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

Part Type : SOC3810A

Package : LCC-06

Description : NPN Dual Matched Bipolar Transistor

Manufacturer : STMicroelectronics

Alter Technology Purchase Order N° ATGSP-TL-09-JC-CO-9 dated 11/27/2009

Alter Technology Project Manager: David NUNEZ

Hirex reference :	HRX/TID/1011	Issue : 01	Date :	January 30th, 2011
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CHANGE RECORD

ISSUE	DATE	PAGE	DESCRIPTION OF CHANGES
01	January 30th, 2011	All	Original Issue

TOTAL DOSE RADIATION TEST REPORT
on
STMicroelectronics
SOC3810A
NPN Dual Matched Bipolar Transistor

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1 Introduction

In the scope of the ESA study: “Survey of Critical Components for 150 kRad Power Systems”, a total dose characterization test of the STMicroelectronics SOC3810A, NPN Dual Matched Bipolar Transistor has been performed with an accumulated dose of about 426 Krad(Si) at differents 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/0926 Issue 01, corresponding to the irradiation up to 159.3 Krad(Si) has been already 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/0230 issue 3 dated 09/06/2010.

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 Radiation Test Plan: HRX/SPE/0230 issue 3 dated 09/06/2010
- Alter Technology Group 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.
- ESA/SCC detail specification: 5207/005

2.2 Reference Documents

- STMicroelectronics datasheet: ID 15385 dated January 10, 2010

3 Test Samples

13 samples of the SOC3810A 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/0925) have been biased according to the flow diagram given in Figure 1.

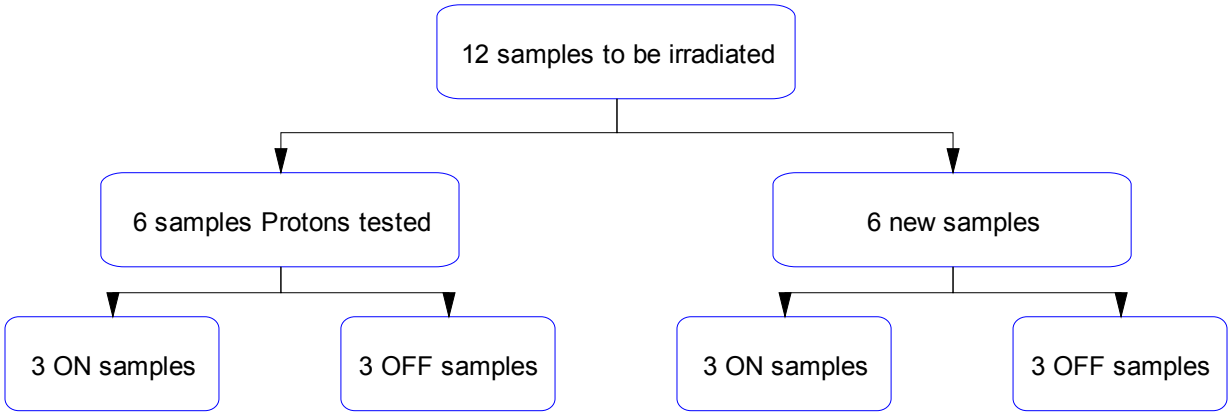


Figure 1 : Samples bias flow diagram

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 OFF	OFF_PROTON
3	Biased OFF	OFF_PROTON
4	Biased OFF	OFF_PROTON
5	Biased ON	ON_PROTON
6	Biased ON	ON_PROTON
7	Biased ON	ON_PROTON
8	Biased OFF	OFF_TID
9	Biased OFF	OFF_TID
10	Biased OFF	OFF_TID
11	Biased ON	ON_TID
12	Biased ON	ON_TID
13	Biased ON	ON_TID

Identification of the SOC3810A is given below:

Part Number: SOC3810A

Top Marking: None

Bottom Marking: None

Date Code: None

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	0		Room
10	11.7	36		Room
20	22.5	36		Room
50	56.7	36		Room
100	104.4	36		Room
150	159.3	100 [1]		Room
200	207	300 [1]		Room
250	245.7	300 [1]		Room
300	291.2	300 [1]		Room
350	333	300 [1]		Room
400	426.6	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.

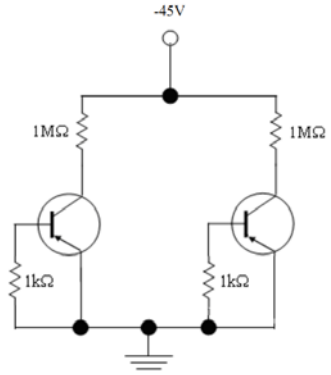


Figure 2 : Bias Conditions during Irradiation Exposures

4.2.2 Electrical Measurements

Electrical parameters test program principle for SOC3810A is provided in Figure 3.

A HP4142 DC tester and a network analyzer HP8714ES 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.

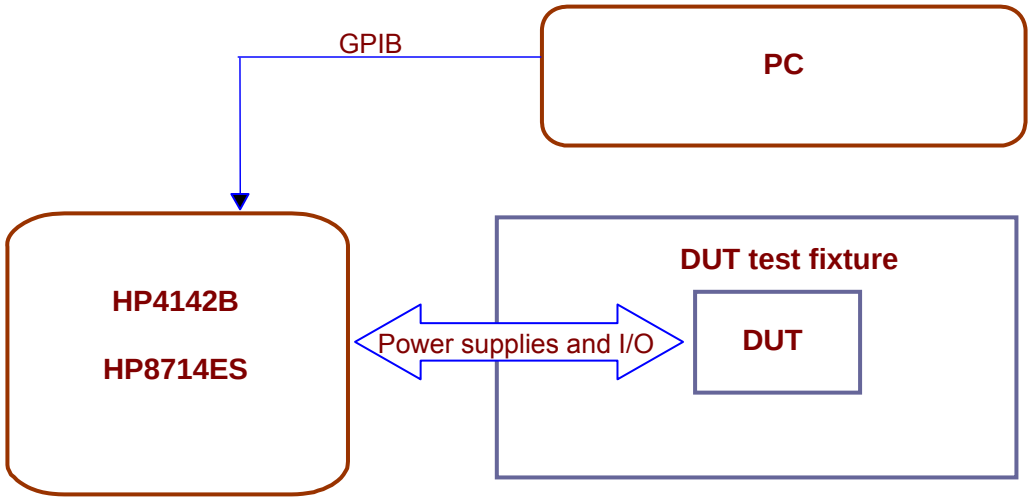


Figure 3 : SOC3810A test program principle

Electrical parameters test conditions and limits used for performing this test are given in Table 1.

Parameter	Description	Conditions	Spec		unit
			Min	Max	
I_{CBO}	Collector-Base cut-off current	V_{CB} = -50 V	-10	-	nA
I_{CEO}	Collector- Emitter cut-off current	V_{CB} = -50 V	-10	-	nA
I_{EBO}	Emitter-Base cut-off current	V_{EB} = -4 V	-20	-	nA
$V_{(BR)CBO}$	Collector-Base breakdown voltage	I_C = -10µA	-	-60	V
$V_{(BR)CEO}$	Collector-Emitter breakdown voltage, Note 1	I_C = -10mA	-	-60	V
$V_{(BR)EBO}$	Emitter-Base breakdown voltage	I_E = -10µA	-	-5	V
$V_{CE(SAT)1}$	Collector-Emitter saturation voltage, Note 1	I_C = -100µA, I_B = -10µA	-0.2	-	V
$V_{CE(SAT)2}$	Collector-Emitter saturation voltage, Note 1	I_C = -1mA, I_B = -100µA	-0.25	-	V
$V_{BE(SAT)1}$	Base-Emitter saturation voltage, Note 1	I_C = -100µA, I_B = -10µA	-0.7	-	V
$V_{BE(SAT)2}$	Base-Emitter saturation voltage, Note 1	I_C = -1mA, I_B = -100µA	-0.8	-	V
h_{FE1}	DC current gain, Note 1	I_C = -100µA, V_{CE} = -5V	150	450	-
h_{FE2}	DC current gain, Note 1	Ic = -500µA, V_{CE} = -5V	150	450	-
h_{FE3}	DC current gain, Note 1	Ic = -1mA, V_{CE} = -5V	150	450	-
h_{FE4}	DC current gain, Note 1	Ic = -5mA, V_{CE} = -5V	150	-	-
h_{FE5}	DC current gain, Note 1	Ic = -10mA, V_{CE} = -5V	125	-	-
H_{FE3-1}/H_{FE3-2}	Forward Current Transfer Ratio Comparison	Ic = -1mA, V_{CE} = -5V	0.9	1.1	-
H_{FE3-1}/H_{FE3-2}	Forward Current Transfer Ratio Comparison	Ic = -5mA, V_{CE} = -5V	0.9	1.1	-
$\Delta\lvert V_{BE1}-V_{BE2}\rvert$	Base-Emitter Voltage Differential	Ic = -1mA, V_{CE} = -5V		5	mV
$\Delta\lvert V_{BE1}-V_{BE2}\rvert$	Base-Emitter Voltage Differential	Ic = -5mA, V_{CE} = -5V		5	mV
F_T	Current Gain Bandwidth Product	V_{CE} = -5V, Ic = -1mA	80	500	MHz

Note 1: Pulse measurement: Pulse Width ≤300µs, Duty cycle 1%

Table 1 : Measured electrical parameters

5 Conclusion

A Total Ionizing Dose verification test was carried out by Hirex Engineering under Alter Technology contract on the STMicroelectronics SOC3810A NPN Dual Matched Bipolar Transistor in LCC-06 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 the 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	
HFE1_1	ON_PROTON samples	-		X				See Note 2
	ON_TID samples	11.7 & 22.5 kRad(Si)		X				
	OFF_PROTON samples	-		X				See Note 2
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				
HFE2_1	ON_PROTON samples	11.7 & 22.5 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	11.7 & 22.5 kRad(Si)		X				
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				
HFE3_1	ON_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				
HFE4_1	ON_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	OFF_TID samples	56.7 & 104.4 kRad(Si)		X				
HFE5_1	ON_PROTON samples	56.7 & 104.4 kRad(Si)		X				
	ON_TID samples	104.4 & 159.3 kRad(Si)		X				
	OFF_PROTON samples	56.7 & 104.4 kRad(Si)		X				
	OFF_TID samples	104.4 & 159.3 kRad(Si)		X				
HFE1_2	ON_PROTON samples	-		X				See Note 2
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	-		X				See Note 2
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				

Parameters	Failure Level between :		Annealing Recovery [Note 1]					Comments
			NA	No	Partial	Complete	Rebound	
HFE2_2	ON_PROTON samples	11.7 & 22.5 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	11.7 & 22.5 kRad(Si)		X				
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				
HFE3_2	ON_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	OFF_TID samples	22.5 & 56.7 kRad(Si)		X				
HFE4_2	ON_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	ON_TID samples	22.5 & 56.7 kRad(Si)		X				
	OFF_PROTON samples	22.5 & 56.7 kRad(Si)		X				
	OFF_TID samples	56.7 & 104.4 kRad(Si)		X				
HFE5_2	ON_PROTON samples	56.7 & 104.4 kRad(Si)		X				
	ON_TID samples	104.4 & 159.3 kRad(Si)		X				
	OFF_PROTON samples	56.7 & 104.4 kRad(Si)		X				
	OFF_TID samples	104.4 & 159.3 kRad(Si)		X				

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

Table 2 : Summary of parameters failure levels

6 Test Results

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

Statistics are provided separately for biased ON & biased 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:

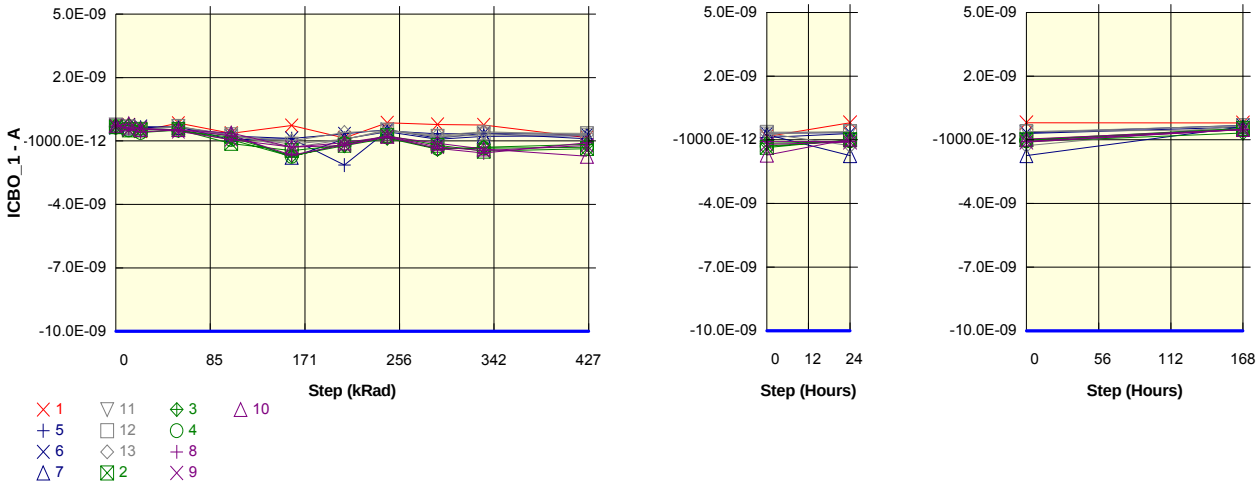
$$\Delta\text{(Parameter value)}=\text{(Parameter value}_{POSTRAD}\text{)} - \text{(Parameter value}_{PRERAD}\text{)}$$

For the particular case of transistors, drift calculation table for Hfe parameters will refer to 1/Hfe:

$$\Delta(1/hFE)=(1/hFE_{POSTRAD})-(1/hFE_{PRERAD})$$

Note: Signs of I_{EB0} parameters have been inverted when they were negative to allow logarithmic plots.

Parameter : Collector-Base cut-off current : ICBO_1
Test conditions : Vcb = -50V
Unit : A
Spec Limit Min : -10.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-268.6E-12	-238.0E-12	-521.3E-12	-160.9E-12	-637.2E-12	-263.9E-12	-858.8E-12	-143.0E-12	-219.5E-12	-244.4E-12	-846.0E-12	-188.2E-12	-202.8E-12
ON_PROTON samples													
5	-368.6E-12	-413.8E-12	-371.0E-12	-338.4E-12	-939.2E-12	-896.6E-12	-2.1E-09	-519.2E-12	-668.0E-12	-638.0E-12	-888.8E-12	-703.0E-12	-394.4E-12
6	-373.7E-12	-249.7E-12	-319.8E-12	-345.5E-12	-766.6E-12	-881.6E-12	-659.4E-12	-463.4E-12	-871.8E-12	-641.8E-12	-685.4E-12	-663.6E-12	-319.6E-12
7	-311.3E-12	-385.4E-12	-383.7E-12	-357.7E-12	-704.8E-12	-1.8E-09	-903.6E-12	-560.4E-12	-920.8E-12	-773.2E-12	-755.4E-12	-1.7E-09	-388.1E-12
Statistics													
Min	-373.7E-12	-413.8E-12	-383.7E-12	-357.7E-12	-939.2E-12	-1.8E-09	-2.1E-09	-560.4E-12	-920.8E-12	-773.2E-12	-888.8E-12	-1.7E-09	-394.4E-12
Max	-311.3E-12	-249.7E-12	-319.8E-12	-338.4E-12	-704.8E-12	-881.6E-12	-659.4E-12	-463.4E-12	-668.0E-12	-638.0E-12	-685.4E-12	-663.6E-12	-319.6E-12
Average	-351.2E-12	-349.6E-12	-358.2E-12	-347.2E-12	-803.5E-12	-1.2E-09	-1.2E-09	-514.3E-12	-820.2E-12	-684.3E-12	-776.5E-12	-1.0E-09	-367.4E-12
Sigma	28.3E-12	71.6E-12	27.6E-12	8.0E-12	99.2E-12	416.6E-12	648.5E-12	39.7E-12	109.5E-12	62.9E-12	84.4E-12	501.7E-12	33.8E-12

Drift Calculation

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-45.2E-12	-2.4E-12	30.2E-12	-570.6E-12	-528.0E-12	-1.8E-09	-150.6E-12	-299.4E-12	-269.4E-12	-520.2E-12	-334.4E-12	-25.8E-12
6	-	124.0E-12	53.9E-12	28.2E-12	-392.9E-12	-507.9E-12	-285.7E-12	-89.7E-12	-498.1E-12	-268.1E-12	-311.6E-12	-289.9E-12	54.1E-12
7	-	-74.1E-12	-72.4E-12	-46.4E-12	-393.5E-12	-1.5E-09	-592.3E-12	-249.1E-12	-609.5E-12	-461.9E-12	-444.1E-12	-1.4E-09	-76.8E-12
Average	-	1.6E-12	-7.0E-12	4.0E-12	-452.3E-12	-832.5E-12	-883.4E-12	-163.1E-12	-469.0E-12	-333.1E-12	-425.3E-12	-686.7E-12	-16.2E-12
Sigma	-	87.4E-12	51.7E-12	35.7E-12	83.6E-12	444.9E-12	640.8E-12	65.7E-12	128.3E-12	91.1E-12	86.2E-12	530.0E-12	53.8E-12

Measurements

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-268.6E-12	-238.0E-12	-521.3E-12	-160.9E-12	-637.2E-12	-263.9E-12	-858.8E-12	-143.0E-12	-219.5E-12	-244.4E-12	-846.0E-12	-188.2E-12	-202.8E-12
ON_TID samples													
11	-236.4E-12	-357.0E-12	-490.2E-12	-321.8E-12	-702.0E-12	-1.3E-09	-932.8E-12	-479.8E-12	-800.2E-12	-712.0E-12	-723.2E-12	-616.6E-12	-523.9E-12
12	-267.8E-12	-333.4E-12	-446.2E-12	-306.2E-12	-777.0E-12	-1.2E-09	-921.6E-12	-527.2E-12	-777.6E-12	-616.0E-12	-643.3E-12	-630.2E-12	-337.0E-12
13	-270.8E-12	-410.0E-12	-450.4E-12	-314.5E-12	-771.3E-12	-994.2E-12	-601.8E-12	-504.8E-12	-733.0E-12	-561.0E-12	-705.0E-12	-1.3E-09	-335.2E-12
Statistics													
Min	-270.8E-12	-410.0E-12	-490.2E-12	-321.8E-12	-777.0E-12	-1.3E-09	-932.8E-12	-527.2E-12	-800.2E-12	-712.0E-12	-723.2E-12	-1.3E-09	-523.9E-12
Max	-236.4E-12	-333.4E-12	-446.2E-12	-306.2E-12	-702.0E-12	-994.2E-12	-601.8E-12	-479.8E-12	-733.0E-12	-561.0E-12	-643.3E-12	-616.6E-12	-335.2E-12
Average	-258.3E-12	-366.8E-12	-462.3E-12	-314.2E-12	-750.1E-12	-1.2E-09	-818.7E-12	-503.9E-12	-770.3E-12	-629.7E-12	-690.5E-12	-840.7E-12	-398.7E-12
Sigma	15.6E-12	32.0E-12	19.8E-12	6.3E-12	34.1E-12	130.5E-12	153.5E-12	19.4E-12	27.9E-12	62.4E-12	34.2E-12	307.3E-12	88.5E-12

Drift Calculation

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-120.6E-12	-253.8E-12	-85.4E-12	-465.6E-12	-1.1E-09	-696.4E-12	-243.4E-12	-563.8E-12	-475.6E-12	-486.8E-12	-380.2E-12	-287.5E-12
12	-	-65.6E-12	-178.4E-12	-38.5E-12	-509.2E-12	-883.4E-12	-653.8E-12	-259.4E-12	-509.8E-12	-348.2E-12	-375.6E-12	-362.4E-12	-69.2E-12
13	-	-139.2E-12	-179.6E-12	-43.6E-12	-500.5E-12	-723.4E-12	-331.0E-12	-234.0E-12	-462.1E-12	-290.2E-12	-434.2E-12	-1.0E-09	-64.4E-12
Average	-	-108.5E-12	-203.9E-12	-55.8E-12	-491.8E-12	-894.7E-12	-560.4E-12	-245.6E-12	-511.9E-12	-371.3E-12	-432.2E-12	-582.3E-12	-140.4E-12
Sigma	-	31.2E-12	35.3E-12	21.0E-12	18.9E-12	144.8E-12	163.2E-12	10.5E-12	41.5E-12	77.4E-12	45.4E-12	298.5E-12	104.1E-12

Measurements

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-268.6E-12	-238.0E-12	-521.3E-12	-160.9E-12	-637.2E-12	-263.9E-12	-858.8E-12	-143.0E-12	-219.5E-12	-244.4E-12	-846.0E-12	-188.2E-12	-202.8E-12
OFF_PROTON samples													
2	-328.8E-12	-476.4E-12	-472.2E-12	-458.9E-12	-1.1E-09	-1.4E-09	-1.2E-09	-751.6E-12	-1.2E-09	-1.5E-09	-1.4E-09	-998.6E-12	-460.3E-12
3	-313.7E-12	-251.0E-12	-441.2E-12	-493.4E-12	-830.1E-12	-1.7E-09	-1.2E-09	-871.4E-12	-1.4E-09	-1.3E-09	-1.2E-09	-1.1E-09	-674.6E-12
4	-351.6E-12	-481.8E-12	-606.8E-12	-490.3E-12	-940.0E-12	-1.7E-09	-1.1E-09	-809.0E-12	-1.4E-09	-1.3E-09	-1.3E-09	-1.0E-09	-509.6E-12
Statistics													
Min	-351.6E-12	-481.8E-12	-606.8E-12	-493.4E-12	-1.1E-09	-1.7E-09	-1.2E-09	-871.4E-12	-1.4E-09	-1.5E-09	-1.4E-09	-1.1E-09	-674.6E-12
Max	-313.7E-12	-251.0E-12	-441.2E-12	-458.9E-12	-830.1E-12	-1.4E-09	-1.1E-09	-751.6E-12	-1.2E-09	-1.3E-09	-1.2E-09	-998.6E-12	-460.3E-12
Average	-331.4E-12	-403.1E-12	-506.7E-12	-480.8E-12	-962.8E-12	-1.6E-09	-1.2E-09	-810.7E-12	-1.3E-09	-1.4E-09	-1.3E-09	-1.0E-09	-548.2E-12
Sigma	15.6E-12	107.5E-12	71.9E-12	15.6E-12	118.8E-12	126.8E-12	42.5E-12	48.9E-12	81.7E-12	75.2E-12	84.4E-12	35.4E-12	91.6E-12

Drift Calculation

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-147.6E-12	-143.4E-12	-130.1E-12	-789.6E-12	-1.1E-09	-869.2E-12	-422.8E-12	-875.6E-12	-1.2E-09	-1.0E-09	-669.8E-12	-131.5E-12
3	-	62.7E-12	-127.5E-12	-179.7E-12	-516.4E-12	-1.4E-09	-913.1E-12	-557.7E-12	-1.1E-09	-990.5E-12	-846.1E-12	-771.3E-12	-360.9E-12
4	-	-130.2E-12	-255.2E-12	-138.6E-12	-588.4E-12	-1.4E-09	-774.2E-12	-457.4E-12	-1.0E-09	-990.6E-12	-953.8E-12	-684.4E-12	-158.0E-12
Average	-	-71.7E-12	-175.4E-12	-149.5E-12	-631.5E-12	-1.3E-09	-852.2E-12	-479.3E-12	-987.0E-12	-1.0E-09	-943.6E-12	-708.5E-12	-216.8E-12
Sigma	-	95.3E-12	56.8E-12	21.6E-12	115.6E-12	124.3E-12	58.0E-12	57.2E-12	84.0E-12	75.4E-12	75.8E-12	44.8E-12	102.5E-12

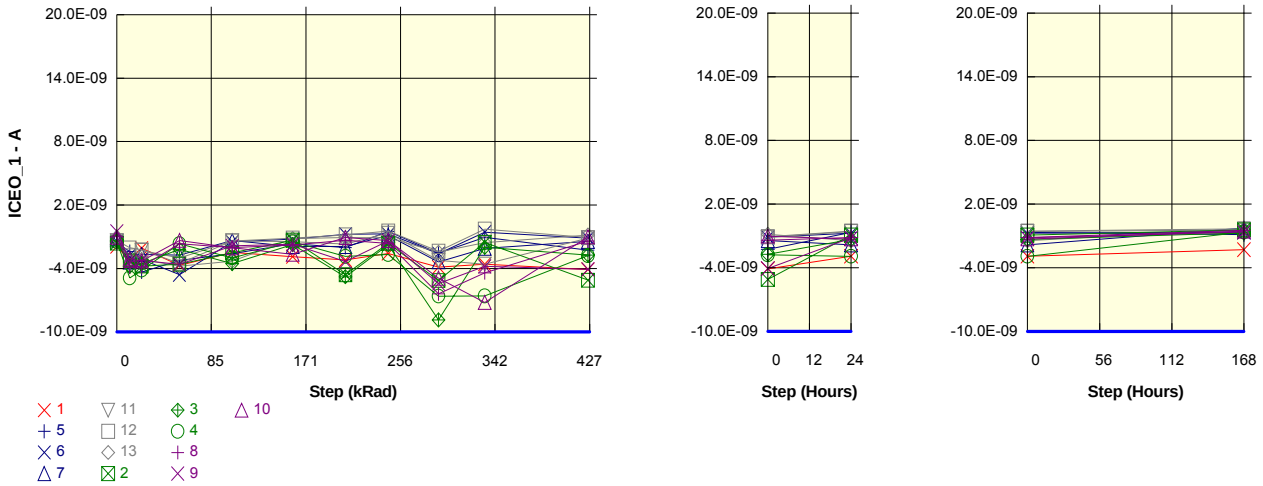
Measurements

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-268.6E-12	-238.0E-12	-521.3E-12	-160.9E-12	-637.2E-12	-263.9E-12	-858.8E-12	-143.0E-12	-219.5E-12	-244.4E-12	-846.0E-12	-188.2E-12	-202.8E-12
OFF_TID samples													
8	-280.4E-12	-388.6E-12	-580.6E-12	-477.9E-12	-747.7E-12	-1.7E-09	-1.2E-09	-821.2E-12	-1.3E-09	-1.6E-09	-1.1E-09	-1.1E-09	-521.0E-12
9	-285.5E-12	-469.8E-12	-369.6E-12	-548.6E-12	-936.8E-12	-1.3E-09	-1.2E-09	-783.0E-12	-1.3E-09	-1.4E-09	-1.2E-09	-1.1E-09	-508.1E-12
10	-255.5E-12	-187.6E-12	-466.2E-12	-461.6E-12	-622.0E-12	-1.3E-09	-1.1E-09	-782.8E-12	-1.1E-09	-1.4E-09	-1.7E-09	-969.4E-12	-514.5E-12
Statistics													
Min	-285.5E-12	-469.8E-12	-580.6E-12	-548.6E-12	-936.8E-12	-1.7E-09	-1.2E-09	-821.2E-12	-1.3E-09	-1.6E-09	-1.7E-09	-1.1E-09	-521.0E-12
Max	-255.5E-12	-187.6E-12	-369.6E-12	-461.6E-12	-622.0E-12	-1.3E-09	-1.1E-09	-782.8E-12	-1.1E-09	-1.4E-09	-1.1E-09	-969.4E-12	-508.1E-12
Average	-273.8E-12	-348.7E-12	-472.1E-12	-496.0E-12	-768.8E-12	-1.4E-09	-1.2E-09	-795.7E-12	-1.2E-09	-1.5E-09	-1.3E-09	-1.1E-09	-514.5E-12
Sigma	13.1E-12	118.6E-12	86.2E-12	37.8E-12	129.4E-12	178.8E-12	53.9E-12	18.1E-12	100.8E-12	80.0E-12	278.1E-12	60.0E-12	5.3E-12

Drift Calculation

ICBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-108.2E-12	-300.2E-12	-197.5E-12	-467.3E-12	-1.4E-09	-904.2E-12	-540.8E-12	-1.1E-09	-1.3E-09	-800.6E-12	-795.8E-12	-240.6E-12
9	-	-184.3E-12	-84.1E-12	-263.1E-12	-651.3E-12	-1.0E-09	-921.5E-12	-497.5E-12	-990.5E-12	-1.2E-09	-922.9E-12	-824.7E-12	-222.6E-12
10	-	67.9E-12	-210.7E-12	-206.1E-12	-366.5E-12	-1.0E-09	-827.7E-12	-527.3E-12	-852.5E-12	-1.1E-09	-1.5E-09	-713.9E-12	-259.0E-12
Average	-	-74.9E-12	-198.3E-12	-222.2E-12	-495.0E-12	-1.1E-09	-884.5E-12	-521.9E-12	-970.4E-12	-1.2E-09	-1.1E-09	-778.1E-12	-240.7E-12
Sigma	-	105.6E-12	88.6E-12	29.1E-12	117.9E-12	174.6E-12	40.8E-12	18.1E-12	89.2E-12	71.8E-12	290.4E-12	46.9E-12	14.9E-12

Parameter : Collector-Emitter cut-off current : ICEO_1
Test conditions : Vcb = -50V
Unit : A
Spec Limit Min : -10.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-1.9E-09	-3.1E-09	-2.1E-09	-3.7E-09	-2.5E-09	-2.9E-09	-3.2E-09	-2.6E-09	-3.9E-09	-3.6E-09	-4.1E-09	-2.9E-09	-2.3E-09
ON_PROTON samples													
5	-1.6E-09	-2.4E-09	-4.3E-09	-3.3E-09	-2.6E-09	-1.7E-09	-2.0E-09	-493.2E-12	-2.6E-09	-1.0E-09	-2.3E-09	-666.8E-12	-881.4E-12
6	-1.4E-09	-2.7E-09	-3.1E-09	-4.6E-09	-1.5E-09	-1.2E-09	-760.4E-12	-728.8E-12	-2.6E-09	-567.4E-12	-1.1E-09	-757.6E-12	-646.2E-12
7	-1.2E-09	-3.4E-09	-2.7E-09	-2.7E-09	-1.4E-09	-1.9E-09	-1.9E-09	-864.0E-12	-3.4E-09	-2.1E-09	-1.4E-09	-1.8E-09	-259.6E-12
Statistics													
Min	-1.6E-09	-3.4E-09	-4.3E-09	-4.6E-09	-2.6E-09	-1.9E-09	-2.0E-09	-864.0E-12	-3.4E-09	-2.1E-09	-2.3E-09	-1.8E-09	-881.4E-12
Max	-1.2E-09	-2.4E-09	-2.7E-09	-2.7E-09	-1.4E-09	-1.2E-09	-760.4E-12	-493.2E-12	-2.6E-09	-567.4E-12	-1.1E-09	-666.8E-12	-259.6E-12
Average	-1.4E-09	-2.8E-09	-3.4E-09	-3.5E-09	-1.8E-09	-1.6E-09	-1.6E-09	-695.3E-12	-2.8E-09	-1.2E-09	-1.6E-09	-1.1E-09	-595.7E-12
Sigma	145.4E-12	413.9E-12	700.5E-12	785.8E-12	557.1E-12	281.7E-12	570.0E-12	153.2E-12	380.5E-12	639.8E-12	487.6E-12	535.1E-12	256.3E-12

Drift Calculation

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-842.6E-12	-2.8E-09	-1.7E-09	-1.0E-09	-118.2E-12	-464.6E-12	1.1E-09	-1.0E-09	505.4E-12	-717.4E-12	888.6E-12	674.0E-12
6	-	-1.3E-09	-1.7E-09	-3.2E-09	-45.0E-12	197.4E-12	676.2E-12	707.8E-12	-1.2E-09	869.2E-12	317.8E-12	679.0E-12	790.4E-12
7	-	-2.2E-09	-1.5E-09	-1.5E-09	-158.6E-12	-715.6E-12	-706.4E-12	341.2E-12	-2.2E-09	-894.8E-12	-224.2E-12	-639.4E-12	945.6E-12
Average	-	-1.4E-09	-2.0E-09	-2.1E-09	-416.1E-12	-212.1E-12	-164.9E-12	703.7E-12	-1.4E-09	159.9E-12	-207.9E-12	309.4E-12	803.3E-12
Sigma	-	559.3E-12	572.5E-12	733.7E-12	446.9E-12	378.6E-12	602.9E-12	294.4E-12	521.0E-12	760.5E-12	422.8E-12	676.3E-12	111.3E-12

Measurements

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-1.9E-09	-3.1E-09	-2.1E-09	-3.7E-09	-2.5E-09	-2.9E-09	-3.2E-09	-2.6E-09	-3.9E-09	-3.6E-09	-4.1E-09	-2.9E-09	-2.3E-09
ON_TID samples													
11	-1.4E-09	-2.8E-09	-2.3E-09	-3.0E-09	-1.4E-09	-1.4E-09	-1.7E-09	-656.0E-12	-3.2E-09	-3.6E-09	-1.1E-09	-595.8E-12	-443.7E-12
12	-1.4E-09	-2.1E-09	-2.2E-09	-3.5E-09	-1.4E-09	-1.1E-09	-814.3E-12	-460.0E-12	-2.4E-09	-275.6E-12	-1.1E-09	-529.4E-12	-331.9E-12
13	-1.0E-09	-3.4E-09	-3.1E-09	-3.8E-09	-3.3E-09	-1.2E-09	-1.1E-09	-1.1E-09	-2.5E-09	-1.5E-09	-854.4E-12	-1.5E-09	-336.2E-12
Statistics													
Min	-1.4E-09	-3.4E-09	-3.1E-09	-3.8E-09	-3.3E-09	-1.4E-09	-1.7E-09	-1.1E-09	-3.2E-09	-3.6E-09	-1.1E-09	-1.5E-09	-443.7E-12
Max	-1.0E-09	-2.1E-09	-2.2E-09	-3.0E-09	-1.4E-09	-1.1E-09	-814.3E-12	-460.0E-12	-2.4E-09	-275.6E-12	-854.4E-12	-529.4E-12	-331.9E-12
Average	-1.2E-09	-2.7E-09	-2.6E-09	-3.4E-09	-2.0E-09	-1.3E-09	-1.2E-09	-735.3E-12	-2.7E-09	-1.8E-09	-1.0E-09	-860.3E-12	-370.6E-12
Sigma	165.6E-12	536.9E-12	409.6E-12	315.4E-12	901.6E-12	139.3E-12	365.8E-12	263.2E-12	390.9E-12	1.4E-09	118.7E-12	421.8E-12	51.7E-12

Drift Calculation

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-1.4E-09	-939.0E-12	-1.7E-09	-10.8E-12	-86.0E-12	-324.4E-12	707.8E-12	-1.9E-09	-2.2E-09	236.2E-12	768.0E-12	920.1E-12
12	-	-686.6E-12	-865.4E-12	-2.2E-09	-43.0E-12	231.6E-12	551.3E-12	905.6E-12	-1.0E-09	1.1E-09	288.4E-12	836.2E-12	1.0E-09
13	-	-2.3E-09	-2.1E-09	-2.8E-09	-2.3E-09	-166.8E-12	-66.6E-12	-76.6E-12	-1.4E-09	-534.4E-12	159.0E-12	-442.2E-12	677.2E-12
Average	-	-1.5E-09	-1.3E-09	-2.2E-09	-781.5E-12	-7.1E-12	53.4E-12	512.3E-12	-1.4E-09	-559.5E-12	227.9E-12	387.3E-12	877.0E-12
Sigma	-	679.2E-12	575.0E-12	454.1E-12	1.1E-09	172.0E-12	367.4E-12	424.1E-12	355.1E-12	1.4E-09	53.2E-12	587.2E-12	148.7E-12

Measurements

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-1.9E-09	-3.1E-09	-2.1E-09	-3.7E-09	-2.5E-09	-2.9E-09	-3.2E-09	-2.6E-09	-3.9E-09	-3.6E-09	-4.1E-09	-2.9E-09	-2.3E-09
OFF_PROTON samples													
2	-1.6E-09	-3.3E-09	-3.8E-09	-3.6E-09	-2.5E-09	-1.3E-09	-4.6E-09	-1.6E-09	-5.1E-09	-1.5E-09	-5.1E-09	-923.2E-12	-430.0E-12
3	-1.4E-09	-3.8E-09	-3.5E-09	-2.2E-09	-3.5E-09	-1.7E-09	-4.8E-09	-1.8E-09	-8.9E-09	-2.0E-09	-2.7E-09	-1.3E-09	-720.8E-12
4	-1.5E-09	-4.9E-09	-4.2E-09	-1.7E-09	-3.0E-09	-1.5E-09	-2.9E-09	-2.7E-09	-6.6E-09	-6.6E-09	-2.8E-09	-2.9E-09	-632.1E-12
Statistics													
Min	-1.6E-09	-4.9E-09	-4.2E-09	-3.6E-09	-3.5E-09	-1.7E-09	-4.8E-09	-2.7E-09	-8.9E-09	-6.6E-09	-5.1E-09	-2.9E-09	-720.8E-12
Max	-1.4E-09	-3.3E-09	-3.5E-09	-1.7E-09	-2.5E-09	-1.3E-09	-2.9E-09	-1.6E-09	-5.1E-09	-1.5E-09	-2.7E-09	-923.2E-12	-430.0E-12
Average	-1.5E-09	-4.0E-09	-3.8E-09	-2.5E-09	-3.0E-09	-1.5E-09	-4.1E-09	-2.0E-09	-6.9E-09	-3.4E-09	-3.5E-09	-1.7E-09	-594.3E-12
Sigma	93.8E-12	671.8E-12	254.5E-12	822.6E-12	413.5E-12	168.2E-12	862.0E-12	473.4E-12	1.5E-09	2.3E-09	1.1E-09	865.5E-12	121.7E-12

Drift Calculation

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-1.7E-09	-2.2E-09	-2.0E-09	-936.0E-12	267.4E-12	-3.0E-09	-14.2E-12	-3.5E-09	74.0E-12	-3.5E-09	676.6E-12	1.2E-09
3	-	-2.4E-09	-2.2E-09	-813.6E-12	-2.2E-09	-366.8E-12	-3.4E-09	-380.2E-12	-7.5E-09	-628.2E-12	-1.3E-09	47.2E-12	651.0E-12
4	-	-3.4E-09	-2.7E-09	-189.6E-12	-1.5E-09	-15.4E-12	-1.4E-09	-1.2E-09	-5.2E-09	-5.1E-09	-1.3E-09	-1.5E-09	828.3E-12
Average	-	-2.5E-09	-2.3E-09	-1.0E-09	-1.6E-09	-38.3E-12	-2.6E-09	-538.0E-12	-5.4E-09	-1.9E-09	-2.1E-09	-247.5E-12	883.0E-12
Sigma	-	717.6E-12	250.7E-12	751.0E-12	506.2E-12	259.4E-12	864.0E-12	504.6E-12	1.6E-09	2.3E-09	1.0E-09	899.4E-12	215.3E-12

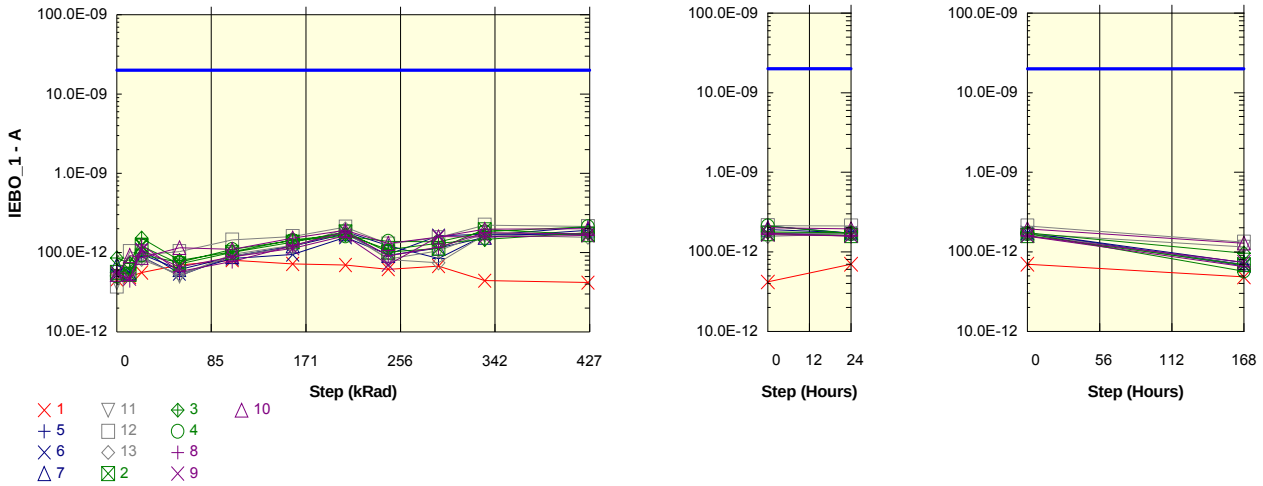
Measurements

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-1.9E-09	-3.1E-09	-2.1E-09	-3.7E-09	-2.5E-09	-2.9E-09	-3.2E-09	-2.6E-09	-3.9E-09	-3.6E-09	-4.1E-09	-2.9E-09	-2.3E-09
OFF_TID samples													
8	-1.0E-09	-3.9E-09	-3.8E-09	-1.7E-09	-2.0E-09	-1.8E-09	-1.3E-09	-1.6E-09	-6.4E-09	-4.4E-09	-1.4E-09	-1.1E-09	-476.7E-12
9	-478.4E-12	-3.4E-09	-3.2E-09	-3.6E-09	-1.9E-09	-1.7E-09	-3.4E-09	-1.4E-09	-5.4E-09	-3.8E-09	-4.1E-09	-1.2E-09	-644.1E-12
10	-1.1E-09	-3.1E-09	-3.3E-09	-1.3E-09	-2.0E-09	-2.7E-09	-1.1E-09	-1.4E-09	-4.9E-09	-7.2E-09	-1.0E-09	-1.3E-09	-539.0E-12
Statistics													
Min	-1.1E-09	-3.9E-09	-3.8E-09	-3.6E-09	-2.0E-09	-2.7E-09	-3.4E-09	-1.6E-09	-6.4E-09	-7.2E-09	-4.1E-09	-1.3E-09	-644.1E-12
Max	-478.4E-12	-3.1E-09	-3.2E-09	-1.3E-09	-1.9E-09	-1.7E-09	-1.1E-09	-1.4E-09	-4.9E-09	-3.8E-09	-1.0E-09	-1.1E-09	-476.7E-12
Average	-847.1E-12	-3.5E-09	-3.5E-09	-2.2E-09	-2.0E-09	-2.1E-09	-1.9E-09	-1.5E-09	-5.6E-09	-5.1E-09	-2.2E-09	-1.2E-09	-553.2E-12
Sigma	261.3E-12	331.2E-12	270.3E-12	1.0E-09	81.1E-12	431.8E-12	1.0E-09	129.0E-12	612.3E-12	1.5E-09	1.4E-09	65.7E-12	69.1E-12

Drift Calculation

ICEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-2.9E-09	-2.8E-09	-648.8E-12	-1.0E-09	-786.4E-12	-313.2E-12	-630.8E-12	-5.4E-09	-3.4E-09	-404.2E-12	-131.0E-12	532.5E-12
9	-	-2.9E-09	-2.8E-09	-3.1E-09	-1.4E-09	-1.2E-09	-2.9E-09	-899.6E-12	-5.0E-09	-3.3E-09	-3.6E-09	-711.4E-12	-165.7E-12
10	-	-2.0E-09	-2.2E-09	-291.8E-12	-995.0E-12	-1.6E-09	-18.6E-12	-302.4E-12	-3.9E-09	-6.2E-09	36.6E-12	-244.0E-12	514.6E-12
Average	-	-2.6E-09	-2.6E-09	-1.4E-09	-1.1E-09	-1.2E-09	-1.1E-09	-610.9E-12	-4.7E-09	-4.3E-09	-1.3E-09	-362.1E-12	293.8E-12
Sigma	-	404.1E-12	264.3E-12	1.3E-09	180.2E-12	337.9E-12	1.3E-09	244.2E-12	640.9E-12	1.3E-09	1.6E-09	251.2E-12	325.0E-12

Parameter : Emitter-Base cut-off curent : IEBO_1
Test conditions : Veb = -4V
Unit : A
Spec Limit Max : 20.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	45.6E-12	49.6E-12	56.0E-12	69.7E-12	80.3E-12	72.1E-12	69.6E-12	61.8E-12	67.6E-12	44.2E-12	41.8E-12	69.6E-12	48.2E-12
ON_PROTON samples													
5	60.8E-12	61.7E-12	88.9E-12	50.9E-12	90.5E-12	120.8E-12	183.8E-12	122.1E-12	84.2E-12	164.4E-12	211.6E-12	170.8E-12	69.0E-12
6	52.1E-12	56.1E-12	109.3E-12	54.4E-12	84.0E-12	94.7E-12	155.5E-12	94.3E-12	163.8E-12	170.7E-12	170.1E-12	172.5E-12	66.8E-12
7	69.5E-12	55.7E-12	95.1E-12	60.9E-12	88.6E-12	120.9E-12	172.1E-12	92.3E-12	114.0E-12	155.9E-12	191.8E-12	172.2E-12	73.0E-12
Statistics													
Min	52.1E-12	55.7E-12	88.9E-12	50.9E-12	84.0E-12	94.7E-12	155.5E-12	92.3E-12	84.2E-12	155.9E-12	170.1E-12	170.8E-12	66.8E-12
Max	69.5E-12	61.7E-12	109.3E-12	60.9E-12	90.5E-12	120.9E-12	183.8E-12	122.1E-12	163.8E-12	170.7E-12	211.6E-12	172.5E-12	73.0E-12
Average	60.8E-12	57.8E-12	97.8E-12	55.4E-12	87.7E-12	112.1E-12	170.5E-12	102.9E-12	120.7E-12	163.7E-12	191.2E-12	171.8E-12	69.6E-12
Sigma	7.1E-12	2.8E-12	8.5E-12	4.1E-12	2.7E-12	12.3E-12	11.6E-12	13.6E-12	32.8E-12	6.0E-12	16.9E-12	759.5E-15	2.6E-12

Drift Calculation

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	900.0E-15	28.1E-12	-9.9E-12	29.7E-12	60.0E-12	123.0E-12	61.3E-12	23.4E-12	103.6E-12	150.8E-12	110.0E-12	8.2E-12
6	-	4.0E-12	57.2E-12	2.3E-12	31.9E-12	42.6E-12	103.4E-12	42.2E-12	111.7E-12	118.6E-12	118.0E-12	120.4E-12	14.7E-12
7	-	-13.8E-12	25.6E-12	-8.6E-12	19.1E-12	51.3E-12	102.6E-12	22.7E-12	44.5E-12	86.4E-12	122.3E-12	102.7E-12	3.5E-12
Average	-	-3.0E-12	37.0E-12	-5.4E-12	26.9E-12	51.3E-12	109.7E-12	42.1E-12	59.9E-12	102.9E-12	130.4E-12	111.0E-12	8.8E-12
Sigma	-	7.8E-12	14.4E-12	5.5E-12	5.6E-12	7.1E-12	9.4E-12	15.8E-12	37.7E-12	13.1E-12	14.6E-12	7.3E-12	4.6E-12

Measurements

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	45.6E-12	49.6E-12	56.0E-12	69.7E-12	80.3E-12	72.1E-12	69.6E-12	61.8E-12	67.6E-12	44.2E-12	41.8E-12	69.6E-12	48.2E-12
ON_TID samples													
11	41.7E-12	53.8E-12	87.8E-12	50.6E-12	95.6E-12	123.5E-12	179.1E-12	83.1E-12	105.7E-12	174.8E-12	173.7E-12	168.7E-12	114.8E-12
12	37.8E-12	103.4E-12	92.9E-12	103.0E-12	144.5E-12	159.4E-12	210.8E-12	128.1E-12	154.8E-12	221.5E-12	213.8E-12	211.8E-12	132.5E-12
13	49.4E-12	54.0E-12	81.9E-12	53.5E-12	90.3E-12	117.9E-12	199.7E-12	81.7E-12	74.0E-12	167.2E-12	155.6E-12	168.7E-12	68.2E-12
Statistics													
Min	37.8E-12	53.8E-12	81.9E-12	50.6E-12	90.3E-12	117.9E-12	179.1E-12	81.7E-12	74.0E-12	167.2E-12	155.6E-12	168.7E-12	68.2E-12
Max	49.4E-12	103.4E-12	92.9E-12	103.0E-12	144.5E-12	159.4E-12	210.8E-12	128.1E-12	154.8E-12	221.5E-12	213.8E-12	211.8E-12	132.5E-12
Average	43.0E-12	70.4E-12	87.5E-12	69.0E-12	110.1E-12	133.6E-12	196.5E-12	97.7E-12	111.5E-12	187.8E-12	181.1E-12	183.1E-12	105.1E-12
Sigma	4.8E-12	23.3E-12	4.5E-12	24.0E-12	24.4E-12	18.4E-12	13.1E-12	21.5E-12	33.2E-12	24.0E-12	24.3E-12	20.3E-12	27.1E-12

Drift Calculation

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	12.1E-12	46.1E-12	8.9E-12	53.9E-12	81.8E-12	137.4E-12	41.4E-12	64.0E-12	133.1E-12	132.0E-12	127.0E-12	73.1E-12
12	-	65.6E-12	55.1E-12	65.2E-12	106.7E-12	121.6E-12	172.9E-12	90.3E-12	116.9E-12	183.7E-12	176.0E-12	174.0E-12	94.7E-12
13	-	4.6E-12	32.5E-12	4.1E-12	40.9E-12	68.5E-12	150.3E-12	32.3E-12	24.6E-12	117.8E-12	106.2E-12	119.3E-12	18.8E-12
Average	-	27.4E-12	44.6E-12	26.0E-12	67.2E-12	90.6E-12	153.5E-12	54.7E-12	68.5E-12	144.9E-12	138.1E-12	140.1E-12	62.2E-12
Sigma	-	27.1E-12	9.3E-12	27.7E-12	28.4E-12	22.5E-12	14.7E-12	25.5E-12	37.8E-12	28.2E-12	28.8E-12	24.2E-12	31.9E-12

Measurements

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	45.6E-12	49.6E-12	56.0E-12	69.7E-12	80.3E-12	72.1E-12	69.6E-12	61.8E-12	67.6E-12	44.2E-12	41.8E-12	69.6E-12	48.2E-12
OFF_PROTON samples													
2	56.4E-12	53.0E-12	120.8E-12	72.1E-12	100.6E-12	136.0E-12	183.1E-12	101.6E-12	113.3E-12	195.1E-12	168.9E-12	159.4E-12	68.9E-12
3	85.4E-12	73.0E-12	153.0E-12	79.4E-12	102.6E-12	144.8E-12	169.6E-12	108.7E-12	131.3E-12	146.6E-12	178.5E-12	172.9E-12	96.1E-12
4	50.5E-12	66.2E-12	93.2E-12	75.2E-12	109.8E-12	142.2E-12	161.5E-12	138.5E-12	136.2E-12	183.3E-12	211.6E-12	169.7E-12	57.1E-12
Statistics													
Min	50.5E-12	53.0E-12	93.2E-12	72.1E-12	100.6E-12	136.0E-12	161.5E-12	101.6E-12	113.3E-12	146.6E-12	168.9E-12	159.4E-12	57.1E-12
Max	85.4E-12	73.0E-12	153.0E-12	79.4E-12	109.8E-12	144.8E-12	183.1E-12	138.5E-12	136.2E-12	195.1E-12	211.6E-12	172.9E-12	96.1E-12
Average	64.1E-12	64.1E-12	122.3E-12	75.6E-12	104.3E-12	141.0E-12	171.4E-12	116.2E-12	126.9E-12	175.0E-12	186.3E-12	167.3E-12	74.0E-12
Sigma	15.2E-12	8.3E-12	24.4E-12	3.0E-12	3.9E-12	3.7E-12	8.9E-12	16.0E-12	9.8E-12	20.6E-12	18.3E-12	5.8E-12	16.3E-12

Drift Calculation

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-3.4E-12	64.3E-12	15.7E-12	44.2E-12	79.6E-12	126.7E-12	45.1E-12	56.9E-12	138.7E-12	112.5E-12	103.0E-12	12.5E-12
3	-	-12.4E-12	67.6E-12	-6.0E-12	17.3E-12	59.5E-12	84.3E-12	23.3E-12	45.9E-12	61.3E-12	93.1E-12	87.5E-12	10.8E-12
4	-	15.7E-12	42.8E-12	24.8E-12	59.3E-12	91.7E-12	111.0E-12	88.0E-12	85.7E-12	132.8E-12	161.1E-12	119.2E-12	6.6E-12
Average	-	-6.7E-15	58.2E-12	11.5E-12	40.2E-12	76.9E-12	107.3E-12	52.2E-12	62.8E-12	110.9E-12	122.2E-12	103.2E-12	10.0E-12
Sigma	-	11.7E-12	11.0E-12	12.9E-12	17.4E-12	13.3E-12	17.5E-12	26.9E-12	16.8E-12	35.2E-12	28.6E-12	13.0E-12	2.4E-12

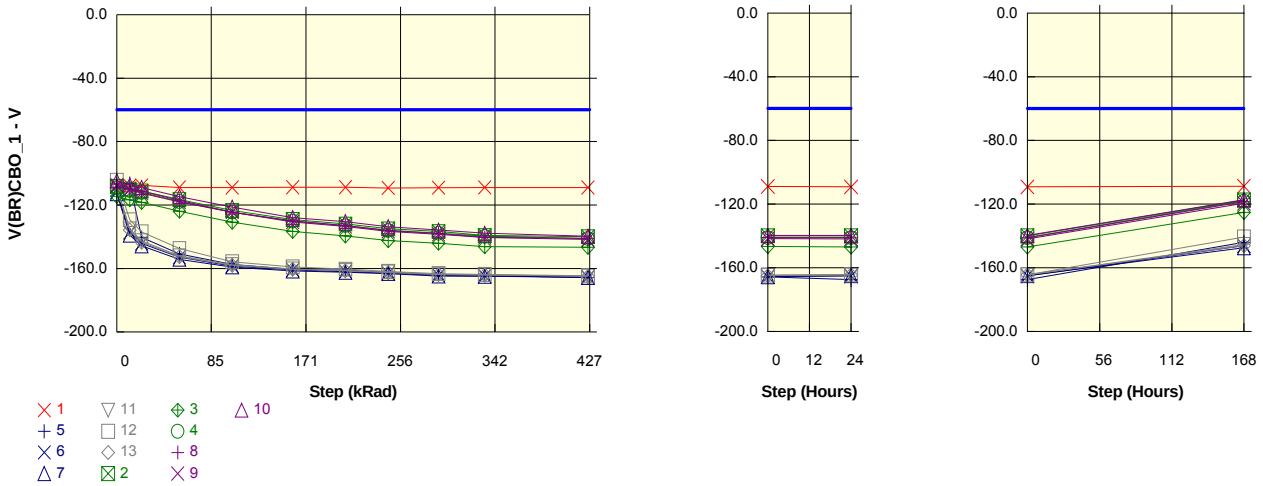
Measurements

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	45.6E-12	49.6E-12	56.0E-12	69.7E-12	80.3E-12	72.1E-12	69.6E-12	61.8E-12	67.6E-12	44.2E-12	41.8E-12	69.6E-12	48.2E-12
OFF_TID samples													
8	55.7E-12	44.2E-12	125.0E-12	57.9E-12	77.1E-12	122.3E-12	182.4E-12	91.3E-12	116.6E-12	178.2E-12	172.0E-12	157.2E-12	65.0E-12
9	54.8E-12	46.8E-12	107.2E-12	65.8E-12	88.4E-12	112.9E-12	164.1E-12	70.3E-12	160.3E-12	157.1E-12	164.9E-12	158.9E-12	73.7E-12
10	52.8E-12	91.6E-12	86.4E-12	115.5E-12	109.6E-12	152.9E-12	190.5E-12	130.6E-12	157.6E-12	196.8E-12	201.0E-12	194.9E-12	128.8E-12
Statistics													
Min	52.8E-12	44.2E-12	86.4E-12	57.9E-12	77.1E-12	112.9E-12	164.1E-12	70.3E-12	116.6E-12	157.1E-12	164.9E-12	157.2E-12	65.0E-12
Max	55.7E-12	91.6E-12	125.0E-12	115.5E-12	109.6E-12	152.9E-12	190.5E-12	130.6E-12	160.3E-12	196.8E-12	201.0E-12	194.9E-12	128.8E-12
Average	54.4E-12	60.9E-12	106.2E-12	79.7E-12	91.7E-12	129.4E-12	179.0E-12	97.4E-12	144.9E-12	177.4E-12	179.3E-12	170.3E-12	89.2E-12
Sigma	1.2E-12	21.8E-12	15.8E-12	25.5E-12	13.5E-12	17.1E-12	11.0E-12	25.0E-12	20.0E-12	16.2E-12	15.6E-12	17.4E-12	28.3E-12

Drift Calculation

IEBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-11.5E-12	69.3E-12	2.3E-12	21.4E-12	66.6E-12	126.7E-12	35.7E-12	61.0E-12	122.6E-12	116.3E-12	101.5E-12	9.3E-12
9	-	-8.0E-12	52.4E-12	11.0E-12	33.6E-12	58.1E-12	109.3E-12	15.5E-12	105.5E-12	102.3E-12	110.1E-12	104.1E-12	18.9E-12
10	-	38.8E-12	33.6E-12	62.6E-12	56.8E-12	100.1E-12	137.6E-12	77.8E-12	104.8E-12	143.9E-12	148.2E-12	142.1E-12	76.0E-12
Average	-	6.4E-12	51.8E-12	25.3E-12	37.3E-12	74.9E-12	124.5E-12	43.0E-12	90.4E-12	122.9E-12	124.9E-12	115.9E-12	34.8E-12
Sigma	-	22.9E-12	14.6E-12	26.6E-12	14.7E-12	18.1E-12	11.7E-12	25.9E-12	20.8E-12	17.0E-12	16.7E-12	18.5E-12	29.4E-12

Parameter : Collector-Base breakdown voltage : V(BR)CBO_1
Test conditions : Ic = -10µA
Unit : V
Spec Limit Max : -60.0
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-107.5	-107.9	-107.7	-108.9	-108.9	-108.8	-108.8	-109.2	-109.1	-108.9	-109.0	-109.2	-108.8
ON_PROTON samples													
5	-109.2	-106.4	-140.4	-150.8	-157.5	-160.5	-161.0	-162.5	-164.1	-164.4	-165.8	-167.6	-144.1
6	-111.8	-137.4	-144.2	-152.9	-158.5	-160.9	-162.0	-163.0	-164.5	-164.8	-165.5	-165.1	-146.2
7	-112.9	-139.0	-145.8	-154.2	-159.1	-161.5	-162.4	-163.2	-164.7	-164.9	-165.6	-165.0	-147.4
Statistics													
Min	-112.9	-139.0	-145.8	-154.2	-159.1	-161.5	-162.4	-163.2	-164.7	-164.9	-165.8	-167.6	-147.4
Max	-109.2	-106.4	-140.4	-150.8	-157.5	-160.5	-161.0	-162.5	-164.1	-164.4	-165.5	-165.0	-144.1
Average	-111.3	-127.6	-143.5	-152.6	-158.4	-161.0	-161.8	-162.9	-164.4	-164.7	-165.6	-165.9	-145.9
Sigma	1.6	15.0	2.3	1.4	0.7	0.4	0.6	0.3	0.3	0.2	0.1	1.2	1.4

Drift Calculation

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	2.8E+00	-31.2E+00	-41.6E+00	-48.3E+00	-51.3E+00	-51.8E+00	-53.3E+00	-54.9E+00	-55.2E+00	-56.6E+00	-58.4E+00	-34.9E+00
6	-	-25.5E+00	-32.4E+00	-41.1E+00	-46.7E+00	-49.1E+00	-50.2E+00	-51.1E+00	-52.6E+00	-53.0E+00	-53.7E+00	-53.3E+00	-34.3E+00
7	-	-26.1E+00	-32.9E+00	-41.3E+00	-46.2E+00	-48.6E+00	-49.5E+00	-50.3E+00	-51.8E+00	-52.0E+00	-52.7E+00	-52.1E+00	-34.5E+00
Average	-	-16.3E+00	-32.2E+00	-41.3E+00	-47.1E+00	-49.7E+00	-50.5E+00	-51.6E+00	-53.1E+00	-53.4E+00	-54.3E+00	-54.6E+00	-34.6E+00
Sigma	-	13.5E+00	688.0E-03	209.7E-03	905.7E-03	1.2E+00	971.2E-03	1.3E+00	1.3E+00	1.3E+00	1.7E+00	2.7E+00	241.0E-03

Measurements

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-107.5	-107.9	-107.7	-108.9	-108.9	-108.8	-108.8	-109.2	-109.1	-108.9	-109.0	-109.2	-108.8
ON_TID samples													
11	-108.2	-135.1	-142.5	-152.0	-157.7	-160.3	-161.4	-162.2	-163.8	-164.1	-164.8	-164.4	-145.4
12	-104.3	-129.2	-137.0	-147.5	-155.8	-159.0	-160.4	-161.9	-163.3	-163.7	-164.6	-164.5	-140.7
13	-108.7	-135.7	-143.4	-152.5	-158.0	-160.5	-161.4	-162.6	-163.8	-164.1	-165.0	-164.4	-146.1
Statistics													
Min	-108.7	-135.7	-143.4	-152.5	-158.0	-160.5	-161.4	-162.6	-163.8	-164.1	-165.0	-164.5	-146.1
Max	-104.3	-129.2	-137.0	-147.5	-155.8	-159.0	-160.4	-161.9	-163.3	-163.7	-164.6	-164.4	-140.7
Average	-107.1	-133.3	-140.9	-150.7	-157.1	-159.9	-161.1	-162.2	-163.6	-164.0	-164.8	-164.4	-144.1
Sigma	2.0	2.9	2.8	2.3	1.0	0.7	0.5	0.3	0.3	0.2	0.2	0.0	2.4

Drift Calculation

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-26.9E+00	-34.3E+00	-43.8E+00	-49.5E+00	-52.1E+00	-53.2E+00	-54.0E+00	-55.6E+00	-55.9E+00	-56.6E+00	-56.2E+00	-37.3E+00
12	-	-24.9E+00	-32.6E+00	-43.2E+00	-51.4E+00	-54.7E+00	-56.1E+00	-57.6E+00	-59.0E+00	-59.4E+00	-60.2E+00	-60.2E+00	-36.4E+00
13	-	-27.0E+00	-34.7E+00	-43.8E+00	-49.3E+00	-51.8E+00	-52.7E+00	-53.9E+00	-55.1E+00	-55.4E+00	-56.3E+00	-55.7E+00	-37.4E+00
Average	-	-26.3E+00	-33.9E+00	-43.6E+00	-50.1E+00	-52.8E+00	-54.0E+00	-55.2E+00	-56.6E+00	-56.9E+00	-57.7E+00	-57.4E+00	-37.0E+00
Sigma	-	950.3E-03	877.2E-03	296.5E-03	963.2E-03	1.3E+00	1.5E+00	1.7E+00	1.7E+00	1.8E+00	1.8E+00	2.0E+00	445.8E-03

Measurements

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-107.5	-107.9	-107.7	-108.9	-108.9	-108.8	-108.8	-109.2	-109.1	-108.9	-109.0	-109.2	-108.8
OFF_PROTON samples													
2	-108.3	-110.0	-111.1	-116.6	-123.4	-129.1	-131.9	-135.0	-136.7	-139.2	-139.9	-140.0	-117.4
3	-114.6	-116.7	-118.2	-123.8	-130.8	-136.7	-139.5	-142.4	-144.1	-146.3	-146.6	-147.0	-125.2
4	-109.0	-110.9	-112.1	-117.8	-124.5	-130.2	-133.0	-136.0	-137.8	-139.7	-141.1	-141.1	-118.1
Statistics													
Min	-114.6	-116.7	-118.2	-123.8	-130.8	-136.7	-139.5	-142.4	-144.1	-146.3	-146.6	-147.0	-125.2
Max	-108.3	-110.0	-111.1	-116.6	-123.4	-129.1	-131.9	-135.0	-136.7	-139.2	-139.9	-140.0	-117.4
Average	-110.7	-112.5	-113.8	-119.4	-126.2	-132.0	-134.8	-137.8	-139.5	-141.7	-142.6	-142.7	-120.2
Sigma	2.8	3.0	3.2	3.2	3.3	3.3	3.3	3.3	3.2	3.2	2.9	3.1	3.5

Drift Calculation

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-1.7E+00	-2.8E+00	-8.3E+00	-15.1E+00	-20.8E+00	-23.6E+00	-26.7E+00	-28.4E+00	-30.9E+00	-31.6E+00	-31.7E+00	-9.1E+00
3	-	-2.1E+00	-3.6E+00	-9.2E+00	-16.2E+00	-22.1E+00	-24.9E+00	-27.7E+00	-29.5E+00	-31.7E+00	-32.0E+00	-32.4E+00	-10.6E+00
4	-	-1.8E+00	-3.0E+00	-8.7E+00	-15.4E+00	-21.1E+00	-23.9E+00	-27.0E+00	-28.8E+00	-30.7E+00	-32.1E+00	-32.1E+00	-9.1E+00
Average	-	-1.9E+00	-3.2E+00	-8.8E+00	-15.6E+00	-21.3E+00	-24.1E+00	-27.1E+00	-28.9E+00	-31.1E+00	-31.9E+00	-32.1E+00	-9.6E+00
Sigma	-	148.4E-03	348.9E-03	386.5E-03	444.3E-03	538.8E-03	538.8E-03	451.2E-03	451.5E-03	435.0E-03	190.7E-03	300.5E-03	712.4E-03

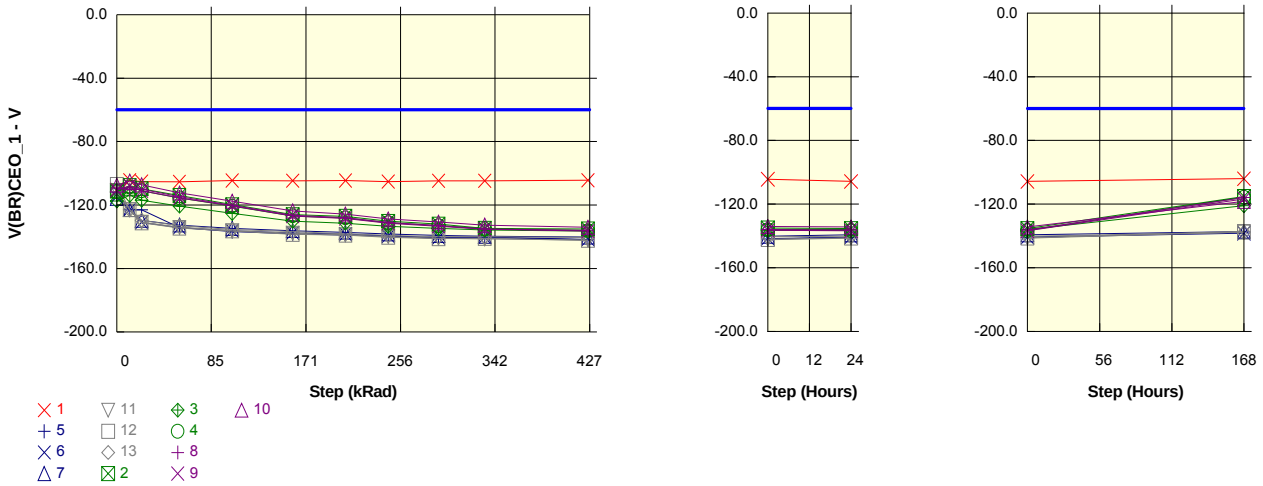
Measurements

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-107.5	-107.9	-107.7	-108.9	-108.9	-108.8	-108.8	-109.2	-109.1	-108.9	-109.0	-109.2	-108.8
OFF_TID samples													
8	-106.8	-109.7	-111.2	-117.1	-124.6	-130.0	-132.9	-136.0	-137.9	-140.4	-141.1	-141.3	-118.4
9	-107.8	-110.4	-112.5	-118.1	-124.5	-130.7	-133.6	-136.6	-138.5	-140.6	-141.7	-141.9	-119.5
10	-104.7	-107.3	-108.9	-114.7	-121.3	-127.9	-130.4	-133.7	-135.7	-137.9	-139.6	-139.7	-117.3
Statistics													
Min	-107.8	-110.4	-112.5	-118.1	-124.6	-130.7	-133.6	-136.6	-138.5	-140.6	-141.7	-141.9	-119.5
Max	-104.7	-107.3	-108.9	-114.7	-121.3	-127.9	-130.4	-133.7	-135.7	-137.9	-139.6	-139.7	-117.3
Average	-106.4	-109.1	-110.9	-116.6	-123.5	-129.5	-132.3	-135.5	-137.4	-139.6	-140.8	-141.0	-118.4
Sigma	1.3	1.3	1.5	1.4	1.5	1.2	1.4	1.3	1.2	1.2	0.9	0.9	0.9

Drift Calculation

V(BR)CBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-3.0E+00	-4.5E+00	-10.3E+00	-17.9E+00	-23.2E+00	-26.1E+00	-29.3E+00	-31.1E+00	-33.6E+00	-34.3E+00	-34.5E+00	-11.6E+00
9	-	-2.6E+00	-4.7E+00	-10.3E+00	-16.7E+00	-22.9E+00	-25.8E+00	-28.9E+00	-30.7E+00	-32.8E+00	-34.0E+00	-34.2E+00	-11.7E+00
10	-	-2.6E+00	-4.2E+00	-9.9E+00	-16.5E+00	-23.1E+00	-25.7E+00	-29.0E+00	-31.0E+00	-33.1E+00	-34.9E+00	-34.9E+00	-12.5E+00
Average	-	-2.7E+00	-4.5E+00	-10.2E+00	-17.0E+00	-23.1E+00	-25.9E+00	-29.0E+00	-31.0E+00	-33.2E+00	-34.4E+00	-34.5E+00	-12.0E+00
Sigma	-	174.6E-03	230.4E-03	195.8E-03	585.0E-03	110.9E-03	187.8E-03	160.8E-03	153.9E-03	327.2E-03	373.3E-03	314.2E-03	401.8E-03

Parameter : Collector-Emitter breakdown voltage : V(BR)CEO_1
Test conditions : Ic = -10mA
Unit : V
Spec Limit Max : -60.0
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-110.3	-104.3	-105.2	-105.3	-104.6	-104.7	-104.5	-105.2	-104.7	-104.7	-104.3	-105.8	-104.1
ON_PROTON samples													
5	-111.8	-123.0	-123.0	-134.3	-136.8	-138.1	-138.9	-139.4	-141.0	-140.6	-141.9	-141.0	-137.5
6	-114.7	-123.0	-130.9	-134.2	-136.2	-137.6	-138.3	-139.6	-140.5	-140.2	-141.6	-140.8	-138.3
7	-115.8	-123.0	-129.7	-132.7	-134.7	-136.2	-137.2	-138.2	-139.2	-139.7	-140.2	-139.3	-137.2
Statistics													
Min	-115.8	-123.0	-130.9	-134.3	-136.8	-138.1	-138.9	-139.6	-141.0	-140.6	-141.9	-141.0	-138.3
Max	-111.8	-123.0	-123.0	-132.7	-134.7	-136.2	-137.2	-138.2	-139.2	-139.7	-140.2	-139.3	-137.2
Average	-114.1	-123.0	-127.9	-133.7	-135.9	-137.3	-138.1	-139.1	-140.2	-140.2	-141.2	-140.4	-137.7
Sigma	1.7	0.0	3.5	0.7	0.9	0.8	0.7	0.6	0.8	0.4	0.7	0.8	0.5

Drift Calculation

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-11.2E+00	-11.2E+00	-22.5E+00	-25.0E+00	-26.3E+00	-27.1E+00	-27.6E+00	-29.1E+00	-28.8E+00	-30.1E+00	-29.2E+00	-25.7E+00
6	-	-8.3E+00	-16.3E+00	-19.5E+00	-21.5E+00	-22.9E+00	-23.6E+00	-24.9E+00	-25.9E+00	-25.6E+00	-26.9E+00	-26.1E+00	-23.6E+00
7	-	-7.2E+00	-13.9E+00	-16.9E+00	-19.0E+00	-20.4E+00	-21.5E+00	-22.5E+00	-23.4E+00	-23.9E+00	-24.4E+00	-23.5E+00	-21.5E+00
Average	-	-8.9E+00	-13.8E+00	-19.6E+00	-21.8E+00	-23.2E+00	-24.0E+00	-25.0E+00	-26.1E+00	-26.1E+00	-27.1E+00	-26.3E+00	-23.6E+00
Sigma	-	1.7E+00	2.1E+00	2.3E+00	2.5E+00	2.4E+00	2.3E+00	2.1E+00	2.3E+00	2.0E+00	2.3E+00	2.3E+00	1.7E+00

Measurements

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-110.3	-104.3	-105.2	-105.3	-104.6	-104.7	-104.5	-105.2	-104.7	-104.7	-104.3	-105.8	-104.1
ON_TID samples													
11	-111.0	-123.0	-130.8	-134.1	-136.2	-137.8	-138.8	-139.9	-141.0	-141.4	-142.1	-141.2	-137.2
12	-107.1	-123.0	-131.1	-134.5	-136.4	-138.5	-139.0	-140.3	-141.2	-141.0	-142.3	-141.4	-137.6
13	-111.5	-123.0	-129.6	-133.1	-135.4	-136.8	-138.1	-139.1	-140.0	-140.0	-140.5	-140.2	-137.8
Statistics													
Min	-111.5	-123.0	-131.1	-134.5	-136.4	-138.5	-139.0	-140.3	-141.2	-141.4	-142.3	-141.4	-137.8
Max	-107.1	-123.0	-129.6	-133.1	-135.4	-136.8	-138.1	-139.1	-140.0	-140.0	-140.5	-140.2	-137.2
Average	-109.9	-123.0	-130.5	-133.9	-136.0	-137.7	-138.6	-139.8	-140.7	-140.8	-141.6	-140.9	-137.5
Sigma	2.0	0.0	0.6	0.6	0.4	0.7	0.4	0.5	0.5	0.6	0.8	0.5	0.3

Drift Calculation

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-12.0E+00	-19.8E+00	-23.1E+00	-25.2E+00	-26.8E+00	-27.8E+00	-28.9E+00	-30.0E+00	-30.4E+00	-31.1E+00	-30.2E+00	-26.2E+00
12	-	-15.9E+00	-24.0E+00	-27.5E+00	-29.3E+00	-31.4E+00	-31.9E+00	-33.2E+00	-34.1E+00	-33.9E+00	-35.2E+00	-34.3E+00	-30.5E+00
13	-	-11.5E+00	-18.1E+00	-21.6E+00	-23.9E+00	-25.3E+00	-26.6E+00	-27.6E+00	-28.5E+00	-28.5E+00	-29.0E+00	-28.7E+00	-26.4E+00
Average	-	-13.1E+00	-20.7E+00	-24.1E+00	-26.1E+00	-27.8E+00	-28.8E+00	-29.9E+00	-30.9E+00	-30.9E+00	-31.8E+00	-31.1E+00	-27.7E+00
Sigma	-	2.0E+00	2.5E+00	2.5E+00	2.3E+00	2.6E+00	2.3E+00	2.4E+00	2.4E+00	2.3E+00	2.6E+00	2.4E+00	2.0E+00

Measurements

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-110.3	-104.3	-105.2	-105.3	-104.6	-104.7	-104.5	-105.2	-104.7	-104.7	-104.3	-105.8	-104.1
OFF_PROTON samples													
2	-111.1	-107.7	-109.7	-114.1	-119.7	-126.0	-127.1	-130.2	-132.0	-134.7	-135.1	-135.3	-115.2
3	-117.4	-113.8	-116.9	-120.7	-125.2	-130.1	-131.5	-133.4	-134.7	-135.8	-136.4	-135.9	-121.1
4	-111.7	-108.6	-111.0	-115.5	-120.7	-126.9	-128.1	-131.2	-133.0	-135.0	-136.1	-136.6	-115.8
Statistics													
Min	-117.4	-113.8	-116.9	-120.7	-125.2	-130.1	-131.5	-133.4	-134.7	-135.8	-136.4	-136.6	-121.1
Max	-111.1	-107.7	-109.7	-114.1	-119.7	-126.0	-127.1	-130.2	-132.0	-134.7	-135.1	-135.3	-115.2
Average	-113.4	-110.0	-112.5	-116.7	-121.9	-127.7	-128.9	-131.6	-133.2	-135.2	-135.9	-135.9	-117.3
Sigma	2.9	2.7	3.1	2.8	2.4	1.8	1.8	1.4	1.1	0.5	0.5	0.5	2.6

Drift Calculation

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	3.4E+00	1.4E+00	-2.9E+00	-8.6E+00	-14.9E+00	-16.0E+00	-19.1E+00	-20.8E+00	-23.6E+00	-24.0E+00	-24.2E+00	-4.1E+00
3	-	3.6E+00	516.0E-03	-3.2E+00	-7.8E+00	-12.7E+00	-14.0E+00	-16.0E+00	-17.3E+00	-18.4E+00	-18.9E+00	-18.4E+00	-3.6E+00
4	-	3.1E+00	692.0E-03	-3.8E+00	-9.0E+00	-15.2E+00	-16.5E+00	-19.6E+00	-21.4E+00	-23.4E+00	-24.5E+00	-25.0E+00	-4.1E+00
Average	-	3.4E+00	861.3E-03	-3.3E+00	-8.5E+00	-14.3E+00	-15.5E+00	-18.2E+00	-19.8E+00	-21.8E+00	-22.5E+00	-22.5E+00	-3.9E+00
Sigma	-	208.0E-03	370.9E-03	368.5E-03	504.8E-03	1.1E+00	1.1E+00	1.6E+00	1.8E+00	2.4E+00	2.5E+00	2.9E+00	206.8E-03

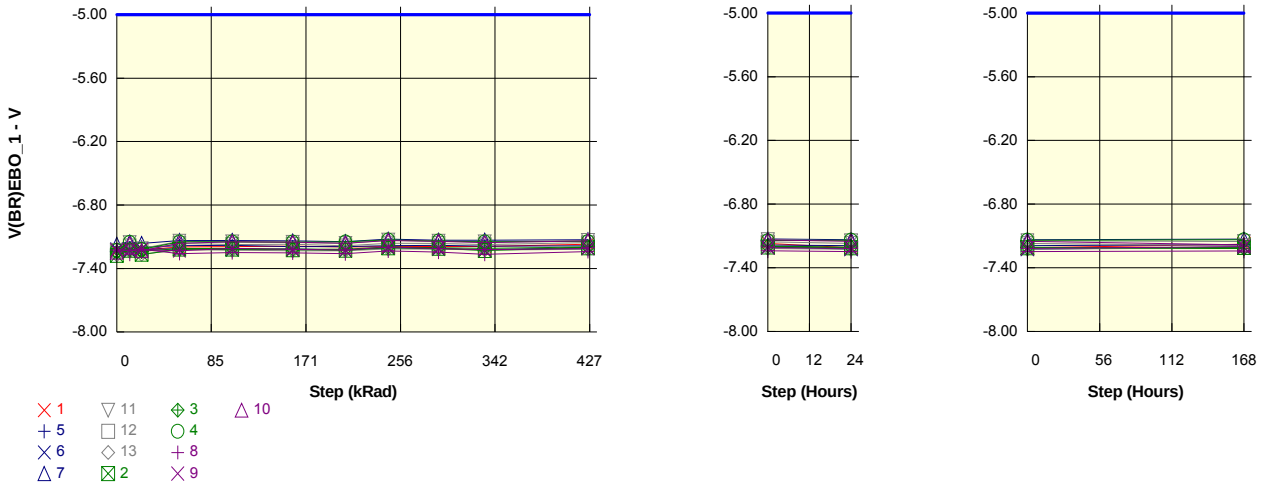
Measurements

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-110.3	-104.3	-105.2	-105.3	-104.6	-104.7	-104.5	-105.2	-104.7	-104.7	-104.3	-105.8	-104.1
OFF_TID samples													
8	-109.3	-110.3	-109.9	-114.8	-120.2	-126.4	-127.9	-131.0	-132.9	-135.0	-135.9	-136.3	-115.9
9	-110.7	-108.0	-110.9	-115.6	-120.5	-127.0	-128.5	-131.5	-133.3	-135.3	-136.5	-136.8	-116.8
10	-107.5	-104.9	-107.2	-112.4	-117.6	-123.7	-125.7	-128.8	-130.7	-132.7	-134.0	-134.4	-118.4
Statistics													
Min	-110.7	-110.3	-110.9	-115.6	-120.5	-127.0	-128.5	-131.5	-133.3	-135.3	-136.5	-136.8	-118.4
Max	-107.5	-104.9	-107.2	-112.4	-117.6	-123.7	-125.7	-128.8	-130.7	-132.7	-134.0	-134.4	-115.9
Average	-109.2	-107.7	-109.4	-114.3	-119.4	-125.7	-127.4	-130.4	-132.3	-134.4	-135.5	-135.8	-117.0
Sigma	1.3	2.2	1.6	1.3	1.3	1.4	1.2	1.2	1.1	1.1	1.0	1.0	1.0

Drift Calculation

V(BR)CEO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-976.0E-03	-580.0E-03	-5.5E+00	-10.9E+00	-17.1E+00	-18.6E+00	-21.7E+00	-23.6E+00	-25.7E+00	-26.6E+00	-27.0E+00	-6.6E+00
9	-	2.8E+00	-236.0E-03	-4.9E+00	-9.8E+00	-16.3E+00	-17.8E+00	-20.8E+00	-22.6E+00	-24.6E+00	-25.8E+00	-26.0E+00	-6.1E+00
10	-	2.6E+00	292.0E-03	-4.9E+00	-10.1E+00	-16.1E+00	-18.1E+00	-21.3E+00	-23.2E+00	-25.2E+00	-26.5E+00	-26.8E+00	-10.8E+00
Average	-	1.5E+00	-174.7E-03	-5.1E+00	-10.2E+00	-16.5E+00	-18.2E+00	-21.3E+00	-23.1E+00	-25.2E+00	-26.3E+00	-26.6E+00	-7.8E+00
Sigma	-	1.7E+00	358.6E-03	294.2E-03	459.8E-03	439.4E-03	353.3E-03	382.4E-03	389.8E-03	464.4E-03	363.4E-03	422.9E-03	2.1E+00

Parameter : Emitter-Base breakdown voltage : V(BR)EBO_1
Test conditions : Ie = -10µA
Unit : V
Spec Limit Max : -5.00
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.23	-7.23	-7.22	-7.20	-7.20	-7.19	-7.20	-7.19	-7.19	-7.19	-7.17	-7.21	-7.18
ON_PROTON samples													
5	-7.22	-7.21	-7.20	-7.18	-7.18	-7.20	-7.19	-7.18	-7.18	-7.19	-7.19	-7.19	-7.18
6	-7.22	-7.24	-7.22	-7.21	-7.22	-7.22	-7.23	-7.21	-7.22	-7.22	-7.21	-7.22	-7.20
7	-7.17	-7.15	-7.16	-7.13	-7.14	-7.14	-7.15	-7.12	-7.13	-7.13	-7.13	-7.13	-7.13
Statistics													
Min	-7.22	-7.24	-7.22	-7.21	-7.22	-7.22	-7.23	-7.21	-7.22	-7.22	-7.21	-7.22	-7.20
Max	-7.17	-7.15	-7.16	-7.13	-7.14	-7.14	-7.15	-7.12	-7.13	-7.13	-7.13	-7.13	-7.13
Average	-7.20	-7.20	-7.19	-7.18	-7.18	-7.18	-7.19	-7.17	-7.18	-7.18	-7.17	-7.18	-7.17
Sigma	0.02	0.04	0.02	0.03	0.04	0.03	0.03	0.04	0.03	0.04	0.03	0.04	0.03

Drift Calculation

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	12.8E-03	19.2E-03	36.0E-03	36.4E-03	23.6E-03	24.0E-03	34.4E-03	38.0E-03	28.8E-03	32.8E-03	27.6E-03	36.8E-03
6	-	-18.0E-03	1.6E-03	4.8E-03	-4.0E-03	4.0E-03	-8.8E-03	13.6E-03	3.6E-03	-3.2E-03	13.6E-03	-4.4E-03	15.6E-03
7	-	24.4E-03	9.2E-03	36.8E-03	36.4E-03	32.4E-03	26.0E-03	49.6E-03	38.8E-03	38.4E-03	44.4E-03	36.8E-03	40.8E-03
Average	-	6.4E-03	10.0E-03	25.9E-03	22.9E-03	20.0E-03	13.7E-03	32.5E-03	26.8E-03	21.3E-03	30.3E-03	20.0E-03	31.1E-03
Sigma	-	17.9E-03	7.2E-03	14.9E-03	19.0E-03	11.9E-03	16.0E-03	14.8E-03	16.4E-03	17.8E-03	12.7E-03	17.7E-03	11.1E-03

Measurements

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.23	-7.23	-7.22	-7.20	-7.20	-7.19	-7.20	-7.19	-7.19	-7.19	-7.17	-7.21	-7.18
ON_TID samples													
11	-7.23	-7.16	-7.21	-7.14	-7.15	-7.15	-7.16	-7.13	-7.14	-7.15	-7.14	-7.15	-7.15
12	-7.24	-7.19	-7.23	-7.16	-7.17	-7.17	-7.19	-7.16	-7.16	-7.17	-7.16	-7.17	-7.19
13	-7.27	-7.24	-7.27	-7.22	-7.23	-7.23	-7.23	-7.21	-7.22	-7.23	-7.22	-7.23	-7.21
Statistics													
Min	-7.27	-7.24	-7.27	-7.22	-7.23	-7.23	-7.23	-7.21	-7.22	-7.23	-7.22	-7.23	-7.21
Max	-7.23	-7.16	-7.21	-7.14	-7.15	-7.15	-7.16	-7.13	-7.14	-7.15	-7.14	-7.15	-7.15
Average	-7.25	-7.19	-7.24	-7.18	-7.18	-7.19	-7.19	-7.17	-7.17	-7.18	-7.17	-7.18	-7.19
Sigma	0.02	0.03	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.02

Drift Calculation

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	73.6E-03	16.0E-03	86.4E-03	80.8E-03	75.6E-03	66.0E-03	96.0E-03	86.4E-03	81.6E-03	92.8E-03	83.6E-03	75.6E-03
12	-	49.2E-03	6.8E-03	72.0E-03	62.0E-03	62.8E-03	48.8E-03	74.8E-03	71.6E-03	60.4E-03	78.4E-03	64.0E-03	43.6E-03
13	-	34.0E-03	6.0E-03	49.2E-03	43.6E-03	39.2E-03	37.6E-03	56.4E-03	54.4E-03	46.0E-03	52.4E-03	46.0E-03	59.2E-03
Average	-	52.3E-03	9.6E-03	69.2E-03	62.1E-03	59.2E-03	50.8E-03	75.7E-03	70.8E-03	62.7E-03	74.5E-03	64.5E-03	59.5E-03
Sigma	-	16.3E-03	4.5E-03	15.3E-03	15.2E-03	15.1E-03	11.7E-03	16.2E-03	13.1E-03	14.6E-03	16.7E-03	15.4E-03	13.1E-03

Measurements

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.23	-7.23	-7.22	-7.20	-7.20	-7.19	-7.20	-7.19	-7.19	-7.19	-7.17	-7.21	-7.18
OFF_PROTON samples													
2	-7.28	-7.23	-7.27	-7.22	-7.22	-7.22	-7.23	-7.20	-7.21	-7.23	-7.20	-7.21	-7.21
3	-7.25	-7.22	-7.24	-7.21	-7.21	-7.22	-7.22	-7.20	-7.20	-7.21	-7.20	-7.21	-7.22
4	-7.23	-7.15	-7.22	-7.15	-7.15	-7.15	-7.15	-7.13	-7.14	-7.15	-7.14	-7.14	-7.14
Statistics													
Min	-7.28	-7.23	-7.27	-7.22	-7.22	-7.22	-7.23	-7.20	-7.21	-7.23	-7.20	-7.21	-7.22
Max	-7.23	-7.15	-7.22	-7.15	-7.15	-7.15	-7.15	-7.13	-7.14	-7.15	-7.14	-7.14	-7.14
Average	-7.25	-7.20	-7.24	-7.19	-7.19	-7.20	-7.20	-7.18	-7.18	-7.20	-7.18	-7.19	-7.19
Sigma	0.02	0.03	0.02	0.03	0.03	0.03	0.04	0.03	0.03	0.04	0.03	0.03	0.04

Drift Calculation

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	47.2E-03	8.4E-03	56.8E-03	58.4E-03	52.0E-03	47.2E-03	70.4E-03	66.0E-03	45.6E-03	70.4E-03	63.2E-03	64.0E-03
3	-	23.6E-03	8.4E-03	32.4E-03	36.4E-03	28.4E-03	28.4E-03	49.2E-03	42.4E-03	35.2E-03	49.2E-03	38.0E-03	29.2E-03
4	-	75.2E-03	8.8E-03	80.8E-03	80.4E-03	77.2E-03	80.8E-03	98.4E-03	88.8E-03	81.2E-03	84.8E-03	88.8E-03	92.0E-03
Average	-	48.7E-03	8.5E-03	56.7E-03	58.4E-03	52.5E-03	52.1E-03	72.7E-03	65.7E-03	54.0E-03	68.1E-03	63.3E-03	61.7E-03
Sigma	-	21.1E-03	188.5E-06	19.8E-03	18.0E-03	19.9E-03	21.7E-03	20.1E-03	18.9E-03	19.7E-03	14.6E-03	20.7E-03	25.7E-03

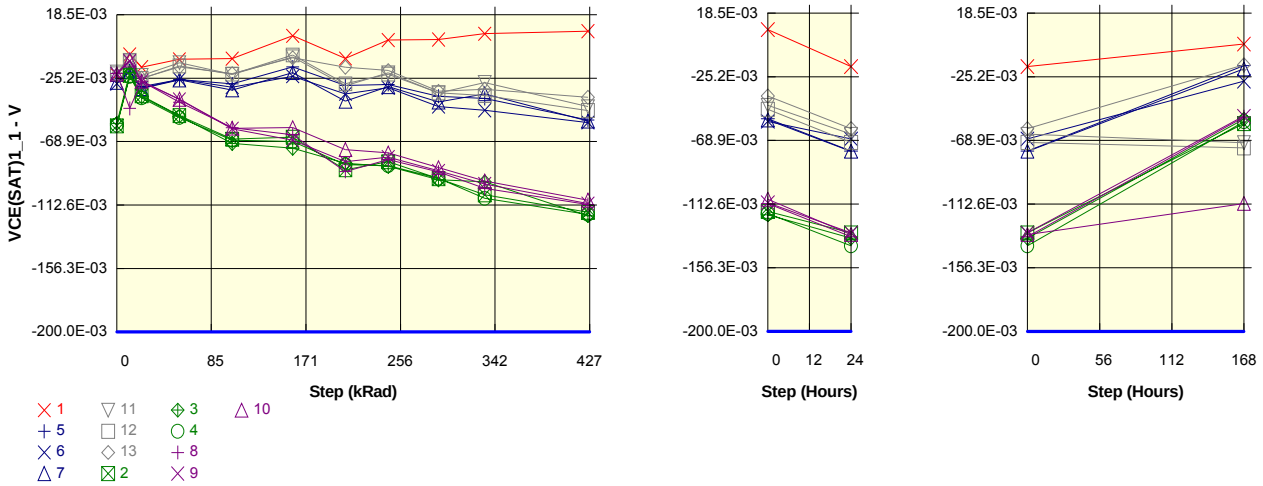
Measurements

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.23	-7.23	-7.22	-7.20	-7.20	-7.19	-7.20	-7.19	-7.19	-7.19	-7.17	-7.21	-7.18
OFF_TID samples													
8	-7.22	-7.26	-7.22	-7.26	-7.25	-7.25	-7.26	-7.24	-7.25	-7.27	-7.24	-7.25	-7.24
9	-7.23	-7.22	-7.22	-7.23	-7.21	-7.22	-7.23	-7.20	-7.21	-7.22	-7.21	-7.22	-7.20
10	-7.24	-7.16	-7.23	-7.16	-7.15	-7.15	-7.16	-7.14	-7.14	-7.16	-7.14	-7.15	-7.18
Statistics													
Min	-7.24	-7.26	-7.23	-7.26	-7.25	-7.25	-7.26	-7.24	-7.25	-7.27	-7.24	-7.25	-7.24
Max	-7.22	-7.16	-7.22	-7.16	-7.15	-7.15	-7.16	-7.14	-7.14	-7.16	-7.14	-7.15	-7.18
Average	-7.23	-7.22	-7.23	-7.22	-7.20	-7.21	-7.22	-7.19	-7.20	-7.21	-7.20	-7.20	-7.21
Sigma	0.01	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.02

Drift Calculation

V(BR)EBO_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-40.0E-03	4.0E-03	-34.8E-03	-25.6E-03	-28.8E-03	-36.8E-03	-10.8E-03	-20.4E-03	-41.6E-03	-15.6E-03	-21.6E-03	-17.6E-03
9	-	2.0E-03	4.4E-03	-6.0E-03	15.2E-03	6.0E-03	0.0E+00	28.4E-03	14.4E-03	4.0E-03	14.4E-03	8.4E-03	23.2E-03
10	-	80.0E-03	11.2E-03	82.8E-03	96.8E-03	92.4E-03	83.6E-03	109.2E-03	101.2E-03	88.0E-03	105.6E-03	93.2E-03	60.0E-03
Average	-	14.0E-03	6.5E-03	14.0E-03	28.8E-03	23.2E-03	15.6E-03	42.3E-03	31.7E-03	16.8E-03	34.8E-03	26.7E-03	21.9E-03
Sigma	-	49.7E-03	3.3E-03	50.0E-03	50.9E-03	51.0E-03	50.4E-03	50.0E-03	51.1E-03	53.7E-03	51.5E-03	48.6E-03	31.7E-03

Parameter : Collector-Emitter saturation voltage : VCE(SAT)1_1
Test conditions : Ic = -100µA ; Ib = -10µA
Unit : V
Spec Limit Min : -200.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.1E-03	-8.9E-03	-17.7E-03	-12.2E-03	-11.8E-03	4.0E-03	-11.6E-03	1.0E-03	1.4E-03	5.4E-03	7.1E-03	-18.2E-03	-2.7E-03
ON_PROTON samples													
5	-27.5E-03	-20.8E-03	-31.0E-03	-26.2E-03	-29.2E-03	-17.6E-03	-30.4E-03	-29.6E-03	-37.6E-03	-39.2E-03	-54.1E-03	-76.2E-03	-17.4E-03
6	-29.0E-03	-20.5E-03	-31.9E-03	-26.0E-03	-31.3E-03	-23.9E-03	-36.0E-03	-31.8E-03	-44.7E-03	-47.3E-03	-55.8E-03	-67.8E-03	-28.3E-03
7	-28.1E-03	-20.4E-03	-32.4E-03	-26.4E-03	-33.4E-03	-21.4E-03	-41.0E-03	-31.0E-03	-41.6E-03	-36.0E-03	-54.7E-03	-76.4E-03	-19.8E-03
Statistics													
Min	-29.0E-03	-20.8E-03	-32.4E-03	-26.4E-03	-33.4E-03	-23.9E-03	-41.0E-03	-31.8E-03	-44.7E-03	-47.3E-03	-55.8E-03	-76.4E-03	-28.3E-03
Max	-27.5E-03	-20.4E-03	-31.0E-03	-26.0E-03	-29.2E-03	-17.6E-03	-30.4E-03	-29.6E-03	-37.6E-03	-36.0E-03	-54.1E-03	-67.8E-03	-17.4E-03
Average	-28.2E-03	-20.6E-03	-31.7E-03	-26.2E-03	-31.3E-03	-21.0E-03	-35.8E-03	-30.8E-03	-41.3E-03	-40.8E-03	-54.9E-03	-73.5E-03	-21.8E-03
Sigma	610.1E-06	172.8E-06	595.4E-06	130.6E-06	1.7E-03	2.6E-03	4.4E-03	944.5E-06	2.9E-03	4.8E-03	709.8E-06	4.0E-03	4.7E-03

Drift Calculation

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	6.7E-03	-3.4E-03	1.3E-03	-1.7E-03	10.0E-03	-2.8E-03	-2.0E-03	-10.1E-03	-11.6E-03	-26.6E-03	-48.7E-03	10.1E-03
6	-	8.5E-03	-2.9E-03	3.0E-03	-2.3E-03	5.1E-03	-7.0E-03	-2.8E-03	-15.7E-03	-18.3E-03	-26.8E-03	-38.8E-03	720.0E-06
7	-	7.6E-03	-4.3E-03	1.7E-03	-5.3E-03	6.6E-03	-13.0E-03	-3.0E-03	-13.6E-03	-7.9E-03	-26.6E-03	-48.3E-03	8.3E-03
Average	-	7.6E-03	-3.5E-03	2.0E-03	-3.1E-03	7.2E-03	-7.6E-03	-2.6E-03	-13.1E-03	-12.6E-03	-26.7E-03	-45.3E-03	6.4E-03
Sigma	-	735.4E-06	592.7E-06	698.2E-06	1.6E-03	2.0E-03	4.2E-03	408.4E-06	2.3E-03	4.3E-03	99.8E-06	4.6E-03	4.1E-03

Measurements

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.1E-03	-8.9E-03	-17.7E-03	-12.2E-03	-11.8E-03	4.0E-03	-11.6E-03	1.0E-03	1.4E-03	5.4E-03	7.1E-03	-18.2E-03	-2.7E-03
ON_TID samples													
11	-20.9E-03	-13.0E-03	-23.4E-03	-14.6E-03	-22.6E-03	-10.6E-03	-30.4E-03	-21.6E-03	-35.4E-03	-28.2E-03	-44.8E-03	-64.6E-03	-70.5E-03
12	-22.2E-03	-14.0E-03	-25.4E-03	-16.8E-03	-22.4E-03	-9.2E-03	-29.0E-03	-22.4E-03	-35.2E-03	-37.2E-03	-47.5E-03	-70.3E-03	-74.1E-03
13	-22.9E-03	-13.3E-03	-25.3E-03	-17.5E-03	-22.0E-03	-11.2E-03	-17.6E-03	-20.0E-03	-34.2E-03	-32.9E-03	-38.5E-03	-60.9E-03	-16.8E-03
Statistics													
Min	-22.9E-03	-14.0E-03	-25.4E-03	-17.5E-03	-22.6E-03	-11.2E-03	-30.4E-03	-22.4E-03	-35.4E-03	-37.2E-03	-47.5E-03	-70.3E-03	-74.1E-03
Max	-20.9E-03	-13.0E-03	-23.4E-03	-14.6E-03	-22.0E-03	-9.2E-03	-17.6E-03	-20.0E-03	-34.2E-03	-28.2E-03	-38.5E-03	-60.9E-03	-16.8E-03
Average	-22.0E-03	-13.4E-03	-24.7E-03	-16.3E-03	-22.3E-03	-10.3E-03	-25.7E-03	-21.3E-03	-35.0E-03	-32.8E-03	-43.6E-03	-65.3E-03	-53.8E-03
Sigma	848.1E-06	399.1E-06	924.5E-06	1.2E-03	231.7E-06	820.0E-06	5.7E-03	1.0E-03	524.9E-06	3.7E-03	3.8E-03	3.9E-03	26.2E-03

Drift Calculation

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	7.9E-03	-2.5E-03	6.3E-03	-1.7E-03	10.3E-03	-9.5E-03	-680.0E-06	-14.6E-03	-7.3E-03	-23.9E-03	-43.8E-03	-49.6E-03
12	-	8.3E-03	-3.2E-03	5.5E-03	-160.0E-06	13.0E-03	-6.8E-03	-160.0E-06	-13.0E-03	-15.0E-03	-25.3E-03	-48.1E-03	-51.8E-03
13	-	9.6E-03	-2.4E-03	5.4E-03	880.0E-06	11.7E-03	5.3E-03	3.0E-03	-11.3E-03	-10.0E-03	-15.6E-03	-38.0E-03	6.1E-03
Average	-	8.6E-03	-2.7E-03	5.7E-03	-333.3E-06	11.7E-03	-3.7E-03	706.7E-06	-13.0E-03	-10.7E-03	-21.6E-03	-43.3E-03	-31.8E-03
Sigma	-	734.9E-06	333.6E-06	386.9E-06	1.1E-03	1.1E-03	6.4E-03	1.6E-03	1.3E-03	3.2E-03	4.3E-03	4.1E-03	26.8E-03

Measurements

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.1E-03	-8.9E-03	-17.7E-03	-12.2E-03	-11.8E-03	4.0E-03	-11.6E-03	1.0E-03	1.4E-03	5.4E-03	7.1E-03	-18.2E-03	-2.7E-03
OFF_PROTON samples													
2	-58.1E-03	-23.2E-03	-37.3E-03	-51.1E-03	-67.2E-03	-65.8E-03	-88.4E-03	-82.8E-03	-94.4E-03	-105.5E-03	-117.6E-03	-132.4E-03	-57.4E-03
3	-56.3E-03	-21.6E-03	-38.0E-03	-51.3E-03	-70.1E-03	-73.5E-03	-83.9E-03	-85.8E-03	-95.1E-03	-96.6E-03	-119.9E-03	-135.9E-03	-54.2E-03
4	-57.6E-03	-24.0E-03	-38.9E-03	-52.4E-03	-67.9E-03	-68.8E-03	-84.7E-03	-85.5E-03	-94.3E-03	-108.0E-03	-119.1E-03	-141.3E-03	-56.1E-03
Statistics													
Min	-58.1E-03	-24.0E-03	-38.9E-03	-52.4E-03	-70.1E-03	-73.5E-03	-88.4E-03	-85.8E-03	-95.1E-03	-108.0E-03	-119.9E-03	-141.3E-03	-57.4E-03
Max	-56.3E-03	-21.6E-03	-37.3E-03	-51.1E-03	-67.2E-03	-65.8E-03	-83.9E-03	-82.8E-03	-94.3E-03	-96.6E-03	-117.6E-03	-132.4E-03	-54.2E-03
Average	-57.3E-03	-22.9E-03	-38.1E-03	-51.6E-03	-68.4E-03	-69.4E-03	-85.7E-03	-84.7E-03	-94.6E-03	-103.4E-03	-118.9E-03	-136.5E-03	-55.9E-03
Sigma	738.3E-06	1.0E-03	640.3E-06	574.1E-06	1.2E-03	3.2E-03	1.9E-03	1.4E-03	378.5E-06	4.9E-03	944.5E-06	3.7E-03	1.3E-03

Drift Calculation

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	34.8E-03	20.8E-03	7.0E-03	-9.2E-03	-7.7E-03	-30.3E-03	-24.7E-03	-36.3E-03	-47.4E-03	-59.6E-03	-74.3E-03	680.0E-06
3	-	34.8E-03	18.4E-03	5.0E-03	-13.8E-03	-17.2E-03	-27.6E-03	-29.5E-03	-38.8E-03	-40.3E-03	-63.6E-03	-79.6E-03	2.1E-03
4	-	33.6E-03	18.7E-03	5.2E-03	-10.4E-03	-11.3E-03	-27.2E-03	-28.0E-03	-36.7E-03	-50.4E-03	-61.6E-03	-83.8E-03	1.5E-03
Average	-	34.4E-03	19.3E-03	5.7E-03	-11.1E-03	-12.1E-03	-28.3E-03	-27.4E-03	-37.3E-03	-46.1E-03	-61.6E-03	-79.2E-03	1.4E-03
Sigma	-	585.5E-06	1.1E-03	907.5E-06	1.9E-03	3.9E-03	1.4E-03	2.0E-03	1.1E-03	4.3E-03	1.6E-03	3.9E-03	573.5E-06

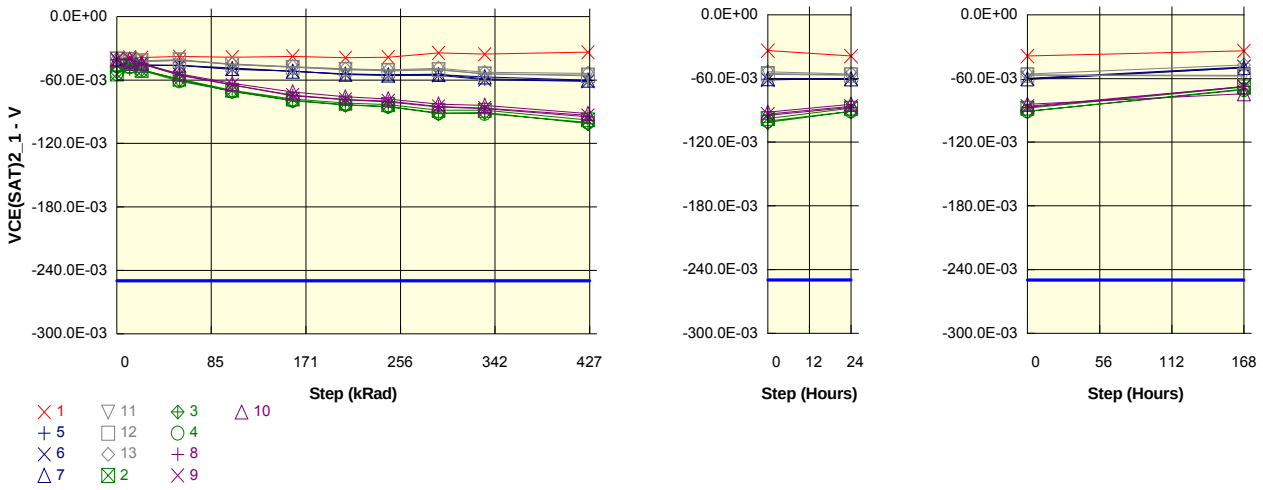
Measurements

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.1E-03	-8.9E-03	-17.7E-03	-12.2E-03	-11.8E-03	4.0E-03	-11.6E-03	1.0E-03	1.4E-03	5.4E-03	7.1E-03	-18.2E-03	-2.7E-03
OFF_TID samples													
8	-21.9E-03	-46.0E-03	-27.3E-03	-41.8E-03	-59.4E-03	-64.2E-03	-89.5E-03	-81.3E-03	-89.8E-03	-101.1E-03	-112.2E-03	-134.9E-03	-52.9E-03
9	-22.2E-03	-13.4E-03	-27.3E-03	-39.9E-03	-60.1E-03	-67.9E-03	-82.8E-03	-79.6E-03	-89.1E-03	-98.1E-03	-111.6E-03	-132.5E-03	-52.2E-03
10	-22.4E-03	-12.7E-03	-27.3E-03	-39.7E-03	-59.7E-03	-59.3E-03	-74.4E-03	-76.7E-03	-86.9E-03	-96.1E-03	-109.3E-03	-133.4E-03	-112.1E-03
Statistics													
Min	-22.4E-03	-46.0E-03	-27.3E-03	-41.8E-03	-60.1E-03	-67.9E-03	-89.5E-03	-81.3E-03	-89.8E-03	-101.1E-03	-112.2E-03	-134.9E-03	-112.1E-03
Max	-21.9E-03	-12.7E-03	-27.3E-03	-39.7E-03	-59.4E-03	-59.3E-03	-74.4E-03	-76.7E-03	-86.9E-03	-96.1E-03	-109.3E-03	-132.5E-03	-52.2E-03
Average	-22.2E-03	-24.0E-03	-27.3E-03	-40.5E-03	-59.7E-03	-63.8E-03	-82.2E-03	-79.2E-03	-88.6E-03	-98.4E-03	-111.1E-03	-133.6E-03	-72.4E-03
Sigma	181.8E-06	15.5E-03	18.9E-06	926.3E-06	281.6E-06	3.5E-03	6.2E-03	1.9E-03	1.3E-03	2.1E-03	1.3E-03	1.0E-03	28.1E-03

Drift Calculation

VCE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-24.1E-03	-5.4E-03	-19.8E-03	-37.5E-03	-42.3E-03	-67.6E-03	-59.4E-03	-67.9E-03	-79.2E-03	-90.3E-03	-113.0E-03	-31.0E-03
9	-	8.8E-03	-5.1E-03	-17.7E-03	-37.9E-03	-45.7E-03	-60.6E-03	-57.4E-03	-66.9E-03	-75.9E-03	-89.4E-03	-110.3E-03	-30.0E-03
10	-	9.7E-03	-5.0E-03	-17.4E-03	-37.3E-03	-36.9E-03	-52.1E-03	-54.3E-03	-64.5E-03	-73.7E-03	-86.9E-03	-111.1E-03	-89.8E-03
Average	-	-1.9E-03	-5.1E-03	-18.3E-03	-37.6E-03	-41.6E-03	-60.1E-03	-57.0E-03	-66.5E-03	-76.3E-03	-88.9E-03	-111.5E-03	-50.3E-03
Sigma	-	15.7E-03	167.6E-06	1.1E-03	249.4E-06	3.6E-03	6.3E-03	2.1E-03	1.4E-03	2.2E-03	1.4E-03	1.1E-03	27.9E-03

Parameter : Collector-Emitter saturation voltage : VCE(SAT)2_1
Test conditions : Ic = -1mA ; Ib = -100µA
Unit : V
Spec Limit Min : -250.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.3E-03	-38.5E-03	-38.8E-03	-37.8E-03	-38.4E-03	-37.7E-03	-39.0E-03	-38.4E-03	-34.3E-03	-35.5E-03	-33.7E-03	-38.8E-03	-34.0E-03
ON_PROTON samples													
5	-46.1E-03	-45.1E-03	-45.9E-03	-46.2E-03	-48.6E-03	-51.8E-03	-54.3E-03	-54.9E-03	-54.5E-03	-58.8E-03	-60.5E-03	-60.9E-03	-49.9E-03
6	-45.8E-03	-44.6E-03	-46.4E-03	-46.2E-03	-49.8E-03	-51.5E-03	-54.7E-03	-55.8E-03	-55.5E-03	-59.5E-03	-61.3E-03	-59.8E-03	-49.0E-03
7	-44.8E-03	-44.4E-03	-46.0E-03	-46.2E-03	-49.3E-03	-51.6E-03	-54.4E-03	-55.2E-03	-54.9E-03	-57.0E-03	-60.1E-03	-60.4E-03	-49.8E-03
Statistics													
Min	-46.1E-03	-45.1E-03	-46.4E-03	-46.2E-03	-49.8E-03	-51.8E-03	-54.7E-03	-55.8E-03	-55.5E-03	-59.5E-03	-61.3E-03	-60.9E-03	-49.9E-03
Max	-44.8E-03	-44.4E-03	-45.9E-03	-46.2E-03	-48.6E-03	-51.5E-03	-54.3E-03	-54.9E-03	-54.5E-03	-57.0E-03	-60.1E-03	-59.8E-03	-49.0E-03
Average	-45.5E-03	-44.7E-03	-46.1E-03	-46.2E-03	-49.3E-03	-51.6E-03	-54.5E-03	-55.3E-03	-55.0E-03	-58.5E-03	-60.6E-03	-60.4E-03	-49.6E-03
Sigma	543.9E-06	299.3E-06	210.0E-06	18.9E-06	508.4E-06	130.6E-06	149.7E-06	367.1E-06	409.2E-06	1.1E-03	498.9E-06	441.0E-06	389.6E-06

Drift Calculation

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	960.0E-06	200.0E-06	-80.0E-06	-2.5E-03	-5.7E-03	-8.2E-03	-8.8E-03	-8.4E-03	-12.8E-03	-14.4E-03	-14.8E-03	-3.8E-03
6	-	1.1E-03	-600.0E-06	-440.0E-06	-4.1E-03	-5.7E-03	-8.9E-03	-10.0E-03	-9.7E-03	-13.8E-03	-15.5E-03	-14.1E-03	-3.3E-03
7	-	400.0E-06	-1.2E-03	-1.4E-03	-4.5E-03	-6.8E-03	-9.6E-03	-10.4E-03	-10.1E-03	-12.2E-03	-15.3E-03	-15.6E-03	-5.0E-03
Average	-	826.7E-06	-520.0E-06	-640.0E-06	-3.7E-03	-6.1E-03	-8.9E-03	-9.8E-03	-9.4E-03	-12.9E-03	-15.1E-03	-14.8E-03	-4.0E-03
Sigma	-	308.7E-06	558.1E-06	557.1E-06	858.1E-06	528.0E-06	571.6E-06	666.9E-06	734.9E-06	645.3E-06	481.5E-06	620.5E-06	716.3E-06

Measurements

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.3E-03	-38.5E-03	-38.8E-03	-37.8E-03	-38.4E-03	-37.7E-03	-39.0E-03	-38.4E-03	-34.3E-03	-35.5E-03	-33.7E-03	-38.8E-03	-34.0E-03
ON_TID samples													
11	-39.9E-03	-40.4E-03	-41.7E-03	-40.8E-03	-45.1E-03	-48.0E-03	-50.4E-03	-50.9E-03	-50.4E-03	-54.2E-03	-55.3E-03	-56.6E-03	-57.0E-03
12	-40.5E-03	-40.8E-03	-42.6E-03	-41.3E-03	-45.4E-03	-48.0E-03	-49.8E-03	-51.3E-03	-50.1E-03	-54.4E-03	-55.9E-03	-56.8E-03	-57.9E-03
13	-40.3E-03	-40.1E-03	-42.6E-03	-41.4E-03	-44.8E-03	-47.4E-03	-49.5E-03	-50.5E-03	-48.9E-03	-52.8E-03	-53.8E-03	-55.8E-03	-47.2E-03
Statistics													
Min	-40.5E-03	-40.8E-03	-42.6E-03	-41.4E-03	-45.4E-03	-48.0E-03	-50.4E-03	-51.3E-03	-50.4E-03	-54.4E-03	-55.9E-03	-56.8E-03	-57.9E-03
Max	-39.9E-03	-40.1E-03	-41.7E-03	-40.8E-03	-44.8E-03	-47.4E-03	-49.5E-03	-50.5E-03	-48.9E-03	-52.8E-03	-53.8E-03	-55.8E-03	-47.2E-03
Average	-40.2E-03	-40.4E-03	-42.3E-03	-41.2E-03	-45.1E-03	-47.8E-03	-49.9E-03	-50.9E-03	-49.8E-03	-53.8E-03	-55.0E-03	-56.4E-03	-54.0E-03
Sigma	264.0E-06	281.6E-06	434.9E-06	247.3E-06	228.6E-06	264.0E-06	389.6E-06	326.6E-06	641.9E-06	708.8E-06	887.8E-06	426.2E-06	4.9E-03

Drift Calculation

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-480.0E-06	-1.8E-03	-960.0E-06	-5.2E-03	-8.1E-03	-10.6E-03	-11.0E-03	-10.5E-03	-14.4E-03	-15.4E-03	-16.7E-03	-17.1E-03
12	-	-280.0E-06	-2.1E-03	-800.0E-06	-4.9E-03	-7.5E-03	-9.2E-03	-10.8E-03	-9.6E-03	-13.8E-03	-15.4E-03	-16.3E-03	-17.4E-03
13	-	160.0E-06	-2.3E-03	-1.1E-03	-4.6E-03	-7.2E-03	-9.2E-03	-10.2E-03	-8.6E-03	-12.5E-03	-13.5E-03	-15.6E-03	-6.9E-03
Average	-	-200.0E-06	-2.1E-03	-960.0E-06	-4.9E-03	-7.6E-03	-9.7E-03	-10.7E-03	-9.6E-03	-13.6E-03	-14.8E-03	-16.2E-03	-13.8E-03
Sigma	-	267.3E-06	199.6E-06	130.6E-06	277.8E-06	399.1E-06	622.3E-06	335.2E-06	767.6E-06	774.5E-06	886.2E-06	481.1E-06	4.9E-03

Measurements

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.3E-03	-38.5E-03	-38.8E-03	-37.8E-03	-38.4E-03	-37.7E-03	-39.0E-03	-38.4E-03	-34.3E-03	-35.5E-03	-33.7E-03	-38.8E-03	-34.0E-03
OFF_PROTON samples													
2	-54.4E-03	-46.6E-03	-51.0E-03	-59.0E-03	-69.7E-03	-78.0E-03	-81.8E-03	-83.2E-03	-88.6E-03	-88.6E-03	-97.7E-03	-88.0E-03	-68.0E-03
3	-52.2E-03	-45.0E-03	-50.0E-03	-59.9E-03	-70.8E-03	-79.8E-03	-83.9E-03	-85.3E-03	-91.6E-03	-90.6E-03	-101.4E-03	-90.9E-03	-70.1E-03
4	-53.7E-03	-47.1E-03	-51.0E-03	-61.0E-03	-70.5E-03	-79.2E-03	-83.2E-03	-85.0E-03	-91.1E-03	-91.8E-03	-100.0E-03	-90.8E-03	-70.6E-03
Statistics													
Min	-54.4E-03	-47.1E-03	-51.0E-03	-61.0E-03	-70.8E-03	-79.8E-03	-83.9E-03	-85.3E-03	-91.6E-03	-91.8E-03	-101.4E-03	-90.9E-03	-70.6E-03
Max	-52.2E-03	-45.0E-03	-50.0E-03	-59.0E-03	-69.7E-03	-78.0E-03	-81.8E-03	-83.2E-03	-88.6E-03	-88.6E-03	-97.7E-03	-88.0E-03	-68.0E-03
Average	-53.4E-03	-46.3E-03	-50.7E-03	-60.0E-03	-70.3E-03	-79.0E-03	-83.0E-03	-84.5E-03	-90.5E-03	-90.3E-03	-99.7E-03	-89.9E-03	-69.6E-03
Sigma	898.0E-06	907.6E-06	509.1E-06	818.5E-06	471.0E-06	730.5E-06	887.8E-06	926.3E-06	1.3E-03	1.3E-03	1.5E-03	1.4E-03	1.1E-03

Drift Calculation

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	7.8E-03	3.4E-03	-4.6E-03	-15.3E-03	-23.6E-03	-27.4E-03	-28.8E-03	-34.2E-03	-34.2E-03	-43.3E-03	-33.6E-03	-13.6E-03
3	-	7.2E-03	2.3E-03	-7.7E-03	-18.6E-03	-27.5E-03	-31.6E-03	-33.1E-03	-39.4E-03	-38.4E-03	-49.1E-03	-38.7E-03	-17.9E-03
4	-	6.6E-03	2.6E-03	-7.4E-03	-16.8E-03	-25.5E-03	-29.6E-03	-31.3E-03	-37.4E-03	-38.1E-03	-46.3E-03	-37.1E-03	-16.9E-03
Average	-	7.2E-03	2.8E-03	-6.6E-03	-16.9E-03	-25.5E-03	-29.5E-03	-31.1E-03	-37.0E-03	-36.9E-03	-46.2E-03	-36.5E-03	-16.1E-03
Sigma	-	491.3E-06	449.0E-06	1.4E-03	1.3E-03	1.6E-03	1.7E-03	1.8E-03	2.1E-03	1.9E-03	2.4E-03	2.1E-03	1.8E-03

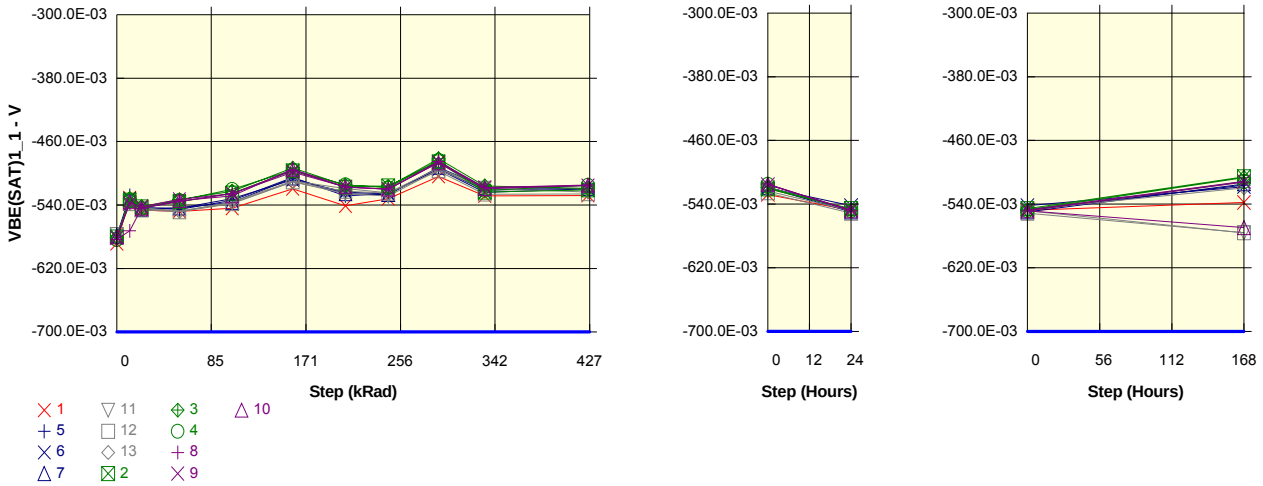
Measurements

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.3E-03	-38.5E-03	-38.8E-03	-37.8E-03	-38.4E-03	-37.7E-03	-39.0E-03	-38.4E-03	-34.3E-03	-35.5E-03	-33.7E-03	-38.8E-03	-34.0E-03
OFF_TID samples													
8	-40.7E-03	-49.4E-03	-44.9E-03	-55.5E-03	-64.6E-03	-74.8E-03	-78.7E-03	-80.8E-03	-85.6E-03	-87.0E-03	-94.6E-03	-87.1E-03	-67.4E-03
9	-40.4E-03	-40.4E-03	-44.7E-03	-54.8E-03	-64.7E-03	-74.2E-03	-78.4E-03	-79.8E-03	-84.9E-03	-86.5E-03	-93.6E-03	-86.2E-03	-67.4E-03
10	-40.4E-03	-40.2E-03	-44.3E-03	-54.3E-03	-63.2E-03	-71.2E-03	-75.9E-03	-77.8E-03	-82.7E-03	-84.0E-03	-91.8E-03	-84.2E-03	-74.4E-03
Statistics													
Min	-40.7E-03	-49.4E-03	-44.9E-03	-55.5E-03	-64.7E-03	-74.8E-03	-78.7E-03	-80.8E-03	-85.6E-03	-87.0E-03	-94.6E-03	-87.1E-03	-74.4E-03
Max	-40.4E-03	-40.2E-03	-44.3E-03	-54.3E-03	-63.2E-03	-71.2E-03	-75.9E-03	-77.8E-03	-82.7E-03	-84.0E-03	-91.8E-03	-84.2E-03	-67.4E-03
Average	-40.5E-03	-43.3E-03	-44.6E-03	-54.9E-03	-64.2E-03	-73.4E-03	-77.7E-03	-79.5E-03	-84.4E-03	-85.9E-03	-93.3E-03	-85.9E-03	-69.7E-03
Sigma	154.3E-06	4.3E-03	249.4E-06	474.4E-06	669.6E-06	1.6E-03	1.2E-03	1.3E-03	1.2E-03	1.3E-03	1.2E-03	1.2E-03	3.3E-03

Drift Calculation

VCE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-8.7E-03	-4.2E-03	-14.8E-03	-23.9E-03	-34.1E-03	-38.0E-03	-40.1E-03	-44.9E-03	-46.3E-03	-53.9E-03	-46.4E-03	-26.7E-03
9	-	40.0E-06	-4.2E-03	-14.4E-03	-24.2E-03	-33.8E-03	-37.9E-03	-39.4E-03	-44.5E-03	-46.1E-03	-53.1E-03	-45.8E-03	-27.0E-03
10	-	120.0E-06	-3.9E-03	-14.0E-03	-22.9E-03	-30.9E-03	-35.6E-03	-37.4E-03	-42.3E-03	-43.6E-03	-51.4E-03	-43.8E-03	-34.0E-03
Average	-	-2.8E-03	-4.1E-03	-14.4E-03	-23.7E-03	-32.9E-03	-37.1E-03	-39.0E-03	-43.9E-03	-45.3E-03	-52.8E-03	-45.3E-03	-29.2E-03
Sigma	-	4.1E-03	136.0E-06	327.1E-06	580.6E-06	1.4E-03	1.1E-03	1.1E-03	1.1E-03	1.2E-03	1.1E-03	1.1E-03	3.4E-03

Parameter : Base-Emitter saturation voltage : VBE(SAT)1_1
Test conditions : Ic = -100µA ; Ib = -10µA
Unit : V
Spec Limit Min : -700.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-588.6E-03	-531.1E-03	-546.2E-03	-548.0E-03	-544.1E-03	-519.4E-03	-541.0E-03	-532.0E-03	-503.8E-03	-528.4E-03	-527.9E-03	-547.6E-03	-538.0E-03
ON_PROTON samples													
5	-578.5E-03	-528.0E-03	-543.8E-03	-545.5E-03	-534.2E-03	-505.3E-03	-528.4E-03	-525.3E-03	-494.3E-03	-521.2E-03	-519.1E-03	-546.9E-03	-516.2E-03
6	-579.7E-03	-532.2E-03	-543.2E-03	-543.9E-03	-531.7E-03	-508.2E-03	-523.6E-03	-526.0E-03	-494.8E-03	-523.9E-03	-519.4E-03	-542.0E-03	-518.1E-03
7	-578.3E-03	-532.9E-03	-545.7E-03	-543.7E-03	-536.7E-03	-506.2E-03	-525.7E-03	-527.0E-03	-492.6E-03	-517.7E-03	-519.5E-03	-549.9E-03	-514.7E-03
Statistics													
Min	-579.7E-03	-532.9E-03	-545.7E-03	-545.5E-03	-536.7E-03	-508.2E-03	-528.4E-03	-527.0E-03	-494.8E-03	-523.9E-03	-519.5E-03	-549.9E-03	-518.1E-03
Max	-578.3E-03	-528.0E-03	-543.2E-03	-543.7E-03	-531.7E-03	-505.3E-03	-523.6E-03	-525.3E-03	-492.6E-03	-517.7E-03	-519.1E-03	-542.0E-03	-514.7E-03
Average	-578.8E-03	-531.0E-03	-544.2E-03	-544.4E-03	-534.2E-03	-506.6E-03	-525.9E-03	-526.1E-03	-493.9E-03	-521.0E-03	-519.3E-03	-546.3E-03	-516.3E-03
Sigma	625.7E-06	2.2E-03	1.1E-03	813.4E-06	2.0E-03	1.2E-03	2.0E-03	672.8E-06	938.8E-06	2.5E-03	179.9E-06	3.3E-03	1.4E-03

Drift Calculation

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	50.5E-03	34.7E-03	33.0E-03	44.2E-03	73.2E-03	50.0E-03	53.2E-03	84.2E-03	57.2E-03	59.4E-03	31.6E-03	62.2E-03
6	-	47.6E-03	36.5E-03	35.8E-03	48.0E-03	71.5E-03	56.2E-03	53.7E-03	84.9E-03	55.8E-03	60.3E-03	37.8E-03	61.6E-03
7	-	45.4E-03	32.6E-03	34.6E-03	41.6E-03	72.2E-03	52.6E-03	51.4E-03	85.7E-03	60.6E-03	58.8E-03	28.4E-03	63.6E-03
Average	-	47.8E-03	34.6E-03	34.5E-03	44.6E-03	72.3E-03	52.9E-03	52.7E-03	84.9E-03	57.9E-03	59.5E-03	32.6E-03	62.5E-03
Sigma	-	2.1E-03	1.6E-03	1.2E-03	2.6E-03	674.9E-06	2.5E-03	1.0E-03	620.8E-06	2.0E-03	592.7E-06	3.9E-03	838.0E-06

Measurements

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-588.6E-03	-531.1E-03	-546.2E-03	-548.0E-03	-544.1E-03	-519.4E-03	-541.0E-03	-532.0E-03	-503.8E-03	-528.4E-03	-527.9E-03	-547.6E-03	-538.0E-03
ON_TID samples													
11	-577.3E-03	-537.4E-03	-544.7E-03	-547.3E-03	-537.6E-03	-510.8E-03	-525.6E-03	-528.8E-03	-495.6E-03	-519.0E-03	-523.6E-03	-548.5E-03	-576.3E-03
12	-577.4E-03	-538.3E-03	-546.2E-03	-548.6E-03	-538.3E-03	-510.8E-03	-522.7E-03	-525.2E-03	-497.0E-03	-526.2E-03	-525.9E-03	-551.6E-03	-576.0E-03
13	-580.6E-03	-536.5E-03	-543.0E-03	-548.2E-03	-536.3E-03	-509.8E-03	-519.3E-03	-524.7E-03	-493.4E-03	-517.6E-03	-519.1E-03	-546.7E-03	-519.5E-03
Statistics													
Min	-580.6E-03	-538.3E-03	-546.2E-03	-548.6E-03	-538.3E-03	-510.8E-03	-525.6E-03	-528.8E-03	-497.0E-03	-526.2E-03	-525.9E-03	-551.6E-03	-576.3E-03
Max	-577.3E-03	-536.5E-03	-543.0E-03	-547.3E-03	-536.3E-03	-509.8E-03	-519.3E-03	-524.7E-03	-493.4E-03	-517.6E-03	-519.1E-03	-546.7E-03	-519.5E-03
Average	-578.4E-03	-537.4E-03	-544.7E-03	-548.0E-03	-537.4E-03	-510.4E-03	-522.5E-03	-526.2E-03	-495.3E-03	-520.9E-03	-522.9E-03	-548.9E-03	-557.2E-03
Sigma	1.5E-03	735.4E-06	1.3E-03	557.1E-06	812.6E-06	481.1E-06	2.6E-03	1.9E-03	1.5E-03	3.8E-03	2.8E-03	2.0E-03	26.7E-03

Drift Calculation

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	39.8E-03	32.6E-03	30.0E-03	39.7E-03	66.5E-03	51.7E-03	48.4E-03	81.7E-03	58.3E-03	53.6E-03	28.8E-03	1000.0E-06
12	-	39.1E-03	31.2E-03	28.8E-03	39.1E-03	66.6E-03	54.6E-03	52.2E-03	80.3E-03	51.1E-03	51.5E-03	25.8E-03	1.4E-03
13	-	44.1E-03	37.6E-03	32.4E-03	44.3E-03	70.8E-03	61.3E-03	55.9E-03	87.2E-03	63.0E-03	61.5E-03	33.9E-03	61.1E-03
Average	-	41.0E-03	33.8E-03	30.4E-03	41.0E-03	68.0E-03	55.9E-03	52.2E-03	83.1E-03	57.5E-03	55.5E-03	29.5E-03	21.2E-03
Sigma	-	2.2E-03	2.7E-03	1.5E-03	2.3E-03	2.0E-03	4.0E-03	3.1E-03	3.0E-03	4.9E-03	4.3E-03	3.4E-03	28.2E-03

Measurements

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-588.6E-03	-531.1E-03	-546.2E-03	-548.0E-03	-544.1E-03	-519.4E-03	-541.0E-03	-532.0E-03	-503.8E-03	-528.4E-03	-527.9E-03	-547.6E-03	-538.0E-03
OFF_PROTON samples													
2	-580.1E-03	-533.8E-03	-542.4E-03	-535.9E-03	-525.1E-03	-496.8E-03	-517.4E-03	-515.8E-03	-485.6E-03	-523.6E-03	-521.1E-03	-545.7E-03	-505.8E-03
3	-580.8E-03	-531.6E-03	-542.2E-03	-533.3E-03	-522.7E-03	-493.3E-03	-515.1E-03	-516.8E-03	-481.6E-03	-515.8E-03	-519.2E-03	-547.4E-03	-506.6E-03
4	-583.9E-03	-534.6E-03	-544.5E-03	-534.0E-03	-520.1E-03	-496.3E-03	-514.4E-03	-518.3E-03	-483.6E-03	-521.6E-03	-515.1E-03	-548.6E-03	-511.7E-03
Statistics													
Min	-583.9E-03	-534.6E-03	-544.5E-03	-535.9E-03	-525.1E-03	-496.8E-03	-517.4E-03	-518.3E-03	-485.6E-03	-523.6E-03	-521.1E-03	-548.6E-03	-511.7E-03
Max	-580.1E-03	-531.6E-03	-542.2E-03	-533.3E-03	-520.1E-03	-493.3E-03	-514.4E-03	-515.8E-03	-481.6E-03	-515.8E-03	-515.1E-03	-545.7E-03	-505.8E-03
Average	-581.6E-03	-533.4E-03	-543.0E-03	-534.4E-03	-522.6E-03	-495.5E-03	-515.6E-03	-517.0E-03	-483.6E-03	-520.3E-03	-518.5E-03	-547.2E-03	-508.0E-03
Sigma	1.6E-03	1.3E-03	1.0E-03	1.1E-03	2.0E-03	1.6E-03	1.3E-03	1.0E-03	1.6E-03	3.3E-03	2.5E-03	1.2E-03	2.6E-03

Drift Calculation

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	46.3E-03	37.7E-03	44.2E-03	55.0E-03	83.3E-03	62.8E-03	64.3E-03	94.6E-03	56.5E-03	59.0E-03	34.4E-03	74.4E-03
3	-	49.2E-03	38.6E-03	47.5E-03	58.1E-03	87.5E-03	65.7E-03	64.0E-03	99.2E-03	65.0E-03	61.6E-03	33.4E-03	74.2E-03
4	-	49.2E-03	39.4E-03	49.9E-03	63.8E-03	87.6E-03	69.5E-03	65.6E-03	100.2E-03	62.3E-03	68.8E-03	35.3E-03	72.2E-03
Average	-	48.2E-03	38.6E-03	47.2E-03	59.0E-03	86.1E-03	66.0E-03	64.6E-03	98.0E-03	61.3E-03	63.1E-03	34.4E-03	73.6E-03
Sigma	-	1.4E-03	686.9E-06	2.3E-03	3.6E-03	2.0E-03	2.8E-03	703.7E-06	2.5E-03	3.5E-03	4.1E-03	768.0E-06	1.0E-03

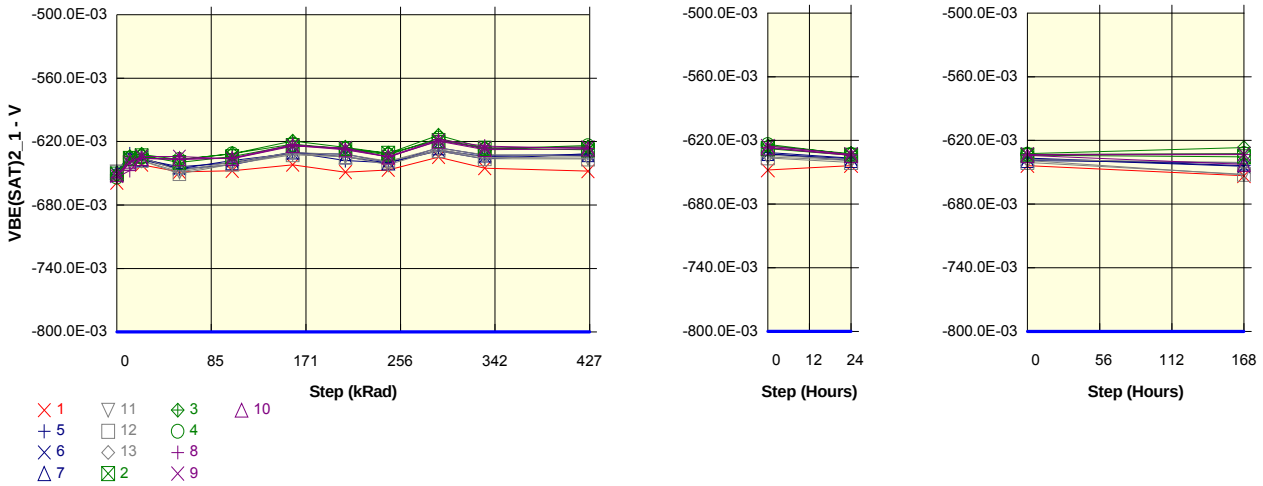
Measurements

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-588.6E-03	-531.1E-03	-546.2E-03	-548.0E-03	-544.1E-03	-519.4E-03	-541.0E-03	-532.0E-03	-503.8E-03	-528.4E-03	-527.9E-03	-547.6E-03	-538.0E-03
OFF_TID samples													
8	-583.4E-03	-572.7E-03	-544.1E-03	-535.5E-03	-525.6E-03	-496.3E-03	-517.4E-03	-520.0E-03	-485.0E-03	-517.8E-03	-514.8E-03	-548.4E-03	-512.4E-03
9	-581.5E-03	-538.0E-03	-541.8E-03	-532.8E-03	-525.7E-03	-498.4E-03	-517.4E-03	-519.9E-03	-486.3E-03	-517.8E-03	-515.6E-03	-547.6E-03	-511.6E-03
10	-580.1E-03	-535.8E-03	-544.0E-03	-534.4E-03	-528.6E-03	-495.0E-03	-517.1E-03	-520.0E-03	-486.6E-03	-519.5E-03	-515.1E-03	-548.4E-03	-569.4E-03
Statistics													
Min	-583.4E-03	-572.7E-03	-544.1E-03	-535.5E-03	-528.6E-03	-498.4E-03	-517.4E-03	-520.0E-03	-486.6E-03	-519.5E-03	-515.6E-03	-548.4E-03	-569.4E-03
Max	-580.1E-03	-535.8E-03	-541.8E-03	-532.8E-03	-525.6E-03	-495.0E-03	-517.1E-03	-519.9E-03	-485.0E-03	-517.8E-03	-514.8E-03	-547.6E-03	-511.6E-03
Average	-581.7E-03	-548.8E-03	-543.3E-03	-534.2E-03	-526.6E-03	-496.6E-03	-517.3E-03	-520.0E-03	-485.9E-03	-518.3E-03	-515.2E-03	-548.1E-03	-531.1E-03
Sigma	1.4E-03	16.9E-03	1.0E-03	1.1E-03	1.4E-03	1.4E-03	136.0E-06	56.6E-06	709.8E-06	810.8E-06	331.5E-06	386.9E-06	27.1E-03

Drift Calculation

VBE(SAT)1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	10.8E-03	39.4E-03	47.9E-03	57.9E-03	87.2E-03	66.0E-03	63.4E-03	98.5E-03	65.7E-03	68.6E-03	35.1E-03	71.1E-03
9	-	43.5E-03	39.7E-03	48.7E-03	55.8E-03	83.1E-03	64.2E-03	61.6E-03	95.2E-03	63.8E-03	65.9E-03	34.0E-03	70.0E-03
10	-	44.3E-03	36.1E-03	45.7E-03	51.5E-03	85.1E-03	63.0E-03	60.0E-03	93.5E-03	60.6E-03	65.0E-03	31.7E-03	10.6E-03
Average	-	32.9E-03	38.4E-03	47.5E-03	55.1E-03	85.1E-03	64.4E-03	61.7E-03	95.7E-03	63.3E-03	66.5E-03	33.6E-03	50.6E-03
Sigma	-	15.6E-03	1.6E-03	1.3E-03	2.6E-03	1.7E-03	1.3E-03	1.4E-03	2.1E-03	2.1E-03	1.5E-03	1.4E-03	28.2E-03

Parameter : Base-Emitter saturation voltage : VBE(SAT)2_1
Test conditions : Ic = -1mA ; Ib = -100µA
Unit : V
Spec Limit Min : -800.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-658.9E-03	-636.6E-03	-642.0E-03	-648.6E-03	-647.6E-03	-641.9E-03	-648.9E-03	-646.8E-03	-634.6E-03	-645.1E-03	-648.0E-03	-643.7E-03	-653.3E-03
ON_PROTON samples													
5	-649.0E-03	-631.7E-03	-637.0E-03	-645.8E-03	-642.1E-03	-630.2E-03	-637.9E-03	-639.9E-03	-628.9E-03	-636.4E-03	-631.2E-03	-636.6E-03	-643.7E-03
6	-649.9E-03	-635.6E-03	-635.6E-03	-645.5E-03	-637.9E-03	-631.2E-03	-631.8E-03	-639.5E-03	-628.0E-03	-634.3E-03	-632.8E-03	-637.3E-03	-644.4E-03
7	-648.8E-03	-635.8E-03	-636.7E-03	-643.8E-03	-640.0E-03	-629.9E-03	-634.4E-03	-640.2E-03	-625.8E-03	-632.8E-03	-632.4E-03	-639.0E-03	-641.4E-03
Statistics													
Min	-649.9E-03	-635.8E-03	-637.0E-03	-645.8E-03	-642.1E-03	-631.2E-03	-637.9E-03	-640.2E-03	-628.9E-03	-636.4E-03	-632.8E-03	-639.0E-03	-644.4E-03
Max	-648.8E-03	-631.7E-03	-635.6E-03	-643.8E-03	-637.9E-03	-629.9E-03	-631.8E-03	-639.5E-03	-625.8E-03	-632.8E-03	-631.2E-03	-636.6E-03	-641.4E-03
Average	-649.2E-03	-634.4E-03	-636.4E-03	-645.0E-03	-640.0E-03	-630.5E-03	-634.7E-03	-639.9E-03	-627.6E-03	-634.5E-03	-632.1E-03	-637.7E-03	-643.2E-03
Sigma	494.2E-06	1.9E-03	592.7E-06	891.6E-06	1.7E-03	543.9E-06	2.5E-03	294.6E-06	1.3E-03	1.5E-03	661.6E-06	991.9E-06	1.3E-03

Drift Calculation

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	17.4E-03	12.1E-03	3.3E-03	6.9E-03	18.8E-03	11.1E-03	9.1E-03	20.1E-03	12.6E-03	17.8E-03	12.4E-03	5.3E-03
6	-	14.3E-03	14.3E-03	4.4E-03	12.0E-03	18.7E-03	18.1E-03	10.4E-03	21.9E-03	15.6E-03	17.1E-03	12.6E-03	5.5E-03
7	-	13.0E-03	12.0E-03	5.0E-03	8.8E-03	18.8E-03	14.4E-03	8.5E-03	22.9E-03	16.0E-03	16.4E-03	9.8E-03	7.4E-03
Average	-	14.9E-03	12.8E-03	4.2E-03	9.2E-03	18.8E-03	14.5E-03	9.3E-03	21.7E-03	14.7E-03	17.1E-03	11.6E-03	6.1E-03
Sigma	-	1.8E-03	1.1E-03	712.8E-06	2.1E-03	49.9E-06	2.8E-03	784.1E-06	1.2E-03	1.5E-03	588.2E-06	1.3E-03	918.2E-06

Measurements

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-658.9E-03	-636.6E-03	-642.0E-03	-648.6E-03	-647.6E-03	-641.9E-03	-648.9E-03	-646.8E-03	-634.6E-03	-645.1E-03	-648.0E-03	-643.7E-03	-653.3E-03
ON_TID samples													
11	-648.8E-03	-639.6E-03	-638.0E-03	-648.7E-03	-640.8E-03	-631.3E-03	-634.2E-03	-641.8E-03	-627.6E-03	-634.9E-03	-635.8E-03	-638.9E-03	-652.4E-03
12	-648.8E-03	-640.2E-03	-637.9E-03	-650.4E-03	-641.3E-03	-632.5E-03	-634.4E-03	-638.4E-03	-628.7E-03	-636.2E-03	-636.6E-03	-640.8E-03	-652.0E-03
13	-651.7E-03	-638.4E-03	-635.1E-03	-647.4E-03	-639.4E-03	-630.2E-03	-632.2E-03	-638.4E-03	-626.3E-03	-632.4E-03	-633.8E-03	-637.9E-03	-640.7E-03
Statistics													
Min	-651.7E-03	-640.2E-03	-638.0E-03	-650.4E-03	-641.3E-03	-632.5E-03	-634.4E-03	-641.8E-03	-628.7E-03	-636.2E-03	-636.6E-03	-640.8E-03	-652.4E-03
Max	-648.8E-03	-638.4E-03	-635.1E-03	-647.4E-03	-639.4E-03	-630.2E-03	-632.2E-03	-638.4E-03	-626.3E-03	-632.4E-03	-633.8E-03	-637.9E-03	-640.7E-03
Average	-649.8E-03	-639.4E-03	-637.0E-03	-648.8E-03	-640.5E-03	-631.3E-03	-633.6E-03	-639.5E-03	-627.6E-03	-634.5E-03	-635.4E-03	-639.2E-03	-648.4E-03
Sigma	1.4E-03	770.1E-06	1.4E-03	1.2E-03	834.2E-06	915.3E-06	1.0E-03	1.6E-03	981.4E-06	1.6E-03	1.1E-03	1.2E-03	5.4E-03

Drift Calculation

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	9.1E-03	10.7E-03	80.0E-06	7.9E-03	17.5E-03	14.5E-03	7.0E-03	21.1E-03	13.8E-03	13.0E-03	9.9E-03	-3.6E-03
12	-	8.6E-03	11.0E-03	-1.5E-03	7.5E-03	16.4E-03	14.5E-03	10.4E-03	20.1E-03	12.7E-03	12.3E-03	8.0E-03	-3.2E-03
13	-	13.4E-03	16.6E-03	4.4E-03	12.4E-03	21.5E-03	19.6E-03	13.3E-03	25.4E-03	19.3E-03	17.9E-03	13.8E-03	11.0E-03
Average	-	10.4E-03	12.8E-03	973.3E-06	9.3E-03	18.4E-03	16.2E-03	10.3E-03	22.2E-03	15.3E-03	14.4E-03	10.6E-03	1.4E-03
Sigma	-	2.1E-03	2.7E-03	2.5E-03	2.2E-03	2.2E-03	2.4E-03	2.6E-03	2.3E-03	2.9E-03	2.5E-03	2.4E-03	6.8E-03

Measurements

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-658.9E-03	-636.6E-03	-642.0E-03	-648.6E-03	-647.6E-03	-641.9E-03	-648.9E-03	-646.8E-03	-634.6E-03	-645.1E-03	-648.0E-03	-643.7E-03	-653.3E-03
OFF_PROTON samples													
2	-650.7E-03	-636.0E-03	-633.4E-03	-639.7E-03	-634.2E-03	-623.6E-03	-626.6E-03	-631.0E-03	-618.8E-03	-626.3E-03	-627.8E-03	-634.0E-03	-635.4E-03
3	-651.4E-03	-634.3E-03	-632.2E-03	-636.8E-03	-631.5E-03	-619.5E-03	-625.4E-03	-631.0E-03	-614.0E-03	-626.2E-03	-625.2E-03	-632.4E-03	-626.7E-03
4	-653.7E-03	-636.2E-03	-634.6E-03	-637.0E-03	-631.4E-03	-622.4E-03	-626.8E-03	-632.6E-03	-616.8E-03	-627.1E-03	-623.8E-03	-633.3E-03	-632.4E-03
Statistics													
Min	-653.7E-03	-636.2E-03	-634.6E-03	-639.7E-03	-634.2E-03	-623.6E-03	-626.8E-03	-632.6E-03	-618.8E-03	-627.1E-03	-627.8E-03	-634.0E-03	-635.4E-03
Max	-650.7E-03	-634.3E-03	-632.2E-03	-636.8E-03	-631.4E-03	-619.5E-03	-625.4E-03	-631.0E-03	-614.0E-03	-626.2E-03	-623.8E-03	-632.4E-03	-626.7E-03
Average	-651.9E-03	-635.5E-03	-633.4E-03	-637.8E-03	-632.4E-03	-621.8E-03	-626.3E-03	-631.5E-03	-616.6E-03	-626.5E-03	-625.6E-03	-633.2E-03	-631.5E-03
Sigma	1.3E-03	865.5E-06	1.0E-03	1.3E-03	1.3E-03	1.7E-03	618.2E-06	773.1E-06	2.0E-03	419.9E-06	1.7E-03	640.3E-06	3.6E-03

Drift Calculation

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	14.7E-03	17.2E-03	11.0E-03	16.4E-03	27.1E-03	24.0E-03	19.7E-03	31.8E-03	24.4E-03	22.8E-03	16.7E-03	15.3E-03
3	-	17.1E-03	19.2E-03	14.5E-03	19.8E-03	31.8E-03	25.9E-03	20.4E-03	37.3E-03	25.2E-03	26.1E-03	19.0E-03	24.6E-03
4	-	17.5E-03	19.1E-03	16.8E-03	22.3E-03	31.3E-03	26.9E-03	21.1E-03	36.9E-03	26.6E-03	29.9E-03	20.4E-03	21.3E-03
Average	-	16.4E-03	18.5E-03	14.1E-03	19.5E-03	30.1E-03	25.6E-03	20.4E-03	35.3E-03	25.4E-03	26.3E-03	18.7E-03	20.4E-03
Sigma	-	1.2E-03	897.0E-06	2.4E-03	2.4E-03	2.1E-03	1.2E-03	571.6E-06	2.5E-03	924.0E-06	2.9E-03	1.5E-03	3.9E-03

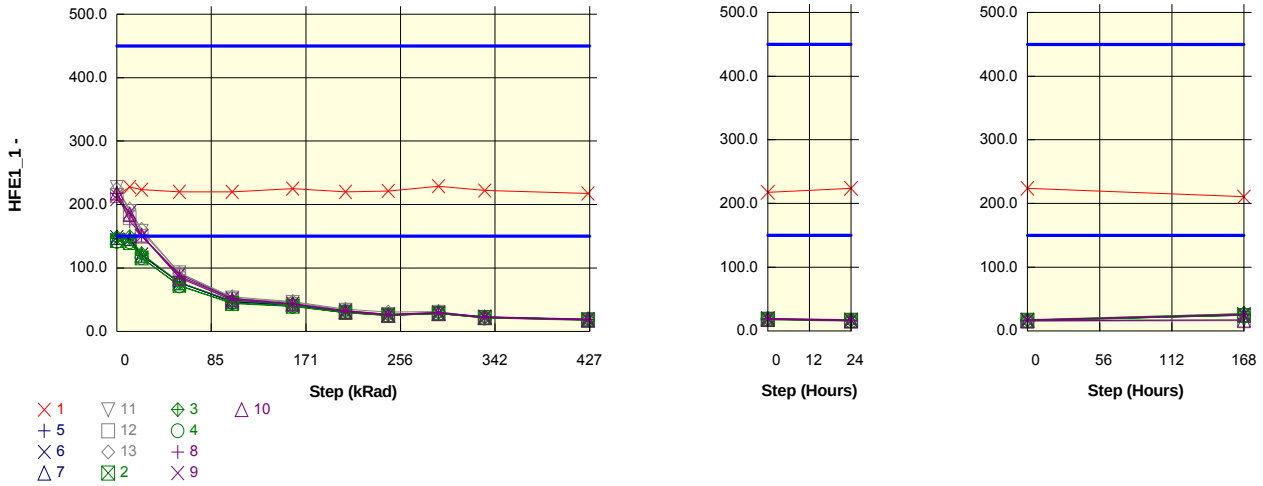
Measurements

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-658.9E-03	-636.6E-03	-642.0E-03	-648.6E-03	-647.6E-03	-641.9E-03	-648.9E-03	-646.8E-03	-634.6E-03	-645.1E-03	-648.0E-03	-643.7E-03	-653.3E-03
OFF_TID samples													
8	-653.7E-03	-647.4E-03	-635.9E-03	-636.9E-03	-635.4E-03	-622.6E-03	-627.3E-03	-634.2E-03	-618.2E-03	-624.2E-03	-626.6E-03	-633.7E-03	-633.3E-03
9	-652.6E-03	-640.0E-03	-634.1E-03	-634.3E-03	-636.2E-03	-624.1E-03	-626.1E-03	-634.6E-03	-619.2E-03	-626.3E-03	-625.4E-03	-633.0E-03	-632.8E-03
10	-651.3E-03	-638.5E-03	-636.0E-03	-636.2E-03	-636.0E-03	-623.7E-03	-627.9E-03	-634.4E-03	-619.6E-03	-627.6E-03	-627.0E-03	-634.2E-03	-642.6E-03
Statistics													
Min	-653.7E-03	-647.4E-03	-636.0E-03	-636.9E-03	-636.2E-03	-624.1E-03	-627.9E-03	-634.6E-03	-619.6E-03	-627.6E-03	-627.0E-03	-634.2E-03	-642.6E-03
Max	-651.3E-03	-638.5E-03	-634.1E-03	-634.3E-03	-635.4E-03	-622.6E-03	-626.1E-03	-634.2E-03	-618.2E-03	-624.2E-03	-625.4E-03	-633.0E-03	-632.8E-03
Average	-652.5E-03	-642.0E-03	-635.3E-03	-635.8E-03	-635.9E-03	-623.5E-03	-627.1E-03	-634.4E-03	-619.0E-03	-626.0E-03	-626.3E-03	-633.7E-03	-636.2E-03
Sigma	997.3E-06	3.9E-03	886.8E-06	1.1E-03	333.6E-06	620.5E-06	752.1E-06	196.9E-06	580.9E-06	1.4E-03	698.2E-06	491.3E-06	4.5E-03

Drift Calculation

VBE(SAT)2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	6.4E-03	17.8E-03	16.8E-03	18.3E-03	31.1E-03	26.4E-03	19.6E-03	35.5E-03	29.5E-03	27.1E-03	20.0E-03	20.4E-03
9	-	12.6E-03	18.5E-03	18.3E-03	16.4E-03	28.5E-03	26.5E-03	18.0E-03	33.4E-03	26.3E-03	27.2E-03	19.6E-03	19.8E-03
10	-	12.8E-03	15.3E-03	15.1E-03	15.2E-03	27.6E-03	23.4E-03	16.9E-03	31.6E-03	23.7E-03	24.3E-03	17.0E-03	8.6E-03
Average	-	10.6E-03	17.2E-03	16.7E-03	16.7E-03	29.1E-03	25.4E-03	18.1E-03	33.5E-03	26.5E-03	26.2E-03	18.9E-03	16.3E-03
Sigma	-	3.0E-03	1.4E-03	1.3E-03	1.3E-03	1.5E-03	1.4E-03	1.1E-03	1.6E-03	2.4E-03	1.4E-03	1.3E-03	5.4E-03

Parameter : DC current gain : HFE1_1
Test conditions : Ic = -100µA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	214.4	227.7	223.3	219.9	220.1	225.0	220.1	221.4	228.9	221.9	217.5	223.8	210.5
ON_PROTON samples													
5	146.5	145.9	119.9	77.1	46.7	42.5	30.9	25.3	28.7	22.9	18.9	16.5	25.5
6	148.2	145.1	121.3	76.8	47.4	40.2	31.8	25.7	28.3	21.6	18.2	16.8	24.9
7	148.1	146.2	120.4	76.6	47.0	43.0	30.8	25.8	29.2	21.7	18.6	16.1	25.1
Statistics													
Min	146.5	145.1	119.9	76.6	46.7	40.2	30.8	25.3	28.3	21.6	18.2	16.1	24.9
Max	148.2	146.2	121.3	77.1	47.4	43.0	31.8	25.8	29.2	22.9	18.9	16.8	25.5
Average	147.6	145.7	120.5	76.8	47.1	41.9	31.2	25.6	28.7	22.1	18.6	16.4	25.2
Sigma	0.8	0.5	0.6	0.2	0.3	1.2	0.4	0.2	0.4	0.6	0.3	0.3	0.2

Drift Calculation

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	28.1E-06	1.5E-03	6.1E-03	14.6E-03	16.7E-03	25.5E-03	32.7E-03	28.1E-03	36.8E-03	46.1E-03	53.9E-03	32.4E-03
6	-	143.9E-06	1.5E-03	6.3E-03	14.3E-03	18.1E-03	24.7E-03	32.2E-03	28.6E-03	39.6E-03	48.2E-03	52.9E-03	33.4E-03
7	-	85.7E-06	1.6E-03	6.3E-03	14.5E-03	16.5E-03	25.7E-03	32.0E-03	27.5E-03	39.3E-03	46.9E-03	55.3E-03	33.2E-03
Average	-	85.9E-06	1.5E-03	6.2E-03	14.5E-03	17.1E-03	25.3E-03	32.3E-03	28.0E-03	38.6E-03	47.1E-03	54.0E-03	33.0E-03
Sigma	-	47.3E-06	22.4E-06	68.1E-06	101.6E-06	722.2E-06	414.4E-06	292.0E-06	440.1E-06	1.3E-03	860.3E-06	1.0E-03	422.8E-06

Measurements

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	214.4	227.7	223.3	219.9	220.1	225.0	220.1	221.4	228.9	221.9	217.5	223.8	210.5
ON_TID samples													
11	227.1	189.1	157.6	92.3	52.6	45.8	33.4	26.8	30.0	21.9	18.6	16.6	17.3
12	214.0	179.3	149.9	86.1	50.0	42.9	32.2	25.9	28.2	21.2	17.4	15.2	16.0
13	224.8	193.0	160.6	91.8	54.5	47.1	34.9	30.4	31.2	21.7	19.9	17.5	26.9
Statistics													
Min	214.0	179.3	149.9	86.1	50.0	42.9	32.2	25.9	28.2	21.2	17.4	15.2	16.0
Max	227.1	193.0	160.6	92.3	54.5	47.1	34.9	30.4	31.2	21.9	19.9	17.5	26.9
Average	222.0	187.2	156.0	90.1	52.3	45.3	33.5	27.7	29.8	21.6	18.6	16.4	20.0
Sigma	5.7	5.8	4.5	2.8	1.9	1.8	1.1	1.9	1.3	0.3	1.1	1.0	4.9

Drift Calculation

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	884.1E-06	1.9E-03	6.4E-03	14.6E-03	17.4E-03	25.5E-03	32.8E-03	29.0E-03	41.3E-03	49.4E-03	55.8E-03	53.5E-03
12	-	903.7E-06	2.0E-03	6.9E-03	15.3E-03	18.6E-03	26.4E-03	33.9E-03	30.8E-03	42.4E-03	52.9E-03	61.2E-03	58.0E-03
13	-	733.1E-06	1.8E-03	6.4E-03	13.9E-03	16.8E-03	24.2E-03	28.5E-03	27.6E-03	41.7E-03	45.7E-03	52.7E-03	32.8E-03
Average	-	840.3E-06	1.9E-03	6.6E-03	14.6E-03	17.6E-03	25.4E-03	31.7E-03	29.1E-03	41.8E-03	49.4E-03	56.6E-03	48.1E-03
Sigma	-	76.2E-06	92.1E-06	237.4E-06	594.6E-06	774.8E-06	894.6E-06	2.3E-03	1.3E-03	469.9E-06	2.9E-03	3.5E-03	11.0E-03

Measurements

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	214.4	227.7	223.3	219.9	220.1	225.0	220.1	221.4	228.9	221.9	217.5	223.8	210.5
OFF_PROTON samples													
2	143.1	140.3	115.9	72.5	44.0	39.5	29.7	25.1	27.8	21.8	17.8	16.4	24.3
3	148.9	149.4	122.6	77.1	48.0	42.6	31.7	26.3	29.8	22.5	18.7	16.6	27.2
4	141.8	141.0	116.2	71.4	45.3	39.8	29.4	24.8	28.2	21.2	18.3	15.5	24.4
Statistics													
Min	141.8	140.3	115.9	71.4	44.0	39.5	29.4	24.8	27.8	21.2	17.8	15.5	24.3
Max	148.9	149.4	122.6	77.1	48.0	42.6	31.7	26.3	29.8	22.5	18.7	16.6	27.2
Average	144.6	143.6	118.2	73.7	45.8	40.6	30.3	25.4	28.6	21.8	18.3	16.2	25.3
Sigma	3.1	4.1	3.1	2.4	1.7	1.4	1.0	0.6	0.9	0.6	0.3	0.5	1.4

Drift Calculation

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	138.8E-06	1.6E-03	6.8E-03	15.8E-03	18.4E-03	26.7E-03	32.8E-03	29.0E-03	38.8E-03	49.1E-03	53.9E-03	34.2E-03
3	-	-21.9E-06	1.4E-03	6.3E-03	14.1E-03	16.8E-03	24.8E-03	31.3E-03	26.8E-03	37.6E-03	46.9E-03	53.5E-03	30.1E-03
4	-	37.5E-06	1.5E-03	6.9E-03	15.0E-03	18.1E-03	26.9E-03	33.2E-03	28.4E-03	40.2E-03	47.5E-03	57.4E-03	34.0E-03
Average	-	51.5E-06	1.5E-03	6.7E-03	15.0E-03	17.7E-03	26.1E-03	32.4E-03	28.1E-03	38.9E-03	47.8E-03	54.9E-03	32.8E-03
Sigma	-	66.3E-06	80.7E-06	293.4E-06	669.9E-06	695.7E-06	942.0E-06	812.6E-06	919.1E-06	1.0E-03	927.4E-06	1.7E-03	1.9E-03

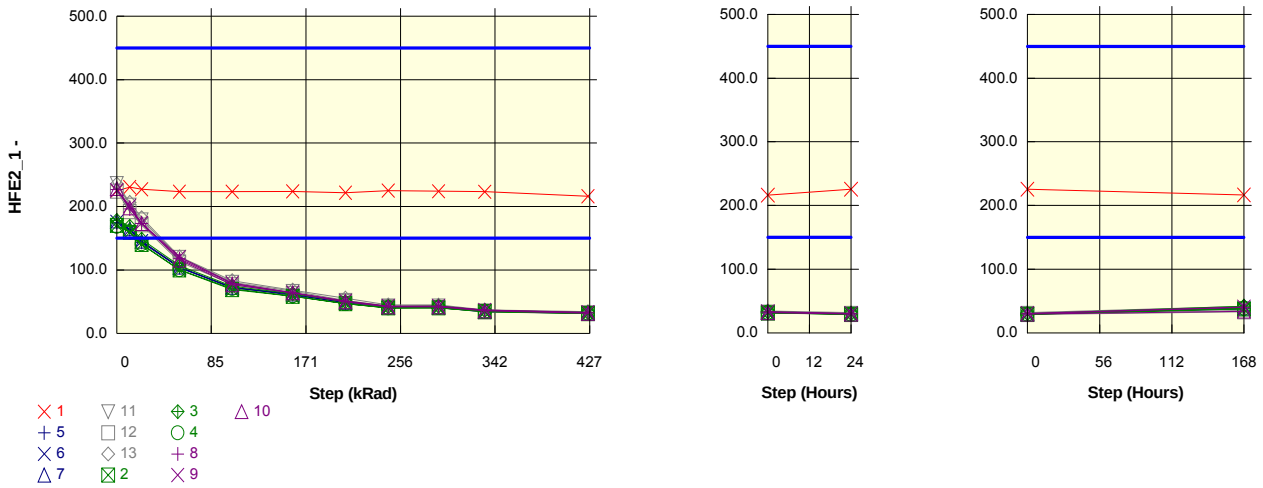
Measurements

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	214.4	227.7	223.3	219.9	220.1	225.0	220.1	221.4	228.9	221.9	217.5	223.8	210.5
OFF_TID samples													
8	217.5	173.6	152.2	86.8	51.9	43.2	32.2	26.2	29.3	22.8	18.6	16.3	25.3
9	208.6	187.6	150.2	89.7	51.7	43.4	32.5	26.8	29.7	23.2	19.3	16.6	25.9
10	218.2	184.8	151.5	84.3	49.4	43.3	31.3	25.7	28.7	22.0	18.2	15.9	16.7
Statistics													
Min	208.6	173.6	150.2	84.3	49.4	43.2	31.3	25.7	28.7	22.0	18.2	15.9	16.7
Max	218.2	187.6	152.2	89.7	51.9	43.4	32.5	26.8	29.7	23.2	19.3	16.6	25.9
Average	214.8	182.0	151.3	87.0	51.0	43.3	32.0	26.3	29.2	22.7	18.7	16.2	22.6
Sigma	4.4	6.1	0.8	2.2	1.1	0.1	0.5	0.5	0.4	0.5	0.4	0.3	4.2

Drift Calculation

HFE1_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	1.2E-03	2.0E-03	6.9E-03	14.7E-03	18.5E-03	26.4E-03	33.6E-03	29.6E-03	39.3E-03	49.0E-03	56.8E-03	35.0E-03
9	-	535.8E-06	1.9E-03	6.4E-03	14.5E-03	18.2E-03	26.0E-03	32.5E-03	28.9E-03	38.3E-03	47.1E-03	55.4E-03	33.8E-03
10	-	828.3E-06	2.0E-03	7.3E-03	15.7E-03	18.5E-03	27.4E-03	34.3E-03	30.2E-03	40.8E-03	50.4E-03	58.5E-03	55.4E-03
Average	-	842.4E-06	2.0E-03	6.8E-03	15.0E-03	18.4E-03	26.6E-03	33.4E-03	29.6E-03	39.5E-03	48.9E-03	56.9E-03	41.4E-03
Sigma	-	256.3E-06	64.6E-06	379.8E-06	494.7E-06	131.2E-06	559.2E-06	745.8E-06	544.4E-06	1.0E-03	1.4E-03	1.3E-03	9.9E-03

Parameter : DC current gain : HFE2_1
Test conditions : Ic = -500µA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	224.5	230.5	227.2	223.4	223.4	223.7	221.7	225.0	224.1	223.2	216.2	225.5	216.7
ON_PROTON samples													
5	174.4	164.1	143.7	103.9	71.4	61.8	47.6	40.9	40.5	34.9	32.5	29.7	38.2
6	176.1	163.3	145.4	103.3	72.8	60.0	49.3	40.9	40.5	33.8	31.6	29.4	37.7
7	177.2	164.6	145.2	104.5	72.5	62.1	48.8	41.2	41.7	34.8	32.1	29.4	38.8
Statistics													
Min	174.4	163.3	143.7	103.3	71.4	60.0	47.6	40.9	40.5	33.8	31.6	29.4	37.7
Max	177.2	164.6	145.4	104.5	72.8	62.1	49.3	41.2	41.7	34.9	32.5	29.7	38.8
Average	175.9	164.0	144.8	103.9	72.2	61.3	48.5	41.0	40.9	34.5	32.1	29.5	38.2
Sigma	1.2	0.6	0.8	0.5	0.6	0.9	0.7	0.2	0.6	0.5	0.4	0.2	0.4

Drift Calculation

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	360.3E-06	1.2E-03	3.9E-03	8.3E-03	10.4E-03	15.3E-03	18.7E-03	18.9E-03	22.9E-03	25.0E-03	27.9E-03	20.4E-03
6	-	446.1E-06	1.2E-03	4.0E-03	8.1E-03	11.0E-03	14.6E-03	18.8E-03	19.0E-03	23.9E-03	26.0E-03	28.4E-03	20.8E-03
7	-	432.4E-06	1.2E-03	3.9E-03	8.1E-03	10.5E-03	14.9E-03	18.6E-03	18.3E-03	23.1E-03	25.5E-03	28.4E-03	20.2E-03
Average	-	413.0E-06	1.2E-03	3.9E-03	8.2E-03	10.6E-03	14.9E-03	18.7E-03	18.8E-03	23.3E-03	25.5E-03	28.2E-03	20.5E-03
Sigma	-	37.7E-06	20.2E-06	49.1E-06	82.5E-06	251.6E-06	281.7E-06	61.8E-06	302.2E-06	419.3E-06	405.9E-06	225.1E-06	270.5E-06

Measurements

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	224.5	230.5	227.2	223.4	223.4	223.7	221.7	225.0	224.1	223.2	216.2	225.5	216.7
ON_TID samples													
11	236.3	202.1	178.7	119.9	80.3	66.3	52.1	43.0	43.1	35.7	32.6	30.3	34.9
12	224.2	192.0	171.0	112.9	76.9	63.0	50.0	41.7	41.0	33.7	31.1	28.6	32.8
13	235.5	206.4	182.5	120.9	83.1	68.2	55.3	44.9	44.6	37.0	34.2	31.5	41.3
Statistics													
Min	224.2	192.0	171.0	112.9	76.9	63.0	50.0	41.7	41.0	33.7	31.1	28.6	32.8
Max	236.3	206.4	182.5	120.9	83.1	68.2	55.3	44.9	44.6	37.0	34.2	31.5	41.3
Average	232.0	200.1	177.4	117.9	80.1	65.8	52.5	43.2	42.9	35.5	32.6	30.1	36.4
Sigma	5.6	6.0	4.8	3.6	2.5	2.1	2.2	1.3	1.5	1.3	1.3	1.2	3.6

Drift Calculation

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	717.3E-06	1.4E-03	4.1E-03	8.2E-03	10.9E-03	15.0E-03	19.0E-03	19.0E-03	23.8E-03	26.5E-03	28.8E-03	24.4E-03
12	-	747.9E-06	1.4E-03	4.4E-03	8.5E-03	11.4E-03	15.5E-03	19.5E-03	19.9E-03	25.2E-03	27.7E-03	30.5E-03	26.0E-03
13	-	599.6E-06	1.2E-03	4.0E-03	7.8E-03	10.4E-03	13.8E-03	18.0E-03	18.2E-03	22.8E-03	25.0E-03	27.5E-03	20.0E-03
Average	-	688.3E-06	1.3E-03	4.2E-03	8.2E-03	10.9E-03	14.8E-03	18.8E-03	19.0E-03	23.9E-03	26.4E-03	28.9E-03	23.5E-03
Sigma	-	63.9E-06	67.1E-06	159.9E-06	306.0E-06	405.2E-06	704.2E-06	608.6E-06	722.3E-06	990.0E-06	1.1E-03	1.2E-03	2.5E-03

Measurements

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	224.5	230.5	227.2	223.4	223.4	223.7	221.7	225.0	224.1	223.2	216.2	225.5	216.7
OFF_PROTON samples													
2	170.4	159.1	140.1	100.0	69.0	58.4	46.8	40.2	40.2	34.7	31.3	29.1	37.4
3	178.1	168.7	148.4	106.6	74.4	62.7	49.7	42.2	42.9	36.1	32.8	30.2	41.9
4	168.7	160.1	140.8	100.2	70.4	59.0	46.9	40.0	40.7	34.2	31.6	28.8	38.5
Statistics													
Min	168.7	159.1	140.1	100.0	69.0	58.4	46.8	40.0	40.2	34.2	31.3	28.8	37.4
Max	178.1	168.7	148.4	106.6	74.4	62.7	49.7	42.2	42.9	36.1	32.8	30.2	41.9
Average	172.4	162.6	143.1	102.3	71.3	60.0	47.8	40.8	41.3	35.0	31.9	29.4	39.3
Sigma	4.1	4.3	3.8	3.1	2.3	1.9	1.3	1.0	1.2	0.8	0.6	0.6	1.9

Drift Calculation

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	413.8E-06	1.3E-03	4.1E-03	8.6E-03	11.3E-03	15.5E-03	19.0E-03	19.0E-03	22.9E-03	26.1E-03	28.5E-03	20.9E-03
3	-	310.8E-06	1.1E-03	3.8E-03	7.8E-03	10.3E-03	14.5E-03	18.1E-03	17.7E-03	22.1E-03	24.9E-03	27.5E-03	18.3E-03
4	-	320.7E-06	1.2E-03	4.1E-03	8.3E-03	11.0E-03	15.4E-03	19.0E-03	18.6E-03	23.3E-03	25.7E-03	28.8E-03	20.1E-03
Average	-	348.4E-06	1.2E-03	4.0E-03	8.2E-03	10.9E-03	15.1E-03	18.7E-03	18.4E-03	22.8E-03	25.6E-03	28.3E-03	19.7E-03
Sigma	-	46.4E-06	59.6E-06	157.5E-06	328.4E-06	388.4E-06	433.9E-06	437.7E-06	556.7E-06	529.9E-06	494.2E-06	533.5E-06	1.1E-03

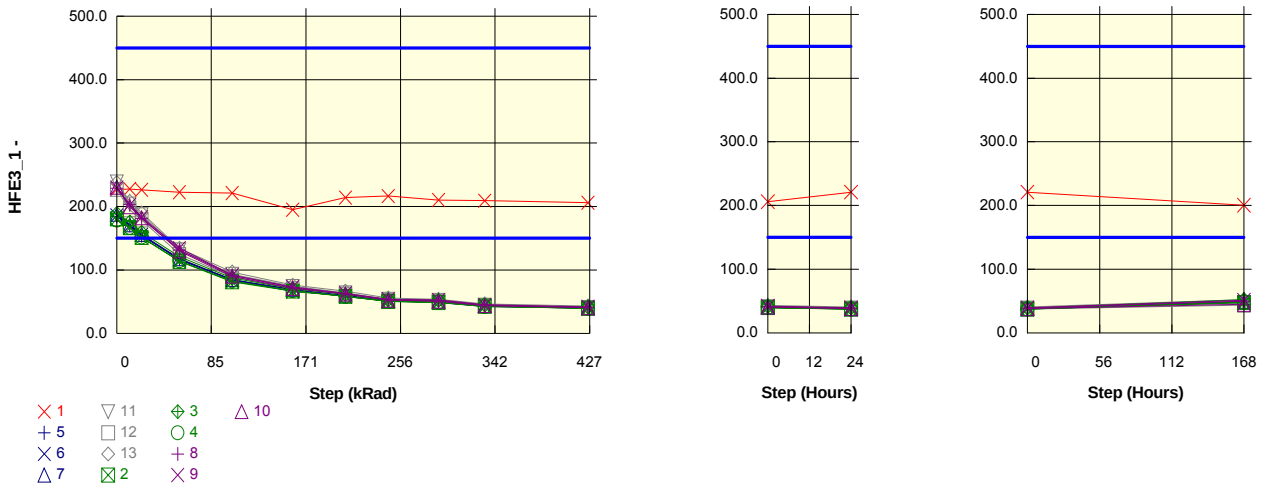
Measurements

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	224.5	230.5	227.2	223.4	223.4	223.7	221.7	225.0	224.1	223.2	216.2	225.5	216.7
OFF_TID samples													
8	226.8	196.3	173.5	117.8	78.8	63.8	50.5	42.1	42.4	36.5	32.4	29.9	40.0
9	225.4	201.1	173.9	120.5	79.2	64.2	51.2	43.0	43.1	36.8	33.3	30.5	40.7
10	228.3	197.9	173.3	115.7	76.7	63.9	49.9	41.6	41.9	35.5	31.7	29.3	33.9
Statistics													
Min	225.4	196.3	173.3	115.7	76.7	63.8	49.9	41.6	41.9	35.5	31.7	29.3	33.9
Max	228.3	201.1	173.9	120.5	79.2	64.2	51.2	43.0	43.1	36.8	33.3	30.5	40.7
Average	226.8	198.4	173.6	118.0	78.2	64.0	50.5	42.3	42.5	36.3	32.5	29.9	38.2
Sigma	1.2	2.0	0.3	2.0	1.1	0.2	0.5	0.6	0.5	0.6	0.6	0.5	3.0

Drift Calculation

HFE2_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	684.8E-06	1.4E-03	4.1E-03	8.3E-03	11.3E-03	15.4E-03	19.3E-03	19.2E-03	23.0E-03	26.4E-03	29.0E-03	20.6E-03
9	-	537.8E-06	1.3E-03	3.9E-03	8.2E-03	11.1E-03	15.1E-03	18.8E-03	18.8E-03	22.7E-03	25.6E-03	28.3E-03	20.1E-03
10	-	673.6E-06	1.4E-03	4.3E-03	8.7E-03	11.3E-03	15.7E-03	19.6E-03	19.5E-03	23.8E-03	27.2E-03	29.7E-03	25.1E-03
Average	-	632.1E-06	1.4E-03	4.1E-03	8.4E-03	11.2E-03	15.4E-03	19.3E-03	19.1E-03	23.1E-03	26.4E-03	29.0E-03	21.9E-03
Sigma	-	66.8E-06	30.9E-06	165.1E-06	200.9E-06	67.8E-06	227.3E-06	340.2E-06	298.4E-06	452.0E-06	634.6E-06	570.9E-06	2.2E-03

Parameter : DC current gain : HFE3_1
Test conditions : Ic = -1mA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.9	227.7	226.3	222.5	221.3	195.0	214.1	216.4	210.1	209.2	205.9	221.0	200.4
ON_PROTON samples													
5	184.3	170.4	153.9	116.8	83.4	69.1	58.1	51.0	48.8	42.4	40.8	38.2	48.0
6	186.1	170.0	155.8	115.8	84.9	66.1	59.5	51.1	49.4	42.5	39.8	37.5	47.7
7	187.5	171.1	155.9	117.8	84.8	69.4	60.1	51.5	50.2	43.7	40.4	37.9	49.1
Statistics													
Min	184.3	170.0	153.9	115.8	83.4	66.1	58.1	51.0	48.8	42.4	39.8	37.5	47.7
Max	187.5	171.1	155.9	117.8	84.9	69.4	60.1	51.5	50.2	43.7	40.8	38.2	49.1
Average	186.0	170.5	155.2	116.8	84.4	68.2	59.3	51.2	49.5	42.9	40.3	37.9	48.3
Sigma	1.3	0.4	0.9	0.8	0.7	1.5	0.8	0.2	0.6	0.6	0.4	0.3	0.6

Drift Calculation

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	444.7E-06	1.1E-03	3.1E-03	6.6E-03	9.0E-03	11.8E-03	14.2E-03	15.1E-03	18.1E-03	19.1E-03	20.7E-03	15.4E-03
6	-	508.4E-06	1.0E-03	3.3E-03	6.4E-03	9.8E-03	11.4E-03	14.2E-03	14.9E-03	18.2E-03	19.8E-03	21.3E-03	15.6E-03
7	-	512.5E-06	1.1E-03	3.2E-03	6.5E-03	9.1E-03	11.3E-03	14.1E-03	14.6E-03	17.6E-03	19.4E-03	21.0E-03	15.1E-03
Average	-	488.6E-06	1.1E-03	3.2E-03	6.5E-03	9.3E-03	11.5E-03	14.2E-03	14.8E-03	17.9E-03	19.4E-03	21.0E-03	15.3E-03
Sigma	-	31.1E-06	14.6E-06	52.5E-06	64.9E-06	331.8E-06	194.6E-06	43.7E-06	203.7E-06	281.3E-06	281.4E-06	220.5E-06	218.0E-06

Measurements

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.9	227.7	226.3	222.5	221.3	195.0	214.1	216.4	210.1	209.2	205.9	221.0	200.4
ON_TID samples													
11	238.6	204.1	187.1	131.8	93.3	74.4	64.1	53.8	52.1	44.4	41.2	39.1	46.1
12	226.9	194.8	178.8	124.4	89.5	70.4	61.7	52.3	49.8	42.6	39.5	37.3	43.4
13	238.0	208.1	190.2	133.8	96.6	76.0	66.3	55.9	53.7	46.6	43.0	40.6	51.8
Statistics													
Min	226.9	194.8	178.8	124.4	89.5	70.4	61.7	52.3	49.8	42.6	39.5	37.3	43.4
Max	238.6	208.1	190.2	133.8	96.6	76.0	66.3	55.9	53.7	46.6	43.0	40.6	51.8
Average	234.5	202.4	185.4	130.0	93.1	73.6	64.0	54.0	51.9	44.6	41.2	39.0	47.1
Sigma	5.4	5.6	4.8	4.1	2.9	2.4	1.9	1.5	1.6	1.6	1.4	1.3	3.5

Drift Calculation

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	707.0E-06	1.2E-03	3.4E-03	6.5E-03	9.3E-03	11.4E-03	14.4E-03	15.0E-03	18.3E-03	20.1E-03	21.4E-03	17.5E-03
12	-	725.4E-06	1.2E-03	3.6E-03	6.8E-03	9.8E-03	11.8E-03	14.7E-03	15.7E-03	19.1E-03	20.9E-03	22.4E-03	18.6E-03
13	-	603.0E-06	1.1E-03	3.3E-03	6.2E-03	9.0E-03	10.9E-03	13.7E-03	14.4E-03	17.2E-03	19.0E-03	20.5E-03	15.1E-03
Average	-	678.5E-06	1.1E-03	3.4E-03	6.5E-03	9.3E-03	11.4E-03	14.3E-03	15.0E-03	18.2E-03	20.0E-03	21.4E-03	17.1E-03
Sigma	-	53.9E-06	54.1E-06	150.8E-06	251.2E-06	349.9E-06	383.3E-06	438.7E-06	514.7E-06	747.7E-06	767.1E-06	795.7E-06	1.5E-03

Measurements

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.9	227.7	226.3	222.5	221.3	195.0	214.1	216.4	210.1	209.2	205.9	221.0	200.4
OFF_PROTON samples													
2	180.6	166.5	151.1	113.5	81.3	66.6	58.4	50.3	48.7	43.0	39.5	37.4	47.5
3	189.0	175.7	159.5	120.7	87.1	70.9	61.6	52.8	52.0	44.5	41.3	38.9	51.9
4	178.5	166.9	151.6	114.4	82.6	67.3	58.4	50.3	49.1	42.1	39.8	37.3	48.2
Statistics													
Min	178.5	166.5	151.1	113.5	81.3	66.6	58.4	50.3	48.7	42.1	39.5	37.3	47.5
Max	189.0	175.7	159.5	120.7	87.1	70.9	61.6	52.8	52.0	44.5	41.3	38.9	51.9
Average	182.7	169.7	154.1	116.2	83.6	68.2	59.5	51.1	49.9	43.2	40.2	37.9	49.2
Sigma	4.5	4.3	3.9	3.2	2.5	1.9	1.5	1.2	1.5	1.0	0.8	0.7	1.9

Drift Calculation

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	469.5E-06	1.1E-03	3.3E-03	6.8E-03	9.5E-03	11.6E-03	14.3E-03	15.0E-03	17.7E-03	19.8E-03	21.2E-03	15.5E-03
3	-	397.7E-06	976.1E-06	3.0E-03	6.2E-03	8.8E-03	10.9E-03	13.6E-03	13.9E-03	17.2E-03	18.9E-03	20.4E-03	14.0E-03
4	-	386.3E-06	993.1E-06	3.1E-03	6.5E-03	9.3E-03	11.5E-03	14.3E-03	14.8E-03	18.1E-03	19.5E-03	21.2E-03	15.1E-03
Average	-	417.8E-06	1.0E-03	3.1E-03	6.5E-03	9.2E-03	11.3E-03	14.1E-03	14.6E-03	17.7E-03	19.4E-03	20.9E-03	14.9E-03
Sigma	-	36.8E-06	44.9E-06	113.8E-06	233.9E-06	274.9E-06	289.4E-06	315.4E-06	456.6E-06	391.7E-06	360.3E-06	382.0E-06	655.5E-06

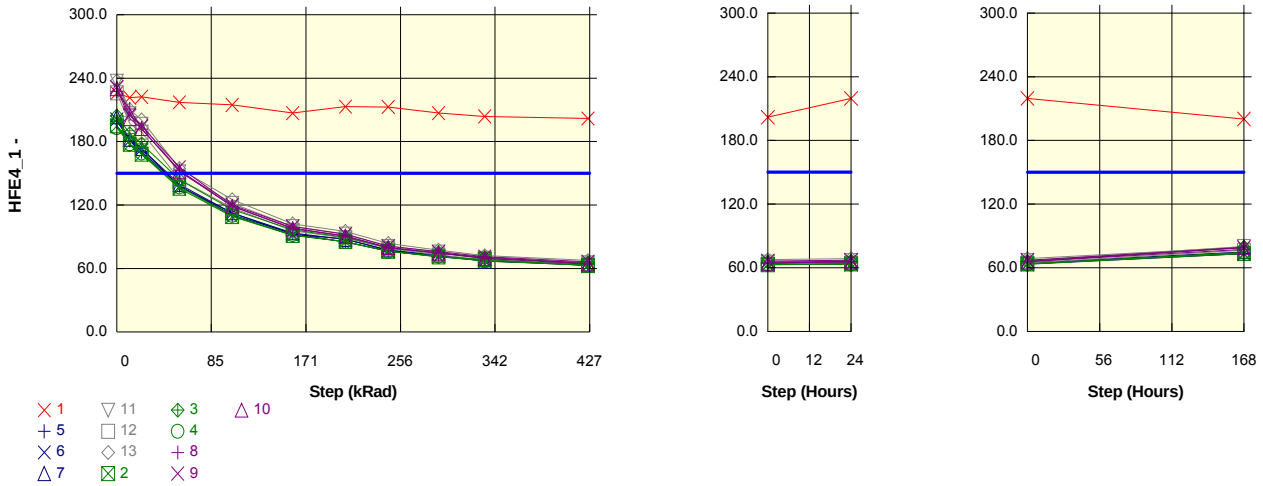
Measurements

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.9	227.7	226.3	222.5	221.3	195.0	214.1	216.4	210.1	209.2	205.9	221.0	200.4
OFF_TID samples													
8	228.7	203.1	181.5	131.5	91.3	72.5	62.0	52.7	51.3	44.8	40.9	38.7	50.0
9	229.7	202.8	183.0	134.4	92.0	73.3	63.2	53.7	52.7	45.1	42.0	39.5	51.1
10	230.6	199.7	182.0	129.8	89.9	71.1	62.0	52.3	50.9	43.7	40.4	38.1	44.9
Statistics													
Min	228.7	199.7	181.5	129.8	89.9	71.1	62.0	52.3	50.9	43.7	40.4	38.1	44.9
Max	230.6	203.1	183.0	134.4	92.0	73.3	63.2	53.7	52.7	45.1	42.0	39.5	51.1
Average	229.7	201.9	182.2	131.9	91.1	72.3	62.4	52.9	51.6	44.5	41.1	38.7	48.7
Sigma	0.8	1.5	0.6	1.9	0.9	0.9	0.6	0.6	0.8	0.6	0.7	0.6	2.7

Drift Calculation

HFE3_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	551.2E-06	1.1E-03	3.2E-03	6.6E-03	9.4E-03	11.8E-03	14.6E-03	15.1E-03	17.9E-03	20.1E-03	21.5E-03	15.6E-03
9	-	576.3E-06	1.1E-03	3.1E-03	6.5E-03	9.3E-03	11.5E-03	14.3E-03	14.6E-03	17.8E-03	19.5E-03	21.0E-03	15.2E-03
10	-	671.7E-06	1.2E-03	3.4E-03	6.8E-03	9.7E-03	11.8E-03	14.8E-03	15.3E-03	18.5E-03	20.4E-03	21.9E-03	17.9E-03
Average	-	599.7E-06	1.1E-03	3.2E-03	6.6E-03	9.5E-03	11.7E-03	14.5E-03	15.0E-03	18.1E-03	20.0E-03	21.5E-03	16.3E-03
Sigma	-	51.9E-06	19.7E-06	115.7E-06	115.1E-06	179.5E-06	144.2E-06	214.8E-06	297.7E-06	319.0E-06	389.2E-06	382.1E-06	1.2E-03

Parameter : DC current gain : HFE4_1
Test conditions : Ic = -5mA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.0	221.6	222.3	217.1	214.8	207.0	213.1	212.8	207.0	203.8	201.9	219.7	200.1
ON_PROTON samples													
5	199.3	181.0	170.5	138.2	110.6	93.2	85.0	76.6	71.2	67.2	64.2	64.7	73.4
6	201.0	181.1	172.9	137.6	112.5	92.2	87.9	77.1	71.6	67.4	63.0	63.4	73.2
7	203.5	182.0	173.5	139.4	112.5	93.6	87.4	77.6	72.7	66.9	63.9	64.5	75.0
Statistics													
Min	199.3	181.0	170.5	137.6	110.6	92.2	85.0	76.6	71.2	66.9	63.0	63.4	73.2
Max	203.5	182.0	173.5	139.4	112.5	93.6	87.9	77.6	72.7	67.4	64.2	64.7	75.0
Average	201.3	181.4	172.3	138.4	111.9	93.0	86.8	77.1	71.8	67.2	63.7	64.2	73.9
Sigma	1.7	0.5	1.3	0.7	0.9	0.6	1.3	0.4	0.6	0.2	0.5	0.6	0.8

Drift Calculation

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	507.0E-06	849.2E-06	2.2E-03	4.0E-03	5.7E-03	6.8E-03	8.0E-03	9.0E-03	9.9E-03	10.6E-03	10.4E-03	8.6E-03
6	-	548.4E-06	809.6E-06	2.3E-03	3.9E-03	5.9E-03	6.4E-03	8.0E-03	9.0E-03	9.9E-03	10.9E-03	10.8E-03	8.7E-03
7	-	580.2E-06	850.0E-06	2.3E-03	4.0E-03	5.8E-03	6.5E-03	8.0E-03	8.9E-03	10.0E-03	10.7E-03	10.6E-03	8.4E-03
Average	-	545.2E-06	836.3E-06	2.3E-03	4.0E-03	5.8E-03	6.6E-03	8.0E-03	9.0E-03	9.9E-03	10.7E-03	10.6E-03	8.6E-03
Sigma	-	30.0E-06	18.8E-06	29.6E-06	43.8E-06	65.6E-06	144.8E-06	23.7E-06	77.1E-06	84.2E-06	129.4E-06	143.8E-06	106.6E-06

Measurements

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.0	221.6	222.3	217.1	214.8	207.0	213.1	212.8	207.0	203.8	201.9	219.7	200.1
ON_TID samples													
11	237.1	206.3	196.4	151.3	121.6	99.7	92.5	81.0	75.5	69.6	65.5	66.6	80.2
12	226.2	197.0	189.1	144.2	117.3	95.5	89.0	79.1	72.8	68.1	63.4	64.3	76.5
13	237.3	210.3	200.5	154.4	125.0	102.3	95.0	83.7	77.3	72.1	67.5	68.7	79.4
Statistics													
Min	226.2	197.0	189.1	144.2	117.3	95.5	89.0	79.1	72.8	68.1	63.4	64.3	76.5
Max	237.3	210.3	200.5	154.4	125.0	102.3	95.0	83.7	77.3	72.1	67.5	68.7	80.2
Average	233.5	204.5	195.3	149.9	121.3	99.2	92.2	81.3	75.2	69.9	65.5	66.5	78.7
Sigma	5.2	5.5	4.7	4.2	3.2	2.8	2.5	1.9	1.8	1.6	1.7	1.8	1.6

Drift Calculation

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	630.5E-06	874.1E-06	2.4E-03	4.0E-03	5.8E-03	6.6E-03	8.1E-03	9.0E-03	10.1E-03	11.1E-03	10.8E-03	8.3E-03
12	-	654.1E-06	867.9E-06	2.5E-03	4.1E-03	6.0E-03	6.8E-03	8.2E-03	9.3E-03	10.3E-03	11.3E-03	11.1E-03	8.7E-03
13	-	542.5E-06	773.6E-06	2.3E-03	3.8E-03	5.6E-03	6.3E-03	7.7E-03	8.7E-03	9.7E-03	10.6E-03	10.4E-03	8.4E-03
Average	-	609.0E-06	838.6E-06	2.4E-03	4.0E-03	5.8E-03	6.6E-03	8.0E-03	9.0E-03	10.0E-03	11.0E-03	10.8E-03	8.4E-03
Sigma	-	48.0E-06	46.0E-06	101.1E-06	133.8E-06	198.6E-06	206.0E-06	209.3E-06	235.7E-06	256.3E-06	307.7E-06	321.9E-06	167.5E-06

Measurements

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.0	221.6	222.3	217.1	214.8	207.0	213.1	212.8	207.0	203.8	201.9	219.7	200.1
OFF_PROTON samples													
2	194.9	177.6	168.1	135.6	109.1	91.3	85.4	76.3	70.9	68.6	62.8	63.5	73.3
3	204.2	187.5	177.9	144.0	115.7	96.6	89.6	79.7	74.8	69.8	65.4	66.1	79.0
4	193.0	177.6	169.0	137.0	110.0	91.9	85.4	76.1	71.5	67.1	63.0	63.6	74.6
Statistics													
Min	193.0	177.6	168.1	135.6	109.1	91.3	85.4	76.1	70.9	67.1	62.8	63.5	73.3
Max	204.2	187.5	177.9	144.0	115.7	96.6	89.6	79.7	74.8	69.8	65.4	66.1	79.0
Average	197.4	180.9	171.7	138.9	111.6	93.3	86.8	77.4	72.4	68.5	63.7	64.4	75.6
Sigma	4.9	4.6	4.4	3.7	2.9	2.4	2.0	1.6	1.7	1.1	1.2	1.2	2.5

Drift Calculation

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	498.9E-06	817.2E-06	2.2E-03	4.0E-03	5.8E-03	6.6E-03	8.0E-03	9.0E-03	9.4E-03	10.8E-03	10.6E-03	8.5E-03
3	-	438.4E-06	724.8E-06	2.0E-03	3.7E-03	5.5E-03	6.3E-03	7.7E-03	8.5E-03	9.4E-03	10.4E-03	10.2E-03	7.8E-03
4	-	448.4E-06	734.7E-06	2.1E-03	3.9E-03	5.7E-03	6.5E-03	8.0E-03	8.8E-03	9.7E-03	10.7E-03	10.5E-03	8.2E-03
Average	-	461.9E-06	758.9E-06	2.1E-03	3.9E-03	5.7E-03	6.5E-03	7.9E-03	8.7E-03	9.5E-03	10.6E-03	10.5E-03	8.2E-03
Sigma	-	26.5E-06	41.4E-06	80.1E-06	116.4E-06	154.0E-06	137.8E-06	145.8E-06	211.6E-06	138.6E-06	171.8E-06	168.8E-06	310.5E-06

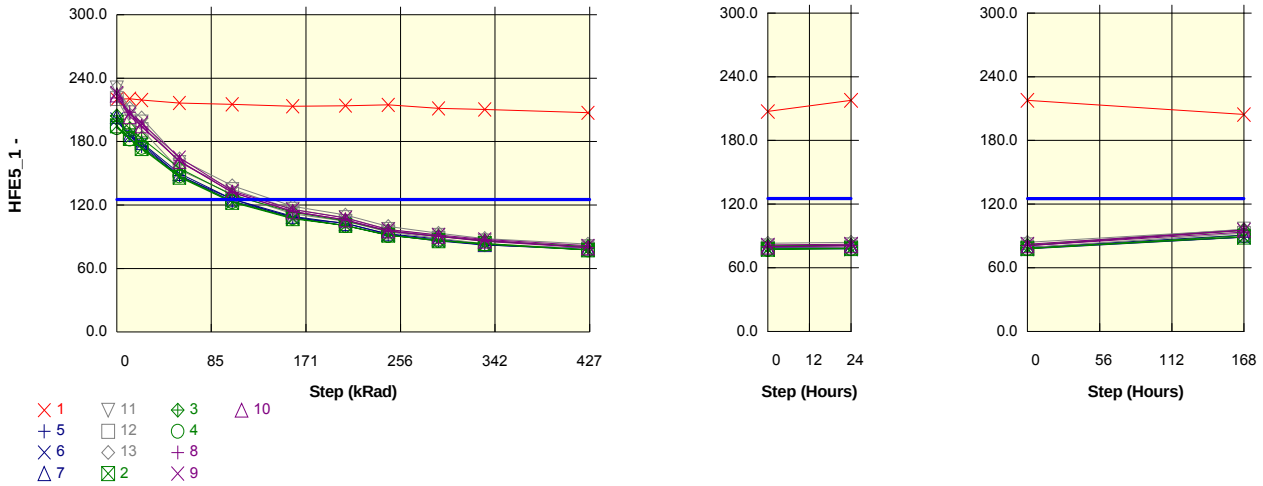
Measurements

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.0	221.6	222.3	217.1	214.8	207.0	213.1	212.8	207.0	203.8	201.9	219.7	200.1
OFF_TID samples													
8	227.6	210.9	191.7	152.7	118.9	98.1	90.7	79.7	74.5	70.8	64.6	65.9	77.4
9	231.6	205.2	194.7	155.7	120.0	99.7	92.3	81.0	75.9	71.2	66.3	67.2	78.9
10	230.0	201.7	192.2	151.7	118.7	97.5	90.4	79.7	74.4	69.5	64.2	65.6	79.2
Statistics													
Min	227.6	201.7	191.7	151.7	118.7	97.5	90.4	79.7	74.4	69.5	64.2	65.6	77.4
Max	231.6	210.9	194.7	155.7	120.0	99.7	92.3	81.0	75.9	71.2	66.3	67.2	79.2
Average	229.7	206.0	192.9	153.4	119.2	98.4	91.1	80.1	74.9	70.5	65.1	66.2	78.5
Sigma	1.6	3.8	1.3	1.7	0.6	0.9	0.8	0.6	0.7	0.7	0.9	0.7	0.8

Drift Calculation

HFE4_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	346.4E-06	821.8E-06	2.2E-03	4.0E-03	5.8E-03	6.6E-03	8.2E-03	9.0E-03	9.7E-03	11.1E-03	10.8E-03	8.5E-03
9	-	554.0E-06	816.7E-06	2.1E-03	4.0E-03	5.7E-03	6.5E-03	8.0E-03	8.9E-03	9.7E-03	10.8E-03	10.6E-03	8.4E-03
10	-	608.2E-06	853.3E-06	2.2E-03	4.1E-03	5.9E-03	6.7E-03	8.2E-03	9.1E-03	10.0E-03	11.2E-03	10.9E-03	8.3E-03
Average	-	502.9E-06	830.6E-06	2.2E-03	4.0E-03	5.8E-03	6.6E-03	8.1E-03	9.0E-03	9.8E-03	11.0E-03	10.7E-03	8.4E-03
Sigma	-	112.8E-06	16.2E-06	57.1E-06	30.0E-06	77.8E-06	79.5E-06	73.6E-06	98.2E-06	147.1E-06	190.7E-06	136.2E-06	108.1E-06

Parameter : DC current gain : HFE5_1
Test conditions : Ic = -10mA ; Vce = -5V
Unit :
Spec Limit Min : 125.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	220.1	220.5	219.2	216.5	215.2	213.5	214.1	214.7	211.4	210.3	207.2	217.7	204.4
ON_PROTON samples													
5	199.2	185.8	175.8	148.1	123.6	108.8	100.3	91.9	86.0	82.1	78.7	79.0	88.8
6	201.1	185.6	178.2	147.6	125.7	107.9	102.9	92.3	86.7	82.4	77.8	77.7	88.8
7	203.8	186.8	179.1	149.7	125.6	109.2	102.5	92.8	87.9	82.6	78.6	79.0	90.7
Statistics													
Min	199.2	185.6	175.8	147.6	123.6	107.9	100.3	91.9	86.0	82.1	77.8	77.7	88.8
Max	203.8	186.8	179.1	149.7	125.7	109.2	102.9	92.8	87.9	82.6	78.7	79.0	90.7
Average	201.4	186.1	177.7	148.5	125.0	108.6	101.9	92.3	86.9	82.4	78.4	78.6	89.5
Sigma	1.9	0.5	1.4	0.9	1.0	0.6	1.1	0.4	0.8	0.2	0.4	0.6	0.9

Drift Calculation

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	361.9E-06	669.8E-06	1.7E-03	3.1E-03	4.2E-03	4.9E-03	5.9E-03	6.6E-03	7.2E-03	7.7E-03	7.6E-03	6.2E-03
6	-	414.4E-06	640.0E-06	1.8E-03	3.0E-03	4.3E-03	4.7E-03	5.9E-03	6.6E-03	7.2E-03	7.9E-03	7.9E-03	6.3E-03
7	-	448.3E-06	678.3E-06	1.8E-03	3.1E-03	4.2E-03	4.8E-03	5.9E-03	6.5E-03	7.2E-03	7.8E-03	7.8E-03	6.1E-03
Average	-	408.2E-06	662.7E-06	1.8E-03	3.0E-03	4.2E-03	4.8E-03	5.9E-03	6.5E-03	7.2E-03	7.8E-03	7.8E-03	6.2E-03
Sigma	-	35.6E-06	16.4E-06	28.6E-06	38.0E-06	49.3E-06	82.2E-06	5.2E-06	57.6E-06	21.0E-06	82.6E-06	103.5E-06	69.8E-06

Measurements

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	220.1	220.5	219.2	216.5	215.2	213.5	214.1	214.7	211.4	210.3	207.2	217.7	204.4
ON_TID samples													
11	230.7	207.4	198.4	160.3	134.7	116.0	108.0	96.8	91.3	86.1	80.7	81.6	96.4
12	220.6	198.4	191.2	153.4	130.3	111.5	104.6	94.6	88.5	83.4	78.4	79.0	92.4
13	230.9	211.4	202.2	163.5	138.2	118.8	110.5	99.8	93.2	88.2	83.0	83.9	95.9
Statistics													
Min	220.6	198.4	191.2	153.4	130.3	111.5	104.6	94.6	88.5	83.4	78.4	79.0	92.4
Max	230.9	211.4	202.2	163.5	138.2	118.8	110.5	99.8	93.2	88.2	83.0	83.9	96.4
Average	227.4	205.7	197.3	159.1	134.4	115.4	107.7	97.1	91.0	85.9	80.7	81.5	94.9
Sigma	4.8	5.4	4.6	4.2	3.3	3.0	2.4	2.1	1.9	2.0	1.9	2.0	1.8

Drift Calculation

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	487.1E-06	704.5E-06	1.9E-03	3.1E-03	4.3E-03	4.9E-03	6.0E-03	6.6E-03	7.3E-03	8.1E-03	7.9E-03	6.0E-03
12	-	508.6E-06	696.8E-06	2.0E-03	3.1E-03	4.4E-03	5.0E-03	6.0E-03	6.8E-03	7.5E-03	8.2E-03	8.1E-03	6.3E-03
13	-	399.5E-06	613.8E-06	1.8E-03	2.9E-03	4.1E-03	4.7E-03	5.7E-03	6.4E-03	7.0E-03	7.7E-03	7.6E-03	6.1E-03
Average	-	465.1E-06	671.7E-06	1.9E-03	3.0E-03	4.3E-03	4.9E-03	5.9E-03	6.6E-03	7.3E-03	8.0E-03	7.9E-03	6.1E-03
Sigma	-	47.2E-06	41.1E-06	83.2E-06	102.9E-06	141.7E-06	127.3E-06	153.2E-06	152.3E-06	187.1E-06	211.8E-06	217.4E-06	105.4E-06

Measurements

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	220.1	220.5	219.2	216.5	215.2	213.5	214.1	214.7	211.4	210.3	207.2	217.7	204.4
OFF_PROTON samples													
2	194.9	182.7	173.5	146.1	122.6	107.0	100.6	91.4	86.2	83.6	77.4	77.9	89.0
3	204.2	192.1	183.2	154.6	129.4	113.1	105.0	95.4	90.6	85.9	80.5	81.1	95.2
4	193.1	182.3	174.5	147.4	123.2	107.8	100.5	91.3	86.6	82.8	77.6	78.0	90.3
Statistics													
Min	193.1	182.3	173.5	146.1	122.6	107.0	100.5	91.3	86.2	82.8	77.4	77.9	89.0
Max	204.2	192.1	183.2	154.6	129.4	113.1	105.0	95.4	90.6	85.9	80.5	81.1	95.2
Average	197.4	185.7	177.1	149.4	125.1	109.3	102.0	92.7	87.8	84.1	78.5	79.0	91.5
Sigma	4.9	4.5	4.4	3.7	3.1	2.7	2.1	1.9	2.0	1.3	1.4	1.5	2.7

Drift Calculation

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	341.9E-06	632.3E-06	1.7E-03	3.0E-03	4.2E-03	4.8E-03	5.8E-03	6.5E-03	6.8E-03	7.8E-03	7.7E-03	6.1E-03
3	-	308.0E-06	560.8E-06	1.6E-03	2.8E-03	3.9E-03	4.6E-03	5.6E-03	6.1E-03	6.7E-03	7.5E-03	7.4E-03	5.6E-03
4	-	305.7E-06	551.4E-06	1.6E-03	2.9E-03	4.1E-03	4.8E-03	5.8E-03	6.4E-03	6.9E-03	7.7E-03	7.7E-03	5.9E-03
Average	-	318.6E-06	581.5E-06	1.6E-03	2.9E-03	4.1E-03	4.7E-03	5.7E-03	6.3E-03	6.8E-03	7.7E-03	7.6E-03	5.9E-03
Sigma	-	16.5E-06	36.1E-06	59.4E-06	80.7E-06	110.6E-06	78.4E-06	99.5E-06	139.2E-06	62.7E-06	113.7E-06	116.2E-06	202.8E-06

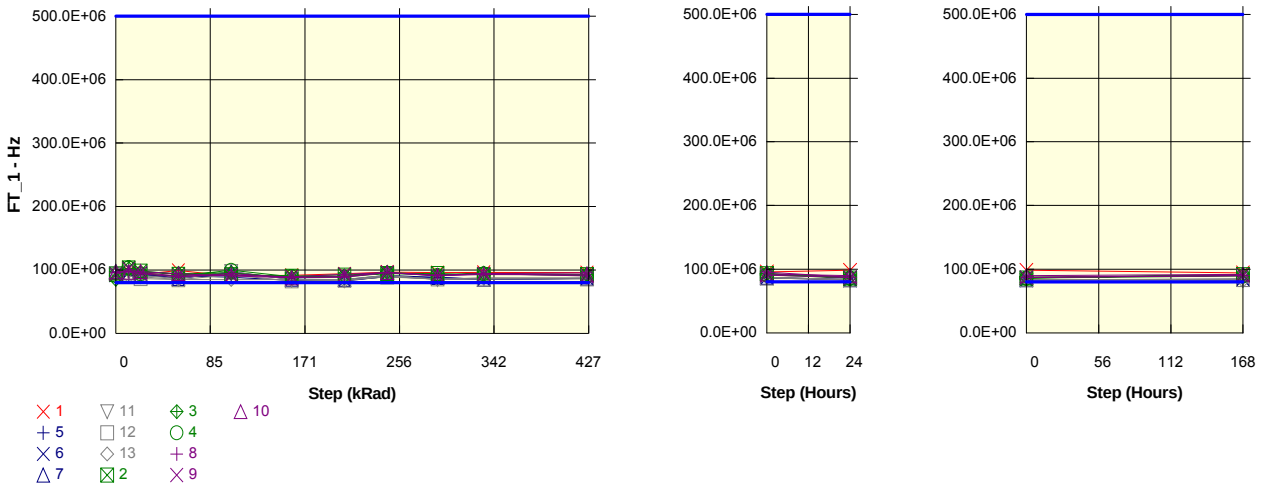
Measurements

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	220.1	220.5	219.2	216.5	215.2	213.5	214.1	214.7	211.4	210.3	207.2	217.7	204.4
OFF_TID samples													
8	221.4	207.9	193.9	161.8	132.0	114.3	105.7	95.4	90.2	86.8	79.7	80.8	93.7
9	225.9	206.4	197.4	164.8	133.3	115.7	107.8	97.0	91.8	87.5	81.5	82.2	95.4
10	224.0	203.5	194.8	161.2	132.1	113.7	106.1	95.6	90.3	85.8	79.6	80.7	95.6
Statistics													
Min	221.4	203.5	193.9	161.2	132.0	113.7	105.7	95.4	90.2	85.8	79.6	80.7	93.7
Max	225.9	207.9	197.4	164.8	133.3	115.7	107.8	97.0	91.8	87.5	81.5	82.2	95.6
Average	223.8	205.9	195.4	162.6	132.5	114.6	106.5	96.0	90.8	86.7	80.3	81.2	94.9
Sigma	1.8	1.8	1.5	1.6	0.6	0.8	0.9	0.7	0.7	0.7	0.9	0.7	0.9

Drift Calculation

HFE5_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	293.9E-06	639.5E-06	1.7E-03	3.1E-03	4.2E-03	4.9E-03	6.0E-03	6.6E-03	7.0E-03	8.0E-03	7.9E-03	6.2E-03
9	-	418.3E-06	638.9E-06	1.6E-03	3.1E-03	4.2E-03	4.8E-03	5.9E-03	6.5E-03	7.0E-03	7.8E-03	7.7E-03	6.1E-03
10	-	449.6E-06	670.5E-06	1.7E-03	3.1E-03	4.3E-03	5.0E-03	6.0E-03	6.6E-03	7.2E-03	8.1E-03	7.9E-03	6.0E-03
Average	-	387.3E-06	649.6E-06	1.7E-03	3.1E-03	4.3E-03	4.9E-03	6.0E-03	6.5E-03	7.1E-03	8.0E-03	7.8E-03	6.1E-03
Sigma	-	67.2E-06	14.8E-06	42.9E-06	18.9E-06	50.2E-06	51.7E-06	46.3E-06	56.2E-06	90.5E-06	111.3E-06	81.2E-06	68.7E-06

Parameter : Current gain bandwidth product : FT_1
Test conditions : Vce = -5V ; Ic = -1mA
Unit : Hz
Spec Limit Min : 80.0E+06
Spec Limit Max : 500.0E+06
Spec limits are represented in bold lines on the graphic.



Measurements

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.7E+06	97.6E+06	93.2E+06	99.2E+06	90.7E+06	91.5E+06	93.8E+06	96.7E+06	95.6E+06	96.1E+06	95.6E+06	98.2E+06	94.1E+06
ON_PROTON samples													
5	96.9E+06	91.7E+06	90.7E+06	90.9E+06	88.3E+06	83.3E+06	82.4E+06	89.7E+06	85.7E+06	85.6E+06	86.9E+06	84.0E+06	83.3E+06
6	91.8E+06	96.1E+06	94.1E+06	86.8E+06	96.0E+06	85.4E+06	83.6E+06	89.5E+06	88.6E+06	85.1E+06	86.2E+06	82.8E+06	84.1E+06
7	97.5E+06	93.1E+06	93.0E+06	86.5E+06	97.1E+06	85.4E+06	84.9E+06	91.3E+06	88.2E+06	85.4E+06	87.0E+06	83.4E+06	83.8E+06
Statistics													
Min	91.8E+06	91.7E+06	90.7E+06	86.5E+06	88.3E+06	83.3E+06	82.4E+06	89.5E+06	85.7E+06	85.1E+06	86.2E+06	82.8E+06	83.3E+06
Max	97.5E+06	96.1E+06	94.1E+06	90.9E+06	97.1E+06	85.4E+06	84.9E+06	91.3E+06	88.6E+06	85.6E+06	87.0E+06	84.0E+06	84.1E+06
Average	95.4E+06	93.6E+06	92.6E+06	88.1E+06	93.8E+06	84.7E+06	83.6E+06	90.2E+06	87.5E+06	85.3E+06	86.7E+06	83.4E+06	83.7E+06
Sigma	2.6E+06	1.8E+06	1.4E+06	2.0E+06	3.9E+06	975.7E+03	990.7E+03	815.4E+03	1.3E+06	215.7E+03	338.8E+03	478.1E+03	340.2E+03

Drift Calculation

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-5.2E+06	-6.2E+06	-6.0E+06	-8.7E+06	-13.6E+06	-14.5E+06	-7.2E+06	-11.2E+06	-11.4E+06	-10.0E+06	-13.0E+06	-13.7E+06
6	-	4.3E+06	2.3E+06	-5.0E+06	4.2E+06	-6.4E+06	-8.2E+06	-2.3E+06	-3.3E+06	-6.8E+06	-5.6E+06	-9.0E+06	-7.8E+06
7	-	-4.4E+06	-4.5E+06	-11.0E+06	-425.6E+03	-12.1E+06	-12.6E+06	-6.2E+06	-9.3E+06	-12.1E+06	-10.5E+06	-14.1E+06	-13.7E+06
Average	-	-1.8E+06	-2.8E+06	-7.4E+06	-1.6E+06	-10.7E+06	-11.8E+06	-5.2E+06	-7.9E+06	-10.1E+06	-8.7E+06	-12.0E+06	-11.7E+06
Sigma	-	4.3E+06	3.7E+06	2.6E+06	5.3E+06	3.1E+06	2.7E+06	2.1E+06	3.4E+06	2.4E+06	2.2E+06	2.2E+06	2.8E+06

Measurements

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.7E+06	97.6E+06	93.2E+06	99.2E+06	90.7E+06	91.5E+06	93.8E+06	96.7E+06	95.6E+06	96.1E+06	95.6E+06	98.2E+06	94.1E+06
ON_TID samples													
11	91.4E+06	95.9E+06	91.4E+06	86.4E+06	97.3E+06	84.5E+06	85.3E+06	91.7E+06	84.9E+06	86.4E+06	87.2E+06	83.1E+06	84.8E+06
12	94.0E+06	95.9E+06	86.4E+06	84.8E+06	92.3E+06	82.7E+06	83.6E+06	88.8E+06	85.7E+06	85.4E+06	85.8E+06	83.2E+06	83.7E+06
13	97.1E+06	90.3E+06	89.3E+06	85.0E+06	84.8E+06	85.1E+06	83.0E+06	91.2E+06	85.6E+06	87.7E+06	87.3E+06	83.4E+06	81.9E+06
Statistics													
Min	91.4E+06	90.3E+06	86.4E+06	84.8E+06	84.8E+06	82.7E+06	83.0E+06	88.8E+06	84.9E+06	85.4E+06	85.8E+06	83.1E+06	81.9E+06
Max	97.1E+06	95.9E+06	91.4E+06	86.4E+06	97.3E+06	85.1E+06	85.3E+06	91.7E+06	85.7E+06	87.7E+06	87.3E+06	83.4E+06	84.8E+06
Average	94.2E+06	94.0E+06	89.0E+06	85.4E+06	91.5E+06	84.1E+06	84.0E+06	90.6E+06	85.4E+06	86.5E+06	86.8E+06	83.3E+06	83.5E+06
Sigma	2.3E+06	2.6E+06	2.0E+06	722.2E+03	5.1E+06	1.0E+06	975.0E+03	1.3E+06	362.5E+03	938.1E+03	674.0E+03	111.1E+03	1.2E+06

Drift Calculation

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	4.5E+06	-21.0E+03	-5.0E+06	6.0E+06	-6.9E+06	-6.1E+06	274.0E+03	-6.5E+06	-5.0E+06	-4.2E+06	-8.3E+06	-6.6E+06
12	-	1.9E+06	-7.6E+06	-9.2E+06	-1.7E+06	-11.3E+06	-10.4E+06	-5.2E+06	-8.3E+06	-8.6E+06	-8.2E+06	-10.8E+06	-10.3E+06
13	-	-6.8E+06	-7.8E+06	-12.1E+06	-12.3E+06	-12.0E+06	-14.1E+06	-5.9E+06	-11.4E+06	-9.4E+06	-9.8E+06	-13.7E+06	-15.1E+06
Average	-	-142.7E+03	-5.1E+06	-8.7E+06	-2.7E+06	-10.1E+06	-10.2E+06	-3.6E+06	-8.7E+06	-7.7E+06	-7.4E+06	-10.9E+06	-10.7E+06
Sigma	-	4.8E+06	3.6E+06	2.9E+06	7.5E+06	2.3E+06	3.3E+06	2.8E+06	2.0E+06	1.9E+06	2.3E+06	2.2E+06	3.5E+06

Measurements

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.7E+06	97.6E+06	93.2E+06	99.2E+06	90.7E+06	91.5E+06	93.8E+06	96.7E+06	95.6E+06	96.1E+06	95.6E+06	98.2E+06	94.1E+06
OFF_PROTON samples													
2	93.5E+06	103.2E+06	98.5E+06	93.0E+06	92.4E+06	90.1E+06	92.2E+06	94.4E+06	94.3E+06	92.5E+06	92.7E+06	86.0E+06	91.4E+06
3	85.3E+06	101.6E+06	96.2E+06	94.5E+06	95.2E+06	88.2E+06	89.8E+06	96.4E+06	91.5E+06	94.8E+06	92.6E+06	87.7E+06	90.0E+06
4	90.8E+06	103.6E+06	94.0E+06	90.1E+06	99.6E+06	89.5E+06	89.0E+06	94.7E+06	91.6E+06	94.0E+06	91.1E+06	85.8E+06	89.3E+06
Statistics													
Min	85.3E+06	101.6E+06	94.0E+06	90.1E+06	92.4E+06	88.2E+06	89.0E+06	94.4E+06	91.5E+06	92.5E+06	91.1E+06	85.8E+06	89.3E+06
Max	93.5E+06	103.6E+06	98.5E+06	94.5E+06	99.6E+06	90.1E+06	92.2E+06	96.4E+06	94.3E+06	94.8E+06	92.7E+06	87.7E+06	91.4E+06
Average	89.8E+06	102.8E+06	96.2E+06	92.5E+06	95.8E+06	89.3E+06	90.3E+06	95.2E+06	92.5E+06	93.8E+06	92.1E+06	86.5E+06	90.2E+06
Sigma	3.4E+06	889.0E+03	1.8E+06	1.9E+06	3.0E+06	790.1E+03	1.3E+06	892.3E+03	1.3E+06	951.8E+03	708.8E+03	846.4E+03	863.9E+03

Drift Calculation

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	9.7E+06	5.0E+06	-451.0E+03	-1.1E+06	-3.4E+06	-1.3E+06	886.8E+03	821.7E+03	-963.8E+03	-835.9E+03	-7.5E+06	-2.1E+06
3	-	16.3E+06	11.0E+06	9.2E+06	9.9E+06	3.0E+06	4.5E+06	11.2E+06	6.3E+06	9.6E+06	7.3E+06	2.4E+06	4.7E+06
4	-	12.9E+06	3.3E+06	-707.8E+03	8.9E+06	-1.3E+06	-1.7E+06	4.0E+06	818.7E+03	3.2E+06	356.0E+03	-4.9E+06	-1.5E+06
Average	-	13.0E+06	6.4E+06	2.7E+06	5.9E+06	-570.8E+03	483.0E+03	5.3E+06	2.6E+06	3.9E+06	2.3E+06	-3.3E+06	373.5E+03
Sigma	-	2.7E+06	3.3E+06	4.6E+06	5.0E+06	2.6E+06	2.9E+06	4.3E+06	2.6E+06	4.3E+06	3.6E+06	4.2E+06	3.1E+06

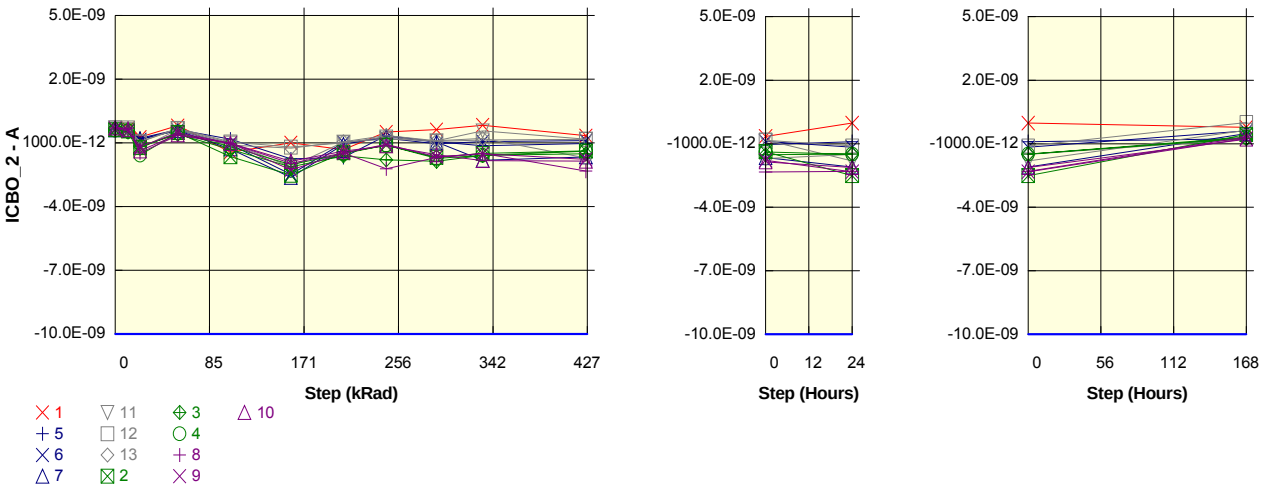
Measurements

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.7E+06	97.6E+06	93.2E+06	99.2E+06	90.7E+06	91.5E+06	93.8E+06	96.7E+06	95.6E+06	96.1E+06	95.6E+06	98.2E+06	94.1E+06
OFF_TID samples													
8	95.8E+06	97.8E+06	94.2E+06	88.9E+06	94.5E+06	88.1E+06	88.3E+06	95.8E+06	91.7E+06	94.6E+06	95.1E+06	87.0E+06	89.9E+06
9	93.3E+06	102.3E+06	95.5E+06	90.6E+06	91.7E+06	89.2E+06	93.4E+06	96.3E+06	90.7E+06	94.0E+06	90.7E+06	86.7E+06	89.8E+06
10	97.0E+06	96.4E+06	97.4E+06	94.1E+06	90.6E+06	87.7E+06	89.8E+06	95.9E+06	91.1E+06	92.7E+06	92.2E+06	89.7E+06	92.1E+06
Statistics													
Min	93.3E+06	96.4E+06	94.2E+06	88.9E+06	90.6E+06	87.7E+06	88.3E+06	95.8E+06	90.7E+06	92.7E+06	90.7E+06	86.7E+06	89.8E+06
Max	97.0E+06	102.3E+06	97.4E+06	94.1E+06	94.5E+06	89.2E+06	93.4E+06	96.3E+06	91.7E+06	94.6E+06	95.1E+06	89.7E+06	92.1E+06
Average	95.4E+06	98.8E+06	95.7E+06	91.2E+06	92.3E+06	88.3E+06	90.5E+06	96.0E+06	91.2E+06	93.8E+06	92.7E+06	87.8E+06	90.6E+06
Sigma	1.5E+06	2.5E+06	1.3E+06	2.2E+06	1.7E+06	609.0E+03	2.1E+06	236.2E+03	391.3E+03	790.4E+03	1.9E+06	1.3E+06	1.0E+06

Drift Calculation

FT_1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	2.0E+06	-1.6E+06	-6.9E+06	-1.3E+06	-7.7E+06	-7.5E+06	-22.1E+03	-4.1E+06	-1.3E+06	-681.6E+03	-8.8E+06	-5.9E+06
9	-	9.0E+06	2.2E+06	-2.8E+06	-1.6E+06	-4.2E+06	21.5E+03	3.0E+06	-2.6E+06	690.3E+03	-2.7E+06	-6.7E+06	-3.6E+06
10	-	-623.6E+03	358.1E+03	-2.9E+06	-6.5E+06	-9.3E+06	-7.2E+06	-1.2E+06	-6.0E+06	-4.3E+06	-4.8E+06	-7.3E+06	-5.0E+06
Average	-	3.4E+06	304.6E+03	-4.2E+06	-3.1E+06	-7.1E+06	-4.9E+06	604.9E+03	-4.2E+06	-1.6E+06	-2.7E+06	-7.6E+06	-4.8E+06
Sigma	-	4.0E+06	1.6E+06	1.9E+06	2.4E+06	2.1E+06	3.5E+06	1.7E+06	1.4E+06	2.1E+06	1.7E+06	903.4E+03	943.9E+03

Parameter : Collector-Base cut-off current : ICBO_2
Test conditions : Vcb = -50V
Unit : A
Spec Limit Min : -10.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-384.4E-12	-314.4E-12	-729.2E-12	-187.9E-12	-1.4E-09	-1.0E-09	-1.3E-09	-493.2E-12	-376.2E-12	-167.2E-12	-660.0E-12	-28.8E-12	-227.3E-12
ON_PROTON samples													
5	-370.4E-12	-477.6E-12	-782.0E-12	-380.0E-12	-826.6E-12	-1.8E-09	-1.7E-09	-655.6E-12	-944.2E-12	-1.1E-09	-1.0E-09	-906.2E-12	-761.4E-12
6	-389.9E-12	-438.8E-12	-853.4E-12	-393.7E-12	-1.1E-09	-2.5E-09	-982.2E-12	-787.8E-12	-1.0E-09	-941.2E-12	-891.8E-12	-1.2E-09	-392.9E-12
7	-390.5E-12	-408.2E-12	-820.6E-12	-419.8E-12	-1.3E-09	-2.6E-09	-1.1E-09	-709.6E-12	-960.4E-12	-1.8E-09	-1.7E-09	-2.1E-09	-521.0E-12
Statistics													
Min	-390.5E-12	-477.6E-12	-853.4E-12	-419.8E-12	-1.3E-09	-2.6E-09	-1.7E-09	-787.8E-12	-1.0E-09	-1.8E-09	-1.7E-09	-2.1E-09	-761.4E-12
Max	-370.4E-12	-408.2E-12	-782.0E-12	-380.0E-12	-826.6E-12	-1.8E-09	-982.2E-12	-655.6E-12	-944.2E-12	-941.2E-12	-891.8E-12	-906.2E-12	-392.9E-12
Average	-383.6E-12	-441.5E-12	-818.7E-12	-397.8E-12	-1.1E-09	-2.3E-09	-1.2E-09	-717.7E-12	-982.6E-12	-1.3E-09	-1.2E-09	-1.4E-09	-558.4E-12
Sigma	9.3E-12	28.4E-12	29.2E-12	16.5E-12	185.9E-12	381.7E-12	311.5E-12	54.3E-12	43.4E-12	375.9E-12	333.4E-12	511.0E-12	152.8E-12

Drift Calculation

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-107.2E-12	-411.6E-12	-9.6E-12	-456.2E-12	-1.4E-09	-1.3E-09	-285.2E-12	-573.8E-12	-766.0E-12	-666.0E-12	-535.8E-12	-391.0E-12
6	-	-48.9E-12	-463.5E-12	-3.8E-12	-683.1E-12	-2.1E-09	-592.3E-12	-397.9E-12	-653.3E-12	-551.3E-12	-501.9E-12	-774.1E-12	-3.0E-12
7	-	-17.7E-12	-430.1E-12	-29.3E-12	-890.9E-12	-2.2E-09	-685.3E-12	-319.1E-12	-569.9E-12	-1.4E-09	-1.3E-09	-1.7E-09	-130.5E-12
Average	-	-57.9E-12	-435.1E-12	-14.2E-12	-676.7E-12	-1.9E-09	-864.0E-12	-334.1E-12	-599.0E-12	-914.9E-12	-812.5E-12	-1.0E-09	-174.8E-12
Sigma	-	37.1E-12	21.5E-12	10.9E-12	177.5E-12	372.4E-12	320.7E-12	47.2E-12	38.4E-12	372.9E-12	330.2E-12	504.6E-12	161.5E-12

Measurements

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-384.4E-12	-314.4E-12	-729.2E-12	-187.9E-12	-1.4E-09	-1.0E-09	-1.3E-09	-493.2E-12	-376.2E-12	-167.2E-12	-660.0E-12	-28.8E-12	-227.3E-12
ON_TID samples													
11	-291.0E-12	-378.0E-12	-956.0E-12	-342.4E-12	-1.0E-09	-2.1E-09	-968.2E-12	-830.8E-12	-903.8E-12	-440.6E-12	-824.6E-12	-1.8E-09	-362.2E-12
12	-294.7E-12	-291.4E-12	-946.2E-12	-319.6E-12	-956.0E-12	-1.2E-09	-998.4E-12	-720.4E-12	-933.6E-12	-862.0E-12	-836.8E-12	-1.1E-09	1000.0E-15
13	-339.4E-12	-337.4E-12	-1.3E-09	-379.0E-12	-1.1E-09	-1.2E-09	-947.4E-12	-653.0E-12	-904.8E-12	-793.2E-12	-1.7E-09	-1.5E-09	-779.6E-12
Statistics													
Min	-339.4E-12	-378.0E-12	-1.3E-09	-379.0E-12	-1.1E-09	-2.1E-09	-998.4E-12	-830.8E-12	-933.6E-12	-862.0E-12	-1.7E-09	-1.8E-09	-779.6E-12
Max	-291.0E-12	-291.4E-12	-946.2E-12	-319.6E-12	-956.0E-12	-1.2E-09	-947.4E-12	-653.0E-12	-903.8E-12	-440.6E-12	-824.6E-12	-1.1E-09	1000.0E-15
Average	-308.4E-12	-335.6E-12	-1.1E-09	-347.0E-12	-1.0E-09	-1.5E-09	-971.3E-12	-734.7E-12	-914.1E-12	-698.6E-12	-1.1E-09	-1.5E-09	-380.3E-12
Sigma	22.0E-12	35.4E-12	149.3E-12	24.4E-12	59.9E-12	422.5E-12	20.9E-12	73.3E-12	13.8E-12	184.6E-12	411.7E-12	290.2E-12	318.9E-12

Drift Calculation

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-87.0E-12	-665.0E-12	-51.4E-12	-715.4E-12	-1.8E-09	-677.2E-12	-539.8E-12	-612.8E-12	-149.6E-12	-533.6E-12	-1.5E-09	-71.2E-12
12	-	3.3E-12	-651.5E-12	-24.9E-12	-661.3E-12	-898.9E-12	-703.7E-12	-425.7E-12	-638.9E-12	-567.3E-12	-542.1E-12	-813.3E-12	295.7E-12
13	-	2.0E-12	-928.4E-12	-39.6E-12	-761.2E-12	-910.4E-12	-608.0E-12	-313.6E-12	-565.4E-12	-453.8E-12	-1.4E-09	-1.2E-09	-440.2E-12
Average	-	-27.2E-12	-748.3E-12	-38.6E-12	-712.6E-12	-1.2E-09	-663.0E-12	-426.4E-12	-605.7E-12	-390.2E-12	-813.4E-12	-1.2E-09	-71.9E-12
Sigma	-	42.2E-12	127.5E-12	10.8E-12	40.8E-12	434.1E-12	40.3E-12	92.3E-12	30.4E-12	176.4E-12	389.8E-12	290.9E-12	300.4E-12

Measurements

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-384.4E-12	-314.4E-12	-729.2E-12	-187.9E-12	-1.4E-09	-1.0E-09	-1.3E-09	-493.2E-12	-376.2E-12	-167.2E-12	-660.0E-12	-28.8E-12	-227.3E-12
OFF_PROTON samples													
2	-376.2E-12	-438.6E-12	-1.2E-09	-516.4E-12	-1.6E-09	-2.5E-09	-1.5E-09	-1.1E-09	-1.7E-09	-1.5E-09	-1.4E-09	-2.5E-09	-566.9E-12
3	-340.4E-12	-492.8E-12	-1.2E-09	-594.2E-12	-1.3E-09	-2.1E-09	-1.6E-09	-1.8E-09	-1.9E-09	-1.6E-09	-1.5E-09	-1.5E-09	-751.0E-12
4	-406.0E-12	-445.4E-12	-1.6E-09	-528.5E-12	-1.2E-09	-2.0E-09	-1.5E-09	-1.1E-09	-1.7E-09	-1.6E-09	-1.4E-09	-1.5E-09	-687.5E-12
Statistics													
Min	-406.0E-12	-492.8E-12	-1.6E-09	-594.2E-12	-1.6E-09	-2.5E-09	-1.6E-09	-1.8E-09	-1.9E-09	-1.6E-09	-1.5E-09	-2.5E-09	-751.0E-12
Max	-340.4E-12	-438.6E-12	-1.2E-09	-516.4E-12	-1.2E-09	-2.0E-09	-1.5E-09	-1.1E-09	-1.7E-09	-1.5E-09	-1.4E-09	-1.5E-09	-566.9E-12
Average	-374.2E-12	-458.9E-12	-1.3E-09	-546.4E-12	-1.4E-09	-2.2E-09	-1.5E-09	-1.3E-09	-1.8E-09	-1.6E-09	-1.4E-09	-1.8E-09	-668.5E-12
Sigma	26.8E-12	24.1E-12	184.0E-12	34.2E-12	197.4E-12	212.0E-12	59.4E-12	327.5E-12	78.1E-12	38.4E-12	64.1E-12	480.8E-12	76.4E-12

Drift Calculation

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-62.4E-12	-844.4E-12	-140.2E-12	-1.3E-09	-2.1E-09	-1.1E-09	-734.8E-12	-1.3E-09	-1.1E-09	-1.0E-09	-2.1E-09	-190.7E-12
3	-	-152.4E-12	-819.8E-12	-253.8E-12	-966.8E-12	-1.8E-09	-1.3E-09	-1.5E-09	-1.5E-09	-1.2E-09	-1.2E-09	-1.1E-09	-410.6E-12
4	-	-39.4E-12	-1.2E-09	-122.6E-12	-776.8E-12	-1.6E-09	-1.1E-09	-696.6E-12	-1.3E-09	-1.2E-09	-986.0E-12	-1.1E-09	-281.5E-12
Average	-	-84.7E-12	-945.1E-12	-172.2E-12	-1.0E-09	-1.9E-09	-1.2E-09	-964.1E-12	-1.4E-09	-1.2E-09	-1.1E-09	-1.5E-09	-294.3E-12
Sigma	-	48.7E-12	160.2E-12	58.2E-12	204.6E-12	217.5E-12	80.8E-12	351.7E-12	99.3E-12	47.5E-12	87.9E-12	480.0E-12	90.2E-12

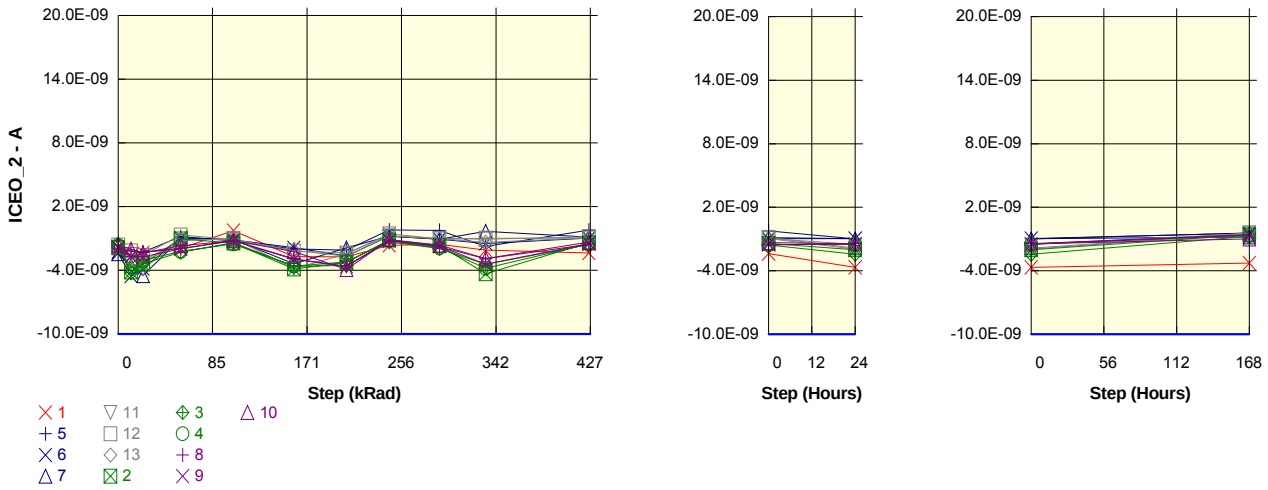
Measurements

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-384.4E-12	-314.4E-12	-729.2E-12	-187.9E-12	-1.4E-09	-1.0E-09	-1.3E-09	-493.2E-12	-376.2E-12	-167.2E-12	-660.0E-12	-28.8E-12	-227.3E-12
OFF_TID samples													
8	-299.6E-12	-318.0E-12	-1.5E-09	-643.4E-12	-1.0E-09	-2.0E-09	-1.5E-09	-2.2E-09	-1.7E-09	-1.5E-09	-2.3E-09	-2.3E-09	-684.4E-12
9	-328.1E-12	-440.4E-12	-1.2E-09	-521.9E-12	-1.0E-09	-2.3E-09	-1.5E-09	-1.1E-09	-1.7E-09	-1.5E-09	-1.8E-09	-2.3E-09	-748.1E-12
10	-293.7E-12	-376.2E-12	-1.4E-09	-615.1E-12	-1.0E-09	-1.9E-09	-1.4E-09	-1.1E-09	-1.6E-09	-1.8E-09	-1.9E-09	-2.1E-09	-782.0E-12
Statistics													
Min	-328.1E-12	-440.4E-12	-1.5E-09	-643.4E-12	-1.0E-09	-2.3E-09	-1.5E-09	-2.2E-09	-1.7E-09	-1.8E-09	-2.3E-09	-2.3E-09	-782.0E-12
Max	-293.7E-12	-318.0E-12	-1.2E-09	-521.9E-12	-1.0E-09	-1.9E-09	-1.4E-09	-1.1E-09	-1.6E-09	-1.5E-09	-1.8E-09	-2.1E-09	-684.4E-12
Average	-307.1E-12	-378.2E-12	-1.3E-09	-593.4E-12	-1.0E-09	-2.0E-09	-1.4E-09	-1.5E-09	-1.6E-09	-1.6E-09	-2.0E-09	-2.3E-09	-738.2E-12
Sigma	15.0E-12	50.0E-12	122.1E-12	51.9E-12	4.6E-12	173.2E-12	36.8E-12	527.7E-12	53.2E-12	153.0E-12	243.4E-12	89.0E-12	40.5E-12

Drift Calculation

ICBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-18.4E-12	-1.2E-09	-343.8E-12	-729.6E-12	-1.7E-09	-1.2E-09	-1.9E-09	-1.4E-09	-1.2E-09	-2.0E-09	-2.0E-09	-384.8E-12
9	-	-112.3E-12	-850.7E-12	-193.8E-12	-690.1E-12	-1.9E-09	-1.2E-09	-741.9E-12	-1.3E-09	-1.2E-09	-1.5E-09	-2.0E-09	-420.0E-12
10	-	-82.5E-12	-1.1E-09	-321.3E-12	-732.5E-12	-1.6E-09	-1.1E-09	-840.7E-12	-1.3E-09	-1.5E-09	-1.6E-09	-1.8E-09	-488.3E-12
Average	-	-71.1E-12	-1.0E-09	-286.3E-12	-717.4E-12	-1.7E-09	-1.1E-09	-1.2E-09	-1.3E-09	-1.3E-09	-1.7E-09	-1.9E-09	-431.0E-12
Sigma	-	39.2E-12	135.4E-12	66.0E-12	19.3E-12	158.2E-12	27.9E-12	533.9E-12	48.7E-12	162.2E-12	250.9E-12	79.1E-12	42.9E-12

Parameter : Collector-Emitter cut-off current : ICEO_2
Test conditions : Vcb = -50V
Unit : A
Spec Limit Min : -10.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-2.2E-09	-2.7E-09	-2.3E-09	-1.9E-09	-266.1E-12	-2.7E-09	-2.7E-09	-1.7E-09	-1.5E-09	-2.1E-09	-2.4E-09	-3.7E-09	-3.3E-09
ON_PROTON samples													
5	-1.6E-09	-2.7E-09	-2.3E-09	-829.2E-12	-1.2E-09	-2.0E-09	-2.1E-09	-200.6E-12	-247.6E-12	-1.8E-09	-230.8E-12	-984.4E-12	-415.2E-12
6	-2.4E-09	-4.6E-09	-3.8E-09	-921.4E-12	-1.1E-09	-1.9E-09	-2.7E-09	-784.8E-12	-1.1E-09	-1.5E-09	-970.0E-12	-951.0E-12	-441.6E-12
7	-2.5E-09	-3.5E-09	-4.5E-09	-1.0E-09	-1.1E-09	-3.4E-09	-1.9E-09	-789.8E-12	-1.1E-09	-345.4E-12	-871.2E-12	-982.8E-12	-808.4E-12
Statistics													
Min	-2.5E-09	-4.6E-09	-4.5E-09	-1.0E-09	-1.2E-09	-3.4E-09	-2.7E-09	-789.8E-12	-1.1E-09	-1.8E-09	-970.0E-12	-984.4E-12	-808.4E-12
Max	-1.6E-09	-2.7E-09	-2.3E-09	-829.2E-12	-1.1E-09	-1.9E-09	-1.9E-09	-200.6E-12	-247.6E-12	-345.4E-12	-230.8E-12	-951.0E-12	-415.2E-12
Average	-2.2E-09	-3.6E-09	-3.5E-09	-924.7E-12	-1.2E-09	-2.4E-09	-2.2E-09	-591.7E-12	-793.8E-12	-1.2E-09	-690.7E-12	-972.7E-12	-555.1E-12
Sigma	368.8E-12	749.4E-12	924.5E-12	79.4E-12	66.7E-12	689.9E-12	319.9E-12	276.6E-12	386.2E-12	608.5E-12	327.7E-12	15.4E-12	179.5E-12

Drift Calculation

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-1.1E-09	-644.4E-12	814.4E-12	401.6E-12	-360.8E-12	-456.8E-12	1.4E-09	1.4E-09	-109.6E-12	1.4E-09	659.2E-12	1.2E-09
6	-	-2.2E-09	-1.4E-09	1.5E-09	1.3E-09	514.4E-12	-262.4E-12	1.6E-09	1.3E-09	921.6E-12	1.4E-09	1.4E-09	2.0E-09
7	-	-1.1E-09	-2.0E-09	1.4E-09	1.4E-09	-948.2E-12	552.6E-12	1.7E-09	1.4E-09	2.1E-09	1.6E-09	1.5E-09	1.6E-09
Average	-	-1.4E-09	-1.4E-09	1.2E-09	1.0E-09	-264.9E-12	-55.5E-12	1.6E-09	1.4E-09	973.5E-12	1.5E-09	1.2E-09	1.6E-09
Sigma	-	505.8E-12	571.5E-12	301.0E-12	434.3E-12	600.9E-12	437.3E-12	94.1E-12	32.2E-12	906.2E-12	77.4E-12	376.4E-12	297.0E-12

Measurements

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-2.2E-09	-2.7E-09	-2.3E-09	-1.9E-09	-266.1E-12	-2.7E-09	-2.7E-09	-1.7E-09	-1.5E-09	-2.1E-09	-2.4E-09	-3.7E-09	-3.3E-09
ON_TID samples													
11	-1.9E-09	-2.5E-09	-3.9E-09	-1.2E-09	-1.0E-09	-3.8E-09	-2.5E-09	-565.0E-12	-1.0E-09	-980.0E-12	-958.4E-12	-2.0E-09	-443.1E-12
12	-1.6E-09	-2.2E-09	-2.6E-09	-668.5E-12	-1.1E-09	-2.2E-09	-2.4E-09	-764.6E-12	-1.0E-09	-1.1E-09	-844.4E-12	-1.9E-09	-435.7E-12
13	-1.6E-09	-3.8E-09	-3.2E-09	-1.1E-09	-1.1E-09	-2.1E-09	-2.7E-09	-750.8E-12	-1.0E-09	-1.4E-09	-950.6E-12	-1.5E-09	-481.0E-12
Statistics													
Min	-1.9E-09	-3.8E-09	-3.9E-09	-1.2E-09	-1.1E-09	-3.8E-09	-2.7E-09	-764.6E-12	-1.0E-09	-1.4E-09	-958.4E-12	-2.0E-09	-481.0E-12
Max	-1.6E-09	-2.2E-09	-2.6E-09	-668.5E-12	-1.0E-09	-2.1E-09	-2.4E-09	-565.0E-12	-1.0E-09	-980.0E-12	-844.4E-12	-1.5E-09	-435.7E-12
Average	-1.7E-09	-2.8E-09	-3.2E-09	-991.5E-12	-1.1E-09	-2.7E-09	-2.5E-09	-693.5E-12	-1.0E-09	-1.1E-09	-917.8E-12	-1.8E-09	-453.3E-12
Sigma	117.4E-12	688.4E-12	514.3E-12	232.0E-12	48.1E-12	786.9E-12	122.6E-12	91.0E-12	18.0E-12	166.0E-12	52.0E-12	203.1E-12	19.8E-12

Drift Calculation

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-646.8E-12	-2.0E-09	668.0E-12	868.0E-12	-2.0E-09	-590.6E-12	1.3E-09	821.2E-12	890.6E-12	912.2E-12	-94.8E-12	1.4E-09
12	-	-562.8E-12	-982.4E-12	943.9E-12	512.4E-12	-568.8E-12	-763.4E-12	847.8E-12	605.6E-12	536.4E-12	768.0E-12	-238.2E-12	1.2E-09
13	-	-2.1E-09	-1.5E-09	528.4E-12	523.2E-12	-504.4E-12	-1.0E-09	881.0E-12	594.2E-12	261.6E-12	681.2E-12	143.0E-12	1.2E-09
Average	-	-1.1E-09	-1.5E-09	713.4E-12	634.5E-12	-1.0E-09	-796.7E-12	1.0E-09	673.7E-12	562.9E-12	787.1E-12	-63.3E-12	1.3E-09
Sigma	-	726.6E-12	408.1E-12	172.7E-12	165.1E-12	670.1E-12	183.3E-12	208.4E-12	104.4E-12	257.5E-12	95.3E-12	157.2E-12	124.8E-12

Measurements

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-2.2E-09	-2.7E-09	-2.3E-09	-1.9E-09	-266.1E-12	-2.7E-09	-2.7E-09	-1.7E-09	-1.5E-09	-2.1E-09	-2.4E-09	-3.7E-09	-3.3E-09
OFF_PROTON samples													
2	-1.8E-09	-4.2E-09	-3.4E-09	-1.0E-09	-1.4E-09	-3.9E-09	-3.3E-09	-1.1E-09	-1.6E-09	-4.3E-09	-1.4E-09	-2.0E-09	-596.4E-12
3	-1.6E-09	-4.2E-09	-3.4E-09	-2.3E-09	-1.4E-09	-3.6E-09	-3.5E-09	-1.3E-09	-1.9E-09	-3.5E-09	-1.6E-09	-2.4E-09	-752.6E-12
4	-1.6E-09	-2.7E-09	-3.1E-09	-2.2E-09	-1.5E-09	-3.6E-09	-3.2E-09	-1.2E-09	-1.9E-09	-3.8E-09	-1.5E-09	-1.5E-09	-670.6E-12
Statistics													
Min	-1.8E-09	-4.2E-09	-3.4E-09	-2.3E-09	-1.5E-09	-3.9E-09	-3.5E-09	-1.3E-09	-1.9E-09	-4.3E-09	-1.6E-09	-2.4E-09	-752.6E-12
Max	-1.6E-09	-2.7E-09	-3.1E-09	-1.0E-09	-1.4E-09	-3.6E-09	-3.2E-09	-1.1E-09	-1.6E-09	-3.5E-09	-1.4E-09	-1.5E-09	-596.4E-12
Average	-1.7E-09	-3.7E-09	-3.3E-09	-1.8E-09	-1.5E-09	-3.7E-09	-3.3E-09	-1.2E-09	-1.8E-09	-3.9E-09	-1.5E-09	-2.0E-09	-673.2E-12
Sigma	112.0E-12	715.4E-12	154.0E-12	569.1E-12	48.6E-12	125.1E-12	143.3E-12	75.6E-12	131.5E-12	355.6E-12	68.6E-12	398.8E-12	63.8E-12

Drift Calculation

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-2.3E-09	-1.6E-09	795.6E-12	406.2E-12	-2.0E-09	-1.4E-09	695.2E-12	189.4E-12	-2.5E-09	430.2E-12	-167.4E-12	1.2E-09
3	-	-2.7E-09	-1.8E-09	-702.6E-12	175.4E-12	-2.0E-09	-2.0E-09	255.2E-12	-368.2E-12	-1.9E-09	14.6E-12	-854.6E-12	828.8E-12
4	-	-1.1E-09	-1.4E-09	-585.6E-12	109.2E-12	-2.0E-09	-1.6E-09	423.0E-12	-272.6E-12	-2.2E-09	91.0E-12	167.8E-12	958.6E-12
Average	-	-2.0E-09	-1.6E-09	-164.2E-12	230.3E-12	-2.0E-09	-1.7E-09	457.8E-12	-150.5E-12	-2.2E-09	178.6E-12	-284.7E-12	1.0E-09
Sigma	-	691.4E-12	151.6E-12	680.4E-12	127.3E-12	30.6E-12	226.8E-12	181.3E-12	243.5E-12	248.8E-12	180.6E-12	425.6E-12	172.9E-12

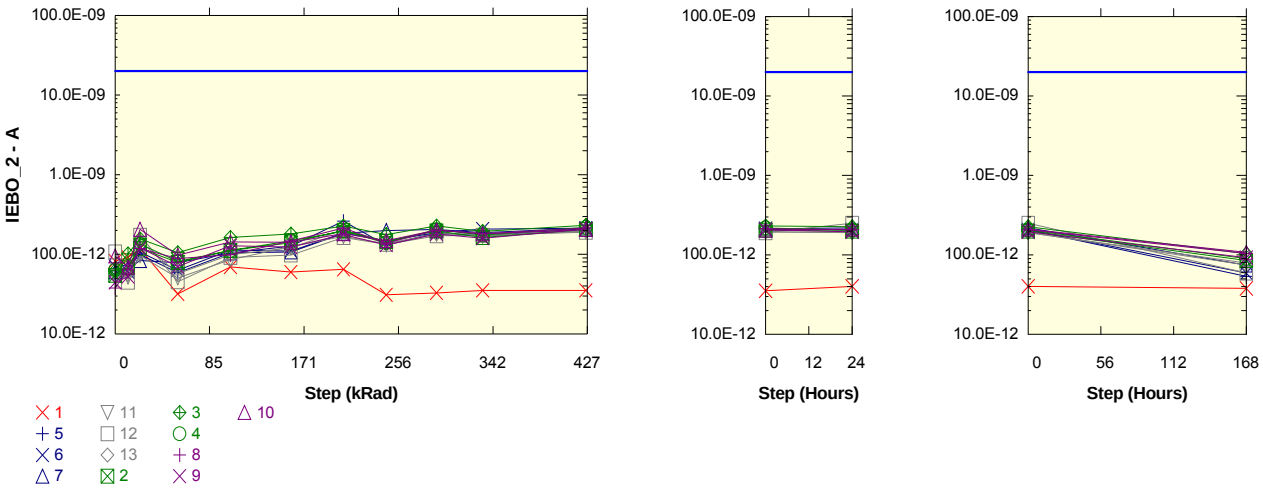
Measurements

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-2.2E-09	-2.7E-09	-2.3E-09	-1.9E-09	-266.1E-12	-2.7E-09	-2.7E-09	-1.7E-09	-1.5E-09	-2.1E-09	-2.4E-09	-3.7E-09	-3.3E-09
OFF_TID samples													
8	-1.9E-09	-2.2E-09	-2.3E-09	-2.0E-09	-1.2E-09	-2.9E-09	-3.6E-09	-1.2E-09	-1.8E-09	-2.9E-09	-1.5E-09	-1.4E-09	-596.6E-12
9	-1.9E-09	-2.7E-09	-2.7E-09	-2.0E-09	-1.2E-09	-3.0E-09	-3.6E-09	-1.2E-09	-1.7E-09	-3.4E-09	-1.5E-09	-1.5E-09	-605.6E-12
10	-1.6E-09	-2.0E-09	-2.4E-09	-1.7E-09	-1.2E-09	-2.2E-09	-3.9E-09	-1.1E-09	-1.6E-09	-2.9E-09	-1.3E-09	-1.5E-09	-994.2E-12
Statistics													
Min	-1.9E-09	-2.7E-09	-2.7E-09	-2.0E-09	-1.2E-09	-3.0E-09	-3.9E-09	-1.2E-09	-1.8E-09	-3.4E-09	-1.5E-09	-1.5E-09	-994.2E-12
Max	-1.6E-09	-2.0E-09	-2.3E-09	-1.7E-09	-1.2E-09	-2.2E-09	-3.6E-09	-1.1E-09	-1.6E-09	-2.9E-09	-1.3E-09	-1.4E-09	-596.6E-12
Average	-1.8E-09	-2.3E-09	-2.5E-09	-1.9E-09	-1.2E-09	-2.7E-09	-3.7E-09	-1.2E-09	-1.7E-09	-3.1E-09	-1.5E-09	-1.5E-09	-732.1E-12
Sigma	133.6E-12	301.4E-12	196.7E-12	130.0E-12	20.3E-12	336.3E-12	140.8E-12	36.9E-12	63.9E-12	251.9E-12	87.4E-12	20.6E-12	185.3E-12

Drift Calculation

ICEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-283.8E-12	-385.4E-12	-47.0E-12	721.6E-12	-1.0E-09	-1.7E-09	751.8E-12	118.4E-12	-1.0E-09	357.2E-12	462.4E-12	1.3E-09
9	-	-816.4E-12	-838.2E-12	-76.4E-12	681.0E-12	-1.1E-09	-1.7E-09	701.6E-12	164.6E-12	-1.5E-09	400.8E-12	413.2E-12	1.3E-09
10	-	-391.8E-12	-755.2E-12	-70.6E-12	394.2E-12	-620.8E-12	-2.3E-09	507.8E-12	-12.2E-12	-1.3E-09	277.2E-12	158.4E-12	627.4E-12
Average	-	-497.3E-12	-659.6E-12	-64.7E-12	598.9E-12	-905.4E-12	-1.9E-09	653.7E-12	90.3E-12	-1.3E-09	345.1E-12	344.7E-12	1.1E-09
Sigma	-	229.9E-12	196.8E-12	12.7E-12	145.7E-12	203.5E-12	274.4E-12	105.2E-12	74.9E-12	211.1E-12	51.2E-12	133.2E-12	319.0E-12

Parameter : Emitter-Base cut-off curent : IEBO_2
Test conditions : Veb = -4V
Unit : A
Spec Limit Max : 20.0E-09
Spec limits are represented in bold lines on the graphic.



Measurements

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	82.3E-12	91.7E-12	118.0E-12	31.9E-12	69.5E-12	59.8E-12	64.9E-12	31.0E-12	32.8E-12	35.2E-12	35.3E-12	40.2E-12	37.9E-12
ON_PROTON samples													
5	56.9E-12	72.2E-12	99.3E-12	58.8E-12	104.1E-12	126.6E-12	260.5E-12	129.7E-12	186.6E-12	171.2E-12	210.3E-12	207.5E-12	53.7E-12
6	70.4E-12	60.1E-12	107.4E-12	63.2E-12	113.0E-12	109.8E-12	186.0E-12	146.3E-12	188.1E-12	207.7E-12	213.4E-12	207.5E-12	59.4E-12
7	60.3E-12	65.4E-12	83.5E-12	78.6E-12	104.3E-12	107.1E-12	184.1E-12	199.4E-12	206.0E-12	186.7E-12	213.0E-12	219.1E-12	74.4E-12
Statistics													
Min	56.9E-12	60.1E-12	83.5E-12	58.8E-12	104.1E-12	107.1E-12	184.1E-12	129.7E-12	186.6E-12	171.2E-12	210.3E-12	207.5E-12	53.7E-12
Max	70.4E-12	72.2E-12	107.4E-12	78.6E-12	113.0E-12	126.6E-12	260.5E-12	199.4E-12	206.0E-12	207.7E-12	213.4E-12	219.1E-12	74.4E-12
Average	62.5E-12	65.9E-12	96.7E-12	66.9E-12	107.1E-12	114.5E-12	210.2E-12	158.5E-12	193.6E-12	188.5E-12	212.2E-12	211.4E-12	62.5E-12
Sigma	5.7E-12	5.0E-12	9.9E-12	8.5E-12	4.2E-12	8.6E-12	35.6E-12	29.7E-12	8.8E-12	14.9E-12	1.4E-12	5.5E-12	8.7E-12

Drift Calculation

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	15.3E-12	42.4E-12	1.9E-12	47.2E-12	69.7E-12	203.6E-12	72.8E-12	129.7E-12	114.3E-12	153.4E-12	150.6E-12	-3.2E-12
6	-	-10.3E-12	37.0E-12	-7.2E-12	42.6E-12	39.4E-12	115.6E-12	75.9E-12	117.7E-12	137.3E-12	143.0E-12	137.1E-12	-11.0E-12
7	-	5.1E-12	23.2E-12	18.2E-12	43.9E-12	46.8E-12	123.8E-12	139.1E-12	145.7E-12	126.3E-12	152.6E-12	158.8E-12	14.1E-12
Average	-	3.3E-12	34.2E-12	4.3E-12	44.6E-12	52.0E-12	147.6E-12	95.9E-12	131.0E-12	126.0E-12	149.7E-12	148.8E-12	-53.3E-15
Sigma	-	10.5E-12	8.1E-12	10.5E-12	1.9E-12	12.9E-12	39.7E-12	30.5E-12	11.5E-12	9.4E-12	4.7E-12	9.0E-12	10.5E-12

Measurements

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	82.3E-12	91.7E-12	118.0E-12	31.9E-12	69.5E-12	59.8E-12	64.9E-12	31.0E-12	32.8E-12	35.2E-12	35.3E-12	40.2E-12	37.9E-12
ON_TID samples													
11	52.7E-12	51.8E-12	96.2E-12	50.6E-12	85.6E-12	124.7E-12	168.2E-12	135.0E-12	178.8E-12	169.2E-12	195.4E-12	190.8E-12	78.9E-12
12	107.2E-12	44.7E-12	173.5E-12	45.2E-12	91.4E-12	97.9E-12	162.8E-12	134.0E-12	171.0E-12	173.2E-12	190.3E-12	250.6E-12	59.2E-12
13	53.2E-12	60.0E-12	146.1E-12	57.2E-12	98.9E-12	121.0E-12	203.0E-12	136.2E-12	182.2E-12	179.7E-12	195.5E-12	191.8E-12	74.7E-12
Statistics													
Min	52.7E-12	44.7E-12	96.2E-12	45.2E-12	85.6E-12	97.9E-12	162.8E-12	134.0E-12	171.0E-12	169.2E-12	190.3E-12	190.8E-12	59.2E-12
Max	107.2E-12	60.0E-12	173.5E-12	57.2E-12	98.9E-12	124.7E-12	203.0E-12	136.2E-12	182.2E-12	179.7E-12	195.5E-12	250.6E-12	78.9E-12
Average	71.0E-12	52.2E-12	138.6E-12	51.0E-12	92.0E-12	114.5E-12	178.0E-12	135.1E-12	177.3E-12	174.0E-12	193.7E-12	211.0E-12	70.9E-12
Sigma	25.6E-12	6.3E-12	32.0E-12	4.9E-12	5.5E-12	11.9E-12	17.8E-12	892.8E-15	4.7E-12	4.3E-12	2.4E-12	28.0E-12	8.5E-12

Drift Calculation

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-860.0E-15	43.5E-12	-2.1E-12	32.9E-12	72.0E-12	115.5E-12	82.3E-12	126.1E-12	116.5E-12	142.7E-12	138.1E-12	26.2E-12
12	-	-62.5E-12	66.2E-12	-62.0E-12	-15.8E-12	-9.4E-12	55.6E-12	26.8E-12	63.8E-12	66.0E-12	83.1E-12	143.3E-12	-48.0E-12
13	-	6.9E-12	93.0E-12	4.1E-12	45.8E-12	67.8E-12	149.9E-12	83.0E-12	129.0E-12	126.5E-12	142.4E-12	138.6E-12	21.5E-12
Average	-	-18.8E-12	67.6E-12	-20.0E-12	21.0E-12	43.5E-12	107.0E-12	64.0E-12	106.3E-12	103.0E-12	122.7E-12	140.0E-12	-93.3E-15
Sigma	-	31.0E-12	20.2E-12	29.8E-12	26.5E-12	37.4E-12	39.0E-12	26.3E-12	30.1E-12	26.5E-12	28.0E-12	2.4E-12	33.9E-12

Measurements

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	82.3E-12	91.7E-12	118.0E-12	31.9E-12	69.5E-12	59.8E-12	64.9E-12	31.0E-12	32.8E-12	35.2E-12	35.3E-12	40.2E-12	37.9E-12
OFF_PROTON samples													
2	54.4E-12	69.0E-12	118.9E-12	79.1E-12	111.6E-12	139.8E-12	200.4E-12	145.9E-12	197.3E-12	162.7E-12	205.1E-12	199.1E-12	84.7E-12
3	62.8E-12	101.4E-12	156.3E-12	105.0E-12	162.4E-12	180.4E-12	226.5E-12	177.6E-12	227.6E-12	194.0E-12	232.1E-12	227.2E-12	103.9E-12
4	63.8E-12	67.0E-12	134.6E-12	81.2E-12	111.8E-12	147.7E-12	195.2E-12	140.2E-12	204.1E-12	174.1E-12	218.0E-12	205.8E-12	89.8E-12
Statistics													
Min	54.4E-12	67.0E-12	118.9E-12	79.1E-12	111.6E-12	139.8E-12	195.2E-12	140.2E-12	197.3E-12	162.7E-12	205.1E-12	199.1E-12	84.7E-12
Max	63.8E-12	101.4E-12	156.3E-12	105.0E-12	162.4E-12	180.4E-12	226.5E-12	177.6E-12	227.6E-12	194.0E-12	232.1E-12	227.2E-12	103.9E-12
Average	60.4E-12	79.1E-12	136.6E-12	88.4E-12	128.6E-12	156.0E-12	207.4E-12	154.6E-12	209.7E-12	177.0E-12	218.4E-12	210.7E-12	92.8E-12
Sigma	4.2E-12	15.8E-12	15.3E-12	11.7E-12	23.9E-12	17.6E-12	13.7E-12	16.4E-12	13.0E-12	13.0E-12	11.0E-12	12.0E-12	8.1E-12

Drift Calculation

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	14.6E-12	64.5E-12	24.6E-12	57.1E-12	85.4E-12	145.9E-12	91.5E-12	142.9E-12	108.3E-12	150.7E-12	144.7E-12	30.3E-12
3	-	38.6E-12	93.5E-12	42.1E-12	99.5E-12	117.6E-12	163.7E-12	114.7E-12	164.8E-12	131.2E-12	169.2E-12	164.3E-12	41.1E-12
4	-	3.2E-12	70.7E-12	17.3E-12	48.0E-12	83.8E-12	131.4E-12	76.4E-12	140.3E-12	110.3E-12	154.2E-12	141.9E-12	26.0E-12
Average	-	18.8E-12	76.2E-12	28.0E-12	68.2E-12	95.6E-12	147.0E-12	94.2E-12	149.3E-12	116.6E-12	158.0E-12	150.3E-12	32.5E-12
Sigma	-	14.8E-12	12.5E-12	10.4E-12	22.5E-12	15.5E-12	13.2E-12	15.8E-12	11.0E-12	10.4E-12	8.0E-12	10.0E-12	6.3E-12

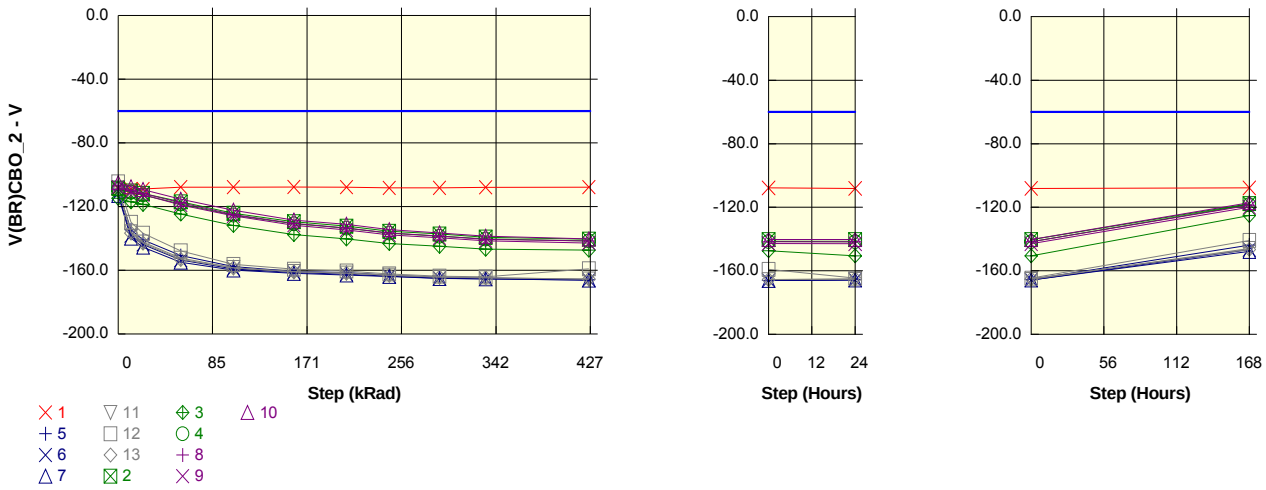
Measurements

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	82.3E-12	91.7E-12	118.0E-12	31.9E-12	69.5E-12	59.8E-12	64.9E-12	31.0E-12	32.8E-12	35.2E-12	35.3E-12	40.2E-12	37.9E-12
OFF_TID samples													
8	37.8E-12	65.1E-12	118.5E-12	88.4E-12	98.9E-12	147.6E-12	214.3E-12	138.0E-12	200.8E-12	181.1E-12	214.0E-12	207.1E-12	104.3E-12
9	44.4E-12	52.4E-12	121.3E-12	70.0E-12	128.3E-12	123.4E-12	177.1E-12	131.2E-12	179.9E-12	159.4E-12	207.4E-12	195.1E-12	92.3E-12
10	95.5E-12	69.2E-12	206.1E-12	97.5E-12	143.6E-12	141.8E-12	182.0E-12	148.7E-12	200.9E-12	180.7E-12	204.5E-12	211.9E-12	107.6E-12
Statistics													
Min	37.8E-12	52.4E-12	118.5E-12	70.0E-12	98.9E-12	123.4E-12	177.1E-12	131.2E-12	179.9E-12	159.4E-12	204.5E-12	195.1E-12	92.3E-12
Max	95.5E-12	69.2E-12	206.1E-12	97.5E-12	143.6E-12	147.6E-12	214.3E-12	148.7E-12	200.9E-12	181.1E-12	214.0E-12	211.9E-12	107.6E-12
Average	59.2E-12	62.2E-12	148.6E-12	85.3E-12	123.6E-12	137.6E-12	191.1E-12	139.3E-12	193.9E-12	173.8E-12	208.6E-12	204.7E-12	101.4E-12
Sigma	25.8E-12	7.1E-12	40.6E-12	11.4E-12	18.6E-12	10.3E-12	16.5E-12	7.2E-12	9.9E-12	10.2E-12	4.0E-12	7.1E-12	6.6E-12

Drift Calculation

IEBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	27.3E-12	80.7E-12	50.5E-12	61.0E-12	109.7E-12	176.5E-12	100.2E-12	163.0E-12	143.3E-12	176.2E-12	169.2E-12	66.4E-12
9	-	8.0E-12	76.9E-12	25.7E-12	83.9E-12	79.0E-12	132.7E-12	86.8E-12	135.5E-12	115.0E-12	163.0E-12	150.7E-12	47.9E-12
10	-	-26.3E-12	110.6E-12	2.0E-12	48.1E-12	46.3E-12	86.5E-12	53.2E-12	105.4E-12	85.2E-12	109.0E-12	116.4E-12	12.1E-12
Average	-	3.0E-12	89.4E-12	26.1E-12	64.3E-12	78.3E-12	131.9E-12	80.0E-12	134.6E-12	114.5E-12	149.4E-12	145.4E-12	42.2E-12
Sigma	-	22.2E-12	15.0E-12	19.8E-12	14.8E-12	25.9E-12	36.8E-12	19.8E-12	23.5E-12	23.7E-12	29.0E-12	21.9E-12	22.5E-12

Parameter : Collector-Base breakdown voltage : V(BR)CBO_2
Test conditions : Ic = -10µA
Unit : V
Spec Limit Max : -60.0
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-108.9	-109.1	-108.9	-107.8	-107.8	-107.7	-107.8	-108.3	-108.2	-108.0	-107.8	-108.2	-107.8
ON_PROTON samples													
5	-109.8	-134.6	-141.0	-150.8	-157.7	-160.7	-161.4	-163.1	-164.5	-164.9	-166.0	-165.4	-143.9
6	-111.9	-138.2	-143.8	-153.6	-159.2	-161.4	-162.5	-163.7	-165.1	-165.4	-166.1	-165.8	-146.6
7	-113.0	-139.9	-145.5	-154.9	-159.8	-161.9	-163.0	-163.9	-165.2	-165.4	-166.2	-165.7	-147.8
Statistics													
Min	-113.0	-139.9	-145.5	-154.9	-159.8	-161.9	-163.0	-163.9	-165.2	-165.4	-166.2	-165.8	-147.8
Max	-109.8	-134.6	-141.0	-150.8	-157.7	-160.7	-161.4	-163.1	-164.5	-164.9	-166.0	-165.4	-143.9
Average	-111.5	-137.6	-143.4	-153.1	-158.9	-161.3	-162.3	-163.6	-164.9	-165.2	-166.1	-165.6	-146.1
Sigma	1.3	2.2	1.9	1.7	0.9	0.5	0.7	0.3	0.3	0.2	0.1	0.2	1.6

Drift Calculation

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-24.8E+00	-31.2E+00	-41.0E+00	-48.0E+00	-50.9E+00	-51.6E+00	-53.3E+00	-54.7E+00	-55.2E+00	-56.2E+00	-55.6E+00	-34.1E+00
6	-	-26.4E+00	-31.9E+00	-41.7E+00	-47.3E+00	-49.5E+00	-50.6E+00	-51.8E+00	-53.2E+00	-53.5E+00	-54.2E+00	-53.9E+00	-34.8E+00
7	-	-26.9E+00	-32.5E+00	-41.9E+00	-46.8E+00	-48.9E+00	-50.0E+00	-50.9E+00	-52.2E+00	-52.4E+00	-53.2E+00	-52.7E+00	-34.8E+00
Average	-	-26.0E+00	-31.8E+00	-41.6E+00	-47.4E+00	-49.8E+00	-50.7E+00	-52.0E+00	-53.4E+00	-53.7E+00	-54.5E+00	-54.1E+00	-34.6E+00
Sigma	-	881.9E-03	508.3E-03	383.9E-03	468.4E-03	859.4E-03	697.0E-03	1.0E+00	1.0E+00	1.1E+00	1.3E+00	1.2E+00	310.8E-03

Measurements

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-108.9	-109.1	-108.9	-107.8	-107.8	-107.7	-107.8	-108.3	-108.2	-108.0	-107.8	-108.2	-107.8
ON_TID samples													
11	-108.3	-135.9	-142.3	-152.4	-158.3	-160.8	-161.8	-163.1	-164.4	-164.7	-165.5	-165.5	-145.9
12	-104.5	-129.9	-136.8	-147.9	-156.3	-159.3	-160.5	-162.3	-163.7	-164.2	-159.0	-164.6	-140.9
13	-108.7	-136.6	-143.0	-153.2	-158.5	-161.0	-161.9	-163.1	-164.3	-164.7	-165.5	-164.9	-146.5
Statistics													
Min	-108.7	-136.6	-143.0	-153.2	-158.5	-161.0	-161.9	-163.1	-164.4	-164.7	-165.5	-165.5	-146.5
Max	-104.5	-129.9	-136.8	-147.9	-156.3	-159.3	-160.5	-162.3	-163.7	-164.2	-159.0	-164.6	-140.9
Average	-107.2	-134.1	-140.7	-151.2	-157.7	-160.4	-161.4	-162.8	-164.1	-164.5	-163.4	-165.0	-144.4
Sigma	1.9	3.0	2.8	2.3	1.0	0.8	0.6	0.4	0.3	0.2	3.1	0.4	2.5

Drift Calculation

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-27.6E+00	-34.0E+00	-44.2E+00	-50.1E+00	-52.6E+00	-53.5E+00	-54.8E+00	-56.1E+00	-56.4E+00	-57.2E+00	-57.2E+00	-37.7E+00
12	-	-25.4E+00	-32.3E+00	-43.4E+00	-51.8E+00	-54.8E+00	-56.0E+00	-57.8E+00	-59.2E+00	-59.7E+00	-54.5E+00	-60.1E+00	-36.4E+00
13	-	-27.9E+00	-34.2E+00	-44.4E+00	-49.8E+00	-52.2E+00	-53.1E+00	-54.3E+00	-55.5E+00	-55.9E+00	-56.8E+00	-56.2E+00	-37.7E+00
Average	-	-27.0E+00	-33.5E+00	-44.0E+00	-50.5E+00	-53.2E+00	-54.2E+00	-55.6E+00	-56.9E+00	-57.3E+00	-56.2E+00	-57.8E+00	-37.2E+00
Sigma	-	1.1E+00	874.8E-03	447.7E-03	892.3E-03	1.1E+00	1.3E+00	1.5E+00	1.6E+00	1.7E+00	1.2E+00	1.6E+00	619.4E-03

Measurements

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-108.9	-109.1	-108.9	-107.8	-107.8	-107.7	-107.8	-108.3	-108.2	-108.0	-107.8	-108.2	-107.8
OFF_PROTON samples													
2	-108.5	-110.2	-111.7	-117.0	-124.2	-129.6	-132.3	-135.5	-137.3	-139.3	-140.4	-140.4	-117.7
3	-114.8	-117.0	-118.6	-124.7	-131.8	-137.6	-140.3	-143.2	-144.9	-146.8	-147.4	-150.5	-125.2
4	-109.2	-111.1	-112.7	-118.4	-125.3	-130.8	-133.6	-136.7	-138.6	-140.3	-141.6	-141.7	-118.4
Statistics													
Min	-114.8	-117.0	-118.6	-124.7	-131.8	-137.6	-140.3	-143.2	-144.9	-146.8	-147.4	-150.5	-125.2
Max	-108.5	-110.2	-111.7	-117.0	-124.2	-129.6	-132.3	-135.5	-137.3	-139.3	-140.4	-140.4	-117.7
Average	-110.8	-112.8	-114.4	-120.0	-127.1	-132.6	-135.4	-138.5	-140.2	-142.1	-143.1	-144.2	-120.4
Sigma	2.8	3.0	3.0	3.3	3.4	3.5	3.5	3.4	3.3	3.3	3.0	4.5	3.4

Drift Calculation

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-1.7E+00	-3.2E+00	-8.5E+00	-15.7E+00	-21.0E+00	-23.8E+00	-27.0E+00	-28.7E+00	-30.7E+00	-31.9E+00	-31.9E+00	-9.2E+00
3	-	-2.2E+00	-3.8E+00	-9.9E+00	-17.0E+00	-22.7E+00	-25.5E+00	-28.4E+00	-30.1E+00	-32.0E+00	-32.5E+00	-35.7E+00	-10.3E+00
4	-	-1.9E+00	-3.5E+00	-9.2E+00	-16.2E+00	-21.6E+00	-24.4E+00	-27.5E+00	-29.4E+00	-31.1E+00	-32.4E+00	-32.5E+00	-9.2E+00
Average	-	-1.9E+00	-3.5E+00	-9.2E+00	-16.3E+00	-21.8E+00	-24.5E+00	-27.6E+00	-29.4E+00	-31.3E+00	-32.3E+00	-33.4E+00	-9.6E+00
Sigma	-	201.0E-03	246.7E-03	565.4E-03	554.8E-03	713.8E-03	706.6E-03	562.2E-03	548.7E-03	519.7E-03	263.3E-03	1.7E+00	551.7E-03

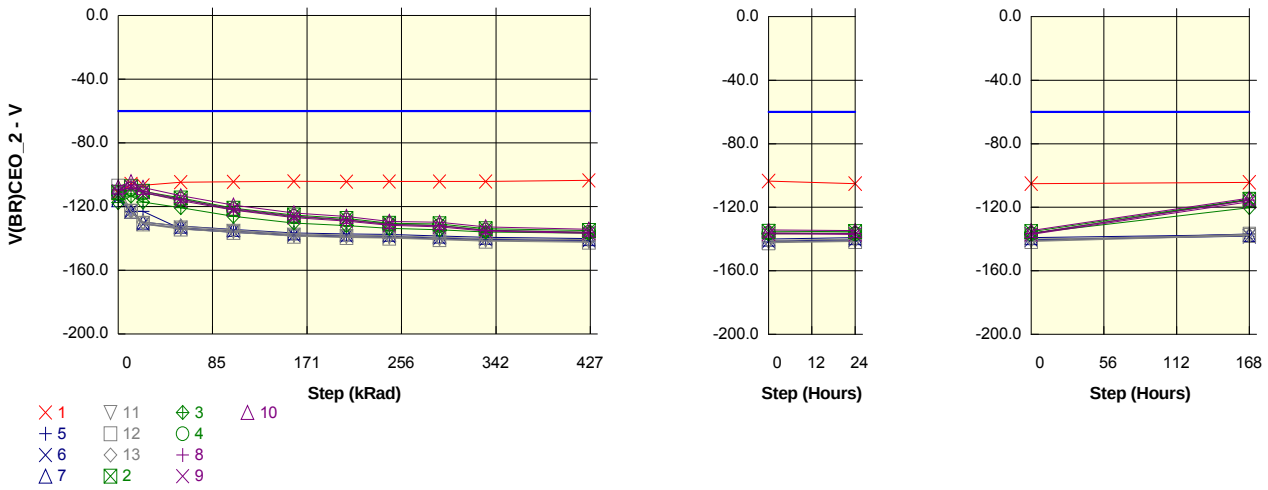
Measurements

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-108.9	-109.1	-108.9	-107.8	-107.8	-107.7	-107.8	-108.3	-108.2	-108.0	-107.8	-108.2	-107.8
OFF_TID samples													
8	-106.9	-109.9	-111.7	-117.5	-125.1	-130.6	-133.5	-136.6	-138.5	-140.6	-141.6	-141.7	-118.8
9	-107.8	-110.9	-112.6	-119.0	-125.8	-131.7	-134.7	-137.8	-139.7	-141.4	-142.8	-142.9	-120.0
10	-105.0	-107.6	-109.3	-115.4	-122.3	-128.5	-131.1	-134.5	-136.5	-138.6	-140.3	-140.3	-117.2
Statistics													
Min	-107.8	-110.9	-112.6	-119.0	-125.8	-131.7	-134.7	-137.8	-139.7	-141.4	-142.8	-142.9	-120.0
Max	-105.0	-107.6	-109.3	-115.4	-122.3	-128.5	-131.1	-134.5	-136.5	-138.6	-140.3	-140.3	-117.2
Average	-106.5	-109.5	-111.2	-117.3	-124.4	-130.3	-133.1	-136.3	-138.2	-140.2	-141.6	-141.6	-118.6
Sigma	1.2	1.4	1.4	1.5	1.5	1.3	1.5	1.4	1.3	1.2	1.0	1.1	1.2

Drift Calculation

V(BR)CBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-3.0E+00	-4.9E+00	-10.7E+00	-18.2E+00	-23.7E+00	-26.6E+00	-29.7E+00	-31.7E+00	-33.7E+00	-34.8E+00	-34.9E+00	-11.9E+00
9	-	-3.2E+00	-4.8E+00	-11.2E+00	-18.1E+00	-24.0E+00	-26.9E+00	-30.0E+00	-31.9E+00	-33.7E+00	-35.1E+00	-35.1E+00	-12.2E+00
10	-	-2.6E+00	-4.3E+00	-10.4E+00	-17.3E+00	-23.6E+00	-26.1E+00	-29.5E+00	-31.5E+00	-33.7E+00	-35.3E+00	-35.3E+00	-12.2E+00
Average	-	-2.9E+00	-4.7E+00	-10.8E+00	-17.9E+00	-23.8E+00	-26.6E+00	-29.8E+00	-31.7E+00	-33.7E+00	-35.1E+00	-35.1E+00	-12.1E+00
Sigma	-	227.8E-03	245.4E-03	316.7E-03	389.2E-03	160.0E-03	309.1E-03	214.3E-03	145.6E-03	10.9E-03	238.4E-03	179.8E-03	136.2E-03

Parameter : Collector-Emitter breakdown voltage : V(BR)CEO_2
Test conditions : Ic = -10mA
Unit : V
Spec Limit Max : -60.0
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-111.7	-105.7	-106.7	-104.7	-104.4	-104.1	-104.3	-104.2	-104.2	-104.2	-103.5	-105.1	-104.4
ON_PROTON samples													
5	-112.4	-123.0	-123.0	-134.0	-136.2	-138.2	-139.0	-139.3	-140.3	-141.1	-141.7	-140.9	-136.8
6	-114.7	-123.0	-130.9	-133.3	-135.4	-137.8	-138.4	-138.7	-139.7	-140.5	-141.3	-140.4	-138.2
7	-115.8	-123.0	-129.7	-132.3	-134.4	-136.6	-137.2	-137.5	-138.5	-139.3	-140.1	-139.2	-137.1
Statistics													
Min	-115.8	-123.0	-130.9	-134.0	-136.2	-138.2	-139.0	-139.3	-140.3	-141.1	-141.7	-140.9	-138.2
Max	-112.4	-123.0	-123.0	-132.3	-134.4	-136.6	-137.2	-137.5	-138.5	-139.3	-140.1	-139.2	-136.8
Average	-114.3	-123.0	-127.9	-133.2	-135.3	-137.5	-138.2	-138.5	-139.5	-140.3	-141.0	-140.2	-137.4
Sigma	1.4	0.0	3.5	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.6

Drift Calculation

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-10.6E+00	-10.6E+00	-21.7E+00	-23.8E+00	-25.9E+00	-26.7E+00	-26.9E+00	-28.0E+00	-28.7E+00	-29.4E+00	-28.6E+00	-24.5E+00
6	-	-8.3E+00	-16.2E+00	-18.7E+00	-20.8E+00	-23.1E+00	-23.8E+00	-24.0E+00	-25.1E+00	-25.9E+00	-26.6E+00	-25.8E+00	-23.5E+00
7	-	-7.2E+00	-13.9E+00	-16.5E+00	-18.6E+00	-20.8E+00	-21.5E+00	-21.7E+00	-22.7E+00	-23.6E+00	-24.3E+00	-23.4E+00	-21.4E+00
Average	-	-8.7E+00	-13.6E+00	-19.0E+00	-21.1E+00	-23.3E+00	-24.0E+00	-24.2E+00	-25.3E+00	-26.0E+00	-26.8E+00	-25.9E+00	-23.1E+00
Sigma	-	1.4E+00	2.3E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	1.3E+00

Measurements

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-111.7	-105.7	-106.7	-104.7	-104.4	-104.1	-104.3	-104.2	-104.2	-104.2	-103.5	-105.1	-104.4
ON_TID samples													
11	-111.0	-123.0	-130.4	-133.4	-135.6	-137.9	-138.8	-139.1	-140.2	-141.1	-141.8	-141.0	-136.9
12	-107.2	-123.0	-130.9	-134.2	-136.2	-138.7	-139.4	-139.8	-140.8	-141.7	-142.4	-141.6	-137.8
13	-111.5	-123.0	-129.7	-132.5	-134.8	-137.2	-137.9	-138.3	-139.3	-140.2	-140.8	-140.0	-137.7
Statistics													
Min	-111.5	-123.0	-130.9	-134.2	-136.2	-138.7	-139.4	-139.8	-140.8	-141.7	-142.4	-141.6	-137.8
Max	-107.2	-123.0	-129.7	-132.5	-134.8	-137.2	-137.9	-138.3	-139.3	-140.2	-140.8	-140.0	-136.9
Average	-109.9	-123.0	-130.3	-133.3	-135.5	-137.9	-138.7	-139.1	-140.1	-141.0	-141.7	-140.9	-137.5
Sigma	1.9	0.0	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.4

Drift Calculation

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-12.0E+00	-19.4E+00	-22.4E+00	-24.6E+00	-26.9E+00	-27.8E+00	-28.1E+00	-29.2E+00	-30.1E+00	-30.8E+00	-30.0E+00	-25.9E+00
12	-	-15.8E+00	-23.7E+00	-26.9E+00	-29.0E+00	-31.4E+00	-32.2E+00	-32.6E+00	-33.6E+00	-34.4E+00	-35.2E+00	-34.4E+00	-30.6E+00
13	-	-11.5E+00	-18.2E+00	-21.0E+00	-23.3E+00	-25.7E+00	-26.4E+00	-26.8E+00	-27.8E+00	-28.7E+00	-29.4E+00	-28.5E+00	-26.2E+00
Average	-	-13.1E+00	-20.4E+00	-23.4E+00	-25.6E+00	-28.0E+00	-28.8E+00	-29.2E+00	-30.2E+00	-31.1E+00	-31.8E+00	-31.0E+00	-27.6E+00
Sigma	-	1.9E+00	2.4E+00	2.5E+00	2.4E+00	2.5E+00	2.5E+00	2.5E+00	2.5E+00	2.4E+00	2.5E+00	2.5E+00	2.1E+00

Measurements

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-111.7	-105.7	-106.7	-104.7	-104.4	-104.1	-104.3	-104.2	-104.2	-104.2	-103.5	-105.1	-104.4
OFF_PROTON samples													
2	-111.1	-107.6	-110.4	-114.6	-121.0	-125.3	-127.5	-130.4	-130.9	-133.9	-135.1	-135.4	-115.0
3	-117.5	-113.5	-117.2	-120.7	-126.1	-130.3	-132.0	-133.7	-134.6	-136.0	-136.7	-136.3	-120.2
4	-111.9	-109.0	-111.5	-115.4	-121.9	-126.3	-128.5	-131.0	-132.0	-134.8	-136.2	-136.6	-115.2
Statistics													
Min	-117.5	-113.5	-117.2	-120.7	-126.1	-130.3	-132.0	-133.7	-134.6	-136.0	-136.7	-136.6	-120.2
Max	-111.1	-107.6	-110.4	-114.6	-121.0	-125.3	-127.5	-130.4	-130.9	-133.9	-135.1	-135.4	-115.0
Average	-113.5	-110.0	-113.0	-116.9	-123.0	-127.3	-129.3	-131.7	-132.5	-134.9	-136.0	-136.1	-116.8
Sigma	2.9	2.5	3.0	2.7	2.2	2.2	1.9	1.4	1.6	0.9	0.7	0.5	2.4

Drift Calculation

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	3.4E+00	684.0E-03	-3.5E+00	-9.9E+00	-14.2E+00	-16.4E+00	-19.4E+00	-19.8E+00	-22.8E+00	-24.0E+00	-24.3E+00	-3.9E+00
3	-	4.1E+00	316.0E-03	-3.2E+00	-8.6E+00	-12.8E+00	-14.4E+00	-16.1E+00	-17.1E+00	-18.5E+00	-19.2E+00	-18.8E+00	-2.7E+00
4	-	2.9E+00	344.0E-03	-3.5E+00	-10.1E+00	-14.4E+00	-16.7E+00	-19.2E+00	-20.1E+00	-23.0E+00	-24.4E+00	-24.7E+00	-3.4E+00
Average	-	3.5E+00	448.0E-03	-3.4E+00	-9.5E+00	-13.8E+00	-15.8E+00	-18.2E+00	-19.0E+00	-21.4E+00	-22.5E+00	-22.6E+00	-3.3E+00
Sigma	-	486.7E-03	167.3E-03	152.8E-03	657.9E-03	696.4E-03	986.1E-03	1.5E+00	1.4E+00	2.1E+00	2.4E+00	2.7E+00	468.7E-03

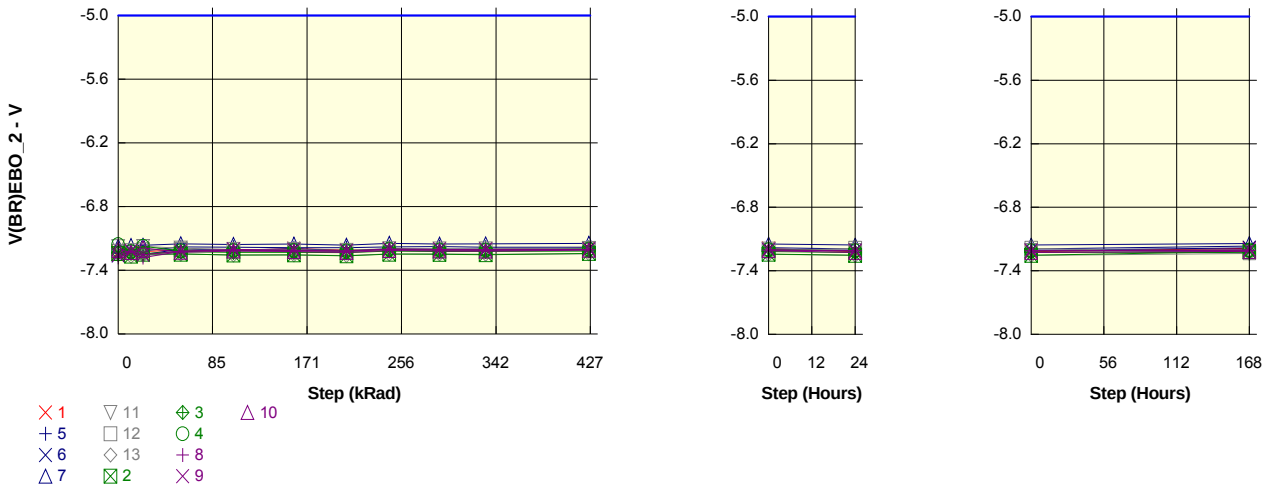
Measurements

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-111.7	-105.7	-106.7	-104.7	-104.4	-104.1	-104.3	-104.2	-104.2	-104.2	-103.5	-105.1	-104.4
OFF_TID samples													
8	-109.4	-106.6	-110.4	-115.4	-121.4	-126.0	-128.3	-131.2	-131.9	-135.0	-136.2	-136.5	-115.5
9	-110.5	-107.7	-111.2	-116.4	-122.2	-126.9	-129.2	-131.7	-132.7	-135.4	-136.8	-137.0	-116.6
10	-107.7	-104.3	-108.0	-113.2	-119.0	-124.0	-126.2	-129.3	-129.8	-132.8	-134.3	-134.6	-114.2
Statistics													
Min	-110.5	-107.7	-111.2	-116.4	-122.2	-126.9	-129.2	-131.7	-132.7	-135.4	-136.8	-137.0	-116.6
Max	-107.7	-104.3	-108.0	-113.2	-119.0	-124.0	-126.2	-129.3	-129.8	-132.8	-134.3	-134.6	-114.2
Average	-109.2	-106.2	-109.9	-115.0	-120.9	-125.6	-127.9	-130.7	-131.5	-134.4	-135.7	-136.1	-115.4
Sigma	1.1	1.4	1.3	1.3	1.3	1.2	1.2	1.0	1.2	1.2	1.1	1.0	1.0

Drift Calculation

V(BR)CEO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	2.8E+00	-972.0E-03	-6.0E+00	-12.0E+00	-16.6E+00	-18.9E+00	-21.8E+00	-22.5E+00	-25.6E+00	-26.8E+00	-27.1E+00	-6.1E+00
9	-	2.7E+00	-720.0E-03	-5.9E+00	-11.7E+00	-16.4E+00	-18.7E+00	-21.2E+00	-22.2E+00	-24.9E+00	-26.3E+00	-26.6E+00	-6.1E+00
10	-	3.4E+00	-304.0E-03	-5.5E+00	-11.3E+00	-16.3E+00	-18.5E+00	-21.6E+00	-22.1E+00	-25.1E+00	-26.6E+00	-26.9E+00	-6.5E+00
Average	-	3.0E+00	-665.3E-03	-5.8E+00	-11.7E+00	-16.4E+00	-18.7E+00	-21.5E+00	-22.3E+00	-25.2E+00	-26.5E+00	-26.9E+00	-6.2E+00
Sigma	-	291.4E-03	275.4E-03	248.4E-03	285.2E-03	93.2E-03	165.0E-03	241.4E-03	168.5E-03	264.9E-03	191.6E-03	218.9E-03	184.0E-03

Parameter : Emitter-Base breakdown voltage : V(BR)EBO_2
Test conditions : Ie = -10µA
Unit : V
Spec Limit Max : -5.0
Spec limits are represented in bold lines on the graphic.



Measurements

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
ON_PROTON samples													
5	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
6	-7.3	-7.2	-7.3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
7	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.1	-7.2	-7.2	-7.1	-7.2	-7.1
Statistics													
Min	-7.3	-7.2	-7.3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Max	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.1	-7.2	-7.2	-7.1	-7.2	-7.1
Average	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Sigma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Drift Calculation

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	9.6E-03	8.8E-03	46.0E-03	42.4E-03	38.0E-03	37.6E-03	46.0E-03	47.6E-03	43.2E-03	43.2E-03	31.2E-03	59.2E-03
6	-	42.4E-03	9.2E-03	59.6E-03	49.6E-03	63.6E-03	44.4E-03	62.4E-03	58.8E-03	58.0E-03	63.6E-03	51.6E-03	77.2E-03
7	-	5.2E-03	8.4E-03	22.4E-03	16.0E-03	20.0E-03	9.2E-03	27.2E-03	20.4E-03	20.8E-03	26.4E-03	16.8E-03	30.8E-03
Average	-	19.1E-03	8.8E-03	42.7E-03	36.0E-03	40.5E-03	30.4E-03	45.2E-03	42.3E-03	40.7E-03	44.4E-03	33.2E-03	55.7E-03
Sigma	-	16.6E-03	326.5E-06	15.4E-03	14.4E-03	17.9E-03	15.2E-03	14.4E-03	16.1E-03	15.3E-03	15.2E-03	14.3E-03	19.1E-03

Measurements

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
ON_TID samples													
11	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
12	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
13	-7.3	-7.3	-7.3	-7.2	-7.3	-7.3	-7.3	-7.2	-7.2	-7.3	-7.2	-7.3	-7.2
Statistics													
Min	-7.3	-7.3	-7.3	-7.2	-7.3	-7.3	-7.3	-7.2	-7.2	-7.3	-7.2	-7.3	-7.2
Max	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Average	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Sigma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Drift Calculation

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-37.2E-03	3.2E-03	-13.2E-03	-25.2E-03	-27.6E-03	-33.6E-03	-18.4E-03	-19.6E-03	-20.0E-03	-16.4E-03	-29.2E-03	-43.6E-03
12	-	-10.4E-03	12.8E-03	16.4E-03	0.0E+00	1.6E-03	-5.2E-03	5.6E-03	4.0E-03	3.2E-03	10.4E-03	32.8E-03	-9.6E-03
13	-	-14.8E-03	-4.4E-03	6.4E-03	-2.8E-03	-799.7E-06	-7.6E-03	6.4E-03	6.8E-03	3.6E-03	9.6E-03	-799.7E-06	17.6E-03
Average	-	-20.8E-03	3.9E-03	3.2E-03	-9.3E-03	-8.9E-03	-15.5E-03	-2.1E-03	-2.9E-03	-4.4E-03	1.2E-03	933.3E-06	-11.9E-03
Sigma	-	11.7E-03	7.0E-03	12.3E-03	11.3E-03	13.2E-03	12.9E-03	11.5E-03	11.8E-03	11.0E-03	12.4E-03	25.3E-03	25.0E-03

Measurements

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
OFF_PROTON samples													
2	-7.2	-7.3	-7.2	-7.2	-7.3	-7.3	-7.3	-7.2	-7.2	-7.3	-7.2	-7.3	-7.2
3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
4	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Statistics													
Min	-7.2	-7.3	-7.2	-7.2	-7.3	-7.3	-7.3	-7.2	-7.2	-7.3	-7.2	-7.3	-7.2
Max	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Average	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Sigma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Drift Calculation

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-24.4E-03	-4.8E-03	-4.0E-03	-13.2E-03	-11.6E-03	-20.4E-03	-4.4E-03	-6.4E-03	-10.0E-03	1.2E-03	-10.0E-03	24.8E-03
3	-	-5.6E-03	-9.2E-03	8.0E-03	2.0E-03	3.2E-03	0.0E+00	15.6E-03	10.0E-03	11.6E-03	15.6E-03	6.0E-03	12.0E-03
4	-	-64.8E-03	-14.4E-03	-57.2E-03	-55.2E-03	-55.2E-03	-59.2E-03	-42.8E-03	-50.0E-03	-51.6E-03	-42.4E-03	-51.6E-03	-44.0E-03
Average	-	-31.6E-03	-9.5E-03	-17.7E-03	-22.1E-03	-21.2E-03	-26.5E-03	-10.5E-03	-15.5E-03	-16.7E-03	-8.5E-03	-18.5E-03	-2.4E-03
Sigma	-	24.7E-03	3.9E-03	28.3E-03	24.2E-03	24.8E-03	24.6E-03	24.2E-03	25.3E-03	26.2E-03	24.7E-03	24.3E-03	29.9E-03

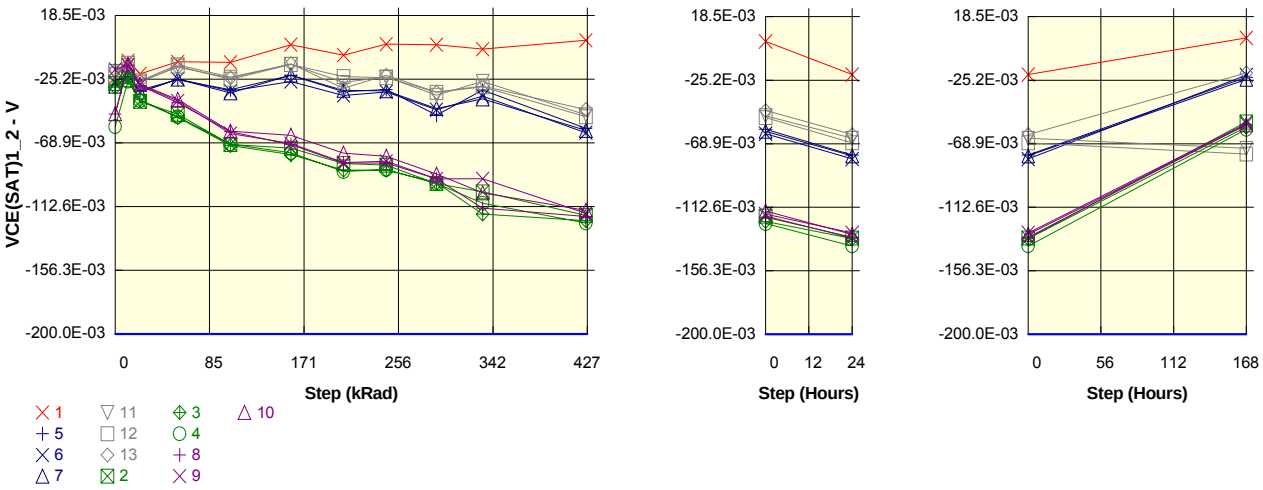
Measurements

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
OFF_TID samples													
8	-7.3	-7.2	-7.3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
9	-7.3	-7.2	-7.3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
10	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Statistics													
Min	-7.3	-7.2	-7.3	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Max	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Average	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2	-7.2
Sigma	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Drift Calculation

V(BR)EBO_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	52.8E-03	-799.7E-06	57.6E-03	68.0E-03	63.6E-03	61.2E-03	76.8E-03	68.8E-03	66.0E-03	74.8E-03	70.0E-03	71.6E-03
9	-	37.2E-03	2.4E-03	35.6E-03	52.4E-03	45.6E-03	37.6E-03	56.8E-03	53.6E-03	50.8E-03	53.6E-03	44.4E-03	54.8E-03
10	-	-33.6E-03	9.6E-03	-32.0E-03	-19.2E-03	-24.8E-03	-33.2E-03	-14.4E-03	-18.4E-03	-21.6E-03	-10.0E-03	-27.6E-03	-17.6E-03
Average	-	18.8E-03	3.7E-03	20.4E-03	33.7E-03	28.1E-03	21.9E-03	39.7E-03	34.7E-03	31.7E-03	39.5E-03	28.9E-03	36.3E-03
Sigma	-	37.6E-03	4.3E-03	38.1E-03	38.0E-03	38.1E-03	40.1E-03	39.1E-03	38.0E-03	38.2E-03	36.0E-03	41.3E-03	38.7E-03

Parameter : Collector-Emitter saturation voltage : VCE(SAT)1_2
Test conditions : Ic = -100µA ; Ib = -10µA
Unit : V
Spec Limit Min : -200.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.9E-03	-12.5E-03	-21.6E-03	-13.2E-03	-13.6E-03	-1.5E-03	-8.7E-03	-1.2E-03	-1.6E-03	-4.6E-03	1.5E-03	-21.4E-03	3.9E-03
ON_PROTON samples													
5	-29.2E-03	-23.4E-03	-32.7E-03	-25.6E-03	-32.5E-03	-22.5E-03	-33.7E-03	-32.3E-03	-50.0E-03	-32.7E-03	-59.0E-03	-76.8E-03	-23.2E-03
6	-27.3E-03	-22.8E-03	-34.1E-03	-25.0E-03	-33.4E-03	-26.8E-03	-36.3E-03	-34.0E-03	-46.2E-03	-36.9E-03	-62.0E-03	-79.4E-03	-21.8E-03
7	-29.9E-03	-23.1E-03	-34.0E-03	-25.2E-03	-34.6E-03	-22.4E-03	-32.9E-03	-33.2E-03	-45.4E-03	-38.8E-03	-60.4E-03	-77.2E-03	-24.6E-03
Statistics													
Min	-29.9E-03	-23.4E-03	-34.1E-03	-25.6E-03	-34.6E-03	-26.8E-03	-36.3E-03	-34.0E-03	-50.0E-03	-38.8E-03	-62.0E-03	-79.4E-03	-24.6E-03
Max	-27.3E-03	-22.8E-03	-32.7E-03	-25.0E-03	-32.5E-03	-22.4E-03	-32.9E-03	-32.3E-03	-45.4E-03	-32.7E-03	-59.0E-03	-76.8E-03	-21.8E-03
Average	-28.8E-03	-23.1E-03	-33.6E-03	-25.3E-03	-33.5E-03	-23.9E-03	-34.3E-03	-33.2E-03	-47.2E-03	-36.1E-03	-60.5E-03	-77.8E-03	-23.2E-03
Sigma	1.1E-03	228.6E-06	641.9E-06	240.7E-06	851.0E-06	2.0E-03	1.5E-03	670.1E-06	2.0E-03	2.5E-03	1.2E-03	1.2E-03	1.2E-03

Drift Calculation

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	5.8E-03	-3.5E-03	3.6E-03	-3.3E-03	6.7E-03	-4.5E-03	-3.1E-03	-20.8E-03	-3.5E-03	-29.8E-03	-47.6E-03	6.0E-03
6	-	4.5E-03	-6.8E-03	2.3E-03	-6.1E-03	520.0E-06	-9.0E-03	-6.6E-03	-18.9E-03	-9.6E-03	-34.7E-03	-52.1E-03	5.6E-03
7	-	6.8E-03	-4.1E-03	4.8E-03	-4.6E-03	7.5E-03	-3.0E-03	-3.3E-03	-15.5E-03	-8.9E-03	-30.5E-03	-47.3E-03	5.3E-03
Average	-	5.7E-03	-4.8E-03	3.5E-03	-4.7E-03	4.9E-03	-5.5E-03	-4.3E-03	-18.4E-03	-7.3E-03	-31.6E-03	-49.0E-03	5.6E-03
Sigma	-	950.1E-06	1.4E-03	1.0E-03	1.1E-03	3.1E-03	2.6E-03	1.6E-03	2.2E-03	2.7E-03	2.2E-03	2.2E-03	296.3E-06

Measurements

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.9E-03	-12.5E-03	-21.6E-03	-13.2E-03	-13.6E-03	-1.5E-03	-8.7E-03	-1.2E-03	-1.6E-03	-4.6E-03	1.5E-03	-21.4E-03	3.9E-03
ON_TID samples													
11	-21.8E-03	-14.3E-03	-26.3E-03	-15.4E-03	-23.8E-03	-15.0E-03	-27.5E-03	-23.6E-03	-36.3E-03	-26.7E-03	-49.6E-03	-65.1E-03	-72.1E-03
12	-19.9E-03	-16.0E-03	-27.2E-03	-16.3E-03	-25.3E-03	-15.1E-03	-23.4E-03	-24.1E-03	-34.2E-03	-30.5E-03	-51.0E-03	-68.3E-03	-76.0E-03
13	-19.3E-03	-15.3E-03	-26.7E-03	-17.0E-03	-24.4E-03	-14.6E-03	-31.4E-03	-22.6E-03	-34.1E-03	-30.0E-03	-46.1E-03	-62.6E-03	-20.2E-03
Statistics													
Min	-21.8E-03	-16.0E-03	-27.2E-03	-17.0E-03	-25.3E-03	-15.1E-03	-31.4E-03	-24.1E-03	-36.3E-03	-30.5E-03	-51.0E-03	-68.3E-03	-76.0E-03
Max	-19.3E-03	-14.3E-03	-26.3E-03	-15.4E-03	-23.8E-03	-14.6E-03	-23.4E-03	-22.6E-03	-34.1E-03	-26.7E-03	-46.1E-03	-62.6E-03	-20.2E-03
Average	-20.3E-03	-15.2E-03	-26.7E-03	-16.2E-03	-24.5E-03	-14.9E-03	-27.4E-03	-23.4E-03	-34.9E-03	-29.1E-03	-48.9E-03	-65.3E-03	-56.1E-03
Sigma	1.1E-03	672.8E-06	375.7E-06	655.6E-06	592.7E-06	198.7E-06	3.3E-03	652.4E-06	1.0E-03	1.7E-03	2.1E-03	2.3E-03	25.4E-03

Drift Calculation

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	7.4E-03	-4.5E-03	6.4E-03	-2.1E-03	6.7E-03	-5.7E-03	-1.9E-03	-14.5E-03	-4.9E-03	-27.9E-03	-43.4E-03	-50.4E-03
12	-	3.9E-03	-7.3E-03	3.6E-03	-5.4E-03	4.8E-03	-3.5E-03	-4.2E-03	-14.3E-03	-10.6E-03	-31.1E-03	-48.4E-03	-56.2E-03
13	-	4.0E-03	-7.4E-03	2.3E-03	-5.1E-03	4.6E-03	-12.1E-03	-3.3E-03	-14.8E-03	-10.7E-03	-26.8E-03	-43.4E-03	-920.0E-06
Average	-	5.1E-03	-6.4E-03	4.1E-03	-4.2E-03	5.4E-03	-7.1E-03	-3.1E-03	-14.5E-03	-8.7E-03	-28.6E-03	-45.0E-03	-35.8E-03
Sigma	-	1.6E-03	1.3E-03	1.7E-03	1.5E-03	945.1E-06	3.6E-03	969.0E-06	196.9E-06	2.7E-03	1.8E-03	2.4E-03	24.8E-03

Measurements

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.9E-03	-12.5E-03	-21.6E-03	-13.2E-03	-13.6E-03	-1.5E-03	-8.7E-03	-1.2E-03	-1.6E-03	-4.6E-03	1.5E-03	-21.4E-03	3.9E-03
OFF_PROTON samples													
2	-28.2E-03	-25.6E-03	-40.4E-03	-49.3E-03	-70.0E-03	-72.6E-03	-83.0E-03	-84.2E-03	-96.9E-03	-102.5E-03	-118.6E-03	-133.8E-03	-53.9E-03
3	-30.7E-03	-24.0E-03	-39.3E-03	-51.5E-03	-70.8E-03	-77.0E-03	-87.6E-03	-87.6E-03	-96.3E-03	-117.7E-03	-122.3E-03	-134.1E-03	-57.4E-03
4	-57.7E-03	-26.6E-03	-40.0E-03	-51.0E-03	-69.8E-03	-75.7E-03	-88.6E-03	-87.3E-03	-96.8E-03	-110.3E-03	-123.8E-03	-139.2E-03	-59.0E-03
Statistics													
Min	-57.7E-03	-26.6E-03	-40.4E-03	-51.5E-03	-70.8E-03	-77.0E-03	-88.6E-03	-87.6E-03	-96.9E-03	-117.7E-03	-123.8E-03	-139.2E-03	-59.0E-03
Max	-28.2E-03	-24.0E-03	-39.3E-03	-49.3E-03	-69.8E-03	-72.6E-03	-83.0E-03	-84.2E-03	-96.3E-03	-102.5E-03	-118.6E-03	-133.8E-03	-53.9E-03
Average	-38.9E-03	-25.4E-03	-39.9E-03	-50.6E-03	-70.2E-03	-75.1E-03	-86.4E-03	-86.3E-03	-96.7E-03	-110.2E-03	-121.6E-03	-135.7E-03	-56.8E-03
Sigma	13.4E-03	1.1E-03	449.0E-06	932.0E-06	421.2E-06	1.9E-03	2.4E-03	1.5E-03	259.2E-06	6.2E-03	2.2E-03	2.5E-03	2.1E-03

Drift Calculation

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	2.6E-03	-12.2E-03	-21.1E-03	-41.8E-03	-44.4E-03	-54.8E-03	-56.0E-03	-68.7E-03	-74.3E-03	-90.4E-03	-105.6E-03	-25.7E-03
3	-	6.7E-03	-8.6E-03	-20.8E-03	-40.0E-03	-46.2E-03	-56.9E-03	-56.8E-03	-65.6E-03	-87.0E-03	-91.6E-03	-103.4E-03	-26.7E-03
4	-	31.1E-03	17.7E-03	6.7E-03	-12.0E-03	-18.0E-03	-30.8E-03	-29.6E-03	-39.1E-03	-52.6E-03	-66.1E-03	-81.5E-03	-1.2E-03
Average	-	13.5E-03	-1000.0E-06	-11.7E-03	-31.3E-03	-36.2E-03	-47.5E-03	-47.5E-03	-57.8E-03	-71.3E-03	-82.7E-03	-96.8E-03	-17.9E-03
Sigma	-	12.6E-03	13.3E-03	13.0E-03	13.6E-03	12.9E-03	11.8E-03	12.7E-03	13.3E-03	14.2E-03	11.7E-03	10.9E-03	11.8E-03

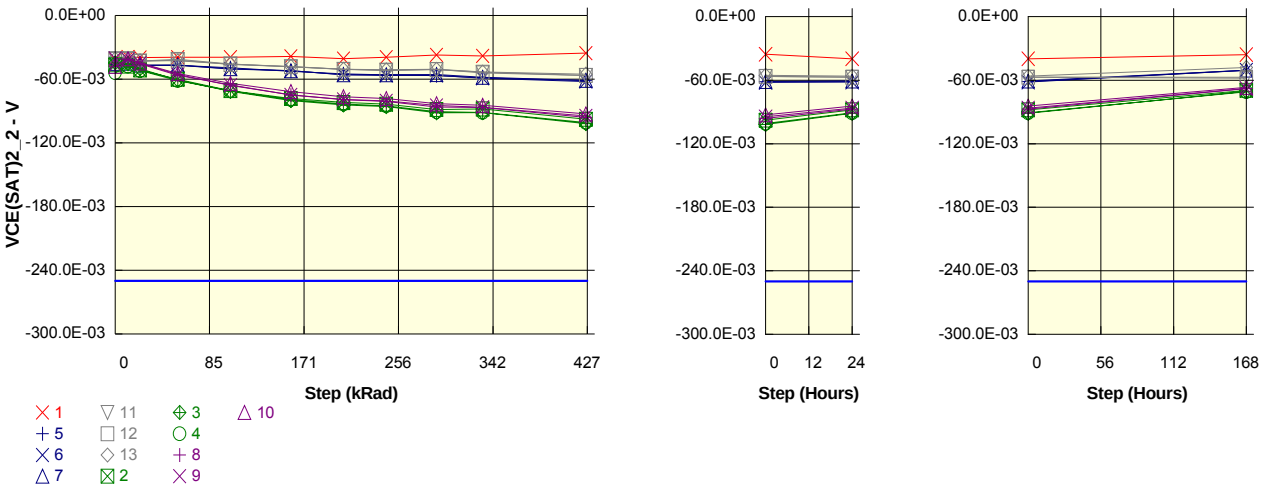
Measurements

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-23.9E-03	-12.5E-03	-21.6E-03	-13.2E-03	-13.6E-03	-1.5E-03	-8.7E-03	-1.2E-03	-1.6E-03	-4.6E-03	1.5E-03	-21.4E-03	3.9E-03
OFF_TID samples													
8	-49.1E-03	-15.5E-03	-29.6E-03	-41.4E-03	-61.3E-03	-70.1E-03	-82.8E-03	-82.7E-03	-93.6E-03	-113.8E-03	-119.4E-03	-133.2E-03	-55.6E-03
9	-18.6E-03	-15.6E-03	-29.2E-03	-40.1E-03	-62.5E-03	-69.4E-03	-82.5E-03	-81.6E-03	-93.6E-03	-93.5E-03	-117.2E-03	-130.2E-03	-55.1E-03
10	-48.9E-03	-14.9E-03	-28.8E-03	-39.1E-03	-60.8E-03	-63.7E-03	-75.9E-03	-78.1E-03	-90.4E-03	-103.1E-03	-115.2E-03	-131.3E-03	-56.0E-03
Statistics													
Min	-49.1E-03	-15.6E-03	-29.6E-03	-41.4E-03	-62.5E-03	-70.1E-03	-82.8E-03	-82.7E-03	-93.6E-03	-113.8E-03	-119.4E-03	-133.2E-03	-56.0E-03
Max	-18.6E-03	-14.9E-03	-28.8E-03	-39.1E-03	-60.8E-03	-63.7E-03	-75.9E-03	-78.1E-03	-90.4E-03	-93.5E-03	-115.2E-03	-130.2E-03	-55.1E-03
Average	-38.9E-03	-15.3E-03	-29.2E-03	-40.2E-03	-61.5E-03	-67.7E-03	-80.4E-03	-80.8E-03	-92.5E-03	-103.5E-03	-117.3E-03	-131.6E-03	-55.6E-03
Sigma	14.4E-03	303.5E-06	326.6E-06	933.1E-06	706.5E-06	2.8E-03	3.2E-03	1.9E-03	1.5E-03	8.3E-03	1.7E-03	1.2E-03	359.8E-06

Drift Calculation

VCE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	33.6E-03	19.6E-03	7.7E-03	-12.2E-03	-21.0E-03	-33.6E-03	-33.6E-03	-44.5E-03	-64.6E-03	-70.2E-03	-84.1E-03	-6.5E-03
9	-	3.0E-03	-10.6E-03	-21.6E-03	-43.9E-03	-50.8E-03	-63.9E-03	-63.0E-03	-75.1E-03	-74.9E-03	-98.7E-03	-111.7E-03	-36.6E-03
10	-	34.0E-03	20.2E-03	9.8E-03	-11.9E-03	-14.8E-03	-27.0E-03	-29.2E-03	-41.5E-03	-54.2E-03	-66.3E-03	-82.4E-03	-7.1E-03
Average	-	23.5E-03	9.7E-03	-1.3E-03	-22.7E-03	-28.9E-03	-41.5E-03	-41.9E-03	-53.7E-03	-64.6E-03	-78.4E-03	-92.7E-03	-16.7E-03
Sigma	-	14.5E-03	14.4E-03	14.3E-03	15.0E-03	15.7E-03	16.1E-03	15.0E-03	15.2E-03	8.5E-03	14.4E-03	13.4E-03	14.0E-03

Parameter : Collector-Emitter saturation voltage : VCE(SAT)2_2
Test conditions : Ic = -1mA ; Ib = -100µA
Unit : V
Spec Limit Min : -250.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.6E-03	-39.1E-03	-39.7E-03	-39.2E-03	-39.3E-03	-38.6E-03	-40.7E-03	-39.4E-03	-37.2E-03	-38.1E-03	-35.5E-03	-39.8E-03	-35.8E-03
ON_PROTON samples													
5	-46.4E-03	-45.6E-03	-46.8E-03	-46.9E-03	-49.3E-03	-52.5E-03	-55.0E-03	-56.0E-03	-56.7E-03	-58.8E-03	-61.4E-03	-61.3E-03	-50.7E-03
6	-45.4E-03	-45.3E-03	-47.1E-03	-46.8E-03	-50.5E-03	-52.1E-03	-56.1E-03	-56.6E-03	-56.4E-03	-59.2E-03	-62.2E-03	-61.8E-03	-50.5E-03
7	-45.2E-03	-44.9E-03	-46.9E-03	-46.7E-03	-50.1E-03	-52.0E-03	-55.9E-03	-55.8E-03	-55.7E-03	-58.2E-03	-61.2E-03	-60.8E-03	-50.6E-03
Statistics													
Min	-46.4E-03	-45.6E-03	-47.1E-03	-46.9E-03	-50.5E-03	-52.5E-03	-56.1E-03	-56.6E-03	-56.7E-03	-59.2E-03	-62.2E-03	-61.8E-03	-50.7E-03
Max	-45.2E-03	-44.9E-03	-46.8E-03	-46.7E-03	-49.3E-03	-52.0E-03	-55.0E-03	-55.8E-03	-55.7E-03	-58.2E-03	-61.2E-03	-60.8E-03	-50.5E-03
Average	-45.6E-03	-45.3E-03	-46.9E-03	-46.8E-03	-50.0E-03	-52.2E-03	-55.7E-03	-56.1E-03	-56.3E-03	-58.7E-03	-61.6E-03	-61.3E-03	-50.6E-03
Sigma	524.9E-06	293.9E-06	99.8E-06	82.2E-06	495.7E-06	228.6E-06	450.6E-06	308.7E-06	407.9E-06	396.0E-06	419.9E-06	375.7E-06	86.4E-06

Drift Calculation

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	720.0E-06	-480.0E-06	-520.0E-06	-3.0E-03	-6.2E-03	-8.7E-03	-9.6E-03	-10.3E-03	-12.4E-03	-15.0E-03	-14.9E-03	-4.3E-03
6	-	80.0E-06	-1.7E-03	-1.4E-03	-5.2E-03	-6.7E-03	-10.7E-03	-11.2E-03	-11.1E-03	-13.8E-03	-16.8E-03	-16.4E-03	-5.1E-03
7	-	240.0E-06	-1.8E-03	-1.5E-03	-4.9E-03	-6.8E-03	-10.7E-03	-10.7E-03	-10.6E-03	-13.0E-03	-16.0E-03	-15.7E-03	-5.5E-03
Average	-	346.7E-06	-1.3E-03	-1.2E-03	-4.3E-03	-6.6E-03	-10.0E-03	-10.5E-03	-10.7E-03	-13.1E-03	-15.9E-03	-15.7E-03	-5.0E-03
Sigma	-	271.9E-06	594.2E-06	453.7E-06	985.4E-06	296.3E-06	961.7E-06	648.6E-06	317.2E-06	556.5E-06	737.8E-06	604.3E-06	484.8E-06

Measurements

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.6E-03	-39.1E-03	-39.7E-03	-39.2E-03	-39.3E-03	-38.6E-03	-40.7E-03	-39.4E-03	-37.2E-03	-38.1E-03	-35.5E-03	-39.8E-03	-35.8E-03
ON_TID samples													
11	-40.7E-03	-40.6E-03	-42.8E-03	-41.4E-03	-45.6E-03	-48.4E-03	-50.6E-03	-51.6E-03	-50.8E-03	-54.1E-03	-56.5E-03	-57.0E-03	-57.3E-03
12	-41.4E-03	-41.4E-03	-43.3E-03	-42.1E-03	-46.2E-03	-48.3E-03	-50.9E-03	-51.9E-03	-51.1E-03	-53.4E-03	-56.5E-03	-57.2E-03	-58.2E-03
13	-40.8E-03	-41.1E-03	-42.6E-03	-42.8E-03	-45.8E-03	-48.0E-03	-50.6E-03	-51.1E-03	-50.6E-03	-53.3E-03	-55.4E-03	-56.2E-03	-47.9E-03
Statistics													
Min	-41.4E-03	-41.4E-03	-43.3E-03	-42.8E-03	-46.2E-03	-48.4E-03	-50.9E-03	-51.9E-03	-51.1E-03	-54.1E-03	-56.5E-03	-57.2E-03	-58.2E-03
Max	-40.7E-03	-40.6E-03	-42.6E-03	-41.4E-03	-45.6E-03	-48.0E-03	-50.6E-03	-51.1E-03	-50.6E-03	-53.3E-03	-55.4E-03	-56.2E-03	-47.9E-03
Average	-41.0E-03	-41.0E-03	-42.9E-03	-42.1E-03	-45.8E-03	-48.2E-03	-50.7E-03	-51.5E-03	-50.8E-03	-53.6E-03	-56.1E-03	-56.8E-03	-54.5E-03
Sigma	327.1E-06	344.1E-06	267.3E-06	571.6E-06	235.5E-06	172.8E-06	150.8E-06	327.1E-06	196.0E-06	370.9E-06	518.8E-06	432.0E-06	4.7E-03

Drift Calculation

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	80.0E-06	-2.2E-03	-720.0E-06	-4.9E-03	-7.7E-03	-9.9E-03	-10.9E-03	-10.2E-03	-13.4E-03	-15.8E-03	-16.4E-03	-16.6E-03
12	-	0.0E+00	-1.8E-03	-680.0E-06	-4.7E-03	-6.9E-03	-9.5E-03	-10.5E-03	-9.6E-03	-12.0E-03	-15.1E-03	-15.8E-03	-16.8E-03
13	-	-240.0E-06	-1.8E-03	-2.0E-03	-4.9E-03	-7.2E-03	-9.8E-03	-10.3E-03	-9.8E-03	-12.4E-03	-14.6E-03	-15.4E-03	-7.1E-03
Average	-	-53.3E-06	-1.9E-03	-1.1E-03	-4.9E-03	-7.3E-03	-9.7E-03	-10.5E-03	-9.9E-03	-12.6E-03	-15.1E-03	-15.9E-03	-13.5E-03
Sigma	-	136.0E-06	161.1E-06	594.2E-06	94.3E-06	349.2E-06	181.8E-06	249.4E-06	222.3E-06	616.5E-06	508.4E-06	393.7E-06	4.5E-03

Measurements

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.6E-03	-39.1E-03	-39.7E-03	-39.2E-03	-39.3E-03	-38.6E-03	-40.7E-03	-39.4E-03	-37.2E-03	-38.1E-03	-35.5E-03	-39.8E-03	-35.8E-03
OFF_PROTON samples													
2	-46.6E-03	-47.7E-03	-51.4E-03	-60.2E-03	-70.8E-03	-78.2E-03	-82.0E-03	-83.6E-03	-88.6E-03	-88.0E-03	-97.8E-03	-88.0E-03	-69.6E-03
3	-44.6E-03	-45.7E-03	-50.1E-03	-60.8E-03	-71.6E-03	-80.1E-03	-84.2E-03	-85.8E-03	-91.7E-03	-91.5E-03	-101.9E-03	-91.1E-03	-70.6E-03
4	-53.9E-03	-47.6E-03	-51.8E-03	-61.4E-03	-71.1E-03	-79.2E-03	-83.4E-03	-85.1E-03	-90.6E-03	-91.3E-03	-100.8E-03	-90.8E-03	-70.9E-03
Statistics													
Min	-53.9E-03	-47.7E-03	-51.8E-03	-61.4E-03	-71.6E-03	-80.1E-03	-84.2E-03	-85.8E-03	-91.7E-03	-91.5E-03	-101.9E-03	-91.1E-03	-70.9E-03
Max	-44.6E-03	-45.7E-03	-50.1E-03	-60.2E-03	-70.8E-03	-78.2E-03	-82.0E-03	-83.6E-03	-88.6E-03	-88.0E-03	-97.8E-03	-88.0E-03	-69.6E-03
Average	-48.3E-03	-47.0E-03	-51.1E-03	-60.8E-03	-71.1E-03	-79.2E-03	-83.2E-03	-84.8E-03	-90.3E-03	-90.3E-03	-100.2E-03	-90.0E-03	-70.4E-03
Sigma	4.0E-03	897.0E-06	724.7E-06	489.9E-06	328.8E-06	752.1E-06	941.5E-06	937.7E-06	1.3E-03	1.6E-03	1.7E-03	1.4E-03	557.1E-06

Drift Calculation

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-1.1E-03	-4.8E-03	-13.6E-03	-24.2E-03	-31.6E-03	-35.4E-03	-37.0E-03	-42.0E-03	-41.4E-03	-51.2E-03	-41.4E-03	-23.0E-03
3	-	-1.2E-03	-5.6E-03	-16.2E-03	-27.0E-03	-35.5E-03	-39.7E-03	-41.2E-03	-47.2E-03	-46.9E-03	-57.3E-03	-46.6E-03	-26.0E-03
4	-	6.3E-03	2.0E-03	-7.5E-03	-17.2E-03	-25.4E-03	-29.5E-03	-31.2E-03	-36.8E-03	-37.4E-03	-47.0E-03	-36.9E-03	-17.0E-03
Average	-	1.4E-03	-2.8E-03	-12.4E-03	-22.8E-03	-30.8E-03	-34.9E-03	-36.5E-03	-42.0E-03	-41.9E-03	-51.8E-03	-41.6E-03	-22.0E-03
Sigma	-	3.5E-03	3.4E-03	3.7E-03	4.1E-03	4.2E-03	4.2E-03	4.1E-03	4.2E-03	3.9E-03	4.3E-03	4.0E-03	3.7E-03

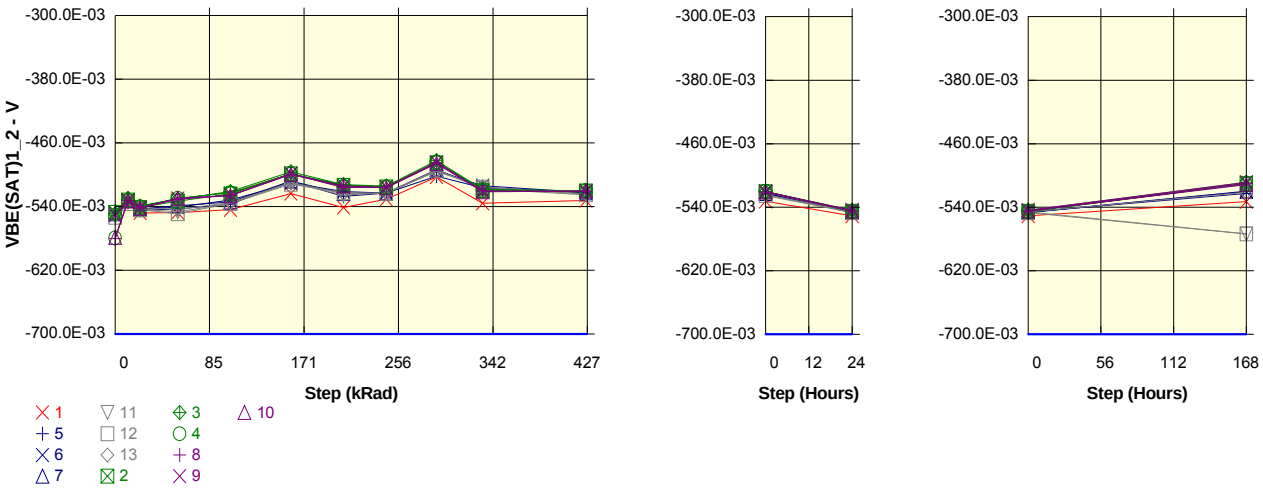
Measurements

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-41.6E-03	-39.1E-03	-39.7E-03	-39.2E-03	-39.3E-03	-38.6E-03	-40.7E-03	-39.4E-03	-37.2E-03	-38.1E-03	-35.5E-03	-39.8E-03	-35.8E-03
OFF_TID samples													
8	-48.3E-03	-41.6E-03	-45.5E-03	-56.3E-03	-65.6E-03	-75.0E-03	-79.3E-03	-81.1E-03	-86.2E-03	-86.7E-03	-96.0E-03	-87.3E-03	-68.0E-03
9	-40.6E-03	-41.4E-03	-45.0E-03	-55.6E-03	-65.8E-03	-74.8E-03	-79.1E-03	-80.5E-03	-84.9E-03	-86.5E-03	-94.6E-03	-86.4E-03	-67.9E-03
10	-48.1E-03	-40.9E-03	-44.8E-03	-54.7E-03	-64.0E-03	-71.8E-03	-76.5E-03	-78.2E-03	-83.2E-03	-84.6E-03	-92.8E-03	-84.4E-03	-66.8E-03
Statistics													
Min	-48.3E-03	-41.6E-03	-45.5E-03	-56.3E-03	-65.8E-03	-75.0E-03	-79.3E-03	-81.1E-03	-86.2E-03	-86.7E-03	-96.0E-03	-87.3E-03	-68.0E-03
Max	-40.6E-03	-40.9E-03	-44.8E-03	-54.7E-03	-64.0E-03	-71.8E-03	-76.5E-03	-78.2E-03	-83.2E-03	-84.6E-03	-92.8E-03	-84.4E-03	-66.8E-03
Average	-45.6E-03	-41.3E-03	-45.1E-03	-55.5E-03	-65.1E-03	-73.8E-03	-78.3E-03	-79.9E-03	-84.7E-03	-85.9E-03	-94.5E-03	-86.0E-03	-67.6E-03
Sigma	3.6E-03	299.3E-06	271.9E-06	654.3E-06	786.8E-06	1.5E-03	1.3E-03	1.2E-03	1.2E-03	947.9E-06	1.3E-03	1.2E-03	569.4E-06

Drift Calculation

VCE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	6.7E-03	2.8E-03	-8.0E-03	-17.3E-03	-26.7E-03	-31.0E-03	-32.8E-03	-37.9E-03	-38.4E-03	-47.7E-03	-39.0E-03	-19.8E-03
9	-	-800.0E-06	-4.4E-03	-15.0E-03	-25.2E-03	-34.2E-03	-38.5E-03	-39.9E-03	-44.3E-03	-45.9E-03	-54.0E-03	-45.8E-03	-27.3E-03
10	-	7.2E-03	3.2E-03	-6.6E-03	-15.9E-03	-23.7E-03	-28.4E-03	-30.2E-03	-35.1E-03	-36.5E-03	-44.7E-03	-36.3E-03	-18.7E-03
Average	-	4.4E-03	533.3E-06	-9.9E-03	-19.5E-03	-28.2E-03	-32.6E-03	-34.3E-03	-39.1E-03	-40.3E-03	-48.8E-03	-40.4E-03	-21.9E-03
Sigma	-	3.7E-03	3.5E-03	3.7E-03	4.1E-03	4.4E-03	4.3E-03	4.1E-03	3.9E-03	4.1E-03	3.9E-03	4.0E-03	3.8E-03

Parameter : Base-Emitter saturation voltage : VBE(SAT)1_2
Test conditions : Ic = -100µA ; Ib = -10µA
Unit : V
Spec Limit Min : -700.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-547.6E-03	-535.0E-03	-548.0E-03	-547.5E-03	-544.0E-03	-523.7E-03	-541.2E-03	-530.7E-03	-502.8E-03	-535.8E-03	-532.4E-03	-550.9E-03	-532.8E-03
ON_PROTON samples													
5	-545.3E-03	-531.4E-03	-544.8E-03	-543.0E-03	-536.9E-03	-508.1E-03	-527.0E-03	-523.2E-03	-501.8E-03	-516.6E-03	-523.0E-03	-546.0E-03	-522.6E-03
6	-549.0E-03	-531.6E-03	-543.0E-03	-540.9E-03	-531.8E-03	-510.6E-03	-521.2E-03	-523.3E-03	-495.1E-03	-513.8E-03	-522.3E-03	-546.8E-03	-520.3E-03
7	-549.2E-03	-532.4E-03	-543.0E-03	-539.1E-03	-534.1E-03	-508.1E-03	-523.5E-03	-523.0E-03	-493.5E-03	-515.8E-03	-522.8E-03	-546.5E-03	-519.7E-03
Statistics													
Min	-549.2E-03	-532.4E-03	-544.8E-03	-543.0E-03	-536.9E-03	-510.6E-03	-527.0E-03	-523.3E-03	-501.8E-03	-516.6E-03	-523.0E-03	-546.8E-03	-522.6E-03
Max	-545.3E-03	-531.4E-03	-543.0E-03	-539.1E-03	-531.8E-03	-508.1E-03	-521.2E-03	-523.0E-03	-493.5E-03	-513.8E-03	-522.3E-03	-546.0E-03	-519.7E-03
Average	-547.8E-03	-531.8E-03	-543.6E-03	-541.0E-03	-534.3E-03	-508.9E-03	-523.9E-03	-523.2E-03	-496.8E-03	-515.4E-03	-522.7E-03	-546.4E-03	-520.9E-03
Sigma	1.8E-03	419.9E-06	829.7E-06	1.6E-03	2.1E-03	1.2E-03	2.4E-03	105.0E-06	3.6E-03	1.2E-03	272.0E-06	313.8E-06	1.3E-03

Drift Calculation

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	13.9E-03	520.0E-06	2.4E-03	8.4E-03	37.2E-03	18.3E-03	22.1E-03	43.5E-03	28.7E-03	22.4E-03	-680.0E-06	22.7E-03
6	-	17.4E-03	6.0E-03	8.1E-03	17.3E-03	38.4E-03	27.8E-03	25.8E-03	54.0E-03	35.2E-03	26.7E-03	2.3E-03	28.7E-03
7	-	16.8E-03	6.1E-03	10.0E-03	15.0E-03	41.1E-03	25.7E-03	26.1E-03	55.7E-03	33.4E-03	26.4E-03	2.7E-03	29.5E-03
Average	-	16.0E-03	4.2E-03	6.8E-03	13.6E-03	38.9E-03	23.9E-03	24.7E-03	51.1E-03	32.4E-03	25.1E-03	1.4E-03	27.0E-03
Sigma	-	1.5E-03	2.6E-03	3.3E-03	3.8E-03	1.6E-03	4.1E-03	1.8E-03	5.4E-03	2.7E-03	2.0E-03	1.5E-03	3.0E-03

Measurements

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-547.6E-03	-535.0E-03	-548.0E-03	-547.5E-03	-544.0E-03	-523.7E-03	-541.2E-03	-530.7E-03	-502.8E-03	-535.8E-03	-532.4E-03	-550.9E-03	-532.8E-03
ON_TID samples													
11	-551.5E-03	-534.3E-03	-543.1E-03	-546.7E-03	-535.8E-03	-510.4E-03	-525.4E-03	-522.8E-03	-495.9E-03	-515.6E-03	-524.5E-03	-545.9E-03	-573.6E-03
12	-553.3E-03	-536.3E-03	-544.0E-03	-548.9E-03	-536.2E-03	-511.9E-03	-522.6E-03	-523.4E-03	-494.0E-03	-517.4E-03	-525.2E-03	-546.6E-03	-573.6E-03
13	-550.3E-03	-533.3E-03	-541.7E-03	-543.3E-03	-535.2E-03	-509.6E-03	-523.3E-03	-523.2E-03	-495.1E-03	-515.4E-03	-524.0E-03	-546.1E-03	-521.1E-03
Statistics													
Min	-553.3E-03	-536.3E-03	-544.0E-03	-548.9E-03	-536.2E-03	-511.9E-03	-525.4E-03	-523.4E-03	-495.9E-03	-517.4E-03	-525.2E-03	-546.6E-03	-573.6E-03
Max	-550.3E-03	-533.3E-03	-541.7E-03	-543.3E-03	-535.2E-03	-509.6E-03	-522.6E-03	-522.8E-03	-494.0E-03	-515.4E-03	-524.0E-03	-545.9E-03	-521.1E-03
Average	-551.7E-03	-534.6E-03	-542.9E-03	-546.3E-03	-535.7E-03	-510.7E-03	-523.8E-03	-523.1E-03	-495.0E-03	-516.1E-03	-524.5E-03	-546.2E-03	-556.1E-03
Sigma	1.2E-03	1.3E-03	956.3E-06	2.3E-03	413.5E-06	947.9E-06	1.2E-03	229.4E-06	785.9E-06	899.4E-06	490.3E-06	321.6E-06	24.7E-03

Drift Calculation

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	17.2E-03	8.4E-03	4.8E-03	15.7E-03	41.1E-03	26.1E-03	28.7E-03	55.6E-03	36.0E-03	27.0E-03	5.6E-03	-22.1E-03
12	-	17.0E-03	9.3E-03	4.4E-03	17.2E-03	41.4E-03	30.7E-03	29.9E-03	59.3E-03	36.0E-03	28.2E-03	6.7E-03	-20.2E-03
13	-	17.0E-03	8.6E-03	7.0E-03	15.2E-03	40.7E-03	27.0E-03	27.2E-03	55.2E-03	35.0E-03	26.4E-03	4.2E-03	29.2E-03
Average	-	17.1E-03	8.8E-03	5.4E-03	16.0E-03	41.1E-03	27.9E-03	28.6E-03	56.7E-03	35.6E-03	27.2E-03	5.5E-03	-4.4E-03
Sigma	-	86.4E-06	389.6E-06	1.1E-03	842.4E-06	296.3E-06	2.0E-03	1.1E-03	1.8E-03	471.4E-06	745.0E-06	999.7E-06	23.8E-03

Measurements

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-547.6E-03	-535.0E-03	-548.0E-03	-547.5E-03	-544.0E-03	-523.7E-03	-541.2E-03	-530.7E-03	-502.8E-03	-535.8E-03	-532.4E-03	-550.9E-03	-532.8E-03
OFF_PROTON samples													
2	-547.4E-03	-531.9E-03	-541.1E-03	-533.2E-03	-524.0E-03	-498.9E-03	-513.3E-03	-515.4E-03	-485.2E-03	-520.0E-03	-520.4E-03	-545.0E-03	-510.3E-03
3	-548.8E-03	-529.8E-03	-539.4E-03	-530.8E-03	-521.2E-03	-496.4E-03	-512.3E-03	-514.2E-03	-482.2E-03	-518.4E-03	-520.3E-03	-543.6E-03	-508.4E-03
4	-579.4E-03	-532.7E-03	-540.2E-03	-529.7E-03	-522.8E-03	-498.8E-03	-514.7E-03	-515.7E-03	-484.1E-03	-519.8E-03	-520.0E-03	-545.4E-03	-510.5E-03
Statistics													
Min	-579.4E-03	-532.7E-03	-541.1E-03	-533.2E-03	-524.0E-03	-498.9E-03	-514.7E-03	-515.7E-03	-485.2E-03	-520.0E-03	-520.4E-03	-545.4E-03	-510.5E-03
Max	-547.4E-03	-529.8E-03	-539.4E-03	-529.7E-03	-521.2E-03	-496.4E-03	-512.3E-03	-514.2E-03	-482.2E-03	-518.4E-03	-520.0E-03	-543.6E-03	-508.4E-03
Average	-558.5E-03	-531.5E-03	-540.2E-03	-531.2E-03	-522.7E-03	-498.0E-03	-513.4E-03	-515.1E-03	-483.9E-03	-519.4E-03	-520.3E-03	-544.7E-03	-509.7E-03
Sigma	14.8E-03	1.2E-03	718.5E-06	1.5E-03	1.2E-03	1.2E-03	1.0E-03	617.4E-06	1.2E-03	685.8E-06	164.4E-06	740.7E-06	947.9E-06

Drift Calculation

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	15.5E-03	6.3E-03	14.2E-03	23.4E-03	48.5E-03	34.1E-03	32.0E-03	62.2E-03	27.4E-03	27.0E-03	2.4E-03	37.1E-03
3	-	19.0E-03	9.4E-03	18.0E-03	27.6E-03	52.4E-03	36.5E-03	34.5E-03	66.5E-03	30.3E-03	28.5E-03	5.1E-03	40.4E-03
4	-	46.7E-03	39.2E-03	49.7E-03	56.6E-03	80.6E-03	64.7E-03	63.7E-03	95.3E-03	59.6E-03	59.4E-03	34.0E-03	68.9E-03
Average	-	27.1E-03	18.3E-03	27.3E-03	35.9E-03	60.5E-03	45.1E-03	43.4E-03	74.7E-03	39.1E-03	38.3E-03	13.9E-03	48.8E-03
Sigma	-	13.9E-03	14.8E-03	15.9E-03	14.8E-03	14.3E-03	13.9E-03	14.4E-03	14.7E-03	14.6E-03	14.9E-03	14.3E-03	14.3E-03

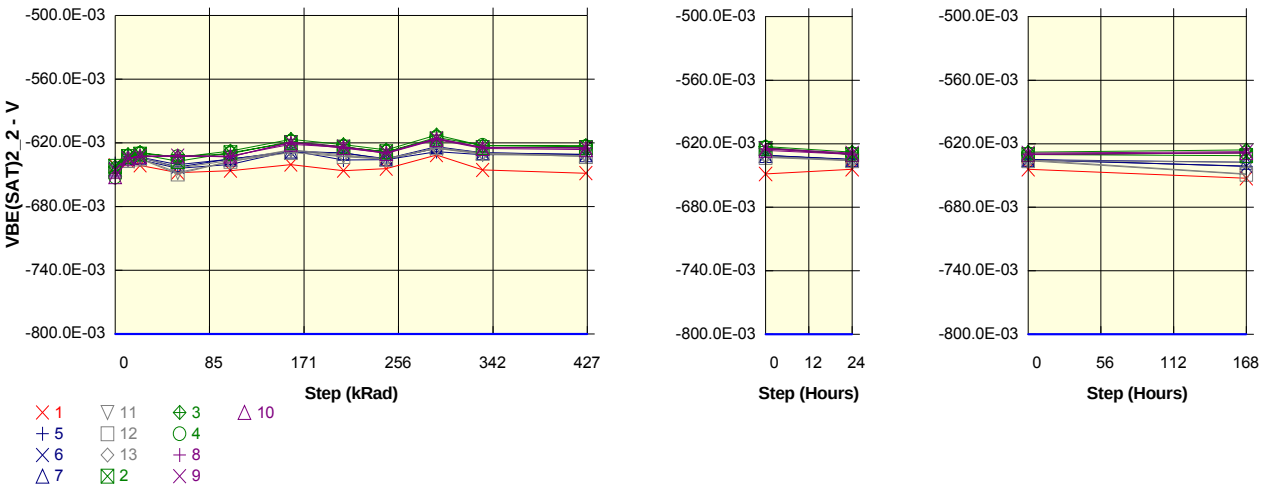
Measurements

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-547.6E-03	-535.0E-03	-548.0E-03	-547.5E-03	-544.0E-03	-523.7E-03	-541.2E-03	-530.7E-03	-502.8E-03	-535.8E-03	-532.4E-03	-550.9E-03	-532.8E-03
OFF_TID samples													
8	-580.2E-03	-532.4E-03	-541.8E-03	-530.8E-03	-526.0E-03	-499.3E-03	-516.0E-03	-515.7E-03	-485.0E-03	-520.2E-03	-520.9E-03	-544.8E-03	-509.9E-03
9	-551.0E-03	-533.0E-03	-541.3E-03	-529.8E-03	-526.0E-03	-498.9E-03	-515.7E-03	-516.0E-03	-484.4E-03	-521.3E-03	-520.6E-03	-543.8E-03	-508.8E-03
10	-578.6E-03	-533.1E-03	-542.0E-03	-529.7E-03	-526.4E-03	-499.4E-03	-513.7E-03	-516.6E-03	-486.0E-03	-521.4E-03	-520.7E-03	-544.7E-03	-511.6E-03
Statistics													
Min	-580.2E-03	-533.1E-03	-542.0E-03	-530.8E-03	-526.4E-03	-499.4E-03	-516.0E-03	-516.6E-03	-486.0E-03	-521.4E-03	-520.9E-03	-544.8E-03	-511.6E-03
Max	-551.0E-03	-532.4E-03	-541.3E-03	-529.7E-03	-526.0E-03	-498.9E-03	-513.7E-03	-515.7E-03	-484.4E-03	-520.2E-03	-520.6E-03	-543.8E-03	-508.8E-03
Average	-570.0E-03	-532.8E-03	-541.7E-03	-530.1E-03	-526.1E-03	-499.2E-03	-515.1E-03	-516.1E-03	-485.1E-03	-521.0E-03	-520.7E-03	-544.5E-03	-510.1E-03
Sigma	13.4E-03	311.5E-06	308.7E-06	483.3E-06	191.4E-06	217.5E-06	1.0E-03	363.7E-06	627.7E-06	510.2E-06	123.6E-06	464.6E-06	1.1E-03

Drift Calculation

VBE(SAT)1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	47.8E-03	38.4E-03	49.5E-03	54.2E-03	81.0E-03	64.2E-03	64.6E-03	95.2E-03	60.0E-03	59.3E-03	35.4E-03	70.3E-03
9	-	18.0E-03	9.7E-03	21.2E-03	25.0E-03	52.1E-03	35.3E-03	35.0E-03	66.6E-03	29.7E-03	30.4E-03	7.2E-03	42.2E-03
10	-	45.6E-03	36.6E-03	49.0E-03	52.2E-03	79.2E-03	64.9E-03	62.1E-03	92.7E-03	57.3E-03	58.0E-03	33.9E-03	67.1E-03
Average	-	37.1E-03	28.3E-03	39.9E-03	43.8E-03	70.7E-03	54.8E-03	53.9E-03	84.8E-03	49.0E-03	49.2E-03	25.5E-03	59.9E-03
Sigma	-	13.6E-03	13.1E-03	13.2E-03	13.3E-03	13.2E-03	13.8E-03	13.4E-03	13.0E-03	13.7E-03	13.3E-03	13.0E-03	12.5E-03

Parameter : Base-Emitter saturation voltage : VBE(SAT)2_2
Test conditions : Ic = -1mA ; Ib = -100µA
Unit : V
Spec Limit Min : -800.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-641.1E-03	-637.4E-03	-641.2E-03	-648.0E-03	-646.2E-03	-640.5E-03	-646.2E-03	-644.4E-03	-631.5E-03	-645.5E-03	-648.5E-03	-644.0E-03	-652.5E-03
ON_PROTON samples													
5	-639.4E-03	-632.8E-03	-635.9E-03	-644.0E-03	-640.3E-03	-627.4E-03	-636.2E-03	-635.8E-03	-628.2E-03	-631.1E-03	-630.9E-03	-634.8E-03	-641.5E-03
6	-644.3E-03	-633.4E-03	-634.0E-03	-642.7E-03	-635.2E-03	-628.9E-03	-629.4E-03	-635.5E-03	-625.1E-03	-629.2E-03	-630.9E-03	-635.4E-03	-641.2E-03
7	-644.6E-03	-633.5E-03	-633.4E-03	-640.5E-03	-635.4E-03	-627.7E-03	-629.6E-03	-634.9E-03	-623.6E-03	-629.3E-03	-631.2E-03	-635.1E-03	-637.5E-03
Statistics													
Min	-644.6E-03	-633.5E-03	-635.9E-03	-644.0E-03	-640.3E-03	-628.9E-03	-636.2E-03	-635.8E-03	-628.2E-03	-631.1E-03	-631.2E-03	-635.4E-03	-641.5E-03
Max	-639.4E-03	-632.8E-03	-633.4E-03	-640.5E-03	-635.2E-03	-627.4E-03	-629.4E-03	-634.9E-03	-623.6E-03	-629.2E-03	-630.9E-03	-634.8E-03	-637.5E-03
Average	-642.8E-03	-633.2E-03	-634.4E-03	-642.4E-03	-637.0E-03	-628.0E-03	-631.7E-03	-635.4E-03	-625.7E-03	-629.9E-03	-631.0E-03	-635.1E-03	-640.1E-03
Sigma	2.4E-03	341.0E-06	1.1E-03	1.5E-03	2.4E-03	642.0E-06	3.2E-03	381.3E-06	1.9E-03	877.0E-06	150.9E-06	261.3E-06	1.8E-03

Drift Calculation

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	6.7E-03	3.5E-03	-4.6E-03	-880.0E-06	12.0E-03	3.3E-03	3.6E-03	11.2E-03	8.3E-03	8.5E-03	4.7E-03	-2.1E-03
6	-	10.8E-03	10.3E-03	1.6E-03	9.1E-03	15.4E-03	14.9E-03	8.8E-03	19.2E-03	15.0E-03	13.4E-03	8.9E-03	3.1E-03
7	-	11.1E-03	11.2E-03	4.1E-03	9.2E-03	16.9E-03	15.0E-03	9.7E-03	21.0E-03	15.3E-03	13.4E-03	9.5E-03	7.1E-03
Average	-	9.5E-03	8.4E-03	373.3E-06	5.8E-03	14.7E-03	11.1E-03	7.3E-03	17.1E-03	12.9E-03	11.7E-03	7.7E-03	2.7E-03
Sigma	-	2.0E-03	3.4E-03	3.6E-03	4.7E-03	2.0E-03	5.5E-03	2.7E-03	4.3E-03	3.2E-03	2.3E-03	2.1E-03	3.7E-03

Measurements

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-641.1E-03	-637.4E-03	-641.2E-03	-648.0E-03	-646.2E-03	-640.5E-03	-646.2E-03	-644.4E-03	-631.5E-03	-645.5E-03	-648.5E-03	-644.0E-03	-652.5E-03
ON_TID samples													
11	-646.2E-03	-636.0E-03	-634.8E-03	-647.8E-03	-637.8E-03	-627.2E-03	-632.5E-03	-634.9E-03	-625.4E-03	-630.7E-03	-632.6E-03	-635.4E-03	-648.5E-03
12	-647.0E-03	-636.8E-03	-635.1E-03	-649.2E-03	-637.4E-03	-629.2E-03	-632.9E-03	-635.5E-03	-624.6E-03	-629.8E-03	-633.0E-03	-636.0E-03	-649.0E-03
13	-645.4E-03	-634.4E-03	-633.2E-03	-643.5E-03	-636.5E-03	-626.5E-03	-631.4E-03	-635.3E-03	-624.7E-03	-629.7E-03	-632.0E-03	-635.7E-03	-637.5E-03
Statistics													
Min	-647.0E-03	-636.8E-03	-635.1E-03	-649.2E-03	-637.8E-03	-629.2E-03	-632.9E-03	-635.5E-03	-625.4E-03	-630.7E-03	-633.0E-03	-636.0E-03	-649.0E-03
Max	-645.4E-03	-634.4E-03	-633.2E-03	-643.5E-03	-636.5E-03	-626.5E-03	-631.4E-03	-634.9E-03	-624.6E-03	-629.7E-03	-632.0E-03	-635.4E-03	-637.5E-03
Average	-646.2E-03	-635.7E-03	-634.4E-03	-646.9E-03	-637.2E-03	-627.6E-03	-632.3E-03	-635.2E-03	-624.9E-03	-630.1E-03	-632.5E-03	-635.7E-03	-645.0E-03
Sigma	653.2E-06	983.6E-06	839.9E-06	2.4E-03	557.1E-06	1.1E-03	648.6E-06	264.0E-06	330.4E-06	438.6E-06	376.7E-06	245.1E-06	5.3E-03

Drift Calculation

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	10.2E-03	11.4E-03	-1.6E-03	8.4E-03	19.0E-03	13.7E-03	11.3E-03	20.8E-03	15.5E-03	13.6E-03	10.8E-03	-2.3E-03
12	-	10.2E-03	11.9E-03	-2.2E-03	9.6E-03	17.8E-03	14.1E-03	11.5E-03	22.4E-03	17.2E-03	14.0E-03	11.0E-03	-2.0E-03
13	-	11.0E-03	12.2E-03	1.9E-03	8.9E-03	18.9E-03	14.0E-03	10.1E-03	20.7E-03	15.7E-03	13.4E-03	9.7E-03	7.9E-03
Average	-	10.5E-03	11.8E-03	-666.7E-06	9.0E-03	18.6E-03	13.9E-03	11.0E-03	21.3E-03	16.1E-03	13.7E-03	10.5E-03	1.2E-03
Sigma	-	368.0E-06	328.8E-06	1.8E-03	474.4E-06	539.6E-06	191.4E-06	606.9E-06	746.4E-06	730.5E-06	279.1E-06	562.2E-06	4.7E-03

Measurements

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-641.1E-03	-637.4E-03	-641.2E-03	-648.0E-03	-646.2E-03	-640.5E-03	-646.2E-03	-644.4E-03	-631.5E-03	-645.5E-03	-648.5E-03	-644.0E-03	-652.5E-03
OFF_PROTON samples													
2	-642.1E-03	-633.0E-03	-630.7E-03	-637.5E-03	-629.4E-03	-619.7E-03	-624.0E-03	-628.5E-03	-616.4E-03	-624.5E-03	-624.4E-03	-630.2E-03	-631.3E-03
3	-642.8E-03	-631.0E-03	-629.1E-03	-633.8E-03	-627.8E-03	-616.7E-03	-621.7E-03	-626.7E-03	-612.6E-03	-622.7E-03	-622.6E-03	-628.0E-03	-625.8E-03
4	-652.2E-03	-632.8E-03	-630.0E-03	-633.0E-03	-630.2E-03	-618.8E-03	-623.8E-03	-628.7E-03	-614.8E-03	-622.4E-03	-623.6E-03	-630.0E-03	-628.6E-03
Statistics													
Min	-652.2E-03	-633.0E-03	-630.7E-03	-637.5E-03	-630.2E-03	-619.7E-03	-624.0E-03	-628.7E-03	-616.4E-03	-624.5E-03	-624.4E-03	-630.2E-03	-631.3E-03
Max	-642.1E-03	-631.0E-03	-629.1E-03	-633.0E-03	-627.8E-03	-616.7E-03	-621.7E-03	-626.7E-03	-612.6E-03	-622.4E-03	-622.6E-03	-628.0E-03	-625.8E-03
Average	-645.7E-03	-632.3E-03	-629.9E-03	-634.8E-03	-629.1E-03	-618.4E-03	-623.1E-03	-628.0E-03	-614.6E-03	-623.2E-03	-623.6E-03	-629.4E-03	-628.6E-03
Sigma	4.6E-03	926.3E-06	655.7E-06	1.9E-03	1.0E-03	1.3E-03	1.0E-03	880.6E-06	1.5E-03	914.5E-06	735.4E-06	974.5E-06	2.2E-03

Drift Calculation

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	9.1E-03	11.4E-03	4.6E-03	12.8E-03	22.4E-03	18.2E-03	13.6E-03	25.8E-03	17.6E-03	17.7E-03	11.9E-03	10.8E-03
3	-	11.8E-03	13.7E-03	9.0E-03	15.0E-03	26.1E-03	21.0E-03	16.0E-03	30.1E-03	20.0E-03	20.1E-03	14.7E-03	16.9E-03
4	-	19.4E-03	22.2E-03	19.2E-03	22.0E-03	33.4E-03	28.5E-03	23.6E-03	37.4E-03	29.8E-03	28.6E-03	22.2E-03	23.6E-03
Average	-	13.4E-03	15.8E-03	10.9E-03	16.6E-03	27.3E-03	22.6E-03	17.7E-03	31.1E-03	22.5E-03	22.1E-03	16.3E-03	17.1E-03
Sigma	-	4.4E-03	4.7E-03	6.1E-03	3.9E-03	4.6E-03	4.3E-03	4.2E-03	4.8E-03	5.3E-03	4.7E-03	4.4E-03	5.2E-03

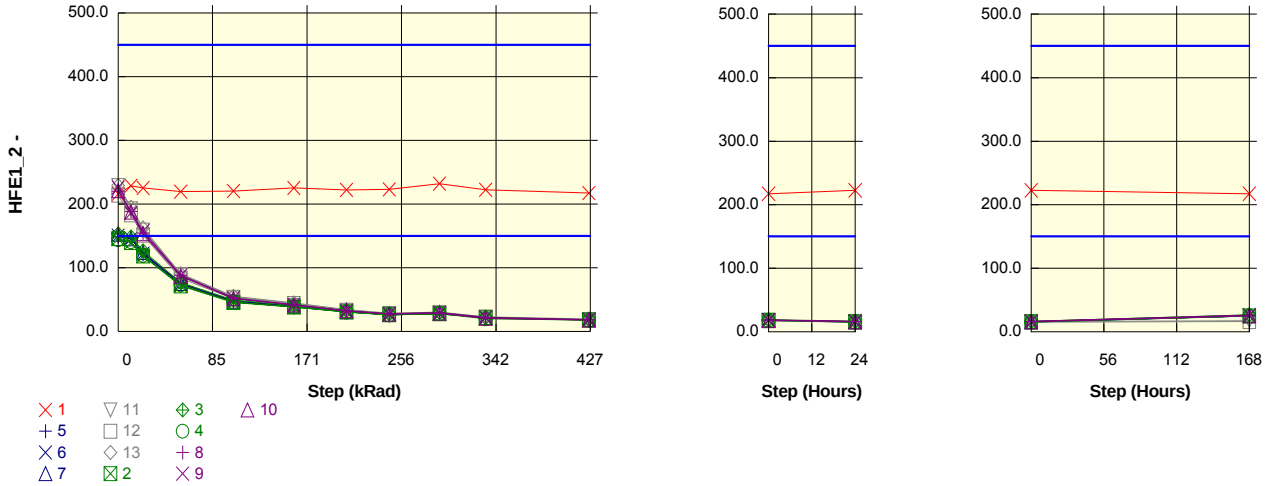
Measurements

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	-641.1E-03	-637.4E-03	-641.2E-03	-648.0E-03	-646.2E-03	-640.5E-03	-646.2E-03	-644.4E-03	-631.5E-03	-645.5E-03	-648.5E-03	-644.0E-03	-652.5E-03
OFF_TID samples													
8	-653.0E-03	-634.2E-03	-633.0E-03	-632.6E-03	-633.0E-03	-619.8E-03	-624.9E-03	-629.4E-03	-616.1E-03	-624.2E-03	-625.0E-03	-629.9E-03	-628.5E-03
9	-645.3E-03	-634.6E-03	-632.5E-03	-632.0E-03	-633.2E-03	-619.2E-03	-623.5E-03	-629.4E-03	-615.6E-03	-624.5E-03	-624.4E-03	-628.8E-03	-627.5E-03
10	-651.8E-03	-635.0E-03	-633.0E-03	-632.4E-03	-632.3E-03	-621.3E-03	-624.3E-03	-630.0E-03	-616.8E-03	-625.4E-03	-626.3E-03	-630.0E-03	-628.6E-03
Statistics													
Min	-653.0E-03	-635.0E-03	-633.0E-03	-632.6E-03	-633.2E-03	-621.3E-03	-624.9E-03	-630.0E-03	-616.8E-03	-625.4E-03	-626.3E-03	-630.0E-03	-628.6E-03
Max	-645.3E-03	-634.2E-03	-632.5E-03	-632.0E-03	-632.3E-03	-619.2E-03	-623.5E-03	-629.4E-03	-615.6E-03	-624.2E-03	-624.4E-03	-628.8E-03	-627.5E-03
Average	-650.1E-03	-634.6E-03	-632.8E-03	-632.3E-03	-632.8E-03	-620.1E-03	-624.3E-03	-629.6E-03	-616.2E-03	-624.7E-03	-625.2E-03	-629.6E-03	-628.2E-03
Sigma	3.4E-03	311.6E-06	247.3E-06	246.6E-06	371.4E-06	865.6E-06	573.5E-06	311.5E-06	475.9E-06	494.2E-06	788.1E-06	520.8E-06	510.2E-06

Drift Calculation

VBE(SAT)2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	18.8E-03	20.1E-03	20.4E-03	20.1E-03	33.3E-03	28.1E-03	23.6E-03	36.9E-03	28.8E-03	28.1E-03	23.2E-03	24.5E-03
9	-	10.8E-03	12.8E-03	13.3E-03	12.1E-03	26.1E-03	21.8E-03	16.0E-03	29.7E-03	20.8E-03	20.9E-03	16.5E-03	17.8E-03
10	-	16.8E-03	18.8E-03	19.4E-03	19.5E-03	30.5E-03	27.5E-03	21.8E-03	35.0E-03	26.4E-03	25.5E-03	21.8E-03	23.2E-03
Average	-	15.5E-03	17.2E-03	17.7E-03	17.2E-03	30.0E-03	25.8E-03	20.5E-03	33.9E-03	25.3E-03	24.8E-03	20.5E-03	21.9E-03
Sigma	-	3.4E-03	3.1E-03	3.1E-03	3.6E-03	3.0E-03	2.8E-03	3.3E-03	3.1E-03	3.4E-03	3.0E-03	2.9E-03	2.9E-03

Parameter : DC current gain : HFE1_2
Test conditions : Ic = -100µA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	215.8	228.8	225.3	219.7	220.4	225.3	222.2	223.1	232.0	222.4	217.3	222.7	217.2
ON_PROTON samples													
5	148.8	146.4	121.5	75.2	46.0	40.5	30.7	26.4	27.6	22.1	18.5	15.9	25.0
6	150.4	145.8	122.1	74.8	48.2	39.2	31.0	26.1	27.7	21.5	17.8	15.3	25.1
7	152.5	145.6	123.8	75.3	47.3	39.8	30.9	26.5	28.3	21.8	18.0	15.6	25.3
Statistics													
Min	148.8	145.6	121.5	74.8	46.0	39.2	30.7	26.1	27.6	21.5	17.8	15.3	25.0
Max	152.5	146.4	123.8	75.3	48.2	40.5	31.0	26.5	28.3	22.1	18.5	15.9	25.3
Average	150.6	145.9	122.5	75.1	47.2	39.9	30.9	26.3	27.8	21.8	18.1	15.6	25.1
Sigma	1.5	0.3	1.0	0.2	0.9	0.6	0.1	0.2	0.3	0.3	0.3	0.2	0.1

Drift Calculation

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	113.1E-06	1.5E-03	6.6E-03	15.0E-03	17.9E-03	25.9E-03	31.1E-03	29.6E-03	38.5E-03	47.4E-03	56.0E-03	33.2E-03
6	-	211.0E-06	1.5E-03	6.7E-03	14.1E-03	18.9E-03	25.6E-03	31.7E-03	29.5E-03	39.9E-03	49.5E-03	58.6E-03	33.2E-03
7	-	312.3E-06	1.5E-03	6.7E-03	14.6E-03	18.6E-03	25.8E-03	31.2E-03	28.8E-03	39.4E-03	48.9E-03	57.5E-03	33.0E-03
Average	-	212.1E-06	1.5E-03	6.7E-03	14.6E-03	18.5E-03	25.8E-03	31.3E-03	29.3E-03	39.3E-03	48.6E-03	57.4E-03	33.1E-03
Sigma	-	81.3E-06	12.4E-06	69.1E-06	370.4E-06	381.9E-06	124.2E-06	273.7E-06	365.2E-06	560.9E-06	846.7E-06	1.0E-03	123.3E-06

Measurements

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	215.8	228.8	225.3	219.7	220.4	225.3	222.2	223.1	232.0	222.4	217.3	222.7	217.2
ON_TID samples													
11	229.1	192.4	159.3	89.4	53.6	43.8	33.2	28.1	29.6	22.6	18.5	16.3	17.5
12	213.9	183.1	151.2	83.7	51.2	40.9	32.2	26.5	28.3	21.2	17.4	15.4	16.1
13	229.1	195.1	162.5	90.5	55.2	44.7	34.5	28.8	30.4	23.0	19.6	16.9	26.7
Statistics													
Min	213.9	183.1	151.2	83.7	51.2	40.9	32.2	26.5	28.3	21.2	17.4	15.4	16.1
Max	229.1	195.1	162.5	90.5	55.2	44.7	34.5	28.8	30.4	23.0	19.6	16.9	26.7
Average	224.0	190.2	157.7	87.9	53.4	43.1	33.3	27.8	29.4	22.3	18.5	16.2	20.1
Sigma	7.2	5.1	4.7	3.0	1.6	1.6	1.0	1.0	0.8	0.8	0.9	0.6	4.7

Drift Calculation

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	831.5E-06	1.9E-03	6.8E-03	14.3E-03	18.4E-03	25.7E-03	31.2E-03	29.5E-03	39.8E-03	49.7E-03	57.2E-03	52.7E-03
12	-	785.0E-06	1.9E-03	7.3E-03	14.8E-03	19.8E-03	26.4E-03	33.1E-03	30.7E-03	42.4E-03	52.8E-03	60.3E-03	57.5E-03
13	-	760.4E-06	1.8E-03	6.7E-03	13.7E-03	18.0E-03	24.6E-03	30.4E-03	28.6E-03	39.1E-03	46.7E-03	54.9E-03	33.1E-03
Average	-	792.3E-06	1.9E-03	6.9E-03	14.3E-03	18.7E-03	25.6E-03	31.6E-03	29.6E-03	40.4E-03	49.7E-03	57.4E-03	47.8E-03
Sigma	-	29.5E-06	64.9E-06	251.3E-06	451.2E-06	754.2E-06	748.8E-06	1.1E-03	854.2E-06	1.4E-03	2.5E-03	2.2E-03	10.6E-03

Measurements

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	215.8	228.8	225.3	219.7	220.4	225.3	222.2	223.1	232.0	222.4	217.3	222.7	217.2
OFF_PROTON samples													
2	145.8	139.7	118.3	71.4	45.4	38.3	30.7	26.1	27.8	21.5	18.1	16.0	25.0
3	153.2	148.2	126.5	76.7	49.0	40.8	32.4	27.4	29.5	21.4	18.7	16.4	26.8
4	143.9	140.9	119.5	73.1	46.2	38.4	30.3	25.9	27.9	19.7	17.8	15.4	24.7
Statistics													
Min	143.9	139.7	118.3	71.4	45.4	38.3	30.3	25.9	27.8	19.7	17.8	15.4	24.7
Max	153.2	148.2	126.5	76.7	49.0	40.8	32.4	27.4	29.5	21.5	18.7	16.4	26.8
Average	147.6	142.9	121.5	73.7	46.9	39.2	31.2	26.5	28.4	20.9	18.2	16.0	25.5
Sigma	4.0	3.8	3.6	2.2	1.6	1.2	0.9	0.7	0.8	0.8	0.4	0.4	0.9

Drift Calculation

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	300.3E-06	1.6E-03	7.1E-03	15.1E-03	19.3E-03	25.7E-03	31.5E-03	29.1E-03	39.7E-03	48.3E-03	55.6E-03	33.1E-03
3	-	222.5E-06	1.4E-03	6.5E-03	13.9E-03	18.0E-03	24.3E-03	30.0E-03	27.4E-03	40.1E-03	47.0E-03	54.3E-03	30.8E-03
4	-	148.6E-06	1.4E-03	6.7E-03	14.7E-03	19.1E-03	26.0E-03	31.6E-03	28.9E-03	43.7E-03	49.2E-03	57.8E-03	33.5E-03
Average	-	223.8E-06	1.5E-03	6.8E-03	14.6E-03	18.8E-03	25.3E-03	31.0E-03	28.5E-03	41.2E-03	48.2E-03	55.9E-03	32.5E-03
Sigma	-	61.9E-06	92.4E-06	256.1E-06	531.8E-06	570.7E-06	723.6E-06	753.9E-06	746.7E-06	1.8E-03	904.8E-06	1.4E-03	1.2E-03

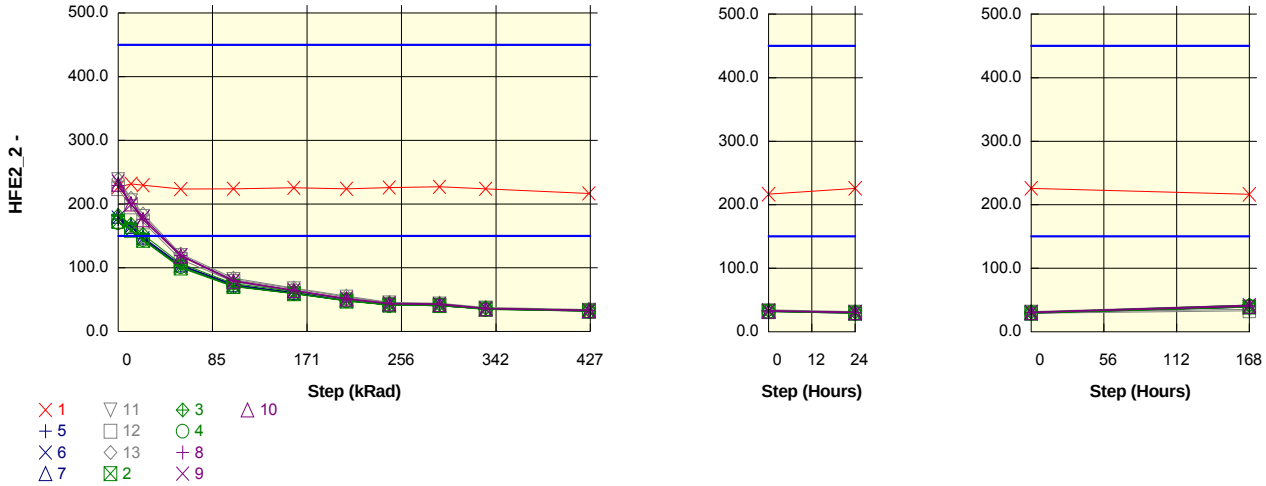
Measurements

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	215.8	228.8	225.3	219.7	220.4	225.3	222.2	223.1	232.0	222.4	217.3	222.7	217.2
OFF_TID samples													
8	220.1	188.4	154.6	88.2	52.9	41.7	32.1	27.4	29.1	21.0	18.4	16.1	25.7
9	225.9	185.8	157.8	88.0	52.2	41.9	32.6	27.8	29.7	22.0	18.6	16.4	26.2
10	221.0	187.4	153.6	86.9	51.3	41.6	32.6	27.1	28.8	20.6	18.1	15.8	25.0
Statistics													
Min	220.1	185.8	153.6	86.9	51.3	41.6	32.1	27.1	28.8	20.6	18.1	15.8	25.0
Max	225.9	188.4	157.8	88.2	52.9	41.9	32.6	27.8	29.7	22.0	18.6	16.4	26.2
Average	222.3	187.2	155.4	87.7	52.1	41.8	32.5	27.4	29.2	21.2	18.4	16.1	25.7
Sigma	2.5	1.1	1.8	0.6	0.6	0.1	0.2	0.3	0.4	0.6	0.2	0.2	0.5

Drift Calculation

HFE1_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	764.8E-06	1.9E-03	6.8E-03	14.3E-03	19.4E-03	26.6E-03	32.0E-03	29.9E-03	43.0E-03	49.8E-03	57.5E-03	34.4E-03
9	-	955.0E-06	1.9E-03	6.9E-03	14.7E-03	19.4E-03	26.2E-03	31.6E-03	29.3E-03	41.0E-03	49.3E-03	56.4E-03	33.7E-03
10	-	810.4E-06	2.0E-03	7.0E-03	15.0E-03	19.5E-03	26.1E-03	32.4E-03	30.2E-03	44.1E-03	50.8E-03	58.6E-03	35.4E-03
Average	-	843.4E-06	1.9E-03	6.9E-03	14.7E-03	19.5E-03	26.3E-03	32.0E-03	29.8E-03	42.7E-03	49.9E-03	57.5E-03	34.5E-03
Sigma	-	81.1E-06	33.1E-06	80.9E-06	249.5E-06	34.4E-06	187.7E-06	333.7E-06	393.9E-06	1.3E-03	633.1E-06	898.4E-06	715.0E-06

Parameter : DC current gain : HFE2_2
Test conditions : Ic = -500µA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.4	231.8	229.5	223.6	223.8	225.6	223.9	226.0	227.0	224.0	216.7	226.0	216.4
ON_PROTON samples													
5	176.5	165.2	145.5	103.6	71.6	61.6	48.0	41.9	40.1	35.3	32.6	29.9	39.2
6	178.6	164.8	146.3	103.3	73.4	59.7	48.7	41.5	40.5	34.9	31.9	29.3	39.0
7	180.9	165.1	148.1	104.4	73.3	61.0	49.4	42.2	41.3	35.3	32.2	29.6	39.9
Statistics													
Min	176.5	164.8	145.5	103.3	71.6	59.7	48.0	41.5	40.1	34.9	31.9	29.3	39.0
Max	180.9	165.2	148.1	104.4	73.4	61.6	49.4	42.2	41.3	35.3	32.6	29.9	39.9
Average	178.7	165.0	146.6	103.8	72.8	60.8	48.7	41.9	40.6	35.2	32.2	29.6	39.3
Sigma	1.8	0.2	1.1	0.4	0.8	0.8	0.6	0.3	0.5	0.2	0.3	0.3	0.4

Drift Calculation

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	389.3E-06	1.2E-03	4.0E-03	8.3E-03	10.6E-03	15.2E-03	18.2E-03	19.3E-03	22.7E-03	25.0E-03	27.8E-03	19.9E-03
6	-	469.3E-06	1.2E-03	4.1E-03	8.0E-03	11.2E-03	15.0E-03	18.5E-03	19.1E-03	23.0E-03	25.7E-03	28.6E-03	20.1E-03
7	-	529.1E-06	1.2E-03	4.1E-03	8.1E-03	10.9E-03	14.7E-03	18.2E-03	18.7E-03	22.8E-03	25.5E-03	28.2E-03	19.6E-03
Average	-	462.6E-06	1.2E-03	4.0E-03	8.1E-03	10.9E-03	15.0E-03	18.3E-03	19.0E-03	22.8E-03	25.4E-03	28.2E-03	19.8E-03
Sigma	-	57.3E-06	11.4E-06	37.9E-06	114.7E-06	241.2E-06	191.5E-06	134.5E-06	245.6E-06	153.9E-06	315.4E-06	328.0E-06	201.7E-06

Measurements

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.4	231.8	229.5	223.6	223.8	225.6	223.9	226.0	227.0	224.0	216.7	226.0	216.4
ON_TID samples													
11	238.1	205.3	180.4	119.3	81.5	66.8	54.1	44.7	43.2	36.7	33.3	30.8	35.4
12	224.1	195.9	172.0	112.8	78.3	63.0	49.9	42.5	41.5	35.0	31.7	29.4	33.1
13	238.8	208.9	184.2	121.5	83.7	68.1	55.4	45.6	44.3	37.6	34.6	31.7	42.2
Statistics													
Min	224.1	195.9	172.0	112.8	78.3	63.0	49.9	42.5	41.5	35.0	31.7	29.4	33.1
Max	238.8	208.9	184.2	121.5	83.7	68.1	55.4	45.6	44.3	37.6	34.6	31.7	42.2
Average	233.7	203.3	178.9	117.9	81.2	66.0	53.1	44.3	43.0	36.4	33.2	30.7	36.9
Sigma	6.8	5.5	5.1	3.7	2.2	2.2	2.3	1.3	1.2	1.1	1.2	0.9	3.9

Drift Calculation

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	672.1E-06	1.3E-03	4.2E-03	8.1E-03	10.8E-03	14.3E-03	18.2E-03	19.0E-03	23.0E-03	25.9E-03	28.2E-03	24.0E-03
12	-	642.8E-06	1.4E-03	4.4E-03	8.3E-03	11.4E-03	15.6E-03	19.1E-03	19.6E-03	24.1E-03	27.1E-03	29.5E-03	25.7E-03
13	-	600.3E-06	1.2E-03	4.0E-03	7.8E-03	10.5E-03	13.9E-03	17.7E-03	18.4E-03	22.4E-03	24.7E-03	27.3E-03	19.5E-03
Average	-	638.4E-06	1.3E-03	4.2E-03	8.0E-03	10.9E-03	14.6E-03	18.3E-03	19.0E-03	23.2E-03	25.9E-03	28.4E-03	23.1E-03
Sigma	-	29.5E-06	50.7E-06	147.6E-06	223.9E-06	391.3E-06	728.0E-06	565.9E-06	510.4E-06	706.7E-06	975.4E-06	898.9E-06	2.6E-03

Measurements

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.4	231.8	229.5	223.6	223.8	225.6	223.9	226.0	227.0	224.0	216.7	226.0	216.4
OFF_PROTON samples													
2	173.1	158.8	143.1	99.8	70.6	59.2	47.7	41.4	40.6	35.3	32.3	29.8	39.0
3	182.2	168.2	152.3	106.6	75.1	62.8	50.9	43.5	42.9	36.4	33.4	30.9	42.1
4	170.8	160.3	144.2	101.8	71.1	59.5	48.2	41.3	40.8	34.5	31.8	29.3	39.4
Statistics													
Min	170.8	158.8	143.1	99.8	70.6	59.2	47.7	41.3	40.6	34.5	31.8	29.3	39.0
Max	182.2	168.2	152.3	106.6	75.1	62.8	50.9	43.5	42.9	36.4	33.4	30.9	42.1
Average	175.4	162.5	146.5	102.7	72.3	60.5	48.9	42.0	41.4	35.4	32.5	30.0	40.2
Sigma	4.9	4.1	4.1	2.9	2.0	1.7	1.4	1.0	1.0	0.8	0.7	0.7	1.4

Drift Calculation

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	520.7E-06	1.2E-03	4.2E-03	8.4E-03	11.1E-03	15.2E-03	18.4E-03	18.8E-03	22.6E-03	25.2E-03	27.8E-03	19.9E-03
3	-	456.0E-06	1.1E-03	3.9E-03	7.8E-03	10.4E-03	14.2E-03	17.5E-03	17.8E-03	22.0E-03	24.5E-03	26.9E-03	18.3E-03
4	-	380.3E-06	1.1E-03	4.0E-03	8.2E-03	10.9E-03	14.9E-03	18.4E-03	18.7E-03	23.1E-03	25.6E-03	28.3E-03	19.5E-03
Average	-	452.3E-06	1.1E-03	4.0E-03	8.1E-03	10.8E-03	14.7E-03	18.1E-03	18.4E-03	22.6E-03	25.1E-03	27.6E-03	19.2E-03
Sigma	-	57.4E-06	62.5E-06	150.8E-06	239.5E-06	297.6E-06	422.3E-06	409.9E-06	444.1E-06	469.8E-06	463.3E-06	580.8E-06	690.6E-06

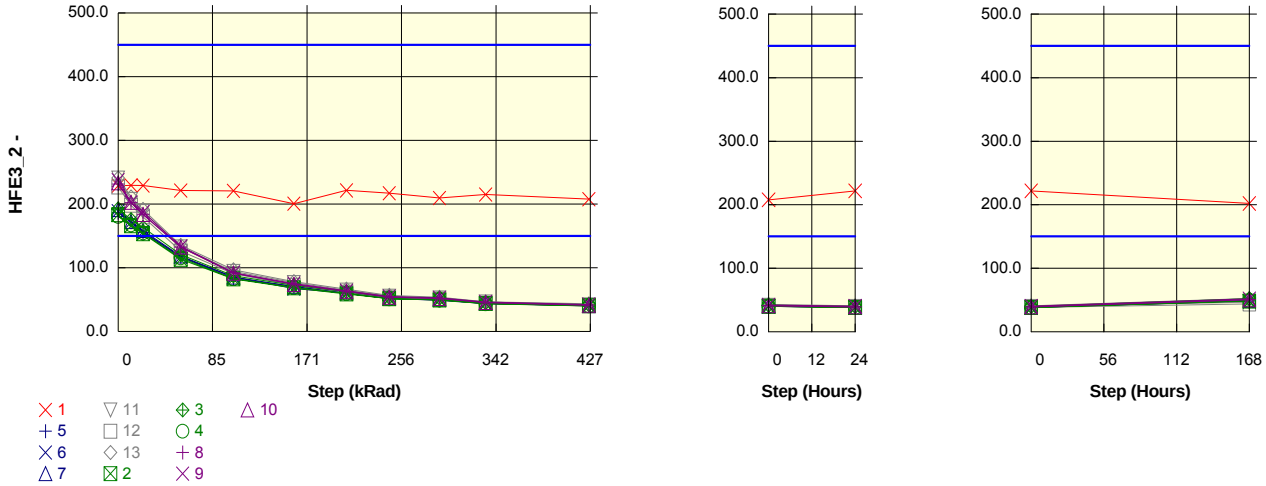
Measurements

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	226.4	231.8	229.5	223.6	223.8	225.6	223.9	226.0	227.0	224.0	216.7	226.0	216.4
OFF_TID samples													
8	228.9	200.8	176.1	119.0	79.8	64.3	51.1	43.5	42.6	36.2	33.0	30.5	41.1
9	235.4	199.7	179.5	119.6	79.5	64.9	52.0	44.2	43.5	36.4	33.5	31.1	41.8
10	231.1	200.1	175.4	118.0	78.7	64.0	50.9	43.3	42.4	35.7	32.5	30.2	40.2
Statistics													
Min	228.9	199.7	175.4	118.0	78.7	64.0	50.9	43.3	42.4	35.7	32.5	30.2	40.2
Max	235.4	200.8	179.5	119.6	79.8	64.9	52.0	44.2	43.5	36.4	33.5	31.1	41.8
Average	231.8	200.2	177.0	118.9	79.3	64.4	51.4	43.7	42.8	36.1	33.0	30.6	41.0
Sigma	2.7	0.5	1.8	0.7	0.5	0.3	0.5	0.4	0.5	0.3	0.4	0.4	0.7

Drift Calculation

HFE2_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	612.0E-06	1.3E-03	4.0E-03	8.2E-03	11.2E-03	15.2E-03	18.6E-03	19.1E-03	23.3E-03	25.9E-03	28.4E-03	20.0E-03
9	-	760.1E-06	1.3E-03	4.1E-03	8.3E-03	11.2E-03	15.0E-03	18.4E-03	18.8E-03	23.3E-03	25.6E-03	27.9E-03	19.7E-03
10	-	669.9E-06	1.4E-03	4.1E-03	8.4E-03	11.3E-03	15.3E-03	18.8E-03	19.3E-03	23.7E-03	26.5E-03	28.8E-03	20.5E-03
Average	-	680.7E-06	1.3E-03	4.1E-03	8.3E-03	11.2E-03	15.2E-03	18.6E-03	19.0E-03	23.4E-03	26.0E-03	28.4E-03	20.1E-03
Sigma	-	60.9E-06	28.0E-06	47.8E-06	97.4E-06	53.7E-06	142.3E-06	158.4E-06	214.5E-06	206.4E-06	360.5E-06	367.7E-06	360.9E-06

Parameter : DC current gain : HFE3_2
Test conditions : Ic = -1mA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec Limit Max : 450.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.7	229.3	229.2	221.3	220.6	200.7	221.4	217.0	209.4	214.9	207.6	221.7	202.0
ON_PROTON samples													
5	186.5	171.7	155.5	117.2	83.2	70.6	59.4	52.0	48.9	43.8	40.9	38.7	48.4
6	188.8	171.5	156.6	116.9	85.3	67.3	60.4	51.6	49.6	43.7	40.1	38.0	48.3
7	191.4	172.3	158.4	118.3	85.5	70.3	60.8	52.5	50.3	44.7	40.4	38.5	49.3
Statistics													
Min	186.5	171.5	155.5	116.9	83.2	67.3	59.4	51.6	48.9	43.7	40.1	38.0	48.3
Max	191.4	172.3	158.4	118.3	85.5	70.6	60.8	52.5	50.3	44.7	40.9	38.7	49.3
Average	188.9	171.8	156.8	117.5	84.6	69.4	60.2	52.0	49.6	44.1	40.5	38.4	48.7
Sigma	2.0	0.4	1.2	0.6	1.1	1.5	0.6	0.3	0.6	0.4	0.3	0.3	0.5

Drift Calculation

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	462.1E-06	1.1E-03	3.2E-03	6.7E-03	8.8E-03	11.5E-03	13.9E-03	15.1E-03	17.5E-03	19.1E-03	20.5E-03	15.3E-03
6	-	534.7E-06	1.1E-03	3.3E-03	6.4E-03	9.6E-03	11.2E-03	14.1E-03	14.8E-03	17.6E-03	19.6E-03	21.0E-03	15.4E-03
7	-	579.7E-06	1.1E-03	3.2E-03	6.5E-03	9.0E-03	11.2E-03	13.8E-03	14.6E-03	17.2E-03	19.5E-03	20.8E-03	15.1E-03
Average	-	525.5E-06	1.1E-03	3.2E-03	6.5E-03	9.1E-03	11.3E-03	13.9E-03	14.9E-03	17.4E-03	19.4E-03	20.8E-03	15.3E-03
Sigma	-	48.4E-06	11.4E-06	38.4E-06	100.8E-06	316.1E-06	111.7E-06	100.9E-06	183.8E-06	170.1E-06	225.6E-06	207.7E-06	150.4E-06

Measurements

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.7	229.3	229.2	221.3	220.6	200.7	221.4	217.0	209.4	214.9	207.6	221.7	202.0
ON_TID samples													
11	240.7	207.4	188.3	132.7	94.3	76.7	64.8	55.5	52.6	46.2	41.9	40.0	46.7
12	226.8	198.0	179.8	126.1	90.8	72.5	61.7	53.0	50.8	44.3	40.0	38.3	43.9
13	240.8	211.1	191.5	135.0	97.0	78.1	66.4	56.5	53.8	46.5	43.4	41.0	52.4
Statistics													
Min	226.8	198.0	179.8	126.1	90.8	72.5	61.7	53.0	50.8	44.3	40.0	38.3	43.9
Max	240.8	211.1	191.5	135.0	97.0	78.1	66.4	56.5	53.8	46.5	43.4	41.0	52.4
Average	236.1	205.5	186.5	131.3	94.0	75.8	64.3	55.0	52.4	45.6	41.8	39.8	47.7
Sigma	6.6	5.5	4.9	3.8	2.5	2.4	2.0	1.5	1.2	1.0	1.4	1.1	3.5

Drift Calculation

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	666.5E-06	1.2E-03	3.4E-03	6.5E-03	8.9E-03	11.3E-03	13.9E-03	14.9E-03	17.5E-03	19.7E-03	20.9E-03	17.3E-03
12	-	641.4E-06	1.2E-03	3.5E-03	6.6E-03	9.4E-03	11.8E-03	14.5E-03	15.3E-03	18.2E-03	20.6E-03	21.7E-03	18.4E-03
13	-	583.1E-06	1.1E-03	3.3E-03	6.2E-03	8.6E-03	10.9E-03	13.5E-03	14.4E-03	17.4E-03	18.9E-03	20.2E-03	14.9E-03
Average	-	630.3E-06	1.1E-03	3.4E-03	6.4E-03	9.0E-03	11.3E-03	14.0E-03	14.9E-03	17.7E-03	19.7E-03	20.9E-03	16.9E-03
Sigma	-	34.9E-06	40.9E-06	110.8E-06	185.7E-06	309.8E-06	369.4E-06	383.5E-06	341.1E-06	362.2E-06	677.6E-06	594.9E-06	1.4E-03

Measurements

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.7	229.3	229.2	221.3	220.6	200.7	221.4	217.0	209.4	214.9	207.6	221.7	202.0
OFF_PROTON samples													
2	183.4	165.8	153.5	113.3	82.5	68.4	59.0	51.4	49.5	44.0	40.5	38.5	48.5
3	192.5	175.6	163.3	120.6	87.4	72.5	62.4	53.9	52.3	45.2	41.9	39.9	52.1
4	180.5	167.2	154.5	115.6	82.9	68.9	59.7	51.3	49.5	43.3	40.0	38.0	49.1
Statistics													
Min	180.5	165.8	153.5	113.3	82.5	68.4	59.0	51.3	49.5	43.3	40.0	38.0	48.5
Max	192.5	175.6	163.3	120.6	87.4	72.5	62.4	53.9	52.3	45.2	41.9	39.9	52.1
Average	185.5	169.5	157.1	116.5	84.3	69.9	60.3	52.2	50.4	44.1	40.8	38.8	49.9
Sigma	5.1	4.3	4.4	3.1	2.2	1.8	1.4	1.2	1.3	0.8	0.8	0.8	1.6

Drift Calculation

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	579.1E-06	1.1E-03	3.4E-03	6.7E-03	9.2E-03	11.5E-03	14.0E-03	14.7E-03	17.3E-03	19.3E-03	20.5E-03	15.2E-03
3	-	499.2E-06	929.5E-06	3.1E-03	6.2E-03	8.6E-03	10.8E-03	13.4E-03	13.9E-03	16.9E-03	18.7E-03	19.9E-03	14.0E-03
4	-	439.5E-06	930.4E-06	3.1E-03	6.5E-03	9.0E-03	11.2E-03	14.0E-03	14.7E-03	17.6E-03	19.5E-03	20.8E-03	14.8E-03
Average	-	506.0E-06	973.8E-06	3.2E-03	6.5E-03	8.9E-03	11.2E-03	13.8E-03	14.5E-03	17.3E-03	19.1E-03	20.4E-03	14.7E-03
Sigma	-	57.2E-06	62.0E-06	128.6E-06	177.3E-06	237.9E-06	268.4E-06	287.6E-06	363.1E-06	258.4E-06	345.6E-06	389.9E-06	491.4E-06

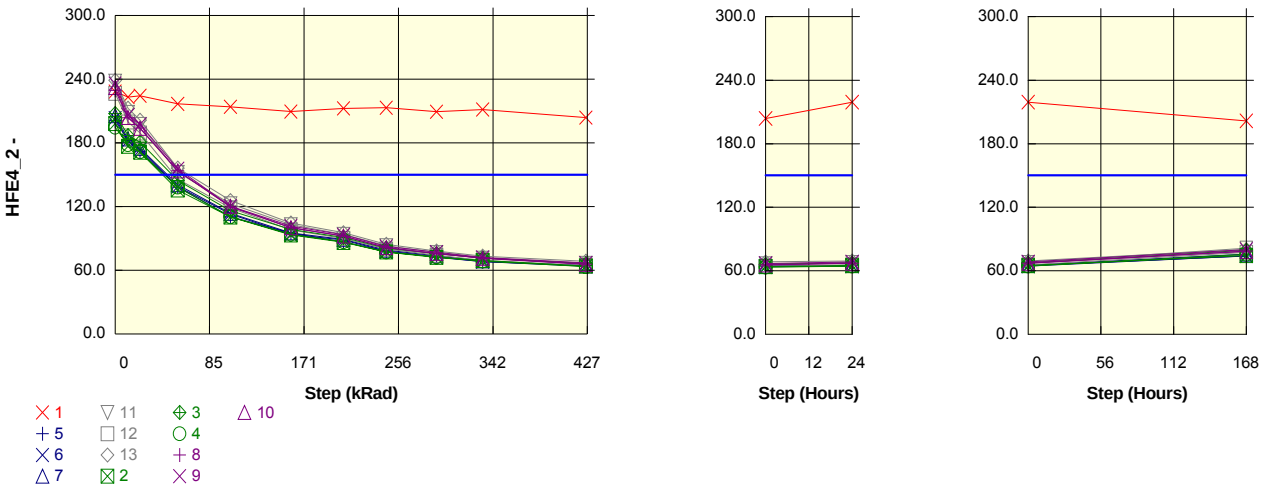
Measurements

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.7	229.3	229.2	221.3	220.6	200.7	221.4	217.0	209.4	214.9	207.6	221.7	202.0
OFF_TID samples													
8	231.3	202.2	183.8	132.6	92.2	74.3	63.3	54.1	51.9	45.2	41.4	39.6	51.1
9	237.7	202.6	187.5	133.5	92.1	75.0	63.7	54.9	53.0	46.3	42.1	40.3	52.0
10	233.3	202.6	183.5	132.1	91.4	73.8	63.1	53.8	51.7	45.5	41.0	39.3	50.4
Statistics													
Min	231.3	202.2	183.5	132.1	91.4	73.8	63.1	53.8	51.7	45.2	41.0	39.3	50.4
Max	237.7	202.6	187.5	133.5	92.2	75.0	63.7	54.9	53.0	46.3	42.1	40.3	52.0
Average	234.1	202.5	185.0	132.7	91.9	74.3	63.4	54.3	52.2	45.6	41.5	39.7	51.2
Sigma	2.7	0.2	1.8	0.6	0.3	0.5	0.3	0.4	0.6	0.5	0.5	0.4	0.6

Drift Calculation

HFE3_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	620.9E-06	1.1E-03	3.2E-03	6.5E-03	9.1E-03	11.5E-03	14.2E-03	14.9E-03	17.8E-03	19.8E-03	21.0E-03	15.2E-03
9	-	728.5E-06	1.1E-03	3.3E-03	6.7E-03	9.1E-03	11.5E-03	14.0E-03	14.7E-03	17.4E-03	19.5E-03	20.6E-03	15.0E-03
10	-	650.0E-06	1.2E-03	3.3E-03	6.7E-03	9.3E-03	11.6E-03	14.3E-03	15.1E-03	17.7E-03	20.1E-03	21.2E-03	15.5E-03
Average	-	666.5E-06	1.1E-03	3.3E-03	6.6E-03	9.2E-03	11.5E-03	14.2E-03	14.9E-03	17.6E-03	19.8E-03	20.9E-03	15.3E-03
Sigma	-	45.5E-06	19.2E-06	30.1E-06	59.2E-06	61.9E-06	39.7E-06	107.5E-06	161.1E-06	179.5E-06	230.8E-06	237.8E-06	213.3E-06

Parameter : DC current gain : HFE4_2
Test conditions : Ic = -5mA ; Vce = -5V
Unit :
Spec Limit Min : 150.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.3	223.1	224.4	216.8	214.0	209.5	212.5	213.1	209.3	211.4	203.8	219.1	201.5
ON_PROTON samples													
5	200.8	182.2	172.1	138.5	110.4	95.2	86.6	78.0	72.3	68.0	64.4	65.2	73.9
6	203.3	182.1	173.6	138.8	112.9	94.0	88.4	77.9	72.6	68.1	63.8	64.5	74.1
7	205.6	183.6	174.8	140.6	113.7	95.2	89.1	78.9	73.6	68.9	64.2	65.3	75.7
Statistics													
Min	200.8	182.1	172.1	138.5	110.4	94.0	86.6	77.9	72.3	68.0	63.8	64.5	73.9
Max	205.6	183.6	174.8	140.6	113.7	95.2	89.1	78.9	73.6	68.9	64.4	65.3	75.7
Average	203.2	182.6	173.5	139.3	112.4	94.8	88.0	78.3	72.8	68.4	64.1	65.0	74.6
Sigma	2.0	0.7	1.1	0.9	1.4	0.6	1.1	0.4	0.6	0.4	0.3	0.3	0.8

Drift Calculation

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	508.5E-06	831.0E-06	2.2E-03	4.1E-03	5.5E-03	6.6E-03	7.8E-03	8.9E-03	9.7E-03	10.5E-03	10.3E-03	8.5E-03
6	-	572.4E-06	841.7E-06	2.3E-03	3.9E-03	5.7E-03	6.4E-03	7.9E-03	8.9E-03	9.8E-03	10.8E-03	10.6E-03	8.6E-03
7	-	583.3E-06	856.0E-06	2.3E-03	3.9E-03	5.6E-03	6.4E-03	7.8E-03	8.7E-03	9.7E-03	10.7E-03	10.5E-03	8.3E-03
Average	-	554.7E-06	842.9E-06	2.3E-03	4.0E-03	5.6E-03	6.4E-03	7.9E-03	8.8E-03	9.7E-03	10.7E-03	10.5E-03	8.5E-03
Sigma	-	33.0E-06	10.2E-06	19.4E-06	68.5E-06	83.2E-06	92.8E-06	45.2E-06	66.2E-06	41.3E-06	97.2E-06	94.1E-06	104.5E-06

Measurements

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.3	223.1	224.4	216.8	214.0	209.5	212.5	213.1	209.3	211.4	203.8	219.1	201.5
ON_TID samples													
11	238.2	208.7	197.5	152.2	122.6	102.9	93.8	83.1	76.7	71.4	66.6	67.8	81.5
12	226.5	199.7	189.4	145.8	118.7	98.0	90.0	80.0	74.1	69.4	64.3	65.6	77.4
13	238.9	212.6	201.4	156.2	125.6	104.6	95.3	84.4	78.1	73.3	68.4	69.3	80.2
Statistics													
Min	226.5	199.7	189.4	145.8	118.7	98.0	90.0	80.0	74.1	69.4	64.3	65.6	77.4
Max	238.9	212.6	201.4	156.2	125.6	104.6	95.3	84.4	78.1	73.3	68.4	69.3	81.5
Average	234.5	207.0	196.1	151.4	122.3	101.8	93.0	82.5	76.3	71.3	66.4	67.6	79.7
Sigma	5.7	5.4	5.0	4.3	2.8	2.8	2.2	1.9	1.7	1.6	1.7	1.5	1.7

Drift Calculation

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	593.6E-06	865.0E-06	2.4E-03	4.0E-03	5.5E-03	6.5E-03	7.8E-03	8.8E-03	9.8E-03	10.8E-03	10.5E-03	8.1E-03
12	-	593.5E-06	865.5E-06	2.4E-03	4.0E-03	5.8E-03	6.7E-03	8.1E-03	9.1E-03	10.0E-03	11.1E-03	10.8E-03	8.5E-03
13	-	519.0E-06	779.5E-06	2.2E-03	3.8E-03	5.4E-03	6.3E-03	7.7E-03	8.6E-03	9.5E-03	10.4E-03	10.3E-03	8.3E-03
Average	-	568.7E-06	836.6E-06	2.3E-03	3.9E-03	5.6E-03	6.5E-03	7.9E-03	8.9E-03	9.8E-03	10.8E-03	10.5E-03	8.3E-03
Sigma	-	35.2E-06	40.4E-06	95.6E-06	99.5E-06	169.9E-06	159.6E-06	176.1E-06	188.5E-06	223.9E-06	286.6E-06	230.8E-06	172.3E-06

Measurements

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.3	223.1	224.4	216.8	214.0	209.5	212.5	213.1	209.3	211.4	203.8	219.1	201.5
OFF_PROTON samples													
2	198.1	176.7	171.3	135.5	110.2	93.2	86.3	77.3	72.1	69.1	64.0	64.9	74.3
3	207.7	187.0	180.8	144.4	116.1	98.5	91.0	80.8	75.6	71.6	66.3	67.3	79.4
4	194.7	178.3	171.6	138.3	110.3	94.0	86.9	77.3	72.6	68.6	63.4	64.4	75.6
Statistics													
Min	194.7	176.7	171.3	135.5	110.2	93.2	86.3	77.3	72.1	68.6	63.4	64.4	74.3
Max	207.7	187.0	180.8	144.4	116.1	98.5	91.0	80.8	75.6	71.6	66.3	67.3	79.4
Average	200.1	180.7	174.6	139.4	112.2	95.3	88.1	78.5	73.4	69.8	64.6	65.5	76.4
Sigma	5.5	4.5	4.4	3.7	2.7	2.3	2.1	1.7	1.6	1.3	1.2	1.3	2.2

Drift Calculation

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	609.2E-06	788.9E-06	2.3E-03	4.0E-03	5.7E-03	6.5E-03	7.9E-03	8.8E-03	9.4E-03	10.6E-03	10.4E-03	8.4E-03
3	-	533.1E-06	716.4E-06	2.1E-03	3.8E-03	5.3E-03	6.2E-03	7.6E-03	8.4E-03	9.1E-03	10.3E-03	10.0E-03	7.8E-03
4	-	471.4E-06	689.9E-06	2.1E-03	3.9E-03	5.5E-03	6.4E-03	7.8E-03	8.6E-03	9.4E-03	10.6E-03	10.4E-03	8.1E-03
Average	-	537.9E-06	731.7E-06	2.2E-03	3.9E-03	5.5E-03	6.4E-03	7.7E-03	8.6E-03	9.3E-03	10.5E-03	10.3E-03	8.1E-03
Sigma	-	56.4E-06	41.9E-06	107.3E-06	91.6E-06	141.0E-06	146.8E-06	143.7E-06	169.2E-06	137.8E-06	156.9E-06	160.3E-06	256.1E-06

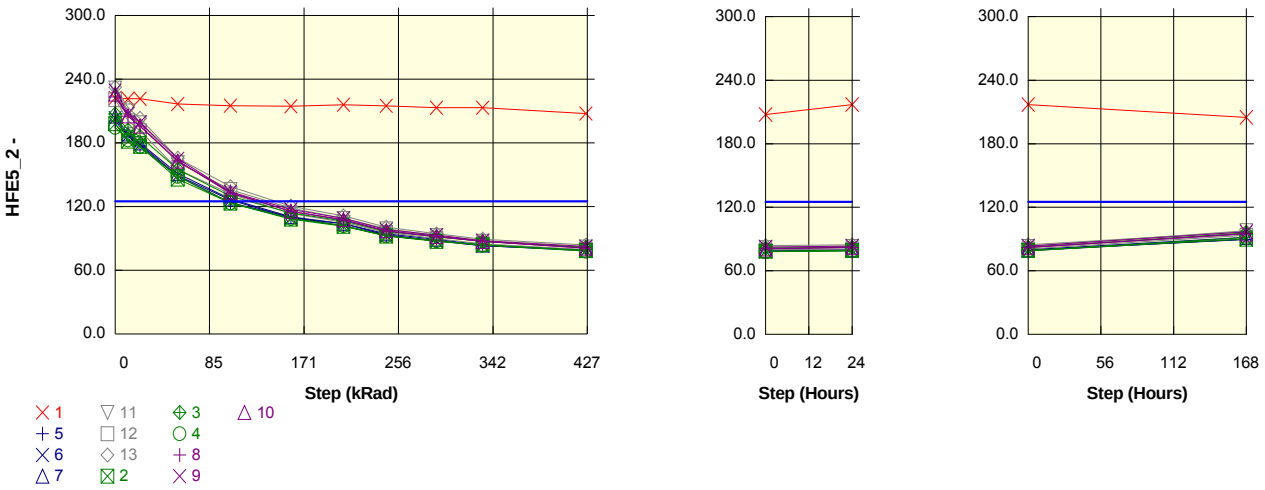
Measurements

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	228.3	223.1	224.4	216.8	214.0	209.5	212.5	213.1	209.3	211.4	203.8	219.1	201.5
OFF_TID samples													
8	229.4	203.7	194.0	153.8	119.6	100.2	92.0	81.2	75.6	71.6	65.8	67.0	78.7
9	235.8	206.2	197.5	155.6	120.3	101.5	93.4	82.4	77.0	72.1	66.9	68.3	80.0
10	232.2	203.8	193.7	153.5	120.1	100.0	92.2	81.3	76.0	71.2	65.5	67.1	78.4
Statistics													
Min	229.4	203.7	193.7	153.5	119.6	100.0	92.0	81.2	75.6	71.2	65.5	67.0	78.4
Max	235.8	206.2	197.5	155.6	120.3	101.5	93.4	82.4	77.0	72.1	66.9	68.3	80.0
Average	232.5	204.6	195.0	154.3	120.0	100.6	92.6	81.6	76.2	71.7	66.1	67.5	79.0
Sigma	2.6	1.1	1.7	0.9	0.3	0.7	0.6	0.5	0.6	0.4	0.6	0.6	0.7

Drift Calculation

HFE4_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	550.9E-06	797.0E-06	2.1E-03	4.0E-03	5.6E-03	6.5E-03	8.0E-03	8.9E-03	9.6E-03	10.8E-03	10.6E-03	8.3E-03
9	-	610.1E-06	823.1E-06	2.2E-03	4.1E-03	5.6E-03	6.5E-03	7.9E-03	8.7E-03	9.6E-03	10.7E-03	10.4E-03	8.3E-03
10	-	598.7E-06	856.0E-06	2.2E-03	4.0E-03	5.7E-03	6.5E-03	8.0E-03	8.9E-03	9.7E-03	11.0E-03	10.6E-03	8.5E-03
Average	-	586.6E-06	825.4E-06	2.2E-03	4.0E-03	5.6E-03	6.5E-03	7.9E-03	8.8E-03	9.7E-03	10.8E-03	10.5E-03	8.4E-03
Sigma	-	25.7E-06	24.1E-06	27.7E-06	29.7E-06	38.8E-06	30.7E-06	34.9E-06	56.4E-06	58.6E-06	104.8E-06	86.2E-06	80.6E-06

Parameter : DC current gain : HFE5_2
Test conditions : Ic = -10mA ; Vce = -5V
Unit :
Spec Limit Min : 125.0
Spec limits are represented in bold lines on the graphic.



Measurements

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	222.3	221.5	221.5	216.5	215.1	214.6	215.9	214.9	213.1	213.2	207.6	217.0	204.9
ON_PROTON samples													
5	200.6	186.3	177.1	148.5	123.6	110.1	101.7	93.2	87.6	83.2	79.2	79.6	89.5
6	203.2	187.0	178.6	149.2	126.2	109.4	103.8	93.2	88.0	83.3	78.5	79.0	89.8
7	205.2	188.3	179.8	151.1	127.1	110.4	103.9	94.3	89.2	83.8	79.1	79.9	91.7
Statistics													
Min	200.6	186.3	177.1	148.5	123.6	109.4	101.7	93.2	87.6	83.2	78.5	79.0	89.5
Max	205.2	188.3	179.8	151.1	127.1	110.4	103.9	94.3	89.2	83.8	79.2	79.9	91.7
Average	203.0	187.2	178.5	149.6	125.6	110.0	103.1	93.5	88.2	83.4	78.9	79.5	90.3
Sigma	1.9	0.8	1.1	1.1	1.5	0.4	1.0	0.6	0.7	0.3	0.3	0.4	1.0

Drift Calculation

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	382.4E-06	663.5E-06	1.7E-03	3.1E-03	4.1E-03	4.9E-03	5.8E-03	6.4E-03	7.0E-03	7.6E-03	7.6E-03	6.2E-03
6	-	427.4E-06	677.3E-06	1.8E-03	3.0E-03	4.2E-03	4.7E-03	5.8E-03	6.4E-03	7.1E-03	7.8E-03	7.7E-03	6.2E-03
7	-	438.4E-06	689.2E-06	1.7E-03	3.0E-03	4.2E-03	4.8E-03	5.7E-03	6.3E-03	7.1E-03	7.8E-03	7.6E-03	6.0E-03
Average	-	416.1E-06	676.7E-06	1.8E-03	3.0E-03	4.2E-03	4.8E-03	5.8E-03	6.4E-03	7.1E-03	7.7E-03	7.7E-03	6.1E-03
Sigma	-	24.2E-06	10.5E-06	15.7E-06	51.6E-06	53.5E-06	56.8E-06	36.7E-06	46.2E-06	17.5E-06	70.1E-06	67.7E-06	78.7E-06

Measurements

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	222.3	221.5	221.5	216.5	215.1	214.6	215.9	214.9	213.1	213.2	207.6	217.0	204.9
ON_TID samples													
11	231.6	210.0	199.0	161.6	136.0	118.4	108.8	99.0	92.6	87.3	82.0	82.9	97.8
12	220.9	200.8	191.3	155.0	131.9	113.4	105.2	95.6	89.7	84.8	79.5	80.5	93.5
13	232.4	213.3	203.1	165.5	138.8	120.3	111.1	100.5	94.3	89.3	83.9	84.5	96.9
Statistics													
Min	220.9	200.8	191.3	155.0	131.9	113.4	105.2	95.6	89.7	84.8	79.5	80.5	93.5
Max	232.4	213.3	203.1	165.5	138.8	120.3	111.1	100.5	94.3	89.3	83.9	84.5	97.8
Average	228.3	208.0	197.8	160.7	135.6	117.4	108.4	98.4	92.2	87.2	81.8	82.6	96.1
Sigma	5.3	5.3	4.9	4.3	2.8	2.9	2.4	2.0	1.9	1.8	1.8	1.6	1.8

Drift Calculation

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	444.2E-06	705.9E-06	1.9E-03	3.0E-03	4.1E-03	4.9E-03	5.8E-03	6.5E-03	7.1E-03	7.9E-03	7.7E-03	5.9E-03
12	-	451.7E-06	699.0E-06	1.9E-03	3.1E-03	4.3E-03	5.0E-03	5.9E-03	6.6E-03	7.3E-03	8.1E-03	7.9E-03	6.2E-03
13	-	385.7E-06	621.3E-06	1.7E-03	2.9E-03	4.0E-03	4.7E-03	5.6E-03	6.3E-03	6.9E-03	7.6E-03	7.5E-03	6.0E-03
Average	-	427.2E-06	675.4E-06	1.8E-03	3.0E-03	4.1E-03	4.8E-03	5.8E-03	6.5E-03	7.1E-03	7.9E-03	7.7E-03	6.0E-03
Sigma	-	29.5E-06	38.4E-06	77.2E-06	68.8E-06	115.0E-06	116.3E-06	116.1E-06	128.4E-06	153.0E-06	178.0E-06	148.3E-06	106.7E-06

Measurements

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	222.3	221.5	221.5	216.5	215.1	214.6	215.9	214.9	213.1	213.2	207.6	217.0	204.9
OFF_PROTON samples													
2	198.0	181.6	176.7	145.9	123.3	108.1	101.4	92.3	87.3	84.0	78.6	79.2	89.9
3	207.3	192.0	186.0	155.0	129.8	114.0	106.3	96.5	91.5	87.2	81.5	82.2	95.7
4	194.5	182.9	176.6	148.5	123.5	108.9	102.0	92.4	87.8	83.6	78.0	78.8	91.4
Statistics													
Min	194.5	181.6	176.6	145.9	123.3	108.1	101.4	92.3	87.3	83.6	78.0	78.8	89.9
Max	207.3	192.0	186.0	155.0	129.8	114.0	106.3	96.5	91.5	87.2	81.5	82.2	95.7
Average	199.9	185.5	179.8	149.8	125.5	110.4	103.3	93.7	88.8	84.9	79.4	80.1	92.3
Sigma	5.4	4.6	4.4	3.8	3.0	2.6	2.2	2.0	1.9	1.6	1.5	1.5	2.5

Drift Calculation

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	456.0E-06	608.4E-06	1.8E-03	3.1E-03	4.2E-03	4.8E-03	5.8E-03	6.4E-03	6.9E-03	7.7E-03	7.6E-03	6.1E-03
3	-	385.0E-06	551.3E-06	1.6E-03	2.9E-03	3.9E-03	4.6E-03	5.5E-03	6.1E-03	6.6E-03	7.4E-03	7.3E-03	5.6E-03
4	-	327.7E-06	520.2E-06	1.6E-03	3.0E-03	4.0E-03	4.7E-03	5.7E-03	6.2E-03	6.8E-03	7.7E-03	7.5E-03	5.8E-03
Average	-	389.6E-06	560.0E-06	1.7E-03	3.0E-03	4.1E-03	4.7E-03	5.7E-03	6.3E-03	6.8E-03	7.6E-03	7.5E-03	5.8E-03
Sigma	-	52.5E-06	36.5E-06	93.0E-06	71.5E-06	103.3E-06	96.7E-06	100.3E-06	123.0E-06	91.1E-06	107.6E-06	107.2E-06	185.6E-06

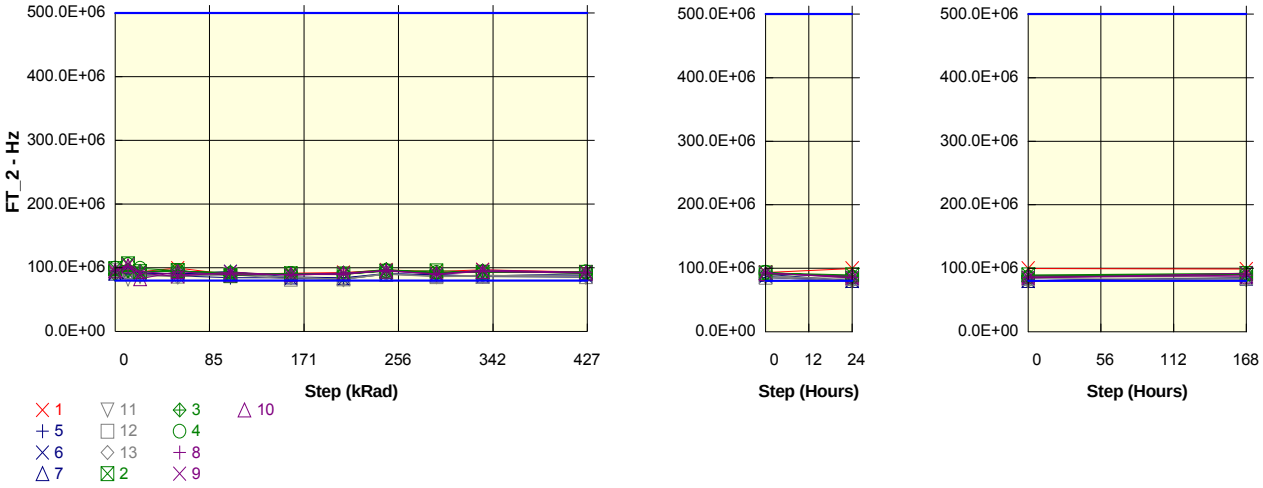
Measurements

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	222.3	221.5	221.5	216.5	215.1	214.6	215.9	214.9	213.1	213.2	207.6	217.0	204.9
OFF_TID samples													
8	223.2	205.1	195.9	162.9	132.6	115.6	107.3	96.9	91.5	87.2	80.9	81.9	95.1
9	229.1	207.8	199.4	165.1	133.8	117.3	108.9	98.4	93.2	87.9	82.4	83.4	96.8
10	225.9	205.4	195.7	162.9	133.5	115.6	107.8	97.2	92.0	87.1	80.8	82.1	94.8
Statistics													
Min	223.2	205.1	195.7	162.9	132.6	115.6	107.3	96.9	91.5	87.1	80.8	81.9	94.8
Max	229.1	207.8	199.4	165.1	133.8	117.3	108.9	98.4	93.2	87.9	82.4	83.4	96.8
Average	226.1	206.1	197.0	163.6	133.3	116.2	108.0	97.5	92.2	87.4	81.4	82.5	95.6
Sigma	2.4	1.2	1.7	1.0	0.5	0.8	0.7	0.6	0.7	0.4	0.7	0.7	0.9

Drift Calculation

HFE5_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	395.6E-06	623.5E-06	1.7E-03	3.1E-03	4.2E-03	4.8E-03	5.8E-03	6.5E-03	7.0E-03	7.9E-03	7.7E-03	6.0E-03
9	-	448.6E-06	650.9E-06	1.7E-03	3.1E-03	4.2E-03	4.8E-03	5.8E-03	6.4E-03	7.0E-03	7.8E-03	7.6E-03	6.0E-03
10	-	440.6E-06	683.9E-06	1.7E-03	3.1E-03	4.2E-03	4.8E-03	5.9E-03	6.4E-03	7.1E-03	7.9E-03	7.7E-03	6.1E-03
Average	-	428.3E-06	652.8E-06	1.7E-03	3.1E-03	4.2E-03	4.8E-03	5.8E-03	6.4E-03	7.0E-03	7.9E-03	7.7E-03	6.0E-03
Sigma	-	23.3E-06	24.7E-06	22.5E-06	21.4E-06	26.5E-06	14.3E-06	23.2E-06	36.9E-06	28.7E-06	71.2E-06	53.8E-06	61.8E-06

Parameter : Current gain bandwidth product : FT_2
Test conditions : Vce = -5V ; Ic = -1mA
Unit : Hz
Spec Limit Min : 80.0E+06
Spec Limit Max : 500.0E+06
Spec limits are represented in bold lines on the graphic.



Measurements

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.8E+06	94.3E+06	93.7E+06	99.4E+06	89.2E+06	91.4E+06	92.5E+06	96.6E+06	94.3E+06	96.9E+06	93.3E+06	99.8E+06	98.7E+06
ON_PROTON samples													
5	95.2E+06	91.8E+06	88.7E+06	87.0E+06	84.5E+06	84.1E+06	83.7E+06	89.8E+06	87.1E+06	86.2E+06	85.2E+06	80.6E+06	84.7E+06
6	91.1E+06	91.8E+06	91.9E+06	90.2E+06	93.9E+06	83.8E+06	82.1E+06	90.1E+06	89.4E+06	86.4E+06	87.4E+06	80.4E+06	85.2E+06
7	91.6E+06	93.8E+06	91.3E+06	91.1E+06	93.0E+06	85.6E+06	84.4E+06	91.0E+06	88.6E+06	87.1E+06	90.5E+06	80.6E+06	84.4E+06
Statistics													
Min	91.1E+06	91.8E+06	88.7E+06	87.0E+06	84.5E+06	83.8E+06	82.1E+06	89.8E+06	87.1E+06	86.2E+06	85.2E+06	80.4E+06	84.4E+06
Max	95.2E+06	93.8E+06	91.9E+06	91.1E+06	93.9E+06	85.6E+06	84.4E+06	91.0E+06	89.4E+06	87.1E+06	90.5E+06	80.6E+06	85.2E+06
Average	92.6E+06	92.5E+06	90.6E+06	89.4E+06	90.5E+06	84.5E+06	83.4E+06	90.3E+06	88.4E+06	86.6E+06	87.7E+06	80.5E+06	84.8E+06
Sigma	1.8E+06	967.3E+03	1.4E+06	1.7E+06	4.2E+06	785.5E+03	941.0E+03	494.8E+03	920.8E+03	393.1E+03	2.2E+06	87.3E+03	336.9E+03

Drift Calculation

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-3.4E+06	-6.5E+06	-8.2E+06	-10.7E+06	-11.1E+06	-11.5E+06	-5.4E+06	-8.1E+06	-9.0E+06	-10.0E+06	-14.6E+06	-10.4E+06
6	-	716.0E+03	842.9E+03	-897.5E+03	2.8E+06	-7.3E+06	-9.0E+06	-1.0E+06	-1.7E+06	-4.7E+06	-3.7E+06	-10.7E+06	-5.9E+06
7	-	2.2E+06	-337.0E+03	-568.0E+03	1.4E+06	-6.1E+06	-7.3E+06	-672.8E+03	-3.0E+06	-4.5E+06	-1.2E+06	-11.1E+06	-7.2E+06
Average	-	-168.9E+03	-2.0E+06	-3.2E+06	-2.1E+06	-8.2E+06	-9.3E+06	-2.4E+06	-4.3E+06	-6.1E+06	-5.0E+06	-12.1E+06	-7.8E+06
Sigma	-	2.4E+06	3.2E+06	3.5E+06	6.0E+06	2.1E+06	1.7E+06	2.1E+06	2.7E+06	2.1E+06	3.7E+06	1.8E+06	1.9E+06

Measurements

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.8E+06	94.3E+06	93.7E+06	99.4E+06	89.2E+06	91.4E+06	92.5E+06	96.6E+06	94.3E+06	96.9E+06	93.3E+06	99.8E+06	98.7E+06
ON_TID samples													
11	92.0E+06	82.2E+06	86.1E+06	88.4E+06	88.9E+06	85.3E+06	82.2E+06	91.0E+06	86.3E+06	88.5E+06	85.5E+06	80.0E+06	83.7E+06
12	95.4E+06	91.9E+06	90.2E+06	86.9E+06	89.0E+06	82.1E+06	82.4E+06	89.6E+06	86.1E+06	86.7E+06	86.0E+06	84.2E+06	84.7E+06
13	92.5E+06	93.5E+06	89.1E+06	85.4E+06	92.7E+06	84.9E+06	81.4E+06	90.3E+06	87.0E+06	87.4E+06	89.1E+06	80.5E+06	82.1E+06
Statistics													
Min	92.0E+06	82.2E+06	86.1E+06	85.4E+06	88.9E+06	82.1E+06	81.4E+06	89.6E+06	86.1E+06	86.7E+06	85.5E+06	80.0E+06	82.1E+06
Max	95.4E+06	93.5E+06	90.2E+06	88.4E+06	92.7E+06	85.3E+06	82.4E+06	91.0E+06	87.0E+06	88.5E+06	89.1E+06	84.2E+06	84.7E+06
Average	93.3E+06	89.2E+06	88.5E+06	86.9E+06	90.2E+06	84.1E+06	82.0E+06	90.3E+06	86.5E+06	87.5E+06	86.9E+06	81.6E+06	83.5E+06
Sigma	1.5E+06	5.0E+06	1.7E+06	1.2E+06	1.8E+06	1.4E+06	431.5E+03	560.3E+03	395.0E+03	713.6E+03	1.6E+06	1.9E+06	1.1E+06

Drift Calculation

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	-9.8E+06	-5.8E+06	-3.6E+06	-3.1E+06	-6.7E+06	-9.8E+06	-968.9E+03	-5.6E+06	-3.5E+06	-6.4E+06	-12.0E+06	-8.2E+06
12	-	-3.5E+06	-5.3E+06	-8.5E+06	-6.4E+06	-13.3E+06	-13.0E+06	-5.8E+06	-9.3E+06	-8.7E+06	-9.5E+06	-11.2E+06	-10.7E+06
13	-	1.0E+06	-3.4E+06	-7.1E+06	170.5E+03	-7.6E+06	-11.1E+06	-2.2E+06	-5.5E+06	-5.1E+06	-3.4E+06	-12.0E+06	-10.4E+06
Average	-	-4.1E+06	-4.8E+06	-6.4E+06	-3.1E+06	-9.2E+06	-11.3E+06	-3.0E+06	-6.8E+06	-5.7E+06	-6.4E+06	-11.7E+06	-9.8E+06
Sigma	-	4.4E+06	1.0E+06	2.1E+06	2.7E+06	2.9E+06	1.3E+06	2.0E+06	1.8E+06	2.2E+06	2.5E+06	363.5E+03	1.1E+06

Measurements

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.8E+06	94.3E+06	93.7E+06	99.4E+06	89.2E+06	91.4E+06	92.5E+06	96.6E+06	94.3E+06	96.9E+06	93.3E+06	99.8E+06	98.7E+06
OFF_PROTON samples													
2	98.7E+06	105.9E+06	94.0E+06	95.6E+06	87.7E+06	90.7E+06	90.2E+06	94.4E+06	95.1E+06	93.1E+06	92.8E+06	89.6E+06	91.9E+06
3	90.0E+06	95.8E+06	94.1E+06	94.7E+06	92.5E+06	88.9E+06	91.3E+06	97.2E+06	91.7E+06	95.0E+06	90.9E+06	88.0E+06	90.2E+06
4	99.4E+06	105.0E+06	99.3E+06	95.2E+06	90.8E+06	90.8E+06	89.3E+06	95.4E+06	92.4E+06	92.9E+06	93.6E+06	85.8E+06	90.5E+06
Statistics													
Min	90.0E+06	95.8E+06	94.0E+06	94.7E+06	87.7E+06	88.9E+06	89.3E+06	94.4E+06	91.7E+06	92.9E+06	90.9E+06	85.8E+06	90.2E+06
Max	99.4E+06	105.9E+06	99.3E+06	95.6E+06	92.5E+06	90.8E+06	91.3E+06	97.2E+06	95.1E+06	95.0E+06	93.6E+06	89.6E+06	91.9E+06
Average	96.0E+06	102.3E+06	95.8E+06	95.2E+06	90.3E+06	90.1E+06	90.3E+06	95.7E+06	93.1E+06	93.7E+06	92.4E+06	87.8E+06	90.9E+06
Sigma	4.3E+06	4.6E+06	2.4E+06	367.1E+03	2.0E+06	845.6E+03	823.8E+03	1.1E+06	1.5E+06	965.0E+03	1.1E+06	1.5E+06	758.7E+03

Drift Calculation

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	7.2E+06	-4.7E+06	-3.1E+06	-11.0E+06	-8.0E+06	-8.5E+06	-4.2E+06	-3.6E+06	-5.6E+06	-5.9E+06	-9.1E+06	-6.8E+06
3	-	5.8E+06	4.1E+06	4.7E+06	2.4E+06	-1.1E+06	1.3E+06	7.2E+06	1.7E+06	5.0E+06	874.9E+03	-2.0E+06	186.8E+03
4	-	5.6E+06	-137.2E+03	-4.2E+06	-8.6E+06	-8.6E+06	-10.1E+06	-4.0E+06	-7.0E+06	-6.5E+06	-5.8E+06	-13.6E+06	-8.9E+06
Average	-	6.2E+06	-234.9E+03	-851.3E+03	-5.7E+06	-5.9E+06	-5.8E+06	-369.1E+03	-3.0E+06	-2.4E+06	-3.6E+06	-8.2E+06	-5.2E+06
Sigma	-	726.2E+03	3.6E+06	4.0E+06	5.8E+06	3.4E+06	5.0E+06	5.3E+06	3.6E+06	5.2E+06	3.2E+06	4.8E+06	3.9E+06

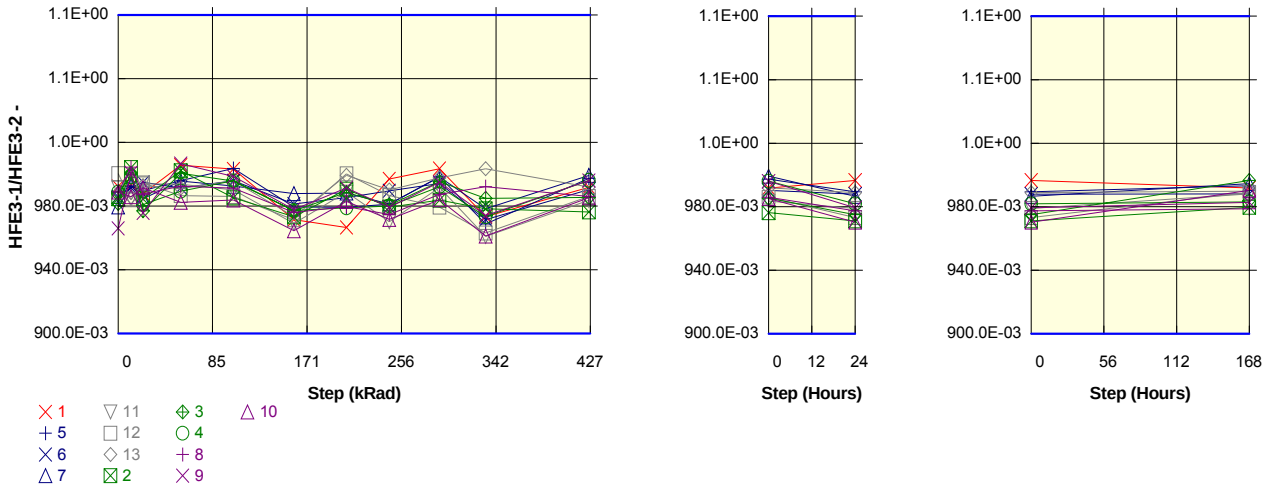
Measurements

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	92.8E+06	94.3E+06	93.7E+06	99.4E+06	89.2E+06	91.4E+06	92.5E+06	96.6E+06	94.3E+06	96.9E+06	93.3E+06	99.8E+06	98.7E+06
OFF_TID samples													
8	95.1E+06	101.6E+06	94.2E+06	89.1E+06	90.8E+06	89.2E+06	89.1E+06	96.4E+06	89.1E+06	94.6E+06	92.8E+06	85.4E+06	89.3E+06
9	94.9E+06	104.1E+06	91.0E+06	86.4E+06	93.4E+06	87.9E+06	91.1E+06	95.7E+06	90.0E+06	96.5E+06	92.8E+06	84.6E+06	92.2E+06
10	95.0E+06	102.8E+06	82.8E+06	94.0E+06	88.8E+06	89.5E+06	91.7E+06	94.6E+06	90.8E+06	93.9E+06	91.6E+06	87.6E+06	87.5E+06
Statistics													
Min	94.9E+06	101.6E+06	82.8E+06	86.4E+06	88.8E+06	87.9E+06	89.1E+06	94.6E+06	89.1E+06	93.9E+06	91.6E+06	84.6E+06	87.5E+06
Max	95.1E+06	104.1E+06	94.2E+06	94.0E+06	93.4E+06	89.5E+06	91.7E+06	96.4E+06	90.8E+06	96.5E+06	92.8E+06	87.6E+06	92.2E+06
Average	95.0E+06	102.9E+06	89.3E+06	89.8E+06	91.0E+06	88.9E+06	90.6E+06	95.6E+06	90.0E+06	95.0E+06	92.4E+06	85.9E+06	89.7E+06
Sigma	74.3E+03	1.0E+06	4.8E+06	3.1E+06	1.9E+06	693.4E+03	1.1E+06	709.2E+03	659.6E+03	1.1E+06	556.1E+03	1.2E+06	1.9E+06

Drift Calculation

FT_2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	6.6E+06	-893.2E+03	-6.0E+06	-4.3E+06	-5.8E+06	-5.9E+06	1.3E+06	-5.9E+06	-436.8E+03	-2.3E+06	-9.6E+06	-5.8E+06
9	-	9.3E+06	-3.9E+06	-8.4E+06	-1.5E+06	-6.9E+06	-3.8E+06	855.9E+03	-4.9E+06	1.6E+06	-2.1E+06	-10.3E+06	-2.6E+06
10	-	7.8E+06	-12.3E+06	-1.1E+06	-6.2E+06	-5.5E+06	-3.3E+06	-371.2E+03	-4.3E+06	-1.1E+06	-3.4E+06	-7.5E+06	-7.5E+06
Average	-	7.9E+06	-5.7E+06	-5.2E+06	-4.0E+06	-6.1E+06	-4.3E+06	595.0E+03	-5.0E+06	35.4E+03	-2.6E+06	-9.1E+06	-5.3E+06
Sigma	-	1.1E+06	4.8E+06	3.1E+06	1.9E+06	626.1E+03	1.1E+06	706.9E+03	682.1E+03	1.2E+06	584.3E+03	1.2E+06	2.0E+06

Parameter : Forward current transfer ratio comparison : HFE3-1/HFE3-2
Test conditions : Ic = -1mA ; Vce = -5V
Unit :
Spec Limit Min : 900.0E-03
Spec Limit Max : 1.1E+00
Spec limits are represented in bold lines on the graphic.



Measurements

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	992.3E-03	992.9E-03	987.8E-03	1.0E+00	1.0E+00	971.5E-03	966.6E-03	997.1E-03	1.0E+00	973.3E-03	991.7E-03	996.6E-03	991.9E-03
ON_PROTON samples													
5	988.6E-03	992.4E-03	989.7E-03	996.0E-03	1.0E+00	979.4E-03	979.2E-03	981.2E-03	998.3E-03	968.7E-03	997.4E-03	989.4E-03	993.2E-03
6	985.8E-03	991.5E-03	995.0E-03	991.4E-03	995.9E-03	981.3E-03	985.3E-03	989.6E-03	994.1E-03	971.5E-03	990.4E-03	987.9E-03	988.1E-03
7	979.4E-03	992.7E-03	984.6E-03	995.6E-03	992.5E-03	987.9E-03	988.2E-03	981.3E-03	998.1E-03	978.3E-03	999.2E-03	986.6E-03	994.6E-03
Statistics													
Min	979.4E-03	991.5E-03	984.6E-03	991.4E-03	992.5E-03	979.4E-03	979.2E-03	981.2E-03	994.1E-03	968.7E-03	990.4E-03	986.6E-03	988.1E-03
Max	988.6E-03	992.7E-03	995.0E-03	996.0E-03	1.0E+00	987.9E-03	988.2E-03	989.6E-03	998.3E-03	978.3E-03	999.2E-03	989.4E-03	994.6E-03
Average	984.6E-03	992.2E-03	989.7E-03	994.3E-03	997.3E-03	982.9E-03	984.2E-03	984.0E-03	996.9E-03	972.9E-03	995.7E-03	987.9E-03	992.0E-03
Sigma	3.8E-03	543.8E-06	4.2E-03	2.1E-03	4.6E-03	3.6E-03	3.7E-03	3.9E-03	1.9E-03	4.0E-03	3.8E-03	1.2E-03	2.8E-03

Drift Calculation

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-3.9E-03	-1.1E-03	-7.6E-03	-15.1E-03	9.5E-03	9.7E-03	7.7E-03	-9.9E-03	20.7E-03	-8.9E-03	-817.9E-06	-4.7E-03
6	-	-5.8E-03	-9.4E-03	-5.8E-03	-10.3E-03	4.6E-03	484.3E-06	-3.9E-03	-8.6E-03	14.9E-03	-4.7E-03	-2.2E-03	-2.4E-03
7	-	-13.7E-03	-5.3E-03	-16.6E-03	-13.4E-03	-8.7E-03	-9.1E-03	-1.9E-03	-19.1E-03	1.2E-03	-20.2E-03	-7.4E-03	-15.5E-03
Average	-	-7.8E-03	-5.3E-03	-10.0E-03	-13.0E-03	1.8E-03	358.6E-06	621.6E-06	-12.5E-03	12.2E-03	-11.3E-03	-3.5E-03	-7.6E-03
Sigma	-	4.2E-03	3.4E-03	4.7E-03	2.0E-03	7.7E-03	7.7E-03	5.0E-03	4.7E-03	8.2E-03	6.5E-03	2.8E-03	5.7E-03

Measurements

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	992.3E-03	992.9E-03	987.8E-03	1.0E+00	1.0E+00	971.5E-03	966.6E-03	997.1E-03	1.0E+00	973.3E-03	991.7E-03	996.6E-03	991.9E-03
ON_TID samples													
11	991.3E-03	984.3E-03	993.9E-03	993.6E-03	990.2E-03	969.1E-03	988.8E-03	970.1E-03	991.6E-03	960.9E-03	983.6E-03	978.9E-03	988.0E-03
12	1.0E+00	983.9E-03	994.5E-03	986.6E-03	986.0E-03	971.4E-03	1.0E+00	986.7E-03	979.4E-03	963.1E-03	986.0E-03	973.2E-03	989.1E-03
13	988.4E-03	985.7E-03	992.8E-03	991.2E-03	995.8E-03	973.3E-03	999.3E-03	990.1E-03	997.7E-03	1.0E+00	991.9E-03	988.9E-03	989.8E-03
Statistics													
Min	988.4E-03	983.9E-03	992.8E-03	986.6E-03	986.0E-03	969.1E-03	988.8E-03	970.1E-03	979.4E-03	960.9E-03	983.6E-03	973.2E-03	988.0E-03
Max	1.0E+00	985.7E-03	994.5E-03	993.6E-03	995.8E-03	973.3E-03	1.0E+00	990.1E-03	997.7E-03	1.0E+00	991.9E-03	988.9E-03	989.8E-03
Average	993.3E-03	984.6E-03	993.7E-03	990.5E-03	990.7E-03	971.3E-03	996.1E-03	982.3E-03	989.6E-03	975.8E-03	987.2E-03	980.3E-03	988.9E-03
Sigma	5.1E-03	773.4E-06	721.2E-06	2.9E-03	4.0E-03	1.7E-03	5.2E-03	8.8E-03	7.6E-03	19.5E-03	3.5E-03	6.5E-03	726.9E-06

Drift Calculation

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	7.2E-03	-2.7E-03	-2.4E-03	1.1E-03	23.1E-03	2.5E-03	22.0E-03	-347.0E-06	31.8E-03	7.9E-03	12.7E-03	3.3E-03
12	-	16.7E-03	5.9E-03	14.0E-03	14.6E-03	29.8E-03	138.3E-06	13.8E-03	21.5E-03	38.6E-03	14.5E-03	27.9E-03	11.4E-03
13	-	2.7E-03	-4.5E-03	-2.8E-03	-7.5E-03	15.7E-03	-11.0E-03	-1.8E-03	-9.5E-03	-15.2E-03	-3.6E-03	-490.4E-06	-1.4E-03
Average	-	8.9E-03	-411.9E-06	2.9E-03	2.7E-03	22.9E-03	-2.8E-03	11.3E-03	3.9E-03	18.4E-03	6.3E-03	13.4E-03	4.4E-03
Sigma	-	5.8E-03	4.5E-03	7.8E-03	9.1E-03	5.8E-03	5.9E-03	9.9E-03	13.0E-03	23.9E-03	7.5E-03	11.6E-03	5.3E-03

Measurements

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	992.3E-03	992.9E-03	987.8E-03	1.0E+00	1.0E+00	971.5E-03	966.6E-03	997.1E-03	1.0E+00	973.3E-03	991.7E-03	996.6E-03	991.9E-03
OFF_PROTON samples													
2	984.6E-03	1.0E+00	984.5E-03	1.0E+00	985.2E-03	973.2E-03	990.6E-03	979.4E-03	983.7E-03	978.2E-03	976.3E-03	971.2E-03	979.6E-03
3	981.6E-03	1.0E+00	977.0E-03	1.0E+00	995.6E-03	977.1E-03	988.5E-03	980.6E-03	995.3E-03	984.9E-03	985.4E-03	975.0E-03	996.6E-03
4	988.7E-03	998.3E-03	980.9E-03	989.4E-03	995.9E-03	977.1E-03	978.8E-03	980.0E-03	992.2E-03	973.4E-03	996.1E-03	981.9E-03	983.1E-03
Statistics													
Min	981.6E-03	998.3E-03	977.0E-03	989.4E-03	985.2E-03	973.2E-03	978.8E-03	979.4E-03	983.7E-03	973.4E-03	976.3E-03	971.2E-03	979.6E-03
Max	988.7E-03	1.0E+00	984.5E-03	1.0E+00	995.9E-03	977.1E-03	990.6E-03	980.6E-03	995.3E-03	984.9E-03	996.1E-03	981.9E-03	996.6E-03
Average	985.0E-03	1.0E+00	980.8E-03	997.4E-03	992.2E-03	975.8E-03	986.0E-03	980.0E-03	990.4E-03	978.8E-03	985.9E-03	976.0E-03	986.5E-03
Sigma	2.9E-03	2.4E-03	3.1E-03	5.7E-03	5.0E-03	1.8E-03	5.1E-03	501.0E-06	4.9E-03	4.7E-03	8.1E-03	4.4E-03	7.3E-03

Drift Calculation

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-19.7E-03	103.3E-06	-17.7E-03	-562.0E-06	11.9E-03	-6.1E-03	5.5E-03	955.8E-06	6.6E-03	8.6E-03	14.1E-03	5.2E-03
3	-	-19.5E-03	4.7E-03	-19.4E-03	-14.3E-03	4.7E-03	-7.2E-03	1.0E-03	-14.1E-03	-3.4E-03	-4.0E-03	6.8E-03	-15.4E-03
4	-	-9.7E-03	8.1E-03	-651.5E-06	-7.2E-03	12.0E-03	10.2E-03	9.0E-03	-3.5E-03	16.0E-03	-7.5E-03	7.1E-03	5.8E-03
Average	-	-16.3E-03	4.3E-03	-12.6E-03	-7.4E-03	9.5E-03	-1.0E-03	5.2E-03	-5.5E-03	6.4E-03	-924.0E-06	9.3E-03	-1.5E-03
Sigma	-	4.6E-03	3.3E-03	8.5E-03	5.6E-03	3.4E-03	7.9E-03	3.3E-03	6.3E-03	7.9E-03	6.9E-03	3.4E-03	9.8E-03

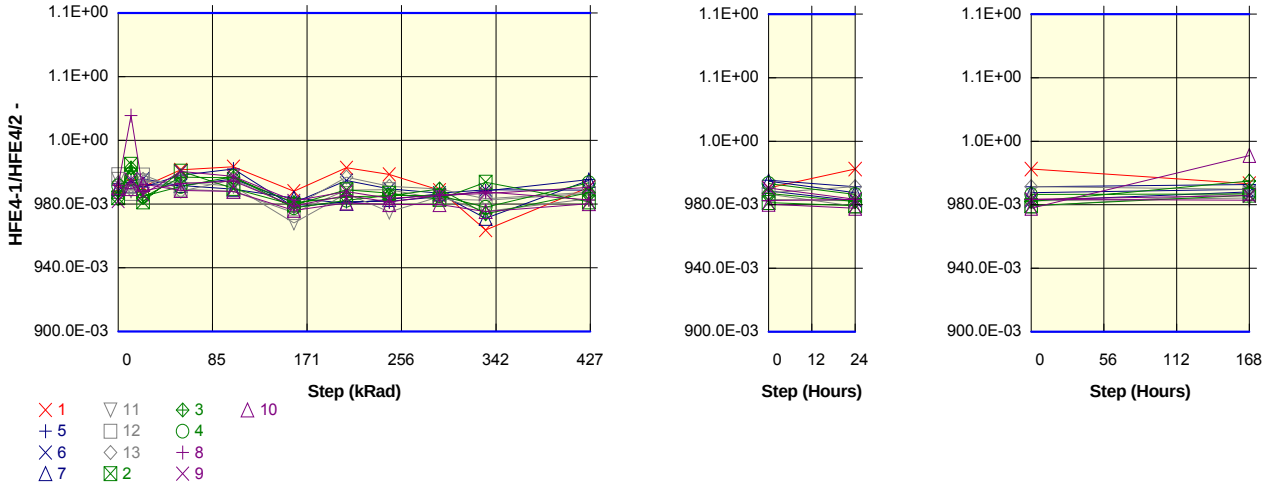
Measurements

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	992.3E-03	992.9E-03	987.8E-03	1.0E+00	1.0E+00	971.5E-03	966.6E-03	997.1E-03	1.0E+00	973.3E-03	991.7E-03	996.6E-03	991.9E-03
OFF_TID samples													
8	988.9E-03	1.0E+00	987.7E-03	992.4E-03	991.3E-03	976.0E-03	979.7E-03	974.8E-03	987.4E-03	992.2E-03	986.0E-03	977.5E-03	978.7E-03
9	966.0E-03	1.0E+00	975.7E-03	1.0E+00	998.6E-03	977.8E-03	991.4E-03	979.2E-03	994.9E-03	974.1E-03	996.0E-03	979.3E-03	982.7E-03
10	988.7E-03	985.9E-03	991.5E-03	982.3E-03	983.8E-03	964.5E-03	982.9E-03	971.7E-03	983.9E-03	961.2E-03	985.2E-03	970.3E-03	990.4E-03
Statistics													
Min	966.0E-03	985.9E-03	975.7E-03	982.3E-03	983.8E-03	964.5E-03	979.7E-03	971.7E-03	983.9E-03	961.2E-03	985.2E-03	970.3E-03	978.7E-03
Max	988.9E-03	1.0E+00	991.5E-03	1.0E+00	998.6E-03	977.8E-03	991.4E-03	979.2E-03	994.9E-03	992.2E-03	996.0E-03	979.3E-03	990.4E-03
Average	981.2E-03	997.0E-03	985.0E-03	993.8E-03	991.2E-03	972.8E-03	984.7E-03	975.2E-03	988.7E-03	975.8E-03	989.1E-03	975.7E-03	983.9E-03
Sigma	10.8E-03	8.0E-03	6.7E-03	10.0E-03	6.0E-03	5.9E-03	4.9E-03	3.1E-03	4.6E-03	12.7E-03	4.9E-03	3.9E-03	4.8E-03

Drift Calculation

HFE3-1/HFE3-2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-15.5E-03	1.2E-03	-3.5E-03	-2.4E-03	13.4E-03	9.6E-03	14.7E-03	1.6E-03	-3.3E-03	3.0E-03	11.9E-03	10.6E-03
9	-	-36.0E-03	-10.3E-03	-41.8E-03	-33.8E-03	-12.5E-03	-26.6E-03	-14.0E-03	-30.1E-03	-8.6E-03	-31.2E-03	-14.1E-03	-17.6E-03
10	-	2.9E-03	-2.9E-03	6.6E-03	5.0E-03	25.4E-03	6.0E-03	17.7E-03	5.0E-03	29.0E-03	3.6E-03	19.2E-03	-1.7E-03
Average	-	-16.2E-03	-4.0E-03	-12.9E-03	-10.4E-03	8.8E-03	-3.7E-03	6.2E-03	-7.9E-03	5.7E-03	-8.2E-03	5.7E-03	-2.9E-03
Sigma	-	15.9E-03	4.8E-03	20.8E-03	16.8E-03	15.8E-03	16.2E-03	14.3E-03	15.8E-03	16.6E-03	16.3E-03	14.3E-03	11.6E-03

Parameter : Forward current transfer ratio comparison : HFE4-1/HFE4/2
Test conditions : Ic = -5mA ; Vce = -5V
Unit :
Spec Limit Min : 900.0E-03
Spec Limit Max : 1.1E+00
Spec limits are represented in bold lines on the graphic.



Measurements

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	989.8E-03	993.1E-03	990.8E-03	1.0E+00	1.0E+00	988.0E-03	1.0E+00	998.6E-03	988.7E-03	963.7E-03	990.6E-03	1.0E+00	993.2E-03
ON_PROTON samples													
5	992.8E-03	993.7E-03	990.7E-03	998.0E-03	1.0E+00	978.2E-03	981.5E-03	981.7E-03	984.6E-03	988.3E-03	995.4E-03	991.3E-03	992.8E-03
6	988.7E-03	994.1E-03	995.8E-03	991.5E-03	995.8E-03	980.8E-03	994.8E-03	989.5E-03	986.7E-03	988.9E-03	988.7E-03	982.5E-03	988.1E-03
7	989.7E-03	991.4E-03	992.3E-03	991.7E-03	989.3E-03	983.7E-03	980.5E-03	982.9E-03	986.5E-03	971.1E-03	994.8E-03	987.6E-03	989.7E-03
Statistics													
Min	988.7E-03	991.4E-03	990.7E-03	991.5E-03	989.3E-03	978.2E-03	980.5E-03	981.7E-03	984.6E-03	971.1E-03	988.7E-03	982.5E-03	988.1E-03
Max	992.8E-03	994.1E-03	995.8E-03	998.0E-03	1.0E+00	983.7E-03	994.8E-03	989.5E-03	986.7E-03	988.9E-03	995.4E-03	991.3E-03	992.8E-03
Average	990.4E-03	993.1E-03	992.9E-03	993.7E-03	995.7E-03	980.9E-03	985.6E-03	984.7E-03	985.9E-03	982.8E-03	993.0E-03	987.1E-03	990.2E-03
Sigma	1.7E-03	1.2E-03	2.1E-03	3.0E-03	5.2E-03	2.2E-03	6.5E-03	3.5E-03	968.3E-06	8.3E-03	3.0E-03	3.6E-03	2.0E-03

Drift Calculation

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	-948.3E-06	2.1E-03	-5.3E-03	-9.3E-03	15.0E-03	11.5E-03	11.4E-03	8.4E-03	4.5E-03	-2.7E-03	1.5E-03	-76.5E-06
6	-	-5.6E-03	-7.3E-03	-2.9E-03	-7.2E-03	8.1E-03	-6.2E-03	-867.6E-06	2.0E-03	-259.8E-06	-18.1E-06	6.3E-03	629.1E-06
7	-	-1.7E-03	-2.6E-03	-2.0E-03	426.3E-06	6.2E-03	9.6E-03	7.1E-03	3.3E-03	19.4E-03	-5.2E-03	2.2E-03	65.6E-06
Average	-	-2.7E-03	-2.6E-03	-3.4E-03	-5.4E-03	9.8E-03	5.0E-03	5.8E-03	4.6E-03	7.9E-03	-2.6E-03	3.3E-03	206.1E-06
Sigma	-	2.0E-03	3.8E-03	1.4E-03	4.2E-03	3.8E-03	7.9E-03	5.1E-03	2.8E-03	8.4E-03	2.1E-03	2.1E-03	304.7E-06

Measurements

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	989.8E-03	993.1E-03	990.8E-03	1.0E+00	1.0E+00	988.0E-03	1.0E+00	998.6E-03	988.7E-03	963.7E-03	990.6E-03	1.0E+00	993.2E-03
ON_TID samples													
11	995.5E-03	988.5E-03	994.5E-03	993.8E-03	991.2E-03	968.1E-03	986.6E-03	975.0E-03	984.6E-03	975.4E-03	983.3E-03	982.4E-03	984.3E-03
12	998.4E-03	986.7E-03	998.2E-03	989.3E-03	987.9E-03	974.6E-03	988.8E-03	989.1E-03	983.2E-03	982.4E-03	986.6E-03	979.0E-03	987.5E-03
13	993.3E-03	989.1E-03	995.5E-03	988.1E-03	995.4E-03	978.5E-03	997.0E-03	991.1E-03	989.4E-03	983.4E-03	987.4E-03	991.3E-03	989.7E-03
Statistics													
Min	993.3E-03	986.7E-03	994.5E-03	988.1E-03	987.9E-03	968.1E-03	986.6E-03	975.0E-03	983.2E-03	975.4E-03	983.3E-03	979.0E-03	984.3E-03
Max	998.4E-03	989.1E-03	998.2E-03	993.8E-03	995.4E-03	978.5E-03	997.0E-03	991.1E-03	989.4E-03	983.4E-03	987.4E-03	991.3E-03	989.7E-03
Average	995.7E-03	988.1E-03	996.1E-03	990.4E-03	991.5E-03	973.7E-03	990.8E-03	985.1E-03	985.7E-03	980.4E-03	985.8E-03	984.3E-03	987.1E-03
Sigma	2.1E-03	1.0E-03	1.6E-03	2.5E-03	3.0E-03	4.3E-03	4.5E-03	7.2E-03	2.7E-03	3.6E-03	1.8E-03	5.2E-03	2.2E-03

Drift Calculation

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	7.1E-03	1.0E-03	1.7E-03	4.3E-03	28.4E-03	9.1E-03	21.1E-03	11.1E-03	20.7E-03	12.5E-03	13.4E-03	11.4E-03
12	-	11.9E-03	202.6E-06	9.2E-03	10.6E-03	24.5E-03	9.8E-03	9.5E-03	15.6E-03	16.3E-03	12.0E-03	19.8E-03	11.1E-03
13	-	4.3E-03	-2.2E-03	5.3E-03	-2.1E-03	15.2E-03	-3.7E-03	2.2E-03	3.9E-03	10.2E-03	6.0E-03	2.0E-03	3.7E-03
Average	-	7.8E-03	-334.0E-06	5.4E-03	4.3E-03	22.7E-03	5.0E-03	10.9E-03	10.2E-03	15.7E-03	10.1E-03	11.7E-03	8.7E-03
Sigma	-	3.2E-03	1.4E-03	3.1E-03	5.2E-03	5.5E-03	6.2E-03	7.8E-03	4.8E-03	4.3E-03	2.9E-03	7.4E-03	3.6E-03

Measurements

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	989.8E-03	993.1E-03	990.8E-03	1.0E+00	1.0E+00	988.0E-03	1.0E+00	998.6E-03	988.7E-03	963.7E-03	990.6E-03	1.0E+00	993.2E-03
OFF_PROTON samples													
2	984.0E-03	1.0E+00	981.4E-03	1.0E+00	989.8E-03	979.4E-03	988.9E-03	986.8E-03	983.0E-03	993.7E-03	981.4E-03	979.4E-03	986.0E-03
3	983.6E-03	1.0E+00	984.2E-03	997.0E-03	996.5E-03	980.8E-03	984.5E-03	985.2E-03	989.4E-03	973.9E-03	987.1E-03	982.0E-03	995.0E-03
4	991.3E-03	996.1E-03	984.8E-03	991.1E-03	997.3E-03	977.6E-03	982.3E-03	985.4E-03	985.3E-03	977.9E-03	993.4E-03	986.5E-03	986.7E-03
Statistics													
Min	983.6E-03	996.1E-03	981.4E-03	991.1E-03	989.8E-03	977.6E-03	982.3E-03	985.2E-03	983.0E-03	973.9E-03	981.4E-03	979.4E-03	986.0E-03
Max	991.3E-03	1.0E+00	984.8E-03	1.0E+00	997.3E-03	980.8E-03	988.9E-03	986.8E-03	989.4E-03	993.7E-03	993.4E-03	986.5E-03	995.0E-03
Average	986.3E-03	1.0E+00	983.5E-03	996.2E-03	994.5E-03	979.3E-03	985.3E-03	985.8E-03	985.9E-03	981.8E-03	987.3E-03	982.6E-03	989.3E-03
Sigma	3.6E-03	3.8E-03	1.5E-03	4.0E-03	3.3E-03	1.3E-03	2.7E-03	705.3E-06	2.6E-03	8.6E-03	4.9E-03	2.9E-03	4.1E-03

Drift Calculation

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	-21.2E-03	2.6E-03	-17.0E-03	-6.0E-03	4.7E-03	-5.1E-03	-2.9E-03	1.0E-03	-10.0E-03	2.7E-03	4.7E-03	-2.1E-03
3	-	-19.4E-03	-642.1E-06	-13.6E-03	-13.2E-03	2.9E-03	-988.3E-06	-1.6E-03	-6.0E-03	10.1E-03	-3.6E-03	1.6E-03	-11.7E-03
4	-	-4.8E-03	6.7E-03	271.4E-06	-6.0E-03	14.2E-03	9.3E-03	6.0E-03	6.2E-03	13.8E-03	-2.1E-03	5.0E-03	4.7E-03
Average	-	-15.1E-03	2.9E-03	-10.1E-03	-8.4E-03	7.3E-03	1.0E-03	488.0E-06	404.1E-06	4.7E-03	-1.0E-03	3.8E-03	-3.0E-03
Sigma	-	7.3E-03	3.0E-03	7.5E-03	3.4E-03	4.9E-03	6.0E-03	4.0E-03	5.0E-03	10.5E-03	2.7E-03	1.5E-03	6.7E-03

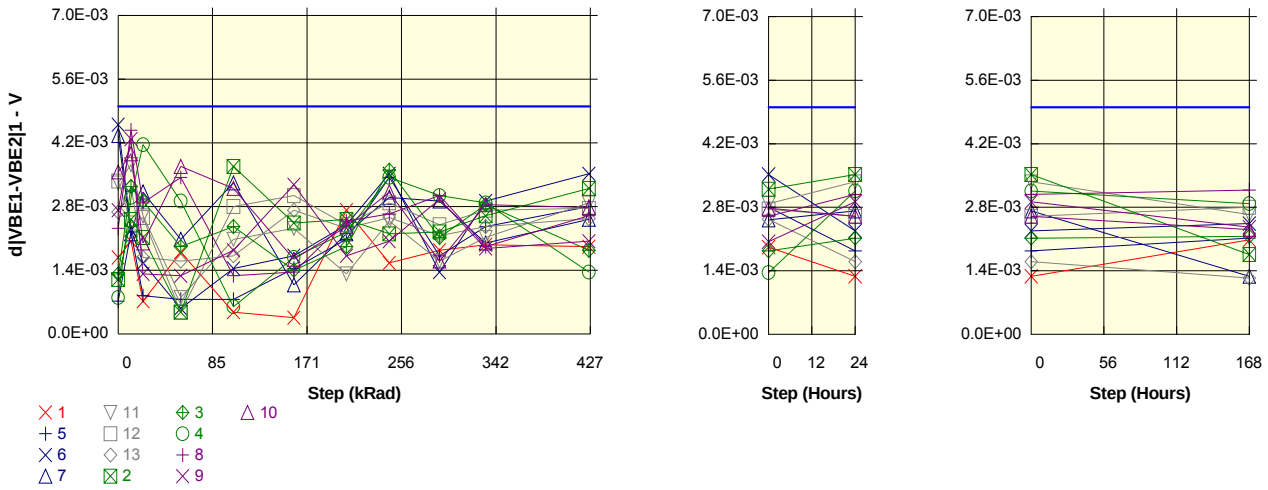
Measurements

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	989.8E-03	993.1E-03	990.8E-03	1.0E+00	1.0E+00	988.0E-03	1.0E+00	998.6E-03	988.7E-03	963.7E-03	990.6E-03	1.0E+00	993.2E-03
OFF_TID samples													
8	991.8E-03	1.0E+00	988.3E-03	992.8E-03	994.5E-03	978.7E-03	985.5E-03	981.2E-03	985.5E-03	987.6E-03	982.7E-03	983.3E-03	982.9E-03
9	981.9E-03	995.5E-03	986.0E-03	1.0E+00	997.4E-03	982.0E-03	987.9E-03	983.5E-03	985.4E-03	986.7E-03	990.5E-03	983.4E-03	985.7E-03
10	990.5E-03	989.7E-03	992.5E-03	988.6E-03	987.9E-03	976.0E-03	980.7E-03	979.7E-03	979.7E-03	975.3E-03	980.3E-03	977.8E-03	1.0E+00
Statistics													
Min	981.9E-03	989.7E-03	986.0E-03	988.6E-03	987.9E-03	976.0E-03	980.7E-03	979.7E-03	979.7E-03	975.3E-03	980.3E-03	977.8E-03	982.9E-03
Max	991.8E-03	1.0E+00	992.5E-03	1.0E+00	997.4E-03	982.0E-03	987.9E-03	983.5E-03	985.5E-03	987.6E-03	990.5E-03	983.4E-03	1.0E+00
Average	988.0E-03	1.0E+00	989.0E-03	994.0E-03	993.3E-03	978.9E-03	984.7E-03	981.5E-03	983.6E-03	983.2E-03	984.5E-03	981.5E-03	993.2E-03
Sigma	4.4E-03	20.4E-03	2.7E-03	4.9E-03	4.0E-03	2.5E-03	3.0E-03	1.6E-03	2.7E-03	5.6E-03	4.4E-03	2.6E-03	12.6E-03

Drift Calculation

HFE4-1/HFE4/2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	-42.6E-03	3.5E-03	-1.1E-03	-2.8E-03	13.4E-03	6.5E-03	10.8E-03	6.4E-03	4.3E-03	9.3E-03	8.6E-03	9.1E-03
9	-	-13.9E-03	-4.3E-03	-19.0E-03	-15.8E-03	-132.5E-06	-6.2E-03	-1.7E-03	-3.7E-03	-5.0E-03	-8.9E-03	-1.6E-03	-4.0E-03
10	-	762.5E-06	-2.1E-03	1.9E-03	2.6E-03	15.0E-03	10.1E-03	11.1E-03	11.1E-03	15.6E-03	10.5E-03	13.1E-03	-20.5E-03
Average	-	-18.6E-03	-956.0E-06	-6.0E-03	-5.4E-03	9.4E-03	3.4E-03	6.7E-03	4.6E-03	5.0E-03	3.6E-03	6.7E-03	-5.1E-03
Sigma	-	18.0E-03	3.3E-03	9.2E-03	7.7E-03	6.8E-03	7.0E-03	6.0E-03	6.2E-03	8.4E-03	8.9E-03	6.1E-03	12.1E-03

Parameter : Base-Emitter voltage differential : d|VBE1-VBE2|1
Test conditions : Ic = -1mA ; Vce = -5V
Unit : V
Spec Limit Max : 5.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	2.0E-03	720.0E-06	1.8E-03	480.0E-06	360.0E-06	2.7E-03	1.6E-03	1.8E-03	2.0E-03	1.9E-03	1.3E-03	2.1E-03
ON_PROTON samples													
5	720.0E-06	2.2E-03	840.0E-06	760.0E-06	760.0E-06	1.4E-03	2.1E-03	3.4E-03	1.7E-03	2.4E-03	2.8E-03	1.8E-03	2.1E-03
6	4.6E-03	2.3E-03	1.6E-03	560.0E-06	1.4E-03	1.7E-03	2.4E-03	3.5E-03	1.4E-03	2.9E-03	3.5E-03	2.3E-03	2.4E-03
7	4.4E-03	2.2E-03	3.1E-03	2.1E-03	3.3E-03	1.1E-03	2.2E-03	3.0E-03	2.9E-03	2.0E-03	2.5E-03	2.7E-03	1.3E-03
Statistics													
Min	720.0E-06	2.2E-03	840.0E-06	560.0E-06	760.0E-06	1.1E-03	2.1E-03	3.0E-03	1.4E-03	2.0E-03	2.5E-03	1.8E-03	1.3E-03
Max	4.6E-03	2.3E-03	3.1E-03	2.1E-03	3.3E-03	1.7E-03	2.4E-03	3.5E-03	2.9E-03	2.9E-03	3.5E-03	2.7E-03	2.4E-03
Average	3.2E-03	2.2E-03	1.8E-03	1.1E-03	1.8E-03	1.4E-03	2.2E-03	3.3E-03	2.0E-03	2.4E-03	2.9E-03	2.3E-03	1.9E-03
Sigma	1.8E-03	32.7E-06	951.6E-06	674.4E-06	1.1E-03	262.0E-06	132.0E-06	228.6E-06	666.9E-06	378.5E-06	421.2E-06	359.3E-06	489.2E-06

Drift Calculation

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	1.5E-03	120.0E-06	40.0E-06	40.0E-06	720.0E-06	1.4E-03	2.7E-03	999.9E-06	1.6E-03	2.1E-03	1.1E-03	1.4E-03
6	-	-2.3E-03	-3.0E-03	-4.0E-03	-3.2E-03	-2.9E-03	-2.2E-03	-1.1E-03	-3.2E-03	-1.7E-03	-1.1E-03	-2.3E-03	-2.2E-03
7	-	-2.2E-03	-1.2E-03	-2.3E-03	-1.0E-03	-3.3E-03	-2.2E-03	-1.4E-03	-1.4E-03	-2.4E-03	-1.8E-03	-1.6E-03	-3.1E-03
Average	-	-986.7E-06	-1.4E-03	-2.1E-03	-1.4E-03	-1.8E-03	-1000.0E-06	93.3E-06	-1.2E-03	-800.0E-06	-279.9E-06	-946.7E-06	-1.3E-03
Sigma	-	1.8E-03	1.3E-03	1.7E-03	1.3E-03	1.8E-03	1.7E-03	1.9E-03	1.7E-03	1.7E-03	1.7E-03	1.5E-03	1.9E-03

Measurements

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	2.0E-03	720.0E-06	1.8E-03	480.0E-06	360.0E-06	2.7E-03	1.6E-03	1.8E-03	2.0E-03	1.9E-03	1.3E-03	2.1E-03
ON_TID samples													
11	3.3E-03	3.7E-03	2.6E-03	800.0E-06	2.1E-03	2.3E-03	1.3E-03	2.5E-03	1.6E-03	2.1E-03	2.9E-03	3.4E-03	2.6E-03
12	3.4E-03	2.4E-03	2.6E-03	480.0E-06	2.8E-03	3.0E-03	2.4E-03	2.9E-03	2.4E-03	2.7E-03	2.8E-03	2.6E-03	2.8E-03
13	2.7E-03	3.2E-03	1.7E-03	1.6E-03	1.7E-03	2.7E-03	2.3E-03	2.6E-03	2.2E-03	2.4E-03	2.5E-03	1.6E-03	1.2E-03
Statistics													
Min	2.7E-03	2.4E-03	1.7E-03	480.0E-06	1.7E-03	2.3E-03	1.3E-03	2.5E-03	1.6E-03	2.1E-03	2.5E-03	1.6E-03	1.2E-03
Max	3.4E-03	3.7E-03	2.6E-03	1.6E-03	2.8E-03	3.0E-03	2.4E-03	2.9E-03	2.4E-03	2.7E-03	2.9E-03	3.4E-03	2.8E-03
Average	3.1E-03	3.1E-03	2.3E-03	960.0E-06	2.2E-03	2.7E-03	2.0E-03	2.6E-03	2.1E-03	2.4E-03	2.7E-03	2.5E-03	2.2E-03
Sigma	311.6E-06	528.0E-06	424.6E-06	471.0E-06	449.0E-06	294.6E-06	491.3E-06	172.8E-06	335.2E-06	246.6E-06	143.8E-06	720.7E-06	700.7E-06

Drift Calculation

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	399.9E-06	-720.0E-06	-2.5E-03	-1.2E-03	-1.0E-03	-2.0E-03	-840.0E-06	-1.7E-03	-1.2E-03	-440.0E-06	39.9E-06	-680.0E-06
12	-	-920.1E-06	-800.0E-06	-2.9E-03	-560.0E-06	-320.0E-06	-960.1E-06	-480.0E-06	-960.0E-06	-640.0E-06	-600.0E-06	-760.0E-06	-560.0E-06
13	-	560.0E-06	-1.0E-03	-1.1E-03	-960.0E-06	40.0E-06	-360.0E-06	-120.0E-06	-520.0E-06	-320.0E-06	-146.7E-06	-1.1E-03	-1.4E-03
Average	-	13.3E-06	-840.0E-06	-2.2E-03	-920.0E-06	-426.7E-06	-1.1E-03	-480.0E-06	-1.1E-03	-720.0E-06	-395.6E-06	-600.0E-06	-893.3E-06
Sigma	-	663.2E-06	117.8E-06	777.7E-06	279.1E-06	431.2E-06	677.5E-06	293.9E-06	495.7E-06	363.7E-06	187.7E-06	471.0E-06	389.6E-06

Measurements

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	2.0E-03	720.0E-06	1.8E-03	480.0E-06	360.0E-06	2.7E-03	1.6E-03	1.8E-03	2.0E-03	1.9E-03	1.3E-03	2.1E-03
OFF_PROTON samples													
2	1.2E-03	2.5E-03	2.1E-03	480.0E-06	3.7E-03	2.4E-03	2.5E-03	2.2E-03	2.2E-03	2.6E-03	3.2E-03	3.5E-03	1.8E-03
3	1.3E-03	3.2E-03	2.9E-03	1.9E-03	2.4E-03	1.4E-03	1.9E-03	3.6E-03	2.1E-03	2.8E-03	1.8E-03	2.1E-03	2.2E-03
4	800.0E-06	3.0E-03	4.2E-03	2.9E-03	600.0E-06	1.7E-03	2.2E-03	3.4E-03	3.0E-03	2.9E-03	1.4E-03	3.2E-03	2.9E-03
Statistics													
Min	800.0E-06	2.5E-03	2.1E-03	480.0E-06	600.0E-06	1.4E-03	1.9E-03	2.2E-03	2.1E-03	2.6E-03	1.4E-03	2.1E-03	1.8E-03
Max	1.3E-03	3.2E-03	4.2E-03	2.9E-03	3.7E-03	2.4E-03	2.5E-03	3.6E-03	3.0E-03	2.9E-03	3.2E-03	3.5E-03	2.9E-03
Average	1.1E-03	2.9E-03	3.1E-03	1.8E-03	2.2E-03	1.8E-03	2.2E-03	3.1E-03	2.5E-03	2.8E-03	2.1E-03	2.9E-03	2.3E-03
Sigma	222.3E-06	299.3E-06	839.2E-06	1.0E-03	1.3E-03	439.4E-06	245.1E-06	625.7E-06	408.3E-06	123.6E-06	779.3E-06	593.6E-06	463.4E-06

Drift Calculation

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	1.3E-03	920.0E-06	-720.0E-06	2.5E-03	1.2E-03	1.3E-03	1000.0E-06	1.0E-03	1.4E-03	2.0E-03	2.3E-03	560.0E-06
3	-	1.9E-03	1.6E-03	600.0E-06	1.0E-03	80.0E-06	600.0E-06	2.3E-03	800.0E-06	1.5E-03	520.0E-06	800.0E-06	840.0E-06
4	-	2.2E-03	3.4E-03	2.1E-03	-200.0E-06	880.0E-06	1.4E-03	2.6E-03	2.2E-03	2.1E-03	560.0E-06	2.4E-03	2.1E-03
Average	-	1.8E-03	2.0E-03	666.7E-06	1.1E-03	733.3E-06	1.1E-03	2.0E-03	1.4E-03	1.7E-03	1.0E-03	1.8E-03	1.2E-03
Sigma	-	367.1E-06	1.0E-03	1.2E-03	1.1E-03	484.8E-06	370.9E-06	703.8E-06	629.9E-06	296.3E-06	688.4E-06	726.1E-06	660.5E-06

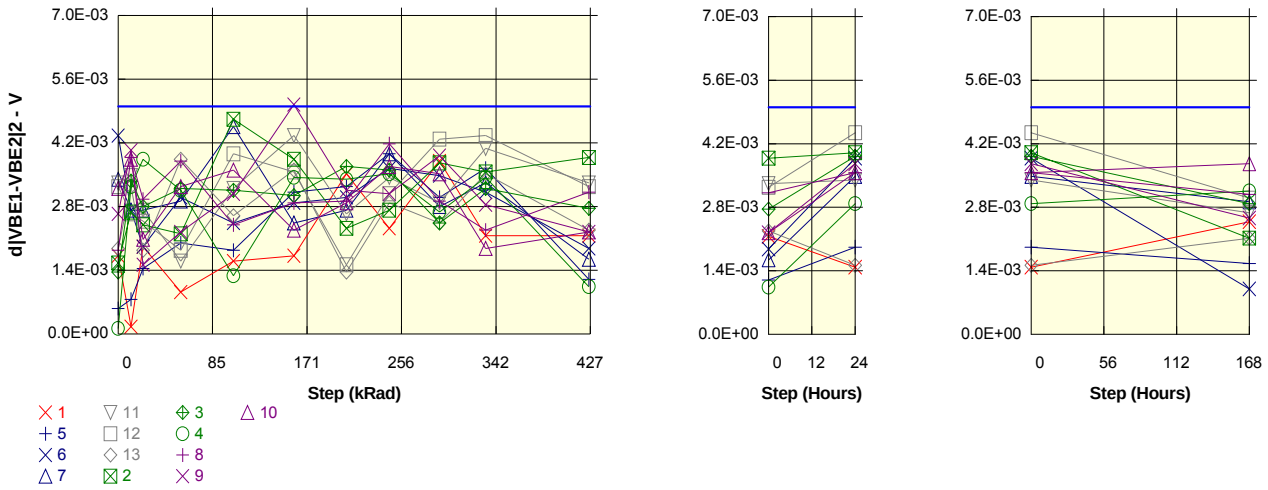
Measurements

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	2.0E-03	720.0E-06	1.8E-03	480.0E-06	360.0E-06	2.7E-03	1.6E-03	1.8E-03	2.0E-03	1.9E-03	1.3E-03	2.1E-03
OFF_TID samples													
8	2.3E-03	4.5E-03	2.9E-03	3.4E-03	1.3E-03	1.4E-03	2.5E-03	2.6E-03	3.0E-03	1.9E-03	2.6E-03	3.1E-03	3.2E-03
9	2.7E-03	4.3E-03	1.3E-03	1.3E-03	1.8E-03	3.3E-03	1.7E-03	2.0E-03	3.0E-03	1.9E-03	2.0E-03	2.9E-03	2.4E-03
10	3.6E-03	4.0E-03	2.0E-03	3.7E-03	3.2E-03	1.6E-03	2.4E-03	3.1E-03	1.6E-03	2.8E-03	2.8E-03	2.6E-03	2.3E-03
Statistics													
Min	2.3E-03	4.0E-03	1.3E-03	1.3E-03	1.3E-03	1.4E-03	1.7E-03	2.0E-03	1.6E-03	1.9E-03	2.0E-03	2.6E-03	2.3E-03
Max	3.6E-03	4.5E-03	2.9E-03	3.7E-03	3.2E-03	3.3E-03	2.5E-03	3.1E-03	3.0E-03	2.8E-03	2.8E-03	3.1E-03	3.2E-03
Average	2.9E-03	4.2E-03	2.1E-03	2.8E-03	2.1E-03	2.1E-03	2.2E-03	2.6E-03	2.5E-03	2.2E-03	2.5E-03	2.9E-03	2.6E-03
Sigma	516.7E-06	214.2E-06	638.6E-06	1.1E-03	806.2E-06	846.9E-06	333.6E-06	441.8E-06	660.8E-06	443.4E-06	315.1E-06	199.6E-06	399.4E-06

Drift Calculation

d|VBE1-VBE2|1	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	2.2E-03	560.0E-06	1.1E-03	-1.0E-03	-960.1E-06	160.0E-06	319.9E-06	720.0E-06	-400.0E-06	279.9E-06	759.9E-06	859.9E-06
9	-	1.6E-03	-1.4E-03	-1.4E-03	-879.9E-06	560.0E-06	-1.0E-03	-680.0E-06	240.0E-06	-839.9E-06	-680.0E-06	200.1E-06	-360.0E-06
10	-	400.0E-06	-1.6E-03	120.0E-06	-360.0E-06	-1.9E-03	-1.2E-03	-440.0E-06	-2.0E-03	-720.0E-06	-780.0E-06	-960.0E-06	-1.3E-03
Average	-	1.4E-03	-800.0E-06	-66.7E-06	-760.0E-06	-773.4E-06	-680.0E-06	-266.7E-06	-333.4E-06	-653.3E-06	-393.4E-06	-21.7E-09	-250.7E-06
Sigma	-	730.5E-06	963.9E-06	1.1E-03	290.3E-06	1.0E-03	599.6E-06	426.2E-06	1.2E-03	185.7E-06	477.8E-06	716.3E-06	865.6E-06

Parameter : Base-Emitter voltage differential : d|VBE1-VBE2|2
Test conditions : Ic = -5mA ; Vce = -5V
Unit : V
Spec Limit Max : 5.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	160.0E-06	1.9E-03	920.0E-06	1.6E-03	1.7E-03	3.5E-03	2.3E-03	3.8E-03	2.2E-03	2.2E-03	1.5E-03	2.5E-03
ON_PROTON samples													
5	560.0E-06	760.0E-06	1.4E-03	2.0E-03	1.8E-03	3.1E-03	3.2E-03	4.0E-03	3.0E-03	3.6E-03	1.2E-03	1.9E-03	1.6E-03
6	4.4E-03	2.7E-03	1.9E-03	3.0E-03	2.4E-03	2.9E-03	3.0E-03	3.6E-03	3.5E-03	3.1E-03	1.9E-03	3.9E-03	1.0E-03
7	3.4E-03	2.7E-03	2.7E-03	2.9E-03	4.6E-03	2.4E-03	2.7E-03	4.0E-03	2.8E-03	3.3E-03	1.6E-03	3.5E-03	2.9E-03
Statistics													
Min	560.0E-06	760.0E-06	1.4E-03	2.0E-03	1.8E-03	2.4E-03	2.7E-03	3.6E-03	2.8E-03	3.1E-03	1.2E-03	1.9E-03	1.0E-03
Max	4.4E-03	2.7E-03	2.7E-03	3.0E-03	4.6E-03	3.1E-03	3.2E-03	4.0E-03	3.5E-03	3.6E-03	1.9E-03	3.9E-03	2.9E-03
Average	2.8E-03	2.1E-03	2.0E-03	2.6E-03	2.9E-03	2.8E-03	3.0E-03	3.9E-03	3.1E-03	3.4E-03	1.6E-03	3.1E-03	1.8E-03
Sigma	1.6E-03	923.9E-06	528.0E-06	453.7E-06	1.2E-03	281.6E-06	212.5E-06	150.9E-06	285.4E-06	214.2E-06	281.6E-06	845.6E-06	806.2E-06

Drift Calculation

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_PROTON samples													
5	-	200.0E-06	879.9E-06	1.4E-03	1.3E-03	2.6E-03	2.7E-03	3.4E-03	2.4E-03	3.1E-03	640.0E-06	1.4E-03	1000.0E-06
6	-	-1.6E-03	-2.4E-03	-1.4E-03	-1.9E-03	-1.5E-03	-1.4E-03	-720.0E-06	-879.9E-06	-1.2E-03	-2.5E-03	-480.0E-06	-3.4E-03
7	-	-680.0E-06	-680.0E-06	-480.0E-06	1.2E-03	-960.0E-06	-680.0E-06	560.0E-06	-600.0E-06	-80.0E-06	-1.8E-03	79.9E-06	-480.0E-06
Average	-	-706.7E-06	-746.7E-06	-133.3E-06	173.3E-06	40.0E-06	213.3E-06	1.1E-03	320.0E-06	586.6E-06	-1.2E-03	320.0E-06	-946.6E-06
Sigma	-	751.4E-06	1.4E-03	1.2E-03	1.5E-03	1.8E-03	1.8E-03	1.7E-03	1.5E-03	1.8E-03	1.3E-03	770.1E-06	1.8E-03

Measurements

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	160.0E-06	1.9E-03	920.0E-06	1.6E-03	1.7E-03	3.5E-03	2.3E-03	3.8E-03	2.2E-03	2.2E-03	1.5E-03	2.5E-03
ON_TID samples													
11	3.3E-03	3.5E-03	2.7E-03	1.6E-03	3.2E-03	4.4E-03	2.6E-03	3.4E-03	2.9E-03	4.1E-03	3.3E-03	3.4E-03	2.7E-03
12	3.2E-03	2.6E-03	2.5E-03	1.8E-03	4.0E-03	3.6E-03	1.5E-03	3.1E-03	4.3E-03	4.4E-03	3.2E-03	4.4E-03	3.0E-03
13	1.9E-03	3.2E-03	1.8E-03	3.8E-03	2.6E-03	3.6E-03	1.4E-03	2.9E-03	2.4E-03	3.5E-03	2.3E-03	1.5E-03	2.1E-03
Statistics													
Min	1.9E-03	2.6E-03	1.8E-03	1.6E-03	2.6E-03	3.6E-03	1.4E-03	2.9E-03	2.4E-03	3.5E-03	2.3E-03	1.5E-03	2.1E-03
Max	3.3E-03	3.5E-03	2.7E-03	3.8E-03	4.0E-03	4.4E-03	2.6E-03	3.4E-03	4.3E-03	4.4E-03	3.3E-03	4.4E-03	3.0E-03
Average	2.8E-03	3.1E-03	2.3E-03	2.4E-03	3.3E-03	3.8E-03	1.8E-03	3.1E-03	3.2E-03	4.0E-03	2.9E-03	3.1E-03	2.6E-03
Sigma	660.8E-06	353.3E-06	371.4E-06	1.0E-03	556.5E-06	368.0E-06	569.4E-06	231.7E-06	784.5E-06	349.2E-06	472.5E-06	1.2E-03	363.7E-06

Drift Calculation

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
ON_TID samples													
11	-	160.0E-06	-600.0E-06	-1.7E-03	-120.0E-06	1.0E-03	-680.0E-06	120.1E-06	-440.0E-06	760.0E-06	0.0E+00	80.0E-06	-640.0E-06
12	-	-600.0E-06	-760.0E-06	-1.4E-03	720.0E-06	320.0E-06	-1.7E-03	-160.0E-06	1.0E-03	1.1E-03	0.0E+00	1.2E-03	-240.0E-06
13	-	1.4E-03	-40.0E-06	2.0E-03	720.0E-06	1.7E-03	-519.9E-06	1000.0E-06	560.0E-06	1.6E-03	400.0E-06	-360.0E-06	240.0E-06
Average	-	306.7E-06	-466.6E-06	-386.7E-06	440.0E-06	1.0E-03	-973.3E-06	320.0E-06	386.7E-06	1.2E-03	133.3E-06	306.7E-06	-213.3E-06
Sigma	-	806.9E-06	308.7E-06	1.7E-03	396.0E-06	571.6E-06	532.0E-06	494.2E-06	616.5E-06	361.2E-06	188.6E-06	656.7E-06	359.8E-06

Measurements

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	160.0E-06	1.9E-03	920.0E-06	1.6E-03	1.7E-03	3.5E-03	2.3E-03	3.8E-03	2.2E-03	2.2E-03	1.5E-03	2.5E-03
OFF_PROTON samples													
2	1.6E-03	2.7E-03	2.4E-03	2.2E-03	4.7E-03	3.8E-03	2.3E-03	2.7E-03	3.8E-03	3.6E-03	3.9E-03	4.0E-03	2.1E-03
3	1.4E-03	3.4E-03	2.8E-03	3.2E-03	3.2E-03	3.0E-03	3.7E-03	3.6E-03	2.4E-03	3.2E-03	2.8E-03	3.9E-03	2.9E-03
4	120.0E-06	3.2E-03	3.8E-03	3.2E-03	1.3E-03	3.4E-03	3.4E-03	3.5E-03	2.7E-03	3.4E-03	1.0E-03	2.9E-03	3.2E-03
Statistics													
Min	120.0E-06	2.7E-03	2.4E-03	2.2E-03	1.3E-03	3.0E-03	2.3E-03	2.7E-03	2.4E-03	3.2E-03	1.0E-03	2.9E-03	2.1E-03
Max	1.6E-03	3.4E-03	3.8E-03	3.2E-03	4.7E-03	3.8E-03	3.7E-03	3.6E-03	3.8E-03	3.6E-03	3.9E-03	4.0E-03	3.2E-03
Average	1.0E-03	3.1E-03	3.0E-03	2.9E-03	3.1E-03	3.4E-03	3.1E-03	3.3E-03	3.0E-03	3.4E-03	2.6E-03	3.6E-03	2.7E-03
Sigma	637.0E-06	296.3E-06	606.9E-06	462.3E-06	1.4E-03	326.6E-06	586.4E-06	397.3E-06	574.1E-06	149.6E-06	1.2E-03	510.1E-06	439.4E-06

Drift Calculation

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_PROTON samples													
2	-	1.1E-03	839.9E-06	640.0E-06	3.2E-03	2.3E-03	760.0E-06	1.2E-03	2.2E-03	2.0E-03	2.3E-03	2.4E-03	560.0E-06
3	-	2.0E-03	1.4E-03	1.8E-03	1.8E-03	1.7E-03	2.3E-03	2.2E-03	1.1E-03	1.8E-03	1.4E-03	2.6E-03	1.5E-03
4	-	3.1E-03	3.7E-03	3.0E-03	1.2E-03	3.3E-03	3.3E-03	3.4E-03	2.6E-03	3.3E-03	920.0E-06	2.8E-03	3.0E-03
Average	-	2.1E-03	2.0E-03	1.8E-03	2.0E-03	2.4E-03	2.1E-03	2.3E-03	1.9E-03	2.4E-03	1.5E-03	2.6E-03	1.7E-03
Sigma	-	818.5E-06	1.2E-03	979.8E-06	833.9E-06	677.5E-06	1.0E-03	914.7E-06	630.2E-06	663.2E-06	580.8E-06	132.1E-06	1.0E-03

Measurements

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
1_REF	1.7E-03	160.0E-06	1.9E-03	920.0E-06	1.6E-03	1.7E-03	3.5E-03	2.3E-03	3.8E-03	2.2E-03	2.2E-03	1.5E-03	2.5E-03
OFF_TID samples													
8	1.8E-03	3.9E-03	3.0E-03	3.8E-03	2.4E-03	2.9E-03	2.9E-03	4.2E-03	2.9E-03	2.3E-03	3.1E-03	3.6E-03	3.1E-03
9	2.6E-03	4.0E-03	1.5E-03	2.2E-03	3.1E-03	5.0E-03	3.2E-03	3.1E-03	3.9E-03	2.8E-03	2.2E-03	3.8E-03	2.6E-03
10	3.2E-03	3.8E-03	2.1E-03	3.2E-03	3.6E-03	2.3E-03	2.9E-03	3.7E-03	3.5E-03	1.9E-03	2.2E-03	3.6E-03	3.8E-03
Statistics													
Min	1.8E-03	3.8E-03	1.5E-03	2.2E-03	2.4E-03	2.3E-03	2.9E-03	3.1E-03	2.9E-03	1.9E-03	2.2E-03	3.6E-03	2.6E-03
Max	3.2E-03	4.0E-03	3.0E-03	3.8E-03	3.6E-03	5.0E-03	3.2E-03	4.2E-03	3.9E-03	2.8E-03	3.1E-03	3.8E-03	3.8E-03
Average	2.6E-03	3.9E-03	2.2E-03	3.1E-03	3.0E-03	3.4E-03	3.0E-03	3.6E-03	3.5E-03	2.3E-03	2.5E-03	3.6E-03	3.1E-03
Sigma	558.1E-06	86.4E-06	592.7E-06	645.3E-06	491.4E-06	1.2E-03	123.6E-06	449.7E-06	411.0E-06	393.7E-06	414.8E-06	94.3E-06	491.4E-06

Drift Calculation

d|VBE1-VBE2|2	0 kRad	11.7 kRad	22.5 kRad	56.7 kRad	104.4 kRad	159.3 kRad	207 kRad	245.7 kRad	291.2 kRad	333 kRad	426.6 kRad	24 Hours	168 Hours
OFF_TID samples													
8	-	2.0E-03	1.1E-03	2.0E-03	560.0E-06	1.0E-03	1.1E-03	2.3E-03	1.1E-03	440.0E-06	1.3E-03	1.7E-03	1.2E-03
9	-	1.4E-03	-1.1E-03	-400.0E-06	440.0E-06	2.4E-03	520.0E-06	440.0E-06	1.3E-03	200.0E-06	-400.0E-06	1.1E-03	-80.0E-06
10	-	640.0E-06	-1.1E-03	40.0E-06	400.0E-06	-920.0E-06	-320.0E-06	480.0E-06	320.0E-06	-1.3E-03	-960.0E-06	360.0E-06	560.0E-06
Average	-	1.4E-03	-373.3E-06	533.3E-06	466.7E-06	840.0E-06	426.7E-06	1.1E-03	893.4E-06	-226.7E-06	-26.7E-06	1.1E-03	573.3E-06
Sigma	-	572.3E-06	1.1E-03	1.0E-03	68.0E-06	1.4E-03	575.4E-06	886.4E-06	413.5E-06	779.3E-06	951.8E-06	556.5E-06	539.0E-06