TOTAL DOSE RADIATION REPORT

ESA N° : ESA_QEC1006T_C

Part Type : HM5225165BTT75

Package : TSOP-54

Description : 256-Mbit SDRAM

Manufacturer : Elpida Memories

Date Code: 0232B11

ESA ESTEC Purchase Order N° COO2 Contract 22327/09/NL/SFe dated 09/30/2009

ESA ESTEC Technical Officer: Fredrik Sturesson

Hirex reference :	HRX/TID/0745	Issue : 03	Date :	February 19th, 2010
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Authorized by:	J.F. PASCAL	Technical Manager		

CHANGE RECORD

ISSUE	DATE	PAGE	DESCRIPTION OF CHANGES
01	January 5th, 2010	All	Original Issue
02	February 12th, 2010	4 6 11	Change Final Dose. Add ESCC specification Add dosimetry resolution and uniformity information Add information in conclusion section
03	February 19th, 2010	1	Adding of ESA number reference

TOTAL DOSE RADIATION TEST REPORT
on
HM5225165BTT75 256-Mbit SDRAM
From Elpida Memories

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1 Introduction

A total dose radiation verification test of the Elpida Memories HM5225165BTT75, 256-Mbit SDRAM has been performed with an accumulated dose of about 40 Krad(Si) at a dose rate of 225 rad(Si)/hour, in response to ESA ESTEC purchase order reference COO2 Contract 22327/09/NL/SFe.

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 ESA ESTEC.
Test has been performed in accordance with Hirex Engineering proposal reference HRX/PRO/2739 Issue 02 dated June 17th 2009.

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

2 Applicable and Reference Documents

2.1 Applicable Documents

- Hirex Engineering proposal: HRX/PRO/2739 Issue 02 dated June 17th 2009
- ESCC Specification N° 22900

2.2 Reference Documents

- Manufacturer Datasheet HM5225165B dated January 31st 2001.

3 Test Samples

5 samples of the HM5225165BTT75 device were tested (3 samples ON + 1 sample OFF + 1 control sample).

Samples were allocated into the bias conditions during exposures and annealing as provided in the following table.

Serial Number	Allocation
1	Control
517	Biased ON – Auto-refresh
521	Biased ON – Auto-refresh
522	Biased ON – Auto-refresh
523	Biased OFF

Identification of the HM5225165BTT75 is given below:

Part Number: HM5225165BTT75

Top Marking: ELPIDA JAPAN 5225165BTT75 0232B11 5SNN

Manuf Lot Number: 200232B--A_04

Date Code: 0232B11

Identification of the component including external marking and any die identification is provided on the following photos.

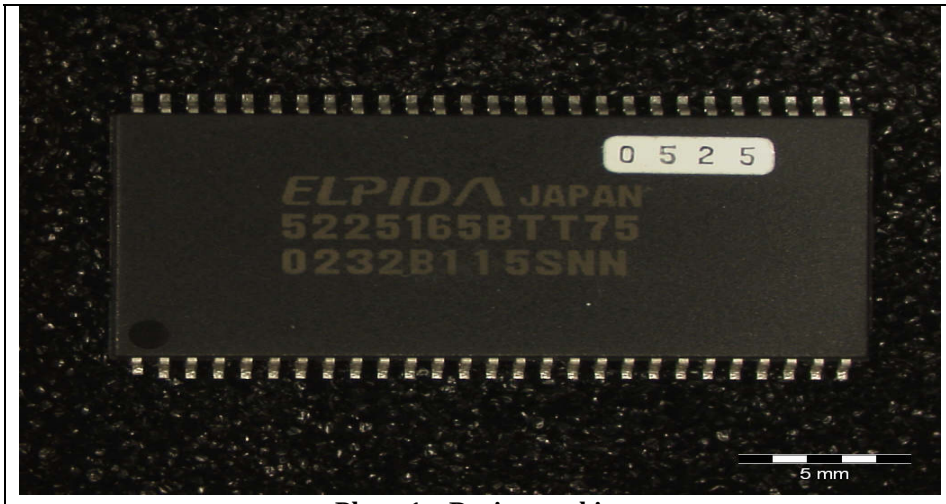


Photo 1 – Device marking

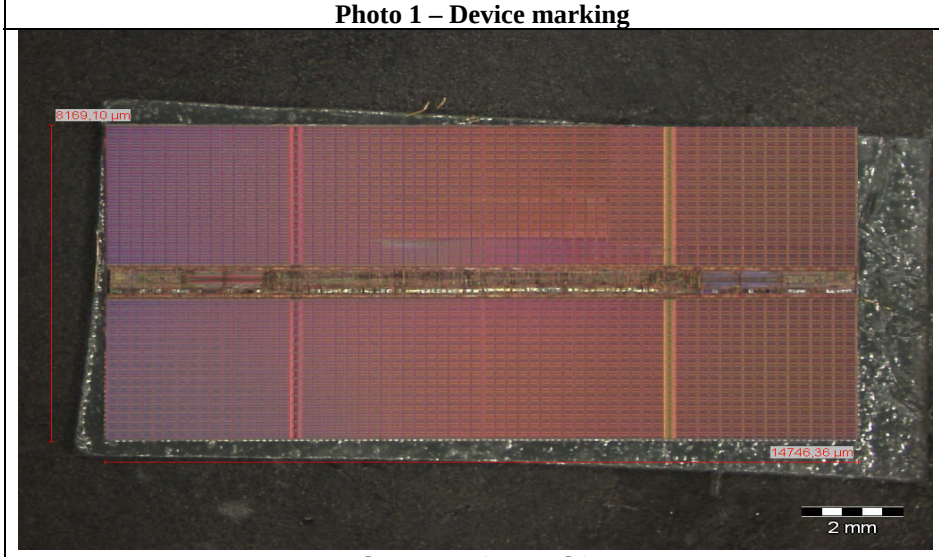


Photo 2 – Die, Marking

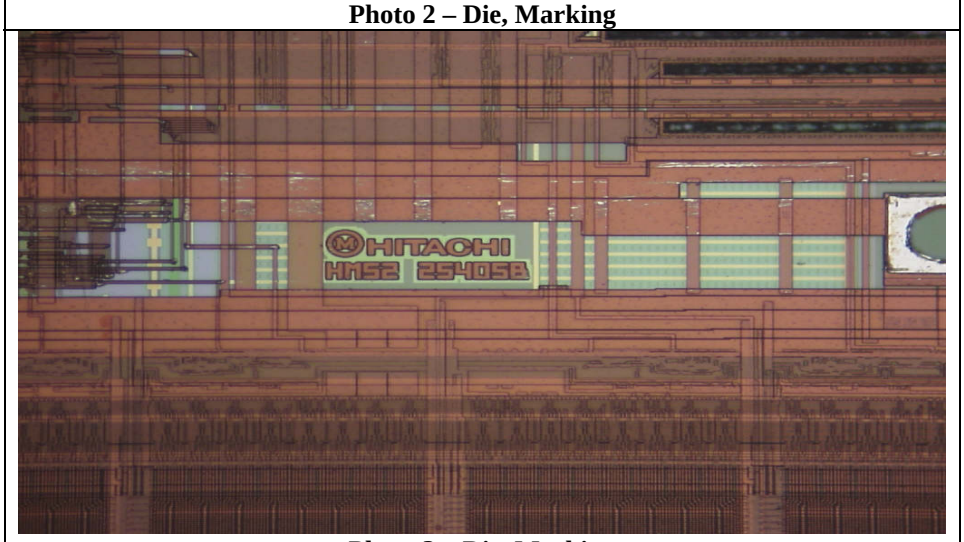


Photo 3 – Die, Marking

4 Experimental Conditions

4.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at ENEA in the Calliope plant located at the CASACCIA research centre in ROME (Italy).
The γ irradiation plant is a pool-type irradiation facility equipped with a ^{60}Co gamma source in a large shielded panoramic room. The storage water pool, that houses the source, has dimensions of 2x4.4x8 m^3.
The emitted radiation has two photons of 1.173 and 1.332 MeV working in coincidence with a mean photon's energy of 1.25 MeV.
It is possible to vary the dose rate by simply adjusting the distance of devices under test to the source in a range of a few rad/H up to 2 Mrad/H.
The main Calliope features are reported in the table and Figure 1 below.

Source:	^{60}Co
Geometry:	Cylindrical rack with radioisotope pencils placed on two levels of external rack surface
Emitted radiation:	2 γ photons emitted in coincidence
Photons Energy:	1.173 and 1.332 MeV (average 1.25 MeV)
Max licensed activity:	$3.7x10^{15}$ Bq (100 kCi)
Dose rate range:	Few rad/h up to 2 Mrad/h
Resolution:	< 10%
Uniformity:	< 10%

Table 1 : Calliope main features

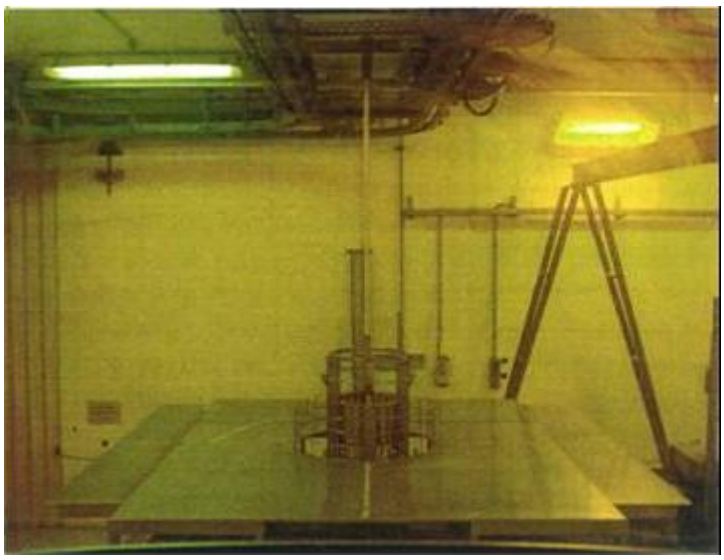


Figure 1 : View of the ^{60}Co γ source through the yellow lead window of the control room

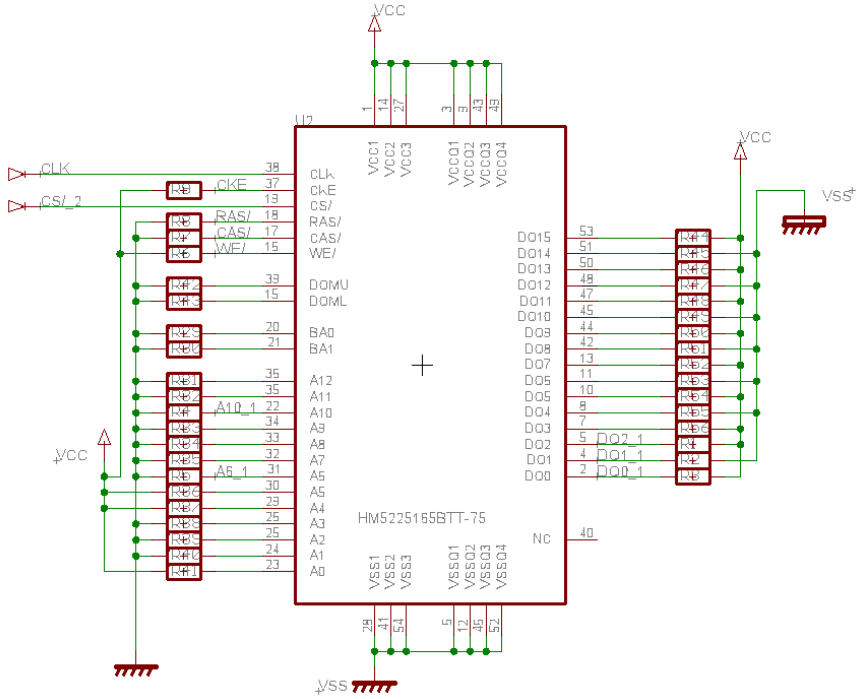
The irradiation conditions used for this test are provided in the following table:

Irradiation Steps	Dose rate	Annealing steps	Temperature
krads	rads/h	Hours	°C
0			
4.7	225		Room
9.7	225		Room
14.7	225		Room
19.7	225		Room
29.9	225		Room
40.2	225		Room
		24	Room
		168	100

4.2 Bias during Dose Exposures and Measurements conditions

4.2.1 Bias conditions

During exposures test board allowed to bias 3 samples in accordance with the electrical circuit provided in Figure 1.
1 other sample was biased OFF with all pins connected to ground.
During annealing steps the same stress conditions were applied at 25°C and 100°C temperatures.



Notes:
VCC= 3.3V,
Samples in Autorefresh mode
CLK Signal F = 5MHz
CS/_2 Signal F=5Mhz
CAS latency = 3,
Mode: Sequential
Burst length = 2 (Burst read and Burst Write)

Figure 2 : Bias Conditions during Irradiation Exposures and Annealing

4.3 Electrical Measurements

Electrical parameters test program principle for HM5225165BTT75 is provided in Figure 2.

An Electra ATE and 2 SMU Keithley 2400 were used to perform required measurements.

A dedicated test fixture was designed to ensure proper measurement conditions.

Test results were automatically loaded in an Excel worksheet and compared in real time to specification limits.

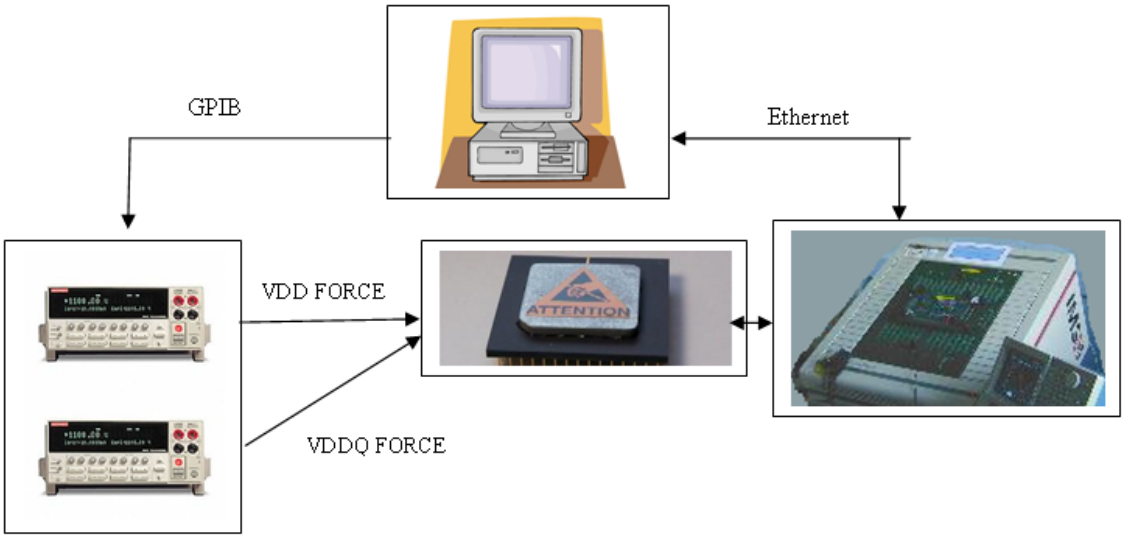


Figure 3 : HM5225165BTT75 test program principle

Electrical parameters test conditions and limits used for performing this test are given in the following table.

PARAMETERS	SYMBOLS	TEST CONDITIONS Vdd,VddQ =3.3V unless otherwise specified	MIN	MAX	UNITS
Continuity	Continuity	I=100µA			V
Output Low Voltage	VOL	IOL=4mA		400.0E-03	V
Output High Voltage	VOH	IOH=-4mA.	2.40		V
Input Leakage Current Low	ILIL	Vin=0V VDD=VDDQ=3.6V	-1.0E-06		A
Input Leakage Current High	ILIH	Vin=0V VDD=VDDQ=3.6V		1.0E-06	A
Output Leakage Current Low	ILOL	Vout=0V. VDD=VDDQ=3.6V	-1.5E-06		A
Output Leakage Current High	ILOH	Vout=Vddmax. VDD=VDDQ=3.6V		1.5E-06	A
Operating Current CAS/ 3	ICC1_CAS_3	Burst length = 1 Trc= min. CAS/=3		115.0E-03	A
Operating Current CAS/ 2	ICC1_CAS_2	Burst length = 1 Trc= min CAS/=2		115.0E-03	A
Standby current in power down (input signal stable)	ICC2PS	CKE = ViL Tck=∞		2.0E-03	A
Standby current in power down	ICC2P	CKE = ViL Tck=12ns		3.0E-03	A
Standby current in non power down (input signal stable)	ICC2NS	CKE = ViH Tck=∞		9.0E-03	A
Standby current in non power down	ICC2N	CKE.CS/ = ViH Tck=12ns		20.0E-03	A
Active Standby current in power down (input signal stable)	ICC3PS	CKE = ViL Tck=∞		3.0E-03	A
Active Standby current in power down	ICC3P	CKE = ViL, Tck=12ns		4.0E-03	A
Active Standby current in non power down (input signal stable)	ICC3NS	CKE = ViH, Tck=∞		15.0E-03	A
Active Standby current in non power down	ICC3N	CKE.CS/ = ViH Tck=12ns		30.0E-03	A
Burst operating Current CAS/ 2	ICC4_CAS_2	Tck=min, Burst Length=4 CAS/=2		110.0E-03	A
Operating Current CAS/ 3	ICC4_CAS_3	Tck=min, Burst Length=4 CAS/=3		145.0E-03	A
Refresh Current	ICC5	Trc=min		220.0E-03	A
Self Refresh Current	ICC6	VIH = VCC – 0.2 V Vil = 0.2 V		3.0E-03	A

PARAMETERS	SYMBOLS	TEST CONDITIONS Vdd,VddQ =3.3V unless otherwise specified	MIN	MAX	UNITS
ALL 0	ALL 0	Write and verify ALL 0 in all memory			
ALL 1	ALL 1	Write and verify ALL 1 in all memory			
Checkerboard	Checkerboard	Write and verify Checkerboard in all memory			
/Checkerboard	/Checkerboard	Write and verify /Checkerboard in all memory			
Access Time from CLK CAS 2	TAC_CAS_2_LH			6.0E-09	s
Access Time from CLK CAS 2	TAC_CAS_2_HL			6.0E-09	s
Access Time from CLK CAS 3	TAC_CAS_3_LH			5.4E-09	s
Access Time from CLK CAS 3	TAC_CAS_3_HL			5.4E-09	s
Input Setup Time Address	TAS_Addr			1.5E-09	s
Input Setup Time Bank	TAS_BANK			1.5E-09	s
Input Hold Time Address	TAH_Addr			800.0E-12	s
Input Hold Time Bank	TAH_BANK			800.0E-12	s
Refresh Period	Trefresh		64.0E-03		s

Table 2 : Measured electrical parameters

5 Conclusion

A Total Ionizing Dose verification test was carried out by Hirex Engineering under ESA ESTEC contract on the Elpida Memories HM5225165BTT75 256-Mbit SDRAM in TSOP-54 package.
4 samples plus one control sample were used during testing. They were exposed to radiation using a dose rate of 225 rad(Si)/hour at room temperature.

All parameters remained within specification limits after a final dose of 40 Krad(Si) and after annealing sequence.

Some drift has been observed for the following parameters that all remain within specification limits at any step of testing:

- Stand-By currents (ICC2P, ICC3PS, ICC3P)
- Self-refresh current (ICC6)
- Output leakage currents High level (ILOH)

A complete set of electrical measurements together with graphical representation of measured parameters with respect to total dose received, are provided for all samples in section 6.

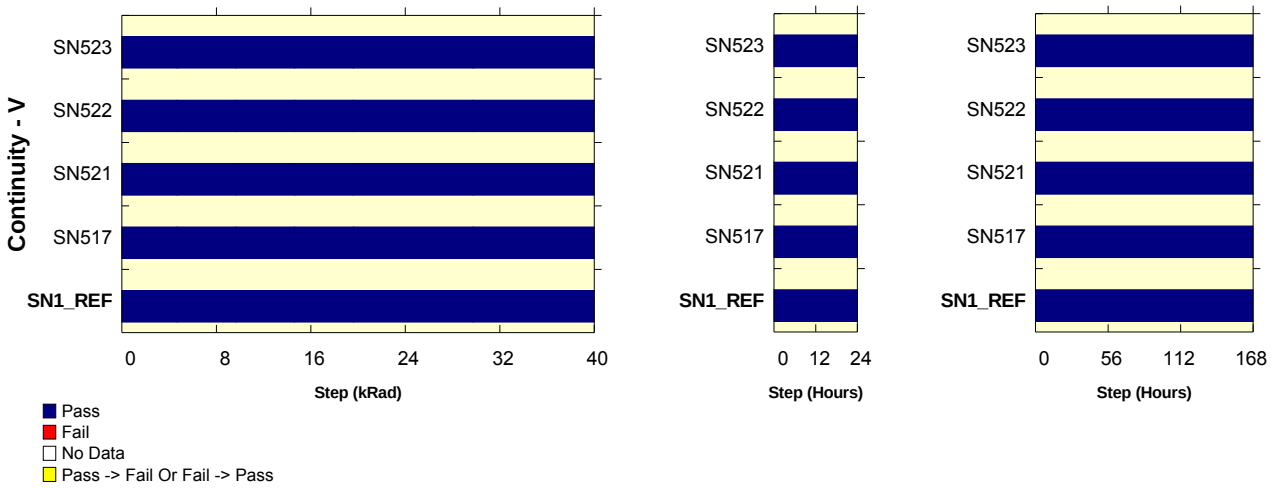
6 Test Results

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

Statistics are provided separately for bias ON and bias OFF samples.

Failed values (if any) with respect to specified limits are highlighted in bold red font in the tables.

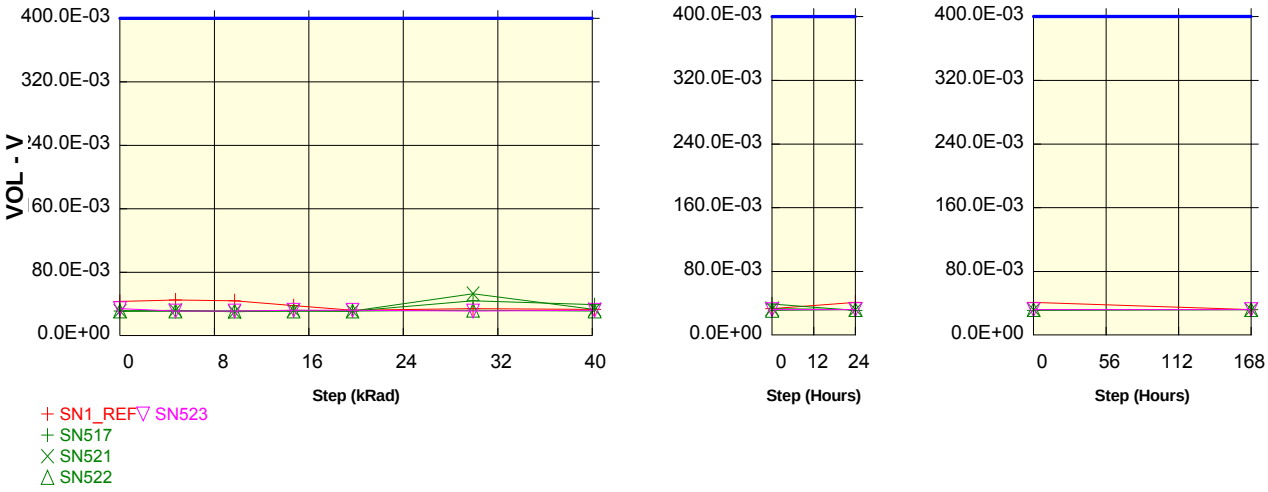
Test conditions : TID
Parameter : Continuity : Continuity
I=100µA
Unit : V
Spec Limit Min : 200.0E-03
Spec Limit Max : 900.0E-03
Spec limits are represented in bold lines on the graphic.



Continuity	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples									
SN517	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
SN521	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
SN522	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Continuity	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples									
SN523	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

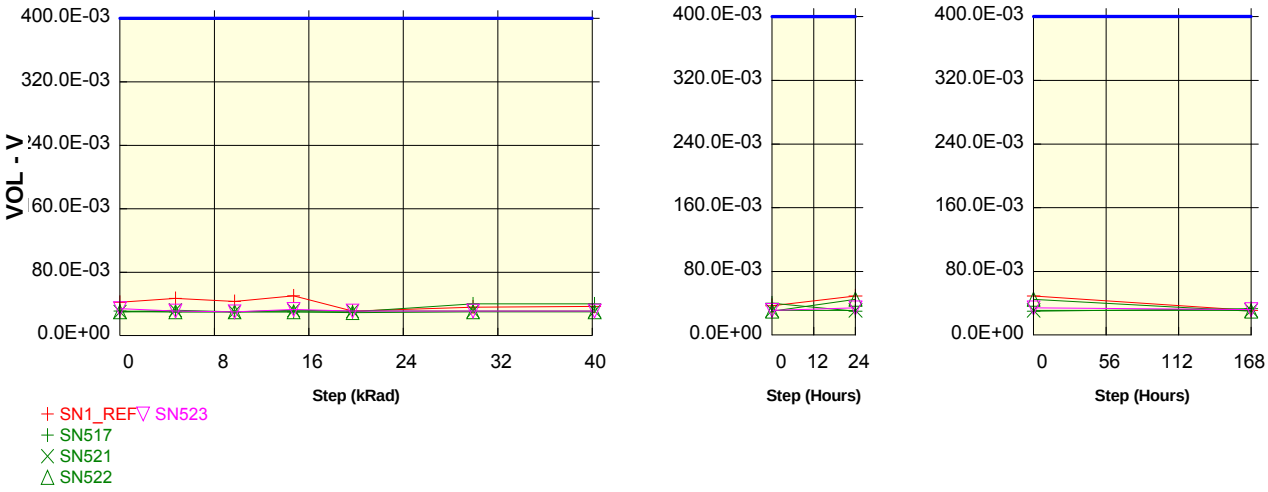
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ15
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	43.0E-03	45.0E-03	44.0E-03	38.0E-03	32.0E-03	34.0E-03	33.0E-03	41.0E-03	32.0E-03
ON samples									
SN517	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	44.0E-03	39.0E-03	31.0E-03	32.0E-03
SN521	31.0E-03	32.0E-03	30.0E-03	32.0E-03	31.0E-03	53.0E-03	33.0E-03	32.0E-03	32.0E-03
SN522	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03
Statistics									
Min	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	32.0E-03
Max	31.0E-03	32.0E-03	31.0E-03	32.0E-03	31.0E-03	53.0E-03	39.0E-03	32.0E-03	32.0E-03
Average	31.0E-03	31.3E-03	30.7E-03	31.3E-03	31.0E-03	43.0E-03	34.3E-03	31.7E-03	32.0E-03
Sigma	190.1E-12	471.4E-06	471.4E-06	471.4E-06	190.1E-12	8.6E-03	3.4E-03	471.4E-06	268.8E-12

VOLDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	43.0E-03	45.0E-03	44.0E-03	38.0E-03	32.0E-03	34.0E-03	33.0E-03	41.0E-03	32.0E-03
OFF samples									
SN523	34.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03
Statistics									
Min	34.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03
Max	34.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03
Average	34.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

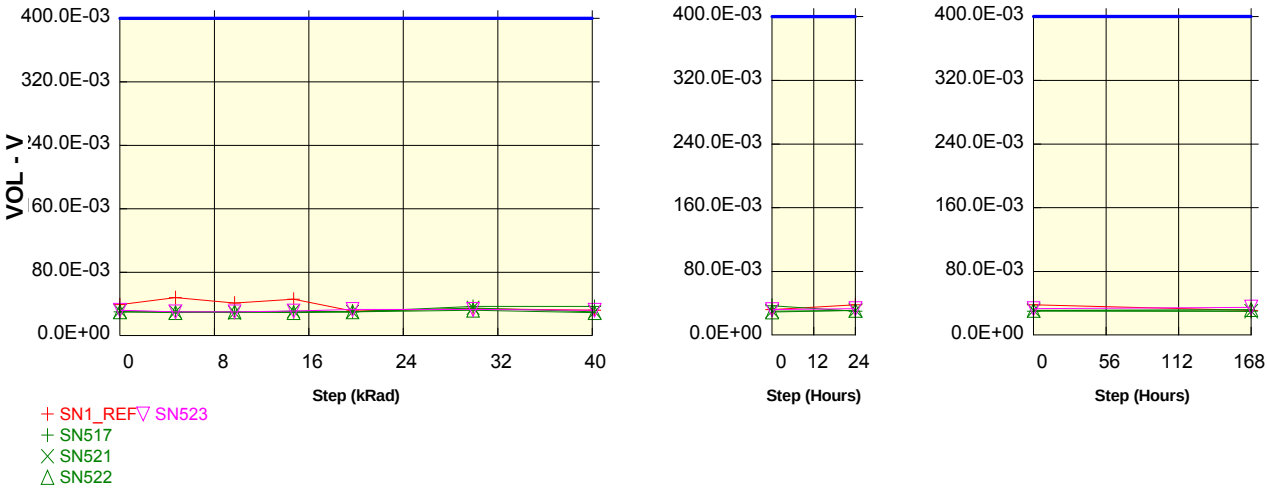
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ14
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	42.0E-03	47.0E-03	43.0E-03	50.0E-03	31.0E-03	36.0E-03	37.0E-03	49.0E-03	31.0E-03
ON samples									
SN517	31.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	40.0E-03	40.0E-03	30.0E-03	33.0E-03
SN521	30.0E-03	32.0E-03	30.0E-03	32.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
SN522	30.0E-03	30.0E-03	30.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	45.0E-03	30.0E-03
Statistics									
Min	30.0E-03	30.0E-03	30.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03
Max	31.0E-03	32.0E-03	30.0E-03	32.0E-03	31.0E-03	40.0E-03	40.0E-03	45.0E-03	33.0E-03
Average	30.3E-03	30.7E-03	30.0E-03	30.7E-03	30.0E-03	33.7E-03	33.7E-03	35.3E-03	31.3E-03
Sigma	471.4E-06	942.8E-06	268.8E-12	942.8E-06	816.5E-06	4.5E-03	4.5E-03	6.8E-03	1.2E-03

VOLDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	42.0E-03	47.0E-03	43.0E-03	50.0E-03	31.0E-03	36.0E-03	37.0E-03	49.0E-03	31.0E-03
OFF samples									
SN523	34.0E-03	31.0E-03	30.0E-03	33.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	32.0E-03
Statistics									
Min	34.0E-03	31.0E-03	30.0E-03	33.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	32.0E-03
Max	34.0E-03	31.0E-03	30.0E-03	33.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	32.0E-03
Average	34.0E-03	31.0E-03	30.0E-03	33.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	32.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

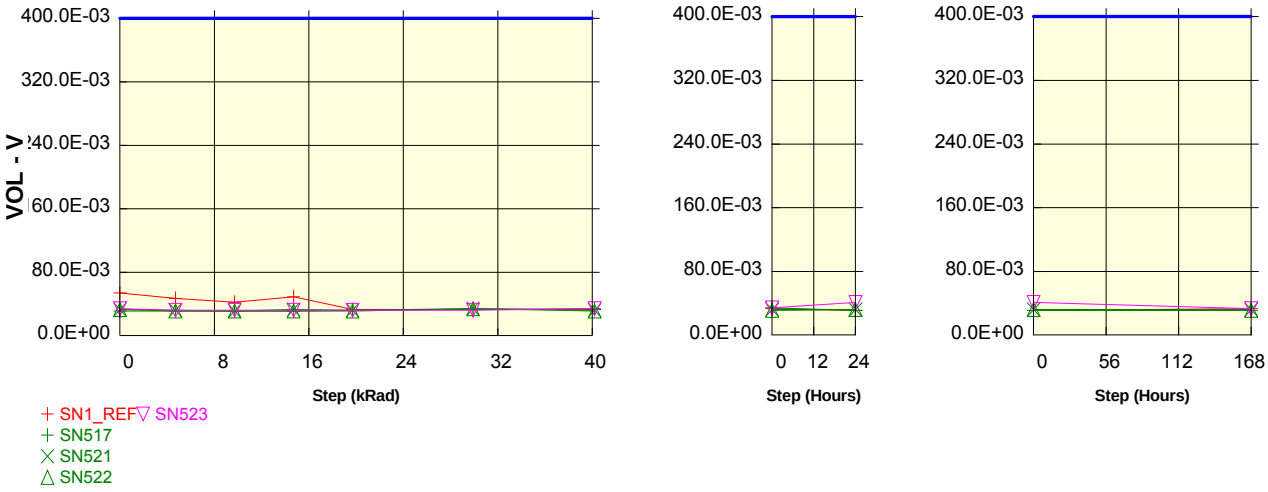
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ13
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	39.0E-03	48.0E-03	41.0E-03	46.0E-03	31.0E-03	34.0E-03	32.0E-03	38.0E-03	31.0E-03
ON samples									
SN517	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	37.0E-03	37.0E-03	30.0E-03	30.0E-03
SN521	31.0E-03	30.0E-03	29.0E-03	31.0E-03	30.0E-03	35.0E-03	30.0E-03	31.0E-03	30.0E-03
SN522	30.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	32.0E-03	29.0E-03	31.0E-03	32.0E-03
Statistics									
Min	30.0E-03	29.0E-03	29.0E-03	29.0E-03	30.0E-03	32.0E-03	29.0E-03	30.0E-03	30.0E-03
Max	31.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	37.0E-03	37.0E-03	31.0E-03	32.0E-03
Average	30.3E-03	29.7E-03	29.7E-03	30.0E-03	30.0E-03	34.7E-03	32.0E-03	30.7E-03	30.7E-03
Sigma	471.4E-06	471.4E-06	471.4E-06	816.5E-06	268.8E-12	2.1E-03	3.6E-03	471.4E-06	942.8E-06

VOLDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	39.0E-03	48.0E-03	41.0E-03	46.0E-03	31.0E-03	34.0E-03	32.0E-03	38.0E-03	31.0E-03
OFF samples									
SN523	32.0E-03	30.0E-03	30.0E-03	31.0E-03	33.0E-03	33.0E-03	32.0E-03	33.0E-03	35.0E-03
Statistics									
Min	32.0E-03	30.0E-03	30.0E-03	31.0E-03	33.0E-03	33.0E-03	32.0E-03	33.0E-03	35.0E-03
Max	32.0E-03	30.0E-03	30.0E-03	31.0E-03	33.0E-03	33.0E-03	32.0E-03	33.0E-03	35.0E-03
Average	32.0E-03	30.0E-03	30.0E-03	31.0E-03	33.0E-03	33.0E-03	32.0E-03	33.0E-03	35.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

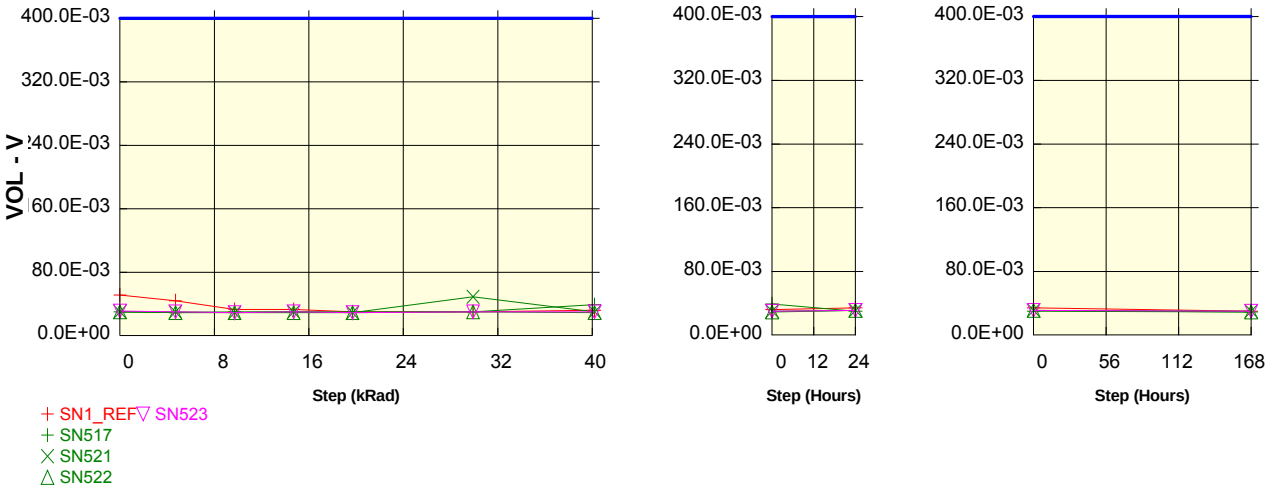
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ12
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	54.0E-03	47.0E-03	42.0E-03	49.0E-03	33.0E-03	33.0E-03	33.0E-03	31.0E-03	33.0E-03
ON samples									
SN517	31.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	33.0E-03	34.0E-03	31.0E-03	31.0E-03
SN521	33.0E-03	32.0E-03	31.0E-03	33.0E-03	32.0E-03	34.0E-03	32.0E-03	32.0E-03	32.0E-03
SN522	33.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	32.0E-03	31.0E-03
Statistics									
Min	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	33.0E-03	31.0E-03	31.0E-03	31.0E-03
Max	33.0E-03	32.0E-03	31.0E-03	33.0E-03	32.0E-03	34.0E-03	34.0E-03	32.0E-03	32.0E-03
Average	32.3E-03	31.3E-03	31.0E-03	31.7E-03	31.7E-03	33.7E-03	32.3E-03	31.7E-03	31.3E-03
Sigma	942.8E-06	471.4E-06	190.1E-12	942.8E-06	471.4E-06	471.4E-06	1.2E-03	471.4E-06	471.4E-06

VOLDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	54.0E-03	47.0E-03	42.0E-03	49.0E-03	33.0E-03	33.0E-03	33.0E-03	31.0E-03	33.0E-03
OFF samples									
SN523	34.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	34.0E-03	41.0E-03	33.0E-03
Statistics									
Min	34.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	34.0E-03	41.0E-03	33.0E-03
Max	34.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	34.0E-03	41.0E-03	33.0E-03
Average	34.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	34.0E-03	41.0E-03	33.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

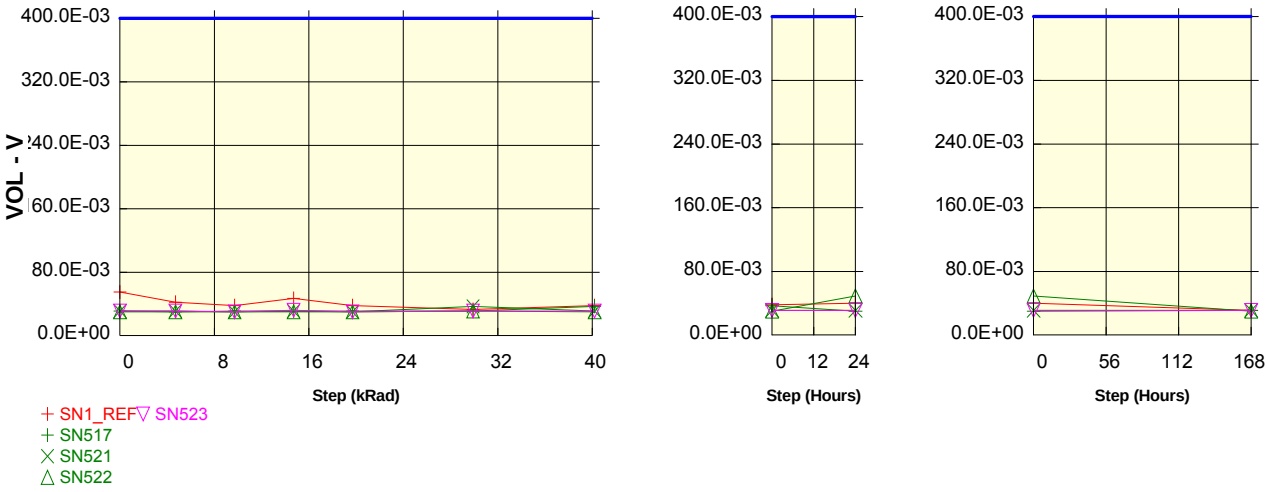
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ11
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	51.0E-03	44.0E-03	33.0E-03	33.0E-03	30.0E-03	30.0E-03	32.0E-03	34.0E-03	30.0E-03
ON samples									
SN517	30.0E-03	29.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	39.0E-03	30.0E-03	29.0E-03
SN521	30.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03	49.0E-03	30.0E-03	31.0E-03	30.0E-03
SN522	30.0E-03	29.0E-03	29.0E-03	29.0E-03	29.0E-03	30.0E-03	29.0E-03	31.0E-03	29.0E-03
Statistics									
Min	30.0E-03	29.0E-03	29.0E-03	29.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03
Max	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	49.0E-03	39.0E-03	31.0E-03	30.0E-03
Average	30.0E-03	29.3E-03	29.3E-03	29.7E-03	29.3E-03	36.3E-03	32.7E-03	30.7E-03	29.3E-03
Sigma	268.8E-12	471.4E-06	471.4E-06	471.4E-06	471.4E-06	9.0E-03	4.5E-03	471.4E-06	471.4E-06

VOLDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	51.0E-03	44.0E-03	33.0E-03	33.0E-03	30.0E-03	30.0E-03	32.0E-03	34.0E-03	30.0E-03
OFF samples									
SN523	31.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03
Statistics									
Min	31.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03
Max	31.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03
Average	31.0E-03	30.0E-03	29.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

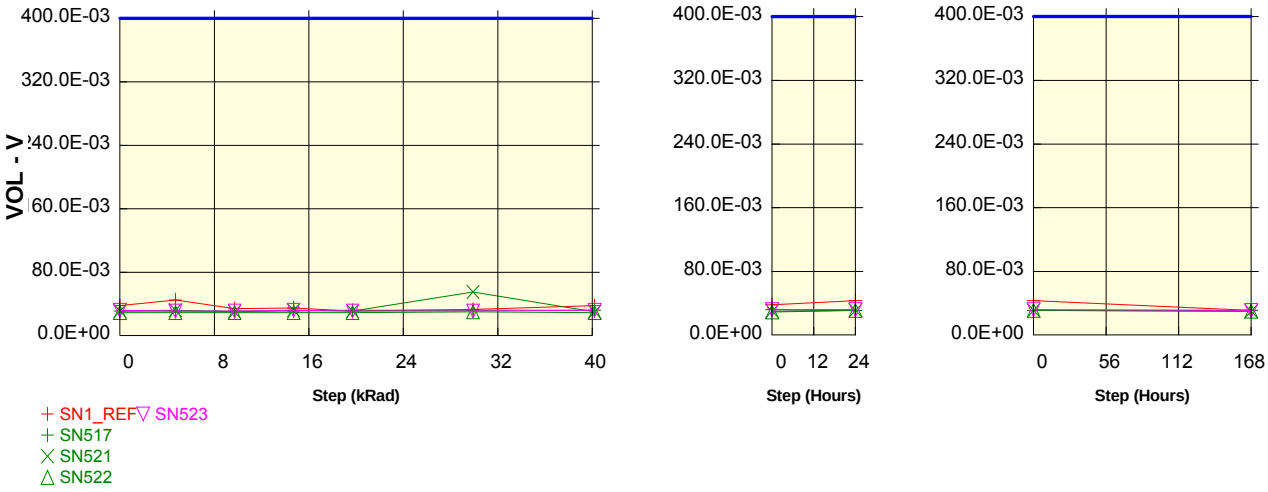
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ10
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	55.0E-03	42.0E-03	38.0E-03	47.0E-03	38.0E-03	33.0E-03	38.0E-03	40.0E-03	31.0E-03
ON samples									
SN517	31.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	37.0E-03	30.0E-03	31.0E-03
SN521	31.0E-03	31.0E-03	30.0E-03	31.0E-03	30.0E-03	37.0E-03	31.0E-03	31.0E-03	31.0E-03
SN522	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	49.0E-03	30.0E-03
Statistics									
Min	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	30.0E-03	30.0E-03
Max	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	37.0E-03	37.0E-03	49.0E-03	31.0E-03
Average	30.7E-03	30.3E-03	30.3E-03	30.7E-03	30.3E-03	33.0E-03	32.7E-03	36.7E-03	30.7E-03
Sigma	471.4E-06	471.4E-06	471.4E-06	471.4E-06	471.4E-06	2.8E-03	3.1E-03	8.7E-03	471.4E-06

VOLDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	55.0E-03	42.0E-03	38.0E-03	47.0E-03	38.0E-03	33.0E-03	38.0E-03	40.0E-03	31.0E-03
OFF samples									
SN523	31.0E-03	31.0E-03	30.0E-03	32.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Statistics									
Min	31.0E-03	31.0E-03	30.0E-03	32.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Max	31.0E-03	31.0E-03	30.0E-03	32.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Average	31.0E-03	31.0E-03	30.0E-03	32.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

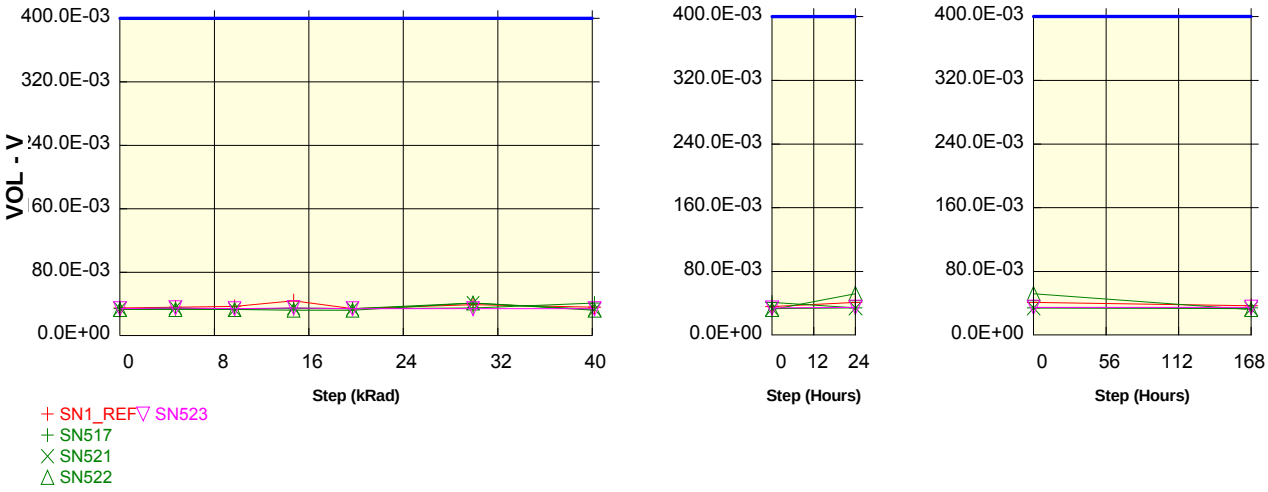
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ9
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	38.0E-03	45.0E-03	34.0E-03	35.0E-03	31.0E-03	33.0E-03	38.0E-03	43.0E-03	31.0E-03
ON samples									
SN517	31.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03	31.0E-03	31.0E-03
SN521	31.0E-03	32.0E-03	30.0E-03	32.0E-03	31.0E-03	55.0E-03	30.0E-03	31.0E-03	30.0E-03
SN522	29.0E-03	29.0E-03	29.0E-03	29.0E-03	29.0E-03	30.0E-03	29.0E-03	31.0E-03	30.0E-03
Statistics									
Min	29.0E-03	29.0E-03	29.0E-03	29.0E-03	29.0E-03	30.0E-03	29.0E-03	31.0E-03	30.0E-03
Max	31.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	55.0E-03	32.0E-03	31.0E-03	31.0E-03
Average	30.3E-03	30.7E-03	30.0E-03	30.7E-03	30.7E-03	39.0E-03	30.3E-03	31.0E-03	30.3E-03
Sigma	942.8E-06	1.2E-03	816.5E-06	1.2E-03	1.2E-03	11.3E-03	1.2E-03	190.1E-12	471.4E-06

VOLDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	38.0E-03	45.0E-03	34.0E-03	35.0E-03	31.0E-03	33.0E-03	38.0E-03	43.0E-03	31.0E-03
OFF samples									
SN523	32.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03
Statistics									
Min	32.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03
Max	32.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03
Average	32.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

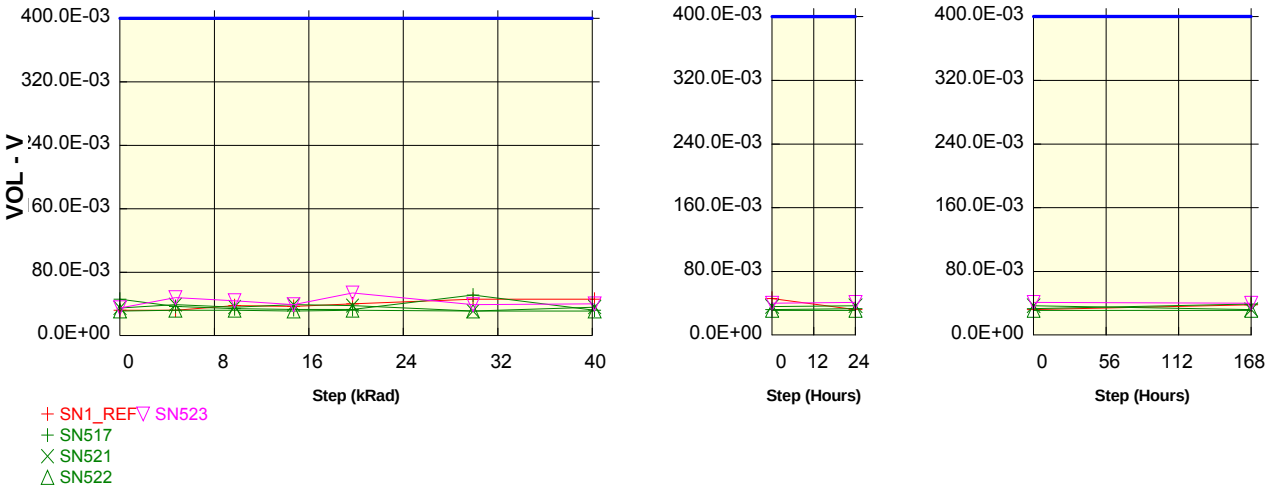
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ8
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	35.0E-03	36.0E-03	37.0E-03	44.0E-03	34.0E-03	39.0E-03	36.0E-03	41.0E-03	37.0E-03
ON samples									
SN517	34.0E-03	34.0E-03	34.0E-03	34.0E-03	34.0E-03	35.0E-03	41.0E-03	34.0E-03	34.0E-03
SN521	34.0E-03	35.0E-03	33.0E-03	35.0E-03	34.0E-03	41.0E-03	33.0E-03	34.0E-03	33.0E-03
SN522	33.0E-03	33.0E-03	33.0E-03	32.0E-03	32.0E-03	41.0E-03	32.0E-03	52.0E-03	32.0E-03
Statistics									
Min	33.0E-03	33.0E-03	33.0E-03	32.0E-03	32.0E-03	35.0E-03	32.0E-03	34.0E-03	32.0E-03
Max	34.0E-03	35.0E-03	34.0E-03	35.0E-03	34.0E-03	41.0E-03	41.0E-03	52.0E-03	34.0E-03
Average	33.7E-03	34.0E-03	33.3E-03	33.7E-03	33.3E-03	39.0E-03	35.3E-03	40.0E-03	33.0E-03
Sigma	471.4E-06	816.5E-06	471.4E-06	1.2E-03	942.8E-06	2.8E-03	4.0E-03	8.5E-03	816.5E-06

VOLDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	35.0E-03	36.0E-03	37.0E-03	44.0E-03	34.0E-03	39.0E-03	36.0E-03	41.0E-03	37.0E-03
OFF samples									
SN523	34.0E-03	35.0E-03	34.0E-03	35.0E-03	34.0E-03	34.0E-03	34.0E-03	35.0E-03	35.0E-03
Statistics									
Min	34.0E-03	35.0E-03	34.0E-03	35.0E-03	34.0E-03	34.0E-03	34.0E-03	35.0E-03	35.0E-03
Max	34.0E-03	35.0E-03	34.0E-03	35.0E-03	34.0E-03	34.0E-03	34.0E-03	35.0E-03	35.0E-03
Average	34.0E-03	35.0E-03	34.0E-03	35.0E-03	34.0E-03	34.0E-03	34.0E-03	35.0E-03	35.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

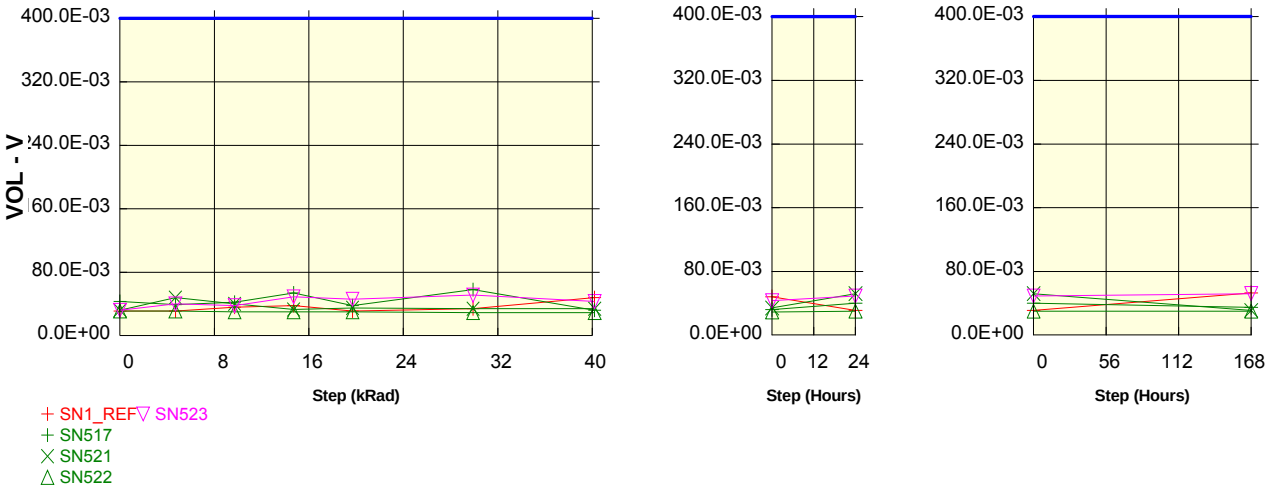
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ7
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	38.0E-03	37.0E-03	40.0E-03	46.0E-03	46.0E-03	32.0E-03	38.0E-03
ON samples									
SN517	46.0E-03	37.0E-03	34.0E-03	33.0E-03	33.0E-03	51.0E-03	32.0E-03	33.0E-03	39.0E-03
SN521	35.0E-03	39.0E-03	36.0E-03	39.0E-03	38.0E-03	31.0E-03	36.0E-03	37.0E-03	32.0E-03
SN522	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Statistics									
Min	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Max	46.0E-03	39.0E-03	36.0E-03	39.0E-03	38.0E-03	51.0E-03	36.0E-03	37.0E-03	39.0E-03
Average	37.3E-03	36.0E-03	34.0E-03	34.3E-03	34.3E-03	37.7E-03	33.0E-03	33.7E-03	34.0E-03
Sigma	6.3E-03	2.9E-03	1.6E-03	3.4E-03	2.6E-03	9.4E-03	2.2E-03	2.5E-03	3.6E-03

VOLDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	38.0E-03	37.0E-03	40.0E-03	46.0E-03	46.0E-03	32.0E-03	38.0E-03
OFF samples									
SN523	35.0E-03	48.0E-03	44.0E-03	39.0E-03	54.0E-03	39.0E-03	40.0E-03	41.0E-03	40.0E-03
Statistics									
Min	35.0E-03	48.0E-03	44.0E-03	39.0E-03	54.0E-03	39.0E-03	40.0E-03	41.0E-03	40.0E-03
Max	35.0E-03	48.0E-03	44.0E-03	39.0E-03	54.0E-03	39.0E-03	40.0E-03	41.0E-03	40.0E-03
Average	35.0E-03	48.0E-03	44.0E-03	39.0E-03	54.0E-03	39.0E-03	40.0E-03	41.0E-03	40.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

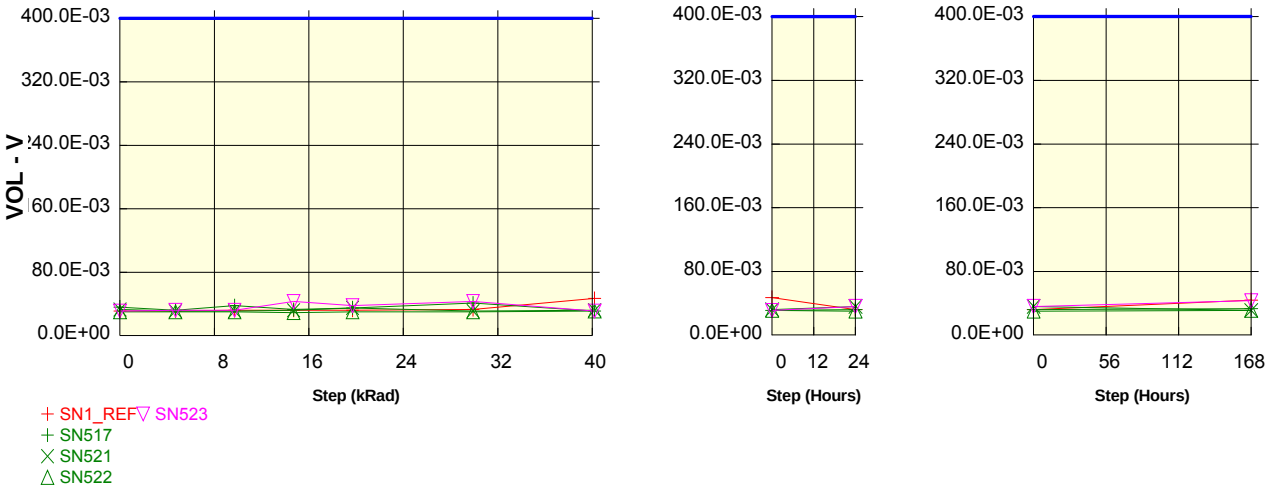
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ6
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	36.0E-03	38.0E-03	31.0E-03	34.0E-03	48.0E-03	31.0E-03	53.0E-03
ON samples									
SN517	43.0E-03	39.0E-03	42.0E-03	54.0E-03	38.0E-03	58.0E-03	32.0E-03	40.0E-03	35.0E-03
SN521	32.0E-03	48.0E-03	40.0E-03	33.0E-03	35.0E-03	34.0E-03	34.0E-03	52.0E-03	31.0E-03
SN522	31.0E-03	31.0E-03	30.0E-03	30.0E-03	30.0E-03	29.0E-03	29.0E-03	30.0E-03	30.0E-03
Statistics									
Min	31.0E-03	31.0E-03	30.0E-03	30.0E-03	30.0E-03	29.0E-03	29.0E-03	30.0E-03	30.0E-03
Max	43.0E-03	48.0E-03	42.0E-03	54.0E-03	38.0E-03	58.0E-03	34.0E-03	52.0E-03	35.0E-03
Average	35.3E-03	39.3E-03	37.3E-03	39.0E-03	34.3E-03	40.3E-03	31.7E-03	40.7E-03	32.0E-03
Sigma	5.4E-03	6.9E-03	5.2E-03	10.7E-03	3.3E-03	12.7E-03	2.1E-03	9.0E-03	2.2E-03

VOLDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	36.0E-03	38.0E-03	31.0E-03	34.0E-03	48.0E-03	31.0E-03	53.0E-03
OFF samples									
SN523	32.0E-03	40.0E-03	38.0E-03	49.0E-03	46.0E-03	51.0E-03	43.0E-03	49.0E-03	52.0E-03
Statistics									
Min	32.0E-03	40.0E-03	38.0E-03	49.0E-03	46.0E-03	51.0E-03	43.0E-03	49.0E-03	52.0E-03
Max	32.0E-03	40.0E-03	38.0E-03	49.0E-03	46.0E-03	51.0E-03	43.0E-03	49.0E-03	52.0E-03
Average	32.0E-03	40.0E-03	38.0E-03	49.0E-03	46.0E-03	51.0E-03	43.0E-03	49.0E-03	52.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

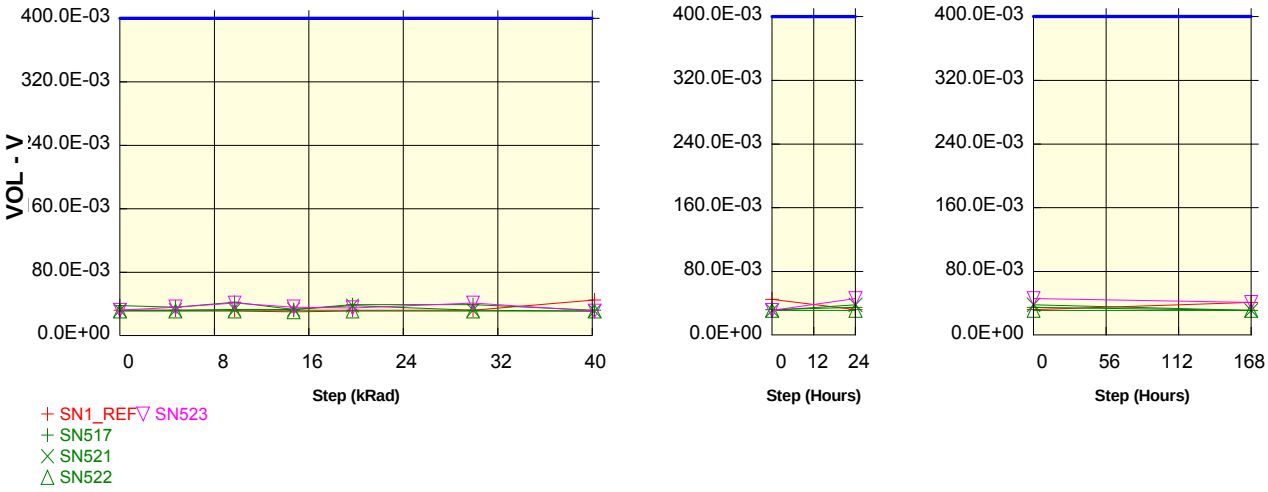
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ5
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03	33.0E-03	47.0E-03	32.0E-03	44.0E-03
ON samples									
SN517	36.0E-03	32.0E-03	38.0E-03	33.0E-03	35.0E-03	41.0E-03	31.0E-03	32.0E-03	33.0E-03
SN521	33.0E-03	31.0E-03	31.0E-03	32.0E-03	35.0E-03	31.0E-03	32.0E-03	36.0E-03	31.0E-03
SN522	30.0E-03	30.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	31.0E-03
Statistics									
Min	30.0E-03	30.0E-03	30.0E-03	29.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	31.0E-03
Max	36.0E-03	32.0E-03	38.0E-03	33.0E-03	35.0E-03	41.0E-03	32.0E-03	36.0E-03	33.0E-03
Average	33.0E-03	31.0E-03	33.0E-03	31.3E-03	33.3E-03	34.0E-03	31.3E-03	32.7E-03	31.7E-03
Sigma	2.4E-03	816.5E-06	3.6E-03	1.7E-03	2.4E-03	5.0E-03	471.4E-06	2.5E-03	942.8E-06

VOLDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	32.0E-03	32.0E-03	32.0E-03	33.0E-03	47.0E-03	32.0E-03	44.0E-03
OFF samples									
SN523	31.0E-03	32.0E-03	32.0E-03	43.0E-03	38.0E-03	43.0E-03	31.0E-03	36.0E-03	43.0E-03
Statistics									
Min	31.0E-03	32.0E-03	32.0E-03	43.0E-03	38.0E-03	43.0E-03	31.0E-03	36.0E-03	43.0E-03
Max	31.0E-03	32.0E-03	32.0E-03	43.0E-03	38.0E-03	43.0E-03	31.0E-03	36.0E-03	43.0E-03
Average	31.0E-03	32.0E-03	32.0E-03	43.0E-03	38.0E-03	43.0E-03	31.0E-03	36.0E-03	43.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

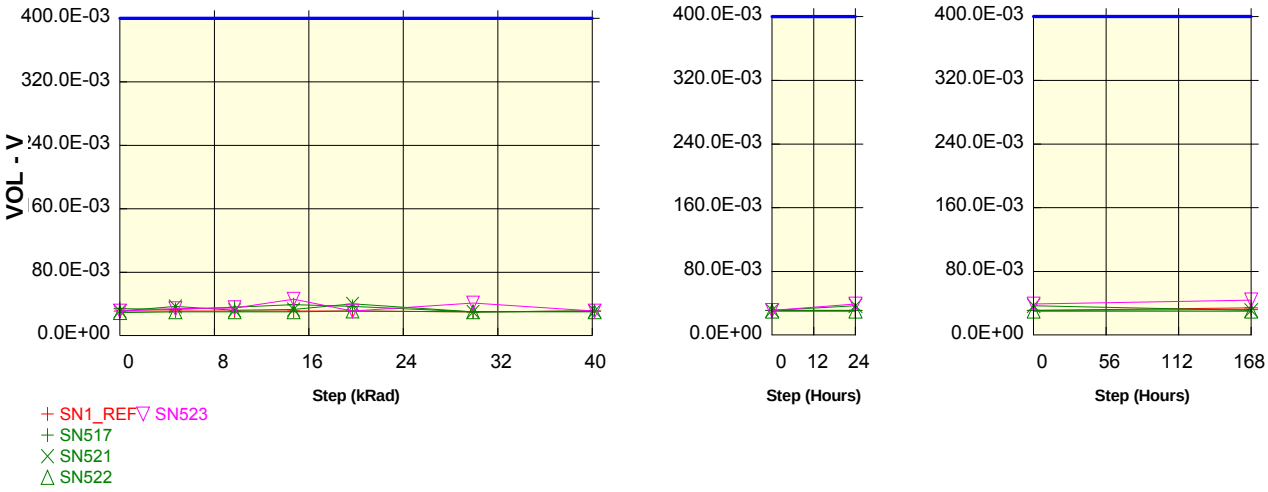
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ4
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	45.0E-03	32.0E-03	41.0E-03
ON samples									
SN517	38.0E-03	36.0E-03	42.0E-03	33.0E-03	39.0E-03	39.0E-03	32.0E-03	35.0E-03	31.0E-03
SN521	32.0E-03	32.0E-03	33.0E-03	33.0E-03	38.0E-03	32.0E-03	31.0E-03	38.0E-03	31.0E-03
SN522	31.0E-03	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Statistics									
Min	31.0E-03	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Max	38.0E-03	36.0E-03	42.0E-03	33.0E-03	39.0E-03	39.0E-03	32.0E-03	38.0E-03	31.0E-03
Average	33.7E-03	33.0E-03	35.3E-03	32.0E-03	36.0E-03	34.0E-03	31.3E-03	34.7E-03	31.0E-03
Sigma	3.1E-03	2.2E-03	4.8E-03	1.4E-03	3.6E-03	3.6E-03	471.4E-06	2.9E-03	190.1E-12

VOLDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	32.0E-03	45.0E-03	32.0E-03	41.0E-03
OFF samples									
SN523	32.0E-03	36.0E-03	41.0E-03	36.0E-03	35.0E-03	41.0E-03	31.0E-03	46.0E-03	41.0E-03
Statistics									
Min	32.0E-03	36.0E-03	41.0E-03	36.0E-03	35.0E-03	41.0E-03	31.0E-03	46.0E-03	41.0E-03
Max	32.0E-03	36.0E-03	41.0E-03	36.0E-03	35.0E-03	41.0E-03	31.0E-03	46.0E-03	41.0E-03
Average	32.0E-03	36.0E-03	41.0E-03	36.0E-03	35.0E-03	41.0E-03	31.0E-03	46.0E-03	41.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

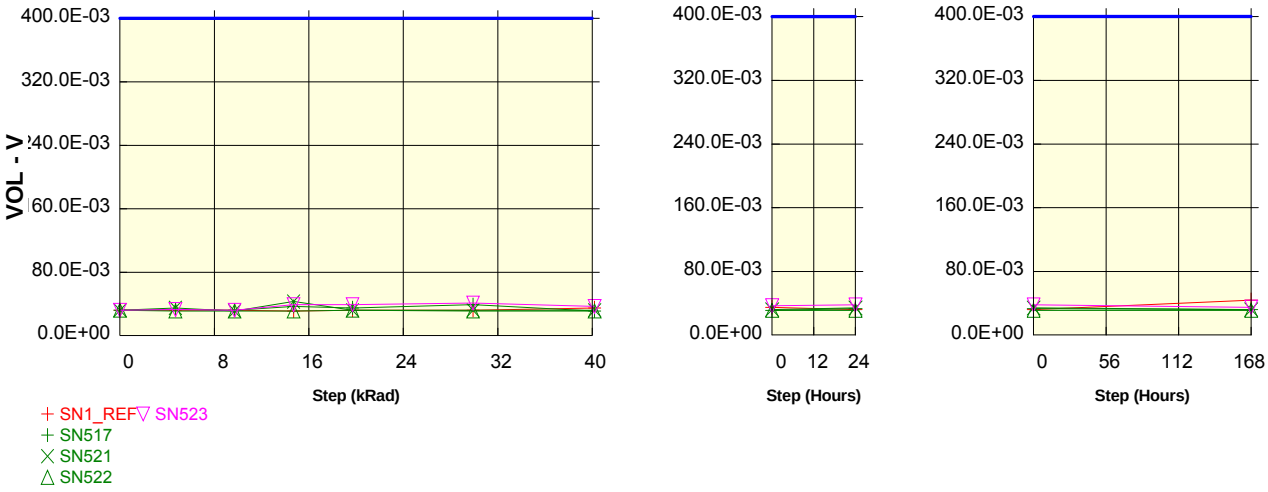
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ3
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	34.0E-03
ON samples									
SN517	34.0E-03	33.0E-03	36.0E-03	39.0E-03	37.0E-03	30.0E-03	31.0E-03	31.0E-03	32.0E-03
SN521	31.0E-03	37.0E-03	32.0E-03	33.0E-03	40.0E-03	30.0E-03	31.0E-03	37.0E-03	31.0E-03
SN522	29.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03
Statistics									
Min	29.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03
Max	34.0E-03	37.0E-03	36.0E-03	39.0E-03	40.0E-03	30.0E-03	31.0E-03	37.0E-03	32.0E-03
Average	31.3E-03	33.3E-03	32.7E-03	34.0E-03	36.0E-03	30.0E-03	30.7E-03	32.7E-03	31.0E-03
Sigma	2.1E-03	2.9E-03	2.5E-03	3.7E-03	3.7E-03	268.8E-12	471.4E-06	3.1E-03	816.5E-06

VOLDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	34.0E-03
OFF samples									
SN523	31.0E-03	34.0E-03	35.0E-03	46.0E-03	31.0E-03	41.0E-03	31.0E-03	39.0E-03	44.0E-03
Statistics									
Min	31.0E-03	34.0E-03	35.0E-03	46.0E-03	31.0E-03	41.0E-03	31.0E-03	39.0E-03	44.0E-03
Max	31.0E-03	34.0E-03	35.0E-03	46.0E-03	31.0E-03	41.0E-03	31.0E-03	39.0E-03	44.0E-03
Average	31.0E-03	34.0E-03	35.0E-03	46.0E-03	31.0E-03	41.0E-03	31.0E-03	39.0E-03	44.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

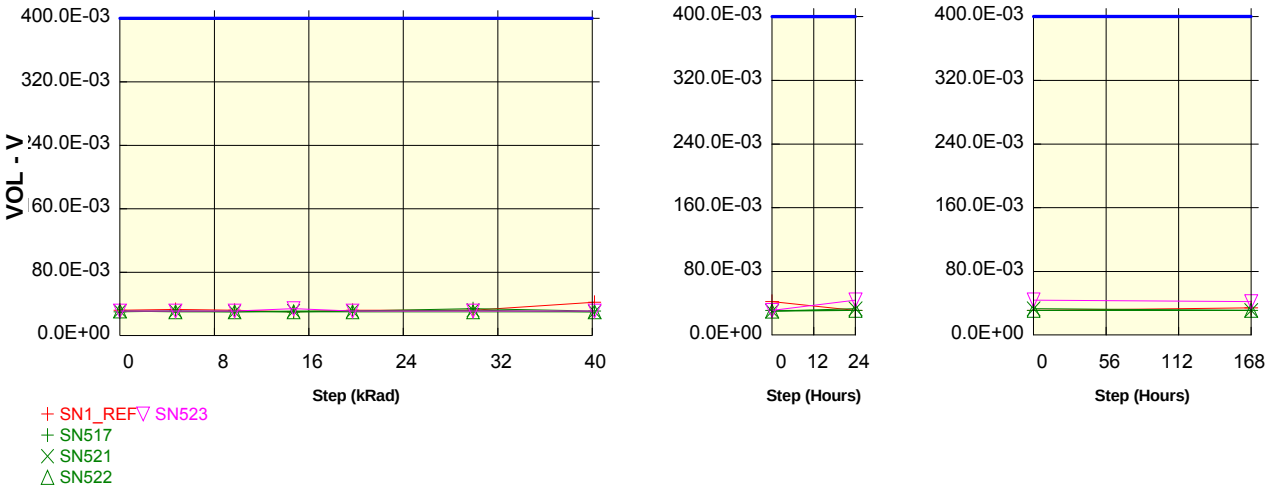
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ2
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	35.0E-03	32.0E-03	44.0E-03
ON samples									
SN517	32.0E-03	33.0E-03	32.0E-03	37.0E-03	35.0E-03	39.0E-03	31.0E-03	33.0E-03	32.0E-03
SN521	32.0E-03	35.0E-03	31.0E-03	43.0E-03	32.0E-03	32.0E-03	32.0E-03	34.0E-03	32.0E-03
SN522	32.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Statistics									
Min	32.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03
Max	32.0E-03	35.0E-03	32.0E-03	43.0E-03	35.0E-03	39.0E-03	32.0E-03	34.0E-03	32.0E-03
Average	32.0E-03	33.0E-03	31.3E-03	37.0E-03	33.0E-03	34.0E-03	31.3E-03	32.7E-03	31.7E-03
Sigma	268.8E-12	1.6E-03	471.4E-06	4.9E-03	1.4E-03	3.6E-03	471.4E-06	1.2E-03	471.4E-06

VOLDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	32.0E-03	35.0E-03	32.0E-03	44.0E-03
OFF samples									
SN523	32.0E-03	33.0E-03	32.0E-03	39.0E-03	39.0E-03	41.0E-03	37.0E-03	38.0E-03	35.0E-03
Statistics									
Min	32.0E-03	33.0E-03	32.0E-03	39.0E-03	39.0E-03	41.0E-03	37.0E-03	38.0E-03	35.0E-03
Max	32.0E-03	33.0E-03	32.0E-03	39.0E-03	39.0E-03	41.0E-03	37.0E-03	38.0E-03	35.0E-03
Average	32.0E-03	33.0E-03	32.0E-03	39.0E-03	39.0E-03	41.0E-03	37.0E-03	38.0E-03	35.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

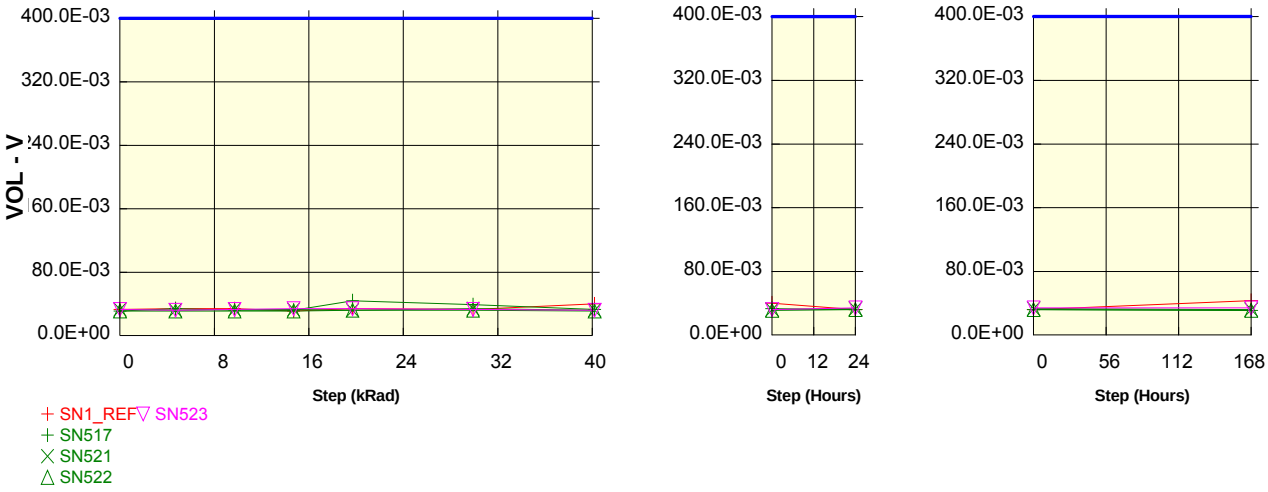
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ1
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	33.0E-03	32.0E-03	30.0E-03	32.0E-03	32.0E-03	42.0E-03	31.0E-03	34.0E-03
ON samples									
SN517	30.0E-03	31.0E-03	31.0E-03	30.0E-03	31.0E-03	34.0E-03	31.0E-03	31.0E-03	31.0E-03
SN521	31.0E-03	31.0E-03	30.0E-03	31.0E-03	31.0E-03	32.0E-03	30.0E-03	33.0E-03	31.0E-03
SN522	31.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	31.0E-03
Statistics									
Min	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	30.0E-03	31.0E-03	31.0E-03
Max	31.0E-03	31.0E-03	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	33.0E-03	31.0E-03
Average	30.7E-03	30.7E-03	30.3E-03	30.3E-03	30.7E-03	32.0E-03	30.3E-03	31.7E-03	31.0E-03
Sigma	471.4E-06	471.4E-06	471.4E-06	471.4E-06	471.4E-06	1.6E-03	471.4E-06	942.8E-06	190.1E-12

VOLDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	32.0E-03	33.0E-03	32.0E-03	30.0E-03	32.0E-03	32.0E-03	42.0E-03	31.0E-03	34.0E-03
OFF samples									
SN523	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	31.0E-03	31.0E-03	44.0E-03	42.0E-03
Statistics									
Min	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	31.0E-03	31.0E-03	44.0E-03	42.0E-03
Max	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	31.0E-03	31.0E-03	44.0E-03	42.0E-03
Average	31.0E-03	31.0E-03	31.0E-03	34.0E-03	31.0E-03	31.0E-03	31.0E-03	44.0E-03	42.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

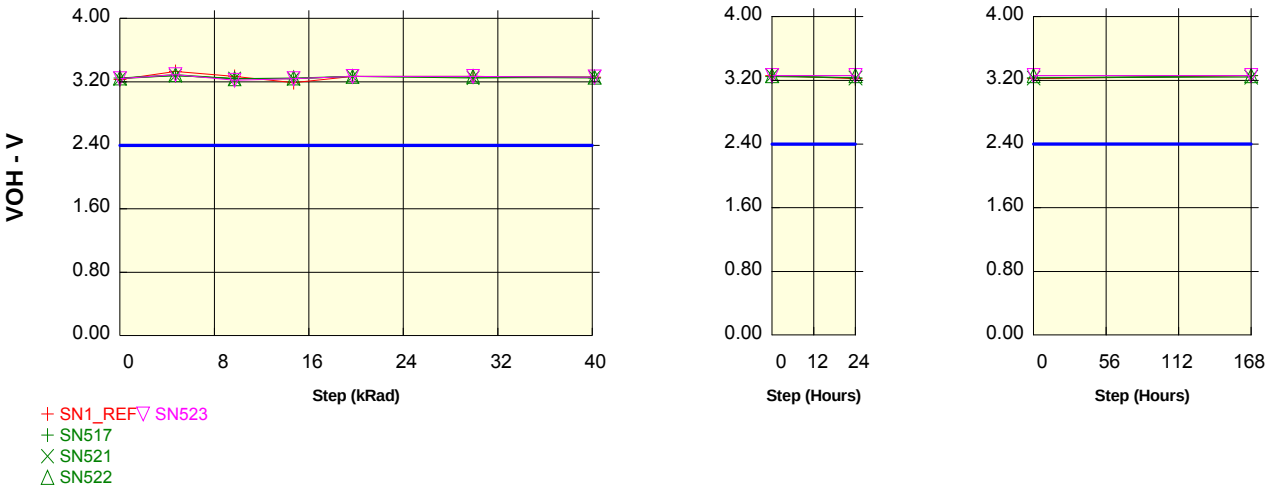
Test conditions : TID
Parameter : Output Low Voltage : VOLDQ0
IOL=4mA.VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Max : 400.0E-03
Spec limits are represented in bold lines on the graphic.



VOLDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	33.0E-03	34.0E-03	34.0E-03	31.0E-03	34.0E-03	33.0E-03	40.0E-03	32.0E-03	43.0E-03
ON samples									
SN517	31.0E-03	34.0E-03	32.0E-03	32.0E-03	44.0E-03	39.0E-03	33.0E-03	32.0E-03	31.0E-03
SN521	33.0E-03	32.0E-03	33.0E-03	33.0E-03	32.0E-03	34.0E-03	32.0E-03	33.0E-03	32.0E-03
SN522	31.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	31.0E-03
Statistics									
Min	31.0E-03	31.0E-03	31.0E-03	31.0E-03	32.0E-03	32.0E-03	31.0E-03	32.0E-03	31.0E-03
Max	33.0E-03	34.0E-03	33.0E-03	33.0E-03	44.0E-03	39.0E-03	33.0E-03	33.0E-03	32.0E-03
Average	31.7E-03	32.3E-03	32.0E-03	32.0E-03	36.0E-03	35.0E-03	32.0E-03	32.3E-03	31.3E-03
Sigma	942.8E-06	1.2E-03	816.5E-06	816.5E-06	5.7E-03	2.9E-03	816.5E-06	471.4E-06	471.4E-06

VOLDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	33.0E-03	34.0E-03	34.0E-03	31.0E-03	34.0E-03	33.0E-03	40.0E-03	32.0E-03	43.0E-03
OFF samples									
SN523	33.0E-03	32.0E-03	33.0E-03	34.0E-03	34.0E-03	33.0E-03	32.0E-03	34.0E-03	34.0E-03
Statistics									
Min	33.0E-03	32.0E-03	33.0E-03	34.0E-03	34.0E-03	33.0E-03	32.0E-03	34.0E-03	34.0E-03
Max	33.0E-03	32.0E-03	33.0E-03	34.0E-03	34.0E-03	33.0E-03	32.0E-03	34.0E-03	34.0E-03
Average	33.0E-03	32.0E-03	33.0E-03	34.0E-03	34.0E-03	33.0E-03	32.0E-03	34.0E-03	34.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

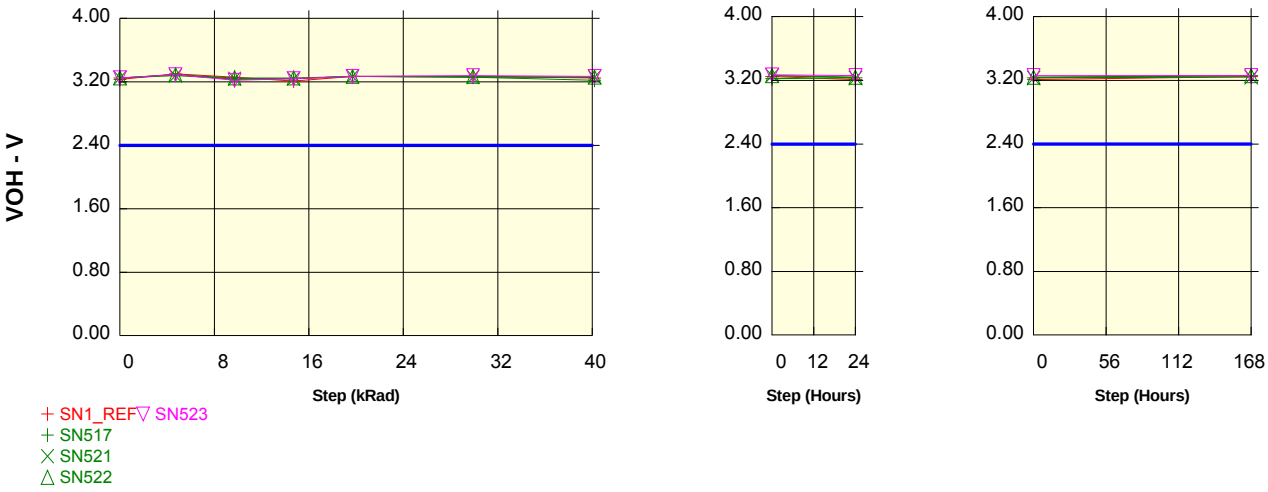
Test conditions : TID
Parameter : Output High Voltage : VOHDQ15
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.33	3.27	3.19	3.27	3.27	3.26	3.22	3.26
ON samples									
SN517	3.25	3.28	3.24	3.24	3.27	3.26	3.25	3.23	3.26
SN521	3.24	3.28	3.24	3.24	3.27	3.25	3.26	3.23	3.24
SN522	3.25	3.29	3.24	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.28	3.24	3.24	3.27	3.25	3.25	3.23	3.24
Max	3.25	3.29	3.24	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01

VOHDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.33	3.27	3.19	3.27	3.27	3.26	3.22	3.26
OFF samples									
SN523	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Max	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

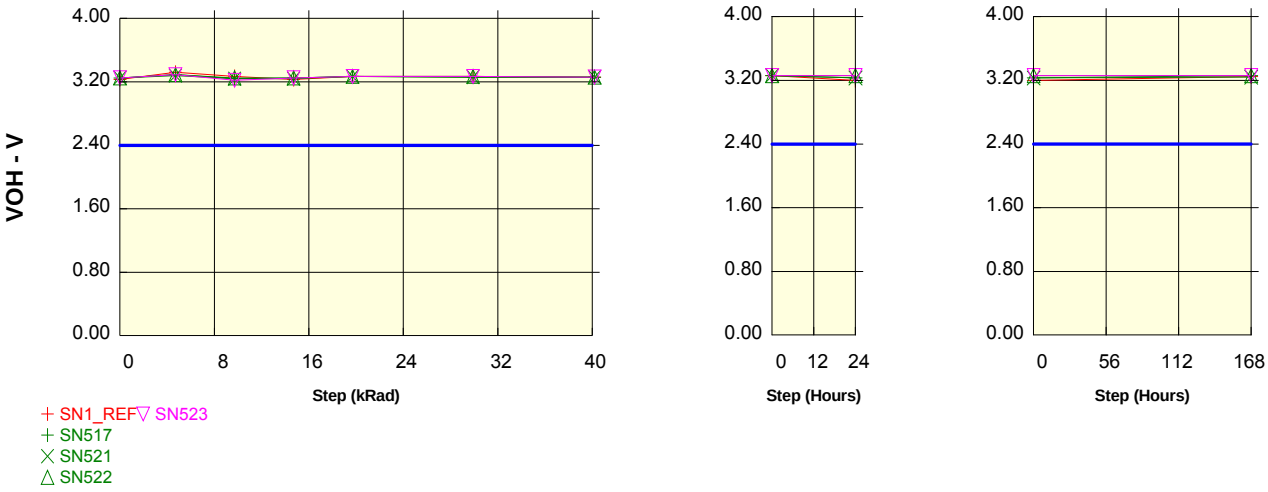
Test conditions : TID
Parameter : Output High Voltage : VOHDQ14
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.30	3.26	3.21	3.27	3.27	3.25	3.21	3.25
ON samples									
SN517	3.25	3.29	3.23	3.24	3.27	3.26	3.22	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.25	3.27	3.27	3.26	3.24	3.26
Statistics									
Min	3.25	3.28	3.23	3.24	3.27	3.26	3.22	3.23	3.24
Max	3.25	3.29	3.25	3.25	3.27	3.27	3.26	3.24	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.26	3.25	3.23	3.25
Sigma	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.01

VOHDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.30	3.26	3.21	3.27	3.27	3.25	3.21	3.25
OFF samples									
SN523	3.25	3.29	3.22	3.24	3.27	3.28	3.27	3.26	3.26
Statistics									
Min	3.25	3.29	3.22	3.24	3.27	3.28	3.27	3.26	3.26
Max	3.25	3.29	3.22	3.24	3.27	3.28	3.27	3.26	3.26
Average	3.25	3.29	3.22	3.24	3.27	3.28	3.27	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

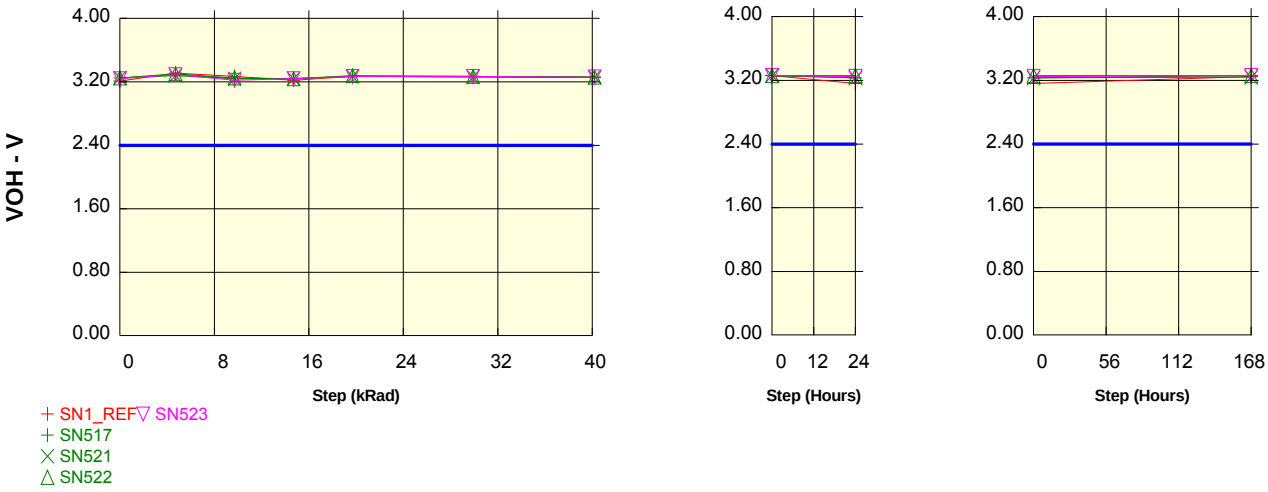
Test conditions : TID
Parameter : Output High Voltage : VOHDQ13
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.32	3.27	3.23	3.27	3.27	3.26	3.20	3.25
ON samples									
SN517	3.25	3.29	3.24	3.25	3.27	3.26	3.26	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
Max	3.25	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.24	3.25	3.27	3.26	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

VOHDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.32	3.27	3.23	3.27	3.27	3.26	3.20	3.25
OFF samples									
SN523	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Max	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

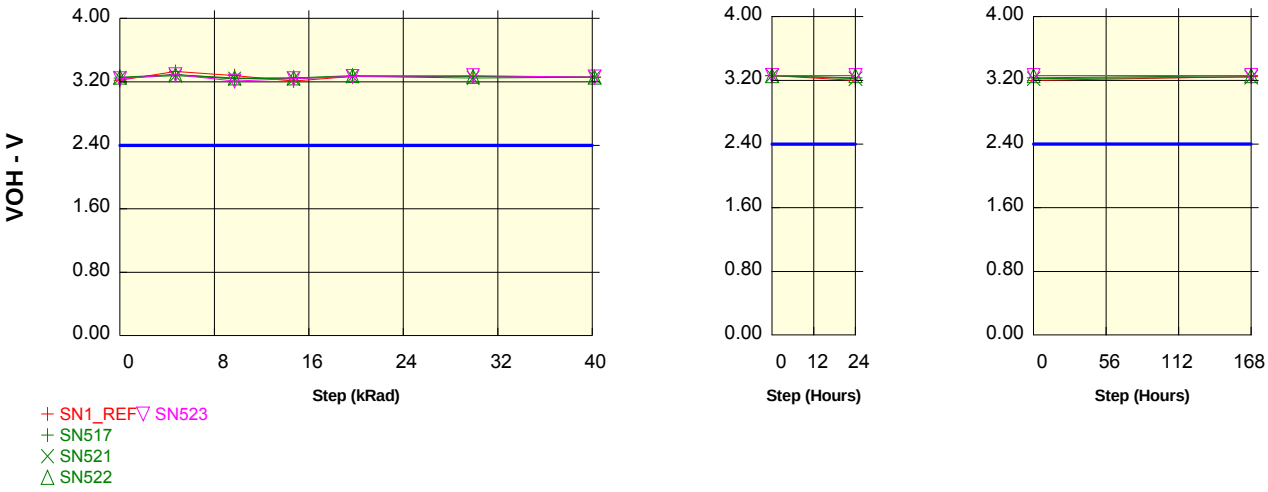
Test conditions : TID
Parameter : Output High Voltage : VOHDQ12
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.21	3.31	3.27	3.22	3.27	3.27	3.26	3.16	3.25
ON samples									
SN517	3.25	3.29	3.24	3.24	3.27	3.27	3.26	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.25	3.30	3.25	3.24	3.28	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
Max	3.25	3.30	3.25	3.24	3.28	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.27	3.26	3.24	3.25
Sigma	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01

VOHDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.21	3.31	3.27	3.22	3.27	3.27	3.26	3.16	3.25
OFF samples									
SN523	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.26
Statistics									
Min	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.26
Max	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.26
Average	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

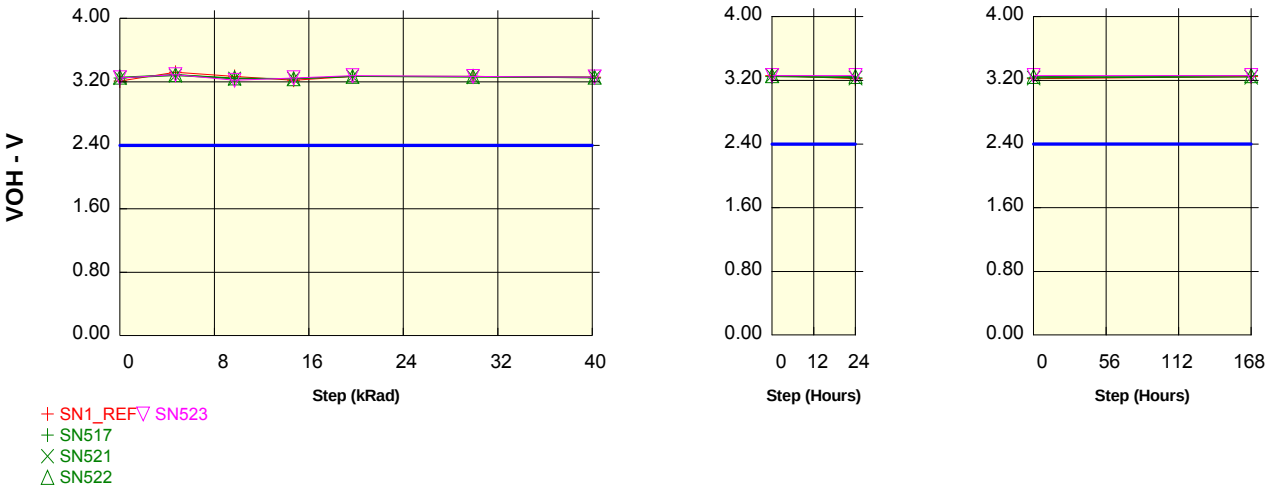
Test conditions : TID
Parameter : Output High Voltage : VOHDQ11
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.22	3.33	3.28	3.21	3.27	3.27	3.26	3.20	3.25
ON samples									
SN517	3.25	3.29	3.24	3.25	3.27	3.27	3.26	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.25	3.26	3.22	3.24
SN522	3.26	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.27	3.25	3.26	3.22	3.24
Max	3.26	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.24	3.25	3.27	3.26	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01

VOHDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.22	3.33	3.28	3.21	3.27	3.27	3.26	3.20	3.25
OFF samples									
SN523	3.24	3.29	3.21	3.24	3.27	3.28	3.26	3.26	3.26
Statistics									
Min	3.24	3.29	3.21	3.24	3.27	3.28	3.26	3.26	3.26
Max	3.24	3.29	3.21	3.24	3.27	3.28	3.26	3.26	3.26
Average	3.24	3.29	3.21	3.24	3.27	3.28	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

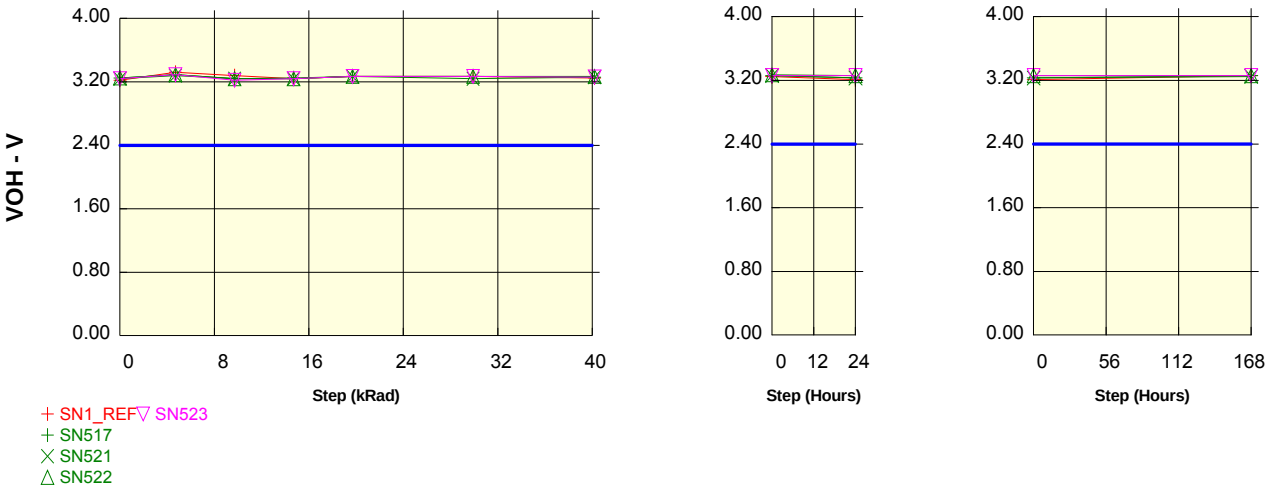
Test conditions : TID
Parameter : Output High Voltage : VOHDQ10
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.21	3.32	3.27	3.22	3.27	3.27	3.26	3.22	3.25
ON samples									
SN517	3.25	3.29	3.24	3.24	3.27	3.27	3.25	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.26	3.29	3.25	3.24	3.27	3.27	3.26	3.25	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.27	3.26	3.25	3.23	3.24
Max	3.26	3.29	3.25	3.24	3.27	3.27	3.26	3.25	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.27	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

VOHDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.21	3.32	3.27	3.22	3.27	3.27	3.26	3.22	3.25
OFF samples									
SN523	3.25	3.29	3.22	3.25	3.28	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.29	3.22	3.25	3.28	3.27	3.26	3.26	3.26
Max	3.25	3.29	3.22	3.25	3.28	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.22	3.25	3.28	3.27	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

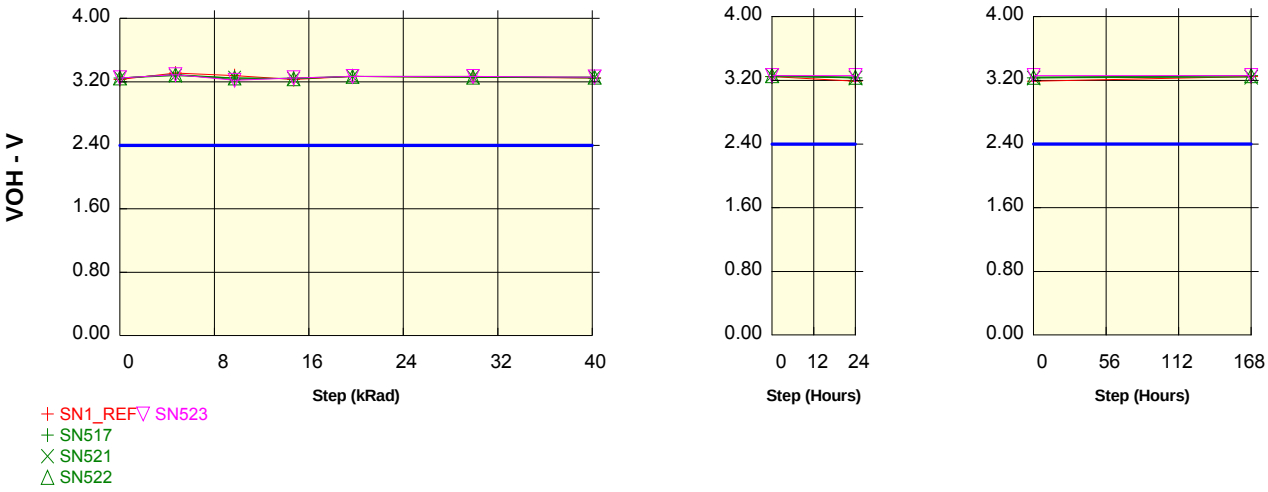
Test conditions : TID
Parameter : Output High Voltage : VOHDQ9
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.22	3.32	3.28	3.24	3.27	3.27	3.25	3.21	3.26
ON samples									
SN517	3.25	3.29	3.24	3.25	3.27	3.27	3.26	3.23	3.26
SN521	3.24	3.28	3.24	3.24	3.27	3.24	3.26	3.23	3.25
SN522	3.25	3.29	3.24	3.24	3.27	3.27	3.27	3.26	3.26
Statistics									
Min	3.24	3.28	3.24	3.24	3.27	3.24	3.26	3.23	3.25
Max	3.25	3.29	3.24	3.25	3.27	3.27	3.27	3.26	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.26	3.26	3.24	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00

VOHDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.22	3.32	3.28	3.24	3.27	3.27	3.25	3.21	3.26
OFF samples									
SN523	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Max	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

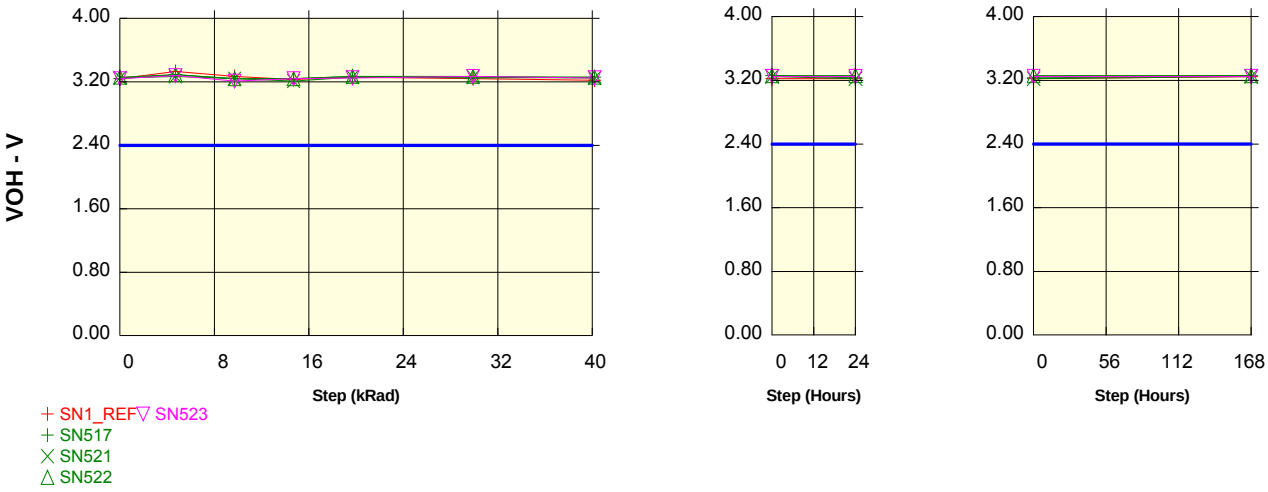
Test conditions : TID
Parameter : Output High Voltage : VOHDQ8
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.31	3.28	3.23	3.27	3.26	3.25	3.19	3.25
ON samples									
SN517	3.25	3.29	3.23	3.25	3.27	3.27	3.25	3.23	3.26
SN521	3.25	3.28	3.25	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.24	3.27	3.26	3.26	3.24	3.26
Statistics									
Min	3.25	3.28	3.23	3.24	3.27	3.26	3.25	3.23	3.24
Max	3.25	3.29	3.25	3.25	3.27	3.27	3.26	3.24	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.26	3.26	3.23	3.25
Sigma	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01

VOHDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.23	3.31	3.28	3.23	3.27	3.26	3.25	3.19	3.25
OFF samples									
SN523	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Max	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.22	3.25	3.27	3.27	3.26	3.26	3.26
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

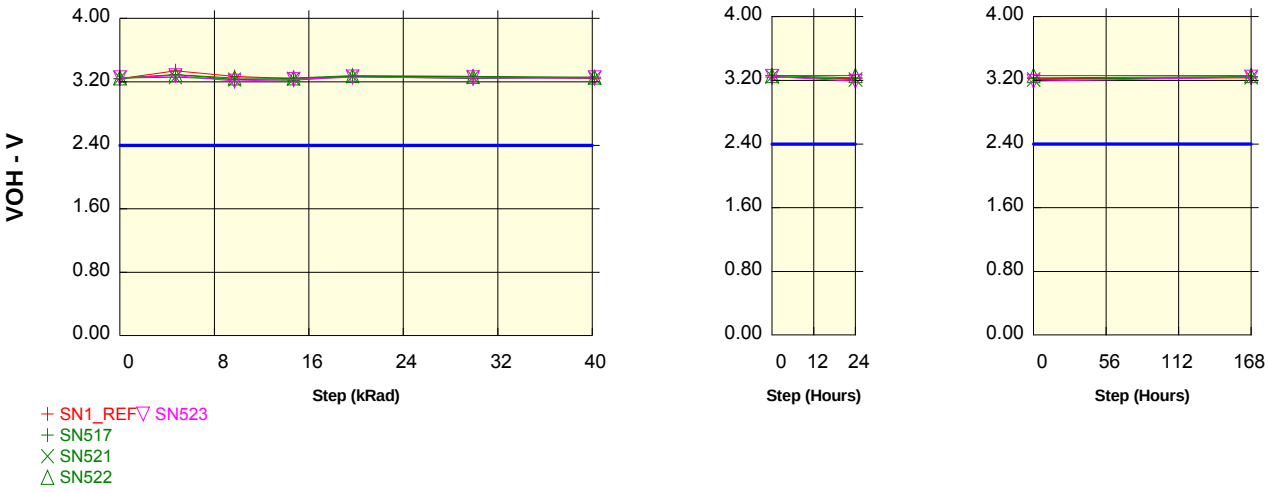
Test conditions : TID
Parameter : Output High Voltage : VOHDQ7
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.27	3.23	3.26	3.24	3.22	3.22	3.25
ON samples									
SN517	3.24	3.29	3.24	3.24	3.27	3.25	3.26	3.23	3.26
SN521	3.25	3.27	3.24	3.21	3.26	3.26	3.25	3.22	3.25
SN522	3.26	3.29	3.24	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.27	3.24	3.21	3.26	3.25	3.25	3.22	3.25
Max	3.26	3.29	3.24	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.23	3.27	3.26	3.26	3.24	3.26
Sigma	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.02	0.00

VOHDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.27	3.23	3.26	3.24	3.22	3.22	3.25
OFF samples									
SN523	3.24	3.28	3.21	3.24	3.25	3.27	3.25	3.25	3.25
Statistics									
Min	3.24	3.28	3.21	3.24	3.25	3.27	3.25	3.25	3.25
Max	3.24	3.28	3.21	3.24	3.25	3.27	3.25	3.25	3.25
Average	3.24	3.28	3.21	3.24	3.25	3.27	3.25	3.25	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

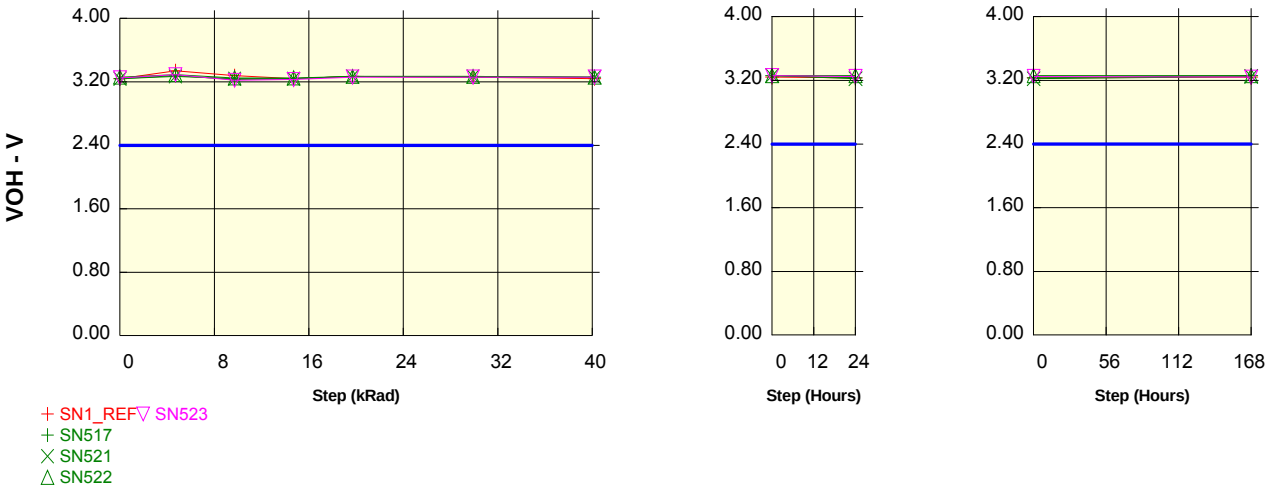
Test conditions : TID
Parameter : Output High Voltage : VOHDQ6
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.27	3.24	3.27	3.27	3.24	3.22	3.23
ON samples									
SN517	3.24	3.29	3.23	3.22	3.27	3.24	3.26	3.23	3.25
SN521	3.25	3.26	3.23	3.24	3.27	3.26	3.25	3.21	3.24
SN522	3.25	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.26	3.23	3.22	3.27	3.24	3.25	3.21	3.24
Max	3.25	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.25
Sigma	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.02	0.01

VOHDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.27	3.24	3.27	3.27	3.24	3.22	3.23
OFF samples									
SN523	3.25	3.28	3.21	3.23	3.26	3.25	3.25	3.19	3.24
Statistics									
Min	3.25	3.28	3.21	3.23	3.26	3.25	3.25	3.19	3.24
Max	3.25	3.28	3.21	3.23	3.26	3.25	3.25	3.19	3.24
Average	3.25	3.28	3.21	3.23	3.26	3.25	3.25	3.19	3.24
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

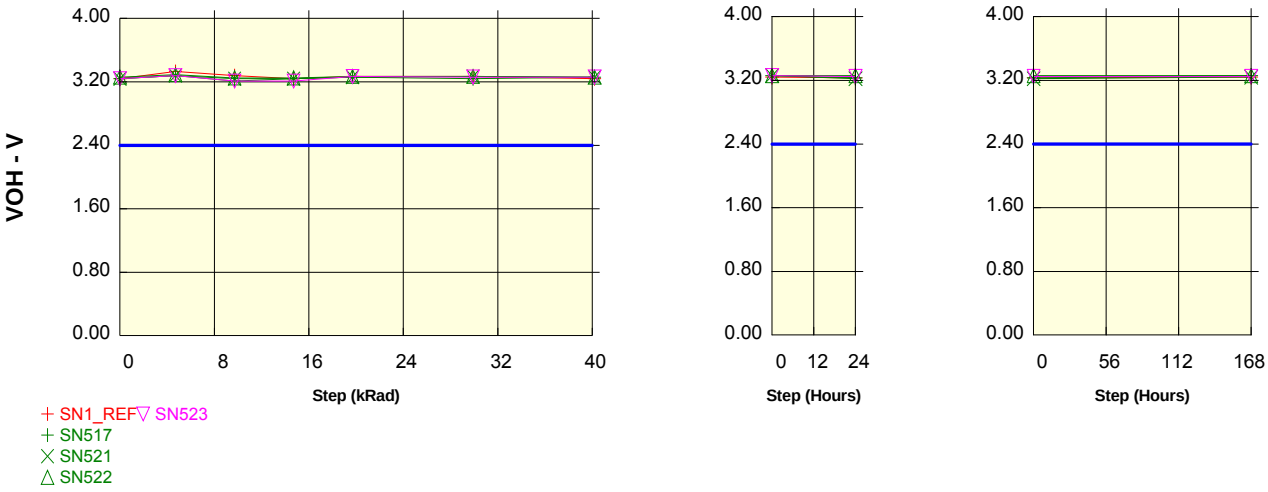
Test conditions : TID
Parameter : Output High Voltage : VOHDQ5
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.27	3.26	3.24	3.23	3.24
ON samples									
SN517	3.24	3.28	3.23	3.24	3.27	3.26	3.26	3.23	3.26
SN521	3.24	3.27	3.24	3.24	3.27	3.27	3.26	3.22	3.25
SN522	3.26	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.27	3.23	3.24	3.27	3.26	3.26	3.22	3.25
Max	3.26	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.27	3.26	3.24	3.26
Sigma	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.00

VOHDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.27	3.26	3.24	3.23	3.24
OFF samples									
SN523	3.25	3.29	3.22	3.23	3.26	3.26	3.26	3.25	3.24
Statistics									
Min	3.25	3.29	3.22	3.23	3.26	3.26	3.26	3.25	3.24
Max	3.25	3.29	3.22	3.23	3.26	3.26	3.26	3.25	3.24
Average	3.25	3.29	3.22	3.23	3.26	3.26	3.26	3.25	3.24
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

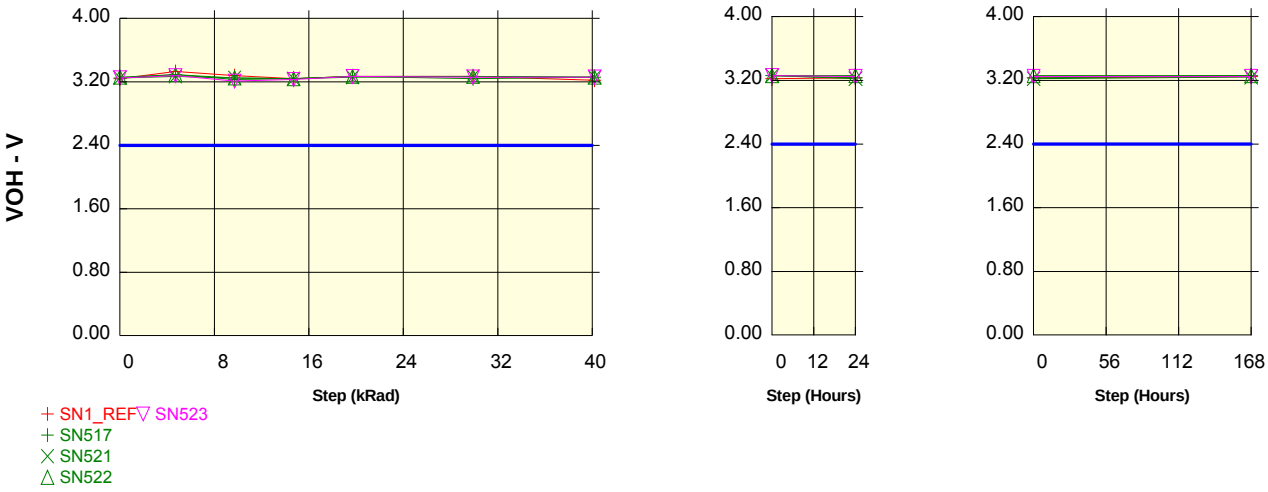
Test conditions : TID
Parameter : Output High Voltage : VOHDQ4
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.27	3.27	3.24	3.23	3.24
ON samples									
SN517	3.24	3.28	3.21	3.24	3.26	3.24	3.26	3.23	3.26
SN521	3.24	3.28	3.24	3.24	3.26	3.27	3.26	3.22	3.24
SN522	3.26	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.28	3.21	3.24	3.26	3.24	3.26	3.22	3.24
Max	3.26	3.29	3.25	3.25	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.23	3.24	3.26	3.26	3.26	3.24	3.25
Sigma	0.01	0.00	0.02	0.00	0.00	0.01	0.00	0.02	0.01

VOHDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.27	3.27	3.24	3.23	3.24
OFF samples									
SN523	3.24	3.28	3.21	3.21	3.27	3.26	3.26	3.25	3.25
Statistics									
Min	3.24	3.28	3.21	3.21	3.27	3.26	3.26	3.25	3.25
Max	3.24	3.28	3.21	3.21	3.27	3.26	3.26	3.25	3.25
Average	3.24	3.28	3.21	3.21	3.27	3.26	3.26	3.25	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

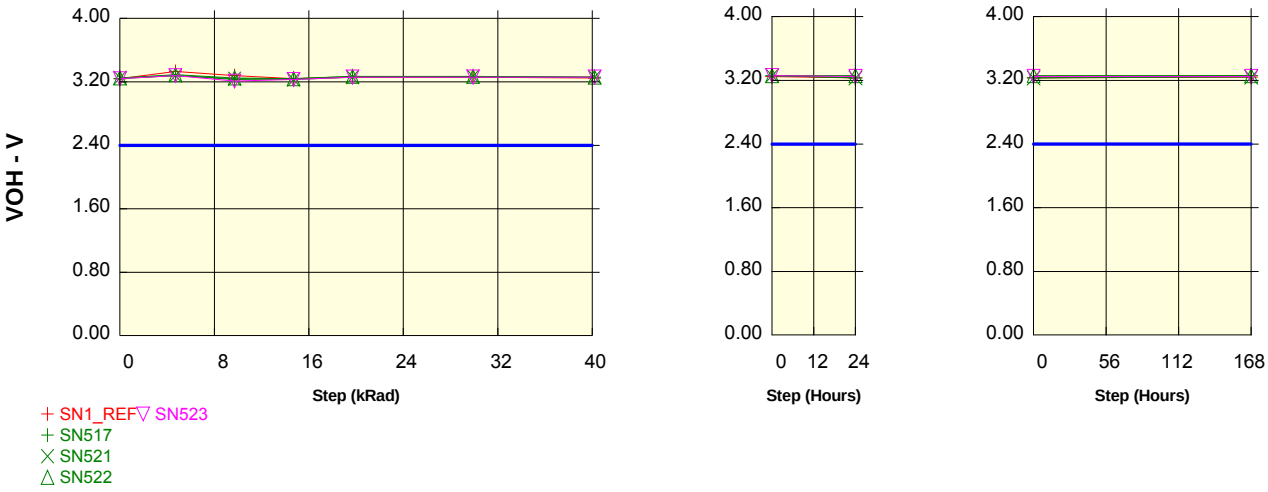
Test conditions : TID
Parameter : Output High Voltage : VOHDQ3
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.27	3.27	3.22	3.23	3.25
ON samples									
SN517	3.25	3.29	3.23	3.24	3.27	3.24	3.26	3.23	3.26
SN521	3.25	3.27	3.25	3.24	3.26	3.27	3.26	3.22	3.24
SN522	3.26	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.27	3.23	3.24	3.26	3.24	3.26	3.22	3.24
Max	3.26	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.24	3.25
Sigma	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.01

VOHDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.27	3.27	3.22	3.23	3.25
OFF samples									
SN523	3.25	3.28	3.21	3.23	3.27	3.26	3.26	3.25	3.25
Statistics									
Min	3.25	3.28	3.21	3.23	3.27	3.26	3.26	3.25	3.25
Max	3.25	3.28	3.21	3.23	3.27	3.26	3.26	3.25	3.25
Average	3.25	3.28	3.21	3.23	3.27	3.26	3.26	3.25	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

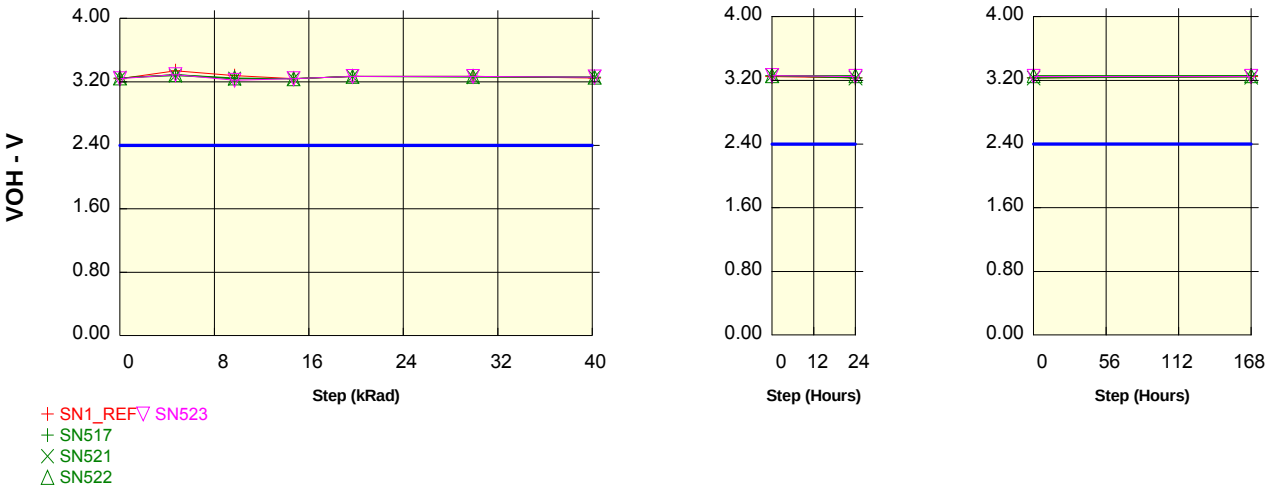
Test conditions : TID
Parameter : Output High Voltage : VOHDQ2
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.26	3.26	3.25	3.23	3.24
ON samples									
SN517	3.24	3.28	3.23	3.24	3.27	3.26	3.26	3.23	3.26
SN521	3.25	3.28	3.24	3.23	3.26	3.27	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.24	3.28	3.23	3.23	3.26	3.26	3.26	3.23	3.24
Max	3.25	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.27	3.26	3.24	3.25
Sigma	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01

VOHDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.33	3.28	3.24	3.26	3.26	3.25	3.23	3.24
OFF samples									
SN523	3.24	3.28	3.21	3.23	3.26	3.26	3.26	3.25	3.25
Statistics									
Min	3.24	3.28	3.21	3.23	3.26	3.26	3.26	3.25	3.25
Max	3.24	3.28	3.21	3.23	3.26	3.26	3.26	3.25	3.25
Average	3.24	3.28	3.21	3.23	3.26	3.26	3.26	3.25	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

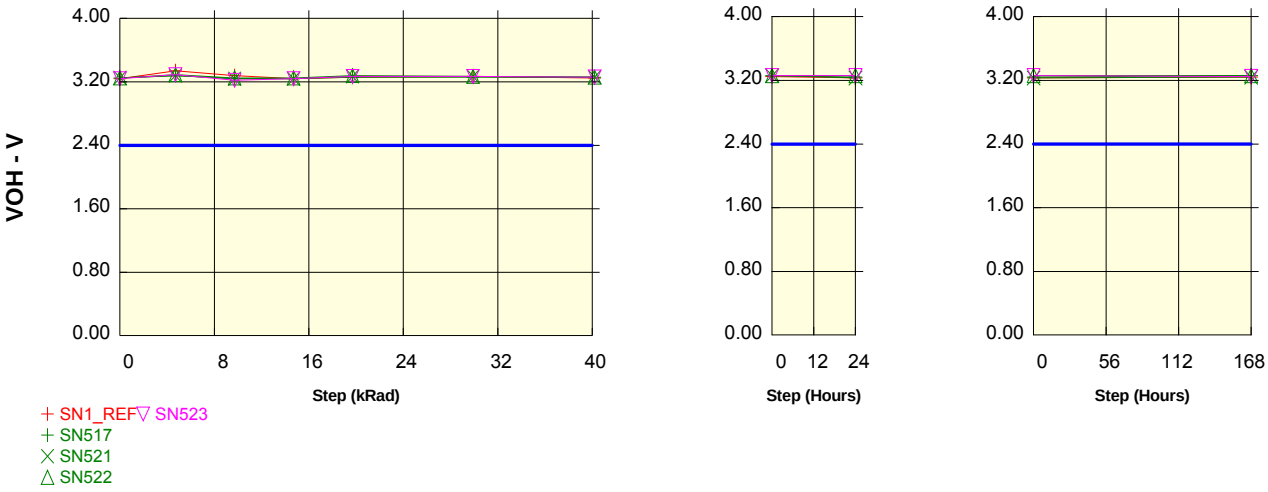
Test conditions : TID
Parameter : Output High Voltage : VOHDQ1
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.27	3.27	3.25	3.23	3.25
ON samples									
SN517	3.25	3.29	3.24	3.24	3.27	3.27	3.26	3.23	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.27	3.26	3.26	3.23	3.24
Max	3.25	3.29	3.25	3.24	3.27	3.27	3.26	3.26	3.26
Average	3.25	3.29	3.24	3.24	3.27	3.27	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01

VOHDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.27	3.27	3.25	3.23	3.25
OFF samples									
SN523	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.25
Statistics									
Min	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.25
Max	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.25
Average	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.25	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

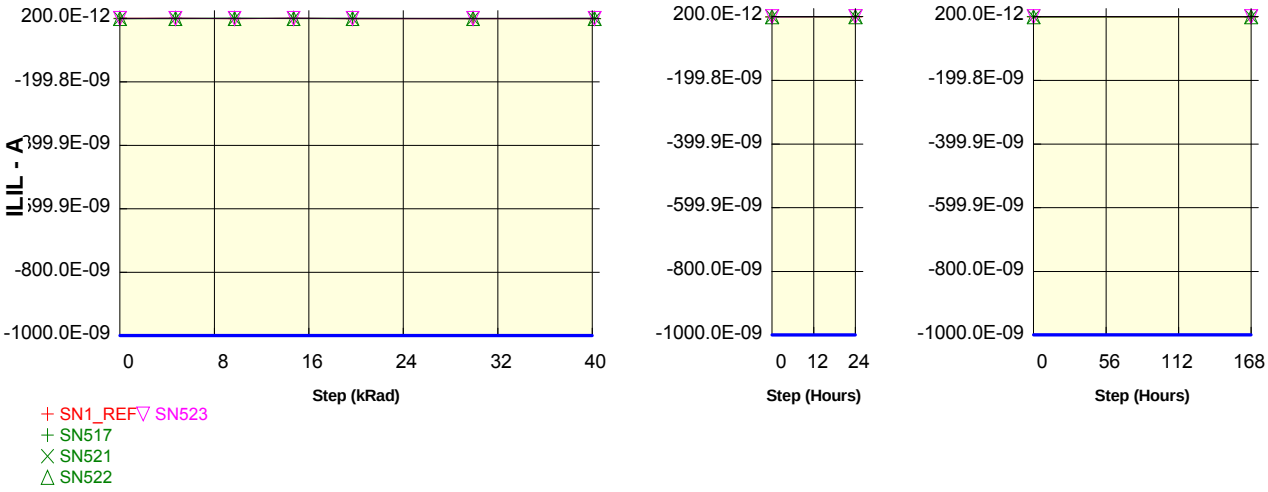
Test conditions : TID
Parameter : Output High Voltage : VOHDQ0
IOH=-4mA. VDD = 3.3V. VDDQ=3.3V
Unit : V
Spec Limit Min : 2.40
Spec limits are represented in bold lines on the graphic.



VOHDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.26	3.27	3.25	3.23	3.24
ON samples									
SN517	3.25	3.28	3.24	3.24	3.26	3.26	3.26	3.24	3.26
SN521	3.25	3.28	3.24	3.24	3.27	3.27	3.26	3.23	3.24
SN522	3.25	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Statistics									
Min	3.25	3.28	3.24	3.24	3.26	3.26	3.26	3.23	3.24
Max	3.25	3.29	3.25	3.25	3.28	3.27	3.26	3.26	3.26
Average	3.25	3.28	3.24	3.24	3.27	3.27	3.26	3.24	3.25
Sigma	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01

VOHDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.24	3.34	3.28	3.24	3.26	3.27	3.25	3.23	3.24
OFF samples									
SN523	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.25
Statistics									
Min	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.25
Max	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.25
Average	3.24	3.29	3.22	3.24	3.27	3.27	3.26	3.26	3.25
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

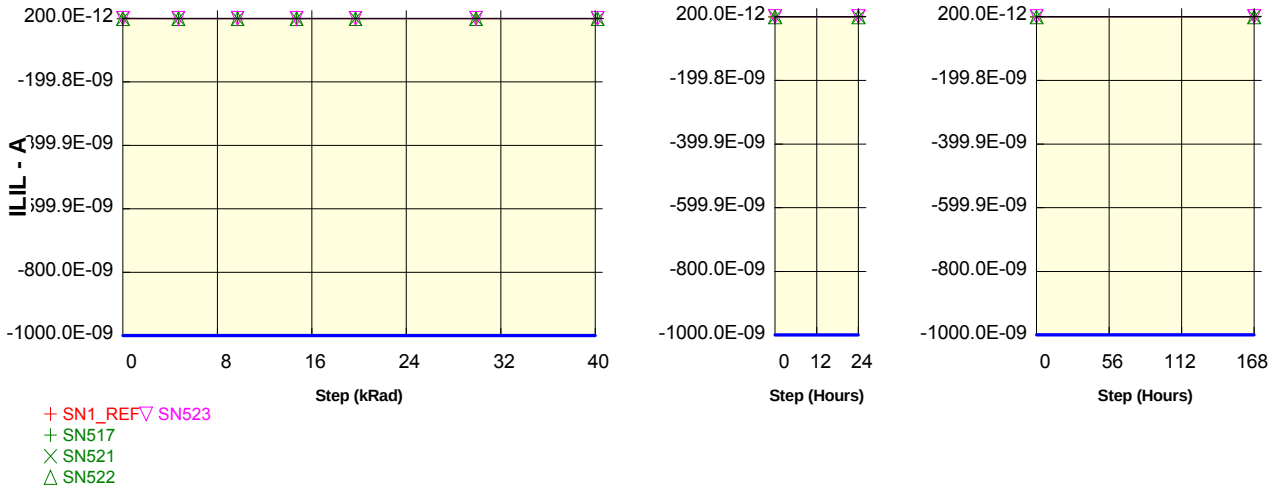
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA12
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	200.0E-12	50.0E-12	-50.0E-12	50.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00
ON samples									
SN517	-50.0E-12	50.0E-12	50.0E-12	100.0E-12	-50.0E-12	-50.0E-12	-150.0E-12	50.0E-12	-50.0E-12
SN521	0.0E+00	0.0E+00	50.0E-12	-50.0E-12	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00	100.0E-12
SN522	0.0E+00	-50.0E-12	0.0E+00	50.0E-12	50.0E-12	0.0E+00	50.0E-12	0.0E+00	50.0E-12
Statistics									
Min	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-150.0E-12	0.0E+00	-50.0E-12
Max	0.0E+00	50.0E-12	50.0E-12	100.0E-12	50.0E-12	0.0E+00	50.0E-12	50.0E-12	100.0E-12
Average	-16.7E-12	0.0E+00	33.3E-12	33.3E-12	-16.7E-12	-33.3E-12	-33.3E-12	16.7E-12	33.3E-12
Sigma	23.6E-12	40.8E-12	23.6E-12	62.4E-12	47.1E-12	23.6E-12	85.0E-12	23.6E-12	62.4E-12

ILILA12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	200.0E-12	50.0E-12	-50.0E-12	50.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00
OFF samples									
SN523	-50.0E-12	50.0E-12	0.0E+00	50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	200.0E-12	100.0E-12
Statistics									
Min	-50.0E-12	50.0E-12	0.0E+00	50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	200.0E-12	100.0E-12
Max	-50.0E-12	50.0E-12	0.0E+00	50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	200.0E-12	100.0E-12
Average	-50.0E-12	50.0E-12	0.0E+00	50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	200.0E-12	100.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

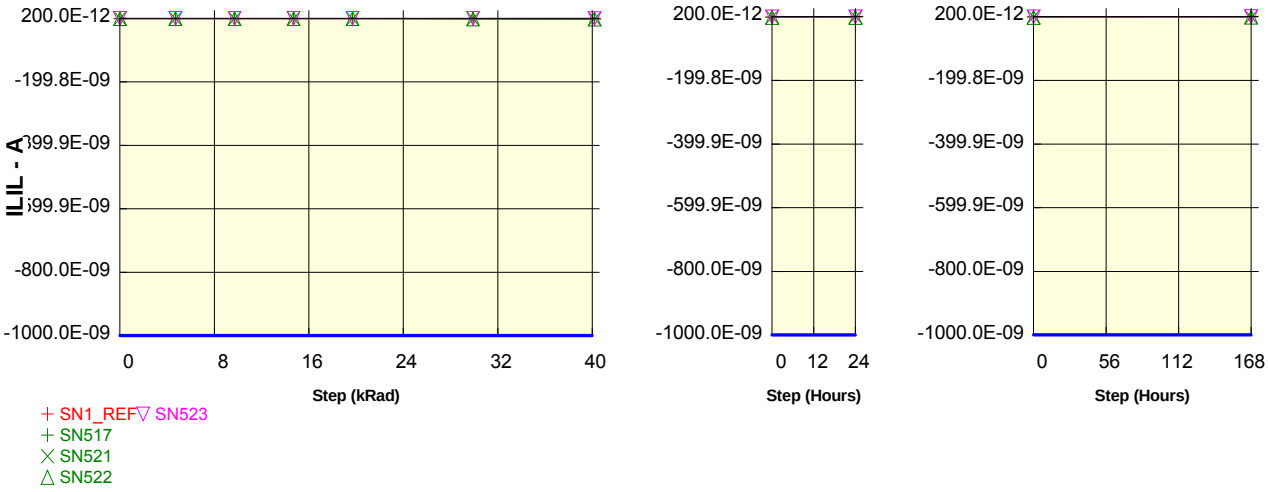
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA11
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00
ON samples									
SN517	-50.0E-12	0.0E+00	-150.0E-12	0.0E+00	-100.0E-12	-250.0E-12	-500.0E-12	-400.0E-12	0.0E+00
SN521	0.0E+00	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	-250.0E-12	-350.0E-12	-250.0E-12	-50.0E-12
SN522	50.0E-12	0.0E+00	-50.0E-12	-150.0E-12	-200.0E-12	-200.0E-12	-400.0E-12	-400.0E-12	-200.0E-12
Statistics									
Min	-50.0E-12	0.0E+00	-150.0E-12	-150.0E-12	-200.0E-12	-250.0E-12	-500.0E-12	-400.0E-12	-200.0E-12
Max	50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	-200.0E-12	-350.0E-12	-250.0E-12	0.0E+00
Average	0.0E+00	0.0E+00	-83.3E-12	-50.0E-12	-100.0E-12	-233.3E-12	-416.7E-12	-350.0E-12	-83.3E-12
Sigma	40.8E-12	0.0E+00	47.1E-12	70.7E-12	81.6E-12	23.6E-12	62.4E-12	70.7E-12	85.0E-12

ILILA11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00
OFF samples									
SN523	-100.0E-12	-50.0E-12	-150.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12
Statistics									
Min	-100.0E-12	-50.0E-12	-150.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12
Max	-100.0E-12	-50.0E-12	-150.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12
Average	-100.0E-12	-50.0E-12	-150.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

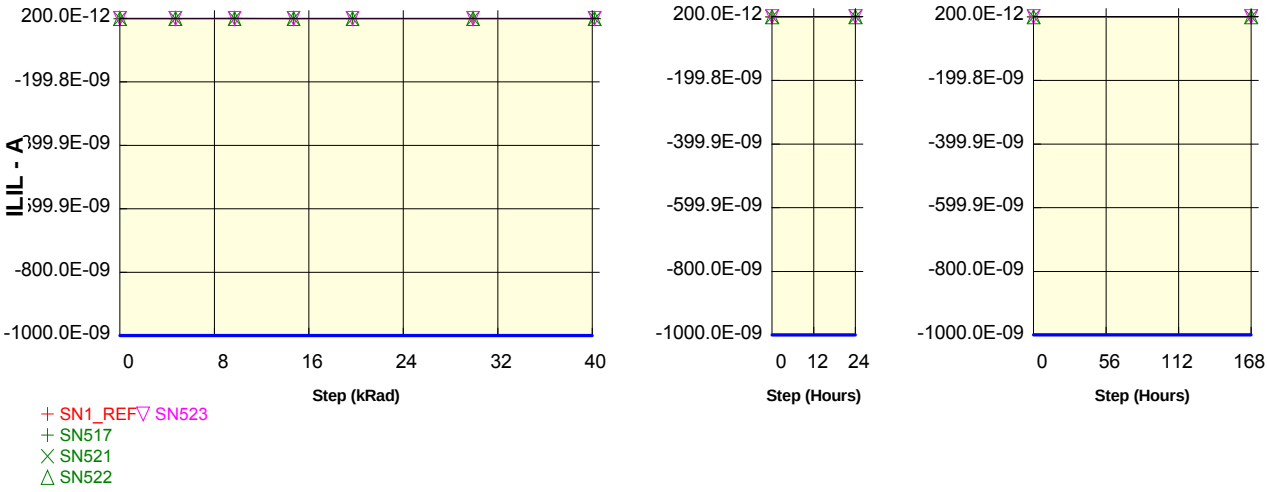
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA10
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-200.0E-12	-50.0E-12	-150.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	50.0E-12
ON samples									
SN517	0.0E+00	-250.0E-12	0.0E+00	-50.0E-12	-150.0E-12	-450.0E-12	-1.9E-09	-700.0E-12	-150.0E-12
SN521	0.0E+00	-200.0E-12	-250.0E-12	-200.0E-12	-300.0E-12	-1.0E-09	-850.0E-12	-400.0E-12	-800.0E-12
SN522	-200.0E-12	-200.0E-12	-350.0E-12	-400.0E-12	-450.0E-12	-1.2E-09	-1.7E-09	-1.7E-09	-650.0E-12
Statistics									
Min	-200.0E-12	-250.0E-12	-350.0E-12	-400.0E-12	-450.0E-12	-1.2E-09	-1.9E-09	-1.7E-09	-800.0E-12
Max	0.0E+00	-200.0E-12	0.0E+00	-50.0E-12	-150.0E-12	-450.0E-12	-850.0E-12	-400.0E-12	-150.0E-12
Average	-66.7E-12	-216.7E-12	-200.0E-12	-216.7E-12	-300.0E-12	-883.3E-12	-1.5E-09	-933.3E-12	-533.3E-12
Sigma	94.3E-12	23.6E-12	147.2E-12	143.4E-12	122.5E-12	317.1E-12	440.3E-12	555.8E-12	277.9E-12

ILILA10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-200.0E-12	-50.0E-12	-150.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	50.0E-12
OFF samples									
SN523	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	-150.0E-12	-100.0E-12	-500.0E-12	-250.0E-12	0.0E+00
Statistics									
Min	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	-150.0E-12	-100.0E-12	-500.0E-12	-250.0E-12	0.0E+00
Max	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	-150.0E-12	-100.0E-12	-500.0E-12	-250.0E-12	0.0E+00
Average	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	-150.0E-12	-100.0E-12	-500.0E-12	-250.0E-12	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

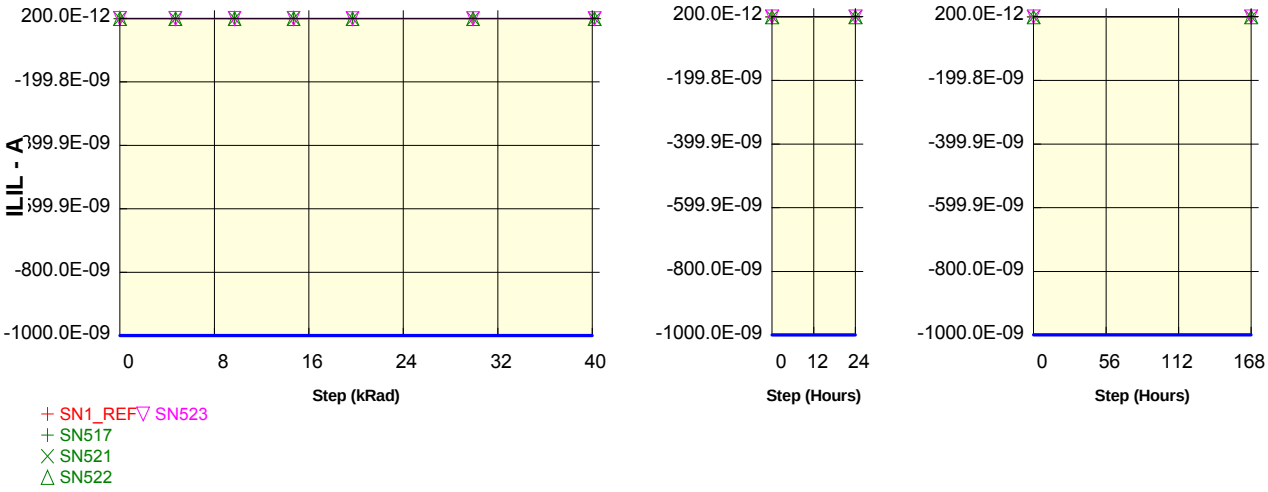
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA9
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00
ON samples									
SN517	0.0E+00	-50.0E-12	50.0E-12	0.0E+00	0.0E+00	-100.0E-12	-150.0E-12	0.0E+00	-50.0E-12
SN521	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-50.0E-12
SN522	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	-50.0E-12
Statistics									
Min	-50.0E-12	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-100.0E-12	-150.0E-12	-50.0E-12	-50.0E-12
Max	0.0E+00	0.0E+00	50.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-50.0E-12
Average	-16.7E-12	-16.7E-12	0.0E+00	0.0E+00	-16.7E-12	-33.3E-12	-50.0E-12	-16.7E-12	-50.0E-12
Sigma	23.6E-12	23.6E-12	40.8E-12	0.0E+00	23.6E-12	47.1E-12	70.7E-12	23.6E-12	0.0E+00

ILILA9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00
OFF samples									
SN523	-50.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00
Statistics									
Min	-50.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00
Max	-50.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00
Average	-50.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

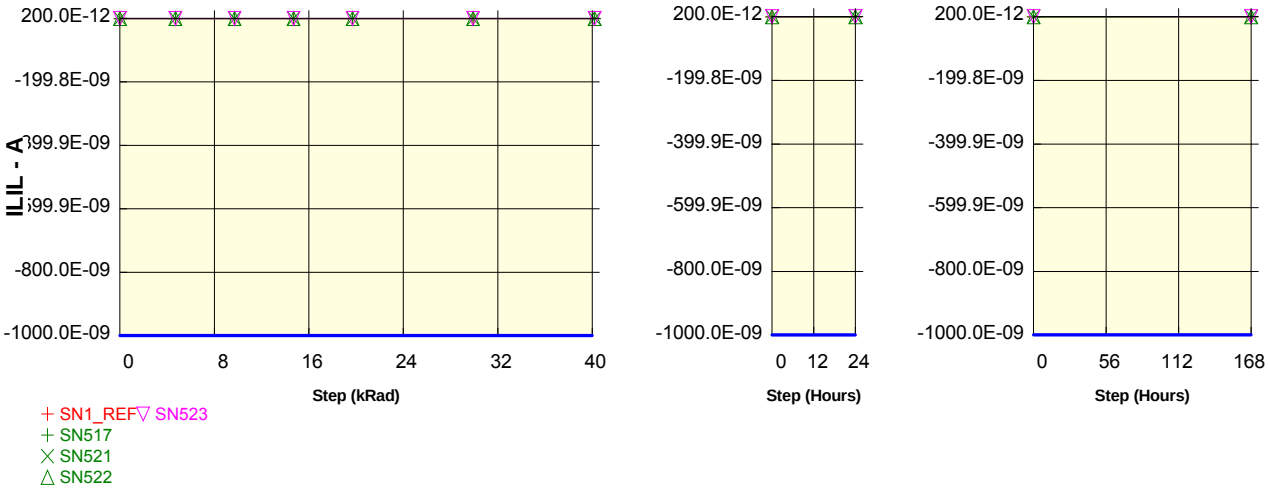
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA8
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-250.0E-12	-50.0E-12	-250.0E-12	-350.0E-12	-250.0E-12	-150.0E-12	0.0E+00	-50.0E-12
ON samples									
SN517	-150.0E-12	0.0E+00	-50.0E-12	-150.0E-12	-350.0E-12	-300.0E-12	-700.0E-12	-550.0E-12	-150.0E-12
SN521	-150.0E-12	-200.0E-12	0.0E+00	-150.0E-12	-150.0E-12	-450.0E-12	-550.0E-12	-450.0E-12	-250.0E-12
SN522	-50.0E-12	-200.0E-12	-100.0E-12	0.0E+00	-250.0E-12	-200.0E-12	-200.0E-12	-300.0E-12	-100.0E-12
Statistics									
Min	-150.0E-12	-200.0E-12	-100.0E-12	-150.0E-12	-350.0E-12	-450.0E-12	-700.0E-12	-550.0E-12	-250.0E-12
Max	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-200.0E-12	-200.0E-12	-300.0E-12	-100.0E-12
Average	-116.7E-12	-133.3E-12	-50.0E-12	-100.0E-12	-250.0E-12	-316.7E-12	-483.3E-12	-433.3E-12	-166.7E-12
Sigma	47.1E-12	94.3E-12	40.8E-12	70.7E-12	81.6E-12	102.7E-12	209.5E-12	102.7E-12	62.4E-12

ILILA8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-250.0E-12	-50.0E-12	-250.0E-12	-350.0E-12	-250.0E-12	-150.0E-12	0.0E+00	-50.0E-12
OFF samples									
SN523	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-250.0E-12	-200.0E-12	-500.0E-12	-400.0E-12	-250.0E-12
Statistics									
Min	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-250.0E-12	-200.0E-12	-500.0E-12	-400.0E-12	-250.0E-12
Max	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-250.0E-12	-200.0E-12	-500.0E-12	-400.0E-12	-250.0E-12
Average	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-250.0E-12	-200.0E-12	-500.0E-12	-400.0E-12	-250.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

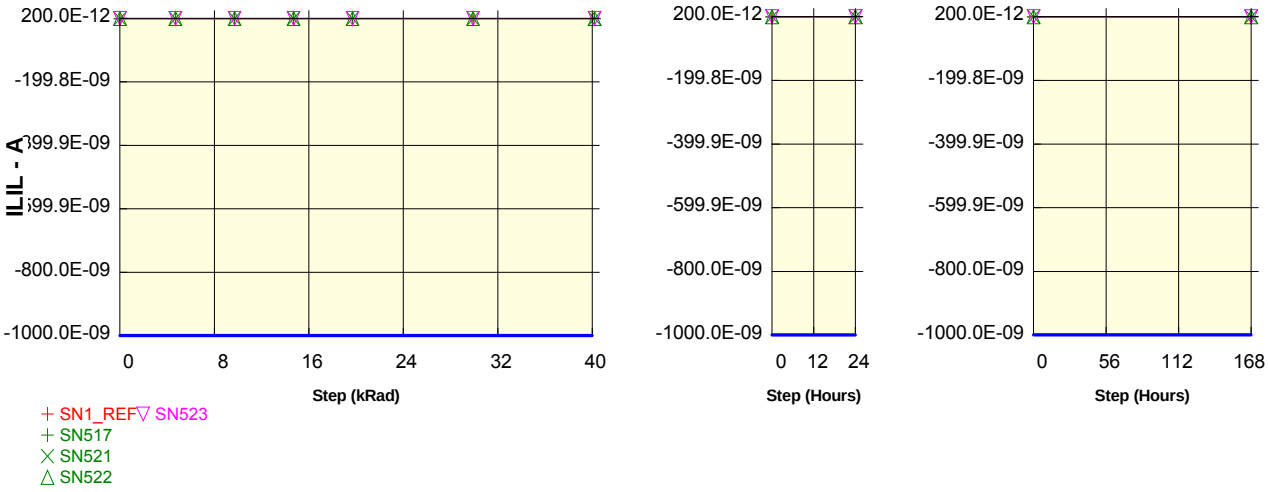
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA7
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-100.0E-12	-250.0E-12	0.0E+00	0.0E+00	-200.0E-12	-100.0E-12	-50.0E-12	-50.0E-12	0.0E+00
ON samples									
SN517	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-150.0E-12	-50.0E-12	-50.0E-12	-50.0E-12	0.0E+00
SN521	0.0E+00	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	-150.0E-12	-100.0E-12	-50.0E-12	-50.0E-12
SN522	-100.0E-12	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	-150.0E-12	-50.0E-12
Statistics									
Min	-100.0E-12	-50.0E-12	-50.0E-12	-50.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-150.0E-12	-50.0E-12
Max	0.0E+00	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	-50.0E-12	0.0E+00
Average	-33.3E-12	-16.7E-12	-50.0E-12	-16.7E-12	-83.3E-12	-66.7E-12	-50.0E-12	-83.3E-12	-33.3E-12
Sigma	47.1E-12	23.6E-12	0.0E+00	23.6E-12	47.1E-12	62.4E-12	40.8E-12	47.1E-12	23.6E-12

ILILA7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-100.0E-12	-250.0E-12	0.0E+00	0.0E+00	-200.0E-12	-100.0E-12	-50.0E-12	-50.0E-12	0.0E+00
OFF samples									
SN523	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	50.0E-12	0.0E+00
Statistics									
Min	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	50.0E-12	0.0E+00
Max	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	50.0E-12	0.0E+00
Average	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	50.0E-12	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

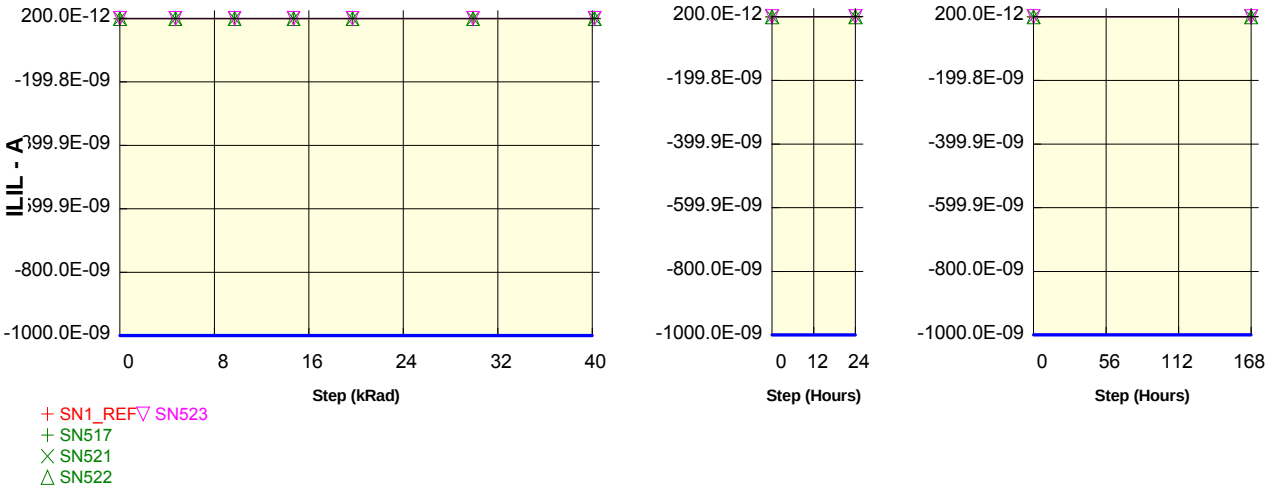
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA6
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ON samples									
SN517	-100.0E-12	0.0E+00	-100.0E-12	-50.0E-12	0.0E+00	0.0E+00	-100.0E-12	-50.0E-12	0.0E+00
SN521	-200.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	0.0E+00	-100.0E-12	-50.0E-12
SN522	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-100.0E-12	-100.0E-12	-150.0E-12	-50.0E-12	0.0E+00
Statistics									
Min	-200.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-50.0E-12
Max	-100.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	0.0E+00
Average	-150.0E-12	-16.7E-12	-33.3E-12	-16.7E-12	-33.3E-12	-83.3E-12	-83.3E-12	-66.7E-12	-16.7E-12
Sigma	40.8E-12	23.6E-12	47.1E-12	23.6E-12	47.1E-12	62.4E-12	62.4E-12	23.6E-12	23.6E-12

ILILA6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-100.0E-12	0.0E+00	0.0E+00	-150.0E-12	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00
OFF samples									
SN523	0.0E+00	-100.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	0.0E+00	-50.0E-12
Statistics									
Min	0.0E+00	-100.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	0.0E+00	-50.0E-12
Max	0.0E+00	-100.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	0.0E+00	-50.0E-12
Average	0.0E+00	-100.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	0.0E+00	-50.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

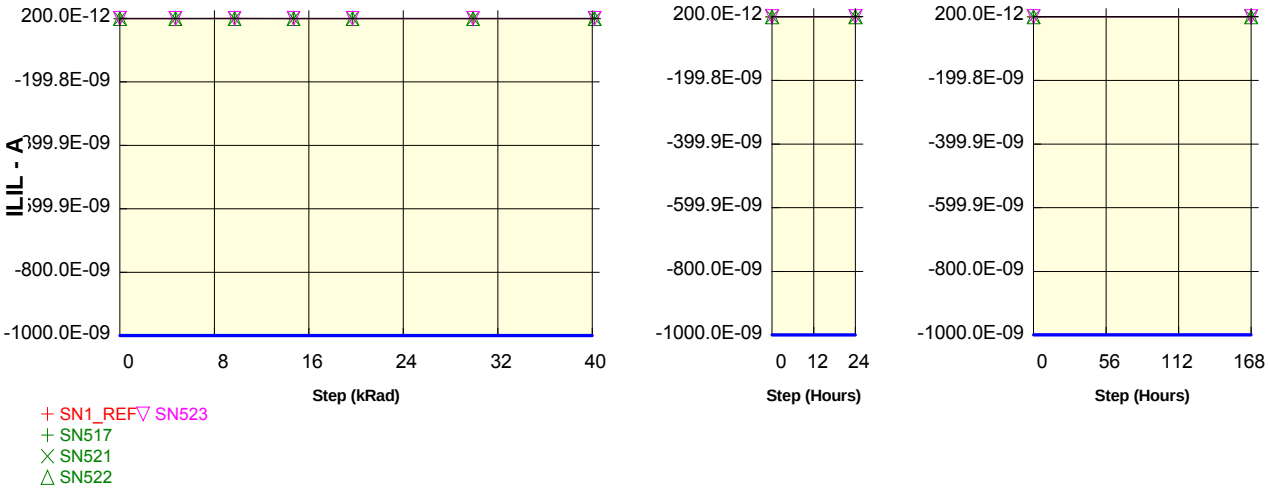
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA5
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	0.0E+00	-50.0E-12	-100.0E-12	-200.0E-12	-250.0E-12	-150.0E-12	0.0E+00	0.0E+00
ON samples									
SN517	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-100.0E-12	0.0E+00	-150.0E-12	-50.0E-12	0.0E+00
SN521	-100.0E-12	-100.0E-12	0.0E+00	0.0E+00	-50.0E-12	-150.0E-12	-150.0E-12	0.0E+00	-50.0E-12
SN522	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-50.0E-12	-150.0E-12	0.0E+00	-100.0E-12	-150.0E-12
Statistics									
Min	-150.0E-12	-100.0E-12	0.0E+00	-50.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-150.0E-12
Max	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Average	-83.3E-12	-50.0E-12	0.0E+00	-16.7E-12	-66.7E-12	-100.0E-12	-100.0E-12	-50.0E-12	-66.7E-12
Sigma	62.4E-12	40.8E-12	0.0E+00	23.6E-12	23.6E-12	70.7E-12	70.7E-12	40.8E-12	62.4E-12

ILILA5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	0.0E+00	-50.0E-12	-100.0E-12	-200.0E-12	-250.0E-12	-150.0E-12	0.0E+00	0.0E+00
OFF samples									
SN523	-150.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-100.0E-12	0.0E+00
Statistics									
Min	-150.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-100.0E-12	0.0E+00
Max	-150.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-100.0E-12	0.0E+00
Average	-150.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-100.0E-12	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

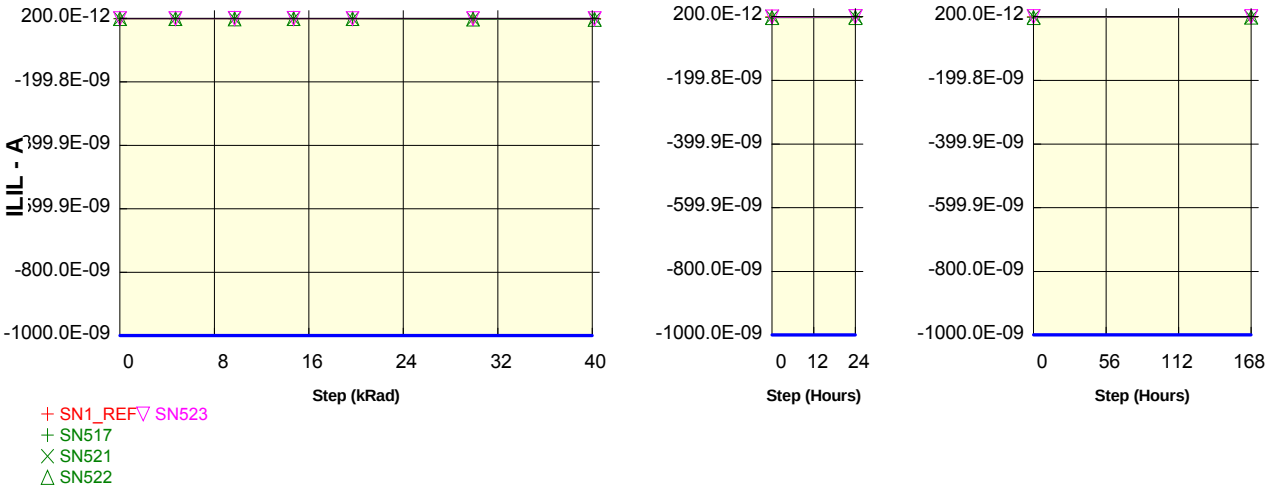
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA4
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-150.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00
ON samples									
SN517	-50.0E-12	0.0E+00	0.0E+00	-50.0E-12	-100.0E-12	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12
SN521	0.0E+00	-50.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	-50.0E-12
SN522	0.0E+00	-50.0E-12	-100.0E-12	-100.0E-12	-50.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	0.0E+00
Statistics									
Min	-50.0E-12	-50.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-50.0E-12	-100.0E-12	-50.0E-12	-50.0E-12
Max	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	-50.0E-12	0.0E+00
Average	-16.7E-12	-33.3E-12	-33.3E-12	-66.7E-12	-50.0E-12	-16.7E-12	-50.0E-12	-50.0E-12	-33.3E-12
Sigma	23.6E-12	23.6E-12	47.1E-12	23.6E-12	40.8E-12	23.6E-12	40.8E-12	0.0E+00	23.6E-12

ILILA4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-150.0E-12	0.0E+00	-50.0E-12	0.0E+00	0.0E+00
OFF samples									
SN523	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-100.0E-12	0.0E+00	0.0E+00
Statistics									
Min	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-100.0E-12	0.0E+00	0.0E+00
Max	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-100.0E-12	0.0E+00	0.0E+00
Average	-150.0E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-100.0E-12	0.0E+00	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

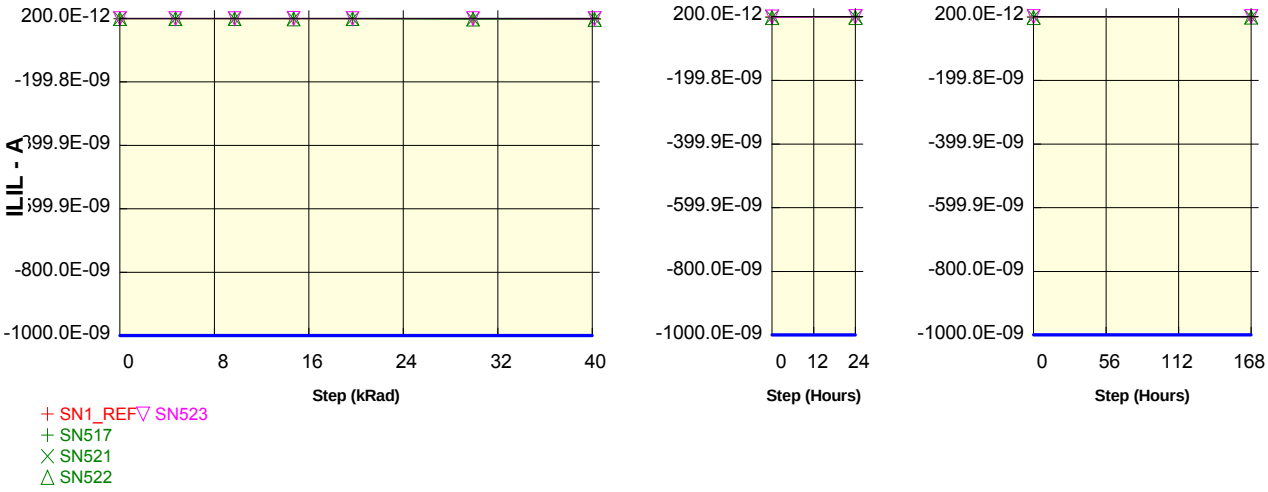
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA3
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-300.0E-12	0.0E+00	-250.0E-12	-200.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-150.0E-12
ON samples									
SN517	-150.0E-12	-400.0E-12	0.0E+00	-50.0E-12	-100.0E-12	-950.0E-12	-2.2E-09	-1.3E-09	0.0E+00
SN521	-250.0E-12	-350.0E-12	-300.0E-12	-450.0E-12	-450.0E-12	-1.4E-09	-900.0E-12	-50.0E-12	-1.1E-09
SN522	-450.0E-12	-500.0E-12	-650.0E-12	-600.0E-12	-600.0E-12	-1.8E-09	-2.6E-09	-2.7E-09	-1.0E-09
Statistics									
Min	-450.0E-12	-500.0E-12	-650.0E-12	-600.0E-12	-600.0E-12	-1.8E-09	-2.6E-09	-2.7E-09	-1.1E-09
Max	-150.0E-12	-350.0E-12	0.0E+00	-50.0E-12	-100.0E-12	-950.0E-12	-900.0E-12	-50.0E-12	0.0E+00
Average	-283.3E-12	-416.7E-12	-316.7E-12	-366.7E-12	-383.3E-12	-1.4E-09	-1.9E-09	-1.3E-09	-683.3E-12
Sigma	124.7E-12	62.4E-12	265.6E-12	232.1E-12	209.5E-12	327.4E-12	725.7E-12	1.1E-09	483.6E-12

ILILA3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-300.0E-12	0.0E+00	-250.0E-12	-200.0E-12	-150.0E-12	0.0E+00	-50.0E-12	-150.0E-12
OFF samples									
SN523	-300.0E-12	-350.0E-12	-100.0E-12	-150.0E-12	-450.0E-12	-600.0E-12	-1.0E-09	0.0E+00	-100.0E-12
Statistics									
Min	-300.0E-12	-350.0E-12	-100.0E-12	-150.0E-12	-450.0E-12	-600.0E-12	-1.0E-09	0.0E+00	-100.0E-12
Max	-300.0E-12	-350.0E-12	-100.0E-12	-150.0E-12	-450.0E-12	-600.0E-12	-1.0E-09	0.0E+00	-100.0E-12
Average	-300.0E-12	-350.0E-12	-100.0E-12	-150.0E-12	-450.0E-12	-600.0E-12	-1.0E-09	0.0E+00	-100.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

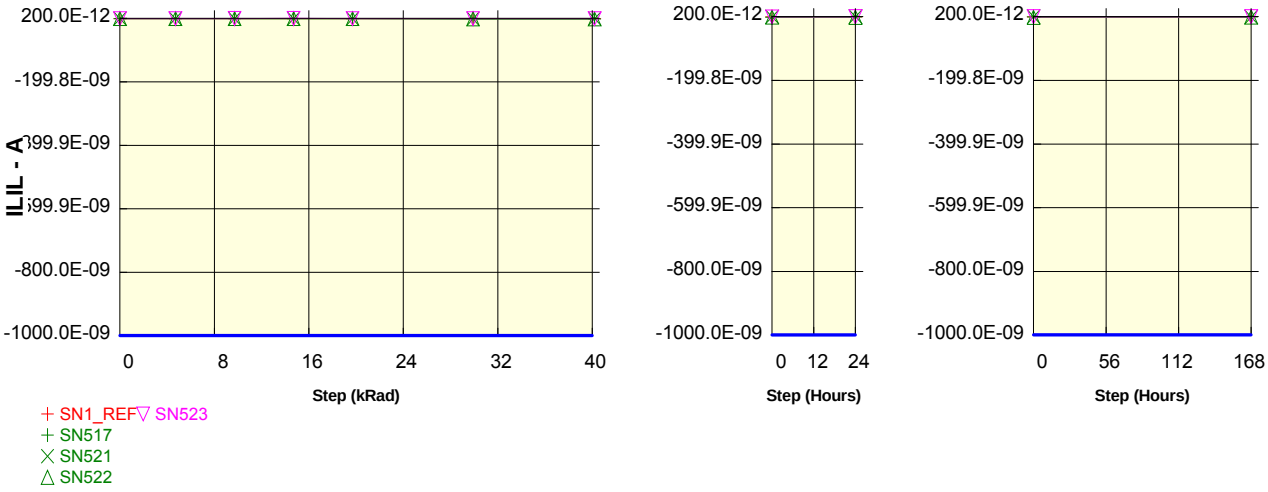
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA2
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-300.0E-12	0.0E+00	-200.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00
ON samples									
SN517	-150.0E-12	-350.0E-12	0.0E+00	-50.0E-12	0.0E+00	-850.0E-12	-2.2E-09	-1.2E-09	-50.0E-12
SN521	-150.0E-12	-250.0E-12	-250.0E-12	-400.0E-12	-450.0E-12	-1.4E-09	-900.0E-12	0.0E+00	-1.0E-09
SN522	-400.0E-12	-500.0E-12	-600.0E-12	-650.0E-12	-450.0E-12	-1.7E-09	-2.5E-09	-2.5E-09	-1.1E-09
Statistics									
Min	-400.0E-12	-500.0E-12	-600.0E-12	-650.0E-12	-450.0E-12	-1.7E-09	-2.5E-09	-2.5E-09	-1.1E-09
Max	-150.0E-12	-250.0E-12	0.0E+00	-50.0E-12	0.0E+00	-850.0E-12	-900.0E-12	0.0E+00	-50.0E-12
Average	-233.3E-12	-366.7E-12	-283.3E-12	-366.7E-12	-300.0E-12	-1.3E-09	-1.9E-09	-1.2E-09	-700.0E-12
Sigma	117.9E-12	102.7E-12	246.1E-12	246.1E-12	212.1E-12	348.8E-12	686.8E-12	1.0E-09	460.1E-12

ILILA2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-200.0E-12	-300.0E-12	0.0E+00	-200.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00
OFF samples									
SN523	-250.0E-12	-250.0E-12	-250.0E-12	-50.0E-12	-350.0E-12	-400.0E-12	-1.0E-09	-150.0E-12	-50.0E-12
Statistics									
Min	-250.0E-12	-250.0E-12	-250.0E-12	-50.0E-12	-350.0E-12	-400.0E-12	-1.0E-09	-150.0E-12	-50.0E-12
Max	-250.0E-12	-250.0E-12	-250.0E-12	-50.0E-12	-350.0E-12	-400.0E-12	-1.0E-09	-150.0E-12	-50.0E-12
Average	-250.0E-12	-250.0E-12	-250.0E-12	-50.0E-12	-350.0E-12	-400.0E-12	-1.0E-09	-150.0E-12	-50.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

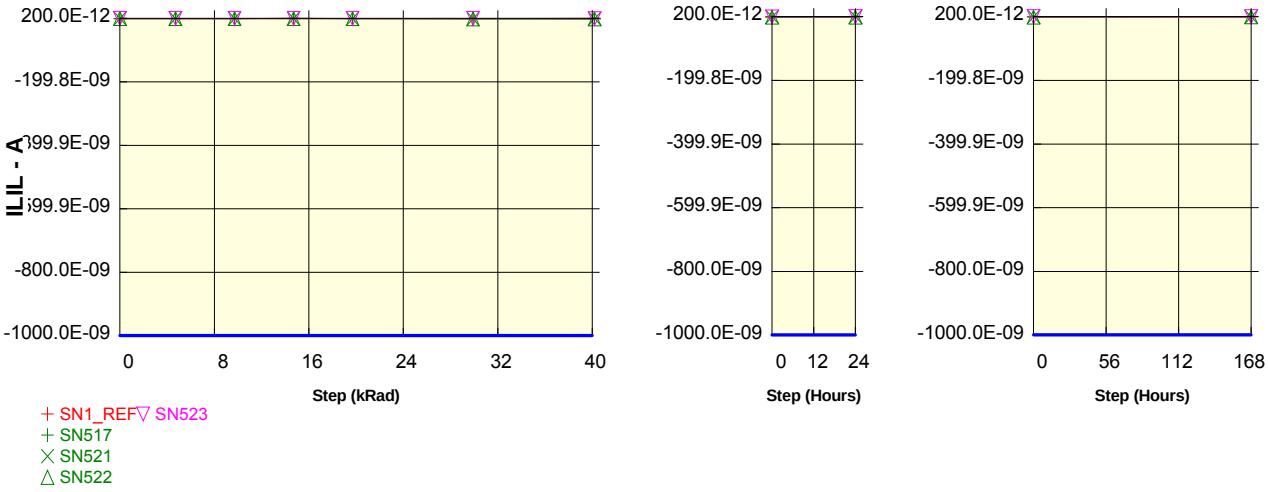
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA1
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-250.0E-12	-250.0E-12	-50.0E-12	-250.0E-12	-200.0E-12	-100.0E-12	-150.0E-12	-50.0E-12	50.0E-12
ON samples									
SN517	-50.0E-12	-200.0E-12	0.0E+00	0.0E+00	-250.0E-12	-450.0E-12	-1.7E-09	-600.0E-12	0.0E+00
SN521	-250.0E-12	-200.0E-12	-250.0E-12	-200.0E-12	-250.0E-12	-900.0E-12	-400.0E-12	-150.0E-12	-850.0E-12
SN522	-350.0E-12	-250.0E-12	-450.0E-12	-400.0E-12	-450.0E-12	-1.0E-09	-1.5E-09	-1.6E-09	-650.0E-12
Statistics									
Min	-350.0E-12	-250.0E-12	-450.0E-12	-400.0E-12	-450.0E-12	-1.0E-09	-1.7E-09	-1.6E-09	-850.0E-12
Max	-50.0E-12	-200.0E-12	0.0E+00	0.0E+00	-250.0E-12	-450.0E-12	-400.0E-12	-150.0E-12	0.0E+00
Average	-216.7E-12	-216.7E-12	-233.3E-12	-200.0E-12	-316.7E-12	-783.3E-12	-1.2E-09	-766.7E-12	-500.0E-12
Sigma	124.7E-12	23.6E-12	184.1E-12	163.3E-12	94.3E-12	239.2E-12	557.3E-12	583.6E-12	362.9E-12

ILILA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-250.0E-12	-250.0E-12	-50.0E-12	-250.0E-12	-200.0E-12	-100.0E-12	-150.0E-12	-50.0E-12	50.0E-12
OFF samples									
SN523	-200.0E-12	-200.0E-12	-100.0E-12	50.0E-12	-250.0E-12	-250.0E-12	-550.0E-12	0.0E+00	0.0E+00
Statistics									
Min	-200.0E-12	-200.0E-12	-100.0E-12	50.0E-12	-250.0E-12	-250.0E-12	-550.0E-12	0.0E+00	0.0E+00
Max	-200.0E-12	-200.0E-12	-100.0E-12	50.0E-12	-250.0E-12	-250.0E-12	-550.0E-12	0.0E+00	0.0E+00
Average	-200.0E-12	-200.0E-12	-100.0E-12	50.0E-12	-250.0E-12	-250.0E-12	-550.0E-12	0.0E+00	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

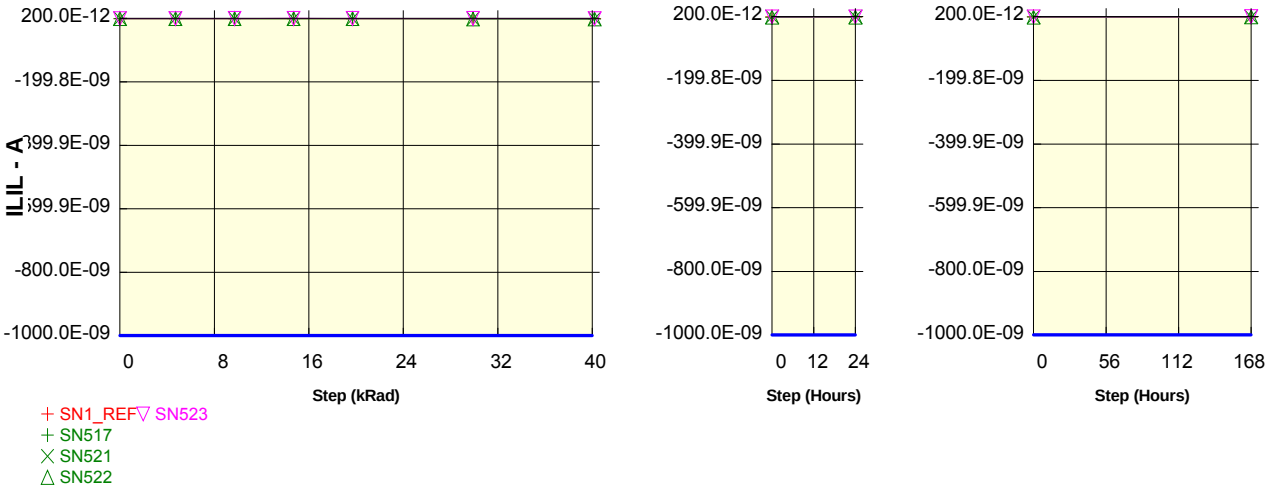
Test conditions : TID
Parameter : Input Leakage Current Low : ILILA0
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	50.0E-12	0.0E+00	0.0E+00
ON samples									
SN517	-50.0E-12	-150.0E-12	0.0E+00	50.0E-12	0.0E+00	-350.0E-12	-1.3E-09	-450.0E-12	100.0E-12
SN521	0.0E+00	0.0E+00	0.0E+00	-100.0E-12	-200.0E-12	-700.0E-12	-250.0E-12	0.0E+00	-550.0E-12
SN522	-150.0E-12	-200.0E-12	-250.0E-12	-200.0E-12	-250.0E-12	-900.0E-12	-1.1E-09	-1.3E-09	-450.0E-12
Statistics									
Min	-150.0E-12	-200.0E-12	-250.0E-12	-200.0E-12	-250.0E-12	-900.0E-12	-1.3E-09	-1.3E-09	-550.0E-12
Max	0.0E+00	0.0E+00	0.0E+00	50.0E-12	0.0E+00	-350.0E-12	-250.0E-12	0.0E+00	100.0E-12
Average	-66.7E-12	-116.7E-12	-83.3E-12	-83.3E-12	-150.0E-12	-650.0E-12	-866.7E-12	-566.7E-12	-300.0E-12
Sigma	62.4E-12	85.0E-12	117.9E-12	102.7E-12	108.0E-12	227.3E-12	447.8E-12	516.9E-12	285.8E-12

ILILA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-50.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	50.0E-12	0.0E+00	0.0E+00
OFF samples									
SN523	-100.0E-12	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-50.0E-12	-250.0E-12	0.0E+00	0.0E+00
Statistics									
Min	-100.0E-12	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-50.0E-12	-250.0E-12	0.0E+00	0.0E+00
Max	-100.0E-12	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-50.0E-12	-250.0E-12	0.0E+00	0.0E+00
Average	-100.0E-12	0.0E+00	-150.0E-12	50.0E-12	0.0E+00	-50.0E-12	-250.0E-12	0.0E+00	0.0E+00
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

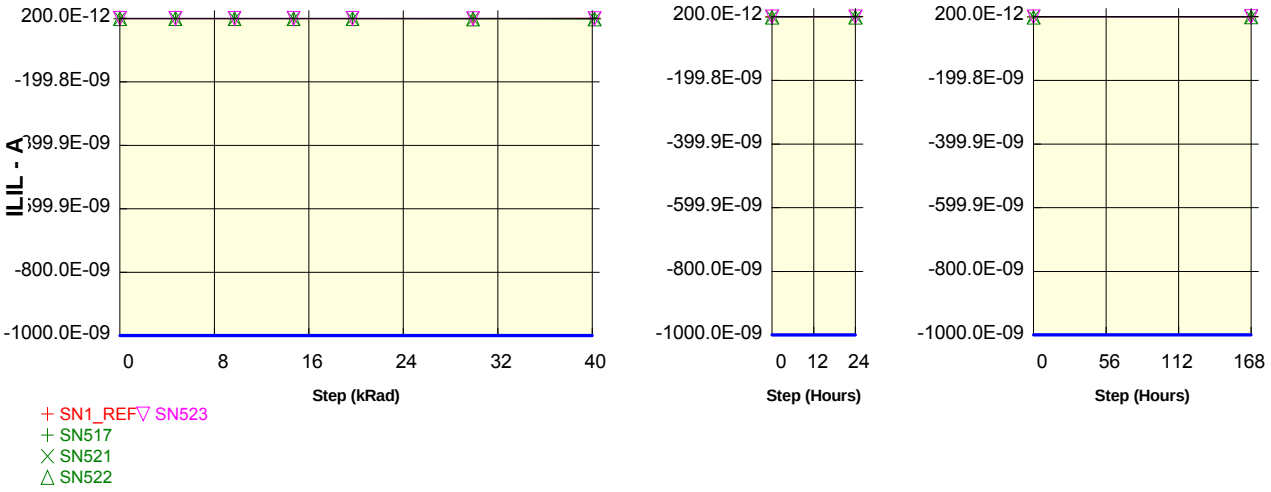
Test conditions : TID
Parameter : Input Leakage Current Low : ILILBA1
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILBA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-250.0E-12	-150.0E-12	0.0E+00	-150.0E-12	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-50.0E-12
ON samples									
SN517	0.0E+00	-250.0E-12	-50.0E-12	0.0E+00	0.0E+00	-500.0E-12	-1.7E-09	-650.0E-12	-150.0E-12
SN521	0.0E+00	-50.0E-12	0.0E+00	-250.0E-12	-250.0E-12	-700.0E-12	-550.0E-12	-250.0E-12	-600.0E-12
SN522	-250.0E-12	-250.0E-12	-250.0E-12	-250.0E-12	-300.0E-12	-1.1E-09	-1.4E-09	-1.4E-09	-450.0E-12
Statistics									
Min	-250.0E-12	-250.0E-12	-250.0E-12	-250.0E-12	-300.0E-12	-1.1E-09	-1.7E-09	-1.4E-09	-600.0E-12
Max	0.0E+00	-50.0E-12	0.0E+00	0.0E+00	0.0E+00	-500.0E-12	-550.0E-12	-250.0E-12	-150.0E-12
Average	-83.3E-12	-183.3E-12	-100.0E-12	-166.7E-12	-183.3E-12	-750.0E-12	-1.2E-09	-766.7E-12	-400.0E-12
Sigma	117.9E-12	94.3E-12	108.0E-12	117.9E-12	131.2E-12	227.3E-12	464.3E-12	476.7E-12	187.1E-12

ILILBA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-250.0E-12	-150.0E-12	0.0E+00	-150.0E-12	0.0E+00	-50.0E-12	-50.0E-12	-50.0E-12	-50.0E-12
OFF samples									
SN523	-250.0E-12	-250.0E-12	0.0E+00	50.0E-12	0.0E+00	0.0E+00	-400.0E-12	-250.0E-12	-150.0E-12
Statistics									
Min	-250.0E-12	-250.0E-12	0.0E+00	50.0E-12	0.0E+00	0.0E+00	-400.0E-12	-250.0E-12	-150.0E-12
Max	-250.0E-12	-250.0E-12	0.0E+00	50.0E-12	0.0E+00	0.0E+00	-400.0E-12	-250.0E-12	-150.0E-12
Average	-250.0E-12	-250.0E-12	0.0E+00	50.0E-12	0.0E+00	0.0E+00	-400.0E-12	-250.0E-12	-150.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

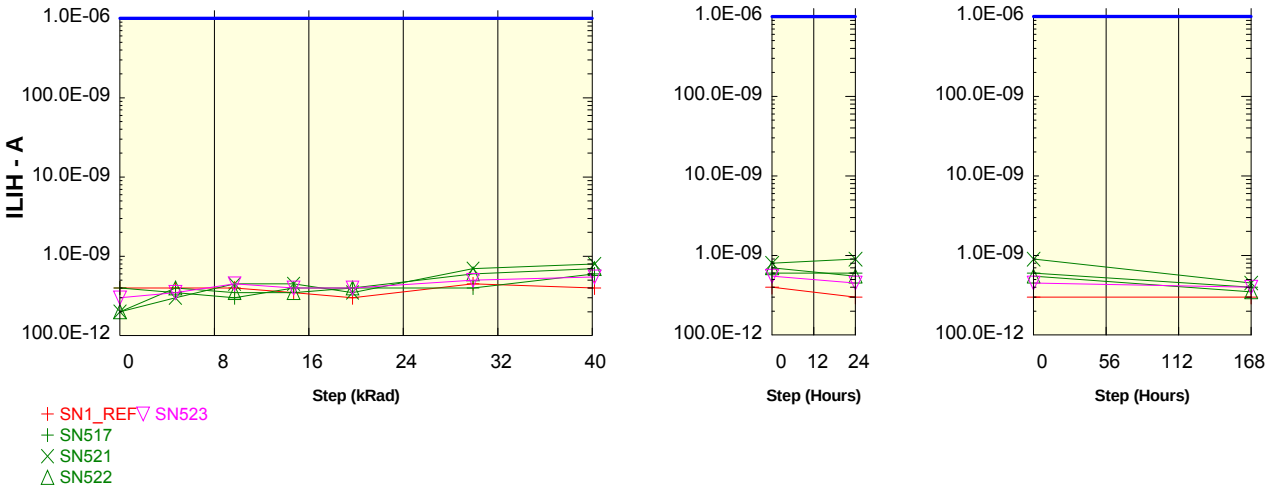
Test conditions : TID
Parameter : Input Leakage Current Low : ILILBA0
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Min : -1.0E-06
Spec limits are represented in bold lines on the graphic.



ILILBA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12	50.0E-12	0.0E+00	-50.0E-12
ON samples									
SN517	0.0E+00	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-350.0E-12	-1.6E-09	-600.0E-12	-100.0E-12
SN521	0.0E+00	-50.0E-12	-100.0E-12	-200.0E-12	-200.0E-12	-900.0E-12	-600.0E-12	-450.0E-12	-600.0E-12
SN522	-150.0E-12	-100.0E-12	-200.0E-12	-200.0E-12	-350.0E-12	-750.0E-12	-1.2E-09	-1.3E-09	-400.0E-12
Statistics									
Min	-150.0E-12	-150.0E-12	-200.0E-12	-200.0E-12	-350.0E-12	-900.0E-12	-1.6E-09	-1.3E-09	-600.0E-12
Max	0.0E+00	-50.0E-12	-50.0E-12	0.0E+00	0.0E+00	-350.0E-12	-600.0E-12	-450.0E-12	-100.0E-12
Average	-50.0E-12	-100.0E-12	-116.7E-12	-133.3E-12	-183.3E-12	-666.7E-12	-1.1E-09	-766.7E-12	-366.7E-12
Sigma	70.7E-12	40.8E-12	62.4E-12	94.3E-12	143.4E-12	232.1E-12	389.4E-12	347.2E-12	205.5E-12

ILILBA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	0.0E+00	0.0E+00	0.0E+00	-150.0E-12	-50.0E-12	-50.0E-12	50.0E-12	0.0E+00	-50.0E-12
OFF samples									
SN523	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-200.0E-12	-450.0E-12	-250.0E-12	-150.0E-12
Statistics									
Min	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-200.0E-12	-450.0E-12	-250.0E-12	-150.0E-12
Max	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-200.0E-12	-450.0E-12	-250.0E-12	-150.0E-12
Average	-150.0E-12	-150.0E-12	-50.0E-12	0.0E+00	0.0E+00	-200.0E-12	-450.0E-12	-250.0E-12	-150.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

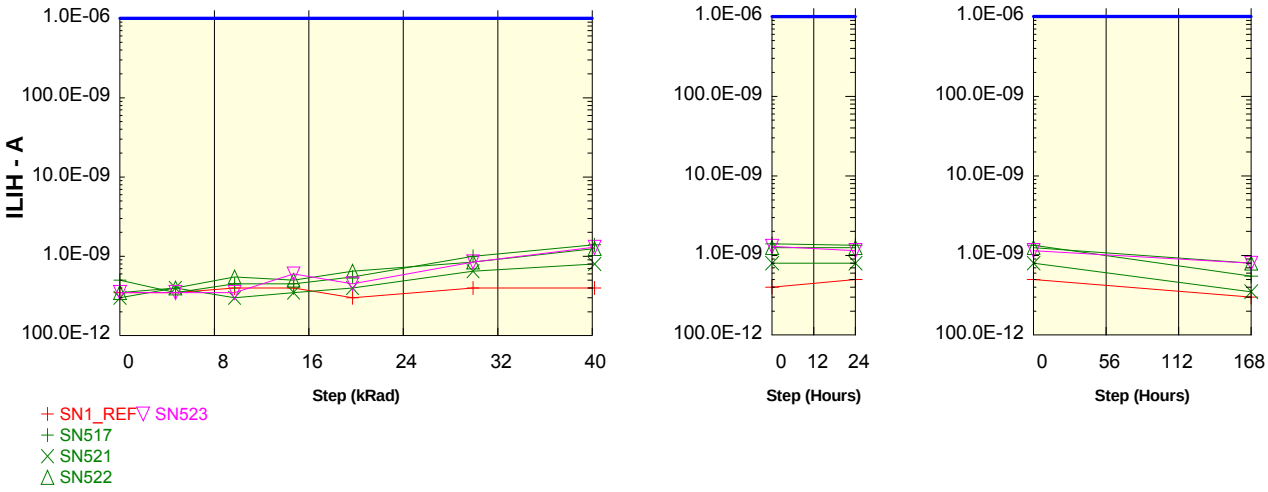
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA12
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	400.0E-12	400.0E-12	350.0E-12	300.0E-12	450.0E-12	400.0E-12	300.0E-12	300.0E-12
ON samples									
SN517	400.0E-12	350.0E-12	300.0E-12	400.0E-12	400.0E-12	400.0E-12	600.0E-12	600.0E-12	400.0E-12
SN521	200.0E-12	300.0E-12	450.0E-12	450.0E-12	350.0E-12	700.0E-12	800.0E-12	900.0E-12	450.0E-12
SN522	200.0E-12	400.0E-12	350.0E-12	350.0E-12	400.0E-12	600.0E-12	700.0E-12	550.0E-12	350.0E-12
Statistics									
Min	200.0E-12	300.0E-12	300.0E-12	350.0E-12	350.0E-12	400.0E-12	600.0E-12	550.0E-12	350.0E-12
Max	400.0E-12	400.0E-12	450.0E-12	450.0E-12	400.0E-12	700.0E-12	800.0E-12	900.0E-12	450.0E-12
Average	266.7E-12	350.0E-12	366.7E-12	400.0E-12	383.3E-12	566.7E-12	700.0E-12	683.3E-12	400.0E-12
Sigma	94.3E-12	40.8E-12	62.4E-12	40.8E-12	23.6E-12	124.7E-12	81.6E-12	154.6E-12	40.8E-12

ILIHA12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	400.0E-12	400.0E-12	350.0E-12	300.0E-12	450.0E-12	400.0E-12	300.0E-12	300.0E-12
OFF samples									
SN523	300.0E-12	350.0E-12	450.0E-12	400.0E-12	400.0E-12	500.0E-12	550.0E-12	450.0E-12	400.0E-12
Statistics									
Min	300.0E-12	350.0E-12	450.0E-12	400.0E-12	400.0E-12	500.0E-12	550.0E-12	450.0E-12	400.0E-12
Max	300.0E-12	350.0E-12	450.0E-12	400.0E-12	400.0E-12	500.0E-12	550.0E-12	450.0E-12	400.0E-12
Average	300.0E-12	350.0E-12	450.0E-12	400.0E-12	400.0E-12	500.0E-12	550.0E-12	450.0E-12	400.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

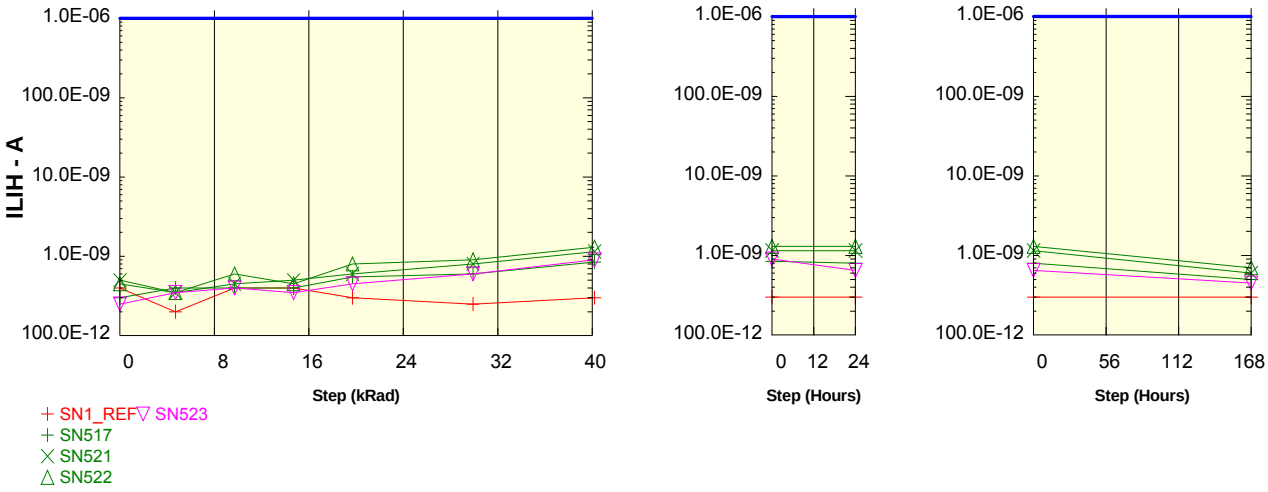
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA11
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	350.0E-12	350.0E-12	400.0E-12	400.0E-12	300.0E-12	400.0E-12	400.0E-12	500.0E-12	300.0E-12
ON samples									
SN517	500.0E-12	350.0E-12	450.0E-12	450.0E-12	550.0E-12	1.0E-09	1.4E-09	1.4E-09	550.0E-12
SN521	300.0E-12	400.0E-12	300.0E-12	350.0E-12	400.0E-12	650.0E-12	800.0E-12	800.0E-12	350.0E-12
SN522	350.0E-12	400.0E-12	550.0E-12	500.0E-12	650.0E-12	850.0E-12	1.3E-09	1.3E-09	800.0E-12
Statistics									
Min	300.0E-12	350.0E-12	300.0E-12	350.0E-12	400.0E-12	650.0E-12	800.0E-12	800.0E-12	350.0E-12
Max	500.0E-12	400.0E-12	550.0E-12	500.0E-12	650.0E-12	1.0E-09	1.4E-09	1.4E-09	800.0E-12
Average	383.3E-12	383.3E-12	433.3E-12	433.3E-12	533.3E-12	833.3E-12	1.2E-09	1.1E-09	566.7E-12
Sigma	85.0E-12	23.6E-12	102.7E-12	62.4E-12	102.7E-12	143.4E-12	255.0E-12	239.2E-12	184.1E-12

ILIHA11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	350.0E-12	350.0E-12	400.0E-12	400.0E-12	300.0E-12	400.0E-12	400.0E-12	500.0E-12	300.0E-12
OFF samples									
SN523	350.0E-12	350.0E-12	350.0E-12	600.0E-12	450.0E-12	850.0E-12	1.3E-09	1.2E-09	800.0E-12
Statistics									
Min	350.0E-12	350.0E-12	350.0E-12	600.0E-12	450.0E-12	850.0E-12	1.3E-09	1.2E-09	800.0E-12
Max	350.0E-12	350.0E-12	350.0E-12	600.0E-12	450.0E-12	850.0E-12	1.3E-09	1.2E-09	800.0E-12
Average	350.0E-12	350.0E-12	350.0E-12	600.0E-12	450.0E-12	850.0E-12	1.3E-09	1.2E-09	800.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

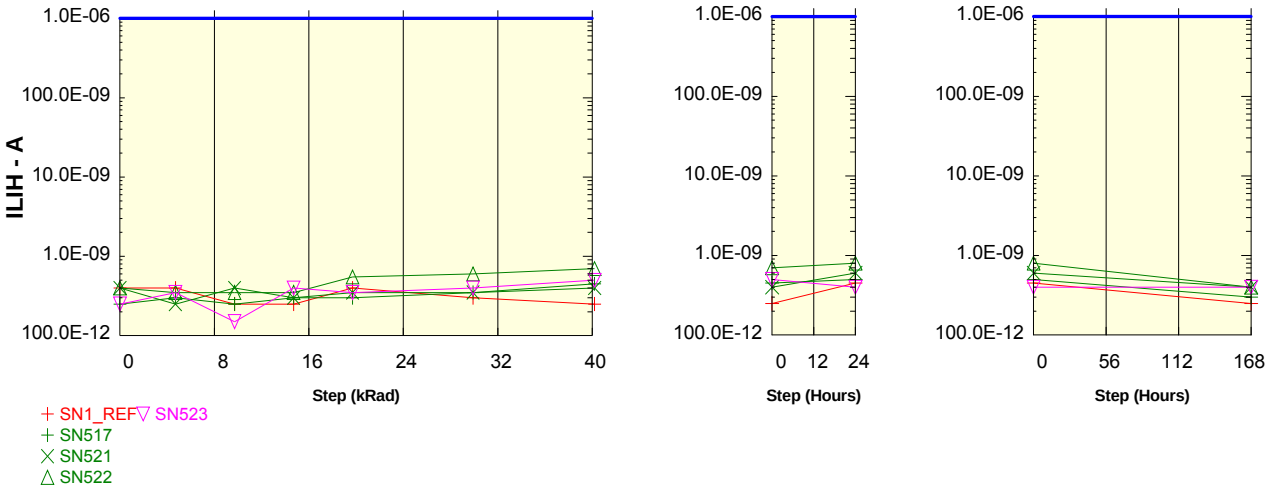
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA10
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	200.0E-12	400.0E-12	400.0E-12	300.0E-12	250.0E-12	300.0E-12	300.0E-12	300.0E-12
ON samples									
SN517	300.0E-12	400.0E-12	400.0E-12	400.0E-12	550.0E-12	600.0E-12	850.0E-12	800.0E-12	500.0E-12
SN521	500.0E-12	350.0E-12	450.0E-12	500.0E-12	600.0E-12	800.0E-12	1.2E-09	1.2E-09	600.0E-12
SN522	450.0E-12	350.0E-12	600.0E-12	450.0E-12	800.0E-12	900.0E-12	1.3E-09	1.3E-09	700.0E-12
Statistics									
Min	300.0E-12	350.0E-12	400.0E-12	400.0E-12	550.0E-12	600.0E-12	850.0E-12	800.0E-12	500.0E-12
Max	500.0E-12	400.0E-12	600.0E-12	500.0E-12	800.0E-12	900.0E-12	1.3E-09	1.3E-09	700.0E-12
Average	416.7E-12	366.7E-12	483.3E-12	450.0E-12	650.0E-12	766.7E-12	1.1E-09	1.1E-09	600.0E-12
Sigma	85.0E-12	23.6E-12	85.0E-12	40.8E-12	108.0E-12	124.7E-12	187.1E-12	209.5E-12	81.6E-12

ILIHA10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	200.0E-12	400.0E-12	400.0E-12	300.0E-12	250.0E-12	300.0E-12	300.0E-12	300.0E-12
OFF samples									
SN523	250.0E-12	350.0E-12	400.0E-12	350.0E-12	450.0E-12	600.0E-12	900.0E-12	650.0E-12	450.0E-12
Statistics									
Min	250.0E-12	350.0E-12	400.0E-12	350.0E-12	450.0E-12	600.0E-12	900.0E-12	650.0E-12	450.0E-12
Max	250.0E-12	350.0E-12	400.0E-12	350.0E-12	450.0E-12	600.0E-12	900.0E-12	650.0E-12	450.0E-12
Average	250.0E-12	350.0E-12	400.0E-12	350.0E-12	450.0E-12	600.0E-12	900.0E-12	650.0E-12	450.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

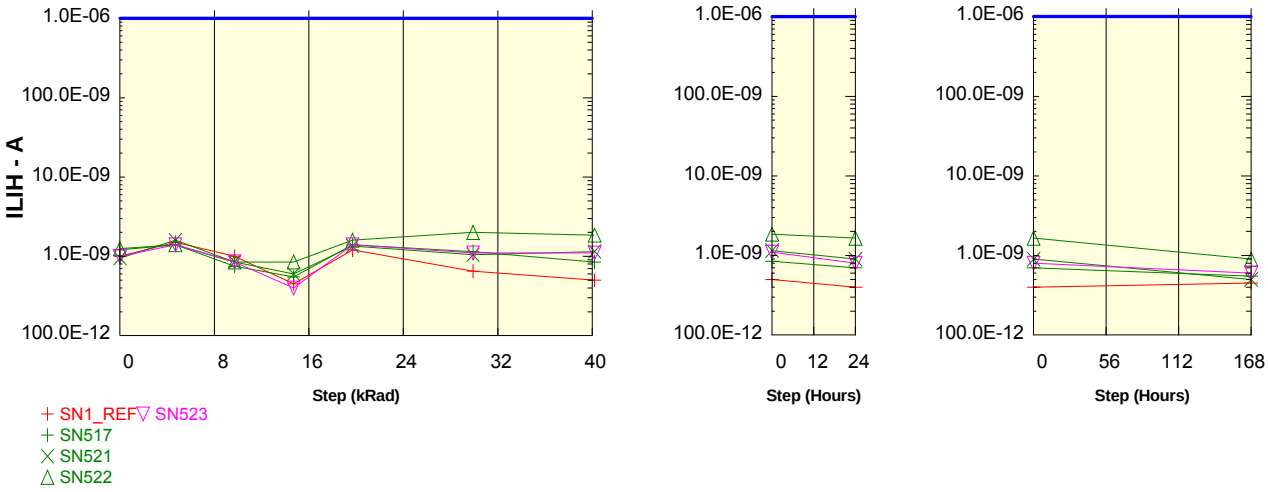
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA9
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	400.0E-12	250.0E-12	250.0E-12	400.0E-12	300.0E-12	250.0E-12	450.0E-12	250.0E-12
ON samples									
SN517	250.0E-12	300.0E-12	250.0E-12	300.0E-12	300.0E-12	350.0E-12	450.0E-12	500.0E-12	300.0E-12
SN521	400.0E-12	250.0E-12	400.0E-12	300.0E-12	350.0E-12	350.0E-12	400.0E-12	600.0E-12	400.0E-12
SN522	400.0E-12	350.0E-12	350.0E-12	350.0E-12	550.0E-12	600.0E-12	700.0E-12	800.0E-12	400.0E-12
Statistics									
Min	250.0E-12	250.0E-12	250.0E-12	300.0E-12	300.0E-12	350.0E-12	400.0E-12	500.0E-12	300.0E-12
Max	400.0E-12	350.0E-12	400.0E-12	350.0E-12	550.0E-12	600.0E-12	700.0E-12	800.0E-12	400.0E-12
Average	350.0E-12	300.0E-12	333.3E-12	316.7E-12	400.0E-12	433.3E-12	516.7E-12	633.3E-12	366.7E-12
Sigma	70.7E-12	40.8E-12	62.4E-12	23.6E-12	108.0E-12	117.9E-12	131.2E-12	124.7E-12	47.1E-12

ILIHA9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	400.0E-12	250.0E-12	250.0E-12	400.0E-12	300.0E-12	250.0E-12	450.0E-12	250.0E-12
OFF samples									
SN523	250.0E-12	350.0E-12	150.0E-12	400.0E-12	350.0E-12	400.0E-12	500.0E-12	400.0E-12	400.0E-12
Statistics									
Min	250.0E-12	350.0E-12	150.0E-12	400.0E-12	350.0E-12	400.0E-12	500.0E-12	400.0E-12	400.0E-12
Max	250.0E-12	350.0E-12	150.0E-12	400.0E-12	350.0E-12	400.0E-12	500.0E-12	400.0E-12	400.0E-12
Average	250.0E-12	350.0E-12	150.0E-12	400.0E-12	350.0E-12	400.0E-12	500.0E-12	400.0E-12	400.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

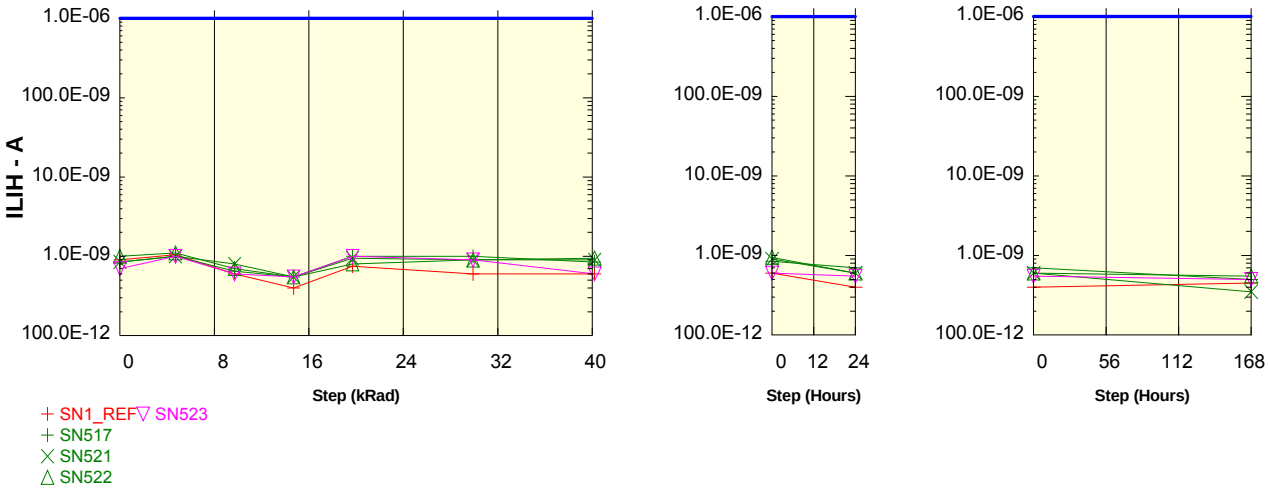
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA8
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.0E-09	1.5E-09	1.0E-09	450.0E-12	1.2E-09	650.0E-12	500.0E-12	400.0E-12	450.0E-12
ON samples									
SN517	1.2E-09	1.4E-09	750.0E-12	550.0E-12	1.4E-09	1.2E-09	850.0E-12	700.0E-12	550.0E-12
SN521	950.0E-12	1.6E-09	850.0E-12	600.0E-12	1.4E-09	1.1E-09	1.2E-09	900.0E-12	500.0E-12
SN522	1.3E-09	1.4E-09	850.0E-12	850.0E-12	1.6E-09	2.0E-09	1.9E-09	1.7E-09	900.0E-12
Statistics									
Min	950.0E-12	1.4E-09	750.0E-12	550.0E-12	1.4E-09	1.1E-09	850.0E-12	700.0E-12	500.0E-12
Max	1.3E-09	1.6E-09	850.0E-12	850.0E-12	1.6E-09	2.0E-09	1.9E-09	1.7E-09	900.0E-12
Average	1.1E-09	1.5E-09	816.7E-12	666.7E-12	1.5E-09	1.4E-09	1.3E-09	1.1E-09	650.0E-12
Sigma	131.2E-12	94.3E-12	47.1E-12	131.2E-12	108.0E-12	426.2E-12	419.0E-12	408.9E-12	178.0E-12

ILIHA8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.0E-09	1.5E-09	1.0E-09	450.0E-12	1.2E-09	650.0E-12	500.0E-12	400.0E-12	450.0E-12
OFF samples									
SN523	1.0E-09	1.4E-09	850.0E-12	400.0E-12	1.4E-09	1.1E-09	1.1E-09	800.0E-12	600.0E-12
Statistics									
Min	1.0E-09	1.4E-09	850.0E-12	400.0E-12	1.4E-09	1.1E-09	1.1E-09	800.0E-12	600.0E-12
Max	1.0E-09	1.4E-09	850.0E-12	400.0E-12	1.4E-09	1.1E-09	1.1E-09	800.0E-12	600.0E-12
Average	1.0E-09	1.4E-09	850.0E-12	400.0E-12	1.4E-09	1.1E-09	1.1E-09	800.0E-12	600.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

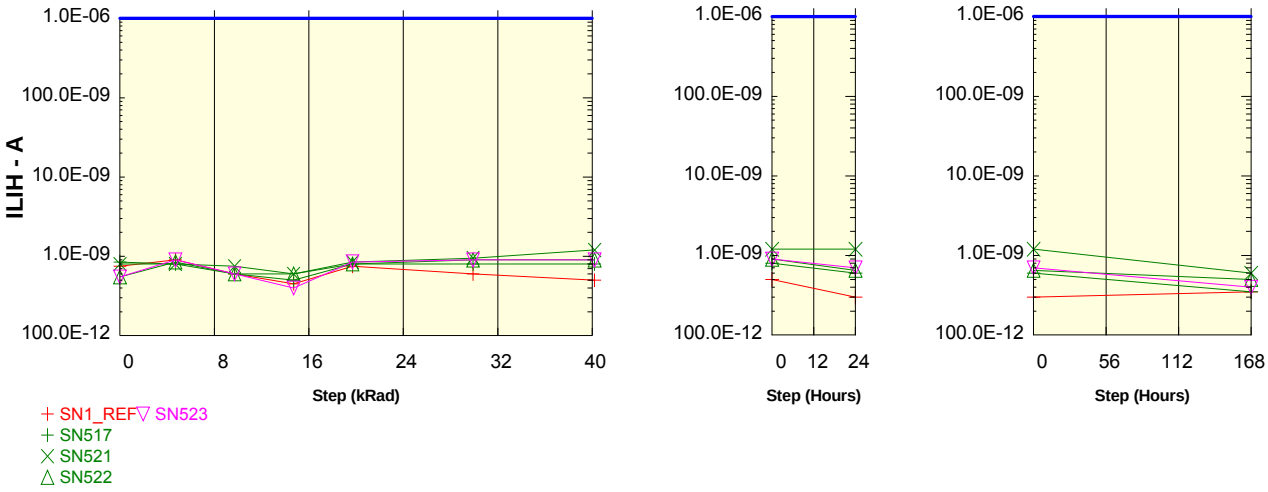
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA7
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	900.0E-12	1.1E-09	600.0E-12	400.0E-12	750.0E-12	600.0E-12	600.0E-12	400.0E-12	450.0E-12
ON samples									
SN517	850.0E-12	1.0E-09	650.0E-12	550.0E-12	1.0E-09	1.0E-09	850.0E-12	700.0E-12	500.0E-12
SN521	850.0E-12	1.0E-09	800.0E-12	550.0E-12	950.0E-12	900.0E-12	900.0E-12	600.0E-12	350.0E-12
SN522	1.0E-09	1.1E-09	700.0E-12	550.0E-12	800.0E-12	900.0E-12	950.0E-12	600.0E-12	550.0E-12
Statistics									
Min	850.0E-12	1.0E-09	650.0E-12	550.0E-12	800.0E-12	900.0E-12	850.0E-12	600.0E-12	350.0E-12
Max	1.0E-09	1.1E-09	800.0E-12	550.0E-12	1.0E-09	1.0E-09	950.0E-12	700.0E-12	550.0E-12
Average	900.0E-12	1.0E-09	716.7E-12	550.0E-12	916.7E-12	933.3E-12	900.0E-12	633.3E-12	466.7E-12
Sigma	70.7E-12	47.1E-12	62.4E-12	4.0E-18	85.0E-12	47.1E-12	40.8E-12	47.1E-12	85.0E-12

ILIHA7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	900.0E-12	1.1E-09	600.0E-12	400.0E-12	750.0E-12	600.0E-12	600.0E-12	400.0E-12	450.0E-12
OFF samples									
SN523	700.0E-12	1.0E-09	600.0E-12	550.0E-12	1.0E-09	900.0E-12	600.0E-12	550.0E-12	500.0E-12
Statistics									
Min	700.0E-12	1.0E-09	600.0E-12	550.0E-12	1.0E-09	900.0E-12	600.0E-12	550.0E-12	500.0E-12
Max	700.0E-12	1.0E-09	600.0E-12	550.0E-12	1.0E-09	900.0E-12	600.0E-12	550.0E-12	500.0E-12
Average	700.0E-12	1.0E-09	600.0E-12	550.0E-12	1.0E-09	900.0E-12	600.0E-12	550.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

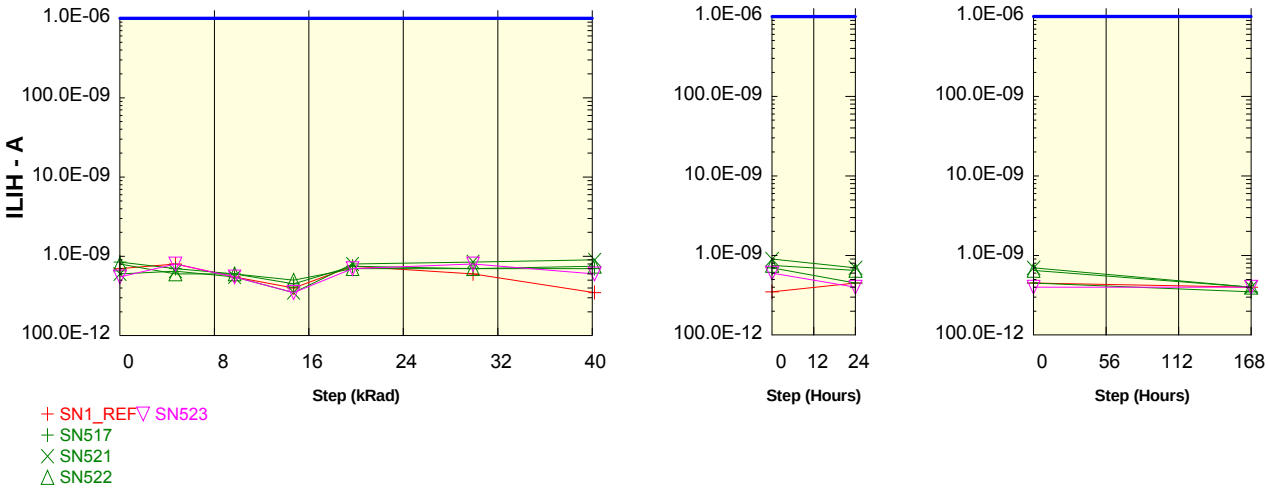
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA6
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	750.0E-12	900.0E-12	600.0E-12	450.0E-12	750.0E-12	600.0E-12	500.0E-12	300.0E-12	350.0E-12
ON samples									
SN517	850.0E-12	800.0E-12	600.0E-12	500.0E-12	800.0E-12	800.0E-12	800.0E-12	600.0E-12	350.0E-12
SN521	800.0E-12	800.0E-12	750.0E-12	600.0E-12	850.0E-12	950.0E-12	1.2E-09	1.2E-09	600.0E-12
SN522	550.0E-12	850.0E-12	600.0E-12	600.0E-12	800.0E-12	900.0E-12	900.0E-12	650.0E-12	500.0E-12
Statistics									
Min	550.0E-12	800.0E-12	600.0E-12	500.0E-12	800.0E-12	800.0E-12	800.0E-12	600.0E-12	350.0E-12
Max	850.0E-12	850.0E-12	750.0E-12	600.0E-12	850.0E-12	950.0E-12	1.2E-09	1.2E-09	600.0E-12
Average	733.3E-12	816.7E-12	650.0E-12	566.7E-12	816.7E-12	883.3E-12	966.7E-12	816.7E-12	483.3E-12
Sigma	131.2E-12	23.6E-12	70.7E-12	47.1E-12	23.6E-12	62.4E-12	170.0E-12	271.8E-12	102.7E-12

ILIHA6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	750.0E-12	900.0E-12	600.0E-12	450.0E-12	750.0E-12	600.0E-12	500.0E-12	300.0E-12	350.0E-12
OFF samples									
SN523	550.0E-12	900.0E-12	600.0E-12	400.0E-12	850.0E-12	900.0E-12	900.0E-12	700.0E-12	400.0E-12
Statistics									
Min	550.0E-12	900.0E-12	600.0E-12	400.0E-12	850.0E-12	900.0E-12	900.0E-12	700.0E-12	400.0E-12
Max	550.0E-12	900.0E-12	600.0E-12	400.0E-12	850.0E-12	900.0E-12	900.0E-12	700.0E-12	400.0E-12
Average	550.0E-12	900.0E-12	600.0E-12	400.0E-12	850.0E-12	900.0E-12	900.0E-12	700.0E-12	400.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

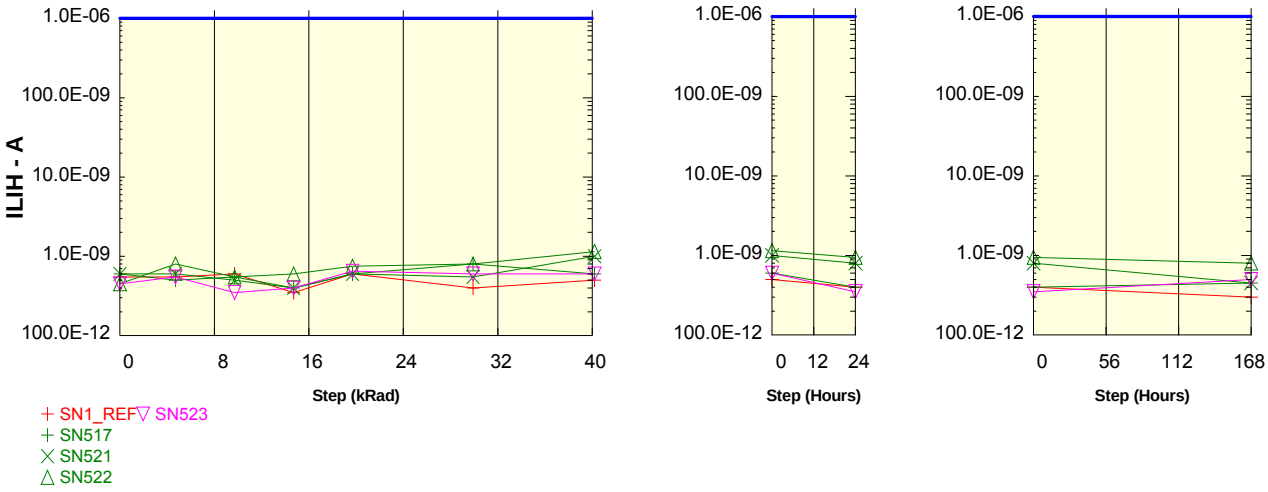
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA5
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	700.0E-12	800.0E-12	550.0E-12	400.0E-12	750.0E-12	600.0E-12	350.0E-12	450.0E-12	400.0E-12
ON samples									
SN517	850.0E-12	700.0E-12	600.0E-12	450.0E-12	750.0E-12	700.0E-12	700.0E-12	450.0E-12	350.0E-12
SN521	600.0E-12	650.0E-12	550.0E-12	350.0E-12	800.0E-12	850.0E-12	900.0E-12	700.0E-12	400.0E-12
SN522	800.0E-12	600.0E-12	600.0E-12	500.0E-12	700.0E-12	700.0E-12	750.0E-12	650.0E-12	400.0E-12
Statistics									
Min	600.0E-12	600.0E-12	550.0E-12	350.0E-12	700.0E-12	700.0E-12	700.0E-12	450.0E-12	350.0E-12
Max	850.0E-12	700.0E-12	600.0E-12	500.0E-12	800.0E-12	850.0E-12	900.0E-12	700.0E-12	400.0E-12
Average	750.0E-12	650.0E-12	583.3E-12	433.3E-12	750.0E-12	750.0E-12	783.3E-12	600.0E-12	383.3E-12
Sigma	108.0E-12	40.8E-12	23.6E-12	62.4E-12	40.8E-12	70.7E-12	85.0E-12	108.0E-12	23.6E-12

ILIHA5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	700.0E-12	800.0E-12	550.0E-12	400.0E-12	750.0E-12	600.0E-12	350.0E-12	450.0E-12	400.0E-12
OFF samples									
SN523	550.0E-12	800.0E-12	550.0E-12	350.0E-12	700.0E-12	800.0E-12	600.0E-12	400.0E-12	400.0E-12
Statistics									
Min	550.0E-12	800.0E-12	550.0E-12	350.0E-12	700.0E-12	800.0E-12	600.0E-12	400.0E-12	400.0E-12
Max	550.0E-12	800.0E-12	550.0E-12	350.0E-12	700.0E-12	800.0E-12	600.0E-12	400.0E-12	400.0E-12
Average	550.0E-12	800.0E-12	550.0E-12	350.0E-12	700.0E-12	800.0E-12	600.0E-12	400.0E-12	400.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

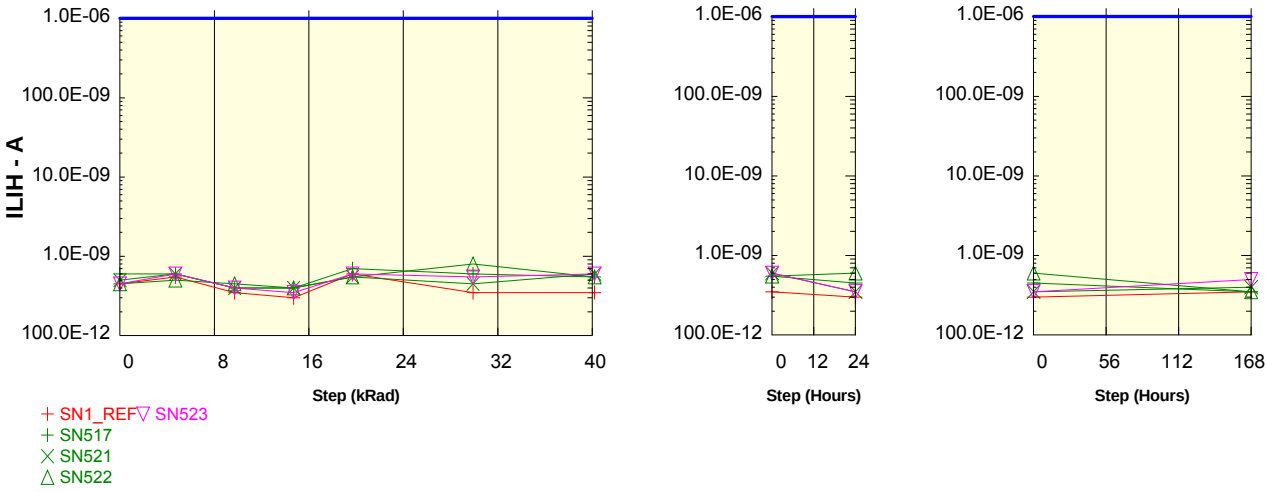
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA4
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	550.0E-12	550.0E-12	600.0E-12	350.0E-12	600.0E-12	400.0E-12	500.0E-12	400.0E-12	300.0E-12
ON samples									
SN517	600.0E-12	500.0E-12	550.0E-12	400.0E-12	600.0E-12	800.0E-12	600.0E-12	400.0E-12	450.0E-12
SN521	600.0E-12	600.0E-12	500.0E-12	400.0E-12	600.0E-12	550.0E-12	1.0E-09	800.0E-12	450.0E-12
SN522	450.0E-12	800.0E-12	550.0E-12	600.0E-12	750.0E-12	800.0E-12	1.2E-09	950.0E-12	800.0E-12
Statistics									
Min	450.0E-12	500.0E-12	500.0E-12	400.0E-12	600.0E-12	550.0E-12	600.0E-12	400.0E-12	450.0E-12
Max	600.0E-12	800.0E-12	550.0E-12	600.0E-12	750.0E-12	800.0E-12	1.2E-09	950.0E-12	800.0E-12
Average	550.0E-12	633.3E-12	533.3E-12	466.7E-12	650.0E-12	716.7E-12	916.7E-12	716.7E-12	566.7E-12
Sigma	70.7E-12	124.7E-12	23.6E-12	94.3E-12	70.7E-12	117.9E-12	232.1E-12	232.1E-12	165.0E-12

ILIHA4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	550.0E-12	550.0E-12	600.0E-12	350.0E-12	600.0E-12	400.0E-12	500.0E-12	400.0E-12	300.0E-12
OFF samples									
SN523	450.0E-12	550.0E-12	350.0E-12	400.0E-12	650.0E-12	600.0E-12	600.0E-12	350.0E-12	500.0E-12
Statistics									
Min	450.0E-12	550.0E-12	350.0E-12	400.0E-12	650.0E-12	600.0E-12	600.0E-12	350.0E-12	500.0E-12
Max	450.0E-12	550.0E-12	350.0E-12	400.0E-12	650.0E-12	600.0E-12	600.0E-12	350.0E-12	500.0E-12
Average	450.0E-12	550.0E-12	350.0E-12	400.0E-12	650.0E-12	600.0E-12	600.0E-12	350.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

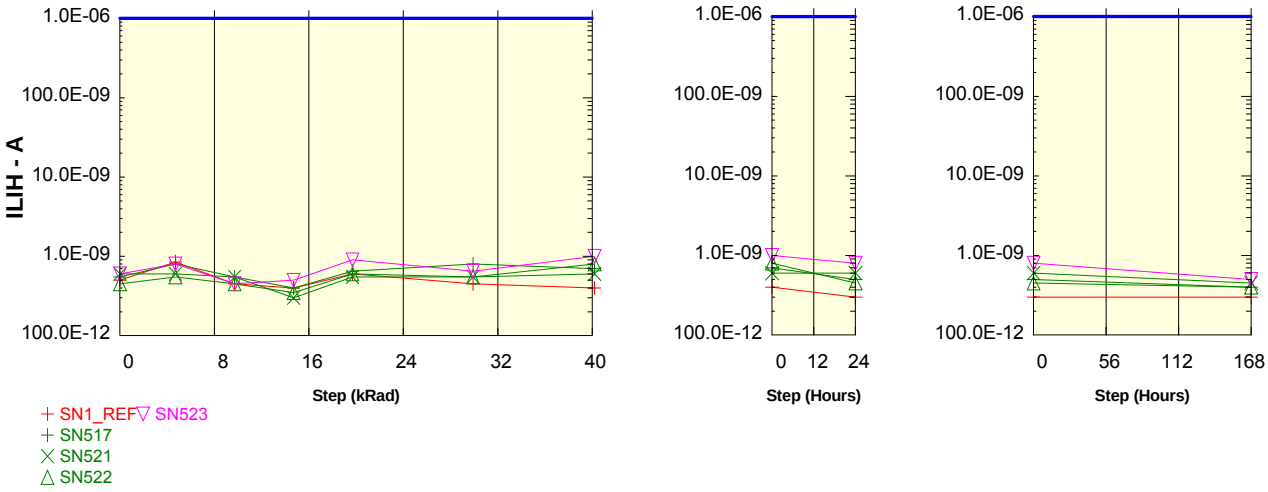
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA3
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	450.0E-12	550.0E-12	350.0E-12	300.0E-12	600.0E-12	350.0E-12	350.0E-12	300.0E-12	350.0E-12
ON samples									
SN517	600.0E-12	600.0E-12	400.0E-12	400.0E-12	700.0E-12	600.0E-12	550.0E-12	450.0E-12	350.0E-12
SN521	500.0E-12	600.0E-12	400.0E-12	400.0E-12	550.0E-12	450.0E-12	600.0E-12	350.0E-12	400.0E-12
SN522	450.0E-12	500.0E-12	450.0E-12	400.0E-12	550.0E-12	800.0E-12	550.0E-12	600.0E-12	350.0E-12
Statistics									
Min	450.0E-12	500.0E-12	400.0E-12	400.0E-12	550.0E-12	450.0E-12	550.0E-12	350.0E-12	350.0E-12
Max	600.0E-12	600.0E-12	450.0E-12	400.0E-12	700.0E-12	800.0E-12	600.0E-12	600.0E-12	400.0E-12
Average	516.7E-12	566.7E-12	416.7E-12	400.0E-12	600.0E-12	616.7E-12	566.7E-12	466.7E-12	366.7E-12
Sigma	62.4E-12	47.1E-12	23.6E-12	0.0E+00	70.7E-12	143.4E-12	23.6E-12	102.7E-12	23.6E-12

ILIHA3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	450.0E-12	550.0E-12	350.0E-12	300.0E-12	600.0E-12	350.0E-12	350.0E-12	300.0E-12	350.0E-12
OFF samples									
SN523	450.0E-12	600.0E-12	400.0E-12	350.0E-12	600.0E-12	550.0E-12	600.0E-12	350.0E-12	500.0E-12
Statistics									
Min	450.0E-12	600.0E-12	400.0E-12	350.0E-12	600.0E-12	550.0E-12	600.0E-12	350.0E-12	500.0E-12
Max	450.0E-12	600.0E-12	400.0E-12	350.0E-12	600.0E-12	550.0E-12	600.0E-12	350.0E-12	500.0E-12
Average	450.0E-12	600.0E-12	400.0E-12	350.0E-12	600.0E-12	550.0E-12	600.0E-12	350.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

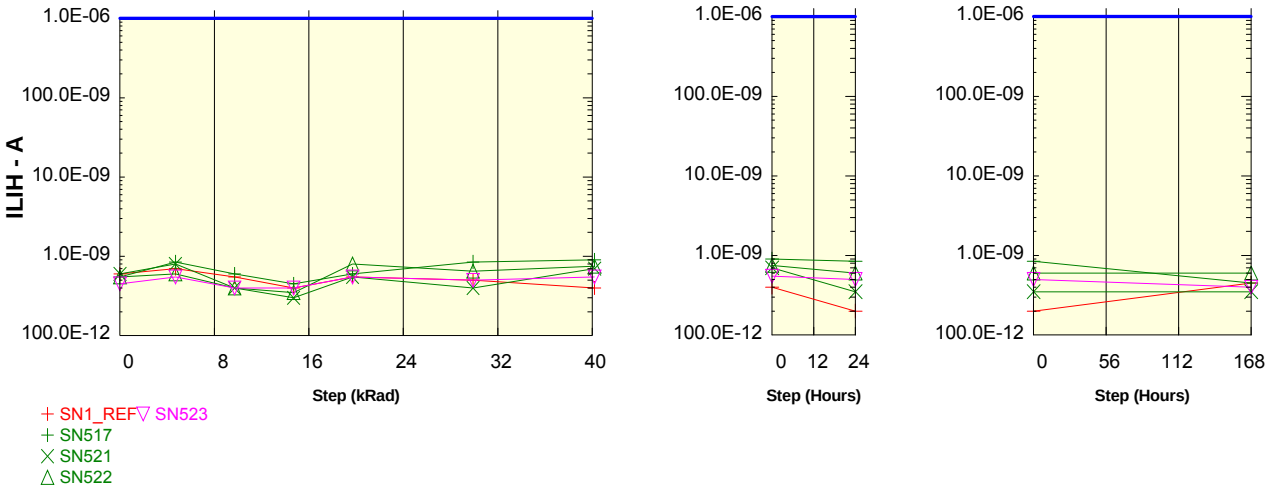
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA2
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	500.0E-12	850.0E-12	450.0E-12	400.0E-12	600.0E-12	450.0E-12	400.0E-12	300.0E-12	300.0E-12
ON samples									
SN517	550.0E-12	800.0E-12	550.0E-12	400.0E-12	650.0E-12	800.0E-12	700.0E-12	500.0E-12	400.0E-12
SN521	600.0E-12	600.0E-12	550.0E-12	300.0E-12	550.0E-12	550.0E-12	600.0E-12	600.0E-12	450.0E-12
SN522	450.0E-12	550.0E-12	450.0E-12	350.0E-12	600.0E-12	550.0E-12	800.0E-12	450.0E-12	400.0E-12
Statistics									
Min	450.0E-12	550.0E-12	450.0E-12	300.0E-12	550.0E-12	550.0E-12	600.0E-12	450.0E-12	400.0E-12
Max	600.0E-12	800.0E-12	550.0E-12	400.0E-12	650.0E-12	800.0E-12	800.0E-12	600.0E-12	450.0E-12
Average	533.3E-12	650.0E-12	516.7E-12	350.0E-12	600.0E-12	633.3E-12	700.0E-12	516.7E-12	416.7E-12
Sigma	62.4E-12	108.0E-12	47.1E-12	40.8E-12	40.8E-12	117.9E-12	81.6E-12	62.4E-12	23.6E-12

ILIHA2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	500.0E-12	850.0E-12	450.0E-12	400.0E-12	600.0E-12	450.0E-12	400.0E-12	300.0E-12	300.0E-12
OFF samples									
SN523	600.0E-12	800.0E-12	450.0E-12	500.0E-12	900.0E-12	650.0E-12	1.0E-09	800.0E-12	500.0E-12
Statistics									
Min	600.0E-12	800.0E-12	450.0E-12	500.0E-12	900.0E-12	650.0E-12	1.0E-09	800.0E-12	500.0E-12
Max	600.0E-12	800.0E-12	450.0E-12	500.0E-12	900.0E-12	650.0E-12	1.0E-09	800.0E-12	500.0E-12
Average	600.0E-12	800.0E-12	450.0E-12	500.0E-12	900.0E-12	650.0E-12	1.0E-09	800.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

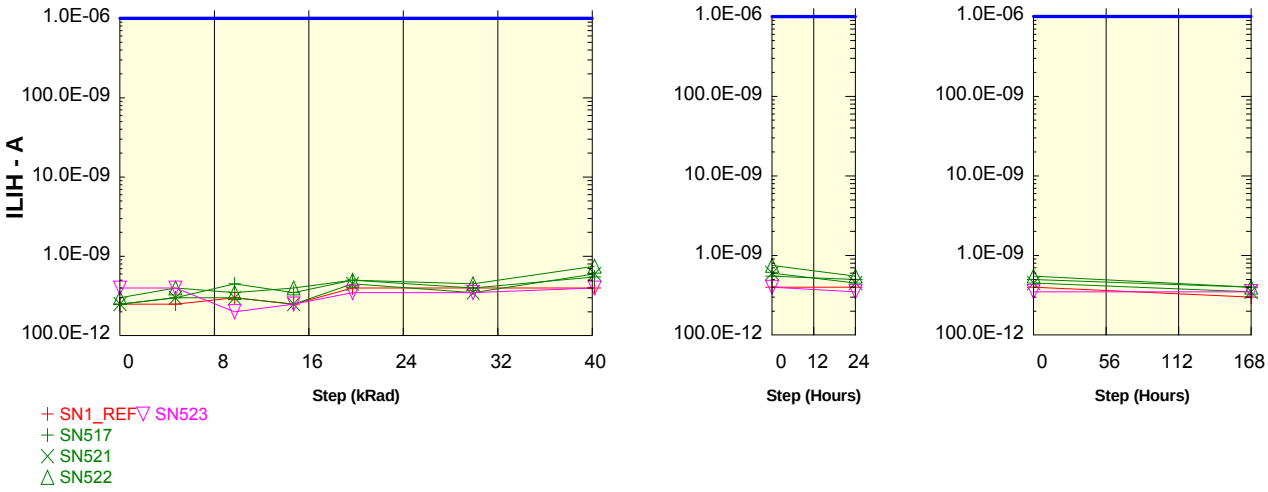
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA1
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	600.0E-12	700.0E-12	550.0E-12	400.0E-12	550.0E-12	500.0E-12	400.0E-12	200.0E-12	450.0E-12
ON samples									
SN517	550.0E-12	850.0E-12	600.0E-12	450.0E-12	600.0E-12	850.0E-12	900.0E-12	850.0E-12	450.0E-12
SN521	600.0E-12	800.0E-12	400.0E-12	300.0E-12	550.0E-12	400.0E-12	700.0E-12	350.0E-12	350.0E-12
SN522	550.0E-12	600.0E-12	400.0E-12	350.0E-12	800.0E-12	650.0E-12	750.0E-12	600.0E-12	600.0E-12
Statistics									
Min	550.0E-12	600.0E-12	400.0E-12	300.0E-12	550.0E-12	400.0E-12	700.0E-12	350.0E-12	350.0E-12
Max	600.0E-12	850.0E-12	600.0E-12	450.0E-12	800.0E-12	850.0E-12	900.0E-12	850.0E-12	600.0E-12
Average	566.7E-12	750.0E-12	466.7E-12	366.7E-12	650.0E-12	633.3E-12	783.3E-12	600.0E-12	466.7E-12
Sigma	23.6E-12	108.0E-12	94.3E-12	62.4E-12	108.0E-12	184.1E-12	85.0E-12	204.1E-12	102.7E-12

ILIHA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	600.0E-12	700.0E-12	550.0E-12	400.0E-12	550.0E-12	500.0E-12	400.0E-12	200.0E-12	450.0E-12
OFF samples									
SN523	450.0E-12	550.0E-12	400.0E-12	400.0E-12	550.0E-12	500.0E-12	550.0E-12	500.0E-12	400.0E-12
Statistics									
Min	450.0E-12	550.0E-12	400.0E-12	400.0E-12	550.0E-12	500.0E-12	550.0E-12	500.0E-12	400.0E-12
Max	450.0E-12	550.0E-12	400.0E-12	400.0E-12	550.0E-12	500.0E-12	550.0E-12	500.0E-12	400.0E-12
Average	450.0E-12	550.0E-12	400.0E-12	400.0E-12	550.0E-12	500.0E-12	550.0E-12	500.0E-12	400.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

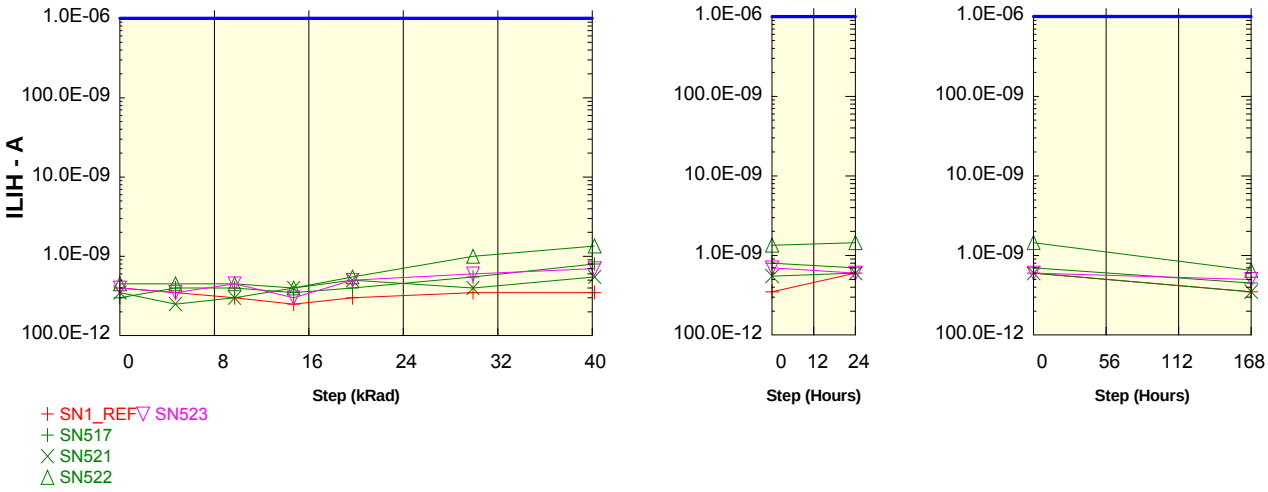
Test conditions : TID
Parameter : Input Leakage Current High : ILIHA0
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	250.0E-12	250.0E-12	300.0E-12	250.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	300.0E-12
ON samples									
SN517	250.0E-12	300.0E-12	450.0E-12	350.0E-12	500.0E-12	400.0E-12	550.0E-12	500.0E-12	400.0E-12
SN521	250.0E-12	300.0E-12	300.0E-12	250.0E-12	450.0E-12	350.0E-12	600.0E-12	450.0E-12	350.0E-12
SN522	300.0E-12	400.0E-12	350.0E-12	400.0E-12	500.0E-12	450.0E-12	750.0E-12	550.0E-12	400.0E-12
Statistics									
Min	250.0E-12	300.0E-12	300.0E-12	250.0E-12	450.0E-12	350.0E-12	550.0E-12	450.0E-12	350.0E-12
Max	300.0E-12	400.0E-12	450.0E-12	400.0E-12	500.0E-12	450.0E-12	750.0E-12	550.0E-12	400.0E-12
Average	266.7E-12	333.3E-12	366.7E-12	333.3E-12	483.3E-12	400.0E-12	633.3E-12	500.0E-12	383.3E-12
Sigma	23.6E-12	47.1E-12	62.4E-12	62.4E-12	23.6E-12	40.8E-12	85.0E-12	40.8E-12	23.6E-12

ILIHA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	250.0E-12	250.0E-12	300.0E-12	250.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	300.0E-12
OFF samples									
SN523	400.0E-12	400.0E-12	200.0E-12	250.0E-12	350.0E-12	350.0E-12	400.0E-12	350.0E-12	350.0E-12
Statistics									
Min	400.0E-12	400.0E-12	200.0E-12	250.0E-12	350.0E-12	350.0E-12	400.0E-12	350.0E-12	350.0E-12
Max	400.0E-12	400.0E-12	200.0E-12	250.0E-12	350.0E-12	350.0E-12	400.0E-12	350.0E-12	350.0E-12
Average	400.0E-12	400.0E-12	200.0E-12	250.0E-12	350.0E-12	350.0E-12	400.0E-12	350.0E-12	350.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

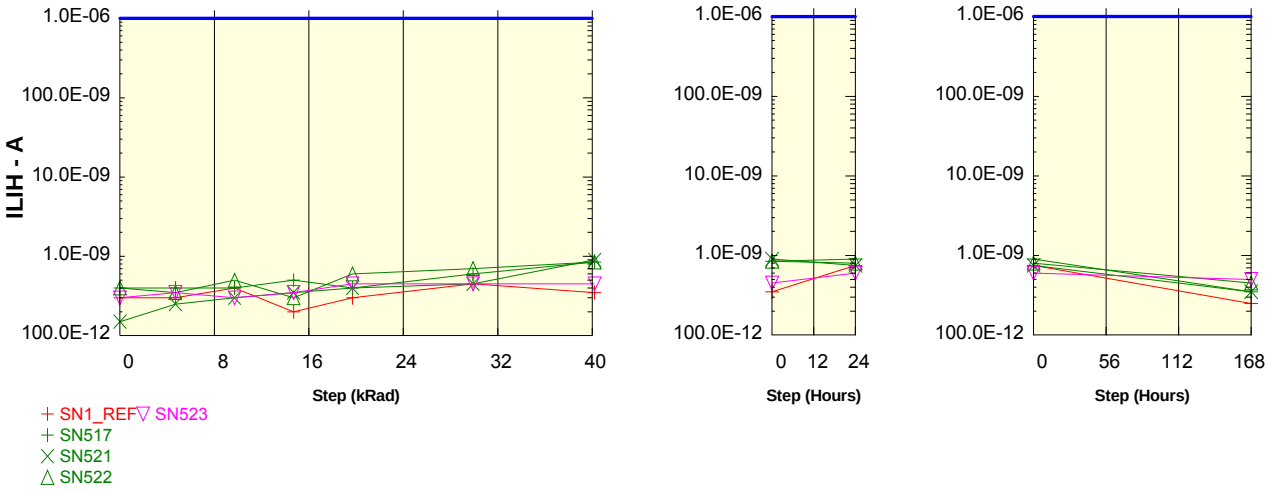
Test conditions : TID
Parameter : Input Leakage Current High : ILIHBA1
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHBA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	350.0E-12	300.0E-12	250.0E-12	300.0E-12	350.0E-12	350.0E-12	600.0E-12	350.0E-12
ON samples									
SN517	300.0E-12	400.0E-12	400.0E-12	350.0E-12	400.0E-12	550.0E-12	800.0E-12	700.0E-12	450.0E-12
SN521	350.0E-12	250.0E-12	300.0E-12	400.0E-12	500.0E-12	400.0E-12	550.0E-12	600.0E-12	350.0E-12
SN522	450.0E-12	450.0E-12	450.0E-12	400.0E-12	550.0E-12	1.0E-09	1.4E-09	1.5E-09	650.0E-12
Statistics									
Min	300.0E-12	250.0E-12	300.0E-12	350.0E-12	400.0E-12	400.0E-12	550.0E-12	600.0E-12	350.0E-12
Max	450.0E-12	450.0E-12	450.0E-12	400.0E-12	550.0E-12	1.0E-09	1.4E-09	1.5E-09	650.0E-12
Average	366.7E-12	366.7E-12	383.3E-12	383.3E-12	483.3E-12	650.0E-12	900.0E-12	916.7E-12	483.3E-12
Sigma	62.4E-12	85.0E-12	62.4E-12	23.6E-12	62.4E-12	255.0E-12	334.2E-12	379.3E-12	124.7E-12

ILIHBA1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	350.0E-12	300.0E-12	250.0E-12	300.0E-12	350.0E-12	350.0E-12	600.0E-12	350.0E-12
OFF samples									
SN523	400.0E-12	350.0E-12	450.0E-12	300.0E-12	500.0E-12	600.0E-12	700.0E-12	600.0E-12	500.0E-12
Statistics									
Min	400.0E-12	350.0E-12	450.0E-12	300.0E-12	500.0E-12	600.0E-12	700.0E-12	600.0E-12	500.0E-12
Max	400.0E-12	350.0E-12	450.0E-12	300.0E-12	500.0E-12	600.0E-12	700.0E-12	600.0E-12	500.0E-12
Average	400.0E-12	350.0E-12	450.0E-12	300.0E-12	500.0E-12	600.0E-12	700.0E-12	600.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

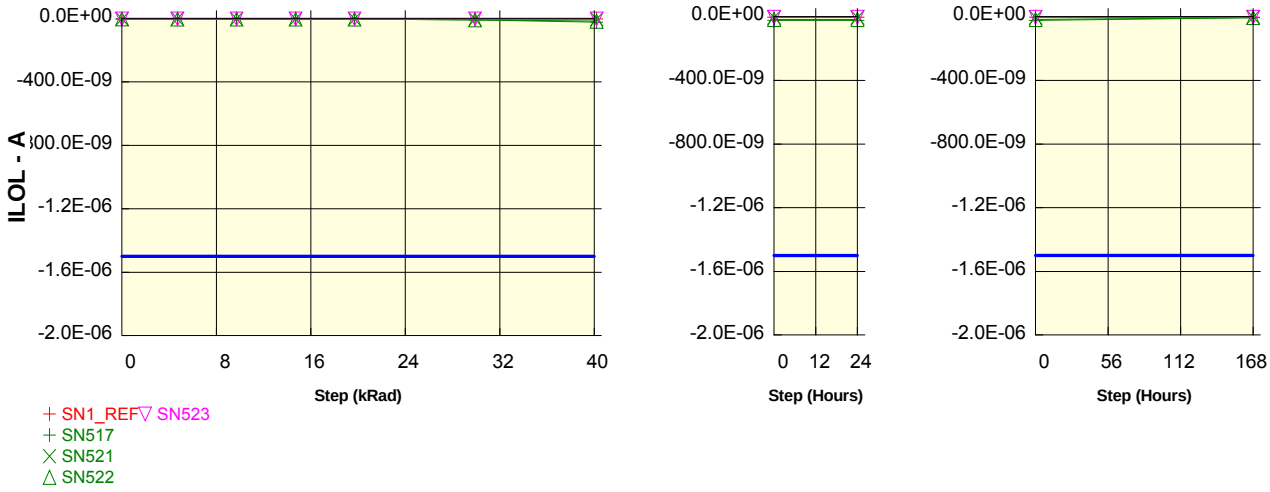
Test conditions : TID
Parameter : Input Leakage Current High : ILIHBA0
Vin=0V VDD=VDDQ=3.6V
Unit : A
Spec Limit Max : 1.0E-06
Spec limits are represented in bold lines on the graphic.



ILIHBA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	300.0E-12	300.0E-12	400.0E-12	200.0E-12	300.0E-12	450.0E-12	350.0E-12	750.0E-12	250.0E-12
ON samples									
SN517	400.0E-12	400.0E-12	400.0E-12	500.0E-12	400.0E-12	600.0E-12	850.0E-12	900.0E-12	350.0E-12
SN521	150.0E-12	250.0E-12	300.0E-12	350.0E-12	400.0E-12	450.0E-12	900.0E-12	750.0E-12	350.0E-12
SN522	400.0E-12	350.0E-12	500.0E-12	300.0E-12	600.0E-12	700.0E-12	850.0E-12	800.0E-12	450.0E-12
Statistics									
Min	150.0E-12	250.0E-12	300.0E-12	300.0E-12	400.0E-12	450.0E-12	850.0E-12	750.0E-12	350.0E-12
Max	400.0E-12	400.0E-12	500.0E-12	500.0E-12	600.0E-12	700.0E-12	900.0E-12	900.0E-12	450.0E-12
Average	316.7E-12	333.3E-12	400.0E-12	383.3E-12	466.7E-12	583.3E-12	866.7E-12	816.7E-12	383.3E-12
Sigma	117.9E-12	62.4E-12	81.6E-12	85.0E-12	94.3E-12	102.7E-12	23.6E-12	62.4E-12	47.1E-12

ILIHBA0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	300.0E-12	300.0E-12	400.0E-12	200.0E-12	300.0E-12	450.0E-12	350.0E-12	750.0E-12	250.0E-12
OFF samples									
SN523	300.0E-12	350.0E-12	300.0E-12	350.0E-12	450.0E-12	450.0E-12	450.0E-12	600.0E-12	500.0E-12
Statistics									
Min	300.0E-12	350.0E-12	300.0E-12	350.0E-12	450.0E-12	450.0E-12	450.0E-12	600.0E-12	500.0E-12
Max	300.0E-12	350.0E-12	300.0E-12	350.0E-12	450.0E-12	450.0E-12	450.0E-12	600.0E-12	500.0E-12
Average	300.0E-12	350.0E-12	300.0E-12	350.0E-12	450.0E-12	450.0E-12	450.0E-12	600.0E-12	500.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

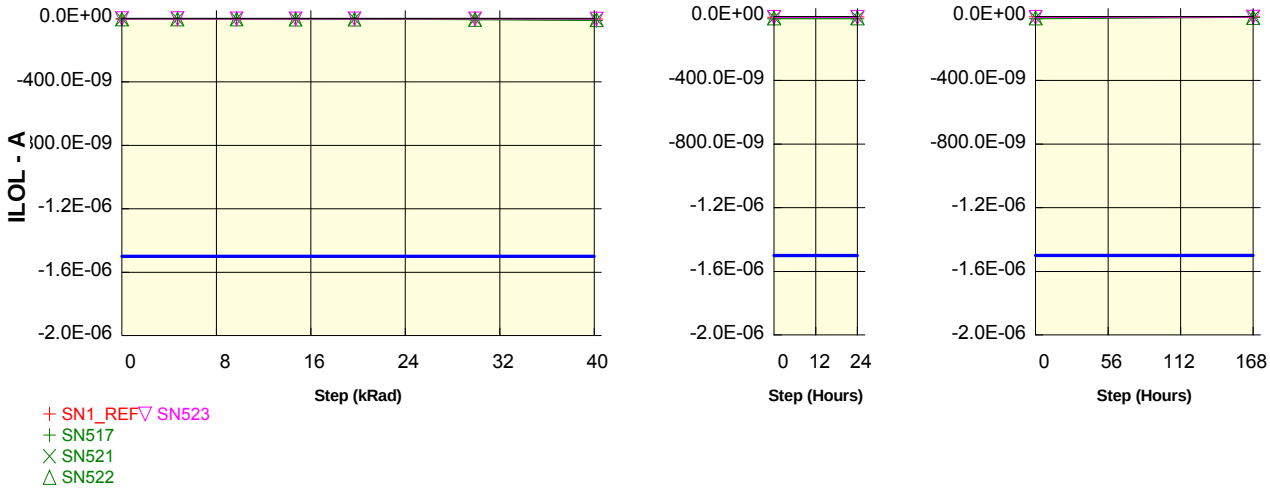
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ15
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.4E-09	-2.5E-09
ON samples									
SN517	-3.2E-09	-3.4E-09	-3.7E-09	-4.4E-09	-5.3E-09	-9.0E-09	-23.7E-09	-23.6E-09	-6.7E-09
SN521	-2.6E-09	-2.4E-09	-2.6E-09	-2.6E-09	-2.8E-09	-3.3E-09	-4.7E-09	-4.2E-09	-2.9E-09
SN522	-3.4E-09	-3.5E-09	-4.0E-09	-4.6E-09	-5.0E-09	-9.6E-09	-17.5E-09	-17.4E-09	-6.9E-09
Statistics									
Min	-3.4E-09	-3.5E-09	-4.0E-09	-4.6E-09	-5.3E-09	-9.6E-09	-23.7E-09	-23.6E-09	-6.9E-09
Max	-2.6E-09	-2.4E-09	-2.6E-09	-2.6E-09	-2.8E-09	-3.3E-09	-4.7E-09	-4.2E-09	-2.9E-09
Average	-3.1E-09	-3.1E-09	-3.4E-09	-3.9E-09	-4.4E-09	-7.3E-09	-15.3E-09	-15.1E-09	-5.5E-09
Sigma	324.0E-12	483.6E-12	594.9E-12	886.0E-12	1.1E-09	2.9E-09	7.9E-09	8.1E-09	1.8E-09

ILOLDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.4E-09	-2.5E-09
OFF samples									
SN523	-2.8E-09	-3.1E-09	-3.1E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.1E-09	-4.1E-09	-3.3E-09
Statistics									
Min	-2.8E-09	-3.1E-09	-3.1E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.1E-09	-4.1E-09	-3.3E-09
Max	-2.8E-09	-3.1E-09	-3.1E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.1E-09	-4.1E-09	-3.3E-09
Average	-2.8E-09	-3.1E-09	-3.1E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.1E-09	-4.1E-09	-3.3E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

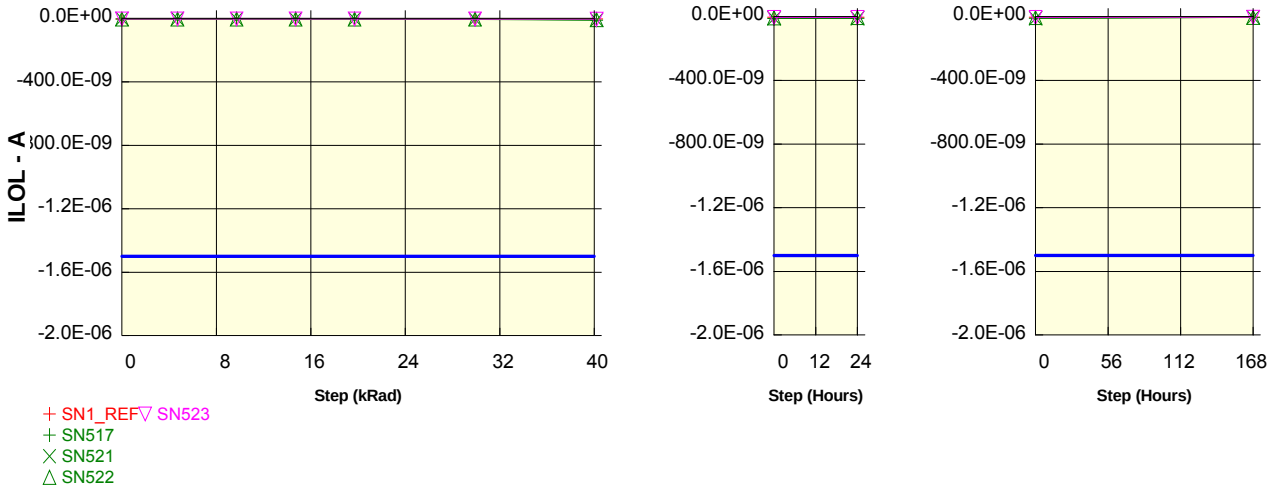
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ14
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.0E-09	-2.0E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.0E-09	-2.1E-09
ON samples									
SN517	-2.4E-09	-2.6E-09	-3.3E-09	-3.8E-09	-4.7E-09	-8.4E-09	-13.5E-09	-13.2E-09	-4.5E-09
SN521	-2.0E-09	-1.9E-09	-1.9E-09	-2.0E-09	-2.1E-09	-2.9E-09	-6.4E-09	-6.1E-09	-2.3E-09
SN522	-2.7E-09	-2.8E-09	-3.2E-09	-3.7E-09	-4.2E-09	-5.8E-09	-8.2E-09	-7.5E-09	-3.6E-09
Statistics									
Min	-2.7E-09	-2.8E-09	-3.3E-09	-3.8E-09	-4.7E-09	-8.4E-09	-13.5E-09	-13.2E-09	-4.5E-09
Max	-2.0E-09	-1.9E-09	-1.9E-09	-2.0E-09	-2.1E-09	-2.9E-09	-6.4E-09	-6.1E-09	-2.3E-09
Average	-2.3E-09	-2.4E-09	-2.8E-09	-3.2E-09	-3.6E-09	-5.7E-09	-9.3E-09	-8.9E-09	-3.4E-09
Sigma	286.7E-12	385.9E-12	661.2E-12	815.5E-12	1.1E-09	2.2E-09	3.0E-09	3.1E-09	881.6E-12

ILOLDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.0E-09	-2.0E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.0E-09	-2.1E-09
OFF samples									
SN523	-2.4E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09	-3.0E-09	-4.2E-09	-4.3E-09	-2.9E-09
Statistics									
Min	-2.4E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09	-3.0E-09	-4.2E-09	-4.3E-09	-2.9E-09
Max	-2.4E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09	-3.0E-09	-4.2E-09	-4.3E-09	-2.9E-09
Average	-2.4E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09	-3.0E-09	-4.2E-09	-4.3E-09	-2.9E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

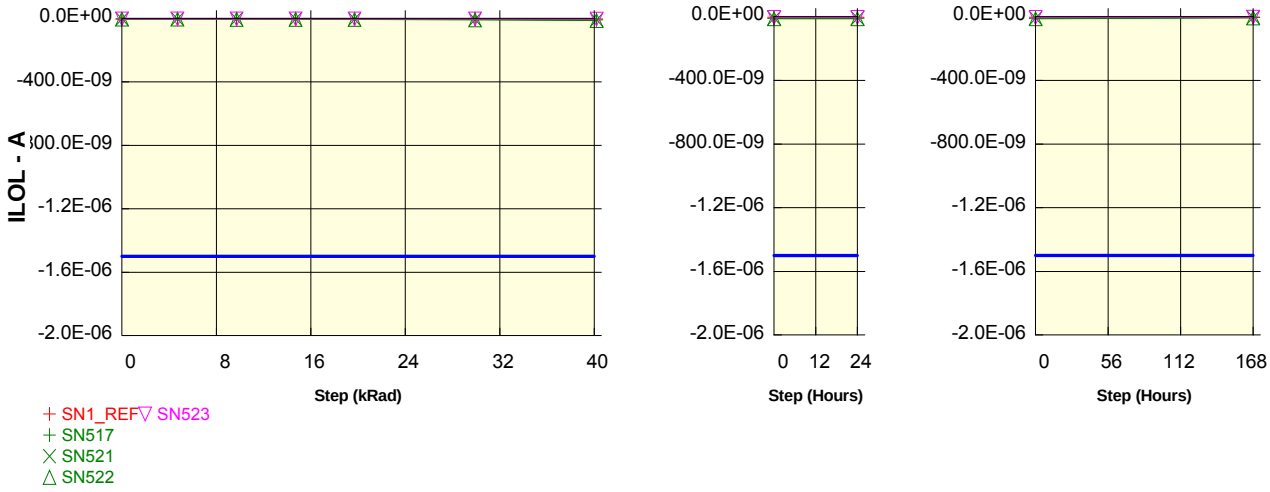
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ13
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.6E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09
ON samples									
SN517	-3.0E-09	-3.3E-09	-3.4E-09	-3.7E-09	-4.2E-09	-5.7E-09	-11.0E-09	-10.2E-09	-4.6E-09
SN521	-2.4E-09	-2.4E-09	-2.5E-09	-2.7E-09	-3.1E-09	-4.6E-09	-9.5E-09	-9.6E-09	-4.1E-09
SN522	-3.5E-09	-3.5E-09	-3.6E-09	-3.7E-09	-3.9E-09	-5.0E-09	-7.1E-09	-6.7E-09	-4.7E-09
Statistics									
Min	-3.5E-09	-3.5E-09	-3.6E-09	-3.7E-09	-4.2E-09	-5.7E-09	-11.0E-09	-10.2E-09	-4.7E-09
Max	-2.4E-09	-2.4E-09	-2.5E-09	-2.7E-09	-3.1E-09	-4.6E-09	-7.1E-09	-6.7E-09	-4.1E-09
Average	-2.9E-09	-3.0E-09	-3.1E-09	-3.4E-09	-3.7E-09	-5.1E-09	-9.2E-09	-8.8E-09	-4.5E-09
Sigma	451.5E-12	478.4E-12	487.1E-12	460.1E-12	470.8E-12	454.6E-12	1.6E-09	1.5E-09	255.0E-12

ILOLDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.6E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09	-2.5E-09
OFF samples									
SN523	-2.8E-09	-3.0E-09	-3.0E-09	-3.3E-09	-3.3E-09	-4.0E-09	-5.3E-09	-5.3E-09	-3.5E-09
Statistics									
Min	-2.8E-09	-3.0E-09	-3.0E-09	-3.3E-09	-3.3E-09	-4.0E-09	-5.3E-09	-5.3E-09	-3.5E-09
Max	-2.8E-09	-3.0E-09	-3.0E-09	-3.3E-09	-3.3E-09	-4.0E-09	-5.3E-09	-5.3E-09	-3.5E-09
Average	-2.8E-09	-3.0E-09	-3.0E-09	-3.3E-09	-3.3E-09	-4.0E-09	-5.3E-09	-5.3E-09	-3.5E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	55.5E-18	0.0E+00	0.0E+00	0.0E+00

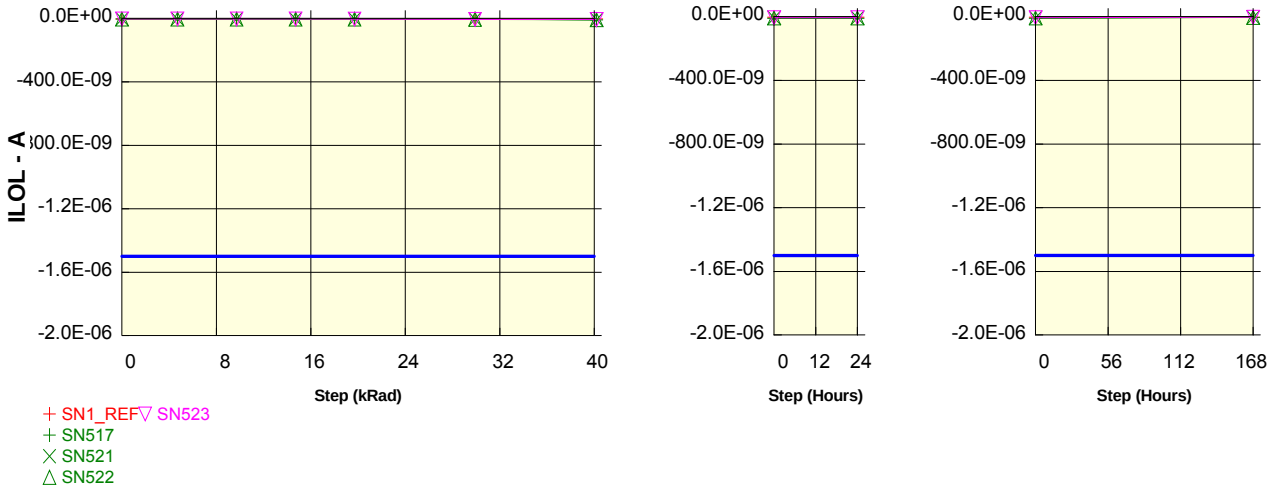
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ12
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.6E-09	-2.5E-09
ON samples									
SN517	-3.0E-09	-3.3E-09	-3.4E-09	-3.7E-09	-3.9E-09	-5.9E-09	-9.3E-09	-9.1E-09	-4.5E-09
SN521	-2.8E-09	-2.9E-09	-3.2E-09	-3.6E-09	-4.6E-09	-6.3E-09	-9.0E-09	-8.9E-09	-4.2E-09
SN522	-3.7E-09	-4.2E-09	-5.2E-09	-5.9E-09	-6.7E-09	-9.5E-09	-13.8E-09	-12.9E-09	-7.3E-09
Statistics									
Min	-3.7E-09	-4.2E-09	-5.2E-09	-5.9E-09	-6.7E-09	-9.5E-09	-13.8E-09	-12.9E-09	-7.3E-09
Max	-2.8E-09	-2.9E-09	-3.2E-09	-3.6E-09	-3.9E-09	-5.9E-09	-9.0E-09	-8.9E-09	-4.2E-09
Average	-3.1E-09	-3.4E-09	-3.9E-09	-4.4E-09	-5.0E-09	-7.2E-09	-10.7E-09	-10.3E-09	-5.3E-09
Sigma	379.3E-12	566.2E-12	875.9E-12	1.0E-09	1.2E-09	1.6E-09	2.2E-09	1.8E-09	1.4E-09

ILOLDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.6E-09	-2.5E-09
OFF samples									
SN523	-2.9E-09	-2.8E-09	-2.9E-09	-3.0E-09	-3.0E-09	-3.4E-09	-4.8E-09	-4.9E-09	-3.3E-09
Statistics									
Min	-2.9E-09	-2.8E-09	-2.9E-09	-3.0E-09	-3.0E-09	-3.4E-09	-4.8E-09	-4.9E-09	-3.3E-09
Max	-2.9E-09	-2.8E-09	-2.9E-09	-3.0E-09	-3.0E-09	-3.4E-09	-4.8E-09	-4.9E-09	-3.3E-09
Average	-2.9E-09	-2.8E-09	-2.9E-09	-3.0E-09	-3.0E-09	-3.4E-09	-4.8E-09	-4.9E-09	-3.3E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

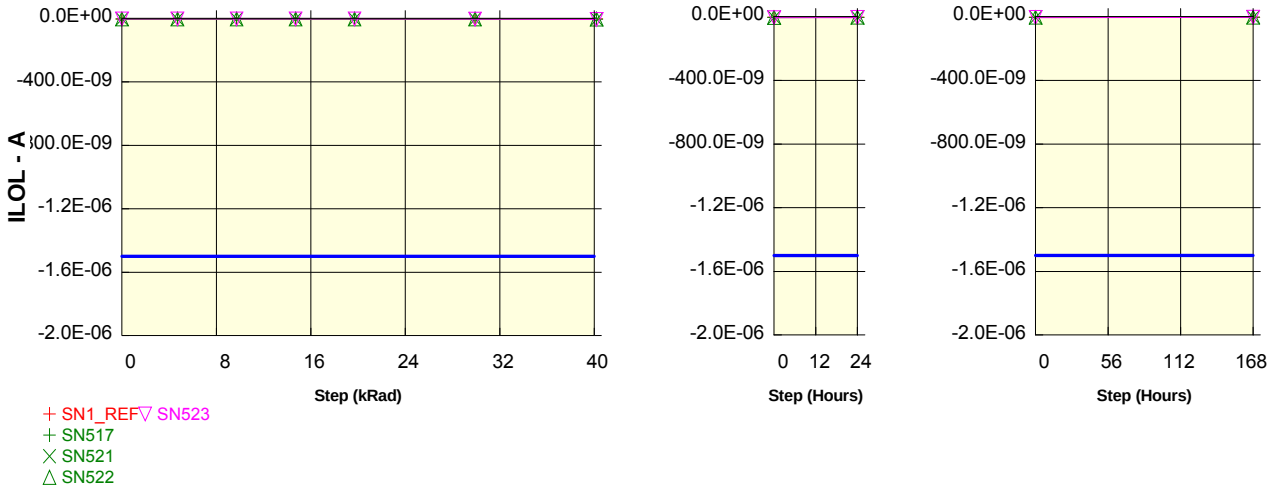
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ11
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09
ON samples									
SN517	-3.0E-09	-3.3E-09	-3.3E-09	-3.7E-09	-3.8E-09	-5.0E-09	-10.3E-09	-10.2E-09	-5.2E-09
SN521	-2.6E-09	-2.6E-09	-2.7E-09	-3.1E-09	-3.3E-09	-5.1E-09	-7.4E-09	-7.0E-09	-4.6E-09
SN522	-3.6E-09	-4.0E-09	-4.2E-09	-4.5E-09	-5.0E-09	-5.8E-09	-7.9E-09	-7.8E-09	-4.9E-09
Statistics									
Min	-3.6E-09	-4.0E-09	-4.2E-09	-4.5E-09	-5.0E-09	-5.8E-09	-10.3E-09	-10.2E-09	-5.2E-09
Max	-2.6E-09	-2.6E-09	-2.7E-09	-3.1E-09	-3.3E-09	-5.0E-09	-7.4E-09	-7.0E-09	-4.6E-09
Average	-3.1E-09	-3.3E-09	-3.4E-09	-3.7E-09	-4.0E-09	-5.3E-09	-8.5E-09	-8.3E-09	-4.9E-09
Sigma	389.4E-12	551.3E-12	635.5E-12	594.9E-12	719.2E-12	365.9E-12	1.3E-09	1.3E-09	246.1E-12

ILOLDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.6E-09
OFF samples									
SN523	-3.3E-09	-3.2E-09	-3.5E-09	-3.7E-09	-4.6E-09	-6.4E-09	-6.9E-09	-6.7E-09	-3.7E-09
Statistics									
Min	-3.3E-09	-3.2E-09	-3.5E-09	-3.7E-09	-4.6E-09	-6.4E-09	-6.9E-09	-6.7E-09	-3.7E-09
Max	-3.3E-09	-3.2E-09	-3.5E-09	-3.7E-09	-4.6E-09	-6.4E-09	-6.9E-09	-6.7E-09	-3.7E-09
Average	-3.3E-09	-3.2E-09	-3.5E-09	-3.7E-09	-4.6E-09	-6.4E-09	-6.9E-09	-6.7E-09	-3.7E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

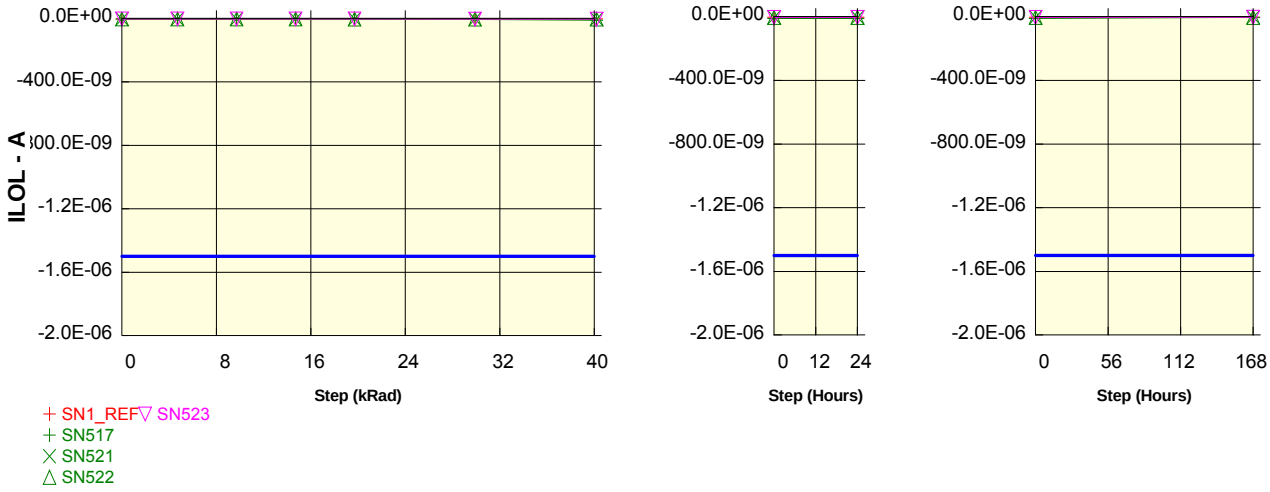
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ10
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.5E-09
ON samples									
SN517	-3.0E-09	-3.1E-09	-3.0E-09	-3.0E-09	-3.3E-09	-3.8E-09	-4.3E-09	-4.3E-09	-3.4E-09
SN521	-2.5E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.8E-09	-3.6E-09	-5.7E-09	-5.2E-09	-2.9E-09
SN522	-3.3E-09	-3.3E-09	-3.3E-09	-3.3E-09	-3.3E-09	-3.4E-09	-3.9E-09	-3.3E-09	-3.4E-09
Statistics									
Min	-3.3E-09	-3.3E-09	-3.3E-09	-3.3E-09	-3.3E-09	-3.8E-09	-5.7E-09	-5.2E-09	-3.4E-09
Max	-2.5E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.8E-09	-3.4E-09	-3.9E-09	-3.3E-09	-2.9E-09
Average	-2.9E-09	-2.9E-09	-2.9E-09	-3.0E-09	-3.1E-09	-3.6E-09	-4.6E-09	-4.3E-09	-3.2E-09
Sigma	330.0E-12	339.9E-12	334.2E-12	224.8E-12	224.8E-12	163.3E-12	771.7E-12	776.0E-12	224.8E-12

ILOLDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.5E-09
OFF samples									
SN523	-2.9E-09	-2.9E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.5E-09	-6.0E-09	-5.9E-09	-3.8E-09
Statistics									
Min	-2.9E-09	-2.9E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.5E-09	-6.0E-09	-5.9E-09	-3.8E-09
Max	-2.9E-09	-2.9E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.5E-09	-6.0E-09	-5.9E-09	-3.8E-09
Average	-2.9E-09	-2.9E-09	-2.9E-09	-3.3E-09	-3.4E-09	-4.5E-09	-6.0E-09	-5.9E-09	-3.8E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

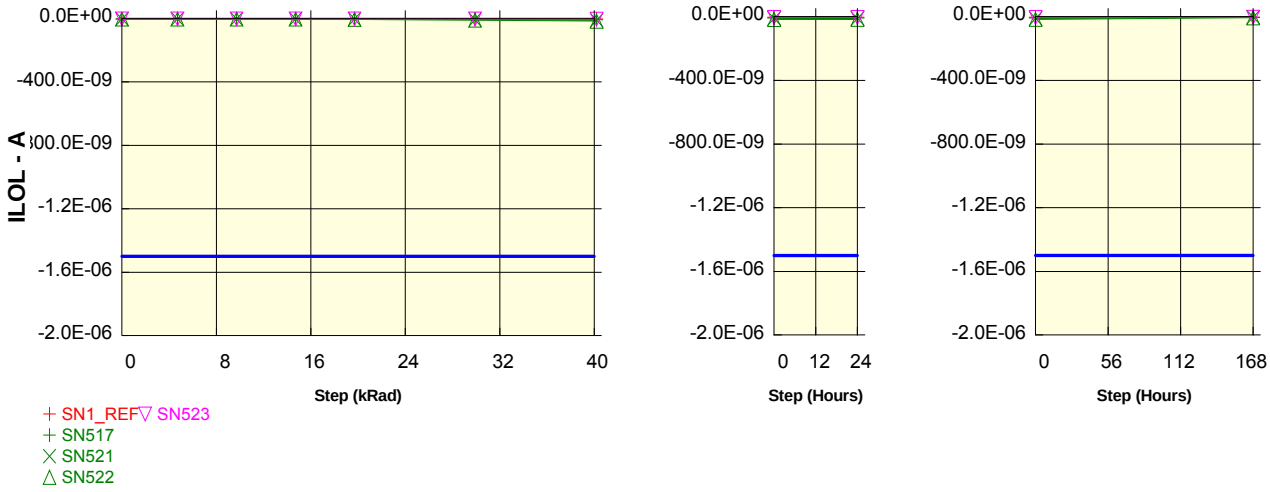
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ9
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.7E-09	-2.7E-09	-2.7E-09
ON samples									
SN517	-3.1E-09	-3.1E-09	-3.4E-09	-3.5E-09	-4.3E-09	-6.2E-09	-11.1E-09	-11.4E-09	-4.8E-09
SN521	-2.5E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.9E-09	-3.3E-09	-4.0E-09	-4.1E-09	-3.1E-09
SN522	-3.3E-09	-3.3E-09	-3.3E-09	-3.3E-09	-3.5E-09	-3.7E-09	-5.1E-09	-4.3E-09	-3.6E-09
Statistics									
Min	-3.3E-09	-3.3E-09	-3.4E-09	-3.5E-09	-4.3E-09	-6.2E-09	-11.1E-09	-11.4E-09	-4.8E-09
Max	-2.5E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.9E-09	-3.3E-09	-4.0E-09	-4.1E-09	-3.1E-09
Average	-2.9E-09	-2.9E-09	-3.0E-09	-3.1E-09	-3.5E-09	-4.4E-09	-6.7E-09	-6.6E-09	-3.8E-09
Sigma	317.1E-12	339.9E-12	402.8E-12	356.7E-12	573.5E-12	1.3E-09	3.1E-09	3.4E-09	713.4E-12

ILOLDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.7E-09	-2.7E-09	-2.7E-09
OFF samples									
SN523	-3.1E-09	-3.1E-09	-3.1E-09	-3.3E-09	-3.4E-09	-4.6E-09	-5.2E-09	-5.1E-09	-3.6E-09
Statistics									
Min	-3.1E-09	-3.1E-09	-3.1E-09	-3.3E-09	-3.4E-09	-4.6E-09	-5.2E-09	-5.1E-09	-3.6E-09
Max	-3.1E-09	-3.1E-09	-3.1E-09	-3.3E-09	-3.4E-09	-4.6E-09	-5.2E-09	-5.1E-09	-3.6E-09
Average	-3.1E-09	-3.1E-09	-3.1E-09	-3.3E-09	-3.4E-09	-4.6E-09	-5.2E-09	-5.1E-09	-3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

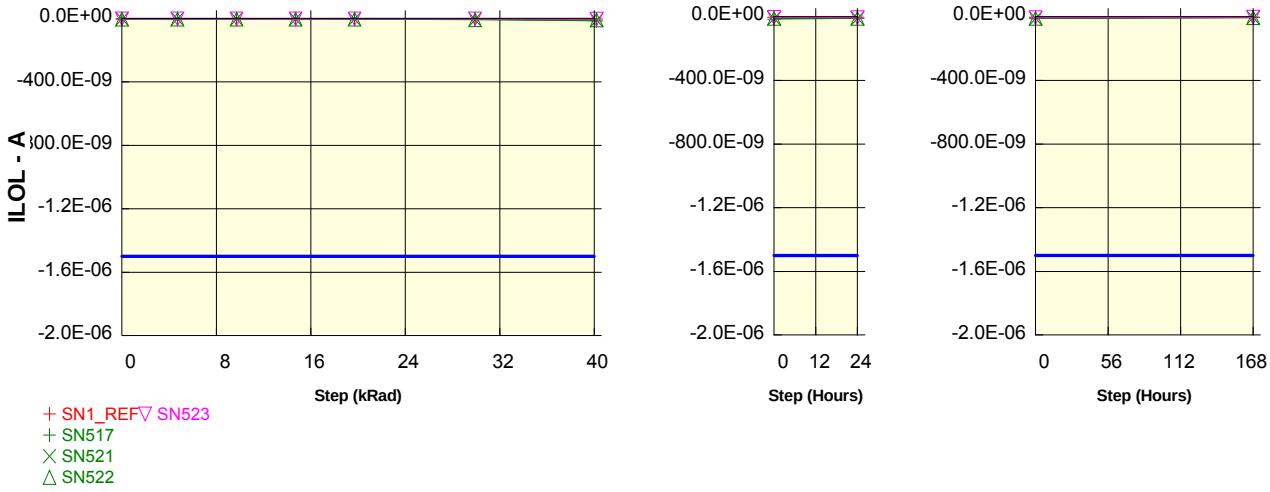
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ8
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.5E-09	-2.5E-09	-2.6E-09	-2.5E-09	-2.6E-09
ON samples									
SN517	-3.0E-09	-3.3E-09	-3.5E-09	-3.6E-09	-3.9E-09	-5.9E-09	-8.0E-09	-8.0E-09	-3.9E-09
SN521	-2.5E-09	-2.9E-09	-2.8E-09	-3.3E-09	-3.6E-09	-7.1E-09	-11.7E-09	-11.9E-09	-3.2E-09
SN522	-3.6E-09	-3.8E-09	-4.0E-09	-4.7E-09	-5.9E-09	-10.8E-09	-17.6E-09	-17.1E-09	-7.1E-09
Statistics									
Min	-3.6E-09	-3.8E-09	-4.0E-09	-4.7E-09	-5.9E-09	-10.8E-09	-17.6E-09	-17.1E-09	-7.1E-09
Max	-2.5E-09	-2.9E-09	-2.8E-09	-3.3E-09	-3.6E-09	-5.9E-09	-8.0E-09	-8.0E-09	-3.2E-09
Average	-3.0E-09	-3.3E-09	-3.4E-09	-3.8E-09	-4.4E-09	-7.9E-09	-12.4E-09	-12.3E-09	-4.7E-09
Sigma	449.1E-12	389.4E-12	470.8E-12	586.4E-12	1.0E-09	2.1E-09	4.0E-09	3.7E-09	1.7E-09

ILOLDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.5E-09	-2.5E-09	-2.6E-09	-2.5E-09	-2.6E-09
OFF samples									
SN523	-2.8E-09	-3.0E-09	-2.9E-09	-3.2E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.1E-09	-3.3E-09
Statistics									
Min	-2.8E-09	-3.0E-09	-2.9E-09	-3.2E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.1E-09	-3.3E-09
Max	-2.8E-09	-3.0E-09	-2.9E-09	-3.2E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.1E-09	-3.3E-09
Average	-2.8E-09	-3.0E-09	-2.9E-09	-3.2E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.1E-09	-3.3E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

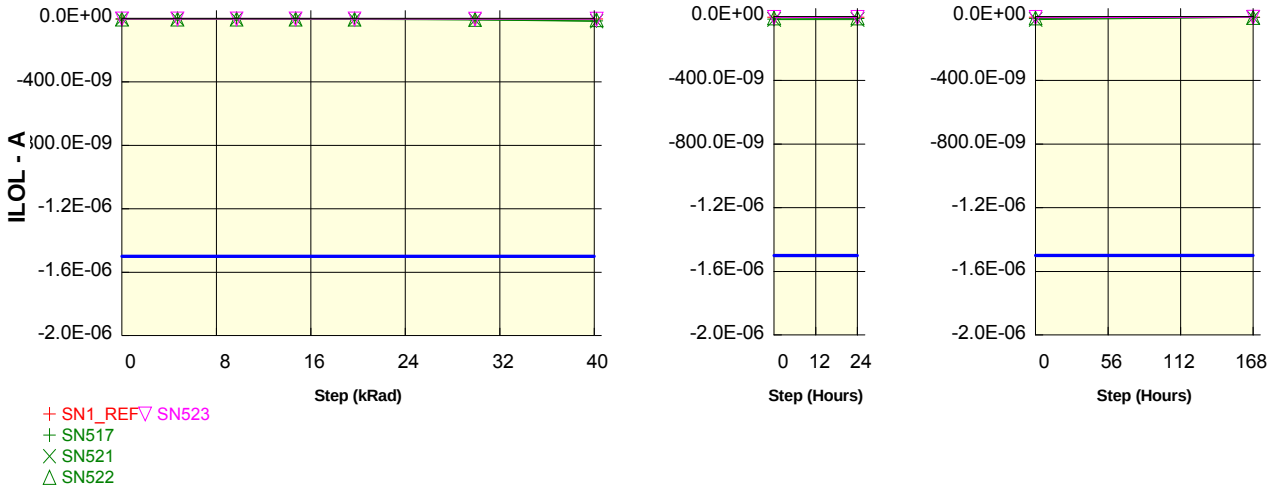
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ7
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.9E-09	-2.8E-09	-3.1E-09	-2.6E-09	-2.5E-09	-2.7E-09	-2.8E-09	-2.7E-09
ON samples									
SN517	-3.1E-09	-3.6E-09	-3.7E-09	-3.7E-09	-5.0E-09	-6.9E-09	-14.4E-09	-10.7E-09	-5.5E-09
SN521	-2.9E-09	-3.0E-09	-3.3E-09	-4.1E-09	-4.2E-09	-7.1E-09	-11.5E-09	-11.0E-09	-6.4E-09
SN522	-3.8E-09	-4.0E-09	-4.2E-09	-4.6E-09	-4.8E-09	-7.8E-09	-10.1E-09	-9.6E-09	-6.2E-09
Statistics									
Min	-3.8E-09	-4.0E-09	-4.2E-09	-4.6E-09	-5.0E-09	-7.8E-09	-14.4E-09	-11.0E-09	-6.4E-09
Max	-2.9E-09	-3.0E-09	-3.3E-09	-3.7E-09	-4.2E-09	-6.9E-09	-10.1E-09	-9.6E-09	-5.5E-09
Average	-3.2E-09	-3.5E-09	-3.7E-09	-4.1E-09	-4.7E-09	-7.3E-09	-12.0E-09	-10.4E-09	-6.0E-09
Sigma	408.9E-12	414.3E-12	368.2E-12	367.4E-12	339.9E-12	402.1E-12	1.8E-09	601.8E-12	408.9E-12

ILOLDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.9E-09	-2.8E-09	-3.1E-09	-2.6E-09	-2.5E-09	-2.7E-09	-2.8E-09	-2.7E-09
OFF samples									
SN523	-3.4E-09	-3.3E-09	-3.5E-09	-3.9E-09	-3.3E-09	-3.8E-09	-5.4E-09	-6.6E-09	-4.1E-09
Statistics									
Min	-3.4E-09	-3.3E-09	-3.5E-09	-3.9E-09	-3.3E-09	-3.8E-09	-5.4E-09	-6.6E-09	-4.1E-09
Max	-3.4E-09	-3.3E-09	-3.5E-09	-3.9E-09	-3.3E-09	-3.8E-09	-5.4E-09	-6.6E-09	-4.1E-09
Average	-3.4E-09	-3.3E-09	-3.5E-09	-3.9E-09	-3.3E-09	-3.8E-09	-5.4E-09	-6.6E-09	-4.1E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

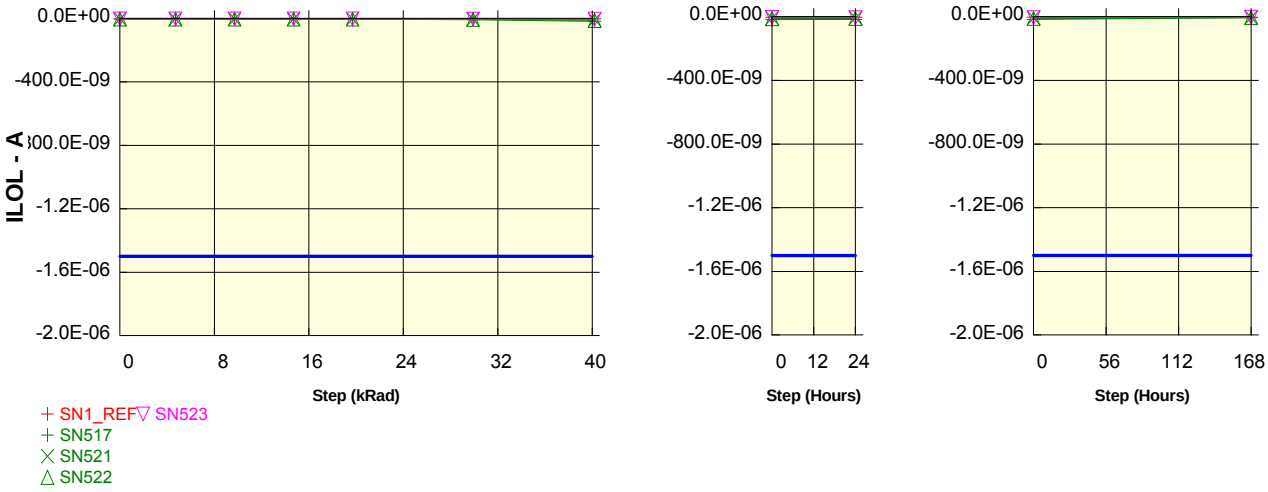
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ6
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.9E-09	-2.6E-09	-2.8E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09
ON samples									
SN517	-3.2E-09	-3.5E-09	-3.6E-09	-4.1E-09	-5.2E-09	-8.8E-09	-15.2E-09	-12.4E-09	-5.0E-09
SN521	-2.6E-09	-2.8E-09	-3.3E-09	-5.1E-09	-6.1E-09	-10.0E-09	-17.8E-09	-17.9E-09	-5.4E-09
SN522	-3.6E-09	-3.7E-09	-3.7E-09	-3.8E-09	-4.4E-09	-6.1E-09	-8.4E-09	-7.9E-09	-5.0E-09
Statistics									
Min	-3.6E-09	-3.7E-09	-3.7E-09	-5.1E-09	-6.1E-09	-10.0E-09	-17.8E-09	-17.9E-09	-5.4E-09
Max	-2.6E-09	-2.8E-09	-3.3E-09	-3.8E-09	-4.4E-09	-6.1E-09	-8.4E-09	-7.9E-09	-5.0E-09
Average	-3.1E-09	-3.3E-09	-3.5E-09	-4.3E-09	-5.2E-09	-8.3E-09	-13.8E-09	-12.7E-09	-5.1E-09
Sigma	392.3E-12	362.9E-12	154.6E-12	532.8E-12	673.7E-12	1.6E-09	4.0E-09	4.1E-09	201.4E-12

ILOLDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.9E-09	-2.6E-09	-2.8E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09
OFF samples									
SN523	-3.0E-09	-3.0E-09	-3.1E-09	-3.3E-09	-3.6E-09	-4.2E-09	-5.5E-09	-5.6E-09	-3.6E-09
Statistics									
Min	-3.0E-09	-3.0E-09	-3.1E-09	-3.3E-09	-3.6E-09	-4.2E-09	-5.5E-09	-5.6E-09	-3.6E-09
Max	-3.0E-09	-3.0E-09	-3.1E-09	-3.3E-09	-3.6E-09	-4.2E-09	-5.5E-09	-5.6E-09	-3.6E-09
Average	-3.0E-09	-3.0E-09	-3.1E-09	-3.3E-09	-3.6E-09	-4.2E-09	-5.5E-09	-5.6E-09	-3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

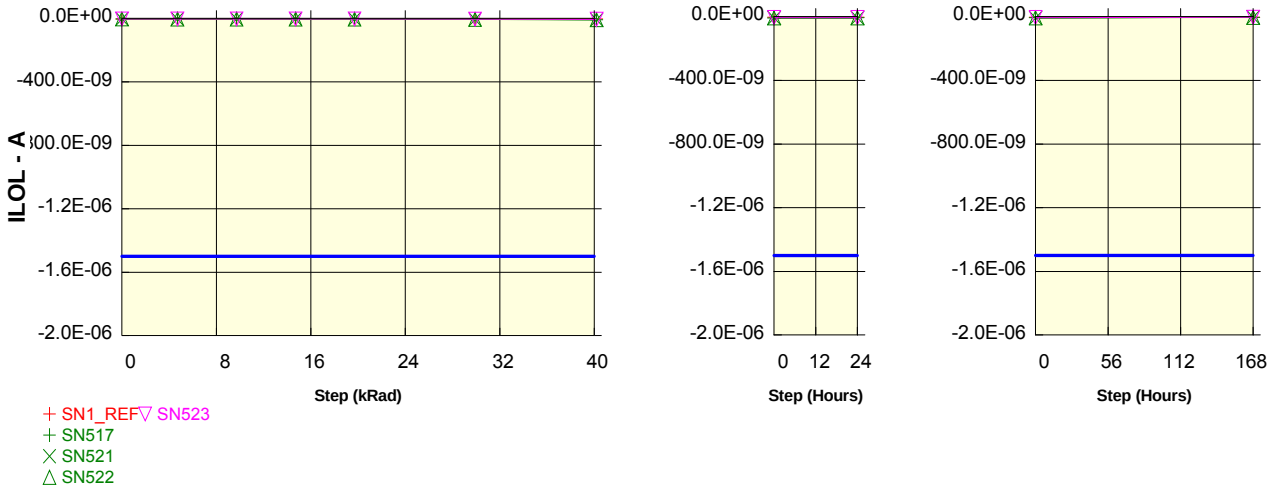
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ5
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.5E-09	-2.6E-09	-2.6E-09	-2.5E-09
ON samples									
SN517	-2.9E-09	-3.4E-09	-3.7E-09	-4.2E-09	-4.8E-09	-7.6E-09	-18.0E-09	-16.6E-09	-6.2E-09
SN521	-2.7E-09	-2.8E-09	-2.8E-09	-3.1E-09	-3.4E-09	-5.0E-09	-7.8E-09	-7.7E-09	-4.8E-09
SN522	-3.6E-09	-3.6E-09	-4.0E-09	-4.2E-09	-4.5E-09	-6.8E-09	-12.1E-09	-11.5E-09	-6.8E-09
Statistics									
Min	-3.6E-09	-3.6E-09	-4.0E-09	-4.2E-09	-4.8E-09	-7.6E-09	-18.0E-09	-16.6E-09	-6.8E-09
Max	-2.7E-09	-2.8E-09	-2.8E-09	-3.1E-09	-3.4E-09	-5.0E-09	-7.8E-09	-7.7E-09	-4.8E-09
Average	-3.0E-09	-3.2E-09	-3.5E-09	-3.8E-09	-4.2E-09	-6.5E-09	-12.6E-09	-11.9E-09	-5.9E-09
Sigma	379.3E-12	356.7E-12	487.1E-12	507.2E-12	624.9E-12	1.1E-09	4.2E-09	3.6E-09	838.0E-12

ILOLDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.6E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.5E-09	-2.6E-09	-2.6E-09	-2.5E-09
OFF samples									
SN523	-3.2E-09	-3.2E-09	-3.3E-09	-3.4E-09	-3.5E-09	-4.6E-09	-5.8E-09	-6.0E-09	-3.7E-09
Statistics									
Min	-3.2E-09	-3.2E-09	-3.3E-09	-3.4E-09	-3.5E-09	-4.6E-09	-5.8E-09	-6.0E-09	-3.7E-09
Max	-3.2E-09	-3.2E-09	-3.3E-09	-3.4E-09	-3.5E-09	-4.6E-09	-5.8E-09	-6.0E-09	-3.7E-09
Average	-3.2E-09	-3.2E-09	-3.3E-09	-3.4E-09	-3.5E-09	-4.6E-09	-5.8E-09	-6.0E-09	-3.7E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

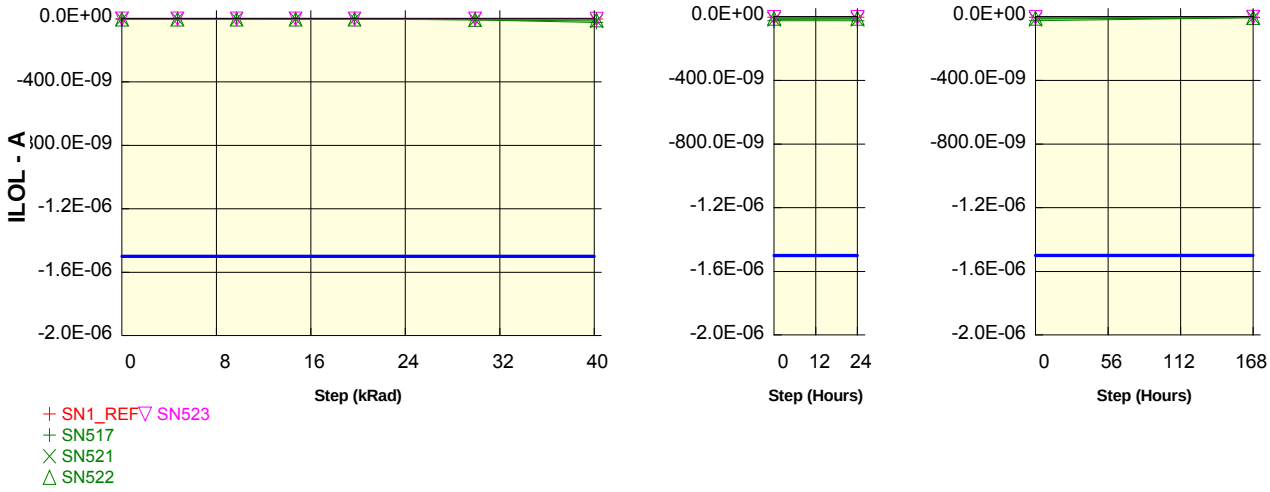
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ4
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.7E-09	-2.7E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09
ON samples									
SN517	-3.1E-09	-3.3E-09	-3.3E-09	-3.6E-09	-3.7E-09	-4.6E-09	-7.8E-09	-6.5E-09	-3.9E-09
SN521	-2.6E-09	-2.6E-09	-2.6E-09	-3.0E-09	-3.6E-09	-6.8E-09	-8.2E-09	-7.9E-09	-3.6E-09
SN522	-3.4E-09	-3.6E-09	-3.6E-09	-3.9E-09	-4.7E-09	-6.1E-09	-7.9E-09	-7.5E-09	-4.2E-09
Statistics									
Min	-3.4E-09	-3.6E-09	-3.6E-09	-3.9E-09	-4.7E-09	-6.8E-09	-8.2E-09	-7.9E-09	-4.2E-09
Max	-2.6E-09	-2.6E-09	-2.6E-09	-3.0E-09	-3.6E-09	-4.6E-09	-7.8E-09	-6.5E-09	-3.6E-09
Average	-3.0E-09	-3.1E-09	-3.2E-09	-3.5E-09	-4.0E-09	-5.8E-09	-7.9E-09	-7.3E-09	-3.9E-09
Sigma	327.4E-12	436.5E-12	419.0E-12	392.3E-12	473.2E-12	917.7E-12	165.0E-12	572.0E-12	265.6E-12

ILOLDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.8E-09	-2.7E-09	-2.7E-09	-2.6E-09	-2.7E-09	-2.6E-09	-2.6E-09	-2.7E-09	-2.6E-09
OFF samples									
SN523	-3.0E-09	-3.1E-09	-3.0E-09	-3.3E-09	-3.4E-09	-4.2E-09	-5.9E-09	-5.8E-09	-3.6E-09
Statistics									
Min	-3.0E-09	-3.1E-09	-3.0E-09	-3.3E-09	-3.4E-09	-4.2E-09	-5.9E-09	-5.8E-09	-3.6E-09
Max	-3.0E-09	-3.1E-09	-3.0E-09	-3.3E-09	-3.4E-09	-4.2E-09	-5.9E-09	-5.8E-09	-3.6E-09
Average	-3.0E-09	-3.1E-09	-3.0E-09	-3.3E-09	-3.4E-09	-4.2E-09	-5.9E-09	-5.8E-09	-3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

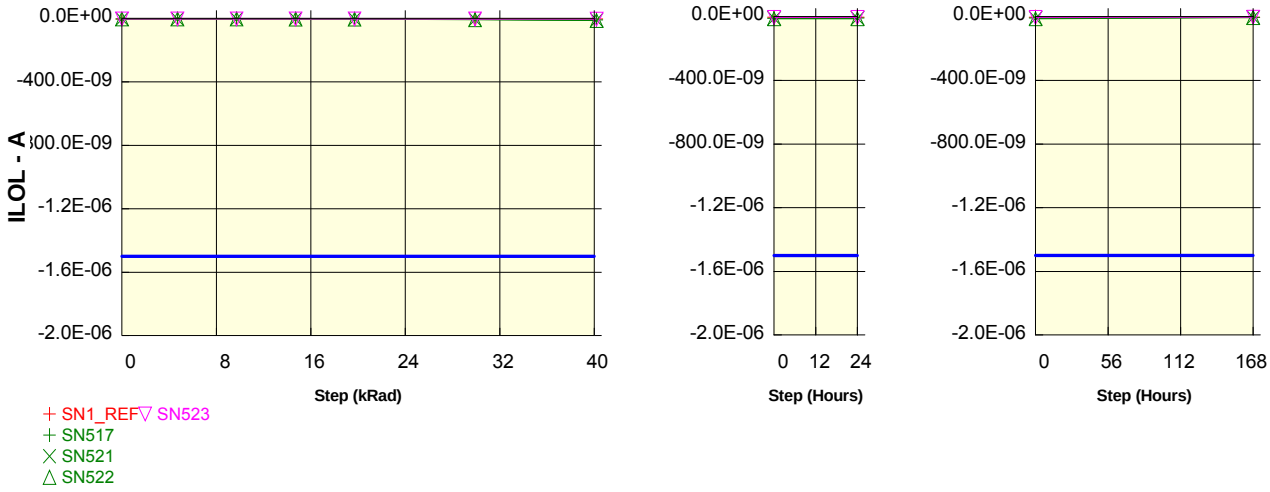
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ3
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.7E-09	-2.7E-09	-2.5E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.5E-09	-2.6E-09	-2.5E-09
ON samples									
SN517	-3.0E-09	-3.4E-09	-3.7E-09	-4.2E-09	-4.9E-09	-10.2E-09	-25.2E-09	-25.1E-09	-6.9E-09
SN521	-2.7E-09	-2.6E-09	-2.8E-09	-3.4E-09	-4.4E-09	-8.6E-09	-16.4E-09	-15.7E-09	-6.9E-09
SN522	-3.5E-09	-3.7E-09	-3.8E-09	-4.0E-09	-4.0E-09	-6.1E-09	-9.8E-09	-9.0E-09	-5.1E-09
Statistics									
Min	-3.5E-09	-3.7E-09	-3.8E-09	-4.2E-09	-4.9E-09	-10.2E-09	-25.2E-09	-25.1E-09	-6.9E-09
Max	-2.7E-09	-2.6E-09	-2.8E-09	-3.4E-09	-4.0E-09	-6.1E-09	-9.8E-09	-9.0E-09	-5.1E-09
Average	-3.1E-09	-3.2E-09	-3.4E-09	-3.9E-09	-4.4E-09	-8.3E-09	-17.1E-09	-16.6E-09	-6.3E-09
Sigma	348.8E-12	441.6E-12	426.2E-12	334.2E-12	368.2E-12	1.7E-09	6.3E-09	6.6E-09	837.0E-12

ILOLDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.7E-09	-2.7E-09	-2.5E-09	-2.6E-09	-2.6E-09	-2.6E-09	-2.5E-09	-2.6E-09	-2.5E-09
OFF samples									
SN523	-3.0E-09	-3.0E-09	-3.0E-09	-3.0E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.0E-09	-3.6E-09
Statistics									
Min	-3.0E-09	-3.0E-09	-3.0E-09	-3.0E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.0E-09	-3.6E-09
Max	-3.0E-09	-3.0E-09	-3.0E-09	-3.0E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.0E-09	-3.6E-09
Average	-3.0E-09	-3.0E-09	-3.0E-09	-3.0E-09	-3.4E-09	-3.7E-09	-5.0E-09	-5.0E-09	-3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

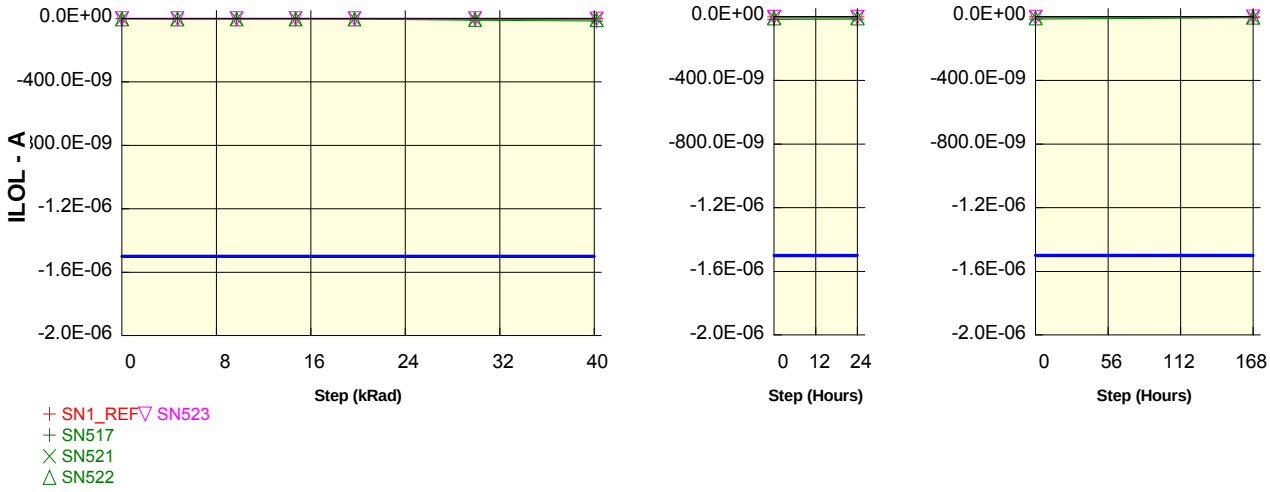
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ2
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.3E-09	-2.5E-09	-2.4E-09	-2.4E-09
ON samples									
SN517	-2.8E-09	-3.1E-09	-3.3E-09	-3.7E-09	-3.9E-09	-6.2E-09	-9.7E-09	-8.7E-09	-5.0E-09
SN521	-2.5E-09	-2.5E-09	-2.6E-09	-2.9E-09	-3.6E-09	-6.0E-09	-10.8E-09	-10.0E-09	-4.7E-09
SN522	-3.2E-09	-3.3E-09	-3.4E-09	-3.7E-09	-4.6E-09	-8.6E-09	-13.5E-09	-12.9E-09	-5.8E-09
Statistics									
Min	-3.2E-09	-3.3E-09	-3.4E-09	-3.7E-09	-4.6E-09	-8.6E-09	-13.5E-09	-12.9E-09	-5.8E-09
Max	-2.5E-09	-2.5E-09	-2.6E-09	-2.9E-09	-3.6E-09	-6.0E-09	-9.7E-09	-8.7E-09	-4.7E-09
Average	-2.8E-09	-2.9E-09	-3.1E-09	-3.4E-09	-4.0E-09	-6.9E-09	-11.3E-09	-10.5E-09	-5.2E-09
Sigma	285.8E-12	317.1E-12	342.4E-12	365.9E-12	414.3E-12	1.2E-09	1.6E-09	1.8E-09	464.3E-12

ILOLDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.5E-09	-2.5E-09	-2.4E-09	-2.5E-09	-2.5E-09	-2.3E-09	-2.5E-09	-2.4E-09	-2.4E-09
OFF samples									
SN523	-2.7E-09	-2.8E-09	-2.8E-09	-2.9E-09	-3.4E-09	-4.1E-09	-4.7E-09	-4.8E-09	-3.0E-09
Statistics									
Min	-2.7E-09	-2.8E-09	-2.8E-09	-2.9E-09	-3.4E-09	-4.1E-09	-4.7E-09	-4.8E-09	-3.0E-09
Max	-2.7E-09	-2.8E-09	-2.8E-09	-2.9E-09	-3.4E-09	-4.1E-09	-4.7E-09	-4.8E-09	-3.0E-09
Average	-2.7E-09	-2.8E-09	-2.8E-09	-2.9E-09	-3.4E-09	-4.1E-09	-4.7E-09	-4.8E-09	-3.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

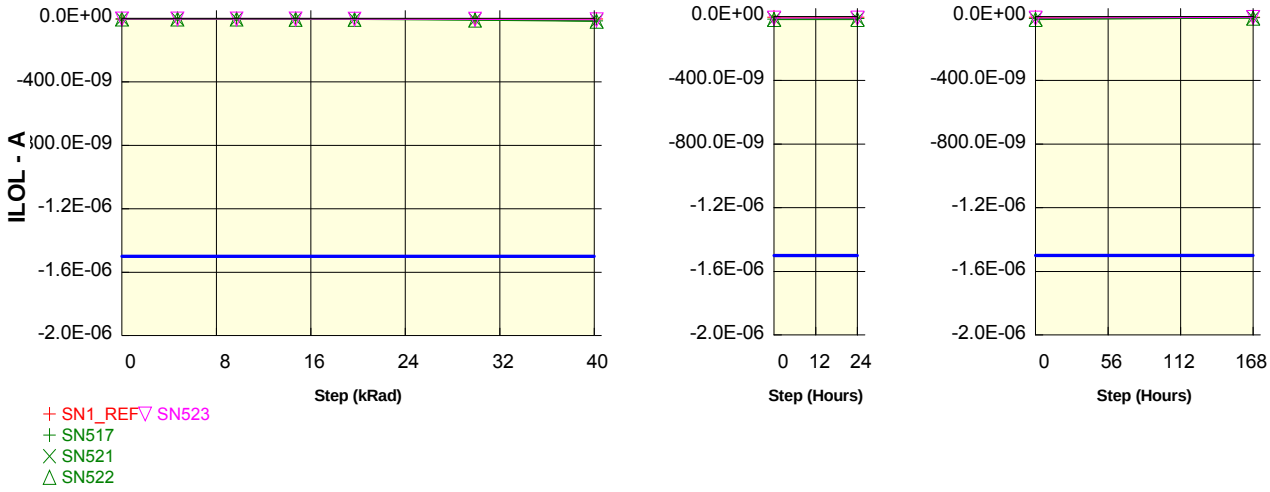
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ1
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-1.9E-09	-2.0E-09	-2.0E-09	-2.0E-09	-1.8E-09	-1.8E-09	-1.9E-09	-1.9E-09	-1.8E-09
ON samples									
SN517	-2.0E-09	-2.4E-09	-2.8E-09	-3.0E-09	-4.5E-09	-12.0E-09	-17.3E-09	-15.6E-09	-6.6E-09
SN521	-1.4E-09	-1.4E-09	-1.7E-09	-1.7E-09	-1.8E-09	-2.9E-09	-3.0E-09	-3.1E-09	-2.5E-09
SN522	-2.2E-09	-2.2E-09	-2.5E-09	-2.7E-09	-2.8E-09	-6.0E-09	-8.6E-09	-8.2E-09	-3.2E-09
Statistics									
Min	-2.2E-09	-2.4E-09	-2.8E-09	-3.0E-09	-4.5E-09	-12.0E-09	-17.3E-09	-15.6E-09	-6.6E-09
Max	-1.4E-09	-1.4E-09	-1.7E-09	-1.7E-09	-1.8E-09	-2.9E-09	-3.0E-09	-3.1E-09	-2.5E-09
Average	-1.9E-09	-2.0E-09	-2.3E-09	-2.4E-09	-3.0E-09	-7.0E-09	-9.6E-09	-9.0E-09	-4.1E-09
Sigma	339.9E-12	432.0E-12	487.1E-12	532.8E-12	1.1E-09	3.8E-09	5.9E-09	5.2E-09	1.8E-09

ILOLDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-1.9E-09	-2.0E-09	-2.0E-09	-2.0E-09	-1.8E-09	-1.8E-09	-1.9E-09	-1.9E-09	-1.8E-09
OFF samples									
SN523	-1.9E-09	-1.8E-09	-1.8E-09	-1.8E-09	-2.0E-09	-2.3E-09	-3.6E-09	-3.6E-09	-2.0E-09
Statistics									
Min	-1.9E-09	-1.8E-09	-1.8E-09	-1.8E-09	-2.0E-09	-2.3E-09	-3.6E-09	-3.6E-09	-2.0E-09
Max	-1.9E-09	-1.8E-09	-1.8E-09	-1.8E-09	-2.0E-09	-2.3E-09	-3.6E-09	-3.6E-09	-2.0E-09
Average	-1.9E-09	-1.8E-09	-1.8E-09	-1.8E-09	-2.0E-09	-2.3E-09	-3.6E-09	-3.6E-09	-2.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

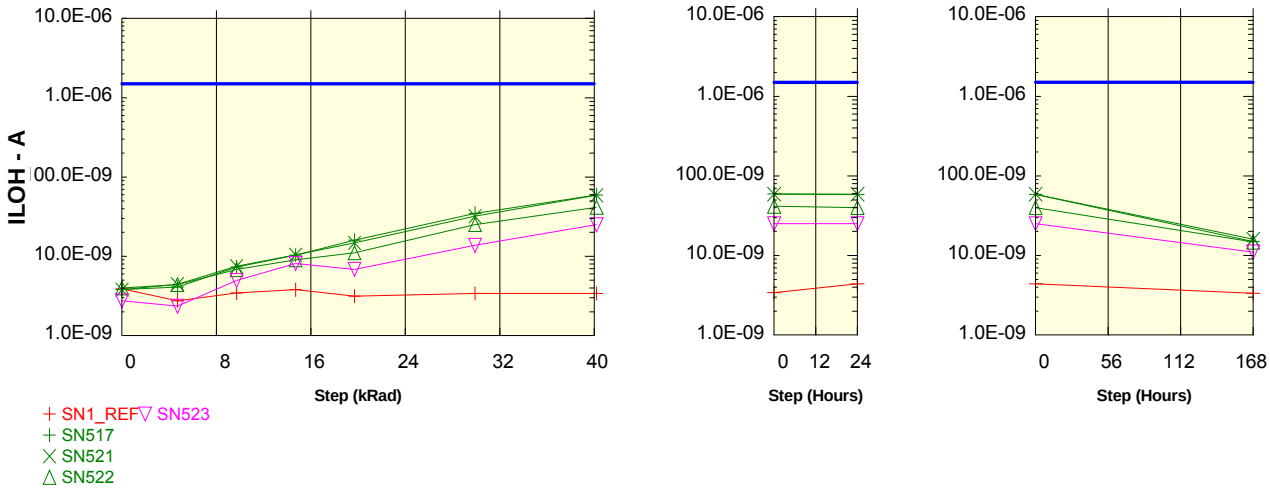
Test conditions : TID
Parameter : Output Leakage Current Low : ILOLDQ0
Vout=0V . Vcc = 3.6V
Unit : A
Spec Limit Min : -1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOLDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.9E-09	-2.8E-09	-2.7E-09	-3.0E-09	-2.6E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.5E-09
ON samples									
SN517	-3.4E-09	-3.6E-09	-3.7E-09	-4.2E-09	-4.5E-09	-7.5E-09	-15.4E-09	-11.7E-09	-5.8E-09
SN521	-2.9E-09	-3.0E-09	-3.3E-09	-3.9E-09	-4.7E-09	-8.6E-09	-14.3E-09	-13.1E-09	-7.7E-09
SN522	-3.9E-09	-4.1E-09	-4.7E-09	-5.5E-09	-6.4E-09	-11.0E-09	-17.8E-09	-17.9E-09	-8.7E-09
Statistics									
Min	-3.9E-09	-4.1E-09	-4.7E-09	-5.5E-09	-6.4E-09	-11.0E-09	-17.8E-09	-17.9E-09	-8.7E-09
Max	-2.9E-09	-3.0E-09	-3.3E-09	-3.9E-09	-4.5E-09	-7.5E-09	-14.3E-09	-11.7E-09	-5.8E-09
Average	-3.4E-09	-3.5E-09	-3.9E-09	-4.5E-09	-5.2E-09	-9.0E-09	-15.8E-09	-14.2E-09	-7.4E-09
Sigma	408.9E-12	451.5E-12	572.0E-12	671.2E-12	862.5E-12	1.4E-09	1.5E-09	2.7E-09	1.2E-09

ILOLDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	-2.9E-09	-2.8E-09	-2.7E-09	-3.0E-09	-2.6E-09	-2.5E-09	-2.5E-09	-2.7E-09	-2.5E-09
OFF samples									
SN523	-3.5E-09	-3.4E-09	-3.5E-09	-3.5E-09	-4.3E-09	-5.6E-09	-9.0E-09	-8.8E-09	-4.3E-09
Statistics									
Min	-3.5E-09	-3.4E-09	-3.5E-09	-3.5E-09	-4.3E-09	-5.6E-09	-9.0E-09	-8.8E-09	-4.3E-09
Max	-3.5E-09	-3.4E-09	-3.5E-09	-3.5E-09	-4.3E-09	-5.6E-09	-9.0E-09	-8.8E-09	-4.3E-09
Average	-3.5E-09	-3.4E-09	-3.5E-09	-3.5E-09	-4.3E-09	-5.6E-09	-9.0E-09	-8.8E-09	-4.3E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

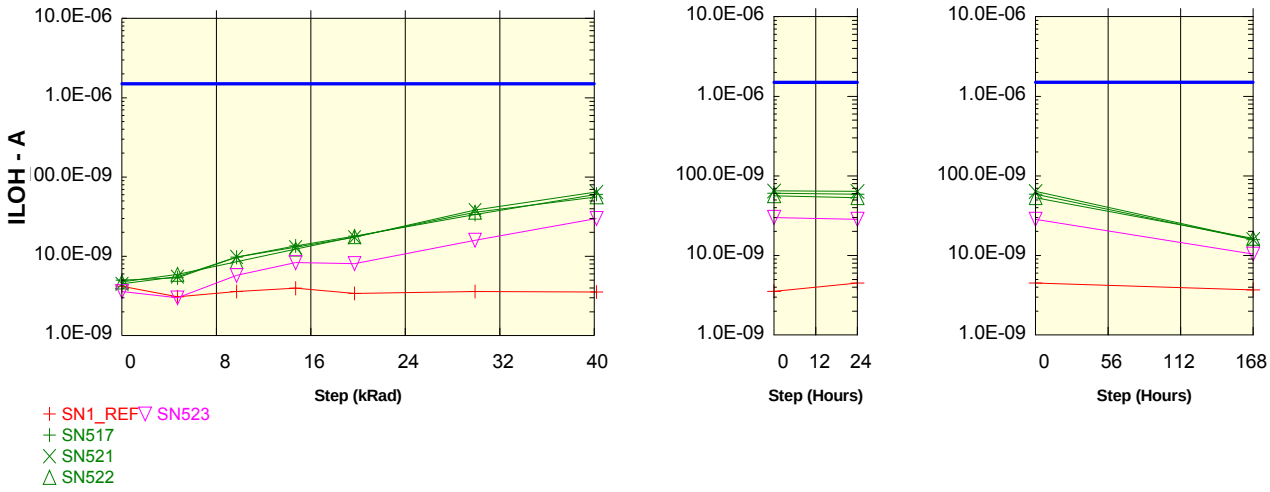
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ15
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.9E-09	2.8E-09	3.5E-09	3.8E-09	3.2E-09	3.4E-09	3.4E-09	4.4E-09	3.4E-09
ON samples									
SN517	3.8E-09	4.1E-09	7.4E-09	10.4E-09	16.0E-09	34.9E-09	59.6E-09	58.5E-09	14.9E-09
SN521	3.8E-09	4.5E-09	7.5E-09	10.5E-09	14.8E-09	32.1E-09	58.8E-09	58.7E-09	16.1E-09
SN522	4.0E-09	4.4E-09	6.8E-09	9.1E-09	11.1E-09	25.1E-09	41.6E-09	39.9E-09	14.8E-09
Statistics									
Min	3.8E-09	4.1E-09	6.8E-09	9.1E-09	11.1E-09	25.1E-09	41.6E-09	39.9E-09	14.8E-09
Max	4.0E-09	4.5E-09	7.5E-09	10.5E-09	16.0E-09	34.9E-09	59.6E-09	58.7E-09	16.1E-09
Average	3.9E-09	4.3E-09	7.2E-09	10.0E-09	14.0E-09	30.7E-09	53.3E-09	52.3E-09	15.2E-09
Sigma	94.3E-12	154.6E-12	300.9E-12	637.7E-12	2.1E-09	4.1E-09	8.3E-09	8.8E-09	580.7E-12

ILOHDQ15	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.9E-09	2.8E-09	3.5E-09	3.8E-09	3.2E-09	3.4E-09	3.4E-09	4.4E-09	3.4E-09
OFF samples									
SN523	2.8E-09	2.4E-09	5.0E-09	8.2E-09	6.9E-09	13.8E-09	25.0E-09	25.1E-09	11.1E-09
Statistics									
Min	2.8E-09	2.4E-09	5.0E-09	8.2E-09	6.9E-09	13.8E-09	25.0E-09	25.1E-09	11.1E-09
Max	2.8E-09	2.4E-09	5.0E-09	8.2E-09	6.9E-09	13.8E-09	25.0E-09	25.1E-09	11.1E-09
Average	2.8E-09	2.4E-09	5.0E-09	8.2E-09	6.9E-09	13.8E-09	25.0E-09	25.1E-09	11.1E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

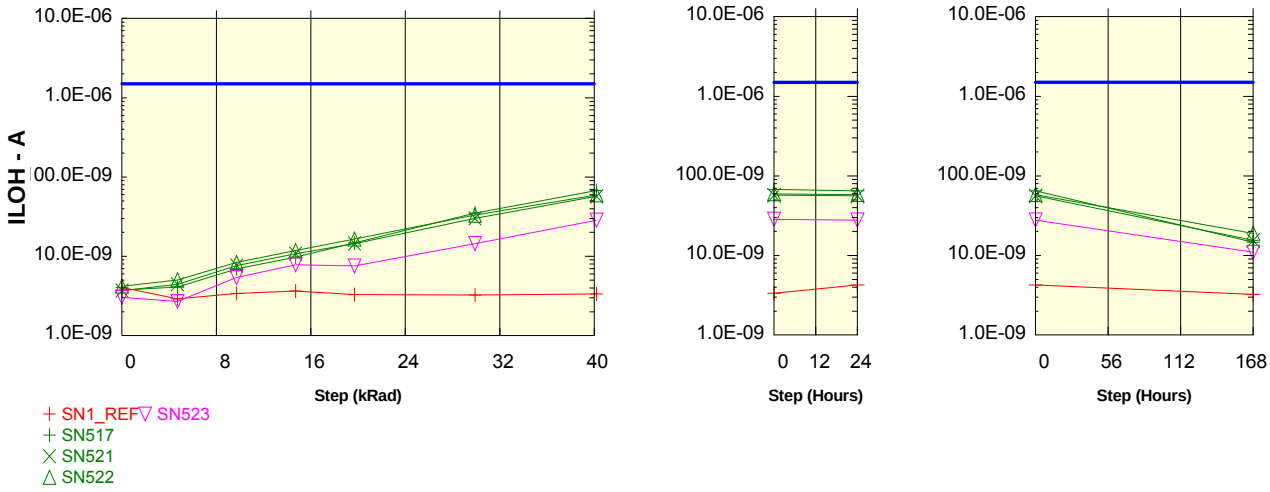
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ14
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.2E-09	3.1E-09	3.6E-09	4.0E-09	3.4E-09	3.6E-09	3.6E-09	4.5E-09	3.7E-09
ON samples									
SN517	5.0E-09	5.4E-09	9.8E-09	13.6E-09	18.0E-09	33.8E-09	60.6E-09	59.1E-09	15.8E-09
SN521	4.5E-09	5.6E-09	9.8E-09	13.0E-09	17.4E-09	38.4E-09	64.7E-09	63.7E-09	15.9E-09
SN522	4.8E-09	5.9E-09	8.6E-09	12.4E-09	17.7E-09	36.0E-09	56.4E-09	53.4E-09	16.5E-09
Statistics									
Min	4.5E-09	5.4E-09	8.6E-09	12.4E-09	17.4E-09	33.8E-09	56.4E-09	53.4E-09	15.8E-09
Max	5.0E-09	5.9E-09	9.8E-09	13.6E-09	18.0E-09	38.4E-09	64.7E-09	63.7E-09	16.5E-09
Average	4.8E-09	5.6E-09	9.4E-09	13.0E-09	17.7E-09	36.0E-09	60.5E-09	58.7E-09	16.0E-09
Sigma	204.1E-12	227.3E-12	577.8E-12	490.5E-12	265.6E-12	1.9E-09	3.4E-09	4.2E-09	309.1E-12

ILOHDQ14	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.2E-09	3.1E-09	3.6E-09	4.0E-09	3.4E-09	3.6E-09	3.6E-09	4.5E-09	3.7E-09
OFF samples									
SN523	3.6E-09	3.0E-09	5.8E-09	8.3E-09	8.1E-09	16.0E-09	30.0E-09	28.5E-09	10.4E-09
Statistics									
Min	3.6E-09	3.0E-09	5.8E-09	8.3E-09	8.1E-09	16.0E-09	30.0E-09	28.5E-09	10.4E-09
Max	3.6E-09	3.0E-09	5.8E-09	8.3E-09	8.1E-09	16.0E-09	30.0E-09	28.5E-09	10.4E-09
Average	3.6E-09	3.0E-09	5.8E-09	8.3E-09	8.1E-09	16.0E-09	30.0E-09	28.5E-09	10.4E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

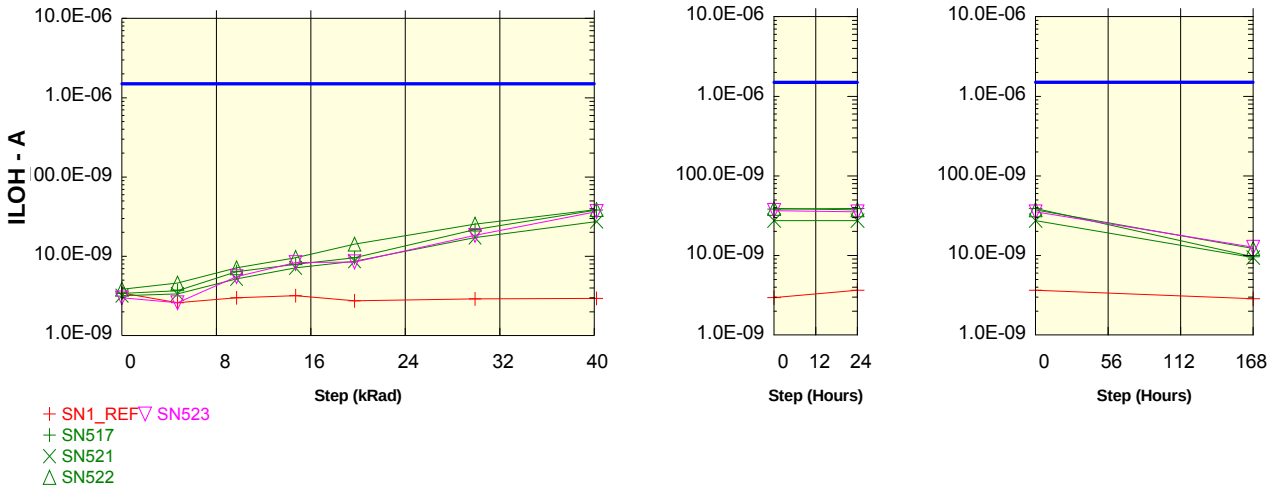
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ13
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.1E-09	2.9E-09	3.4E-09	3.7E-09	3.3E-09	3.3E-09	3.4E-09	4.3E-09	3.3E-09
ON samples									
SN517	3.8E-09	4.1E-09	7.0E-09	9.8E-09	14.8E-09	35.1E-09	67.4E-09	65.1E-09	14.7E-09
SN521	3.7E-09	4.5E-09	7.7E-09	10.8E-09	14.5E-09	30.2E-09	57.0E-09	56.1E-09	15.5E-09
SN522	4.2E-09	5.1E-09	8.4E-09	11.8E-09	16.5E-09	33.1E-09	59.4E-09	58.0E-09	19.0E-09
Statistics									
Min	3.7E-09	4.1E-09	7.0E-09	9.8E-09	14.5E-09	30.2E-09	57.0E-09	56.1E-09	14.7E-09
Max	4.2E-09	5.1E-09	8.4E-09	11.8E-09	16.5E-09	35.1E-09	67.4E-09	65.1E-09	19.0E-09
Average	3.9E-09	4.5E-09	7.7E-09	10.8E-09	15.3E-09	32.8E-09	61.3E-09	59.7E-09	16.4E-09
Sigma	224.8E-12	392.3E-12	592.1E-12	816.5E-12	889.8E-12	2.0E-09	4.5E-09	3.9E-09	1.9E-09

ILOHDQ13	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.1E-09	2.9E-09	3.4E-09	3.7E-09	3.3E-09	3.3E-09	3.4E-09	4.3E-09	3.3E-09
OFF samples									
SN523	3.1E-09	2.7E-09	5.4E-09	7.8E-09	7.6E-09	14.5E-09	28.6E-09	27.9E-09	11.0E-09
Statistics									
Min	3.1E-09	2.7E-09	5.4E-09	7.8E-09	7.6E-09	14.5E-09	28.6E-09	27.9E-09	11.0E-09
Max	3.1E-09	2.7E-09	5.4E-09	7.8E-09	7.6E-09	14.5E-09	28.6E-09	27.9E-09	11.0E-09
Average	3.1E-09	2.7E-09	5.4E-09	7.8E-09	7.6E-09	14.5E-09	28.6E-09	27.9E-09	11.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

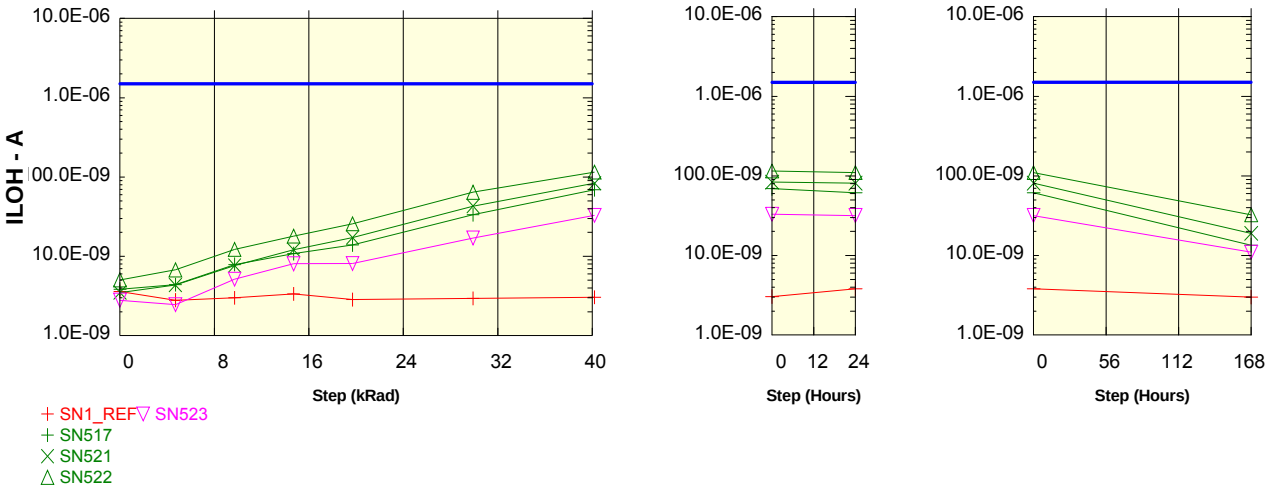
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ12
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.5E-09	2.6E-09	3.0E-09	3.2E-09	2.8E-09	2.9E-09	3.0E-09	3.7E-09	2.9E-09
ON samples									
SN517	3.4E-09	3.7E-09	6.4E-09	8.0E-09	9.6E-09	21.7E-09	38.5E-09	39.0E-09	9.7E-09
SN521	3.2E-09	3.4E-09	5.2E-09	7.2E-09	8.7E-09	17.3E-09	27.4E-09	27.5E-09	9.4E-09
SN522	3.9E-09	4.6E-09	7.2E-09	9.7E-09	14.2E-09	25.5E-09	39.0E-09	37.5E-09	12.2E-09
Statistics									
Min	3.2E-09	3.4E-09	5.2E-09	7.2E-09	8.7E-09	17.3E-09	27.4E-09	27.5E-09	9.4E-09
Max	3.9E-09	4.6E-09	7.2E-09	9.7E-09	14.2E-09	25.5E-09	39.0E-09	39.0E-09	12.2E-09
Average	3.5E-09	3.9E-09	6.3E-09	8.3E-09	10.8E-09	21.5E-09	35.0E-09	34.7E-09	10.4E-09
Sigma	271.8E-12	526.5E-12	803.1E-12	1.0E-09	2.4E-09	3.3E-09	5.3E-09	5.1E-09	1.3E-09

ILOHDQ12	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.5E-09	2.6E-09	3.0E-09	3.2E-09	2.8E-09	2.9E-09	3.0E-09	3.7E-09	2.9E-09
OFF samples									
SN523	3.0E-09	2.6E-09	5.6E-09	8.4E-09	8.5E-09	18.4E-09	36.6E-09	35.3E-09	12.8E-09
Statistics									
Min	3.0E-09	2.6E-09	5.6E-09	8.4E-09	8.5E-09	18.4E-09	36.6E-09	35.3E-09	12.8E-09
Max	3.0E-09	2.6E-09	5.6E-09	8.4E-09	8.5E-09	18.4E-09	36.6E-09	35.3E-09	12.8E-09
Average	3.0E-09	2.6E-09	5.6E-09	8.4E-09	8.5E-09	18.4E-09	36.6E-09	35.3E-09	12.8E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

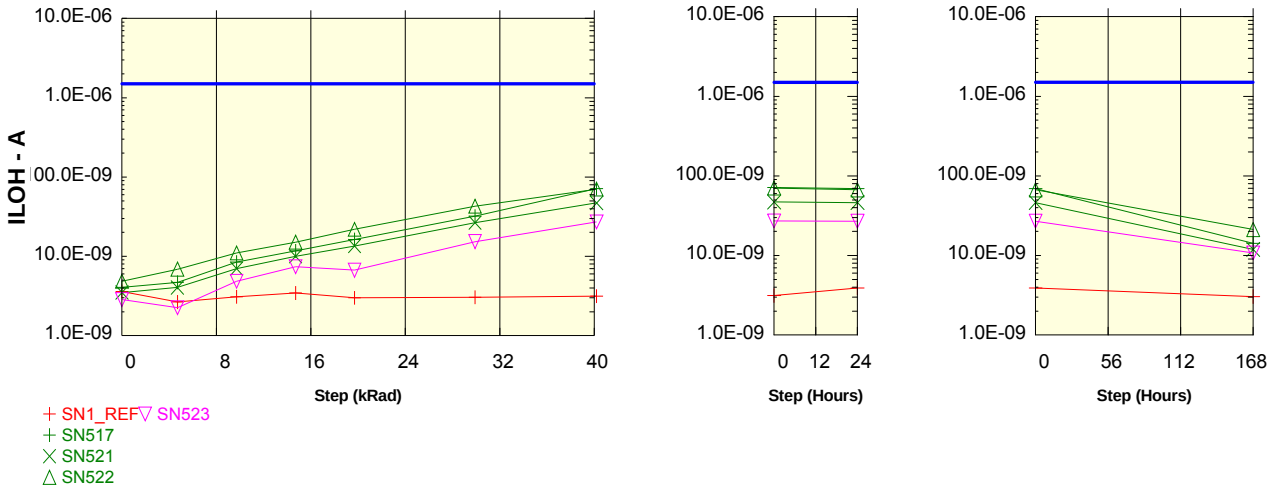
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ11
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.8E-09	3.0E-09	3.4E-09	2.9E-09	3.0E-09	3.1E-09	3.8E-09	3.0E-09
ON samples									
SN517	3.9E-09	4.4E-09	7.9E-09	10.9E-09	13.9E-09	33.5E-09	69.4E-09	61.6E-09	13.5E-09
SN521	3.5E-09	4.4E-09	7.7E-09	12.2E-09	17.2E-09	43.0E-09	83.5E-09	80.9E-09	19.0E-09
SN522	5.1E-09	6.8E-09	12.2E-09	18.0E-09	25.7E-09	64.2E-09	115.5E-09	110.0E-09	32.4E-09
Statistics									
Min	3.5E-09	4.4E-09	7.7E-09	10.9E-09	13.9E-09	33.5E-09	69.4E-09	61.6E-09	13.5E-09
Max	5.1E-09	6.8E-09	12.2E-09	18.0E-09	25.7E-09	64.2E-09	115.5E-09	110.0E-09	32.4E-09
Average	4.1E-09	5.2E-09	9.3E-09	13.7E-09	18.9E-09	46.9E-09	89.5E-09	84.2E-09	21.6E-09
Sigma	663.7E-12	1.1E-09	2.1E-09	3.1E-09	4.9E-09	12.8E-09	19.3E-09	19.9E-09	7.9E-09

ILOHDQ11	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.8E-09	3.0E-09	3.4E-09	2.9E-09	3.0E-09	3.1E-09	3.8E-09	3.0E-09
OFF samples									
SN523	2.8E-09	2.5E-09	5.2E-09	8.1E-09	8.2E-09	17.0E-09	33.0E-09	31.8E-09	11.0E-09
Statistics									
Min	2.8E-09	2.5E-09	5.2E-09	8.1E-09	8.2E-09	17.0E-09	33.0E-09	31.8E-09	11.0E-09
Max	2.8E-09	2.5E-09	5.2E-09	8.1E-09	8.2E-09	17.0E-09	33.0E-09	31.8E-09	11.0E-09
Average	2.8E-09	2.5E-09	5.2E-09	8.1E-09	8.2E-09	17.0E-09	33.0E-09	31.8E-09	11.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

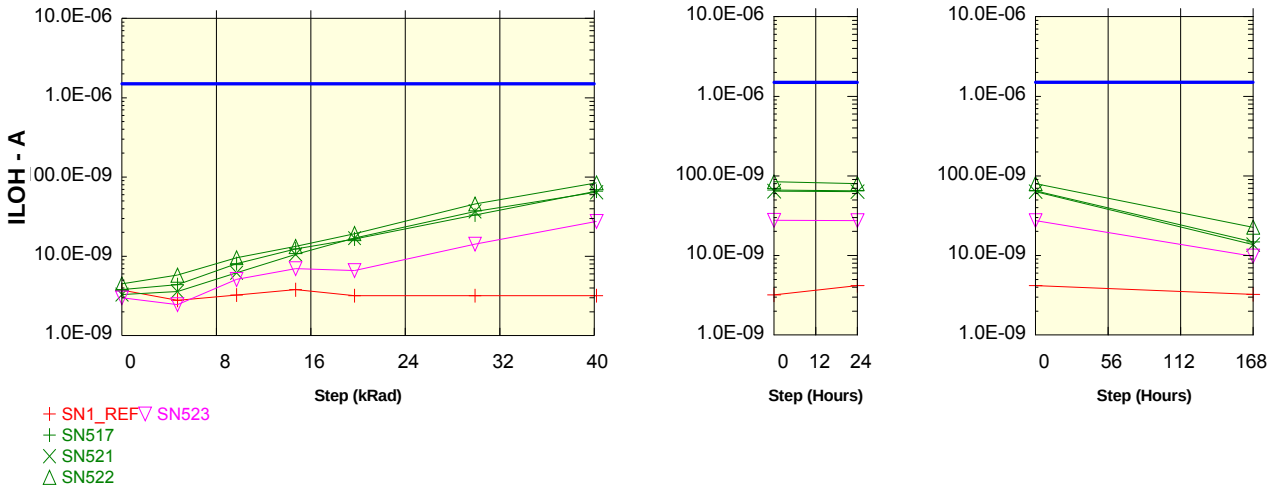
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ10
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.7E-09	3.1E-09	3.5E-09	3.0E-09	3.1E-09	3.2E-09	3.9E-09	3.1E-09
ON samples									
SN517	4.1E-09	4.7E-09	8.5E-09	11.7E-09	16.3E-09	32.2E-09	71.6E-09	69.5E-09	14.2E-09
SN521	3.5E-09	4.1E-09	7.0E-09	10.0E-09	13.5E-09	26.5E-09	47.0E-09	46.2E-09	11.9E-09
SN522	4.9E-09	6.9E-09	11.0E-09	15.1E-09	21.9E-09	42.8E-09	70.3E-09	66.8E-09	21.2E-09
Statistics									
Min	3.5E-09	4.1E-09	7.0E-09	10.0E-09	13.5E-09	26.5E-09	47.0E-09	46.2E-09	11.9E-09
Max	4.9E-09	6.9E-09	11.0E-09	15.1E-09	21.9E-09	42.8E-09	71.6E-09	69.5E-09	21.2E-09
Average	4.1E-09	5.2E-09	8.8E-09	12.3E-09	17.2E-09	33.8E-09	63.0E-09	60.8E-09	15.8E-09
Sigma	554.3E-12	1.2E-09	1.7E-09	2.1E-09	3.5E-09	6.7E-09	11.3E-09	10.4E-09	3.9E-09

ILOHDQ10	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.7E-09	3.1E-09	3.5E-09	3.0E-09	3.1E-09	3.2E-09	3.9E-09	3.1E-09
OFF samples									
SN523	2.9E-09	2.3E-09	4.9E-09	7.4E-09	6.7E-09	15.4E-09	27.2E-09	27.0E-09	10.8E-09
Statistics									
Min	2.9E-09	2.3E-09	4.9E-09	7.4E-09	6.7E-09	15.4E-09	27.2E-09	27.0E-09	10.8E-09
Max	2.9E-09	2.3E-09	4.9E-09	7.4E-09	6.7E-09	15.4E-09	27.2E-09	27.0E-09	10.8E-09
Average	2.9E-09	2.3E-09	4.9E-09	7.4E-09	6.7E-09	15.4E-09	27.2E-09	27.0E-09	10.8E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

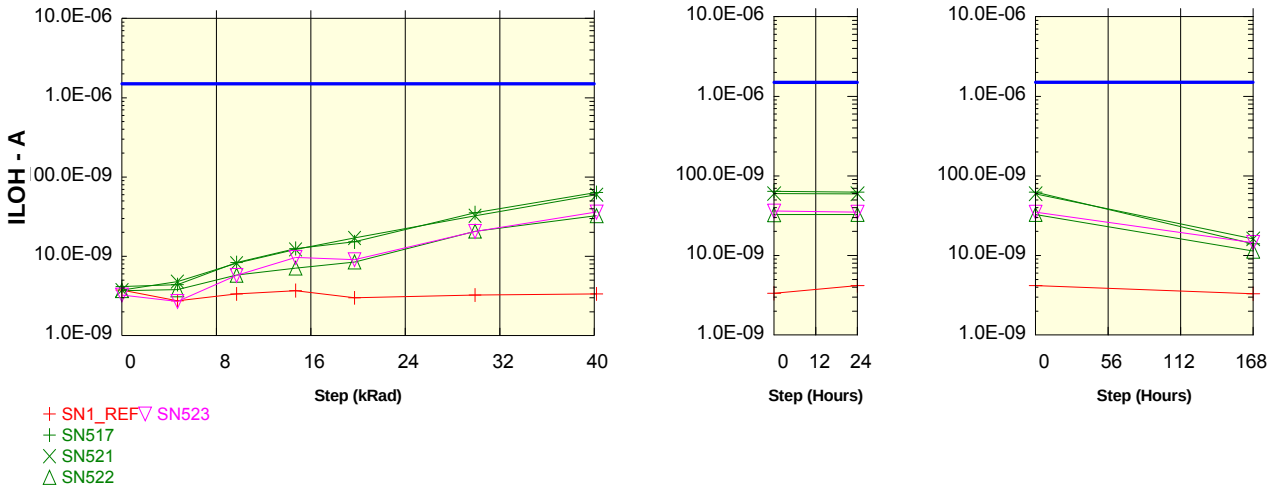
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ9
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.8E-09	2.8E-09	3.3E-09	3.8E-09	3.2E-09	3.2E-09	3.2E-09	4.2E-09	3.3E-09
ON samples									
SN517	3.8E-09	4.4E-09	8.1E-09	12.4E-09	16.6E-09	33.2E-09	66.5E-09	64.7E-09	14.8E-09
SN521	3.3E-09	3.6E-09	6.2E-09	10.6E-09	17.0E-09	37.0E-09	64.2E-09	63.3E-09	13.7E-09
SN522	4.5E-09	5.8E-09	9.6E-09	13.3E-09	19.4E-09	45.7E-09	84.4E-09	80.2E-09	22.7E-09
Statistics									
Min	3.3E-09	3.6E-09	6.2E-09	10.6E-09	16.6E-09	33.2E-09	64.2E-09	63.3E-09	13.7E-09
Max	4.5E-09	5.8E-09	9.6E-09	13.3E-09	19.4E-09	45.7E-09	84.4E-09	80.2E-09	22.7E-09
Average	3.9E-09	4.6E-09	8.0E-09	12.1E-09	17.6E-09	38.6E-09	71.7E-09	69.4E-09	17.1E-09
Sigma	492.2E-12	909.2E-12	1.4E-09	1.1E-09	1.2E-09	5.2E-09	9.0E-09	7.6E-09	4.0E-09

ILOHDQ9	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.8E-09	2.8E-09	3.3E-09	3.8E-09	3.2E-09	3.2E-09	3.2E-09	4.2E-09	3.3E-09
OFF samples									
SN523	3.0E-09	2.5E-09	5.1E-09	7.0E-09	6.6E-09	14.2E-09	27.7E-09	27.4E-09	9.8E-09
Statistics									
Min	3.0E-09	2.5E-09	5.1E-09	7.0E-09	6.6E-09	14.2E-09	27.7E-09	27.4E-09	9.8E-09
Max	3.0E-09	2.5E-09	5.1E-09	7.0E-09	6.6E-09	14.2E-09	27.7E-09	27.4E-09	9.8E-09
Average	3.0E-09	2.5E-09	5.1E-09	7.0E-09	6.6E-09	14.2E-09	27.7E-09	27.4E-09	9.8E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

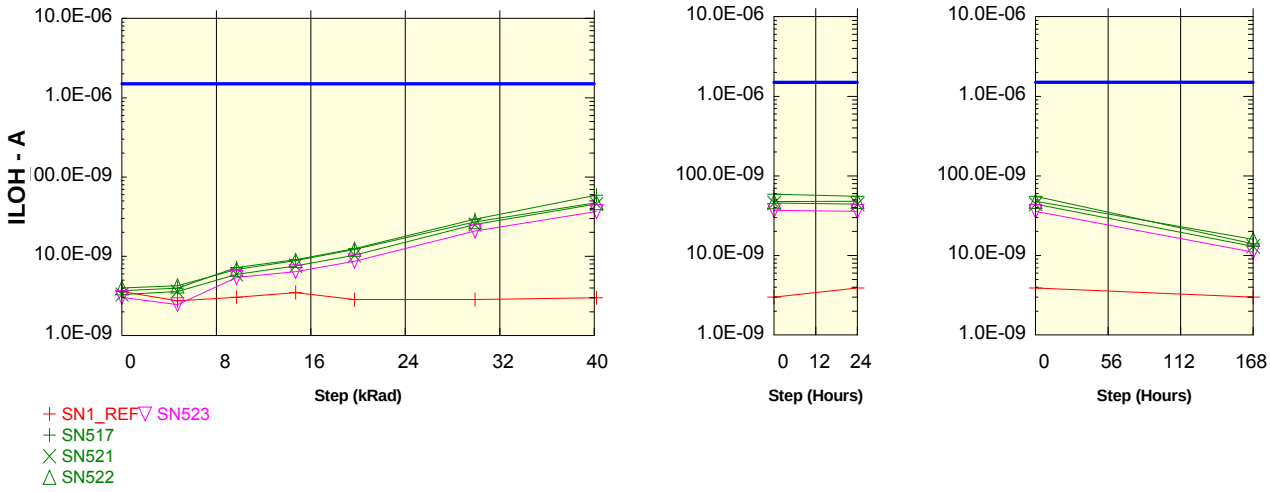
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ8
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.8E-09	2.8E-09	3.4E-09	3.7E-09	3.0E-09	3.3E-09	3.4E-09	4.2E-09	3.3E-09
ON samples									
SN517	4.2E-09	4.4E-09	8.3E-09	12.6E-09	15.3E-09	35.5E-09	63.9E-09	62.5E-09	14.1E-09
SN521	3.8E-09	4.8E-09	8.2E-09	12.2E-09	17.1E-09	32.5E-09	60.0E-09	59.6E-09	16.2E-09
SN522	3.7E-09	3.8E-09	5.8E-09	7.1E-09	8.5E-09	20.8E-09	32.6E-09	32.7E-09	11.4E-09
Statistics									
Min	3.7E-09	3.8E-09	5.8E-09	7.1E-09	8.5E-09	20.8E-09	32.6E-09	32.7E-09	11.4E-09
Max	4.2E-09	4.8E-09	8.3E-09	12.6E-09	17.1E-09	35.5E-09	63.9E-09	62.5E-09	16.2E-09
Average	3.9E-09	4.3E-09	7.4E-09	10.6E-09	13.6E-09	29.6E-09	52.1E-09	51.6E-09	13.9E-09
Sigma	201.4E-12	411.0E-12	1.2E-09	2.5E-09	3.7E-09	6.4E-09	13.9E-09	13.4E-09	2.0E-09

ILOHDQ8	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.8E-09	2.8E-09	3.4E-09	3.7E-09	3.0E-09	3.3E-09	3.4E-09	4.2E-09	3.3E-09
OFF samples									
SN523	3.3E-09	2.7E-09	5.8E-09	9.7E-09	9.1E-09	20.6E-09	36.1E-09	35.1E-09	14.5E-09
Statistics									
Min	3.3E-09	2.7E-09	5.8E-09	9.7E-09	9.1E-09	20.6E-09	36.1E-09	35.1E-09	14.5E-09
Max	3.3E-09	2.7E-09	5.8E-09	9.7E-09	9.1E-09	20.6E-09	36.1E-09	35.1E-09	14.5E-09
Average	3.3E-09	2.7E-09	5.8E-09	9.7E-09	9.1E-09	20.6E-09	36.1E-09	35.1E-09	14.5E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

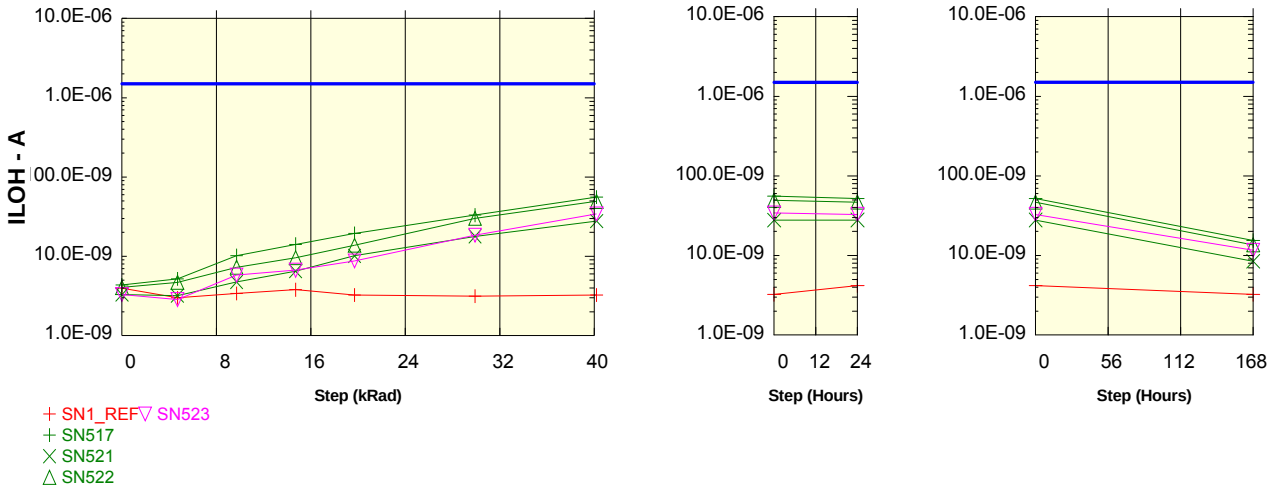
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ7
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.8E-09	3.1E-09	3.5E-09	2.9E-09	2.9E-09	3.0E-09	3.9E-09	3.0E-09
ON samples									
SN517	3.7E-09	4.0E-09	7.2E-09	9.1E-09	12.5E-09	29.4E-09	59.1E-09	55.4E-09	14.0E-09
SN521	3.3E-09	3.6E-09	5.9E-09	7.6E-09	10.3E-09	25.2E-09	45.7E-09	44.2E-09	13.1E-09
SN522	4.0E-09	4.3E-09	6.9E-09	8.8E-09	12.3E-09	27.3E-09	47.4E-09	47.8E-09	15.9E-09
Statistics									
Min	3.3E-09	3.6E-09	5.9E-09	7.6E-09	10.3E-09	25.2E-09	45.7E-09	44.2E-09	13.1E-09
Max	4.0E-09	4.3E-09	7.2E-09	9.1E-09	12.5E-09	29.4E-09	59.1E-09	55.4E-09	15.9E-09
Average	3.7E-09	3.9E-09	6.7E-09	8.5E-09	11.7E-09	27.3E-09	50.7E-09	49.1E-09	14.3E-09
Sigma	286.7E-12	265.6E-12	549.2E-12	648.1E-12	983.5E-12	1.7E-09	6.0E-09	4.7E-09	1.2E-09

ILOHDQ7	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.8E-09	3.1E-09	3.5E-09	2.9E-09	2.9E-09	3.0E-09	3.9E-09	3.0E-09
OFF samples									
SN523	3.1E-09	2.5E-09	5.4E-09	6.4E-09	8.7E-09	20.9E-09	36.7E-09	36.0E-09	11.0E-09
Statistics									
Min	3.1E-09	2.5E-09	5.4E-09	6.4E-09	8.7E-09	20.9E-09	36.7E-09	36.0E-09	11.0E-09
Max	3.1E-09	2.5E-09	5.4E-09	6.4E-09	8.7E-09	20.9E-09	36.7E-09	36.0E-09	11.0E-09
Average	3.1E-09	2.5E-09	5.4E-09	6.4E-09	8.7E-09	20.9E-09	36.7E-09	36.0E-09	11.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

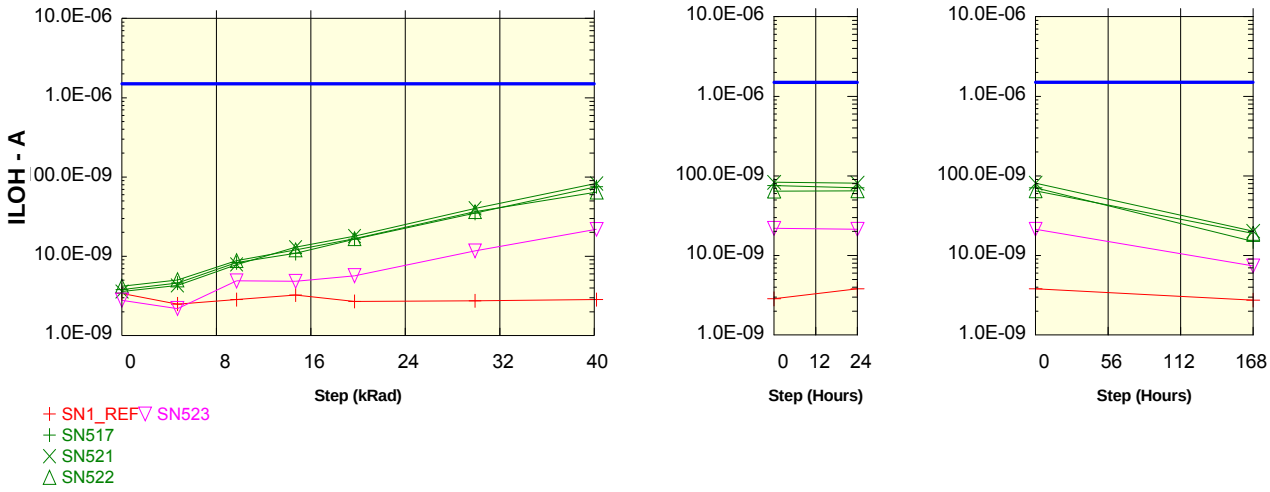
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ6
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.0E-09	3.4E-09	3.8E-09	3.3E-09	3.2E-09	3.3E-09	4.2E-09	3.3E-09
ON samples									
SN517	4.4E-09	5.2E-09	10.2E-09	14.2E-09	19.5E-09	33.1E-09	55.7E-09	52.1E-09	15.4E-09
SN521	3.3E-09	3.2E-09	4.8E-09	6.5E-09	10.2E-09	17.9E-09	27.8E-09	27.9E-09	8.5E-09
SN522	4.1E-09	4.7E-09	7.3E-09	9.6E-09	13.8E-09	30.2E-09	49.3E-09	47.0E-09	13.6E-09
Statistics									
Min	3.3E-09	3.2E-09	4.8E-09	6.5E-09	10.2E-09	17.9E-09	27.8E-09	27.9E-09	8.5E-09
Max	4.4E-09	5.2E-09	10.2E-09	14.2E-09	19.5E-09	33.1E-09	55.7E-09	52.1E-09	15.4E-09
Average	3.9E-09	4.4E-09	7.4E-09	10.1E-09	14.5E-09	27.0E-09	44.3E-09	42.3E-09	12.5E-09
Sigma	441.6E-12	849.8E-12	2.2E-09	3.1E-09	3.8E-09	6.6E-09	11.9E-09	10.4E-09	2.9E-09

ILOHDQ6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.0E-09	3.4E-09	3.8E-09	3.3E-09	3.2E-09	3.3E-09	4.2E-09	3.3E-09
OFF samples									
SN523	3.3E-09	2.9E-09	5.8E-09	6.7E-09	8.8E-09	18.5E-09	34.2E-09	32.8E-09	11.7E-09
Statistics									
Min	3.3E-09	2.9E-09	5.8E-09	6.7E-09	8.8E-09	18.5E-09	34.2E-09	32.8E-09	11.7E-09
Max	3.3E-09	2.9E-09	5.8E-09	6.7E-09	8.8E-09	18.5E-09	34.2E-09	32.8E-09	11.7E-09
Average	3.3E-09	2.9E-09	5.8E-09	6.7E-09	8.8E-09	18.5E-09	34.2E-09	32.8E-09	11.7E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

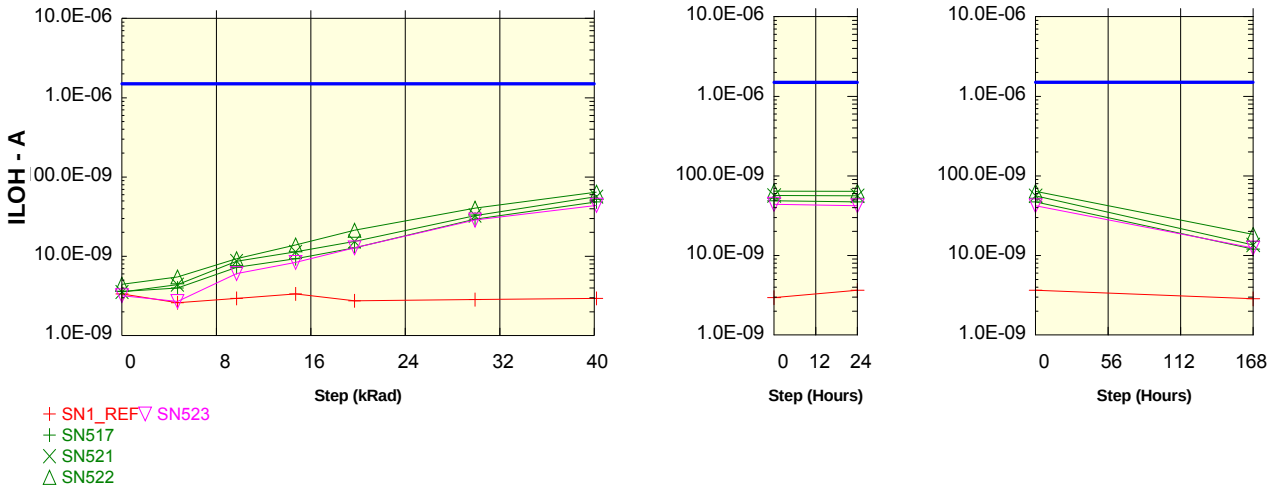
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ5
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.5E-09	2.9E-09	3.3E-09	2.7E-09	2.8E-09	2.9E-09	3.8E-09	2.8E-09
ON samples									
SN517	3.8E-09	4.6E-09	8.3E-09	10.9E-09	16.4E-09	35.0E-09	75.5E-09	71.0E-09	15.0E-09
SN521	3.6E-09	4.3E-09	7.9E-09	13.1E-09	18.0E-09	40.4E-09	83.0E-09	81.0E-09	20.3E-09
SN522	4.2E-09	5.1E-09	8.8E-09	12.1E-09	16.7E-09	36.5E-09	64.4E-09	65.0E-09	19.0E-09
Statistics									
Min	3.6E-09	4.3E-09	7.9E-09	10.9E-09	16.4E-09	35.0E-09	64.4E-09	65.0E-09	15.0E-09
Max	4.2E-09	5.1E-09	8.8E-09	13.1E-09	18.0E-09	40.4E-09	83.0E-09	81.0E-09	20.3E-09
Average	3.9E-09	4.7E-09	8.3E-09	12.0E-09	17.0E-09	37.3E-09	74.3E-09	72.3E-09	18.1E-09
Sigma	249.4E-12	308.2E-12	368.2E-12	878.4E-12	694.4E-12	2.3E-09	7.6E-09	6.6E-09	2.2E-09

ILOHDQ5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.5E-09	2.9E-09	3.3E-09	2.7E-09	2.8E-09	2.9E-09	3.8E-09	2.8E-09
OFF samples									
SN523	2.8E-09	2.2E-09	4.9E-09	4.9E-09	5.7E-09	11.8E-09	21.9E-09	21.4E-09	7.4E-09
Statistics									
Min	2.8E-09	2.2E-09	4.9E-09	4.9E-09	5.7E-09	11.8E-09	21.9E-09	21.4E-09	7.4E-09
Max	2.8E-09	2.2E-09	4.9E-09	4.9E-09	5.7E-09	11.8E-09	21.9E-09	21.4E-09	7.4E-09
Average	2.8E-09	2.2E-09	4.9E-09	4.9E-09	5.7E-09	11.8E-09	21.9E-09	21.4E-09	7.4E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

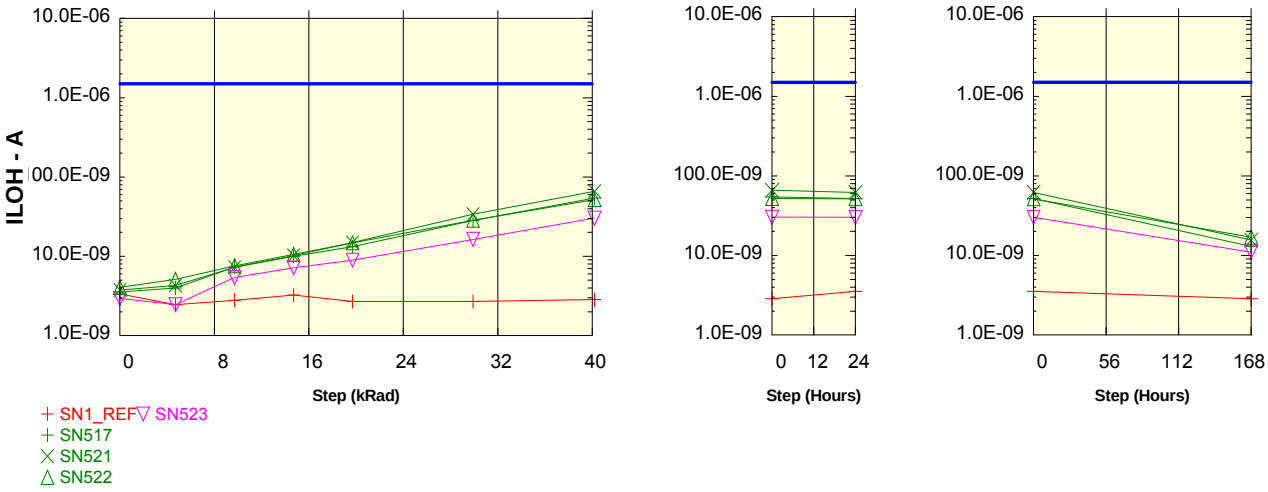
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ4
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.6E-09	3.0E-09	3.4E-09	2.8E-09	2.9E-09	3.0E-09	3.7E-09	2.9E-09
ON samples									
SN517	3.6E-09	4.0E-09	7.3E-09	9.3E-09	12.8E-09	29.4E-09	48.6E-09	47.1E-09	12.0E-09
SN521	3.6E-09	4.4E-09	8.7E-09	11.4E-09	15.4E-09	32.8E-09	56.7E-09	56.2E-09	13.6E-09
SN522	4.5E-09	5.5E-09	9.3E-09	13.9E-09	21.3E-09	40.6E-09	64.2E-09	64.0E-09	18.4E-09
Statistics									
Min	3.6E-09	4.0E-09	7.3E-09	9.3E-09	12.8E-09	29.4E-09	48.6E-09	47.1E-09	12.0E-09
Max	4.5E-09	5.5E-09	9.3E-09	13.9E-09	21.3E-09	40.6E-09	64.2E-09	64.0E-09	18.4E-09
Average	3.9E-09	4.6E-09	8.4E-09	11.5E-09	16.5E-09	34.3E-09	56.5E-09	55.8E-09	14.7E-09
Sigma	413.0E-12	634.2E-12	860.6E-12	1.9E-09	3.6E-09	4.7E-09	6.4E-09	6.9E-09	2.7E-09

ILOHDQ4	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.6E-09	3.0E-09	3.4E-09	2.8E-09	2.9E-09	3.0E-09	3.7E-09	2.9E-09
OFF samples									
SN523	3.2E-09	2.7E-09	6.1E-09	8.4E-09	12.9E-09	28.7E-09	44.1E-09	42.2E-09	12.4E-09
Statistics									
Min	3.2E-09	2.7E-09	6.1E-09	8.4E-09	12.9E-09	28.7E-09	44.1E-09	42.2E-09	12.4E-09
Max	3.2E-09	2.7E-09	6.1E-09	8.4E-09	12.9E-09	28.7E-09	44.1E-09	42.2E-09	12.4E-09
Average	3.2E-09	2.7E-09	6.1E-09	8.4E-09	12.9E-09	28.7E-09	44.1E-09	42.2E-09	12.4E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

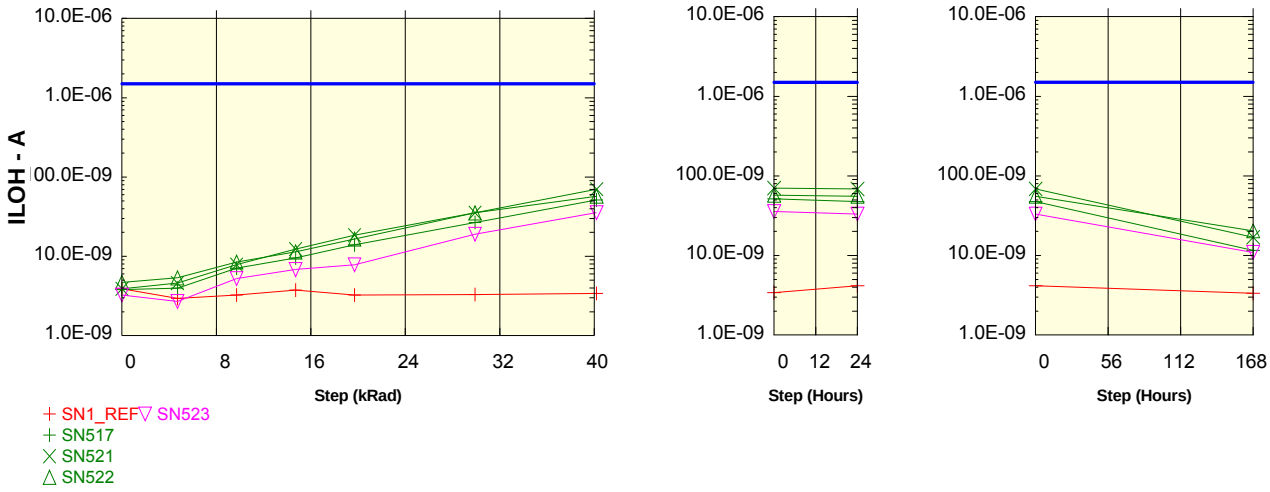
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ3
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.5E-09	2.8E-09	3.3E-09	2.7E-09	2.7E-09	2.9E-09	3.6E-09	2.9E-09
ON samples									
SN517	3.6E-09	4.0E-09	7.4E-09	10.0E-09	13.3E-09	28.2E-09	54.3E-09	51.7E-09	13.0E-09
SN521	3.8E-09	4.3E-09	7.3E-09	10.2E-09	15.0E-09	33.9E-09	66.0E-09	62.1E-09	15.6E-09
SN522	4.1E-09	5.1E-09	7.6E-09	10.6E-09	14.8E-09	28.6E-09	51.8E-09	51.4E-09	17.0E-09
Statistics									
Min	3.6E-09	4.0E-09	7.3E-09	10.0E-09	13.3E-09	28.2E-09	51.8E-09	51.4E-09	13.0E-09
Max	4.1E-09	5.1E-09	7.6E-09	10.6E-09	15.0E-09	33.9E-09	66.0E-09	62.1E-09	17.0E-09
Average	3.8E-09	4.5E-09	7.4E-09	10.3E-09	14.3E-09	30.2E-09	57.3E-09	55.1E-09	15.2E-09
Sigma	205.5E-12	464.3E-12	147.2E-12	227.3E-12	768.5E-12	2.6E-09	6.2E-09	5.0E-09	1.7E-09

ILOHDQ3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.4E-09	2.5E-09	2.8E-09	3.3E-09	2.7E-09	2.7E-09	2.9E-09	3.6E-09	2.9E-09
OFF samples									
SN523	3.0E-09	2.5E-09	5.4E-09	7.2E-09	9.0E-09	16.4E-09	30.3E-09	30.2E-09	11.1E-09
Statistics									
Min	3.0E-09	2.5E-09	5.4E-09	7.2E-09	9.0E-09	16.4E-09	30.3E-09	30.2E-09	11.1E-09
Max	3.0E-09	2.5E-09	5.4E-09	7.2E-09	9.0E-09	16.4E-09	30.3E-09	30.2E-09	11.1E-09
Average	3.0E-09	2.5E-09	5.4E-09	7.2E-09	9.0E-09	16.4E-09	30.3E-09	30.2E-09	11.1E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

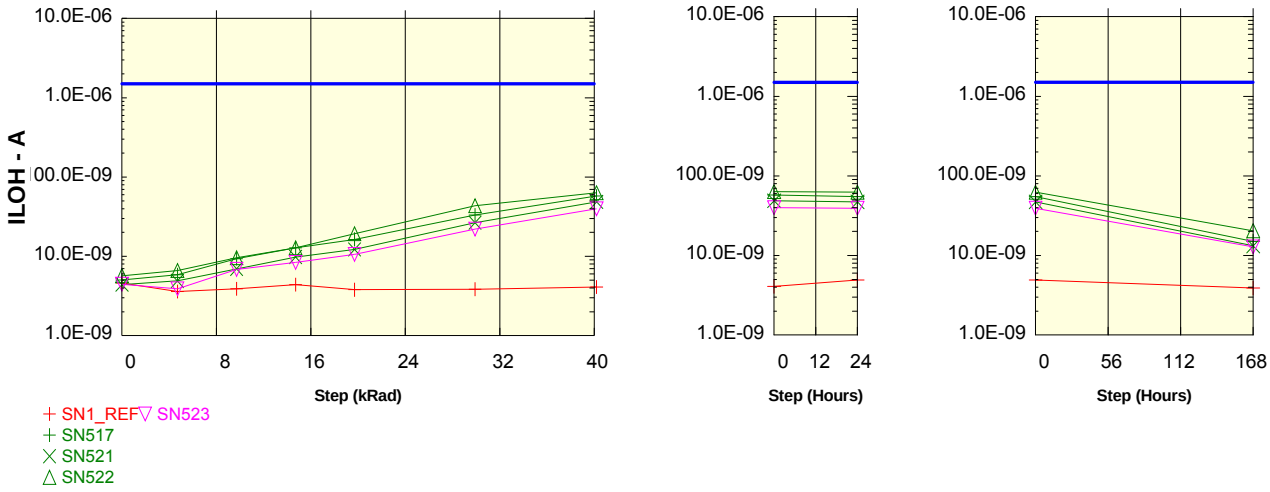
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ2
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.9E-09	3.0E-09	3.3E-09	3.8E-09	3.3E-09	3.3E-09	3.4E-09	4.2E-09	3.4E-09
ON samples									
SN517	3.8E-09	4.0E-09	7.1E-09	9.6E-09	14.0E-09	26.8E-09	51.6E-09	47.5E-09	11.6E-09
SN521	3.9E-09	4.6E-09	7.9E-09	12.4E-09	18.5E-09	35.4E-09	70.4E-09	68.6E-09	17.0E-09
SN522	4.7E-09	5.4E-09	8.5E-09	11.4E-09	16.5E-09	35.3E-09	57.3E-09	55.4E-09	20.4E-09
Statistics									
Min	3.8E-09	4.0E-09	7.1E-09	9.6E-09	14.0E-09	26.8E-09	51.6E-09	47.5E-09	11.6E-09
Max	4.7E-09	5.4E-09	8.5E-09	12.4E-09	18.5E-09	35.4E-09	70.4E-09	68.6E-09	20.4E-09
Average	4.1E-09	4.6E-09	7.8E-09	11.1E-09	16.3E-09	32.5E-09	59.7E-09	57.1E-09	16.3E-09
Sigma	402.8E-12	572.0E-12	552.3E-12	1.2E-09	1.9E-09	4.0E-09	7.9E-09	8.7E-09	3.6E-09

ILOHDQ2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.9E-09	3.0E-09	3.3E-09	3.8E-09	3.3E-09	3.3E-09	3.4E-09	4.2E-09	3.4E-09
OFF samples									
SN523	3.3E-09	2.7E-09	5.3E-09	6.8E-09	7.8E-09	19.0E-09	35.7E-09	33.2E-09	11.0E-09
Statistics									
Min	3.3E-09	2.7E-09	5.3E-09	6.8E-09	7.8E-09	19.0E-09	35.7E-09	33.2E-09	11.0E-09
Max	3.3E-09	2.7E-09	5.3E-09	6.8E-09	7.8E-09	19.0E-09	35.7E-09	33.2E-09	11.0E-09
Average	3.3E-09	2.7E-09	5.3E-09	6.8E-09	7.8E-09	19.0E-09	35.7E-09	33.2E-09	11.0E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

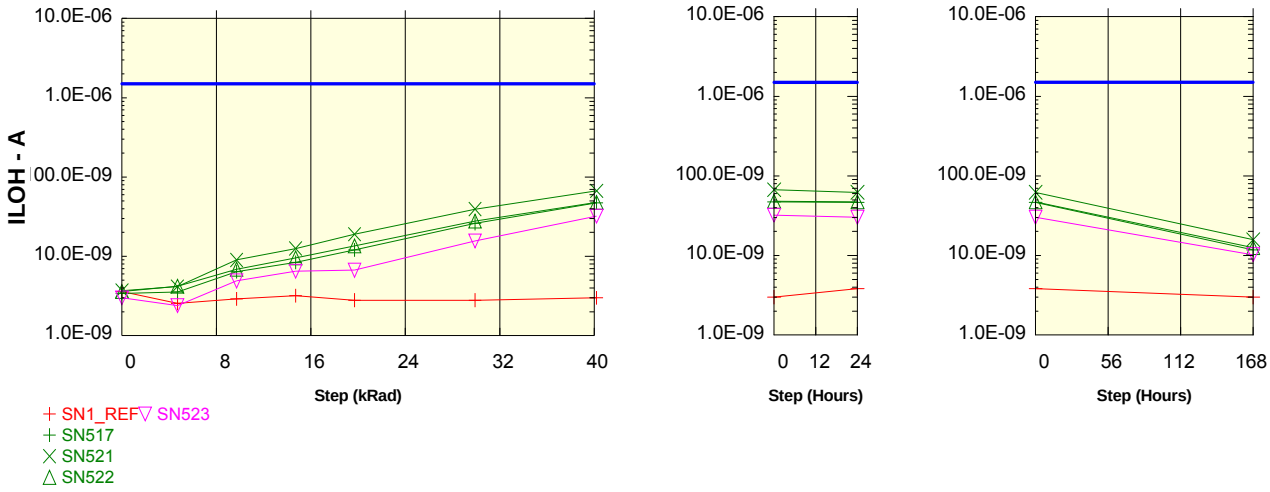
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ1
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.6E-09	3.6E-09	3.9E-09	4.4E-09	3.8E-09	3.9E-09	4.1E-09	4.9E-09	3.9E-09
ON samples									
SN517	5.1E-09	5.9E-09	9.4E-09	12.8E-09	16.4E-09	33.1E-09	57.5E-09	54.9E-09	15.1E-09
SN521	4.4E-09	4.9E-09	7.0E-09	9.8E-09	12.2E-09	26.6E-09	48.7E-09	47.1E-09	13.2E-09
SN522	5.7E-09	6.6E-09	9.6E-09	12.9E-09	19.3E-09	43.6E-09	63.3E-09	62.4E-09	20.5E-09
Statistics									
Min	4.4E-09	4.9E-09	7.0E-09	9.8E-09	12.2E-09	26.6E-09	48.7E-09	47.1E-09	13.2E-09
Max	5.7E-09	6.6E-09	9.6E-09	12.9E-09	19.3E-09	43.6E-09	63.3E-09	62.4E-09	20.5E-09
Average	5.1E-09	5.8E-09	8.6E-09	11.8E-09	15.9E-09	34.4E-09	56.5E-09	54.8E-09	16.3E-09
Sigma	530.7E-12	695.6E-12	1.2E-09	1.4E-09	2.9E-09	7.0E-09	6.0E-09	6.2E-09	3.1E-09

ILOHDQ1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.6E-09	3.6E-09	3.9E-09	4.4E-09	3.8E-09	3.9E-09	4.1E-09	4.9E-09	3.9E-09
OFF samples									
SN523	4.5E-09	3.9E-09	6.9E-09	8.4E-09	10.6E-09	22.1E-09	39.9E-09	39.3E-09	12.9E-09
Statistics									
Min	4.5E-09	3.9E-09	6.9E-09	8.4E-09	10.6E-09	22.1E-09	39.9E-09	39.3E-09	12.9E-09
Max	4.5E-09	3.9E-09	6.9E-09	8.4E-09	10.6E-09	22.1E-09	39.9E-09	39.3E-09	12.9E-09
Average	4.5E-09	3.9E-09	6.9E-09	8.4E-09	10.6E-09	22.1E-09	39.9E-09	39.3E-09	12.9E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

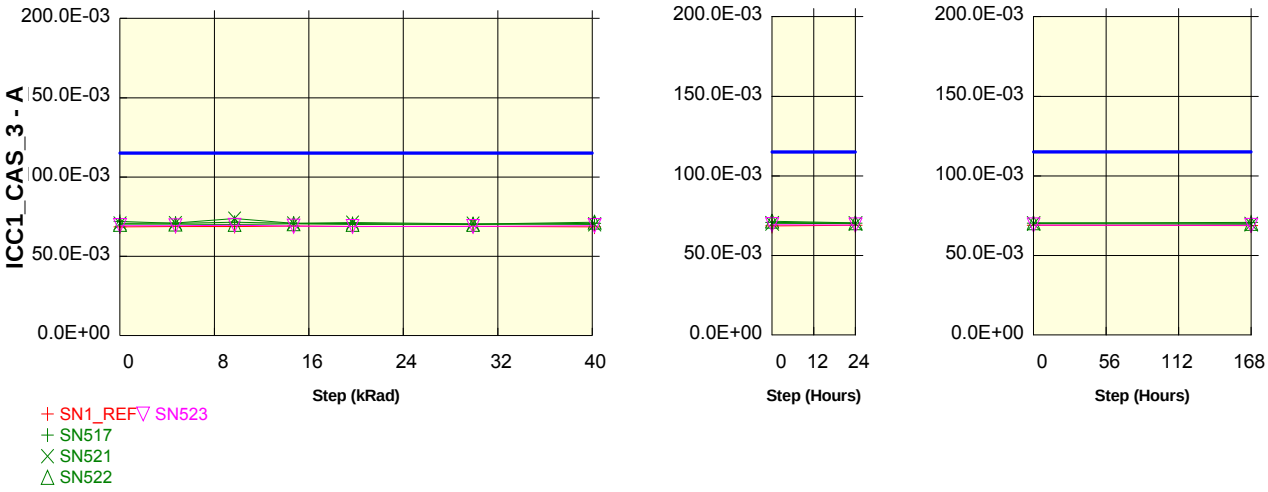
Test conditions : TID
Parameter : Output Leakage Current High : ILOHDQ0
Vout=VDDmax. Vcc = 3.6V
Unit : A
Spec Limit Max : 1.5E-06
Spec limits are represented in bold lines on the graphic.



ILOHDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.6E-09	2.9E-09	3.2E-09	2.8E-09	2.8E-09	3.0E-09	3.9E-09	3.0E-09
ON samples									
SN517	3.4E-09	3.6E-09	6.4E-09	8.4E-09	12.1E-09	26.1E-09	47.3E-09	46.3E-09	11.8E-09
SN521	3.7E-09	4.2E-09	9.0E-09	12.6E-09	19.0E-09	39.4E-09	67.1E-09	62.1E-09	15.8E-09
SN522	3.6E-09	4.2E-09	6.9E-09	9.6E-09	13.6E-09	27.9E-09	47.9E-09	47.2E-09	12.5E-09
Statistics									
Min	3.4E-09	3.6E-09	6.4E-09	8.4E-09	12.1E-09	26.1E-09	47.3E-09	46.3E-09	11.8E-09
Max	3.7E-09	4.2E-09	9.0E-09	12.6E-09	19.0E-09	39.4E-09	67.1E-09	62.1E-09	15.8E-09
Average	3.6E-09	4.0E-09	7.4E-09	10.2E-09	14.9E-09	31.1E-09	54.1E-09	51.9E-09	13.4E-09
Sigma	124.7E-12	295.3E-12	1.1E-09	1.7E-09	3.0E-09	5.9E-09	9.2E-09	7.2E-09	1.8E-09

ILOHDQ0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	3.6E-09	2.6E-09	2.9E-09	3.2E-09	2.8E-09	2.8E-09	3.0E-09	3.9E-09	3.0E-09
OFF samples									
SN523	3.0E-09	2.4E-09	4.9E-09	6.5E-09	6.7E-09	15.7E-09	32.2E-09	30.3E-09	10.2E-09
Statistics									
Min	3.0E-09	2.4E-09	4.9E-09	6.5E-09	6.7E-09	15.7E-09	32.2E-09	30.3E-09	10.2E-09
Max	3.0E-09	2.4E-09	4.9E-09	6.5E-09	6.7E-09	15.7E-09	32.2E-09	30.3E-09	10.2E-09
Average	3.0E-09	2.4E-09	4.9E-09	6.5E-09	6.7E-09	15.7E-09	32.2E-09	30.3E-09	10.2E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

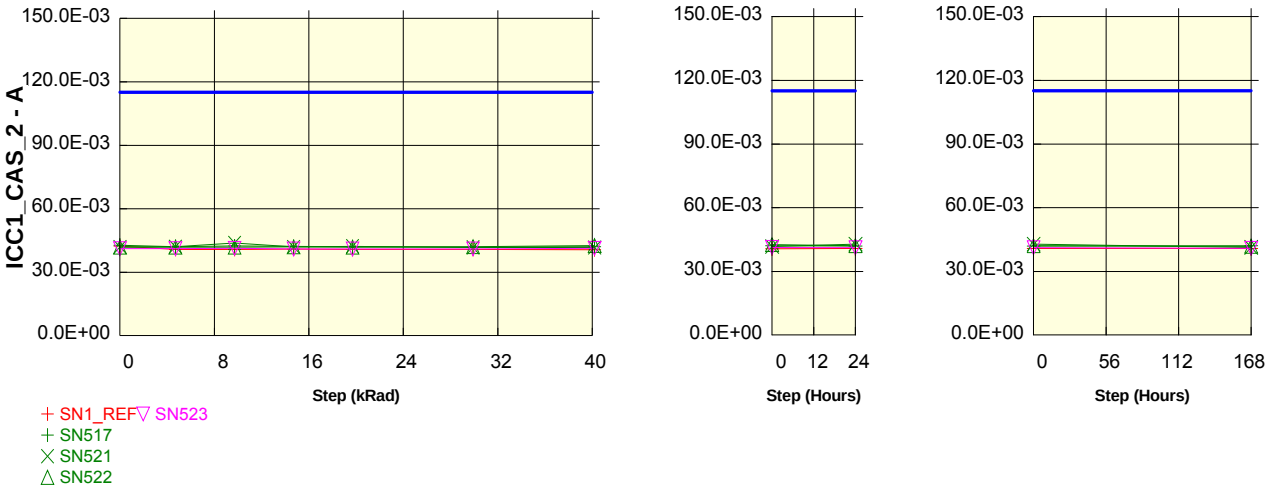
Test conditions : TID
Parameter : Operating Current CAS/ 3 : ICC1_CAS_3
Burst length = 1 Trc= min. CAS/=3
Unit : A
Spec Limit Max : 115.0E-03
Spec limits are represented in bold lines on the graphic.



ICC1_CAS_3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	68.6E-03	68.8E-03	68.8E-03	69.2E-03	68.8E-03	68.9E-03	68.5E-03	69.0E-03	68.8E-03
ON samples									
SN517	72.0E-03	70.9E-03	71.5E-03	70.9E-03	70.7E-03	70.1E-03	70.8E-03	70.3E-03	70.9E-03
SN521	70.8E-03	71.0E-03	73.8E-03	70.8E-03	71.3E-03	70.6E-03	70.2E-03	70.0E-03	69.7E-03
SN522	70.3E-03	70.3E-03	70.2E-03	70.5E-03	70.2E-03	70.3E-03	71.5E-03	70.5E-03	70.2E-03
Statistics									
Min	70.3E-03	70.3E-03	70.2E-03	70.5E-03	70.2E-03	70.1E-03	70.2E-03	70.0E-03	69.7E-03
Max	72.0E-03	71.0E-03	73.8E-03	70.9E-03	71.3E-03	70.6E-03	71.5E-03	70.5E-03	70.9E-03
Average	71.0E-03	70.7E-03	71.8E-03	70.7E-03	70.7E-03	70.3E-03	70.8E-03	70.3E-03	70.2E-03
Sigma	731.6E-06	323.4E-06	1.5E-03	166.7E-06	451.8E-06	169.8E-06	520.9E-06	181.3E-06	503.5E-06

ICC1_CAS_3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	68.6E-03	68.8E-03	68.8E-03	69.2E-03	68.8E-03	68.9E-03	68.5E-03	69.0E-03	68.8E-03
OFF samples									
SN523	69.4E-03	69.3E-03	69.6E-03	69.0E-03	69.0E-03	68.9E-03	69.4E-03	69.2E-03	68.8E-03
Statistics									
Min	69.4E-03	69.3E-03	69.6E-03	69.0E-03	69.0E-03	68.9E-03	69.4E-03	69.2E-03	68.8E-03
Max	69.4E-03	69.3E-03	69.6E-03	69.0E-03	69.0E-03	68.9E-03	69.4E-03	69.2E-03	68.8E-03
Average	69.4E-03	69.3E-03	69.6E-03	69.0E-03	69.0E-03	68.9E-03	69.4E-03	69.2E-03	68.8E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

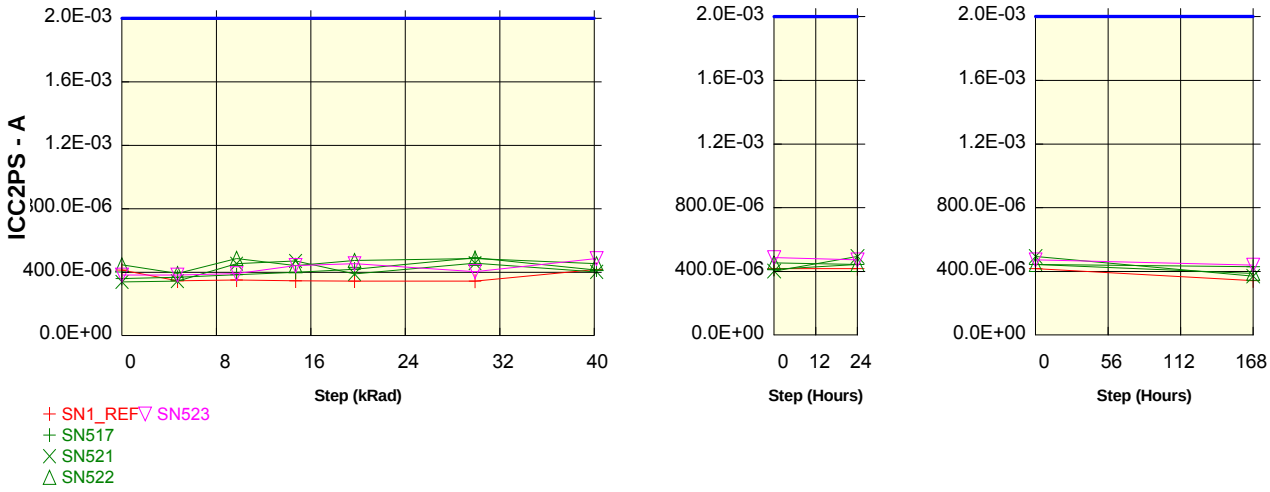
Test conditions : TID
Parameter : Operating Current CAS/ 2 : ICC1_CAS_2
Burst length = 1 Trc= min CAS/=2
Unit : A
Spec Limit Max : 115.0E-03
Spec limits are represented in bold lines on the graphic.



ICC1_CAS_2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	42.3E-03	40.8E-03	40.8E-03	40.9E-03	40.8E-03	40.8E-03	40.6E-03	40.8E-03	40.8E-03
ON samples									
SN517	42.8E-03	42.1E-03	42.4E-03	42.2E-03	42.1E-03	41.8E-03	42.1E-03	42.0E-03	42.1E-03
SN521	41.9E-03	42.0E-03	43.8E-03	42.0E-03	42.2E-03	41.7E-03	41.7E-03	42.8E-03	41.3E-03
SN522	41.8E-03	41.8E-03	41.8E-03	41.9E-03	41.8E-03	42.1E-03	42.6E-03	42.0E-03	41.8E-03
Statistics									
Min	41.8E-03	41.8E-03	41.8E-03	41.9E-03	41.8E-03	41.7E-03	41.7E-03	42.0E-03	41.3E-03
Max	42.8E-03	42.1E-03	43.8E-03	42.2E-03	42.2E-03	42.1E-03	42.6E-03	42.8E-03	42.1E-03
Average	42.2E-03	42.0E-03	42.7E-03	42.0E-03	42.0E-03	41.9E-03	42.1E-03	42.3E-03	41.7E-03
Sigma	425.0E-06	130.6E-06	843.7E-06	106.3E-06	188.2E-06	151.6E-06	360.3E-06	395.0E-06	318.7E-06

ICC1_CAS_2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	42.3E-03	40.8E-03	40.8E-03	40.9E-03	40.8E-03	40.8E-03	40.6E-03	40.8E-03	40.8E-03
OFF samples									
SN523	41.1E-03	41.2E-03	41.3E-03	41.0E-03	41.0E-03	41.0E-03	41.3E-03	41.2E-03	40.9E-03
Statistics									
Min	41.1E-03	41.2E-03	41.3E-03	41.0E-03	41.0E-03	41.0E-03	41.3E-03	41.2E-03	40.9E-03
Max	41.1E-03	41.2E-03	41.3E-03	41.0E-03	41.0E-03	41.0E-03	41.3E-03	41.2E-03	40.9E-03
Average	41.1E-03	41.2E-03	41.3E-03	41.0E-03	41.0E-03	41.0E-03	41.3E-03	41.2E-03	40.9E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

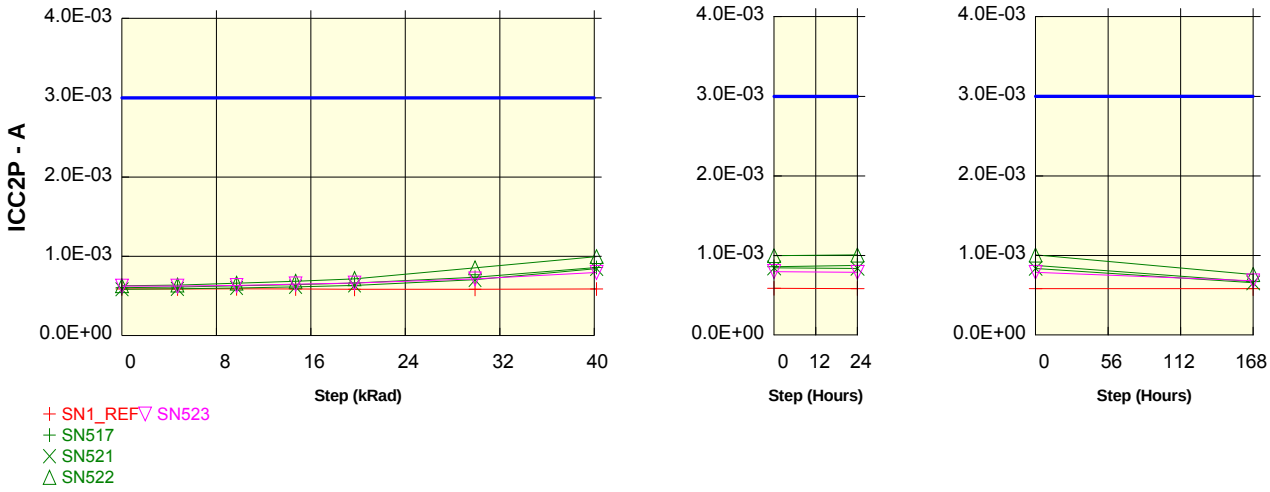
Test conditions : TID
Parameter : Standby current in power down (input signal stable) : ICC2PS
CKE = ViL Tck=8
Unit : A
Spec Limit Max : 2.0E-03
Spec limits are represented in bold lines on the graphic.



ICC2PS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	413.0E-06	345.4E-06	350.6E-06	345.3E-06	344.0E-06	343.4E-06	417.0E-06	417.0E-06	343.1E-06
ON samples									
SN517	360.0E-06	368.2E-06	384.5E-06	399.8E-06	419.5E-06	492.1E-06	413.2E-06	442.5E-06	428.4E-06
SN521	339.1E-06	344.4E-06	453.0E-06	471.0E-06	389.6E-06	457.2E-06	402.0E-06	494.0E-06	370.0E-06
SN522	446.0E-06	393.1E-06	487.0E-06	440.7E-06	473.8E-06	487.0E-06	453.0E-06	443.0E-06	388.0E-06
Statistics									
Min	339.1E-06	344.4E-06	384.5E-06	399.8E-06	389.6E-06	457.2E-06	402.0E-06	442.5E-06	370.0E-06
Max	446.0E-06	393.1E-06	487.0E-06	471.0E-06	473.8E-06	492.1E-06	453.0E-06	494.0E-06	428.4E-06
Average	381.7E-06	368.6E-06	441.5E-06	437.2E-06	427.6E-06	478.8E-06	422.7E-06	459.8E-06	395.5E-06
Sigma	46.3E-06	19.9E-06	42.6E-06	29.2E-06	34.9E-06	15.4E-06	21.9E-06	24.2E-06	24.4E-06

ICC2PS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	413.0E-06	345.4E-06	350.6E-06	345.3E-06	344.0E-06	343.4E-06	417.0E-06	417.0E-06	343.1E-06
OFF samples									
SN523	382.2E-06	382.2E-06	390.2E-06	442.0E-06	453.0E-06	404.0E-06	486.0E-06	472.0E-06	439.4E-06
Statistics									
Min	382.2E-06	382.2E-06	390.2E-06	442.0E-06	453.0E-06	404.0E-06	486.0E-06	472.0E-06	439.4E-06
Max	382.2E-06	382.2E-06	390.2E-06	442.0E-06	453.0E-06	404.0E-06	486.0E-06	472.0E-06	439.4E-06
Average	382.2E-06	382.2E-06	390.2E-06	442.0E-06	453.0E-06	404.0E-06	486.0E-06	472.0E-06	439.4E-06
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

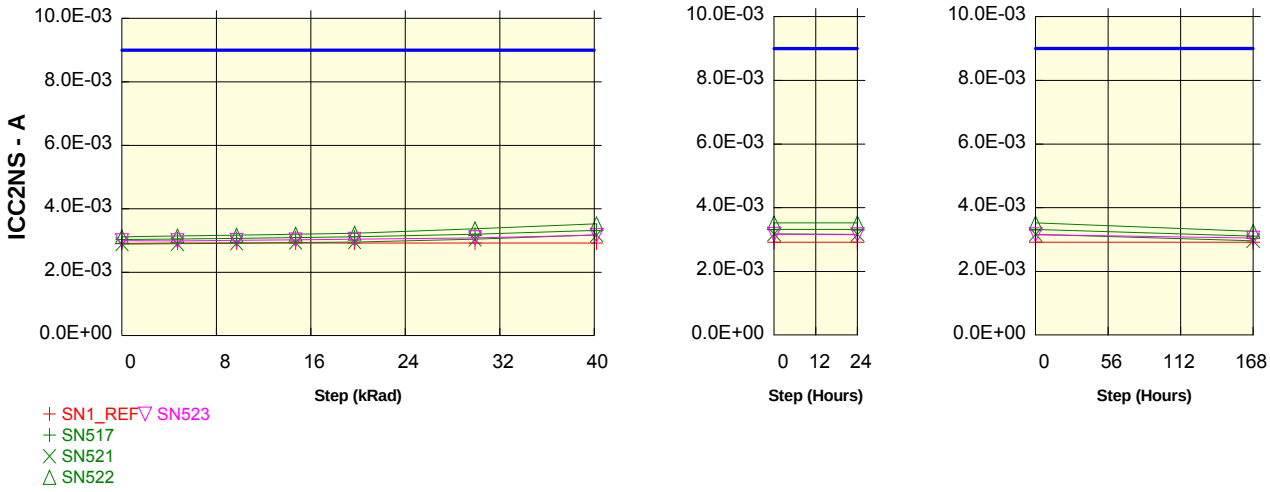
Test conditions : TID
Parameter : Standby current in power down : ICC2P
CKE = ViL Tck=12ns
Unit : A
Spec Limit Max : 3.0E-03
Spec limits are represented in bold lines on the graphic.



ICC2P	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	587.5E-06	587.4E-06	592.7E-06	588.0E-06	585.8E-06	585.8E-06	587.2E-06	586.0E-06	585.3E-06
ON samples									
SN517	605.1E-06	612.7E-06	628.0E-06	643.4E-06	663.0E-06	736.7E-06	858.6E-06	877.1E-06	670.9E-06
SN521	584.6E-06	589.8E-06	601.9E-06	617.1E-06	633.8E-06	704.3E-06	842.8E-06	838.3E-06	655.7E-06
SN522	628.7E-06	637.8E-06	660.6E-06	684.0E-06	717.4E-06	854.5E-06	997.3E-06	1.0E-03	762.0E-06
Statistics									
Min	584.6E-06	589.8E-06	601.9E-06	617.1E-06	633.8E-06	704.3E-06	842.8E-06	838.3E-06	655.7E-06
Max	628.7E-06	637.8E-06	660.6E-06	684.0E-06	717.4E-06	854.5E-06	997.3E-06	1.0E-03	762.0E-06
Average	606.2E-06	613.4E-06	630.2E-06	648.2E-06	671.4E-06	765.1E-06	899.6E-06	907.1E-06	696.2E-06
Sigma	18.0E-06	19.6E-06	24.0E-06	27.5E-06	34.6E-06	64.6E-06	69.4E-06	71.7E-06	46.9E-06

ICC2P	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	587.5E-06	587.4E-06	592.7E-06	588.0E-06	585.8E-06	585.8E-06	587.2E-06	586.0E-06	585.3E-06
OFF samples									
SN523	625.2E-06	624.5E-06	632.7E-06	651.7E-06	664.5E-06	715.4E-06	797.5E-06	788.2E-06	681.1E-06
Statistics									
Min	625.2E-06	624.5E-06	632.7E-06	651.7E-06	664.5E-06	715.4E-06	797.5E-06	788.2E-06	681.1E-06
Max	625.2E-06	624.5E-06	632.7E-06	651.7E-06	664.5E-06	715.4E-06	797.5E-06	788.2E-06	681.1E-06
Average	625.2E-06	624.5E-06	632.7E-06	651.7E-06	664.5E-06	715.4E-06	797.5E-06	788.2E-06	681.1E-06
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

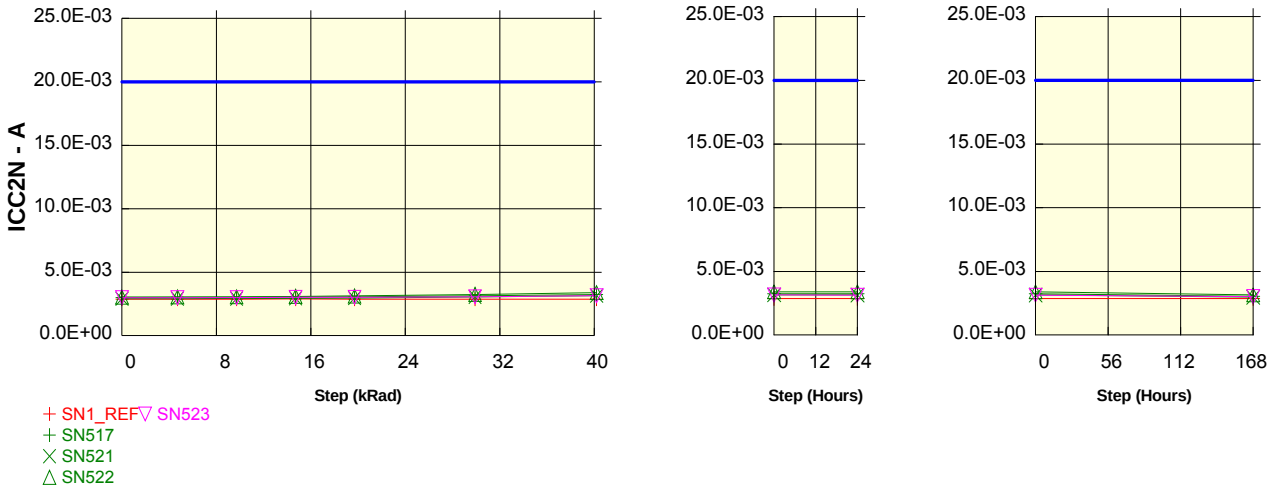
Test conditions : TID
Parameter : Standby current in non power down (input signal stable) : ICC2NS
CKE = ViH Tck=8
Unit : A
Spec Limit Max : 9.0E-03
Spec limits are represented in bold lines on the graphic.



ICC2NS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03
ON samples									
SN517	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.2E-03	3.3E-03	3.3E-03	3.1E-03
SN521	2.9E-03	2.9E-03	2.9E-03	2.9E-03	3.0E-03	3.0E-03	3.2E-03	3.2E-03	3.0E-03
SN522	3.1E-03	3.1E-03	3.2E-03	3.2E-03	3.2E-03	3.4E-03	3.5E-03	3.5E-03	3.3E-03
Statistics									
Min	2.9E-03	2.9E-03	2.9E-03	2.9E-03	3.0E-03	3.0E-03	3.2E-03	3.2E-03	3.0E-03
Max	3.1E-03	3.1E-03	3.2E-03	3.2E-03	3.2E-03	3.4E-03	3.5E-03	3.5E-03	3.3E-03
Average	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.2E-03	3.3E-03	3.3E-03	3.1E-03
Sigma	95.5E-06	100.0E-06	103.6E-06	106.9E-06	112.3E-06	135.6E-06	143.2E-06	146.6E-06	120.0E-06

ICC2NS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03
OFF samples									
SN523	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.2E-03	3.2E-03	3.0E-03
Statistics									
Min	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.2E-03	3.2E-03	3.0E-03
Max	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.2E-03	3.2E-03	3.0E-03
Average	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.2E-03	3.2E-03	3.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

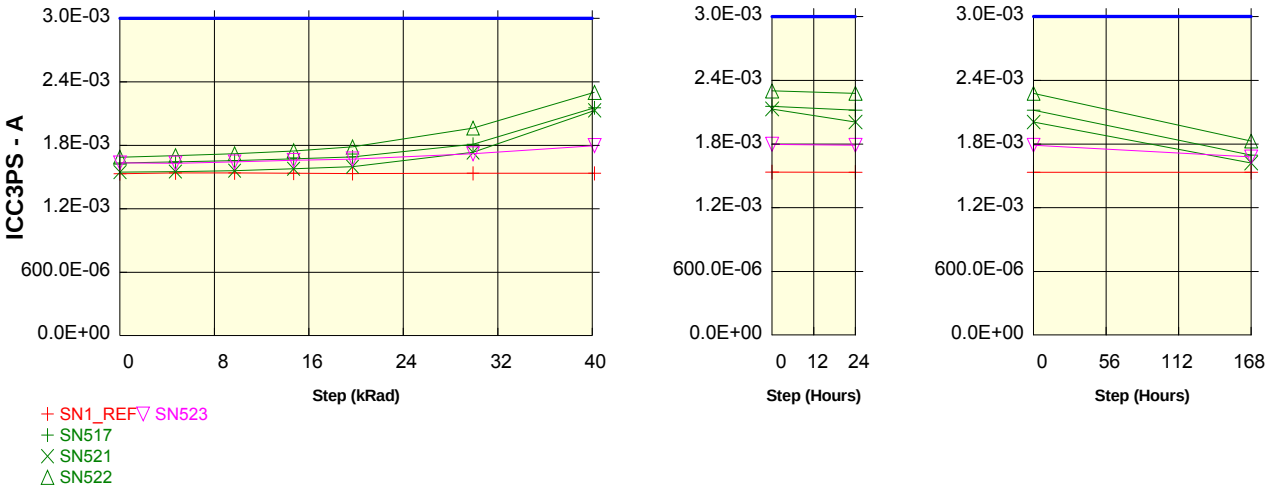
Test conditions : TID
Parameter : Standby current in non power down : ICC2N
CKE.CS/ = ViH Tck=12ns
Unit : A
Spec Limit Max : 20.0E-03
Spec limits are represented in bold lines on the graphic.



ICC2N	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03
ON samples									
SN517	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.2E-03	3.2E-03	3.1E-03
SN521	2.9E-03	2.9E-03	2.9E-03	2.9E-03	3.0E-03	3.1E-03	3.2E-03	3.1E-03	3.0E-03
SN522	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.2E-03	3.4E-03	3.4E-03	3.2E-03
Statistics									
Min	2.9E-03	2.9E-03	2.9E-03	2.9E-03	3.0E-03	3.1E-03	3.2E-03	3.1E-03	3.0E-03
Max	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.1E-03	3.2E-03	3.4E-03	3.4E-03	3.2E-03
Average	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.3E-03	3.3E-03	3.1E-03
Sigma	50.8E-06	55.3E-06	59.7E-06	62.2E-06	68.1E-06	81.5E-06	100.7E-06	102.8E-06	75.6E-06

ICC2N	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03	2.9E-03
OFF samples									
SN523	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.0E-03
Statistics									
Min	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.0E-03
Max	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.0E-03
Average	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.1E-03	3.1E-03	3.1E-03	3.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

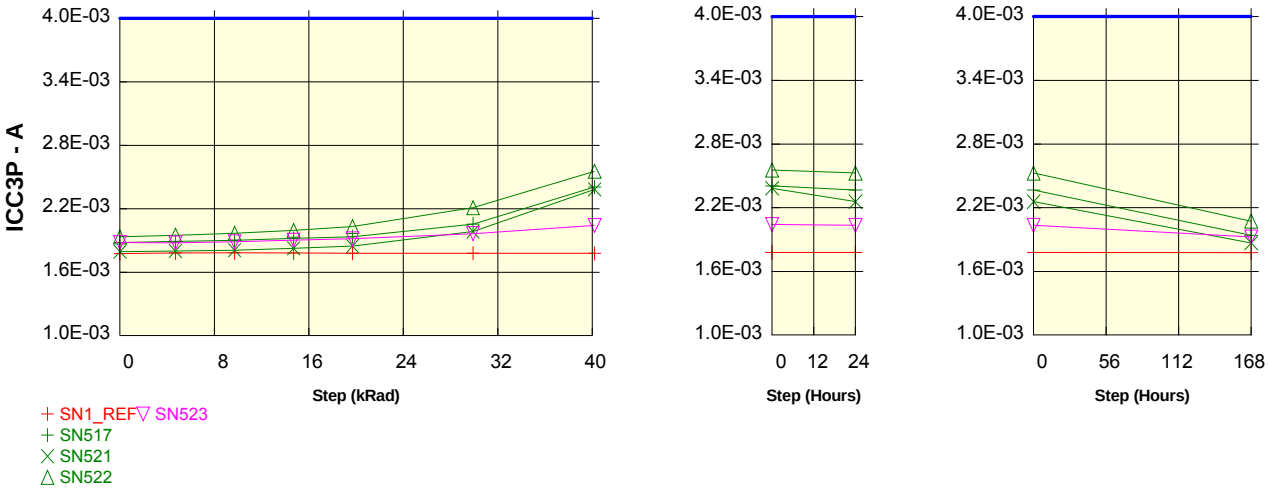
Test conditions : TID
Parameter : Active Standby current in power down (input signal stable) : ICC3PS
CKE = ViL Tck=8
Unit : A
Spec Limit Max : 3.0E-03
Spec limits are represented in bold lines on the graphic.



ICC3PS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
ON samples									
SN517	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	2.2E-03	2.1E-03	1.7E-03
SN521	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	2.1E-03	2.0E-03	1.6E-03
SN522	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	2.0E-03	2.3E-03	2.3E-03	1.8E-03
Statistics									
Min	1.5E-03	1.6E-03	1.6E-03	1.6E-03	1.6E-03	1.7E-03	2.1E-03	2.0E-03	1.6E-03
Max	1.7E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	2.0E-03	2.3E-03	2.3E-03	1.8E-03
Average	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.8E-03	2.2E-03	2.1E-03	1.7E-03
Sigma	58.1E-06	61.7E-06	66.1E-06	69.5E-06	75.9E-06	95.7E-06	74.9E-06	110.8E-06	85.6E-06

ICC3PS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03	1.5E-03
OFF samples									
SN523	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	1.8E-03	1.7E-03
Statistics									
Min	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	1.8E-03	1.7E-03
Max	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	1.8E-03	1.7E-03
Average	1.6E-03	1.6E-03	1.6E-03	1.7E-03	1.7E-03	1.7E-03	1.8E-03	1.8E-03	1.7E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

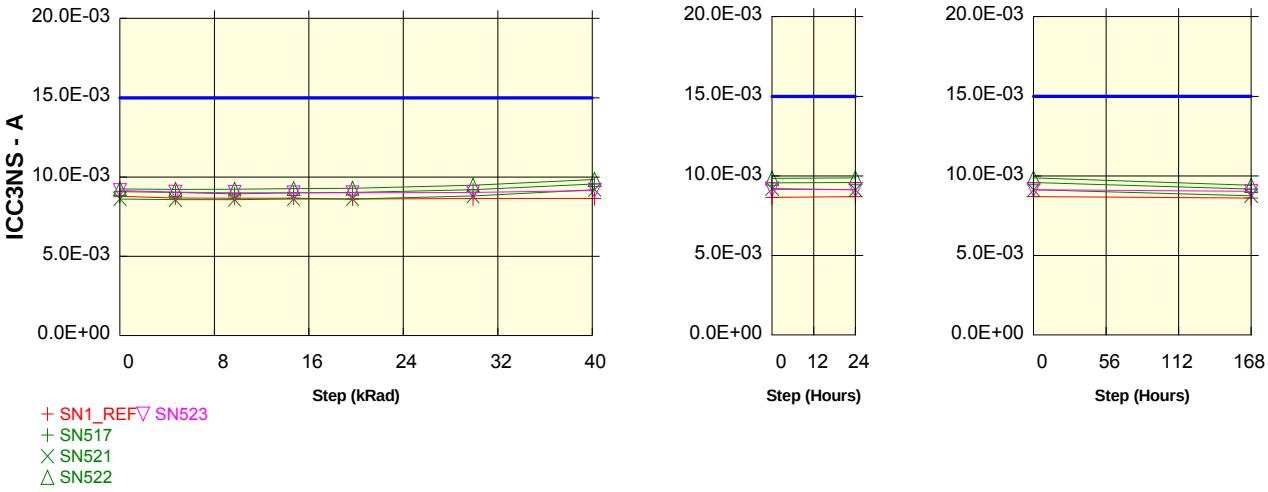
Test conditions : TID
Parameter : Active Standby current in power down : ICC3P
CKE = ViL Tck=12ns
Unit : A
Spec Limit Max : 4.0E-03
Spec limits are represented in bold lines on the graphic.



ICC3P	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
ON samples									
SN517	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.1E-03	2.4E-03	2.4E-03	1.9E-03
SN521	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	2.0E-03	2.4E-03	2.3E-03	1.9E-03
SN522	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	2.2E-03	2.6E-03	2.5E-03	2.1E-03
Statistics									
Min	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	2.0E-03	2.4E-03	2.3E-03	1.9E-03
Max	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	2.2E-03	2.6E-03	2.5E-03	2.1E-03
Average	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.1E-03	2.4E-03	2.4E-03	2.0E-03
Sigma	57.7E-06	61.3E-06	66.1E-06	69.1E-06	75.1E-06	93.9E-06	76.2E-06	110.8E-06	85.3E-06

ICC3P	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03	1.8E-03
OFF samples									
SN523	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	1.9E-03
Statistics									
Min	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	1.9E-03
Max	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	1.9E-03
Average	1.9E-03	1.9E-03	1.9E-03	1.9E-03	1.9E-03	2.0E-03	2.0E-03	2.0E-03	1.9E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

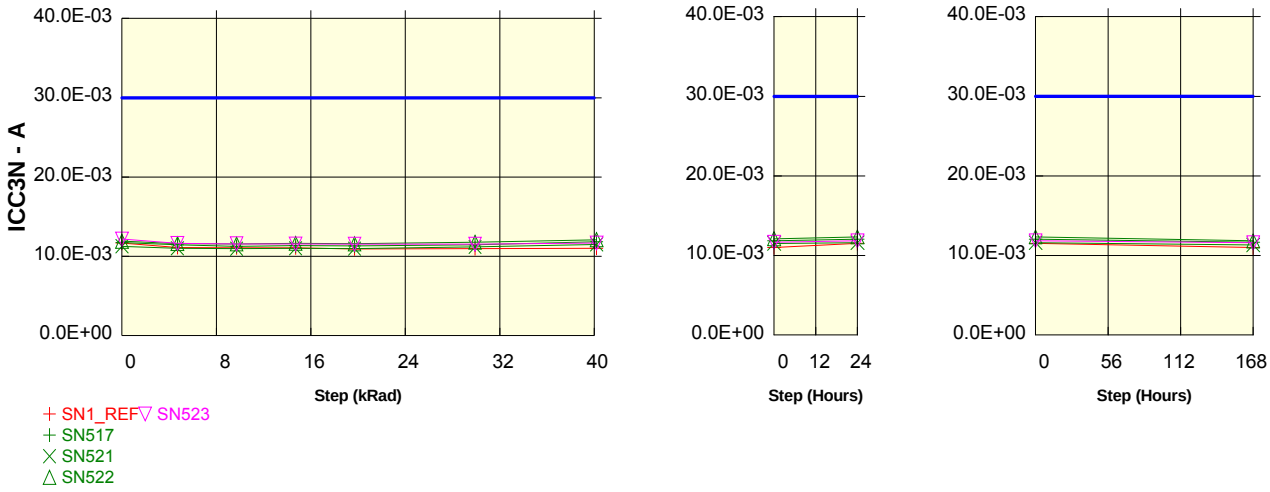
Test conditions : TID
Parameter : Active Standby current in non power down (input signal stable) : ICC3NS
CKE = ViH Tck=8
Unit : A
Spec Limit Max : 15.0E-03
Spec limits are represented in bold lines on the graphic.



ICC3NS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	8.8E-03	8.7E-03	8.7E-03	8.7E-03	8.6E-03	8.6E-03	8.6E-03	8.7E-03	8.6E-03
ON samples									
SN517	9.1E-03	9.0E-03	8.9E-03	9.0E-03	9.0E-03	9.2E-03	9.6E-03	9.6E-03	9.2E-03
SN521	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.8E-03	9.2E-03	9.1E-03	8.8E-03
SN522	9.3E-03	9.2E-03	9.2E-03	9.3E-03	9.3E-03	9.5E-03	9.8E-03	9.9E-03	9.4E-03
Statistics									
Min	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.8E-03	9.2E-03	9.1E-03	8.8E-03
Max	9.3E-03	9.2E-03	9.2E-03	9.3E-03	9.3E-03	9.5E-03	9.8E-03	9.9E-03	9.4E-03
Average	9.0E-03	8.9E-03	8.9E-03	9.0E-03	9.0E-03	9.2E-03	9.5E-03	9.5E-03	9.1E-03
Sigma	268.6E-06	270.8E-06	265.6E-06	269.2E-06	275.9E-06	283.7E-06	264.4E-06	309.1E-06	267.6E-06

ICC3NS	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	8.8E-03	8.7E-03	8.7E-03	8.7E-03	8.6E-03	8.6E-03	8.6E-03	8.7E-03	8.6E-03
OFF samples									
SN523	9.1E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.1E-03	9.1E-03	9.0E-03
Statistics									
Min	9.1E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.1E-03	9.1E-03	9.0E-03
Max	9.1E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.1E-03	9.1E-03	9.0E-03
Average	9.1E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.1E-03	9.1E-03	9.0E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

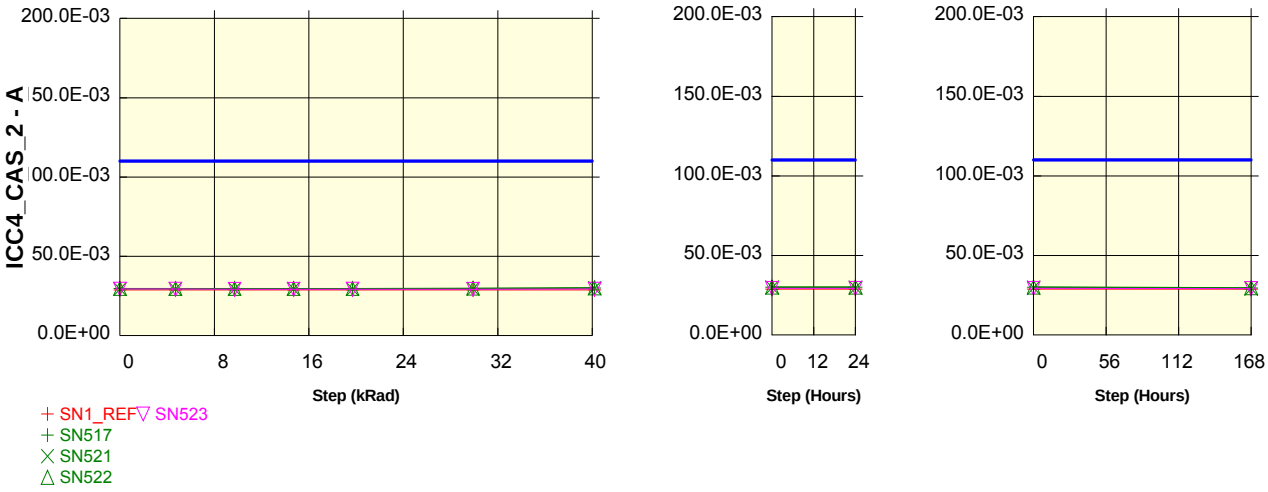
Test conditions : TID
Parameter : Active Standby current in non power down : ICC3N
CKE.CS/ = ViH Tck=12ns
Unit : A
Spec Limit Max : 30.0E-03
Spec limits are represented in bold lines on the graphic.



ICC3N	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	11.7E-03	11.1E-03	11.1E-03	11.1E-03	10.9E-03	11.0E-03	11.0E-03	11.5E-03	11.0E-03
ON samples									
SN517	11.8E-03	11.5E-03	11.3E-03	11.3E-03	11.3E-03	11.5E-03	11.8E-03	12.1E-03	11.7E-03
SN521	11.3E-03	11.0E-03	11.0E-03	11.0E-03	11.0E-03	11.2E-03	11.5E-03	11.6E-03	11.3E-03
SN522	11.9E-03	11.6E-03	11.6E-03	11.6E-03	11.6E-03	11.8E-03	12.1E-03	12.3E-03	11.8E-03
Statistics									
Min	11.3E-03	11.0E-03	11.0E-03	11.0E-03	11.0E-03	11.2E-03	11.5E-03	11.6E-03	11.3E-03
Max	11.9E-03	11.6E-03	11.6E-03	11.6E-03	11.6E-03	11.8E-03	12.1E-03	12.3E-03	11.8E-03
Average	11.6E-03	11.4E-03	11.3E-03	11.3E-03	11.3E-03	11.5E-03	11.8E-03	12.0E-03	11.6E-03
Sigma	271.0E-06	258.4E-06	248.6E-06	252.4E-06	248.4E-06	241.7E-06	242.4E-06	303.7E-06	212.6E-06

ICC3N	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	11.7E-03	11.1E-03	11.1E-03	11.1E-03	10.9E-03	11.0E-03	11.0E-03	11.5E-03	11.0E-03
OFF samples									
SN523	12.2E-03	11.6E-03	11.6E-03	11.6E-03	11.5E-03	11.5E-03	11.7E-03	11.8E-03	11.6E-03
Statistics									
Min	12.2E-03	11.6E-03	11.6E-03	11.6E-03	11.5E-03	11.5E-03	11.7E-03	11.8E-03	11.6E-03
Max	12.2E-03	11.6E-03	11.6E-03	11.6E-03	11.5E-03	11.5E-03	11.7E-03	11.8E-03	11.6E-03
Average	12.2E-03	11.6E-03	11.6E-03	11.6E-03	11.5E-03	11.5E-03	11.7E-03	11.8E-03	11.6E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

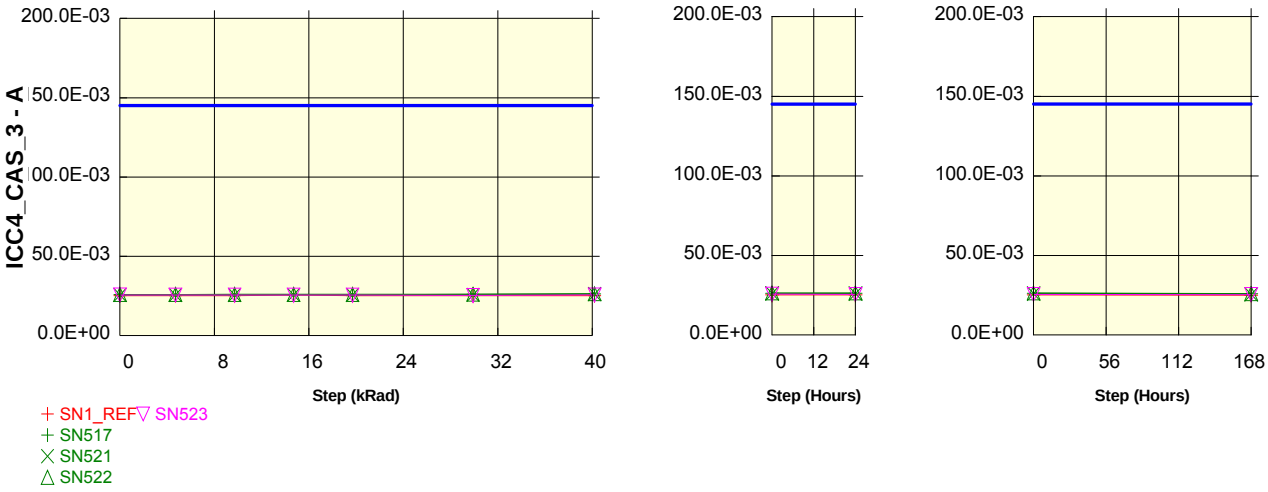
Test conditions : TID
Parameter : Burst operating Current CAS/ 2 : ICC4_CAS_2
Tck=min Burst Length=4 CAS/=2
Unit : A
Spec Limit Max : 110.0E-03
Spec limits are represented in bold lines on the graphic.



ICC4_CAS_2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	28.9E-03	28.9E-03	28.9E-03	28.9E-03	28.8E-03	28.8E-03	28.8E-03	28.9E-03	28.8E-03
ON samples									
SN517	29.7E-03	29.7E-03	29.5E-03	29.7E-03	29.6E-03	29.8E-03	30.1E-03	30.0E-03	29.6E-03
SN521	29.4E-03	29.4E-03	29.4E-03	29.5E-03	29.4E-03	29.4E-03	29.9E-03	29.7E-03	29.3E-03
SN522	29.7E-03	29.8E-03	29.8E-03	29.8E-03	29.8E-03	29.9E-03	30.2E-03	30.2E-03	29.8E-03
Statistics									
Min	29.4E-03	29.4E-03	29.4E-03	29.5E-03	29.4E-03	29.4E-03	29.9E-03	29.7E-03	29.3E-03
Max	29.7E-03	29.8E-03	29.8E-03	29.8E-03	29.8E-03	29.9E-03	30.2E-03	30.2E-03	29.8E-03
Average	29.6E-03	29.6E-03	29.6E-03	29.7E-03	29.6E-03	29.7E-03	30.0E-03	30.0E-03	29.6E-03
Sigma	141.9E-06	176.9E-06	157.6E-06	111.4E-06	146.6E-06	191.4E-06	127.3E-06	191.8E-06	197.1E-06

ICC4_CAS_2	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	28.9E-03	28.9E-03	28.9E-03	28.9E-03	28.8E-03	28.8E-03	28.8E-03	28.9E-03	28.8E-03
OFF samples									
SN523	29.3E-03	29.3E-03	29.3E-03	29.2E-03	29.3E-03	29.2E-03	29.4E-03	29.3E-03	29.2E-03
Statistics									
Min	29.3E-03	29.3E-03	29.3E-03	29.2E-03	29.3E-03	29.2E-03	29.4E-03	29.3E-03	29.2E-03
Max	29.3E-03	29.3E-03	29.3E-03	29.2E-03	29.3E-03	29.2E-03	29.4E-03	29.3E-03	29.2E-03
Average	29.3E-03	29.3E-03	29.3E-03	29.2E-03	29.3E-03	29.2E-03	29.4E-03	29.3E-03	29.2E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

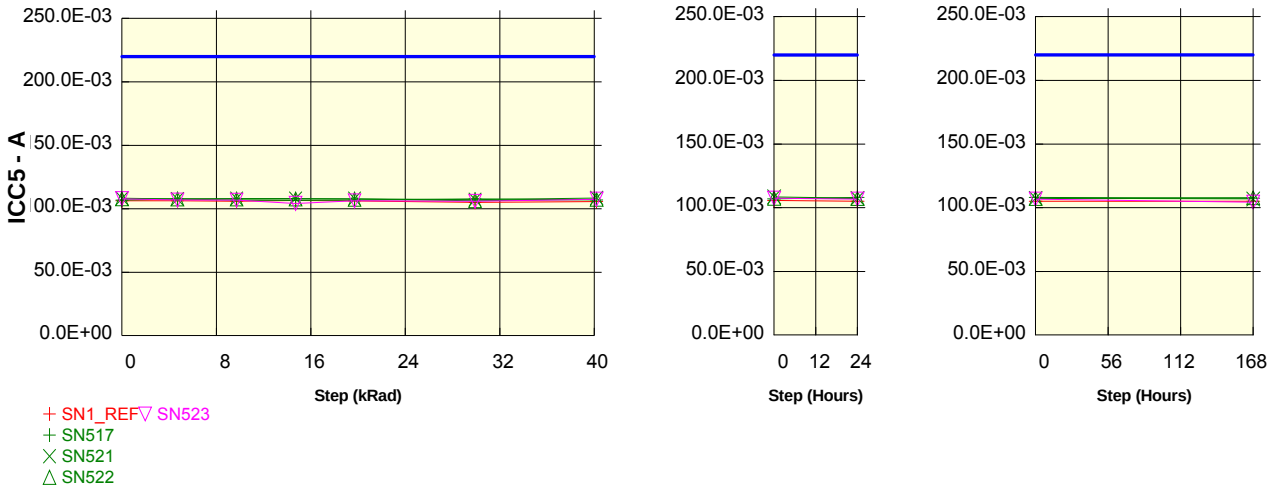
Test conditions : TID
Parameter : Operating Current CAS/ 3 : ICC4_CAS_3
Tck=min Burst Length=4 CAS/=3
Unit : A
Spec Limit Max : 145.0E-03
Spec limits are represented in bold lines on the graphic.



ICC4_CAS_3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	25.2E-03	25.2E-03	25.2E-03	25.6E-03	25.1E-03	25.2E-03	25.1E-03	25.2E-03	25.1E-03
ON samples									
SN517	25.9E-03	26.0E-03	25.7E-03	25.9E-03	25.8E-03	26.0E-03	26.3E-03	26.3E-03	25.9E-03
SN521	25.7E-03	25.6E-03	25.7E-03	25.7E-03	25.7E-03	25.7E-03	26.2E-03	26.0E-03	25.6E-03
SN522	26.0E-03	26.0E-03	26.0E-03	26.0E-03	26.0E-03	26.1E-03	26.4E-03	26.5E-03	26.0E-03
Statistics									
Min	25.7E-03	25.6E-03	25.7E-03	25.7E-03	25.7E-03	25.7E-03	26.2E-03	26.0E-03	25.6E-03
Max	26.0E-03	26.0E-03	26.0E-03	26.0E-03	26.0E-03	26.1E-03	26.4E-03	26.5E-03	26.0E-03
Average	25.8E-03	25.9E-03	25.8E-03	25.9E-03	25.8E-03	26.0E-03	26.3E-03	26.2E-03	25.8E-03
Sigma	134.7E-06	168.6E-06	161.1E-06	132.4E-06	157.3E-06	168.6E-06	107.9E-06	183.9E-06	183.1E-06

ICC4_CAS_3	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	25.2E-03	25.2E-03	25.2E-03	25.6E-03	25.1E-03	25.2E-03	25.1E-03	25.2E-03	25.1E-03
OFF samples									
SN523	25.6E-03	25.6E-03	25.5E-03	25.5E-03	25.5E-03	25.3E-03	25.7E-03	25.6E-03	25.5E-03
Statistics									
Min	25.6E-03	25.6E-03	25.5E-03	25.5E-03	25.5E-03	25.3E-03	25.7E-03	25.6E-03	25.5E-03
Max	25.6E-03	25.6E-03	25.5E-03	25.5E-03	25.5E-03	25.3E-03	25.7E-03	25.6E-03	25.5E-03
Average	25.6E-03	25.6E-03	25.5E-03	25.5E-03	25.5E-03	25.3E-03	25.7E-03	25.6E-03	25.5E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

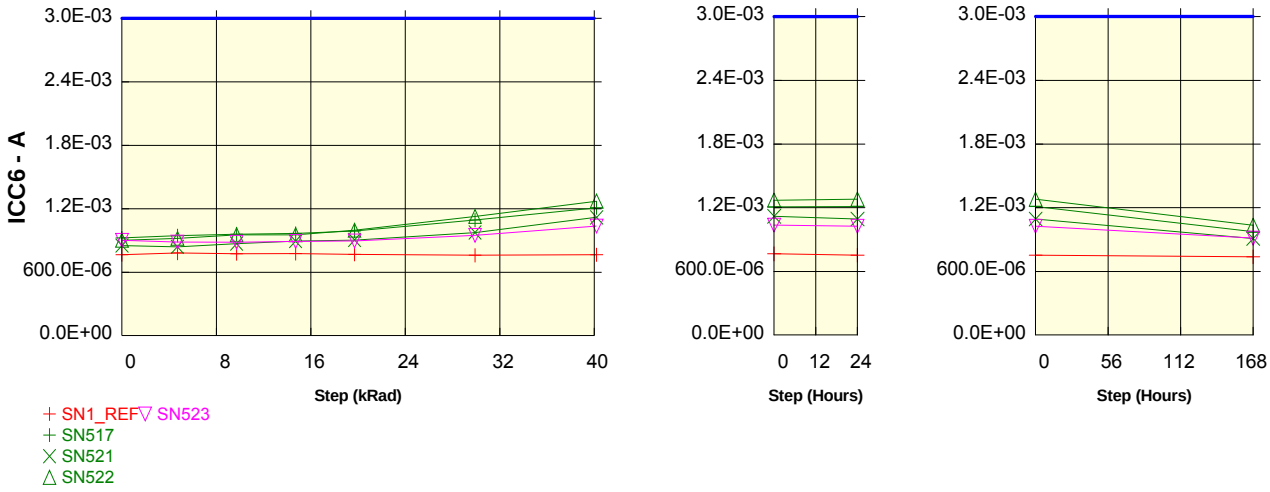
Test conditions : TID
Parameter : Refresh Current : ICC5
Trc=min
Unit : A
Spec Limit Max : 220.0E-03
Spec limits are represented in bold lines on the graphic.



ICC5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	106.4E-03	106.4E-03	105.9E-03	106.6E-03	106.2E-03	105.0E-03	105.8E-03	105.1E-03	105.1E-03
ON samples									
SN517	106.8E-03	107.6E-03	106.8E-03	106.5E-03	106.8E-03	107.9E-03	107.0E-03	108.0E-03	107.4E-03
SN521	108.2E-03	107.7E-03	108.0E-03	108.0E-03	107.9E-03	107.2E-03	108.6E-03	107.5E-03	106.9E-03
SN522	107.9E-03	107.8E-03	107.7E-03	107.7E-03	107.5E-03	106.4E-03	107.4E-03	107.3E-03	107.8E-03
Statistics									
Min	106.8E-03	107.6E-03	106.8E-03	106.5E-03	106.8E-03	106.4E-03	107.0E-03	107.3E-03	106.9E-03
Max	108.2E-03	107.8E-03	108.0E-03	108.0E-03	107.9E-03	107.9E-03	108.6E-03	108.0E-03	107.8E-03
Average	107.6E-03	107.7E-03	107.5E-03	107.4E-03	107.4E-03	107.2E-03	107.7E-03	107.6E-03	107.4E-03
Sigma	602.5E-06	74.0E-06	506.9E-06	652.6E-06	460.4E-06	600.9E-06	666.1E-06	300.8E-06	398.9E-06

ICC5	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	106.4E-03	106.4E-03	105.9E-03	106.6E-03	106.2E-03	105.0E-03	105.8E-03	105.1E-03	105.1E-03
OFF samples									
SN523	107.9E-03	106.9E-03	106.8E-03	104.3E-03	106.2E-03	105.9E-03	107.5E-03	106.8E-03	104.4E-03
Statistics									
Min	107.9E-03	106.9E-03	106.8E-03	104.3E-03	106.2E-03	105.9E-03	107.5E-03	106.8E-03	104.4E-03
Max	107.9E-03	106.9E-03	106.8E-03	104.3E-03	106.2E-03	105.9E-03	107.5E-03	106.8E-03	104.4E-03
Average	107.9E-03	106.9E-03	106.8E-03	104.3E-03	106.2E-03	105.9E-03	107.5E-03	106.8E-03	104.4E-03
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

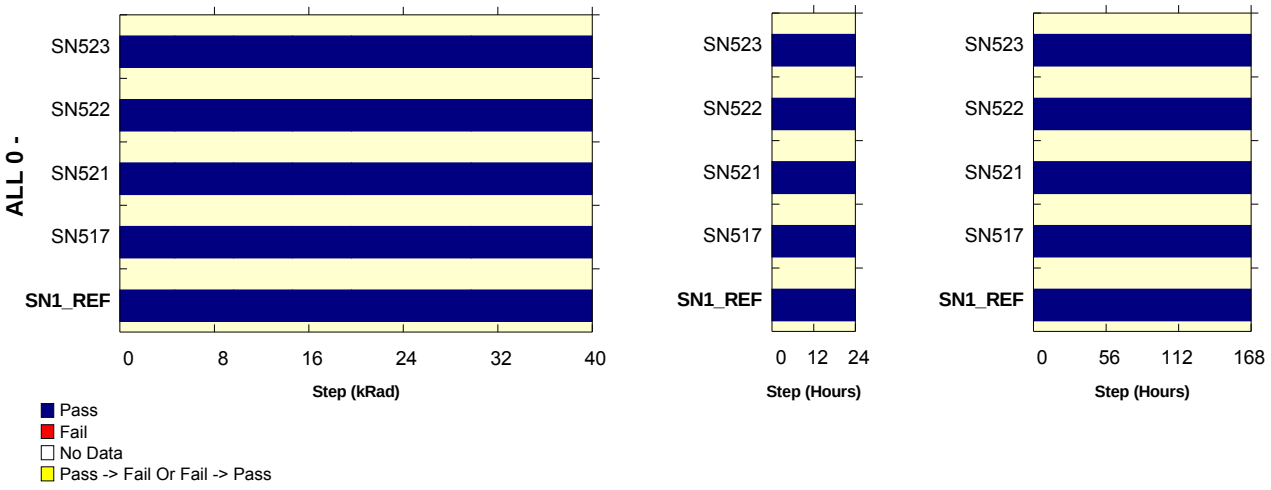
Test conditions : TID
Parameter : Self Refresh Current : ICC6
VIH = VCC – 0.2 V Vil = 0.2 V
Unit : A
Spec Limit Max : 3.0E-03
Spec limits are represented in bold lines on the graphic.



ICC6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	765.8E-06	780.6E-06	775.0E-06	777.5E-06	768.4E-06	759.7E-06	765.0E-06	752.8E-06	737.8E-06
ON samples									
SN517	925.1E-06	946.0E-06	959.8E-06	966.4E-06	988.9E-06	1.1E-03	1.2E-03	1.2E-03	972.9E-06
SN521	851.8E-06	839.7E-06	870.6E-06	893.4E-06	905.1E-06	975.2E-06	1.1E-03	1.1E-03	909.2E-06
SN522	902.3E-06	919.7E-06	954.2E-06	954.4E-06	997.4E-06	1.1E-03	1.3E-03	1.3E-03	1.0E-03
Statistics									
Min	851.8E-06	839.7E-06	870.6E-06	893.4E-06	905.1E-06	975.2E-06	1.1E-03	1.1E-03	909.2E-06
Max	925.1E-06	946.0E-06	959.8E-06	966.4E-06	997.4E-06	1.1E-03	1.3E-03	1.3E-03	1.0E-03
Average	893.1E-06	901.8E-06	928.2E-06	938.1E-06	963.8E-06	1.1E-03	1.2E-03	1.2E-03	972.4E-06
Sigma	30.6E-06	45.2E-06	40.8E-06	32.0E-06	41.6E-06	65.4E-06	62.7E-06	76.7E-06	51.4E-06

ICC6	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	765.8E-06	780.6E-06	775.0E-06	777.5E-06	768.4E-06	759.7E-06	765.0E-06	752.8E-06	737.8E-06
OFF samples									
SN523	902.0E-06	885.9E-06	883.1E-06	891.4E-06	896.2E-06	948.3E-06	1.0E-03	1.0E-03	913.0E-06
Statistics									
Min	902.0E-06	885.9E-06	883.1E-06	891.4E-06	896.2E-06	948.3E-06	1.0E-03	1.0E-03	913.0E-06
Max	902.0E-06	885.9E-06	883.1E-06	891.4E-06	896.2E-06	948.3E-06	1.0E-03	1.0E-03	913.0E-06
Average	902.0E-06	885.9E-06	883.1E-06	891.4E-06	896.2E-06	948.3E-06	1.0E-03	1.0E-03	913.0E-06
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

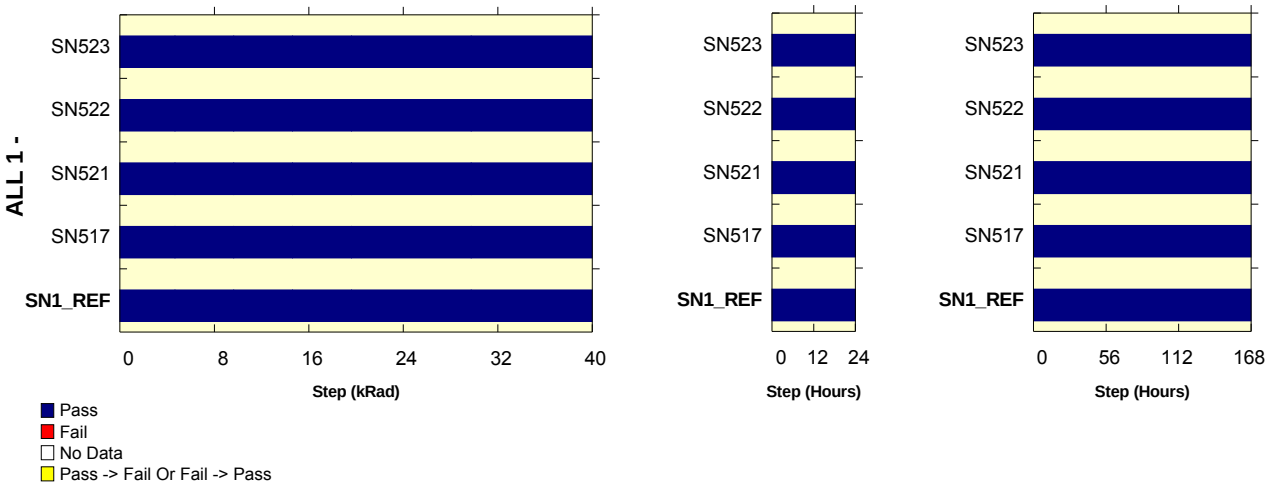
Test conditions : TID
Parameter : ALL 0 : ALL 0
Write and verify ALL 0 in all memory
Unit :
No spec limit specified.



ALL 0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
ON samples									
SN517	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN521	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN522	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

ALL 0	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
OFF samples									
SN523	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

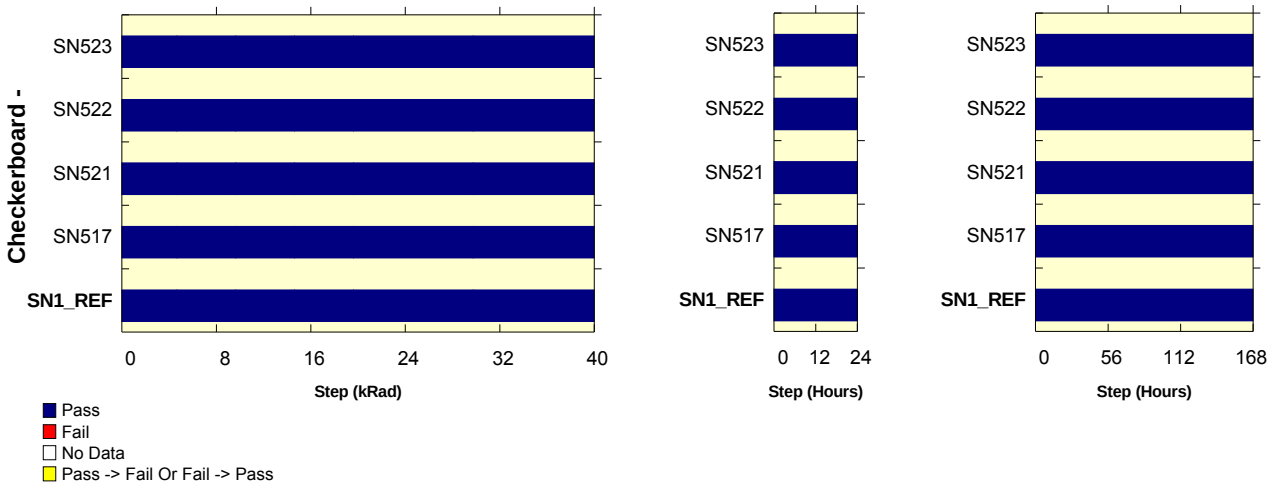
Test conditions : TID
Parameter : ALL 1 : ALL 1
Write and verify ALL 1 in all memory
Unit :
No spec limit specified.



ALL 1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
ON samples									
SN517	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN521	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN522	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

ALL 1	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
OFF samples									
SN523	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

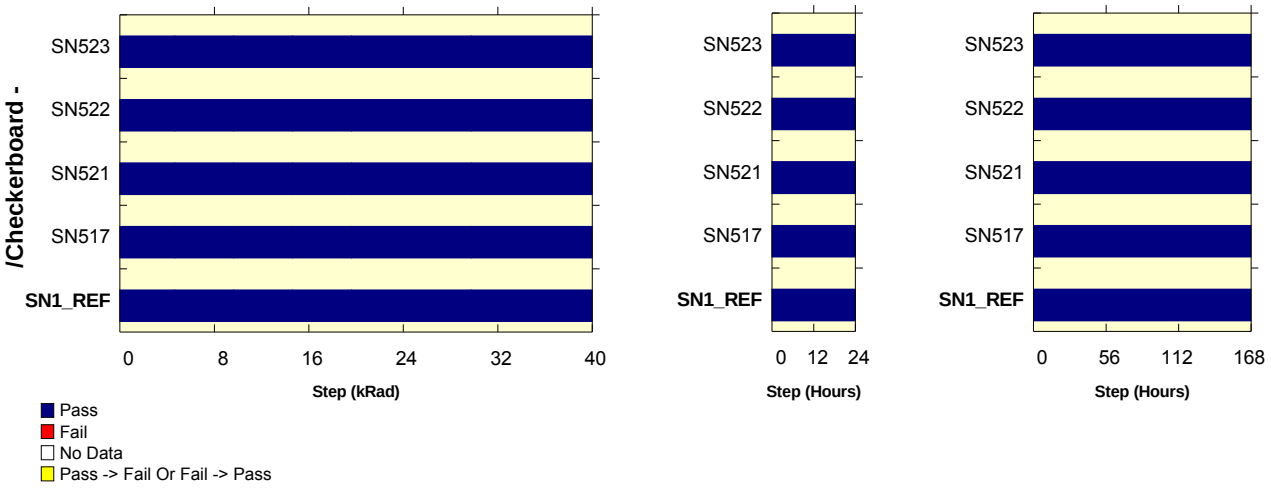
Test conditions : TID
Parameter : Checkerboard : Checkerboard
Write and verify Checkerboard in all memory
Unit :
No spec limit specified.



Checkerboard	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
ON samples									
SN517	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN521	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN522	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Checkerboard	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
OFF samples									
SN523	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Test conditions : TID
Parameter : /Checkerboard : /Checkerboard
Write and verify /Checkerboard in all memory
Unit :
No spec limit specified.

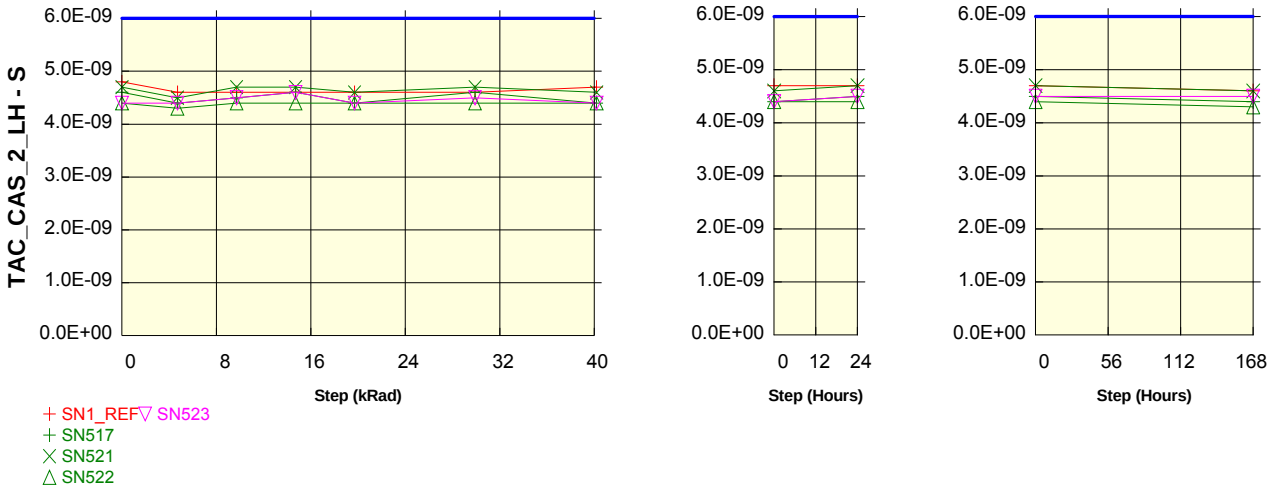


/Checkerboard	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
ON samples									
SN517	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN521	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
SN522	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

/Checkerboard	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED
OFF samples									
SN523	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED	PASSED

Test conditions : TID
Parameter : Access Time from CLK CAS 2 : TAC_CAS_2_LH

Unit : s
Spec Limit Max : 6.0E-09
Spec limits are represented in bold lines on the graphic.

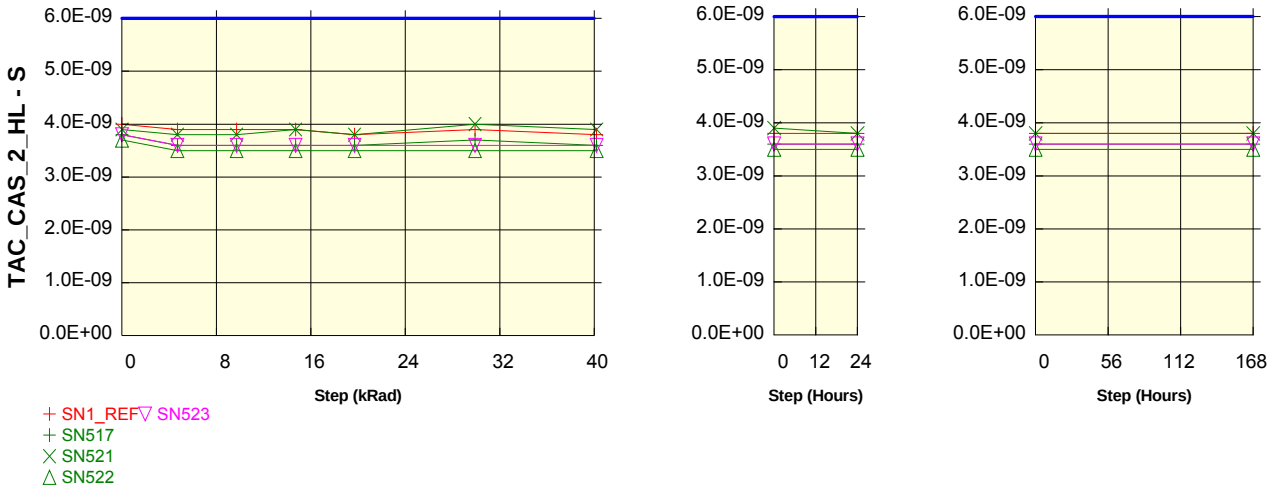


TAC_CAS_2_LH	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.8E-09	4.6E-09	4.6E-09	4.6E-09	4.6E-09	4.6E-09	4.7E-09	4.7E-09	4.6E-09
ON samples									
SN517	4.6E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09
SN521	4.7E-09	4.5E-09	4.7E-09	4.7E-09	4.6E-09	4.7E-09	4.6E-09	4.7E-09	4.6E-09
SN522	4.4E-09	4.3E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.3E-09
Statistics									
Min	4.4E-09	4.3E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.3E-09
Max	4.7E-09	4.5E-09	4.7E-09	4.7E-09	4.6E-09	4.7E-09	4.6E-09	4.7E-09	4.6E-09
Average	4.6E-09	4.4E-09	4.5E-09	4.6E-09	4.5E-09	4.6E-09	4.5E-09	4.5E-09	4.4E-09
Sigma	124.7E-12	81.6E-12	124.7E-12	124.7E-12	94.3E-12	124.7E-12	94.3E-12	124.7E-12	124.7E-12

TAC_CAS_2_LH	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.8E-09	4.6E-09	4.6E-09	4.6E-09	4.6E-09	4.6E-09	4.7E-09	4.7E-09	4.6E-09
OFF samples									
SN523	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Statistics									
Min	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Max	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Average	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Access Time from CLK CAS 2 : TAC_CAS_2_HL

Unit : s
Spec Limit Max : 6.0E-09
Spec limits are represented in bold lines on the graphic.

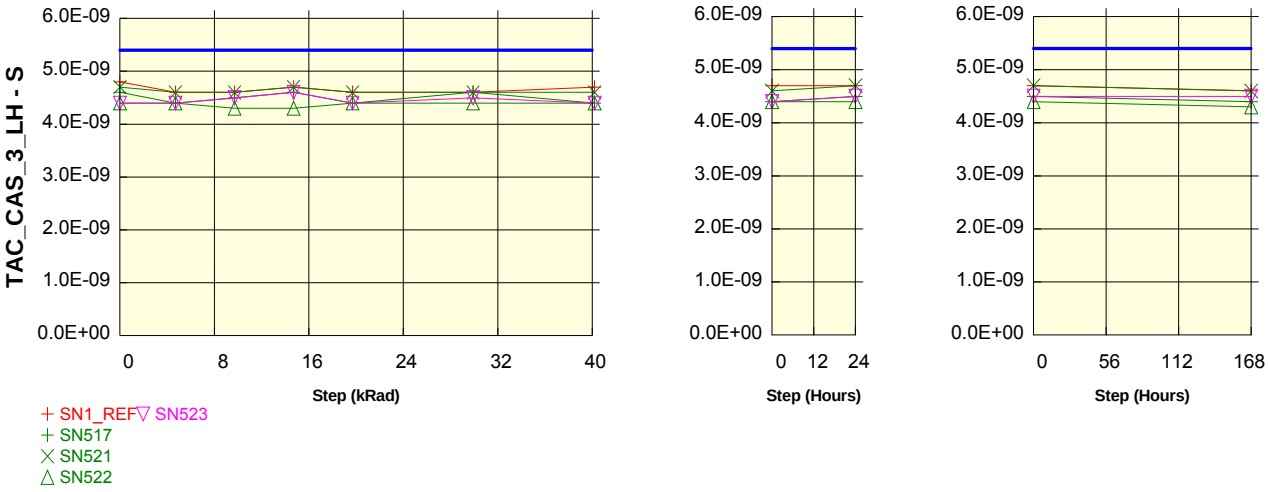


TAC_CAS_2_HL	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.9E-09	3.9E-09	3.9E-09	3.8E-09	3.9E-09	3.8E-09	3.8E-09	3.8E-09
ON samples									
SN517	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09	3.6E-09
SN521	3.9E-09	3.8E-09	3.8E-09	3.9E-09	3.8E-09	4.0E-09	3.9E-09	3.8E-09	3.8E-09
SN522	3.7E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09
Statistics									
Min	3.7E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09
Max	3.9E-09	3.8E-09	3.8E-09	3.9E-09	3.8E-09	4.0E-09	3.9E-09	3.8E-09	3.8E-09
Average	3.8E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.7E-09	3.7E-09	3.6E-09	3.6E-09
Sigma	81.6E-12	124.7E-12	124.7E-12	170.0E-12	124.7E-12	205.5E-12	170.0E-12	124.7E-12	124.7E-12

TAC_CAS_2_HL	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.9E-09	3.9E-09	3.9E-09	3.8E-09	3.9E-09	3.8E-09	3.8E-09	3.8E-09
OFF samples									
SN523	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09
Statistics									
Min	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09
Max	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09
Average	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Access Time from CLK CAS 3 : TAC_CAS_3_LH

Unit : s
Spec Limit Max : 5.4E-09
Spec limits are represented in bold lines on the graphic.

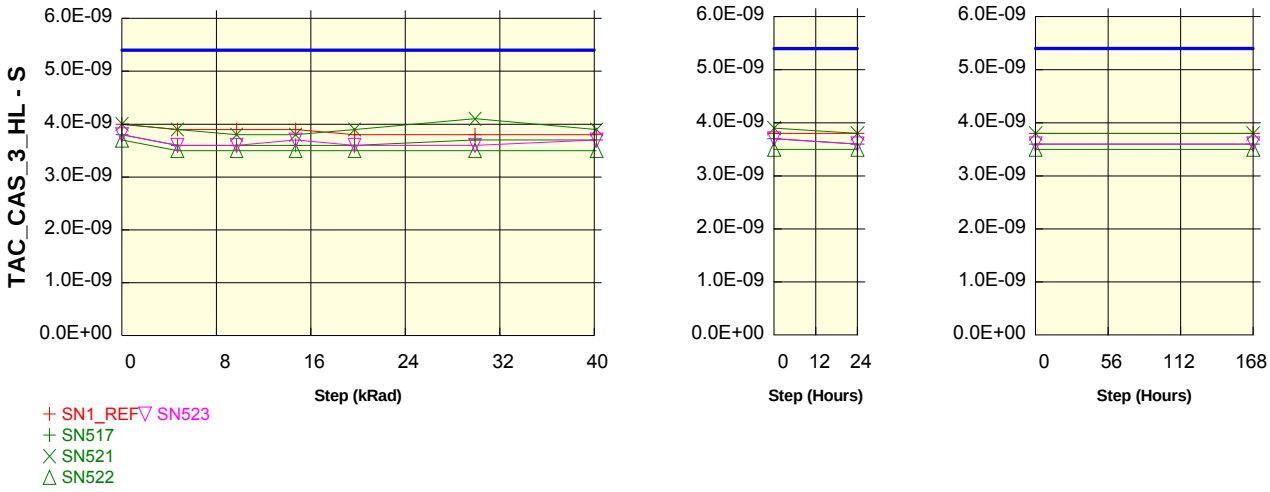


TAC_CAS_3_LH	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.8E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09	4.6E-09	4.7E-09	4.7E-09	4.6E-09
ON samples									
SN517	4.6E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09
SN521	4.7E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09
SN522	4.4E-09	4.4E-09	4.3E-09	4.3E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.3E-09
Statistics									
Min	4.4E-09	4.4E-09	4.3E-09	4.3E-09	4.4E-09	4.4E-09	4.4E-09	4.4E-09	4.3E-09
Max	4.7E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09
Average	4.6E-09	4.5E-09	4.5E-09	4.5E-09	4.5E-09	4.5E-09	4.5E-09	4.5E-09	4.4E-09
Sigma	124.7E-12	94.3E-12	124.7E-12	170.0E-12	94.3E-12	94.3E-12	94.3E-12	124.7E-12	124.7E-12

TAC_CAS_3_LH	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.8E-09	4.6E-09	4.6E-09	4.7E-09	4.6E-09	4.6E-09	4.7E-09	4.7E-09	4.6E-09
OFF samples									
SN523	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Statistics									
Min	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Max	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Average	4.4E-09	4.4E-09	4.5E-09	4.6E-09	4.4E-09	4.5E-09	4.4E-09	4.5E-09	4.5E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Access Time from CLK CAS 3 : TAC_CAS_3_HL

Unit : s
Spec Limit Max : 5.4E-09
Spec limits are represented in bold lines on the graphic.

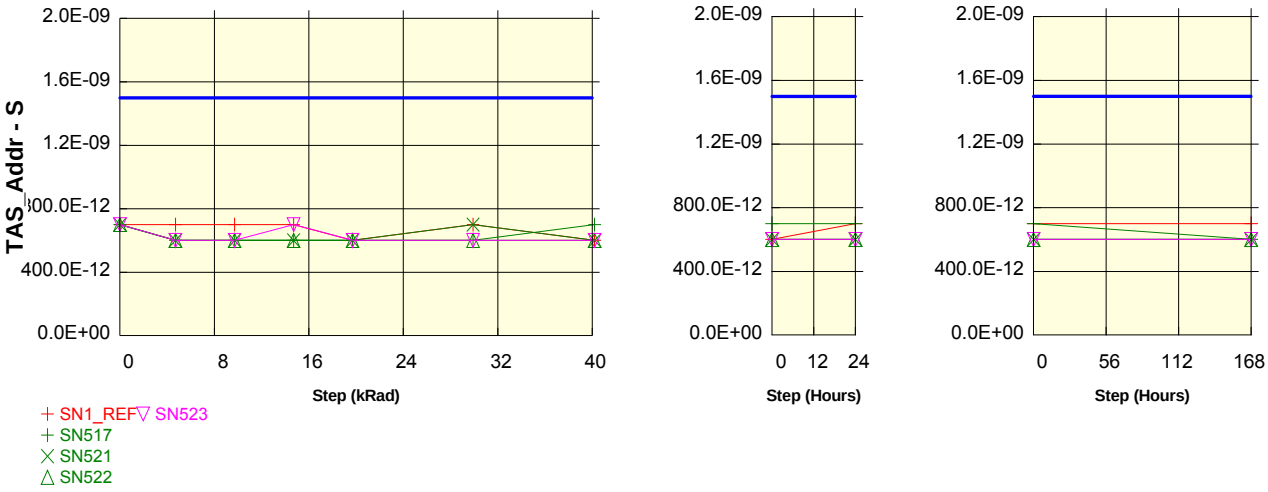


TAC_CAS_3_HL	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.9E-09	3.9E-09	3.9E-09	3.8E-09	3.8E-09	3.8E-09	3.8E-09	3.8E-09
ON samples									
SN517	3.8E-09	3.6E-09	3.6E-09	3.6E-09	3.6E-09	3.7E-09	3.7E-09	3.6E-09	3.6E-09
SN521	4.0E-09	3.9E-09	3.8E-09	3.8E-09	3.9E-09	4.1E-09	3.9E-09	3.8E-09	3.8E-09
SN522	3.7E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09
Statistics									
Min	3.7E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09	3.5E-09
Max	4.0E-09	3.9E-09	3.8E-09	3.8E-09	3.9E-09	4.1E-09	3.9E-09	3.8E-09	3.8E-09
Average	3.8E-09	3.7E-09	3.6E-09	3.6E-09	3.7E-09	3.8E-09	3.7E-09	3.6E-09	3.6E-09
Sigma	124.7E-12	170.0E-12	124.7E-12	124.7E-12	170.0E-12	249.4E-12	163.3E-12	124.7E-12	124.7E-12

TAC_CAS_3_HL	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	4.0E-09	3.9E-09	3.9E-09	3.9E-09	3.8E-09	3.8E-09	3.8E-09	3.8E-09	3.8E-09
OFF samples									
SN523	3.8E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09
Statistics									
Min	3.8E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09
Max	3.8E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09
Average	3.8E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09	3.7E-09	3.6E-09	3.6E-09
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Input Setup Time Address : TAS_Addr

Unit : s
Spec Limit Max : 1.5E-09
Spec limits are represented in bold lines on the graphic.

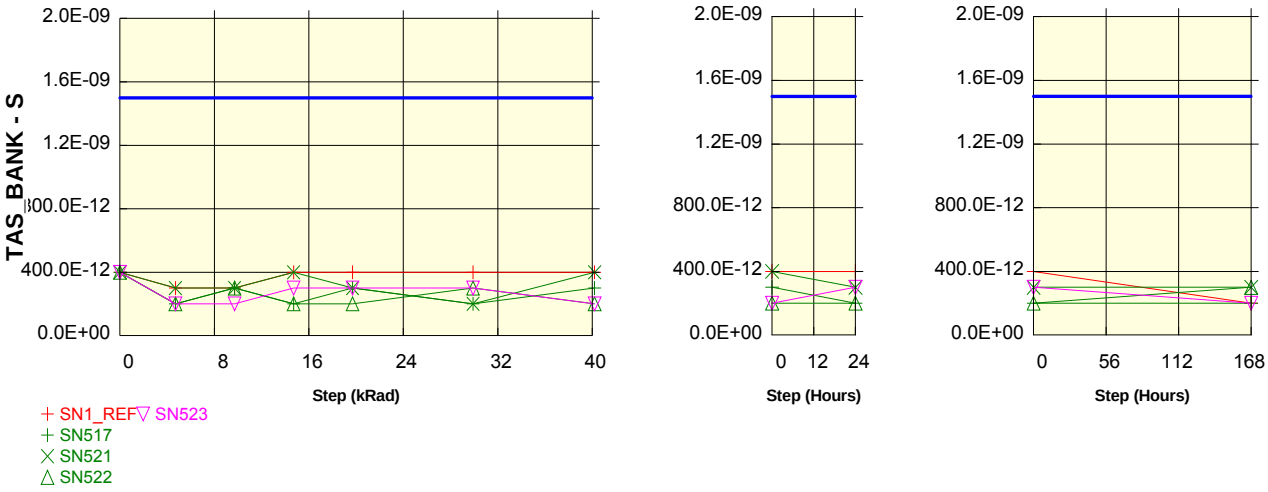


TAS_Addr	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	700.0E-12	700.0E-12	700.0E-12	700.0E-12	600.0E-12	700.0E-12	600.0E-12	700.0E-12	700.0E-12
ON samples									
SN517	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	700.0E-12	700.0E-12	600.0E-12
SN521	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	700.0E-12	600.0E-12	600.0E-12	600.0E-12
SN522	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Statistics									
Min	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Max	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	700.0E-12	700.0E-12	700.0E-12	600.0E-12
Average	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	633.3E-12	633.3E-12	633.3E-12	600.0E-12
Sigma	5.7E-18	0.0E+00	0.0E+00	0.0E+00	0.0E+00	47.1E-12	47.1E-12	47.1E-12	0.0E+00

TAS_Addr	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	700.0E-12	700.0E-12	700.0E-12	700.0E-12	600.0E-12	700.0E-12	600.0E-12	700.0E-12	700.0E-12
OFF samples									
SN523	700.0E-12	600.0E-12	600.0E-12	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Statistics									
Min	700.0E-12	600.0E-12	600.0E-12	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Max	700.0E-12	600.0E-12	600.0E-12	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Average	700.0E-12	600.0E-12	600.0E-12	700.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Input Setup Time Bank : TAS_BANK

Unit : s
Spec Limit Max : 1.5E-09
Spec limits are represented in bold lines on the graphic.

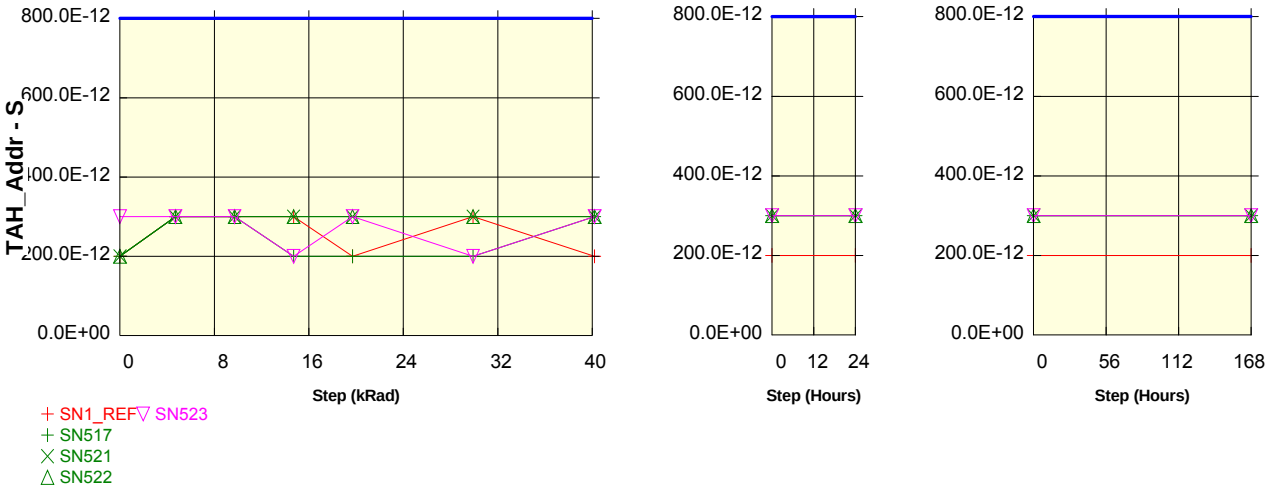


TAS_BANK	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	300.0E-12	300.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	200.0E-12
ON samples									
SN517	400.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12
SN521	400.0E-12	300.0E-12	300.0E-12	400.0E-12	300.0E-12	200.0E-12	400.0E-12	300.0E-12	300.0E-12
SN522	400.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12	300.0E-12
Statistics									
Min	400.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12	200.0E-12	200.0E-12	200.0E-12
Max	400.0E-12	300.0E-12	300.0E-12	400.0E-12	300.0E-12	300.0E-12	400.0E-12	300.0E-12	300.0E-12
Average	400.0E-12	233.3E-12	300.0E-12	266.7E-12	266.7E-12	233.3E-12	300.0E-12	233.3E-12	266.7E-12
Sigma	0.0E+00	47.1E-12	0.0E+00	94.3E-12	47.1E-12	47.1E-12	81.6E-12	47.1E-12	47.1E-12

TAS_BANK	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	400.0E-12	300.0E-12	300.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	400.0E-12	200.0E-12
OFF samples									
SN523	400.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12
Statistics									
Min	400.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12
Max	400.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12
Average	400.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Input Hold Time Address : TAH_Addr

Unit : s
Spec Limit Max : 800.0E-12
Spec limits are represented in bold lines on the graphic.

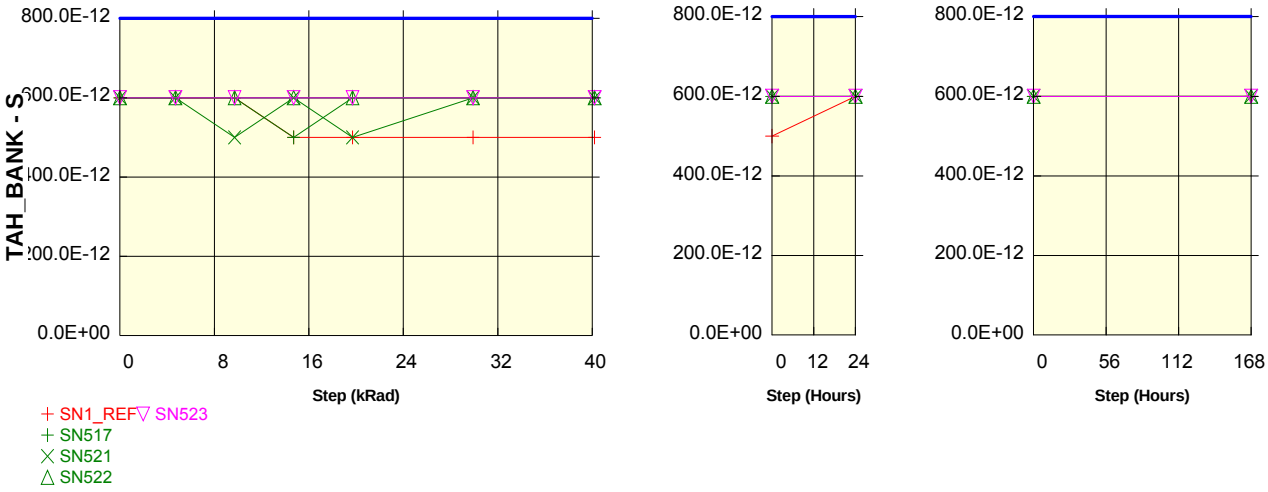


TAH_Addr	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12
ON samples									
SN517	200.0E-12	300.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
SN521	200.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12
SN522	200.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12
Statistics									
Min	200.0E-12	300.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
Max	200.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12	300.0E-12
Average	200.0E-12	300.0E-12	300.0E-12	266.7E-12	266.7E-12	266.7E-12	300.0E-12	300.0E-12	300.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	47.1E-12	47.1E-12	47.1E-12	0.0E+00	0.0E+00	0.0E+00

TAH_Addr	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	200.0E-12	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12
OFF samples									
SN523	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
Statistics									
Min	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
Max	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
Average	300.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Input Hold Time Bank : TAH_BANK

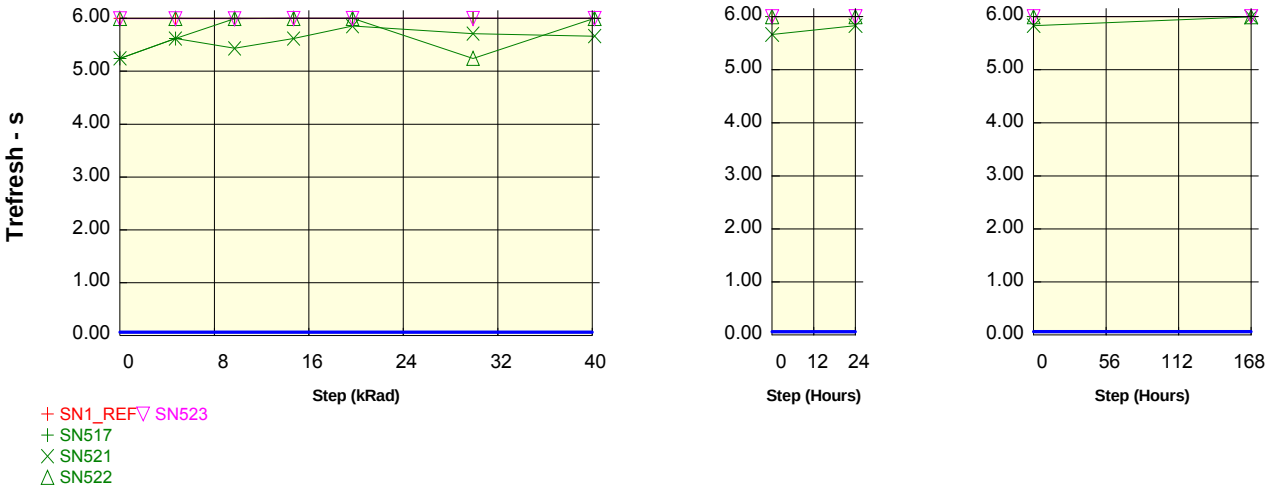
Unit : s
Spec Limit Max : 800.0E-12
Spec limits are represented in bold lines on the graphic.



TAH_BANK	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	600.0E-12	600.0E-12	600.0E-12	500.0E-12	500.0E-12	500.0E-12	500.0E-12	600.0E-12	600.0E-12
ON samples									
SN517	600.0E-12	600.0E-12	600.0E-12	500.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
SN521	600.0E-12	600.0E-12	500.0E-12	600.0E-12	500.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
SN522	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Statistics									
Min	600.0E-12	600.0E-12	500.0E-12	500.0E-12	500.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Max	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Average	600.0E-12	600.0E-12	566.7E-12	566.7E-12	566.7E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Sigma	0.0E+00	0.0E+00	47.1E-12	47.1E-12	47.1E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00

TAH_BANK	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	600.0E-12	600.0E-12	600.0E-12	500.0E-12	500.0E-12	500.0E-12	500.0E-12	600.0E-12	600.0E-12
OFF samples									
SN523	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Statistics									
Min	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Max	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Average	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12	600.0E-12
Sigma	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Test conditions : TID
Parameter : Refresh Period : Trefresh
Measurement limited to 6s max
Unit : s
Spec Limit Min : 64.0E-03
Spec limits are represented in bold lines on the graphic.



Trefresh	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
ON samples									
SN517	5.24	5.62	5.99	6.00	6.00	6.00	6.00	6.00	6.00
SN521	5.24	5.62	5.43	5.62	5.85	5.71	5.67	5.83	5.99
SN522	6.00	6.00	6.00	6.00	6.00	5.24	6.00	6.00	6.00
Statistics									
Min	5.24	5.62	5.43	5.62	5.85	5.24	5.67	5.83	5.99
Max	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Average	5.50	5.75	5.81	5.87	5.95	5.65	5.89	5.94	6.00
Sigma	0.36	0.18	0.27	0.18	0.07	0.31	0.16	0.08	0.00

Trefresh	0 kRad	4.7 kRad	9.7 kRad	14.7 kRad	19.7 kRad	29.9 kRad	40.2 kRad	24 Hours	168 Hours
SN1_REF	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
OFF samples									
SN523	5.99	5.99	5.99	6.00	6.00	6.00	6.00	6.00	6.00
Statistics									
Min	5.99	5.99	5.99	6.00	6.00	6.00	6.00	6.00	6.00
Max	5.99	5.99	5.99	6.00	6.00	6.00	6.00	6.00	6.00
Average	5.99	5.99	5.99	6.00	6.00	6.00	6.00	6.00	6.00
Sigma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00