

TOTAL DOSE RADIATION TEST REPORT

Part Type : AD7677A

16-Bit Differential Analog to Digital Converter

Package : TQFP - 48

Manufacturer: Analog Devices

Report Reference : ESA_QCA0408T_C

Issue : 02

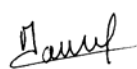
Date : September 16th 2004

ESA Call of order Number 15, Estec / Contract n° 13528/99/NL/MV

European Space Agency Contract Report

The work described in this report was done under ESA contract.
Responsibility for the contents resides in the author or organization that prepared it

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Hirex reference :	HRX/TID/0230	Issue : 02	Date :	September 16 th 2004
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HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

CHANGE RECORD

Issue	Date	Page	DESCRIPTION OF CHANGES
01	September 15th 2004	All	Original Issue.
02	September 16th 2004	10	Conclusion section modified

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

TOTAL DOSE RADIATION TEST REPORT

on

Analog Devices AD7677A

16-Bit Differential Analog to Digital Converter

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HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

1 Abstract

Under ESA Contract No 13528/99/NL/MV covering "Radiation Evaluation of COTS Semiconductor Components", the radiation sensitivity to Total Ionizing Dose (TID) of three different 16-bit Analog to Digital converters was evaluated. Results from these evaluations, are reported in individual TID reports. Below summary table lists manufacturer and evaluated types, and gives references to the various reports issued.

Manufacturer	Part Number	Description	TID Report
Analog Devices	AD7677AST	16-bit, 1LSB INL, 1 MSPS, Differential ADC	ESA_QCA0408T_C
Analog Devices	AD9260AS	16-bit CMOS ADC at a 2.5MHz Output Word Rate	ESA_QCA0409T_C
Texas Instruments	ADS8402IB	16-bit 1.25 MSPS, unipolar differential input ADC	ESA_QCA0407T_C

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

2 Introduction

A total dose radiation verification test of the Analog Devices AD7677A 16-Bit Differential Analog to Digital Converter has been performed with an accumulated dose of about 51 Krad(Si) ,at a dose rate of 360 rad(Si)/hour in response to ESA contract: Call of order Number 15, Estec / Contract n° 13528/99/NL/MV.

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 procured by Hirex Engineering. Test has been performed in accordance with Hirex Engineering Proposal reference: HRX/PRO/0846 Issue 2 dated 3/11/03.

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

3 Applicable and Reference Documents

3.1 Applicable Documents

- Hirex proposal: HRX/PRO/0846 Issue 2 dated 3/11/03.
- Analog Devices AD7677 datasheet Rev. A, dated July 2002.
- ESA/SCC Basic specification N° 22900 issue 4.

3.2 Reference Documents

- NA

4 Test Samples

10 samples of the AD7677A device were tested (10 + 1 control sample). Parts have been biased according to the allocation table below.

Serial number	Allocation
Ref	Control
1	Static BIAS
2	Static BIAS
3	Static BIAS
4	Static BIAS
5	Static BIAS
6	Dynamic BIAS
7	Dynamic BIAS
8	Dynamic BIAS
9	Dynamic BIAS
10	Dynamic BIAS

Identification of the AD7677A is given below:

Part Number:	AD7677AST	Mask Set:	NA
Project:	-	Diffusion Lot:	NA
Lot Number:	-	Marking:	AD 7677A AST 0305 200558.1
Date Code:	0305	Project:	NA

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5 Experimental Conditions

5.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at CERT-ONERA. In this irradiation facility, a Cobalt 60 source is used with the possibility to vary the dose rate by simply adjusting the distance to the source.

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

Irradiation Steps krads	Dose rate krads/h	Annealing steps hours	Temperature °C
0			25
6	0.36		25
13	0.36		25
19	0.36		25
25	0.36		25
51	0.36		25
		24	25
		168	100

5.2 Bias during Dose Exposures and Measurements conditions

5.2.1 Bias conditions

During exposures dedicated test boards were used mounted on a special board-holder made for irradiation. The test boards allowed two biasing conditions of the devices in accordance with electrical circuits provided in Figure 1 and 2.

These two conditions correspond to static and dynamic functioning of the components.

During annealing steps, the same stress conditions were applied at 25°C and 100°C temperatures.

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5.2.2 Electrical Measurements

A7677 test program principle is provided in Figure 3.

The test Setup for this ADC includes a CREDENCE Electra Mixed Signal Test Station, an arbitrary waveform generator (AWG), and a DC tester. To ensure coherent clocking to the mixed signal tester, ADC, and AWG, a clock from the ELECTRA is used.

The AWG has 18 bits of resolution, and provides pure enough signal to the test board thanks to internal filters. Additional filtering was also implemented onto the test fixture board to clean the noise and distortion from the input signal.

After input signal is generated, the ELECTRA acquires data output by the ADC. The dedicated Labview programs analyse the data and display the results on a SUN workstation.

For conversion characteristics including Differential Non Linearity, Integral Non Linearity, Offset Error, Gain Error, a histogram test technique was used.

Two full scale pure ramps are input to the ADC. Thousands samples of the input signals are taken and processed by the histogram software. At the end of sampling, the histogram is plotted with possible output codes along the X axis and frequency of occurrence along Y axis. Above each possible output code, a point is plotted whose height is proportional to the total number of times that code occurred.

From histogram test data, dedicated math routines calculate the different parameter values.

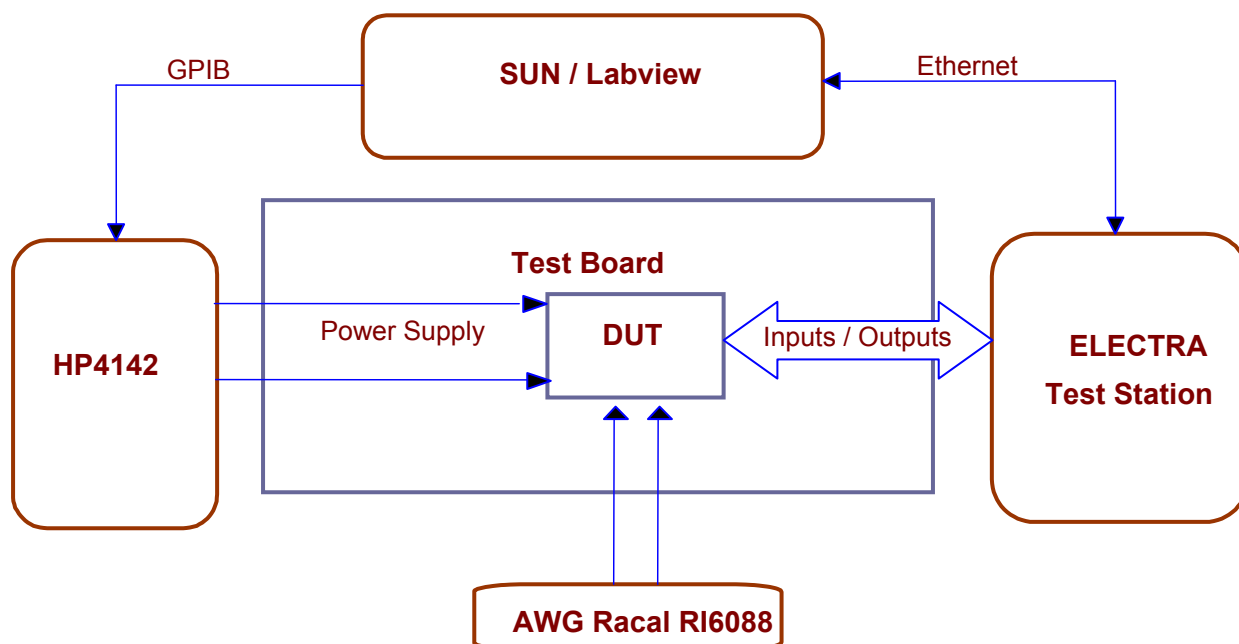
For dynamic characteristics including Signal-to-Noise Ratio, Signal-to-Noise Plus Distortion Ratio, Effective Number of Bits, and Total Harmonic Distortion, a Fast Fourier Transform (FFT) algorithm was implemented.

Two full scale sinewaves of specified frequency are input to the device under test. Harmonics of the input sinewaves, caused by the integral nonlinearity of the ADC, are aliased into the baseband spectrum and can be readily identified. The frequency of the input sinewaves is not arbitrary and must be selected so that harmonics, aliased into baseband, do not coincide with the fundamental.

From FFT spectra test data, dedicated math routines calculate the different parameter values.

Test results were automatically loaded in an Excel worksheet and compared in real time to specification limits. This allowed for real time data analysis in particular in case failures are recorded

Figure 3 : Test program principle



HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

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

Table 1: Measured electrical parameters

Symbol	Parameter	Test conditions	Limits		Max	Unit
			Min			
INL	Integral non linearity	Note1	-	-	+1	LSB
DNL	Differential non linearity	Note1	-	-	+1	
Offset Error	Zero Error	Note2	-15	-	+15	
+FSE	+ Full scale error	Note2	-25	-	+25	
-FSE	- Full scale error	Note2	-20	-	+20	
THD	Total Harmonic Distortion	Fin= 20kHz (Note1)	-	-110	-103,5	dB
SNR	Signal to Noise Ratio	Fin= 20kHz (Note1)	92	94	-	
SNRD	Signal to Noise Ratio + Distortion	Fin= 20kHz (Note1)	92	94	-	
IIH	Input current leakage	-	-1	-	1	μA
IIL	Input current leakage	-	-1	-	1	
VOH	Output high voltage	Isorce=-100μA	4.4	-	-	V
VOL	Output low voltage	Isink=1,6mA	-	-	0.4	
IAVDD	Operating current	-	-	16,7	-	mA
IDVDD	Operating current	Note3	-	6,4	-	
IOVDD	Operating current	Note3	-	69	-	μA
CMRR	Common mode rejection ratio	-	-	85	-	dB

Note 1: In warp mode.

Note 2: Tested with Vref=2.5V.

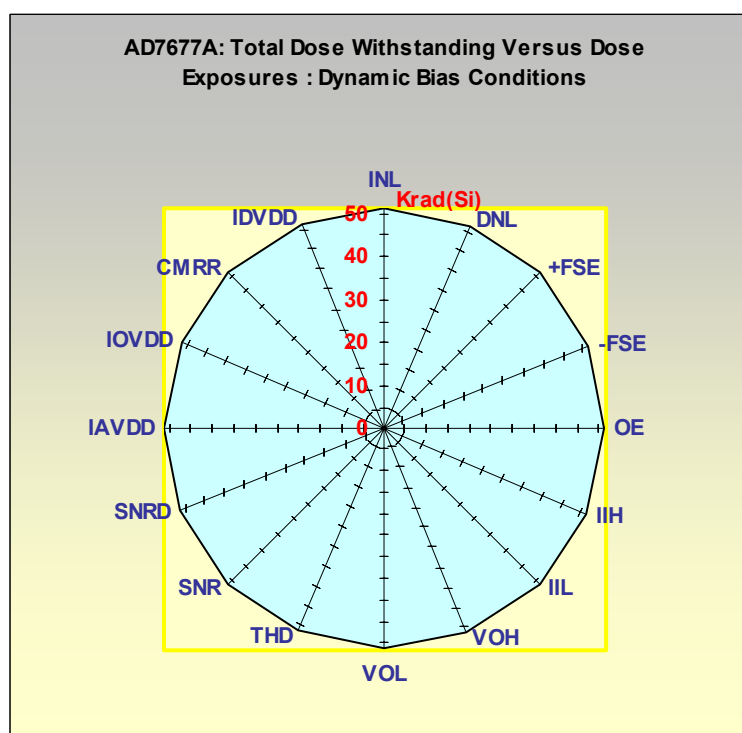
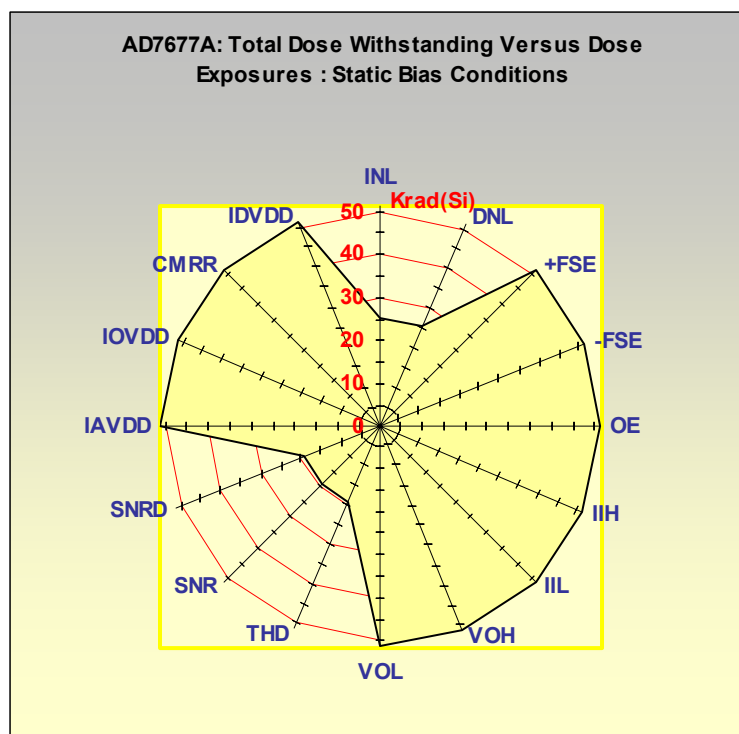
Note 3: Tested in Parallel Reading Mode

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

6 Conclusion

A Total Ionizing Dose evaluation test was carried out by Hirex Engineering under ESA contract on the Analog Devices AD7677A 16-Bit Differential Analog to Digital Converter in TQFP - 48 package. 10 samples plus one control sample were used during testing. They were exposed to radiation using a dose rate of 360 rad(Si)/hour at room temperature.

A summary of the results obtained are presented in the following figures.



HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
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On these figures, the last dose exposure at which a given parameter was measured within specification limits is plotted. Two series of data are represented corresponding to the two types of bias conditions used during dose exposures.

The bigger the surface of the polygon, the better the withstanding capabilities of the device.

From these plots we can see that samples exposed under static conditions present degraded performance while samples exposed under dynamic conditions exhibit a pretty good behaviour.

When considering samples biased in static conditions, the most affected parameters are SNR, SNRD and THD that failed specification limits after 25 Krad(Si) of dose exposure.

INL and DNL parameters failed at 51 Krad(Si).

All these parameters did completely recover after annealing steps.

For samples biased in dynamic conditions no significant drift is observed at any step of testing.

It should be noted that INL parameter was measured outside specification limits at initial readings.

This is attributed to the lead length of the test socket that induces an excessive inductance with respect to the device pins. A direct soldering of devices onto the test board would have probably improved results for INL.

Of course when repetitive measurements on many samples are required, soldering and de-soldering of components is not feasible.

All other parameters remained within specification limits all along testing.

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
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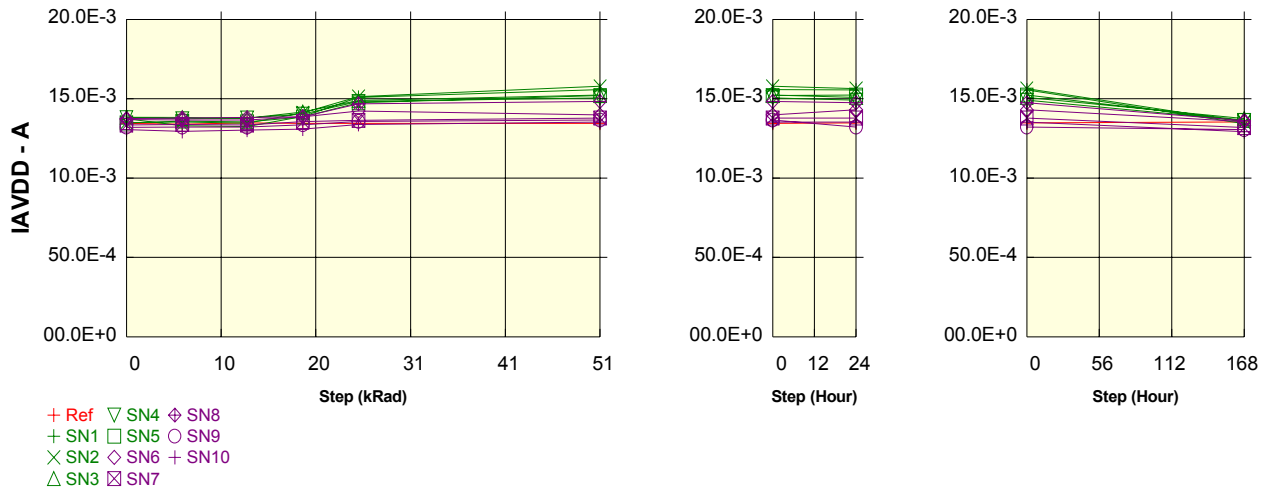
7 Test Results

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

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID
Parameter : Operating Current : IAVDD

Unit : A
No spec limit specified.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	13.5E-3	13.4E-3	13.5E-3	13.5E-3	13.4E-3	13.5E-3
SN1	13.7E-3	13.3E-3	13.3E-3	13.9E-3	15.1E-3	15.6E-3
SN2	13.5E-3	13.5E-3	13.5E-3	14.1E-3	15.1E-3	15.8E-3
SN3	13.8E-3	13.8E-3	13.8E-3	14.2E-3	14.9E-3	15.2E-3
SN4	13.8E-3	13.7E-3	13.8E-3	14.0E-3	14.8E-3	15.1E-3
SN5	13.5E-3	13.6E-3	13.6E-3	13.9E-3	14.7E-3	15.2E-3
SN6	13.7E-3	13.7E-3	13.7E-3	13.9E-3	14.2E-3	14.0E-3
SN7	13.3E-3	13.4E-3	13.4E-3	13.6E-3	13.6E-3	13.8E-3
SN8	13.8E-3	13.8E-3	13.8E-3	13.9E-3	14.7E-3	14.8E-3
SN9	13.2E-3	13.2E-3	13.2E-3	13.4E-3	13.6E-3	13.7E-3
SN10	13.1E-3	12.9E-3	13.0E-3	13.1E-3	13.4E-3	13.5E-3
Statistics						
Min	13.1E-3	12.9E-3	13.0E-3	13.1E-3	13.4E-3	13.5E-3
Max	13.8E-3	13.8E-3	13.8E-3	14.2E-3	15.1E-3	15.8E-3
Mean	13.5E-3	13.5E-3	13.5E-3	13.8E-3	14.4E-3	14.7E-3
Sigma	26.9E-5	28.2E-5	27.5E-5	34.0E-5	66.3E-5	84.4E-5

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	13.5E-3	13.5E-3
SN1	15.6E-3	15.6E-3
SN2	15.8E-3	15.7E-3
SN3	15.2E-3	15.1E-3
SN4	15.1E-3	14.9E-3
SN5	15.2E-3	15.2E-3
SN6	14.0E-3	14.3E-3
SN7	13.8E-3	13.8E-3
SN8	14.8E-3	14.7E-3
SN9	13.7E-3	13.2E-3
SN10	13.5E-3	13.5E-3
Statistics		
Min	13.5E-3	13.2E-3
Max	15.8E-3	15.7E-3
Mean	14.7E-3	14.6E-3
Sigma	84.4E-5	85.4E-5

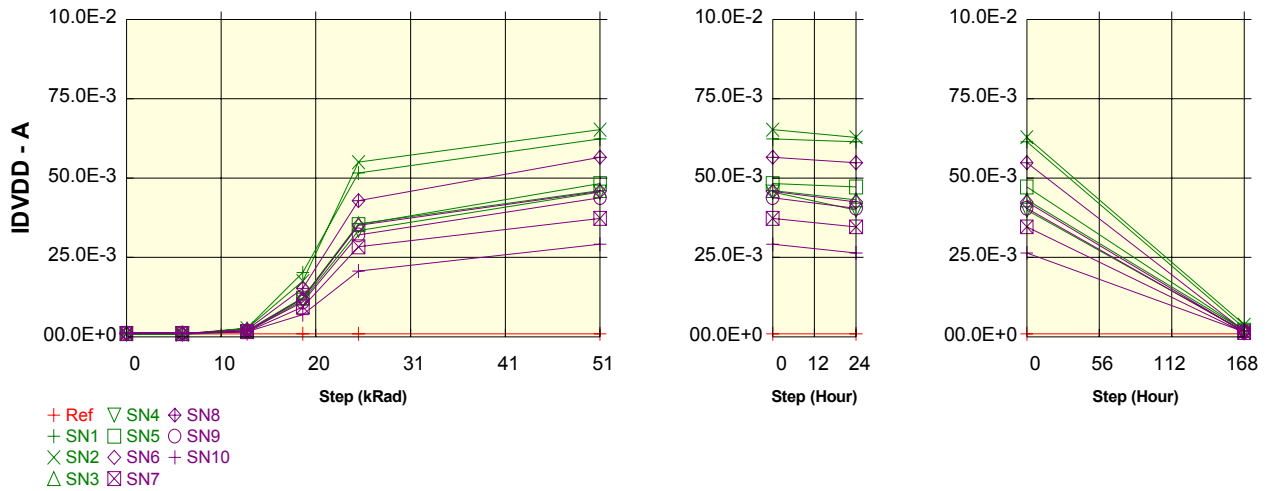
Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	13.5E-3	13.5E-3
SN1	15.6E-3	13.4E-3
SN2	15.7E-3	13.5E-3
SN3	15.1E-3	13.8E-3
SN4	14.9E-3	13.6E-3
SN5	15.2E-3	13.6E-3
SN6	14.3E-3	13.6E-3
SN7	13.8E-3	13.2E-3
SN8	14.7E-3	13.6E-3
SN9	13.2E-3	13.1E-3
SN10	13.5E-3	12.9E-3
Statistics		
Min	13.2E-3	12.9E-3
Max	15.7E-3	13.8E-3
Mean	14.6E-3	13.4E-3
Sigma	85.4E-5	28.0E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID
Parameter : Operating Current : IDVDD

Unit : A
No spec limit specified.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	99.1E-5	85.8E-5	10.1E-4	99.2E-5	98.9E-5	95.6E-5
SN1	97.5E-5	92.0E-5	27.2E-4	20.2E-3	51.6E-3	62.4E-3
SN2	91.9E-5	72.5E-5	26.5E-4	17.6E-3	55.0E-3	65.3E-3
SN3	10.5E-4	10.7E-4	20.2E-4	12.4E-3	35.6E-3	46.1E-3
SN4	87.2E-5	82.1E-5	16.2E-4	11.5E-3	33.5E-3	45.6E-3
SN5	10.2E-4	10.8E-4	17.1E-4	12.2E-3	35.4E-3	48.3E-3
SN6	10.4E-4	10.7E-4	18.2E-4	12.0E-3	35.1E-3	45.9E-3
SN7	11.0E-4	10.8E-4	16.4E-4	94.3E-4	28.4E-3	37.3E-3
SN8	11.0E-4	11.0E-4	22.5E-4	15.2E-3	43.0E-3	56.6E-3
SN9	11.5E-4	11.2E-4	17.7E-4	11.0E-3	32.1E-3	43.8E-3
SN10	13.1E-4	13.1E-4	15.9E-4	70.1E-4	20.8E-3	29.2E-3
Statistics						
Min	87.2E-5	72.5E-5	15.9E-4	70.1E-4	20.8E-3	29.2E-3
Max	13.1E-4	13.1E-4	27.2E-4	20.2E-3	55.0E-3	65.3E-3
Mean	10.6E-4	10.3E-4	19.8E-4	12.9E-3	37.0E-3	48.0E-3
Sigma	12.5E-5	16.7E-5	42.5E-5	38.7E-4	10.3E-3	10.9E-3

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	95.6E-5	99.2E-5
SN1	62.4E-3	61.5E-3
SN2	65.3E-3	62.9E-3
SN3	46.1E-3	43.2E-3
SN4	45.6E-3	39.9E-3
SN5	48.3E-3	47.3E-3
SN6	45.9E-3	42.5E-3
SN7	37.3E-3	34.7E-3
SN8	56.6E-3	54.9E-3
SN9	43.8E-3	40.5E-3
SN10	29.2E-3	26.4E-3
Statistics		
Min	29.2E-3	26.4E-3
Max	65.3E-3	62.9E-3
Mean	48.0E-3	45.4E-3
Sigma	10.9E-3	11.6E-3

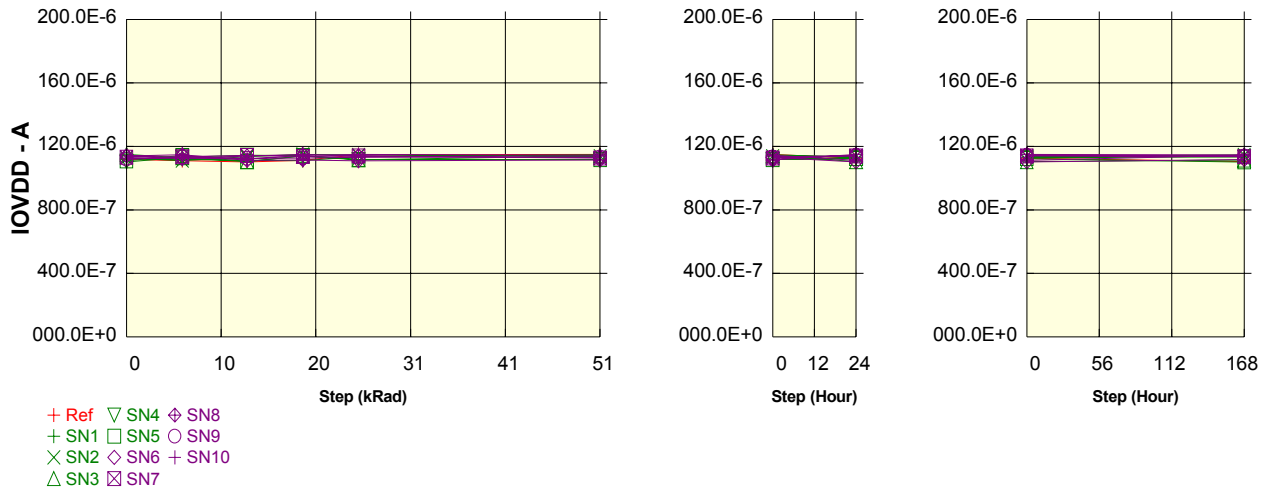
Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	99.2E-5	10.2E-4
SN1	61.5E-3	27.7E-4
SN2	62.9E-3	38.5E-4
SN3	43.2E-3	20.5E-4
SN4	39.9E-3	17.2E-4
SN5	47.3E-3	21.1E-4
SN6	42.5E-3	14.4E-4
SN7	34.7E-3	13.5E-4
SN8	54.9E-3	18.9E-4
SN9	40.5E-3	15.3E-4
SN10	26.4E-3	15.1E-4
Statistics		
Min	26.4E-3	13.5E-4
Max	62.9E-3	38.5E-4
Mean	45.4E-3	20.2E-4
Sigma	11.6E-3	77.0E-5

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Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID
Parameter : Operating Current : IOVDD

Unit : A
No spec limit specified.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	111.9E-6	111.1E-6	110.2E-6	111.3E-6	114.9E-6	114.9E-6
SN1	112.6E-6	111.9E-6	111.2E-6	111.0E-6	113.6E-6	114.8E-6
SN2	112.7E-6	111.1E-6	113.6E-6	115.0E-6	114.7E-6	113.9E-6
SN3	115.0E-6	112.9E-6	110.4E-6	114.0E-6	111.5E-6	114.2E-6
SN4	110.2E-6	113.2E-6	114.5E-6	114.2E-6	111.7E-6	111.8E-6
SN5	110.9E-6	114.4E-6	110.4E-6	114.2E-6	111.7E-6	111.7E-6
SN6	114.4E-6	112.3E-6	114.0E-6	115.0E-6	114.0E-6	113.0E-6
SN7	113.2E-6	113.5E-6	114.3E-6	113.6E-6	114.0E-6	112.7E-6
SN8	114.1E-6	114.8E-6	111.2E-6	111.5E-6	111.0E-6	111.4E-6
SN9	112.0E-6	113.3E-6	112.5E-6	112.8E-6	113.1E-6	113.3E-6
SN10	112.7E-6	112.8E-6	112.0E-6	114.3E-6	115.0E-6	114.5E-6
Statistics						
Min	110.2E-6	111.1E-6	110.4E-6	111.0E-6	111.0E-6	111.4E-6
Max	115.0E-6	114.8E-6	114.5E-6	115.0E-6	115.0E-6	114.8E-6
Mean	112.8E-6	113.0E-6	112.4E-6	113.5E-6	113.0E-6	113.1E-6
Sigma	150.3E-8	109.9E-8	159.2E-8	138.8E-8	145.7E-8	122.3E-8

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	114.9E-6	112.5E-6
SN1	114.8E-6	113.2E-6
SN2	113.9E-6	113.7E-6
SN3	114.2E-6	110.4E-6
SN4	111.8E-6	113.1E-6
SN5	111.7E-6	112.4E-6
SN6	113.0E-6	110.3E-6
SN7	112.7E-6	114.0E-6
SN8	111.4E-6	114.9E-6
SN9	113.3E-6	114.4E-6
SN10	114.5E-6	111.2E-6
Statistics		
Min	111.4E-6	110.3E-6
Max	114.8E-6	114.9E-6
Mean	113.1E-6	112.7E-6
Sigma	122.3E-8	165.0E-8

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	112.5E-6	110.4E-6
SN1	113.2E-6	114.2E-6
SN2	113.7E-6	114.7E-6
SN3	110.4E-6	111.4E-6
SN4	113.1E-6	113.3E-6
SN5	112.4E-6	110.2E-6
SN6	110.3E-6	111.8E-6
SN7	114.0E-6	113.5E-6
SN8	114.9E-6	114.6E-6
SN9	114.4E-6	113.8E-6
SN10	111.2E-6	114.6E-6
Statistics		
Min	110.3E-6	110.2E-6
Max	114.9E-6	114.7E-6
Mean	112.7E-6	113.2E-6
Sigma	165.0E-8	156.6E-8

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Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

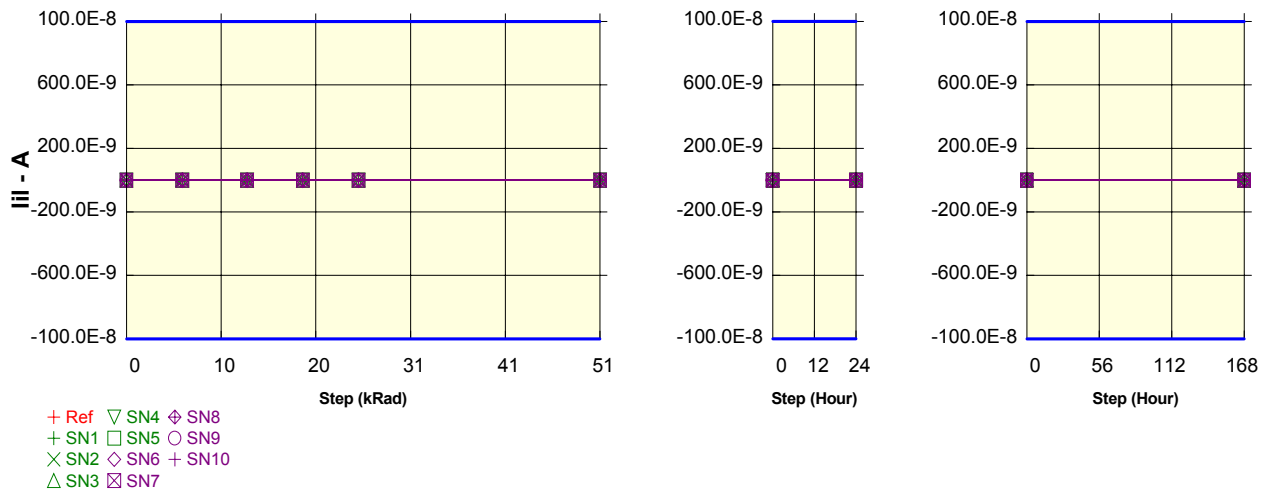
Parameter : Low-Level Input Leakage Current : I_{IL}BYTESWAP

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-250.0E-12	-100.0E-12	-150.0E-12	000.0E+0	-150.0E-12	-150.0E-12
SN1	-200.0E-12	-150.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-150.0E-12
SN2	-150.0E-12	-150.0E-12	-150.0E-12	-500.0E-13	-100.0E-12	-100.0E-12
SN3	-250.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-150.0E-12
SN4	-250.0E-12	-150.0E-12	-150.0E-12	-500.0E-13	-500.0E-13	-150.0E-12
SN5	-200.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-100.0E-12
SN6	-100.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-150.0E-12
SN7	-200.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-100.0E-12
SN8	-150.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-100.0E-12
SN9	-100.0E-12	-100.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-100.0E-12
SN10	-100.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	-150.0E-12
Statistics						
Min	-250.0E-12	-200.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-150.0E-12
Max	-100.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	-500.0E-13	-100.0E-12
Mean	-170.0E-12	-150.0E-12	-145.0E-12	-950.0E-13	-850.0E-13	-125.0E-12
Sigma	586.9E-13	235.7E-13	368.9E-13	283.8E-13	241.5E-13	263.5E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-150.0E-12	-150.0E-12
SN1	-150.0E-12	-100.0E-12
SN2	-100.0E-12	-150.0E-12
SN3	-150.0E-12	-150.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-100.0E-12	-500.0E-13
SN6	-150.0E-12	-150.0E-12
SN7	-100.0E-12	-500.0E-13
SN8	-100.0E-12	-100.0E-12
SN9	-100.0E-12	-100.0E-12
SN10	-150.0E-12	-100.0E-12
Statistics		
Min	-150.0E-12	-150.0E-12
Max	-100.0E-12	-500.0E-13
Mean	-125.0E-12	-110.0E-12
Sigma	263.5E-13	394.4E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-150.0E-12	-100.0E-12
SN1	-100.0E-12	-100.0E-12
SN2	-150.0E-12	-150.0E-12
SN3	-150.0E-12	-100.0E-12
SN4	-150.0E-12	-100.0E-12
SN5	-500.0E-13	-500.0E-13
SN6	-150.0E-12	-100.0E-12
SN7	-500.0E-13	-100.0E-12
SN8	-100.0E-12	-100.0E-12
SN9	-100.0E-12	-100.0E-12
SN10	-100.0E-12	-100.0E-12
Statistics		
Min	-150.0E-12	-150.0E-12
Max	-500.0E-13	-500.0E-13
Mean	-110.0E-12	-100.0E-12
Sigma	394.4E-13	235.7E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

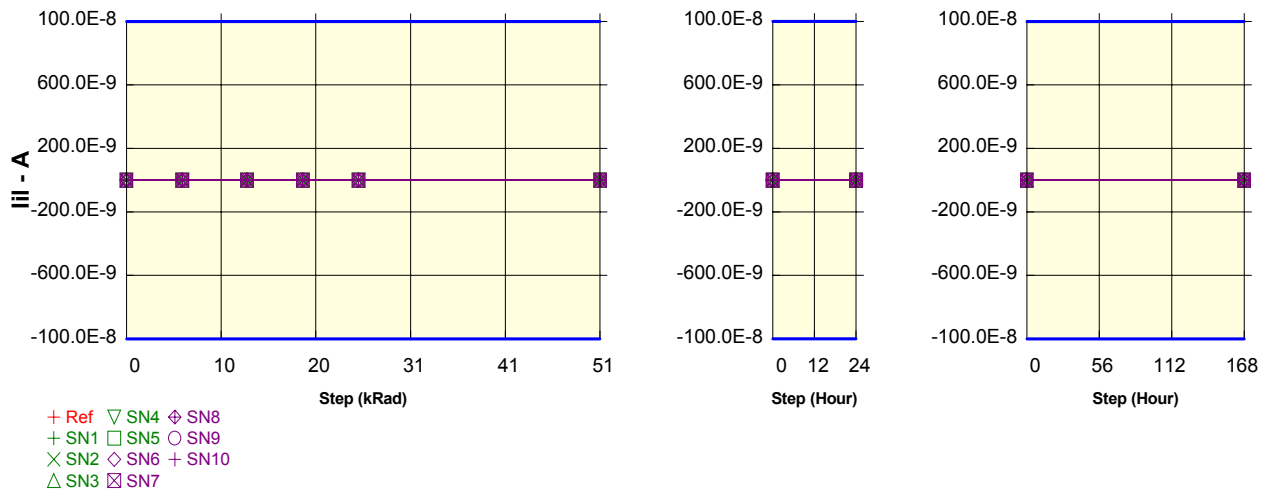
Parameter : Low-Level Input Leakage Current : I_lOB/2C

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-250.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-200.0E-12
SN1	-200.0E-12	-100.0E-12	-150.0E-12	-100.0E-12	-150.0E-12	-150.0E-12
SN2	-200.0E-12	-250.0E-12	-200.0E-12	-150.0E-12	-200.0E-12	-200.0E-12
SN3	-200.0E-12	-150.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-150.0E-12
SN4	-200.0E-12	-250.0E-12	-150.0E-12	-500.0E-13	-150.0E-12	-150.0E-12
SN5	-200.0E-12	-150.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-100.0E-12
SN6	-200.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-500.0E-13	-150.0E-12
SN7	-200.0E-12	-200.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-100.0E-12
SN8	-150.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-150.0E-12	-150.0E-12
SN9	-150.0E-12	-150.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-150.0E-12
SN10	-200.0E-12	-150.0E-12	-200.0E-12	-100.0E-12	-150.0E-12	-150.0E-12
Statistics						
Min	-200.0E-12	-250.0E-12	-250.0E-12	-150.0E-12	-200.0E-12	-200.0E-12
Max	-150.0E-12	-100.0E-12	-150.0E-12	-500.0E-13	-500.0E-13	-100.0E-12
Mean	-190.0E-12	-170.0E-12	-185.0E-12	-115.0E-12	-130.0E-12	-145.0E-12
Sigma	210.8E-13	483.0E-13	337.5E-13	337.5E-13	421.6E-13	283.8E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-200.0E-12	-100.0E-12
SN1	-150.0E-12	-100.0E-12
SN2	-200.0E-12	-100.0E-12
SN3	-150.0E-12	-100.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-100.0E-12	-100.0E-12
SN6	-150.0E-12	-150.0E-12
SN7	-100.0E-12	-150.0E-12
SN8	-150.0E-12	-100.0E-12
SN9	-150.0E-12	-150.0E-12
SN10	-150.0E-12	-150.0E-12
Statistics		
Min	-200.0E-12	-150.0E-12
Max	-100.0E-12	-100.0E-12
Mean	-145.0E-12	-125.0E-12
Sigma	283.8E-13	263.5E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-100.0E-12	-150.0E-12
SN1	-100.0E-12	-150.0E-12
SN2	-100.0E-12	-150.0E-12
SN3	-100.0E-12	-100.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-100.0E-12	-150.0E-12
SN6	-150.0E-12	-100.0E-12
SN7	-150.0E-12	-500.0E-13
SN8	-100.0E-12	-100.0E-12
SN9	-150.0E-12	-100.0E-12
SN10	-150.0E-12	-100.0E-12
Statistics		
Min	-150.0E-12	-150.0E-12
Max	-100.0E-12	-500.0E-13
Mean	-125.0E-12	-115.0E-12
Sigma	263.5E-13	337.5E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

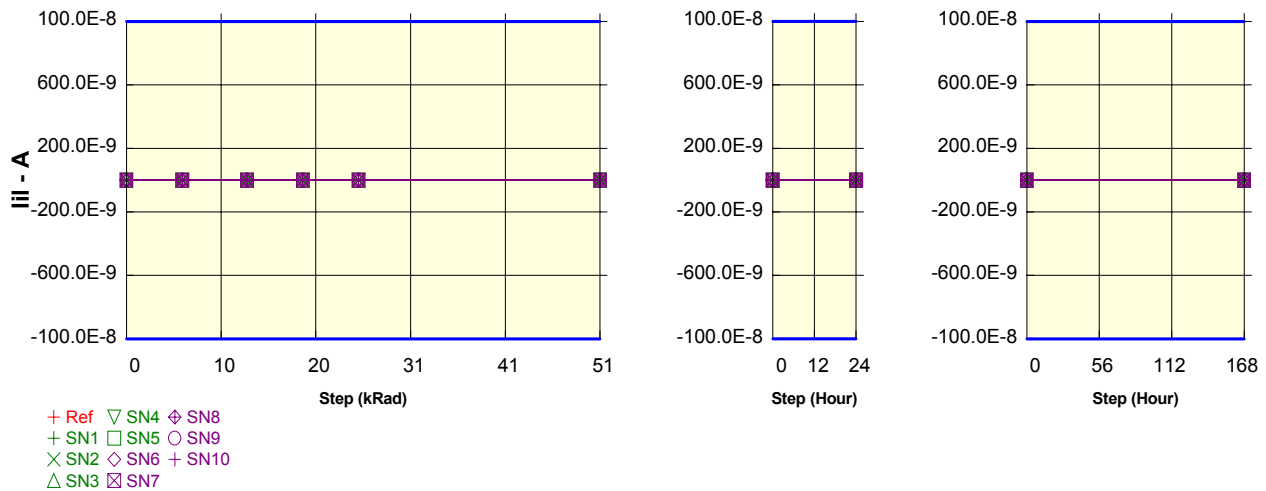
Parameter : Low-Level Input Leakage Current : I_{IIWARP}

Unit : A

Spec Limit Min : $-100.0E-8$

Spec Limit Max : $100.0E-8$

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	$-350.0E-12$	$-100.0E-12$	$-200.0E-12$	$-150.0E-12$	$-150.0E-12$	$-250.0E-12$
SN1	$-200.0E-12$	$-200.0E-12$	$-150.0E-12$	$-150.0E-12$	$-150.0E-12$	$-250.0E-12$
SN2	$-250.0E-12$	$-150.0E-12$	$-150.0E-12$	$-150.0E-12$	$-150.0E-12$	$-200.0E-12$
SN3	$-250.0E-12$	$-200.0E-12$	$-250.0E-12$	$-150.0E-12$	$-100.0E-12$	$-150.0E-12$
SN4	$-250.0E-12$	$-150.0E-12$	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$	$-150.0E-12$
SN5	$-250.0E-12$	$-200.0E-12$	$-250.0E-12$	$-150.0E-12$	$-200.0E-12$	$-200.0E-12$
SN6	$-250.0E-12$	$-250.0E-12$	$-150.0E-12$	$-150.0E-12$	$-150.0E-12$	$-150.0E-12$
SN7	$-250.0E-12$	$-250.0E-12$	$-200.0E-12$	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$
SN8	$-200.0E-12$	$-250.0E-12$	$-150.0E-12$	$-100.0E-12$	$-150.0E-12$	$-250.0E-12$
SN9	$-250.0E-12$	$-100.0E-12$	$-200.0E-12$	$-150.0E-12$	$-100.0E-12$	$-200.0E-12$
SN10	$-200.0E-12$	$-200.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-150.0E-12$
Statistics						
Min	$-250.0E-12$	$-250.0E-12$	$-250.0E-12$	$-150.0E-12$	$-200.0E-12$	$-250.0E-12$
Max	$-200.0E-12$	$-100.0E-12$	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$	$-100.0E-12$
Mean	$-235.0E-12$	$-195.0E-12$	$-185.0E-12$	$-135.0E-12$	$-130.0E-12$	$-180.0E-12$
Sigma	$241.5E-13$	$497.2E-13$	$411.6E-13$	$241.5E-13$	$349.6E-13$	$483.0E-13$

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	$-250.0E-12$	$-150.0E-12$
SN1	$-250.0E-12$	$-150.0E-12$
SN2	$-200.0E-12$	$-150.0E-12$
SN3	$-150.0E-12$	$-200.0E-12$
SN4	$-150.0E-12$	$-100.0E-12$
SN5	$-200.0E-12$	$-150.0E-12$
SN6	$-150.0E-12$	$-100.0E-12$
SN7	$-100.0E-12$	$-100.0E-12$
SN8	$-250.0E-12$	$-100.0E-12$
SN9	$-200.0E-12$	$-100.0E-12$
SN10	$-150.0E-12$	$-150.0E-12$
Statistics		
Min	$-250.0E-12$	$-200.0E-12$
Max	$-100.0E-12$	$-100.0E-12$
Mean	$-180.0E-12$	$-130.0E-12$
Sigma	$483.0E-13$	$349.6E-13$

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	$-150.0E-12$	$-100.0E-12$
SN1	$-150.0E-12$	$-100.0E-12$
SN2	$-150.0E-12$	$-150.0E-12$
SN3	$-200.0E-12$	$-150.0E-12$
SN4	$-100.0E-12$	$-150.0E-12$
SN5	$-150.0E-12$	$-150.0E-12$
SN6	$-100.0E-12$	$-150.0E-12$
SN7	$-100.0E-12$	$-100.0E-12$
SN8	$-100.0E-12$	$-150.0E-12$
SN9	$-100.0E-12$	$-500.0E-13$
SN10	$-150.0E-12$	$-150.0E-12$
Statistics		
Min	$-200.0E-12$	$-150.0E-12$
Max	$-100.0E-12$	$-500.0E-13$
Mean	$-130.0E-12$	$-130.0E-12$
Sigma	$349.6E-13$	$349.6E-13$

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

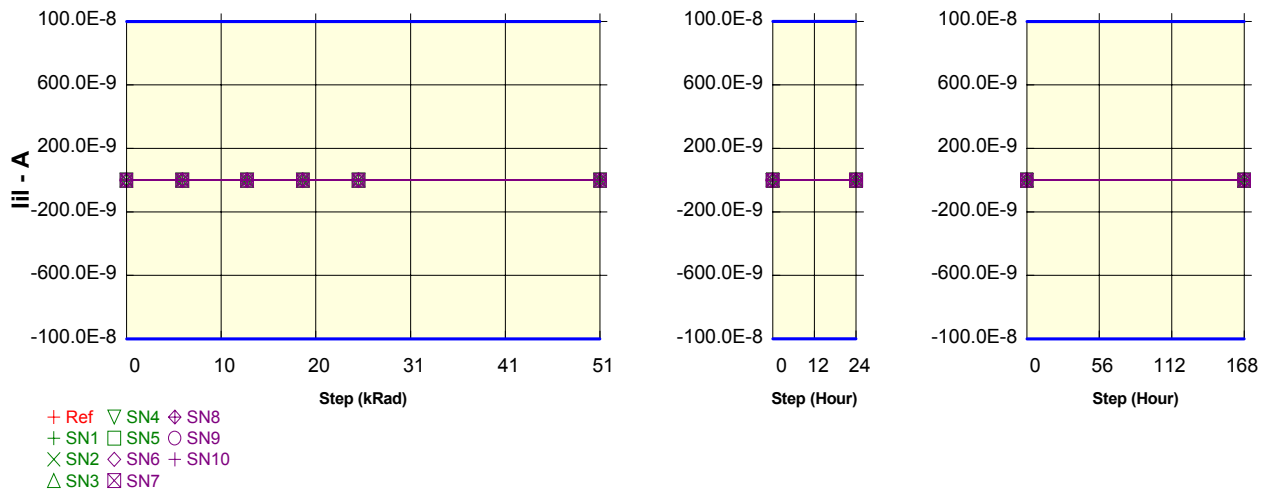
Parameter : Low-Level Input Leakage Current : I_{II}IMPULSE

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-200.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-100.0E-12	-150.0E-12
SN1	-200.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-100.0E-12	-150.0E-12
SN2	-200.0E-12	-150.0E-12	-100.0E-12	-150.0E-12	-500.0E-13	-150.0E-12
SN3	-150.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-500.0E-13
SN4	-100.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	-500.0E-13
SN5	-150.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	000.0E+0	-500.0E-13
SN6	-150.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	000.0E+0	-500.0E-13
SN7	-200.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-500.0E-13
SN8	-150.0E-12	-100.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	-100.0E-12
SN9	-200.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-100.0E-12
SN10	-100.0E-12	-150.0E-12	-150.0E-12	-500.0E-13	-500.0E-13	-100.0E-12
Statistics						
Min	-200.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12	-150.0E-12
Max	-100.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	000.0E+0	-500.0E-13
Mean	-160.0E-12	-135.0E-12	-120.0E-12	-105.0E-12	-600.0E-13	-850.0E-13
Sigma	394.4E-13	241.5E-13	258.2E-13	368.9E-13	459.5E-13	411.6E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-150.0E-12	-100.0E-12
SN1	-150.0E-12	-100.0E-12
SN2	-150.0E-12	-500.0E-13
SN3	-500.0E-13	-500.0E-13
SN4	-500.0E-13	-500.0E-13
SN5	-500.0E-13	-100.0E-12
SN6	-500.0E-13	-500.0E-13
SN7	-500.0E-13	000.0E+0
SN8	-100.0E-12	-500.0E-13
SN9	-100.0E-12	-500.0E-13
SN10	-100.0E-12	-500.0E-13
Statistics		
Min	-150.0E-12	-100.0E-12
Max	-500.0E-13	000.0E+0
Mean	-850.0E-13	-550.0E-13
Sigma	411.6E-13	283.8E-13

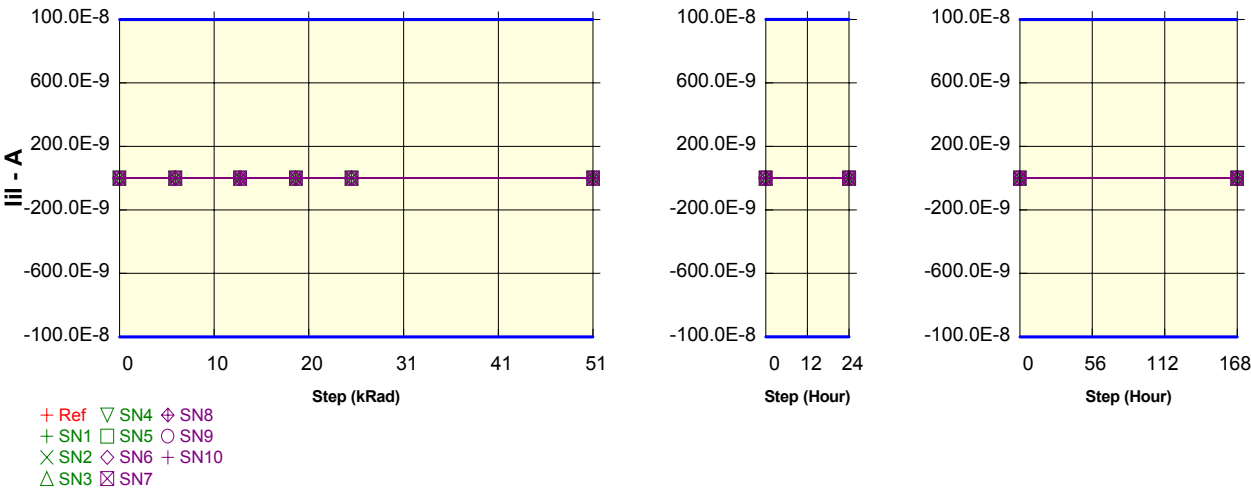
Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-100.0E-12	-150.0E-12
SN1	-100.0E-12	-500.0E-13
SN2	-500.0E-13	-100.0E-12
SN3	-500.0E-13	-100.0E-12
SN4	-500.0E-13	-500.0E-13
SN5	-100.0E-12	-500.0E-13
SN6	-500.0E-13	-100.0E-12
SN7	000.0E+0	-100.0E-12
SN8	-500.0E-13	-500.0E-13
SN9	-500.0E-13	-500.0E-13
SN10	-500.0E-13	-500.0E-13
Statistics		
Min	-100.0E-12	-100.0E-12
Max	000.0E+0	-500.0E-13
Mean	-550.0E-13	-700.0E-13
Sigma	283.8E-13	258.2E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID
Parameter : Low-Level Input Leakage Current : I_lISER/PAR

Unit : A
Spec Limit Min : -100.0E-8
Spec Limit Max : 100.0E-8
Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-250.0E-12	-100.0E-12	-150.0E-12	500.0E-13	-200.0E-12	-200.0E-12
SN1	-150.0E-12	-100.0E-12	-500.0E-13	-500.0E-13	-100.0E-12	-150.0E-12
SN2	-150.0E-12	-100.0E-12	-500.0E-13	-500.0E-13	-500.0E-13	-200.0E-12
SN3	-200.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-150.0E-12
SN4	-200.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	000.0E+0	-150.0E-12
SN5	-100.0E-12	-200.0E-12	-150.0E-12	-500.0E-13	-150.0E-12	-150.0E-12
SN6	-150.0E-12	-100.0E-12	-150.0E-12	-150.0E-12	-500.0E-13	-100.0E-12
SN7	-150.0E-12	-150.0E-12	-150.0E-12	-100.0E-12	-100.0E-12	-100.0E-12
SN8	-150.0E-12	-100.0E-12	-100.0E-12	-500.0E-13	-100.0E-12	-150.0E-12
SN9	-150.0E-12	-150.0E-12	-100.0E-12	-500.0E-13	-150.0E-12	-150.0E-12
SN10	-100.0E-12	-150.0E-12	-200.0E-12	-500.0E-13	-500.0E-13	-100.0E-12
Statistics						
Min	-200.0E-12	-200.0E-12	-200.0E-12	-150.0E-12	-150.0E-12	-200.0E-12
Max	-100.0E-12	-100.0E-12	-500.0E-13	-500.0E-13	000.0E+0	-100.0E-12
Mean	-150.0E-12	-135.0E-12	-120.0E-12	-700.0E-13	-800.0E-13	-140.0E-12
Sigma	333.3E-13	337.5E-13	483.0E-13	349.6E-13	483.0E-13	316.2E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-200.0E-12	-150.0E-12
SN1	-150.0E-12	-150.0E-12
SN2	-200.0E-12	-100.0E-12
SN3	-150.0E-12	-100.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-150.0E-12	-150.0E-12
SN6	-100.0E-12	-500.0E-13
SN7	-100.0E-12	-500.0E-13
SN8	-150.0E-12	-500.0E-13
SN9	-150.0E-12	-500.0E-13
SN10	-100.0E-12	-100.0E-12
Statistics		
Min	-200.0E-12	-150.0E-12
Max	-100.0E-12	-500.0E-13
Mean	-140.0E-12	-950.0E-13
Sigma	316.2E-13	437.8E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-150.0E-12	-150.0E-12
SN1	-150.0E-12	-150.0E-12
SN2	-100.0E-12	-150.0E-12
SN3	-100.0E-12	-100.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-150.0E-12	-100.0E-12
SN6	-500.0E-13	-500.0E-13
SN7	-500.0E-13	-100.0E-12
SN8	-500.0E-13	-100.0E-12
SN9	-500.0E-13	-100.0E-12
SN10	-100.0E-12	-100.0E-12
Statistics		
Min	-150.0E-12	-150.0E-12
Max	-500.0E-13	-500.0E-13
Mean	-950.0E-13	-110.0E-12
Sigma	437.8E-13	316.2E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

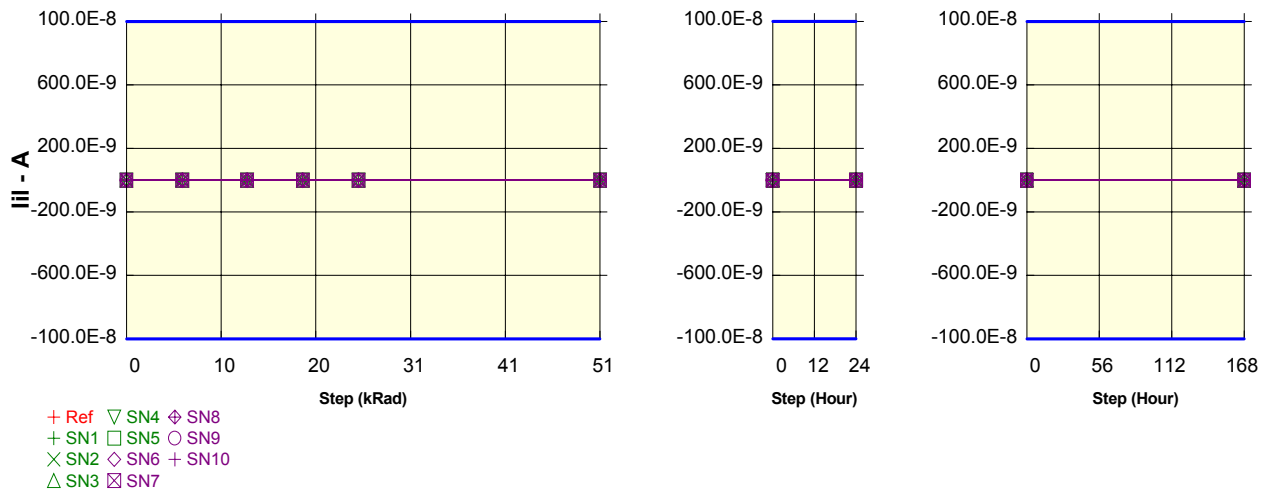
Parameter : Low-Level Input Leakage Current : I_{IIRD}

Unit : A

Spec Limit Min : $-100.0E-8$

Spec Limit Max : $100.0E-8$

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	$-250.0E-12$	$-200.0E-12$	$-150.0E-12$	$-100.0E-12$	$-150.0E-12$	$-300.0E-12$
SN1	$-250.0E-12$	$-150.0E-12$	$-200.0E-12$	$-500.0E-13$	$-500.0E-13$	$-300.0E-12$
SN2	$-200.0E-12$	$-200.0E-12$	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$	$-300.0E-12$
SN3	$-250.0E-12$	$-200.0E-12$	$-150.0E-12$	$-100.0E-12$	$-500.0E-13$	$-350.0E-12$
SN4	$-250.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-500.0E-13$	$-250.0E-12$
SN5	$-200.0E-12$	$-150.0E-12$	$-200.0E-12$	$-100.0E-12$	$-500.0E-13$	$-300.0E-12$
SN6	$-200.0E-12$	$-200.0E-12$	$-150.0E-12$	$-500.0E-13$	$-100.0E-12$	$-350.0E-12$
SN7	$-250.0E-12$	$-100.0E-12$	$-100.0E-12$	$-500.0E-13$	$-150.0E-12$	$-200.0E-12$
SN8	$-150.0E-12$	$-250.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-300.0E-12$
SN9	$-200.0E-12$	$-150.0E-12$	$-150.0E-12$	$-500.0E-13$	$-500.0E-13$	$-200.0E-12$
SN10	$-200.0E-12$	$-200.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-250.0E-12$
Statistics						
Min	$-250.0E-12$	$-250.0E-12$	$-200.0E-12$	$-100.0E-12$	$-150.0E-12$	$-350.0E-12$
Max	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$	$-500.0E-13$	$-500.0E-13$	$-200.0E-12$
Mean	$-215.0E-12$	$-180.0E-12$	$-160.0E-12$	$-800.0E-13$	$-800.0E-13$	$-280.0E-12$
Sigma	$337.5E-13$	$421.6E-13$	$394.4E-13$	$258.2E-13$	$349.6E-13$	$537.5E-13$

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	$-300.0E-12$	$-200.0E-12$
SN1	$-300.0E-12$	$-200.0E-12$
SN2	$-300.0E-12$	$-200.0E-12$
SN3	$-350.0E-12$	$-200.0E-12$
SN4	$-250.0E-12$	$-150.0E-12$
SN5	$-300.0E-12$	$-200.0E-12$
SN6	$-350.0E-12$	$-150.0E-12$
SN7	$-200.0E-12$	$-150.0E-12$
SN8	$-300.0E-12$	$-150.0E-12$
SN9	$-200.0E-12$	$-150.0E-12$
SN10	$-250.0E-12$	$-150.0E-12$
Statistics		
Min	$-350.0E-12$	$-200.0E-12$
Max	$-200.0E-12$	$-150.0E-12$
Mean	$-280.0E-12$	$-170.0E-12$
Sigma	$537.5E-13$	$258.2E-13$

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	$-200.0E-12$	$-250.0E-12$
SN1	$-200.0E-12$	$-200.0E-12$
SN2	$-200.0E-12$	$-150.0E-12$
SN3	$-200.0E-12$	$-100.0E-12$
SN4	$-150.0E-12$	$-100.0E-12$
SN5	$-200.0E-12$	$-150.0E-12$
SN6	$-150.0E-12$	$-100.0E-12$
SN7	$-150.0E-12$	$-500.0E-13$
SN8	$-150.0E-12$	$-500.0E-13$
SN9	$-150.0E-12$	$-100.0E-12$
SN10	$-150.0E-12$	$-150.0E-12$
Statistics		
Min	$-200.0E-12$	$-200.0E-12$
Max	$-150.0E-12$	$-500.0E-13$
Mean	$-170.0E-12$	$-115.0E-12$
Sigma	$258.2E-13$	$474.3E-13$

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

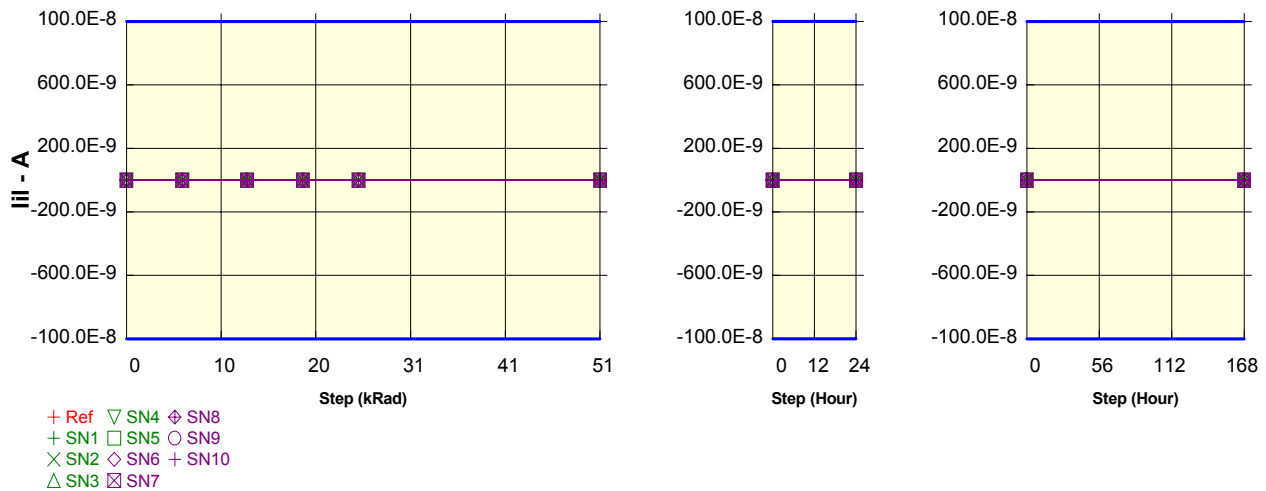
Parameter : Low-Level Input Leakage Current : I_{IIS}

Unit : A

Spec Limit Min : $-100.0E-8$

Spec Limit Max : $100.0E-8$

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	$-300.0E-12$	$-300.0E-12$	$-250.0E-12$	$-100.0E-12$	$-150.0E-12$	$-300.0E-12$
SN1	$-250.0E-12$	$-250.0E-12$	$-150.0E-12$	$-100.0E-12$	$-150.0E-12$	$-250.0E-12$
SN2	$-250.0E-12$	$-300.0E-12$	$-200.0E-12$	$-100.0E-12$	$-500.0E-13$	$-250.0E-12$
SN3	$-250.0E-12$	$-300.0E-12$	$-200.0E-12$	$-500.0E-13$	$-150.0E-12$	$-250.0E-12$
SN4	$-250.0E-12$	$-350.0E-12$	$-200.0E-12$	$-100.0E-12$	$-150.0E-12$	$-200.0E-12$
SN5	$-200.0E-12$	$-300.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-250.0E-12$
SN6	$-150.0E-12$	$-250.0E-12$	$-200.0E-12$	$-100.0E-12$	$-150.0E-12$	$-250.0E-12$
SN7	$-250.0E-12$	$-300.0E-12$	$-200.0E-12$	$-500.0E-13$	$-150.0E-12$	$-150.0E-12$
SN8	$-150.0E-12$	$-350.0E-12$	$-200.0E-12$	$-100.0E-12$	$-100.0E-12$	$-150.0E-12$
SN9	$-250.0E-12$	$-350.0E-12$	$-150.0E-12$	$-100.0E-12$	$-100.0E-12$	$-150.0E-12$
SN10	$-200.0E-12$	$-300.0E-12$	$-250.0E-12$	$-150.0E-12$	$-100.0E-12$	$-250.0E-12$
Statistics						
Min	$-250.0E-12$	$-350.0E-12$	$-250.0E-12$	$-150.0E-12$	$-150.0E-12$	$-250.0E-12$
Max	$-150.0E-12$	$-250.0E-12$	$-150.0E-12$	$-500.0E-13$	$-500.0E-13$	$-150.0E-12$
Mean	$-220.0E-12$	$-305.0E-12$	$-195.0E-12$	$-950.0E-13$	$-120.0E-12$	$-215.0E-12$
Sigma	$421.6E-13$	$368.9E-13$	$283.8E-13$	$283.8E-13$	$349.6E-13$	$474.3E-13$

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	$-300.0E-12$	$-200.0E-12$
SN1	$-250.0E-12$	$-150.0E-12$
SN2	$-250.0E-12$	$-150.0E-12$
SN3	$-250.0E-12$	$-100.0E-12$
SN4	$-200.0E-12$	$-150.0E-12$
SN5	$-250.0E-12$	$-100.0E-12$
SN6	$-250.0E-12$	$-150.0E-12$
SN7	$-150.0E-12$	$-100.0E-12$
SN8	$-150.0E-12$	$-100.0E-12$
SN9	$-150.0E-12$	$-150.0E-12$
SN10	$-250.0E-12$	$-100.0E-12$
Statistics		
Min	$-250.0E-12$	$-150.0E-12$
Max	$-150.0E-12$	$-100.0E-12$
Mean	$-215.0E-12$	$-125.0E-12$
Sigma	$474.3E-13$	$263.5E-13$

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	$-200.0E-12$	$-150.0E-12$
SN1	$-150.0E-12$	$-100.0E-12$
SN2	$-150.0E-12$	$-200.0E-12$
SN3	$-100.0E-12$	$-500.0E-13$
SN4	$-150.0E-12$	$-150.0E-12$
SN5	$-100.0E-12$	$-150.0E-12$
SN6	$-150.0E-12$	$-150.0E-12$
SN7	$-100.0E-12$	$-100.0E-12$
SN8	$-100.0E-12$	$-150.0E-12$
SN9	$-150.0E-12$	$-100.0E-12$
SN10	$-100.0E-12$	$-100.0E-12$
Statistics		
Min	$-150.0E-12$	$-200.0E-12$
Max	$-100.0E-12$	$-500.0E-13$
Mean	$-125.0E-12$	$-125.0E-12$
Sigma	$263.5E-13$	$424.9E-13$

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

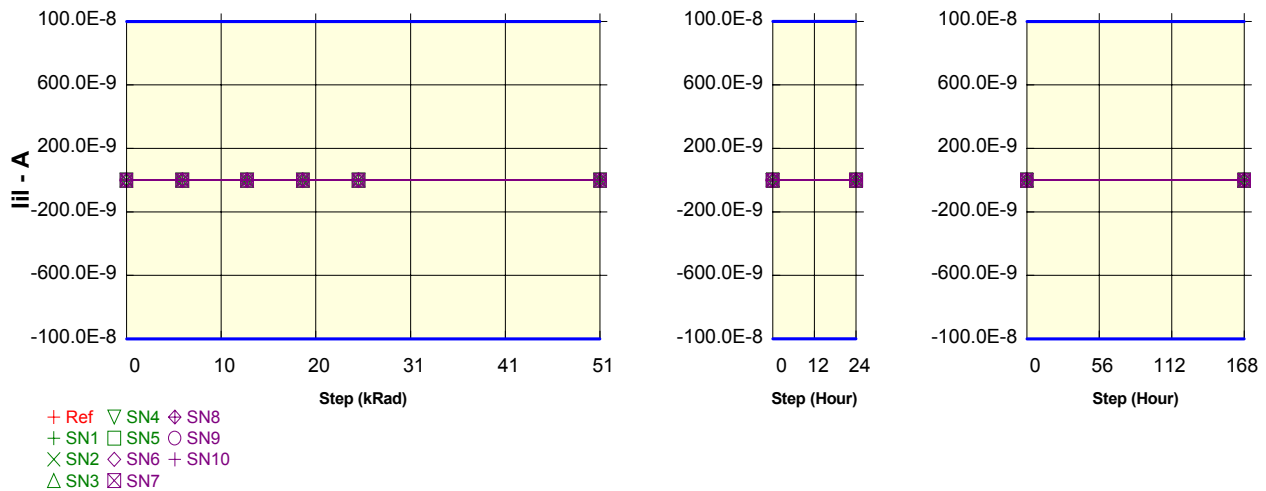
Parameter : Low-Level Input Leakage Current : I_{II}RESET

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-300.0E-12	-400.0E-12	-200.0E-12	-500.0E-13	-150.0E-12	-400.0E-12
SN1	-300.0E-12	-300.0E-12	-850.0E-12	-100.0E-12	-100.0E-12	-250.0E-12
SN2	-300.0E-12	-300.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-350.0E-12
SN3	-250.0E-12	-300.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-250.0E-12
SN4	-250.0E-12	-350.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-250.0E-12
SN5	-200.0E-12	-300.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-250.0E-12
SN6	-200.0E-12	-300.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-200.0E-12
SN7	-200.0E-12	-350.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-150.0E-12
SN8	-250.0E-12	-350.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-200.0E-12
SN9	-250.0E-12	-350.0E-12	-200.0E-12	-150.0E-12	-100.0E-12	-200.0E-12
SN10	-200.0E-12	-300.0E-12	-250.0E-12	-150.0E-12	-150.0E-12	-250.0E-12
Statistics						
Min	-300.0E-12	-350.0E-12	-850.0E-12	-150.0E-12	-150.0E-12	-350.0E-12
Max	-200.0E-12	-300.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-150.0E-12
Mean	-240.0E-12	-320.0E-12	-290.0E-12	-140.0E-12	-125.0E-12	-235.0E-12
Sigma	394.4E-13	258.2E-13	198.3E-12	210.8E-13	263.5E-13	529.7E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-400.0E-12	-200.0E-12
SN1	-250.0E-12	-150.0E-12
SN2	-350.0E-12	-100.0E-12
SN3	-250.0E-12	-100.0E-12
SN4	-250.0E-12	-150.0E-12
SN5	-250.0E-12	-150.0E-12
SN6	-200.0E-12	-100.0E-12
SN7	-150.0E-12	-150.0E-12
SN8	-200.0E-12	-100.0E-12
SN9	-200.0E-12	-100.0E-12
SN10	-250.0E-12	-150.0E-12
Statistics		
Min	-350.0E-12	-150.0E-12
Max	-150.0E-12	-100.0E-12
Mean	-235.0E-12	-125.0E-12
Sigma	529.7E-13	263.5E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-200.0E-12	-150.0E-12
SN1	-150.0E-12	-100.0E-12
SN2	-100.0E-12	-150.0E-12
SN3	-100.0E-12	-100.0E-12
SN4	-150.0E-12	-100.0E-12
SN5	-150.0E-12	-100.0E-12
SN6	-100.0E-12	-500.0E-13
SN7	-150.0E-12	-150.0E-12
SN8	-100.0E-12	-100.0E-12
SN9	-100.0E-12	-100.0E-12
SN10	-150.0E-12	-500.0E-13
Statistics		
Min	-150.0E-12	-150.0E-12
Max	-100.0E-12	-500.0E-13
Mean	-125.0E-12	-100.0E-12
Sigma	263.5E-13	333.3E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

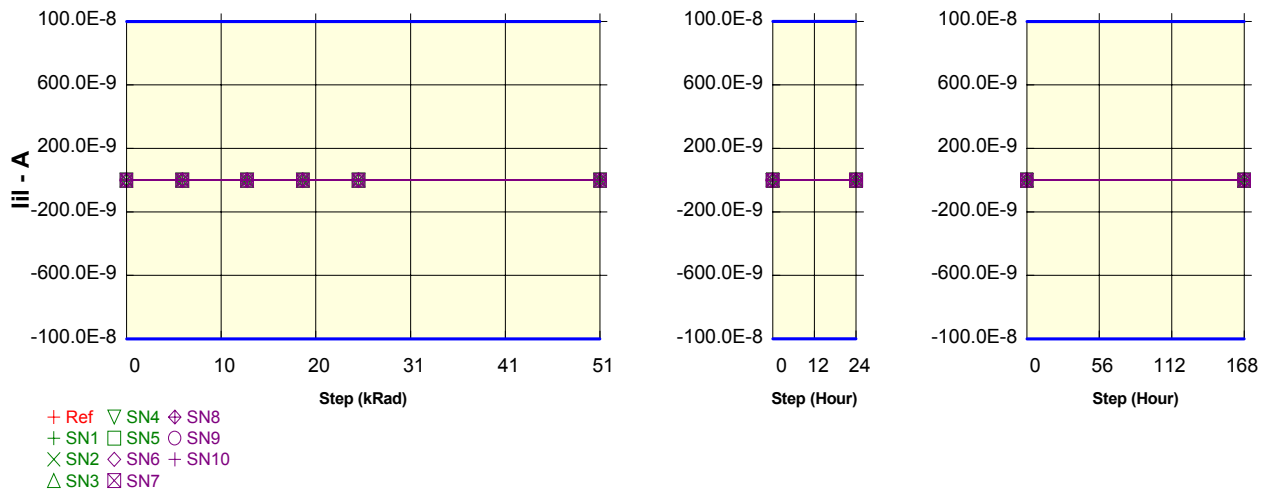
Parameter : Low-Level Input Leakage Current : I_{IIPD}

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-400.0E-12	-400.0E-12	-300.0E-12	-500.0E-13	-200.0E-12	-400.0E-12
SN1	-350.0E-12	-300.0E-12	-160.0E-11	-100.0E-12	-150.0E-12	-350.0E-12
SN2	-400.0E-12	-400.0E-12	-250.0E-12	-150.0E-12	-200.0E-12	-400.0E-12
SN3	-350.0E-12	-400.0E-12	-200.0E-12	-150.0E-12	-200.0E-12	-350.0E-12
SN4	-300.0E-12	-450.0E-12	-250.0E-12	-150.0E-12	-100.0E-12	-250.0E-12
SN5	-250.0E-12	-450.0E-12	-250.0E-12	-100.0E-12	-150.0E-12	-300.0E-12
SN6	-300.0E-12	-300.0E-12	-250.0E-12	-250.0E-12	-150.0E-12	-300.0E-12
SN7	-250.0E-12	-450.0E-12	-200.0E-12	-150.0E-12	-150.0E-12	-250.0E-12
SN8	-300.0E-12	-450.0E-12	-250.0E-12	-150.0E-12	-100.0E-12	-250.0E-12
SN9	-300.0E-12	-350.0E-12	-250.0E-12	-100.0E-12	-150.0E-12	-250.0E-12
SN10	-250.0E-12	-350.0E-12	-300.0E-12	-200.0E-12	-100.0E-12	-250.0E-12
Statistics						
Min	-400.0E-12	-450.0E-12	-160.0E-11	-250.0E-12	-200.0E-12	-400.0E-12
Max	-250.0E-12	-300.0E-12	-200.0E-12	-100.0E-12	-100.0E-12	-250.0E-12
Mean	-305.0E-12	-390.0E-12	-380.0E-12	-150.0E-12	-145.0E-12	-295.0E-12
Sigma	497.2E-13	614.6E-13	429.6E-12	471.4E-13	368.9E-13	550.3E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-400.0E-12	-150.0E-12
SN1	-350.0E-12	-250.0E-12
SN2	-400.0E-12	-100.0E-12
SN3	-350.0E-12	-150.0E-12
SN4	-250.0E-12	-150.0E-12
SN5	-300.0E-12	-200.0E-12
SN6	-300.0E-12	-200.0E-12
SN7	-250.0E-12	-150.0E-12
SN8	-250.0E-12	-200.0E-12
SN9	-250.0E-12	-150.0E-12
SN10	-250.0E-12	-150.0E-12
Statistics		
Min	-400.0E-12	-250.0E-12
Max	-250.0E-12	-100.0E-12
Mean	-295.0E-12	-170.0E-12
Sigma	550.3E-13	421.6E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-150.0E-12	-250.0E-12
SN1	-250.0E-12	-150.0E-12
SN2	-100.0E-12	-100.0E-12
SN3	-150.0E-12	-150.0E-12
SN4	-150.0E-12	-150.0E-12
SN5	-200.0E-12	-150.0E-12
SN6	-200.0E-12	-150.0E-12
SN7	-150.0E-12	-150.0E-12
SN8	-200.0E-12	-100.0E-12
SN9	-150.0E-12	-100.0E-12
SN10	-150.0E-12	-150.0E-12
Statistics		
Min	-250.0E-12	-150.0E-12
Max	-100.0E-12	-100.0E-12
Mean	-170.0E-12	-135.0E-12
Sigma	421.6E-13	241.5E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

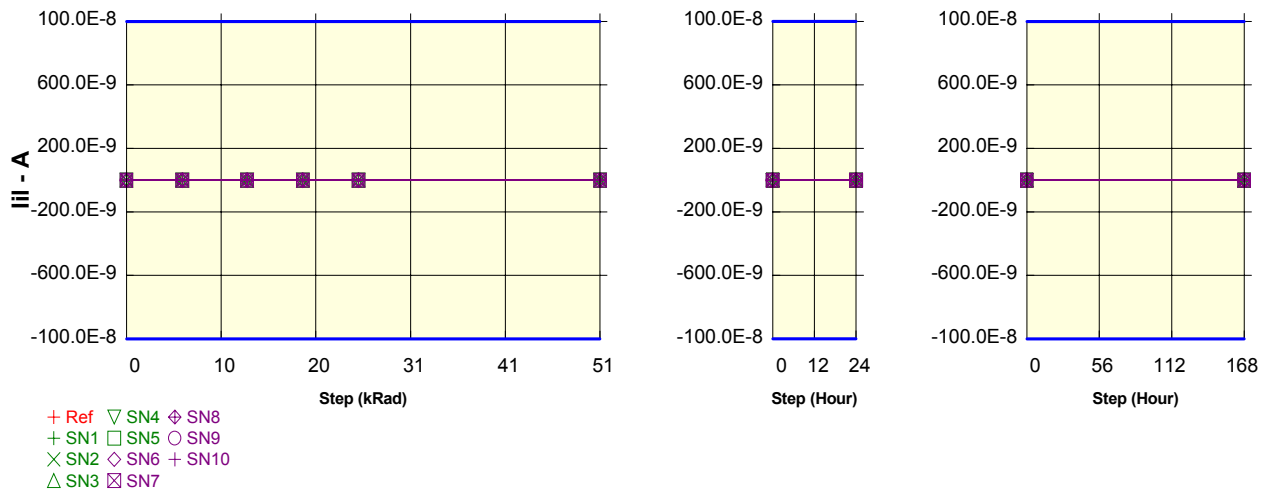
Parameter : Low-Level Input Leakage Current : I_{II}CNVST/

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-550.0E-12	-550.0E-12	-400.0E-12	-150.0E-12	-300.0E-12	-550.0E-12
SN1	-500.0E-12	-450.0E-12	-250.0E-12	-200.0E-12	-250.0E-12	-400.0E-12
SN2	-550.0E-12	-450.0E-12	-300.0E-12	-250.0E-12	-250.0E-12	-500.0E-12
SN3	-450.0E-12	-550.0E-12	-350.0E-12	-250.0E-12	-250.0E-12	-350.0E-12
SN4	-500.0E-12	-550.0E-12	-350.0E-12	-250.0E-12	-250.0E-12	-350.0E-12
SN5	-400.0E-12	-550.0E-12	-350.0E-12	-250.0E-12	-250.0E-12	-400.0E-12
SN6	-400.0E-12	-550.0E-12	-350.0E-12	-300.0E-12	-200.0E-12	-350.0E-12
SN7	-300.0E-12	-450.0E-12	-300.0E-12	-200.0E-12	-250.0E-12	-300.0E-12
SN8	-450.0E-12	-650.0E-12	-300.0E-12	-100.0E-12	-250.0E-12	-300.0E-12
SN9	-350.0E-12	-500.0E-12	-250.0E-12	-200.0E-12	-250.0E-12	-350.0E-12
SN10	-350.0E-12	-550.0E-12	-450.0E-12	-250.0E-12	-250.0E-12	-350.0E-12
Statistics						
Min	-550.0E-12	-650.0E-12	-450.0E-12	-300.0E-12	-250.0E-12	-500.0E-12
Max	-300.0E-12	-450.0E-12	-250.0E-12	-100.0E-12	-200.0E-12	-300.0E-12
Mean	-425.0E-12	-525.0E-12	-325.0E-12	-225.0E-12	-245.0E-12	-365.0E-12
Sigma	790.6E-13	634.6E-13	589.3E-13	540.1E-13	158.1E-13	579.8E-13

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-550.0E-12	-300.0E-12
SN1	-400.0E-12	-300.0E-12
SN2	-500.0E-12	-250.0E-12
SN3	-350.0E-12	-250.0E-12
SN4	-350.0E-12	-200.0E-12
SN5	-400.0E-12	-200.0E-12
SN6	-350.0E-12	-250.0E-12
SN7	-300.0E-12	-200.0E-12
SN8	-300.0E-12	-150.0E-12
SN9	-350.0E-12	-250.0E-12
SN10	-350.0E-12	-200.0E-12
Statistics		
Min	-500.0E-12	-300.0E-12
Max	-300.0E-12	-150.0E-12
Mean	-365.0E-12	-225.0E-12
Sigma	579.8E-13	424.9E-13

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-300.0E-12	-350.0E-12
SN1	-300.0E-12	-250.0E-12
SN2	-250.0E-12	-300.0E-12
SN3	-250.0E-12	-200.0E-12
SN4	-200.0E-12	-200.0E-12
SN5	-200.0E-12	-200.0E-12
SN6	-250.0E-12	-200.0E-12
SN7	-200.0E-12	-200.0E-12
SN8	-150.0E-12	-250.0E-12
SN9	-250.0E-12	-200.0E-12
SN10	-200.0E-12	-200.0E-12
Statistics		
Min	-300.0E-12	-300.0E-12
Max	-150.0E-12	-200.0E-12
Mean	-225.0E-12	-220.0E-12
Sigma	424.9E-13	349.6E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

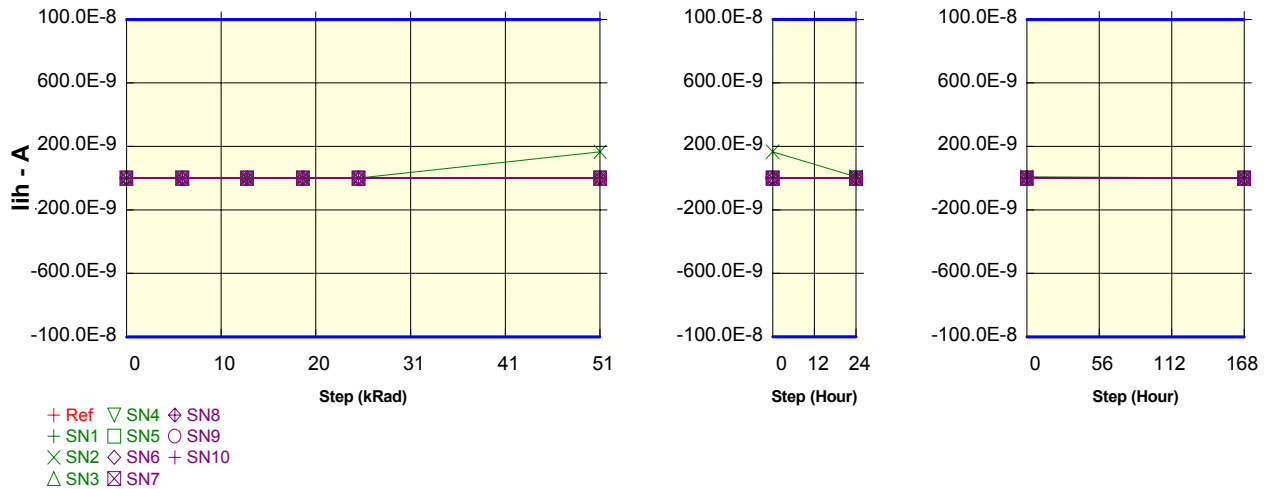
Parameter : High-Level Input Leakage Current : lihBYTESWAP

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	250.0E-12	300.0E-12	300.0E-12	200.0E-12	300.0E-12	300.0E-12
SN1	250.0E-12	300.0E-12	350.0E-12	250.0E-12	300.0E-12	250.0E-12
SN2	200.0E-12	300.0E-12	200.0E-12	250.0E-11	200.0E-12	166.0E-9
SN3	200.0E-12	250.0E-12	200.0E-12	250.0E-12	200.0E-12	300.0E-12
SN4	150.0E-12	300.0E-12	300.0E-12	200.0E-12	200.0E-12	250.0E-12
SN5	250.0E-12	250.0E-12	250.0E-12	250.0E-12	200.0E-12	250.0E-12
SN6	300.0E-12	250.0E-12	200.0E-12	150.0E-12	150.0E-12	300.0E-12
SN7	200.0E-12	300.0E-12	250.0E-12	250.0E-12	250.0E-12	300.0E-12
SN8	300.0E-12	250.0E-12	250.0E-12	250.0E-12	300.0E-12	250.0E-12
SN9	300.0E-12	400.0E-12	250.0E-12	300.0E-12	200.0E-12	250.0E-12
SN10	250.0E-12	300.0E-12	350.0E-12	200.0E-12	200.0E-12	300.0E-12
Statistics						
Min	150.0E-12	250.0E-12	200.0E-12	150.0E-12	150.0E-12	250.0E-12
Max	300.0E-12	400.0E-12	350.0E-12	250.0E-11	300.0E-12	166.0E-9
Mean	240.0E-12	290.0E-12	260.0E-12	460.0E-12	220.0E-12	168.5E-10
Sigma	516.4E-13	459.5E-13	567.6E-13	717.9E-12	483.0E-13	524.1E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	300.0E-12	250.0E-12
SN1	250.0E-12	200.0E-12
SN2	166.0E-9	780.0E-11
SN3	300.0E-12	300.0E-12
SN4	250.0E-12	300.0E-12
SN5	250.0E-12	250.0E-12
SN6	300.0E-12	200.0E-12
SN7	300.0E-12	250.0E-12
SN8	250.0E-12	200.0E-12
SN9	250.0E-12	250.0E-12
SN10	300.0E-12	200.0E-12
Statistics		
Min	250.0E-12	200.0E-12
Max	166.0E-9	780.0E-11
Mean	168.5E-10	995.0E-12
Sigma	524.1E-10	239.1E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	250.0E-12	250.0E-12
SN1	200.0E-12	300.0E-12
SN2	780.0E-11	300.0E-12
SN3	300.0E-12	200.0E-12
SN4	300.0E-12	250.0E-12
SN5	250.0E-12	200.0E-12
SN6	200.0E-12	250.0E-12
SN7	250.0E-12	150.0E-12
SN8	200.0E-12	250.0E-12
SN9	250.0E-12	200.0E-12
SN10	200.0E-12	200.0E-12
Statistics		
Min	200.0E-12	150.0E-12
Max	780.0E-11	300.0E-12
Mean	995.0E-12	230.0E-12
Sigma	239.1E-11	483.0E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

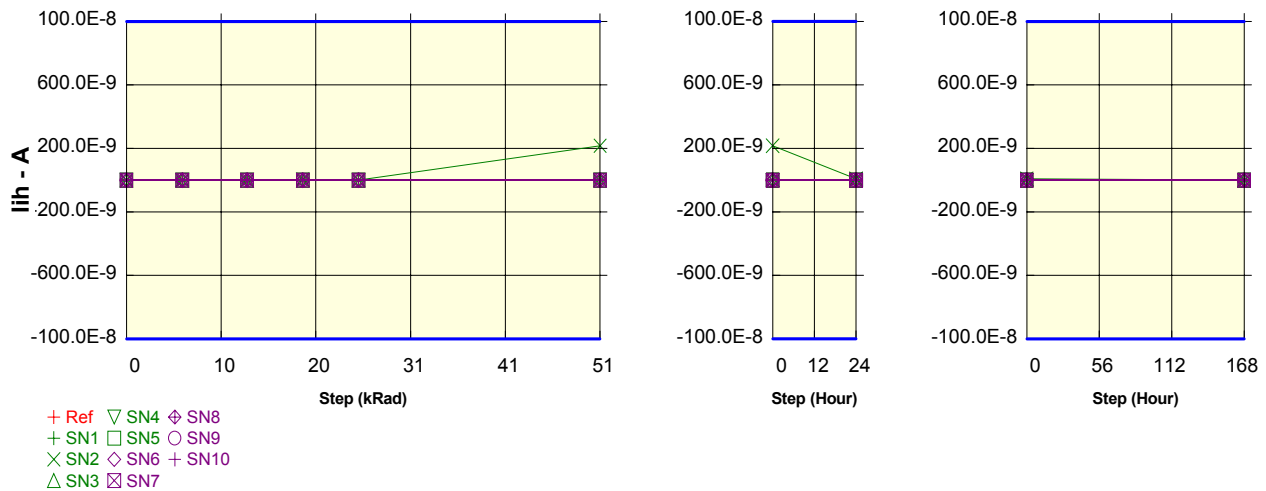
Parameter : High-Level Input Leakage Current : I_{IHOB/2C}

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	300.0E-12	200.0E-12	250.0E-12	200.0E-12	300.0E-12	200.0E-12
SN1	300.0E-12	250.0E-12	300.0E-12	300.0E-12	250.0E-12	250.0E-12
SN2	200.0E-12	300.0E-12	300.0E-12	275.0E-11	200.0E-12	216.5E-9
SN3	300.0E-12	200.0E-12	300.0E-12	300.0E-12	300.0E-12	250.0E-12
SN4	300.0E-12	350.0E-12	250.0E-12	300.0E-12	200.0E-12	300.0E-12
SN5	250.0E-12	300.0E-12	400.0E-12	200.0E-12	300.0E-12	250.0E-12
SN6	400.0E-12	300.0E-12	300.0E-12	200.0E-12	250.0E-12	250.0E-12
SN7	200.0E-12	300.0E-12	300.0E-12	300.0E-12	250.0E-12	300.0E-12
SN8	200.0E-12	400.0E-12	200.0E-12	200.0E-12	300.0E-12	250.0E-12
SN9	200.0E-12	200.0E-12	250.0E-12	150.0E-12	200.0E-12	250.0E-12
SN10	300.0E-12	300.0E-12	400.0E-12	200.0E-12	200.0E-12	400.0E-12
Statistics						
Min	200.0E-12	200.0E-12	200.0E-12	150.0E-12	200.0E-12	250.0E-12
Max	400.0E-12	400.0E-12	400.0E-12	275.0E-11	300.0E-12	216.5E-9
Mean	265.0E-12	290.0E-12	300.0E-12	490.0E-12	245.0E-12	219.0E-10
Sigma	668.7E-13	614.6E-13	623.6E-13	796.1E-12	437.8E-13	683.8E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	200.0E-12	250.0E-12
SN1	250.0E-12	250.0E-12
SN2	216.5E-9	890.0E-11
SN3	250.0E-12	250.0E-12
SN4	300.0E-12	250.0E-12
SN5	250.0E-12	250.0E-12
SN6	250.0E-12	250.0E-12
SN7	300.0E-12	250.0E-12
SN8	250.0E-12	200.0E-12
SN9	250.0E-12	250.0E-12
SN10	400.0E-12	300.0E-12
Statistics		
Min	250.0E-12	200.0E-12
Max	216.5E-9	890.0E-11
Mean	219.0E-10	111.5E-11
Sigma	683.8E-10	273.5E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	250.0E-12	300.0E-12
SN1	250.0E-12	250.0E-12
SN2	890.0E-11	250.0E-12
SN3	250.0E-12	250.0E-12
SN4	250.0E-12	250.0E-12
SN5	250.0E-12	300.0E-12
SN6	250.0E-12	200.0E-12
SN7	250.0E-12	250.0E-12
SN8	200.0E-12	300.0E-12
SN9	250.0E-12	200.0E-12
SN10	300.0E-12	200.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	890.0E-11	300.0E-12
Mean	111.5E-11	245.0E-12
Sigma	273.5E-11	368.9E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

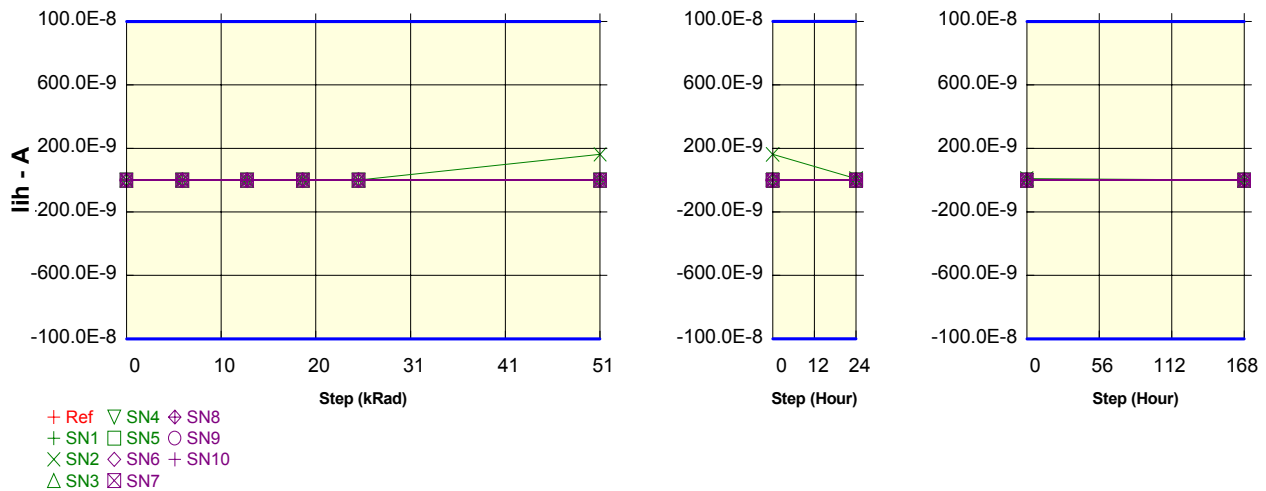
Parameter : High-Level Input Leakage Current : IihWARP

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	250.0E-12	250.0E-12	250.0E-12	300.0E-12	250.0E-12	250.0E-12
SN1	400.0E-12	400.0E-12	300.0E-12	250.0E-12	300.0E-12	400.0E-12
SN2	300.0E-12	250.0E-12	300.0E-12	340.0E-11	250.0E-12	163.0E-9
SN3	400.0E-12	400.0E-12	300.0E-12	200.0E-12	200.0E-12	300.0E-12
SN4	300.0E-12	300.0E-12	300.0E-12	300.0E-12	250.0E-12	350.0E-12
SN5	250.0E-12	400.0E-12	300.0E-12	150.0E-12	250.0E-12	300.0E-12
SN6	300.0E-12	300.0E-12	300.0E-12	200.0E-12	250.0E-12	300.0E-12
SN7	250.0E-12	350.0E-12	300.0E-12	300.0E-12	350.0E-12	250.0E-12
SN8	300.0E-12	300.0E-12	300.0E-12	250.0E-12	250.0E-12	400.0E-12
SN9	350.0E-12	300.0E-12	300.0E-12	250.0E-12	200.0E-12	400.0E-12
SN10	200.0E-12	300.0E-12	300.0E-12	200.0E-12	250.0E-12	300.0E-12
Statistics						
Min	200.0E-12	250.0E-12	300.0E-12	150.0E-12	200.0E-12	250.0E-12
Max	400.0E-12	400.0E-12	300.0E-12	340.0E-11	350.0E-12	163.0E-9
Mean	305.0E-12	330.0E-12	300.0E-12	550.0E-12	255.0E-12	166.0E-10
Sigma	643.3E-13	537.5E-13	462.6E-20	100.2E-11	437.8E-13	514.4E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	250.0E-12	350.0E-12
SN1	400.0E-12	250.0E-12
SN2	163.0E-9	960.0E-11
SN3	300.0E-12	350.0E-12
SN4	350.0E-12	300.0E-12
SN5	300.0E-12	200.0E-12
SN6	300.0E-12	250.0E-12
SN7	250.0E-12	300.0E-12
SN8	400.0E-12	250.0E-12
SN9	400.0E-12	250.0E-12
SN10	300.0E-12	250.0E-12
Statistics		
Min	250.0E-12	200.0E-12
Max	163.0E-9	960.0E-11
Mean	166.0E-10	120.0E-11
Sigma	514.4E-10	295.2E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	350.0E-12	300.0E-12
SN1	250.0E-12	250.0E-12
SN2	960.0E-11	200.0E-12
SN3	350.0E-12	250.0E-12
SN4	300.0E-12	250.0E-12
SN5	200.0E-12	250.0E-12
SN6	250.0E-12	300.0E-12
SN7	300.0E-12	300.0E-12
SN8	250.0E-12	250.0E-12
SN9	250.0E-12	250.0E-12
SN10	250.0E-12	300.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	960.0E-11	300.0E-12
Mean	120.0E-11	260.0E-12
Sigma	295.2E-11	316.2E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

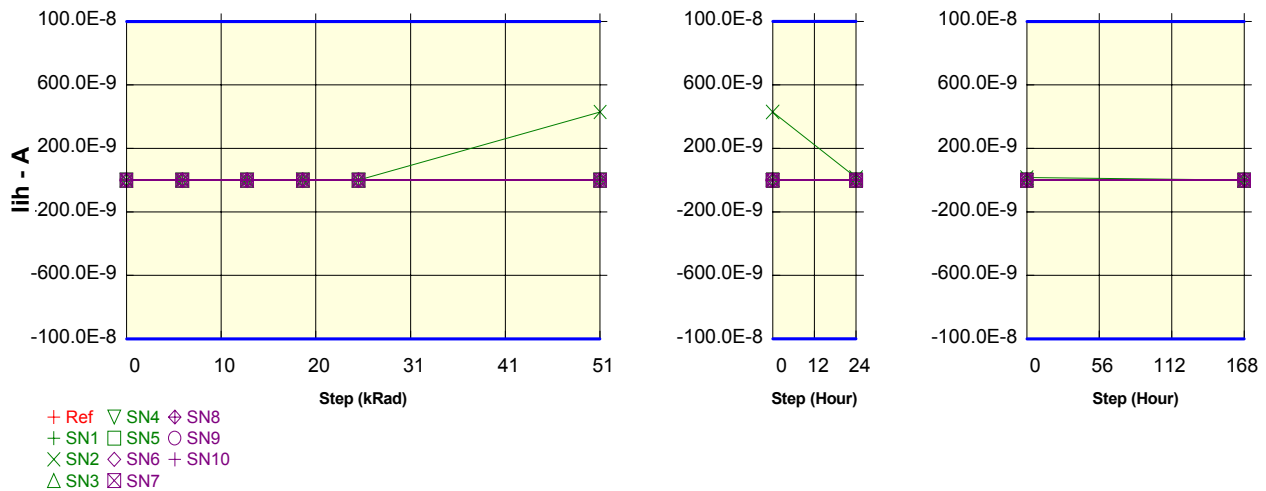
Parameter : High-Level Input Leakage Current : lihIMPULSE

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	150.0E-12	300.0E-12	200.0E-12	200.0E-12	200.0E-12	250.0E-12
SN1	250.0E-12	300.0E-12	200.0E-12	250.0E-12	250.0E-12	200.0E-12
SN2	250.0E-12	200.0E-12	200.0E-12	390.0E-11	300.0E-12	429.0E-9
SN3	250.0E-12	200.0E-12	250.0E-12	250.0E-12	200.0E-12	250.0E-12
SN4	250.0E-12	200.0E-12	200.0E-12	150.0E-12	250.0E-12	250.0E-12
SN5	200.0E-12	200.0E-12	250.0E-12	250.0E-12	300.0E-12	300.0E-12
SN6	200.0E-12	250.0E-12	300.0E-12	200.0E-12	150.0E-12	250.0E-12
SN7	200.0E-12	250.0E-12	300.0E-12	200.0E-12	200.0E-12	250.0E-12
SN8	250.0E-12	250.0E-12	250.0E-12	200.0E-12	250.0E-12	250.0E-12
SN9	200.0E-12	250.0E-12	200.0E-12	150.0E-12	150.0E-12	200.0E-12
SN10	300.0E-12	250.0E-12	350.0E-12	200.0E-12	300.0E-12	250.0E-12
Statistics						
Min	200.0E-12	200.0E-12	200.0E-12	150.0E-12	150.0E-12	200.0E-12
Max	300.0E-12	300.0E-12	350.0E-12	390.0E-11	300.0E-12	429.0E-9
Mean	235.0E-12	235.0E-12	250.0E-12	575.0E-12	235.0E-12	431.2E-10
Sigma	337.5E-13	337.5E-13	527.0E-13	116.9E-11	579.8E-13	135.6E-9

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	250.0E-12	250.0E-12
SN1	200.0E-12	200.0E-12
SN2	429.0E-9	160.0E-10
SN3	250.0E-12	200.0E-12
SN4	250.0E-12	300.0E-12
SN5	300.0E-12	200.0E-12
SN6	250.0E-12	200.0E-12
SN7	250.0E-12	200.0E-12
SN8	250.0E-12	300.0E-12
SN9	200.0E-12	300.0E-12
SN10	250.0E-12	250.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	429.0E-9	160.0E-10
Mean	431.2E-10	181.5E-11
Sigma	135.6E-9	498.4E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	250.0E-12	250.0E-12
SN1	200.0E-12	250.0E-12
SN2	160.0E-10	200.0E-12
SN3	200.0E-12	200.0E-12
SN4	300.0E-12	300.0E-12
SN5	200.0E-12	200.0E-12
SN6	200.0E-12	200.0E-12
SN7	200.0E-12	200.0E-12
SN8	300.0E-12	200.0E-12
SN9	300.0E-12	200.0E-12
SN10	250.0E-12	150.0E-12
Statistics		
Min	200.0E-12	150.0E-12
Max	160.0E-10	300.0E-12
Mean	181.5E-11	210.0E-12
Sigma	498.4E-11	394.4E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

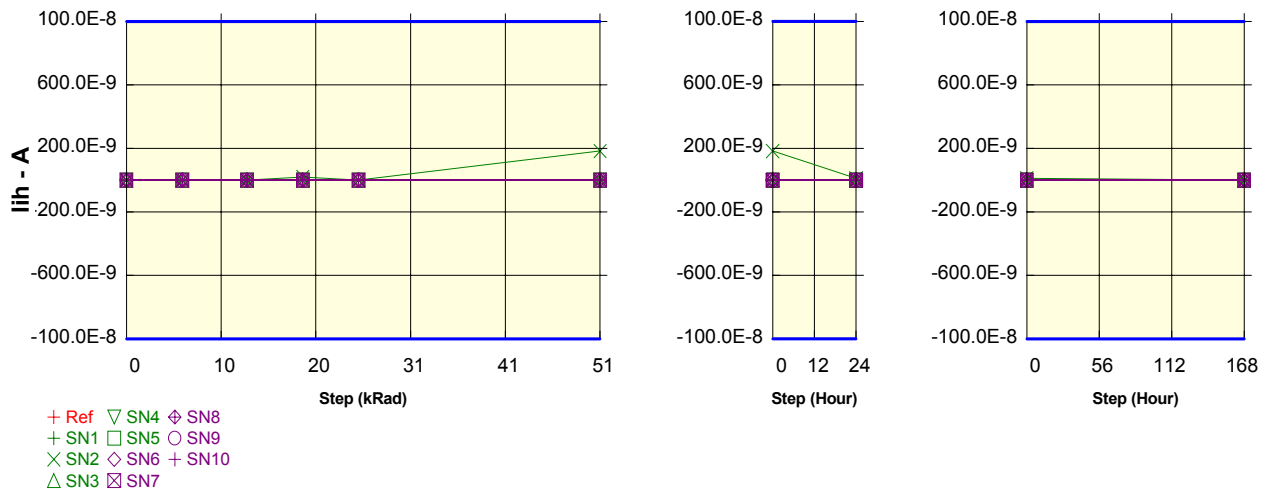
Parameter : High-Level Input Leakage Current : lihSER/PAR

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	300.0E-12	450.0E-12	400.0E-12	400.0E-12	300.0E-12	400.0E-12
SN1	250.0E-12	400.0E-12	400.0E-12	300.0E-12	200.0E-12	300.0E-12
SN2	400.0E-12	250.0E-12	300.0E-12	195.5E-10	250.0E-12	183.0E-9
SN3	300.0E-12	250.0E-12	300.0E-12	200.0E-12	200.0E-12	250.0E-12
SN4	400.0E-12	300.0E-12	400.0E-12	200.0E-12	250.0E-12	300.0E-12
SN5	400.0E-12	250.0E-12	400.0E-12	300.0E-12	250.0E-12	400.0E-12
SN6	250.0E-12	350.0E-12	400.0E-12	250.0E-12	300.0E-12	200.0E-12
SN7	250.0E-12	300.0E-12	250.0E-12	300.0E-12	250.0E-12	300.0E-12
SN8	250.0E-12	300.0E-12	250.0E-12	250.0E-12	300.0E-12	300.0E-12
SN9	300.0E-12	350.0E-12	400.0E-12	300.0E-12	200.0E-12	250.0E-12
SN10	250.0E-12	300.0E-12	300.0E-12	200.0E-12	400.0E-12	300.0E-12
Statistics						
Min	250.0E-12	250.0E-12	250.0E-12	200.0E-12	200.0E-12	200.0E-12
Max	400.0E-12	400.0E-12	400.0E-12	195.5E-10	400.0E-12	183.0E-9
Mean	305.0E-12	305.0E-12	340.0E-12	218.5E-11	260.0E-12	185.6E-10
Sigma	685.2E-13	497.2E-13	658.3E-13	610.2E-11	614.6E-13	577.8E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	400.0E-12	250.0E-12
SN1	300.0E-12	300.0E-12
SN2	183.0E-9	107.0E-10
SN3	250.0E-12	200.0E-12
SN4	300.0E-12	300.0E-12
SN5	400.0E-12	400.0E-12
SN6	200.0E-12	250.0E-12
SN7	300.0E-12	300.0E-12
SN8	300.0E-12	200.0E-12
SN9	250.0E-12	250.0E-12
SN10	300.0E-12	250.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	183.0E-9	107.0E-10
Mean	185.6E-10	131.5E-11
Sigma	577.8E-10	329.8E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	250.0E-12	250.0E-12
SN1	300.0E-12	300.0E-12
SN2	107.0E-10	400.0E-12
SN3	200.0E-12	200.0E-12
SN4	300.0E-12	300.0E-12
SN5	400.0E-12	300.0E-12
SN6	250.0E-12	250.0E-12
SN7	300.0E-12	250.0E-12
SN8	200.0E-12	200.0E-12
SN9	250.0E-12	250.0E-12
SN10	250.0E-12	250.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	107.0E-10	400.0E-12
Mean	131.5E-11	270.0E-12
Sigma	329.8E-11	586.9E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

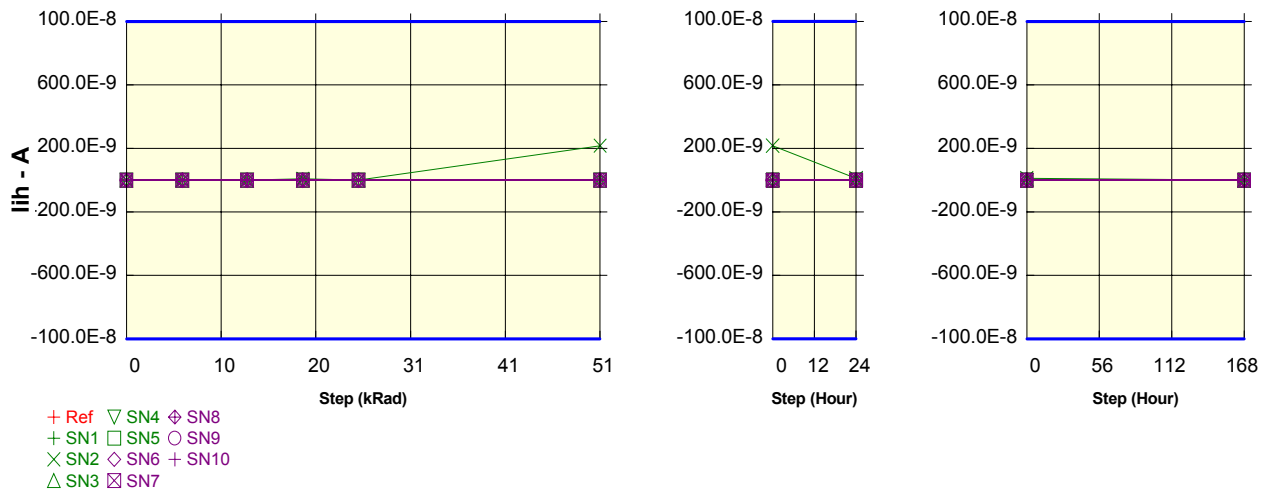
Parameter : High-Level Input Leakage Current : IihRD/

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	200.0E-12	400.0E-12	300.0E-12	300.0E-12	250.0E-12	350.0E-12
SN1	300.0E-12	350.0E-12	400.0E-12	200.0E-12	250.0E-12	450.0E-12
SN2	250.0E-12	250.0E-12	300.0E-12	820.0E-11	250.0E-12	217.0E-9
SN3	250.0E-12	350.0E-12	200.0E-12	200.0E-12	300.0E-12	350.0E-12
SN4	300.0E-12	350.0E-12	250.0E-12	250.0E-12	250.0E-12	400.0E-12
SN5	200.0E-12	350.0E-12	250.0E-12	250.0E-12	250.0E-12	450.0E-12
SN6	300.0E-12	300.0E-12	400.0E-12	250.0E-12	300.0E-12	400.0E-12
SN7	300.0E-12	250.0E-12	300.0E-12	250.0E-12	250.0E-12	400.0E-12
SN8	300.0E-12	400.0E-12	300.0E-12	250.0E-12	300.0E-12	400.0E-12
SN9	200.0E-12	350.0E-12	300.0E-12	200.0E-12	200.0E-12	400.0E-12
SN10	300.0E-12	350.0E-12	300.0E-12	250.0E-12	400.0E-12	500.0E-12
Statistics						
Min	200.0E-12	250.0E-12	200.0E-12	200.0E-12	200.0E-12	350.0E-12
Max	300.0E-12	400.0E-12	400.0E-12	820.0E-11	400.0E-12	217.0E-9
Mean	270.0E-12	330.0E-12	300.0E-12	103.0E-11	275.0E-12	220.8E-10
Sigma	421.6E-13	483.0E-13	623.6E-13	251.9E-11	540.1E-13	684.9E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	350.0E-12	400.0E-12
SN1	450.0E-12	300.0E-12
SN2	217.0E-9	112.0E-10
SN3	350.0E-12	450.0E-12
SN4	400.0E-12	400.0E-12
SN5	450.0E-12	400.0E-12
SN6	400.0E-12	250.0E-12
SN7	400.0E-12	300.0E-12
SN8	400.0E-12	300.0E-12
SN9	400.0E-12	400.0E-12
SN10	500.0E-12	250.0E-12
Statistics		
Min	350.0E-12	250.0E-12
Max	217.0E-9	112.0E-10
Mean	220.8E-10	142.5E-11
Sigma	684.9E-10	343.5E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	400.0E-12	250.0E-12
SN1	300.0E-12	300.0E-12
SN2	112.0E-10	400.0E-12
SN3	450.0E-12	300.0E-12
SN4	400.0E-12	250.0E-12
SN5	400.0E-12	300.0E-12
SN6	250.0E-12	250.0E-12
SN7	300.0E-12	350.0E-12
SN8	300.0E-12	200.0E-12
SN9	400.0E-12	300.0E-12
SN10	250.0E-12	250.0E-12
Statistics		
Min	250.0E-12	200.0E-12
Max	112.0E-10	400.0E-12
Mean	142.5E-11	290.0E-12
Sigma	343.5E-11	567.6E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

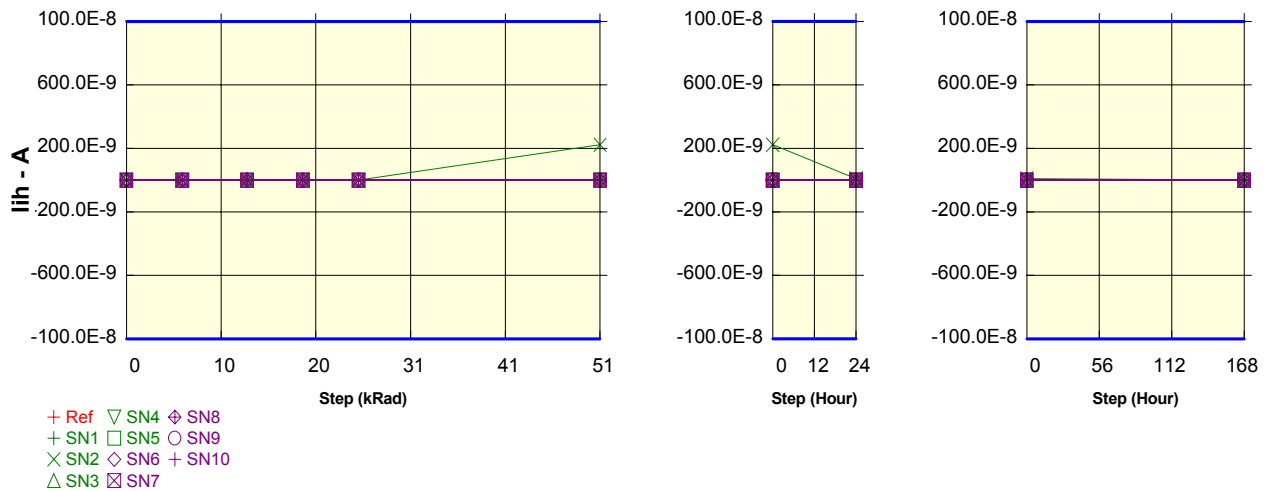
Parameter : High-Level Input Leakage Current : IihCS/

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	350.0E-12	500.0E-12	300.0E-12	200.0E-12	250.0E-12	350.0E-12
SN1	250.0E-12	550.0E-12	300.0E-12	250.0E-12	200.0E-12	400.0E-12
SN2	200.0E-12	550.0E-12	400.0E-12	365.0E-11	200.0E-12	223.0E-9
SN3	250.0E-12	550.0E-12	300.0E-12	200.0E-12	200.0E-12	350.0E-12
SN4	250.0E-12	600.0E-12	300.0E-12	250.0E-12	300.0E-12	450.0E-12
SN5	250.0E-12	600.0E-12	300.0E-12	200.0E-12	250.0E-12	400.0E-12
SN6	300.0E-12	550.0E-12	250.0E-12	200.0E-12	250.0E-12	350.0E-12
SN7	250.0E-12	500.0E-12	350.0E-12	300.0E-12	250.0E-12	450.0E-12
SN8	300.0E-12	500.0E-12	250.0E-12	250.0E-12	250.0E-12	350.0E-12
SN9	300.0E-12	600.0E-12	450.0E-12	150.0E-12	200.0E-12	400.0E-12
SN10	200.0E-12	550.0E-12	350.0E-12	250.0E-12	250.0E-12	400.0E-12
Statistics						
Min	200.0E-12	500.0E-12	250.0E-12	150.0E-12	200.0E-12	350.0E-12
Max	300.0E-12	600.0E-12	450.0E-12	365.0E-11	300.0E-12	223.0E-9
Mean	255.0E-12	555.0E-12	325.0E-12	570.0E-12	235.0E-12	226.6E-10
Sigma	368.9E-13	368.9E-13	634.6E-13	108.3E-11	337.5E-13	703.9E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	350.0E-12	250.0E-12
SN1	400.0E-12	250.0E-12
SN2	223.0E-9	104.5E-10
SN3	350.0E-12	300.0E-12
SN4	450.0E-12	250.0E-12
SN5	400.0E-12	300.0E-12
SN6	350.0E-12	300.0E-12
SN7	450.0E-12	300.0E-12
SN8	350.0E-12	250.0E-12
SN9	400.0E-12	250.0E-12
SN10	400.0E-12	400.0E-12
Statistics		
Min	350.0E-12	250.0E-12
Max	223.0E-9	104.5E-10
Mean	226.6E-10	130.5E-11
Sigma	703.9E-10	321.4E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	250.0E-12	300.0E-12
SN1	250.0E-12	250.0E-12
SN2	104.5E-10	300.0E-12
SN3	300.0E-12	400.0E-12
SN4	250.0E-12	300.0E-12
SN5	300.0E-12	300.0E-12
SN6	300.0E-12	250.0E-12
SN7	300.0E-12	300.0E-12
SN8	250.0E-12	250.0E-12
SN9	250.0E-12	200.0E-12
SN10	400.0E-12	200.0E-12
Statistics		
Min	250.0E-12	200.0E-12
Max	104.5E-10	400.0E-12
Mean	130.5E-11	275.0E-12
Sigma	321.4E-11	589.3E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

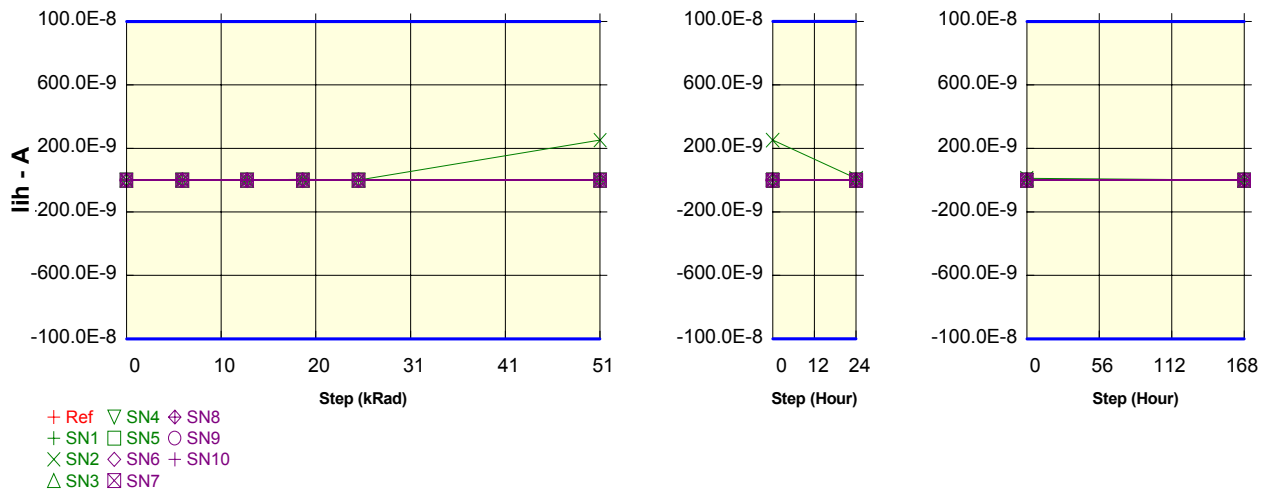
Parameter : High-Level Input Leakage Current : lihRESET

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	200.0E-12	600.0E-12	350.0E-12	300.0E-12	250.0E-12	400.0E-12
SN1	300.0E-12	600.0E-12	125.0E-11	250.0E-12	250.0E-12	400.0E-12
SN2	300.0E-12	600.0E-12	400.0E-12	410.0E-11	250.0E-12	252.0E-9
SN3	400.0E-12	550.0E-12	350.0E-12	250.0E-12	300.0E-12	400.0E-12
SN4	250.0E-12	700.0E-12	300.0E-12	250.0E-12	250.0E-12	400.0E-12
SN5	300.0E-12	600.0E-12	400.0E-12	300.0E-12	300.0E-12	450.0E-12
SN6	300.0E-12	600.0E-12	400.0E-12	300.0E-12	200.0E-12	400.0E-12
SN7	300.0E-12	550.0E-12	350.0E-12	250.0E-12	400.0E-12	450.0E-12
SN8	300.0E-12	600.0E-12	350.0E-12	250.0E-12	300.0E-12	500.0E-12
SN9	250.0E-12	650.0E-12	450.0E-12	200.0E-12	300.0E-12	400.0E-12
SN10	350.0E-12	550.0E-12	350.0E-12	300.0E-12	300.0E-12	450.0E-12
Statistics						
Min	250.0E-12	550.0E-12	300.0E-12	200.0E-12	200.0E-12	400.0E-12
Max	400.0E-12	700.0E-12	125.0E-11	410.0E-11	400.0E-12	252.0E-9
Mean	305.0E-12	600.0E-12	460.0E-12	645.0E-12	285.0E-12	255.9E-10
Sigma	437.8E-13	471.4E-13	280.7E-12	121.4E-11	529.7E-13	795.5E-10

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	400.0E-12	300.0E-12
SN1	400.0E-12	300.0E-12
SN2	252.0E-9	113.5E-10
SN3	400.0E-12	250.0E-12
SN4	400.0E-12	350.0E-12
SN5	450.0E-12	400.0E-12
SN6	400.0E-12	200.0E-12
SN7	450.0E-12	300.0E-12
SN8	500.0E-12	400.0E-12
SN9	400.0E-12	250.0E-12
SN10	450.0E-12	400.0E-12
Statistics		
Min	400.0E-12	200.0E-12
Max	252.0E-9	113.5E-10
Mean	255.9E-10	142.0E-11
Sigma	795.5E-10	349.0E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	300.0E-12	300.0E-12
SN1	300.0E-12	250.0E-12
SN2	113.5E-10	300.0E-12
SN3	250.0E-12	250.0E-12
SN4	350.0E-12	200.0E-12
SN5	400.0E-12	300.0E-12
SN6	200.0E-12	300.0E-12
SN7	300.0E-12	250.0E-12
SN8	400.0E-12	200.0E-12
SN9	250.0E-12	250.0E-12
SN10	400.0E-12	250.0E-12
Statistics		
Min	200.0E-12	200.0E-12
Max	113.5E-10	300.0E-12
Mean	142.0E-11	255.0E-12
Sigma	349.0E-11	368.9E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

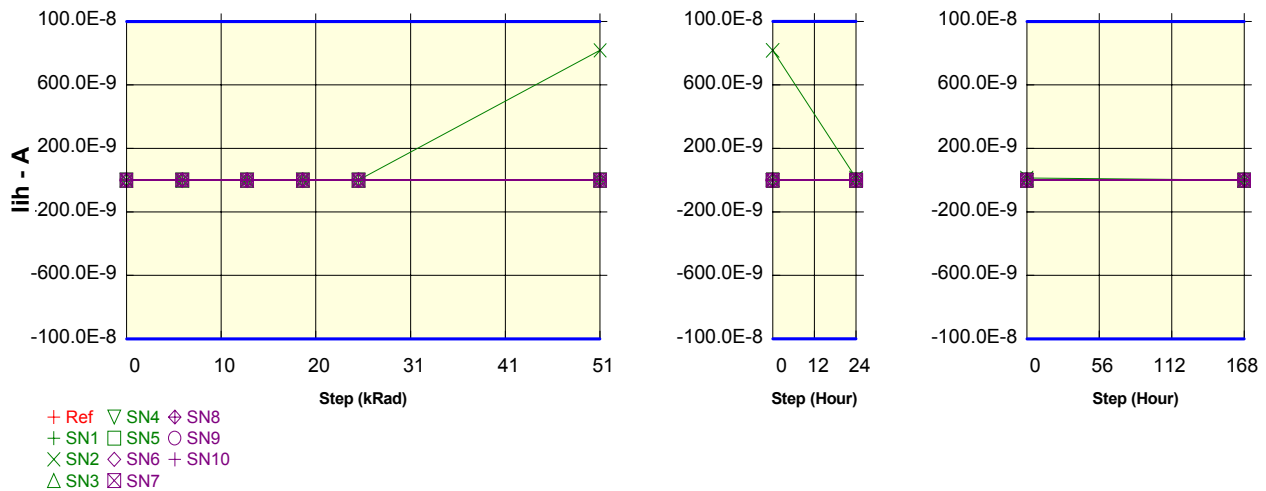
Parameter : High-Level Input Leakage Current : IihPD

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	300.0E-12	700.0E-12	350.0E-12	400.0E-12	250.0E-12	450.0E-12
SN1	300.0E-12	600.0E-12	850.0E-12	250.0E-12	250.0E-12	500.0E-12
SN2	300.0E-12	600.0E-12	350.0E-12	125.0E-11	200.0E-12	818.5E-9
SN3	350.0E-12	600.0E-12	400.0E-12	250.0E-12	300.0E-12	500.0E-12
SN4	300.0E-12	650.0E-12	350.0E-12	350.0E-12	250.0E-12	550.0E-12
SN5	200.0E-12	700.0E-12	400.0E-12	300.0E-12	250.0E-12	500.0E-12
SN6	250.0E-12	700.0E-12	400.0E-12	350.0E-12	250.0E-12	450.0E-12
SN7	250.0E-12	700.0E-12	350.0E-12	300.0E-12	200.0E-12	500.0E-12
SN8	400.0E-12	650.0E-12	400.0E-12	300.0E-12	250.0E-12	400.0E-12
SN9	300.0E-12	700.0E-12	350.0E-12	250.0E-12	200.0E-12	550.0E-12
SN10	300.0E-12	650.0E-12	400.0E-12	350.0E-12	300.0E-12	500.0E-12
Statistics						
Min	200.0E-12	600.0E-12	350.0E-12	250.0E-12	200.0E-12	400.0E-12
Max	400.0E-12	700.0E-12	850.0E-12	125.0E-11	300.0E-12	818.5E-9
Mean	295.0E-12	655.0E-12	425.0E-12	395.0E-12	245.0E-12	823.0E-10
Sigma	550.3E-13	437.8E-13	151.4E-12	303.2E-12	368.9E-13	258.7E-9

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	450.0E-12	300.0E-12
SN1	500.0E-12	300.0E-12
SN2	818.5E-9	135.0E-10
SN3	500.0E-12	350.0E-12
SN4	550.0E-12	350.0E-12
SN5	500.0E-12	400.0E-12
SN6	450.0E-12	250.0E-12
SN7	500.0E-12	400.0E-12
SN8	400.0E-12	250.0E-12
SN9	550.0E-12	250.0E-12
SN10	500.0E-12	250.0E-12
Statistics		
Min	400.0E-12	250.0E-12
Max	818.5E-9	135.0E-10
Mean	823.0E-10	163.0E-11
Sigma	258.7E-9	417.1E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	300.0E-12	400.0E-12
SN1	300.0E-12	300.0E-12
SN2	135.0E-10	300.0E-12
SN3	350.0E-12	250.0E-12
SN4	350.0E-12	300.0E-12
SN5	400.0E-12	300.0E-12
SN6	250.0E-12	300.0E-12
SN7	400.0E-12	300.0E-12
SN8	250.0E-12	350.0E-12
SN9	250.0E-12	250.0E-12
SN10	250.0E-12	300.0E-12
Statistics		
Min	250.0E-12	250.0E-12
Max	135.0E-10	350.0E-12
Mean	163.0E-11	295.0E-12
Sigma	417.1E-11	283.8E-13

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

Test conditions : TID

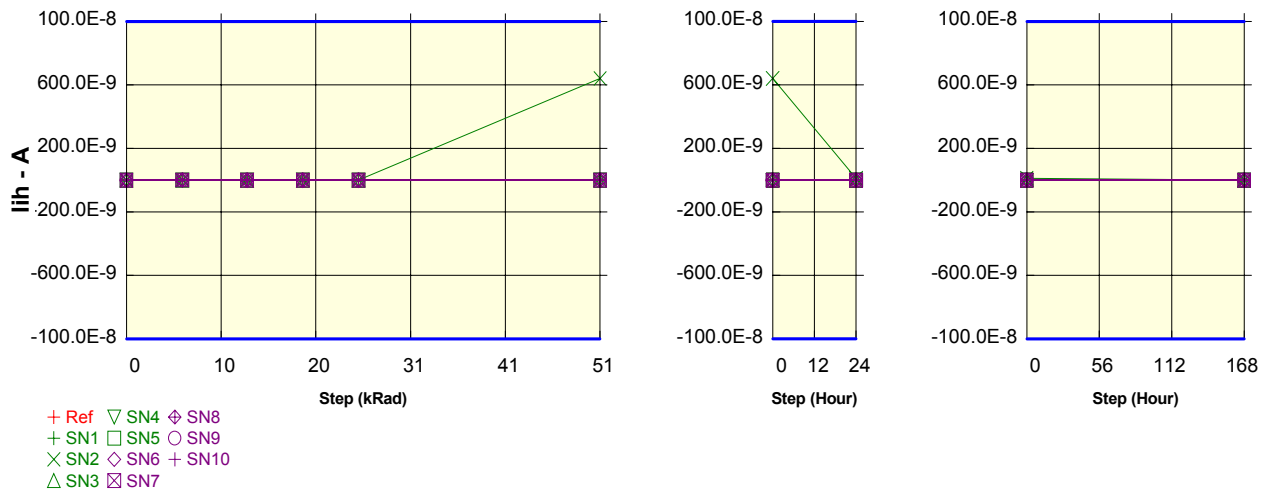
Parameter : High-Level Input Leakage Current : lihCNVST/

Unit : A

Spec Limit Min : -100.0E-8

Spec Limit Max : 100.0E-8

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	350.0E-12	800.0E-12	500.0E-12	400.0E-12	400.0E-12	450.0E-12
SN1	350.0E-12	800.0E-12	500.0E-12	350.0E-12	350.0E-12	600.0E-12
SN2	400.0E-12	700.0E-12	400.0E-12	180.0E-11	350.0E-12	640.5E-9
SN3	350.0E-12	650.0E-12	450.0E-12	350.0E-12	400.0E-12	600.0E-12
SN4	400.0E-12	750.0E-12	500.0E-12	350.0E-12	400.0E-12	550.0E-12
SN5	350.0E-12	800.0E-12	550.0E-12	300.0E-12	350.0E-12	600.0E-12
SN6	450.0E-12	750.0E-12	450.0E-12	300.0E-12	350.0E-12	600.0E-12
SN7	500.0E-12	850.0E-12	400.0E-12	350.0E-12	350.0E-12	600.0E-12
SN8	350.0E-12	800.0E-12	400.0E-12	300.0E-12	350.0E-12	550.0E-12
SN9	400.0E-12	750.0E-12	450.0E-12	400.0E-12	350.0E-12	600.0E-12
SN10	400.0E-12	750.0E-12	450.0E-12	350.0E-12	400.0E-12	600.0E-12
Statistics						
Min	350.0E-12	650.0E-12	400.0E-12	300.0E-12	350.0E-12	550.0E-12
Max	500.0E-12	850.0E-12	550.0E-12	180.0E-11	400.0E-12	640.5E-9
Mean	395.0E-12	760.0E-12	455.0E-12	485.0E-12	365.0E-12	645.8E-10
Sigma	497.2E-13	567.6E-13	497.2E-13	463.1E-12	241.5E-13	202.4E-9

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	450.0E-12	400.0E-12
SN1	600.0E-12	350.0E-12
SN2	640.5E-9	121.5E-10
SN3	600.0E-12	450.0E-12
SN4	550.0E-12	400.0E-12
SN5	600.0E-12	400.0E-12
SN6	600.0E-12	350.0E-12
SN7	600.0E-12	400.0E-12
SN8	550.0E-12	350.0E-12
SN9	600.0E-12	400.0E-12
SN10	600.0E-12	350.0E-12
Statistics		
Min	550.0E-12	350.0E-12
Max	640.5E-9	121.5E-10
Mean	645.8E-10	156.0E-11
Sigma	202.4E-9	372.1E-11

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	400.0E-12	400.0E-12
SN1	350.0E-12	400.0E-12
SN2	121.5E-10	400.0E-12
SN3	450.0E-12	300.0E-12
SN4	400.0E-12	400.0E-12
SN5	400.0E-12	400.0E-12
SN6	350.0E-12	350.0E-12
SN7	400.0E-12	400.0E-12
SN8	350.0E-12	350.0E-12
SN9	400.0E-12	400.0E-12
SN10	350.0E-12	400.0E-12
Statistics		
Min	350.0E-12	300.0E-12
Max	121.5E-10	400.0E-12
Mean	156.0E-11	380.0E-12
Sigma	372.1E-11	349.6E-13

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

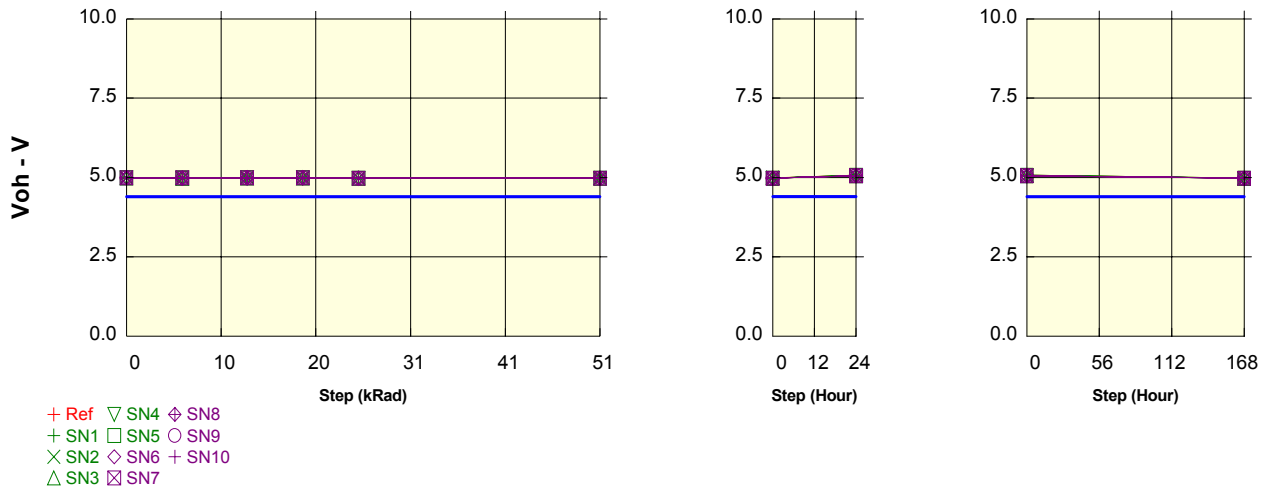
Test conditions : TID

Parameter : High-Level Output Voltage : VohD15

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.98	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.99	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.99	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.99	4.99	4.99	4.98	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.06
SN2	4.99	5.06
SN3	4.98	5.07
SN4	4.98	5.07
SN5	4.98	5.06
SN6	4.98	5.06
SN7	4.98	5.06
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.0

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.06	4.98
SN2	5.06	4.98
SN3	5.07	4.98
SN4	5.07	4.98
SN5	5.06	4.98
SN6	5.06	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.06	4.98
Sigma	0.0	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

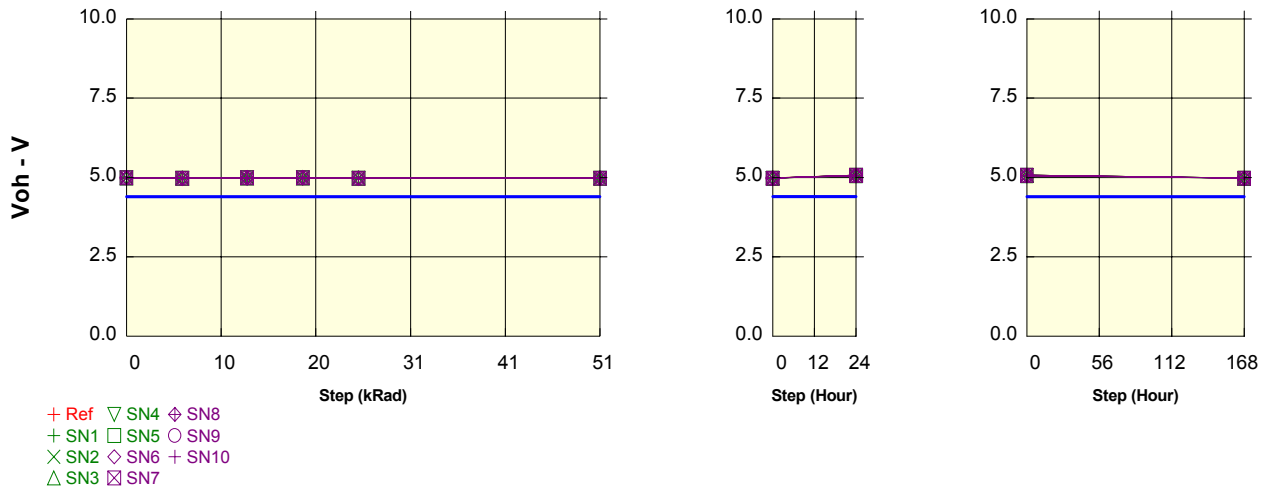
Test conditions : TID

Parameter : High-Level Output Voltage : VohD14

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.99	4.98
SN2	4.99	4.98	4.99	4.99	4.99	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	5.0	4.98	4.99
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.06
SN2	4.98	5.07
SN3	4.98	5.07
SN4	4.98	5.07
SN5	4.98	5.06
SN6	4.99	5.07
SN7	4.98	5.07
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.07
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.06	4.98
SN2	5.07	4.98
SN3	5.07	4.98
SN4	5.07	4.98
SN5	5.06	4.98
SN6	5.07	4.98
SN7	5.07	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.07	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

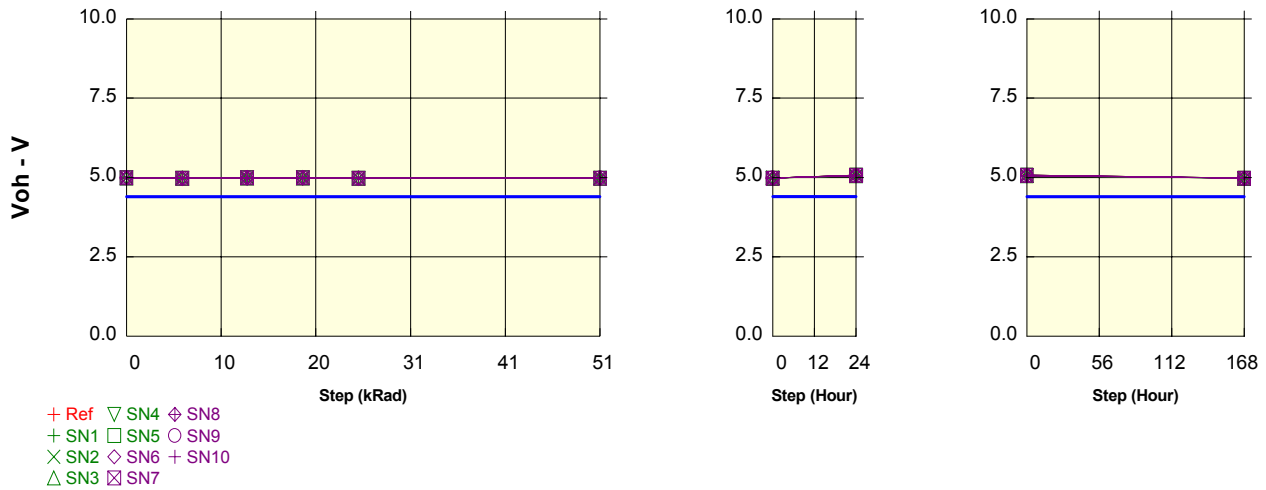
Test conditions : TID

Parameter : High-Level Output Voltage : VohD13

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.98
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.99
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	4.99	4.98	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.98	5.07
SN1	4.98	5.06
SN2	4.99	5.06
SN3	4.98	5.06
SN4	4.98	5.07
SN5	4.98	5.07
SN6	4.98	5.07
SN7	4.98	5.07
SN8	4.98	5.07
SN9	4.99	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.06	4.98
SN2	5.06	4.98
SN3	5.06	4.98
SN4	5.07	4.98
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.07	4.98
SN8	5.07	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

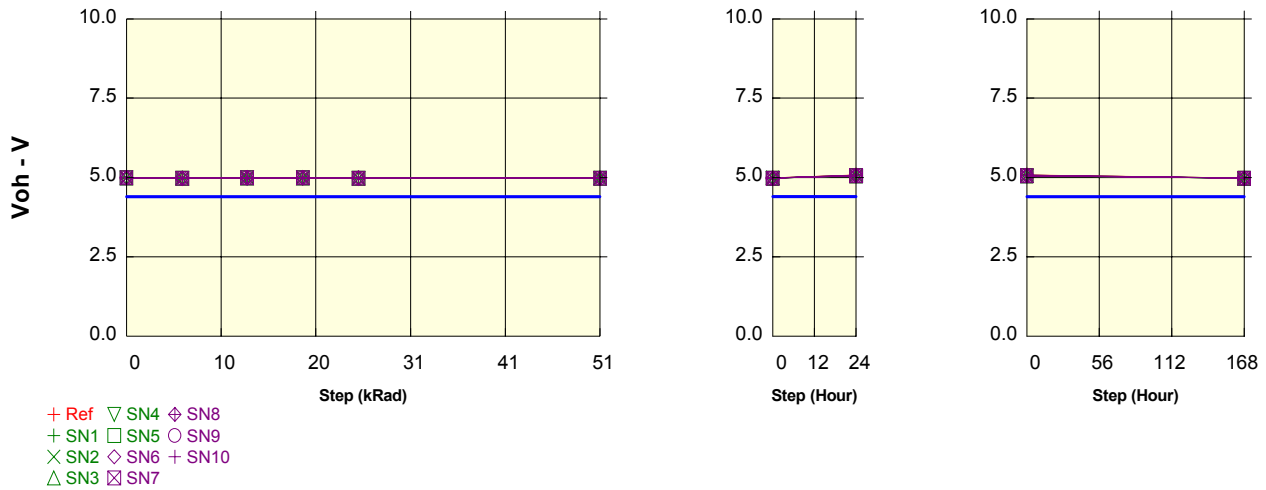
Test conditions : TID

Parameter : High-Level Output Voltage : VohD12

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.99	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	5.0	4.98	4.99	5.0	4.98	4.99
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	5.0	4.98	4.99	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.08
SN1	4.98	5.07
SN2	4.99	5.06
SN3	4.98	5.06
SN4	4.98	5.06
SN5	4.98	5.06
SN6	4.98	5.07
SN7	4.98	5.06
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.99	5.07
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.0

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.08	4.98
SN1	5.07	4.98
SN2	5.06	4.98
SN3	5.06	4.98
SN4	5.06	4.98
SN5	5.06	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.07	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.06	4.98
Sigma	0.0	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

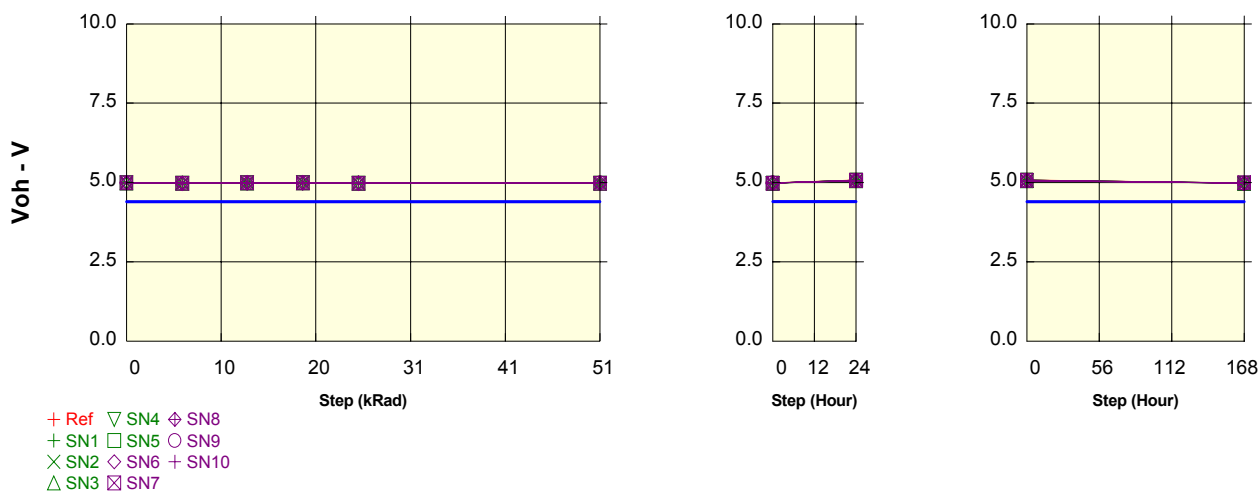
Test conditions : TID

Parameter : High-Level Output Voltage : VohD11

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.98	4.99
SN1	4.99	4.98	4.99	4.99	4.99	4.98
SN2	4.99	4.98	4.99	5.0	4.98	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	5.0	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.99
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.99	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.99
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.08
SN1	4.98	5.07
SN2	4.98	5.06
SN3	4.98	5.06
SN4	4.98	5.07
SN5	4.98	5.07
SN6	4.99	5.07
SN7	4.98	5.07
SN8	4.98	5.06
SN9	4.99	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.08	4.98
SN1	5.07	4.98
SN2	5.06	4.98
SN3	5.06	4.98
SN4	5.07	4.98
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.07	4.99
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

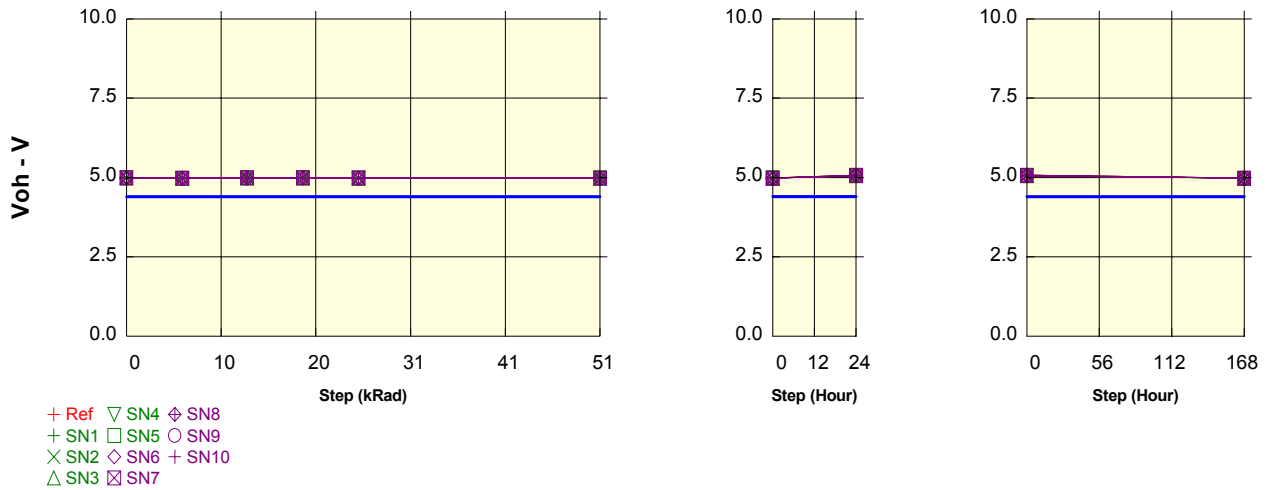
Test conditions : TID

Parameter : High-Level Output Voltage : VohD10

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.98	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.99
SN4	4.99	4.98	4.99	4.99	4.98	4.99
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.99	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	4.99	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.06
SN2	4.98	5.06
SN3	4.99	5.07
SN4	4.99	5.06
SN5	4.98	5.06
SN6	4.98	5.06
SN7	4.98	5.07
SN8	4.98	5.07
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.0

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.06	4.98
SN2	5.06	4.98
SN3	5.07	4.98
SN4	5.06	4.98
SN5	5.06	4.98
SN6	5.06	4.98
SN7	5.07	4.98
SN8	5.07	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.06	4.98
Sigma	0.0	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

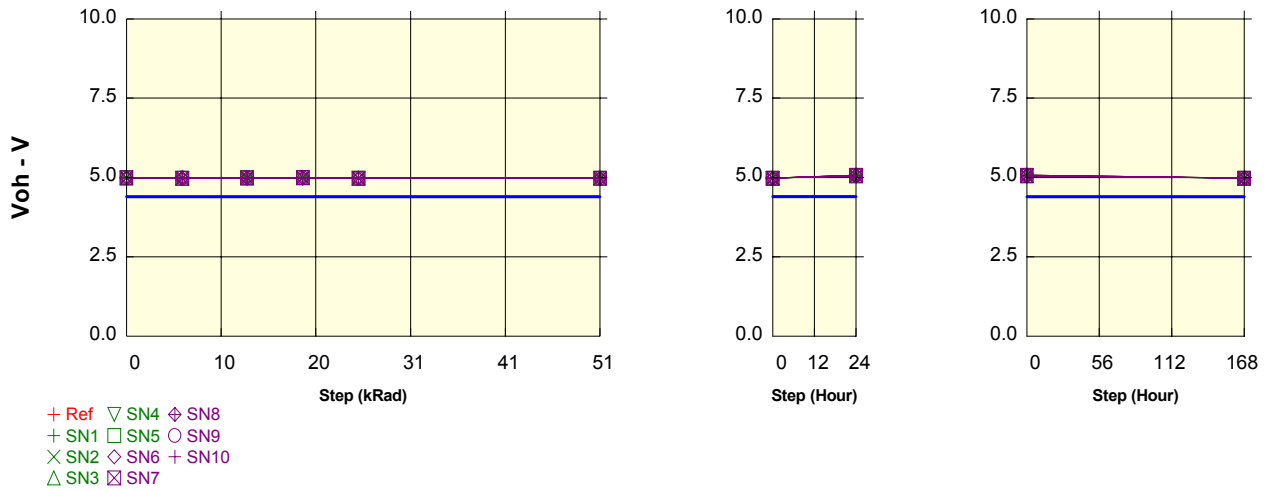
Test conditions : TID

Parameter : High-Level Output Voltage : VohD9

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	5.0	4.98	4.99	4.99	4.98	4.98
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	5.0	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	5.0	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.99	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.99	4.99	5.0	4.98	4.98
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.98	5.07
SN1	4.98	5.07
SN2	4.98	5.06
SN3	4.98	5.06
SN4	4.98	5.06
SN5	4.98	5.07
SN6	4.98	5.07
SN7	4.98	5.06
SN8	4.98	5.06
SN9	4.98	5.07
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.98	5.07
Mean	4.98	5.06
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.06	4.98
SN3	5.06	4.98
SN4	5.06	4.98
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.07	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.06	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

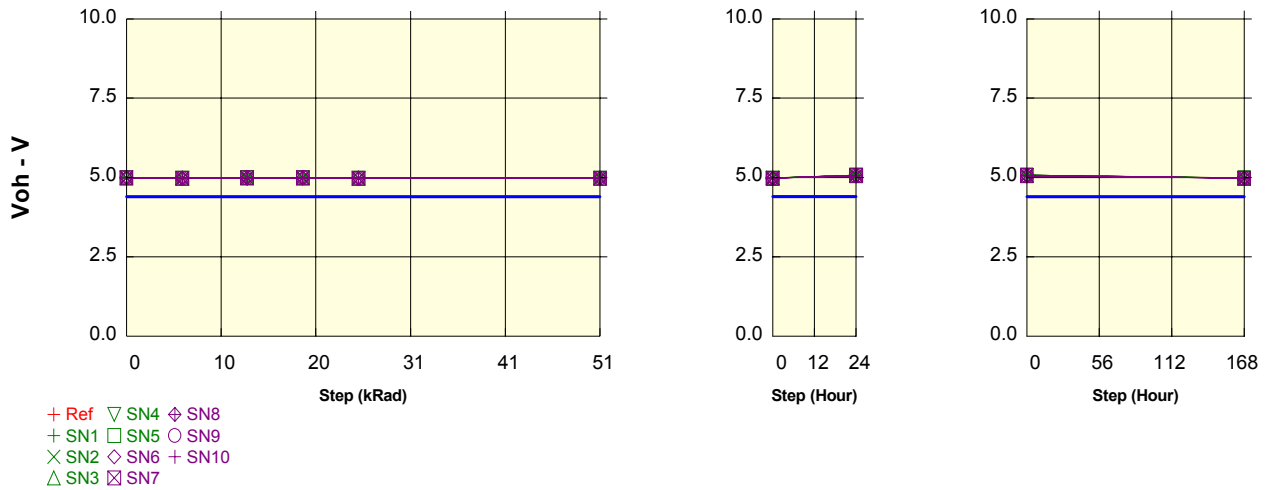
Test conditions : TID

Parameter : High-Level Output Voltage : VohD8

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.98	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	5.0	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	5.0	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	5.0	5.0	4.98	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.99	5.07
SN3	4.98	5.06
SN4	4.98	5.07
SN5	4.98	5.07
SN6	4.98	5.06
SN7	4.98	5.07
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.99
SN1	5.07	4.98
SN2	5.07	4.98
SN3	5.06	4.98
SN4	5.07	4.98
SN5	5.07	4.99
SN6	5.06	4.98
SN7	5.07	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

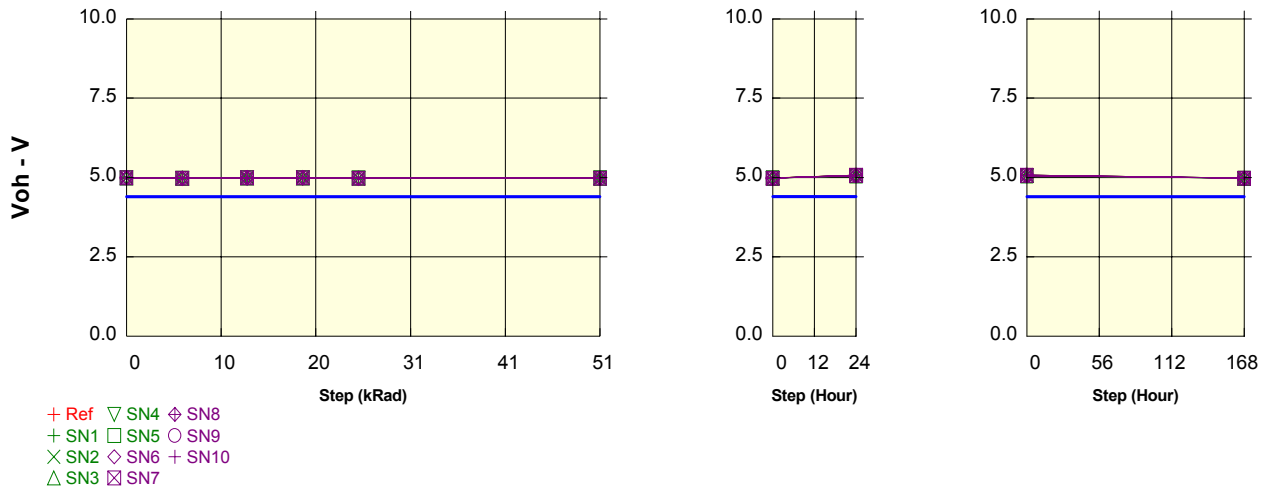
Test conditions : TID

Parameter : High-Level Output Voltage : VohD7

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	5.0	4.98	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	5.0	4.98	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.99
SN5	4.99	4.98	4.99	4.99	4.99	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.98	5.07
SN3	4.98	5.06
SN4	4.99	5.06
SN5	4.98	5.06
SN6	4.98	5.06
SN7	4.98	5.07
SN8	4.98	5.07
SN9	4.98	5.07
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.07	4.98
SN3	5.06	4.98
SN4	5.06	4.98
SN5	5.06	4.98
SN6	5.06	4.98
SN7	5.07	4.98
SN8	5.07	4.98
SN9	5.07	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

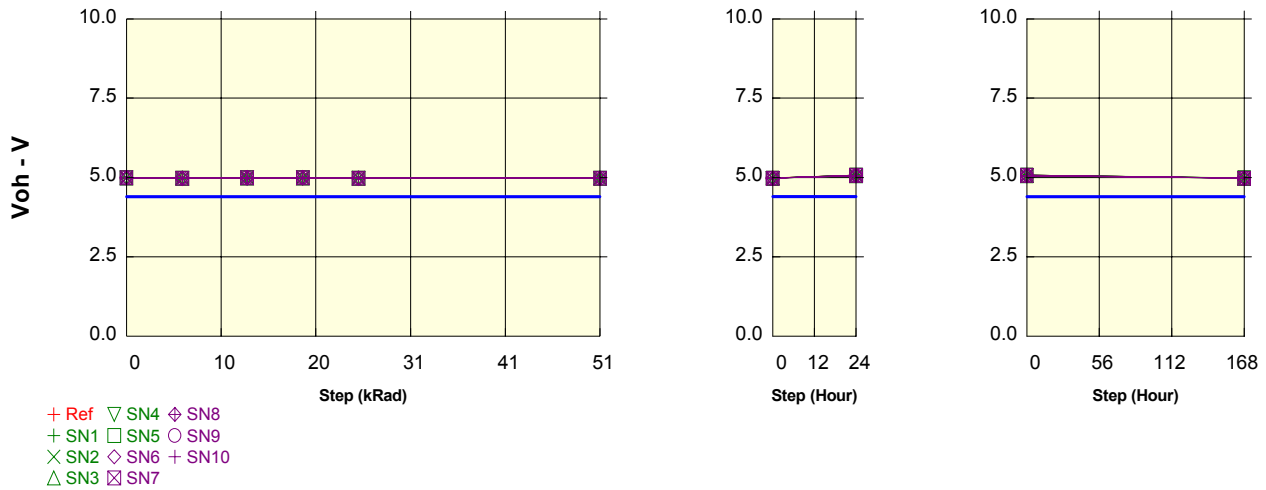
Test conditions : TID

Parameter : High-Level Output Voltage : VohD6

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.98	4.99
SN1	4.99	4.98	4.99	5.0	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.99	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	5.0	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	5.0	4.99	4.98
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.98	5.06
SN3	4.98	5.06
SN4	4.98	5.07
SN5	4.98	5.07
SN6	4.98	5.07
SN7	4.98	5.07
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.98	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.06	4.98
SN3	5.06	4.98
SN4	5.07	4.99
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.07	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

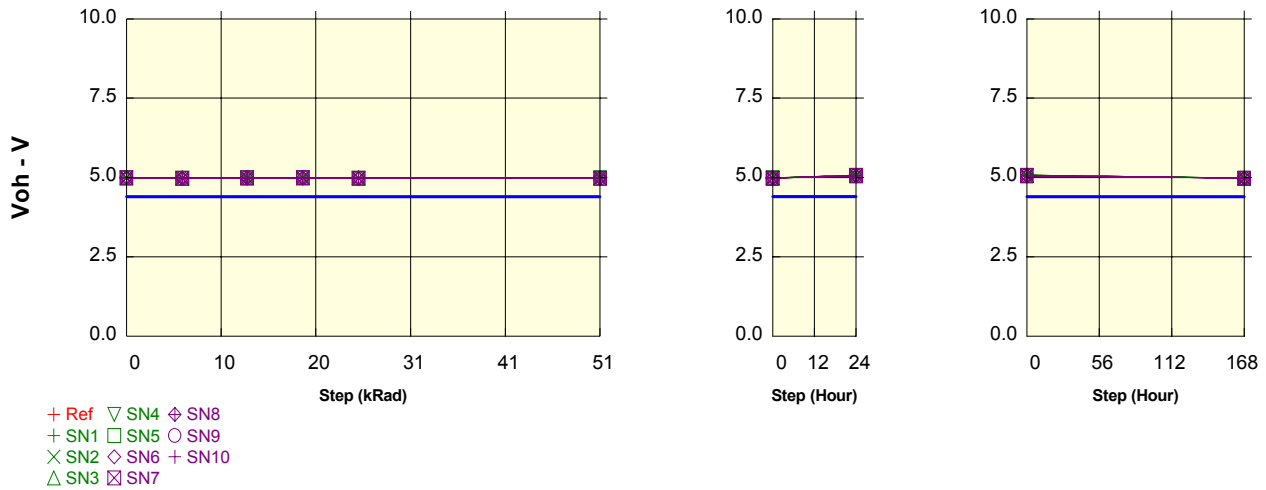
Test conditions : TID

Parameter : High-Level Output Voltage : VohD5

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.99	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.99
SN5	4.99	4.98	4.99	5.0	4.98	4.98
SN6	4.99	4.98	5.0	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.99
SN9	4.99	4.98	4.99	5.0	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	5.0	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.99	5.07
SN3	4.98	5.07
SN4	4.99	5.07
SN5	4.98	5.06
SN6	4.98	5.06
SN7	4.98	5.06
SN8	4.99	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.07	4.98
SN3	5.07	4.98
SN4	5.07	4.98
SN5	5.06	4.98
SN6	5.06	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.06	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

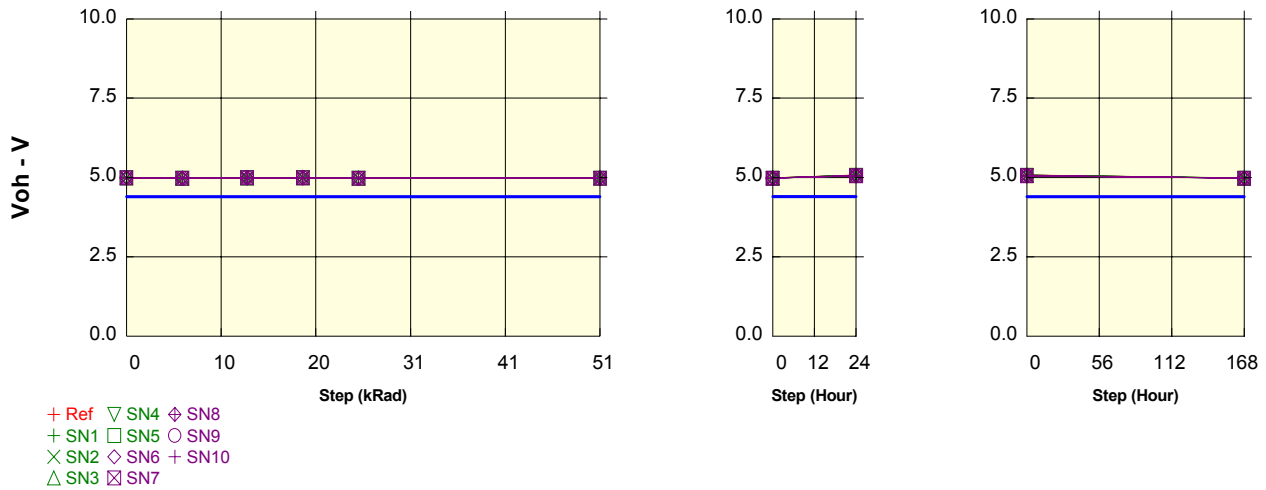
Test conditions : TID

Parameter : High-Level Output Voltage : VohD4

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	5.0	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.99	4.98
SN2	4.99	4.98	4.99	5.0	4.98	4.98
SN3	4.99	4.98	4.99	5.0	4.98	4.99
SN4	4.99	4.98	4.99	5.0	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.99
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	5.0	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	5.0	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.08
SN1	4.98	5.06
SN2	4.98	5.07
SN3	4.99	5.07
SN4	4.98	5.06
SN5	4.98	5.07
SN6	4.99	5.07
SN7	4.98	5.06
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.08	4.98
SN1	5.06	4.98
SN2	5.07	4.98
SN3	5.07	4.99
SN4	5.06	4.98
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.06	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

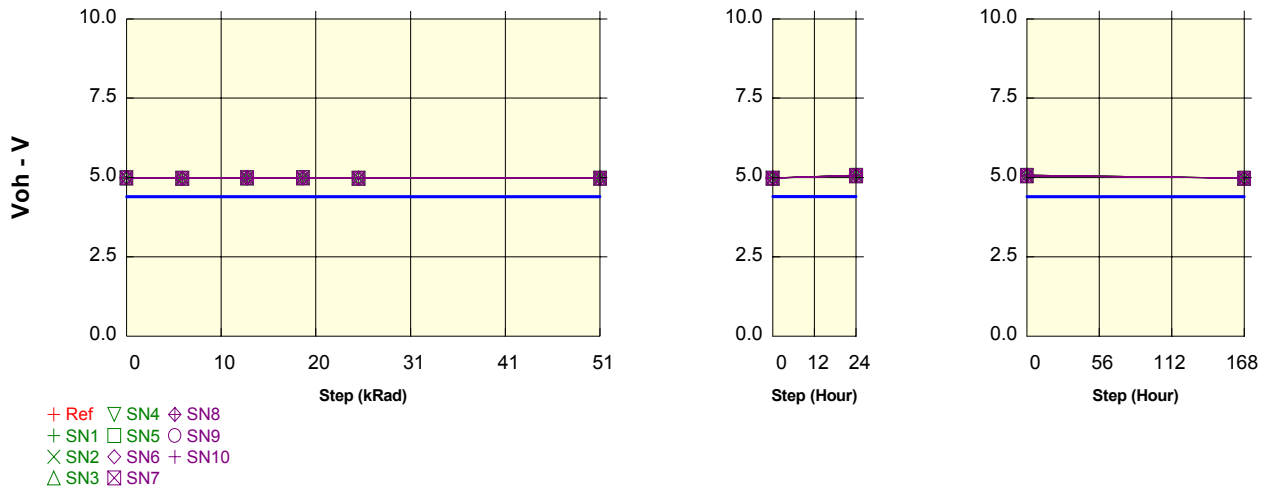
Test conditions : TID

Parameter : High-Level Output Voltage : VohD3

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.99
SN4	4.99	4.98	4.99	5.0	4.98	4.98
SN5	4.99	4.98	4.99	5.0	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.99
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.99
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	5.0	4.98	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.01

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.99	5.06
SN3	4.99	5.07
SN4	4.98	5.07
SN5	4.98	5.06
SN6	4.99	5.07
SN7	4.98	5.06
SN8	4.99	5.07
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.01	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.06	4.98
SN3	5.07	4.98
SN4	5.07	4.98
SN5	5.06	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.07	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

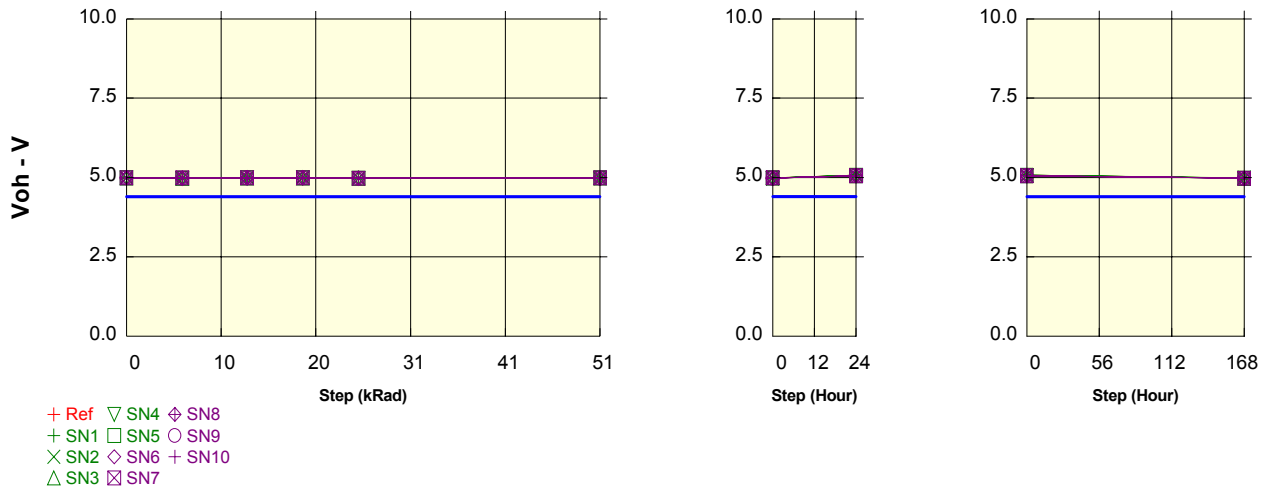
Test conditions : TID

Parameter : High-Level Output Voltage : VohD2

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	5.0	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.99	4.98
SN2	4.99	4.98	4.99	5.0	4.98	4.98
SN3	4.99	4.98	4.99	4.99	4.98	4.99
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.99
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.99	4.99	4.99	4.98	4.99
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.99	4.99	5.0	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.98	5.07
SN3	4.99	5.06
SN4	4.98	5.06
SN5	4.99	5.07
SN6	4.98	5.06
SN7	4.99	5.06
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.0

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.07	4.99
SN3	5.06	4.98
SN4	5.06	4.98
SN5	5.07	4.98
SN6	5.06	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.06	4.98
Sigma	0.0	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

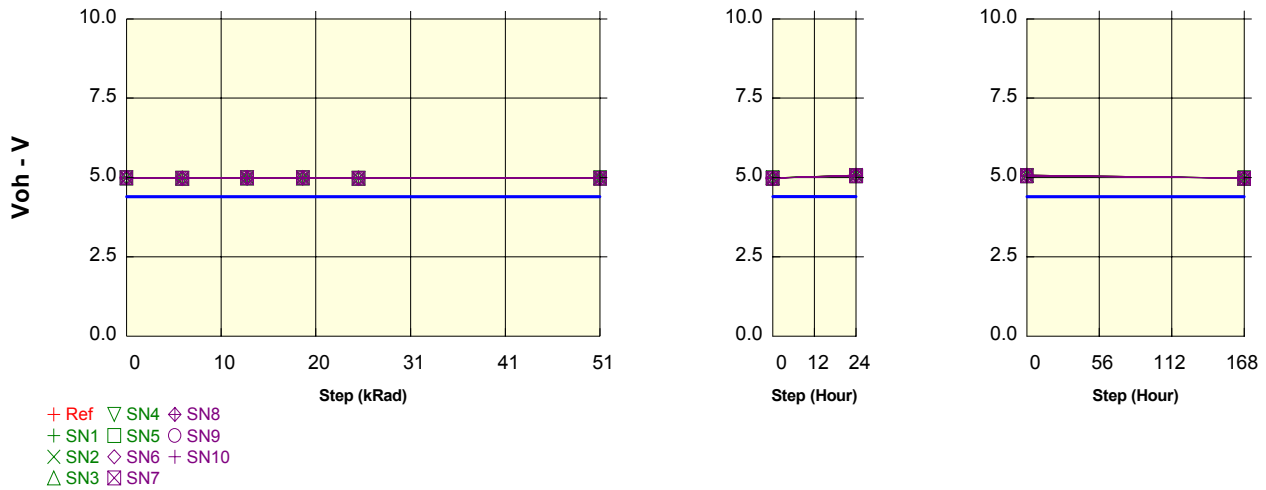
Test conditions : TID

Parameter : High-Level Output Voltage : VohD1

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.99	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.98	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.98	4.99
SN4	4.99	4.98	4.99	4.99	4.98	4.99
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	4.99	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	4.99	4.98	4.99	4.99	4.98	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.06
SN2	4.99	5.07
SN3	4.99	5.07
SN4	4.99	5.06
SN5	4.98	5.06
SN6	4.98	5.07
SN7	4.98	5.06
SN8	4.98	5.07
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.06
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.06	4.98
SN2	5.07	4.98
SN3	5.07	4.98
SN4	5.06	4.99
SN5	5.06	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.07	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.99
Mean	5.06	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

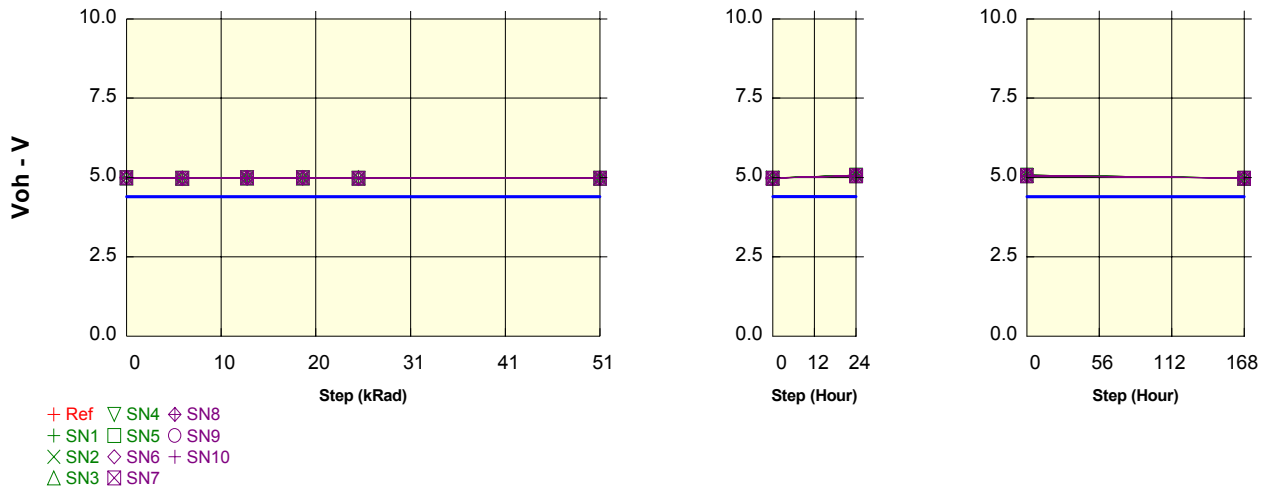
Test conditions : TID

Parameter : High-Level Output Voltage : VohD0

Unit : V

Spec Limit Min : 4.4

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	4.99	4.98	4.99	4.99	4.99	4.99
SN1	4.99	4.98	4.99	4.99	4.99	4.98
SN2	4.99	4.98	4.99	4.99	4.98	4.99
SN3	4.99	4.98	4.99	4.99	4.99	4.98
SN4	4.99	4.98	4.99	4.99	4.98	4.98
SN5	4.99	4.98	4.99	4.99	4.98	4.98
SN6	5.0	4.98	4.99	4.99	4.98	4.98
SN7	4.99	4.98	4.99	4.99	4.98	4.98
SN8	4.99	4.98	4.99	4.99	4.98	4.98
SN9	4.99	4.98	4.99	4.99	4.98	4.98
SN10	4.99	4.98	4.99	4.99	4.98	4.98
Statistics						
Min	4.99	4.98	4.99	4.99	4.98	4.98
Max	5.0	4.98	4.99	4.99	4.99	4.99
Mean	4.99	4.98	4.99	4.99	4.98	4.98
Sigma	0.0	0.0	0.0	0.0	0.0	0.0

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	4.99	5.07
SN1	4.98	5.07
SN2	4.99	5.07
SN3	4.98	5.06
SN4	4.98	5.07
SN5	4.98	5.07
SN6	4.98	5.07
SN7	4.98	5.06
SN8	4.98	5.06
SN9	4.98	5.06
SN10	4.98	5.06
Statistics		
Min	4.98	5.06
Max	4.99	5.07
Mean	4.98	5.07
Sigma	0.0	0.01

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	5.07	4.98
SN1	5.07	4.98
SN2	5.07	4.98
SN3	5.06	4.98
SN4	5.07	4.98
SN5	5.07	4.98
SN6	5.07	4.98
SN7	5.06	4.98
SN8	5.06	4.98
SN9	5.06	4.98
SN10	5.06	4.98
Statistics		
Min	5.06	4.98
Max	5.07	4.98
Mean	5.07	4.98
Sigma	0.01	0.0

HIREX Engineering	Total Dose Test Report		Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices

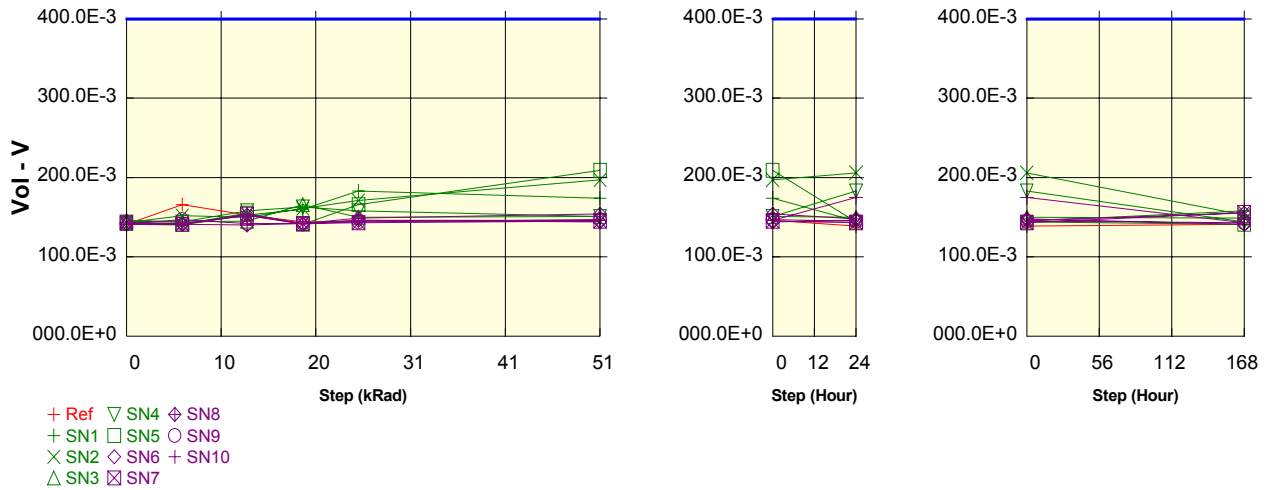
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID15

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	141.0E-3	166.0E-3	153.0E-3	144.0E-3	145.0E-3	146.0E-3
SN1	141.0E-3	140.0E-3	153.0E-3	160.0E-3	183.0E-3	174.0E-3
SN2	143.0E-3	152.0E-3	150.0E-3	161.0E-3	171.0E-3	197.0E-3
SN3	146.0E-3	144.0E-3	145.0E-3	166.0E-3	150.0E-3	151.0E-3
SN4	144.0E-3	144.0E-3	158.0E-3	163.0E-3	158.0E-3	151.0E-3
SN5	142.0E-3	141.0E-3	155.0E-3	141.0E-3	166.0E-3	209.0E-3
SN6	142.0E-3	141.0E-3	153.0E-3	141.0E-3	146.0E-3	144.0E-3
SN7	143.0E-3	141.0E-3	154.0E-3	142.0E-3	143.0E-3	145.0E-3
SN8	141.0E-3	141.0E-3	140.0E-3	142.0E-3	149.0E-3	154.0E-3
SN9	142.0E-3	147.0E-3	142.0E-3	142.0E-3	144.0E-3	147.0E-3
SN10	143.0E-3	142.0E-3	152.0E-3	142.0E-3	146.0E-3	146.0E-3
Statistics						
Min	141.0E-3	140.0E-3	140.0E-3	141.0E-3	143.0E-3	144.0E-3
Max	146.0E-3	152.0E-3	158.0E-3	166.0E-3	183.0E-3	209.0E-3
Mean	142.7E-3	143.3E-3	150.2E-3	150.0E-3	155.6E-3	161.8E-3
Sigma	149.4E-5	371.3E-5	592.2E-5	108.7E-4	135.6E-4	235.2E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	146.0E-3	139.0E-3
SN1	174.0E-3	145.0E-3
SN2	197.0E-3	206.0E-3
SN3	151.0E-3	150.0E-3
SN4	151.0E-3	183.0E-3
SN5	209.0E-3	144.0E-3
SN6	144.0E-3	146.0E-3
SN7	145.0E-3	143.0E-3
SN8	154.0E-3	148.0E-3
SN9	147.0E-3	145.0E-3
SN10	146.0E-3	175.0E-3
Statistics		
Min	144.0E-3	143.0E-3
Max	209.0E-3	206.0E-3
Mean	161.8E-3	158.5E-3
Sigma	235.2E-4	218.1E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	141.0E-3
SN1	145.0E-3	158.0E-3
SN2	206.0E-3	153.0E-3
SN3	150.0E-3	149.0E-3
SN4	183.0E-3	144.0E-3
SN5	144.0E-3	141.0E-3
SN6	146.0E-3	155.0E-3
SN7	143.0E-3	156.0E-3
SN8	148.0E-3	141.0E-3
SN9	145.0E-3	143.0E-3
SN10	175.0E-3	143.0E-3
Statistics		
Min	143.0E-3	141.0E-3
Max	206.0E-3	158.0E-3
Mean	158.5E-3	148.3E-3
Sigma	218.1E-4	668.4E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

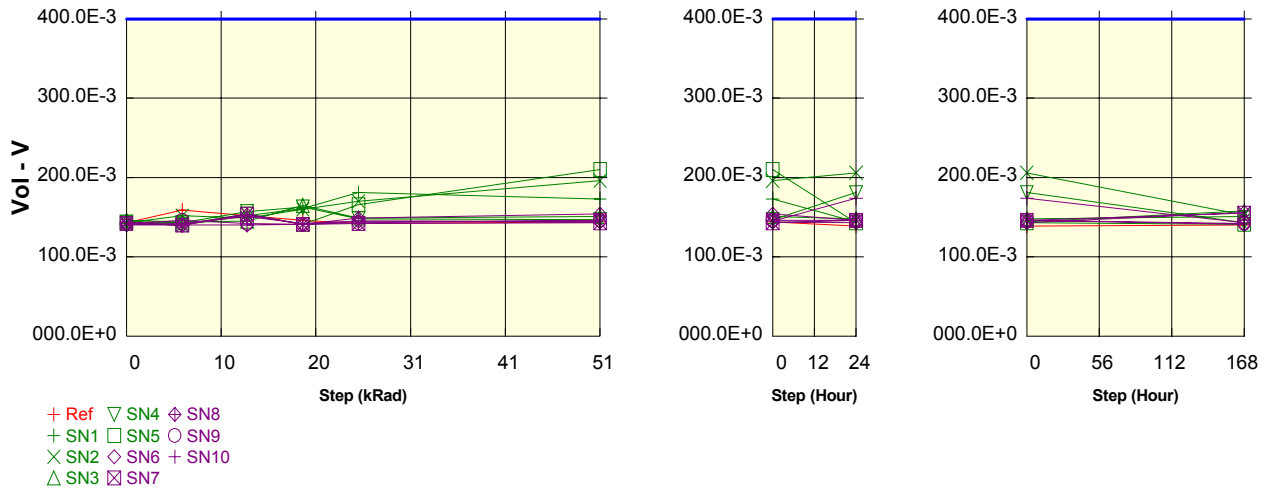
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID14

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	143.0E-3	159.0E-3	152.0E-3	146.0E-3	142.0E-3	144.0E-3
SN1	142.0E-3	140.0E-3	152.0E-3	161.0E-3	181.0E-3	173.0E-3
SN2	143.0E-3	152.0E-3	149.0E-3	160.0E-3	170.0E-3	196.0E-3
SN3	146.0E-3	144.0E-3	145.0E-3	165.0E-3	149.0E-3	151.0E-3
SN4	144.0E-3	143.0E-3	157.0E-3	163.0E-3	148.0E-3	147.0E-3
SN5	143.0E-3	141.0E-3	154.0E-3	141.0E-3	166.0E-3	210.0E-3
SN6	142.0E-3	140.0E-3	153.0E-3	141.0E-3	145.0E-3	144.0E-3
SN7	142.0E-3	140.0E-3	154.0E-3	141.0E-3	142.0E-3	143.0E-3
SN8	140.0E-3	140.0E-3	140.0E-3	141.0E-3	149.0E-3	154.0E-3
SN9	142.0E-3	146.0E-3	142.0E-3	141.0E-3	143.0E-3	146.0E-3
SN10	143.0E-3	142.0E-3	151.0E-3	142.0E-3	145.0E-3	145.0E-3
Statistics						
Min	140.0E-3	140.0E-3	140.0E-3	141.0E-3	142.0E-3	143.0E-3
Max	146.0E-3	152.0E-3	157.0E-3	165.0E-3	181.0E-3	210.0E-3
Mean	142.7E-3	142.8E-3	149.7E-3	149.6E-3	153.8E-3	160.9E-3
Sigma	156.7E-5	382.4E-5	561.8E-5	109.7E-4	135.1E-4	240.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	144.0E-3	139.0E-3
SN1	173.0E-3	144.0E-3
SN2	196.0E-3	206.0E-3
SN3	151.0E-3	148.0E-3
SN4	147.0E-3	181.0E-3
SN5	210.0E-3	143.0E-3
SN6	144.0E-3	143.0E-3
SN7	143.0E-3	146.0E-3
SN8	154.0E-3	146.0E-3
SN9	146.0E-3	146.0E-3
SN10	145.0E-3	174.0E-3
Statistics		
Min	143.0E-3	143.0E-3
Max	210.0E-3	206.0E-3
Mean	160.9E-3	157.7E-3
Sigma	240.6E-4	217.7E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	140.0E-3
SN1	144.0E-3	158.0E-3
SN2	206.0E-3	153.0E-3
SN3	148.0E-3	151.0E-3
SN4	181.0E-3	143.0E-3
SN5	143.0E-3	141.0E-3
SN6	143.0E-3	156.0E-3
SN7	146.0E-3	155.0E-3
SN8	146.0E-3	141.0E-3
SN9	146.0E-3	142.0E-3
SN10	174.0E-3	143.0E-3
Statistics		
Min	143.0E-3	141.0E-3
Max	206.0E-3	158.0E-3
Mean	157.7E-3	148.3E-3
Sigma	217.7E-4	691.3E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

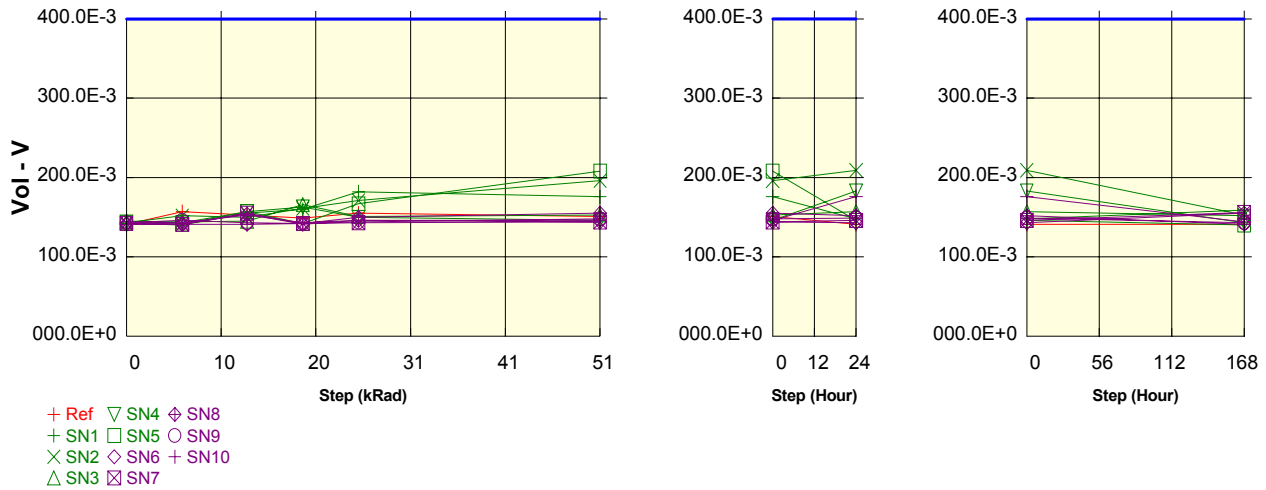
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID13

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	141.0E-3	157.0E-3	153.0E-3	149.0E-3	155.0E-3	151.0E-3
SN1	142.0E-3	140.0E-3	155.0E-3	160.0E-3	182.0E-3	176.0E-3
SN2	143.0E-3	152.0E-3	150.0E-3	161.0E-3	171.0E-3	196.0E-3
SN3	145.0E-3	144.0E-3	145.0E-3	166.0E-3	151.0E-3	153.0E-3
SN4	144.0E-3	143.0E-3	157.0E-3	163.0E-3	150.0E-3	146.0E-3
SN5	143.0E-3	141.0E-3	157.0E-3	142.0E-3	167.0E-3	208.0E-3
SN6	142.0E-3	141.0E-3	154.0E-3	141.0E-3	146.0E-3	144.0E-3
SN7	142.0E-3	141.0E-3	155.0E-3	142.0E-3	143.0E-3	144.0E-3
SN8	141.0E-3	141.0E-3	141.0E-3	142.0E-3	150.0E-3	155.0E-3
SN9	143.0E-3	146.0E-3	143.0E-3	142.0E-3	144.0E-3	148.0E-3
SN10	144.0E-3	143.0E-3	153.0E-3	143.0E-3	146.0E-3	146.0E-3
Statistics						
Min	141.0E-3	140.0E-3	141.0E-3	141.0E-3	143.0E-3	144.0E-3
Max	145.0E-3	152.0E-3	157.0E-3	166.0E-3	182.0E-3	208.0E-3
Mean	142.9E-3	143.2E-3	151.0E-3	150.2E-3	155.0E-3	161.6E-3
Sigma	119.7E-5	358.4E-5	594.4E-5	107.1E-4	134.2E-4	234.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	151.0E-3	141.0E-3
SN1	176.0E-3	148.0E-3
SN2	196.0E-3	209.0E-3
SN3	153.0E-3	157.0E-3
SN4	146.0E-3	183.0E-3
SN5	208.0E-3	146.0E-3
SN6	144.0E-3	143.0E-3
SN7	144.0E-3	146.0E-3
SN8	155.0E-3	152.0E-3
SN9	148.0E-3	149.0E-3
SN10	146.0E-3	176.0E-3
Statistics		
Min	144.0E-3	143.0E-3
Max	208.0E-3	209.0E-3
Mean	161.6E-3	160.9E-3
Sigma	234.6E-4	215.9E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	141.0E-3	141.0E-3
SN1	148.0E-3	159.0E-3
SN2	209.0E-3	153.0E-3
SN3	157.0E-3	152.0E-3
SN4	183.0E-3	143.0E-3
SN5	146.0E-3	140.0E-3
SN6	143.0E-3	155.0E-3
SN7	146.0E-3	156.0E-3
SN8	152.0E-3	141.0E-3
SN9	149.0E-3	143.0E-3
SN10	176.0E-3	144.0E-3
Statistics		
Min	143.0E-3	140.0E-3
Max	209.0E-3	159.0E-3
Mean	160.9E-3	148.6E-3
Sigma	215.9E-4	707.4E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

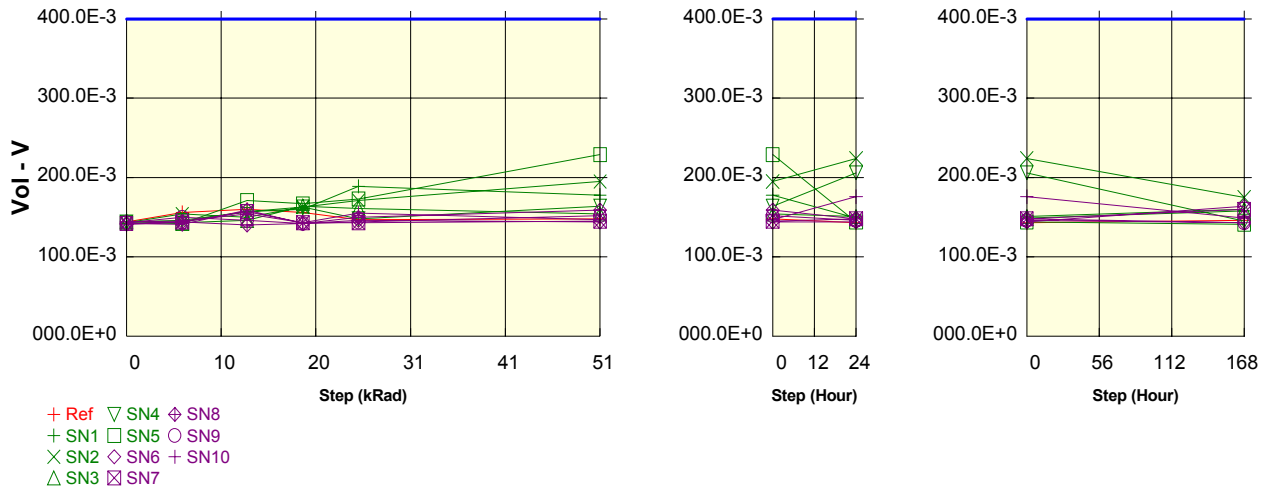
Test conditions : TID

Parameter : Low-Level Output Voltage : Void12

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	144.0E-3	156.0E-3	160.0E-3	156.0E-3	147.0E-3	148.0E-3
SN1	142.0E-3	144.0E-3	157.0E-3	160.0E-3	189.0E-3	178.0E-3
SN2	143.0E-3	154.0E-3	150.0E-3	163.0E-3	171.0E-3	195.0E-3
SN3	145.0E-3	143.0E-3	146.0E-3	164.0E-3	161.0E-3	154.0E-3
SN4	144.0E-3	146.0E-3	157.0E-3	163.0E-3	148.0E-3	164.0E-3
SN5	143.0E-3	142.0E-3	171.0E-3	167.0E-3	173.0E-3	229.0E-3
SN6	142.0E-3	141.0E-3	159.0E-3	142.0E-3	146.0E-3	144.0E-3
SN7	142.0E-3	144.0E-3	157.0E-3	143.0E-3	143.0E-3	145.0E-3
SN8	141.0E-3	144.0E-3	140.0E-3	142.0E-3	150.0E-3	159.0E-3
SN9	143.0E-3	150.0E-3	146.0E-3	142.0E-3	144.0E-3	152.0E-3
SN10	144.0E-3	145.0E-3	154.0E-3	143.0E-3	155.0E-3	147.0E-3
Statistics						
Min	141.0E-3	141.0E-3	140.0E-3	142.0E-3	143.0E-3	144.0E-3
Max	145.0E-3	154.0E-3	171.0E-3	167.0E-3	189.0E-3	229.0E-3
Mean	142.9E-3	145.3E-3	153.7E-3	152.9E-3	158.0E-3	166.7E-3
Sigma	119.7E-5	391.7E-5	869.3E-5	112.0E-4	152.8E-4	271.4E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	148.0E-3	143.0E-3
SN1	178.0E-3	149.0E-3
SN2	195.0E-3	224.0E-3
SN3	154.0E-3	151.0E-3
SN4	164.0E-3	206.0E-3
SN5	229.0E-3	144.0E-3
SN6	144.0E-3	144.0E-3
SN7	145.0E-3	148.0E-3
SN8	159.0E-3	148.0E-3
SN9	152.0E-3	146.0E-3
SN10	147.0E-3	176.0E-3
Statistics		
Min	144.0E-3	144.0E-3
Max	229.0E-3	224.0E-3
Mean	166.7E-3	163.6E-3
Sigma	271.4E-4	289.4E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	143.0E-3	146.0E-3
SN1	149.0E-3	158.0E-3
SN2	224.0E-3	175.0E-3
SN3	151.0E-3	160.0E-3
SN4	206.0E-3	145.0E-3
SN5	144.0E-3	141.0E-3
SN6	144.0E-3	164.0E-3
SN7	148.0E-3	160.0E-3
SN8	148.0E-3	143.0E-3
SN9	146.0E-3	143.0E-3
SN10	176.0E-3	149.0E-3
Statistics		
Min	144.0E-3	141.0E-3
Max	224.0E-3	175.0E-3
Mean	163.6E-3	153.8E-3
Sigma	289.4E-4	112.8E-4

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

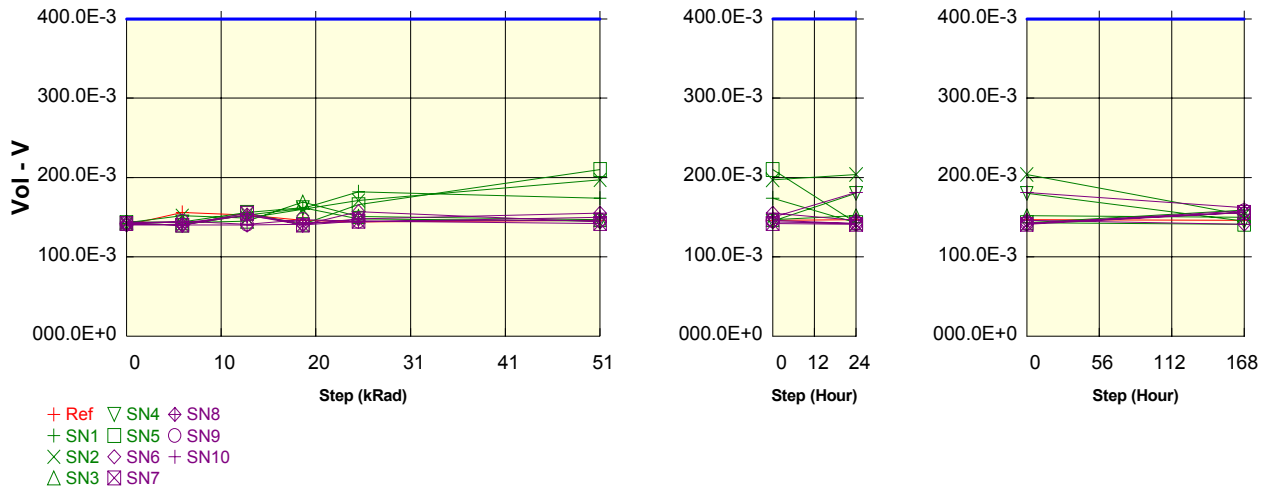
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID11

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	140.0E-3	156.0E-3	153.0E-3	146.0E-3	144.0E-3	146.0E-3
SN1	142.0E-3	140.0E-3	153.0E-3	161.0E-3	182.0E-3	174.0E-3
SN2	143.0E-3	152.0E-3	149.0E-3	160.0E-3	171.0E-3	197.0E-3
SN3	144.0E-3	143.0E-3	145.0E-3	169.0E-3	151.0E-3	147.0E-3
SN4	143.0E-3	144.0E-3	156.0E-3	162.0E-3	148.0E-3	145.0E-3
SN5	142.0E-3	140.0E-3	155.0E-3	141.0E-3	166.0E-3	210.0E-3
SN6	142.0E-3	140.0E-3	153.0E-3	140.0E-3	157.0E-3	144.0E-3
SN7	142.0E-3	140.0E-3	155.0E-3	140.0E-3	145.0E-3	142.0E-3
SN8	140.0E-3	140.0E-3	140.0E-3	141.0E-3	148.0E-3	155.0E-3
SN9	142.0E-3	145.0E-3	141.0E-3	147.0E-3	145.0E-3	146.0E-3
SN10	144.0E-3	143.0E-3	152.0E-3	143.0E-3	144.0E-3	150.0E-3
Statistics						
Min	140.0E-3	140.0E-3	140.0E-3	140.0E-3	144.0E-3	142.0E-3
Max	144.0E-3	152.0E-3	156.0E-3	169.0E-3	182.0E-3	210.0E-3
Mean	142.4E-3	142.7E-3	149.9E-3	150.4E-3	155.7E-3	161.0E-3
Sigma	117.4E-5	380.2E-5	591.5E-5	112.8E-4	130.8E-4	243.8E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	146.0E-3	147.0E-3
SN1	174.0E-3	143.0E-3
SN2	197.0E-3	204.0E-3
SN3	147.0E-3	152.0E-3
SN4	145.0E-3	180.0E-3
SN5	210.0E-3	143.0E-3
SN6	144.0E-3	142.0E-3
SN7	142.0E-3	141.0E-3
SN8	155.0E-3	146.0E-3
SN9	146.0E-3	142.0E-3
SN10	150.0E-3	181.0E-3
Statistics		
Min	142.0E-3	141.0E-3
Max	210.0E-3	204.0E-3
Mean	161.0E-3	157.4E-3
Sigma	243.8E-4	225.0E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	147.0E-3	146.0E-3
SN1	143.0E-3	159.0E-3
SN2	204.0E-3	153.0E-3
SN3	152.0E-3	150.0E-3
SN4	180.0E-3	145.0E-3
SN5	143.0E-3	141.0E-3
SN6	142.0E-3	156.0E-3
SN7	141.0E-3	156.0E-3
SN8	146.0E-3	141.0E-3
SN9	142.0E-3	158.0E-3
SN10	181.0E-3	162.0E-3
Statistics		
Min	141.0E-3	141.0E-3
Max	204.0E-3	162.0E-3
Mean	157.4E-3	152.1E-3
Sigma	225.0E-4	754.9E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

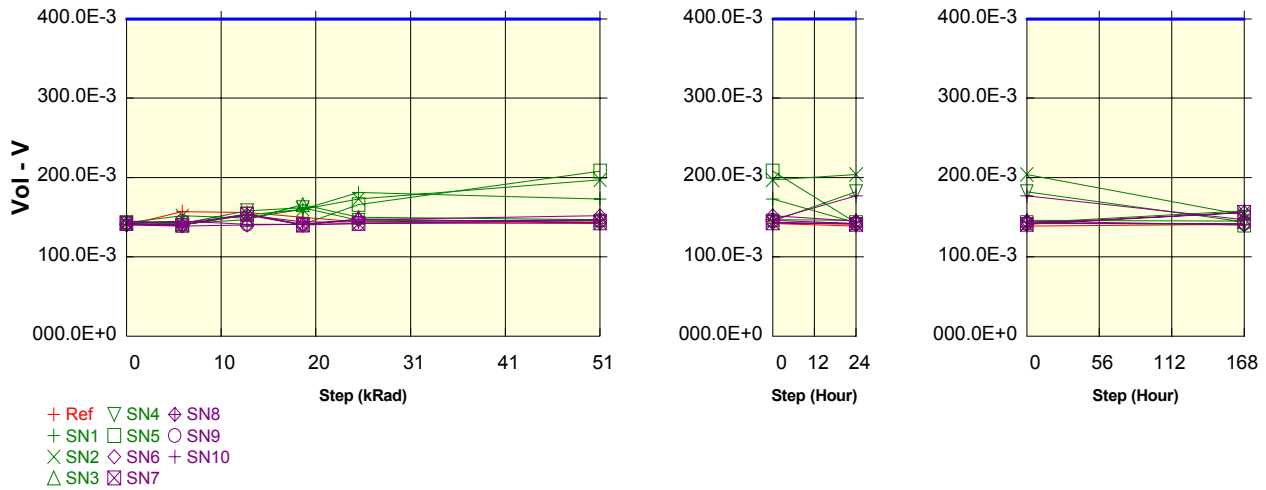
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID10

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	140.0E-3	157.0E-3	156.0E-3	150.0E-3	144.0E-3	142.0E-3
SN1	141.0E-3	140.0E-3	153.0E-3	160.0E-3	181.0E-3	173.0E-3
SN2	143.0E-3	152.0E-3	149.0E-3	160.0E-3	173.0E-3	197.0E-3
SN3	144.0E-3	142.0E-3	147.0E-3	166.0E-3	150.0E-3	147.0E-3
SN4	143.0E-3	142.0E-3	158.0E-3	162.0E-3	146.0E-3	145.0E-3
SN5	142.0E-3	140.0E-3	154.0E-3	141.0E-3	166.0E-3	208.0E-3
SN6	141.0E-3	140.0E-3	153.0E-3	140.0E-3	148.0E-3	143.0E-3
SN7	142.0E-3	140.0E-3	154.0E-3	140.0E-3	142.0E-3	143.0E-3
SN8	140.0E-3	139.0E-3	140.0E-3	141.0E-3	147.0E-3	152.0E-3
SN9	142.0E-3	145.0E-3	141.0E-3	141.0E-3	142.0E-3	146.0E-3
SN10	145.0E-3	143.0E-3	153.0E-3	144.0E-3	144.0E-3	147.0E-3
Statistics						
Min	140.0E-3	139.0E-3	140.0E-3	140.0E-3	142.0E-3	143.0E-3
Max	145.0E-3	152.0E-3	158.0E-3	166.0E-3	181.0E-3	208.0E-3
Mean	142.3E-3	142.3E-3	150.2E-3	149.5E-3	153.9E-3	160.1E-3
Sigma	149.4E-5	386.0E-5	590.3E-5	109.4E-4	140.9E-4	241.4E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	142.0E-3	139.0E-3
SN1	173.0E-3	143.0E-3
SN2	197.0E-3	204.0E-3
SN3	147.0E-3	146.0E-3
SN4	145.0E-3	182.0E-3
SN5	208.0E-3	143.0E-3
SN6	143.0E-3	142.0E-3
SN7	143.0E-3	141.0E-3
SN8	152.0E-3	145.0E-3
SN9	146.0E-3	142.0E-3
SN10	147.0E-3	177.0E-3
Statistics		
Min	143.0E-3	141.0E-3
Max	208.0E-3	204.0E-3
Mean	160.1E-3	156.5E-3
Sigma	241.4E-4	225.9E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	141.0E-3
SN1	143.0E-3	158.0E-3
SN2	204.0E-3	153.0E-3
SN3	146.0E-3	145.0E-3
SN4	182.0E-3	144.0E-3
SN5	143.0E-3	140.0E-3
SN6	142.0E-3	156.0E-3
SN7	141.0E-3	156.0E-3
SN8	145.0E-3	140.0E-3
SN9	142.0E-3	142.0E-3
SN10	177.0E-3	147.0E-3
Statistics		
Min	141.0E-3	140.0E-3
Max	204.0E-3	158.0E-3
Mean	156.5E-3	148.1E-3
Sigma	225.9E-4	701.5E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

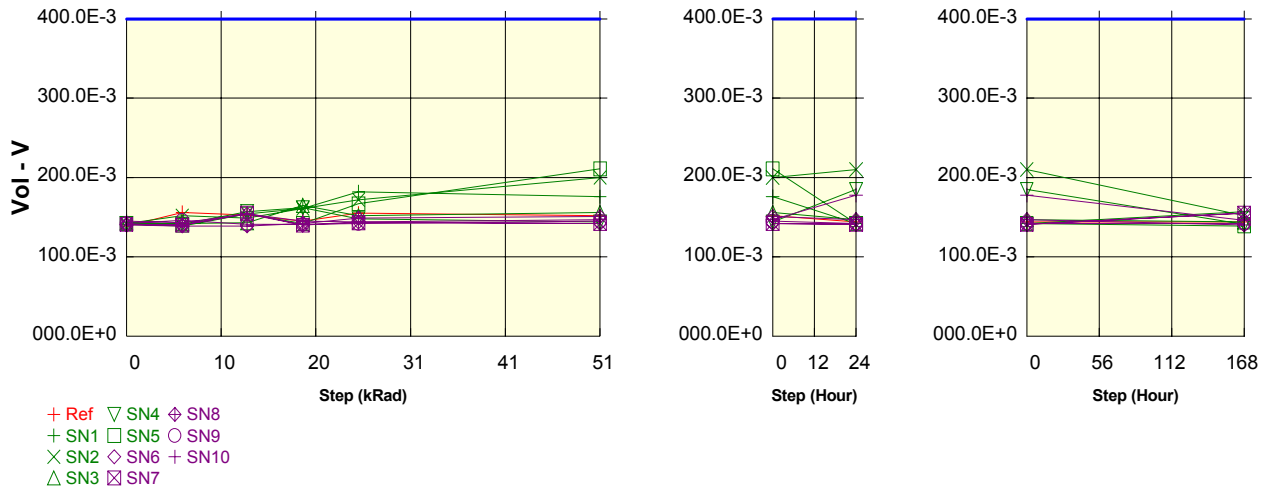
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID9

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	139.0E-3	156.0E-3	153.0E-3	145.0E-3	155.0E-3	152.0E-3
SN1	141.0E-3	139.0E-3	154.0E-3	161.0E-3	182.0E-3	176.0E-3
SN2	142.0E-3	152.0E-3	149.0E-3	161.0E-3	172.0E-3	200.0E-3
SN3	143.0E-3	142.0E-3	143.0E-3	165.0E-3	152.0E-3	156.0E-3
SN4	142.0E-3	141.0E-3	157.0E-3	162.0E-3	148.0E-3	144.0E-3
SN5	142.0E-3	140.0E-3	154.0E-3	142.0E-3	167.0E-3	211.0E-3
SN6	141.0E-3	140.0E-3	154.0E-3	140.0E-3	144.0E-3	142.0E-3
SN7	141.0E-3	140.0E-3	155.0E-3	140.0E-3	143.0E-3	142.0E-3
SN8	140.0E-3	139.0E-3	139.0E-3	142.0E-3	149.0E-3	151.0E-3
SN9	142.0E-3	146.0E-3	141.0E-3	141.0E-3	142.0E-3	145.0E-3
SN10	145.0E-3	143.0E-3	154.0E-3	145.0E-3	144.0E-3	147.0E-3
Statistics						
Min	140.0E-3	139.0E-3	139.0E-3	140.0E-3	142.0E-3	142.0E-3
Max	145.0E-3	152.0E-3	157.0E-3	165.0E-3	182.0E-3	211.0E-3
Mean	141.9E-3	142.2E-3	150.0E-3	149.9E-3	154.3E-3	161.4E-3
Sigma	137.0E-5	405.0E-5	658.3E-5	107.7E-4	141.7E-4	254.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	152.0E-3	144.0E-3
SN1	176.0E-3	142.0E-3
SN2	200.0E-3	210.0E-3
SN3	156.0E-3	147.0E-3
SN4	144.0E-3	185.0E-3
SN5	211.0E-3	142.0E-3
SN6	142.0E-3	141.0E-3
SN7	142.0E-3	141.0E-3
SN8	151.0E-3	147.0E-3
SN9	145.0E-3	142.0E-3
SN10	147.0E-3	178.0E-3
Statistics		
Min	142.0E-3	141.0E-3
Max	211.0E-3	210.0E-3
Mean	161.4E-3	157.5E-3
Sigma	254.6E-4	245.4E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	144.0E-3	144.0E-3
SN1	142.0E-3	157.0E-3
SN2	210.0E-3	152.0E-3
SN3	147.0E-3	144.0E-3
SN4	185.0E-3	141.0E-3
SN5	142.0E-3	139.0E-3
SN6	141.0E-3	155.0E-3
SN7	141.0E-3	155.0E-3
SN8	147.0E-3	140.0E-3
SN9	142.0E-3	142.0E-3
SN10	178.0E-3	146.0E-3
Statistics		
Min	141.0E-3	139.0E-3
Max	210.0E-3	157.0E-3
Mean	157.5E-3	147.1E-3
Sigma	245.4E-4	696.7E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

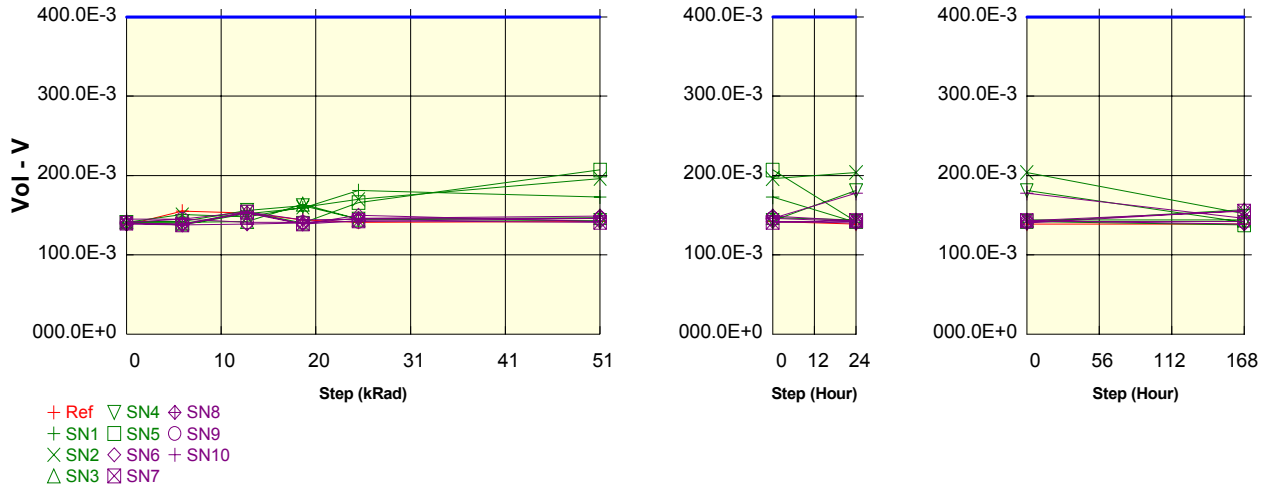
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID8

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	138.0E-3	155.0E-3	153.0E-3	144.0E-3	141.0E-3	142.0E-3
SN1	140.0E-3	138.0E-3	152.0E-3	159.0E-3	181.0E-3	173.0E-3
SN2	141.0E-3	151.0E-3	148.0E-3	160.0E-3	170.0E-3	196.0E-3
SN3	142.0E-3	141.0E-3	142.0E-3	164.0E-3	145.0E-3	147.0E-3
SN4	141.0E-3	142.0E-3	156.0E-3	162.0E-3	145.0E-3	143.0E-3
SN5	141.0E-3	139.0E-3	154.0E-3	140.0E-3	166.0E-3	207.0E-3
SN6	140.0E-3	139.0E-3	153.0E-3	139.0E-3	150.0E-3	142.0E-3
SN7	140.0E-3	138.0E-3	154.0E-3	139.0E-3	143.0E-3	141.0E-3
SN8	139.0E-3	138.0E-3	139.0E-3	140.0E-3	146.0E-3	149.0E-3
SN9	141.0E-3	145.0E-3	141.0E-3	141.0E-3	142.0E-3	146.0E-3
SN10	145.0E-3	145.0E-3	154.0E-3	144.0E-3	145.0E-3	146.0E-3
Statistics						
Min	139.0E-3	138.0E-3	139.0E-3	139.0E-3	142.0E-3	141.0E-3
Max	145.0E-3	151.0E-3	156.0E-3	164.0E-3	181.0E-3	207.0E-3
Mean	141.0E-3	141.6E-3	149.3E-3	148.8E-3	153.3E-3	159.0E-3
Sigma	163.3E-5	427.4E-5	634.3E-5	108.8E-4	137.9E-4	243.1E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	142.0E-3	139.0E-3
SN1	173.0E-3	141.0E-3
SN2	196.0E-3	204.0E-3
SN3	147.0E-3	144.0E-3
SN4	143.0E-3	181.0E-3
SN5	207.0E-3	142.0E-3
SN6	142.0E-3	140.0E-3
SN7	141.0E-3	143.0E-3
SN8	149.0E-3	143.0E-3
SN9	146.0E-3	142.0E-3
SN10	146.0E-3	178.0E-3
Statistics		
Min	141.0E-3	140.0E-3
Max	207.0E-3	204.0E-3
Mean	159.0E-3	155.8E-3
Sigma	243.1E-4	230.2E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	139.0E-3
SN1	141.0E-3	157.0E-3
SN2	204.0E-3	152.0E-3
SN3	144.0E-3	144.0E-3
SN4	181.0E-3	141.0E-3
SN5	142.0E-3	138.0E-3
SN6	140.0E-3	156.0E-3
SN7	143.0E-3	155.0E-3
SN8	143.0E-3	139.0E-3
SN9	142.0E-3	142.0E-3
SN10	178.0E-3	146.0E-3
Statistics		
Min	140.0E-3	138.0E-3
Max	204.0E-3	157.0E-3
Mean	155.8E-3	147.0E-3
Sigma	230.2E-4	734.8E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

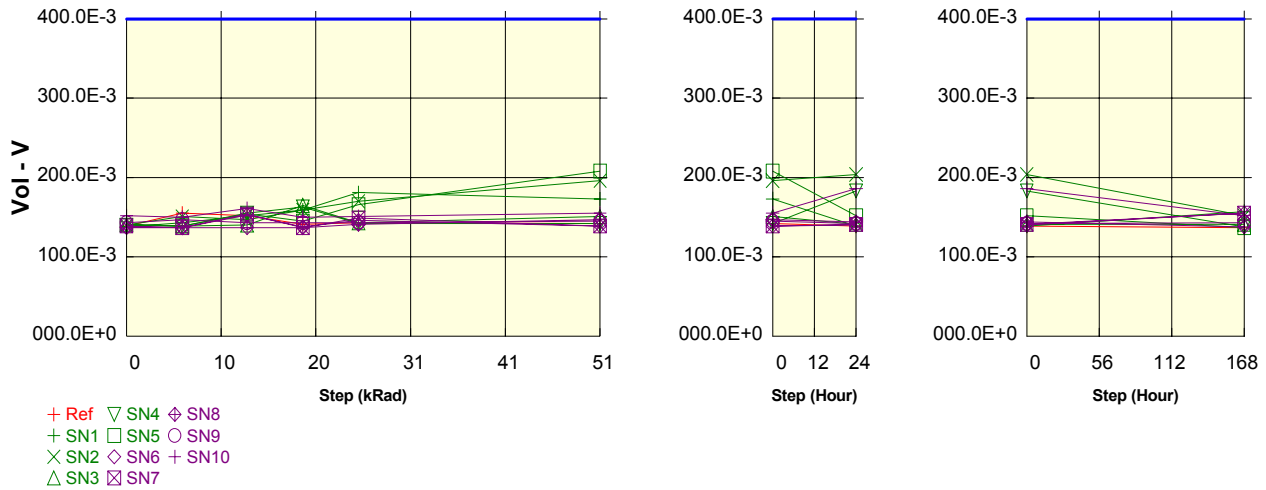
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID7

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	139.0E-3	155.0E-3	152.0E-3	141.0E-3	143.0E-3	142.0E-3
SN1	138.0E-3	143.0E-3	152.0E-3	159.0E-3	181.0E-3	173.0E-3
SN2	140.0E-3	151.0E-3	147.0E-3	159.0E-3	170.0E-3	196.0E-3
SN3	141.0E-3	139.0E-3	140.0E-3	165.0E-3	143.0E-3	151.0E-3
SN4	140.0E-3	139.0E-3	155.0E-3	163.0E-3	142.0E-3	142.0E-3
SN5	140.0E-3	139.0E-3	154.0E-3	145.0E-3	166.0E-3	208.0E-3
SN6	138.0E-3	137.0E-3	153.0E-3	138.0E-3	146.0E-3	139.0E-3
SN7	139.0E-3	137.0E-3	154.0E-3	137.0E-3	149.0E-3	139.0E-3
SN8	137.0E-3	137.0E-3	137.0E-3	137.0E-3	141.0E-3	147.0E-3
SN9	143.0E-3	147.0E-3	143.0E-3	143.0E-3	143.0E-3	145.0E-3
SN10	152.0E-3	150.0E-3	161.0E-3	150.0E-3	151.0E-3	155.0E-3
Statistics						
Min	137.0E-3	137.0E-3	137.0E-3	137.0E-3	141.0E-3	139.0E-3
Max	152.0E-3	151.0E-3	161.0E-3	165.0E-3	181.0E-3	208.0E-3
Mean	140.8E-3	141.9E-3	149.6E-3	149.6E-3	153.2E-3	159.5E-3
Sigma	429.0E-5	550.7E-5	757.5E-5	111.1E-4	140.5E-4	246.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	142.0E-3	139.0E-3
SN1	173.0E-3	139.0E-3
SN2	196.0E-3	204.0E-3
SN3	151.0E-3	141.0E-3
SN4	142.0E-3	183.0E-3
SN5	208.0E-3	152.0E-3
SN6	139.0E-3	140.0E-3
SN7	139.0E-3	141.0E-3
SN8	147.0E-3	144.0E-3
SN9	145.0E-3	142.0E-3
SN10	155.0E-3	186.0E-3
Statistics		
Min	139.0E-3	139.0E-3
Max	208.0E-3	204.0E-3
Mean	159.5E-3	157.2E-3
Sigma	246.6E-4	242.0E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	137.0E-3
SN1	139.0E-3	157.0E-3
SN2	204.0E-3	152.0E-3
SN3	141.0E-3	141.0E-3
SN4	183.0E-3	138.0E-3
SN5	152.0E-3	137.0E-3
SN6	140.0E-3	155.0E-3
SN7	141.0E-3	155.0E-3
SN8	144.0E-3	138.0E-3
SN9	142.0E-3	143.0E-3
SN10	186.0E-3	152.0E-3
Statistics		
Min	139.0E-3	137.0E-3
Max	204.0E-3	157.0E-3
Mean	157.2E-3	146.8E-3
Sigma	242.0E-4	810.8E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

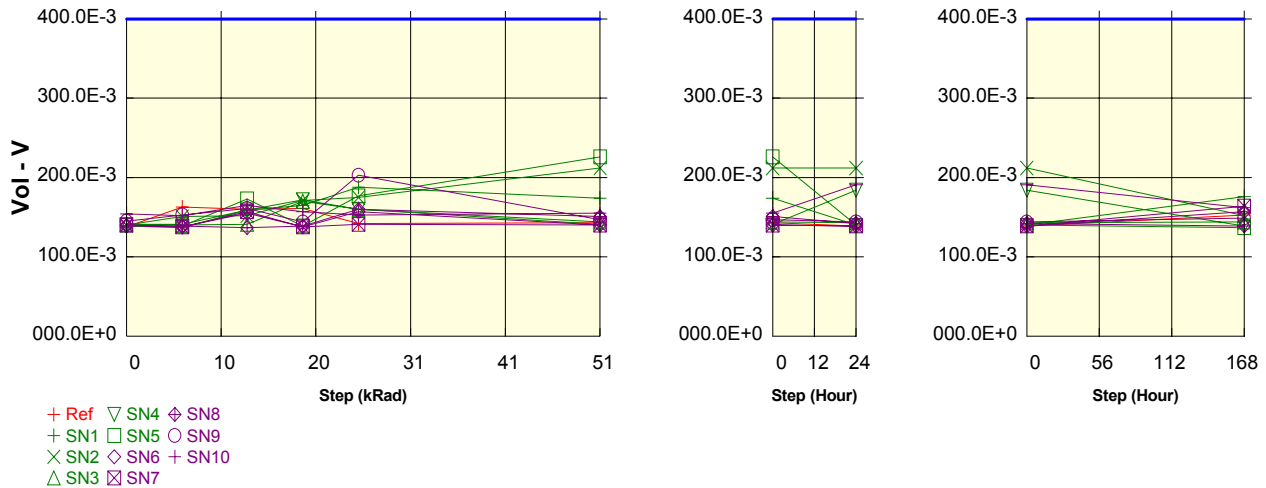
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID6

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	138.0E-3	163.0E-3	160.0E-3	161.0E-3	142.0E-3	143.0E-3
SN1	139.0E-3	137.0E-3	159.0E-3	165.0E-3	188.0E-3	174.0E-3
SN2	140.0E-3	151.0E-3	152.0E-3	171.0E-3	175.0E-3	212.0E-3
SN3	141.0E-3	140.0E-3	141.0E-3	170.0E-3	160.0E-3	144.0E-3
SN4	141.0E-3	141.0E-3	159.0E-3	172.0E-3	160.0E-3	141.0E-3
SN5	140.0E-3	139.0E-3	173.0E-3	139.0E-3	177.0E-3	226.0E-3
SN6	140.0E-3	138.0E-3	155.0E-3	138.0E-3	157.0E-3	140.0E-3
SN7	140.0E-3	138.0E-3	157.0E-3	138.0E-3	141.0E-3	140.0E-3
SN8	139.0E-3	139.0E-3	137.0E-3	139.0E-3	160.0E-3	151.0E-3
SN9	145.0E-3	153.0E-3	161.0E-3	144.0E-3	203.0E-3	147.0E-3
SN10	154.0E-3	152.0E-3	165.0E-3	157.0E-3	153.0E-3	155.0E-3
Statistics						
Min	139.0E-3	137.0E-3	137.0E-3	138.0E-3	141.0E-3	140.0E-3
Max	154.0E-3	153.0E-3	173.0E-3	172.0E-3	203.0E-3	226.0E-3
Mean	141.9E-3	142.8E-3	155.9E-3	153.3E-3	167.4E-3	163.0E-3
Sigma	458.1E-5	646.0E-5	106.3E-4	151.1E-4	183.1E-4	313.7E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	143.0E-3	139.0E-3
SN1	174.0E-3	140.0E-3
SN2	212.0E-3	212.0E-3
SN3	144.0E-3	143.0E-3
SN4	141.0E-3	184.0E-3
SN5	226.0E-3	140.0E-3
SN6	140.0E-3	139.0E-3
SN7	140.0E-3	139.0E-3
SN8	151.0E-3	142.0E-3
SN9	147.0E-3	144.0E-3
SN10	155.0E-3	191.0E-3
Statistics		
Min	140.0E-3	139.0E-3
Max	226.0E-3	212.0E-3
Mean	163.0E-3	157.4E-3
Sigma	313.7E-4	273.3E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	153.0E-3
SN1	140.0E-3	176.0E-3
SN2	212.0E-3	152.0E-3
SN3	143.0E-3	144.0E-3
SN4	184.0E-3	139.0E-3
SN5	140.0E-3	137.0E-3
SN6	139.0E-3	157.0E-3
SN7	139.0E-3	164.0E-3
SN8	142.0E-3	139.0E-3
SN9	144.0E-3	149.0E-3
SN10	191.0E-3	162.0E-3
Statistics		
Min	139.0E-3	137.0E-3
Max	212.0E-3	176.0E-3
Mean	157.4E-3	151.9E-3
Sigma	273.3E-4	128.3E-4

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

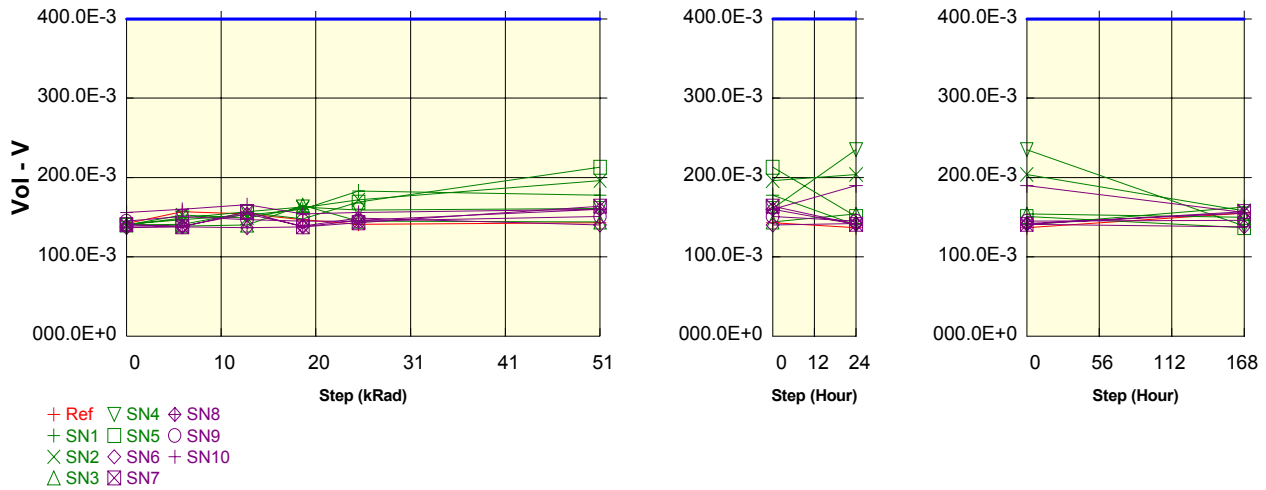
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID5

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	142.0E-3	157.0E-3	154.0E-3	147.0E-3	141.0E-3	143.0E-3
SN1	141.0E-3	147.0E-3	153.0E-3	160.0E-3	183.0E-3	178.0E-3
SN2	140.0E-3	153.0E-3	149.0E-3	162.0E-3	172.0E-3	196.0E-3
SN3	141.0E-3	139.0E-3	140.0E-3	165.0E-3	145.0E-3	144.0E-3
SN4	140.0E-3	149.0E-3	157.0E-3	163.0E-3	159.0E-3	161.0E-3
SN5	140.0E-3	141.0E-3	156.0E-3	148.0E-3	169.0E-3	213.0E-3
SN6	139.0E-3	139.0E-3	154.0E-3	139.0E-3	149.0E-3	140.0E-3
SN7	141.0E-3	138.0E-3	157.0E-3	138.0E-3	143.0E-3	164.0E-3
SN8	137.0E-3	138.0E-3	137.0E-3	138.0E-3	146.0E-3	160.0E-3
SN9	145.0E-3	151.0E-3	147.0E-3	145.0E-3	145.0E-3	151.0E-3
SN10	156.0E-3	160.0E-3	166.0E-3	154.0E-3	156.0E-3	160.0E-3
Statistics						
Min	137.0E-3	138.0E-3	137.0E-3	138.0E-3	143.0E-3	140.0E-3
Max	156.0E-3	160.0E-3	166.0E-3	165.0E-3	183.0E-3	213.0E-3
Mean	142.0E-3	145.5E-3	151.6E-3	151.2E-3	156.7E-3	166.7E-3
Sigma	531.2E-5	766.3E-5	861.8E-5	109.4E-4	138.2E-4	229.3E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	143.0E-3	137.0E-3
SN1	178.0E-3	140.0E-3
SN2	196.0E-3	204.0E-3
SN3	144.0E-3	154.0E-3
SN4	161.0E-3	235.0E-3
SN5	213.0E-3	151.0E-3
SN6	140.0E-3	142.0E-3
SN7	164.0E-3	141.0E-3
SN8	160.0E-3	141.0E-3
SN9	151.0E-3	145.0E-3
SN10	160.0E-3	190.0E-3
Statistics		
Min	140.0E-3	140.0E-3
Max	213.0E-3	235.0E-3
Mean	166.7E-3	164.3E-3
Sigma	229.3E-4	334.4E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	137.0E-3	155.0E-3
SN1	140.0E-3	163.0E-3
SN2	204.0E-3	158.0E-3
SN3	154.0E-3	150.0E-3
SN4	235.0E-3	139.0E-3
SN5	151.0E-3	137.0E-3
SN6	142.0E-3	155.0E-3
SN7	141.0E-3	157.0E-3
SN8	141.0E-3	138.0E-3
SN9	145.0E-3	146.0E-3
SN10	190.0E-3	156.0E-3
Statistics		
Min	140.0E-3	137.0E-3
Max	235.0E-3	163.0E-3
Mean	164.3E-3	149.9E-3
Sigma	334.4E-4	938.6E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

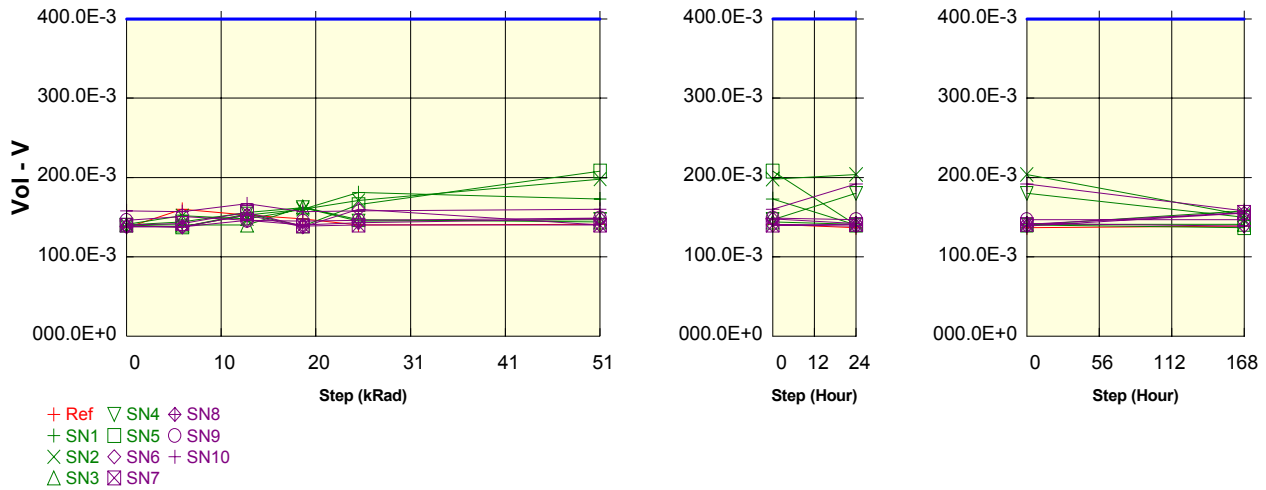
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID4

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	137.0E-3	160.0E-3	153.0E-3	148.0E-3	140.0E-3	141.0E-3
SN1	139.0E-3	138.0E-3	153.0E-3	160.0E-3	181.0E-3	173.0E-3
SN2	141.0E-3	152.0E-3	148.0E-3	160.0E-3	171.0E-3	198.0E-3
SN3	141.0E-3	140.0E-3	140.0E-3	163.0E-3	147.0E-3	144.0E-3
SN4	140.0E-3	144.0E-3	156.0E-3	162.0E-3	145.0E-3	147.0E-3
SN5	140.0E-3	138.0E-3	154.0E-3	139.0E-3	166.0E-3	208.0E-3
SN6	139.0E-3	138.0E-3	153.0E-3	138.0E-3	160.0E-3	140.0E-3
SN7	140.0E-3	142.0E-3	156.0E-3	139.0E-3	140.0E-3	140.0E-3
SN8	138.0E-3	138.0E-3	146.0E-3	140.0E-3	143.0E-3	148.0E-3
SN9	146.0E-3	151.0E-3	146.0E-3	145.0E-3	146.0E-3	149.0E-3
SN10	158.0E-3	157.0E-3	167.0E-3	157.0E-3	158.0E-3	160.0E-3
Statistics						
Min	138.0E-3	138.0E-3	140.0E-3	138.0E-3	140.0E-3	140.0E-3
Max	158.0E-3	157.0E-3	167.0E-3	163.0E-3	181.0E-3	208.0E-3
Mean	142.2E-3	143.8E-3	151.9E-3	150.3E-3	155.7E-3	160.7E-3
Sigma	595.9E-5	703.6E-5	741.5E-5	109.1E-4	137.3E-4	245.0E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	141.0E-3	137.0E-3
SN1	173.0E-3	140.0E-3
SN2	198.0E-3	204.0E-3
SN3	144.0E-3	141.0E-3
SN4	147.0E-3	180.0E-3
SN5	208.0E-3	140.0E-3
SN6	140.0E-3	139.0E-3
SN7	140.0E-3	141.0E-3
SN8	148.0E-3	142.0E-3
SN9	149.0E-3	147.0E-3
SN10	160.0E-3	192.0E-3
Statistics		
Min	140.0E-3	139.0E-3
Max	208.0E-3	204.0E-3
Mean	160.7E-3	156.6E-3
Sigma	245.0E-4	251.7E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	137.0E-3	139.0E-3
SN1	140.0E-3	158.0E-3
SN2	204.0E-3	153.0E-3
SN3	141.0E-3	141.0E-3
SN4	180.0E-3	150.0E-3
SN5	140.0E-3	137.0E-3
SN6	139.0E-3	155.0E-3
SN7	141.0E-3	156.0E-3
SN8	142.0E-3	139.0E-3
SN9	147.0E-3	147.0E-3
SN10	192.0E-3	158.0E-3
Statistics		
Min	139.0E-3	137.0E-3
Max	204.0E-3	158.0E-3
Mean	156.6E-3	149.4E-3
Sigma	251.7E-4	798.9E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

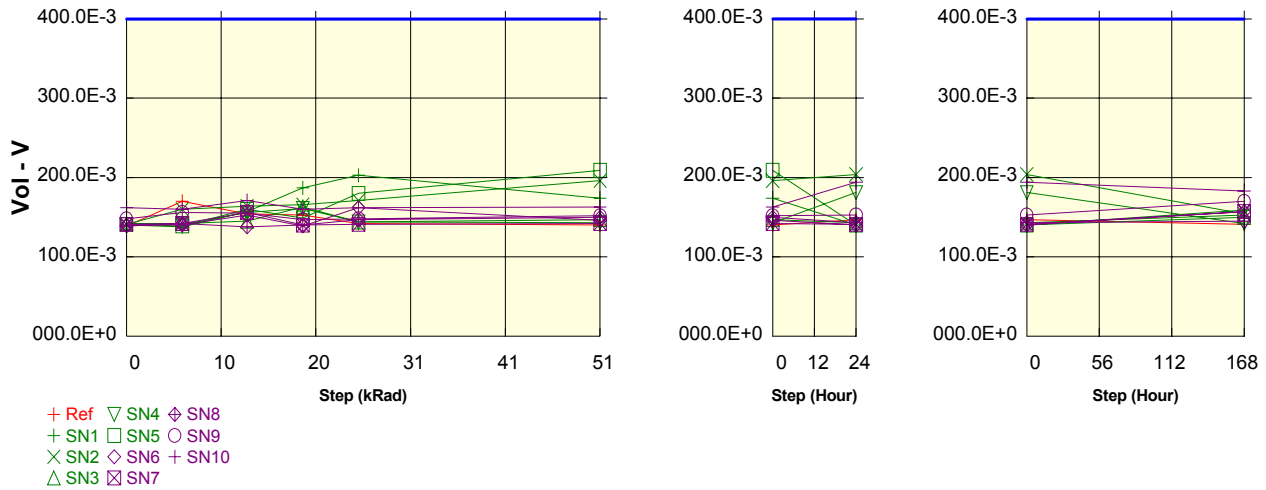
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID3

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	139.0E-3	170.0E-3	154.0E-3	153.0E-3	142.0E-3	140.0E-3
SN1	140.0E-3	138.0E-3	157.0E-3	187.0E-3	203.0E-3	174.0E-3
SN2	141.0E-3	160.0E-3	164.0E-3	166.0E-3	171.0E-3	196.0E-3
SN3	142.0E-3	142.0E-3	145.0E-3	163.0E-3	144.0E-3	147.0E-3
SN4	141.0E-3	141.0E-3	156.0E-3	161.0E-3	144.0E-3	143.0E-3
SN5	141.0E-3	139.0E-3	160.0E-3	149.0E-3	180.0E-3	209.0E-3
SN6	140.0E-3	140.0E-3	153.0E-3	139.0E-3	162.0E-3	146.0E-3
SN7	141.0E-3	142.0E-3	156.0E-3	140.0E-3	141.0E-3	142.0E-3
SN8	139.0E-3	142.0E-3	138.0E-3	140.0E-3	147.0E-3	150.0E-3
SN9	148.0E-3	156.0E-3	155.0E-3	147.0E-3	148.0E-3	152.0E-3
SN10	162.0E-3	160.0E-3	171.0E-3	160.0E-3	162.0E-3	163.0E-3
Statistics						
Min	139.0E-3	138.0E-3	138.0E-3	139.0E-3	141.0E-3	142.0E-3
Max	162.0E-3	160.0E-3	171.0E-3	187.0E-3	203.0E-3	209.0E-3
Mean	143.5E-3	146.0E-3	155.5E-3	155.2E-3	160.2E-3	162.2E-3
Sigma	694.8E-5	890.7E-5	918.0E-5	151.9E-4	199.0E-4	235.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	140.0E-3	147.0E-3
SN1	174.0E-3	140.0E-3
SN2	196.0E-3	204.0E-3
SN3	147.0E-3	143.0E-3
SN4	143.0E-3	181.0E-3
SN5	209.0E-3	140.0E-3
SN6	146.0E-3	140.0E-3
SN7	142.0E-3	141.0E-3
SN8	150.0E-3	143.0E-3
SN9	152.0E-3	153.0E-3
SN10	163.0E-3	194.0E-3
Statistics		
Min	142.0E-3	140.0E-3
Max	209.0E-3	204.0E-3
Mean	162.2E-3	157.9E-3
Sigma	235.6E-4	251.2E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	147.0E-3	141.0E-3
SN1	140.0E-3	159.0E-3
SN2	204.0E-3	154.0E-3
SN3	143.0E-3	153.0E-3
SN4	181.0E-3	142.0E-3
SN5	140.0E-3	150.0E-3
SN6	140.0E-3	157.0E-3
SN7	141.0E-3	157.0E-3
SN8	143.0E-3	145.0E-3
SN9	153.0E-3	170.0E-3
SN10	194.0E-3	183.0E-3
Statistics		
Min	140.0E-3	142.0E-3
Max	204.0E-3	183.0E-3
Mean	157.9E-3	157.0E-3
Sigma	251.2E-4	119.8E-4

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

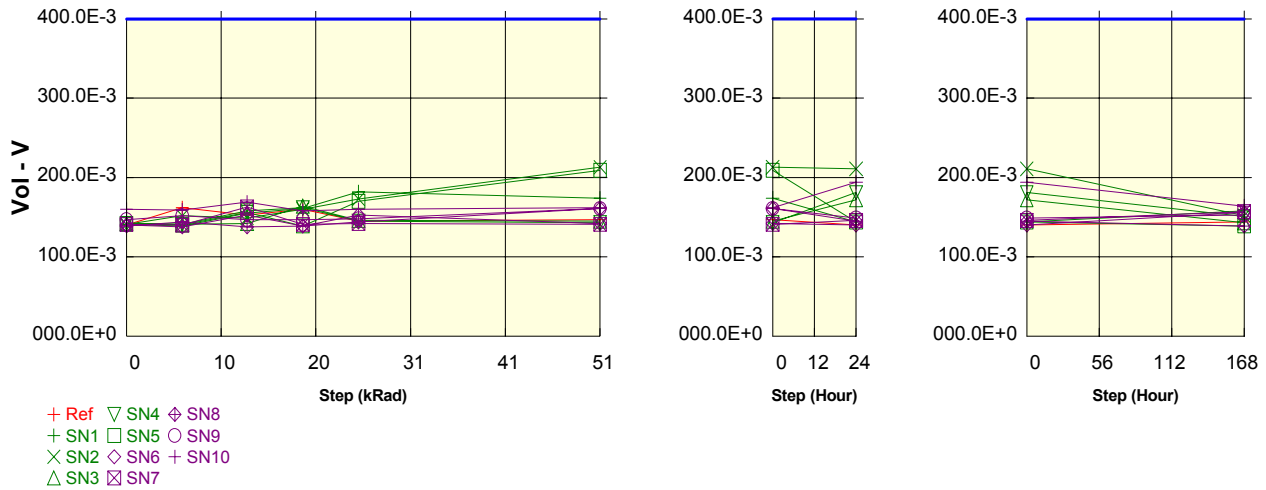
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID2

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	140.0E-3	162.0E-3	153.0E-3	160.0E-3	145.0E-3	147.0E-3
SN1	141.0E-3	139.0E-3	155.0E-3	161.0E-3	182.0E-3	174.0E-3
SN2	141.0E-3	152.0E-3	149.0E-3	160.0E-3	173.0E-3	213.0E-3
SN3	142.0E-3	141.0E-3	142.0E-3	164.0E-3	146.0E-3	145.0E-3
SN4	142.0E-3	141.0E-3	158.0E-3	162.0E-3	145.0E-3	143.0E-3
SN5	141.0E-3	140.0E-3	156.0E-3	139.0E-3	170.0E-3	209.0E-3
SN6	140.0E-3	138.0E-3	153.0E-3	139.0E-3	153.0E-3	142.0E-3
SN7	141.0E-3	140.0E-3	163.0E-3	141.0E-3	142.0E-3	141.0E-3
SN8	139.0E-3	144.0E-3	138.0E-3	139.0E-3	144.0E-3	161.0E-3
SN9	147.0E-3	152.0E-3	147.0E-3	147.0E-3	148.0E-3	161.0E-3
SN10	160.0E-3	159.0E-3	169.0E-3	158.0E-3	160.0E-3	162.0E-3
Statistics						
Min	139.0E-3	138.0E-3	138.0E-3	139.0E-3	142.0E-3	141.0E-3
Max	160.0E-3	159.0E-3	169.0E-3	164.0E-3	182.0E-3	213.0E-3
Mean	143.4E-3	144.6E-3	153.0E-3	151.0E-3	156.3E-3	165.1E-3
Sigma	620.4E-5	715.2E-5	938.1E-5	108.9E-4	141.8E-4	265.6E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	147.0E-3	140.0E-3
SN1	174.0E-3	144.0E-3
SN2	213.0E-3	211.0E-3
SN3	145.0E-3	172.0E-3
SN4	143.0E-3	181.0E-3
SN5	209.0E-3	144.0E-3
SN6	142.0E-3	140.0E-3
SN7	141.0E-3	146.0E-3
SN8	161.0E-3	145.0E-3
SN9	161.0E-3	149.0E-3
SN10	162.0E-3	194.0E-3
Statistics		
Min	141.0E-3	140.0E-3
Max	213.0E-3	211.0E-3
Mean	165.1E-3	162.6E-3
Sigma	265.6E-4	252.3E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	140.0E-3	144.0E-3
SN1	144.0E-3	158.0E-3
SN2	211.0E-3	152.0E-3
SN3	172.0E-3	143.0E-3
SN4	181.0E-3	151.0E-3
SN5	144.0E-3	139.0E-3
SN6	140.0E-3	156.0E-3
SN7	146.0E-3	157.0E-3
SN8	145.0E-3	139.0E-3
SN9	149.0E-3	153.0E-3
SN10	194.0E-3	164.0E-3
Statistics		
Min	140.0E-3	139.0E-3
Max	211.0E-3	164.0E-3
Mean	162.6E-3	151.2E-3
Sigma	252.3E-4	840.4E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

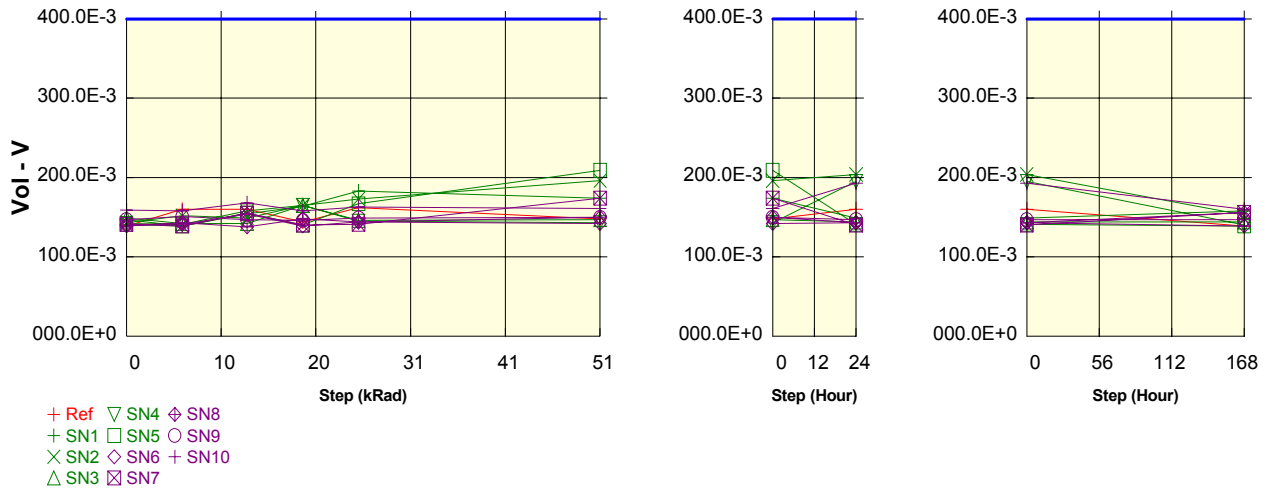
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID1

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	139.0E-3	160.0E-3	160.0E-3	144.0E-3	162.0E-3	148.0E-3
SN1	147.0E-3	139.0E-3	154.0E-3	164.0E-3	183.0E-3	174.0E-3
SN2	143.0E-3	152.0E-3	149.0E-3	165.0E-3	173.0E-3	196.0E-3
SN3	149.0E-3	142.0E-3	142.0E-3	165.0E-3	146.0E-3	147.0E-3
SN4	142.0E-3	141.0E-3	158.0E-3	165.0E-3	145.0E-3	143.0E-3
SN5	141.0E-3	139.0E-3	155.0E-3	140.0E-3	167.0E-3	209.0E-3
SN6	141.0E-3	141.0E-3	154.0E-3	139.0E-3	144.0E-3	142.0E-3
SN7	141.0E-3	139.0E-3	155.0E-3	140.0E-3	141.0E-3	174.0E-3
SN8	139.0E-3	143.0E-3	138.0E-3	148.0E-3	144.0E-3	150.0E-3
SN9	147.0E-3	151.0E-3	147.0E-3	146.0E-3	149.0E-3	150.0E-3
SN10	159.0E-3	158.0E-3	168.0E-3	158.0E-3	163.0E-3	161.0E-3
Statistics						
Min	139.0E-3	139.0E-3	138.0E-3	139.0E-3	141.0E-3	142.0E-3
Max	159.0E-3	158.0E-3	168.0E-3	165.0E-3	183.0E-3	209.0E-3
Mean	144.9E-3	144.5E-3	152.0E-3	153.0E-3	155.5E-3	164.6E-3
Sigma	593.4E-5	670.4E-5	848.5E-5	114.8E-4	147.9E-4	232.4E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	148.0E-3	160.0E-3
SN1	174.0E-3	149.0E-3
SN2	196.0E-3	204.0E-3
SN3	147.0E-3	144.0E-3
SN4	143.0E-3	195.0E-3
SN5	209.0E-3	141.0E-3
SN6	142.0E-3	143.0E-3
SN7	174.0E-3	140.0E-3
SN8	150.0E-3	143.0E-3
SN9	150.0E-3	147.0E-3
SN10	161.0E-3	193.0E-3
Statistics		
Min	142.0E-3	140.0E-3
Max	209.0E-3	204.0E-3
Mean	164.6E-3	159.9E-3
Sigma	232.4E-4	261.1E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	160.0E-3	139.0E-3
SN1	149.0E-3	158.0E-3
SN2	204.0E-3	153.0E-3
SN3	144.0E-3	144.0E-3
SN4	195.0E-3	140.0E-3
SN5	141.0E-3	139.0E-3
SN6	143.0E-3	156.0E-3
SN7	140.0E-3	156.0E-3
SN8	143.0E-3	139.0E-3
SN9	147.0E-3	147.0E-3
SN10	193.0E-3	160.0E-3
Statistics		
Min	140.0E-3	139.0E-3
Max	204.0E-3	160.0E-3
Mean	159.9E-3	149.2E-3
Sigma	261.1E-4	833.7E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

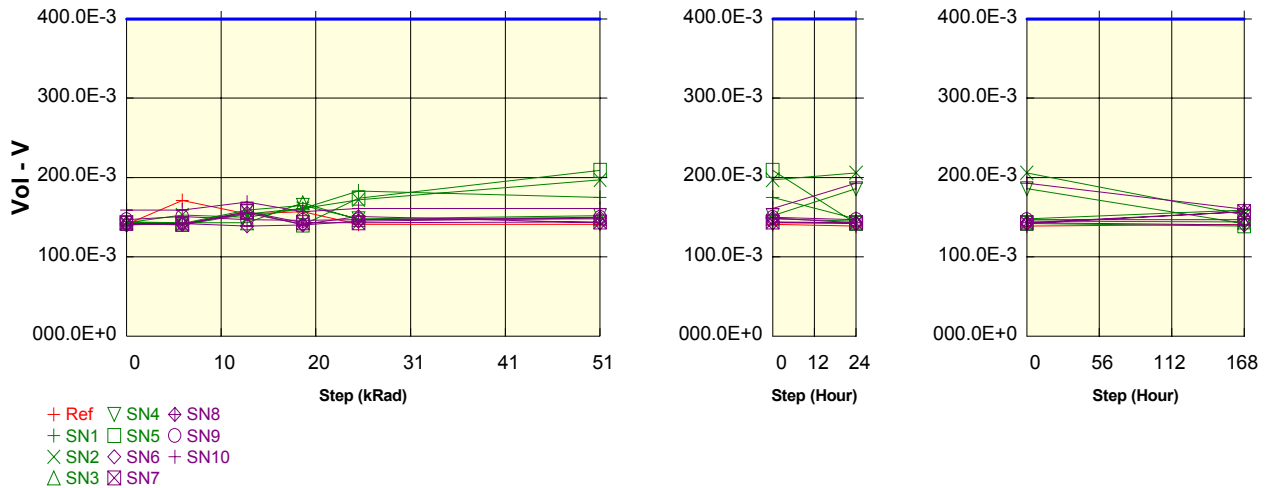
Test conditions : TID

Parameter : Low-Level Output Voltage : VoID0

Unit : V

Spec Limit Max : 400.0E-3

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	141.0E-3	171.0E-3	154.0E-3	157.0E-3	141.0E-3	141.0E-3
SN1	142.0E-3	140.0E-3	154.0E-3	161.0E-3	183.0E-3	175.0E-3
SN2	143.0E-3	153.0E-3	150.0E-3	161.0E-3	172.0E-3	197.0E-3
SN3	144.0E-3	143.0E-3	143.0E-3	168.0E-3	147.0E-3	148.0E-3
SN4	143.0E-3	142.0E-3	159.0E-3	165.0E-3	148.0E-3	152.0E-3
SN5	143.0E-3	141.0E-3	157.0E-3	140.0E-3	174.0E-3	209.0E-3
SN6	142.0E-3	141.0E-3	155.0E-3	141.0E-3	151.0E-3	143.0E-3
SN7	142.0E-3	141.0E-3	157.0E-3	143.0E-3	143.0E-3	144.0E-3
SN8	140.0E-3	142.0E-3	139.0E-3	140.0E-3	145.0E-3	149.0E-3
SN9	147.0E-3	151.0E-3	147.0E-3	146.0E-3	147.0E-3	150.0E-3
SN10	159.0E-3	159.0E-3	169.0E-3	157.0E-3	161.0E-3	161.0E-3
Statistics						
Min	140.0E-3	140.0E-3	139.0E-3	140.0E-3	143.0E-3	143.0E-3
Max	159.0E-3	159.0E-3	169.0E-3	168.0E-3	183.0E-3	209.0E-3
Mean	144.5E-3	145.3E-3	153.0E-3	152.2E-3	157.1E-3	162.8E-3
Sigma	540.1E-5	658.4E-5	862.8E-5	112.4E-4	143.9E-4	233.1E-4

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	141.0E-3	139.0E-3
SN1	175.0E-3	148.0E-3
SN2	197.0E-3	206.0E-3
SN3	148.0E-3	145.0E-3
SN4	152.0E-3	186.0E-3
SN5	209.0E-3	142.0E-3
SN6	143.0E-3	142.0E-3
SN7	144.0E-3	143.0E-3
SN8	149.0E-3	143.0E-3
SN9	150.0E-3	147.0E-3
SN10	161.0E-3	193.0E-3
Statistics		
Min	143.0E-3	142.0E-3
Max	209.0E-3	206.0E-3
Mean	162.8E-3	159.5E-3
Sigma	233.1E-4	250.4E-4

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	139.0E-3	141.0E-3
SN1	148.0E-3	159.0E-3
SN2	206.0E-3	153.0E-3
SN3	145.0E-3	144.0E-3
SN4	186.0E-3	142.0E-3
SN5	142.0E-3	139.0E-3
SN6	142.0E-3	157.0E-3
SN7	143.0E-3	157.0E-3
SN8	143.0E-3	140.0E-3
SN9	147.0E-3	147.0E-3
SN10	193.0E-3	160.0E-3
Statistics		
Min	142.0E-3	139.0E-3
Max	206.0E-3	160.0E-3
Mean	159.5E-3	149.8E-3
Sigma	250.4E-4	828.4E-5

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

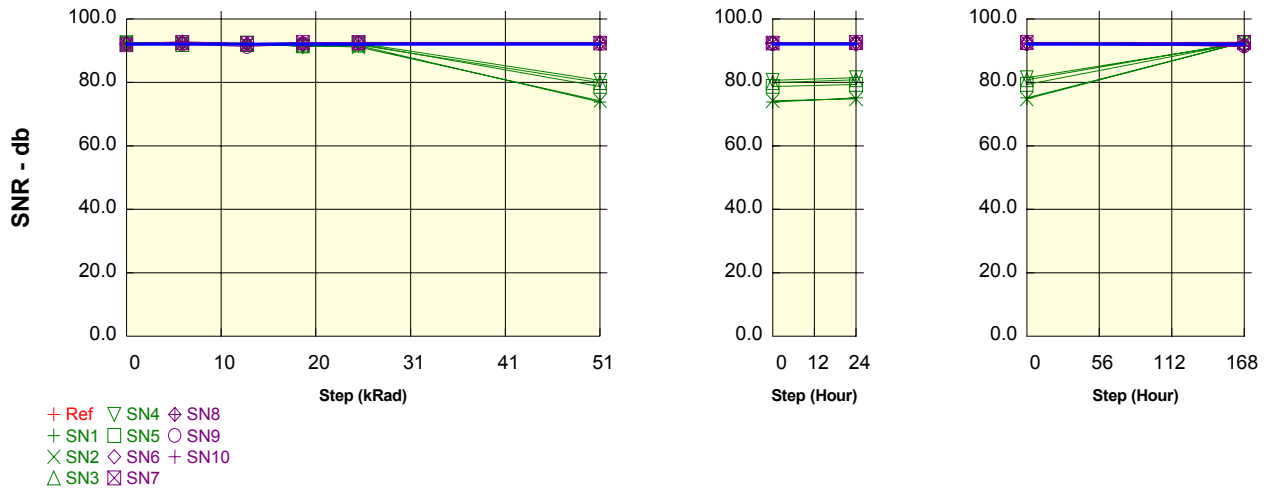
Test conditions : TID

Parameter : Signal-to-Noise : SNR

Unit : db

Spec Limit Min : 92.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	92.46	91.99	92.29	92.31	92.53	92.53
SN1	92.2	92.4	92.07	91.47	91.59	73.79
SN2	92.54	92.18	91.96	91.6	91.13	74.23
SN3	92.37	92.64	91.96	91.79	91.79	79.93
SN4	92.45	92.44	92.34	91.3	92.37	80.65
SN5	92.38	91.93	92.4	91.5	92.13	78.74
SN6	92.08	92.43	92.16	92.14	92.46	92.37
SN7	91.83	92.51	92.17	92.49	92.5	92.4
SN8	92.17	92.66	92.08	92.44	92.33	92.47
SN9	92.11	92.02	91.3	92.1	92.31	92.27
SN10	92.31	92.77	92.24	92.37	92.63	92.39
Statistics						
Min	91.83	91.93	91.3	91.3	91.13	73.79
Max	92.54	92.77	92.4	92.49	92.63	92.47
Mean	92.24	92.4	92.07	91.92	92.12	84.92
Sigma	0.21	0.28	0.31	0.44	0.48	8.15

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	92.53	92.34
SN1	73.79	75.09
SN2	74.23	74.79
SN3	79.93	80.81
SN4	80.65	81.46
SN5	78.74	79.34
SN6	92.37	92.36
SN7	92.4	92.54
SN8	92.47	92.42
SN9	92.27	92.31
SN10	92.39	92.12
Statistics		
Min	73.79	74.79
Max	92.47	92.54
Mean	84.92	85.32
Sigma	8.15	7.7

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	92.34	92.62
SN1	75.09	92.69
SN2	74.79	92.71
SN3	80.81	92.69
SN4	81.46	92.48
SN5	79.34	92.53
SN6	92.36	91.48
SN7	92.54	92.58
SN8	92.42	91.63
SN9	92.31	91.49
SN10	92.12	91.37
Statistics		
Min	74.79	91.37
Max	92.54	92.71
Mean	85.32	92.17
Sigma	7.7	0.59

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

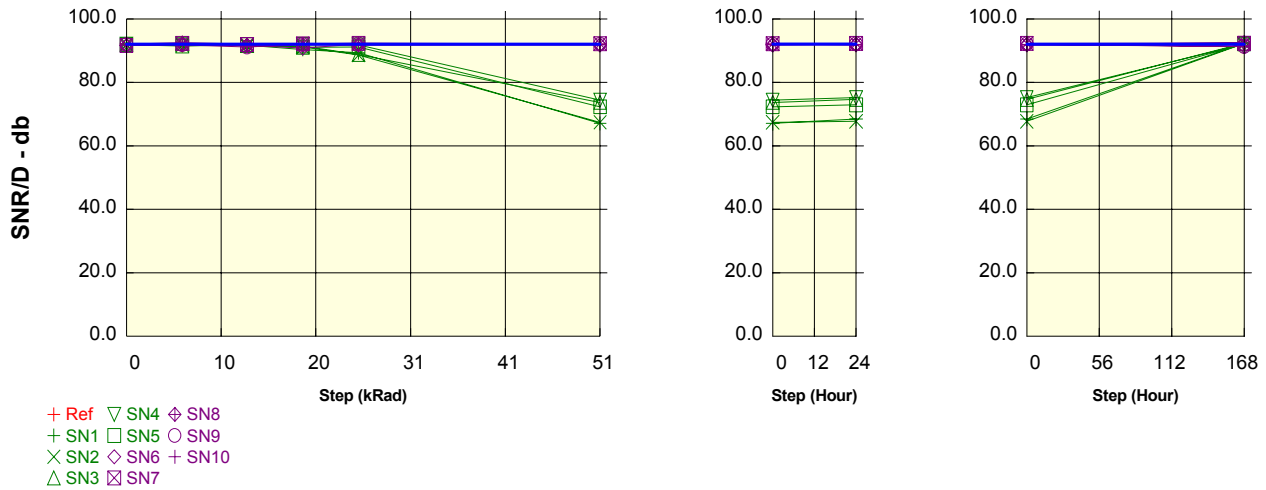
Test conditions : TID

Parameter : Signal-to-(Noise+Distortion) : SNR/D

Unit : db

Spec Limit Min : 92.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	91.98	91.55	91.8	91.84	92.04	92.07
SN1	91.81	92.01	91.7	90.36	89.31	67.07
SN2	92.05	91.71	91.52	91.11	88.62	67.37
SN3	92.06	92.31	91.63	91.45	88.75	73.7
SN4	92.08	92.08	91.96	91.96	91.83	74.38
SN5	91.9	91.48	91.9	91.04	91.1	72.31
SN6	91.65	91.98	91.71	90.8	92.0	91.9
SN7	91.62	92.27	91.95	92.15	92.27	92.17
SN8	91.59	91.99	91.51	91.84	91.74	91.78
SN9	91.91	91.83	91.13	91.92	92.12	92.07
SN10	92.07	92.5	92.0	92.15	92.39	92.12
Statistics						
Min	91.59	91.48	91.13	90.36	88.62	67.07
Max	92.08	92.5	92.0	92.15	92.39	92.17
Mean	91.87	92.02	91.7	91.48	91.01	81.49
Sigma	0.2	0.3	0.27	0.62	1.51	11.33

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	92.07	91.88
SN1	67.07	68.45
SN2	67.37	67.73
SN3	73.7	74.6
SN4	74.38	75.19
SN5	72.31	72.95
SN6	91.9	91.89
SN7	92.17	92.29
SN8	91.78	91.92
SN9	92.07	92.1
SN10	92.12	91.81
Statistics		
Min	67.07	67.73
Max	92.17	92.29
Mean	81.49	81.89
Sigma	11.33	10.91

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	91.88	92.21
SN1	68.45	92.33
SN2	67.73	92.24
SN3	74.6	92.36
SN4	75.19	92.13
SN5	72.95	92.12
SN6	91.89	92.53
SN7	92.29	92.36
SN8	91.92	91.3
SN9	92.1	91.33
SN10	91.81	91.37
Statistics		
Min	67.73	91.3
Max	92.29	92.53
Mean	81.89	92.01
Sigma	10.91	0.48

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

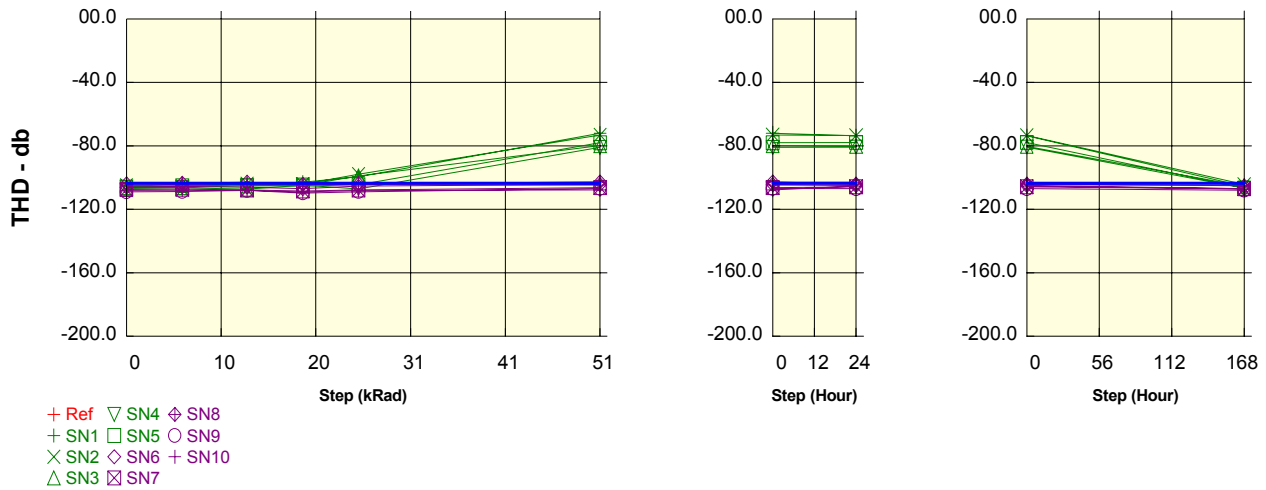
Test conditions : TID

Parameter : Total Harmonic Distortion : THD

Unit : db

Spec Limit Max : -103.5

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-104.64	-104.29	-104.23	-104.56	-104.37	-104.71
SN1	-105.52	-105.44	-104.11	-102.97	-99.48	-72.0
SN2	-104.83	-105.54	-103.94	-104.17	-97.89	-73.15
SN3	-106.77	-106.43	-107.29	-104.9	-99.04	-79.8
SN4	-106.04	-106.21	-105.23	-104.75	-107.17	-80.95
SN5	-106.41	-105.11	-105.24	-105.43	-104.55	-78.08
SN6	-106.07	-105.49	-106.1	-106.93	-105.44	-104.46
SN7	-107.5	-107.3	-107.86	-108.44	-107.77	-106.4
SN8	-103.89	-103.61	-102.91	-104.2	-103.92	-102.7
SN9	-109.01	-108.8	-108.1	-109.69	-108.88	-106.88
SN10	-108.12	-108.03	-107.89	-109.07	-108.2	-107.87
Statistics						
Min	-109.01	-108.8	-108.1	-109.69	-108.88	-107.87
Max	-103.89	-103.61	-102.91	-102.97	-97.89	-72.0
Mean	-106.42	-106.2	-105.87	-106.06	-104.23	-91.23
Sigma	01.52	01.52	01.87	02.33	04.08	15.51

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-104.71	-104.56
SN1	-72.0	-73.73
SN2	-73.15	-73.43
SN3	-79.8	-80.4
SN4	-80.95	-80.74
SN5	-78.08	-77.81
SN6	-104.46	-105.07
SN7	-106.4	-105.87
SN8	-102.7	-104.0
SN9	-106.88	-107.07
SN10	-107.87	-105.31
Statistics		
Min	-107.87	-107.07
Max	-72.0	-73.43
Mean	-91.23	-91.34
Sigma	15.51	15.09

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-104.56	-104.81
SN1	-73.73	-105.54
SN2	-73.43	-104.41
SN3	-80.4	-105.49
SN4	-80.74	-106.73
SN5	-77.81	-106.74
SN6	-105.07	-107.01
SN7	-105.87	-107.01
SN8	-104.0	-105.16
SN9	-107.07	-107.99
SN10	-105.31	-107.18
Statistics		
Min	-107.07	-107.99
Max	-73.43	-104.41
Mean	-91.34	-106.33
Sigma	15.09	01.11

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

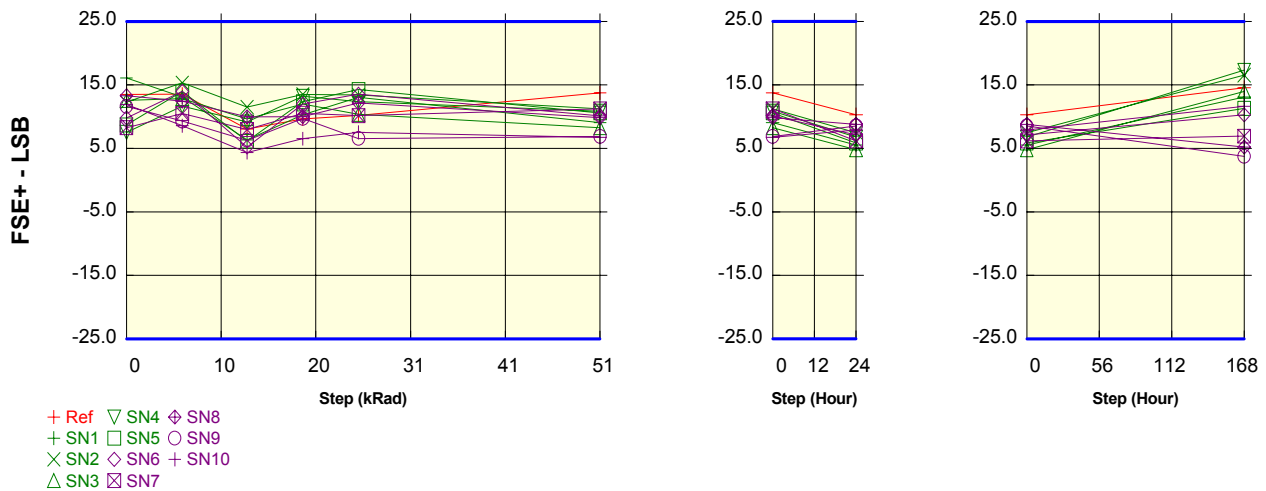
Parameter : Full Scale Error + : FSE+

Unit : LSB

Spec Limit Min : -25.0

Spec Limit Max : 25.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	13.51	13.54	8.04	9.62	10.18	13.75
SN1	16.09	13.1	6.36	10.28	13.06	9.05
SN2	12.28	15.32	11.51	13.49	13.42	11.21
SN3	12.56	12.86	9.65	11.99	10.37	8.25
SN4	7.54	11.65	9.16	13.21	12.36	10.85
SN5	8.7	14.0	6.12	12.37	14.28	10.59
SN6	9.79	13.98	5.22	11.99	13.55	10.12
SN7	8.24	10.48	7.95	10.53	10.18	11.22
SN8	13.3	12.42	9.97	10.0	12.17	9.82
SN9	11.62	9.32	6.28	9.7	6.56	6.88
SN10	11.9	8.56	4.35	6.53	7.54	6.74
Statistics						
Min	7.54	8.56	4.35	6.53	6.56	6.74
Max	16.09	15.32	11.51	13.49	14.28	11.22
Mean	11.2	12.17	7.66	11.01	11.35	9.47
Sigma	2.63	2.17	2.34	2.06	2.63	1.69

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	13.75	10.27
SN1	9.05	5.55
SN2	11.21	7.48
SN3	8.25	4.81
SN4	10.85	6.77
SN5	10.59	5.86
SN6	10.12	7.12
SN7	11.22	6.16
SN8	9.82	8.8
SN9	6.88	8.55
SN10	6.74	7.87
Statistics		
Min	6.74	4.81
Max	11.22	8.8
Mean	9.47	6.9
Sigma	1.69	1.31

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	10.27	14.57
SN1	5.55	13.07
SN2	7.48	16.55
SN3	4.81	13.97
SN4	6.77	17.3
SN5	5.86	11.3
SN6	7.12	10.29
SN7	6.16	6.93
SN8	8.8	5.2
SN9	8.55	3.74
SN10	7.87	11.63
Statistics		
Min	4.81	3.74
Max	8.8	17.3
Mean	6.9	11.0
Sigma	1.31	4.56

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

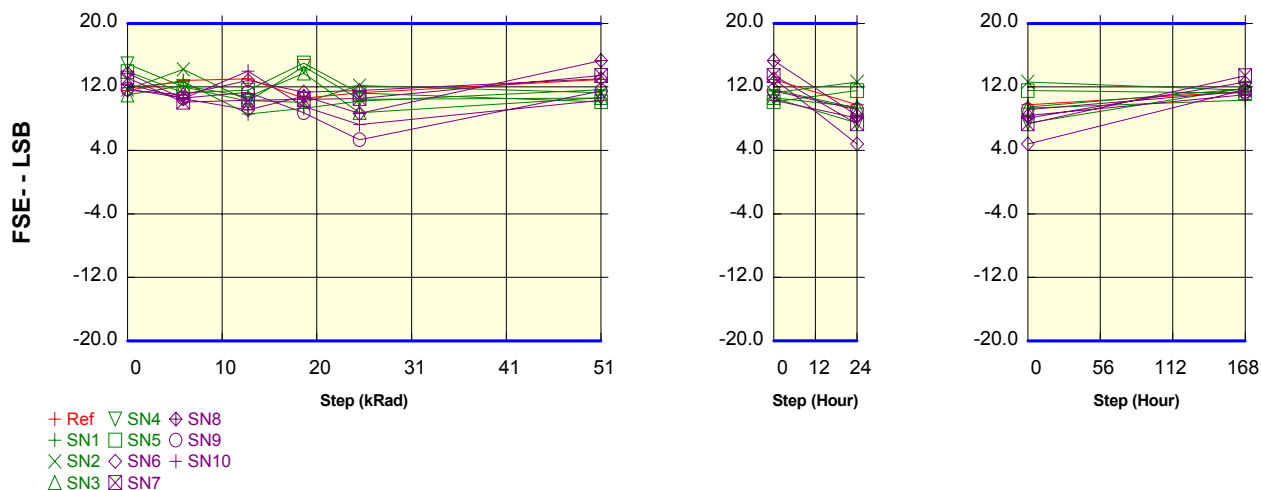
Parameter : Full Scale Error - : FSE-

Unit : LSB

Spec Limit Min : -20.0

Spec Limit Max : 20.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	11.53	12.8	13.02	10.57	11.25	12.94
SN1	11.9	12.66	8.58	9.29	10.22	11.66
SN2	11.66	14.22	10.28	10.05	12.15	11.25
SN3	10.99	12.17	10.73	13.74	8.76	10.65
SN4	14.89	12.03	10.18	14.58	10.43	10.6
SN5	13.94	11.27	11.57	14.99	11.21	10.13
SN6	11.56	11.03	12.82	11.36	11.56	13.05
SN7	13.1	10.07	10.32	10.44	10.54	13.44
SN8	13.73	10.49	9.11	10.84	8.64	15.31
SN9	11.75	10.61	11.33	8.73	5.33	11.49
SN10	12.37	10.54	13.99	9.52	7.25	10.31
Statistics						
Min	10.99	10.07	8.58	8.73	5.33	10.13
Max	14.89	14.22	13.99	14.99	12.15	15.31
Mean	12.59	11.51	10.89	11.36	9.61	11.79
Sigma	1.26	1.27	1.62	2.28	2.12	1.66

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	12.94	9.76
SN1	11.66	9.34
SN2	11.25	12.62
SN3	10.65	9.45
SN4	10.6	7.43
SN5	10.13	11.53
SN6	13.05	4.81
SN7	13.44	7.36
SN8	15.31	8.4
SN9	11.49	9.12
SN10	10.31	8.06
Statistics		
Min	10.13	4.81
Max	15.31	12.62
Mean	11.79	8.81
Sigma	1.66	2.2

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	9.76	11.42
SN1	9.34	10.34
SN2	12.62	11.59
SN3	9.45	11.79
SN4	7.43	11.85
SN5	11.53	11.24
SN6	4.81	11.65
SN7	7.36	13.41
SN8	8.4	11.04
SN9	9.12	11.44
SN10	8.06	12.58
Statistics		
Min	4.81	10.34
Max	12.62	13.41
Mean	8.81	11.69
Sigma	2.2	0.84

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

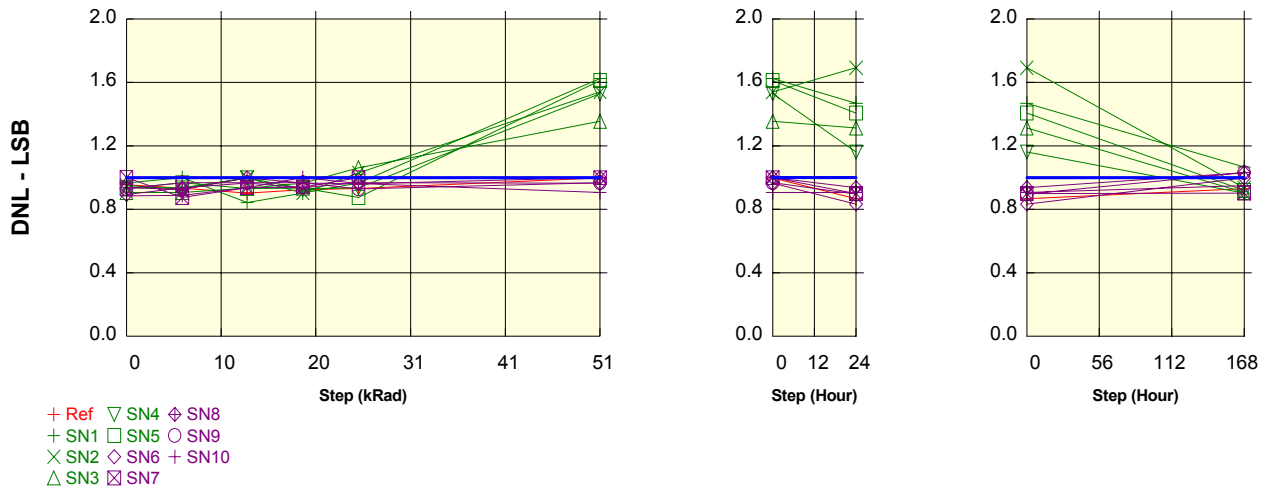
Test conditions : TID

Parameter : Differential Linearity Error : DNL

Unit : LSB

Spec Limit Max : 1.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	0.96	0.93	0.9	0.92	0.93	1.0
SN1	0.97	1.0	0.84	0.9	0.97	1.63
SN2	0.95	0.93	1.0	0.9	1.03	1.54
SN3	0.91	0.91	0.93	0.96	1.06	1.35
SN4	0.94	0.93	1.0	0.93	0.93	1.53
SN5	0.93	0.97	0.93	0.93	0.87	1.61
SN6	0.89	0.93	0.97	0.94	0.97	0.96
SN7	1.0	0.87	0.94	0.94	1.0	1.0
SN8	0.94	0.93	1.0	0.97	0.96	1.0
SN9	0.93	0.97	0.97	0.97	0.93	0.97
SN10	0.88	0.89	0.94	1.0	0.96	0.91
Statistics						
Min	0.88	0.87	0.84	0.9	0.87	0.91
Max	1.0	1.0	1.0	1.0	1.06	1.63
Mean	0.93	0.93	0.95	0.94	0.97	1.25
Sigma	0.03	0.04	0.05	0.03	0.05	0.31

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	1.0	0.87
SN1	1.63	1.47
SN2	1.54	1.69
SN3	1.35	1.31
SN4	1.53	1.16
SN5	1.61	1.41
SN6	0.96	0.83
SN7	1.0	0.9
SN8	1.0	0.94
SN9	0.97	0.9
SN10	0.91	0.91
Statistics		
Min	0.91	0.83
Max	1.63	1.69
Mean	1.25	1.15
Sigma	0.31	0.3

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	0.87	0.93
SN1	1.47	1.07
SN2	1.69	0.93
SN3	1.31	0.91
SN4	1.16	0.9
SN5	1.41	0.92
SN6	0.83	1.0
SN7	0.9	0.9
SN8	0.94	1.03
SN9	0.9	1.03
SN10	0.91	0.95
Statistics		
Min	0.83	0.9
Max	1.69	1.07
Mean	1.15	0.96
Sigma	0.3	0.06

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

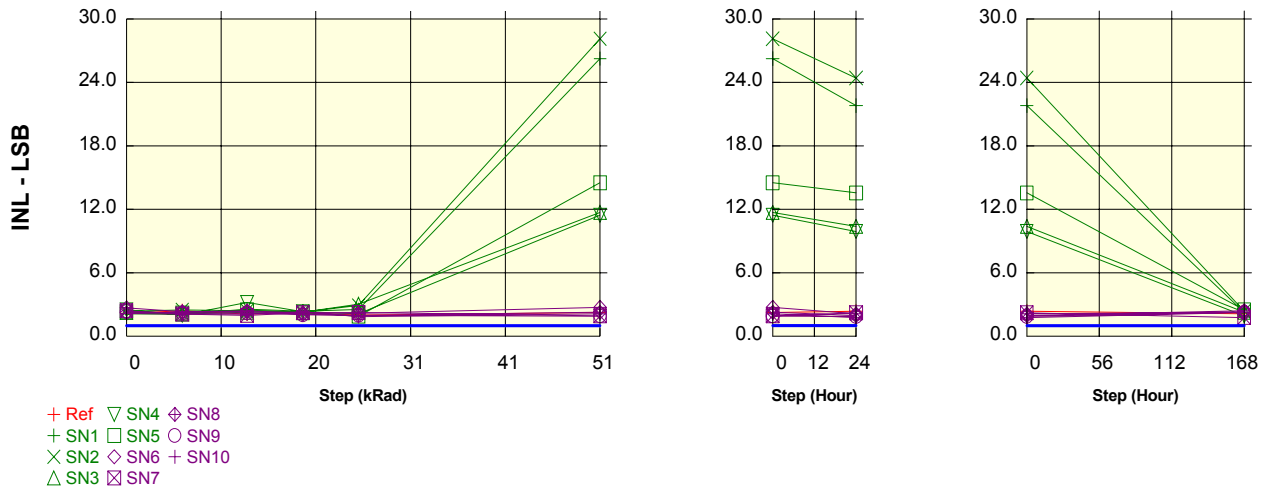
Test conditions : TID

Parameter : Integral Linearity Error : INL

Unit : LSB

Spec Limit Max : 1.0

Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	2.17	2.42	2.09	2.22	2.0	2.24
SN1	2.13	2.06	2.55	2.38	2.53	26.25
SN2	2.36	2.49	2.42	2.3	2.9	28.11
SN3	2.24	2.1	2.27	2.26	3.02	11.71
SN4	2.5	2.01	3.19	2.31	2.12	11.44
SN5	2.32	2.2	2.48	2.21	1.91	14.51
SN6	2.21	2.27	2.35	2.08	1.98	2.26
SN7	2.41	2.1	1.98	2.23	2.24	1.92
SN8	2.69	2.31	2.4	2.23	2.18	2.74
SN9	2.34	2.18	2.21	2.02	1.99	1.91
SN10	2.14	2.09	2.1	2.32	1.86	2.13
Statistics						
Min	2.13	2.01	1.98	2.02	1.86	1.91
Max	2.69	2.49	3.19	2.38	3.02	28.11
Mean	2.33	2.18	2.4	2.23	2.27	10.3
Sigma	0.17	0.14	0.33	0.11	0.41	10.12

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	2.24	2.35
SN1	26.25	21.81
SN2	28.11	24.42
SN3	11.71	10.39
SN4	11.44	9.91
SN5	14.51	13.55
SN6	2.26	1.95
SN7	1.92	2.21
SN8	2.74	2.12
SN9	1.91	1.87
SN10	2.13	1.75
Statistics		
Min	1.91	1.75
Max	28.11	24.42
Mean	10.3	9.0
Sigma	10.12	8.64

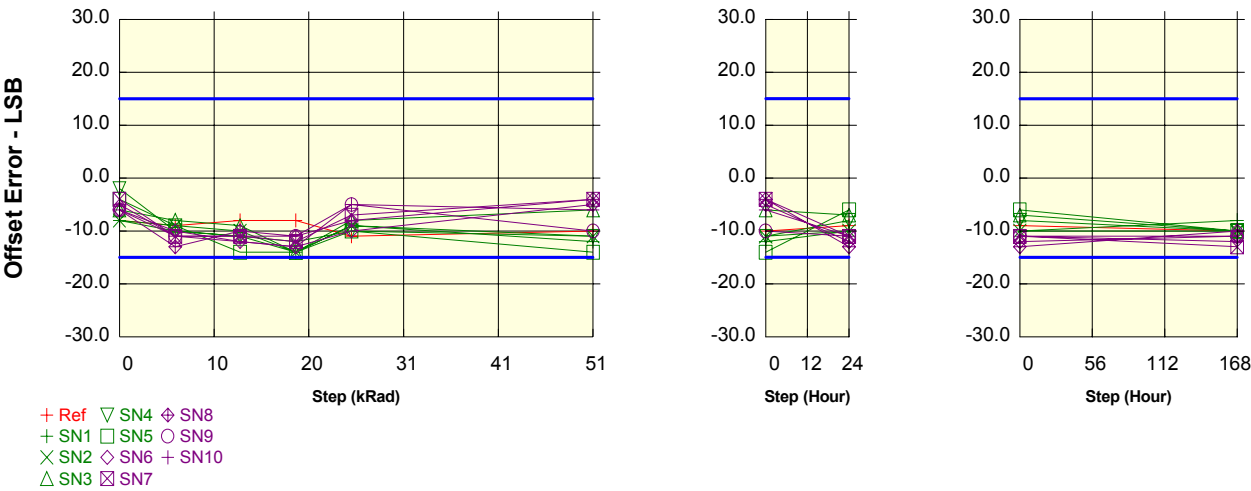
Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	2.35	2.13
SN1	21.81	2.24
SN2	24.42	2.37
SN3	10.39	2.27
SN4	9.91	1.94
SN5	13.55	2.48
SN6	1.95	2.42
SN7	2.21	1.77
SN8	2.12	2.28
SN9	1.87	2.27
SN10	1.75	2.24
Statistics		
Min	1.75	1.77
Max	24.42	2.48
Mean	9.0	2.23
Sigma	8.64	0.22

HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID
 Parameter : Zero Error : Offset Error

Unit : LSB
 Spec Limit Min : -15.0
 Spec Limit Max : 15.0
 Spec limits are represented in bold lines on the graphic.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-8.0	-9.0	-8.0	-8.0	-11.0	-10.0
SN1	-8.0	-10.0	-11.0	-14.0	-9.0	-12.0
SN2	-8.0	-9.0	-10.0	-14.0	-9.0	-11.0
SN3	-6.0	-8.0	-9.0	-14.0	-8.0	-6.0
SN4	-2.0	-10.0	-11.0	-12.0	-10.0	-11.0
SN5	-4.0	-9.0	-14.0	-14.0	-10.0	-14.0
SN6	-6.0	-10.0	-12.0	-13.0	-10.0	-5.0
SN7	-4.0	-11.0	-11.0	-12.0	-7.0	-4.0
SN8	-6.0	-13.0	-10.0	-11.0	-8.0	-4.0
SN9	-6.0	-11.0	-11.0	-11.0	-5.0	-10.0
SN10	-5.0	-11.0	-12.0	-13.0	-5.0	-6.0
Statistics						
Min	-8.0	-13.0	-14.0	-14.0	-10.0	-14.0
Max	-2.0	-8.0	-9.0	-11.0	-5.0	-4.0
Mean	-5.5	-10.2	-11.1	-12.8	-8.1	-8.3
Sigma	1.84	1.4	1.37	1.23	1.91	3.68

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-10.0	-9.0
SN1	-12.0	-10.0
SN2	-11.0	-10.0
SN3	-6.0	-7.0
SN4	-11.0	-8.0
SN5	-14.0	-6.0
SN6	-5.0	-12.0
SN7	-4.0	-11.0
SN8	-4.0	-13.0
SN9	-10.0	-11.0
SN10	-6.0	-11.0
Statistics		
Min	-14.0	-13.0
Max	-4.0	-6.0
Mean	-8.3	-9.9
Sigma	3.68	2.23

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-9.0	-10.0
SN1	-10.0	-8.0
SN2	-10.0	-10.0
SN3	-7.0	-10.0
SN4	-8.0	-10.0
SN5	-6.0	-10.0
SN6	-12.0	-11.0
SN7	-11.0	-13.0
SN8	-13.0	-10.0
SN9	-11.0	-11.0
SN10	-11.0	-12.0
Statistics		
Min	-13.0	-13.0
Max	-6.0	-8.0
Mean	-9.9	-10.5
Sigma	2.23	1.35

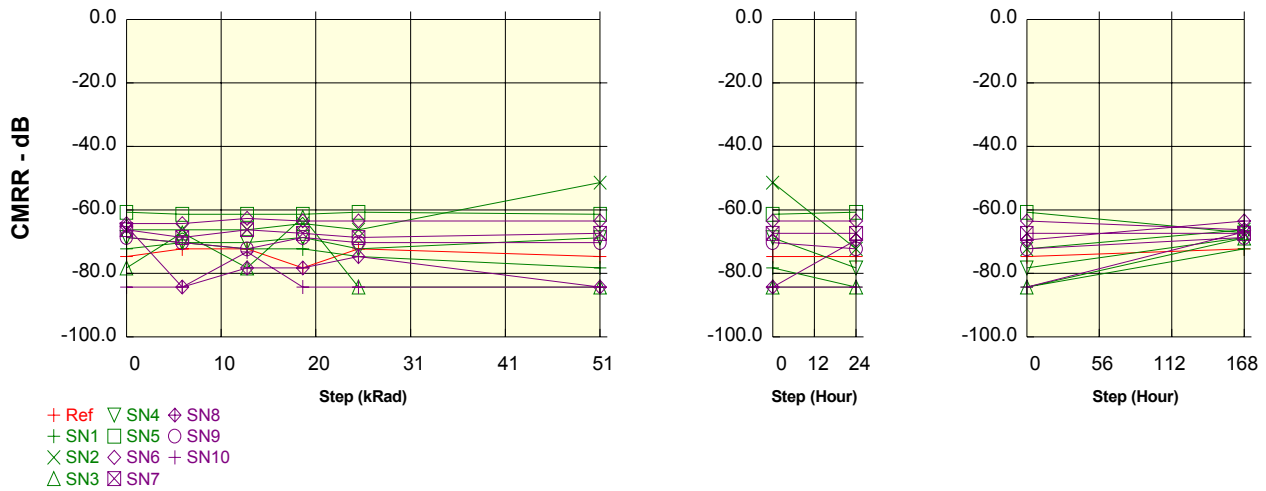
HIREX Engineering	Total Dose Test Report			Ref. : HRX/TID/0230 Issue : 02
Part Type :	AD7677A	Manufacturer :	Analog Devices	

Test conditions : TID

Parameter : Common Mode Rejection Ratio : CMRR

Unit : dB

No spec limit specified.



Test TST001 : Exposure

	0 kRad	6 kRad	13 kRad	19 kRad	25 kRad	51 kRad
Ref	-74.75	-72.25	-72.25	-78.27	-72.25	-74.75
SN1	-72.25	-70.31	-72.25	-72.25	-74.75	-78.27
SN2	-66.24	-66.23	-66.23	-64.29	-66.23	-51.42
SN3	-78.27	-67.23	-78.27	-62.39	-84.29	-84.29
SN4	-68.73	-70.31	-70.31	-68.73	-72.25	-68.75
SN5	-60.77	-61.37	-61.37	-61.37	-60.77	-61.37
SN6	-64.29	-64.29	-62.7	-63.46	-63.46	-63.46
SN7	-66.23	-68.73	-66.23	-67.39	-68.73	-67.39
SN8	-65.23	-84.29	-78.27	-78.27	-74.75	-84.29
SN9	-68.73	-70.31	-72.25	-68.73	-70.31	-70.31
SN10	-84.29	-84.29	-73.24	-84.29	-84.29	-84.29
Statistics						
Min	-84.29	-84.29	-78.27	-84.29	-84.29	-84.29
Max	-60.77	-61.37	-61.37	-61.37	-60.77	-51.42
Mean	-69.5	-70.73	-70.11	-69.11	-71.98	-71.38
Sigma	7.05	7.7	5.9	7.36	7.91	11.22

Test TST002 : Annealing 24h

	0 Hour	24 Hour
Ref	-74.75	-74.75
SN1	-78.27	-84.29
SN2	-51.42	-72.25
SN3	-84.29	-84.29
SN4	-68.75	-78.27
SN5	-61.37	-60.77
SN6	-63.46	-63.46
SN7	-67.39	-67.39
SN8	-84.29	-69.55
SN9	-70.31	-72.25
SN10	-84.29	-84.29
Statistics		
Min	-84.29	-84.29
Max	-51.42	-60.77
Mean	-71.38	-73.68
Sigma	11.22	8.76

Test TST003 : Annealing 168h

	0 Hour	168 Hour
Ref	-74.75	-72.25
SN1	-84.29	-72.25
SN2	-72.25	-66.23
SN3	-84.29	-68.9
SN4	-78.27	-68.73
SN5	-60.77	-67.21
SN6	-63.46	-66.28
SN7	-67.39	-67.39
SN8	-69.55	-63.46
SN9	-72.25	-68.73
SN10	-84.29	-66.9
Statistics		
Min	-84.29	-72.25
Max	-60.77	-63.46
Mean	-73.68	-67.61
Sigma	8.76	2.29