	-668.6E-09	-671.1E-09	-673.7E-09	-662.1E-09	-670.1E-09	-669.0E-09	-673.4E-09	-1.3E-06
Statistics													
Min	-192.0E-09	-444.4E-09	-667.5E-09	-670.0E-09	-668.6E-09	-668.6E-09	-671.1E-09	-673.7E-09	-662.1E-09	-670.1E-09	-669.0E-09	-673.4E-09	-1.3E-06
Max	-175.3E-09	-419.5E-09	-661.2E-09	-653.2E-09	-644.2E-09	-641.1E-09	-639.4E-09	-635.2E-09	-633.9E-09	-639.4E-09	-639.9E-09	-640.6E-09	-1.2E-06
Average	-184.1E-09	-428.6E-09	-663.6E-09	-659.4E-09	-655.5E-09	-652.1E-09	-653.3E-09	-651.4E-09	-648.7E-09	-653.3E-09	-651.0E-09	-654.6E-09	-1.2E-06
Sigma	6.8E-09	11.2E-09	2.8E-09	7.5E-09	10.1E-09	11.9E-09	13.3E-09	16.3E-09	11.5E-09	12.7E-09	12.8E-09	13.9E-09	24.0E-09

Drift Calculation

IIB2-DUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-246.4E-09	-485.9E-09	-479.7E-09	-478.3E-09	-471.3E-09	-474.0E-09	-470.0E-09	-474.8E-09	-475.1E-09	-468.9E-09	-474.3E-09	-1.0E-06
12	-	-227.5E-09	-470.0E-09	-461.1E-09	-452.1E-09	-449.0E-09	-447.3E-09	-443.1E-09	-441.9E-09	-447.4E-09	-447.9E-09	-448.5E-09	-1.0E-06
13	-	-259.6E-09	-482.7E-09	-485.2E-09	-483.8E-09	-483.8E-09	-486.3E-09	-488.9E-09	-477.3E-09	-485.3E-09	-484.2E-09	-488.6E-09	-1.1E-06
Average	-	-244.5E-09	-479.5E-09	-475.3E-09	-471.4E-09	-468.0E-09	-469.2E-09	-467.4E-09	-464.6E-09	-469.3E-09	-467.0E-09	-470.5E-09	-1.1E-06
Sigma	-	13.2E-09	6.8E-09	10.3E-09	13.8E-09	14.4E-09	16.3E-09	18.8E-09	16.1E-09	16.0E-09	14.9E-09	16.6E-09	22.9E-09

Parameter : Input Bias Current : IIB2-DUT4
 Test conditions :
 Unit : A
 Spec Limit Min : -400.0E-09
 Spec Limit Max : 400.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-185.3E-09	-186.6E-09	-189.8E-09	-188.5E-09	-187.8E-09	-185.1E-09	-187.7E-09	-187.9E-09	-185.1E-09	-186.7E-09	-188.2E-09	-186.9E-09	-184.7E-09
ON PROTON samples													
2	-279.5E-09	-489.7E-09	-451.3E-09	-372.7E-09	-195.8E-09	-169.4E-09	-262.7E-09	-249.2E-09	-242.6E-09	-235.5E-09	-243.3E-09	-95.3E-09	-504.6E-09
3	-272.4E-09	-482.9E-09	-438.2E-09	-388.3E-09	-219.6E-09	-192.7E-09	-291.8E-09	-285.1E-09	-280.1E-09	-270.7E-09	-279.3E-09	-126.6E-09	-566.5E-09
4	-282.1E-09	-429.9E-09	-312.9E-09	-153.7E-09	-260.0E-12	-20.0E-12	-80.0E-12	-40.0E-12	-80.0E-12	-60.0E-12	-60.0E-12	-20.0E-12	-557.0E-09
Statistics													
Min	-282.1E-09	-489.7E-09	-451.3E-09	-388.3E-09	-219.6E-09	-192.7E-09	-291.8E-09	-285.1E-09	-280.1E-09	-270.7E-09	-279.3E-09	-126.6E-09	-566.5E-09
Max	-272.4E-09	-429.9E-09	-312.9E-09	-153.7E-09	-260.0E-12	-20.0E-12	-80.0E-12	-40.0E-12	-80.0E-12	-60.0E-12	-60.0E-12	-20.0E-12	-504.6E-09
Average	-278.0E-09	-467.5E-09	-400.8E-09	-304.9E-09	-138.6E-09	-120.7E-09	-184.8E-09	-178.1E-09	-174.3E-09	-168.8E-09	-174.2E-09	-74.0E-09	-542.7E-09
Sigma	4.1E-09	26.7E-09	62.4E-09	107.1E-09	98.3E-09	85.9E-09	131.2E-09	126.8E-09	124.1E-09	120.2E-09	124.0E-09	53.8E-09	27.2E-09

Drift Calculation

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON PROTON samples													
2	-	-210.2E-09	-171.9E-09	-93.2E-09	83.6E-09	110.0E-09	16.8E-09	30.2E-09	36.9E-09	44.0E-09	36.2E-09	184.2E-09	-225.1E-09
3	-	-210.5E-09	-165.8E-09	-115.9E-09	52.8E-09	79.7E-09	-19.4E-09	-12.7E-09	-7.7E-09	1.7E-09	-6.9E-09	145.8E-09	-294.1E-09
4	-	-147.8E-09	-30.8E-09	128.4E-09	281.8E-09	282.1E-09	282.0E-09	282.0E-09	282.0E-09	282.0E-09	282.0E-09	282.1E-09	-275.0E-09
Average	-	-189.5E-09	-122.8E-09	-26.9E-09	139.4E-09	157.3E-09	93.1E-09	99.8E-09	103.7E-09	109.2E-09	103.8E-09	204.0E-09	-264.7E-09
Sigma	-	29.5E-09	65.1E-09	110.2E-09	101.5E-09	89.1E-09	134.4E-09	130.0E-09	127.4E-09	123.4E-09	127.3E-09	57.4E-09	29.1E-09

Measurements

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	-185.3E-09	-186.6E-09	-189.8E-09	-188.5E-09	-187.8E-09	-185.1E-09	-187.7E-09	-187.9E-09	-185.1E-09	-186.7E-09	-188.2E-09	-186.9E-09	-184.7E-09
ON TID samples													
8	-174.5E-09	-379.5E-09	-504.9E-09	-394.9E-09	-179.0E-09	-120.4E-09	-199.0E-09	-180.8E-09	-166.7E-09	-145.6E-09	-121.8E-09	-3.5E-09	-534.3E-09
9	-177.0E-09	-390.8E-09	-463.8E-09	-347.2E-09	-149.3E-09	-88.6E-09	-136.0E-09	-116.0E-09	-94.5E-09	-75.8E-09	-36.3E-09	-40.0E-12	-493.7E-09
10	-186.1E-09	-391.6E-09	-459.5E-09	-319.0E-09	-101.9E-09	-64.8E-09	-125.1E-09	-103.5E-09	-75.1E-09	-56.3E-09	-26.1E-09	0.0E+00	-522.2E-09
Statistics													
Min	-186.1E-09	-391.6E-09	-504.9E-09	-394.9E-09	-179.0E-09	-120.4E-09	-199.0E-09	-180.8E-09	-166.7E-09	-145.6E-09	-121.8E-09	-3.5E-09	-534.3E-09
Max	-174.5E-09	-379.5E-09	-459.5E-09	-319.0E-09	-101.9E-09	-64.8E-09	-125.1E-09	-103.5E-09	-75.1E-09	-56.3E-09	-26.1E-09	0.0E+00	-493.7E-09
Average	-179.2E-09	-387.3E-09	-476.0E-09	-353.7E-09	-143.4E-09	-91.3E-09	-153.4E-09	-133.4E-09	-112.1E-09	-92.5E-09	-61.4E-09	-1.2E-09	-516.7E-09
Sigma	5.0E-09	5.5E-09	20.5E-09	31.3E-09	31.7E-09	22.8E-09	32.6E-09	33.9E-09	39.4E-09	38.3E-09	42.9E-09	1.6E-09	17.0E-09

Drift Calculation

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON TID samples													
8	-	-205.1E-09	-330.4E-09	-220.4E-09	-4.5E-09	54.1E-09	-24.5E-09	-6.3E-09	7.8E-09	28.9E-09	52.7E-09	171.0E-09	-359.8E-09
9	-	-213.8E-09	-286.7E-09	-170.1E-09	27.7E-09	88.4E-09	41.0E-09	61.0E-09	82.5E-09	101.2E-09	140.8E-09	177.0E-09	-316.7E-09
10	-	-205.5E-09	-273.3E-09	-132.9E-09	84.2E-09	121.3E-09	61.0E-09	82.6E-09	111.0E-09	129.9E-09	160.1E-09	186.1E-09	-336.1E-09
Average	-	-208.1E-09	-296.8E-09	-174.5E-09	35.8E-09	87.9E-09	25.8E-09	45.8E-09	67.1E-09	86.7E-09	117.8E-09	178.0E-09	-337.5E-09
Sigma	-	4.0E-09	24.4E-09	35.9E-09	36.7E-09	27.4E-09	36.5E-09	37.9E-09	43.5E-09	42.5E-09	46.7E-09	6.2E-09	17.6E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil				Issue:	02

Measurements

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-185.3E-09	-186.6E-09	-189.8E-09	-188.5E-09	-187.8E-09	-185.1E-09	-187.7E-09	-187.9E-09	-185.1E-09	-186.7E-09	-188.2E-09	-186.9E-09	-184.7E-09
OFF PROTON samples													
5	-264.9E-09	-484.3E-09	-666.2E-09	-667.5E-09	-668.3E-09	-671.3E-09	-666.7E-09	-661.4E-09	-655.2E-09	-653.4E-09	-653.4E-09	-656.8E-09	-1.1E-06
14	-263.2E-09	-409.5E-09	-589.8E-09	-700.8E-09	-714.0E-09	-708.3E-09	-709.9E-09	-711.0E-09	-715.3E-09	-714.2E-09	-709.9E-09	-710.8E-09	-1.1E-06
7	-270.7E-09	-539.6E-09	-660.3E-09	-649.2E-09	-642.2E-09	-641.1E-09	-642.5E-09	-642.2E-09	-641.2E-09	-642.4E-09	-632.7E-09	-638.6E-09	-1.3E-06
Statistics													
Min	-270.7E-09	-539.6E-09	-666.2E-09	-700.8E-09	-714.0E-09	-708.3E-09	-709.9E-09	-711.0E-09	-715.3E-09	-714.2E-09	-709.9E-09	-710.8E-09	-1.3E-06
Max	-263.2E-09	-409.5E-09	-589.8E-09	-649.2E-09	-642.2E-09	-641.1E-09	-642.5E-09	-642.2E-09	-641.2E-09	-642.4E-09	-632.7E-09	-638.6E-09	-1.1E-06
Average	-266.2E-09	-477.8E-09	-638.8E-09	-672.5E-09	-674.9E-09	-673.6E-09	-673.1E-09	-671.5E-09	-670.6E-09	-670.0E-09	-665.3E-09	-668.7E-09	-1.2E-06
Sigma	3.2E-09	53.3E-09	34.7E-09	21.4E-09	29.7E-09	27.5E-09	27.9E-09	29.0E-09	32.1E-09	31.6E-09	32.6E-09	30.6E-09	74.9E-09

Drift Calculation

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-219.4E-09	-401.3E-09	-402.7E-09	-403.5E-09	-406.4E-09	-401.8E-09	-396.5E-09	-390.3E-09	-388.6E-09	-388.6E-09	-391.9E-09	-867.8E-09
14	-	-146.3E-09	-326.6E-09	-437.6E-09	-450.9E-09	-445.1E-09	-446.7E-09	-447.8E-09	-452.1E-09	-451.0E-09	-446.7E-09	-447.6E-09	-842.5E-09
7	-	-269.0E-09	-389.6E-09	-378.5E-09	-371.5E-09	-370.5E-09	-371.8E-09	-371.5E-09	-370.5E-09	-371.7E-09	-362.0E-09	-367.9E-09	-1.0E-06
Average	-	-211.6E-09	-372.5E-09	-406.3E-09	-408.6E-09	-407.3E-09	-406.8E-09	-405.3E-09	-404.3E-09	-403.7E-09	-399.1E-09	-402.5E-09	-905.3E-09
Sigma	-	50.4E-09	32.8E-09	24.3E-09	32.6E-09	30.5E-09	30.8E-09	31.7E-09	34.8E-09	34.1E-09	35.4E-09	33.4E-09	71.7E-09

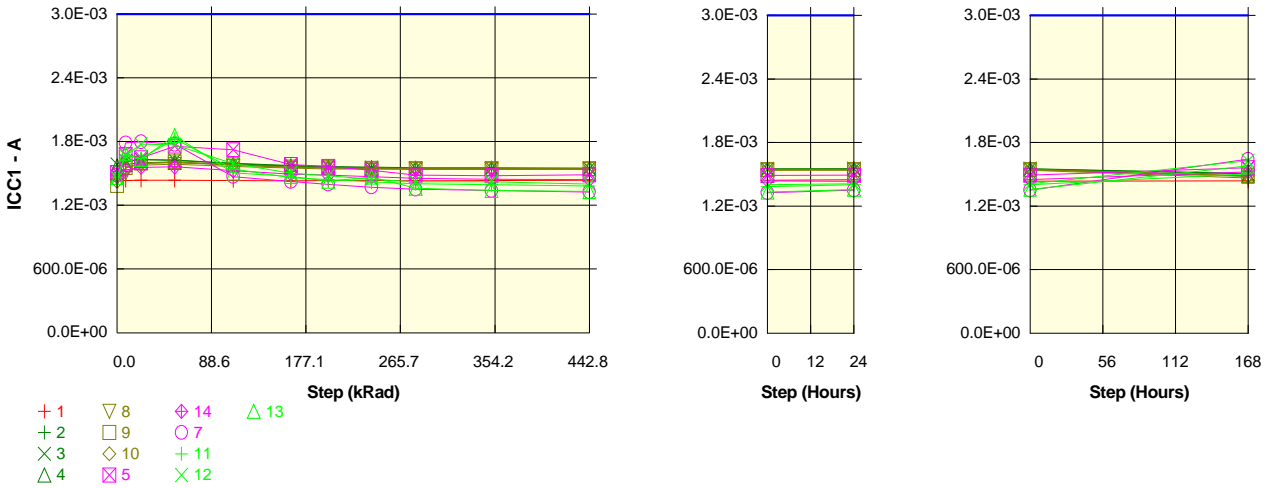
Measurements

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	-185.3E-09	-186.6E-09	-189.8E-09	-188.5E-09	-187.8E-09	-185.1E-09	-187.7E-09	-187.9E-09	-185.1E-09	-186.7E-09	-188.2E-09	-186.9E-09	-184.7E-09
OFF TID samples													
11	-175.7E-09	-417.1E-09	-689.0E-09	-681.5E-09	-667.3E-09	-667.8E-09	-666.0E-09	-663.1E-09	-663.5E-09	-664.1E-09	-660.9E-09	-667.2E-09	-1.2E-06
12	-194.8E-09	-421.3E-09	-650.7E-09	-642.7E-09	-640.0E-09	-633.9E-09	-635.4E-09	-635.3E-09	-632.4E-09	-635.6E-09	-638.9E-09	-637.7E-09	-1.2E-06
13	-188.1E-09	-443.3E-09	-676.5E-09	-672.6E-09	-679.5E-09	-677.8E-09	-673.3E-09	-672.7E-09	-667.8E-09	-669.4E-09	-660.9E-09	-674.1E-09	-1.3E-06
Statistics													
Min	-194.8E-09	-443.3E-09	-689.0E-09	-681.5E-09	-679.5E-09	-677.8E-09	-673.3E-09	-672.7E-09	-667.8E-09	-669.4E-09	-660.9E-09	-674.1E-09	-1.3E-06
Max	-175.7E-09	-417.1E-09	-650.7E-09	-642.7E-09	-640.0E-09	-633.9E-09	-635.4E-09	-635.3E-09	-632.4E-09	-635.6E-09	-638.9E-09	-637.7E-09	-1.2E-06
Average	-186.2E-09	-427.3E-09	-672.1E-09	-665.6E-09	-662.2E-09	-659.8E-09	-658.2E-09	-657.0E-09	-654.6E-09	-656.4E-09	-653.6E-09	-659.7E-09	-1.3E-06
Sigma	7.9E-09	11.5E-09	15.9E-09	16.6E-09	16.5E-09	18.8E-09	16.4E-09	15.9E-09	15.8E-09	14.8E-09	10.3E-09	15.8E-09	31.2E-09

Drift Calculation

IIB2-DUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-241.5E-09	-513.3E-09	-505.9E-09	-491.6E-09	-492.1E-09	-490.3E-09	-487.4E-09	-487.8E-09	-488.4E-09	-485.2E-09	-491.5E-09	-1.1E-06
12	-	-226.5E-09	-455.9E-09	-447.9E-09	-445.1E-09	-439.1E-09	-440.5E-09	-440.5E-09	-437.5E-09	-440.8E-09	-444.1E-09	-442.8E-09	-1.0E-06
13	-	-255.2E-09	-488.4E-09	-484.5E-09	-491.3E-09	-489.6E-09	-485.2E-09	-484.6E-09	-479.7E-09	-481.3E-09	-472.7E-09	-486.0E-09	-1.1E-06
Average	-	-241.1E-09	-485.9E-09	-479.4E-09	-476.0E-09	-473.6E-09	-472.0E-09	-470.8E-09	-468.3E-09	-470.2E-09	-467.3E-09	-473.4E-09	-1.1E-06
Sigma	-	11.7E-09	23.5E-09	23.9E-09	21.8E-09	24.4E-09	22.4E-09	21.5E-09	22.1E-09	21.0E-09	17.2E-09	21.8E-09	31.6E-09

Parameter : Total Supply Current : ICC1
 Test conditions : RL=Infinite. VCC=9V
 Unit : A
 Spec Limit Max : 3.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03
ON_PROTON samples													
2	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03
3	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
4	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Statistics													
Min	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Max	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03
Average	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Sigma	28.6E-06	14.5E-06	12.1E-06	10.6E-06	5.8E-06	4.1E-06	3.6E-06	3.6E-06	3.3E-06	3.5E-06	3.3E-06	3.5E-06	12.2E-06

Drift Calculation

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	92.2E-06	109.8E-06	107.6E-06	76.6E-06	56.4E-06	46.0E-06	40.8E-06	35.8E-06	34.8E-06	33.2E-06	35.0E-06	-11.2E-06
3	-	30.2E-06	43.8E-06	38.0E-06	6.0E-06	-15.2E-06	-26.6E-06	-31.8E-06	-37.6E-06	-38.6E-06	-39.4E-06	-38.0E-06	-81.6E-06
4	-	14.0E-06	34.2E-06	33.4E-06	12.4E-06	-4.2E-06	-13.4E-06	-18.6E-06	-22.6E-06	-24.2E-06	-25.4E-06	-24.0E-06	-89.0E-06
Average	-	45.5E-06	62.6E-06	59.7E-06	31.7E-06	12.3E-06	2.0E-06	-3.2E-06	-8.1E-06	-9.3E-06	-10.5E-06	-9.0E-06	-60.6E-06
Sigma	-	33.7E-06	33.6E-06	33.9E-06	31.9E-06	31.5E-06	31.6E-06	31.6E-06	31.7E-06	31.8E-06	31.4E-06	31.6E-06	35.1E-06

Measurements

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03
ON_TID samples													
8	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
9	1.4E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
10	1.4E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Statistics													
Min	1.4E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Max	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Average	1.4E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
Sigma	28.4E-06	24.2E-06	7.9E-06	10.4E-06	6.2E-06	4.8E-06	4.7E-06	4.0E-06	3.7E-06	3.4E-06	3.3E-06	3.3E-06	9.4E-06

Drift Calculation

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	46.0E-06	121.2E-06	128.8E-06	109.6E-06	92.6E-06	86.2E-06	83.6E-06	80.4E-06	80.4E-06	79.8E-06	80.2E-06	8.2E-06
9	-	169.8E-06	209.6E-06	222.4E-06	193.8E-06	173.4E-06	166.6E-06	162.6E-06	158.6E-06	158.0E-06	157.0E-06	157.6E-06	99.4E-06
10	-	125.6E-06	165.4E-06	179.4E-06	152.0E-06	132.2E-06	126.2E-06	121.6E-06	118.2E-06	117.6E-06	117.2E-06	117.4E-06	57.2E-06
Average	-	113.8E-06	165.4E-06	176.9E-06	151.8E-06	132.7E-06	126.3E-06	122.6E-06	119.1E-06	118.7E-06	118.0E-06	118.4E-06	54.9E-06
Sigma	-	51.2E-06	36.1E-06	38.3E-06	34.4E-06	33.0E-06	32.8E-06	32.3E-06	31.9E-06	31.7E-06	31.5E-06	31.6E-06	37.3E-06

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03
OFF PROTON samples													
5	1.5E-03	1.7E-03	1.6E-03	1.8E-03	1.7E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03
14	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.5E-03
7	1.5E-03	1.8E-03	1.8E-03	1.8E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.3E-03	1.3E-03	1.4E-03	1.6E-03
Statistics													
Min	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.3E-03	1.3E-03	1.4E-03	1.5E-03
Max	1.5E-03	1.8E-03	1.8E-03	1.8E-03	1.7E-03	1.6E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03
Average	1.5E-03	1.7E-03	1.7E-03	1.7E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.6E-03
Sigma	12.4E-06	104.0E-06	99.3E-06	96.7E-06	108.6E-06	65.4E-06	69.1E-06	65.0E-06	56.7E-06	59.7E-06	68.8E-06	58.8E-06	50.0E-06

Drift Calculation

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	171.8E-06	139.6E-06	248.6E-06	216.0E-06	76.0E-06	59.0E-06	21.2E-06	-23.6E-06	-28.8E-06	-19.2E-06	-16.8E-06	52.8E-06
14	-	54.8E-06	78.6E-06	81.6E-06	46.6E-06	15.6E-06	4.2E-06	-10.8E-06	-23.8E-06	-33.0E-06	-37.0E-06	-31.6E-06	43.4E-06
7	-	304.4E-06	314.8E-06	291.0E-06	-13.2E-06	-60.2E-06	-86.4E-06	-112.8E-06	-131.8E-06	-144.8E-06	-158.8E-06	-133.6E-06	158.8E-06
Average	-	177.0E-06	177.7E-06	207.1E-06	83.1E-06	10.5E-06	-7.7E-06	-34.1E-06	-59.7E-06	-68.9E-06	-71.7E-06	-60.7E-06	85.0E-06
Sigma	-	102.0E-06	100.1E-06	90.4E-06	97.1E-06	55.7E-06	60.0E-06	57.1E-06	51.0E-06	53.7E-06	62.0E-06	51.9E-06	52.3E-06

Measurements

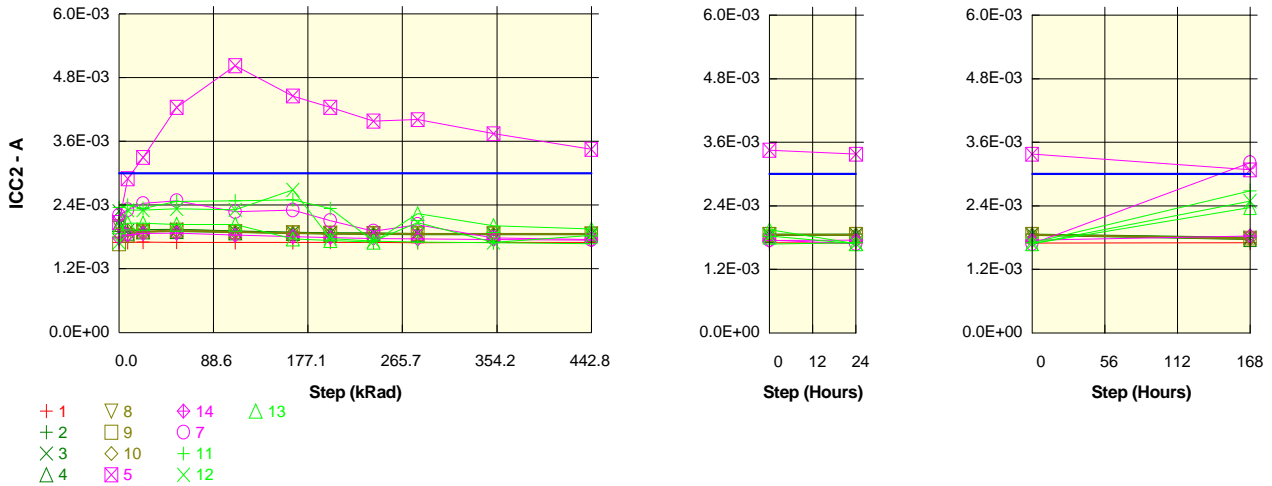
ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03
OFF TID samples													
11	1.5E-03	1.7E-03	1.6E-03	1.8E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.5E-03
12	1.5E-03	1.7E-03	1.8E-03	1.8E-03	1.6E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.6E-03
13	1.5E-03	1.7E-03	1.6E-03	1.9E-03	1.5E-03	1.5E-03	1.4E-03	1.5E-03	1.4E-03	1.3E-03	1.3E-03	1.4E-03	1.6E-03
Statistics													
Min	1.5E-03	1.7E-03	1.6E-03	1.8E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.3E-03	1.3E-03	1.4E-03	1.5E-03
Max	1.5E-03	1.7E-03	1.8E-03	1.9E-03	1.6E-03	1.5E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.6E-03
Average	1.5E-03	1.7E-03	1.7E-03	1.8E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.6E-03
Sigma	3.2E-06	7.3E-06	65.6E-06	37.3E-06	36.1E-06	17.9E-06	21.8E-06	19.6E-06	25.9E-06	33.6E-06	28.9E-06	23.9E-06	49.1E-06

Drift Calculation

ICC1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	207.6E-06	176.4E-06	359.4E-06	79.6E-06	-3.4E-06	-23.2E-06	-44.4E-06	-60.0E-06	-71.4E-06	-81.6E-06	-61.8E-06	42.2E-06
12	-	210.4E-06	317.6E-06	309.2E-06	136.2E-06	45.8E-06	22.0E-06	-11.4E-06	-35.6E-06	-35.8E-06	-57.8E-06	-47.4E-06	168.6E-06
13	-	220.6E-06	167.2E-06	392.8E-06	41.2E-06	8.0E-06	-36.2E-06	3.6E-06	-104.0E-06	-123.8E-06	-132.6E-06	-108.2E-06	113.4E-06
Average	-	212.9E-06	220.4E-06	353.8E-06	85.7E-06	16.8E-06	-12.5E-06	-17.4E-06	-66.5E-06	-77.0E-06	-90.7E-06	-72.5E-06	108.1E-06
Sigma	-	5.6E-06	68.8E-06	34.4E-06	39.0E-06	21.0E-06	24.9E-06	20.0E-06	28.3E-06	36.1E-06	31.2E-06	25.9E-06	51.7E-06

Parameter : Total Supply Current : ICC2
 Test conditions : RL=Infinite. VCC=30V

Unit : A
 Spec Limit Max : 3.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03
ON_PROTON samples													
2	2.1E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
3	2.3E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
4	2.0E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
Statistics													
Min	2.0E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
Max	2.3E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
Average	2.1E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
Sigma	107.1E-06	22.1E-06	19.0E-06	17.4E-06	14.4E-06	12.2E-06	11.3E-06	11.0E-06	10.6E-06	10.8E-06	10.7E-06	10.8E-06	17.6E-06

Drift Calculation

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-183.0E-06	-159.6E-06	-154.4E-06	-183.6E-06	-203.4E-06	-217.0E-06	-223.4E-06	-227.6E-06	-228.4E-06	-232.4E-06	-229.6E-06	-294.0E-06
3	-	-368.2E-06	-348.6E-06	-348.0E-06	-377.8E-06	-398.4E-06	-412.8E-06	-419.6E-06	-424.6E-06	-425.4E-06	-429.2E-06	-426.4E-06	-491.0E-06
4	-	-163.6E-06	-135.6E-06	-129.0E-06	-151.8E-06	-167.2E-06	-179.0E-06	-184.8E-06	-188.2E-06	-189.6E-06	-193.2E-06	-190.6E-06	-270.2E-06
Average	-	-238.3E-06	-214.6E-06	-210.5E-06	-237.7E-06	-256.3E-06	-269.6E-06	-275.9E-06	-280.1E-06	-281.1E-06	-284.9E-06	-282.2E-06	-351.7E-06
Sigma	-	92.2E-06	95.3E-06	97.8E-06	99.9E-06	101.5E-06	102.4E-06	102.8E-06	103.4E-06	103.2E-06	103.3E-06	103.2E-06	99.0E-06

Measurements

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03
ON_TID samples													
8	2.0E-03	1.8E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
9	1.7E-03	1.8E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
10	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03	1.9E-03	1.8E-03
Statistics													
Min	1.7E-03	1.8E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03	1.9E-03	1.8E-03
Max	2.0E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
Average	1.8E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.8E-03
Sigma	134.3E-06	47.1E-06	7.2E-06	9.1E-06	5.9E-06	4.9E-06	4.6E-06	4.6E-06	4.4E-06	4.3E-06	4.1E-06	4.1E-06	8.8E-06

Drift Calculation

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-186.0E-06	-103.2E-06	-88.8E-06	-107.8E-06	-124.0E-06	-133.4E-06	-136.6E-06	-138.8E-06	-138.6E-06	-142.0E-06	-140.4E-06	-225.2E-06
9	-	164.0E-06	239.8E-06	260.2E-06	231.4E-06	211.4E-06	201.2E-06	196.8E-06	193.4E-06	193.0E-06	189.4E-06	190.8E-06	123.0E-06
10	-	54.6E-06	30.2E-06	51.2E-06	23.2E-06	4.2E-06	-5.4E-06	-10.0E-06	-13.0E-06	-13.2E-06	-16.2E-06	-14.8E-06	-85.8E-06
Average	-	10.9E-06	55.6E-06	74.2E-06	48.9E-06	30.5E-06	20.8E-06	16.7E-06	13.9E-06	13.7E-06	10.4E-06	11.9E-06	-62.7E-06
Sigma	-	146.2E-06	141.2E-06	143.4E-06	139.7E-06	138.2E-06	137.9E-06	137.4E-06	136.9E-06	136.7E-06	136.6E-06	136.5E-06	143.1E-06

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03
OFF PROTON samples													
5	2.1E-03	2.9E-03	3.3E-03	4.2E-03	5.0E-03	4.5E-03	4.2E-03	4.0E-03	4.0E-03	3.7E-03	3.5E-03	3.4E-03	3.1E-03
14	1.8E-03	1.8E-03	1.9E-03	1.9E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.7E-03	1.8E-03	1.8E-03
7	2.2E-03	2.3E-03	2.4E-03	2.5E-03	2.3E-03	2.3E-03	2.1E-03	1.9E-03	2.0E-03	1.8E-03	1.8E-03	1.7E-03	3.2E-03
Statistics													
Min	1.8E-03	1.8E-03	1.9E-03	1.9E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.7E-03	1.7E-03	1.8E-03
Max	2.2E-03	2.9E-03	3.3E-03	4.2E-03	5.0E-03	4.5E-03	4.2E-03	4.0E-03	4.0E-03	3.7E-03	3.5E-03	3.4E-03	3.2E-03
Average	2.0E-03	2.3E-03	2.5E-03	2.9E-03	3.0E-03	2.9E-03	2.7E-03	2.6E-03	2.6E-03	2.4E-03	2.3E-03	2.3E-03	2.7E-03
Sigma	179.6E-06	432.7E-06	588.1E-06	1.0E-03	1.4E-03	1.1E-03	1.1E-03	1.0E-03	1.0E-03	933.0E-06	803.3E-06	781.1E-06	622.3E-06

Drift Calculation

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	823.4E-06	1.2E-03	2.2E-03	2.9E-03	2.4E-03	2.2E-03	1.9E-03	1.9E-03	1.7E-03	1.4E-03	1.3E-03	1.0E-03
14	-	61.4E-06	89.6E-06	95.4E-06	56.4E-06	28.8E-06	12.4E-06	-3.6E-06	-17.0E-06	-26.8E-06	-34.8E-06	-27.2E-06	51.8E-06
7	-	103.2E-06	222.2E-06	276.6E-06	67.4E-06	97.2E-06	-101.4E-06	-298.0E-06	-177.2E-06	-428.4E-06	-456.4E-06	-525.0E-06	1.0E-03
Average	-	329.3E-06	511.8E-06	846.9E-06	1.0E-03	835.8E-06	693.3E-06	536.5E-06	580.9E-06	405.1E-06	295.5E-06	248.9E-06	686.7E-06
Sigma	-	349.8E-06	506.2E-06	937.6E-06	1.4E-03	1.1E-03	1.0E-03	979.3E-06	961.0E-06	909.7E-06	784.3E-06	769.8E-06	448.9E-06

Measurements

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03
OFF TID samples													
11	2.4E-03	2.4E-03	2.3E-03	2.5E-03	2.5E-03	2.5E-03	2.3E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.7E-03
12	1.7E-03	2.3E-03	2.3E-03	2.3E-03	2.3E-03	2.7E-03	1.8E-03	1.7E-03	2.1E-03	1.7E-03	1.8E-03	1.7E-03	2.5E-03
13	2.0E-03	2.1E-03	2.1E-03	2.0E-03	2.0E-03	1.8E-03	1.7E-03	1.7E-03	2.2E-03	2.0E-03	1.9E-03	1.7E-03	2.4E-03
Statistics													
Min	1.7E-03	2.1E-03	2.1E-03	2.0E-03	2.0E-03	1.8E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.7E-03	2.4E-03
Max	2.4E-03	2.4E-03	2.3E-03	2.5E-03	2.5E-03	2.7E-03	2.3E-03	1.7E-03	2.2E-03	2.0E-03	1.9E-03	1.7E-03	2.7E-03
Average	2.0E-03	2.3E-03	2.2E-03	2.3E-03	2.3E-03	2.3E-03	1.9E-03	1.7E-03	2.0E-03	1.8E-03	1.8E-03	1.7E-03	2.5E-03
Sigma	269.4E-06	140.2E-06	124.8E-06	179.5E-06	181.9E-06	399.1E-06	275.0E-06	9.4E-06	222.6E-06	151.0E-06	110.8E-06	7.1E-06	130.6E-06

Drift Calculation

ICC2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	43.1E-06	-15.4E-06	116.5E-06	125.0E-06	146.0E-06	-17.6E-06	-632.4E-06	-648.8E-06	-661.4E-06	-675.2E-06	-652.6E-06	330.0E-06
12	-	609.9E-06	614.7E-06	632.2E-06	617.7E-06	992.4E-06	78.4E-06	31.2E-06	374.0E-06	1.2E-06	135.2E-06	-7.8E-06	794.8E-06
13	-	72.6E-06	68.6E-06	46.9E-06	45.9E-06	-229.0E-06	-257.4E-06	-287.6E-06	246.8E-06	22.8E-06	-42.4E-06	-306.4E-06	374.8E-06
Average	-	241.9E-06	222.6E-06	265.2E-06	262.9E-06	303.1E-06	-65.5E-06	-296.3E-06	-9.3E-06	-212.5E-06	-194.1E-06	-322.3E-06	499.9E-06
Sigma	-	260.5E-06	279.4E-06	261.1E-06	252.9E-06	510.9E-06	141.2E-06	271.0E-06	455.1E-06	317.6E-06	347.8E-06	263.5E-06	209.3E-06

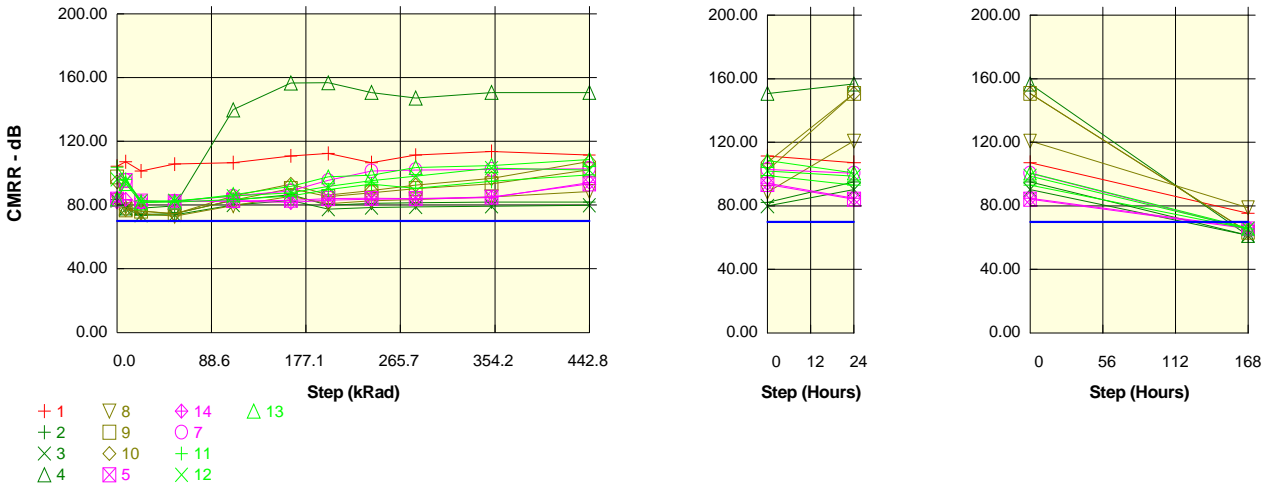
Parameter : Input Voltage Common Mode Rejection Ratio : CMRRDUT1

Test conditions : VCC=30V. VCM=0V to 27.5V. RL=15K

Unit : dB

Spec Limit Min : 70.00

Spec limits are represented in bold lines on the graphic.



Measurements

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	104.38	107.29	101.45	105.77	106.67	110.90	112.45	106.72	111.36	113.64	111.40	107.15	75.28
ON_PROTON samples													
2	83.51	79.25	74.05	74.60	83.13	86.45	79.93	81.17	81.53	81.96	82.01	94.93	61.46
3	82.76	77.72	73.64	73.87	80.02	82.90	77.53	78.57	78.83	79.29	79.84	90.24	61.26
4	83.74	78.14	78.04	79.53	139.84	156.73	156.75	150.73	147.21	150.72	150.72	156.75	61.26
Statistics													
Min	82.76	77.72	73.64	73.87	80.02	82.90	77.53	78.57	78.83	79.29	79.84	90.24	61.26
Max	83.74	79.25	78.04	79.53	139.84	156.73	156.75	150.73	147.21	150.72	150.72	156.75	61.46
Average	83.33	78.37	75.24	76.00	101.00	108.69	104.74	103.49	102.52	103.99	104.19	113.97	61.33
Sigma	0.42	0.65	1.99	2.51	27.50	34.00	36.80	33.42	31.61	33.06	32.91	30.31	0.09

Drift Calculation

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-4.3E+00	-9.5E+00	-8.9E+00	-377.6E-03	2.9E+00	-3.6E+00	-2.3E+00	-2.0E+00	-1.5E+00	-1.5E+00	11.4E+00	-22.0E+00
3	-	-5.0E+00	-9.1E+00	-8.9E+00	-2.7E+00	138.0E-03	-5.2E+00	-4.2E+00	-3.9E+00	-3.5E+00	-2.9E+00	7.5E+00	-21.5E+00
4	-	-5.6E+00	-5.7E+00	-4.2E+00	56.1E+00	73.0E+00	73.0E+00	67.0E+00	63.5E+00	67.0E+00	67.0E+00	30.6E+00	-22.5E+00
Average	-	-5.0E+00	-8.1E+00	-7.3E+00	17.7E+00	25.4E+00	21.4E+00	20.2E+00	19.2E+00	20.7E+00	20.9E+00	30.6E+00	-22.0E+00
Sigma	-	551.5E-03	1.7E+00	2.2E+00	27.2E+00	33.7E+00	36.5E+00	33.1E+00	31.3E+00	32.8E+00	32.6E+00	30.0E+00	402.6E-03

Measurements

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	104.38	107.29	101.45	105.77	106.67	110.90	112.45	106.72	111.36	113.64	111.40	107.15	75.28
ON_TID samples													
8	82.79	78.86	74.66	72.97	79.70	85.58	80.86	82.69	83.45	85.20	88.54	120.76	78.75
9	97.68	77.08	76.18	74.59	83.11	90.38	85.41	87.84	90.33	93.50	102.24	150.72	63.43
10	94.74	77.25	76.18	74.37	85.68	93.11	86.33	89.22	92.65	96.78	107.41	150.72	63.59
Statistics													
Min	82.79	77.08	74.66	72.97	79.70	85.58	80.86	82.69	83.45	85.20	88.54	120.76	63.43
Max	97.68	78.86	76.18	74.59	85.68	93.11	86.33	89.22	92.65	96.78	107.41	150.72	78.75
Average	91.74	77.73	75.67	73.98	82.83	89.69	84.20	86.58	88.81	91.83	99.40	140.74	68.59
Sigma	6.44	0.80	0.72	0.72	2.45	3.11	2.39	2.81	3.91	4.87	7.96	14.13	7.19

Drift Calculation

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-3.9E+00	-8.1E+00	-9.8E+00	-3.1E+00	2.8E+00	-1.9E+00	-106.5E-03	655.8E-03	2.4E+00	5.7E+00	38.0E+00	-4.0E+00
9	-	-20.6E+00	-21.5E+00	-23.1E+00	-14.6E+00	-7.3E+00	-12.3E+00	-9.8E+00	-7.3E+00	-4.2E+00	4.6E+00	53.0E+00	-34.3E+00
10	-	-17.5E+00	-18.6E+00	-20.4E+00	-9.1E+00	-1.6E+00	-8.4E+00	-5.5E+00	-2.1E+00	2.0E+00	12.7E+00	56.0E+00	-31.2E+00
Average	-	-14.0E+00	-16.1E+00	-17.8E+00	-8.9E+00	-2.0E+00	-7.5E+00	-5.2E+00	-2.9E+00	86.8E-03	7.7E+00	49.0E+00	-23.1E+00
Sigma	-	7.2E+00	5.7E+00	5.7E+00	4.7E+00	4.1E+00	4.3E+00	4.0E+00	3.3E+00	3.0E+00	3.6E+00	7.9E+00	13.6E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	104.38	107.29	101.45	105.77	106.67	110.90	112.45	106.72	111.36	113.64	111.40	107.15	75.28
OFF PROTON samples													
5	83.67	95.53	82.66	82.14	82.81	82.95	84.20	84.27	84.18	85.11	93.40	84.16	65.57
14	81.97	83.57	81.45	82.52	82.47	81.73	83.06	83.80	83.89	84.67	94.27	84.75	66.21
7	83.69	95.42	81.91	82.33	85.68	88.92	95.49	101.34	102.03	102.38	102.91	100.45	65.42
Statistics													
Min	81.97	83.57	81.45	82.14	82.47	81.73	83.06	83.80	83.89	84.67	93.40	84.16	65.42
Max	83.69	95.53	82.66	82.52	85.68	88.92	95.49	101.34	102.03	102.38	102.91	100.45	66.21
Average	83.11	91.51	82.01	82.33	83.66	84.53	87.58	89.80	90.03	90.72	96.86	89.78	65.73
Sigma	0.81	5.61	0.50	0.16	1.44	3.14	5.61	8.16	8.49	8.24	4.29	7.54	0.34

Drift Calculation

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	11.9E+00	-1.0E+00	-1.5E+00	-861.2E-03	-723.9E-03	521.8E-03	595.9E-03	501.4E-03	1.4E+00	9.7E+00	483.0E-03	-18.1E+00
14	-	1.6E+00	-513.0E-03	555.9E-03	509.6E-03	-239.5E-03	1.1E+00	1.8E+00	1.9E+00	2.7E+00	12.3E+00	2.8E+00	-15.8E+00
7	-	11.7E+00	-1.8E+00	-1.4E+00	2.0E+00	5.2E+00	11.8E+00	17.7E+00	18.3E+00	18.7E+00	19.2E+00	16.8E+00	-18.3E+00
Average	-	8.4E+00	-1.1E+00	-779.1E-03	547.1E-03	1.4E+00	4.5E+00	6.7E+00	6.9E+00	7.6E+00	13.8E+00	6.7E+00	-17.4E+00
Sigma	-	4.8E+00	518.2E-03	946.6E-03	1.2E+00	2.7E+00	5.2E+00	7.8E+00	8.1E+00	7.9E+00	4.0E+00	7.2E+00	1.1E+00

Measurements

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	104.38	107.29	101.45	105.77	106.67	110.90	112.45	106.72	111.36	113.64	111.40	107.15	75.28
OFF TID samples													
11	103.88	96.16	82.69	81.81	83.62	85.61	89.61	93.17	90.44	94.90	99.09	93.04	65.52
12	96.23	94.96	82.40	82.74	85.69	87.66	91.76	95.30	98.24	103.27	101.94	98.63	65.54
13	83.76	93.59	81.52	82.05	86.55	91.68	97.70	98.77	103.55	104.84	108.61	100.70	66.00
Statistics													
Min	83.76	93.59	81.52	81.81	83.62	85.61	89.61	93.17	90.44	94.90	99.09	93.04	65.52
Max	103.88	96.16	82.69	82.74	86.55	91.68	97.70	98.77	103.55	104.84	108.61	100.70	66.00
Average	94.62	94.90	82.20	82.20	85.29	88.32	93.02	95.75	97.41	101.00	103.22	97.46	65.68
Sigma	8.29	1.05	0.49	0.39	1.23	2.52	3.42	2.31	5.38	4.36	3.99	3.24	0.22

Drift Calculation

CMRRDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-7.7E+00	-21.2E+00	-22.1E+00	-20.3E+00	-18.3E+00	-14.3E+00	-10.7E+00	-13.4E+00	-9.0E+00	-4.8E+00	-10.8E+00	-38.4E+00
12	-	-1.3E+00	-13.8E+00	-13.5E+00	-10.5E+00	-8.6E+00	-4.5E+00	-930.7E-03	2.0E+00	7.0E+00	5.7E+00	2.4E+00	-30.7E+00
13	-	9.8E+00	-2.2E+00	-1.7E+00	2.8E+00	7.9E+00	13.9E+00	15.0E+00	19.8E+00	21.1E+00	24.9E+00	16.9E+00	-17.8E+00
Average	-	277.5E-03	-12.4E+00	-12.4E+00	-9.3E+00	-6.3E+00	-1.6E+00	1.1E+00	2.8E+00	6.4E+00	8.6E+00	2.8E+00	-28.9E+00
Sigma	-	7.2E+00	7.8E+00	8.3E+00	9.4E+00	10.8E+00	11.7E+00	10.6E+00	13.6E+00	12.3E+00	12.3E+00	11.3E+00	8.5E+00

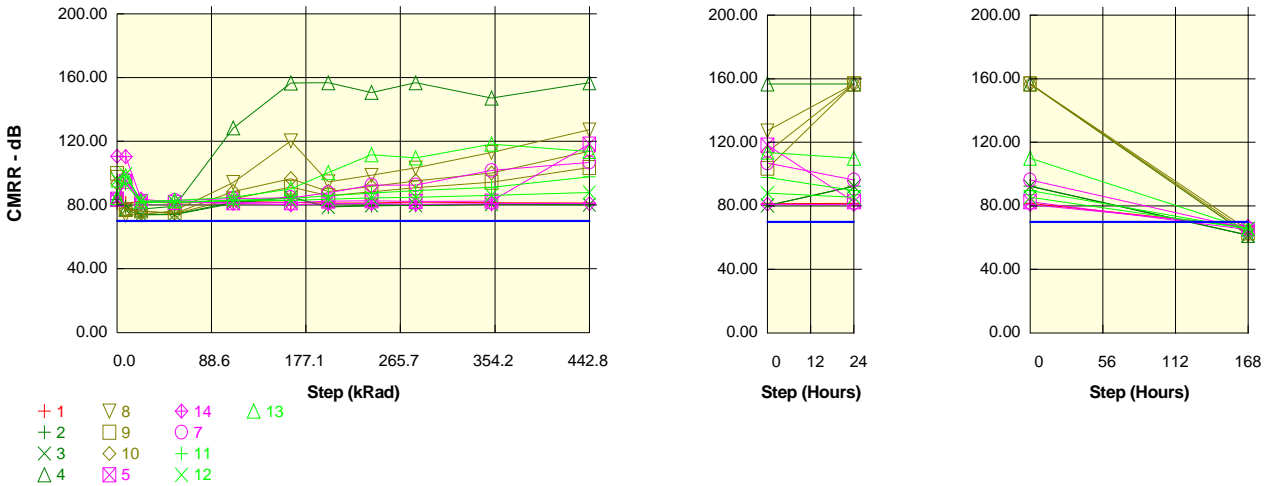
Parameter : Input Voltage Common Mode Rejection Ratio : CMRRDUT2

Test conditions : VCC=30V. VCM=0V to 27.5V. RL=15K

Unit : dB

Spec Limit Min : 70.00

Spec limits are represented in bold lines on the graphic.



Measurements

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	81.54	81.38	82.04	81.24	82.31	81.60	81.35	81.42	81.98	81.54	81.34	81.52	67.02
ON_PROTON samples													
2	83.46	79.22	74.21	74.30	81.95	85.06	78.82	79.58	79.88	80.42	80.23	92.43	61.71
3	83.31	77.13	73.81	74.15	81.12	84.85	78.82	79.87	79.79	80.54	80.27	92.25	61.44
4	83.67	77.56	77.46	79.34	128.45	156.73	156.75	150.73	156.75	147.21	156.75	156.75	61.28
Statistics													
Min	83.31	77.13	73.81	74.15	81.12	84.85	78.82	79.58	79.79	80.42	80.23	92.25	61.28
Max	83.67	79.22	77.46	79.34	128.45	156.73	156.75	150.73	156.75	147.21	156.75	156.75	61.71
Average	83.48	77.97	75.16	75.93	97.17	108.88	104.80	103.39	105.48	102.72	105.75	113.81	61.48
Sigma	0.15	0.90	1.63	2.41	22.12	33.84	36.74	33.47	36.26	31.45	36.06	30.37	0.18

Drift Calculation

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-4.2E+00	-9.2E+00	-9.2E+00	-1.5E+00	1.6E+00	-4.6E+00	-3.9E+00	-3.6E+00	-3.0E+00	-3.2E+00	9.0E+00	-21.7E+00
3	-	-6.2E+00	-9.5E+00	-9.2E+00	-2.2E+00	1.5E+00	-4.5E+00	-3.4E+00	-3.5E+00	-2.8E+00	-3.0E+00	8.9E+00	-21.9E+00
4	-	-6.1E+00	-6.2E+00	-4.3E+00	44.8E+00	73.1E+00	73.1E+00	67.1E+00	73.1E+00	73.1E+00	73.1E+00	30.3E+00	-22.4E+00
Average	-	-5.5E+00	-8.3E+00	-7.5E+00	13.7E+00	25.4E+00	21.3E+00	19.9E+00	22.0E+00	19.2E+00	22.3E+00	30.3E+00	-22.0E+00
Sigma	-	899.7E-03	1.5E+00	2.3E+00	22.0E+00	33.7E+00	36.6E+00	33.3E+00	36.1E+00	31.3E+00	35.9E+00	30.2E+00	276.7E-03

Measurements

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	81.54	81.38	82.04	81.24	82.31	81.60	81.35	81.42	81.98	81.54	81.34	81.52	67.02
ON_TID samples													
8	97.50	73.84	74.06	76.53	94.13	120.35	94.66	98.78	103.38	113.17	127.20	156.73	61.51
9	99.86	77.09	76.37	74.65	83.92	91.25	86.02	88.33	90.90	94.43	103.62	156.75	63.04
10	93.79	76.79	76.27	74.82	88.60	96.56	88.57	91.86	95.18	100.15	113.89	156.73	64.87
Statistics													
Min	93.79	73.84	74.06	74.65	83.92	91.25	86.02	88.33	90.90	94.43	103.62	156.73	61.51
Max	99.86	77.09	76.37	76.53	94.13	120.35	94.66	98.78	103.38	113.17	127.20	156.75	64.87
Average	97.05	75.91	75.57	75.33	88.88	102.72	89.75	92.99	96.48	102.58	114.90	156.74	63.14
Sigma	2.50	1.47	1.07	0.85	4.17	12.66	3.62	4.34	5.18	7.84	9.65	0.01	1.38

Drift Calculation

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-23.7E+00	-23.4E+00	-21.0E+00	-3.4E+00	22.9E+00	-2.8E+00	1.3E+00	5.9E+00	15.7E+00	29.7E+00	59.2E+00	-36.0E+00
9	-	-22.8E+00	-23.5E+00	-25.2E+00	-15.9E+00	-8.6E+00	-13.8E+00	-11.5E+00	-9.0E+00	-5.4E+00	3.8E+00	56.9E+00	-36.8E+00
10	-	-17.0E+00	-17.5E+00	-19.0E+00	-5.2E+00	2.8E+00	-5.2E+00	-1.9E+00	1.4E+00	6.4E+00	20.1E+00	62.9E+00	-28.9E+00
Average	-	-21.1E+00	-21.5E+00	-21.7E+00	-8.2E+00	5.7E+00	-7.3E+00	-4.1E+00	-561.8E-03	5.5E+00	17.9E+00	59.7E+00	-33.9E+00
Sigma	-	3.0E+00	2.8E+00	2.6E+00	5.5E+00	13.0E+00	4.7E+00	5.4E+00	6.2E+00	8.6E+00	10.7E+00	2.5E+00	3.5E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	81.54	81.38	82.04	81.24	82.31	81.60	81.35	81.42	81.98	81.54	81.34	81.52	67.02
OFF PROTON samples													
5	83.70	94.80	82.40	81.79	81.51	81.54	82.50	82.71	82.31	82.58	118.28	82.56	65.09
14	110.68	110.51	83.82	82.00	81.09	80.23	80.89	81.06	80.55	80.91	80.99	80.82	67.22
7	83.62	96.10	81.66	82.85	84.10	84.63	87.72	92.52	92.65	101.72	106.86	96.26	65.44
Statistics													
Min	83.62	94.80	81.66	81.79	81.09	80.23	80.89	81.06	80.55	80.91	80.99	80.82	65.09
Max	110.68	110.51	83.82	82.85	84.10	84.63	87.72	92.52	92.65	101.72	118.28	96.26	67.22
Average	92.67	100.47	82.63	82.21	82.23	82.14	83.70	85.43	85.17	88.41	102.04	86.54	65.92
Sigma	12.74	7.12	0.90	0.46	1.33	1.84	2.91	5.06	5.34	9.44	15.60	6.90	0.93

Drift Calculation

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	11.1E+00	-1.3E+00	-1.9E+00	-2.2E+00	-2.2E+00	-1.2E+00	-995.7E-03	-1.4E+00	-1.1E+00	34.6E+00	-1.1E+00	-18.6E+00
14	-	-171.1E-03	-26.9E+00	-28.7E+00	-29.6E+00	-30.4E+00	-29.8E+00	-29.6E+00	-30.1E+00	-29.8E+00	-29.7E+00	-29.9E+00	-43.5E+00
7	-	12.5E+00	-2.0E+00	-775.4E-03	480.9E-03	1.0E+00	4.1E+00	8.9E+00	9.0E+00	18.1E+00	23.2E+00	12.6E+00	-18.2E+00
Average	-	7.8E+00	-10.0E+00	-10.5E+00	-10.4E+00	-10.5E+00	-9.0E+00	-7.2E+00	-7.5E+00	-4.3E+00	9.4E+00	-6.1E+00	-26.8E+00
Sigma	-	5.7E+00	11.9E+00	12.9E+00	13.6E+00	14.1E+00	14.9E+00	16.3E+00	16.6E+00	19.7E+00	28.0E+00	17.7E+00	11.8E+00

Measurements

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	81.54	81.38	82.04	81.24	82.31	81.60	81.35	81.42	81.98	81.54	81.34	81.52	67.02
OFF TID samples													
11	91.39	93.44	81.47	81.81	83.09	84.10	85.97	87.45	89.04	91.17	97.81	89.70	65.31
12	96.10	99.32	82.28	81.69	82.65	82.93	83.82	84.57	84.83	86.07	87.97	85.24	65.64
13	84.78	98.42	82.51	83.05	84.82	90.26	100.41	111.64	109.66	118.26	113.58	109.94	65.48
Statistics													
Min	84.78	93.44	81.47	81.69	82.65	82.93	83.82	84.57	84.83	86.07	87.97	85.24	65.31
Max	96.10	99.32	82.51	83.05	84.82	90.26	100.41	111.64	109.66	118.26	113.58	109.94	65.64
Average	90.76	97.06	82.09	82.18	83.52	85.77	90.06	94.56	94.51	98.50	99.79	94.96	65.48
Sigma	4.64	2.58	0.45	0.62	0.93	3.21	7.37	12.14	10.85	14.13	10.55	10.75	0.14

Drift Calculation

CMRRDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	2.0E+00	-9.9E+00	-9.6E+00	-8.3E+00	-7.3E+00	-5.4E+00	-3.9E+00	-2.4E+00	-217.7E-03	6.4E+00	-1.7E+00	-26.1E+00
12	-	3.2E+00	-13.8E+00	-14.4E+00	-13.4E+00	-13.2E+00	-12.3E+00	-11.5E+00	-11.3E+00	-10.0E+00	-8.1E+00	-10.9E+00	-30.5E+00
13	-	13.6E+00	-2.3E+00	-1.7E+00	35.1E-03	5.5E+00	15.6E+00	26.9E+00	24.9E+00	33.5E+00	28.8E+00	25.2E+00	-19.3E+00
Average	-	6.3E+00	-8.7E+00	-8.6E+00	-7.2E+00	-5.0E+00	-694.1E-03	3.8E+00	3.8E+00	7.7E+00	9.0E+00	4.2E+00	-25.3E+00
Sigma	-	5.2E+00	4.8E+00	5.2E+00	5.6E+00	7.8E+00	11.9E+00	16.6E+00	15.4E+00	18.6E+00	15.2E+00	15.3E+00	4.6E+00

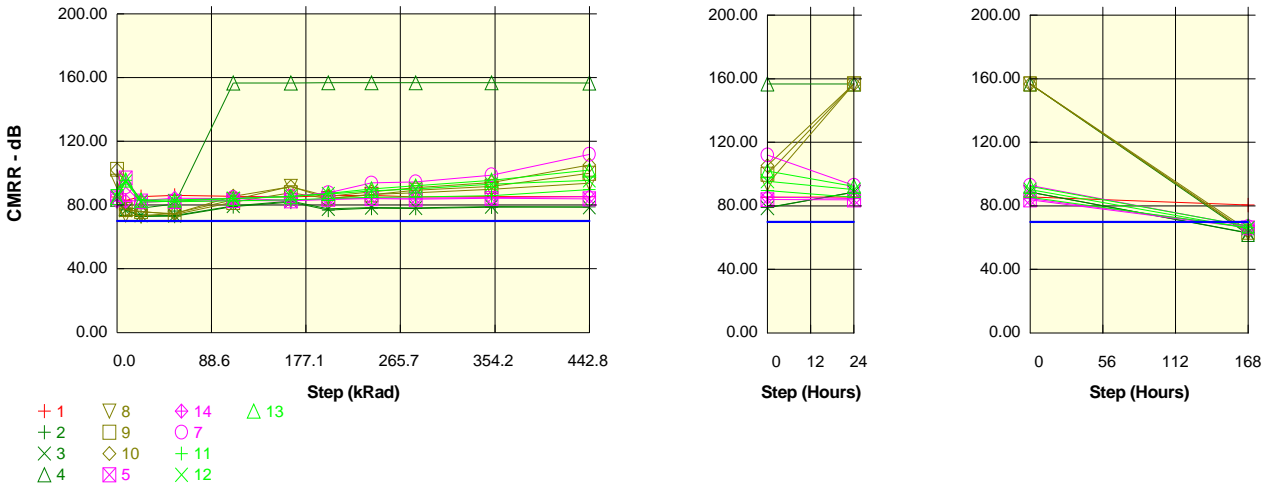
Parameter : Input Voltage Common Mode Rejection Ratio : CMRRDUT3

Test conditions : VCC=30V. VCM=0V to 27.5V. RL=15K

Unit : dB

Spec Limit Min : 70.00

Spec limits are represented in bold lines on the graphic.



Measurements

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	85.14	82.92	85.35	86.05	85.54	85.18	85.99	86.23	85.14	85.33	85.25	85.59	80.44
ON_PROTON samples													
2	82.86	77.19	72.91	73.15	79.10	81.87	76.95	78.07	77.98	78.76	78.83	88.48	62.80
3	84.41	76.75	73.62	73.44	79.42	82.52	77.62	78.42	78.33	79.05	78.68	88.61	63.01
4	83.67	77.84	78.19	80.70	156.73	156.73	156.75	156.75	156.75	156.75	156.73	156.75	62.01
Statistics													
Min	82.86	76.75	72.91	73.15	79.10	81.87	76.95	78.07	77.98	78.76	78.68	88.48	62.01
Max	84.41	77.84	78.19	80.70	156.73	156.73	156.75	156.75	156.75	156.75	156.73	156.75	63.01
Average	83.65	77.26	74.91	75.77	105.09	107.04	103.77	104.41	104.35	104.85	104.75	111.28	62.61
Sigma	0.63	0.45	2.34	3.49	36.52	35.14	37.46	37.01	37.05	36.70	36.76	32.16	0.43

Drift Calculation

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-5.7E+00	-9.9E+00	-9.7E+00	-3.8E+00	-993.0E-03	-5.9E+00	-4.8E+00	-4.9E+00	-4.1E+00	-4.0E+00	5.6E+00	-20.1E+00
3	-	-7.7E+00	-10.8E+00	-11.0E+00	-5.0E+00	-1.9E+00	-6.8E+00	-6.0E+00	-6.1E+00	-5.4E+00	-5.7E+00	4.2E+00	-21.4E+00
4	-	-5.8E+00	-5.5E+00	-3.0E+00	73.1E+00	73.1E+00	73.1E+00	73.1E+00	73.1E+00	73.1E+00	73.1E+00	73.1E+00	-21.7E+00
Average	-	-6.4E+00	-8.7E+00	-7.9E+00	21.4E+00	23.4E+00	20.1E+00	20.8E+00	20.7E+00	21.2E+00	21.1E+00	27.6E+00	-21.0E+00
Sigma	-	902.0E-03	2.3E+00	3.5E+00	36.5E+00	35.1E+00	37.4E+00	37.0E+00	37.0E+00	36.7E+00	36.7E+00	32.1E+00	700.2E-03

Measurements

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	85.14	82.92	85.35	86.05	85.54	85.18	85.99	86.23	85.14	85.33	85.25	85.59	80.44
ON_TID samples													
8	95.00	73.85	73.38	74.83	83.37	91.74	84.11	86.83	87.81	89.86	93.74	156.73	62.85
9	102.51	77.19	75.95	74.07	81.80	87.73	84.12	86.59	89.41	91.72	99.97	156.75	63.42
10	102.13	77.09	75.66	74.56	85.49	91.52	85.48	88.36	91.03	94.30	105.17	156.73	64.68
Statistics													
Min	95.00	73.85	73.38	74.07	81.80	87.73	84.11	86.59	87.81	89.86	93.74	156.73	62.85
Max	102.51	77.19	75.95	74.83	85.49	91.74	85.48	88.36	91.03	94.30	105.17	156.75	64.68
Average	99.88	76.04	75.00	74.49	83.55	90.33	84.57	87.26	89.42	91.96	99.63	156.74	63.65
Sigma	3.46	1.55	1.15	0.31	1.51	1.84	0.64	0.78	1.31	1.82	4.67	0.01	0.77

Drift Calculation

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-21.1E+00	-21.6E+00	-20.2E+00	-11.6E+00	-3.3E+00	-10.9E+00	-8.2E+00	-7.2E+00	-5.1E+00	-1.3E+00	61.7E+00	-32.2E+00
9	-	-25.3E+00	-26.6E+00	-28.4E+00	-20.7E+00	-14.8E+00	-18.4E+00	-15.9E+00	-13.1E+00	-10.8E+00	-2.5E+00	54.2E+00	-39.1E+00
10	-	-25.0E+00	-26.5E+00	-27.6E+00	-16.6E+00	-10.6E+00	-16.6E+00	-13.8E+00	-11.1E+00	-7.8E+00	3.0E+00	54.6E+00	-37.5E+00
Average	-	-23.8E+00	-24.9E+00	-25.4E+00	-16.3E+00	-9.5E+00	-15.3E+00	-12.6E+00	-10.5E+00	-7.9E+00	-250.8E-03	56.9E+00	-36.2E+00
Sigma	-	1.9E+00	2.3E+00	3.7E+00	3.7E+00	4.8E+00	3.2E+00	3.3E+00	2.5E+00	2.3E+00	2.4E+00	3.5E+00	3.0E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02	

Measurements

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	85.14	82.92	85.35	86.05	85.54	85.18	85.99	86.23	85.14	85.33	85.25	85.59	80.44
OFF PROTON samples													
5	84.64	97.13	82.59	82.33	82.86	82.63	83.54	84.00	83.70	84.21	83.86	83.72	66.13
14	82.39	82.46	82.89	84.36	84.08	83.12	83.87	84.54	84.33	84.67	85.47	84.58	66.57
7	84.15	91.33	81.77	82.48	84.57	85.58	87.87	93.94	94.47	98.87	111.88	92.92	66.97
Statistics													
Min	82.39	82.46	81.77	82.33	82.86	82.63	83.54	84.00	83.70	84.21	83.86	83.72	66.13
Max	84.64	97.13	82.89	84.36	84.57	85.58	87.87	93.94	94.47	98.87	111.88	92.92	66.97
Average	83.73	90.31	82.42	83.05	83.84	83.78	85.09	87.49	87.50	89.25	93.74	87.07	66.56
Sigma	0.96	6.03	0.47	0.92	0.72	1.29	1.97	4.56	4.94	6.80	12.85	4.15	0.34

Drift Calculation

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	12.5E+00	-2.1E+00	-2.3E+00	-1.8E+00	-2.0E+00	-1.1E+00	-643.8E-03	-939.0E-03	-427.0E-03	-776.9E-03	-921.6E-03	-18.5E+00
14	-	64.3E-03	495.7E-03	2.0E+00	1.7E+00	729.7E-03	1.5E+00	2.1E+00	1.9E+00	2.3E+00	3.1E+00	2.2E+00	-15.8E+00
7	-	7.2E+00	-2.4E+00	-1.7E+00	420.8E-03	1.4E+00	3.7E+00	9.8E+00	10.3E+00	14.7E+00	27.7E+00	8.8E+00	-17.2E+00
Average	-	6.6E+00	-1.3E+00	-673.7E-03	110.7E-03	49.1E-03	1.4E+00	3.8E+00	3.8E+00	5.5E+00	10.0E+00	3.3E+00	-17.2E+00
Sigma	-	5.1E+00	1.3E+00	1.9E+00	1.4E+00	1.5E+00	2.0E+00	4.4E+00	4.8E+00	6.6E+00	12.6E+00	4.0E+00	1.1E+00

Measurements

CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	85.14	82.92	85.35	86.05	85.54	85.18	85.99	86.23	85.14	85.33	85.25	85.59	80.44
OFF TID samples													
11	89.79	95.63	83.19	82.14	82.61	83.18	84.10	84.81	85.24	85.97	89.61	85.45	66.17
12	85.35	94.81	82.00	82.58	84.16	85.54	87.05	88.99	90.17	93.06	95.53	90.14	65.98
13	84.64	95.72	83.06	83.20	84.11	85.30	87.32	90.26	92.11	95.58	102.02	92.23	67.27
Statistics													
Min	84.64	94.81	82.00	82.14	82.61	83.18	84.10	84.81	85.24	85.97	89.61	85.45	65.98
Max	89.79	95.72	83.19	83.20	84.16	85.54	87.32	90.26	92.11	95.58	102.02	92.23	67.27
Average	86.59	95.39	82.75	82.64	83.63	84.68	86.16	88.02	89.17	91.54	95.72	89.27	66.47
Sigma	2.28	0.41	0.53	0.44	0.72	1.06	1.46	2.33	2.89	4.07	5.07	2.83	0.57

Drift Calculation

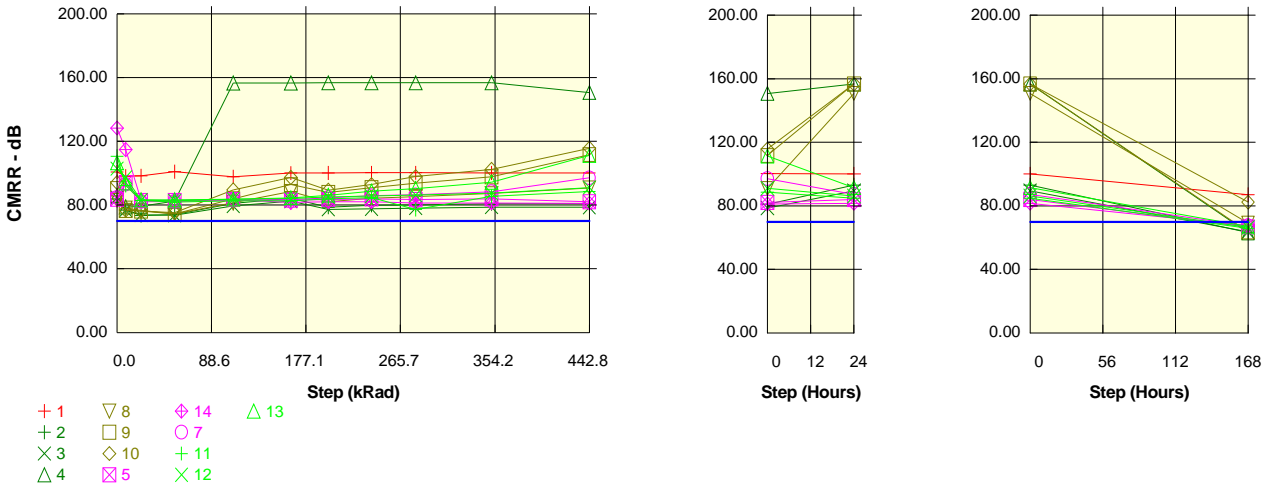
CMRRDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	5.8E+00	-6.6E+00	-7.7E+00	-7.2E+00	-6.6E+00	-5.7E+00	-5.0E+00	-4.6E+00	-3.8E+00	-177.5E-03	-4.3E+00	-23.6E+00
12	-	9.5E+00	-3.3E+00	-2.8E+00	-1.2E+00	193.9E-03	1.7E+00	3.6E+00	4.8E+00	7.7E+00	10.2E+00	4.8E+00	-19.4E+00
13	-	11.1E+00	-1.6E+00	-1.4E+00	-538.7E-03	656.4E-03	2.7E+00	5.6E+00	7.5E+00	10.9E+00	17.4E+00	7.6E+00	-17.4E+00
Average	-	8.8E+00	-3.8E+00	-4.0E+00	-3.0E+00	-1.9E+00	-435.6E-03	1.4E+00	2.6E+00	4.9E+00	9.1E+00	2.7E+00	-20.1E+00
Sigma	-	2.2E+00	2.1E+00	2.7E+00	3.0E+00	3.3E+00	3.7E+00	4.6E+00	5.2E+00	6.3E+00	7.2E+00	5.1E+00	2.6E+00

Parameter : Input Voltage Common Mode Rejection Ratio : CMRRDUT4
 Test conditions : VCC=30V. VCM=0V to 27.5V. RL=15K

Unit : dB

Spec Limit Min : 70.00

Spec limits are represented in bold lines on the graphic.



Measurements

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	100.87	98.24	98.38	101.10	97.83	100.10	100.19	100.34	100.37	100.24	100.24	100.04	86.97
ON_PROTON samples													
2	83.94	76.77	73.42	74.18	81.04	84.32	78.68	79.84	80.07	80.78	80.88	93.10	63.33
3	84.73	76.84	73.85	73.54	79.39	82.40	77.33	77.71	78.15	78.73	78.66	89.40	63.64
4	86.06	78.80	79.27	82.38	156.73	156.73	156.75	156.75	156.75	156.75	156.75	150.72	156.75
Statistics													
Min	83.94	76.77	73.42	73.54	79.39	82.40	77.33	77.71	78.15	78.73	78.66	89.40	63.08
Max	86.06	78.80	79.27	82.38	156.73	156.73	156.75	156.75	156.75	156.75	150.72	156.75	63.64
Average	84.91	77.47	75.52	76.70	105.72	107.82	104.25	104.77	104.99	105.42	103.42	113.09	63.35
Sigma	0.87	0.94	2.66	4.03	36.08	34.60	37.13	36.77	36.61	36.31	33.46	30.91	0.23

Drift Calculation

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-7.2E+00	-10.5E+00	-9.8E+00	-2.9E+00	377.9E-03	-5.3E+00	-4.1E+00	-3.9E+00	-3.2E+00	-3.1E+00	9.2E+00	-20.6E+00
3	-	-7.9E+00	-10.9E+00	-11.2E+00	-5.3E+00	-2.3E+00	-7.4E+00	-7.0E+00	-6.6E+00	-6.0E+00	-6.1E+00	4.7E+00	-21.1E+00
4	-	-7.3E+00	-6.8E+00	-3.7E+00	70.7E+00	70.7E+00	70.7E+00	70.7E+00	70.7E+00	70.7E+00	64.7E+00	70.7E+00	-23.0E+00
Average	-	-7.4E+00	-9.4E+00	-8.2E+00	20.8E+00	22.9E+00	19.3E+00	19.9E+00	20.1E+00	20.5E+00	18.5E+00	28.2E+00	-21.6E+00
Sigma	-	322.7E-03	1.9E+00	3.3E+00	35.3E+00	33.8E+00	36.3E+00	36.0E+00	35.8E+00	35.5E+00	32.7E+00	30.1E+00	1.0E+00

Measurements

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	100.87	98.24	98.38	101.10	97.83	100.10	100.19	100.34	100.37	100.24	100.24	100.04	86.97
ON_TID samples													
8	82.98	78.17	76.64	74.48	81.53	88.62	82.18	84.24	85.33	87.26	90.79	150.72	69.01
9	90.31	76.71	76.28	74.44	83.89	92.90	87.91	90.97	93.84	97.87	111.69	156.75	63.68
10	94.20	76.94	76.18	75.26	89.54	97.38	89.48	92.90	97.93	102.44	115.76	156.73	82.28
Statistics													
Min	82.98	76.71	76.18	74.44	81.53	88.62	82.18	84.24	85.33	87.26	90.79	150.72	63.68
Max	94.20	78.17	76.64	75.26	89.54	97.38	89.48	92.90	97.93	102.44	115.76	156.75	82.28
Average	89.17	77.27	76.37	74.73	84.99	92.97	86.52	89.37	92.36	95.86	106.08	154.74	71.66
Sigma	4.65	0.64	0.20	0.38	3.36	3.57	3.14	3.71	5.25	6.36	10.94	2.84	7.82

Drift Calculation

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-4.8E+00	-6.3E+00	-8.5E+00	-1.5E+00	5.6E+00	-802.9E-03	1.3E+00	2.3E+00	4.3E+00	7.8E+00	67.7E+00	-14.0E+00
9	-	-13.6E+00	-14.0E+00	-15.9E+00	-6.4E+00	2.6E+00	-2.4E+00	662.2E-03	3.5E+00	7.6E+00	21.4E+00	66.4E+00	-26.6E+00
10	-	-17.3E+00	-18.0E+00	-18.9E+00	-4.7E+00	3.2E+00	-4.7E+00	-1.3E+00	3.7E+00	8.2E+00	21.6E+00	62.5E+00	-11.9E+00
Average	-	-11.9E+00	-12.8E+00	-14.4E+00	-4.2E+00	3.8E+00	-2.6E+00	203.6E-03	3.2E+00	6.7E+00	16.9E+00	65.6E+00	-17.5E+00
Sigma	-	5.2E+00	4.8E+00	4.4E+00	2.1E+00	1.3E+00	1.6E+00	1.1E+00	609.4E-03	1.7E+00	6.4E+00	2.2E+00	6.5E+00

Hirex Engineering	Total Dose Radiation Test Report								Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02

Measurements

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	100.87	98.24	98.38	101.10	97.83	100.10	100.19	100.34	100.37	100.24	100.24	100.04	86.97
OFF PROTON samples													
5	83.75	94.17	82.89	82.95	83.62	83.16	83.59	83.87	83.60	83.90	82.13	83.87	66.68
14	128.45	114.88	83.07	82.89	83.27	81.57	82.08	82.24	81.40	81.44	81.15	81.56	67.44
7	84.76	92.97	82.17	82.35	82.98	83.61	84.58	85.92	86.47	88.24	97.08	87.15	67.26
Statistics													
Min	83.75	92.97	82.17	82.35	82.98	81.57	82.08	82.24	81.40	81.44	81.15	81.56	66.68
Max	128.45	114.88	83.07	82.95	83.62	83.61	84.58	85.92	86.47	88.24	97.08	87.15	67.44
Average	98.98	100.67	82.71	82.73	83.29	82.78	83.41	84.01	83.82	84.53	86.79	84.19	67.13
Sigma	20.84	10.06	0.39	0.27	0.26	0.88	1.03	1.51	2.07	2.81	7.29	2.29	0.33

Drift Calculation

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
4													
OFF PROTON samples													
5	-	10.4E+00	-858.5E-03	-803.9E-03	-131.5E-03	-589.3E-03	-163.6E-03	123.4E-03	-149.9E-03	147.0E-03	-1.6E+00	124.6E-03	-17.1E+00
14	-	-13.6E+00	-45.4E+00	-45.6E+00	-45.2E+00	-46.9E+00	-46.4E+00	-46.2E+00	-47.0E+00	-47.0E+00	-47.3E+00	-46.9E+00	-61.0E+00
7	-	8.2E+00	-2.6E+00	-2.4E+00	-1.8E+00	-1.1E+00	-181.6E-03	1.2E+00	1.7E+00	3.5E+00	12.3E+00	2.4E+00	-17.5E+00
Average	-	1.7E+00	-16.3E+00	-16.3E+00	-15.7E+00	-16.2E+00	-15.6E+00	-15.0E+00	-15.2E+00	-14.5E+00	-12.2E+00	-14.8E+00	-31.9E+00
Sigma	-	10.8E+00	20.6E+00	20.7E+00	20.9E+00	21.7E+00	21.8E+00	22.1E+00	22.6E+00	23.1E+00	25.5E+00	22.7E+00	20.6E+00

Measurements

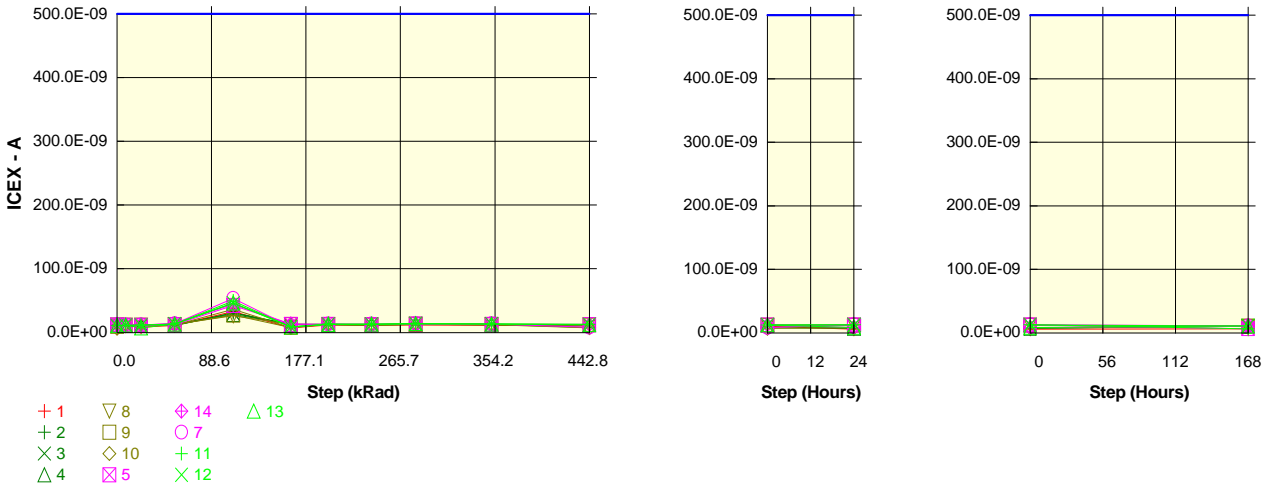
CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	100.87	98.24	98.38	101.10	97.83	100.10	100.19	100.34	100.37	100.24	100.24	100.04	86.97
OFF TID samples													
11	110.64	92.28	83.03	81.95	82.72	82.78	83.90	84.78	77.30	85.56	88.58	84.75	65.86
12	102.87	97.52	83.06	82.67	83.67	84.08	85.21	85.61	86.35	87.53	91.08	86.26	66.40
13	106.67	93.91	83.38	83.30	83.81	84.61	86.25	88.79	90.37	94.35	111.31	91.48	67.14
Statistics													
Min	102.87	92.28	83.03	81.95	82.72	82.78	83.90	84.78	77.30	85.56	88.58	84.75	65.86
Max	110.64	97.52	83.38	83.30	83.81	84.61	86.25	88.79	90.37	94.35	111.31	91.48	67.14
Average	106.73	94.57	83.16	82.64	83.40	83.82	85.12	86.39	84.67	89.15	96.99	87.50	66.46
Sigma	3.17	2.19	0.16	0.55	0.48	0.77	0.96	1.73	5.47	3.76	10.18	2.88	0.53

Drift Calculation

CMRRDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-18.4E+00	-27.6E+00	-28.7E+00	-27.9E+00	-27.9E+00	-26.7E+00	-25.9E+00	-33.3E+00	-25.1E+00	-22.1E+00	-25.9E+00	-44.8E+00
12	-	-5.4E+00	-19.8E+00	-20.2E+00	-19.2E+00	-18.8E+00	-17.7E+00	-17.3E+00	-16.5E+00	-15.3E+00	-11.8E+00	-16.6E+00	-36.5E+00
13	-	-12.8E+00	-23.3E+00	-23.4E+00	-22.9E+00	-22.1E+00	-20.4E+00	-17.9E+00	-16.3E+00	-12.3E+00	4.6E+00	-15.2E+00	-39.5E+00
Average	-	-12.2E+00	-23.6E+00	-24.1E+00	-23.3E+00	-22.9E+00	-21.6E+00	-20.3E+00	-22.1E+00	-17.6E+00	-9.7E+00	-19.2E+00	-40.3E+00
Sigma	-	5.3E+00	3.2E+00	3.5E+00	3.6E+00	3.7E+00	3.8E+00	3.9E+00	8.0E+00	5.4E+00	11.0E+00	4.7E+00	3.4E+00

Parameter : Output Leakage Current : ICXDUT1
 Test conditions : +IN>1V. -IN=0V. VOUT=30V

Unit : A
 Spec Limit Max : 500.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.1E-09	11.0E-09	8.3E-09	11.5E-09	33.1E-09	7.2E-09	12.1E-09	11.2E-09	12.2E-09	11.4E-09	10.4E-09	6.1E-09	6.3E-09
ON_PROTON samples													
2	12.3E-09	11.4E-09	11.6E-09	11.0E-09	31.1E-09	12.8E-09	12.8E-09	12.3E-09	13.5E-09	12.7E-09	7.9E-09	7.7E-09	10.9E-09
3	12.0E-09	11.4E-09	11.6E-09	11.3E-09	30.1E-09	12.7E-09	12.7E-09	12.3E-09	13.4E-09	12.7E-09	12.1E-09	12.2E-09	10.6E-09
4	12.0E-09	11.4E-09	11.6E-09	12.5E-09	28.3E-09	12.6E-09	12.3E-09	12.2E-09	13.0E-09	12.5E-09	12.1E-09	7.6E-09	10.8E-09
Statistics													
Min	12.0E-09	11.4E-09	11.6E-09	11.0E-09	28.3E-09	12.6E-09	12.3E-09	12.2E-09	13.0E-09	12.5E-09	7.9E-09	7.6E-09	10.6E-09
Max	12.3E-09	11.4E-09	11.6E-09	12.5E-09	31.1E-09	12.8E-09	12.8E-09	12.3E-09	13.5E-09	12.7E-09	12.1E-09	12.2E-09	10.9E-09
Average	12.1E-09	11.4E-09	11.6E-09	11.6E-09	29.8E-09	12.7E-09	12.6E-09	12.2E-09	13.3E-09	12.6E-09	10.7E-09	9.2E-09	10.8E-09
Sigma	161.4E-12	22.5E-12	27.4E-12	669.0E-12	1.2E-09	86.4E-12	221.1E-12	53.0E-12	240.9E-12	86.4E-12	2.0E-09	2.1E-09	137.2E-12

Drift Calculation

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-880.0E-12	-734.0E-12	-1.4E-09	18.8E-09	506.0E-12	498.0E-12	-32.0E-12	1.2E-09	388.0E-12	-4.5E-09	-4.6E-09	-1.5E-09
3	-	-558.0E-12	-358.0E-12	-642.0E-12	18.1E-09	756.0E-12	670.0E-12	288.0E-12	1.4E-09	686.0E-12	132.0E-12	180.0E-12	-1.4E-09
4	-	-580.0E-12	-404.0E-12	570.0E-12	16.3E-09	648.0E-12	322.0E-12	202.0E-12	992.0E-12	542.0E-12	110.0E-12	-4.3E-09	-1.1E-09
Average	-	-672.7E-12	-498.7E-12	-474.7E-12	17.7E-09	636.7E-12	496.7E-12	152.7E-12	1.2E-09	538.7E-12	-1.4E-09	-2.9E-09	-1.3E-09
Sigma	-	146.9E-12	167.5E-12	793.5E-12	1.1E-09	102.4E-12	142.1E-12	135.2E-12	184.4E-12	121.7E-12	2.2E-09	2.2E-09	146.6E-12

Measurements

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.1E-09	11.0E-09	8.3E-09	11.5E-09	33.1E-09	7.2E-09	12.1E-09	11.2E-09	12.2E-09	11.4E-09	10.4E-09	6.1E-09	6.3E-09
ON_TID samples													
8	11.9E-09	11.4E-09	11.5E-09	12.5E-09	26.5E-09	12.5E-09	12.3E-09	12.1E-09	13.0E-09	12.4E-09	12.0E-09	12.0E-09	10.8E-09
9	9.9E-09	11.4E-09	11.5E-09	12.3E-09	27.4E-09	8.0E-09	12.5E-09	12.0E-09	13.0E-09	12.4E-09	12.0E-09	12.1E-09	10.8E-09
10	6.7E-09	11.3E-09	11.5E-09	12.2E-09	36.4E-09	8.0E-09	12.5E-09	12.1E-09	13.0E-09	12.4E-09	7.5E-09	7.7E-09	10.5E-09
Statistics													
Min	6.7E-09	11.3E-09	11.5E-09	12.2E-09	26.5E-09	8.0E-09	12.3E-09	12.0E-09	13.0E-09	12.4E-09	7.5E-09	7.7E-09	10.5E-09
Max	11.9E-09	11.4E-09	11.5E-09	12.5E-09	36.4E-09	12.5E-09	12.5E-09	12.1E-09	13.0E-09	12.4E-09	12.0E-09	12.1E-09	10.8E-09
Average	9.5E-09	11.4E-09	11.5E-09	12.3E-09	30.1E-09	9.5E-09	12.5E-09	12.1E-09	13.0E-09	12.4E-09	10.5E-09	10.6E-09	10.7E-09
Sigma	2.1E-09	11.6E-12	8.4E-12	138.5E-12	4.5E-09	2.1E-09	105.2E-12	41.7E-12	34.3E-12	11.8E-12	2.1E-09	2.0E-09	151.8E-12

Drift Calculation

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-584.0E-12	-450.0E-12	598.0E-12	14.5E-09	606.0E-12	372.0E-12	136.0E-12	1.1E-09	474.0E-12	52.0E-12	66.0E-12	-1.1E-09
9	-	1.5E-09	1.7E-09	2.4E-09	17.5E-09	-1.8E-09	2.7E-09	2.2E-09	3.1E-09	2.6E-09	2.1E-09	2.3E-09	978.0E-12
10	-	4.6E-09	4.8E-09	5.5E-09	29.7E-09	1.3E-09	5.8E-09	5.4E-09	6.3E-09	5.7E-09	748.0E-12	994.0E-12	3.8E-09
Average	-	1.8E-09	2.0E-09	2.8E-09	20.6E-09	12.0E-12	2.9E-09	2.6E-09	3.5E-09	2.9E-09	979.3E-12	1.1E-09	1.2E-09
Sigma	-	2.1E-09	2.1E-09	2.0E-09	6.6E-09	1.3E-09	2.2E-09	2.2E-09	2.1E-09	2.1E-09	867.2E-12	898.4E-12	2.0E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH			Intersil			Issue:	02			

Measurements

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.1E-09	11.0E-09	8.3E-09	11.5E-09	33.1E-09	7.2E-09	12.1E-09	11.2E-09	12.2E-09	11.4E-09	10.4E-09	6.1E-09	6.3E-09
OFF PROTON samples													
5	11.8E-09	11.6E-09	11.6E-09	12.5E-09	42.5E-09	13.0E-09	12.9E-09	12.6E-09	13.5E-09	12.9E-09	12.4E-09	12.5E-09	6.6E-09
14	11.9E-09	11.8E-09	11.8E-09	14.1E-09	44.4E-09	13.2E-09	12.9E-09	12.7E-09	13.6E-09	13.0E-09	12.6E-09	8.5E-09	11.1E-09
7	11.7E-09	11.6E-09	11.8E-09	13.9E-09	53.6E-09	9.0E-09	13.3E-09	13.1E-09	14.0E-09	13.4E-09	8.3E-09	13.1E-09	11.1E-09
Statistics													
Min	11.7E-09	11.6E-09	11.6E-09	12.5E-09	42.5E-09	9.0E-09	12.9E-09	12.6E-09	13.5E-09	12.9E-09	8.3E-09	8.5E-09	6.6E-09
Max	11.9E-09	11.8E-09	11.8E-09	14.1E-09	53.6E-09	13.2E-09	13.3E-09	13.1E-09	14.0E-09	13.4E-09	12.6E-09	13.1E-09	11.1E-09
Average	11.8E-09	11.7E-09	11.7E-09	13.5E-09	46.8E-09	11.7E-09	13.0E-09	12.8E-09	13.7E-09	13.1E-09	11.1E-09	11.4E-09	9.6E-09
Sigma	91.1E-12	100.4E-12	103.8E-12	722.3E-12	4.8E-09	1.9E-09	185.1E-12	208.6E-12	231.2E-12	208.2E-12	2.0E-09	2.1E-09	2.1E-09

Drift Calculation

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-188.0E-12	-196.0E-12	702.0E-12	30.7E-09	1.2E-09	1.1E-09	788.0E-12	1.7E-09	1.1E-09	568.0E-12	738.0E-12	-5.2E-09
14	-	-38.0E-12	-30.0E-12	2.2E-09	32.5E-09	1.3E-09	1.0E-09	798.0E-12	1.7E-09	1.2E-09	750.0E-12	-3.4E-09	-772.0E-12
7	-	-12.0E-12	130.0E-12	2.3E-09	41.9E-09	-2.6E-09	1.6E-09	1.4E-09	2.4E-09	1.7E-09	-3.3E-09	1.4E-09	-536.0E-12
Average	-	-79.3E-12	-32.0E-12	1.7E-09	35.1E-09	-62.0E-12	1.2E-09	998.7E-12	1.9E-09	1.3E-09	-665.3E-12	-423.3E-12	-2.2E-09
Sigma	-	77.6E-12	133.1E-12	734.9E-12	4.9E-09	1.8E-09	273.6E-12	290.9E-12	316.2E-12	285.5E-12	1.9E-09	2.1E-09	2.2E-09

Measurements

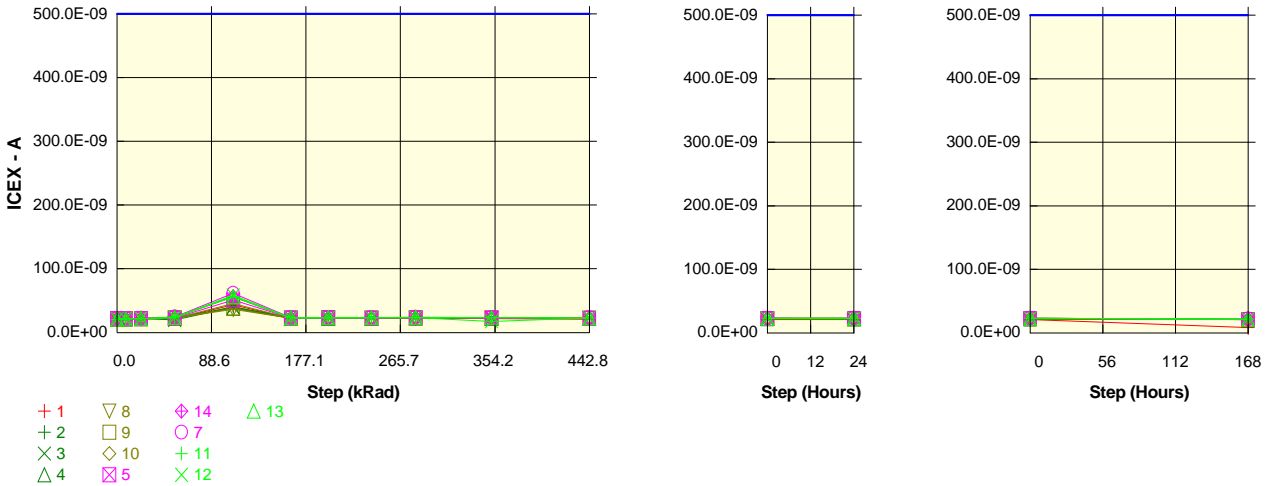
ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.1E-09	11.0E-09	8.3E-09	11.5E-09	33.1E-09	7.2E-09	12.1E-09	11.2E-09	12.2E-09	11.4E-09	10.4E-09	6.1E-09	6.3E-09
OFF TID samples													
11	10.8E-09	11.5E-09	11.7E-09	13.6E-09	49.7E-09	8.9E-09	13.1E-09	13.0E-09	13.9E-09	13.3E-09	12.6E-09	13.0E-09	6.7E-09
12	10.8E-09	11.4E-09	11.6E-09	13.2E-09	45.9E-09	8.5E-09	12.9E-09	12.8E-09	13.7E-09	13.2E-09	12.5E-09	12.9E-09	11.0E-09
13	11.4E-09	11.5E-09	7.1E-09	13.2E-09	46.5E-09	8.8E-09	13.1E-09	13.2E-09	14.2E-09	13.4E-09	12.6E-09	8.7E-09	11.1E-09
Statistics													
Min	10.8E-09	11.4E-09	7.1E-09	13.2E-09	45.9E-09	8.5E-09	12.9E-09	12.8E-09	13.7E-09	13.2E-09	12.5E-09	8.7E-09	6.7E-09
Max	11.4E-09	11.5E-09	11.7E-09	13.6E-09	49.7E-09	8.9E-09	13.1E-09	13.2E-09	14.2E-09	13.4E-09	12.6E-09	13.0E-09	11.1E-09
Average	11.0E-09	11.5E-09	10.1E-09	13.3E-09	47.4E-09	8.7E-09	13.0E-09	13.0E-09	13.9E-09	13.3E-09	12.6E-09	11.5E-09	9.6E-09
Sigma	272.6E-12	36.8E-12	2.1E-09	211.4E-12	1.7E-09	137.0E-12	107.8E-12	134.2E-12	209.4E-12	74.4E-12	29.0E-12	2.0E-09	2.1E-09

Drift Calculation

ICEXDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	652.0E-12	832.0E-12	2.8E-09	38.9E-09	-2.0E-09	2.3E-09	2.2E-09	3.0E-09	2.4E-09	1.7E-09	2.2E-09	-4.2E-09
12	-	652.0E-12	824.0E-12	2.4E-09	35.1E-09	-2.2E-09	2.1E-09	2.1E-09	2.9E-09	2.4E-09	1.8E-09	2.1E-09	246.0E-12
13	-	114.0E-12	-4.3E-09	1.8E-09	35.1E-09	-2.6E-09	1.7E-09	1.8E-09	2.8E-09	2.0E-09	1.2E-09	-2.7E-09	-248.0E-12
Average	-	472.7E-12	-865.3E-12	2.3E-09	36.4E-09	-2.3E-09	2.0E-09	2.0E-09	2.9E-09	2.3E-09	1.6E-09	532.7E-12	-1.4E-09
Sigma	-	253.6E-12	2.4E-09	411.2E-12	1.8E-09	255.0E-12	241.2E-12	164.9E-12	102.6E-12	208.0E-12	248.8E-12	2.3E-09	2.0E-09

Hirex Engineering	Total Dose Radiation Test Report		Ref.:	HRX/TID/1015
	IS-139ASRH	Intersil	Issue:	02

Parameter : Output Leakage Current : ICXDUT2
 Test conditions : +IN>1V. -IN=0V. VOUT=30V
 Unit : A
 Spec Limit Max : 500.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

ICXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	22.1E-09	21.0E-09	23.7E-09	21.8E-09	43.3E-09	22.3E-09	22.5E-09	21.7E-09	22.0E-09	21.8E-09	21.1E-09	20.6E-09	8.4E-09
ON_PROTON samples													
2	22.5E-09	21.4E-09	21.9E-09	21.9E-09	40.4E-09	23.1E-09	23.3E-09	22.8E-09	23.4E-09	23.0E-09	22.9E-09	22.2E-09	21.1E-09
3	22.3E-09	21.4E-09	21.9E-09	19.9E-09	39.7E-09	22.8E-09	23.0E-09	22.7E-09	23.3E-09	22.9E-09	22.7E-09	22.3E-09	21.2E-09
4	21.9E-09	21.4E-09	21.8E-09	22.9E-09	38.4E-09	22.4E-09	22.2E-09	22.4E-09	22.6E-09	22.6E-09	22.5E-09	22.1E-09	21.2E-09
Statistics													
Min	21.9E-09	21.4E-09	21.8E-09	19.9E-09	38.4E-09	22.4E-09	22.2E-09	22.4E-09	22.6E-09	22.6E-09	22.5E-09	22.1E-09	21.1E-09
Max	22.5E-09	21.4E-09	21.9E-09	22.9E-09	40.4E-09	23.1E-09	23.3E-09	22.8E-09	23.4E-09	23.0E-09	22.9E-09	22.3E-09	21.2E-09
Average	22.2E-09	21.4E-09	21.9E-09	21.6E-09	39.5E-09	22.8E-09	22.8E-09	22.6E-09	23.1E-09	22.8E-09	22.7E-09	22.2E-09	21.2E-09
Sigma	247.3E-12	19.6E-12	50.0E-12	1.3E-09	841.6E-12	269.7E-12	448.1E-12	178.1E-12	345.5E-12	183.6E-12	159.1E-12	76.8E-12	45.5E-12

Drift Calculation

ICXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-1.1E-09	-564.0E-12	-570.0E-12	17.9E-09	638.0E-12	802.0E-12	302.0E-12	934.0E-12	532.0E-12	444.0E-12	-294.0E-12	-1.4E-09
3	-	-914.0E-12	-408.0E-12	-2.4E-09	17.3E-09	492.0E-12	740.0E-12	374.0E-12	956.0E-12	584.0E-12	442.0E-12	-42.0E-12	-1.1E-09
4	-	-514.0E-12	-86.0E-12	1.1E-09	16.5E-09	564.0E-12	346.0E-12	474.0E-12	728.0E-12	686.0E-12	642.0E-12	196.0E-12	-682.0E-12
Average	-	-826.7E-12	-352.7E-12	-638.0E-12	17.2E-09	564.7E-12	629.3E-12	383.3E-12	872.7E-12	600.7E-12	509.3E-12	-46.7E-12	-1.0E-09
Sigma	-	228.2E-12	199.0E-12	1.4E-09	596.0E-12	59.6E-12	201.9E-12	70.5E-12	102.7E-12	64.0E-12	93.8E-12	200.1E-12	278.3E-12

Measurements

ICXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	22.1E-09	21.0E-09	23.7E-09	21.8E-09	43.3E-09	22.3E-09	22.5E-09	21.7E-09	22.0E-09	21.8E-09	21.1E-09	20.6E-09	8.4E-09
ON_TID samples													
8	21.7E-09	21.2E-09	21.7E-09	22.9E-09	36.5E-09	22.3E-09	22.5E-09	22.2E-09	22.7E-09	22.4E-09	22.3E-09	22.0E-09	21.1E-09
9	21.1E-09	21.3E-09	21.7E-09	22.6E-09	38.0E-09	22.3E-09	22.8E-09	22.4E-09	22.6E-09	22.4E-09	22.4E-09	22.1E-09	21.2E-09
10	21.5E-09	21.2E-09	21.7E-09	22.5E-09	45.5E-09	22.3E-09	22.8E-09	22.3E-09	22.6E-09	22.4E-09	22.4E-09	22.1E-09	21.2E-09
Statistics													
Min	21.1E-09	21.2E-09	21.7E-09	22.5E-09	36.5E-09	22.3E-09	22.5E-09	22.2E-09	22.6E-09	22.4E-09	22.3E-09	22.0E-09	21.1E-09
Max	21.7E-09	21.3E-09	21.7E-09	22.9E-09	45.5E-09	22.3E-09	22.8E-09	22.4E-09	22.7E-09	22.4E-09	22.4E-09	22.1E-09	21.2E-09
Average	21.4E-09	21.2E-09	21.7E-09	22.7E-09	40.0E-09	22.3E-09	22.7E-09	22.3E-09	22.6E-09	22.4E-09	22.4E-09	22.1E-09	21.2E-09
Sigma	270.9E-12	18.8E-12	19.7E-12	150.3E-12	3.9E-09	4.1E-12	122.6E-12	58.5E-12	47.8E-12	15.5E-12	24.6E-12	34.2E-12	29.4E-12

Drift Calculation

ICXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-498.0E-12	-36.0E-12	1.2E-09	14.8E-09	592.0E-12	820.0E-12	522.0E-12	1.0E-09	724.0E-12	620.0E-12	304.0E-12	-570.0E-12
9	-	194.0E-12	630.0E-12	1.6E-09	16.9E-09	1.2E-09	1.7E-09	1.3E-09	1.5E-09	1.3E-09	1.3E-09	1.0E-09	134.0E-12
10	-	-286.0E-12	204.0E-12	1.0E-09	24.0E-09	788.0E-12	1.3E-09	810.0E-12	1.1E-09	898.0E-12	866.0E-12	552.0E-12	-312.0E-12
Average	-	-196.7E-12	266.0E-12	1.3E-09	18.5E-09	876.0E-12	1.3E-09	880.0E-12	1.2E-09	984.7E-12	934.0E-12	629.3E-12	-249.3E-12
Sigma	-	289.5E-12	275.4E-12	222.2E-12	3.9E-09	274.9E-12	369.1E-12	324.7E-12	235.2E-12	255.7E-12	288.2E-12	302.2E-12	290.8E-12

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

ICEXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	22.1E-09	21.0E-09	23.7E-09	21.8E-09	43.3E-09	22.3E-09	22.5E-09	21.7E-09	22.0E-09	21.8E-09	21.1E-09	20.6E-09	8.4E-09
OFF PROTON samples													
5	21.8E-09	21.4E-09	21.9E-09	23.0E-09	51.3E-09	23.0E-09	23.2E-09	22.9E-09	23.4E-09	23.1E-09	22.8E-09	22.8E-09	21.5E-09
14	21.8E-09	21.6E-09	21.8E-09	24.3E-09	56.2E-09	23.0E-09	23.1E-09	22.9E-09	23.4E-09	23.2E-09	22.8E-09	22.9E-09	21.6E-09
7	21.6E-09	21.4E-09	22.0E-09	24.3E-09	61.4E-09	23.3E-09	23.5E-09	23.3E-09	23.8E-09	23.5E-09	23.2E-09	23.2E-09	21.6E-09
Statistics													
Min	21.6E-09	21.4E-09	21.8E-09	23.0E-09	51.3E-09	23.0E-09	23.1E-09	22.9E-09	23.4E-09	23.1E-09	22.8E-09	22.8E-09	21.5E-09
Max	21.8E-09	21.6E-09	22.0E-09	24.3E-09	61.4E-09	23.3E-09	23.5E-09	23.3E-09	23.8E-09	23.5E-09	23.2E-09	23.2E-09	21.6E-09
Average	21.7E-09	21.5E-09	21.9E-09	23.9E-09	56.3E-09	23.1E-09	23.3E-09	23.0E-09	23.5E-09	23.2E-09	22.9E-09	23.0E-09	21.5E-09
Sigma	94.4E-12	69.1E-12	72.2E-12	603.6E-12	4.1E-09	123.1E-12	173.2E-12	174.9E-12	216.9E-12	178.3E-12	194.5E-12	181.4E-12	55.9E-12

Drift Calculation

ICEXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-386.0E-12	156.0E-12	1.2E-09	29.5E-09	1.2E-09	1.5E-09	1.1E-09	1.6E-09	1.3E-09	994.0E-12	1.0E-09	-316.0E-12
14	-	-232.0E-12	30.0E-12	2.5E-09	34.4E-09	1.2E-09	1.3E-09	1.1E-09	1.6E-09	1.4E-09	1.0E-09	1.2E-09	-226.0E-12
7	-	-138.0E-12	410.0E-12	2.7E-09	39.8E-09	1.7E-09	1.9E-09	1.7E-09	2.3E-09	1.9E-09	1.6E-09	1.6E-09	8.0E-12
Average	-	-252.0E-12	198.7E-12	2.1E-09	34.6E-09	1.4E-09	1.6E-09	1.3E-09	1.8E-09	1.5E-09	1.2E-09	1.3E-09	-178.0E-12
Sigma	-	102.2E-12	158.0E-12	648.2E-12	4.2E-09	217.3E-12	265.3E-12	269.2E-12	311.3E-12	270.0E-12	288.5E-12	270.7E-12	136.6E-12

Measurements

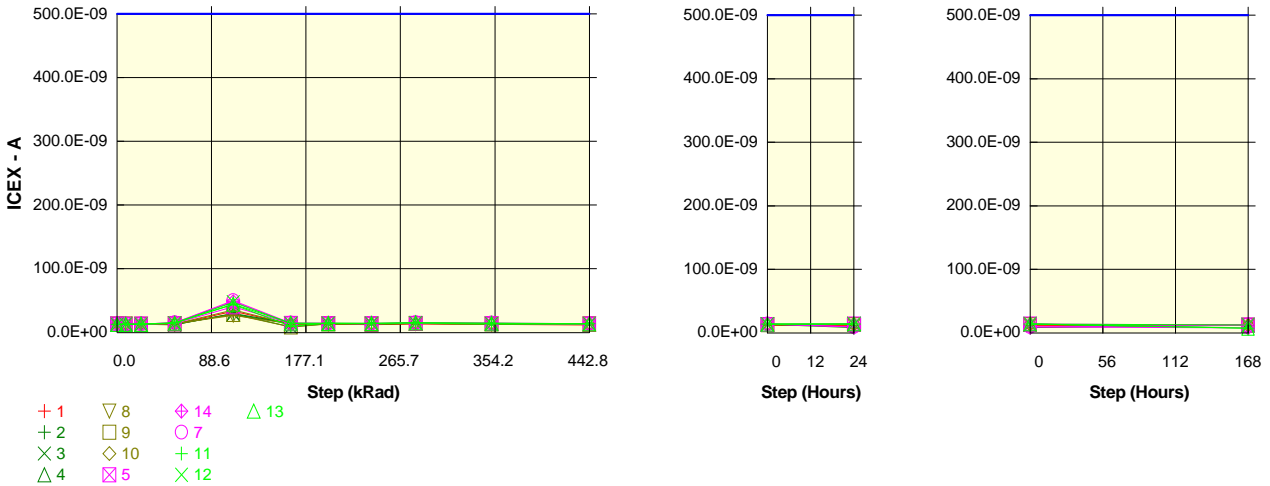
ICEXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	22.1E-09	21.0E-09	23.7E-09	21.8E-09	43.3E-09	22.3E-09	22.5E-09	21.7E-09	22.0E-09	21.8E-09	21.1E-09	20.6E-09	8.4E-09
OFF TID samples													
11	21.0E-09	21.3E-09	21.9E-09	24.1E-09	56.5E-09	23.2E-09	23.4E-09	23.2E-09	23.6E-09	23.2E-09	23.1E-09	23.1E-09	21.5E-09
12	21.4E-09	21.2E-09	21.8E-09	23.5E-09	58.4E-09	22.6E-09	23.0E-09	23.0E-09	23.4E-09	17.6E-09	22.8E-09	22.9E-09	21.5E-09
13	21.4E-09	21.2E-09	21.8E-09	23.5E-09	56.0E-09	22.9E-09	23.2E-09	23.3E-09	23.8E-09	23.3E-09	23.1E-09	23.1E-09	21.5E-09
Statistics													
Min	21.0E-09	21.2E-09	21.8E-09	23.5E-09	56.0E-09	22.6E-09	23.0E-09	23.0E-09	23.4E-09	17.6E-09	22.8E-09	22.9E-09	21.5E-09
Max	21.4E-09	21.3E-09	21.9E-09	24.1E-09	58.4E-09	23.2E-09	23.4E-09	23.3E-09	23.8E-09	23.3E-09	23.1E-09	23.1E-09	21.5E-09
Average	21.2E-09	21.2E-09	21.8E-09	23.7E-09	57.0E-09	22.9E-09	23.2E-09	23.2E-09	23.6E-09	21.4E-09	23.0E-09	23.0E-09	21.5E-09
Sigma	186.0E-12	35.3E-12	28.9E-12	265.7E-12	1.0E-09	247.6E-12	151.3E-12	132.5E-12	170.8E-12	2.7E-09	132.4E-12	116.0E-12	22.5E-12

Drift Calculation

ICEXDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	302.0E-12	890.0E-12	3.1E-09	35.5E-09	2.2E-09	2.4E-09	2.2E-09	2.6E-09	2.2E-09	2.1E-09	2.1E-09	492.0E-12
12	-	-166.0E-12	438.0E-12	2.2E-09	37.0E-09	1.2E-09	1.6E-09	1.6E-09	2.0E-09	-3.8E-09	1.5E-09	1.5E-09	128.0E-12
13	-	-140.0E-12	458.0E-12	2.1E-09	34.7E-09	1.5E-09	1.8E-09	1.9E-09	2.4E-09	1.9E-09	1.7E-09	1.7E-09	140.0E-12
Average	-	-1.3E-12	595.3E-12	2.4E-09	35.7E-09	1.7E-09	2.0E-09	1.9E-09	2.4E-09	120.0E-12	1.8E-09	1.8E-09	253.3E-12
Sigma	-	214.8E-12	208.5E-12	451.6E-12	968.1E-12	413.6E-12	320.9E-12	249.1E-12	250.4E-12	2.7E-09	266.7E-12	266.6E-12	168.8E-12

Parameter : Output Leakage Current : ICXDUT3
 Test conditions : +IN>1V. -IN=0V. VOUT=30V

Unit : A
 Spec Limit Max : 500.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

ICXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	12.9E-09	14.4E-09	14.4E-09	12.8E-09	33.7E-09	13.6E-09	13.4E-09	12.5E-09	13.5E-09	12.9E-09	11.9E-09	11.6E-09	12.1E-09
ON_PROTON samples													
2	13.7E-09	14.0E-09	13.0E-09	12.4E-09	29.9E-09	14.2E-09	14.0E-09	13.5E-09	14.7E-09	13.9E-09	13.5E-09	8.4E-09	12.2E-09
3	13.5E-09	13.7E-09	13.0E-09	12.4E-09	29.3E-09	9.0E-09	13.8E-09	13.4E-09	14.6E-09	13.8E-09	13.3E-09	13.2E-09	12.2E-09
4	13.3E-09	13.5E-09	12.9E-09	13.8E-09	28.2E-09	13.7E-09	13.4E-09	13.3E-09	14.1E-09	13.7E-09	13.2E-09	13.2E-09	12.1E-09
Statistics													
Min	13.3E-09	13.5E-09	12.9E-09	12.4E-09	28.2E-09	9.0E-09	13.4E-09	13.3E-09	14.1E-09	13.7E-09	13.2E-09	8.4E-09	12.1E-09
Max	13.7E-09	14.0E-09	13.0E-09	13.8E-09	29.9E-09	14.2E-09	14.0E-09	13.5E-09	14.7E-09	13.9E-09	13.5E-09	13.2E-09	12.2E-09
Average	13.5E-09	13.7E-09	13.0E-09	12.9E-09	29.1E-09	12.3E-09	13.8E-09	13.4E-09	14.5E-09	13.8E-09	13.3E-09	11.6E-09	12.2E-09
Sigma	170.9E-12	231.4E-12	40.9E-12	668.2E-12	731.6E-12	2.3E-09	262.9E-12	79.8E-12	240.2E-12	106.5E-12	146.1E-12	2.3E-09	58.0E-12

Drift Calculation

ICXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	294.0E-12	-754.0E-12	-1.3E-09	16.2E-09	472.0E-12	316.0E-12	-264.0E-12	952.0E-12	184.0E-12	-204.0E-12	-5.3E-09	-1.5E-09
3	-	166.0E-12	-472.0E-12	-1.1E-09	15.8E-09	-4.5E-09	314.0E-12	-100.0E-12	1.1E-09	316.0E-12	-198.0E-12	-270.0E-12	-1.3E-09
4	-	152.0E-12	-382.0E-12	512.0E-12	14.8E-09	384.0E-12	98.0E-12	-38.0E-12	808.0E-12	344.0E-12	-140.0E-12	-128.0E-12	-1.2E-09
Average	-	204.0E-12	-536.0E-12	-635.3E-12	15.6E-09	-1.2E-09	242.7E-12	-134.0E-12	936.7E-12	281.3E-12	-180.7E-12	-1.9E-09	-1.3E-09
Sigma	-	63.9E-12	158.5E-12	819.0E-12	566.0E-12	2.3E-09	102.3E-12	95.3E-12	99.4E-12	69.8E-12	28.9E-12	2.4E-09	112.9E-12

Measurements

ICXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	12.9E-09	14.4E-09	14.4E-09	12.8E-09	33.7E-09	13.6E-09	13.4E-09	12.5E-09	13.5E-09	12.9E-09	11.9E-09	11.6E-09	12.1E-09
ON_TID samples													
8	13.2E-09	13.1E-09	12.9E-09	13.9E-09	26.9E-09	13.7E-09	13.5E-09	13.2E-09	14.2E-09	13.5E-09	13.1E-09	13.2E-09	12.1E-09
9	13.0E-09	13.1E-09	12.9E-09	13.6E-09	28.5E-09	8.7E-09	13.7E-09	13.2E-09	14.1E-09	13.5E-09	13.1E-09	13.2E-09	12.1E-09
10	12.6E-09	13.0E-09	12.9E-09	13.5E-09	35.7E-09	13.6E-09	13.7E-09	13.3E-09	14.1E-09	13.6E-09	13.1E-09	13.3E-09	12.0E-09
Statistics													
Min	12.6E-09	13.0E-09	12.9E-09	13.5E-09	26.9E-09	8.7E-09	13.5E-09	13.2E-09	14.1E-09	13.5E-09	13.1E-09	13.2E-09	12.0E-09
Max	13.2E-09	13.1E-09	12.9E-09	13.9E-09	35.7E-09	13.7E-09	13.7E-09	13.3E-09	14.2E-09	13.6E-09	13.1E-09	13.3E-09	12.1E-09
Average	12.9E-09	13.1E-09	12.9E-09	13.7E-09	30.4E-09	12.0E-09	13.6E-09	13.2E-09	14.1E-09	13.6E-09	13.1E-09	13.2E-09	12.1E-09
Sigma	257.5E-12	42.1E-12	12.3E-12	168.6E-12	3.8E-09	2.3E-09	93.5E-12	42.7E-12	52.3E-12	27.8E-12	9.0E-12	22.1E-12	21.2E-12

Drift Calculation

ICXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-86.0E-12	-348.0E-12	700.0E-12	13.7E-09	502.0E-12	264.0E-12	-28.0E-12	990.0E-12	320.0E-12	-120.0E-12	-10.0E-12	-1.1E-09
9	-	60.0E-12	-108.0E-12	634.0E-12	15.5E-09	-4.3E-09	658.0E-12	194.0E-12	1.1E-09	542.0E-12	88.0E-12	224.0E-12	-908.0E-12
10	-	432.0E-12	290.0E-12	916.0E-12	23.1E-09	1.0E-09	1.1E-09	688.0E-12	1.6E-09	1.0E-09	518.0E-12	664.0E-12	-550.0E-12
Average	-	135.3E-12	-55.3E-12	750.0E-12	17.4E-09	-924.0E-12	672.0E-12	284.7E-12	1.2E-09	622.0E-12	162.0E-12	292.7E-12	-868.0E-12
Sigma	-	218.1E-12	263.1E-12	120.4E-12	4.1E-09	2.4E-09	339.0E-12	299.3E-12	246.9E-12	284.9E-12	265.7E-12	279.4E-12	245.0E-12

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

ICEXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	12.9E-09	14.4E-09	14.4E-09	12.8E-09	33.7E-09	13.6E-09	13.4E-09	12.5E-09	13.5E-09	12.9E-09	11.9E-09	11.6E-09	12.1E-09
OFF PROTON samples													
5	13.2E-09	13.0E-09	13.1E-09	14.0E-09	40.2E-09	14.3E-09	14.2E-09	13.8E-09	14.8E-09	14.1E-09	13.4E-09	13.9E-09	12.4E-09
14	13.2E-09	13.4E-09	13.2E-09	15.5E-09	48.2E-09	14.4E-09	14.1E-09	13.9E-09	14.8E-09	14.3E-09	13.8E-09	9.3E-09	7.9E-09
7	13.0E-09	13.2E-09	13.2E-09	15.3E-09	50.1E-09	14.7E-09	14.4E-09	14.3E-09	15.3E-09	14.6E-09	13.9E-09	9.5E-09	12.5E-09
Statistics													
Min	13.0E-09	13.0E-09	13.1E-09	14.0E-09	40.2E-09	14.3E-09	14.1E-09	13.8E-09	14.8E-09	14.1E-09	13.4E-09	9.3E-09	7.9E-09
Max	13.2E-09	13.4E-09	13.2E-09	15.5E-09	50.1E-09	14.7E-09	14.4E-09	14.3E-09	15.3E-09	14.6E-09	13.9E-09	13.9E-09	12.5E-09
Average	13.1E-09	13.2E-09	13.2E-09	14.9E-09	46.2E-09	14.4E-09	14.2E-09	14.0E-09	15.0E-09	14.3E-09	13.7E-09	10.9E-09	10.9E-09
Sigma	89.4E-12	162.8E-12	53.8E-12	682.9E-12	4.3E-09	160.3E-12	139.4E-12	198.2E-12	247.7E-12	211.8E-12	209.7E-12	2.1E-09	2.1E-09

Drift Calculation

ICEXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-142.0E-12	-56.0E-12	802.0E-12	27.0E-09	1.1E-09	1.0E-09	670.0E-12	1.6E-09	974.0E-12	246.0E-12	718.0E-12	-802.0E-12
14	-	164.0E-12	-38.0E-12	2.3E-09	35.0E-09	1.1E-09	886.0E-12	662.0E-12	1.5E-09	1.0E-09	528.0E-12	-4.0E-09	-5.4E-09
7	-	204.0E-12	188.0E-12	2.3E-09	37.0E-09	1.6E-09	1.4E-09	1.3E-09	2.3E-09	1.6E-09	864.0E-12	-3.5E-09	-528.0E-12
Average	-	75.3E-12	31.3E-12	1.8E-09	33.0E-09	1.3E-09	1.1E-09	861.3E-12	1.8E-09	1.2E-09	546.0E-12	-2.3E-09	-2.2E-09
Sigma	-	154.5E-12	111.0E-12	685.0E-12	4.3E-09	235.8E-12	225.8E-12	276.3E-12	329.8E-12	284.4E-12	252.6E-12	2.1E-09	2.2E-09

Measurements

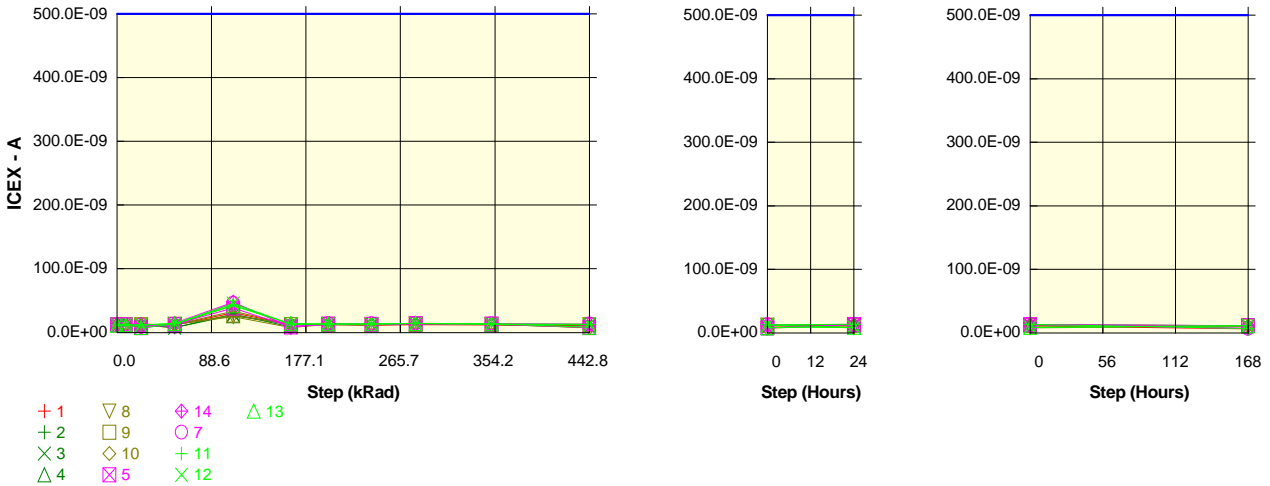
ICEXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	12.9E-09	14.4E-09	14.4E-09	12.8E-09	33.7E-09	13.6E-09	13.4E-09	12.5E-09	13.5E-09	12.9E-09	11.9E-09	11.6E-09	12.1E-09
OFF TID samples													
11	13.0E-09	13.1E-09	13.3E-09	15.3E-09	44.1E-09	9.8E-09	14.5E-09	14.4E-09	15.3E-09	14.3E-09	13.9E-09	14.2E-09	7.5E-09
12	12.7E-09	12.9E-09	13.1E-09	14.6E-09	47.7E-09	14.2E-09	14.1E-09	14.0E-09	14.9E-09	13.6E-09	13.6E-09	13.9E-09	12.3E-09
13	12.8E-09	13.0E-09	13.1E-09	14.6E-09	44.5E-09	14.6E-09	14.4E-09	14.4E-09	15.4E-09	14.6E-09	13.9E-09	14.3E-09	7.5E-09
Statistics													
Min	12.7E-09	12.9E-09	13.1E-09	14.6E-09	44.1E-09	9.8E-09	14.1E-09	14.0E-09	14.9E-09	13.6E-09	13.6E-09	13.9E-09	7.5E-09
Max	13.0E-09	13.1E-09	13.3E-09	15.3E-09	47.7E-09	14.6E-09	14.5E-09	14.4E-09	15.4E-09	14.6E-09	13.9E-09	14.3E-09	12.3E-09
Average	12.8E-09	13.0E-09	13.1E-09	14.8E-09	45.4E-09	12.9E-09	14.3E-09	14.3E-09	15.2E-09	14.2E-09	13.8E-09	14.1E-09	9.1E-09
Sigma	128.3E-12	98.0E-12	85.8E-12	337.3E-12	1.6E-09	2.2E-09	194.4E-12	195.2E-12	219.5E-12	430.9E-12	128.5E-12	135.8E-12	2.3E-09

Drift Calculation

ICEXDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	134.0E-12	264.0E-12	2.3E-09	31.1E-09	-3.2E-09	1.5E-09	1.4E-09	2.3E-09	1.4E-09	920.0E-12	1.2E-09	-5.5E-09
12	-	196.0E-12	374.0E-12	1.9E-09	35.0E-09	1.5E-09	1.4E-09	1.3E-09	2.2E-09	886.0E-12	940.0E-12	1.2E-09	-364.0E-12
13	-	238.0E-12	320.0E-12	1.8E-09	31.7E-09	1.8E-09	1.6E-09	1.7E-09	2.6E-09	1.8E-09	1.1E-09	1.5E-09	-5.3E-09
Average	-	189.3E-12	319.3E-12	2.0E-09	32.6E-09	34.0E-12	1.5E-09	1.5E-09	2.3E-09	1.4E-09	995.3E-12	1.3E-09	-3.7E-09
Sigma	-	42.7E-12	44.9E-12	213.3E-12	1.7E-09	2.3E-09	100.9E-12	156.2E-12	179.8E-12	382.1E-12	92.8E-12	144.7E-12	2.4E-09

Parameter : Output Leakage Current : ICXDUT4
 Test conditions : +IN>1V. -IN=0V. VOUT=30V

Unit : A
 Spec Limit Max : 500.0E-09
 Spec limits are represented in bold lines on the graphic.



Measurements

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	12.0E-09	12.7E-09	13.6E-09	11.9E-09	31.1E-09	12.6E-09	12.4E-09	11.5E-09	12.4E-09	11.9E-09	10.9E-09	10.9E-09	6.6E-09
ON_PROTON samples													
2	12.8E-09	12.7E-09	12.0E-09	8.0E-09	29.0E-09	8.6E-09	13.1E-09	12.5E-09	13.7E-09	13.0E-09	12.7E-09	12.4E-09	11.2E-09
3	12.5E-09	12.5E-09	12.0E-09	7.7E-09	27.6E-09	13.0E-09	12.9E-09	12.5E-09	13.6E-09	12.9E-09	12.4E-09	12.4E-09	11.2E-09
4	12.3E-09	12.3E-09	11.9E-09	12.4E-09	26.6E-09	12.9E-09	12.5E-09	12.4E-09	13.2E-09	12.8E-09	7.7E-09	12.3E-09	11.2E-09
Statistics													
Min	12.3E-09	12.3E-09	11.9E-09	7.7E-09	26.6E-09	8.6E-09	12.5E-09	12.4E-09	13.2E-09	12.8E-09	7.7E-09	12.3E-09	11.2E-09
Max	12.8E-09	12.7E-09	12.0E-09	12.4E-09	29.0E-09	13.0E-09	13.1E-09	12.5E-09	13.7E-09	13.0E-09	12.7E-09	12.4E-09	11.2E-09
Average	12.5E-09	12.5E-09	12.0E-09	9.4E-09	27.7E-09	11.5E-09	12.8E-09	12.5E-09	13.5E-09	12.9E-09	11.0E-09	12.4E-09	11.2E-09
Sigma	210.0E-12	159.8E-12	37.0E-12	2.2E-09	1.0E-09	2.0E-09	262.7E-12	63.0E-12	233.4E-12	102.1E-12	2.3E-09	38.0E-12	24.5E-12

Drift Calculation

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-54.0E-12	-760.0E-12	-4.8E-09	16.2E-09	-4.2E-09	362.0E-12	-244.0E-12	948.0E-12	242.0E-12	-76.0E-12	-412.0E-12	-1.6E-09
3	-	6.0E-12	-444.0E-12	-4.8E-09	15.2E-09	488.0E-12	398.0E-12	18.0E-12	1.1E-09	444.0E-12	-42.0E-12	-44.0E-12	-1.2E-09
4	-	70.0E-12	-316.0E-12	186.0E-12	14.3E-09	622.0E-12	234.0E-12	120.0E-12	914.0E-12	506.0E-12	-4.5E-09	82.0E-12	-1.1E-09
Average	-	7.3E-12	-506.7E-12	-3.1E-09	15.2E-09	-1.0E-09	331.3E-12	-35.3E-12	994.0E-12	397.3E-12	-1.5E-09	-124.7E-12	-1.3E-09
Sigma	-	50.6E-12	186.6E-12	2.3E-09	793.6E-12	2.2E-09	70.4E-12	153.3E-12	90.2E-12	112.7E-12	2.1E-09	209.6E-12	201.0E-12

Measurements

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	12.0E-09	12.7E-09	13.6E-09	11.9E-09	31.1E-09	12.6E-09	12.4E-09	11.5E-09	12.4E-09	11.9E-09	10.9E-09	10.9E-09	6.6E-09
ON_TID samples													
8	12.2E-09	12.1E-09	11.9E-09	12.8E-09	24.9E-09	8.2E-09	12.5E-09	12.3E-09	13.2E-09	12.6E-09	12.1E-09	7.9E-09	11.1E-09
9	12.0E-09	12.0E-09	11.9E-09	12.6E-09	27.1E-09	12.6E-09	12.7E-09	12.3E-09	13.2E-09	12.6E-09	12.2E-09	12.2E-09	11.1E-09
10	11.6E-09	12.0E-09	11.9E-09	12.5E-09	33.5E-09	12.8E-09	12.8E-09	12.3E-09	13.2E-09	12.7E-09	7.7E-09	12.3E-09	11.1E-09
Statistics													
Min	11.6E-09	12.0E-09	11.9E-09	12.5E-09	24.9E-09	8.2E-09	12.5E-09	12.3E-09	13.2E-09	12.6E-09	7.7E-09	7.9E-09	11.1E-09
Max	12.2E-09	12.1E-09	11.9E-09	12.8E-09	33.5E-09	12.8E-09	12.8E-09	12.3E-09	13.2E-09	12.7E-09	12.2E-09	12.3E-09	11.1E-09
Average	11.9E-09	12.0E-09	11.9E-09	12.7E-09	28.5E-09	11.2E-09	12.7E-09	12.3E-09	13.2E-09	12.6E-09	10.6E-09	10.8E-09	11.1E-09
Sigma	231.2E-12	58.4E-12	12.4E-12	127.5E-12	3.6E-09	2.1E-09	99.1E-12	40.1E-12	29.5E-12	27.4E-12	2.1E-09	2.0E-09	7.7E-12

Drift Calculation

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-86.0E-12	-290.0E-12	632.0E-12	12.8E-09	-4.0E-09	346.0E-12	78.0E-12	1.0E-09	430.0E-12	-108.0E-12	-4.3E-09	-1.1E-09
9	-	-22.0E-12	-120.0E-12	630.0E-12	15.1E-09	622.0E-12	702.0E-12	250.0E-12	1.1E-09	618.0E-12	146.0E-12	218.0E-12	-880.0E-12
10	-	328.0E-12	238.0E-12	872.0E-12	21.9E-09	1.1E-09	1.1E-09	718.0E-12	1.6E-09	1.0E-09	-4.0E-09	664.0E-12	-508.0E-12
Average	-	73.3E-12	-57.3E-12	711.3E-12	16.6E-09	-740.0E-12	724.0E-12	348.7E-12	1.2E-09	698.7E-12	-1.3E-09	-1.1E-09	-817.3E-12
Sigma	-	182.0E-12	220.1E-12	113.6E-12	3.9E-09	2.3E-09	318.0E-12	270.4E-12	221.6E-12	258.7E-12	1.9E-09	2.2E-09	231.3E-12

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015	
	IS-139ASRH			Intersil			Issue:	02				

Measurements

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	12.0E-09	12.7E-09	13.6E-09	11.9E-09	31.1E-09	12.6E-09	12.4E-09	11.5E-09	12.4E-09	11.9E-09	10.9E-09	10.9E-09	6.6E-09
OFF PROTON samples													
5	12.2E-09	12.2E-09	7.4E-09	12.9E-09	38.3E-09	8.9E-09	13.3E-09	12.9E-09	13.9E-09	13.2E-09	8.1E-09	12.9E-09	11.5E-09
14	12.3E-09	12.5E-09	7.5E-09	14.6E-09	47.6E-09	8.9E-09	13.2E-09	13.0E-09	13.9E-09	13.4E-09	12.8E-09	13.2E-09	7.5E-09
7	11.9E-09	12.2E-09	12.0E-09	9.7E-09	46.1E-09	9.2E-09	13.5E-09	13.4E-09	14.4E-09	13.7E-09	13.0E-09	13.4E-09	6.9E-09
Statistics													
Min	11.9E-09	12.2E-09	7.4E-09	9.7E-09	38.3E-09	8.9E-09	13.2E-09	12.9E-09	13.9E-09	13.2E-09	8.1E-09	12.9E-09	6.9E-09
Max	12.3E-09	12.5E-09	12.0E-09	14.6E-09	47.6E-09	9.2E-09	13.5E-09	13.4E-09	14.4E-09	13.7E-09	13.0E-09	13.4E-09	11.5E-09
Average	12.1E-09	12.3E-09	8.9E-09	12.4E-09	44.0E-09	9.0E-09	13.3E-09	13.1E-09	14.0E-09	13.4E-09	11.3E-09	13.2E-09	8.6E-09
Sigma	143.4E-12	142.9E-12	2.2E-09	2.1E-09	4.1E-09	122.6E-12	130.4E-12	203.1E-12	220.9E-12	181.7E-12	2.3E-09	199.5E-12	2.0E-09

Drift Calculation

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-26.0E-12	-4.8E-09	752.0E-12	26.1E-09	-3.3E-09	1.1E-09	696.0E-12	1.7E-09	1.1E-09	-4.1E-09	764.0E-12	-712.0E-12
14	-	188.0E-12	-4.8E-09	2.3E-09	35.4E-09	-3.4E-09	960.0E-12	744.0E-12	1.6E-09	1.1E-09	532.0E-12	936.0E-12	-4.8E-09
7	-	230.0E-12	82.0E-12	-2.3E-09	34.2E-09	-2.8E-09	1.6E-09	1.4E-09	2.4E-09	1.7E-09	1.0E-09	1.5E-09	-5.1E-09
Average	-	130.7E-12	-3.2E-09	273.3E-12	31.9E-09	-3.1E-09	1.2E-09	955.3E-12	1.9E-09	1.3E-09	-833.3E-12	1.1E-09	-3.5E-09
Sigma	-	112.1E-12	2.3E-09	1.9E-09	4.1E-09	263.5E-12	272.8E-12	333.4E-12	358.8E-12	312.0E-12	2.3E-09	313.4E-12	2.0E-09

Measurements

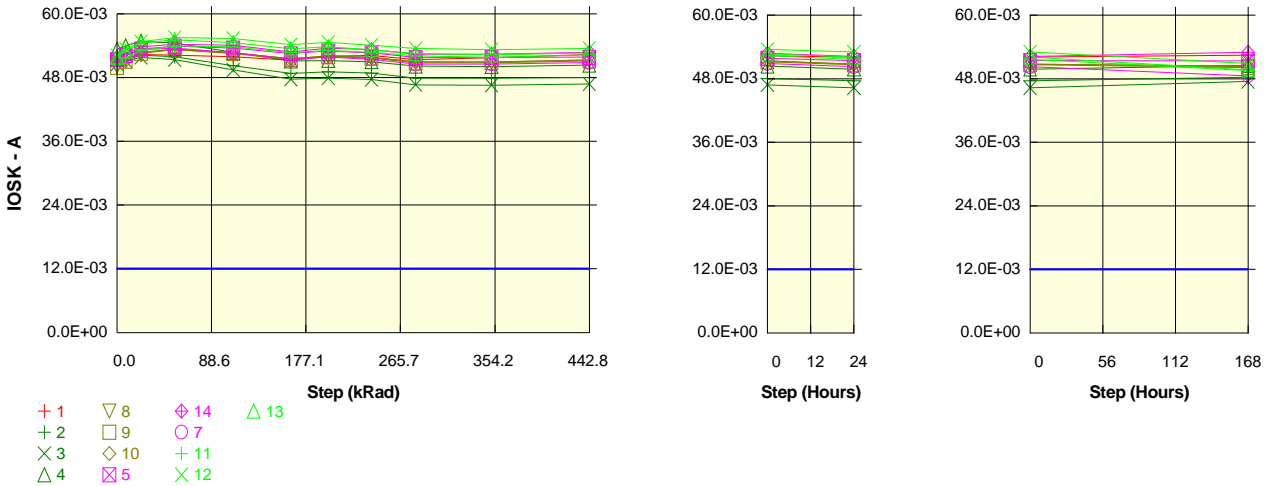
ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1 REF	12.0E-09	12.7E-09	13.6E-09	11.9E-09	31.1E-09	12.6E-09	12.4E-09	11.5E-09	12.4E-09	11.9E-09	10.9E-09	10.9E-09	6.6E-09
OFF TID samples													
11	11.9E-09	12.1E-09	12.1E-09	14.1E-09	42.8E-09	13.7E-09	13.5E-09	13.4E-09	14.2E-09	13.6E-09	12.9E-09	13.4E-09	6.9E-09
12	11.8E-09	12.0E-09	12.1E-09	13.7E-09	45.3E-09	13.5E-09	13.3E-09	13.2E-09	14.2E-09	13.1E-09	12.8E-09	8.8E-09	11.4E-09
13	11.8E-09	12.0E-09	7.4E-09	13.6E-09	41.9E-09	13.7E-09	13.4E-09	13.5E-09	14.4E-09	13.7E-09	8.4E-09	8.9E-09	11.5E-09
Statistics													
Min	11.8E-09	12.0E-09	7.4E-09	13.6E-09	41.9E-09	13.5E-09	13.3E-09	13.2E-09	14.2E-09	13.1E-09	8.4E-09	8.8E-09	6.9E-09
Max	11.9E-09	12.1E-09	12.1E-09	14.1E-09	45.3E-09	13.7E-09	13.5E-09	13.5E-09	14.4E-09	13.7E-09	12.9E-09	13.4E-09	11.5E-09
Average	11.8E-09	12.0E-09	10.5E-09	13.8E-09	43.3E-09	13.6E-09	13.4E-09	13.3E-09	14.3E-09	13.5E-09	11.4E-09	10.4E-09	10.0E-09
Sigma	49.3E-12	37.4E-12	2.2E-09	225.0E-12	1.4E-09	94.5E-12	86.1E-12	105.0E-12	87.5E-12	273.6E-12	2.1E-09	2.1E-09	2.2E-09

Drift Calculation

ICEXDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	180.0E-12	212.0E-12	2.2E-09	30.9E-09	1.8E-09	1.6E-09	1.5E-09	2.4E-09	1.7E-09	1.0E-09	1.5E-09	-5.0E-09
12	-	256.0E-12	362.0E-12	1.9E-09	33.5E-09	1.7E-09	1.5E-09	1.4E-09	2.4E-09	1.3E-09	1.0E-09	-3.0E-09	-346.0E-12
13	-	202.0E-12	-4.4E-09	1.8E-09	30.1E-09	1.9E-09	1.6E-09	1.7E-09	2.6E-09	1.9E-09	-3.3E-09	-2.9E-09	-260.0E-12
Average	-	212.7E-12	-1.3E-09	2.0E-09	31.5E-09	1.8E-09	1.6E-09	1.5E-09	2.4E-09	1.6E-09	-420.0E-12	-1.5E-09	-1.9E-09
Sigma	-	31.9E-12	2.2E-09	176.0E-12	1.5E-09	90.1E-12	50.2E-12	116.0E-12	107.0E-12	261.6E-12	2.1E-09	2.1E-09	2.2E-09

Parameter : Output Sink Current : IOSKDUT1
 Test conditions : -IN>1V. +IN=0V. VOUT<1.5V

Unit : A
 Spec Limit Min : 12.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.6E-03	51.3E-03	52.4E-03	52.2E-03	52.0E-03	51.3E-03	52.0E-03	52.2E-03	51.4E-03	51.8E-03	52.4E-03	52.1E-03	52.4E-03
ON_PROTON samples													
2	50.8E-03	51.4E-03	52.2E-03	52.0E-03	50.3E-03	48.8E-03	49.1E-03	48.9E-03	47.9E-03	47.9E-03	48.0E-03	47.6E-03	48.3E-03
3	50.5E-03	51.1E-03	51.8E-03	51.4E-03	49.5E-03	47.7E-03	47.9E-03	47.6E-03	46.7E-03	46.6E-03	46.8E-03	46.3E-03	47.5E-03
4	53.3E-03	54.0E-03	54.8E-03	54.5E-03	52.8E-03	51.2E-03	51.3E-03	51.0E-03	50.2E-03	50.1E-03	50.4E-03	49.8E-03	50.5E-03
Statistics													
Min	50.5E-03	51.1E-03	51.8E-03	51.4E-03	49.5E-03	47.7E-03	47.9E-03	47.6E-03	46.7E-03	46.6E-03	46.8E-03	46.3E-03	47.5E-03
Max	53.3E-03	54.0E-03	54.8E-03	54.5E-03	52.8E-03	51.2E-03	51.3E-03	51.0E-03	50.2E-03	50.1E-03	50.4E-03	49.8E-03	50.5E-03
Average	51.6E-03	52.2E-03	53.0E-03	52.6E-03	50.8E-03	49.2E-03	49.4E-03	49.2E-03	48.2E-03	48.2E-03	48.4E-03	47.9E-03	48.8E-03
Sigma	1.3E-03	1.3E-03	1.3E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.3E-03

Drift Calculation

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	604.0E-06	1.5E-03	1.2E-03	-492.0E-06	-2.0E-03	-1.7E-03	-1.9E-03	-2.9E-03	-2.9E-03	-2.8E-03	-3.1E-03	-2.5E-03
3	-	618.0E-06	1.3E-03	900.0E-06	-1.1E-03	-2.8E-03	-2.6E-03	-2.9E-03	-3.9E-03	-3.9E-03	-3.7E-03	-4.2E-03	-3.1E-03
4	-	670.0E-06	1.5E-03	1.2E-03	-588.0E-06	-2.2E-03	-2.1E-03	-2.3E-03	-3.2E-03	-3.2E-03	-3.0E-03	-3.5E-03	-2.8E-03
Average	-	630.7E-06	1.4E-03	1.1E-03	-715.3E-06	-2.3E-03	-2.1E-03	-2.4E-03	-3.3E-03	-3.3E-03	-3.1E-03	-3.6E-03	-2.8E-03
Sigma	-	28.4E-06	86.4E-06	138.7E-06	251.0E-06	354.3E-06	386.7E-06	391.5E-06	415.0E-06	439.6E-06	399.8E-06	457.6E-06	236.4E-06

Measurements

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.6E-03	51.3E-03	52.4E-03	52.2E-03	52.0E-03	51.3E-03	52.0E-03	52.2E-03	51.4E-03	51.8E-03	52.4E-03	52.1E-03	52.4E-03
ON_TID samples													
8	50.1E-03	51.4E-03	52.8E-03	53.4E-03	52.7E-03	51.6E-03	52.1E-03	51.9E-03	51.0E-03	50.9E-03	51.4E-03	50.8E-03	50.3E-03
9	49.9E-03	51.1E-03	52.6E-03	53.2E-03	52.5E-03	51.4E-03	51.9E-03	51.7E-03	50.8E-03	50.8E-03	51.2E-03	50.6E-03	50.1E-03
10	50.6E-03	51.2E-03	52.7E-03	53.4E-03	52.7E-03	51.6E-03	52.1E-03	51.8E-03	51.0E-03	51.0E-03	51.4E-03	50.8E-03	50.4E-03
Statistics													
Min	49.9E-03	51.1E-03	52.6E-03	53.2E-03	52.5E-03	51.4E-03	51.9E-03	51.7E-03	50.8E-03	50.8E-03	51.2E-03	50.6E-03	50.1E-03
Max	50.6E-03	51.4E-03	52.8E-03	53.4E-03	52.7E-03	51.6E-03	52.1E-03	51.9E-03	51.0E-03	51.0E-03	51.4E-03	50.8E-03	50.4E-03
Average	50.2E-03	51.2E-03	52.7E-03	53.3E-03	52.6E-03	51.5E-03	52.0E-03	51.8E-03	50.9E-03	50.9E-03	51.3E-03	50.7E-03	50.3E-03
Sigma	277.8E-06	112.7E-06	75.7E-06	64.3E-06	83.7E-06	77.9E-06	77.5E-06	70.2E-06	69.8E-06	74.4E-06	96.2E-06	68.6E-06	111.0E-06

Drift Calculation

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	1.3E-03	2.7E-03	3.3E-03	2.6E-03	1.5E-03	2.0E-03	1.8E-03	882.0E-06	828.0E-06	1.3E-03	712.0E-06	212.0E-06
9	-	1.2E-03	2.7E-03	3.3E-03	2.6E-03	1.5E-03	2.0E-03	1.8E-03	880.0E-06	888.0E-06	1.2E-03	700.0E-06	174.0E-06
10	-	650.0E-06	2.1E-03	2.8E-03	2.1E-03	996.0E-06	1.5E-03	1.2E-03	382.0E-06	422.0E-06	784.0E-06	184.0E-06	-208.0E-06
Average	-	1.1E-03	2.5E-03	3.1E-03	2.4E-03	1.3E-03	1.9E-03	1.6E-03	714.7E-06	712.7E-06	1.1E-03	532.0E-06	59.3E-06
Sigma	-	290.1E-06	281.4E-06	243.7E-06	243.1E-06	236.4E-06	220.1E-06	272.7E-06	235.2E-06	207.0E-06	224.8E-06	246.1E-06	189.7E-06

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.6E-03	51.3E-03	52.4E-03	52.2E-03	52.0E-03	51.3E-03	52.0E-03	52.2E-03	51.4E-03	51.8E-03	52.4E-03	52.1E-03	52.4E-03
OFF PROTON samples													
5	51.4E-03	52.2E-03	53.4E-03	53.9E-03	53.6E-03	52.5E-03	53.0E-03	52.7E-03	51.8E-03	51.8E-03	51.8E-03	51.4E-03	51.4E-03
14	51.8E-03	52.6E-03	53.8E-03	54.3E-03	54.1E-03	52.9E-03	53.6E-03	53.3E-03	52.5E-03	52.4E-03	52.8E-03	52.2E-03	53.0E-03
7	51.5E-03	52.2E-03	53.3E-03	53.6E-03	52.7E-03	51.4E-03	51.9E-03	51.5E-03	50.6E-03	50.6E-03	50.9E-03	50.3E-03	48.5E-03
Statistics													
Min	51.4E-03	52.2E-03	53.3E-03	53.6E-03	52.7E-03	51.4E-03	51.9E-03	51.5E-03	50.6E-03	50.6E-03	50.9E-03	50.3E-03	48.5E-03
Max	51.8E-03	52.6E-03	53.8E-03	54.3E-03	54.1E-03	52.9E-03	53.6E-03	53.3E-03	52.5E-03	52.4E-03	52.8E-03	52.2E-03	53.0E-03
Average	51.6E-03	52.3E-03	53.5E-03	53.9E-03	53.5E-03	52.3E-03	52.8E-03	52.5E-03	51.6E-03	51.6E-03	51.8E-03	51.3E-03	51.0E-03
Sigma	172.3E-06	179.5E-06	228.3E-06	296.5E-06	571.2E-06	599.1E-06	718.2E-06	743.0E-06	788.8E-06	772.3E-06	789.6E-06	793.9E-06	1.9E-03

Drift Calculation

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	756.0E-06	2.0E-03	2.5E-03	2.2E-03	1.1E-03	1.6E-03	1.3E-03	398.0E-06	390.0E-06	442.0E-06	4.0E-06	-56.0E-06
14	-	762.0E-06	2.0E-03	2.5E-03	2.3E-03	1.0E-03	1.8E-03	1.5E-03	642.0E-06	630.0E-06	992.0E-06	394.0E-06	1.2E-03
7	-	728.0E-06	1.8E-03	2.1E-03	1.2E-03	-52.0E-06	374.0E-06	-20.0E-06	-946.0E-06	-920.0E-06	-630.0E-06	-1.2E-03	-3.0E-03
Average	-	748.7E-06	1.9E-03	2.4E-03	1.9E-03	697.3E-06	1.3E-03	902.0E-06	31.3E-06	33.3E-06	268.0E-06	-276.7E-06	-616.7E-06
Sigma	-	14.8E-06	104.7E-06	201.6E-06	479.4E-06	530.4E-06	631.1E-06	656.0E-06	698.2E-06	681.2E-06	673.5E-06	691.3E-06	1.7E-03

Measurements

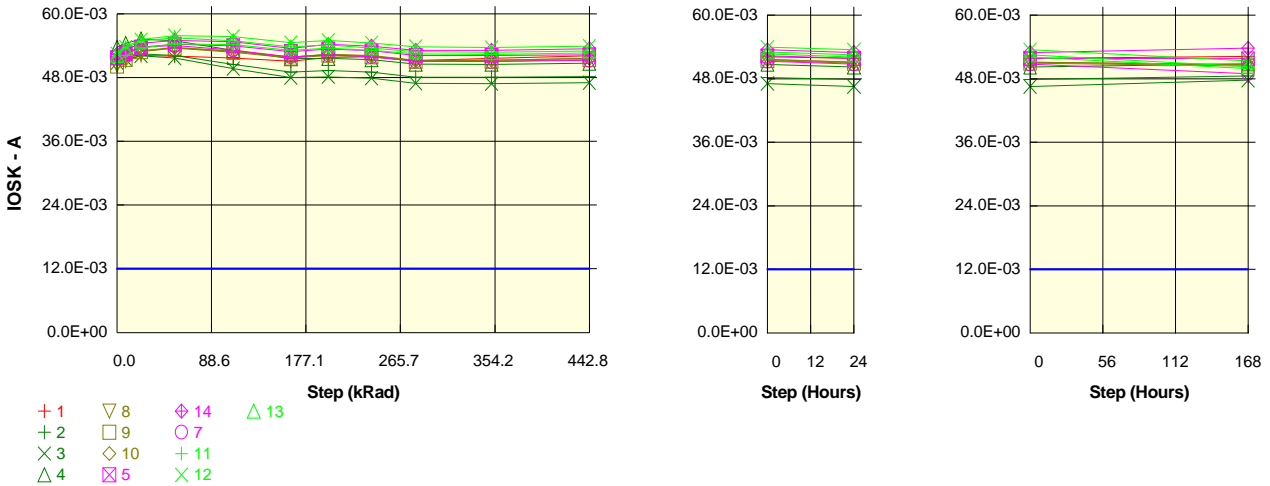
IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.6E-03	51.3E-03	52.4E-03	52.2E-03	52.0E-03	51.3E-03	52.0E-03	52.2E-03	51.4E-03	51.8E-03	52.4E-03	52.1E-03	52.4E-03
OFF TID samples													
11	50.5E-03	51.7E-03	53.2E-03	54.0E-03	53.8E-03	52.7E-03	53.2E-03	52.8E-03	52.1E-03	51.8E-03	52.3E-03	51.7E-03	49.6E-03
12	52.1E-03	53.4E-03	54.8E-03	55.5E-03	55.4E-03	54.2E-03	54.7E-03	54.2E-03	53.5E-03	53.3E-03	53.5E-03	53.0E-03	50.9E-03
13	51.9E-03	53.0E-03	54.6E-03	55.1E-03	54.6E-03	53.4E-03	53.8E-03	53.2E-03	52.6E-03	52.3E-03	52.7E-03	52.0E-03	49.7E-03
Statistics													
Min	50.5E-03	51.7E-03	53.2E-03	54.0E-03	53.8E-03	52.7E-03	53.2E-03	52.8E-03	52.1E-03	51.8E-03	52.3E-03	51.7E-03	49.6E-03
Max	52.1E-03	53.4E-03	54.8E-03	55.5E-03	55.4E-03	54.2E-03	54.7E-03	54.2E-03	53.5E-03	53.3E-03	53.5E-03	53.0E-03	50.9E-03
Average	51.5E-03	52.7E-03	54.2E-03	54.9E-03	54.6E-03	53.5E-03	53.9E-03	53.4E-03	52.7E-03	52.5E-03	52.8E-03	52.3E-03	50.0E-03
Sigma	729.1E-06	696.6E-06	715.7E-06	660.9E-06	643.5E-06	610.0E-06	613.5E-06	581.3E-06	576.8E-06	592.1E-06	508.4E-06	579.7E-06	610.4E-06

Drift Calculation

IOSKDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	1.2E-03	2.7E-03	3.5E-03	3.3E-03	2.2E-03	2.7E-03	2.3E-03	1.6E-03	1.3E-03	1.8E-03	1.2E-03	-938.0E-06
12	-	1.2E-03	2.6E-03	3.4E-03	3.2E-03	2.1E-03	2.5E-03	2.0E-03	1.3E-03	1.1E-03	1.4E-03	892.0E-06	-1.2E-03
13	-	1.1E-03	2.6E-03	3.2E-03	2.7E-03	1.5E-03	1.9E-03	1.3E-03	640.0E-06	406.0E-06	778.0E-06	128.0E-06	-2.3E-03
Average	-	1.2E-03	2.7E-03	3.4E-03	3.1E-03	1.9E-03	2.4E-03	1.9E-03	1.2E-03	956.0E-06	1.3E-03	728.0E-06	-1.5E-03
Sigma	-	65.5E-06	15.0E-06	107.8E-06	269.4E-06	295.7E-06	335.2E-06	395.3E-06	402.7E-06	399.3E-06	420.8E-06	438.6E-06	564.1E-06

Parameter : Output Sink Current : IOSKDUT2
 Test conditions : -IN>1V. +IN=0V. VOUT<1.5V

Unit : A
 Spec Limit Min : 12.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.4E-03	51.1E-03	52.2E-03	52.1E-03	51.7E-03	51.1E-03	51.8E-03	52.0E-03	51.2E-03	51.6E-03	52.1E-03	51.8E-03	52.2E-03
ON_PROTON samples													
2	51.0E-03	51.7E-03	52.5E-03	52.2E-03	50.5E-03	49.0E-03	49.3E-03	49.1E-03	48.1E-03	48.1E-03	48.2E-03	47.8E-03	48.5E-03
3	50.8E-03	51.4E-03	52.1E-03	51.7E-03	49.7E-03	48.0E-03	48.2E-03	47.9E-03	46.9E-03	46.9E-03	47.1E-03	46.5E-03	47.7E-03
4	53.7E-03	54.5E-03	55.3E-03	55.0E-03	53.1E-03	51.5E-03	51.6E-03	51.4E-03	50.5E-03	50.5E-03	50.7E-03	50.2E-03	50.8E-03
Statistics													
Min	50.8E-03	51.4E-03	52.1E-03	51.7E-03	49.7E-03	48.0E-03	48.2E-03	47.9E-03	46.9E-03	46.9E-03	47.1E-03	46.5E-03	47.7E-03
Max	53.7E-03	54.5E-03	55.3E-03	55.0E-03	53.1E-03	51.5E-03	51.6E-03	51.4E-03	50.5E-03	50.5E-03	50.7E-03	50.2E-03	50.8E-03
Average	51.9E-03	52.5E-03	53.3E-03	53.0E-03	51.1E-03	49.5E-03	49.7E-03	49.4E-03	48.5E-03	48.5E-03	48.7E-03	48.2E-03	49.0E-03
Sigma	1.3E-03	1.4E-03	1.4E-03	1.4E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.3E-03

Drift Calculation

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	648.0E-06	1.5E-03	1.2E-03	-518.0E-06	-2.0E-03	-1.7E-03	-2.0E-03	-2.9E-03	-2.9E-03	-2.8E-03	-3.2E-03	-2.5E-03
3	-	654.0E-06	1.3E-03	914.0E-06	-1.1E-03	-2.8E-03	-2.6E-03	-2.9E-03	-3.9E-03	-3.9E-03	-3.7E-03	-4.3E-03	-3.1E-03
4	-	720.0E-06	1.5E-03	1.2E-03	-588.0E-06	-2.2E-03	-2.1E-03	-2.4E-03	-3.2E-03	-3.2E-03	-3.0E-03	-3.5E-03	-2.9E-03
Average	-	674.0E-06	1.4E-03	1.1E-03	-724.7E-06	-2.3E-03	-2.1E-03	-2.4E-03	-3.3E-03	-3.4E-03	-3.2E-03	-3.7E-03	-2.8E-03
Sigma	-	32.6E-06	90.0E-06	138.1E-06	244.4E-06	343.9E-06	373.9E-06	376.8E-06	403.8E-06	427.0E-06	386.1E-06	442.6E-06	222.7E-06

Measurements

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.4E-03	51.1E-03	52.2E-03	52.1E-03	51.7E-03	51.1E-03	51.8E-03	52.0E-03	51.2E-03	51.6E-03	52.1E-03	51.8E-03	52.2E-03
ON_TID samples													
8	50.3E-03	51.7E-03	53.1E-03	53.7E-03	53.0E-03	51.9E-03	52.4E-03	52.2E-03	51.3E-03	51.3E-03	51.7E-03	51.1E-03	50.6E-03
9	50.2E-03	51.5E-03	52.9E-03	53.5E-03	52.8E-03	51.7E-03	52.2E-03	52.0E-03	51.1E-03	51.1E-03	51.4E-03	50.9E-03	50.4E-03
10	50.9E-03	51.6E-03	53.0E-03	53.7E-03	53.0E-03	51.9E-03	52.4E-03	52.0E-03	51.3E-03	51.3E-03	51.6E-03	51.1E-03	50.7E-03
Statistics													
Min	50.2E-03	51.5E-03	52.9E-03	53.5E-03	52.8E-03	51.7E-03	52.2E-03	52.0E-03	51.1E-03	51.1E-03	51.4E-03	50.9E-03	50.4E-03
Max	50.9E-03	51.7E-03	53.1E-03	53.7E-03	53.0E-03	51.9E-03	52.4E-03	52.2E-03	51.3E-03	51.3E-03	51.7E-03	51.1E-03	50.7E-03
Average	50.5E-03	51.6E-03	53.0E-03	53.6E-03	52.9E-03	51.8E-03	52.3E-03	52.1E-03	51.2E-03	51.3E-03	51.6E-03	51.1E-03	50.5E-03
Sigma	285.2E-06	112.2E-06	70.0E-06	65.0E-06	89.0E-06	88.9E-06	86.4E-06	85.9E-06	84.2E-06	92.6E-06	107.9E-06	94.8E-06	132.5E-06

Drift Calculation

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	1.4E-03	2.7E-03	3.3E-03	2.7E-03	1.6E-03	2.1E-03	1.8E-03	936.0E-06	982.0E-06	1.3E-03	794.0E-06	242.0E-06
9	-	1.3E-03	2.7E-03	3.3E-03	2.6E-03	1.5E-03	2.0E-03	1.8E-03	894.0E-06	922.0E-06	1.2E-03	738.0E-06	158.0E-06
10	-	712.0E-06	2.1E-03	2.8E-03	2.1E-03	1.0E-03	1.5E-03	1.2E-03	400.0E-06	446.0E-06	768.0E-06	276.0E-06	-192.0E-06
Average	-	1.1E-03	2.5E-03	3.2E-03	2.5E-03	1.4E-03	1.9E-03	1.6E-03	743.3E-06	783.3E-06	1.1E-03	602.7E-06	69.3E-06
Sigma	-	292.9E-06	293.4E-06	253.1E-06	256.4E-06	249.2E-06	232.8E-06	285.5E-06	243.4E-06	239.8E-06	237.1E-06	232.1E-06	187.9E-06

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.4E-03	51.1E-03	52.2E-03	52.1E-03	51.7E-03	51.1E-03	51.8E-03	52.0E-03	51.2E-03	51.6E-03	52.1E-03	51.8E-03	52.2E-03
OFF PROTON samples													
5	51.8E-03	52.6E-03	53.8E-03	54.3E-03	54.0E-03	52.9E-03	53.4E-03	53.1E-03	52.2E-03	52.2E-03	52.3E-03	51.9E-03	51.8E-03
14	52.5E-03	53.3E-03	54.5E-03	55.0E-03	54.8E-03	53.5E-03	54.3E-03	53.9E-03	53.2E-03	53.1E-03	53.5E-03	52.9E-03	53.7E-03
7	51.9E-03	52.7E-03	53.7E-03	54.1E-03	53.2E-03	51.9E-03	52.3E-03	51.9E-03	51.1E-03	51.0E-03	51.3E-03	50.7E-03	48.9E-03
Statistics													
Min	51.8E-03	52.6E-03	53.7E-03	54.1E-03	53.2E-03	51.9E-03	52.3E-03	51.9E-03	51.1E-03	51.0E-03	51.3E-03	50.7E-03	48.9E-03
Max	52.5E-03	53.3E-03	54.5E-03	55.0E-03	54.8E-03	53.5E-03	54.3E-03	53.9E-03	53.2E-03	53.1E-03	53.5E-03	52.9E-03	53.7E-03
Average	52.1E-03	52.9E-03	54.0E-03	54.5E-03	54.0E-03	52.8E-03	53.3E-03	53.0E-03	52.2E-03	52.1E-03	52.4E-03	51.8E-03	51.5E-03
Sigma	293.7E-06	294.4E-06	344.5E-06	396.5E-06	655.7E-06	670.4E-06	795.0E-06	816.4E-06	832.7E-06	862.3E-06	889.2E-06	886.0E-06	2.0E-03

Drift Calculation

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	826.0E-06	2.0E-03	2.5E-03	2.2E-03	1.1E-03	1.6E-03	1.3E-03	432.0E-06	428.0E-06	516.0E-06	84.0E-06	-30.0E-06
14	-	820.0E-06	2.0E-03	2.5E-03	2.3E-03	1.1E-03	1.8E-03	1.5E-03	690.0E-06	678.0E-06	998.0E-06	448.0E-06	1.3E-03
7	-	802.0E-06	1.8E-03	2.1E-03	1.3E-03	-32.0E-06	386.0E-06	-14.0E-06	-822.0E-06	-904.0E-06	-652.0E-06	-1.2E-03	-3.0E-03
Average	-	816.0E-06	1.9E-03	2.4E-03	1.9E-03	722.7E-06	1.3E-03	911.3E-06	100.0E-06	67.3E-06	287.3E-06	-221.3E-06	-591.3E-06
Sigma	-	10.2E-06	100.8E-06	199.0E-06	481.0E-06	534.2E-06	633.6E-06	657.4E-06	660.4E-06	694.4E-06	692.7E-06	705.0E-06	1.8E-03

Measurements

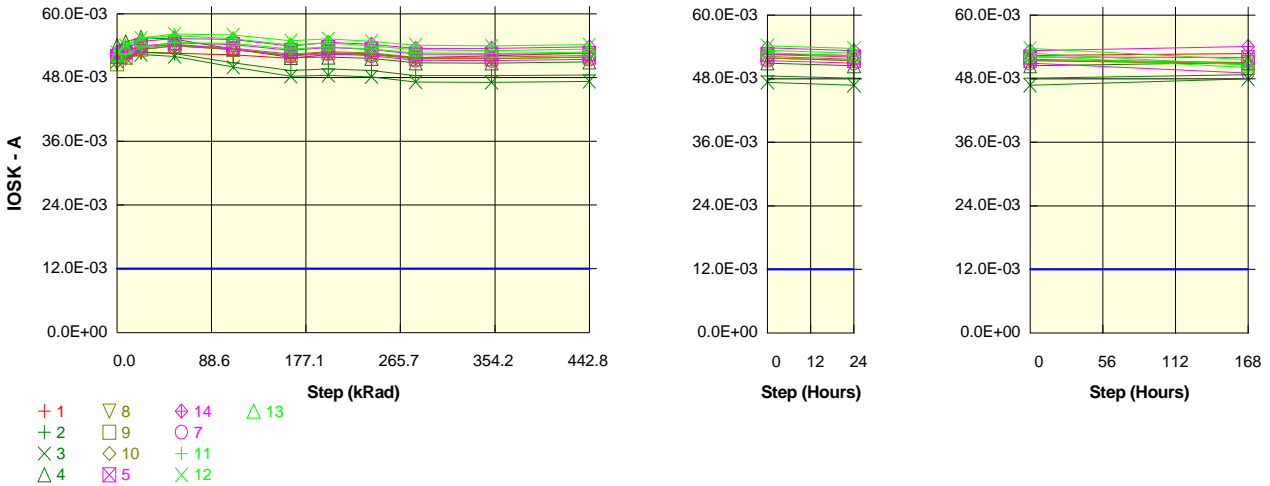
IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.4E-03	51.1E-03	52.2E-03	52.1E-03	51.7E-03	51.1E-03	51.8E-03	52.0E-03	51.2E-03	51.6E-03	52.1E-03	51.8E-03	52.2E-03
OFF TID samples													
11	50.9E-03	52.2E-03	53.6E-03	54.4E-03	54.2E-03	53.1E-03	53.6E-03	53.2E-03	52.5E-03	52.4E-03	52.7E-03	52.1E-03	49.9E-03
12	52.5E-03	53.8E-03	55.2E-03	55.9E-03	55.8E-03	54.6E-03	55.0E-03	54.6E-03	53.8E-03	53.7E-03	53.9E-03	53.4E-03	51.3E-03
13	52.3E-03	53.5E-03	54.9E-03	55.5E-03	55.0E-03	53.8E-03	54.2E-03	53.6E-03	52.9E-03	52.8E-03	53.0E-03	52.5E-03	50.3E-03
Statistics													
Min	50.9E-03	52.2E-03	53.6E-03	54.4E-03	54.2E-03	53.1E-03	53.6E-03	53.2E-03	52.5E-03	52.4E-03	52.7E-03	52.1E-03	49.9E-03
Max	52.5E-03	53.8E-03	55.2E-03	55.9E-03	55.8E-03	54.6E-03	55.0E-03	54.6E-03	53.8E-03	53.7E-03	53.9E-03	53.4E-03	51.3E-03
Average	51.9E-03	53.2E-03	54.6E-03	55.3E-03	55.0E-03	53.9E-03	54.3E-03	53.8E-03	53.1E-03	52.9E-03	53.2E-03	52.7E-03	50.5E-03
Sigma	734.4E-06	697.0E-06	705.6E-06	652.3E-06	631.2E-06	611.7E-06	601.7E-06	585.5E-06	568.3E-06	556.4E-06	524.9E-06	556.9E-06	598.9E-06

Drift Calculation

IOSKDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	1.3E-03	2.7E-03	3.5E-03	3.4E-03	2.3E-03	2.7E-03	2.3E-03	1.6E-03	1.5E-03	1.8E-03	1.2E-03	-924.0E-06
12	-	1.3E-03	2.7E-03	3.4E-03	3.2E-03	2.1E-03	2.5E-03	2.0E-03	1.3E-03	1.2E-03	1.4E-03	912.0E-06	-1.2E-03
13	-	1.2E-03	2.7E-03	3.2E-03	2.7E-03	1.5E-03	1.9E-03	1.3E-03	636.0E-06	488.0E-06	756.0E-06	218.0E-06	-2.0E-03
Average	-	1.3E-03	2.7E-03	3.4E-03	3.1E-03	2.0E-03	2.4E-03	1.9E-03	1.2E-03	1.0E-03	1.3E-03	792.7E-06	-1.4E-03
Sigma	-	44.3E-06	30.0E-06	121.6E-06	286.5E-06	320.4E-06	350.3E-06	420.4E-06	415.2E-06	419.4E-06	436.2E-06	428.9E-06	464.8E-06

Parameter : Output Sink Current : IOSKDUT3
 Test conditions : -IN>1V. +IN=0V. VOUT<1.5V

Unit : A
 Spec Limit Min : 12.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.9E-03	51.7E-03	52.7E-03	52.6E-03	52.3E-03	51.7E-03	52.4E-03	52.5E-03	51.8E-03	52.2E-03	52.7E-03	52.4E-03	52.8E-03
ON_PROTON samples													
2	51.3E-03	52.0E-03	52.8E-03	52.5E-03	50.8E-03	49.4E-03	49.7E-03	49.4E-03	48.4E-03	48.4E-03	48.5E-03	48.1E-03	48.8E-03
3	51.1E-03	51.7E-03	52.4E-03	52.0E-03	50.0E-03	48.3E-03	48.5E-03	48.2E-03	47.2E-03	47.1E-03	47.3E-03	46.8E-03	48.0E-03
4	54.0E-03	54.7E-03	55.5E-03	55.2E-03	53.4E-03	51.8E-03	51.9E-03	51.6E-03	50.8E-03	50.7E-03	51.0E-03	50.4E-03	51.1E-03
Statistics													
Min	51.1E-03	51.7E-03	52.4E-03	52.0E-03	50.0E-03	48.3E-03	48.5E-03	48.2E-03	47.2E-03	47.1E-03	47.3E-03	46.8E-03	48.0E-03
Max	54.0E-03	54.7E-03	55.5E-03	55.2E-03	53.4E-03	51.8E-03	51.9E-03	51.6E-03	50.8E-03	50.7E-03	51.0E-03	50.4E-03	51.1E-03
Average	52.1E-03	52.8E-03	53.6E-03	53.3E-03	51.4E-03	49.8E-03	50.0E-03	49.7E-03	48.8E-03	48.8E-03	48.9E-03	48.5E-03	49.3E-03
Sigma	1.3E-03	1.4E-03	1.4E-03	1.4E-03	1.5E-03	1.5E-03	1.4E-03	1.4E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.3E-03

Drift Calculation

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	648.0E-06	1.5E-03	1.2E-03	-500.0E-06	-2.0E-03	-1.7E-03	-2.0E-03	-2.9E-03	-2.9E-03	-2.8E-03	-3.2E-03	-2.5E-03
3	-	654.0E-06	1.3E-03	942.0E-06	-1.0E-03	-2.8E-03	-2.6E-03	-2.9E-03	-3.9E-03	-4.0E-03	-3.7E-03	-4.3E-03	-3.1E-03
4	-	714.0E-06	1.5E-03	1.2E-03	-582.0E-06	-2.2E-03	-2.1E-03	-2.4E-03	-3.2E-03	-3.3E-03	-3.0E-03	-3.6E-03	-2.9E-03
Average	-	672.0E-06	1.5E-03	1.1E-03	-710.7E-06	-2.3E-03	-2.1E-03	-2.4E-03	-3.3E-03	-3.4E-03	-3.2E-03	-3.7E-03	-2.8E-03
Sigma	-	29.8E-06	87.7E-06	133.3E-06	242.3E-06	344.4E-06	377.6E-06	380.6E-06	404.7E-06	430.9E-06	390.9E-06	446.7E-06	224.5E-06

Measurements

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.9E-03	51.7E-03	52.7E-03	52.6E-03	52.3E-03	51.7E-03	52.4E-03	52.5E-03	51.8E-03	52.2E-03	52.7E-03	52.4E-03	52.8E-03
ON_TID samples													
8	50.8E-03	52.2E-03	53.6E-03	54.2E-03	53.6E-03	52.4E-03	52.9E-03	52.7E-03	51.8E-03	51.8E-03	52.2E-03	51.7E-03	51.1E-03
9	50.6E-03	51.9E-03	53.4E-03	54.0E-03	53.3E-03	52.2E-03	52.7E-03	52.5E-03	51.6E-03	51.6E-03	51.9E-03	51.4E-03	50.8E-03
10	51.1E-03	51.8E-03	53.2E-03	54.0E-03	53.3E-03	52.2E-03	52.7E-03	52.3E-03	51.5E-03	51.6E-03	51.9E-03	51.4E-03	51.0E-03
Statistics													
Min	50.6E-03	51.8E-03	53.2E-03	54.0E-03	53.3E-03	52.2E-03	52.7E-03	52.3E-03	51.5E-03	51.6E-03	51.9E-03	51.4E-03	50.8E-03
Max	51.1E-03	52.2E-03	53.6E-03	54.2E-03	53.6E-03	52.4E-03	52.9E-03	52.7E-03	51.8E-03	51.8E-03	52.2E-03	51.7E-03	51.1E-03
Average	50.8E-03	52.0E-03	53.4E-03	54.1E-03	53.4E-03	52.3E-03	52.8E-03	52.5E-03	51.6E-03	51.7E-03	52.0E-03	51.5E-03	50.9E-03
Sigma	209.6E-06	165.8E-06	139.2E-06	105.5E-06	132.1E-06	124.4E-06	107.3E-06	148.1E-06	114.3E-06	119.6E-06	133.4E-06	117.0E-06	112.8E-06

Drift Calculation

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	1.4E-03	2.8E-03	3.4E-03	2.8E-03	1.7E-03	2.1E-03	1.9E-03	1.0E-03	1.1E-03	1.4E-03	872.0E-06	292.0E-06
9	-	1.3E-03	2.8E-03	3.4E-03	2.7E-03	1.6E-03	2.1E-03	1.9E-03	1.0E-03	1.0E-03	1.3E-03	834.0E-06	220.0E-06
10	-	730.0E-06	2.1E-03	2.9E-03	2.2E-03	1.1E-03	1.6E-03	1.3E-03	452.0E-06	492.0E-06	812.0E-06	312.0E-06	-142.0E-06
Average	-	1.1E-03	2.6E-03	3.2E-03	2.6E-03	1.4E-03	2.0E-03	1.7E-03	824.0E-06	859.3E-06	1.2E-03	672.7E-06	123.3E-06
Sigma	-	293.5E-06	296.6E-06	261.2E-06	272.9E-06	267.3E-06	252.3E-06	301.7E-06	263.1E-06	260.2E-06	260.4E-06	255.5E-06	189.9E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil				Issue:	02	

Measurements

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.9E-03	51.7E-03	52.7E-03	52.6E-03	52.3E-03	51.7E-03	52.4E-03	52.5E-03	51.8E-03	52.2E-03	52.7E-03	52.4E-03	52.8E-03
OFF PROTON samples													
5	52.0E-03	52.8E-03	54.0E-03	54.6E-03	54.3E-03	53.2E-03	53.7E-03	53.3E-03	52.5E-03	52.5E-03	52.5E-03	52.1E-03	52.0E-03
14	52.8E-03	53.6E-03	54.9E-03	55.4E-03	55.2E-03	53.9E-03	54.7E-03	54.3E-03	53.5E-03	53.5E-03	53.8E-03	53.3E-03	54.1E-03
7	52.1E-03	52.9E-03	53.9E-03	54.3E-03	53.4E-03	52.1E-03	52.5E-03	52.1E-03	51.3E-03	51.2E-03	51.5E-03	50.9E-03	49.1E-03
Statistics													
Min	52.0E-03	52.8E-03	53.9E-03	54.3E-03	53.4E-03	52.1E-03	52.5E-03	52.1E-03	51.3E-03	51.2E-03	51.5E-03	50.9E-03	49.1E-03
Max	52.8E-03	53.6E-03	54.9E-03	55.4E-03	55.2E-03	53.9E-03	54.7E-03	54.3E-03	53.5E-03	53.5E-03	53.8E-03	53.3E-03	54.1E-03
Average	52.3E-03	53.1E-03	54.3E-03	54.7E-03	54.3E-03	53.1E-03	53.6E-03	53.3E-03	52.4E-03	52.4E-03	52.6E-03	52.1E-03	51.7E-03
Sigma	360.1E-06	364.2E-06	421.5E-06	476.5E-06	735.3E-06	748.9E-06	876.5E-06	899.5E-06	914.8E-06	945.1E-06	971.8E-06	969.2E-06	2.1E-03

Drift Calculation

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	828.0E-06	2.0E-03	2.6E-03	2.3E-03	1.2E-03	1.7E-03	1.4E-03	468.0E-06	466.0E-06	550.0E-06	118.0E-06	2.0E-06
14	-	828.0E-06	2.0E-03	2.6E-03	2.4E-03	1.1E-03	1.9E-03	1.5E-03	720.0E-06	704.0E-06	1.0E-03	470.0E-06	1.3E-03
7	-	806.0E-06	1.8E-03	2.1E-03	1.3E-03	0.0E+00	408.0E-06	2.0E-06	-822.0E-06	-910.0E-06	-662.0E-06	-1.2E-03	-3.0E-03
Average	-	820.7E-06	2.0E-03	2.4E-03	2.0E-03	770.7E-06	1.3E-03	951.3E-06	122.0E-06	86.7E-06	302.0E-06	-206.0E-06	-578.0E-06
Sigma	-	10.4E-06	104.5E-06	203.2E-06	490.6E-06	545.4E-06	647.2E-06	674.1E-06	675.4E-06	711.4E-06	707.9E-06	721.6E-06	1.8E-03

Measurements

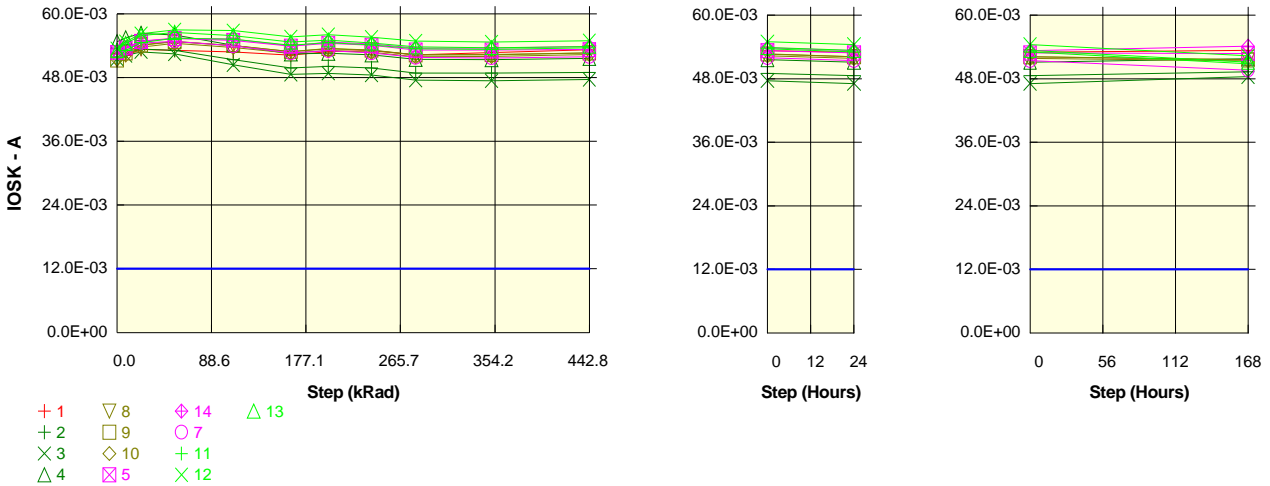
IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	51.9E-03	51.7E-03	52.7E-03	52.6E-03	52.3E-03	51.7E-03	52.4E-03	52.5E-03	51.8E-03	52.2E-03	52.7E-03	52.4E-03	52.8E-03
OFF TID samples													
11	51.0E-03	52.4E-03	53.8E-03	54.6E-03	54.4E-03	53.4E-03	53.8E-03	53.4E-03	52.7E-03	52.6E-03	52.9E-03	52.3E-03	50.1E-03
12	52.8E-03	54.0E-03	55.5E-03	56.2E-03	56.1E-03	55.0E-03	55.4E-03	54.9E-03	54.2E-03	54.0E-03	54.2E-03	53.7E-03	51.6E-03
13	52.6E-03	53.9E-03	55.3E-03	55.9E-03	55.4E-03	54.2E-03	54.5E-03	54.0E-03	53.3E-03	53.1E-03	53.4E-03	52.8E-03	50.6E-03
Statistics													
Min	51.0E-03	52.4E-03	53.8E-03	54.6E-03	54.4E-03	53.4E-03	53.8E-03	53.4E-03	52.7E-03	52.6E-03	52.9E-03	52.3E-03	50.1E-03
Max	52.8E-03	54.0E-03	55.5E-03	56.2E-03	56.1E-03	55.0E-03	55.4E-03	54.9E-03	54.2E-03	54.0E-03	54.2E-03	53.7E-03	51.6E-03
Average	52.1E-03	53.4E-03	54.9E-03	55.6E-03	55.3E-03	54.2E-03	54.6E-03	54.1E-03	53.4E-03	53.2E-03	53.5E-03	53.0E-03	50.8E-03
Sigma	789.3E-06	752.7E-06	763.4E-06	707.4E-06	671.9E-06	647.6E-06	636.3E-06	613.4E-06	600.2E-06	589.8E-06	555.1E-06	588.2E-06	624.9E-06

Drift Calculation

IOSKDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	1.3E-03	2.8E-03	3.6E-03	3.4E-03	2.4E-03	2.8E-03	2.4E-03	1.7E-03	1.5E-03	1.9E-03	1.3E-03	-908.0E-06
12	-	1.3E-03	2.7E-03	3.5E-03	3.3E-03	2.2E-03	2.6E-03	2.1E-03	1.4E-03	1.2E-03	1.5E-03	970.0E-06	-1.2E-03
13	-	1.2E-03	2.7E-03	3.3E-03	2.8E-03	1.6E-03	1.9E-03	1.3E-03	660.0E-06	506.0E-06	764.0E-06	222.0E-06	-2.0E-03
Average	-	1.3E-03	2.7E-03	3.5E-03	3.2E-03	2.0E-03	2.4E-03	1.9E-03	1.2E-03	1.1E-03	1.4E-03	828.0E-06	-1.4E-03
Sigma	-	41.2E-06	26.9E-06	120.8E-06	296.3E-06	334.5E-06	365.5E-06	436.7E-06	432.1E-06	436.4E-06	453.6E-06	448.2E-06	478.5E-06

Parameter : Output Sink Current : IOSKDUT4
 Test conditions : -IN>1V. +IN=0V. VOUT<1.5V

Unit : A
 Spec Limit Min : 12.0E-03
 Spec limits are represented in bold lines on the graphic.



Measurements

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	52.5E-03	52.2E-03	53.3E-03	53.2E-03	52.9E-03	52.2E-03	52.9E-03	53.1E-03	52.3E-03	52.7E-03	53.3E-03	53.0E-03	53.3E-03
ON_PROTON samples													
2	51.9E-03	52.6E-03	53.4E-03	53.1E-03	51.4E-03	49.8E-03	50.1E-03	49.9E-03	48.9E-03	48.9E-03	49.0E-03	48.6E-03	49.3E-03
3	51.5E-03	52.2E-03	52.9E-03	52.5E-03	50.4E-03	48.6E-03	48.8E-03	48.5E-03	47.5E-03	47.4E-03	47.6E-03	47.1E-03	48.4E-03
4	54.8E-03	55.5E-03	56.4E-03	56.0E-03	54.1E-03	52.5E-03	52.6E-03	52.3E-03	51.4E-03	51.4E-03	51.6E-03	51.1E-03	51.8E-03
Statistics													
Min	51.5E-03	52.2E-03	52.9E-03	52.5E-03	50.4E-03	48.6E-03	48.8E-03	48.5E-03	47.5E-03	47.4E-03	47.6E-03	47.1E-03	48.4E-03
Max	54.8E-03	55.5E-03	56.4E-03	56.0E-03	54.1E-03	52.5E-03	52.6E-03	52.3E-03	51.4E-03	51.4E-03	51.6E-03	51.1E-03	51.8E-03
Average	52.7E-03	53.4E-03	54.2E-03	53.9E-03	52.0E-03	50.3E-03	50.5E-03	50.2E-03	49.3E-03	49.2E-03	49.4E-03	48.9E-03	49.8E-03
Sigma	1.4E-03	1.5E-03	1.5E-03	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.6E-03

Drift Calculation

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	666.0E-06	1.5E-03	1.2E-03	-550.0E-06	-2.1E-03	-1.8E-03	-2.1E-03	-3.0E-03	-3.0E-03	-2.9E-03	-3.3E-03	-2.6E-03
3	-	664.0E-06	1.4E-03	940.0E-06	-1.1E-03	-2.9E-03	-2.7E-03	-3.0E-03	-4.0E-03	-4.1E-03	-3.9E-03	-4.4E-03	-3.1E-03
4	-	730.0E-06	1.6E-03	1.3E-03	-632.0E-06	-2.3E-03	-2.3E-03	-2.5E-03	-3.3E-03	-3.4E-03	-3.2E-03	-3.7E-03	-3.0E-03
Average	-	686.7E-06	1.5E-03	1.1E-03	-764.7E-06	-2.4E-03	-2.2E-03	-2.5E-03	-3.5E-03	-3.5E-03	-3.3E-03	-3.8E-03	-2.9E-03
Sigma	-	30.7E-06	93.4E-06	140.1E-06	247.9E-06	353.7E-06	385.8E-06	392.3E-06	416.0E-06	441.6E-06	406.4E-06	459.3E-06	232.9E-06

Measurements

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	52.5E-03	52.2E-03	53.3E-03	53.2E-03	52.9E-03	52.2E-03	52.9E-03	53.1E-03	52.3E-03	52.7E-03	53.3E-03	53.0E-03	53.3E-03
ON_TID samples													
8	51.3E-03	52.7E-03	54.1E-03	54.8E-03	54.1E-03	52.9E-03	53.4E-03	53.2E-03	52.3E-03	52.3E-03	52.7E-03	52.1E-03	51.6E-03
9	51.4E-03	52.7E-03	54.2E-03	54.8E-03	54.1E-03	52.9E-03	53.5E-03	53.2E-03	52.3E-03	52.3E-03	52.7E-03	52.1E-03	51.6E-03
10	51.5E-03	52.3E-03	53.7E-03	54.4E-03	53.7E-03	52.6E-03	53.1E-03	52.8E-03	52.0E-03	52.0E-03	52.3E-03	51.8E-03	51.4E-03
Statistics													
Min	51.3E-03	52.3E-03	53.7E-03	54.4E-03	53.7E-03	52.6E-03	53.1E-03	52.8E-03	52.0E-03	52.0E-03	52.3E-03	51.8E-03	51.4E-03
Max	51.5E-03	52.7E-03	54.2E-03	54.8E-03	54.1E-03	52.9E-03	53.5E-03	53.2E-03	52.3E-03	52.3E-03	52.7E-03	52.1E-03	51.6E-03
Average	51.4E-03	52.6E-03	54.0E-03	54.7E-03	54.0E-03	52.8E-03	53.3E-03	53.1E-03	52.2E-03	52.2E-03	52.6E-03	52.0E-03	51.5E-03
Sigma	99.4E-06	201.4E-06	207.8E-06	173.4E-06	180.1E-06	171.2E-06	157.2E-06	203.8E-06	163.0E-06	156.1E-06	152.5E-06	148.5E-06	82.4E-06

Drift Calculation

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	1.4E-03	2.8E-03	3.5E-03	2.8E-03	1.6E-03	2.1E-03	1.9E-03	978.0E-06	1.0E-03	1.4E-03	838.0E-06	276.0E-06
9	-	1.3E-03	2.8E-03	3.5E-03	2.7E-03	1.6E-03	2.1E-03	1.9E-03	966.0E-06	990.0E-06	1.3E-03	796.0E-06	204.0E-06
10	-	740.0E-06	2.2E-03	2.9E-03	2.2E-03	1.0E-03	1.6E-03	1.2E-03	422.0E-06	472.0E-06	806.0E-06	296.0E-06	-140.0E-06
Average	-	1.2E-03	2.6E-03	3.3E-03	2.6E-03	1.4E-03	2.0E-03	1.7E-03	788.7E-06	830.0E-06	1.2E-03	643.3E-06	113.3E-06
Sigma	-	300.7E-06	304.1E-06	267.9E-06	277.8E-06	268.7E-06	253.2E-06	301.1E-06	259.3E-06	253.6E-06	251.2E-06	246.2E-06	181.5E-06

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH			Intersil			Issue:	02			

Measurements

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	52.5E-03	52.2E-03	53.3E-03	53.2E-03	52.9E-03	52.2E-03	52.9E-03	53.1E-03	52.3E-03	52.7E-03	53.3E-03	53.0E-03	53.3E-03
OFF PROTON samples													
5	52.8E-03	53.6E-03	54.8E-03	55.4E-03	55.1E-03	53.9E-03	54.5E-03	54.1E-03	53.2E-03	53.2E-03	53.3E-03	52.9E-03	52.7E-03
14	52.8E-03	53.7E-03	54.9E-03	55.4E-03	55.2E-03	54.0E-03	54.7E-03	54.4E-03	53.6E-03	53.6E-03	53.9E-03	53.3E-03	54.1E-03
7	52.7E-03	53.5E-03	54.5E-03	54.9E-03	54.0E-03	52.7E-03	53.1E-03	52.7E-03	51.8E-03	51.7E-03	52.0E-03	51.4E-03	49.6E-03
Statistics													
Min	52.7E-03	53.5E-03	54.5E-03	54.9E-03	54.0E-03	52.7E-03	53.1E-03	52.7E-03	51.8E-03	51.7E-03	52.0E-03	51.4E-03	49.6E-03
Max	52.8E-03	53.7E-03	54.9E-03	55.4E-03	55.2E-03	54.0E-03	54.7E-03	54.4E-03	53.6E-03	53.6E-03	53.9E-03	53.3E-03	54.1E-03
Average	52.8E-03	53.6E-03	54.8E-03	55.2E-03	54.8E-03	53.5E-03	54.1E-03	53.7E-03	52.9E-03	52.8E-03	53.1E-03	52.5E-03	52.2E-03
Sigma	50.6E-06	61.5E-06	153.1E-06	257.2E-06	564.4E-06	616.7E-06	725.4E-06	755.3E-06	759.5E-06	796.9E-06	795.6E-06	808.9E-06	1.9E-03

Drift Calculation

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	840.0E-06	2.1E-03	2.6E-03	2.3E-03	1.2E-03	1.7E-03	1.4E-03	456.0E-06	454.0E-06	542.0E-06	98.0E-06	-26.0E-06
14	-	840.0E-06	2.1E-03	2.6E-03	2.4E-03	1.1E-03	1.9E-03	1.5E-03	740.0E-06	730.0E-06	1.0E-03	486.0E-06	1.3E-03
7	-	814.0E-06	1.8E-03	2.2E-03	1.3E-03	-50.0E-06	360.0E-06	-54.0E-06	-892.0E-06	-980.0E-06	-728.0E-06	-1.3E-03	-3.1E-03
Average	-	831.3E-06	2.0E-03	2.5E-03	2.0E-03	760.0E-06	1.3E-03	943.3E-06	101.3E-06	68.0E-06	286.7E-06	-234.0E-06	-606.7E-06
Sigma	-	12.3E-06	106.2E-06	212.7E-06	517.8E-06	572.9E-06	678.9E-06	708.9E-06	711.9E-06	749.6E-06	746.4E-06	760.6E-06	1.8E-03

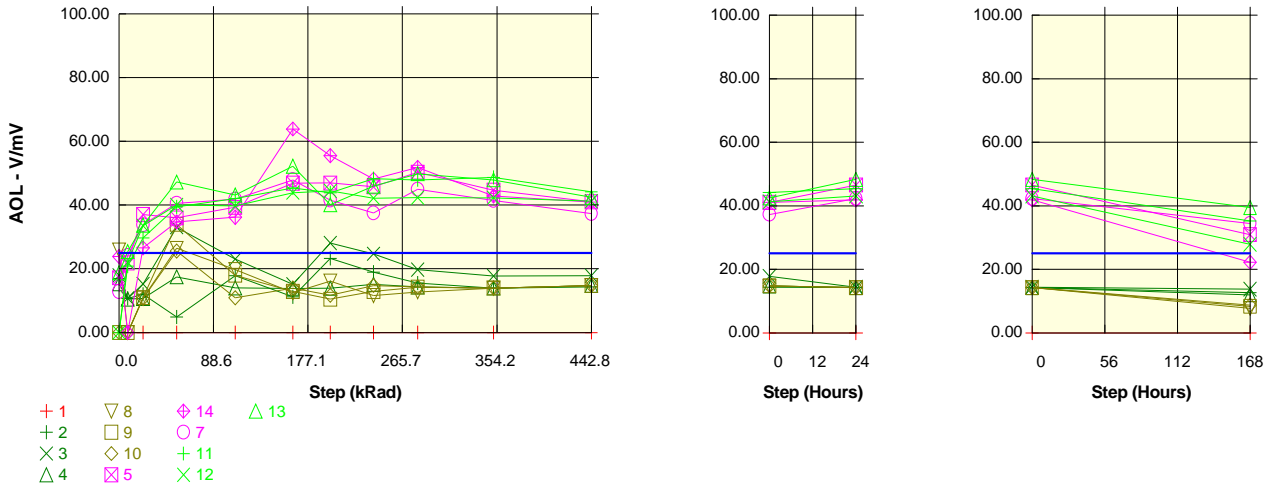
Measurements

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	52.5E-03	52.2E-03	53.3E-03	53.2E-03	52.9E-03	52.2E-03	52.9E-03	53.1E-03	52.3E-03	52.7E-03	53.3E-03	53.0E-03	53.3E-03
OFF TID samples													
11	51.8E-03	53.1E-03	54.6E-03	55.4E-03	55.2E-03	54.1E-03	54.6E-03	54.2E-03	53.5E-03	53.3E-03	53.6E-03	53.1E-03	50.8E-03
12	53.5E-03	54.8E-03	56.3E-03	57.1E-03	56.9E-03	55.7E-03	56.1E-03	55.6E-03	54.9E-03	54.7E-03	55.0E-03	54.5E-03	52.3E-03
13	53.2E-03	54.5E-03	55.9E-03	56.5E-03	55.9E-03	54.7E-03	55.1E-03	54.5E-03	53.8E-03	53.6E-03	53.9E-03	53.4E-03	51.1E-03
Statistics													
Min	51.8E-03	53.1E-03	54.6E-03	55.4E-03	55.2E-03	54.1E-03	54.6E-03	54.2E-03	53.5E-03	53.3E-03	53.6E-03	53.1E-03	50.8E-03
Max	53.5E-03	54.8E-03	56.3E-03	57.1E-03	56.9E-03	55.7E-03	56.1E-03	55.6E-03	54.9E-03	54.7E-03	55.0E-03	54.5E-03	52.3E-03
Average	52.8E-03	54.1E-03	55.6E-03	56.3E-03	56.0E-03	54.9E-03	55.3E-03	54.8E-03	54.0E-03	53.9E-03	54.2E-03	53.6E-03	51.4E-03
Sigma	752.6E-06	715.1E-06	724.9E-06	676.3E-06	661.8E-06	643.3E-06	635.2E-06	624.0E-06	612.2E-06	597.5E-06	567.2E-06	600.9E-06	649.3E-06

Drift Calculation

IOSKDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	1.4E-03	2.8E-03	3.7E-03	3.5E-03	2.4E-03	2.8E-03	2.4E-03	1.7E-03	1.6E-03	1.9E-03	1.3E-03	-956.0E-06
12	-	1.3E-03	2.8E-03	3.6E-03	3.4E-03	2.2E-03	2.6E-03	2.1E-03	1.4E-03	1.2E-03	1.5E-03	962.0E-06	-1.2E-03
13	-	1.3E-03	2.7E-03	3.3E-03	2.8E-03	1.5E-03	1.9E-03	1.3E-03	604.0E-06	452.0E-06	718.0E-06	162.0E-06	-2.1E-03
Average	-	1.3E-03	2.8E-03	3.5E-03	3.2E-03	2.0E-03	2.4E-03	1.9E-03	1.2E-03	1.1E-03	1.4E-03	805.3E-06	-1.4E-03
Sigma	-	45.2E-06	31.0E-06	130.4E-06	319.5E-06	361.4E-06	392.6E-06	462.2E-06	456.4E-06	461.1E-06	479.3E-06	474.4E-06	489.1E-06

Parameter : Voltage Gain : AOLDUT1
 Test conditions : RL>15K. VCC=15V
 Unit : V/mV
 Spec Limit Min : 25.00
 Spec limits are represented in bold lines on the graphic.



Measurements

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ON_PROTON samples													
2	16.97	10.67	12.04	4.92	17.83	11.22	23.26	18.95	15.55	14.00	14.38	14.23	12.63
3	17.90	10.75	15.23	33.07	23.06	15.15	28.09	24.73	19.76	17.77	17.81	14.41	13.80
4	15.33	10.52	10.72	17.47	14.04	13.87	13.89	15.11	14.30	13.97	14.78	14.26	12.01
Statistics													
Min	15.33	10.52	10.72	4.92	14.04	11.22	13.89	15.11	14.30	13.97	14.38	14.23	12.01
Max	17.90	10.75	15.23	33.07	23.06	15.15	28.09	24.73	19.76	17.77	17.81	14.41	13.80
Average	16.73	10.65	12.66	18.49	18.31	13.41	21.74	19.60	16.54	15.24	15.66	14.30	12.81
Sigma	1.07	0.09	1.90	11.52	3.70	1.64	5.90	3.95	2.34	1.78	1.53	0.08	0.74

Drift Calculation

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-6.3E+00	-4.9E+00	-12.1E+00	861.8E-03	-5.8E+00	6.3E+00	2.0E+00	-1.4E+00	-3.0E+00	-2.6E+00	-2.7E+00	-4.3E+00
3	-	-7.2E+00	-2.7E+00	15.2E+00	5.2E+00	-2.8E+00	10.2E+00	6.8E+00	1.9E+00	-134.9E-03	-96.9E-03	-3.5E+00	-4.1E+00
4	-	-4.8E+00	-4.6E+00	2.1E+00	-1.3E+00	-1.5E+00	-1.4E+00	-220.4E-03	-1.0E+00	-542.0E-03	-1.1E+00	-3.3E+00	-3.9E+00
Average	-	-6.1E+00	-4.1E+00	1.8E+00	1.6E+00	-3.3E+00	5.0E+00	2.9E+00	-195.7E-03	-1.5E+00	-1.1E+00	-2.4E+00	-3.9E+00
Sigma	-	971.9E-03	999.4E-03	11.1E+00	2.7E+00	1.8E+00	4.8E+00	2.9E+00	1.5E+00	1.2E+00	1.1E+00	1.0E+00	435.1E-03

Measurements

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ON_TID samples													
8	25.89	0.00	10.79	26.46	19.78	12.48	16.13	11.63	12.76	13.89	14.77	14.26	7.70
9	0.00	0.00	10.96	33.97	18.00	12.92	10.47	12.95	14.28	13.97	14.79	14.26	8.37
10	0.00	0.00	10.67	25.56	10.90	13.89	11.69	14.77	14.32	13.97	14.80	14.28	8.78
Statistics													
Min	0.00	0.00	10.67	25.56	10.90	12.48	10.47	11.63	12.76	13.89	14.77	14.26	7.70
Max	25.89	0.00	10.96	33.97	19.78	13.89	16.13	14.77	14.32	13.97	14.80	14.28	8.78
Average	8.63	0.00	10.81	28.66	16.23	13.09	12.76	13.12	13.78	13.95	14.79	14.27	8.28
Sigma	12.21	0.00	0.12	3.77	3.83	0.59	2.43	1.28	0.73	0.04	0.01	0.01	0.44

Drift Calculation

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-25.9E+00	-15.1E+00	561.7E-03	-6.1E+00	-13.4E+00	-9.8E+00	-14.3E+00	-13.1E+00	-12.0E+00	-11.1E+00	-11.6E+00	-18.2E+00
9	-	0.0E+00	11.0E+00	34.0E+00	18.0E+00	12.9E+00	10.5E+00	13.0E+00	14.3E+00	14.0E+00	14.8E+00	14.3E+00	8.4E+00
10	-	-10.0E-09	10.7E+00	25.6E+00	10.9E+00	13.9E+00	11.7E+00	14.8E+00	14.3E+00	14.0E+00	14.8E+00	14.3E+00	8.8E+00
Average	-	-8.6E+00	2.2E+00	20.0E+00	7.6E+00	4.5E+00	4.1E+00	4.5E+00	5.2E+00	5.3E+00	6.2E+00	5.6E+00	-348.9E-03
Sigma	-	12.2E+00	12.2E+00	14.2E+00	10.1E+00	12.7E+00	9.8E+00	13.3E+00	12.9E+00	12.2E+00	12.2E+00	12.2E+00	12.6E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFF PROTON samples													
5	17.18	21.82	37.02	35.99	39.30	46.90	46.95	45.76	50.33	44.74	41.06	46.57	30.95
14	23.88	0.00	26.54	34.73	36.18	63.91	55.54	48.16	51.78	42.82	41.00	41.87	22.24
7	12.85	24.22	33.77	40.60	41.86	47.91	41.54	37.53	44.95	41.42	37.31	42.24	34.39
Statistics													
Min	12.85	0.00	26.54	34.73	36.18	46.90	41.54	37.53	44.95	41.42	37.31	41.87	22.24
Max	23.88	24.22	37.02	40.60	41.86	63.91	55.54	48.16	51.78	44.74	41.06	46.57	34.39
Average	17.97	15.35	32.44	37.11	39.11	52.90	48.01	43.82	49.02	42.99	39.79	43.56	29.19
Sigma	4.54	10.90	4.38	2.52	2.32	7.79	5.77	4.55	2.94	1.36	1.75	2.13	5.11

Drift Calculation

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	4.6E+00	19.8E+00	18.8E+00	22.1E+00	29.7E+00	29.8E+00	28.6E+00	33.1E+00	27.6E+00	23.9E+00	29.4E+00	13.8E+00
14	-	-23.9E+00	2.7E+00	10.9E+00	12.3E+00	40.0E+00	31.7E+00	24.3E+00	27.9E+00	18.9E+00	17.1E+00	18.0E+00	-1.6E+00
7	-	11.4E+00	20.9E+00	27.8E+00	29.0E+00	35.1E+00	28.7E+00	24.7E+00	32.1E+00	28.6E+00	24.5E+00	29.4E+00	21.5E+00
Average	-	-2.6E+00	14.5E+00	19.1E+00	21.1E+00	34.9E+00	30.0E+00	25.8E+00	31.1E+00	25.0E+00	21.8E+00	25.6E+00	11.2E+00
Sigma	-	15.3E+00	8.4E+00	6.9E+00	6.9E+00	4.2E+00	1.2E+00	1.9E+00	2.3E+00	4.3E+00	3.3E+00	5.4E+00	9.6E+00

Measurements

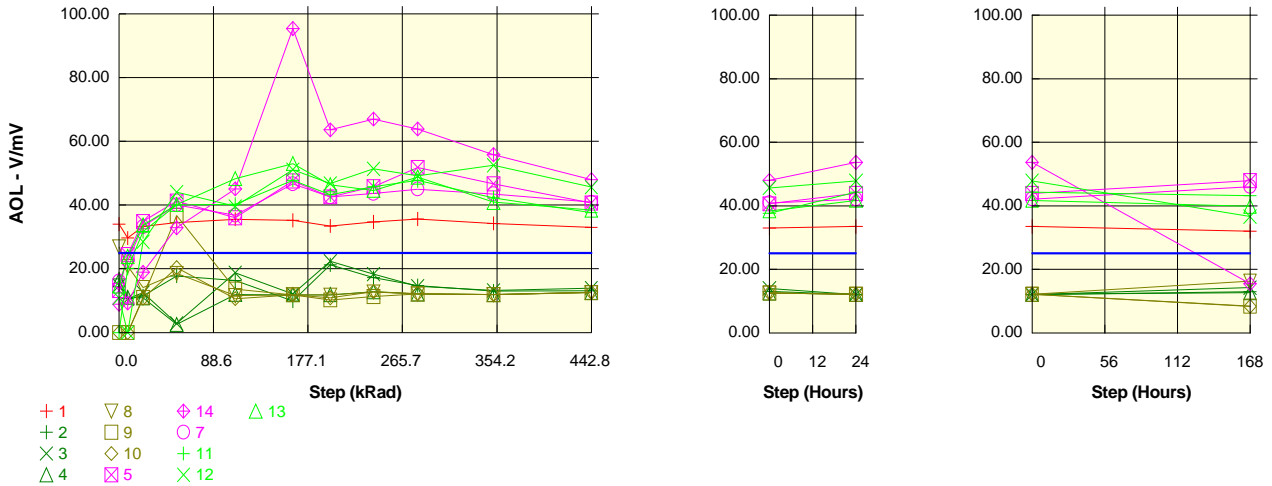
AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFF TID samples													
11	0.00	20.89	29.73	39.41	42.08	45.38	43.88	48.25	47.92	48.68	44.22	45.43	35.28
12	0.00	22.02	33.49	40.08	39.74	43.89	44.52	42.18	42.34	42.29	41.27	43.08	27.87
13	18.71	25.43	33.73	47.24	43.14	52.20	40.12	45.96	49.84	47.92	42.49	48.33	39.46
Statistics													
Min	0.00	20.89	29.73	39.41	39.74	43.89	40.12	42.18	42.34	42.29	41.27	43.08	27.87
Max	18.71	25.43	33.73	47.24	43.14	52.20	44.52	48.25	49.84	48.68	44.22	48.33	39.46
Average	6.24	22.78	32.32	42.24	41.65	47.16	42.84	45.47	46.70	46.30	42.66	45.61	34.20
Sigma	8.82	1.93	1.83	3.55	1.42	3.62	1.94	2.50	3.18	2.85	1.21	2.15	4.79

Drift Calculation

AOLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	20.9E+00	29.7E+00	39.4E+00	42.1E+00	45.4E+00	43.9E+00	48.3E+00	47.9E+00	48.7E+00	44.2E+00	45.4E+00	35.3E+00
12	-	22.0E+00	33.5E+00	40.1E+00	39.7E+00	43.9E+00	44.5E+00	42.2E+00	42.3E+00	42.3E+00	41.3E+00	43.1E+00	27.9E+00
13	-	6.7E+00	15.0E+00	28.5E+00	24.4E+00	33.5E+00	21.4E+00	27.3E+00	31.1E+00	29.2E+00	23.8E+00	29.6E+00	20.7E+00
Average	-	16.5E+00	26.1E+00	36.0E+00	35.4E+00	40.9E+00	36.6E+00	39.2E+00	40.5E+00	40.1E+00	36.4E+00	39.4E+00	28.0E+00
Sigma	-	7.0E+00	8.0E+00	5.3E+00	7.8E+00	5.3E+00	10.7E+00	8.8E+00	7.0E+00	8.1E+00	9.0E+00	7.0E+00	5.9E+00

Parameter : Voltage Gain : AOLDUT2
 Test conditions : RL>15K. VCC=15V

Unit : V/mV
 Spec Limit Min : 25.00
 Spec limits are represented in bold lines on the graphic.



Measurements

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	34.00	29.65	33.28	34.50	35.58	35.21	33.45	34.73	35.65	34.25	33.03	33.46	31.97
ON_PROTON samples													
2	16.82	10.77	11.48	17.73	16.34	9.91	21.29	17.25	14.70	13.03	13.09	12.11	12.95
3	14.70	10.59	12.53	2.90	18.73	12.06	22.36	18.32	14.57	13.25	13.99	12.11	14.23
4	16.51	11.05	10.95	2.52	11.98	11.87	11.87	12.80	12.15	11.88	12.57	12.14	12.62
Statistics													
Min	14.70	10.59	10.95	2.52	11.98	9.91	11.87	12.80	12.15	11.88	12.57	12.11	12.62
Max	16.82	11.05	12.53	17.73	18.73	12.06	22.36	18.32	14.70	13.25	13.99	12.14	14.23
Average	16.01	10.80	11.65	7.71	15.68	11.28	18.51	16.12	13.81	12.72	13.22	12.12	13.27
Sigma	0.93	0.19	0.66	7.08	2.79	0.97	4.71	2.39	1.17	0.60	0.59	0.02	0.69

Drift Calculation

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-6.1E+00	-5.3E+00	910.2E-03	-480.4E-03	-6.9E+00	4.5E+00	433.0E-03	-2.1E+00	-3.8E+00	-3.7E+00	-4.7E+00	-3.9E+00
3	-	-4.1E+00	-2.2E+00	-11.8E+00	4.0E+00	-2.6E+00	7.7E+00	3.6E+00	-131.1E-03	-1.5E+00	-709.9E-03	-2.6E+00	-471.0E-03
4	-	-5.5E+00	-5.6E+00	-14.0E+00	-4.5E+00	-4.6E+00	-4.6E+00	-3.7E+00	-4.4E+00	-4.6E+00	-4.4E+00	-3.9E+00	-3.9E+00
Average	-	-5.2E+00	-4.4E+00	-8.3E+00	-326.9E-03	-4.7E+00	2.5E+00	114.3E-03	-2.2E+00	-3.3E+00	-2.8E+00	-3.9E+00	-2.7E+00
Sigma	-	814.2E-03	1.5E+00	6.6E+00	3.5E+00	1.7E+00	5.2E+00	3.0E+00	1.7E+00	1.3E+00	1.5E+00	926.5E-03	1.6E+00

Measurements

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	34.00	29.65	33.28	34.50	35.58	35.21	33.45	34.73	35.65	34.25	33.03	33.46	31.97
ON_TID samples													
8	26.91	20.78	14.16	18.59	11.60	11.85	11.80	12.78	12.15	11.89	12.56	12.15	16.31
9	0.00	0.00	11.01	36.71	13.62	11.83	10.22	11.35	12.15	11.89	12.56	12.14	8.44
10	0.00	0.00	10.75	20.34	10.61	11.87	10.95	12.80	12.17	11.91	12.57	12.16	8.38
Statistics													
Min	0.00	0.00	10.75	18.59	10.61	11.83	10.22	11.35	12.15	11.89	12.56	12.14	8.38
Max	26.91	20.78	14.16	36.71	13.62	11.87	11.80	12.80	12.17	11.91	12.57	12.16	16.31
Average	8.97	6.93	11.98	25.21	11.94	11.85	10.99	12.31	12.16	11.90	12.56	12.15	11.04
Sigma	12.69	9.80	1.55	8.16	1.25	0.02	0.64	0.68	0.01	0.01	0.01	0.01	3.72

Drift Calculation

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-6.1E+00	-12.7E+00	-8.3E+00	-15.3E+00	-15.1E+00	-15.1E+00	-14.1E+00	-14.8E+00	-15.0E+00	-14.4E+00	-14.8E+00	-10.6E+00
9	-	0.0E+00	11.0E+00	36.7E+00	13.6E+00	11.8E+00	10.2E+00	11.4E+00	12.1E+00	11.9E+00	12.6E+00	12.1E+00	8.4E+00
10	-	-10.0E-09	10.7E+00	20.3E+00	10.6E+00	11.9E+00	10.9E+00	12.8E+00	12.2E+00	11.9E+00	12.6E+00	12.2E+00	8.4E+00
Average	-	-2.0E+00	3.0E+00	16.2E+00	3.0E+00	2.9E+00	2.0E+00	3.3E+00	3.2E+00	2.9E+00	3.6E+00	3.2E+00	2.1E+00
Sigma	-	2.9E+00	11.1E+00	18.6E+00	13.0E+00	12.7E+00	12.1E+00	12.4E+00	12.7E+00	12.7E+00	12.7E+00	12.7E+00	9.0E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	34.00	29.65	33.28	34.50	35.58	35.21	33.45	34.73	35.65	34.25	33.03	33.46	31.97
OFF PROTON samples													
5	13.21	24.51	34.86	41.29	36.04	47.58	42.60	45.81	51.83	46.68	40.63	43.90	47.97
14	8.88	9.25	18.90	32.89	45.13	95.42	63.61	67.02	63.94	55.80	47.98	53.65	15.44
7	16.13	22.52	33.25	40.08	36.82	46.70	42.52	43.63	44.98	43.52	40.94	42.11	46.06
Statistics													
Min	8.88	9.25	18.90	32.89	36.04	46.70	42.52	43.63	44.98	43.52	40.63	42.11	15.44
Max	16.13	24.51	34.86	41.29	45.13	95.42	63.61	67.02	63.94	55.80	47.98	53.65	47.97
Average	12.74	18.76	29.00	38.09	39.33	63.24	49.58	52.16	53.58	48.67	43.19	46.55	36.49
Sigma	2.98	6.77	7.18	3.71	4.11	22.76	9.93	10.55	7.84	5.21	3.40	5.07	14.90

Drift Calculation

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	11.3E+00	21.6E+00	28.1E+00	22.8E+00	34.4E+00	29.4E+00	32.6E+00	38.6E+00	33.5E+00	27.4E+00	30.7E+00	34.8E+00
14	-	368.3E-03	10.0E+00	24.0E+00	36.2E+00	86.5E+00	54.7E+00	58.1E+00	55.1E+00	46.9E+00	39.1E+00	44.8E+00	6.6E+00
7	-	6.4E+00	17.1E+00	23.9E+00	20.7E+00	30.6E+00	26.4E+00	27.5E+00	28.8E+00	27.4E+00	24.8E+00	26.0E+00	29.9E+00
Average	-	6.0E+00	16.3E+00	25.3E+00	26.6E+00	50.5E+00	36.8E+00	39.4E+00	40.8E+00	35.9E+00	30.4E+00	33.8E+00	23.7E+00
Sigma	-	4.5E+00	4.8E+00	1.9E+00	6.9E+00	25.5E+00	12.7E+00	13.4E+00	10.8E+00	8.2E+00	6.2E+00	8.0E+00	12.3E+00

Measurements

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	34.00	29.65	33.28	34.50	35.58	35.21	33.45	34.73	35.65	34.25	33.03	33.46	31.97
OFF TID samples													
11	0.00	20.17	31.71	40.02	40.29	47.84	43.22	45.78	47.74	42.25	37.64	44.26	43.19
12	10.88	0.00	28.49	44.08	39.60	51.14	46.76	51.40	49.21	52.55	45.65	47.82	36.61
13	14.62	23.86	33.75	40.20	48.36	53.06	46.36	44.61	48.80	40.90	38.41	41.74	39.85
Statistics													
Min	0.00	0.00	28.49	40.02	39.60	47.84	43.22	44.61	47.74	40.90	37.64	41.74	36.61
Max	14.62	23.86	33.75	44.08	48.36	53.06	46.76	51.40	49.21	52.55	45.65	47.82	43.19
Average	8.50	14.68	31.32	41.43	42.75	50.68	45.45	47.26	48.58	45.23	40.56	44.61	39.89
Sigma	6.20	10.49	2.17	1.88	3.97	2.15	1.59	2.96	0.62	5.21	3.61	2.49	2.69

Drift Calculation

AOLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	20.2E+00	31.7E+00	40.0E+00	40.3E+00	47.8E+00	43.2E+00	45.8E+00	47.7E+00	42.3E+00	37.6E+00	44.3E+00	43.2E+00
12	-	-10.9E+00	17.6E+00	33.2E+00	28.7E+00	40.3E+00	35.9E+00	40.5E+00	38.3E+00	41.7E+00	34.8E+00	36.9E+00	25.7E+00
13	-	9.2E+00	19.1E+00	25.6E+00	33.7E+00	38.4E+00	31.7E+00	30.0E+00	34.2E+00	26.3E+00	23.8E+00	27.1E+00	25.2E+00
Average	-	6.2E+00	22.8E+00	32.9E+00	34.2E+00	42.2E+00	36.9E+00	38.8E+00	40.1E+00	36.7E+00	32.1E+00	36.1E+00	31.4E+00
Sigma	-	12.9E+00	6.3E+00	5.9E+00	4.7E+00	4.1E+00	4.7E+00	6.6E+00	5.7E+00	7.4E+00	6.0E+00	7.0E+00	8.4E+00

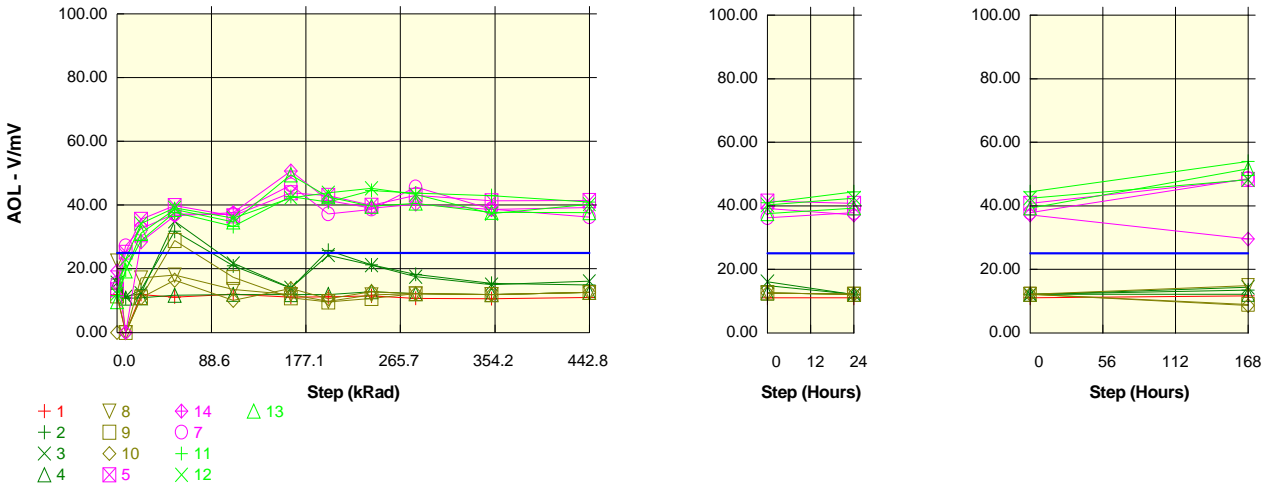
Parameter : Voltage Gain : AOLDUT3

Test conditions : RL>15K. VCC=15V

Unit : V/mV

Spec Limit Min : 25.00

Spec limits are represented in bold lines on the graphic.



Measurements

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.89	0.00	11.99	11.18	12.00	11.09	11.21	11.51	10.77	10.66	11.04	11.03	11.68
ON_PROTON samples													
2	16.84	10.95	13.42	31.81	20.94	13.98	25.83	21.19	18.29	15.45	14.95	12.14	13.46
3	15.65	11.20	12.38	34.97	21.72	14.03	24.30	21.17	17.51	15.08	16.11	12.12	14.33
4	15.72	10.75	10.87	11.70	11.94	11.89	11.89	12.83	12.18	11.92	12.59	12.17	12.17
Statistics													
Min	15.65	10.75	10.87	11.70	11.94	11.89	11.89	12.83	12.18	11.92	12.59	12.12	12.17
Max	16.84	11.20	13.42	34.97	21.72	14.03	25.83	21.19	18.29	15.45	16.11	12.17	14.33
Average	16.07	10.96	12.22	26.16	18.20	13.30	20.67	18.39	15.99	14.15	14.55	12.14	13.32
Sigma	0.54	0.19	1.04	10.30	4.44	1.00	6.24	3.94	2.71	1.59	1.46	0.02	0.89

Drift Calculation

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-5.9E+00	-3.4E+00	15.0E+00	4.1E+00	-2.9E+00	9.0E+00	4.3E+00	1.4E+00	-1.4E+00	-1.9E+00	-4.7E+00	-3.4E+00
3	-	-4.4E+00	-3.3E+00	19.3E+00	6.1E+00	-1.6E+00	8.6E+00	5.5E+00	1.9E+00	-571.0E-03	458.8E-03	-3.5E+00	-1.3E+00
4	-	-5.0E+00	-4.8E+00	-4.0E+00	-3.8E+00	-3.8E+00	-3.8E+00	-2.9E+00	-3.8E+00	-3.1E+00	-3.6E+00	-3.6E+00	-3.5E+00
Average	-	-5.1E+00	-3.8E+00	10.1E+00	2.1E+00	-2.8E+00	4.6E+00	2.3E+00	-76.6E-03	-1.9E+00	-1.5E+00	-3.9E+00	-2.7E+00
Sigma	-	596.9E-03	709.5E-03	10.1E+00	4.3E+00	905.2E-03	6.0E+00	3.7E+00	2.5E+00	1.4E+00	1.5E+00	545.3E-03	1.0E+00

Measurements

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.89	0.00	11.99	11.18	12.00	11.09	11.21	11.51	10.77	10.66	11.04	11.03	11.68
ON_TID samples													
8	22.55	0.00	17.17	18.05	13.58	11.88	9.78	11.84	12.17	11.91	12.59	12.17	14.85
9	11.52	0.00	10.99	28.90	17.30	10.85	9.59	10.72	12.18	11.91	12.59	12.17	8.97
10	0.00	0.00	10.86	16.47	10.05	13.80	10.62	12.83	12.19	11.92	12.59	12.19	8.57
Statistics													
Min	0.00	0.00	10.86	16.47	10.05	10.85	9.59	10.72	12.17	11.91	12.59	12.17	8.57
Max	22.55	0.00	17.17	28.90	17.30	13.80	10.62	12.83	12.19	11.92	12.59	12.19	14.85
Average	11.36	0.00	13.01	21.14	13.64	12.17	10.00	11.80	12.18	11.91	12.59	12.18	10.80
Sigma	9.21	0.00	2.94	5.53	2.96	1.22	0.45	0.87	0.01	0.01	0.00	0.01	2.87

Drift Calculation

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-22.6E+00	-5.4E+00	-4.5E+00	-9.0E+00	-10.7E+00	-12.8E+00	-10.7E+00	-10.4E+00	-10.6E+00	-10.0E+00	-10.4E+00	-7.7E+00
9	-	-11.5E+00	-525.3E-03	17.4E+00	5.8E+00	-668.4E-03	-1.9E+00	-803.3E-03	658.2E-03	391.3E-03	1.1E+00	652.2E-03	-2.6E+00
10	-	-10.0E-09	10.9E+00	16.5E+00	10.1E+00	13.8E+00	10.6E+00	12.8E+00	12.2E+00	11.9E+00	12.6E+00	12.2E+00	8.6E+00
Average	-	-11.4E+00	1.6E+00	9.8E+00	2.3E+00	817.3E-03	-1.4E+00	438.2E-03	819.9E-03	556.8E-03	1.2E+00	819.9E-03	-560.1E-03
Sigma	-	9.2E+00	6.8E+00	10.1E+00	8.2E+00	10.0E+00	9.6E+00	9.7E+00	9.2E+00	9.2E+00	9.2E+00	9.2E+00	6.8E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH			Intersil			Issue:	02			

Measurements

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.89	0.00	11.99	11.18	12.00	11.09	11.21	11.51	10.77	10.66	11.04	11.03	11.68
OFF PROTON samples													
5	13.42	25.22	35.58	39.84	36.60	43.85	43.02	39.96	43.11	41.37	41.47	40.82	48.35
14	19.31	0.00	28.47	36.69	37.62	50.77	41.49	39.09	40.30	38.60	39.20	37.17	29.55
7	15.48	27.23	32.58	37.17	37.00	46.33	37.26	38.66	45.63	38.73	36.25	37.78	48.52
Statistics													
Min	13.42	0.00	28.47	36.69	36.60	43.85	37.26	38.66	40.30	38.60	36.25	37.17	29.55
Max	19.31	27.23	35.58	39.84	37.62	50.77	43.02	39.96	45.63	41.37	41.47	40.82	48.52
Average	16.07	17.48	32.21	37.90	37.08	46.98	40.59	39.24	43.01	39.57	38.97	38.59	42.14
Sigma	2.44	12.39	2.92	1.38	0.42	2.86	2.44	0.54	2.18	1.28	2.14	1.59	8.90

Drift Calculation

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	11.8E+00	22.2E+00	26.4E+00	23.2E+00	30.4E+00	29.6E+00	26.5E+00	29.7E+00	27.9E+00	28.1E+00	27.4E+00	34.9E+00
14	-	-19.3E+00	9.2E+00	17.4E+00	18.3E+00	31.5E+00	22.2E+00	19.8E+00	21.0E+00	19.3E+00	19.9E+00	17.9E+00	10.2E+00
7	-	11.8E+00	17.1E+00	21.7E+00	21.5E+00	30.9E+00	21.8E+00	23.2E+00	30.1E+00	23.3E+00	20.8E+00	22.3E+00	33.0E+00
Average	-	1.4E+00	16.1E+00	21.8E+00	21.0E+00	30.9E+00	24.5E+00	23.2E+00	26.9E+00	23.5E+00	22.9E+00	22.5E+00	26.1E+00
Sigma	-	14.7E+00	5.4E+00	3.7E+00	2.0E+00	422.8E-03	3.6E+00	2.8E+00	4.2E+00	3.5E+00	3.7E+00	3.9E+00	11.2E+00

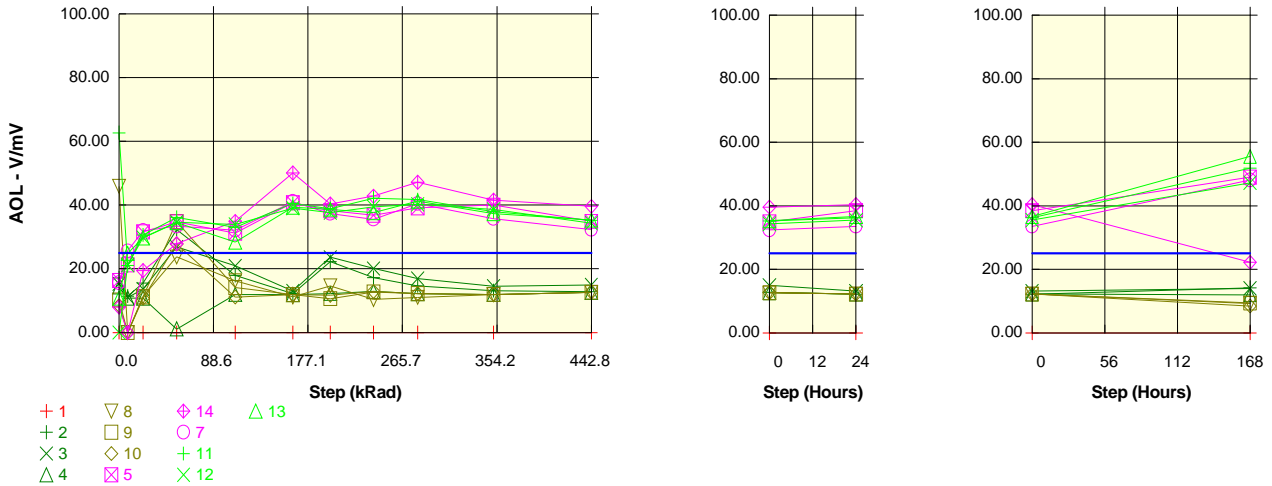
Measurements

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	11.89	0.00	11.99	11.18	12.00	11.09	11.21	11.51	10.77	10.66	11.04	11.03	11.68
OFF TID samples													
11	11.58	19.67	28.88	37.73	33.36	42.71	40.95	44.60	43.77	42.96	40.98	44.39	53.94
12	12.20	22.92	34.22	39.17	35.94	42.29	43.89	45.29	43.35	37.33	40.30	42.44	48.22
13	9.71	19.34	31.21	38.63	34.72	49.49	42.60	39.64	40.56	37.68	37.59	39.29	51.72
Statistics													
Min	9.71	19.34	28.88	37.73	33.36	42.29	40.95	39.64	40.56	37.33	37.59	39.29	48.22
Max	12.20	22.92	34.22	39.17	35.94	49.49	43.89	45.29	43.77	42.96	40.98	44.39	53.94
Average	11.16	20.64	31.44	38.51	34.67	44.83	42.48	43.18	42.56	39.33	39.62	42.04	51.29
Sigma	1.06	1.61	2.19	0.59	1.05	3.30	1.20	2.52	1.42	2.58	1.46	2.10	2.36

Drift Calculation

AOLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	8.1E+00	17.3E+00	26.1E+00	21.8E+00	31.1E+00	29.4E+00	33.0E+00	32.2E+00	31.4E+00	29.4E+00	32.8E+00	42.4E+00
12	-	10.7E+00	22.0E+00	27.0E+00	23.7E+00	30.1E+00	31.7E+00	33.1E+00	31.1E+00	25.1E+00	28.1E+00	30.2E+00	36.0E+00
13	-	9.6E+00	21.5E+00	28.9E+00	25.0E+00	39.8E+00	32.9E+00	29.9E+00	30.9E+00	28.0E+00	27.9E+00	29.6E+00	42.0E+00
Average	-	9.5E+00	20.3E+00	27.3E+00	23.5E+00	33.7E+00	31.3E+00	32.0E+00	31.4E+00	28.2E+00	28.5E+00	30.9E+00	40.1E+00
Sigma	-	1.1E+00	2.1E+00	1.2E+00	1.3E+00	4.3E+00	1.5E+00	1.5E+00	568.9E-03	2.6E+00	669.5E-03	1.4E+00	2.9E+00

Parameter : Voltage Gain : AOLDUT4
 Test conditions : RL>15K. VCC=15V
 Unit : V/mV
 Spec Limit Min : 25.00
 Spec limits are represented in bold lines on the graphic.



Measurements

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ON_PROTON samples													
2	17.15	11.42	15.52	32.38	17.93	12.17	22.26	17.24	14.66	13.18	12.83	12.17	14.20
3	15.31	11.03	13.65	26.85	20.90	13.02	23.63	20.11	16.98	14.52	14.96	13.13	13.99
4	14.24	10.80	10.84	1.12	11.97	11.91	12.22	12.86	12.21	11.94	12.62	12.20	12.00
Statistics													
Min	14.24	10.80	10.84	1.12	11.97	11.91	12.22	12.86	12.21	11.94	12.62	12.17	12.00
Max	17.15	11.42	15.52	32.38	20.90	13.02	23.63	20.11	16.98	14.52	14.96	13.13	14.20
Average	15.57	11.08	13.33	20.12	16.93	12.37	19.37	16.74	14.62	13.21	13.47	12.50	13.40
Sigma	1.20	0.26	1.92	13.62	3.72	0.47	5.08	2.98	1.95	1.05	1.06	0.45	0.99

Drift Calculation

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-5.7E+00	-1.6E+00	15.2E+00	783.7E-03	-5.0E+00	5.1E+00	91.1E-03	-2.5E+00	-4.0E+00	-4.3E+00	-5.0E+00	-3.0E+00
3	-	-4.3E+00	-1.7E+00	11.5E+00	5.6E+00	-2.3E+00	8.3E+00	4.8E+00	1.7E+00	-796.9E-03	-353.8E-03	-2.2E+00	-1.3E+00
4	-	-3.4E+00	-3.4E+00	-13.1E+00	-2.3E+00	-2.3E+00	-2.0E+00	-1.4E+00	-2.0E+00	-1.6E+00	-1.6E+00	-2.2E+00	-2.2E+00
Average	-	-4.5E+00	-2.2E+00	4.6E+00	1.4E+00	-3.2E+00	3.8E+00	1.2E+00	-947.0E-03	-2.4E+00	-2.1E+00	-3.1E+00	-2.2E+00
Sigma	-	946.9E-03	824.3E-03	12.6E+00	3.2E+00	1.3E+00	4.3E+00	2.6E+00	1.9E+00	1.3E+00	1.7E+00	1.4E+00	666.5E-03

Measurements

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ON_TID samples													
8	45.92	0.00	11.28	23.72	16.24	11.19	14.68	10.40	11.03	11.89	12.61	12.21	9.26
9	10.23	0.00	11.19	34.82	14.16	11.92	10.64	12.75	12.22	11.94	12.63	12.20	9.40
10	8.47	0.00	10.77	27.84	11.15	11.94	11.71	12.87	12.22	11.95	12.63	12.21	8.49
Statistics													
Min	8.47	0.00	10.77	23.72	11.15	11.19	10.64	10.40	11.03	11.89	12.61	12.20	8.49
Max	45.92	0.00	11.28	34.82	16.24	11.94	14.68	12.87	12.22	11.95	12.63	12.21	9.40
Average	21.54	0.00	11.08	28.79	13.85	11.68	12.34	12.00	11.83	11.93	12.62	12.21	9.05
Sigma	17.26	0.00	0.22	4.58	2.09	0.35	1.71	1.14	0.56	0.03	0.01	0.00	0.40

Drift Calculation

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-45.9E+00	-34.6E+00	-22.2E+00	-29.7E+00	-34.7E+00	-31.2E+00	-35.5E+00	-34.9E+00	-34.0E+00	-33.3E+00	-33.7E+00	-36.7E+00
9	-	-10.2E+00	963.2E-03	24.6E+00	3.9E+00	1.7E+00	415.4E-03	2.5E+00	2.0E+00	1.7E+00	2.4E+00	2.0E+00	-829.0E-03
10	-	-8.5E+00	2.3E+00	19.4E+00	2.7E+00	3.5E+00	3.2E+00	4.4E+00	3.8E+00	3.5E+00	4.2E+00	3.7E+00	26.8E-03
Average	-	-21.5E+00	-10.5E+00	7.3E+00	-7.7E+00	-9.9E+00	-9.2E+00	-9.5E+00	-9.7E+00	-9.6E+00	-8.9E+00	-9.3E+00	-12.5E+00
Sigma	-	17.3E+00	17.1E+00	20.9E+00	15.6E+00	17.6E+00	15.6E+00	18.4E+00	17.8E+00	17.3E+00	17.3E+00	17.3E+00	17.1E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFF PROTON samples													
5	16.35	21.24	31.61	34.73	31.23	40.77	38.23	36.81	39.16	39.99	34.91	38.51	49.05
14	8.02	0.00	19.42	27.86	34.90	50.10	40.37	42.79	47.20	41.56	39.59	40.41	22.20
7	15.66	25.62	31.97	33.43	32.05	41.12	37.34	35.57	40.47	35.77	32.37	33.54	48.14
Statistics													
Min	8.02	0.00	19.42	27.86	31.23	40.77	37.34	35.57	39.16	35.77	32.37	33.54	22.20
Max	16.35	25.62	31.97	34.73	34.90	50.10	40.37	42.79	47.20	41.56	39.59	40.41	49.05
Average	13.34	15.62	27.67	32.01	32.73	44.00	38.65	38.39	42.28	39.11	35.62	37.49	39.80
Sigma	3.78	11.19	5.83	2.98	1.57	4.32	1.27	3.15	3.52	2.44	2.99	2.90	12.45

Drift Calculation

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	4.9E+00	15.3E+00	18.4E+00	14.9E+00	24.4E+00	21.9E+00	20.5E+00	22.8E+00	23.6E+00	18.6E+00	22.2E+00	32.7E+00
14	-	-8.0E+00	11.4E+00	19.8E+00	26.9E+00	42.1E+00	32.4E+00	34.8E+00	39.2E+00	33.5E+00	31.6E+00	32.4E+00	14.2E+00
7	-	10.0E+00	16.3E+00	17.8E+00	16.4E+00	25.5E+00	21.7E+00	19.9E+00	24.8E+00	20.1E+00	16.7E+00	17.9E+00	32.5E+00
Average	-	2.3E+00	14.3E+00	18.7E+00	19.4E+00	30.7E+00	25.3E+00	25.1E+00	28.9E+00	25.8E+00	22.3E+00	24.1E+00	26.5E+00
Sigma	-	7.6E+00	2.1E+00	871.3E-03	5.3E+00	8.1E+00	5.0E+00	6.9E+00	7.3E+00	5.7E+00	6.6E+00	6.1E+00	8.7E+00

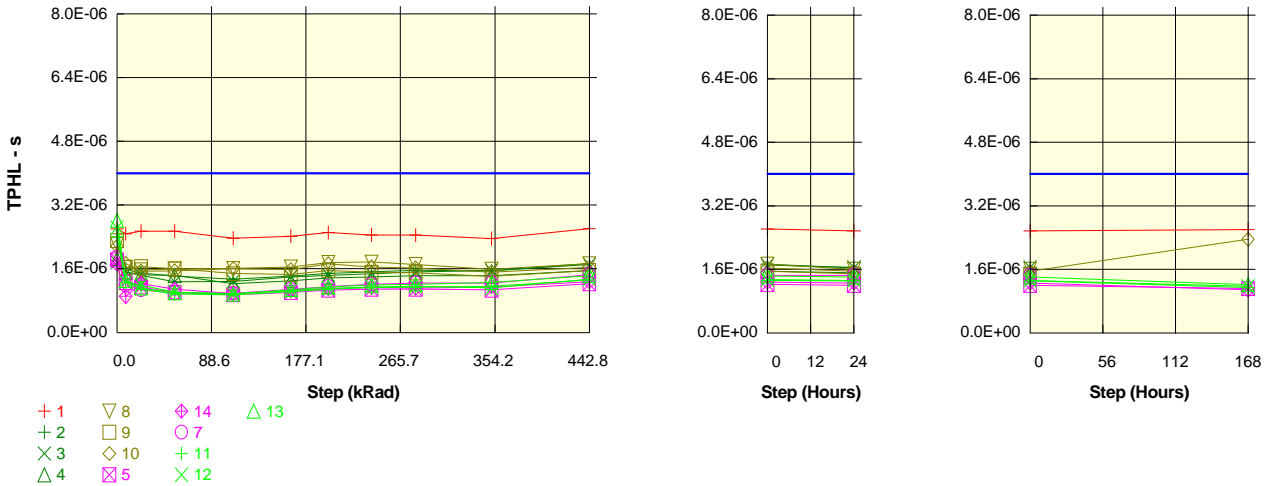
Measurements

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFF TID samples													
11	62.74	21.01	30.64	36.14	32.98	40.53	38.84	42.20	41.74	37.94	35.24	36.17	51.83
12	0.00	21.18	29.83	34.58	33.93	39.01	37.58	39.41	40.23	38.64	34.32	35.51	47.24
13	10.81	24.82	29.71	34.47	28.38	39.30	38.68	37.57	41.30	37.36	35.35	36.58	55.57
Statistics													
Min	0.00	21.01	29.71	34.47	28.38	39.01	37.58	37.57	40.23	37.36	34.32	35.51	47.24
Max	62.74	24.82	30.64	36.14	33.93	40.53	38.84	42.20	41.74	38.64	35.35	36.58	55.57
Average	24.52	22.34	30.06	35.06	31.76	39.61	38.37	39.73	41.09	37.98	34.97	36.09	51.55
Sigma	27.38	1.76	0.41	0.76	2.42	0.66	0.56	1.90	0.64	0.52	0.46	0.44	3.41

Drift Calculation

AOLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-41.7E+00	-32.1E+00	-26.6E+00	-29.8E+00	-22.2E+00	-23.9E+00	-20.5E+00	-21.0E+00	-24.8E+00	-27.5E+00	-26.6E+00	-10.9E+00
12	-	21.2E+00	29.8E+00	34.6E+00	33.9E+00	39.0E+00	37.6E+00	39.4E+00	40.2E+00	38.6E+00	34.3E+00	35.5E+00	47.2E+00
13	-	14.0E+00	18.9E+00	23.7E+00	17.6E+00	28.5E+00	27.9E+00	26.8E+00	30.5E+00	26.5E+00	24.5E+00	25.8E+00	44.8E+00
Average	-	-2.2E+00	5.5E+00	10.5E+00	7.2E+00	15.1E+00	13.9E+00	15.2E+00	16.6E+00	13.5E+00	10.5E+00	11.6E+00	27.0E+00
Sigma	-	28.1E+00	27.0E+00	26.6E+00	27.0E+00	26.7E+00	27.0E+00	25.8E+00	26.9E+00	27.5E+00	27.1E+00	27.3E+00	26.8E+00

Parameter : Response Time High To Low : TPHLDUT1
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 4.0E-06
 Spec limits are represented in bold lines on the graphic.



- + 1 ▽ 8 ◆ 14 △ 13
- + 2 □ 9 ○ 7
- × 3 ◇ 10 + 11
- △ 4 ⊠ 5 × 12

Measurements

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-06	2.5E-06	2.5E-06	2.5E-06	2.4E-06	2.4E-06	2.5E-06	2.4E-06	2.4E-06	2.4E-06	2.6E-06	2.6E-06	2.6E-06
ON_PROTON samples													
2	1.8E-06	1.6E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.5E-06	1.5E-06	1.6E-06	1.5E-06	1.7E-06	1.6E-06	
3	1.8E-06	1.5E-06	1.4E-06	1.3E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.6E-06	
4	1.9E-06	1.5E-06	1.5E-06	1.4E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	
Statistics													
Min	1.8E-06	1.5E-06	1.4E-06	1.3E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	-
Max	1.9E-06	1.6E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	-
Average	1.8E-06	1.5E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	-
Sigma	36.3E-09	31.9E-09	23.0E-09	71.2E-09	46.6E-09	50.9E-09	43.2E-09	53.6E-09	55.6E-09	57.9E-09	79.0E-09	61.0E-09	-

Drift Calculation

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-217.0E-09	-309.6E-09	-386.2E-09	-458.5E-09	-383.7E-09	-322.0E-09	-281.0E-09	-239.6E-09	-259.3E-09	-71.1E-09	-170.0E-09	
3	-	-237.2E-09	-324.1E-09	-487.7E-09	-478.4E-09	-367.3E-09	-322.2E-09	-285.5E-09	-233.5E-09	-208.5E-09	-55.7E-09	-115.6E-09	
4	-	-338.2E-09	-395.4E-09	-417.7E-09	-620.7E-09	-549.9E-09	-475.0E-09	-458.5E-09	-419.0E-09	-424.9E-09	-298.0E-09	-340.0E-09	
Average	-	-264.1E-09	-343.1E-09	-430.5E-09	-519.2E-09	-433.6E-09	-373.1E-09	-341.7E-09	-297.4E-09	-297.6E-09	-141.6E-09	-208.5E-09	
Sigma	-	53.0E-09	37.5E-09	42.4E-09	72.2E-09	82.5E-09	72.1E-09	82.6E-09	86.1E-09	92.4E-09	110.8E-09	95.6E-09	

Measurements

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-06	2.5E-06	2.5E-06	2.5E-06	2.4E-06	2.4E-06	2.5E-06	2.4E-06	2.4E-06	2.4E-06	2.6E-06	2.6E-06	2.6E-06
ON_TID samples													
8	2.2E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.8E-06	1.8E-06	1.7E-06	1.6E-06	1.7E-06	1.6E-06	
9	2.3E-06	1.6E-06	1.7E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	
10	2.2E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	2.4E-06
Statistics													
Min	2.2E-06	1.6E-06	1.5E-06	1.5E-06	1.5E-06	1.5E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	2.4E-06
Max	2.3E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.8E-06	1.8E-06	1.7E-06	1.6E-06	1.7E-06	1.6E-06	2.4E-06
Average	2.2E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.6E-06	1.5E-06	2.4E-06
Sigma	57.1E-09	45.7E-09	47.9E-09	23.2E-09	59.3E-09	78.0E-09	84.9E-09	106.5E-09	87.5E-09	74.0E-09	70.9E-09	47.4E-09	0.0E+00

Drift Calculation

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-579.9E-09	-647.4E-09	-623.5E-09	-607.2E-09	-571.2E-09	-463.3E-09	-446.2E-09	-506.7E-09	-628.1E-09	-490.5E-09	-614.9E-09	
9	-	-670.0E-09	-655.1E-09	-708.9E-09	-827.6E-09	-849.9E-09	-747.2E-09	-797.0E-09	-810.6E-09	-898.1E-09	-754.3E-09	-821.0E-09	
10	-	-435.4E-09	-630.9E-09	-622.7E-09	-569.1E-09	-591.7E-09	-447.1E-09	-522.8E-09	-551.1E-09	-652.1E-09	-534.0E-09	-619.2E-09	191.8E-09
Average	-	-561.8E-09	-644.5E-09	-651.7E-09	-668.0E-09	-670.9E-09	-552.5E-09	-588.6E-09	-622.8E-09	-726.1E-09	-592.9E-09	-685.0E-09	191.8E-09
Sigma	-	96.6E-09	10.1E-09	40.4E-09	113.9E-09	126.8E-09	137.8E-09	150.6E-09	134.0E-09	122.0E-09	115.5E-09	96.2E-09	0.0E+00

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-06	2.5E-06	2.5E-06	2.5E-06	2.4E-06	2.4E-06	2.5E-06	2.4E-06	2.4E-06	2.4E-06	2.6E-06	2.6E-06	2.6E-06
OFF PROTON samples													
5	1.8E-06	1.3E-06	1.1E-06	1.0E-06	948.0E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.1E-06
14	1.7E-06	908.5E-09	1.2E-06	1.1E-06	978.4E-09	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
7	1.9E-06	1.2E-06	1.1E-06	991.7E-09	986.1E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.5E-06	1.4E-06	
Statistics													
Min	1.7E-06	908.5E-09	1.1E-06	991.7E-09	948.0E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.1E-06
Max	1.9E-06	1.3E-06	1.2E-06	1.1E-06	986.1E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.5E-06	1.4E-06	1.1E-06
Average	1.8E-06	1.1E-06	1.1E-06	1.0E-06	970.8E-09	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
Sigma	68.2E-09	151.4E-09	64.0E-09	42.4E-09	16.4E-09	32.6E-09	35.6E-09	49.3E-09	67.0E-09	72.4E-09	98.9E-09	105.3E-09	16.9E-09

Drift Calculation

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-563.5E-09	-684.4E-09	-810.4E-09	-875.8E-09	-815.3E-09	-757.6E-09	-734.8E-09	-731.7E-09	-754.5E-09	-601.0E-09	-624.7E-09	-706.4E-09
14	-	-812.0E-09	-494.4E-09	-630.2E-09	-742.2E-09	-658.7E-09	-617.7E-09	-594.0E-09	-609.9E-09	-569.0E-09	-443.0E-09	-462.5E-09	-637.0E-09
7	-	-700.2E-09	-816.2E-09	-894.2E-09	-899.8E-09	-799.2E-09	-732.8E-09	-678.6E-09	-643.2E-09	-639.3E-09	-431.2E-09	-439.8E-09	
Average	-	-691.9E-09	-665.0E-09	-778.3E-09	-839.3E-09	-757.7E-09	-702.7E-09	-669.2E-09	-661.6E-09	-654.3E-09	-491.7E-09	-509.0E-09	-671.7E-09
Sigma	-	101.6E-09	132.1E-09	110.2E-09	69.3E-09	70.3E-09	61.0E-09	57.9E-09	51.4E-09	76.5E-09	77.4E-09	82.3E-09	34.7E-09

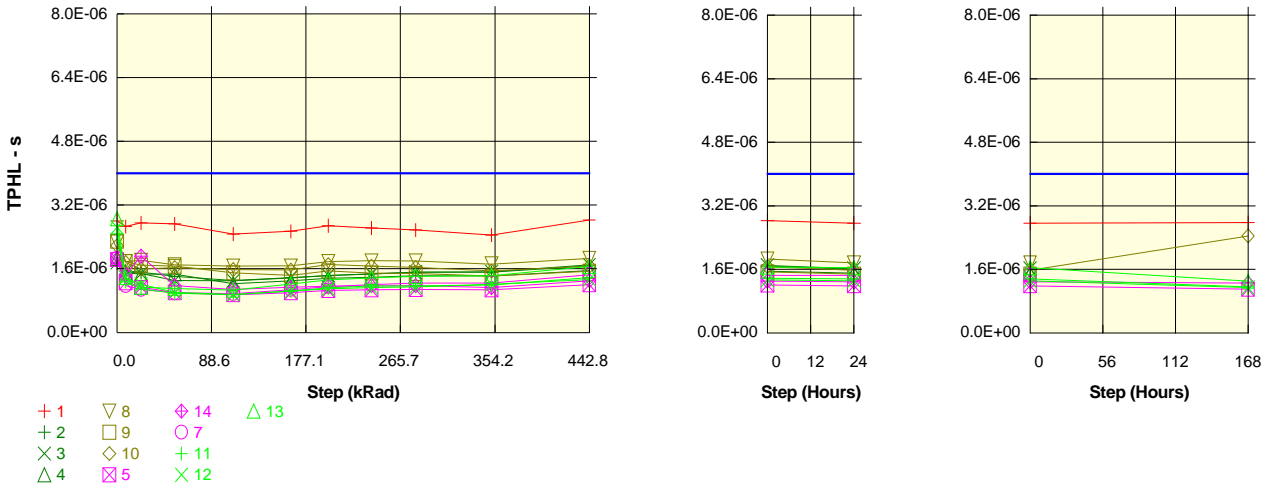
Measurements

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.6E-06	2.5E-06	2.5E-06	2.5E-06	2.4E-06	2.4E-06	2.5E-06	2.4E-06	2.4E-06	2.4E-06	2.6E-06	2.6E-06	2.6E-06
OFF TID samples													
11	2.4E-06	1.3E-06	1.1E-06	970.2E-09	941.2E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
12	2.6E-06	1.3E-06	1.2E-06	1.0E-06	974.5E-09	1.0E-06	1.1E-06	1.1E-06	1.2E-06	1.1E-06	1.3E-06	1.3E-06	1.2E-06
13	2.8E-06	1.3E-06	1.1E-06	1.0E-06	968.2E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.2E-06
Statistics													
Min	2.4E-06	1.3E-06	1.1E-06	970.2E-09	941.2E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.3E-06	1.3E-06	1.1E-06
Max	2.8E-06	1.3E-06	1.2E-06	1.0E-06	974.5E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.2E-06
Average	2.6E-06	1.3E-06	1.1E-06	998.5E-09	961.3E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.4E-06	1.3E-06	1.2E-06
Sigma	167.9E-09	18.6E-09	40.4E-09	21.5E-09	14.5E-09	21.6E-09	23.4E-09	28.1E-09	31.6E-09	55.8E-09	47.6E-09	42.0E-09	30.3E-09

Drift Calculation

TPHLDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.5E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.3E-06
12	-	-1.4E-06	-1.5E-06	-1.6E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.3E-06	-1.3E-06	-1.5E-06
13	-	-1.5E-06	-1.7E-06	-1.8E-06	-1.8E-06	-1.7E-06	-1.7E-06	-1.6E-06	-1.6E-06	-1.6E-06	-1.4E-06	-1.4E-06	-1.6E-06
Average	-	-1.3E-06	-1.5E-06	-1.6E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.4E-06
Sigma	-	150.9E-09	158.0E-09	153.7E-09	156.3E-09	146.7E-09	145.3E-09	142.2E-09	139.5E-09	139.9E-09	125.7E-09	133.0E-09	139.1E-09

Parameter : Response Time High To Low : TPHLDUT2
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 4.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.7E-06	2.8E-06	2.7E-06	2.5E-06	2.5E-06	2.7E-06	2.6E-06	2.6E-06	2.4E-06	2.8E-06	2.8E-06	2.8E-06
ON_PROTON samples													
2	1.7E-06	1.5E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	
3	1.8E-06	1.5E-06	1.5E-06	1.3E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	
4	1.9E-06	1.5E-06	1.5E-06	1.5E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	
Statistics													
Min	1.7E-06	1.5E-06	1.5E-06	1.3E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	-
Max	1.9E-06	1.5E-06	1.5E-06	1.5E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	-
Average	1.8E-06	1.5E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	-
Sigma	51.3E-09	21.4E-09	19.0E-09	65.7E-09	36.3E-09	37.6E-09	31.6E-09	39.1E-09	41.7E-09	46.3E-09	63.7E-09	48.5E-09	-

Drift Calculation

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-198.4E-09	-233.0E-09	-335.2E-09	-436.6E-09	-369.9E-09	-319.1E-09	-273.3E-09	-230.3E-09	-234.0E-09	-70.1E-09	-147.6E-09	
3	-	-229.9E-09	-279.3E-09	-448.3E-09	-461.0E-09	-384.0E-09	-322.9E-09	-293.2E-09	-244.3E-09	-234.6E-09	-62.8E-09	-140.5E-09	
4	-	-364.7E-09	-392.1E-09	-391.3E-09	-633.3E-09	-564.8E-09	-495.8E-09	-474.2E-09	-433.9E-09	-440.3E-09	-308.6E-09	-353.7E-09	
Average	-	-264.3E-09	-301.5E-09	-391.6E-09	-510.3E-09	-439.6E-09	-379.3E-09	-346.9E-09	-302.8E-09	-303.0E-09	-147.2E-09	-213.9E-09	
Sigma	-	72.1E-09	66.8E-09	46.2E-09	87.6E-09	88.8E-09	82.4E-09	90.4E-09	92.8E-09	97.1E-09	114.2E-09	98.9E-09	

Measurements

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.7E-06	2.8E-06	2.7E-06	2.5E-06	2.5E-06	2.7E-06	2.6E-06	2.6E-06	2.4E-06	2.8E-06	2.8E-06	2.8E-06
ON_TID samples													
8	2.3E-06	1.8E-06	1.8E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.8E-06	1.7E-06	1.9E-06	1.8E-06	
9	2.3E-06	1.8E-06	1.7E-06	1.7E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	
10	2.2E-06	1.8E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.5E-06	1.7E-06	1.6E-06	2.4E-06
Statistics													
Min	2.2E-06	1.8E-06	1.6E-06	1.6E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	2.4E-06
Max	2.3E-06	1.8E-06	1.8E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.8E-06	1.7E-06	1.9E-06	1.8E-06	2.4E-06
Average	2.2E-06	1.8E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	2.4E-06
Sigma	47.5E-09	9.2E-09	90.2E-09	29.7E-09	70.3E-09	98.2E-09	97.6E-09	125.9E-09	126.8E-09	125.3E-09	132.5E-09	116.7E-09	0.0E+00

Drift Calculation

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-494.7E-09	-458.0E-09	-570.8E-09	-602.6E-09	-598.1E-09	-487.6E-09	-472.4E-09	-477.1E-09	-550.7E-09	-408.9E-09	-511.2E-09	
9	-	-511.3E-09	-596.4E-09	-624.8E-09	-791.6E-09	-854.9E-09	-738.8E-09	-796.6E-09	-804.0E-09	-872.8E-09	-748.0E-09	-809.2E-09	
10	-	-422.7E-09	-587.1E-09	-552.2E-09	-598.9E-09	-615.0E-09	-473.7E-09	-515.8E-09	-548.9E-09	-637.5E-09	-510.7E-09	-604.5E-09	262.1E-09
Average	-	-476.2E-09	-547.2E-09	-582.6E-09	-664.4E-09	-689.3E-09	-566.7E-09	-594.9E-09	-610.0E-09	-687.0E-09	-555.9E-09	-641.6E-09	262.1E-09
Sigma	-	38.5E-09	63.1E-09	30.8E-09	90.0E-09	117.3E-09	121.8E-09	143.7E-09	140.3E-09	136.0E-09	142.1E-09	124.4E-09	0.0E+00

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015
	IS-139ASRH				Intersil					Issue:	02

Measurements

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.7E-06	2.8E-06	2.7E-06	2.5E-06	2.5E-06	2.7E-06	2.6E-06	2.6E-06	2.4E-06	2.8E-06	2.8E-06	2.8E-06
OFF PROTON samples													
5	1.8E-06	1.3E-06	1.1E-06	1.0E-06	945.4E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.1E-06
14	1.8E-06	1.5E-06	1.9E-06	1.2E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.1E-06	1.3E-06	1.3E-06	1.3E-06
7	1.9E-06	1.2E-06	1.1E-06	999.1E-09	972.9E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.5E-06	1.5E-06	1.5E-06
Statistics													
Min	1.8E-06	1.2E-06	1.1E-06	999.1E-09	945.4E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.1E-06
Max	1.9E-06	1.5E-06	1.9E-06	1.2E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.2E-06	1.5E-06	1.5E-06	1.3E-06
Average	1.8E-06	1.3E-06	1.4E-06	1.1E-06	999.0E-09	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.1E-06	1.3E-06	1.3E-06	1.2E-06
Sigma	12.6E-09	120.1E-09	382.2E-09	82.6E-09	57.4E-09	55.6E-09	46.9E-09	54.1E-09	66.3E-09	72.3E-09	103.6E-09	109.5E-09	79.6E-09

Drift Calculation

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-579.9E-09	-696.5E-09	-828.7E-09	-887.9E-09	-833.1E-09	-776.2E-09	-759.7E-09	-753.2E-09	-762.9E-09	-630.9E-09	-646.1E-09	-731.9E-09
14	-	-385.8E-09	70.9E-09	-669.4E-09	-767.9E-09	-710.5E-09	-686.8E-09	-672.4E-09	-667.1E-09	-718.7E-09	-543.2E-09	-559.5E-09	-585.9E-09
7	-	-687.7E-09	-784.4E-09	-864.8E-09	-891.0E-09	-787.1E-09	-710.7E-09	-665.4E-09	-622.9E-09	-619.6E-09	-409.5E-09	-411.3E-09	-
Average	-	-551.1E-09	-470.0E-09	-787.6E-09	-848.9E-09	-776.9E-09	-724.5E-09	-699.2E-09	-681.1E-09	-700.4E-09	-527.8E-09	-538.9E-09	-658.9E-09
Sigma	-	124.9E-09	384.2E-09	84.9E-09	57.3E-09	50.6E-09	37.8E-09	42.9E-09	54.1E-09	59.9E-09	91.0E-09	97.0E-09	73.0E-09

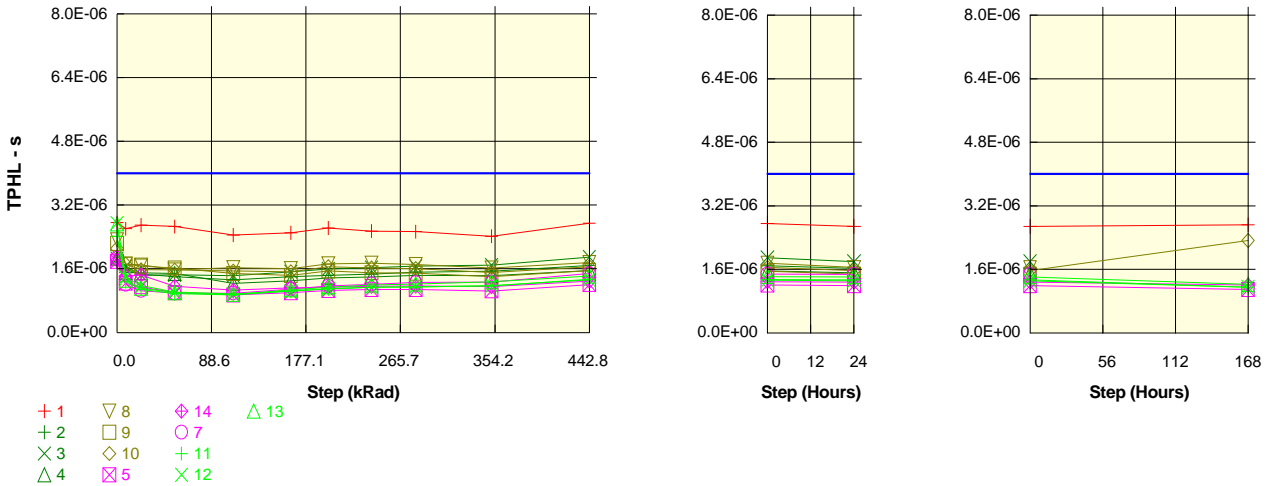
Measurements

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.7E-06	2.8E-06	2.7E-06	2.5E-06	2.5E-06	2.7E-06	2.6E-06	2.6E-06	2.4E-06	2.8E-06	2.8E-06	2.8E-06
OFF TID samples													
11	2.5E-06	1.3E-06	1.1E-06	986.3E-09	958.8E-09	1.0E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.4E-06	1.4E-06	1.2E-06
12	2.6E-06	1.4E-06	1.2E-06	1.0E-06	955.0E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
13	2.9E-06	1.4E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.7E-06	1.6E-06	1.3E-06
Statistics													
Min	2.5E-06	1.3E-06	1.1E-06	986.3E-09	955.0E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
Max	2.9E-06	1.4E-06	1.2E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.7E-06	1.6E-06	1.3E-06
Average	2.7E-06	1.3E-06	1.1E-06	1.0E-06	993.6E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.5E-06	1.4E-06	1.2E-06
Sigma	154.4E-09	45.2E-09	48.4E-09	54.3E-09	51.9E-09	83.6E-09	98.0E-09	105.5E-09	118.7E-09	106.3E-09	144.3E-09	145.2E-09	74.5E-09

Drift Calculation

TPHLDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.2E-06	-1.4E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.1E-06	-1.1E-06	-1.3E-06
12	-	-1.3E-06	-1.4E-06	-1.6E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.5E-06
13	-	-1.5E-06	-1.7E-06	-1.7E-06	-1.8E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.2E-06	-1.6E-06
Average	-	-1.3E-06	-1.5E-06	-1.6E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.2E-06	-1.5E-06
Sigma	-	119.3E-09	149.0E-09	103.4E-09	110.6E-09	88.6E-09	85.1E-09	87.7E-09	80.9E-09	68.1E-09	84.4E-09	83.6E-09	96.5E-09

Parameter : Response Time High To Low : TPHLDUT3
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 4.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.6E-06	2.7E-06	2.7E-06	2.4E-06	2.5E-06	2.6E-06	2.5E-06	2.5E-06	2.4E-06	2.8E-06	2.7E-06	2.7E-06
ON_PROTON samples													
2	1.8E-06	1.6E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	
3	1.9E-06	1.7E-06	1.4E-06	1.5E-06	1.4E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.9E-06	1.8E-06	
4	1.9E-06	1.5E-06	1.5E-06	1.5E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	
Statistics													
Min	1.8E-06	1.5E-06	1.4E-06	1.4E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	-
Max	1.9E-06	1.7E-06	1.5E-06	1.5E-06	1.4E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.9E-06	1.8E-06	-
Average	1.8E-06	1.6E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.6E-06	-
Sigma	38.9E-09	64.3E-09	26.6E-09	30.2E-09	79.0E-09	92.6E-09	93.1E-09	96.2E-09	95.7E-09	108.1E-09	138.1E-09	114.5E-09	-

Drift Calculation

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-203.2E-09	-307.8E-09	-368.7E-09	-457.7E-09	-374.6E-09	-343.6E-09	-306.5E-09	-259.7E-09	-235.3E-09	-91.4E-09	-152.1E-09	
3	-	-185.8E-09	-412.0E-09	-398.9E-09	-425.5E-09	-325.9E-09	-258.4E-09	-226.5E-09	-185.8E-09	-158.8E-09	42.6E-09	-57.1E-09	
4	-	-356.0E-09	-360.5E-09	-383.7E-09	-632.1E-09	-565.7E-09	-492.5E-09	-471.0E-09	-430.5E-09	-436.1E-09	-305.6E-09	-348.7E-09	
Average	-	-248.3E-09	-360.1E-09	-383.8E-09	-505.1E-09	-422.1E-09	-364.8E-09	-334.7E-09	-292.0E-09	-276.7E-09	-118.1E-09	-186.0E-09	
Sigma	-	76.5E-09	42.5E-09	12.3E-09	90.7E-09	103.5E-09	96.7E-09	101.8E-09	102.5E-09	116.9E-09	143.4E-09	121.4E-09	

Measurements

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.6E-06	2.7E-06	2.7E-06	2.4E-06	2.5E-06	2.6E-06	2.5E-06	2.5E-06	2.4E-06	2.8E-06	2.7E-06	2.7E-06
ON_TID samples													
8	2.3E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.8E-06	1.6E-06	
9	2.2E-06	1.7E-06	1.7E-06	1.6E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	
10	2.1E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.7E-06	1.6E-06	2.3E-06
Statistics													
Min	2.1E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.4E-06	1.6E-06	1.5E-06	2.3E-06
Max	2.3E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.8E-06	1.6E-06	2.3E-06
Average	2.2E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.5E-06	1.7E-06	1.6E-06	2.3E-06
Sigma	88.6E-09	1.2E-09	52.4E-09	23.7E-09	59.2E-09	68.8E-09	73.7E-09	96.6E-09	88.8E-09	87.9E-09	84.1E-09	65.5E-09	0.0E+00

Drift Calculation

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-608.4E-09	-628.9E-09	-750.4E-09	-698.5E-09	-722.7E-09	-602.5E-09	-586.1E-09	-618.7E-09	-709.1E-09	-569.2E-09	-680.5E-09	
9	-	-522.3E-09	-572.9E-09	-619.6E-09	-757.0E-09	-805.2E-09	-695.6E-09	-736.6E-09	-750.0E-09	-838.4E-09	-689.2E-09	-754.7E-09	
10	-	-390.4E-09	-536.5E-09	-544.5E-09	-565.7E-09	-587.3E-09	-457.3E-09	-486.9E-09	-507.8E-09	-606.0E-09	-459.6E-09	-539.7E-09	216.0E-09
Average	-	-507.0E-09	-579.4E-09	-638.2E-09	-673.7E-09	-705.1E-09	-585.1E-09	-603.2E-09	-625.5E-09	-717.8E-09	-572.7E-09	-658.3E-09	216.0E-09
Sigma	-	89.6E-09	38.0E-09	85.1E-09	80.0E-09	89.8E-09	98.1E-09	102.7E-09	99.0E-09	95.1E-09	93.8E-09	89.2E-09	0.0E+00

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.6E-06	2.7E-06	2.7E-06	2.4E-06	2.5E-06	2.6E-06	2.5E-06	2.5E-06	2.4E-06	2.8E-06	2.7E-06	2.7E-06
OFF PROTON samples													
5	1.8E-06	1.2E-06	1.2E-06	1.0E-06	943.5E-09	998.4E-09	1.1E-06	1.1E-06	1.1E-06	1.0E-06	1.2E-06	1.2E-06	1.1E-06
14	1.8E-06	1.4E-06	1.4E-06	1.2E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06	1.2E-06
7	1.9E-06	1.2E-06	1.1E-06	995.4E-09	990.4E-09	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06	1.5E-06	1.5E-06	
Statistics													
Min	1.8E-06	1.2E-06	1.1E-06	995.4E-09	943.5E-09	998.4E-09	1.1E-06	1.1E-06	1.1E-06	1.0E-06	1.2E-06	1.2E-06	1.1E-06
Max	1.9E-06	1.4E-06	1.4E-06	1.2E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06	1.5E-06	1.5E-06	1.2E-06
Average	1.8E-06	1.3E-06	1.2E-06	1.1E-06	998.0E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
Sigma	28.8E-09	92.3E-09	167.4E-09	75.6E-09	47.9E-09	52.1E-09	47.9E-09	55.5E-09	71.0E-09	93.3E-09	113.7E-09	118.5E-09	55.5E-09

Drift Calculation

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-552.3E-09	-639.6E-09	-787.2E-09	-847.5E-09	-792.6E-09	-735.3E-09	-712.2E-09	-711.4E-09	-748.8E-09	-584.0E-09	-603.2E-09	-696.7E-09
14	-	-399.4E-09	-372.0E-09	-658.5E-09	-758.1E-09	-696.6E-09	-675.6E-09	-654.6E-09	-651.5E-09	-663.8E-09	-528.4E-09	-537.2E-09	-612.9E-09
7	-	-650.4E-09	-808.8E-09	-865.5E-09	-870.5E-09	-772.2E-09	-693.6E-09	-647.8E-09	-607.4E-09	-590.2E-09	-382.2E-09	-388.4E-09	
Average	-	-534.0E-09	-606.8E-09	-770.4E-09	-825.4E-09	-753.8E-09	-701.5E-09	-671.5E-09	-656.8E-09	-667.6E-09	-498.2E-09	-509.6E-09	-654.8E-09
Sigma	-	103.3E-09	179.9E-09	85.3E-09	48.5E-09	41.3E-09	25.0E-09	28.9E-09	42.6E-09	64.8E-09	85.1E-09	89.8E-09	41.9E-09

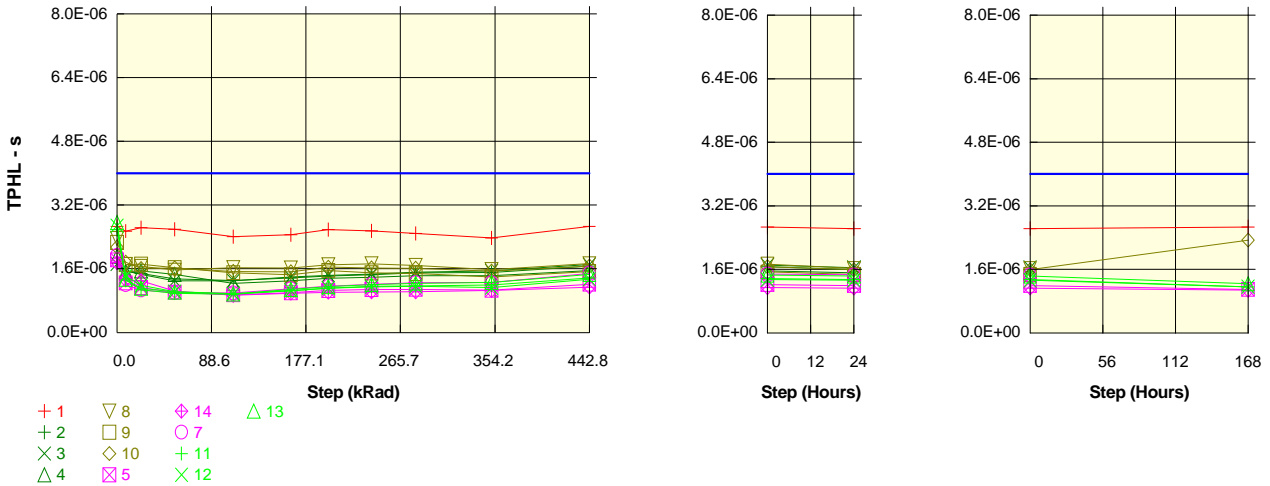
Measurements

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.8E-06	2.6E-06	2.7E-06	2.7E-06	2.4E-06	2.5E-06	2.6E-06	2.5E-06	2.5E-06	2.4E-06	2.8E-06	2.7E-06	2.7E-06
OFF TID samples													
11	2.4E-06	1.3E-06	1.1E-06	974.6E-09	948.4E-09	1.0E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
12	2.8E-06	1.4E-06	1.2E-06	1.0E-06	968.1E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.2E-06
13	2.7E-06	1.3E-06	1.1E-06	1.0E-06	957.9E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.2E-06
Statistics													
Min	2.4E-06	1.3E-06	1.1E-06	974.6E-09	948.4E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.3E-06	1.3E-06	1.1E-06
Max	2.8E-06	1.4E-06	1.2E-06	1.0E-06	968.1E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.2E-06
Average	2.6E-06	1.3E-06	1.1E-06	998.1E-09	958.1E-09	1.0E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.4E-06	1.4E-06	1.2E-06
Sigma	152.5E-09	50.4E-09	37.2E-09	18.0E-09	8.0E-09	16.0E-09	21.2E-09	24.9E-09	32.7E-09	49.9E-09	42.4E-09	42.9E-09	32.6E-09

Drift Calculation

TPHLDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.5E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.3E-06
12	-	-1.4E-06	-1.6E-06	-1.7E-06	-1.8E-06	-1.7E-06	-1.7E-06	-1.6E-06	-1.6E-06	-1.6E-06	-1.4E-06	-1.4E-06	-1.6E-06
13	-	-1.4E-06	-1.6E-06	-1.7E-06	-1.8E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.5E-06
Average	-	-1.3E-06	-1.5E-06	-1.6E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.3E-06	-1.3E-06	-1.5E-06
Sigma	-	118.2E-09	125.6E-09	135.6E-09	145.4E-09	145.4E-09	141.8E-09	145.9E-09	143.7E-09	134.1E-09	144.8E-09	146.8E-09	138.4E-09

Parameter : Response Time High To Low : TPHLDUT4
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 4.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.7E-06	2.5E-06	2.6E-06	2.6E-06	2.4E-06	2.5E-06	2.6E-06	2.6E-06	2.5E-06	2.4E-06	2.7E-06	2.6E-06	2.7E-06
ON_PROTON samples													
2	1.7E-06	1.5E-06	1.5E-06	1.3E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	
3	1.7E-06	1.5E-06	1.5E-06	1.3E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	
4	1.9E-06	1.5E-06	1.5E-06	1.5E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	
Statistics													
Min	1.7E-06	1.5E-06	1.5E-06	1.3E-06	1.2E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.4E-06	1.6E-06	1.5E-06	-
Max	1.9E-06	1.5E-06	1.5E-06	1.5E-06	1.3E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.5E-06	1.7E-06	1.6E-06	-
Average	1.8E-06	1.5E-06	1.5E-06	1.4E-06	1.3E-06	1.4E-06	1.4E-06	1.4E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	-
Sigma	84.3E-09	6.6E-09	37.0E-09	66.7E-09	34.6E-09	41.9E-09	29.2E-09	34.5E-09	37.5E-09	49.4E-09	62.7E-09	51.5E-09	-

Drift Calculation

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-208.8E-09	-259.7E-09	-400.5E-09	-441.3E-09	-372.5E-09	-332.7E-09	-294.0E-09	-248.2E-09	-237.5E-09	-83.2E-09	-152.9E-09	
3	-	-176.1E-09	-266.0E-09	-425.6E-09	-424.1E-09	-333.3E-09	-287.9E-09	-258.1E-09	-207.7E-09	-178.1E-09	-18.4E-09	-83.9E-09	
4	-	-380.6E-09	-366.1E-09	-455.3E-09	-684.0E-09	-618.4E-09	-546.8E-09	-526.1E-09	-483.8E-09	-485.2E-09	-356.5E-09	-397.6E-09	
Average	-	-255.2E-09	-297.3E-09	-427.1E-09	-516.5E-09	-441.4E-09	-389.1E-09	-359.4E-09	-313.2E-09	-300.2E-09	-152.7E-09	-211.4E-09	
Sigma	-	89.7E-09	48.8E-09	22.4E-09	118.7E-09	126.2E-09	113.0E-09	118.8E-09	121.7E-09	133.0E-09	146.5E-09	134.6E-09	

Measurements

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.7E-06	2.5E-06	2.6E-06	2.6E-06	2.4E-06	2.5E-06	2.6E-06	2.6E-06	2.5E-06	2.4E-06	2.7E-06	2.6E-06	2.7E-06
ON_TID samples													
8	2.4E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.7E-06	1.6E-06	
9	2.3E-06	1.7E-06	1.7E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	
10	2.1E-06	1.8E-06	1.6E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.5E-06	1.7E-06	1.6E-06	2.3E-06
Statistics													
Min	2.1E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.5E-06	1.5E-06	1.4E-06	1.5E-06	1.5E-06	2.3E-06
Max	2.4E-06	1.8E-06	1.7E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.7E-06	1.6E-06	2.3E-06
Average	2.3E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	2.3E-06
Sigma	89.4E-09	25.7E-09	44.1E-09	27.0E-09	51.1E-09	68.6E-09	59.0E-09	92.2E-09	86.2E-09	80.1E-09	81.3E-09	64.3E-09	0.0E+00

Drift Calculation

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-648.5E-09	-699.1E-09	-792.3E-09	-735.2E-09	-741.7E-09	-657.8E-09	-638.5E-09	-672.9E-09	-778.9E-09	-633.7E-09	-739.0E-09	
9	-	-552.1E-09	-549.0E-09	-637.2E-09	-759.9E-09	-812.5E-09	-705.3E-09	-767.2E-09	-784.6E-09	-869.2E-09	-731.2E-09	-791.6E-09	
10	-	-375.5E-09	-535.1E-09	-518.0E-09	-604.5E-09	-621.1E-09	-500.9E-09	-518.8E-09	-527.3E-09	-601.4E-09	-472.4E-09	-550.8E-09	196.4E-09
Average	-	-525.4E-09	-594.4E-09	-649.2E-09	-699.9E-09	-725.1E-09	-621.3E-09	-641.5E-09	-661.6E-09	-749.8E-09	-612.4E-09	-693.8E-09	196.4E-09
Sigma	-	113.1E-09	74.2E-09	112.3E-09	68.2E-09	79.0E-09	87.4E-09	101.4E-09	105.4E-09	111.2E-09	106.7E-09	103.4E-09	0.0E+00

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.7E-06	2.5E-06	2.6E-06	2.6E-06	2.4E-06	2.5E-06	2.6E-06	2.6E-06	2.5E-06	2.4E-06	2.7E-06	2.6E-06	2.7E-06
OFF PROTON samples													
5	1.8E-06	1.2E-06	1.1E-06	1.0E-06	946.1E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.1E-06
14	1.8E-06	1.3E-06	1.3E-06	1.0E-06	937.3E-09	987.0E-09	1.0E-06	1.0E-06	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06
7	1.9E-06	1.2E-06	1.1E-06	998.7E-09	993.2E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.5E-06	1.5E-06	
Statistics													
Min	1.8E-06	1.2E-06	1.1E-06	998.7E-09	937.3E-09	987.0E-09	1.0E-06	1.0E-06	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06
Max	1.9E-06	1.3E-06	1.3E-06	1.0E-06	993.2E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.5E-06	1.5E-06	1.1E-06
Average	1.8E-06	1.3E-06	1.2E-06	1.0E-06	958.8E-09	1.0E-06	1.1E-06	1.1E-06	1.1E-06	1.1E-06	1.3E-06	1.3E-06	1.1E-06
Sigma	72.7E-09	51.6E-09	102.0E-09	17.9E-09	24.5E-09	46.7E-09	63.5E-09	78.3E-09	95.6E-09	89.3E-09	148.2E-09	143.5E-09	9.2E-09

Drift Calculation

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-580.9E-09	-699.6E-09	-816.4E-09	-880.4E-09	-823.5E-09	-766.9E-09	-745.9E-09	-741.3E-09	-757.3E-09	-610.8E-09	-632.1E-09	-730.2E-09
14	-	-436.3E-09	-456.4E-09	-717.8E-09	-821.6E-09	-771.9E-09	-746.4E-09	-737.2E-09	-735.6E-09	-699.6E-09	-620.3E-09	-628.2E-09	-681.0E-09
7	-	-738.1E-09	-874.6E-09	-936.6E-09	-942.1E-09	-842.2E-09	-770.9E-09	-726.0E-09	-685.4E-09	-681.8E-09	-450.8E-09	-473.4E-09	
Average	-	-585.1E-09	-676.9E-09	-823.6E-09	-881.4E-09	-812.6E-09	-761.4E-09	-736.4E-09	-720.8E-09	-712.9E-09	-560.6E-09	-577.9E-09	-705.6E-09
Sigma	-	123.2E-09	171.5E-09	89.5E-09	49.2E-09	29.7E-09	10.7E-09	8.2E-09	25.1E-09	32.2E-09	77.7E-09	73.9E-09	24.6E-09

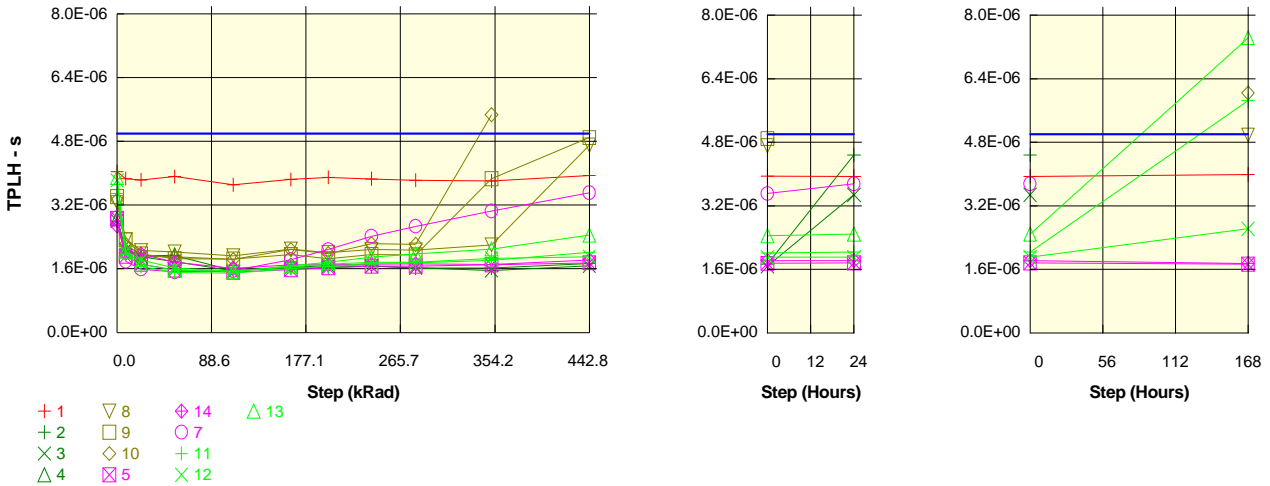
Measurements

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	2.7E-06	2.5E-06	2.6E-06	2.6E-06	2.4E-06	2.5E-06	2.6E-06	2.6E-06	2.5E-06	2.4E-06	2.7E-06	2.6E-06	2.7E-06
OFF TID samples													
11	2.6E-06	1.3E-06	1.1E-06	987.2E-09	962.3E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.4E-06	1.3E-06	1.2E-06
12	2.7E-06	1.4E-06	1.2E-06	1.0E-06	976.1E-09	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.1E-06	1.3E-06	1.3E-06	1.2E-06
13	2.8E-06	1.3E-06	1.1E-06	1.0E-06	968.7E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.5E-06	1.4E-06	1.2E-06
Statistics													
Min	2.6E-06	1.3E-06	1.1E-06	987.2E-09	962.3E-09	1.1E-06	1.1E-06	1.1E-06	1.2E-06	1.1E-06	1.3E-06	1.3E-06	1.2E-06
Max	2.8E-06	1.4E-06	1.2E-06	1.0E-06	976.1E-09	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.3E-06	1.5E-06	1.4E-06	1.2E-06
Average	2.7E-06	1.4E-06	1.1E-06	1.0E-06	969.0E-09	1.1E-06	1.1E-06	1.2E-06	1.2E-06	1.2E-06	1.4E-06	1.4E-06	1.2E-06
Sigma	71.8E-09	39.7E-09	47.5E-09	16.9E-09	5.6E-09	15.0E-09	19.4E-09	23.6E-09	33.4E-09	55.1E-09	49.1E-09	44.7E-09	39.2E-09

Drift Calculation

TPHLDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.3E-06	-1.5E-06	-1.6E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.2E-06	-1.4E-06
12	-	-1.3E-06	-1.5E-06	-1.7E-06	-1.7E-06	-1.6E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.6E-06	-1.3E-06	-1.4E-06	-1.5E-06
13	-	-1.4E-06	-1.6E-06	-1.7E-06	-1.8E-06	-1.7E-06	-1.6E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.3E-06	-1.3E-06	-1.5E-06
Average	-	-1.3E-06	-1.6E-06	-1.7E-06	-1.7E-06	-1.6E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.5E-06	-1.3E-06	-1.3E-06	-1.5E-06
Sigma	-	73.7E-09	68.2E-09	61.4E-09	69.1E-09	59.4E-09	57.6E-09	57.6E-09	52.0E-09	67.2E-09	50.4E-09	49.1E-09	43.1E-09

Parameter : Response Time Low To High : TPLHDUT1
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 5.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.9E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
ON_PROTON samples													
2	2.8E-06	2.1E-06	1.9E-06	1.9E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.5E-06	
3	2.8E-06	2.1E-06	1.9E-06	1.8E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	3.5E-06	
4	2.9E-06	2.1E-06	1.9E-06	1.9E-06									
Statistics													
Min	2.8E-06	2.1E-06	1.9E-06	1.8E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	3.5E-06	-
Max	2.9E-06	2.1E-06	1.9E-06	1.9E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.5E-06	-
Average	2.8E-06	2.1E-06	1.9E-06	1.9E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.0E-06	-
Sigma	31.2E-09	15.1E-09	20.8E-09	73.7E-09	932.0E-12	13.3E-09	21.3E-09	152.0E-12	5.2E-09	28.6E-09	25.8E-09	503.1E-09	-

Drift Calculation

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-692.1E-09	-862.7E-09	-864.4E-09	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	1.7E-06	
3	-	-720.5E-09	-894.2E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	675.6E-09	
4	-	-795.9E-09	-981.1E-09	-914.9E-09									
Average	-	-736.2E-09	-912.6E-09	-931.2E-09	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	1.2E-06	
Sigma	-	43.8E-09	50.1E-09	62.4E-09	2.5E-09	11.7E-09	19.7E-09	1.4E-09	3.6E-09	30.2E-09	27.4E-09	504.7E-09	

Measurements

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.9E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
ON_TID samples													
8	3.3E-06	2.3E-06	2.1E-06	2.0E-06	1.9E-06	2.1E-06	2.0E-06	2.1E-06	2.1E-06	2.2E-06	4.7E-06		5.0E-06
9	3.4E-06	2.3E-06	2.0E-06	1.9E-06	1.8E-06	2.0E-06	1.9E-06	2.0E-06	1.9E-06	3.9E-06	4.9E-06		
10	3.3E-06	2.2E-06	1.9E-06	1.9E-06	1.8E-06	2.1E-06	2.0E-06	2.2E-06	2.2E-06	5.5E-06			6.0E-06
Statistics													
Min	3.3E-06	2.2E-06	1.9E-06	1.9E-06	1.8E-06	2.0E-06	1.9E-06	2.0E-06	1.9E-06	2.2E-06	4.7E-06	-	5.0E-06
Max	3.4E-06	2.3E-06	2.1E-06	2.0E-06	1.9E-06	2.1E-06	2.0E-06	2.2E-06	2.2E-06	5.5E-06	4.9E-06	-	6.0E-06
Average	3.3E-06	2.3E-06	2.0E-06	1.9E-06	1.9E-06	2.0E-06	1.9E-06	2.1E-06	2.1E-06	3.8E-06	4.8E-06	-	5.5E-06
Sigma	60.5E-09	51.2E-09	53.2E-09	70.9E-09	41.0E-09	62.4E-09	66.4E-09	110.8E-09	108.8E-09	1.3E-06	93.3E-09	-	528.1E-09

Drift Calculation

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-938.2E-09	-1.2E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.1E-06	1.4E-06		1.7E-06
9	-	-1.1E-06	-1.4E-06	-1.6E-06	-1.6E-06	-1.5E-06	-1.6E-06	-1.5E-06	-1.5E-06	449.8E-09	1.5E-06		
10	-	-1.1E-06	-1.4E-06	-1.4E-06	-1.5E-06	-1.2E-06	-1.3E-06	-1.1E-06	-1.1E-06	2.1E-06			2.7E-06
Average	-	-1.0E-06	-1.3E-06	-1.4E-06	-1.5E-06	-1.3E-06	-1.4E-06	-1.2E-06	-1.3E-06	509.0E-09	1.5E-06		2.2E-06
Sigma	-	76.5E-09	100.7E-09	129.7E-09	94.7E-09	120.9E-09	125.4E-09	151.2E-09	150.0E-09	1.3E-06	19.4E-09		495.5E-09

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.9E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
OFF PROTON samples													
5	2.9E-06	1.9E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06
14	2.7E-06	2.0E-06	2.0E-06	1.8E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06
7	2.9E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.8E-06	2.1E-06	2.4E-06	2.7E-06	3.0E-06	3.5E-06	3.8E-06	
Statistics													
Min	2.7E-06	1.8E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06
Max	2.9E-06	2.0E-06	2.0E-06	1.8E-06	1.6E-06	1.8E-06	2.1E-06	2.4E-06	2.7E-06	3.0E-06	3.5E-06	3.8E-06	1.7E-06
Average	2.8E-06	1.9E-06	1.8E-06	1.6E-06	1.6E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.2E-06	2.4E-06	2.4E-06	1.7E-06
Sigma	92.7E-09	84.3E-09	161.7E-09	105.4E-09	42.3E-09	99.7E-09	202.1E-09	343.3E-09	457.3E-09	632.8E-09	811.5E-09	925.4E-09	8.0E-09

Drift Calculation

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-951.2E-09	-1.2E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06
14	-	-686.0E-09	-698.9E-09	-911.6E-09	-1.1E-06	-981.7E-09	-982.2E-09	-959.6E-09	-950.5E-09	-971.6E-09	-856.6E-09	-854.8E-09	-931.2E-09
7	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.1E-06	-793.2E-09	-460.0E-09	-210.5E-09	169.2E-09	629.0E-09	876.1E-09	
Average	-	-909.1E-09	-1.0E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.0E-06	-875.1E-09	-786.9E-09	-656.2E-09	-448.5E-09	-362.6E-09	-1.0E-06
Sigma	-	167.7E-09	251.9E-09	197.3E-09	131.8E-09	130.5E-09	185.0E-09	310.2E-09	420.1E-09	589.0E-09	769.3E-09	882.0E-09	104.2E-09

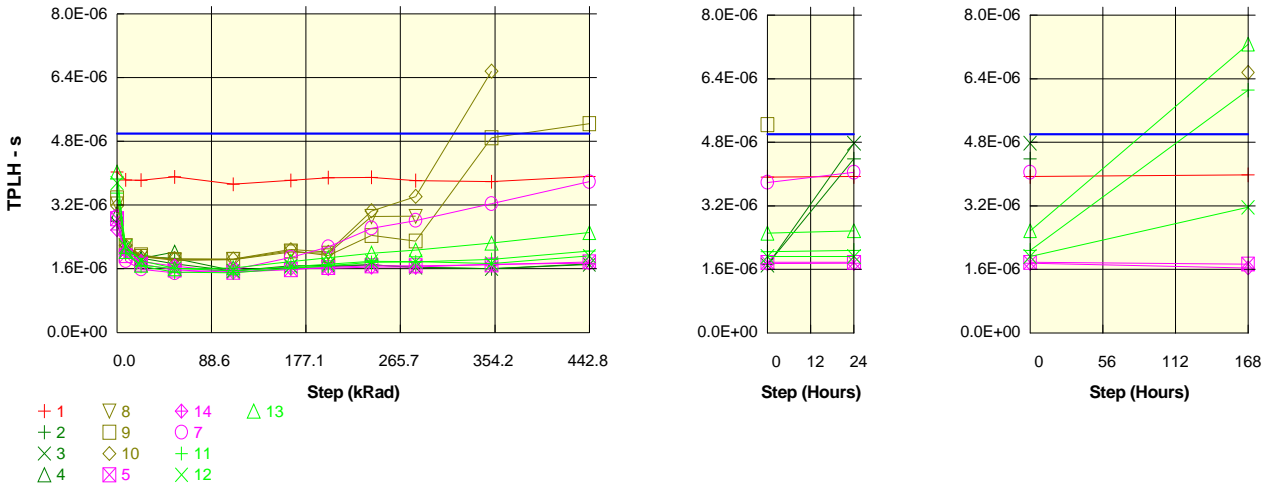
Measurements

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.9E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
OFF TID samples													
11	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	2.0E-06	2.0E-06	5.9E-06
12	3.8E-06	2.0E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	1.9E-06	1.9E-06	2.6E-06
13	3.9E-06	2.0E-06	1.7E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.4E-06	2.5E-06	7.4E-06
Statistics													
Min	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	1.9E-06	2.6E-06
Max	3.9E-06	2.0E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.4E-06	2.5E-06	7.4E-06
Average	3.7E-06	2.0E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	2.1E-06	2.1E-06	5.3E-06
Sigma	177.3E-09	35.8E-09	67.8E-09	46.0E-09	24.0E-09	32.4E-09	43.3E-09	64.6E-09	101.5E-09	124.0E-09	233.6E-09	251.5E-09	2.0E-06

Drift Calculation

TPLHDUT1	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.5E-06	-1.8E-06	-2.0E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.7E-06	-1.7E-06	-1.7E-06	-1.5E-06	-1.5E-06	2.4E-06
12	-	-1.8E-06	-2.0E-06	-2.2E-06	-2.3E-06	-2.2E-06	-2.1E-06	-2.1E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.2E-06
13	-	-1.9E-06	-2.2E-06	-2.3E-06	-2.4E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.5E-06	-1.4E-06	3.5E-06
Average	-	-1.7E-06	-2.0E-06	-2.2E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.8E-06	-1.6E-06	-1.6E-06	1.6E-06
Sigma	-	141.5E-09	143.0E-09	145.3E-09	153.9E-09	145.9E-09	137.3E-09	136.6E-09	131.7E-09	116.2E-09	214.3E-09	230.2E-09	2.0E-06

Parameter : Response Time Low To High : TPLHDUT2
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 5.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
ON_PROTON samples													
2	2.8E-06	2.1E-06	1.9E-06	1.9E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.4E-06	
3	2.7E-06	2.0E-06	1.9E-06	1.7E-06	1.5E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.8E-06	
4	3.0E-06	2.2E-06	1.9E-06	2.0E-06									
Statistics													
Min	2.7E-06	2.0E-06	1.9E-06	1.7E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.4E-06	-
Max	3.0E-06	2.2E-06	1.9E-06	2.0E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.8E-06	-
Average	2.8E-06	2.1E-06	1.9E-06	1.9E-06	1.5E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.6E-06	-
Sigma	105.1E-09	46.3E-09	21.2E-09	119.2E-09	5.1E-09	19.0E-09	13.3E-09	251.5E-12	1.7E-09	876.5E-12	9.9E-09	199.7E-09	-

Drift Calculation

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-708.6E-09	-879.8E-09	-925.7E-09	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	1.6E-06	
3	-	-696.6E-09	-870.6E-09	-1.0E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-1.0E-06	2.0E-06	
4	-	-828.8E-09	-1.1E-06	-963.3E-09									
Average	-	-744.7E-09	-957.2E-09	-966.7E-09	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.0E-06	1.8E-06	
Sigma	-	59.7E-09	116.0E-09	35.0E-09	20.0E-09	44.1E-09	38.4E-09	25.4E-09	26.8E-09	26.0E-09	15.3E-09	224.8E-09	

Measurements

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
ON_TID samples													
8	3.2E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.0E-06	2.0E-06	2.9E-06	2.9E-06				
9	3.4E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.1E-06	1.9E-06	2.4E-06	2.3E-06	4.9E-06	5.2E-06		
10	3.2E-06	2.2E-06	1.9E-06	1.9E-06	1.8E-06	2.1E-06	2.0E-06	3.1E-06	3.4E-06	6.6E-06			6.6E-06
Statistics													
Min	3.2E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.0E-06	1.9E-06	2.4E-06	2.3E-06	4.9E-06	5.2E-06	-	6.6E-06
Max	3.4E-06	2.2E-06	1.9E-06	1.9E-06	1.8E-06	2.1E-06	2.0E-06	3.1E-06	3.4E-06	6.6E-06	5.2E-06	-	6.6E-06
Average	3.3E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.1E-06	2.0E-06	2.8E-06	2.9E-06	5.7E-06	5.2E-06	-	6.6E-06
Sigma	83.9E-09	1.6E-09	22.1E-09	16.4E-09	7.3E-09	25.0E-09	35.5E-09	263.6E-09	457.5E-09	837.1E-09	0.0E+00	-	0.0E+00

Drift Calculation

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.0E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.2E-06	-316.5E-09	-310.2E-09				
9	-	-1.2E-06	-1.4E-06	-1.5E-06	-1.5E-06	-1.3E-06	-1.4E-06	-939.9E-09	-1.1E-06	1.5E-06	1.9E-06		
10	-	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.1E-06	-1.2E-06	-126.4E-09	236.8E-09	3.4E-06			3.4E-06
Average	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.3E-06	-460.9E-09	-384.0E-09	2.4E-06	1.9E-06		3.4E-06
Sigma	-	82.8E-09	61.8E-09	90.9E-09	85.5E-09	94.0E-09	119.3E-09	347.4E-09	539.6E-09	935.6E-09	0.0E+00		0.0E+00

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
OFF PROTON samples													
5	2.9E-06	1.9E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06
14	2.6E-06	2.0E-06	1.8E-06	1.7E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.8E-06	1.6E-06
7	2.9E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.9E-06	2.2E-06	2.6E-06	2.8E-06	3.2E-06	3.8E-06	4.0E-06	
Statistics													
Min	2.6E-06	1.8E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.8E-06	1.6E-06
Max	2.9E-06	2.0E-06	1.8E-06	1.7E-06	1.6E-06	1.9E-06	2.2E-06	2.6E-06	2.8E-06	3.2E-06	3.8E-06	4.0E-06	1.7E-06
Average	2.8E-06	1.9E-06	1.7E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	2.0E-06	2.0E-06	2.2E-06	2.4E-06	2.5E-06	1.7E-06
Sigma	144.7E-09	99.7E-09	79.7E-09	68.3E-09	32.2E-09	135.6E-09	249.4E-09	451.6E-09	545.7E-09	719.5E-09	957.5E-09	1.1E-06	48.6E-09

Drift Calculation

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-930.9E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06
14	-	-540.1E-09	-799.1E-09	-913.0E-09	-1.1E-06	-971.5E-09	-967.2E-09	-935.3E-09	-939.3E-09	-866.1E-09	-837.1E-09	-829.3E-09	-944.6E-09
7	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.0E-06	-756.9E-09	-288.2E-09	-91.6E-09	323.8E-09	881.5E-09	1.1E-06	
Average	-	-860.7E-09	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	-985.0E-09	-802.0E-09	-738.6E-09	-569.2E-09	-348.0E-09	-260.4E-09	-1.0E-06
Sigma	-	238.4E-09	216.1E-09	210.4E-09	127.0E-09	133.6E-09	193.8E-09	377.1E-09	468.4E-09	643.1E-09	875.5E-09	993.2E-09	92.0E-09

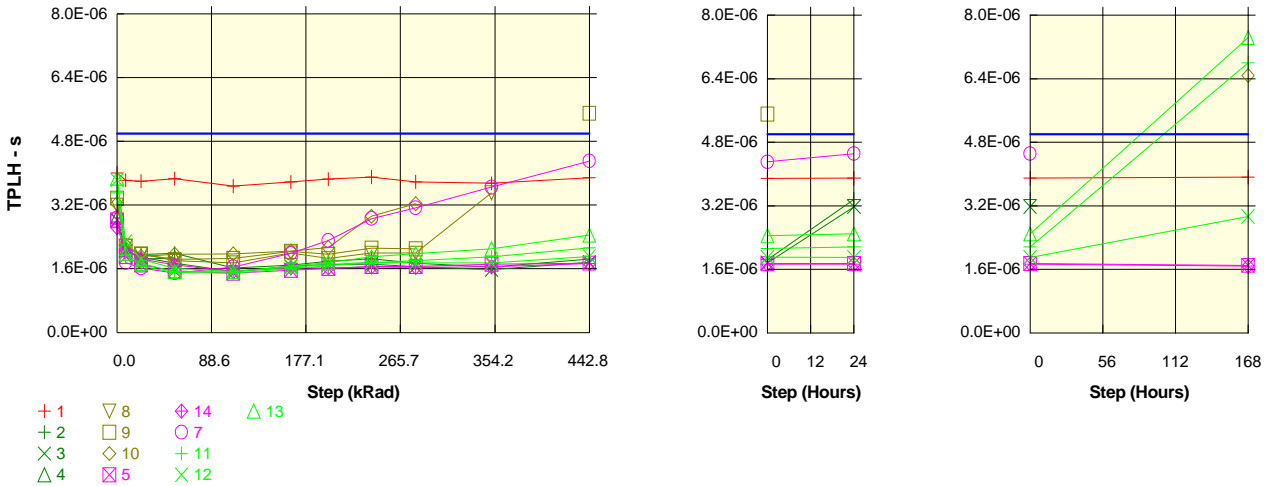
Measurements

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	4.0E-06
OFF TID samples													
11	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.8E-06	2.0E-06	2.1E-06	6.1E-06
12	3.8E-06	2.2E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06	1.9E-06	1.9E-06	3.2E-06
13	4.0E-06	2.0E-06	1.7E-06	1.6E-06	1.6E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.2E-06	2.5E-06	2.6E-06	7.3E-06
Statistics													
Min	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.7E-06	1.9E-06	1.9E-06	3.2E-06
Max	4.0E-06	2.2E-06	1.8E-06	1.6E-06	1.6E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.2E-06	2.5E-06	2.6E-06	7.3E-06
Average	3.8E-06	2.1E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	1.9E-06	2.2E-06	2.2E-06	5.5E-06
Sigma	216.6E-09	72.5E-09	59.9E-09	42.9E-09	50.9E-09	73.2E-09	86.8E-09	102.0E-09	141.2E-09	219.9E-09	254.5E-09	278.0E-09	1.7E-06

Drift Calculation

TPLHDUT2	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.5E-06	-1.8E-06	-2.0E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.7E-06	-1.7E-06	-1.7E-06	-1.5E-06	-1.4E-06	2.6E-06
12	-	-1.6E-06	-2.0E-06	-2.1E-06	-2.2E-06	-2.1E-06	-2.0E-06	-2.0E-06	-2.0E-06	-2.0E-06	-1.8E-06	-1.8E-06	-594.0E-09
13	-	-2.0E-06	-2.3E-06	-2.4E-06	-2.4E-06	-2.2E-06	-2.2E-06	-2.0E-06	-2.0E-06	-1.8E-06	-1.5E-06	-1.5E-06	3.2E-06
Average	-	-1.7E-06	-2.0E-06	-2.2E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.8E-06	-1.6E-06	-1.6E-06	1.8E-06
Sigma	-	208.2E-09	214.6E-09	183.4E-09	166.0E-09	147.0E-09	136.9E-09	127.8E-09	113.0E-09	149.2E-09	166.5E-09	188.4E-09	1.7E-06

Parameter : Response Time Low To High : TPLHDUT3
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 5.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.7E-06	3.9E-06	3.9E-06	3.9E-06
ON_PROTON samples													
2	2.8E-06	2.1E-06	2.0E-06	2.0E-06	1.6E-06	1.7E-06	1.8E-06	1.9E-06	1.7E-06	1.6E-06	1.8E-06	3.4E-06	
3	2.8E-06	2.0E-06	1.9E-06	1.7E-06	1.5E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.8E-06	3.2E-06	
4	2.9E-06	2.1E-06	1.8E-06	1.9E-06									
Statistics													
Min	2.8E-06	2.0E-06	1.8E-06	1.7E-06	1.5E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.8E-06	3.2E-06	-
Max	2.9E-06	2.1E-06	2.0E-06	2.0E-06	1.6E-06	1.7E-06	1.8E-06	1.9E-06	1.7E-06	1.6E-06	1.8E-06	3.4E-06	-
Average	2.8E-06	2.1E-06	1.9E-06	1.9E-06	1.6E-06	1.7E-06	1.7E-06	1.8E-06	1.7E-06	1.6E-06	1.8E-06	3.3E-06	-
Sigma	48.9E-09	33.5E-09	46.7E-09	101.2E-09	41.2E-09	13.9E-09	39.7E-09	65.4E-09	43.2E-09	29.7E-09	39.7E-09	92.1E-09	-

Drift Calculation

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-659.4E-09	-828.7E-09	-792.5E-09	-1.2E-06	-1.1E-06	-994.5E-09	-932.9E-09	-1.0E-06	-1.1E-06	-940.5E-09	576.4E-09	
3	-	-783.6E-09	-930.5E-09	-1.1E-06	-1.3E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.2E-06	-1.1E-06	349.8E-09	
4	-	-821.5E-09	-1.1E-06	-1.0E-06									
Average	-	-754.8E-09	-940.2E-09	-966.4E-09	-1.2E-06	-1.1E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.2E-06	-1.0E-06	463.1E-09	
Sigma	-	69.3E-09	95.2E-09	125.3E-09	62.4E-09	35.1E-09	60.9E-09	86.6E-09	64.4E-09	50.9E-09	60.9E-09	113.3E-09	

Measurements

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.7E-06	3.9E-06	3.9E-06	3.9E-06
ON_TID samples													
8	3.2E-06	2.2E-06	2.0E-06	1.8E-06	1.8E-06	2.0E-06	1.9E-06	2.0E-06	2.0E-06	3.5E-06			
9	3.4E-06	2.2E-06	2.0E-06	1.8E-06	1.9E-06	2.0E-06	2.0E-06	2.1E-06	2.1E-06		5.5E-06		
10	3.2E-06	2.2E-06	1.9E-06	2.0E-06	2.0E-06	2.0E-06	2.1E-06	2.9E-06	3.2E-06				6.5E-06
Statistics													
Min	3.2E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.0E-06	1.9E-06	2.0E-06	2.0E-06	3.5E-06	5.5E-06	-	6.5E-06
Max	3.4E-06	2.2E-06	2.0E-06	2.0E-06	2.0E-06	2.0E-06	2.1E-06	2.9E-06	3.2E-06	3.5E-06	5.5E-06	-	6.5E-06
Average	3.3E-06	2.2E-06	1.9E-06	1.9E-06	1.9E-06	2.0E-06	2.0E-06	2.3E-06	2.4E-06	3.5E-06	5.5E-06	-	6.5E-06
Sigma	77.1E-09	12.2E-09	26.9E-09	69.6E-09	92.2E-09	19.7E-09	112.9E-09	409.7E-09	562.1E-09	0.0E+00	0.0E+00	-	80.4E-15

Drift Calculation

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-1.0E-06	-1.2E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.3E-06	-1.2E-06	-1.2E-06	314.8E-09			
9	-	-1.2E-06	-1.4E-06	-1.5E-06	-1.5E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.3E-06		2.1E-06		
10	-	-1.0E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.1E-06	-315.0E-09	1.8E-09				3.2E-06
Average	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.3E-06	-922.9E-09	-823.7E-09	314.8E-09	2.1E-06		3.2E-06
Sigma	-	81.6E-09	77.8E-09	111.1E-09	108.1E-09	67.8E-09	131.3E-09	430.6E-09	584.4E-09	0.0E+00	0.0E+00	-	0.0E+00

Hirex Engineering	Total Dose Radiation Test Report										Ref.:	HRX/TID/1015
	IS-139ASRH					Intersil					Issue:	02

Measurements

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.7E-06	3.9E-06	3.9E-06	3.9E-06
OFF PROTON samples													
5	2.8E-06	1.9E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
14	2.6E-06	2.1E-06	1.8E-06	1.7E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
7	2.9E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	2.0E-06	2.3E-06	2.9E-06	3.1E-06	3.6E-06	4.3E-06	4.5E-06	
Statistics													
Min	2.6E-06	1.8E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
Max	2.9E-06	2.1E-06	1.8E-06	1.7E-06	1.6E-06	2.0E-06	2.3E-06	2.9E-06	3.1E-06	3.6E-06	4.3E-06	4.5E-06	1.7E-06
Average	2.8E-06	1.9E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	1.8E-06	2.1E-06	2.1E-06	2.3E-06	2.6E-06	2.7E-06	1.7E-06
Sigma	107.1E-09	141.5E-09	95.8E-09	87.7E-09	65.2E-09	185.7E-09	326.6E-09	568.8E-09	699.8E-09	927.4E-09	1.2E-06	1.3E-06	11.5E-09

Drift Calculation

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-923.4E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06
14	-	-528.1E-09	-778.6E-09	-926.2E-09	-1.1E-06	-998.5E-09	-1.0E-06	-982.8E-09	-993.3E-09	-978.2E-09	-897.7E-09	-893.8E-09	-949.0E-09
7	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.2E-06	-889.6E-09	-567.3E-09	-17.8E-09	254.7E-09	771.9E-09	1.4E-06	1.6E-06	
Average	-	-857.9E-09	-1.1E-06	-1.2E-06	-1.2E-06	-1.0E-06	-929.1E-09	-722.2E-09	-634.8E-09	-439.1E-09	-183.4E-09	-110.7E-09	-1.0E-06
Sigma	-	246.9E-09	202.1E-09	194.8E-09	98.1E-09	155.6E-09	270.1E-09	503.7E-09	632.9E-09	858.0E-09	1.1E-06	1.2E-06	87.1E-09

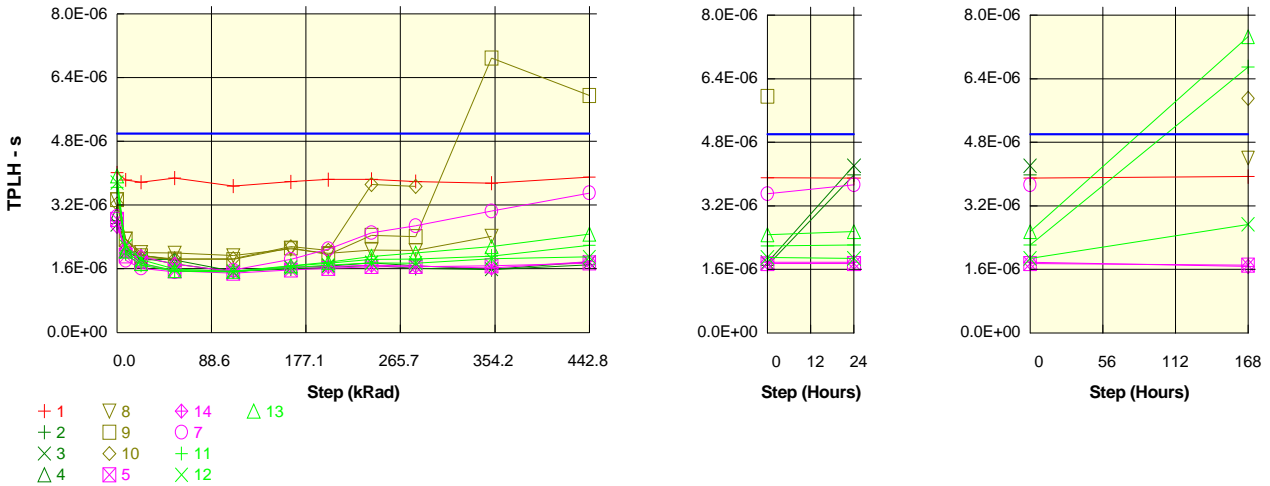
Measurements

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.9E-06	3.9E-06	3.8E-06	3.7E-06	3.9E-06	3.9E-06	3.9E-06
OFF TID samples													
11	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	2.1E-06	2.2E-06	6.8E-06
12	3.8E-06	2.3E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.7E-06	1.7E-06	1.9E-06	1.9E-06	2.9E-06
13	3.9E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.4E-06	2.5E-06	7.4E-06
Statistics													
Min	3.5E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.7E-06	1.7E-06	1.9E-06	1.9E-06	2.9E-06
Max	3.9E-06	2.3E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.1E-06	2.4E-06	2.5E-06	7.4E-06
Average	3.7E-06	2.1E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	2.2E-06	2.2E-06	5.7E-06
Sigma	162.8E-09	150.0E-09	68.4E-09	45.1E-09	19.6E-09	26.5E-09	34.3E-09	64.8E-09	99.6E-09	143.7E-09	222.4E-09	243.7E-09	2.0E-06

Drift Calculation

TPLHDUT3	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.6E-06	-1.8E-06	-2.0E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.8E-06	-1.7E-06	-1.6E-06	-1.4E-06	-1.3E-06	3.3E-06
12	-	-1.5E-06	-2.0E-06	-2.2E-06	-2.3E-06	-2.2E-06	-2.1E-06	-2.1E-06	-2.1E-06	-2.1E-06	-1.9E-06	-1.9E-06	-893.2E-09
13	-	-1.9E-06	-2.1E-06	-2.3E-06	-2.4E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.4E-06	-1.4E-06	3.6E-06
Average	-	-1.7E-06	-2.0E-06	-2.2E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.8E-06	-1.6E-06	-1.6E-06	2.0E-06
Sigma	-	159.3E-09	125.6E-09	141.1E-09	144.5E-09	136.8E-09	133.4E-09	128.9E-09	150.0E-09	192.3E-09	241.3E-09	264.8E-09	2.0E-06

Parameter : Response Time Low To High : TPLHDUT4
 Test conditions : VIN=VIO+5mV. Vref=1.4V. VRL=5V. RL=5.1K
 Unit : s
 Spec Limit Max : 5.0E-06
 Spec limits are represented in bold lines on the graphic.



Measurements

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	3.9E-06
ON_PROTON samples													
2	2.7E-06	2.1E-06	1.9E-06	1.8E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.0E-06	
3	2.7E-06	2.0E-06	1.9E-06	1.7E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.7E-06	1.6E-06	1.8E-06	4.2E-06	
4	3.0E-06	2.1E-06	1.8E-06	1.8E-06									
Statistics													
Min	2.7E-06	2.0E-06	1.8E-06	1.7E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.0E-06	-
Max	3.0E-06	2.1E-06	1.9E-06	1.8E-06	1.5E-06	1.6E-06	1.7E-06	1.8E-06	1.7E-06	1.6E-06	1.8E-06	4.2E-06	-
Average	2.8E-06	2.0E-06	1.9E-06	1.8E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.6E-06	1.7E-06	4.1E-06	-
Sigma	122.4E-09	25.8E-09	49.5E-09	50.4E-09	8.4E-09	19.3E-09	18.7E-09	32.1E-09	31.2E-09	7.7E-09	37.4E-09	112.3E-09	-

Drift Calculation

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_PROTON samples													
2	-	-677.1E-09	-798.8E-09	-920.9E-09	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.1E-06	-1.2E-06	-1.0E-06	1.2E-06	
3	-	-699.8E-09	-828.0E-09	-985.3E-09	-1.2E-06	-1.1E-06	-1.0E-06	-961.2E-09	-1.0E-06	-1.1E-06	-941.1E-09	1.5E-06	
4	-	-917.6E-09	-1.2E-06	-1.1E-06									
Average	-	-764.9E-09	-929.9E-09	-1.0E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.0E-06	-1.1E-06	-1.1E-06	-993.9E-09	1.4E-06	
Sigma	-	108.4E-09	165.2E-09	93.4E-09	7.0E-09	34.6E-09	34.1E-09	47.4E-09	46.6E-09	23.1E-09	52.8E-09	127.6E-09	

Measurements

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	3.9E-06
ON_TID samples													
8	3.3E-06	2.3E-06	2.0E-06	2.0E-06	1.9E-06	2.1E-06	2.0E-06	2.1E-06	2.1E-06	2.4E-06			4.4E-06
9	3.3E-06	2.3E-06	1.9E-06	1.8E-06	1.8E-06	2.1E-06	2.0E-06	2.4E-06	2.4E-06	6.9E-06	6.0E-06		
10	3.2E-06	2.2E-06	1.9E-06	1.9E-06	1.9E-06	2.2E-06	2.1E-06	3.7E-06	3.7E-06				5.9E-06
Statistics													
Min	3.2E-06	2.2E-06	1.9E-06	1.8E-06	1.8E-06	2.1E-06	2.0E-06	2.1E-06	2.1E-06	2.4E-06	6.0E-06	-	4.4E-06
Max	3.3E-06	2.3E-06	2.0E-06	2.0E-06	1.9E-06	2.2E-06	2.1E-06	3.7E-06	3.7E-06	6.9E-06	6.0E-06	-	5.9E-06
Average	3.3E-06	2.3E-06	1.9E-06	1.9E-06	1.9E-06	2.1E-06	2.0E-06	2.7E-06	2.7E-06	4.7E-06	6.0E-06	-	5.2E-06
Sigma	48.7E-09	79.1E-09	47.5E-09	69.5E-09	42.6E-09	21.8E-09	43.6E-09	705.4E-09	692.6E-09	2.2E-06	0.0E+00	-	751.0E-09

Drift Calculation

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
ON_TID samples													
8	-	-988.9E-09	-1.3E-06	-1.3E-06	-1.4E-06	-1.2E-06	-1.3E-06	-1.3E-06	-1.3E-06	-912.6E-09			1.1E-06
9	-	-993.0E-09	-1.4E-06	-1.5E-06	-1.5E-06	-1.2E-06	-1.4E-06	-892.9E-09	-927.8E-09	3.6E-06	2.6E-06		
10	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.4E-06	-1.1E-06	-1.2E-06	487.6E-09	440.1E-09				2.7E-06
Average	-	-1.0E-06	-1.4E-06	-1.4E-06	-1.4E-06	-1.2E-06	-1.3E-06	-555.4E-09	-587.1E-09	1.3E-06	2.6E-06		1.9E-06
Sigma	-	30.5E-09	32.0E-09	65.5E-09	54.4E-09	68.9E-09	91.8E-09	752.7E-09	739.9E-09	2.2E-06	0.0E+00		801.6E-09

Hirex Engineering	Total Dose Radiation Test Report									Ref.:	HRX/TID/1015	
	IS-139ASRH					Intersil				Issue:	02	

Measurements

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	3.9E-06
OFF PROTON samples													
5	2.8E-06	1.9E-06	1.7E-06	1.6E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06	1.7E-06
14	2.7E-06	2.1E-06	1.9E-06	1.7E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.6E-06	1.8E-06	1.8E-06	1.7E-06
7	2.9E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.8E-06	2.1E-06	2.5E-06	2.7E-06	3.0E-06	3.5E-06	3.7E-06	
Statistics													
Min	2.7E-06	1.8E-06	1.6E-06	1.5E-06	1.5E-06	1.6E-06	1.6E-06	1.7E-06	1.7E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06
Max	2.9E-06	2.1E-06	1.9E-06	1.7E-06	1.6E-06	1.8E-06	2.1E-06	2.5E-06	2.7E-06	3.0E-06	3.5E-06	3.7E-06	1.7E-06
Average	2.8E-06	1.9E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	2.0E-06	2.0E-06	2.1E-06	2.3E-06	2.4E-06	1.7E-06
Sigma	104.3E-09	123.9E-09	123.1E-09	84.9E-09	31.2E-09	115.5E-09	220.2E-09	393.1E-09	479.5E-09	661.7E-09	820.8E-09	926.6E-09	16.2E-09

Drift Calculation

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF PROTON samples													
5	-	-913.0E-09	-1.1E-06	-1.3E-06	-1.3E-06	-1.3E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.2E-06	-1.1E-06	-1.1E-06	-1.1E-06
14	-	-553.5E-09	-752.3E-09	-950.7E-09	-1.1E-06	-1.0E-06	-1.0E-06	-973.3E-09	-996.5E-09	-1.0E-06	-883.6E-09	-884.6E-09	-989.0E-09
7	-	-1.1E-06	-1.3E-06	-1.4E-06	-1.3E-06	-1.1E-06	-815.6E-09	-406.9E-09	-234.9E-09	136.2E-09	590.3E-09	815.0E-09	
Average	-	-856.6E-09	-1.1E-06	-1.2E-06	-1.3E-06	-1.1E-06	-1.0E-06	-854.7E-09	-805.2E-09	-691.2E-09	-462.5E-09	-387.5E-09	-1.1E-06
Sigma	-	227.9E-09	227.1E-09	188.7E-09	103.3E-09	109.0E-09	169.0E-09	328.1E-09	410.6E-09	587.0E-09	749.4E-09	854.6E-09	71.1E-09

Measurements

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
1_REF	4.0E-06	3.8E-06	3.8E-06	3.9E-06	3.7E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.8E-06	3.9E-06	3.9E-06	3.9E-06
OFF TID samples													
11	3.6E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.7E-06	1.7E-06	1.8E-06	1.8E-06	1.9E-06	2.2E-06	2.2E-06	6.7E-06
12	3.8E-06	2.2E-06	1.8E-06	1.6E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.9E-06	1.9E-06	1.9E-06	2.7E-06
13	3.9E-06	2.0E-06	1.7E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.2E-06	2.5E-06	2.5E-06	7.5E-06
Statistics													
Min	3.6E-06	2.0E-06	1.7E-06	1.5E-06	1.5E-06	1.6E-06	1.7E-06	1.7E-06	1.7E-06	1.9E-06	1.9E-06	1.9E-06	2.7E-06
Max	3.9E-06	2.2E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.2E-06	2.5E-06	2.5E-06	7.5E-06
Average	3.8E-06	2.1E-06	1.8E-06	1.6E-06	1.5E-06	1.7E-06	1.7E-06	1.8E-06	1.9E-06	2.0E-06	2.2E-06	2.2E-06	5.6E-06
Sigma	116.3E-09	78.6E-09	58.0E-09	23.2E-09	6.4E-09	21.4E-09	30.9E-09	66.5E-09	103.6E-09	131.7E-09	234.0E-09	274.0E-09	2.1E-06

Drift Calculation

TPLHDUT4	0 kRad	8.1 kRad	22.5 kRad	54 kRad	108.9 kRad	162.9 kRad	198 kRad	238.5 kRad	279.9 kRad	351 kRad	442.8 kRad	24 Hours	168 Hours
OFF TID samples													
11	-	-1.7E-06	-2.0E-06	-2.1E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.8E-06	-1.7E-06	-1.5E-06	-1.4E-06	3.1E-06
12	-	-1.6E-06	-1.9E-06	-2.2E-06	-2.2E-06	-2.1E-06	-2.1E-06	-2.0E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.9E-06	-1.0E-06
13	-	-1.9E-06	-2.2E-06	-2.4E-06	-2.4E-06	-2.3E-06	-2.2E-06	-2.0E-06	-1.9E-06	-1.8E-06	-1.5E-06	-1.4E-06	3.5E-06
Average	-	-1.7E-06	-2.0E-06	-2.2E-06	-2.2E-06	-2.1E-06	-2.0E-06	-1.9E-06	-1.9E-06	-1.8E-06	-1.6E-06	-1.6E-06	1.9E-06
Sigma	-	122.4E-09	118.5E-09	115.0E-09	110.0E-09	111.4E-09	109.7E-09	98.2E-09	91.2E-09	79.2E-09	192.4E-09	226.9E-09	2.0E-06