






# TOTAL DOSE RADIATION TEST REPORT

**Part Type : HM6216255H**  
**Package : 44-Pin SOJ**  
**4Mb Static RAM (256-kword x 16-bit)**  
**Manufacturer: Hitachi**  
**Report Reference : ESA\_QCA0104T\_C**  
**Issue : 01**  
**Date : January 19th 2001**

**ESA Contract no. 13528/99/NL/MV CCN N°3 dated 24/11/00**

**ESTEC Technical Officer: R. Harboe Sorensen**

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

<b>Hirex reference :</b>	HRX/TID/0073	Issue : 01	Date :	January 19 <sup>th</sup> 2001
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**TOTAL DOSE RADIATION TEST REPORT**  
**on**  
**Hitachi HM6216255H**  
**4Mb Static RAM (256-kword x 16-bit).**

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<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

## 1 Abstract

Under ESA Contract no. 13528/99/NL/MV CCN N°3 dated 24/11/00, covering "Radiation Evaluation of COTS semiconductor Components", four different commercially available 4Mb Static RAM device types were radiation assessed. Results from these assessments, primarily focussing on the sensitivity of these devices to Total Ionizing Dose (TID) and Single Event Effects (SEE), are reported in individual TID and SEE reports. The below summary table lists manufacturer and evaluated types, and gives references to the various reports issued.

<b>Manufacturer</b>	<b>Type</b>	<b>TID Report</b>	<b>SEE Report</b>
Hitachi	HM6216255H	ESA_QCA0104T_C	ESA_QCA0104S_C
Samsung	K6R4008C1C	ESA_QCA0102T_C	ESA_QCA0102S_C
Samsung	K6R4008V1C	ESA_QCA0103T_C	ESA_QCA0103S_C
Samsung	KM684002AJ	-	ESA_QCA0101S_C

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

## 2 Introduction

A total dose radiation evaluation test of the Hitachi HM6216255H, high-speed, 5.0 V, Monolithic 4Mb Static RAM has been performed with an accumulated dose of about 47 Krad(Si), in response to European Space Agency contract reference : ESA Contract no. 13528/99/NL/MV CCN N°3 dated 24/11/00.

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 commercial samples procured from Hitachi and provided to HIREX by ESA.

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

SEE results for this device type can be found in SEE radiation test report: ESA\_QCA0104S\_C.

## 3 Applicable and Reference Documents

### 3.1 Applicable Documents

- ESA/SCC Basic specification N° 22900 issue 4.
- Hitachi HM6216255H datasheet - ADE-203-763D (Z) Rev. 1.0 Sep. 15, 1998.
- ESA Contract no. 13528/99/NL/MV CCN N°3 dated 24/11/00.

### 3.2 Reference Documents

- MIL-STD-883: test methods and procedures for microcircuits.

## 4 Test Samples

5 samples of the HM6216255H device were tested (4 + 1 control sample). Each device was submitted to exposures at a dose rate of 200 Rad(Si)/hour.

Serial Number	Allocation
0	Control
1	Irradiated under bias
2	Irradiated under bias
3	Irradiated under bias
4	Irradiated under bias

Identification of the HM6216255H is given below:

<b>Part Number:</b>	HM6216255HLJP-15	<b>Mask Set:</b>	NA
<b>Top Marking:</b>	HM6216255HLJP-15 103A9NN0	<b>Chip Marking:</b>	NA
<b>Diffusion Lot:</b>	NA	<b>Wafer #:</b>	NA
<b>Date Code:</b>	NA	<b>Project:</b>	Multi-Project

Further HM6216255H identification details can be found in ESA\_QCA0104S\_C.

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

## 5 Experimental Conditions

### 5.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at ONERA-CERT. 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 tables:

<b>Irradiation Steps</b>	<b>Dose rate</b>	<b>Annealing steps</b>	<b>Temperature</b>
<b>krads</b>	<b>krads/hour</b>	<b>hours</b>	<b>°C</b>
0			25
4.6	0,2		25
10	0,2		25
14.8	0,2		25
19	0,2		25
31.8	0,2		25
47.2	0,2	0	25
		24	25
		192	100

**Table 1 : Experimental Conditions**

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

### 5.2 Bias condition during Dose Exposures and Annealing

During exposures a dedicated test board was used mounted on a special board-holder made for irradiation. The test board allowed to bias the devices in accordance with the electrical circuit provided in Figure 1.

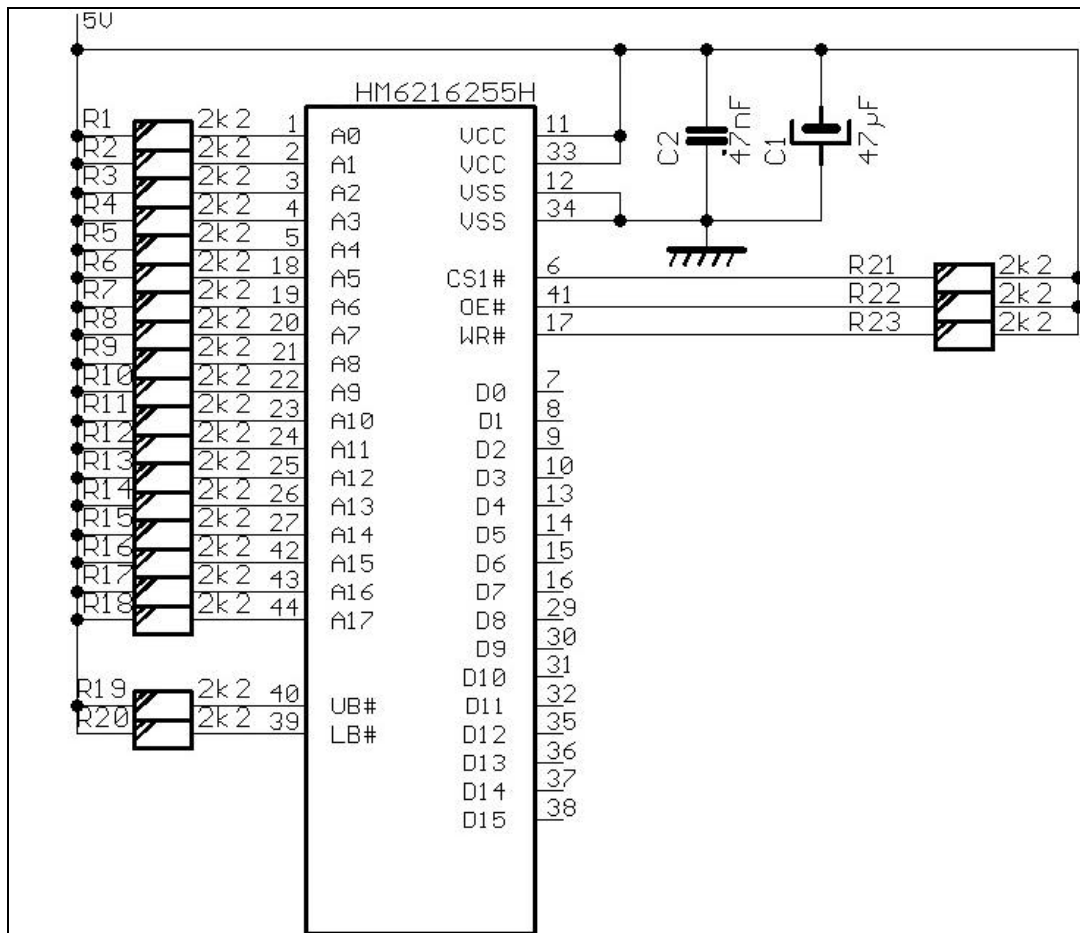


Figure 1 : Bias Conditions during Irradiation Exposures and Annealing

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

### 5.3 Measurements conditions

The electrical measurements were performed at HIREX ENGINEERING.  
Electrical parameters test program principle for HM6216255H is provided in Figure 2.

The test Setup for this device includes an IMS ATS Test Station and a DC test system HP4142B.  
The ATS generates and then acquires data. A dedicated sequencer program analyses the data and displays the results on a SUN workstation.

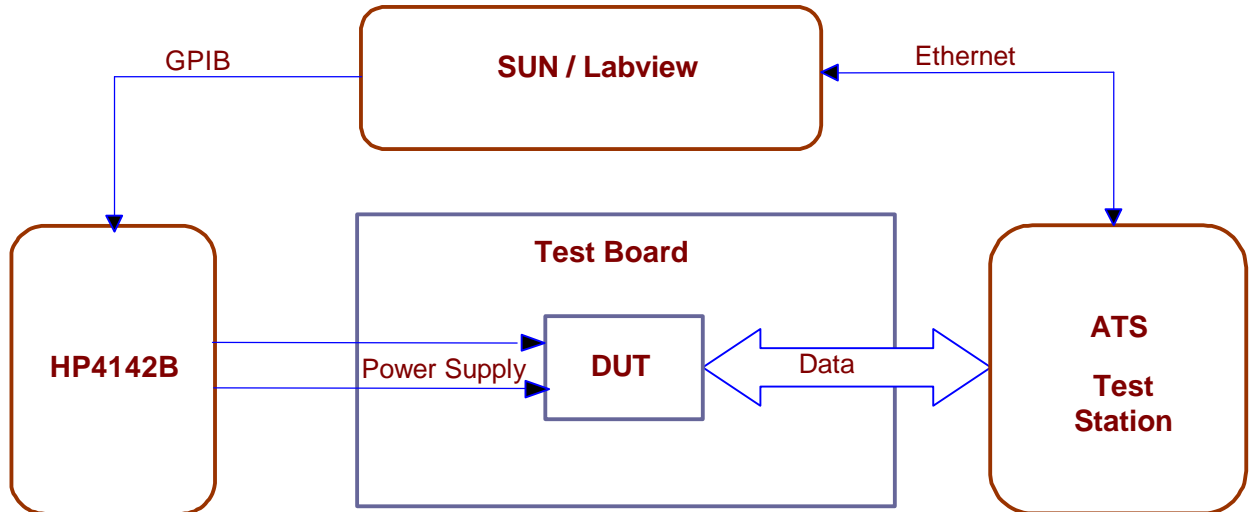


Figure 2 : HM6216255H test program principle

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

#### 5.4 Electrical parameters test conditions and limits

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

SYMBOL	CHARACTERISTICS	TESTS CONDITIONS	LIMIT		UNIT
			Min	Max	
ILLI	Input Leakage Current Low Level	V <sub>in</sub> (under test) = V <sub>IL</sub> V <sub>in</sub> (remaining inputs) = V <sub>IH</sub> output unloaded	-2	2	μA
IHLI	Input Leakage Current High Level	V <sub>in</sub> (under test) = V <sub>IH</sub> V <sub>in</sub> (remaining inputs) = V <sub>IL</sub> output unloaded	-2	2	μA
ILLO	Output Leakage Current Low Level	V <sub>out</sub> (under test) = V <sub>IL</sub> V <sub>out</sub> (remaining outputs) = tristate CS* = OE* = V <sub>IH</sub> Remaining inputs V <sub>IL</sub> or V <sub>IH</sub>	-2	2	μA
IHLO	Output Leakage Current High Level	V <sub>out</sub> (under test) = V <sub>IH</sub> V <sub>out</sub> (remaining outputs) = tristate CE* = OE* = V <sub>IH</sub> Remaining inputs V <sub>IL</sub>	-2	2	μA
VOH	Output Voltage High Level	I <sub>OH</sub> = -4 mA	2.4		V
VOL	Output Voltage Low Level	I <sub>OL</sub> = 8 mA		0.4	V
ICC	Operating Power Supply Current	CS* = V <sub>IL</sub> OE* = V <sub>IH</sub> F = 60 Mhz outputs unloaded		160	mA
ISB	Standby Power Supply Current	CS* = OE* = V <sub>IH</sub> F = 60 Mhz Outputs unloaded		50	mA
t <sub>AA L-&gt;H</sub>	Address Access Time	Output Load : 50 Ω		15	ns
t <sub>AA H-&gt;L</sub>	Address Access Time	Output Load : 50 Ω		15	ns
t <sub>AS</sub>	Address setup time	Output Load : 50 Ω	0		ns
Zero	Functional Test 1 : , Test Pattern: All 0	Frequency=60MHz			
One	Functional Test 1 : , Test Pattern: All 1	Frequency=60MHz			
Checkerboard	Functional Test 1 : , Test Pattern: Checkerboard	Frequency=60MHz			
*Checkerboard	Functional Test 1 : , Test Pattern: Complementary Checkerboard	Frequency=60MHz			

$$V_{CC} = 5 \text{ V} / V_{IH} = 5 \text{ V} / V_{IL} = 0 \text{ V}$$

**Table 2 : Test Conditions**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

## 6 Conclusion

A Total Ionizing Dose assessment was carried out by Hirex Engineering under ESA contract on the Hitachi HM6216255H 4Mb high speed 5.0V Static RAM (256kword x 16-bit). 4 samples plus one control sample were used during testing. Each device was exposed to Co-60 radiation using a dose rate of 200 Rad(Si)/hour at room temperature.

All samples were functional up to 19Krad(Si).

Functionality was lost at 19Krad(Si) for all tested patterns. All affected samples have recovered after annealing.

The most affected parameters are ICC, ISB, loz(H), liH, liL and  $t_{as}$  that went out of specification limits at 31.8Krad(Si) but have all recovered after annealing.

$t_{aa}$  the address access time (low to high transition) and VOH failed their specification at 47.2Krad( Si) and did also recover after annealing.

All other parameters measured remained within specification limits throughout the testing.

As a general conclusion, although the device samples were degraded after 19Krad( Si), they have all recovered after the annealing sequence in terms of functionality and parametric performance.

Electrical measurement results can be found in Appendix 1.

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

**APPENDIX 1 : TEST RESULTS**

<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

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

**Notes on tables and graphics:**

For  $V_{OH}$ ,  $V_{OL}$ ,  $I_{I(L)}$ ,  $I_{O(L)}$ ,  $I_{OZ(L)}$ ,  $I_{OZ(H)}$  measurements were performed on all applicable pins respectively.

In some cases, they may be missing points in tables and graphs, this situation corresponds to a failure corresponding to an out of range measurement.

To allow logarithmic representation of some parameters, corresponding negative values have been reversed. This is identified for those parameters having a minus sign before their symbol.

HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A17: -iIL A17  
 Vin (under test) = 0V others at Vcc

Unit= A

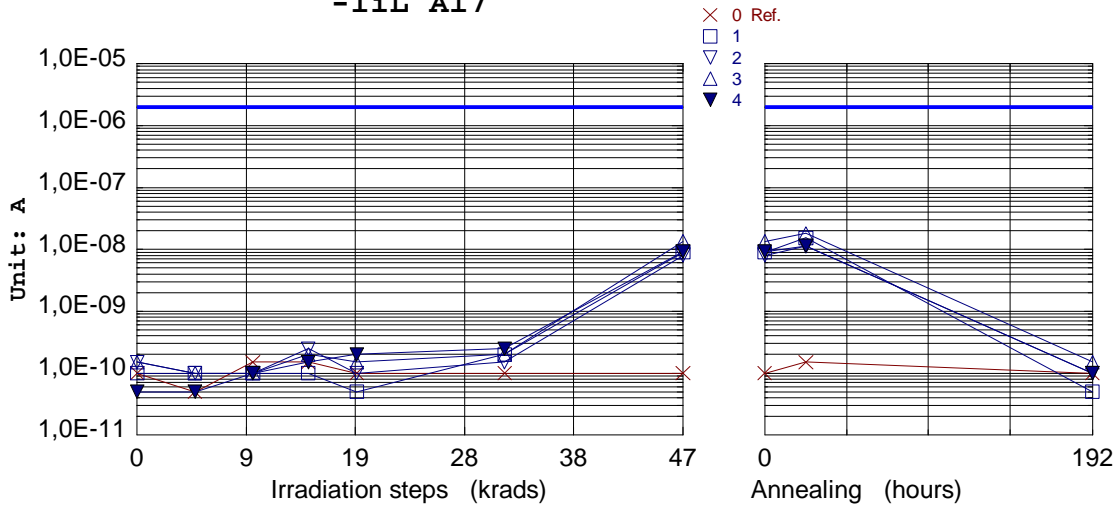
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	5,000E -11	1,500E -10	1,500E -10	1,000E -10	1,000E -10	1,000E -10	1,500E -10
1	1,000E -10	1,000E -10	1,000E -10	1,000E -10	5,000E -11	2,000E -10	9,000E -09	1,540E -08
2	1,500E -10	1,000E -10	1,000E -10	2,500E -10	1,000E -10	1,500E -10	8,000E -09	1,120E -08
3	1,500E -10	1,000E -10	1,000E -10	2,000E -10	1,500E -10	2,000E -10	1,345E -08	1,820E -08
4	5,000E -11	5,000E -11	1,000E -10	1,500E -10	2,000E -10	2,500E -10	9,200E -09	1,140E -08
Statistics								
Min	5,000E -11	5,000E -11	1,000E -10	1,000E -10	5,000E -11	1,500E -10	8,000E -09	1,120E -08
Max	1,500E -10	1,000E -10	1,000E -10	2,500E -10	2,000E -10	2,500E -10	1,345E -08	1,820E -08
Mean	1,125E -10	8,750E -11	1,000E -10	1,750E -10	1,250E -10	2,000E -10	9,912E -09	1,405E -08
Sigma	4,787E -11	2,500E -11	9,389E -20	6,455E -11	6,455E -11	4,082E -11	2,416E -09	3,376E -09

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	5,000E -11
2	1,000E -10
3	1,500E -10
4	1,000E -10
Statistics	
Min	5,000E -11
Max	1,500E -10
Mean	1,000E -10
Sigma	4,082E -11

-iIL A17



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A16: -iIL A16  
 Vin (under test) = 0V others at Vcc

Unit= A

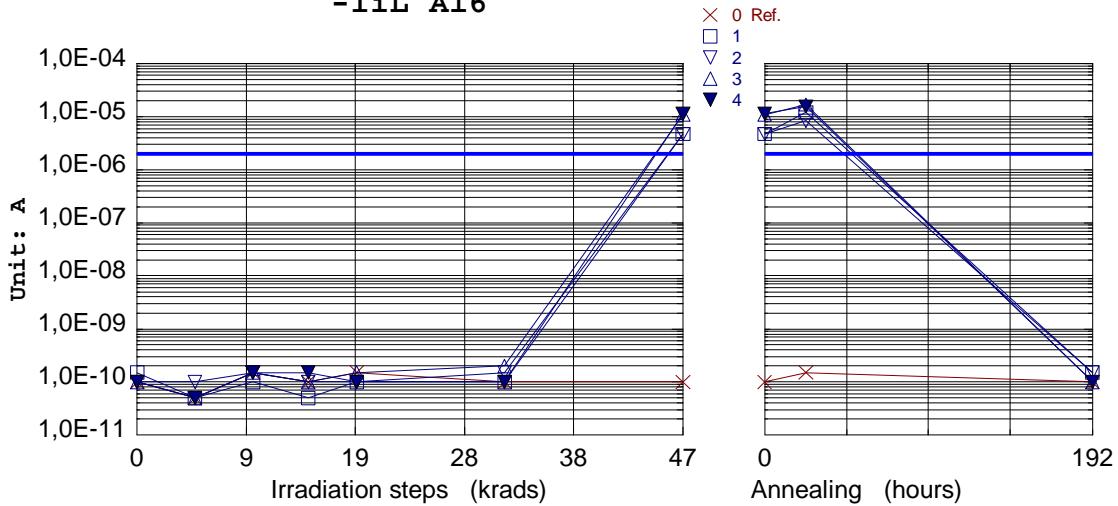
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	5,000E -11	1,500E -10	1,000E -10	1,500E -10	1,000E -10	1,000E -10	1,500E -10
1	1,500E -10	5,000E -11	1,000E -10	5,000E -11	1,000E -10	1,000E -10	4,740E -06	1,215E -05
2	1,000E -10	1,000E -10	1,500E -10	1,000E -10	1,000E -10	1,500E -10	4,720E -06	8,420E -06
3	1,000E -10	5,000E -11	1,500E -10	1,000E -10	1,500E -10	2,000E -10	1,100E -05	1,705E -05
4	1,000E -10	5,000E -11	1,500E -10	1,500E -10	1,000E -10	1,000E -10	1,140E -05	1,555E -05
Statistics								
Min	1,000E -10	5,000E -11	1,000E -10	5,000E -11	1,000E -10	1,000E -10	4,720E -06	8,420E -06
Max	1,500E -10	1,000E -10	1,500E -10	1,500E -10	1,500E -10	2,000E -10	1,140E -05	1,705E -05
Mean	1,125E -10	6,250E -11	1,375E -10	1,000E -10	1,125E -10	1,375E -10	7,965E -06	1,329E -05
Sigma	2,500E -11	2,500E -11	2,500E -11	4,082E -11	2,500E -11	4,787E -11	3,739E -06	3,841E -06

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	1,500E -10
2	1,500E -10
3	1,000E -10
4	1,000E -10
Statistics	
Min	1,000E -10
Max	1,500E -10
Mean	1,250E -10
Sigma	2,887E -11

**-iIL A16**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>		Réf. : HRX/TID/0073
			Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi

**Parameter : Negative Input Current Low Level Pin A15: -iIL A15**  
**Vin (under test) = 0V others at Vcc**

Unit= A

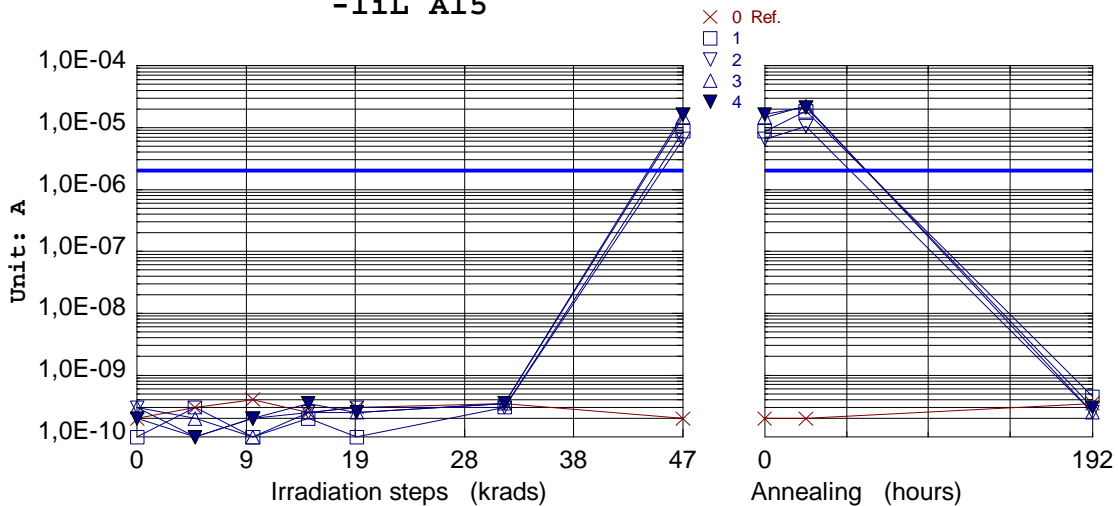
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	3,000E -10	4,000E -10	2,500E -10	3,000E -10	3,500E -10	2,000E -10	2,000E -10
1	1,000E -10	3,000E -10	1,000E -10	2,000E -10	1,000E -10	3,000E -10	8,665E -06	1,845E -05
2	3,000E -10	1,000E -10	2,000E -10	2,500E -10	3,000E -10	3,000E -10	6,495E -06	1,050E -05
3	3,000E -10	2,000E -10	1,000E -10	2,500E -10	2,500E -10	3,500E -10	1,475E -05	2,230E -05
4	2,000E -10	1,000E -10	2,000E -10	3,500E -10	2,500E -10	3,500E -10	1,615E -05	2,125E -05
Statistics								
Min	1,000E -10	1,000E -10	1,000E -10	2,000E -10	1,000E -10	3,000E -10	6,495E -06	1,050E -05
Max	3,000E -10	3,000E -10	2,000E -10	3,500E -10	3,000E -10	3,500E -10	1,615E -05	2,230E -05
Mean	2,250E -10	1,750E -10	1,500E -10	2,625E -10	2,250E -10	3,250E -10	1,151E -05	1,813E -05
Sigma	9,574E -11	9,574E -11	5,774E -11	6,292E -11	8,660E -11	2,887E -11	4,664E -06	5,337E -06

Test Step	192 hours
Serial #	
0 Ref.	3,500E -10
1	4,500E -10
2	2,500E -10
3	2,500E -10
4	3,000E -10
Statistics	
Min	2,500E -10
Max	4,500E -10
Mean	3,125E -10
Sigma	9,465E -11

**-iIL A15**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A14: -iIL A14  
 Vin (under test) = 0V others at Vcc

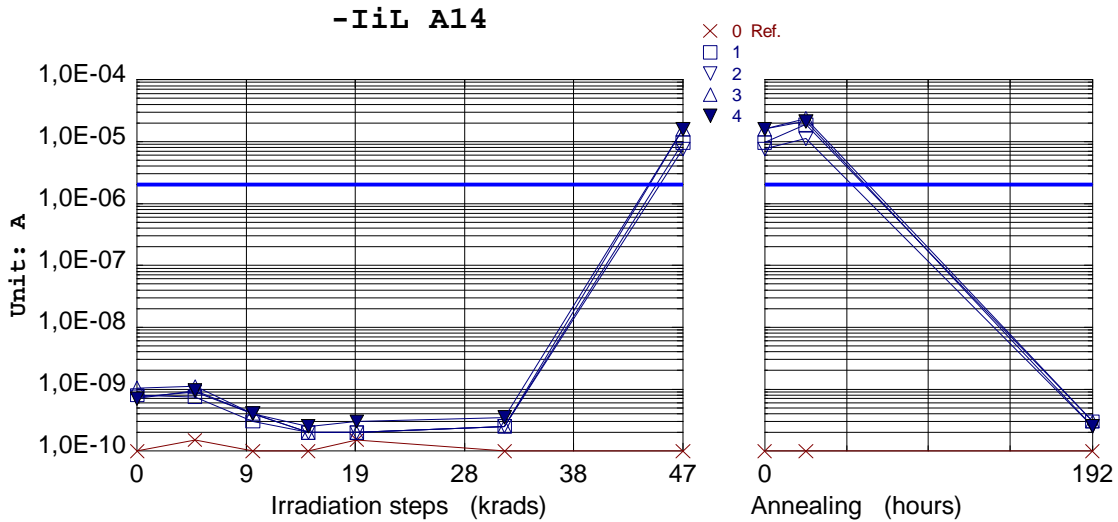
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	1,500E -10	1,000E -10	1,000E -10	1,500E -10	1,000E -10	1,000E -10	1,000E -10
1	8,000E -10	7,500E -10	3,000E -10	2,000E -10	2,000E -10	2,500E -10	9,635E -06	1,890E -05
2	7,500E -10	9,000E -10	4,000E -10	2,000E -10	2,000E -10	2,500E -10	7,620E -06	1,115E -05
3	1,050E -09	1,100E -09	4,000E -10	2,000E -10	2,000E -10	2,500E -10	1,600E -05	2,370E -05
4	7,000E -10	9,500E -10	4,000E -10	2,500E -10	3,000E -10	3,500E -10	1,600E -05	2,120E -05
Statistics								
Min	7,000E -10	7,500E -10	3,000E -10	2,000E -10	2,000E -10	2,500E -10	7,620E -06	1,115E -05
Max	1,050E -09	1,100E -09	4,000E -10	2,500E -10	3,000E -10	3,500E -10	1,600E -05	2,370E -05
Mean	8,250E -10	9,250E -10	3,750E -10	2,125E -10	2,250E -10	2,750E -10	1,231E -05	1,874E -05
Sigma	1,555E -10	1,443E -10	5,000E -11	2,500E -11	5,000E -11	5,000E -11	4,335E -06	5,425E -06

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	3,000E -10
2	2,500E -10
3	3,000E -10
4	2,500E -10
Statistics	
Min	2,500E -10
Max	3,000E -10
Mean	2,750E -10
Sigma	2,887E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A13: -iIL A13  
 Vin (under test) = 0V others at Vcc

Unit= A

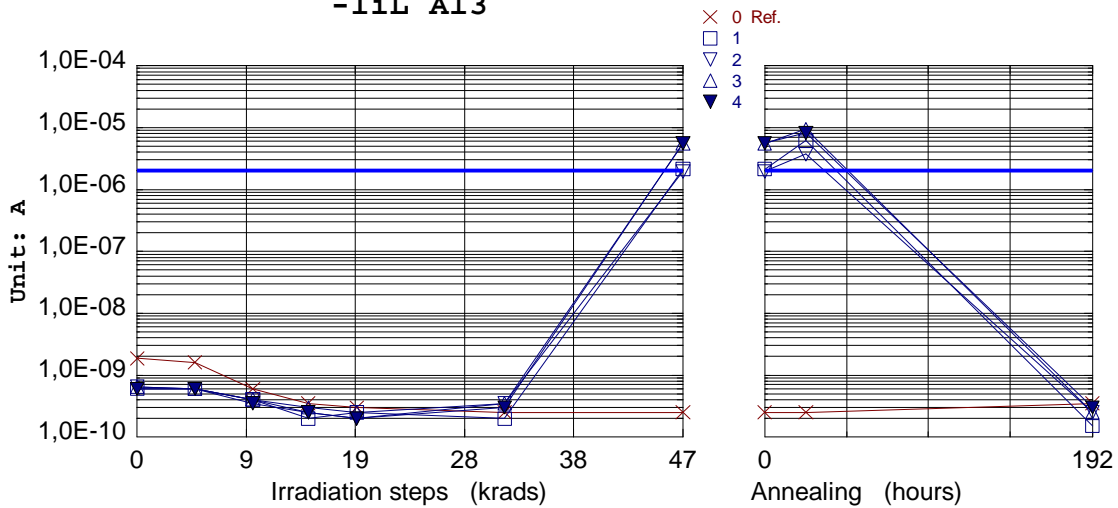
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,850E -09	1,600E -09	6,000E -10	3,500E -10	3,000E -10	2,500E -10	2,500E -10	2,500E -10
1	6,000E -10	6,000E -10	4,000E -10	2,000E -10	2,500E -10	2,000E -10	2,120E -06	6,100E -06
2	6,500E -10	6,000E -10	4,000E -10	2,500E -10	2,000E -10	3,500E -10	1,965E -06	3,715E -06
3	6,500E -10	6,000E -10	4,000E -10	3,000E -10	2,500E -10	3,500E -10	5,500E -06	9,385E -06
4	6,000E -10	6,000E -10	3,500E -10	2,500E -10	2,000E -10	3,000E -10	5,585E -06	8,230E -06
Statistics								
Min	6,000E -10	6,000E -10	3,500E -10	2,000E -10	2,000E -10	2,000E -10	1,965E -06	3,715E -06
Max	6,500E -10	6,000E -10	4,000E -10	3,000E -10	2,500E -10	3,500E -10	5,585E -06	9,385E -06
Mean	6,250E -10	6,000E -10	3,875E -10	2,500E -10	2,250E -10	3,000E -10	3,793E -06	6,858E -06
Sigma	2,887E -11	7,300E -19	2,500E -11	4,082E -11	2,887E -11	7,071E -11	2,022E -06	2,498E -06

Test Step	192 hours
Serial #	
0 Ref.	3,500E -10
1	1,500E -10
2	2,500E -10
3	2,500E -10
4	3,000E -10
Statistics	
Min	1,500E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	6,292E -11

**-iIL A13**





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A12: -iIL A12  
 Vin (under test) = 0V others at Vcc

Unit= A

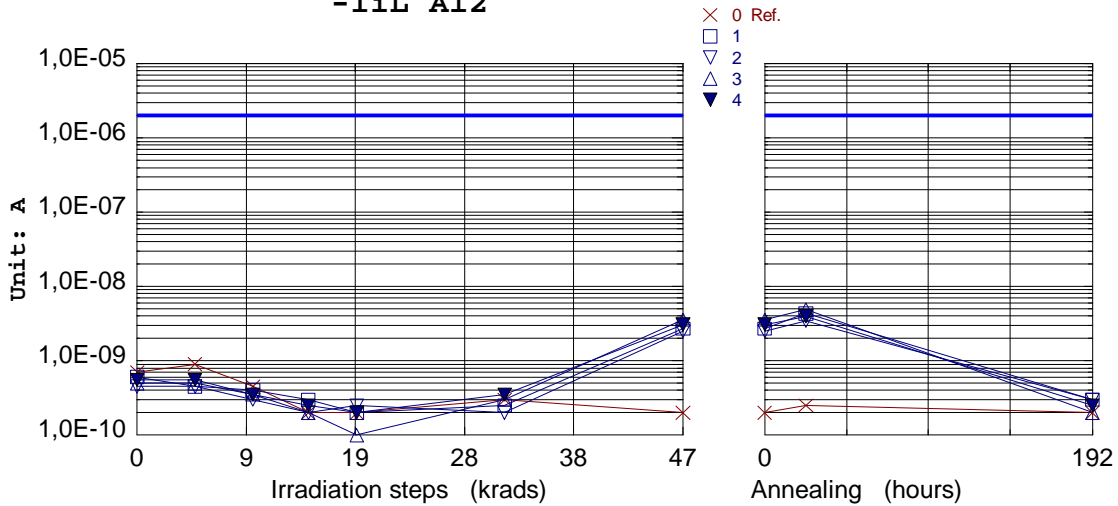
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	7,000E -10	9,000E -10	4,500E -10	2,000E -10	2,000E -10	3,000E -10	2,000E -10	2,500E -10
1	6,000E -10	4,500E -10	4,000E -10	3,000E -10	2,000E -10	2,500E -10	2,700E -09	4,300E -09
2	4,500E -10	4,500E -10	3,000E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -09	3,450E -09
3	5,000E -10	5,000E -10	3,500E -10	2,000E -10	1,000E -10	3,000E -10	3,550E -09	4,850E -09
4	5,500E -10	5,500E -10	3,500E -10	2,500E -10	2,000E -10	3,500E -10	3,050E -09	3,950E -09
Statistics								
Min	4,500E -10	4,500E -10	3,000E -10	2,000E -10	1,000E -10	2,000E -10	2,500E -09	3,450E -09
Max	6,000E -10	5,500E -10	4,000E -10	3,000E -10	2,500E -10	3,500E -10	3,550E -09	4,850E -09
Mean	5,250E -10	4,875E -10	3,500E -10	2,375E -10	1,875E -10	2,750E -10	2,950E -09	4,137E -09
Sigma	6,455E -11	4,787E -11	4,082E -11	4,787E -11	6,292E -11	6,455E -11	4,601E -10	5,893E -10

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,000E -10
2	3,000E -10
3	2,000E -10
4	2,500E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,625E -10
Sigma	4,787E -11

**-iIL A12**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A11: -iIL A11  
 Vin (under test) = 0V others at Vcc

Unit= A

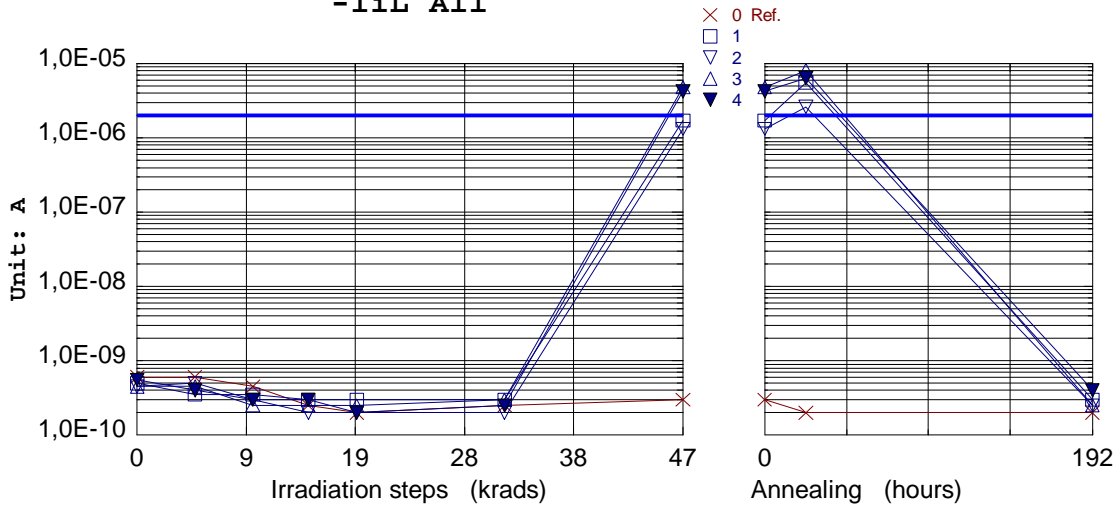
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	6,000E -10	6,000E -10	4,500E -10	2,500E -10	2,000E -10	2,500E -10	3,000E -10	2,000E -10
1	5,000E -10	3,500E -10	3,500E -10	3,000E -10	3,000E -10	3,000E -10	1,715E -06	5,575E -06
2	4,500E -10	5,000E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10	1,325E -06	2,630E -06
3	4,500E -10	4,500E -10	2,500E -10	2,500E -10	2,500E -10	3,000E -10	4,825E -06	8,110E -06
4	5,500E -10	4,000E -10	3,000E -10	3,000E -10	2,000E -10	2,500E -10	4,230E -06	6,415E -06
Statistics								
Min	4,500E -10	3,500E -10	2,500E -10	2,000E -10	2,000E -10	2,000E -10	1,325E -06	2,630E -06
Max	5,500E -10	5,000E -10	3,500E -10	3,000E -10	3,000E -10	3,000E -10	4,825E -06	8,110E -06
Mean	4,875E -10	4,250E -10	3,000E -10	2,625E -10	2,375E -10	2,625E -10	3,024E -06	5,682E -06
Sigma	4,787E -11	6,455E -11	4,082E -11	4,787E -11	4,787E -11	4,787E -11	1,761E -06	2,292E -06

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,000E -10
2	2,500E -10
3	2,500E -10
4	4,000E -10
Statistics	
Min	2,500E -10
Max	4,000E -10
Mean	3,000E -10
Sigma	7,071E -11

**-iIL A11**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Negative Input Current Low Level Pin A10: -iIL A10**  
**Vin (under test) = 0V others at Vcc**

Unit= A

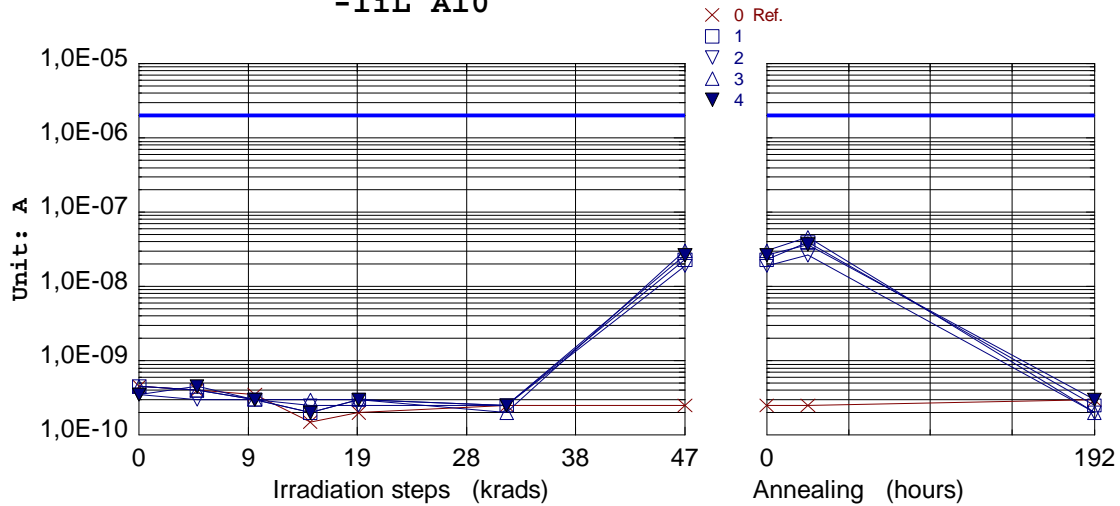
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,500E -10	4,000E -10	3,500E -10	1,500E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10
1	4,500E -10	4,000E -10	3,000E -10	2,000E -10	3,000E -10	2,500E -10	2,300E -08	3,920E -08
2	3,500E -10	3,000E -10	3,000E -10	2,500E -10	2,500E -10	2,500E -10	1,895E -08	2,630E -08
3	4,500E -10	4,000E -10	3,000E -10	3,000E -10	3,000E -10	2,000E -10	3,050E -08	4,590E -08
4	3,500E -10	4,500E -10	3,000E -10	2,000E -10	3,000E -10	2,500E -10	2,645E -08	3,675E -08
Statistics								
Min	3,500E -10	3,000E -10	3,000E -10	2,000E -10	2,500E -10	2,000E -10	1,895E -08	2,630E -08
Max	4,500E -10	4,500E -10	3,000E -10	3,000E -10	3,000E -10	2,500E -10	3,050E -08	4,590E -08
Mean	4,000E -10	3,875E -10	3,000E -10	2,375E -10	2,875E -10	2,375E -10	2,473E -08	3,704E -08
Sigma	5,774E -11	6,292E -11	3,650E -19	4,787E -11	2,500E -11	2,500E -11	4,921E -09	8,136E -09

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	2,500E -10
2	2,000E -10
3	2,000E -10
4	3,000E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	4,787E -11

**-iIL A10**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A9: -IiL A9  
 Vin (under test) = 0V others at Vcc

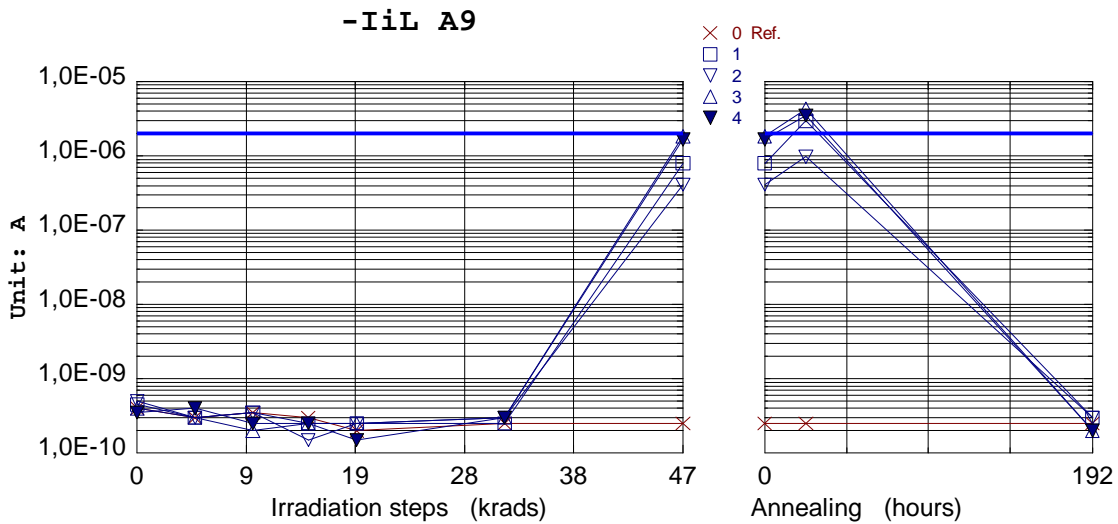
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	3,000E -10	3,500E -10	3,000E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10
1	4,500E -10	3,000E -10	3,500E -10	2,500E -10	2,500E -10	2,500E -10	7,960E -07	2,970E -06
2	5,000E -10	3,000E -10	3,500E -10	1,500E -10	2,500E -10	3,000E -10	4,090E -07	9,795E -07
3	4,000E -10	3,000E -10	2,000E -10	2,500E -10	2,500E -10	3,000E -10	1,855E -06	4,290E -06
4	3,500E -10	4,000E -10	2,500E -10	2,500E -10	1,500E -10	3,000E -10	1,675E -06	3,510E -06
Statistics								
Min	3,500E -10	3,000E -10	2,000E -10	1,500E -10	1,500E -10	2,500E -10	4,090E -07	9,795E -07
Max	5,000E -10	4,000E -10	3,500E -10	2,500E -10	2,500E -10	3,000E -10	1,855E -06	4,290E -06
Mean	4,250E -10	3,250E -10	2,875E -10	2,250E -10	2,250E -10	2,875E -10	1,184E -06	2,937E -06
Sigma	6,455E -11	5,000E -11	7,500E -11	5,000E -11	5,000E -11	2,500E -11	6,934E -07	1,413E -06

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	3,000E -10
2	3,000E -10
3	2,000E -10
4	2,000E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,500E -10
Sigma	5,774E -11



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Negative Input Current Low Level Pin A8: -IiL A8**  
**Vin (under test) = 0V others at Vcc**

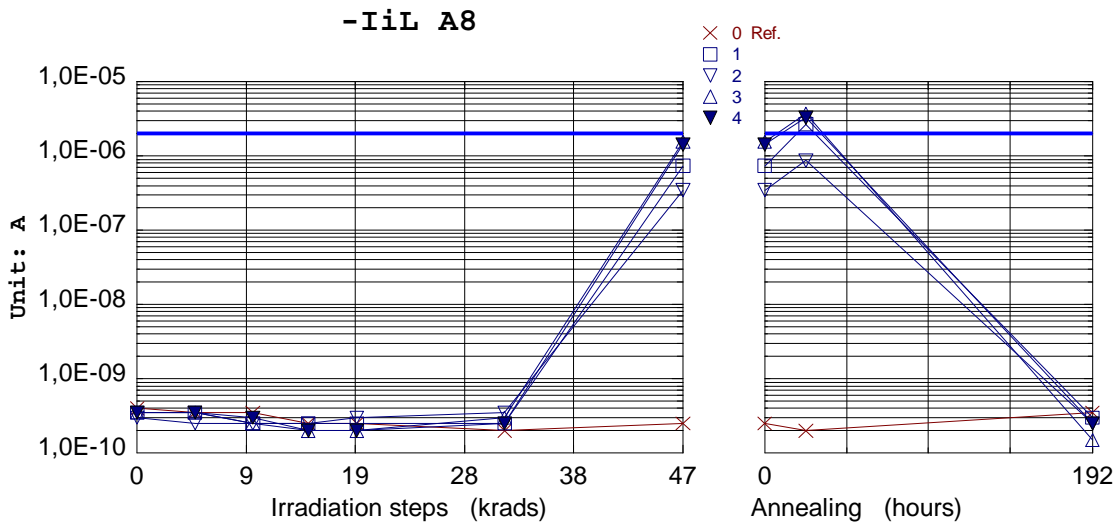
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,00E -10	3,50E -10	3,50E -10	2,50E -10	2,50E -10	2,00E -10	2,50E -10	2,00E -10
1	3,50E -10	3,50E -10	2,50E -10	2,50E -10	2,50E -10	2,50E -10	7,36E -07	2,65E -06
2	3,00E -10	2,50E -10	2,50E -10	2,50E -10	3,00E -10	3,50E -10	3,48E -07	8,62E -07
3	3,50E -10	3,50E -10	2,50E -10	2,00E -10	2,00E -10	3,00E -10	1,55E -06	3,67E -06
4	3,50E -10	3,50E -10	3,00E -10	2,00E -10	2,00E -10	2,50E -10	1,42E -06	3,26E -06
Statistics								
Min	3,00E -10	2,50E -10	2,50E -10	2,00E -10	2,00E -10	2,50E -10	3,48E -07	8,62E -07
Max	3,50E -10	3,50E -10	3,00E -10	2,50E -10	3,00E -10	3,50E -10	1,55E -06	3,67E -06
Mean	3,37E -10	3,25E -10	2,62E -10	2,25E -10	2,37E -10	2,87E -10	1,01E -06	2,61E -06
Sigma	2,50E -11	5,00E -11	2,50E -11	2,88E -11	4,78E -11	4,78E -11	5,70E -07	1,23E -06

Test Step	192 hours
Serial #	
0 Ref.	3,50E -10
1	3,00E -10
2	2,50E -10
3	1,50E -10
4	2,50E -10
Statistics	
Min	1,50E -10
Max	3,00E -10
Mean	2,37E -10
Sigma	6,29E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A7: -iIL A7  
 Vin (under test) = 0V others at Vcc

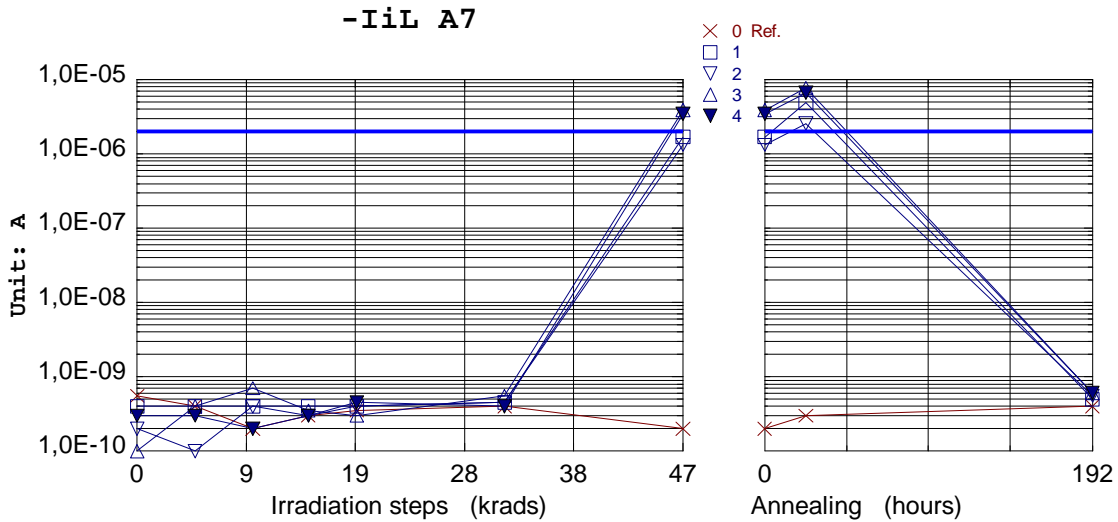
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	5,500E -10	4,000E -10	2,000E -10	3,000E -10	3,500E -10	4,000E -10	2,000E -10	3,000E -10
1	4,000E -10	4,000E -10	4,000E -10	4,000E -10	4,000E -10	4,500E -10	1,695E -06	4,850E -06
2	2,000E -10	1,000E -10	4,000E -10	3,000E -10	4,000E -10	4,500E -10	1,325E -06	2,560E -06
3	1,000E -10	4,000E -10	7,000E -10	3,500E -10	3,000E -10	5,500E -10	3,875E -06	7,790E -06
4	3,000E -10	3,000E -10	2,000E -10	3,000E -10	4,500E -10	4,000E -10	3,470E -06	6,625E -06
Statistics								
Min	1,000E -10	1,000E -10	2,000E -10	3,000E -10	3,000E -10	4,000E -10	1,325E -06	2,560E -06
Max	4,000E -10	4,000E -10	7,000E -10	4,000E -10	4,500E -10	5,500E -10	3,875E -06	7,790E -06
Mean	2,500E -10	3,000E -10	4,250E -10	3,375E -10	3,875E -10	4,625E -10	2,591E -06	5,456E -06
Sigma	1,291E -10	1,414E -10	2,062E -10	4,787E -11	6,292E -11	6,292E -11	1,268E -06	2,278E -06

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	5,000E -10
2	5,500E -10
3	6,000E -10
4	6,000E -10
Statistics	
Min	5,000E -10
Max	6,000E -10
Mean	5,625E -10
Sigma	4,787E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A6: -iL A6  
 Vin (under test) = 0V others at Vcc

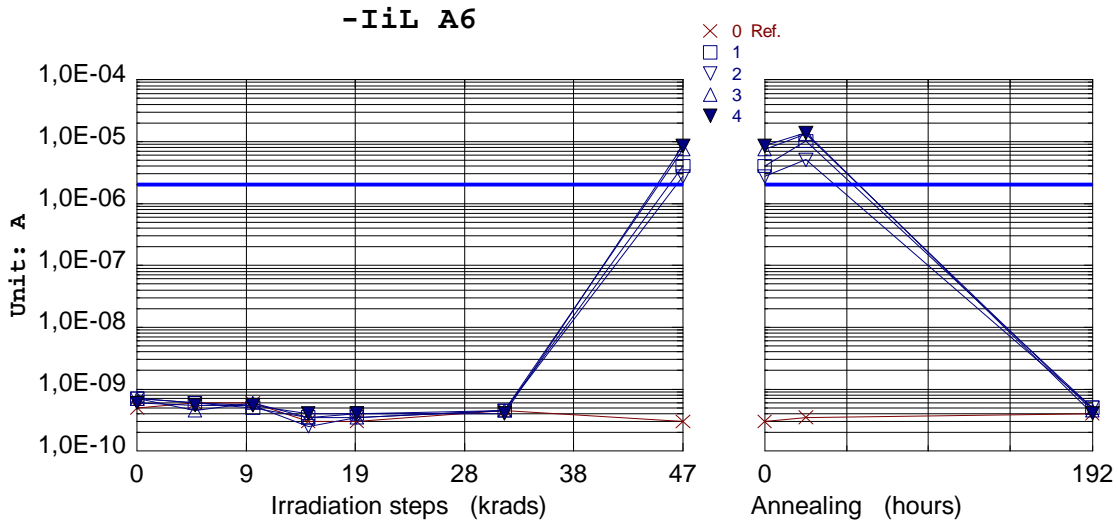
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	5,000E -10	6,000E -10	6,000E -10	3,000E -10	3,000E -10	4,500E -10	3,000E -10	3,500E -10
1	7,000E -10	6,000E -10	5,000E -10	3,500E -10	4,000E -10	4,500E -10	4,030E -06	1,021E -05
2	7,000E -10	6,000E -10	5,500E -10	2,500E -10	3,500E -10	4,500E -10	2,720E -06	5,115E -06
3	7,000E -10	4,500E -10	6,000E -10	3,500E -10	3,500E -10	4,500E -10	7,490E -06	1,330E -05
4	6,000E -10	5,500E -10	5,500E -10	4,000E -10	4,000E -10	4,000E -10	8,595E -06	1,385E -05
Statistics								
Min	6,000E -10	4,500E -10	5,000E -10	2,500E -10	3,500E -10	4,000E -10	2,720E -06	5,115E -06
Max	7,000E -10	6,000E -10	6,000E -10	4,000E -10	4,000E -10	4,500E -10	8,595E -06	1,385E -05
Mean	6,750E -10	5,500E -10	5,500E -10	3,375E -10	3,750E -10	4,375E -10	5,709E -06	1,062E -05
Sigma	5,000E -11	7,071E -11	4,082E -11	6,292E -11	2,887E -11	2,500E -11	2,784E -06	4,004E -06

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	5,000E -10
2	5,000E -10
3	4,500E -10
4	4,000E -10
Statistics	
Min	4,000E -10
Max	5,000E -10
Mean	4,625E -10
Sigma	4,787E -11



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Negative Input Current Low Level Pin A5: -iIL A5**  
**Vin (under test) = 0V others at Vcc**

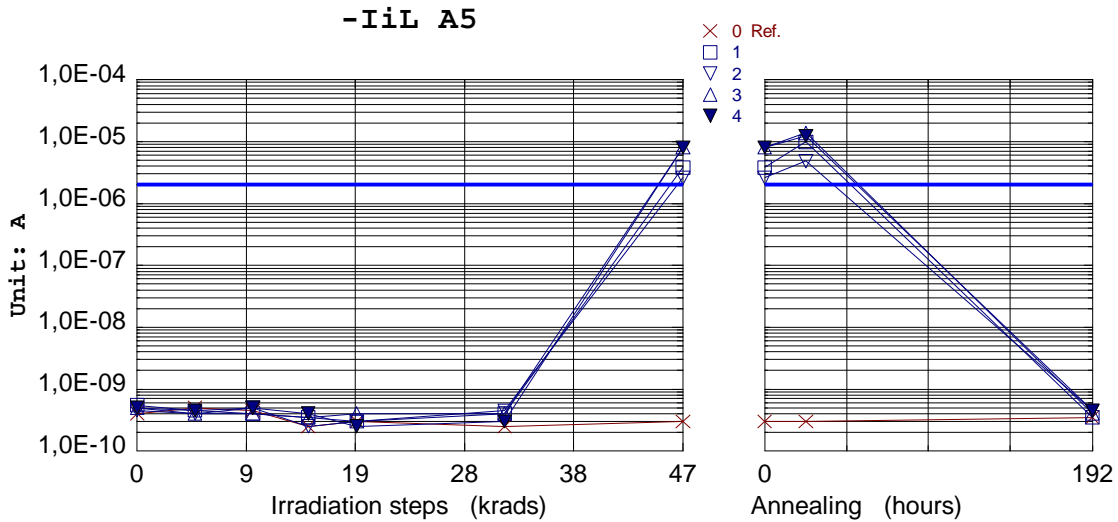
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	5,000E -10	4,500E -10	2,500E -10	3,000E -10	2,500E -10	3,000E -10	3,000E -10
1	5,500E -10	4,500E -10	4,000E -10	3,500E -10	3,000E -10	4,000E -10	3,800E -06	9,850E -06
2	4,500E -10	4,000E -10	5,000E -10	2,500E -10	3,000E -10	4,500E -10	2,600E -06	4,830E -06
3	5,000E -10	4,000E -10	4,000E -10	3,500E -10	4,000E -10	4,000E -10	8,050E -06	1,375E -05
4	5,000E -10	4,500E -10	5,000E -10	4,000E -10	2,500E -10	3,000E -10	7,980E -06	1,230E -05
Statistics								
Min	4,500E -10	4,000E -10	4,000E -10	2,500E -10	2,500E -10	3,000E -10	2,600E -06	4,830E -06
Max	5,500E -10	4,500E -10	5,000E -10	4,000E -10	4,000E -10	4,500E -10	8,050E -06	1,375E -05
Mean	5,000E -10	4,250E -10	4,500E -10	3,375E -10	3,125E -10	3,875E -10	5,608E -06	1,018E -05
Sigma	4,082E -11	2,887E -11	5,774E -11	6,292E -11	6,292E -11	6,292E -11	2,823E -06	3,915E -06

Test Step	192 hours
Serial #	
0 Ref.	3,500E -10
1	3,500E -10
2	4,500E -10
3	4,000E -10
4	4,500E -10
Statistics	
Min	3,500E -10
Max	4,500E -10
Mean	4,125E -10
Sigma	4,787E -11





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Negative Input Current Low Level Pin A4: -iIL A4**  
**Vin (under test) = 0V others at Vcc**

Unit= A

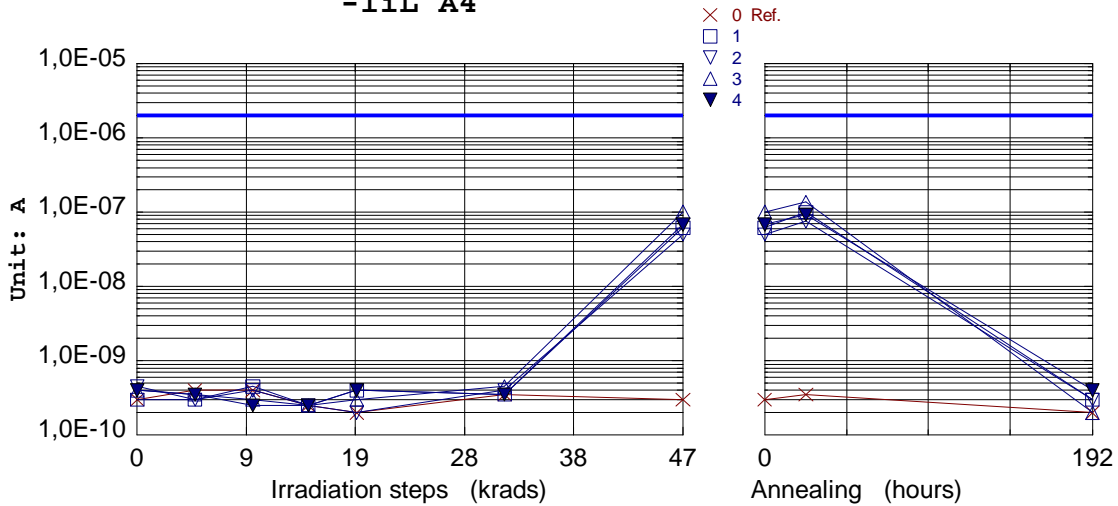
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	4,000E -10	4,000E -10	2,500E -10	2,000E -10	3,500E -10	3,000E -10	3,500E -10
1	3,000E -10	3,000E -10	4,500E -10	2,500E -10	4,000E -10	3,500E -10	6,200E -08	1,005E -07
2	4,500E -10	3,000E -10	4,000E -10	2,500E -10	2,000E -10	4,000E -10	5,040E -08	7,580E -08
3	4,000E -10	3,500E -10	3,000E -10	2,500E -10	3,000E -10	4,500E -10	1,010E -07	1,375E -07
4	4,000E -10	3,500E -10	2,500E -10	2,500E -10	4,000E -10	3,500E -10	6,825E -08	9,255E -08
Statistics								
Min	3,000E -10	3,000E -10	2,500E -10	2,500E -10	2,000E -10	3,500E -10	5,040E -08	7,580E -08
Max	4,500E -10	3,500E -10	4,500E -10	2,500E -10	4,000E -10	4,500E -10	1,010E -07	1,375E -07
Mean	3,875E -10	3,250E -10	3,500E -10	2,500E -10	3,250E -10	3,875E -10	7,041E -08	1,016E -07
Sigma	6,292E -11	2,887E -11	9,129E -11	2,342E -19	9,574E -11	4,787E -11	2,169E -08	2,606E -08

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,000E -10
2	3,000E -10
3	2,000E -10
4	4,000E -10
Statistics	
Min	2,000E -10
Max	4,000E -10
Mean	3,000E -10
Sigma	8,165E -11

**-iIL A4**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A3: -iIL A3  
 Vin (under test) = 0V others at Vcc

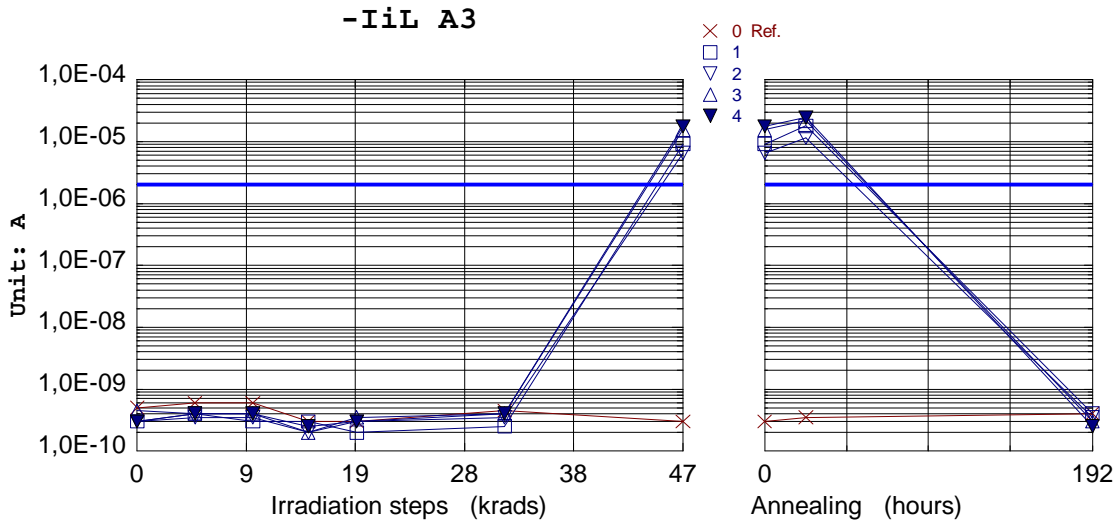
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	5,000E -10	6,000E -10	6,000E -10	3,000E -10	3,000E -10	4,500E -10	3,000E -10	3,500E -10
1	3,000E -10	4,000E -10	3,000E -10	3,000E -10	2,000E -10	2,500E -10	9,170E -06	1,790E -05
2	3,000E -10	3,500E -10	3,500E -10	2,000E -10	3,000E -10	3,500E -10	6,535E -06	1,150E -05
3	4,500E -10	4,000E -10	4,000E -10	2,000E -10	3,500E -10	4,000E -10	1,555E -05	2,160E -05
4	3,000E -10	4,000E -10	4,000E -10	2,500E -10	3,000E -10	4,000E -10	1,775E -05	2,465E -05
Statistics								
Min	3,000E -10	3,500E -10	3,000E -10	2,000E -10	2,000E -10	2,500E -10	6,535E -06	1,150E -05
Max	4,500E -10	4,000E -10	4,000E -10	3,000E -10	3,500E -10	4,000E -10	1,775E -05	2,465E -05
Mean	3,375E -10	3,875E -10	3,625E -10	2,375E -10	2,875E -10	3,500E -10	1,225E -05	1,891E -05
Sigma	7,500E -11	2,500E -11	4,787E -11	4,787E -11	6,292E -11	7,071E -11	5,269E -06	5,660E -06

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	4,000E -10
2	3,500E -10
3	3,000E -10
4	2,500E -10
Statistics	
Min	2,500E -10
Max	4,000E -10
Mean	3,250E -10
Sigma	6,455E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A2: -iL A2  
 Vin (under test) = 0V others at Vcc

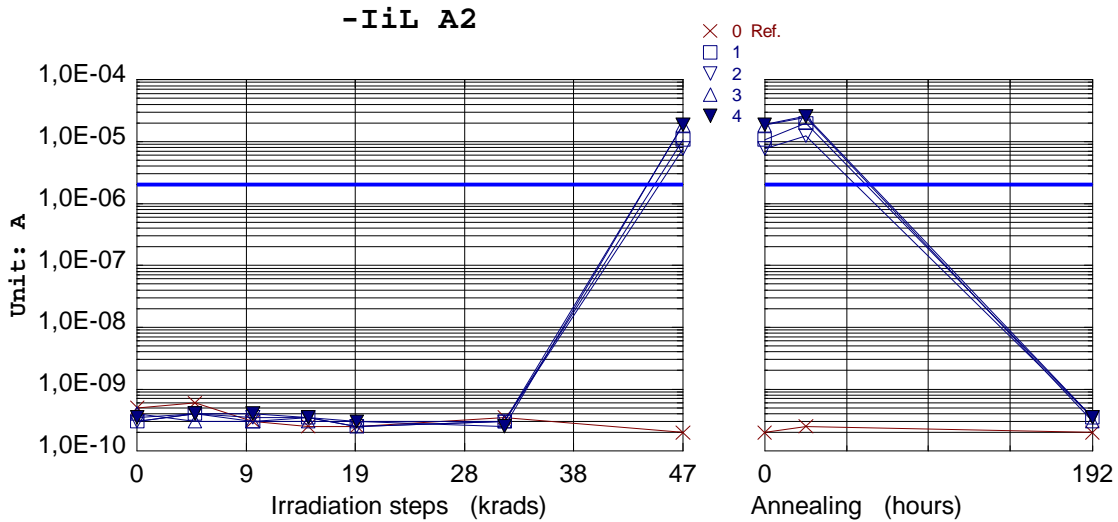
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	5,000E -10	6,000E -10	3,000E -10	2,500E -10	2,500E -10	3,500E -10	2,000E -10	2,500E -10
1	3,000E -10	4,000E -10	3,000E -10	3,500E -10	2,500E -10	3,000E -10	1,075E -05	1,980E -05
2	3,000E -10	4,000E -10	3,500E -10	3,500E -10	2,500E -10	3,000E -10	7,700E -06	1,245E -05
3	4,000E -10	3,000E -10	3,000E -10	3,000E -10	3,000E -10	3,000E -10	1,830E -05	2,460E -05
4	3,500E -10	4,000E -10	4,000E -10	3,500E -10	3,000E -10	2,500E -10	1,875E -05	2,545E -05
Statistics								
Min	3,000E -10	3,000E -10	3,000E -10	3,000E -10	2,500E -10	2,500E -10	7,700E -06	1,245E -05
Max	4,000E -10	4,000E -10	4,000E -10	3,500E -10	3,000E -10	3,000E -10	1,875E -05	2,545E -05
Mean	3,375E -10	3,750E -10	3,375E -10	3,375E -10	2,750E -10	2,875E -10	1,388E -05	2,057E -05
Sigma	4,787E -11	5,000E -11	4,787E -11	2,500E -11	2,887E -11	2,500E -11	5,515E -06	5,960E -06

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,500E -10
2	3,500E -10
3	3,000E -10
4	3,500E -10
Statistics	
Min	3,000E -10
Max	3,500E -10
Mean	3,375E -10
Sigma	2,500E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A1: -iL A1  
 Vin (under test) = 0V others at Vcc

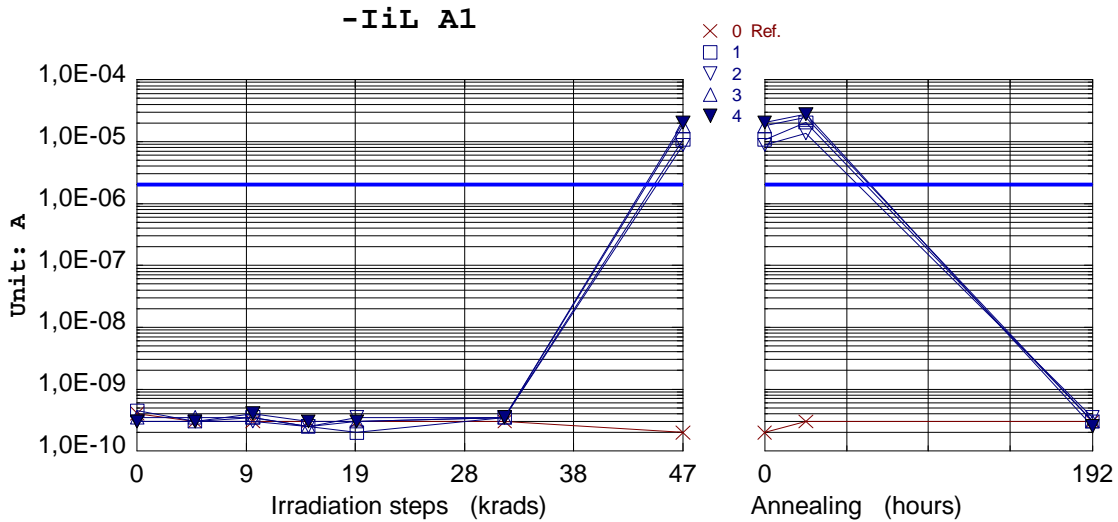
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,00E -10	3,00E -10	3,00E -10	3,00E -10	3,00E -10	3,00E -10	2,00E -10	3,00E -10
1	4,50E -10	3,00E -10	3,50E -10	2,50E -10	2,00E -10	3,50E -10	1,07E -05	2,03E -05
2	3,00E -10	3,00E -10	3,00E -10	2,50E -10	3,50E -10	3,50E -10	8,81E -06	1,36E -05
3	3,50E -10	3,50E -10	3,50E -10	2,50E -10	3,00E -10	3,50E -10	1,78E -05	2,44E -05
4	3,00E -10	3,00E -10	4,00E -10	3,00E -10	3,00E -10	3,50E -10	2,03E -05	2,77E -05
Statistics								
Min	3,00E -10	3,00E -10	3,00E -10	2,50E -10	2,00E -10	3,50E -10	8,81E -06	1,36E -05
Max	4,50E -10	3,50E -10	4,00E -10	3,00E -10	3,50E -10	3,50E -10	2,03E -05	2,77E -05
Mean	3,50E -10	3,12E -10	3,50E -10	2,62E -10	2,87E -10	3,50E -10	1,44E -05	2,15E -05
Sigma	7,07E -11	2,50E -11	4,08E -11	2,50E -11	6,29E -11	3,54E -19	5,52E -06	6,05E -06

Test Step	192 hours
Serial #	
0 Ref.	3,00E -10
1	3,00E -10
2	3,50E -10
3	3,00E -10
4	2,50E -10
Statistics	
Min	2,50E -10
Max	3,50E -10
Mean	3,00E -10
Sigma	4,08E -11



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Input Current Low Level Pin A0: -iIL A0  
 Vin (under test) = 0V others at Vcc

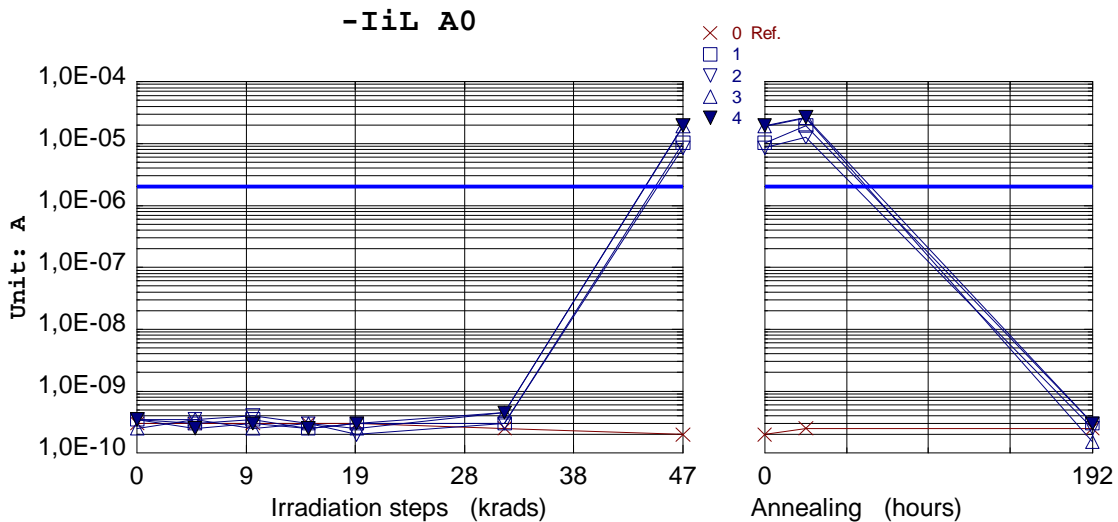
Unit= A

Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	3,000E -10	3,000E -10	3,000E -10	3,000E -10	2,500E -10	2,000E -10	2,500E -10
1	3,500E -10	3,000E -10	3,500E -10	2,500E -10	3,000E -10	3,000E -10	1,030E -05	1,945E -05
2	3,500E -10	3,500E -10	4,000E -10	3,000E -10	2,000E -10	3,000E -10	8,540E -06	1,260E -05
3	2,500E -10	3,500E -10	2,500E -10	3,000E -10	2,500E -10	4,500E -10	1,900E -05	2,585E -05
4	3,500E -10	2,500E -10	3,000E -10	2,500E -10	3,000E -10	4,500E -10	1,965E -05	2,685E -05
Statistics								
Min	2,500E -10	2,500E -10	2,500E -10	2,500E -10	2,000E -10	3,000E -10	8,540E -06	1,260E -05
Max	3,500E -10	3,500E -10	4,000E -10	3,000E -10	3,000E -10	4,500E -10	1,965E -05	2,685E -05
Mean	3,250E -10	3,125E -10	3,250E -10	2,750E -10	2,625E -10	3,750E -10	1,437E -05	2,119E -05
Sigma	5,000E -11	4,787E -11	6,455E -11	2,887E -11	4,787E -11	8,660E -11	5,770E -06	6,597E -06

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	3,000E -10
2	2,500E -10
3	1,500E -10
4	3,000E -10
Statistics	
Min	1,500E -10
Max	3,000E -10
Mean	2,500E -10
Sigma	7,071E -11



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A17: IiH A17  
Vin (under test) = Vcc others at 0V

Unit= A

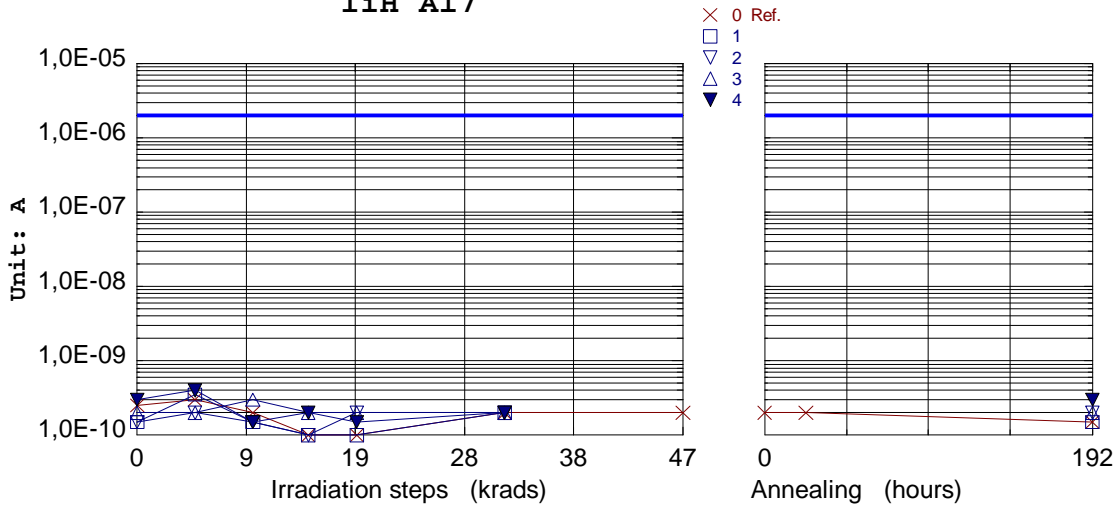
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,500E -10	3,000E -10	2,000E -10	1,000E -10	1,000E -10	2,000E -10	2,000E -10	2,000E -10
1	1,500E -10	3,500E -10	1,500E -10	1,000E -10	1,000E -10	2,000E -10		
2	1,500E -10	2,000E -10	1,500E -10	1,000E -10	2,000E -10	2,000E -10		
3	2,000E -10	2,000E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10		
4	3,000E -10	4,000E -10	1,500E -10	2,000E -10	1,500E -10	2,000E -10		
Statistics								
Min	1,500E -10	2,000E -10	1,500E -10	1,000E -10	1,000E -10	2,000E -10		
Max	3,000E -10	4,000E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10		
Mean	2,000E -10	2,875E -10	1,875E -10	1,500E -10	1,625E -10	2,000E -10		
Sigma	7,071E -11	1,031E -10	7,500E -11	5,774E -11	4,787E -11	1,878E -19		

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	1,500E -10
2	2,000E -10
3	2,000E -10
4	3,000E -10
Statistics	
Min	1,500E -10
Max	3,000E -10
Mean	2,125E -10
Sigma	6,292E -11

**IiH A17**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A16: IiH A16  
Vin (under test) = Vcc others at 0V

Unit= A

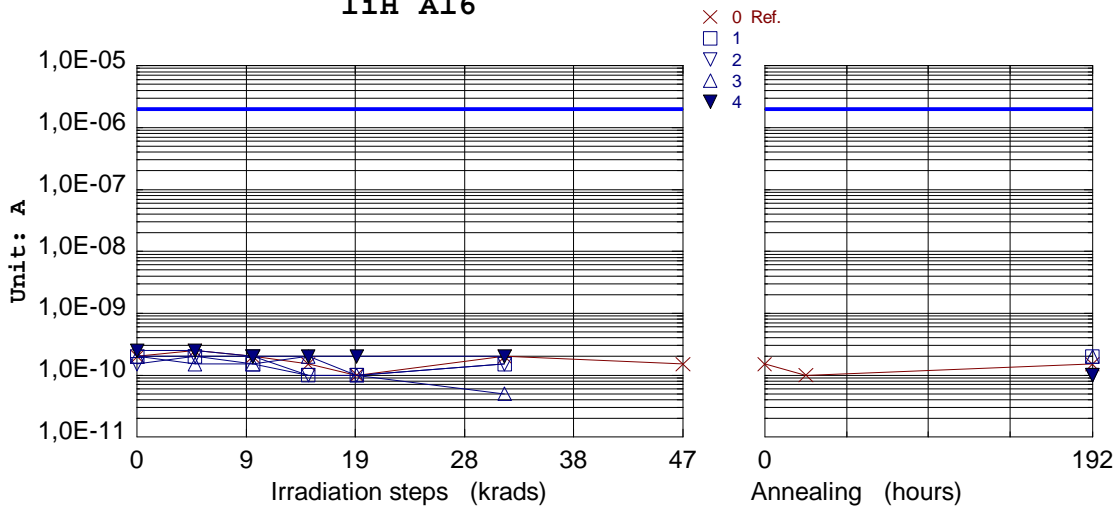
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	2,500E -10	2,000E -10	1,500E -10	1,000E -10	2,000E -10	1,500E -10	1,000E -10
1	2,000E -10	2,000E -10	1,500E -10	1,000E -10	1,000E -10	1,500E -10		
2	1,500E -10	2,000E -10	2,000E -10	1,000E -10	1,000E -10	1,500E -10		
3	2,000E -10	1,500E -10	1,500E -10	2,000E -10	1,000E -10	5,000E -11		
4	2,500E -10	2,500E -10	2,000E -10	2,000E -10	2,000E -10	2,000E -10		
Statistics								
Min	1,500E -10	1,500E -10	1,500E -10	1,000E -10	1,000E -10	5,000E -11		
Max	2,500E -10	2,500E -10	2,000E -10	2,000E -10	2,000E -10	2,000E -10		
Mean	2,000E -10	2,000E -10	1,750E -10	1,500E -10	1,250E -10	1,375E -10		
Sigma	4,082E -11	4,082E -11	2,887E -11	5,774E -11	5,000E -11	6,292E -11		

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	2,000E -10
2	1,000E -10
3	2,000E -10
4	1,000E -10
Statistics	
Min	1,000E -10
Max	2,000E -10
Mean	1,500E -10
Sigma	5,774E -11

### IiH A16



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : High Input Current Pin A15: IiH A15**  
**Vin (under test) = Vcc others at 0V**

Unit= A

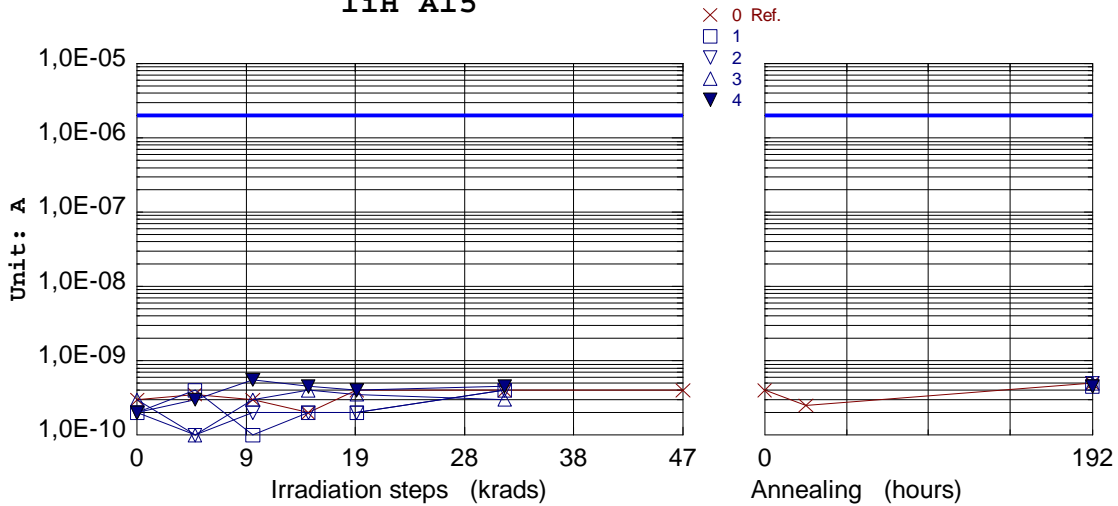
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	3,500E -10	3,000E -10	2,000E -10	4,000E -10	4,000E -10	4,000E -10	2,500E -10
1	2,000E -10	4,000E -10	1,000E -10	2,000E -10	2,000E -10	4,000E -10	4,000E -10	
2	2,000E -10	1,000E -10	2,000E -10	2,000E -10	2,000E -10	4,000E -10		
3	3,000E -10	1,000E -10	3,000E -10	4,000E -10	3,500E -10	3,000E -10		
4	2,000E -10	3,000E -10	5,500E -10	4,500E -10	4,000E -10	4,500E -10		
Statistics								
Min	2,000E -10	1,000E -10	1,000E -10	2,000E -10	2,000E -10	3,000E -10		
Max	3,000E -10	4,000E -10	5,500E -10	4,500E -10	4,000E -10	4,500E -10		
Mean	2,250E -10	2,250E -10	2,875E -10	3,125E -10	2,875E -10	3,875E -10		
Sigma	5,000E -11	1,500E -10	1,931E -10	1,315E -10	1,031E -10	6,292E -11		

Test Step	192 hours
Serial #	
0 Ref.	5,000E -10
1	4,500E -10
2	5,000E -10
3	5,000E -10
4	4,500E -10
Statistics	
Min	4,500E -10
Max	5,000E -10
Mean	4,750E -10
Sigma	2,887E -11

**IiH A15**





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A14: IiH A14  
Vin (under test) = Vcc others at 0V

Unit= A

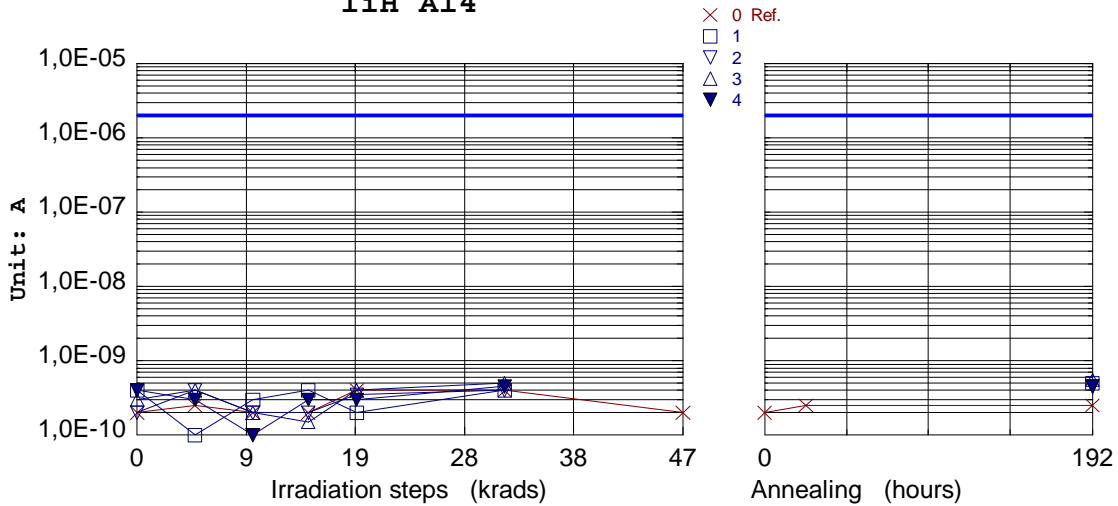
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	2,500E -10	2,000E -10	2,000E -10	4,000E -10	4,000E -10	2,000E -10	2,500E -10
1	4,000E -10	1,000E -10	3,000E -10	4,000E -10	2,000E -10	4,000E -10		
2	2,000E -10	4,000E -10	2,000E -10	2,000E -10	3,500E -10	4,000E -10		
3	3,000E -10	4,000E -10	2,000E -10	1,500E -10	4,000E -10	5,000E -10		
4	4,000E -10	3,000E -10	1,000E -10	3,000E -10	3,000E -10	4,500E -10		
Statistics								
Min	2,000E -10	1,000E -10	1,000E -10	1,500E -10	2,000E -10	4,000E -10		
Max	4,000E -10	4,000E -10	3,000E -10	4,000E -10	4,000E -10	5,000E -10		
Mean	3,250E -10	3,000E -10	2,000E -10	2,625E -10	3,125E -10	4,375E -10		
Sigma	9,574E -11	1,414E -10	8,165E -11	1,109E -10	8,539E -11	4,787E -11		

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	5,000E -10
2	4,500E -10
3	5,500E -10
4	4,500E -10
Statistics	
Min	4,500E -10
Max	5,500E -10
Mean	4,875E -10
Sigma	4,787E -11

**IiH A14**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A13: IiH A13  
Vin (under test) = Vcc others at 0V

Unit= A

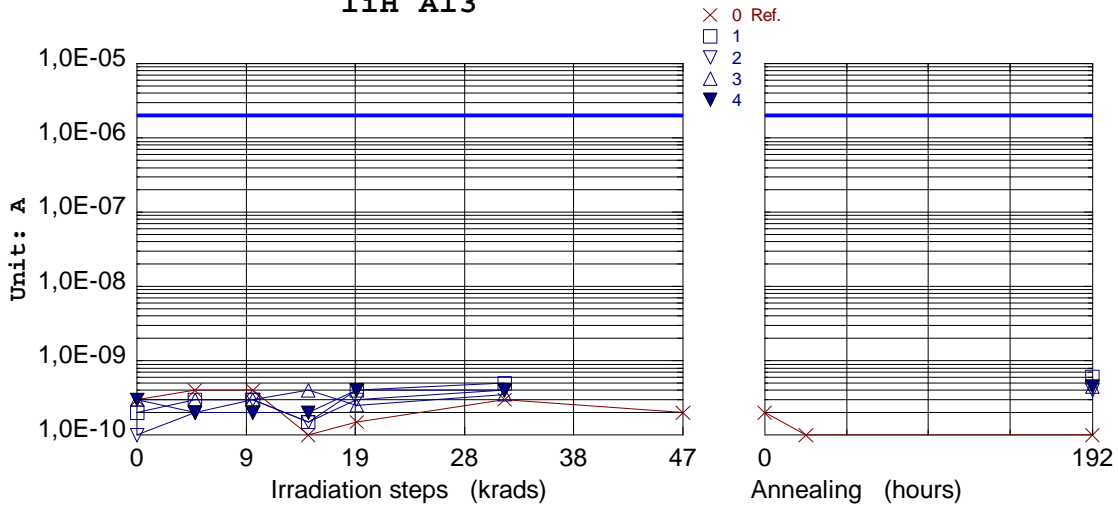
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	4,000E -10	4,000E -10	1,000E -10	1,500E -10	3,000E -10	2,000E -10	1,000E -10
1	2,000E -10	3,000E -10	3,000E -10	1,500E -10	4,000E -10	5,000E -10		
2	1,000E -10	2,000E -10	3,000E -10	1,500E -10	3,000E -10	4,000E -10		
3	3,000E -10	3,000E -10	3,000E -10	4,000E -10	2,500E -10	3,500E -10		
4	3,000E -10	2,000E -10	2,000E -10	2,000E -10	4,000E -10	4,000E -10		
Statistics								
Min	1,000E -10	2,000E -10	2,000E -10	1,500E -10	2,500E -10	3,500E -10		
Max	3,000E -10	3,000E -10	3,000E -10	4,000E -10	4,000E -10	5,000E -10		
Mean	2,250E -10	2,500E -10	2,750E -10	2,250E -10	3,375E -10	4,125E -10		
Sigma	9,574E -11	5,774E -11	5,000E -11	1,190E -10	7,500E -11	6,292E -11		

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	6,000E -10
2	4,000E -10
3	4,500E -10
4	4,500E -10
Statistics	
Min	4,000E -10
Max	6,000E -10
Mean	4,750E -10
Sigma	8,660E -11

**IiH A13**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : High Input Current Pin A12: IiH A12**  
**Vin (under test) = Vcc others at 0V**

Unit= A

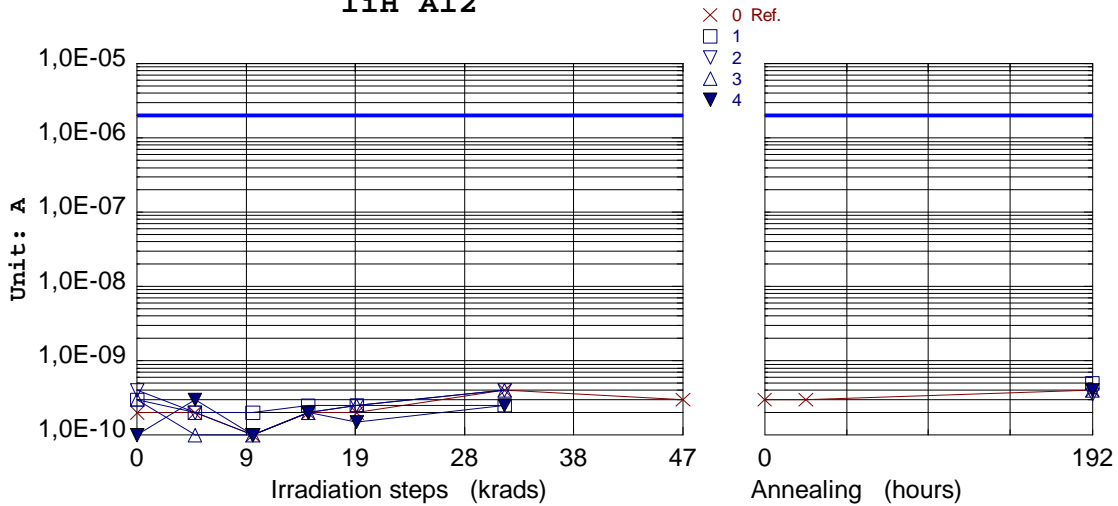
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	2,000E -10	1,000E -10	2,000E -10	2,000E -10	4,000E -10	3,000E -10	3,000E -10
1	3,000E -10	2,000E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10		
2	4,000E -10	2,000E -10	1,000E -10	2,000E -10	2,500E -10	4,000E -10		
3	3,000E -10	1,000E -10	1,000E -10	2,000E -10	2,500E -10	4,000E -10		
4	1,000E -10	3,000E -10	1,000E -10	2,000E -10	1,500E -10	2,500E -10		
Statistics								
Min	1,000E -10	1,000E -10	1,000E -10	2,000E -10	1,500E -10	2,500E -10		
Max	4,000E -10	3,000E -10	2,000E -10	2,500E -10	2,500E -10	4,000E -10		
Mean	2,750E -10	2,000E -10	1,250E -10	2,125E -10	2,250E -10	3,250E -10		
Sigma	1,258E -10	8,165E -11	5,000E -11	2,500E -11	5,000E -11	8,660E -11		

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	5,000E -10
2	3,500E -10
3	4,000E -10
4	4,000E -10
Statistics	
Min	3,500E -10
Max	5,000E -10
Mean	4,125E -10
Sigma	6,292E -11

**IiH A12**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A11: IiH A11  
Vin (under test) = Vcc others at 0V

Unit= A

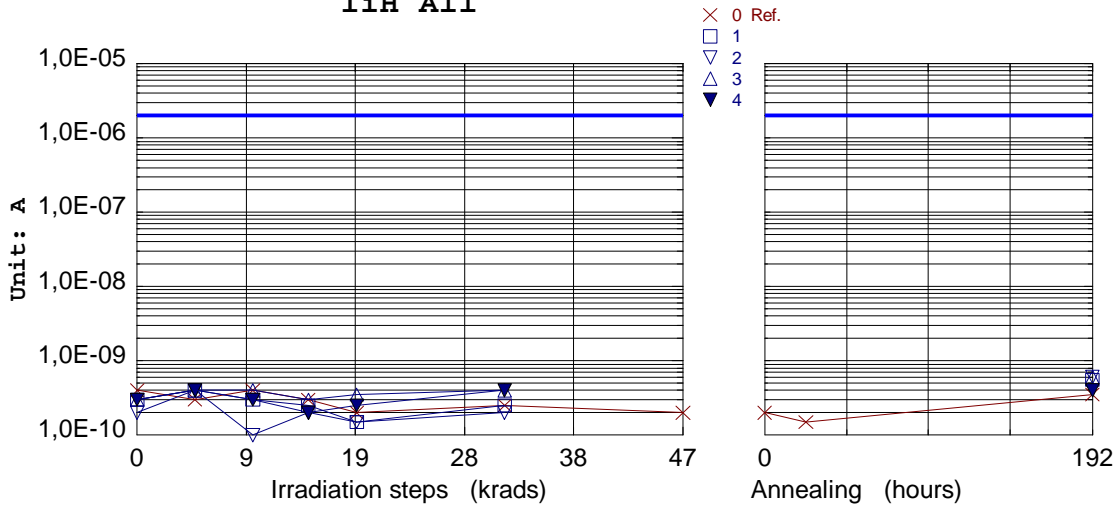
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	3,000E -10	4,000E -10	3,000E -10	2,000E -10	2,500E -10	2,000E -10	1,500E -10
1	3,000E -10	4,000E -10	3,000E -10	2,500E -10	1,500E -10	2,500E -10		
2	2,000E -10	4,000E -10	1,000E -10	2,000E -10	1,500E -10	2,000E -10		
3	3,000E -10	4,000E -10	4,000E -10	3,000E -10	3,500E -10	4,000E -10		
4	3,000E -10	4,000E -10	3,000E -10	2,000E -10	2,500E -10	4,000E -10		
Statistics								
Min	2,000E -10	4,000E -10	1,000E -10	2,000E -10	1,500E -10	2,000E -10		
Max	3,000E -10	4,000E -10	4,000E -10	3,000E -10	3,500E -10	4,000E -10		
Mean	2,750E -10	4,000E -10	2,750E -10	2,375E -10	2,250E -10	3,125E -10		
Sigma	5,000E -11	3,756E -19	1,258E -10	4,787E -11	9,574E -11	1,031E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,500E -10
1	5,500E -10
2	6,000E -10
3	6,000E -10
4	4,000E -10
Statistics	
Min	4,000E -10
Max	6,000E -10
Mean	5,375E -10
Sigma	9,465E -11

**IiH A11**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : High Input Current Pin A10: IiH A10**  
**Vin (under test) = Vcc others at 0V**

Unit= A

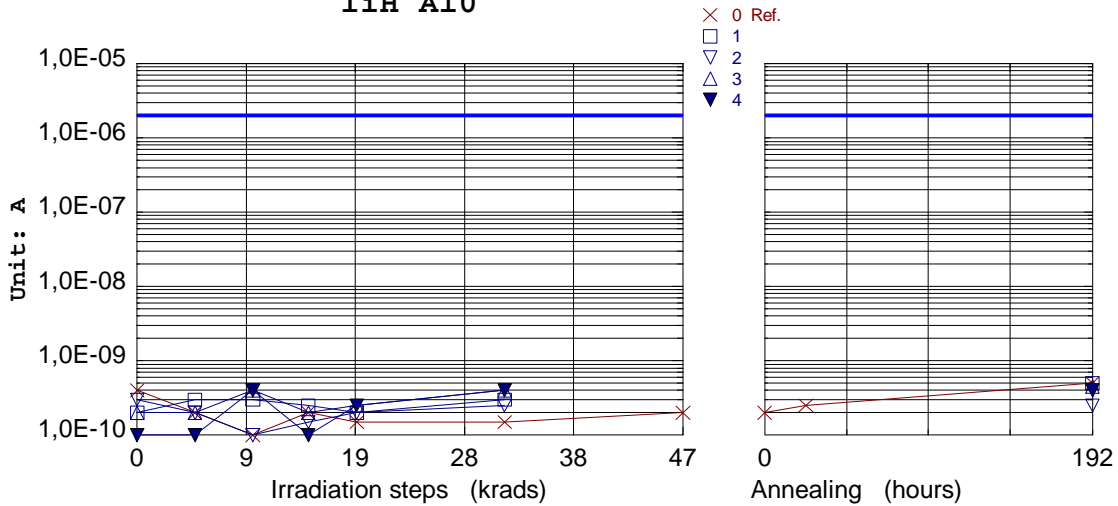
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	2,000E -10	1,000E -10	2,000E -10	1,500E -10	1,500E -10	2,000E -10	2,500E -10
1	2,000E -10	3,000E -10	3,000E -10	2,500E -10	2,000E -10	3,000E -10		
2	3,000E -10	2,000E -10	1,000E -10	1,500E -10	2,000E -10	2,500E -10		
3	2,000E -10	2,000E -10	4,000E -10	2,000E -10	2,500E -10	4,000E -10		
4	1,000E -10	1,000E -10	4,000E -10	1,000E -10	2,500E -10	4,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	1,000E -10	1,000E -10	2,000E -10	2,500E -10		
Max	3,000E -10	3,000E -10	4,000E -10	2,500E -10	2,500E -10	4,000E -10		
Mean	2,000E -10	2,000E -10	3,000E -10	1,750E -10	2,250E -10	3,375E -10		
Sigma	8,165E -11	8,165E -11	1,414E -10	6,455E -11	2,887E -11	7,500E -11		

Test Step	192 hours
Serial #	
0 Ref.	5,000E -10
1	5,000E -10
2	2,500E -10
3	4,500E -10
4	4,000E -10
Statistics	
Min	2,500E -10
Max	5,000E -10
Mean	4,000E -10
Sigma	1,080E -10

**IiH A10**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A9: IiH A9  
 Vin (under test) = Vcc others at 0V

Unit= A

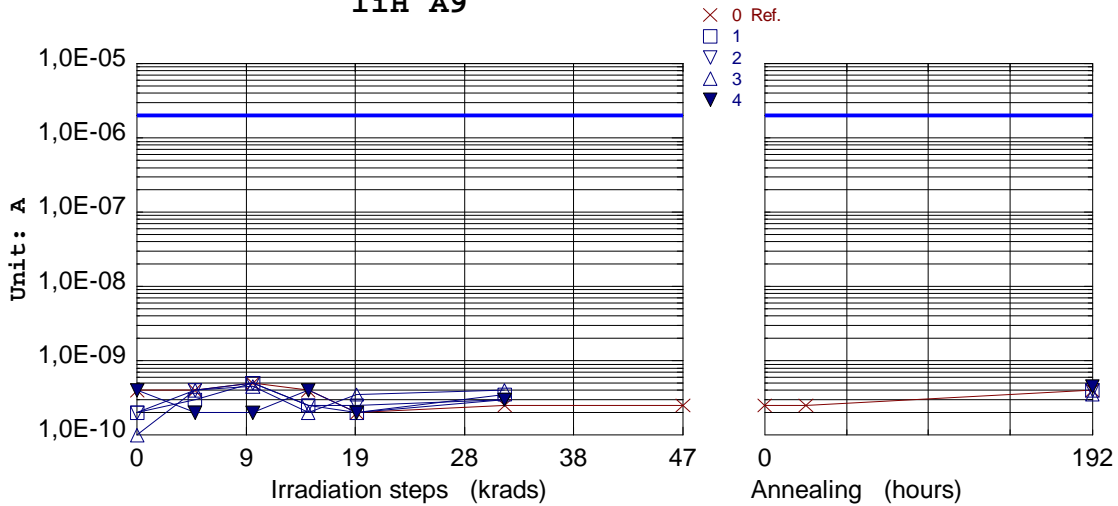
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	4,000E -10	5,000E -10	4,000E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10
1	2,000E -10	3,000E -10	5,000E -10	2,500E -10	2,000E -10	3,500E -10		
2	2,000E -10	4,000E -10	5,000E -10	2,500E -10	2,500E -10	3,000E -10		
3	1,000E -10	4,000E -10	4,500E -10	2,000E -10	3,500E -10	4,000E -10		
4	4,000E -10	2,000E -10	2,000E -10	4,000E -10	2,000E -10	3,000E -10		
Statistics								
Min	1,000E -10	2,000E -10	2,000E -10	2,000E -10	2,000E -10	3,000E -10		
Max	4,000E -10	4,000E -10	5,000E -10	4,000E -10	3,500E -10	4,000E -10		
Mean	2,250E -10	3,250E -10	4,125E -10	2,750E -10	2,500E -10	3,375E -10		
Sigma	1,258E -10	9,574E -11	1,436E -10	8,660E -11	7,071E -11	4,787E -11		

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	4,000E -10
2	4,000E -10
3	3,500E -10
4	4,500E -10
Statistics	
Min	3,500E -10
Max	4,500E -10
Mean	4,000E -10
Sigma	4,082E -11

IiH A9



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A8: IiH A8  
Vin (under test) = Vcc others at 0V

Unit= A

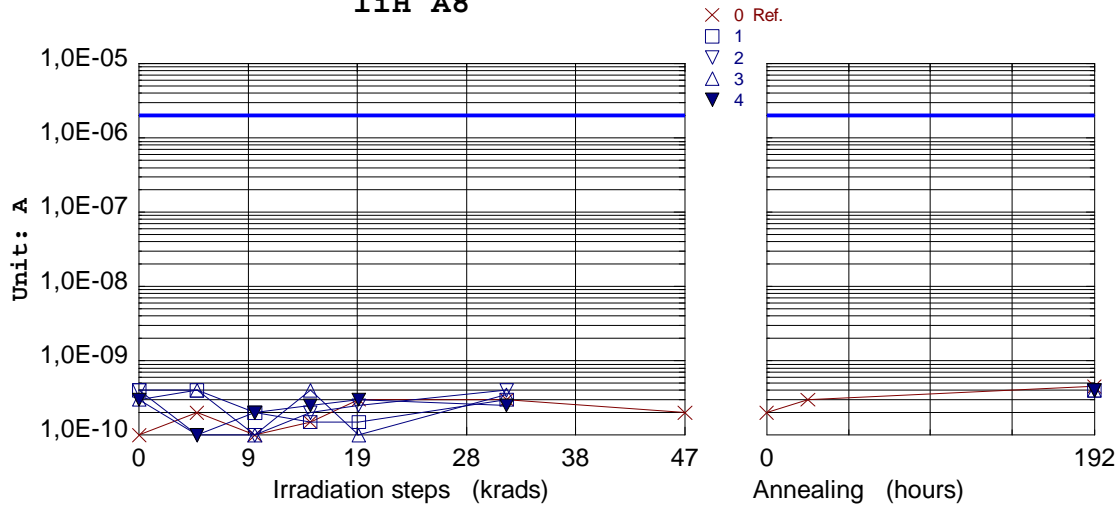
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	2,000E -10	1,000E -10	1,500E -10	3,000E -10	3,000E -10	2,000E -10	3,000E -10
1	4,000E -10	4,000E -10	2,000E -10	1,500E -10	1,500E -10	3,000E -10		
2	4,000E -10	1,000E -10	1,000E -10	2,000E -10	2,500E -10	4,000E -10		
3	3,000E -10	4,000E -10	1,000E -10	4,000E -10	1,000E -10	3,500E -10		
4	3,000E -10	1,000E -10	2,000E -10	2,500E -10	3,000E -10	2,500E -10		
Statistics								
Min	3,000E -10	1,000E -10	1,000E -10	1,500E -10	1,000E -10	2,500E -10		
Max	4,000E -10	4,000E -10	2,000E -10	4,000E -10	3,000E -10	4,000E -10		
Mean	3,500E -10	2,500E -10	1,500E -10	2,500E -10	2,000E -10	3,250E -10		
Sigma	5,774E -11	1,732E -10	5,774E -11	1,080E -10	9,129E -11	6,455E -11		

Test Step	192 hours
Serial #	
0 Ref.	4,500E -10
1	4,000E -10
2	4,000E -10
3	4,000E -10
4	4,000E -10
Statistics	
Min	4,000E -10
Max	4,000E -10
Mean	4,000E -10
Sigma	3,756E -19

**IiH A8**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A7: IiH A7  
Vin (under test) = Vcc others at 0V

Unit= A

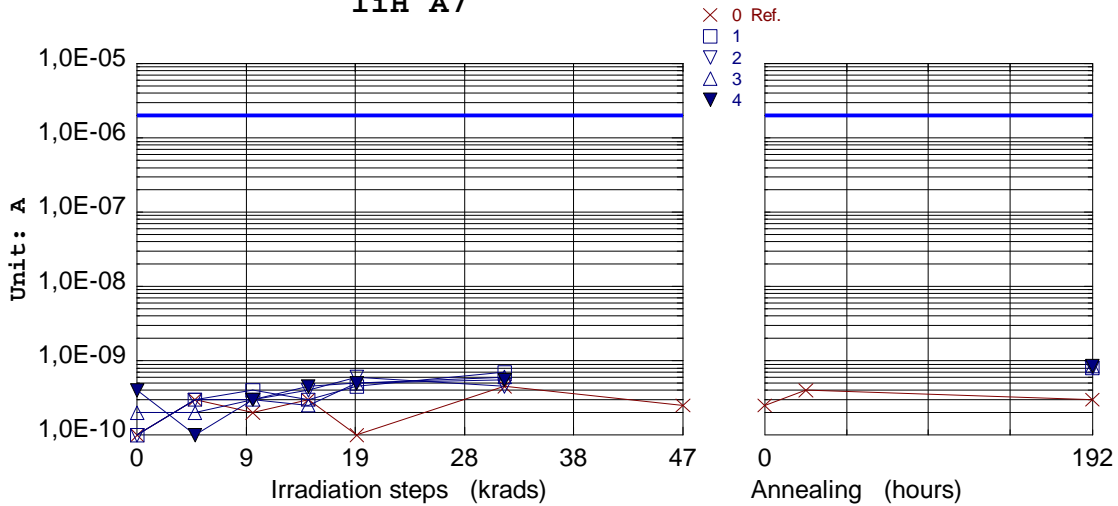
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	2,000E -10	3,000E -10	1,000E -10	4,500E -10	2,500E -10	4,000E -10
1	1,000E -10	3,000E -10	4,000E -10	3,000E -10	4,500E -10	7,000E -10		
2	1,000E -10	3,000E -10	3,000E -10	4,000E -10	6,000E -10	4,500E -10		
3	2,000E -10	2,000E -10	3,000E -10	2,500E -10	5,000E -10	6,000E -10		
4	4,000E -10	1,000E -10	3,000E -10	4,500E -10	5,000E -10	5,500E -10		
Statistics								
Min	1,000E -10	1,000E -10	3,000E -10	2,500E -10	4,500E -10	4,500E -10		
Max	4,000E -10	3,000E -10	4,000E -10	4,500E -10	6,000E -10	7,000E -10		
Mean	2,000E -10	2,250E -10	3,250E -10	3,500E -10	5,125E -10	5,750E -10		
Sigma	1,414E -10	9,574E -11	5,000E -11	9,129E -11	6,292E -11	1,041E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	8,000E -10
2	8,000E -10
3	8,500E -10
4	8,500E -10
Statistics	
Min	8,000E -10
Max	8,500E -10
Mean	8,250E -10
Sigma	2,887E -11

**IiH A7**





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A6: IiH A6  
 Vin (under test) = Vcc others at 0V

Unit= A

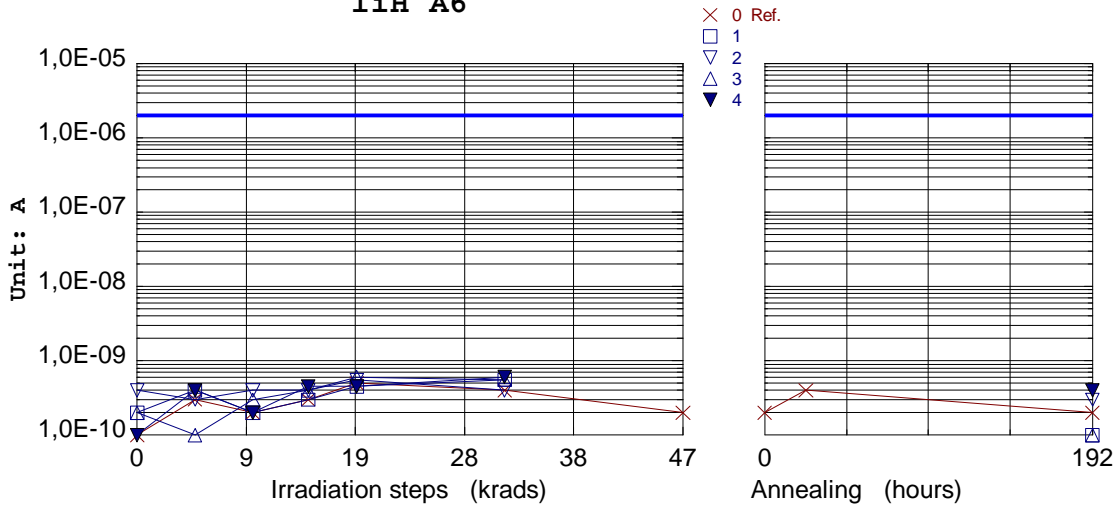
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	2,000E -10	3,000E -10	5,000E -10	4,000E -10	2,000E -10	4,000E -10
1	2,000E -10	4,000E -10	2,000E -10	3,000E -10	4,500E -10	5,500E -10		
2	4,000E -10	3,000E -10	4,000E -10	4,000E -10	5,500E -10	4,000E -10		
3	2,000E -10	1,000E -10	3,000E -10	4,000E -10	6,000E -10	5,500E -10		
4	1,000E -10	4,000E -10	2,000E -10	4,500E -10	4,500E -10	6,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	2,000E -10	3,000E -10	4,500E -10	4,000E -10		
Max	4,000E -10	4,000E -10	4,000E -10	4,500E -10	6,000E -10	6,000E -10		
Mean	2,250E -10	3,000E -10	2,750E -10	3,875E -10	5,125E -10	5,250E -10		
Sigma	1,258E -10	1,414E -10	9,574E -11	6,292E -11	7,500E -11	8,660E -11		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	1,000E -10
2	3,000E -10
3	1,000E -10
4	4,000E -10
Statistics	
Min	1,000E -10
Max	4,000E -10
Mean	2,250E -10
Sigma	1,500E -10

IiH A6



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A5: IiH A5  
Vin (under test) = Vcc others at 0V

Unit= A

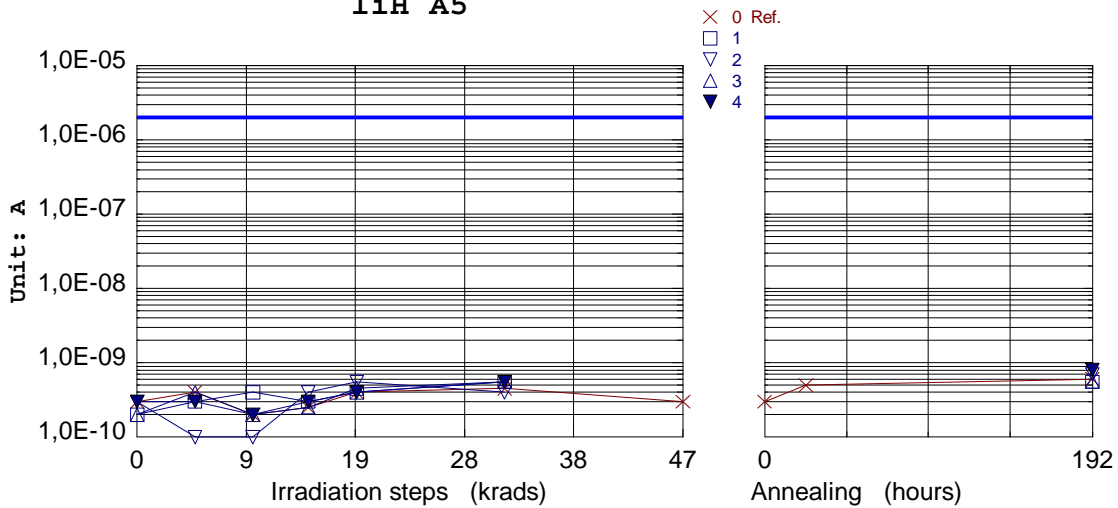
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	4,000E -10	2,000E -10	2,500E -10	4,000E -10	4,500E -10	3,000E -10	5,000E -10
1	2,000E -10	3,000E -10	4,000E -10	3,000E -10	4,000E -10	5,500E -10		
2	3,000E -10	1,000E -10	1,000E -10	4,000E -10	5,500E -10	4,000E -10		
3	2,000E -10	4,000E -10	2,000E -10	2,500E -10	4,500E -10	5,500E -10		
4	3,000E -10	3,000E -10	2,000E -10	3,000E -10	4,000E -10	5,500E -10		
Statistics								
Min	2,000E -10	1,000E -10	1,000E -10	2,500E -10	4,000E -10	4,000E -10		
Max	3,000E -10	4,000E -10	4,000E -10	4,000E -10	5,500E -10	5,500E -10		
Mean	2,500E -10	2,750E -10	2,250E -10	3,125E -10	4,500E -10	5,125E -10		
Sigma	5,774E -11	1,258E -10	1,258E -10	6,292E -11	7,071E -11	7,500E -11		

Test Step	192 hours
Serial #	
0 Ref.	6,000E -10
1	5,500E -10
2	7,000E -10
3	5,500E -10
4	8,000E -10
Statistics	
Min	5,500E -10
Max	8,000E -10
Mean	6,500E -10
Sigma	1,225E -10

**IiH A5**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A4: IiH A4  
Vin (under test) = Vcc others at 0V

Unit= A

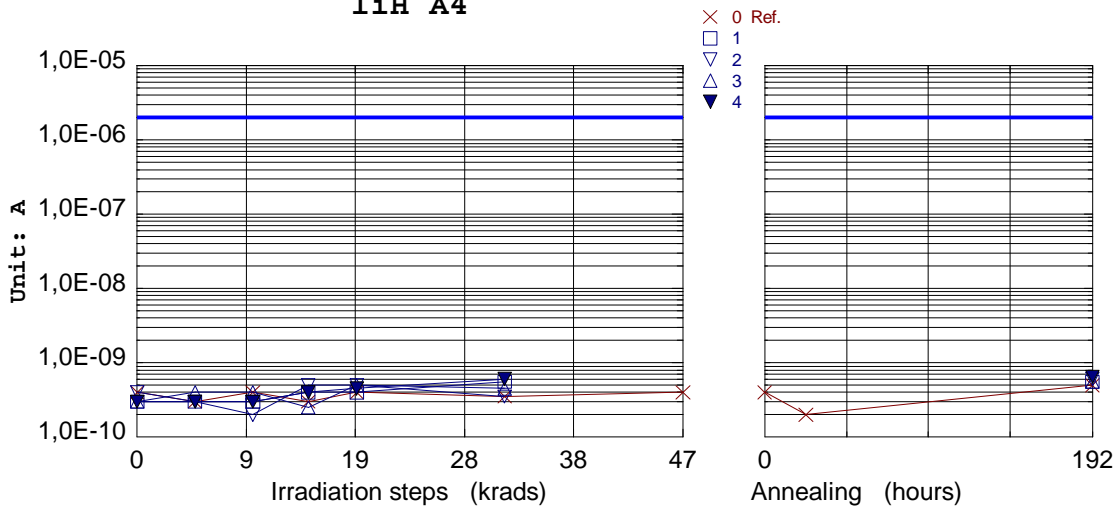
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	3,000E -10	4,000E -10	3,000E -10	4,000E -10	3,500E -10	4,000E -10	2,000E -10
1	3,000E -10	3,000E -10	3,000E -10	4,000E -10	4,000E -10	5,500E -10		
2	4,000E -10	3,000E -10	2,000E -10	5,000E -10	5,000E -10	3,500E -10		
3	3,000E -10	4,000E -10	4,000E -10	2,500E -10	5,000E -10	4,500E -10		
4	3,000E -10	3,000E -10	3,000E -10	4,000E -10	4,500E -10	6,000E -10		
Statistics								
Min	3,000E -10	3,000E -10	2,000E -10	2,500E -10	4,000E -10	3,500E -10		
Max	4,000E -10	4,000E -10	4,000E -10	5,000E -10	5,000E -10	6,000E -10		
Mean	3,250E -10	3,250E -10	3,000E -10	3,875E -10	4,625E -10	4,875E -10		
Sigma	5,000E -11	5,000E -11	8,165E -11	1,031E -10	4,787E -11	1,109E -10		

Test Step	192 hours
Serial #	
0 Ref.	5,000E -10
1	5,500E -10
2	6,000E -10
3	5,500E -10
4	6,500E -10
Statistics	
Min	5,500E -10
Max	6,500E -10
Mean	5,875E -10
Sigma	4,787E -11

**IiH A4**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A3: IiH A3  
Vin (under test) = Vcc others at 0V

Unit= A

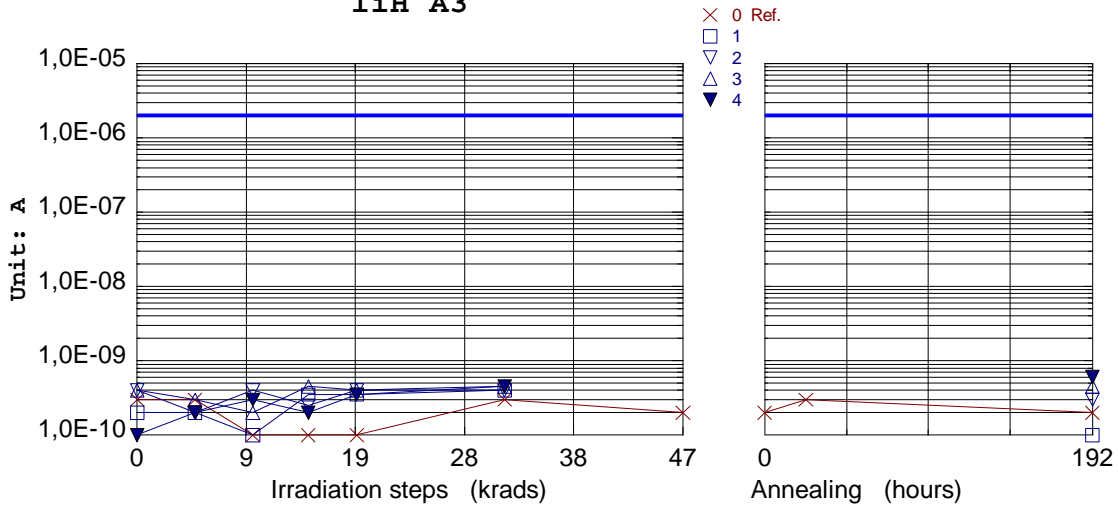
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	3,000E -10	1,000E -10	1,000E -10	1,000E -10	3,000E -10	2,000E -10	3,000E -10
1	2,000E -10	2,000E -10	1,000E -10	3,500E -10	3,500E -10	4,000E -10		
2	4,000E -10	2,000E -10	4,000E -10	2,500E -10	4,000E -10	4,000E -10		
3	4,000E -10	3,000E -10	2,000E -10	4,500E -10	4,000E -10	4,500E -10		
4	1,000E -10	2,000E -10	3,000E -10	2,000E -10	3,500E -10	4,500E -10		
Statistics								
Min	1,000E -10	2,000E -10	1,000E -10	2,000E -10	3,500E -10	4,000E -10		
Max	4,000E -10	3,000E -10	4,000E -10	4,500E -10	4,000E -10	4,500E -10		
Mean	2,750E -10	2,250E -10	2,500E -10	3,125E -10	3,750E -10	4,250E -10		
Sigma	1,500E -10	5,000E -11	1,291E -10	1,109E -10	2,887E -11	2,887E -11		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	1,000E -10
2	3,000E -10
3	4,500E -10
4	6,000E -10
Statistics	
Min	1,000E -10
Max	6,000E -10
Mean	3,625E -10
Sigma	2,136E -10

**IiH A3**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A2: IiH A2  
Vin (under test) = Vcc others at 0V

Unit= A

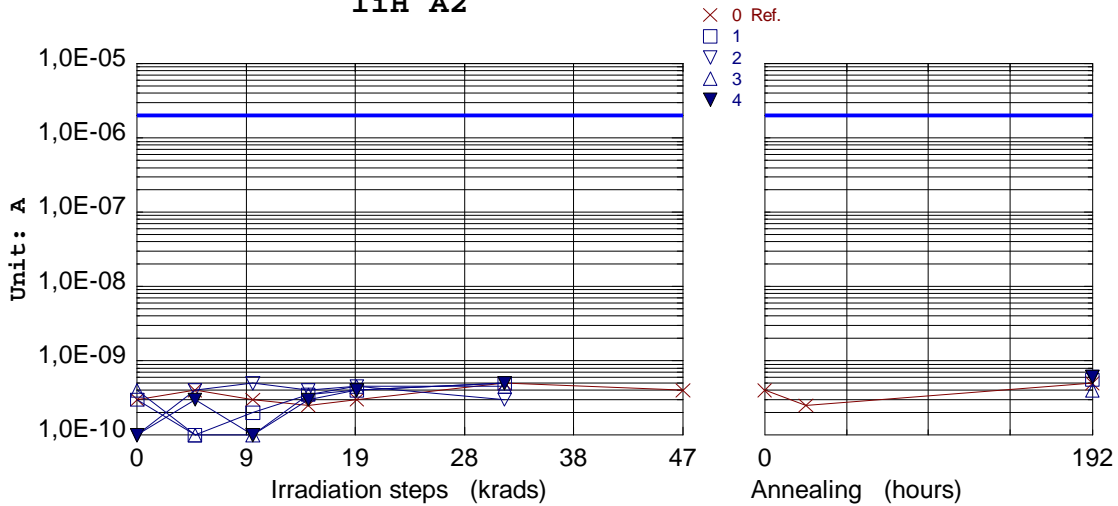
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	4,000E -10	3,000E -10	2,500E -10	3,000E -10	5,000E -10	4,000E -10	2,500E -10
1	3,000E -10	1,000E -10	2,000E -10	3,500E -10	4,000E -10	5,000E -10		
2	1,000E -10	4,000E -10	5,000E -10	4,000E -10	4,500E -10	3,000E -10		
3	4,000E -10	1,000E -10	1,000E -10	3,500E -10	4,500E -10	4,500E -10		
4	1,000E -10	3,000E -10	1,000E -10	3,000E -10	4,000E -10	5,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	1,000E -10	3,000E -10	4,000E -10	3,000E -10		
Max	4,000E -10	4,000E -10	5,000E -10	4,000E -10	4,500E -10	5,000E -10		
Mean	2,250E -10	2,250E -10	2,250E -10	3,500E -10	4,250E -10	4,375E -10		
Sigma	1,500E -10	1,500E -10	1,893E -10	4,082E -11	2,887E -11	9,465E -11		

Test Step	192 hours
Serial #	
0 Ref.	5,000E -10
1	5,500E -10
2	6,000E -10
3	4,000E -10
4	6,000E -10
Statistics	
Min	4,000E -10
Max	6,000E -10
Mean	5,375E -10
Sigma	9,465E -11

**IiH A2**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A1: IiH A1  
Vin (under test) = Vcc others at 0V

Unit= A

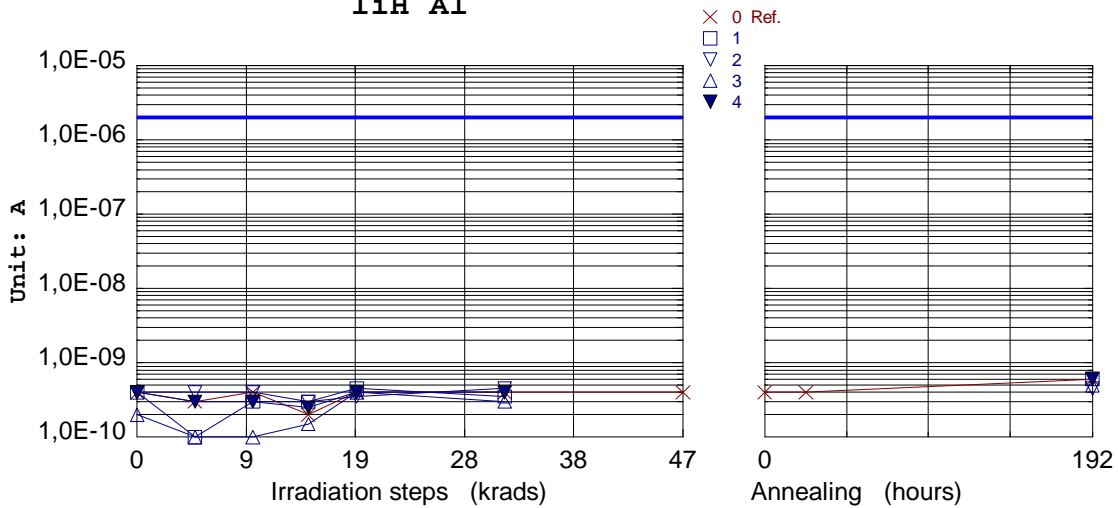
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	3,000E -10	4,000E -10	2,000E -10	4,000E -10	4,000E -10	4,000E -10	4,000E -10
1	4,000E -10	1,000E -10	3,000E -10	3,000E -10	4,500E -10	3,500E -10		
2	4,000E -10	4,000E -10	4,000E -10	3,000E -10	3,500E -10	4,500E -10		
3	2,000E -10	1,000E -10	1,000E -10	1,500E -10	4,000E -10	3,000E -10		
4	4,000E -10	3,000E -10	3,000E -10	2,500E -10	4,000E -10	4,000E -10		
Statistics								
Min	2,000E -10	1,000E -10	1,000E -10	1,500E -10	3,500E -10	3,000E -10		
Max	4,000E -10	4,000E -10	4,000E -10	3,000E -10	4,500E -10	4,500E -10		
Mean	3,500E -10	2,250E -10	2,750E -10	2,500E -10	4,000E -10	3,750E -10		
Sigma	1,000E -10	1,500E -10	1,258E -10	7,071E -11	4,082E -11	6,455E -11		

Test Step	192 hours
Serial #	
0 Ref.	6,000E -10
1	6,000E -10
2	4,500E -10
3	5,000E -10
4	6,000E -10
Statistics	
Min	4,500E -10
Max	6,000E -10
Mean	5,375E -10
Sigma	7,500E -11

**IiH A1**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : High Input Current Pin A0: IiH A0  
Vin (under test) = Vcc others at 0V

Unit= A

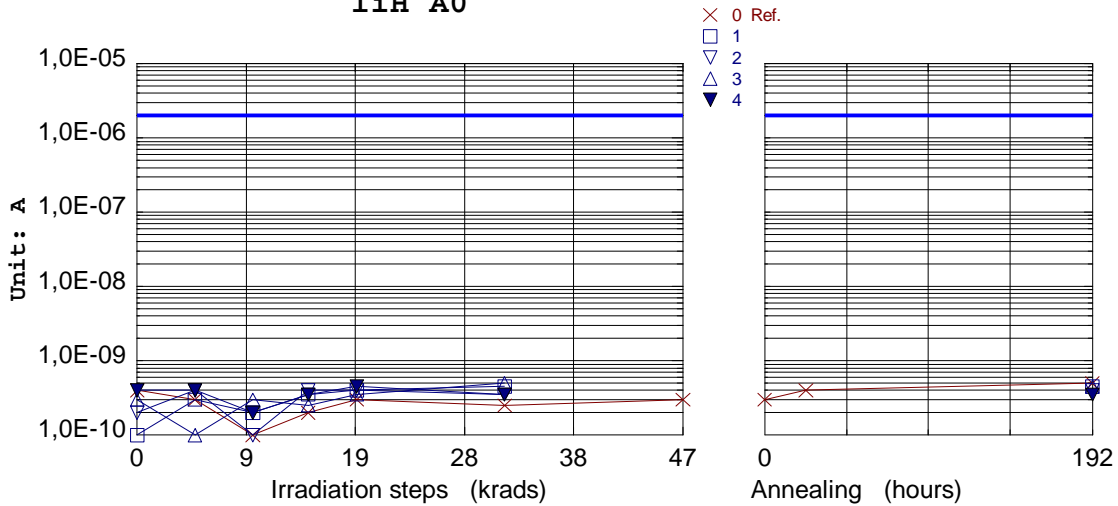
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	3,000E -10	1,000E -10	2,000E -10	3,000E -10	2,500E -10	3,000E -10	4,000E -10
1	1,000E -10	3,000E -10	2,000E -10	3,500E -10	4,000E -10	4,500E -10		
2	2,000E -10	4,000E -10	1,000E -10	4,000E -10	4,000E -10	3,500E -10		
3	3,000E -10	1,000E -10	3,000E -10	2,500E -10	3,500E -10	5,000E -10		
4	4,000E -10	4,000E -10	2,000E -10	3,500E -10	4,500E -10	3,500E -10		
Statistics								
Min	1,000E -10	1,000E -10	1,000E -10	2,500E -10	3,500E -10	3,500E -10		
Max	4,000E -10	4,000E -10	3,000E -10	4,000E -10	4,500E -10	5,000E -10		
Mean	2,500E -10	3,000E -10	2,000E -10	3,375E -10	4,000E -10	4,125E -10		
Sigma	1,291E -10	1,414E -10	8,165E -11	6,292E -11	4,082E -11	7,500E -11		

Test Step	192 hours
Serial #	
0 Ref.	5,000E -10
1	4,500E -10
2	4,000E -10
3	4,500E -10
4	3,500E -10
Statistics	
Min	3,500E -10
Max	4,500E -10
Mean	4,125E -10
Sigma	4,787E -11

**IiH A0**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O16: -IozL I/O16  
 Vin (under test) = 0V others at Vcc

Unit= A

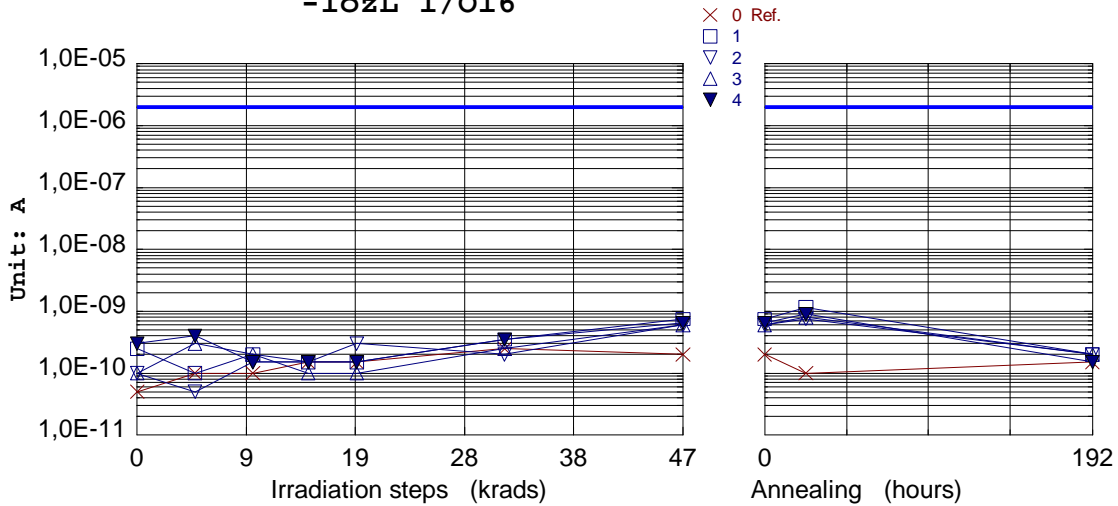
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	5,000E -11	1,000E -10	1,000E -10	1,500E -10	1,500E -10	2,500E -10	2,000E -10	1,000E -10
1	2,500E -10	1,000E -10	2,000E -10	1,500E -10	1,500E -10	3,500E -10	7,500E -10	1,150E -09
2	1,000E -10	5,000E -11	1,500E -10	1,500E -10	3,000E -10	2,000E -10	6,000E -10	7,500E -10
3	1,000E -10	3,000E -10	2,000E -10	1,000E -10	1,000E -10	2,500E -10	6,000E -10	8,000E -10
4	3,000E -10	4,000E -10	1,500E -10	1,500E -10	1,500E -10	3,500E -10	6,500E -10	9,000E -10
Statistics								
Min	1,000E -10	5,000E -11	1,500E -10	1,000E -10	1,000E -10	2,000E -10	6,000E -10	7,500E -10
Max	3,000E -10	4,000E -10	2,000E -10	1,500E -10	3,000E -10	3,500E -10	7,500E -10	1,150E -09
Mean	1,875E -10	2,125E -10	1,750E -10	1,375E -10	1,750E -10	2,875E -10	6,500E -10	9,000E -10
Sigma	1,031E -10	1,652E -10	2,887E -11	2,500E -11	8,660E -11	7,500E -11	7,071E -11	1,780E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	2,000E -10
2	2,000E -10
3	2,000E -10
4	1,500E -10
Statistics	
Min	1,500E -10
Max	2,000E -10
Mean	1,875E -10
Sigma	2,500E -11

-IozL I/O16





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O15: -IozL I/O15  
Vin (under test) = 0V others at Vcc

Unit= A

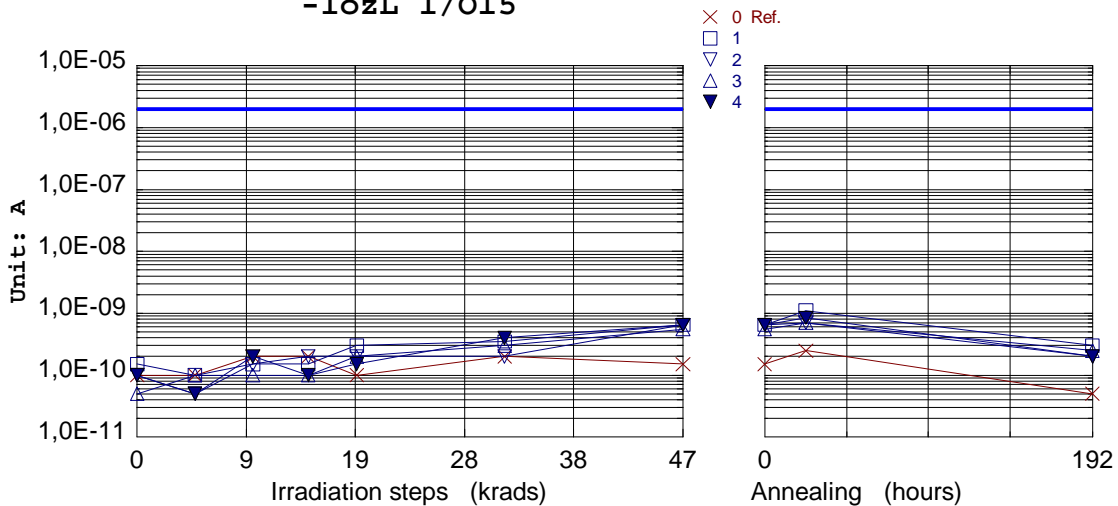
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	1,000E -10	2,000E -10	2,000E -10	1,000E -10	2,000E -10	1,500E -10	2,500E -10
1	1,500E -10	1,000E -10	1,500E -10	1,500E -10	3,000E -10	3,500E -10	6,500E -10	1,100E -09
2	1,000E -10	5,000E -11	1,500E -10	2,000E -10	2,000E -10	2,000E -10	6,500E -10	7,000E -10
3	5,000E -11	1,000E -10	1,000E -10	1,000E -10	2,000E -10	3,000E -10	5,500E -10	7,000E -10
4	1,000E -10	5,000E -11	2,000E -10	1,000E -10	1,500E -10	4,000E -10	6,500E -10	8,500E -10
Statistics								
Min	5,000E -11	5,000E -11	1,000E -10	1,000E -10	1,500E -10	2,000E -10	5,500E -10	7,000E -10
Max	1,500E -10	1,000E -10	2,000E -10	2,000E -10	3,000E -10	4,000E -10	6,500E -10	1,100E -09
Mean	1,000E -10	7,500E -11	1,500E -10	1,375E -10	2,125E -10	3,125E -10	6,250E -10	8,375E -10
Sigma	4,082E -11	2,887E -11	4,082E -11	4,787E -11	6,292E -11	8,539E -11	5,000E -11	1,887E -10

Test Step	192 hours
Serial #	
0 Ref.	5,000E -11
1	3,000E -10
2	2,000E -10
3	2,500E -10
4	2,000E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	4,787E -11

**-IozL I/O15**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O14: -IozL I/O14  
Vin (under test) = 0V others at Vcc

Unit= A

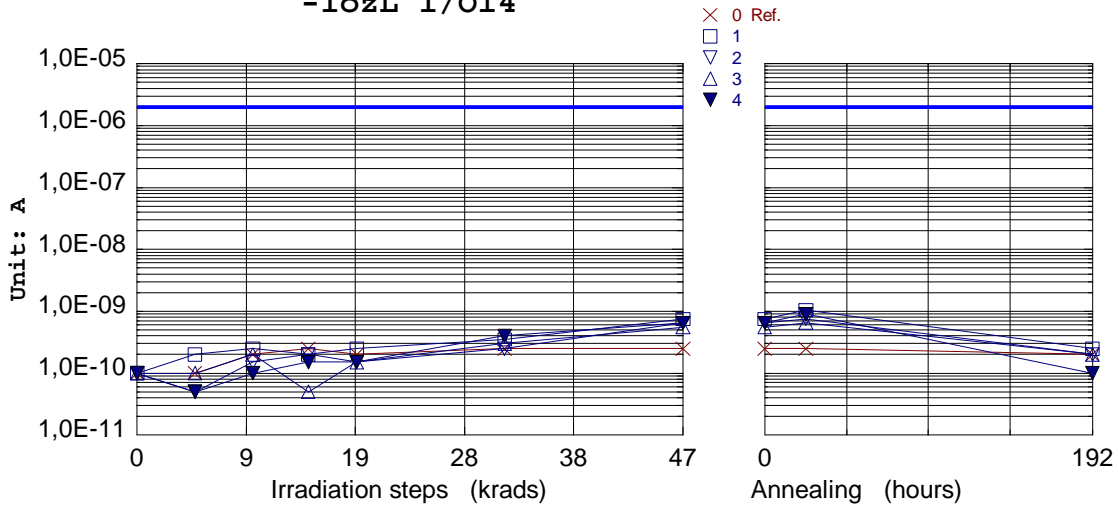
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	1,000E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10
1	1,000E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10	3,500E -10	7,500E -10	1,050E -09
2	1,000E -10	5,000E -11	1,500E -10	2,000E -10	1,500E -10	2,500E -10	6,500E -10	7,500E -10
3	1,000E -10	1,000E -10	2,000E -10	5,000E -11	1,500E -10	3,000E -10	5,500E -10	6,500E -10
4	1,000E -10	5,000E -11	1,000E -10	1,500E -10	1,500E -10	4,000E -10	6,500E -10	9,000E -10
Statistics								
Min	1,000E -10	5,000E -11	1,000E -10	5,000E -11	1,500E -10	2,500E -10	5,500E -10	6,500E -10
Max	1,000E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10	4,000E -10	7,500E -10	1,050E -09
Mean	1,000E -10	1,000E -10	1,750E -10	1,500E -10	1,750E -10	3,250E -10	6,500E -10	8,375E -10
Sigma	9,389E -20	7,071E -11	6,455E -11	7,071E -11	5,000E -11	6,455E -11	8,165E -11	1,750E -10

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	2,500E -10
2	2,000E -10
3	2,000E -10
4	1,000E -10
Statistics	
Min	1,000E -10
Max	2,500E -10
Mean	1,875E -10
Sigma	6,292E -11

**-IozL I/O14**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O13: -IozL I/O13  
 Vin (under test) = 0V others at Vcc

Unit= A

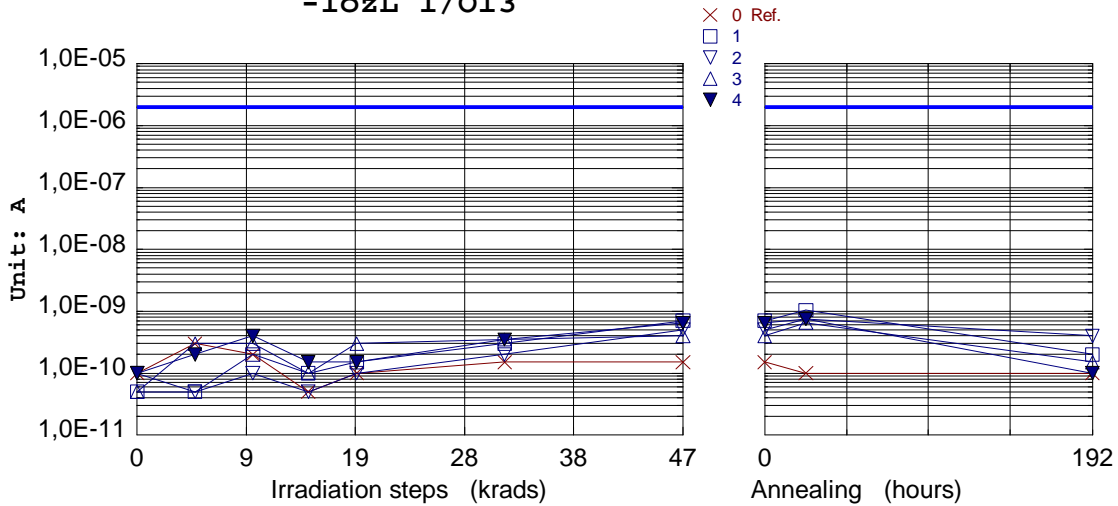
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	2,000E -10	5,000E -11	1,000E -10	1,500E -10	1,500E -10	1,000E -10
1	5,000E -11	5,000E -11	2,000E -10	1,000E -10	1,500E -10	3,000E -10	7,000E -10	1,050E -09
2	1,000E -10	5,000E -11	1,000E -10	5,000E -11	1,000E -10	2,000E -10	5,000E -10	7,500E -10
3	5,000E -11	3,000E -10	3,000E -10	1,000E -10	3,000E -10	3,500E -10	4,000E -10	6,500E -10
4	1,000E -10	2,000E -10	4,000E -10	1,500E -10	1,500E -10	3,500E -10	6,500E -10	7,500E -10
Statistics								
Min	5,000E -11	5,000E -11	1,000E -10	5,000E -11	1,000E -10	2,000E -10	4,000E -10	6,500E -10
Max	1,000E -10	3,000E -10	4,000E -10	1,500E -10	3,000E -10	3,500E -10	7,000E -10	1,050E -09
Mean	7,500E -11	1,500E -10	2,500E -10	1,000E -10	1,750E -10	3,000E -10	5,625E -10	8,000E -10
Sigma	2,887E -11	1,225E -10	1,291E -10	4,082E -11	8,660E -11	7,071E -11	1,377E -10	1,732E -10

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	2,000E -10
2	4,000E -10
3	1,500E -10
4	1,000E -10
Statistics	
Min	1,000E -10
Max	4,000E -10
Mean	2,125E -10
Sigma	1,315E -10

-IozL I/O13



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O12: -IozL I/O12  
 Vin (under test) = 0V others at Vcc

Unit= A

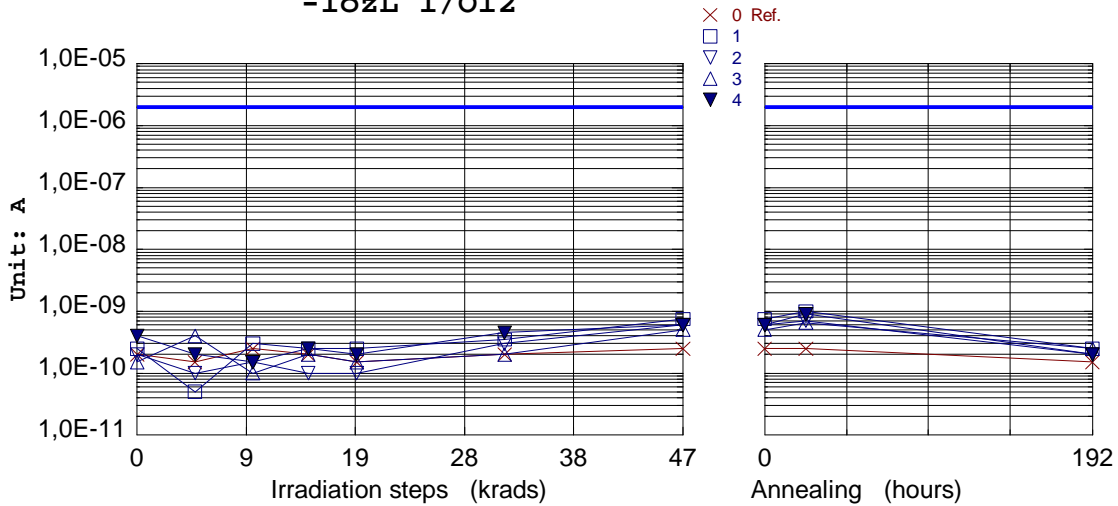
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,500E -10	2,500E -10	2,000E -10	1,500E -10	2,000E -10	2,500E -10	2,500E -10
1	2,500E -10	5,000E -11	3,000E -10	2,500E -10	2,500E -10	3,500E -10	7,500E -10	1,000E -09
2	2,000E -10	1,000E -10	1,500E -10	1,000E -10	1,000E -10	3,000E -10	6,000E -10	7,000E -10
3	1,500E -10	4,000E -10	1,000E -10	2,000E -10	1,500E -10	2,000E -10	5,000E -10	6,500E -10
4	4,000E -10	2,000E -10	1,500E -10	2,500E -10	2,000E -10	4,500E -10	6,000E -10	9,000E -10
Statistics								
Min	1,500E -10	5,000E -11	1,000E -10	1,000E -10	1,000E -10	2,000E -10	5,000E -10	6,500E -10
Max	4,000E -10	4,000E -10	3,000E -10	2,500E -10	2,500E -10	4,500E -10	7,500E -10	1,000E -09
Mean	2,500E -10	1,875E -10	1,750E -10	2,000E -10	1,750E -10	3,250E -10	6,125E -10	8,125E -10
Sigma	1,080E -10	1,548E -10	8,660E -11	7,071E -11	6,455E -11	1,041E -10	1,031E -10	1,652E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	2,500E -10
2	2,000E -10
3	2,500E -10
4	2,000E -10
Statistics	
Min	2,000E -10
Max	2,500E -10
Mean	2,250E -10
Sigma	2,887E -11

-IozL I/O12



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O11: -IozL I/O11  
Vin (under test) = 0V others at Vcc

Unit= A

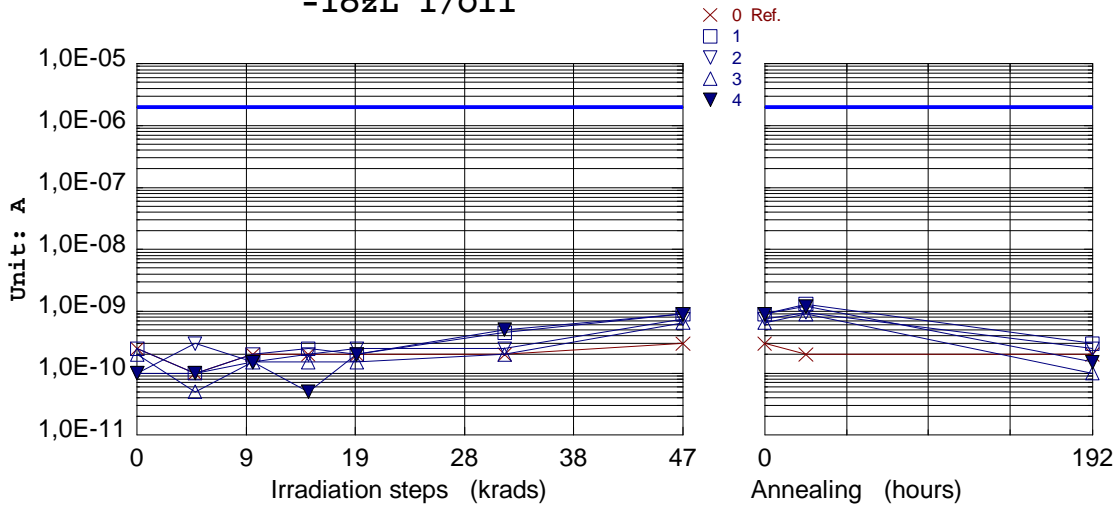
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,500E -10	1,000E -10	2,000E -10	2,000E -10	2,000E -10	2,000E -10	3,000E -10	2,000E -10
1	2,500E -10	1,000E -10	2,000E -10	2,500E -10	2,000E -10	4,500E -10	9,000E -10	1,300E -09
2	1,000E -10	3,000E -10	1,500E -10	2,000E -10	2,500E -10	2,500E -10	7,500E -10	9,500E -10
3	2,000E -10	5,000E -11	1,500E -10	1,500E -10	1,500E -10	2,000E -10	6,500E -10	9,000E -10
4	1,000E -10	1,000E -10	1,500E -10	5,000E -11	2,000E -10	5,000E -10	9,000E -10	1,200E -09
Statistics								
Min	1,000E -10	5,000E -11	1,500E -10	5,000E -11	1,500E -10	2,000E -10	6,500E -10	9,000E -10
Max	2,500E -10	3,000E -10	2,000E -10	2,500E -10	2,500E -10	5,000E -10	9,000E -10	1,300E -09
Mean	1,625E -10	1,375E -10	1,625E -10	1,625E -10	2,000E -10	3,500E -10	8,000E -10	1,087E -09
Sigma	7,500E -11	1,109E -10	2,500E -11	8,539E -11	4,082E -11	1,472E -10	1,225E -10	1,931E -10

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,000E -10
2	2,500E -10
3	1,000E -10
4	1,500E -10
Statistics	
Min	1,000E -10
Max	3,000E -10
Mean	2,000E -10
Sigma	9,129E -11

**-IozL I/O11**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O10: -IozL I/O10  
 Vin (under test) = 0V others at Vcc

Unit= A

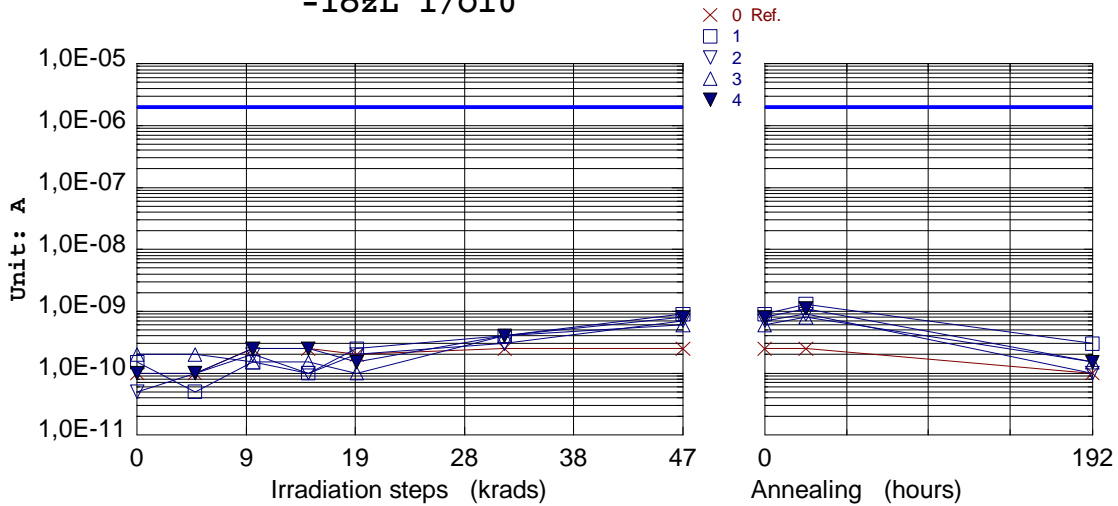
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	1,000E -10	2,500E -10	2,500E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10
1	1,500E -10	5,000E -11	1,500E -10	1,000E -10	2,500E -10	4,000E -10	9,000E -10	1,300E -09
2	5,000E -11	1,000E -10	2,000E -10	1,000E -10	2,000E -10	3,000E -10	7,000E -10	9,000E -10
3	2,000E -10	2,000E -10	1,500E -10	1,500E -10	1,000E -10	4,000E -10	6,000E -10	8,000E -10
4	1,000E -10	1,000E -10	2,500E -10	2,500E -10	1,500E -10	4,000E -10	8,000E -10	1,100E -09
Statistics								
Min	5,000E -11	5,000E -11	1,500E -10	1,000E -10	1,000E -10	3,000E -10	6,000E -10	8,000E -10
Max	2,000E -10	2,000E -10	2,500E -10	2,500E -10	2,500E -10	4,000E -10	9,000E -10	1,300E -09
Mean	1,250E -10	1,125E -10	1,875E -10	1,500E -10	1,750E -10	3,750E -10	7,500E -10	1,025E -09
Sigma	6,455E -11	6,292E -11	4,787E -11	7,071E -11	6,455E -11	5,000E -11	1,291E -10	2,217E -10

Test Step	192 hours
Serial #	
0 Ref.	1,000E -10
1	3,000E -10
2	1,000E -10
3	1,500E -10
4	1,500E -10
Statistics	
Min	1,000E -10
Max	3,000E -10
Mean	1,750E -10
Sigma	8,660E -11

**-IozL I/O10**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O9: -IozL I/O9  
 Vin (under test) = 0V others at Vcc

Unit= A

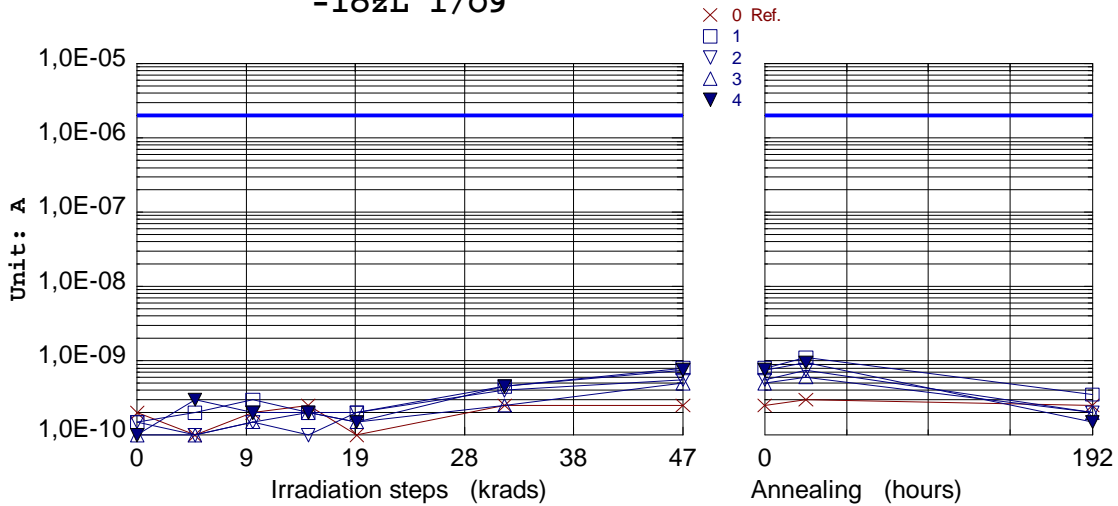
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,000E -10	2,000E -10	2,500E -10	1,000E -10	2,500E -10	2,500E -10	3,000E -10
1	1,500E -10	2,000E -10	3,000E -10	2,000E -10	2,000E -10	4,500E -10	8,000E -10	1,100E -09
2	1,500E -10	1,000E -10	1,500E -10	1,000E -10	2,000E -10	4,000E -10	5,500E -10	7,500E -10
3	1,000E -10	1,000E -10	1,500E -10	2,000E -10	1,500E -10	2,500E -10	5,000E -10	6,000E -10
4	1,000E -10	3,000E -10	2,000E -10	2,000E -10	1,500E -10	4,500E -10	7,500E -10	9,500E -10
Statistics								
Min	1,000E -10	1,000E -10	1,500E -10	1,000E -10	1,500E -10	2,500E -10	5,000E -10	6,000E -10
Max	1,500E -10	3,000E -10	3,000E -10	2,000E -10	2,000E -10	4,500E -10	8,000E -10	1,100E -09
Mean	1,250E -10	1,750E -10	2,000E -10	1,750E -10	1,750E -10	3,875E -10	6,500E -10	8,500E -10
Sigma	2,887E -11	9,574E -11	7,071E -11	5,000E -11	2,887E -11	9,465E -11	1,472E -10	2,198E -10

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	3,500E -10
2	2,000E -10
3	2,000E -10
4	1,500E -10
Statistics	
Min	1,500E -10
Max	3,500E -10
Mean	2,250E -10
Sigma	8,660E -11

-IozL I/O9



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O8: -IozL I/O8  
Vin (under test) = 0V others at Vcc

Unit= A

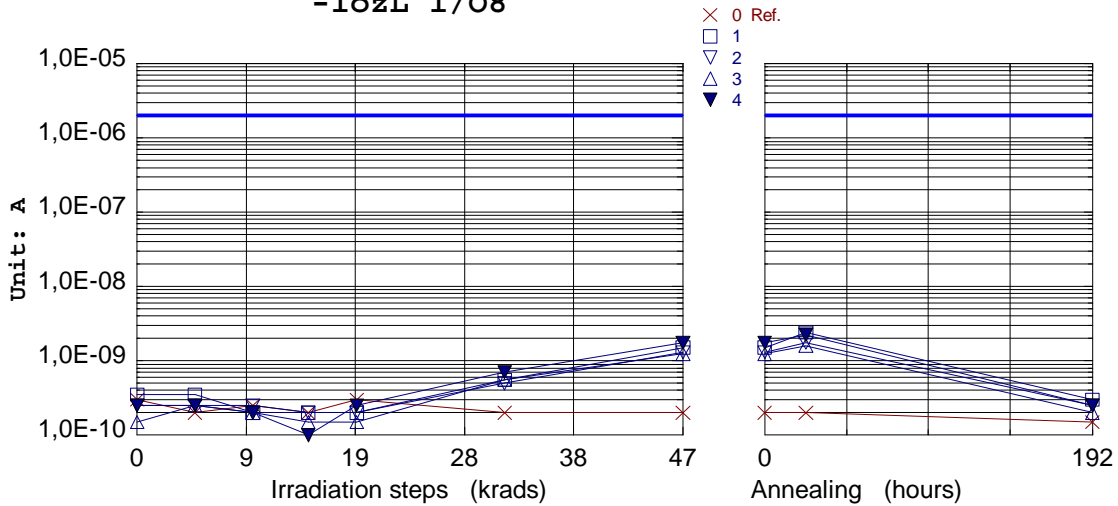
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	2,000E -10	2,500E -10	2,000E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10
1	3,500E -10	3,500E -10	2,000E -10	2,000E -10	2,000E -10	5,500E -10	1,500E -09	2,400E -09
2	2,500E -10	2,500E -10	2,500E -10	2,000E -10	2,000E -10	5,000E -10	1,300E -09	1,750E -09
3	1,500E -10	2,500E -10	2,000E -10	1,500E -10	1,500E -10	5,500E -10	1,250E -09	1,600E -09
4	2,500E -10	2,500E -10	2,000E -10	1,000E -10	2,500E -10	7,000E -10	1,750E -09	2,250E -09
Statistics								
Min	1,500E -10	2,500E -10	2,000E -10	1,000E -10	1,500E -10	5,000E -10	1,250E -09	1,600E -09
Max	3,500E -10	3,500E -10	2,500E -10	2,000E -10	2,500E -10	7,000E -10	1,750E -09	2,400E -09
Mean	2,500E -10	2,750E -10	2,125E -10	1,625E -10	2,000E -10	5,750E -10	1,450E -09	2,000E -09
Sigma	8,165E -11	5,000E -11	2,500E -11	4,787E -11	4,082E -11	8,660E -11	2,273E -10	3,851E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	3,000E -10
2	2,500E -10
3	2,000E -10
4	2,500E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,500E -10
Sigma	4,082E -11

**-IozL I/O8**





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O7: -IozL I/O7  
 Vin (under test) = 0V others at Vcc

Unit= A

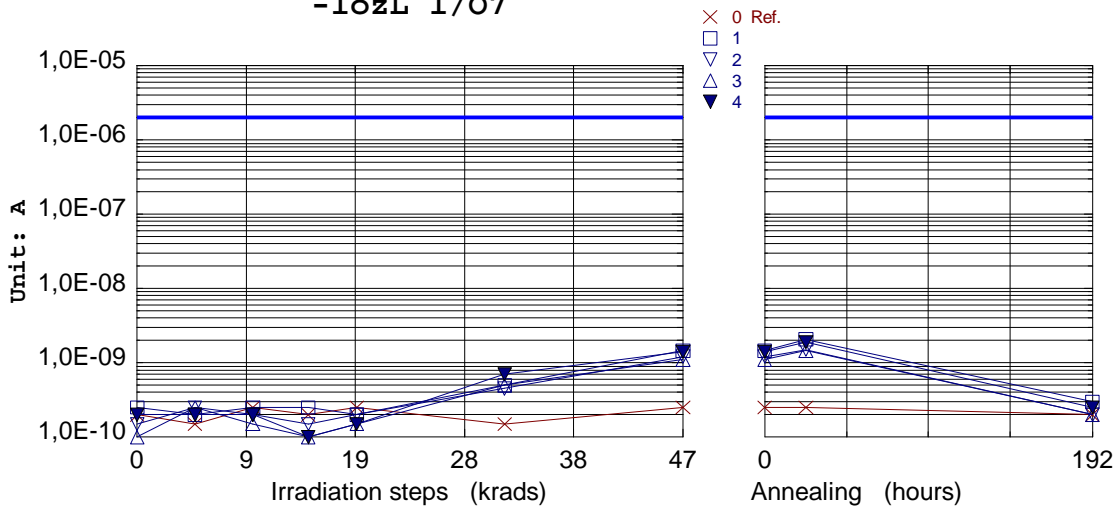
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,500E -10	2,500E -10	2,000E -10	2,500E -10	1,500E -10	2,500E -10	2,500E -10
1	2,500E -10	2,000E -10	2,500E -10	2,500E -10	2,000E -10	5,000E -10	1,450E -09	2,050E -09
2	1,500E -10	2,500E -10	2,000E -10	1,500E -10	2,000E -10	4,500E -10	1,200E -09	1,500E -09
3	1,000E -10	2,500E -10	1,500E -10	1,000E -10	1,500E -10	5,000E -10	1,100E -09	1,450E -09
4	2,000E -10	2,000E -10	2,000E -10	1,000E -10	1,500E -10	7,000E -10	1,400E -09	1,900E -09
Statistics								
Min	1,000E -10	2,000E -10	1,500E -10	1,000E -10	1,500E -10	4,500E -10	1,100E -09	1,450E -09
Max	2,500E -10	2,500E -10	2,500E -10	2,500E -10	2,000E -10	7,000E -10	1,450E -09	2,050E -09
Mean	1,750E -10	2,250E -10	2,000E -10	1,500E -10	1,750E -10	5,375E -10	1,287E -09	1,725E -09
Sigma	6,455E -11	2,887E -11	4,082E -11	7,071E -11	2,887E -11	1,109E -10	1,652E -10	2,958E -10

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,000E -10
2	2,000E -10
3	2,000E -10
4	2,500E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	4,787E -11

-IozL I/O7



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O6: -IozL I/O6  
Vin (under test) = 0V others at Vcc

Unit= A

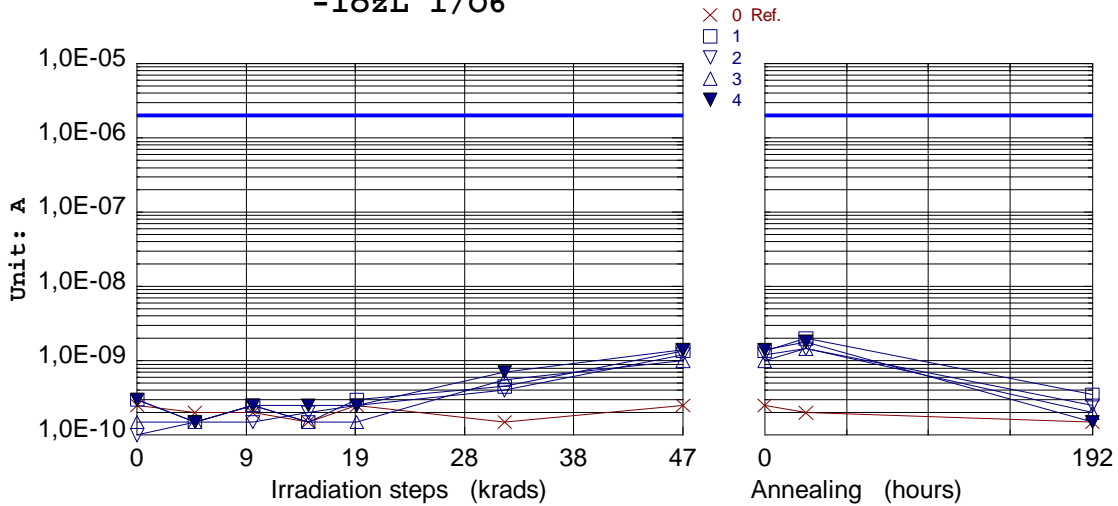
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,500E -10	2,000E -10	2,000E -10	1,500E -10	2,500E -10	1,500E -10	2,500E -10	2,000E -10
1	3,000E -10	1,500E -10	2,500E -10	1,500E -10	3,000E -10	4,500E -10	1,350E -09	2,000E -09
2	1,000E -10	1,500E -10	1,500E -10	2,000E -10	2,500E -10	4,000E -10	1,200E -09	1,450E -09
3	1,500E -10	1,500E -10	2,500E -10	1,500E -10	1,500E -10	5,500E -10	1,000E -09	1,450E -09
4	3,000E -10	1,500E -10	2,500E -10	2,500E -10	2,500E -10	7,000E -10	1,400E -09	1,800E -09
Statistics								
Min	1,000E -10	1,500E -10	1,500E -10	1,500E -10	1,500E -10	4,000E -10	1,000E -09	1,450E -09
Max	3,000E -10	1,500E -10	2,500E -10	2,500E -10	3,000E -10	7,000E -10	1,400E -09	2,000E -09
Mean	2,125E -10	1,500E -10	2,250E -10	1,875E -10	2,375E -10	5,250E -10	1,237E -09	1,675E -09
Sigma	1,031E -10	2,028E -19	5,000E -11	4,787E -11	6,292E -11	1,323E -10	1,797E -10	2,723E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	3,500E -10
2	2,500E -10
3	2,000E -10
4	1,500E -10
Statistics	
Min	1,500E -10
Max	3,500E -10
Mean	2,375E -10
Sigma	8,539E -11

**-IozL I/O6**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O5: -IozL I/O5  
 Vin (under test) = 0V others at Vcc

Unit= A

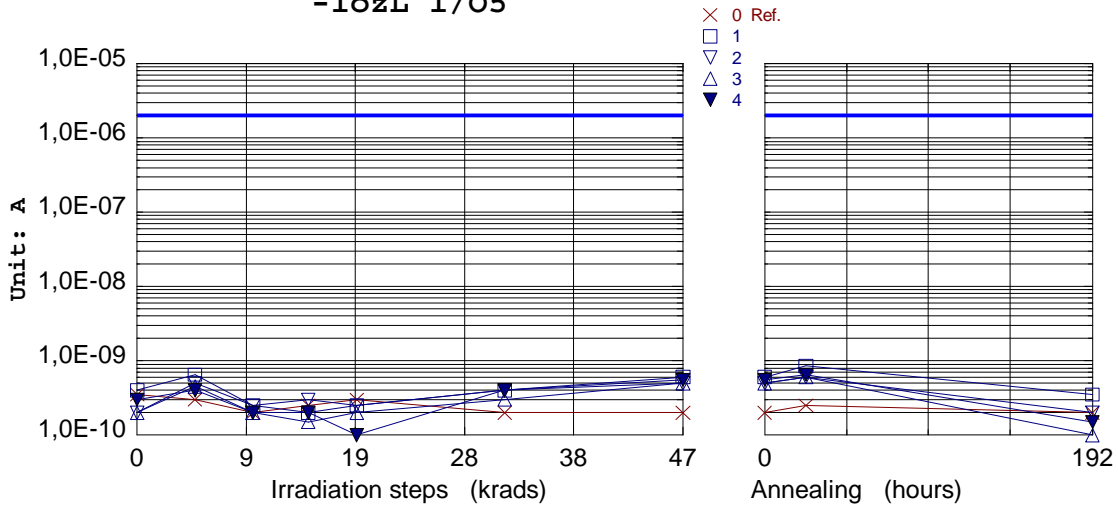
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,500E -10	3,000E -10	2,000E -10	2,500E -10	3,000E -10	2,000E -10	2,000E -10	2,500E -10
1	4,000E -10	6,500E -10	2,500E -10	2,000E -10	2,500E -10	4,000E -10	6,000E -10	8,500E -10
2	2,000E -10	5,000E -10	2,500E -10	3,000E -10	2,500E -10	4,000E -10	5,000E -10	6,000E -10
3	2,000E -10	4,500E -10	2,000E -10	1,500E -10	2,000E -10	3,000E -10	5,000E -10	6,000E -10
4	3,000E -10	4,000E -10	2,000E -10	2,000E -10	1,000E -10	4,000E -10	5,500E -10	6,500E -10
Statistics								
Min	2,000E -10	4,000E -10	2,000E -10	1,500E -10	1,000E -10	3,000E -10	5,000E -10	6,000E -10
Max	4,000E -10	6,500E -10	2,500E -10	3,000E -10	2,500E -10	4,000E -10	6,000E -10	8,500E -10
Mean	2,750E -10	5,000E -10	2,250E -10	2,125E -10	2,000E -10	3,750E -10	5,375E -10	6,750E -10
Sigma	9,574E -11	1,080E -10	2,887E -11	6,292E -11	7,071E -11	5,000E -11	4,787E -11	1,190E -10

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	3,500E -10
2	2,000E -10
3	1,000E -10
4	1,500E -10
Statistics	
Min	1,000E -10
Max	3,500E -10
Mean	2,000E -10
Sigma	1,080E -10

**-IozL I/O5**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O4: -IozL I/O4  
 Vin (under test) = 0V others at Vcc

Unit= A

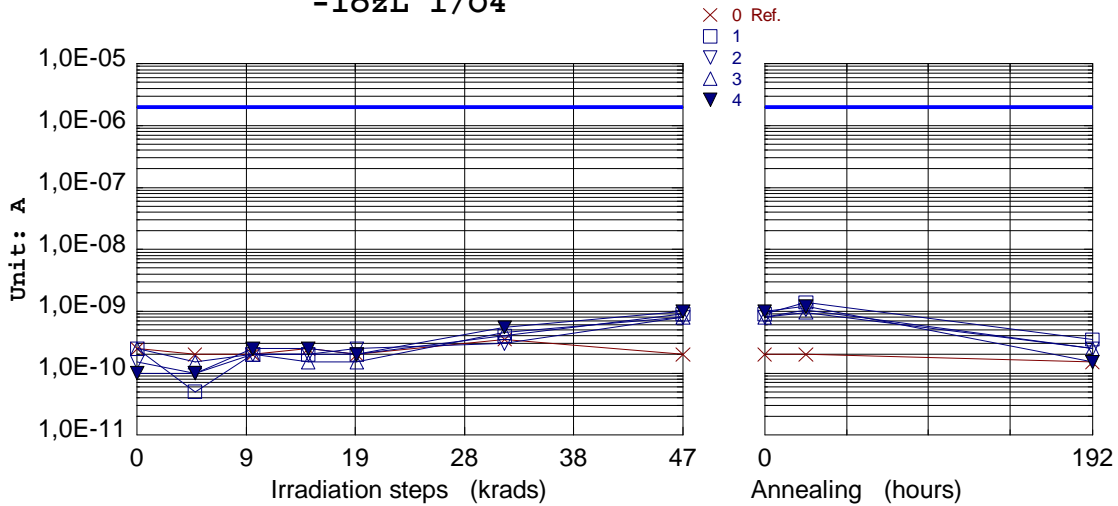
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,500E -10	2,000E -10	2,000E -10	2,500E -10	2,000E -10	3,500E -10	2,000E -10	2,000E -10
1	2,500E -10	5,000E -11	2,000E -10	2,000E -10	2,000E -10	4,000E -10	9,000E -10	1,400E -09
2	1,500E -10	1,000E -10	2,000E -10	2,000E -10	2,500E -10	3,000E -10	8,000E -10	1,050E -09
3	2,500E -10	1,500E -10	2,000E -10	1,500E -10	1,500E -10	4,500E -10	8,000E -10	9,500E -10
4	1,000E -10	1,000E -10	2,500E -10	2,500E -10	2,000E -10	5,500E -10	1,000E -09	1,200E -09
Statistics								
Min	1,000E -10	5,000E -11	2,000E -10	1,500E -10	1,500E -10	3,000E -10	8,000E -10	9,500E -10
Max	2,500E -10	1,500E -10	2,500E -10	2,500E -10	2,500E -10	5,500E -10	1,000E -09	1,400E -09
Mean	1,875E -10	1,000E -10	2,125E -10	2,000E -10	2,000E -10	4,250E -10	8,750E -10	1,150E -09
Sigma	7,500E -11	4,082E -11	2,500E -11	4,082E -11	4,082E -11	1,041E -10	9,574E -11	1,958E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	3,500E -10
2	2,500E -10
3	2,500E -10
4	1,500E -10
Statistics	
Min	1,500E -10
Max	3,500E -10
Mean	2,500E -10
Sigma	8,165E -11

-IozL I/O4



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O3: -IozL I/O3  
Vin (under test) = 0V others at Vcc

Unit= A

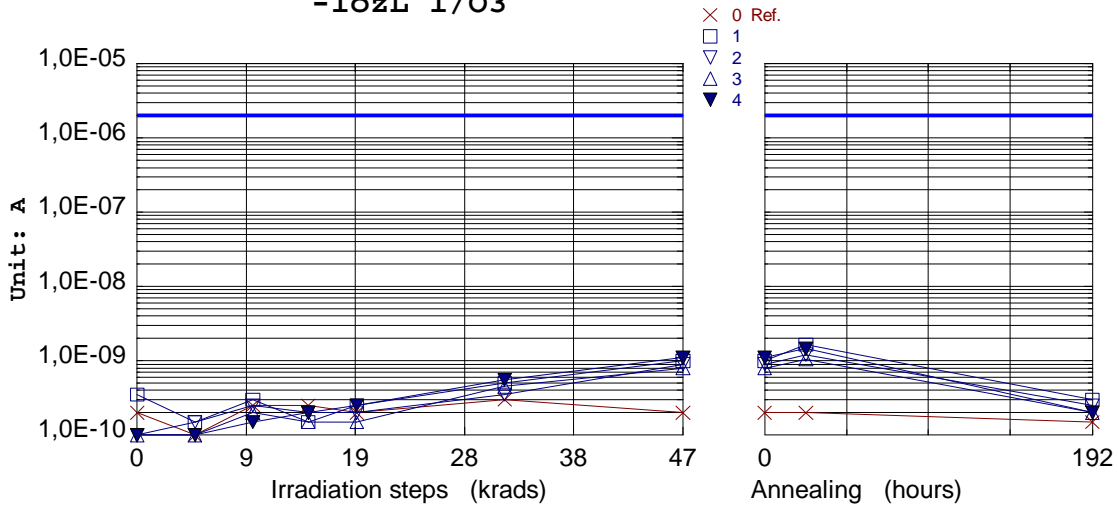
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,000E -10	2,500E -10	2,500E -10	2,000E -10	3,000E -10	2,000E -10	2,000E -10
1	3,500E -10	1,500E -10	3,000E -10	1,500E -10	2,500E -10	5,000E -10	1,000E -09	1,650E -09
2	1,000E -10	1,500E -10	2,500E -10	2,000E -10	2,000E -10	3,500E -10	9,000E -10	1,200E -09
3	1,000E -10	1,000E -10	2,000E -10	1,500E -10	1,500E -10	4,500E -10	8,000E -10	1,050E -09
4	1,000E -10	1,000E -10	1,500E -10	2,000E -10	2,500E -10	5,500E -10	1,100E -09	1,450E -09
Statistics								
Min	1,000E -10	1,000E -10	1,500E -10	1,500E -10	1,500E -10	3,500E -10	8,000E -10	1,050E -09
Max	3,500E -10	1,500E -10	3,000E -10	2,000E -10	2,500E -10	5,500E -10	1,100E -09	1,650E -09
Mean	1,625E -10	1,250E -10	2,250E -10	1,750E -10	2,125E -10	4,625E -10	9,500E -10	1,337E -09
Sigma	1,250E -10	2,887E -11	6,455E -11	2,887E -11	4,787E -11	8,539E -11	1,291E -10	2,658E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	3,000E -10
2	2,500E -10
3	2,000E -10
4	2,000E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	4,787E -11

**-IozL I/O3**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O2: -IozL I/O2  
 Vin (under test) = 0V others at Vcc

Unit= A

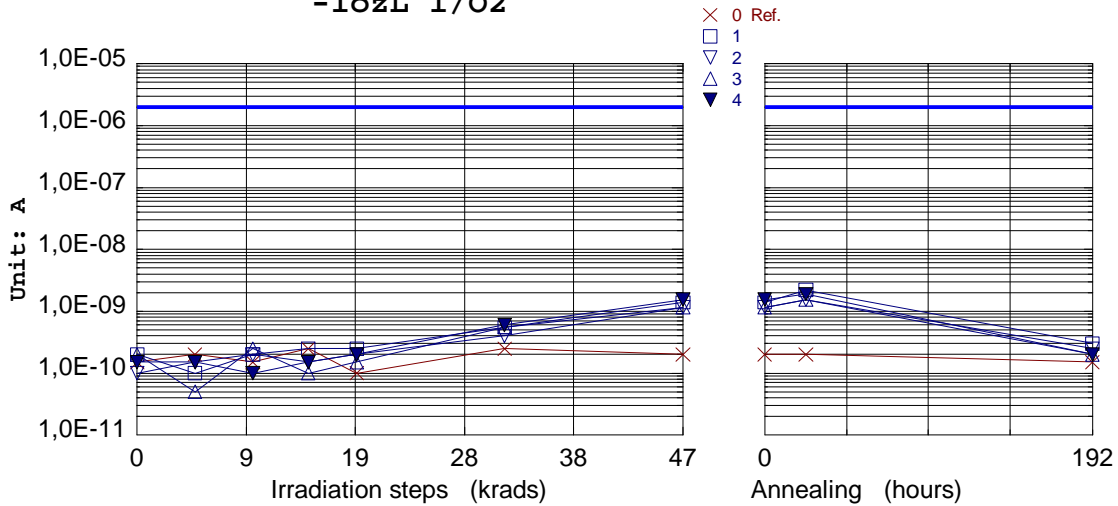
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,500E -10	2,000E -10	1,500E -10	2,500E -10	1,000E -10	2,500E -10	2,000E -10	2,000E -10
1	2,000E -10	1,000E -10	2,000E -10	2,500E -10	2,500E -10	5,500E -10	1,400E -09	2,200E -09
2	1,000E -10	1,500E -10	2,000E -10	1,500E -10	2,000E -10	4,000E -10	1,150E -09	1,550E -09
3	2,000E -10	5,000E -11	2,500E -10	1,000E -10	1,500E -10	5,500E -10	1,150E -09	1,550E -09
4	1,500E -10	1,500E -10	1,000E -10	1,500E -10	2,000E -10	6,000E -10	1,550E -09	1,900E -09
Statistics								
Min	1,000E -10	5,000E -11	1,000E -10	1,000E -10	1,500E -10	4,000E -10	1,150E -09	1,550E -09
Max	2,000E -10	1,500E -10	2,500E -10	2,500E -10	2,500E -10	6,000E -10	1,550E -09	2,200E -09
Mean	1,625E -10	1,125E -10	1,875E -10	1,625E -10	2,000E -10	5,250E -10	1,312E -09	1,800E -09
Sigma	4,787E -11	4,787E -11	6,292E -11	6,292E -11	4,082E -11	8,660E -11	1,974E -10	3,136E -10

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	3,000E -10
2	2,500E -10
3	2,000E -10
4	2,000E -10
Statistics	
Min	2,000E -10
Max	3,000E -10
Mean	2,375E -10
Sigma	4,787E -11

-IozL I/O2



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Negative Output Current Low Level Pin I/O1: -IozL I/O1  
Vin (under test) = 0V others at Vcc

Unit= A

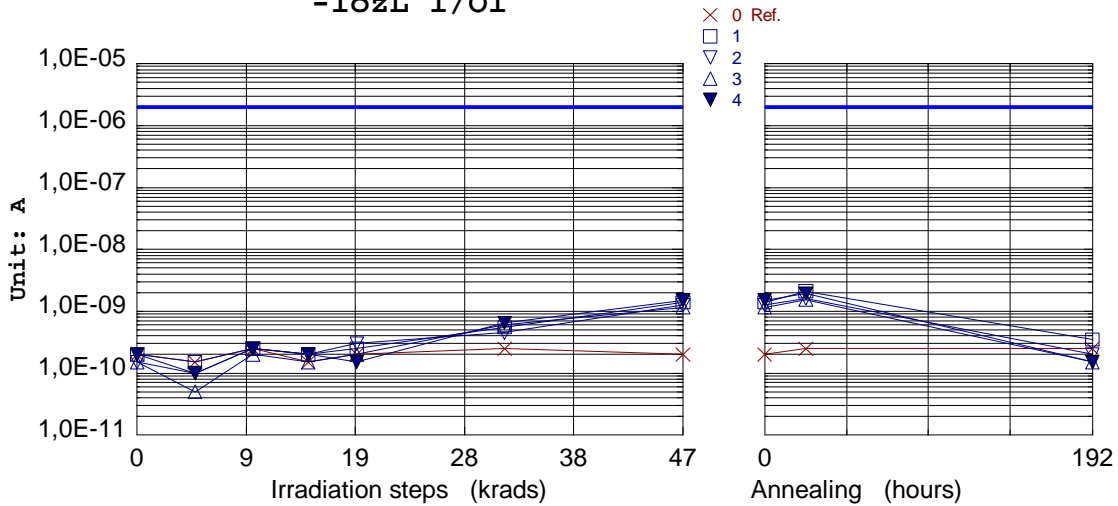
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,500E -10	2,500E -10	1,500E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10
1	2,000E -10	1,500E -10	2,500E -10	2,000E -10	2,500E -10	5,500E -10	1,400E -09	2,100E -09
2	1,500E -10	1,000E -10	2,500E -10	2,000E -10	3,000E -10	4,500E -10	1,250E -09	1,600E -09
3	1,500E -10	5,000E -11	2,000E -10	1,500E -10	2,000E -10	6,000E -10	1,150E -09	1,550E -09
4	2,000E -10	1,000E -10	2,500E -10	2,000E -10	1,500E -10	6,500E -10	1,500E -09	1,950E -09
Statistics								
Min	1,500E -10	5,000E -11	2,000E -10	1,500E -10	1,500E -10	4,500E -10	1,150E -09	1,550E -09
Max	2,000E -10	1,500E -10	2,500E -10	2,000E -10	3,000E -10	6,500E -10	1,500E -09	2,100E -09
Mean	1,750E -10	1,000E -10	2,375E -10	1,875E -10	2,250E -10	5,625E -10	1,325E -09	1,800E -09
Sigma	2,887E -11	4,082E -11	2,500E -11	2,500E -11	6,455E -11	8,539E -11	1,555E -10	2,677E -10

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	3,500E -10
2	2,000E -10
3	1,500E -10
4	1,500E -10
Statistics	
Min	1,500E -10
Max	3,500E -10
Mean	2,125E -10
Sigma	9,465E -11

**-IozL I/O1**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O16: IozH I/O16  
Vin (under test) = Vcc others at 0V

Unit= A

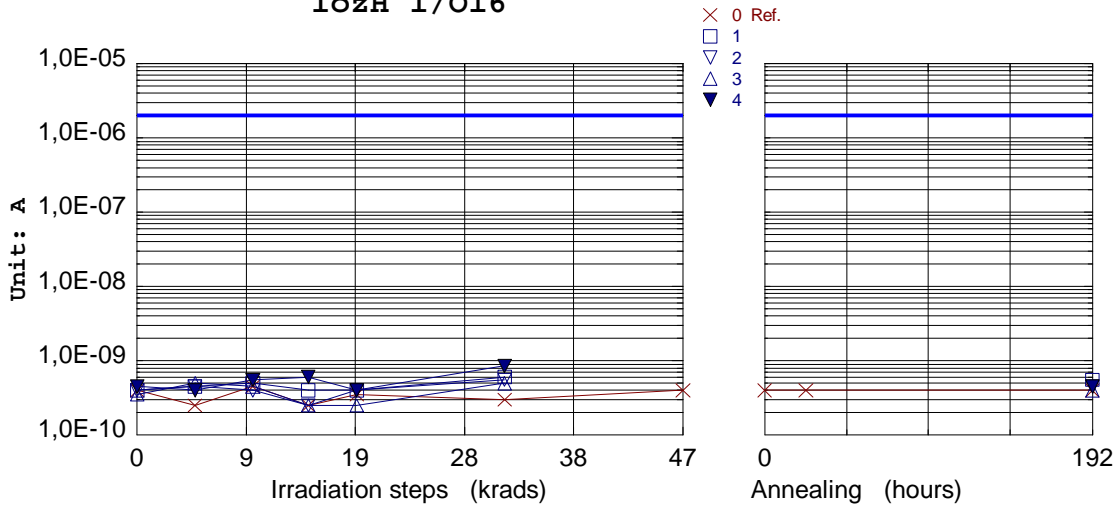
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	4,000E -10	2,500E -10	4,500E -10	2,500E -10	3,500E -10	3,000E -10	4,000E -10	4,000E -10
1	4,000E -10	4,500E -10	5,000E -10	4,000E -10	4,000E -10	6,000E -10		
2	4,000E -10	4,500E -10	4,000E -10	2,500E -10	4,000E -10	5,500E -10		
3	3,500E -10	5,000E -10	4,500E -10	2,500E -10	2,500E -10	5,000E -10		
4	4,500E -10	4,000E -10	5,500E -10	6,000E -10	4,000E -10	8,500E -10		
Statistics								
Min	3,500E -10	4,000E -10	4,000E -10	2,500E -10	2,500E -10	5,000E -10		
Max	4,500E -10	5,000E -10	5,500E -10	6,000E -10	4,000E -10	8,500E -10		
Mean	4,000E -10	4,500E -10	4,750E -10	3,750E -10	3,625E -10	6,250E -10		
Sigma	4,082E -11	4,082E -11	6,455E -11	1,658E -10	7,500E -11	1,555E -10		

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	5,500E -10
2	4,500E -10
3	4,000E -10
4	4,500E -10
Statistics	
Min	4,000E -10
Max	5,500E -10
Mean	4,625E -10
Sigma	6,292E -11

**IozH I/O16**





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O15: IozH I/O15  
Vin (under test) = Vcc others at 0V

Unit= A

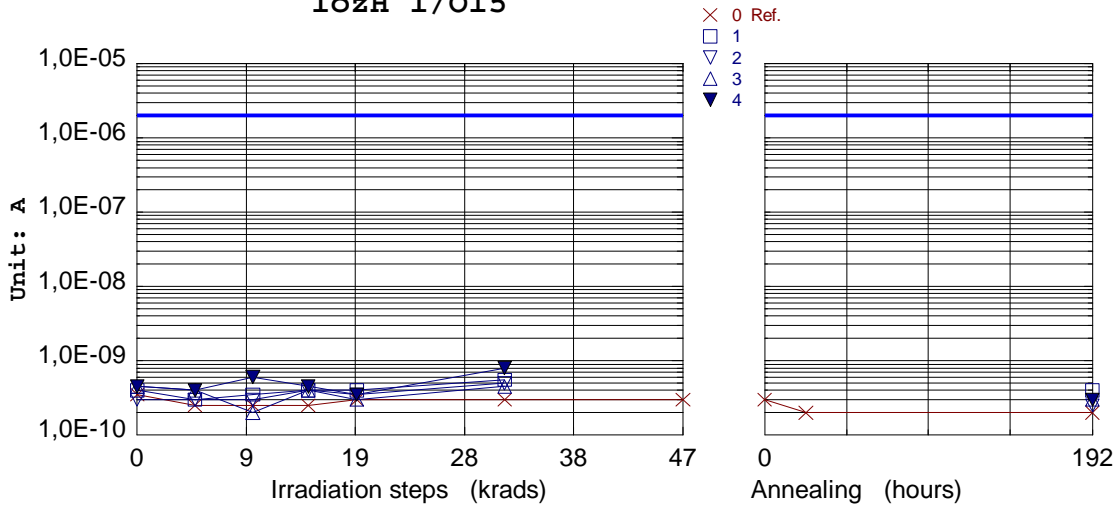
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,500E -10	2,500E -10	2,500E -10	2,500E -10	3,000E -10	3,000E -10	3,000E -10	2,000E -10
1	4,000E -10	3,000E -10	3,500E -10	4,000E -10	4,000E -10	5,500E -10		
2	3,000E -10	3,000E -10	3,000E -10	4,000E -10	3,500E -10	5,000E -10		
3	4,500E -10	4,000E -10	2,000E -10	4,000E -10	3,000E -10	4,500E -10		
4	4,500E -10	4,000E -10	6,000E -10	4,500E -10	3,500E -10	8,000E -10		
Statistics								
Min	3,000E -10	3,000E -10	2,000E -10	4,000E -10	3,000E -10	4,500E -10		
Max	4,500E -10	4,000E -10	6,000E -10	4,500E -10	4,000E -10	8,000E -10		
Mean	4,000E -10	3,500E -10	3,625E -10	4,125E -10	3,500E -10	5,750E -10		
Sigma	7,071E -11	5,774E -11	1,702E -10	2,500E -11	4,082E -11	1,555E -10		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	4,000E -10
2	2,500E -10
3	3,000E -10
4	3,000E -10
Statistics	
Min	2,500E -10
Max	4,000E -10
Mean	3,125E -10
Sigma	6,292E -11

**IozH I/O15**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O14: IozH I/O14  
Vin (under test) = Vcc others at 0V

Unit= A

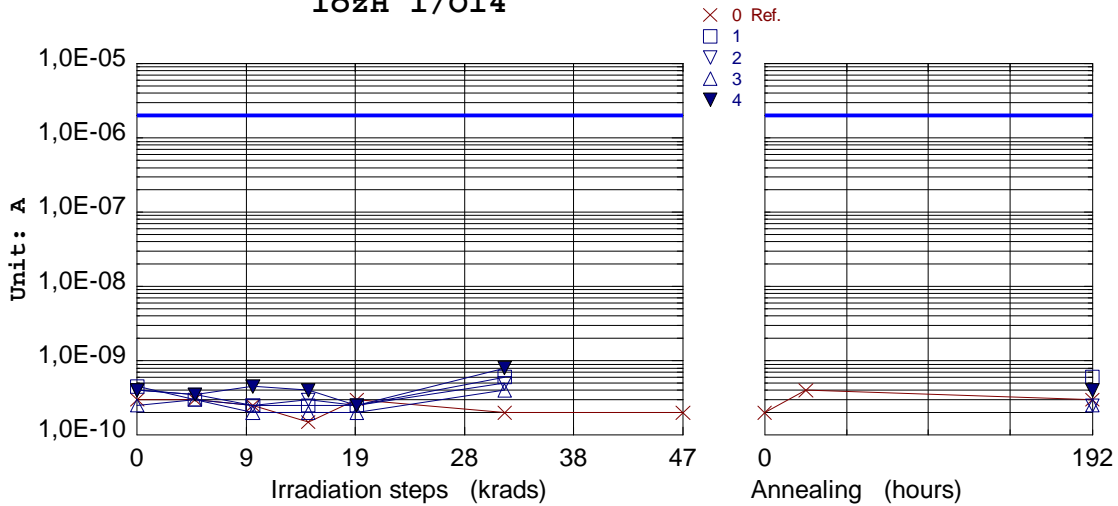
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	3,000E -10	2,500E -10	1,500E -10	3,000E -10	2,000E -10	2,000E -10	4,000E -10
1	4,500E -10	3,000E -10	2,500E -10	2,500E -10	2,500E -10	6,000E -10		
2	4,000E -10	3,500E -10	2,500E -10	3,000E -10	2,500E -10	5,000E -10		
3	2,500E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10	4,000E -10		
4	4,000E -10	3,500E -10	4,500E -10	4,000E -10	2,500E -10	8,000E -10		
Statistics								
Min	2,500E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10	4,000E -10		
Max	4,500E -10	3,500E -10	4,500E -10	4,000E -10	2,500E -10	8,000E -10		
Mean	3,750E -10	3,250E -10	2,875E -10	2,875E -10	2,375E -10	5,750E -10		
Sigma	8,660E -11	2,887E -11	1,109E -10	8,539E -11	2,500E -11	1,708E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	6,000E -10
2	2,500E -10
3	2,500E -10
4	4,000E -10
Statistics	
Min	2,500E -10
Max	6,000E -10
Mean	3,750E -10
Sigma	1,658E -10

**IozH I/O14**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Output Current High Level Pin I/O13: IozH I/O13**  
**Vin (under test) = Vcc others at 0V**

Unit= A

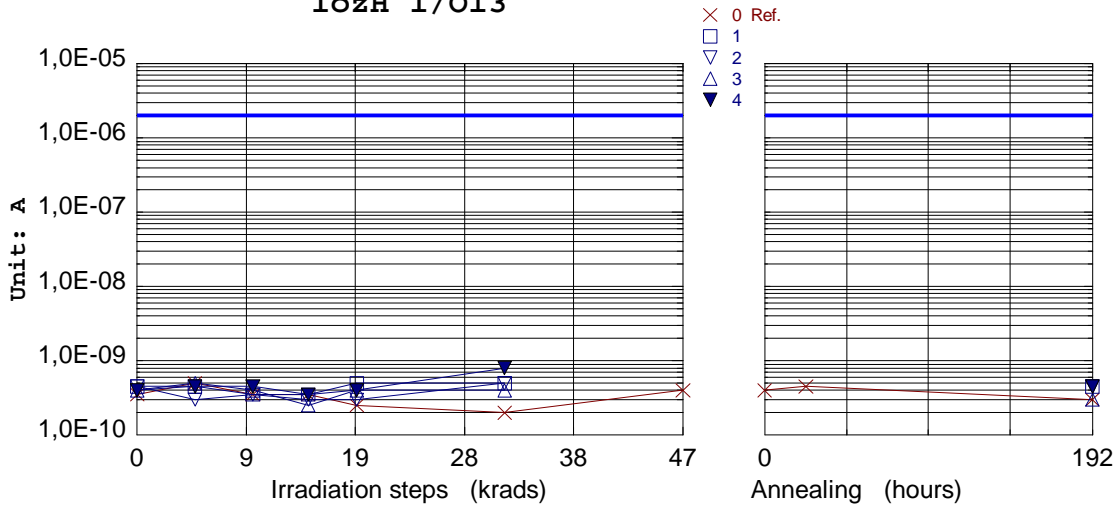
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,500E -10	5,000E -10	3,500E -10	3,500E -10	2,500E -10	2,000E -10	4,000E -10	4,500E -10
1	4,500E -10	4,500E -10	3,500E -10	3,500E -10	5,000E -10	5,000E -10		
2	4,500E -10	3,000E -10	3,500E -10	3,000E -10	3,000E -10	5,000E -10		
3	4,000E -10	5,000E -10	4,000E -10	2,500E -10	4,000E -10	4,000E -10		
4	4,000E -10	4,500E -10	4,500E -10	3,500E -10	4,000E -10	8,000E -10		
Statistics								
Min	4,000E -10	3,000E -10	3,500E -10	2,500E -10	3,000E -10	4,000E -10		
Max	4,500E -10	5,000E -10	4,500E -10	3,500E -10	5,000E -10	8,000E -10		
Mean	4,250E -10	4,250E -10	3,875E -10	3,125E -10	4,000E -10	5,500E -10		
Sigma	2,887E -11	8,660E -11	4,787E -11	4,787E -11	8,165E -11	1,732E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	4,500E -10
2	4,500E -10
3	3,000E -10
4	4,500E -10
Statistics	
Min	3,000E -10
Max	4,500E -10
Mean	4,125E -10
Sigma	7,500E -11

**IozH I/O13**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O12: IozH I/O12  
Vin (under test) = Vcc others at 0V

Unit= A

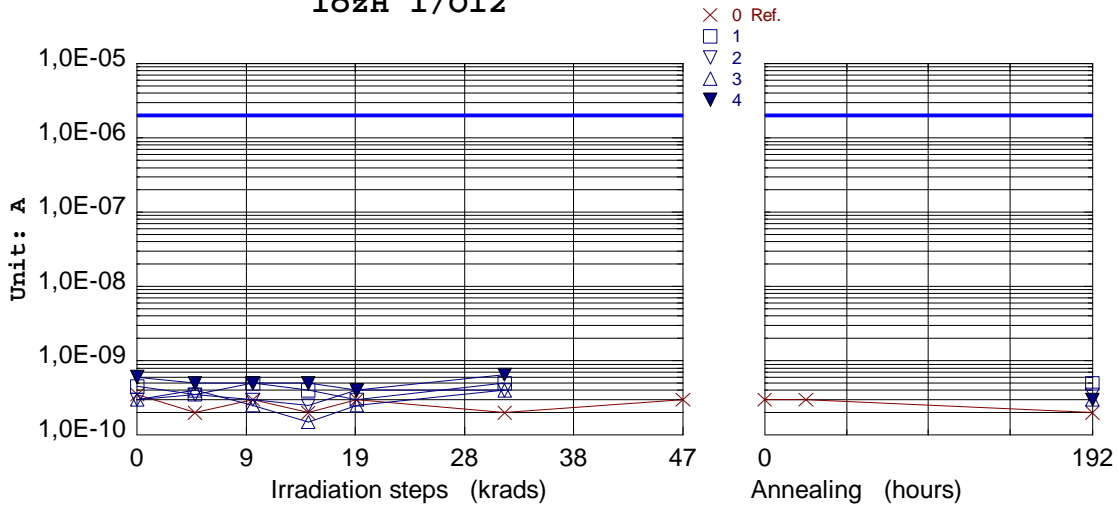
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,500E -10	2,000E -10	3,000E -10	2,000E -10	3,000E -10	2,000E -10	3,000E -10	3,000E -10
1	4,500E -10	3,500E -10	5,000E -10	4,000E -10	3,000E -10	5,000E -10		
2	3,000E -10	3,500E -10	3,000E -10	2,500E -10	4,000E -10	4,000E -10		
3	3,000E -10	4,000E -10	2,500E -10	1,500E -10	2,500E -10	4,000E -10		
4	6,000E -10	5,000E -10	5,000E -10	5,000E -10	4,000E -10	6,500E -10		
Statistics								
Min	3,000E -10	3,500E -10	2,500E -10	1,500E -10	2,500E -10	4,000E -10		
Max	6,000E -10	5,000E -10	5,000E -10	5,000E -10	4,000E -10	6,500E -10		
Mean	4,125E -10	4,000E -10	3,875E -10	3,250E -10	3,375E -10	4,875E -10		
Sigma	1,436E -10	7,071E -11	1,315E -10	1,555E -10	7,500E -11	1,181E -10		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	5,000E -10
2	3,500E -10
3	3,000E -10
4	3,000E -10
Statistics	
Min	3,000E -10
Max	5,000E -10
Mean	3,625E -10
Sigma	9,465E -11

**IozH I/O12**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O11: IozH I/O11  
Vin (under test) = Vcc others at 0V

Unit= A

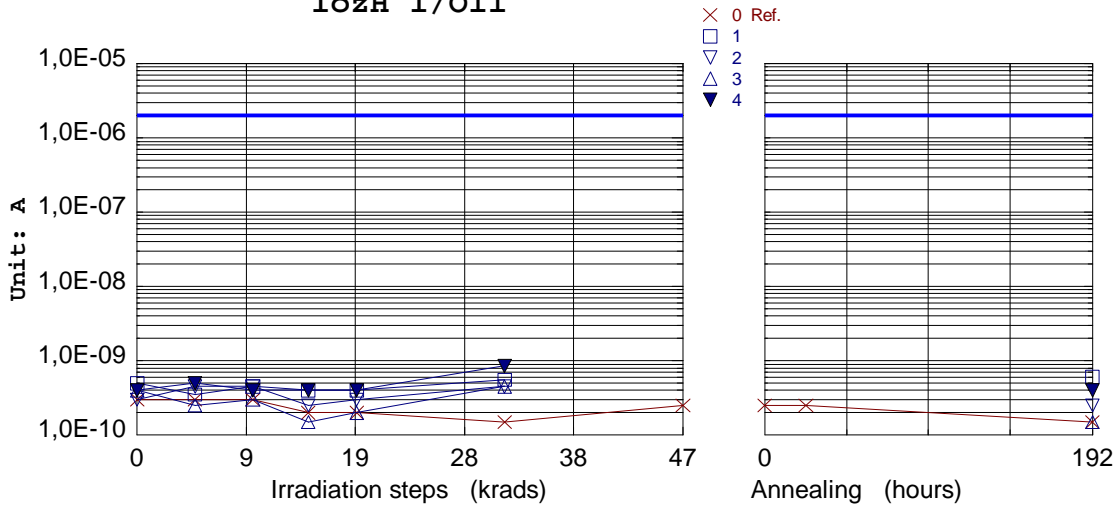
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	3,000E -10	3,000E -10	2,000E -10	2,000E -10	1,500E -10	2,500E -10	2,500E -10
1	5,000E -10	3,500E -10	4,500E -10	4,000E -10	4,000E -10	5,500E -10		
2	3,000E -10	4,500E -10	4,500E -10	2,500E -10	3,000E -10	4,500E -10		
3	4,000E -10	2,500E -10	3,000E -10	1,500E -10	2,000E -10	4,500E -10		
4	4,000E -10	5,000E -10	4,000E -10	4,000E -10	4,000E -10	8,500E -10		
Statistics								
Min	3,000E -10	2,500E -10	3,000E -10	1,500E -10	2,000E -10	4,500E -10		
Max	5,000E -10	5,000E -10	4,500E -10	4,000E -10	4,000E -10	8,500E -10		
Mean	4,000E -10	3,875E -10	4,000E -10	3,000E -10	3,250E -10	5,750E -10		
Sigma	8,165E -11	1,109E -10	7,071E -11	1,225E -10	9,574E -11	1,893E -10		

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	6,000E -10
2	2,500E -10
3	1,500E -10
4	4,000E -10
Statistics	
Min	1,500E -10
Max	6,000E -10
Mean	3,500E -10
Sigma	1,958E -10

**IozH I/O11**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Output Current High Level Pin I/O10: IozH I/O10**  
**Vin (under test) = Vcc others at 0V**

Unit= A

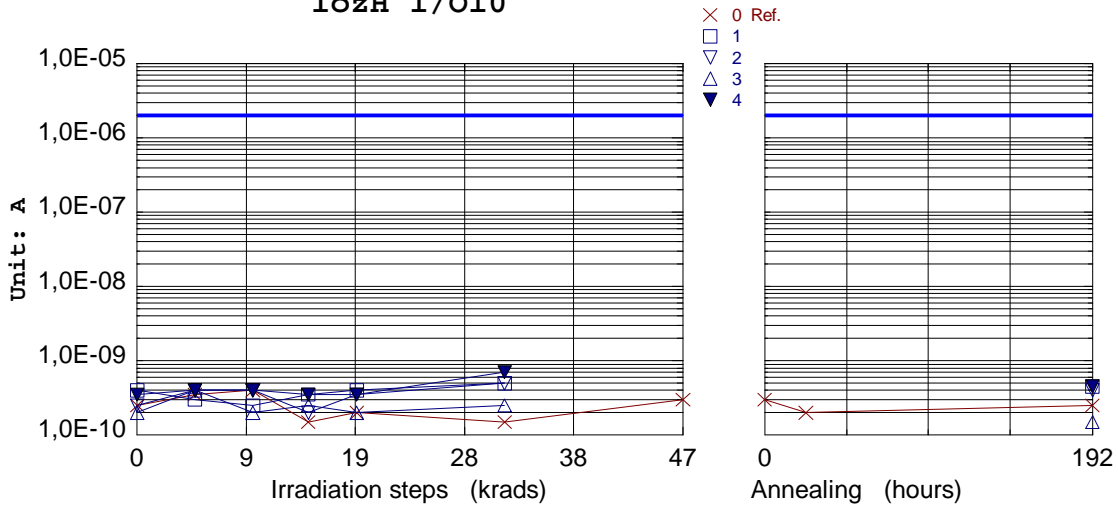
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,500E -10	3,500E -10	4,000E -10	1,500E -10	2,000E -10	1,500E -10	3,000E -10	2,000E -10
1	4,000E -10	3,000E -10	2,500E -10	3,500E -10	4,000E -10	5,000E -10		
2	2,500E -10	4,000E -10	4,000E -10	2,000E -10	3,500E -10	5,000E -10		
3	2,000E -10	4,000E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10		
4	3,500E -10	4,000E -10	4,000E -10	3,500E -10	3,500E -10	7,000E -10		
Statistics								
Min	2,000E -10	3,000E -10	2,000E -10	2,000E -10	2,000E -10	2,500E -10		
Max	4,000E -10	4,000E -10	4,000E -10	3,500E -10	4,000E -10	7,000E -10		
Mean	3,000E -10	3,750E -10	3,125E -10	2,875E -10	3,250E -10	4,875E -10		
Sigma	9,129E -11	5,000E -11	1,031E -10	7,500E -11	8,660E -11	1,843E -10		

Test Step	192 hours
Serial #	
0 Ref.	2,500E -10
1	4,500E -10
2	4,000E -10
3	1,500E -10
4	4,500E -10
Statistics	
Min	1,500E -10
Max	4,500E -10
Mean	3,625E -10
Sigma	1,436E -10

**IozH I/O10**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O9: IozH I/O9  
 Vin (under test) = Vcc others at 0V

Unit= A

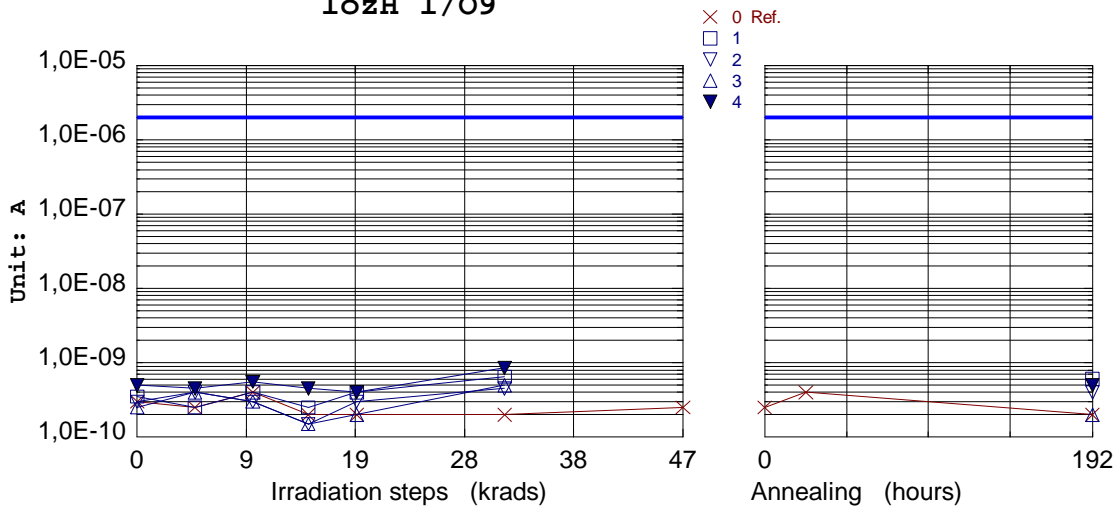
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	2,500E -10	4,000E -10	2,000E -10	2,000E -10	2,000E -10	2,500E -10	4,000E -10
1	3,500E -10	2,500E -10	4,000E -10	2,500E -10	4,000E -10	6,500E -10		
2	3,000E -10	4,000E -10	3,000E -10	1,500E -10	3,000E -10	4,500E -10		
3	2,500E -10	4,000E -10	3,000E -10	1,500E -10	2,000E -10	5,000E -10		
4	5,000E -10	4,500E -10	5,500E -10	4,500E -10	4,000E -10	8,500E -10		
Statistics								
Min	2,500E -10	2,500E -10	3,000E -10	1,500E -10	2,000E -10	4,500E -10		
Max	5,000E -10	4,500E -10	5,500E -10	4,500E -10	4,000E -10	8,500E -10		
Mean	3,500E -10	3,750E -10	3,875E -10	2,500E -10	3,250E -10	6,125E -10		
Sigma	1,080E -10	8,660E -11	1,181E -10	1,414E -10	9,574E -11	1,797E -10		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	6,000E -10
2	4,000E -10
3	2,000E -10
4	5,000E -10
Statistics	
Min	2,000E -10
Max	6,000E -10
Mean	4,250E -10
Sigma	1,708E -10

**IozH I/O9**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O8: IozH I/O8

Vin (under test) = Vcc others at 0V

Unit= A

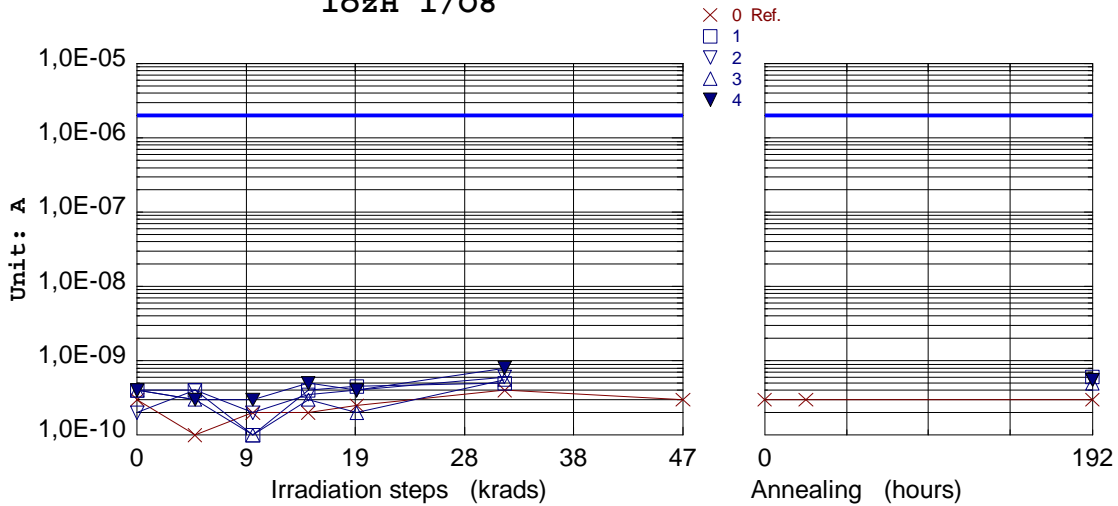
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	3,000E -10	1,000E -10	2,000E -10	2,000E -10	2,500E -10	4,000E -10	3,000E -10	3,000E -10
1	4,000E -10	4,000E -10	1,000E -10	4,000E -10	4,500E -10	5,000E -10		
2	2,000E -10	4,000E -10	2,000E -10	3,500E -10	4,000E -10	6,000E -10		
3	4,000E -10	3,000E -10	1,000E -10	3,000E -10	2,000E -10	5,500E -10		
4	4,000E -10	3,000E -10	3,000E -10	5,000E -10	4,000E -10	8,000E -10		
Statistics								
Min	2,000E -10	3,000E -10	1,000E -10	3,000E -10	2,000E -10	5,000E -10		
Max	4,000E -10	4,000E -10	3,000E -10	5,000E -10	4,500E -10	8,000E -10		
Mean	3,500E -10	3,500E -10	1,750E -10	3,875E -10	3,625E -10	6,125E -10		
Sigma	1,000E -10	5,774E -11	9,574E -11	8,539E -11	1,109E -10	1,315E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	6,000E -10
2	5,500E -10
3	5,000E -10
4	5,500E -10
Statistics	
Min	5,000E -10
Max	6,000E -10
Mean	5,500E -10
Sigma	4,082E -11

### IozH I/O8





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O7: IozH I/O7  
 Vin (under test) = Vcc others at 0V

Unit= A

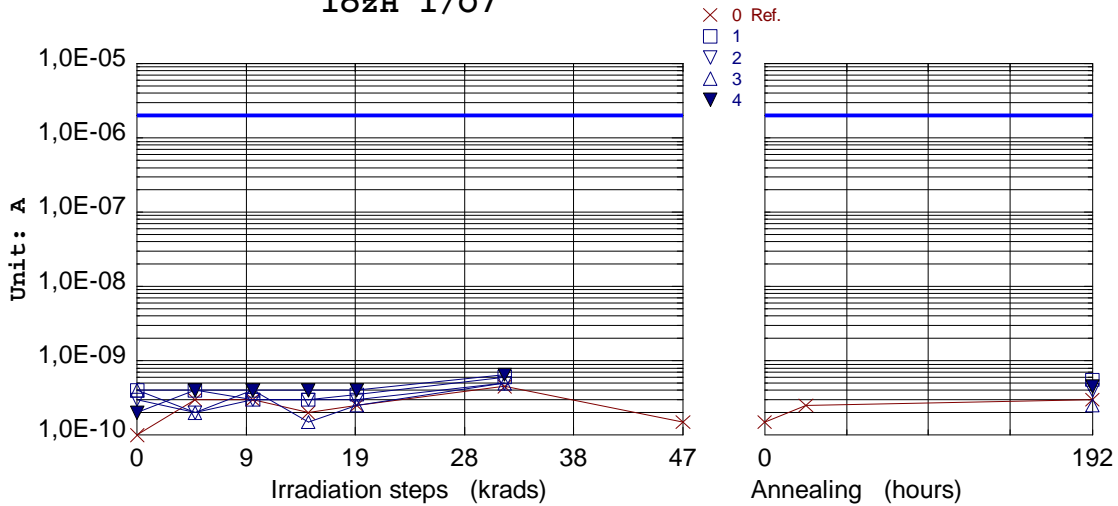
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	3,000E -10	2,000E -10	2,500E -10	4,500E -10	1,500E -10	2,500E -10
1	4,000E -10	4,000E -10	3,000E -10	3,000E -10	3,500E -10	6,000E -10		
2	3,000E -10	2,000E -10	3,000E -10	3,000E -10	3,000E -10	5,000E -10		
3	4,000E -10	2,000E -10	4,000E -10	1,500E -10	2,500E -10	5,000E -10		
4	2,000E -10	4,000E -10	4,000E -10	4,000E -10	4,000E -10	6,500E -10		
Statistics								
Min	2,000E -10	2,000E -10	3,000E -10	1,500E -10	2,500E -10	5,000E -10		
Max	4,000E -10	4,000E -10	4,000E -10	4,000E -10	4,000E -10	6,500E -10		
Mean	3,250E -10	3,000E -10	3,500E -10	2,875E -10	3,250E -10	5,625E -10		
Sigma	9,574E -11	1,155E -10	5,774E -11	1,031E -10	6,455E -11	7,500E -11		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	5,500E -10
2	4,000E -10
3	2,500E -10
4	4,500E -10
Statistics	
Min	2,500E -10
Max	5,500E -10
Mean	4,125E -10
Sigma	1,250E -10

IozH I/O7



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O6: IozH I/O6

Vin (under test) = Vcc others at 0V

Unit= A

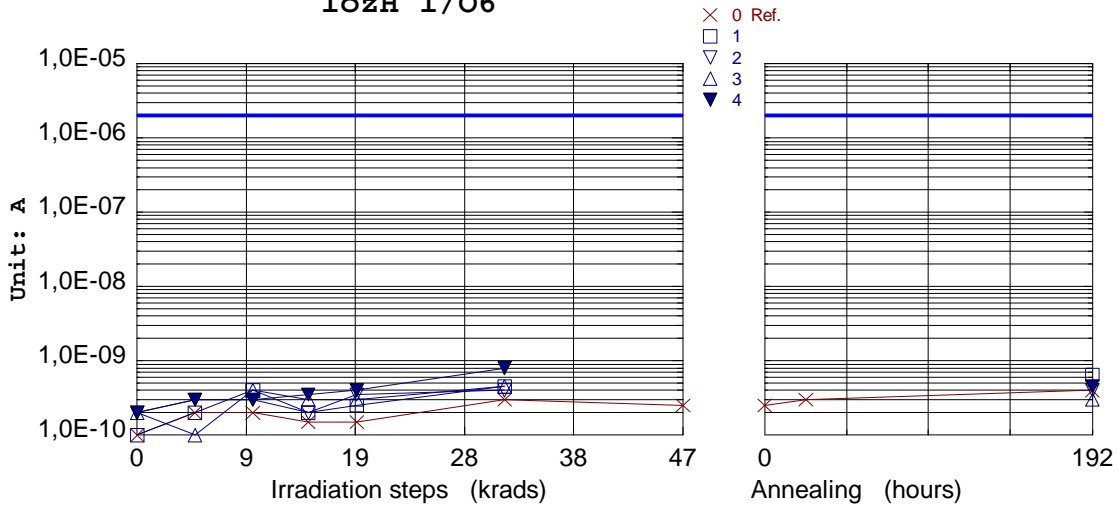
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	2,000E -10	2,000E -10	1,500E -10	1,500E -10	3,000E -10	2,500E -10	3,000E -10
1	1,000E -10	2,000E -10	4,000E -10	2,000E -10	2,500E -10	4,500E -10		
2	2,000E -10	3,000E -10	3,000E -10	2,000E -10	3,500E -10	4,000E -10		
3	2,000E -10	1,000E -10	4,000E -10	3,000E -10	3,000E -10	4,500E -10		
4	2,000E -10	3,000E -10	3,000E -10	3,500E -10	4,000E -10	8,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	3,000E -10	2,000E -10	2,500E -10	4,000E -10		
Max	2,000E -10	3,000E -10	4,000E -10	3,500E -10	4,000E -10	8,000E -10		
Mean	1,750E -10	2,250E -10	3,500E -10	2,625E -10	3,250E -10	5,250E -10		
Sigma	5,000E -11	9,574E -11	5,774E -11	7,500E -11	6,455E -11	1,848E -10		

Test Step	192 hours
Serial #	
0 Ref.	4,000E -10
1	6,500E -10
2	4,000E -10
3	3,000E -10
4	4,500E -10
Statistics	
Min	3,000E -10
Max	6,500E -10
Mean	4,500E -10
Sigma	1,472E -10

### IozH I/O6



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O5: IozH I/O5  
 Vin (under test) = Vcc others at 0V

Unit= A

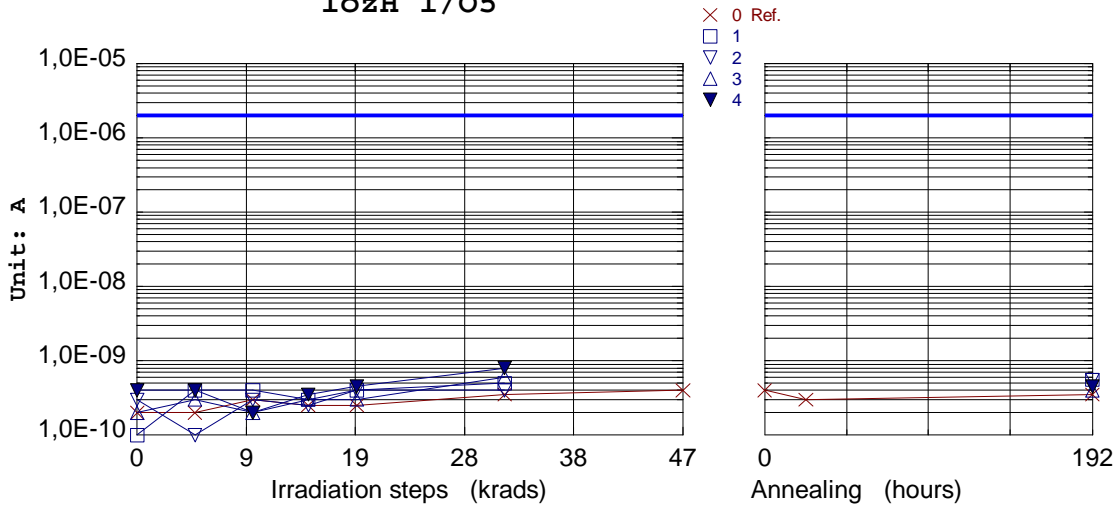
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	2,000E -10	3,000E -10	2,500E -10	2,500E -10	3,500E -10	4,000E -10	3,000E -10
1	1,000E -10	4,000E -10	4,000E -10	3,000E -10	4,000E -10	5,000E -10		
2	3,000E -10	1,000E -10	3,000E -10	2,500E -10	4,000E -10	4,000E -10		
3	2,000E -10	3,000E -10	2,000E -10	3,000E -10	3,000E -10	6,000E -10		
4	4,000E -10	4,000E -10	2,000E -10	3,500E -10	4,500E -10	8,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	2,000E -10	2,500E -10	3,000E -10	4,000E -10		
Max	4,000E -10	4,000E -10	4,000E -10	3,500E -10	4,500E -10	8,000E -10		
Mean	2,500E -10	3,000E -10	2,750E -10	3,000E -10	3,875E -10	5,750E -10		
Sigma	1,291E -10	1,414E -10	9,574E -11	4,082E -11	6,292E -11	1,708E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,500E -10
1	5,500E -10
2	5,500E -10
3	4,000E -10
4	4,500E -10
Statistics	
Min	4,000E -10
Max	5,500E -10
Mean	4,875E -10
Sigma	7,500E -11

**IozH I/O5**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O4: IozH I/O4  
 Vin (under test) = Vcc others at 0V

Unit= A

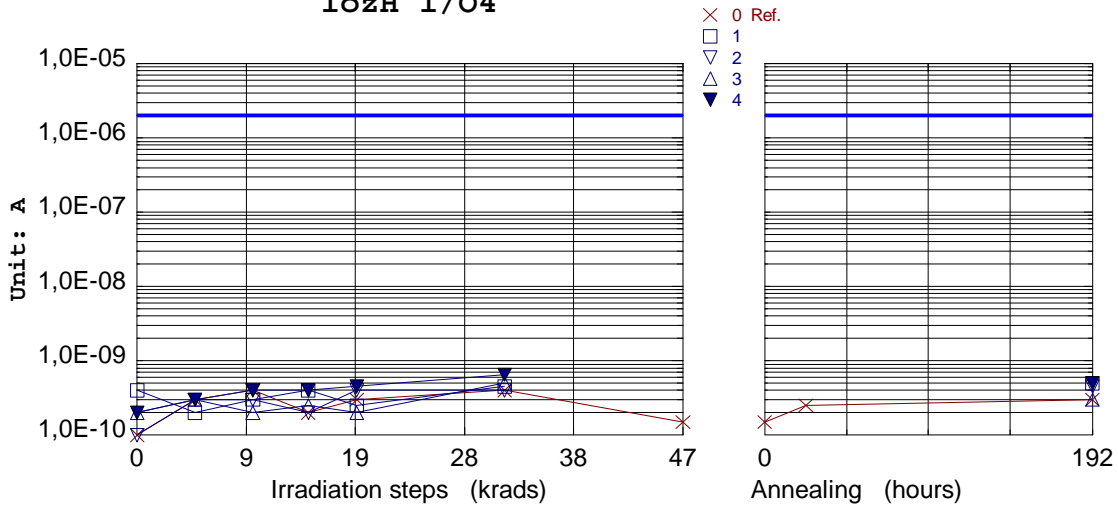
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	4,000E -10	2,000E -10	3,000E -10	4,000E -10	1,500E -10	2,500E -10
1	4,000E -10	2,000E -10	3,000E -10	4,000E -10	2,500E -10	4,500E -10		
2	1,000E -10	3,000E -10	3,000E -10	2,000E -10	4,000E -10	4,000E -10		
3	2,000E -10	3,000E -10	2,000E -10	2,500E -10	2,000E -10	5,000E -10		
4	2,000E -10	3,000E -10	4,000E -10	4,000E -10	4,500E -10	6,500E -10		
Statistics								
Min	1,000E -10	2,000E -10	2,000E -10	2,000E -10	2,000E -10	4,000E -10		
Max	4,000E -10	3,000E -10	4,000E -10	4,000E -10	4,500E -10	6,500E -10		
Mean	2,250E -10	2,750E -10	3,000E -10	3,125E -10	3,250E -10	5,000E -10		
Sigma	1,258E -10	5,000E -11	8,165E -11	1,031E -10	1,190E -10	1,080E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	5,000E -10
2	4,500E -10
3	3,000E -10
4	5,000E -10
Statistics	
Min	3,000E -10
Max	5,000E -10
Mean	4,375E -10
Sigma	9,465E -11

IozH I/O4



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O3: IozH I/O3

Vin (under test) = Vcc others at 0V

Unit= A

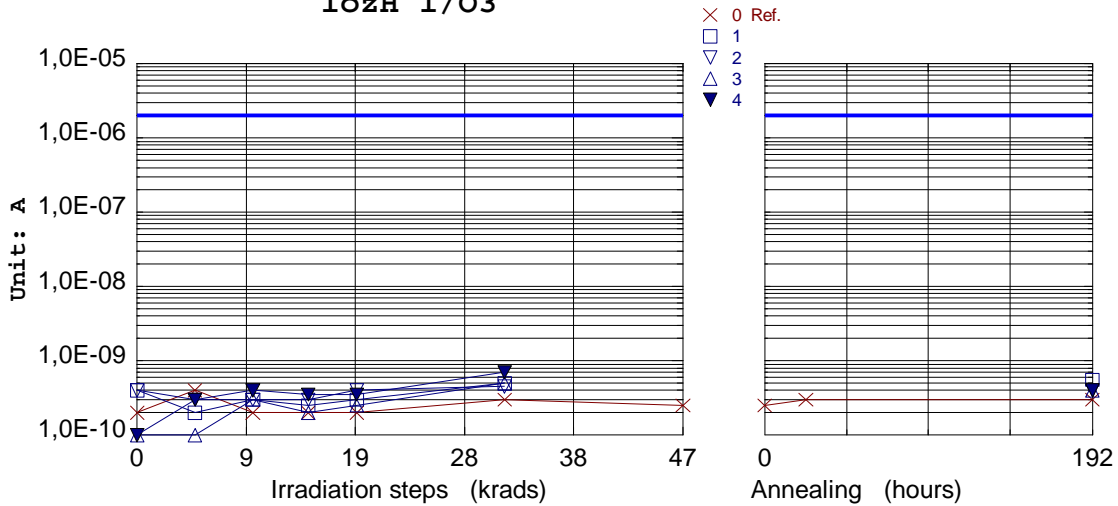
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	4,000E -10	2,000E -10	2,000E -10	2,000E -10	3,000E -10	2,500E -10	3,000E -10
1	4,000E -10	2,000E -10	3,000E -10	2,500E -10	3,000E -10	5,000E -10		
2	4,000E -10	3,000E -10	3,000E -10	3,000E -10	4,000E -10	4,500E -10		
3	1,000E -10	1,000E -10	3,000E -10	2,000E -10	2,500E -10	5,000E -10		
4	1,000E -10	3,000E -10	4,000E -10	3,500E -10	3,500E -10	7,000E -10		
Statistics								
Min	1,000E -10	1,000E -10	3,000E -10	2,000E -10	2,500E -10	4,500E -10		
Max	4,000E -10	3,000E -10	4,000E -10	3,500E -10	4,000E -10	7,000E -10		
Mean	2,500E -10	2,250E -10	3,250E -10	2,750E -10	3,250E -10	5,375E -10		
Sigma	1,732E -10	9,574E -11	5,000E -11	6,455E -11	6,455E -11	1,109E -10		

Test Step	192 hours
Serial #	
0 Ref.	3,000E -10
1	5,500E -10
2	4,000E -10
3	4,000E -10
4	4,000E -10
Statistics	
Min	4,000E -10
Max	5,500E -10
Mean	4,375E -10
Sigma	7,500E -11

### IozH I/O3



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O2: IozH I/O2  
Vin (under test) = Vcc others at 0V

Unit= A

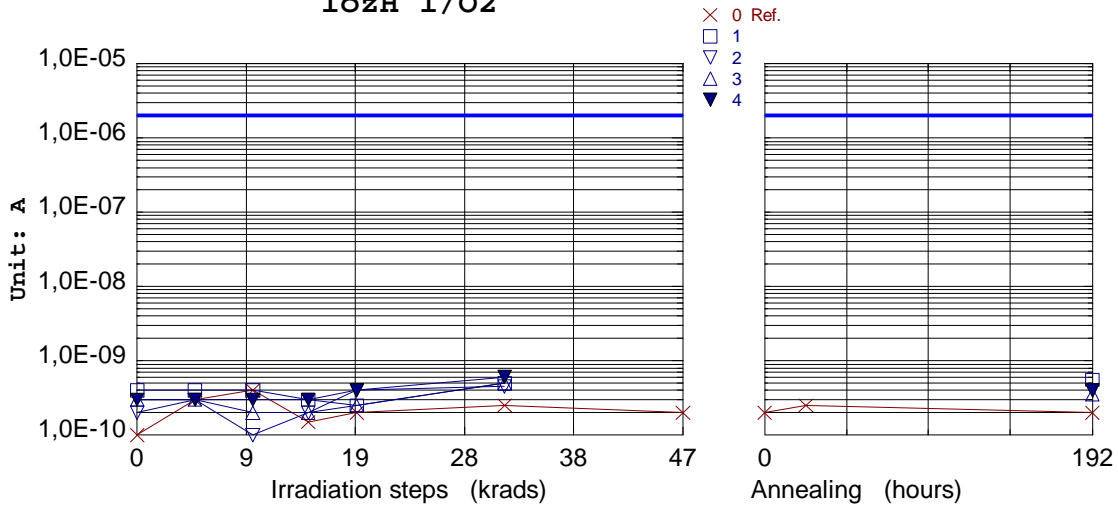
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,000E -10	3,000E -10	4,000E -10	1,500E -10	2,000E -10	2,500E -10	2,000E -10	2,500E -10
1	4,000E -10	4,000E -10	4,000E -10	3,000E -10	2,500E -10	5,000E -10		
2	2,000E -10	3,000E -10	1,000E -10	2,000E -10	4,000E -10	4,500E -10		
3	3,000E -10	3,000E -10	2,000E -10	2,000E -10	2,500E -10	5,000E -10		
4	3,000E -10	3,000E -10	3,000E -10	3,000E -10	4,000E -10	6,000E -10		
Statistics								
Min	2,000E -10	3,000E -10	1,000E -10	2,000E -10	2,500E -10	4,500E -10		
Max	4,000E -10	4,000E -10	4,000E -10	3,000E -10	4,000E -10	6,000E -10		
Mean	3,000E -10	3,250E -10	2,500E -10	2,500E -10	3,250E -10	5,125E -10		
Sigma	8,165E -11	5,000E -11	1,291E -10	5,774E -11	8,660E -11	6,292E -11		

Test Step	192 hours
Serial #	
0 Ref.	2,000E -10
1	5,500E -10
2	4,000E -10
3	3,500E -10
4	4,000E -10
Statistics	
Min	3,500E -10
Max	5,500E -10
Mean	4,250E -10
Sigma	8,660E -11

### IozH I/O2



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Current High Level Pin I/O1: IozH I/O1  
Vin (under test) = Vcc others at 0V

Unit= A

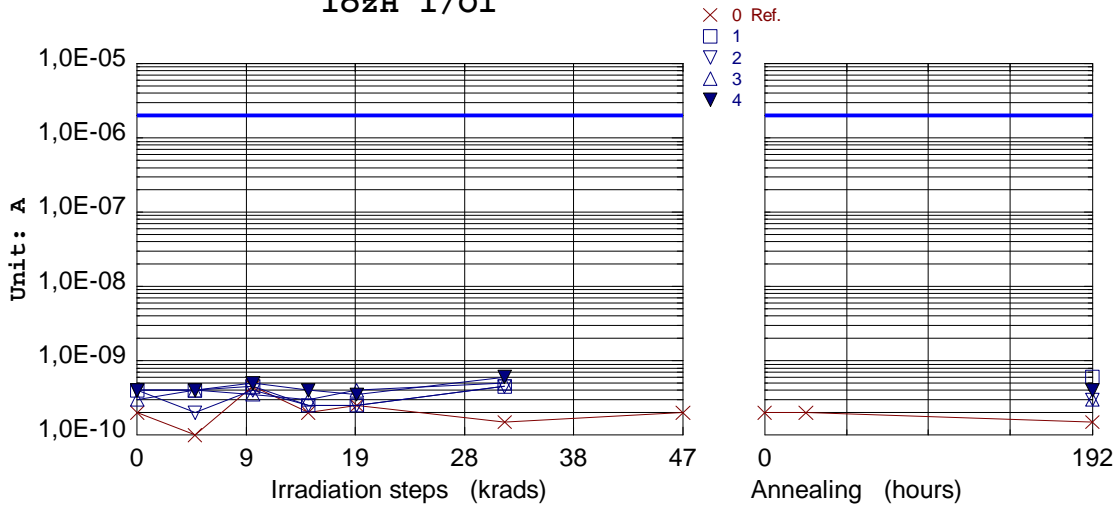
Spec limit max: 20,0E-7

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,000E -10	1,000E -10	4,500E -10	2,000E -10	2,500E -10	1,500E -10	2,000E -10	2,000E -10
1	4,000E -10	4,000E -10	4,500E -10	2,500E -10	2,500E -10	4,500E -10		
2	4,000E -10	2,000E -10	4,000E -10	2,500E -10	2,500E -10	4,500E -10		
3	3,000E -10	4,000E -10	3,500E -10	3,000E -10	4,000E -10	5,000E -10		
4	4,000E -10	4,000E -10	5,000E -10	4,000E -10	3,500E -10	6,000E -10		
Statistics								
Min	3,000E -10	2,000E -10	3,500E -10	2,500E -10	2,500E -10	4,500E -10		
Max	4,000E -10	4,000E -10	5,000E -10	4,000E -10	4,000E -10	6,000E -10		
Mean	3,750E -10	3,500E -10	4,250E -10	3,000E -10	3,125E -10	5,000E -10		
Sigma	5,000E -11	1,000E -10	6,455E -11	7,071E -11	7,500E -11	7,071E -11		

Test Step	192 hours
Serial #	
0 Ref.	1,500E -10
1	6,000E -10
2	3,000E -10
3	3,000E -10
4	4,000E -10
Statistics	
Min	3,000E -10
Max	6,000E -10
Mean	4,000E -10
Sigma	1,414E -10

**IozH I/O1**



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O16: VoL I/O16  
IoL = 8mA

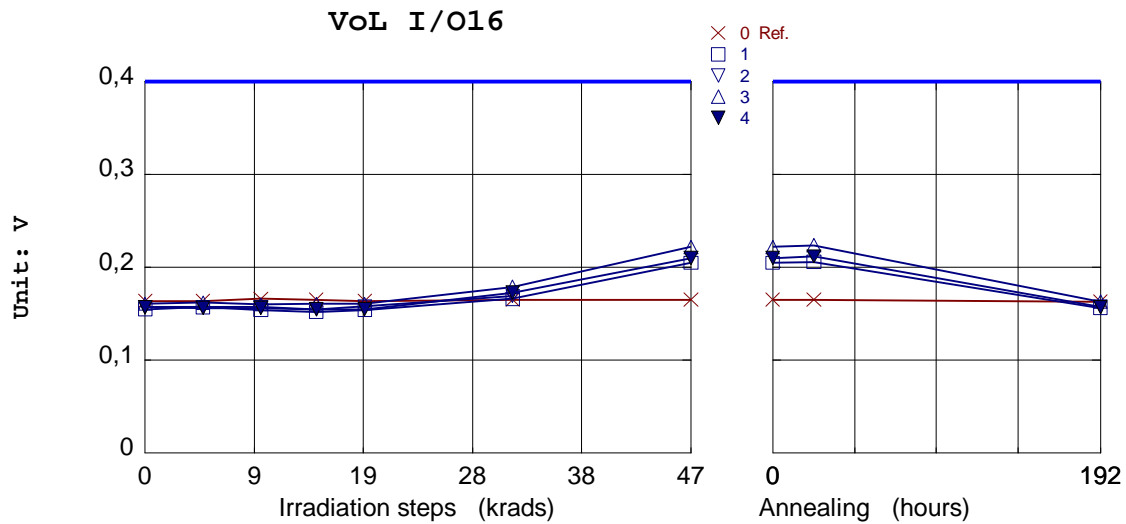
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,640E -01	1,640E -01	1,660E -01	1,650E -01	1,640E -01	1,650E -01	1,650E -01	1,650E -01
1	1,550E -01	1,570E -01	1,540E -01	1,520E -01	1,540E -01	1,660E -01	2,050E -01	2,060E -01
2	1,570E -01	1,570E -01	1,570E -01	1,550E -01	1,580E -01	1,690E -01		
3	1,610E -01	1,620E -01	1,600E -01	1,610E -01	1,610E -01	1,790E -01	2,220E -01	2,240E -01
4	1,570E -01	1,560E -01	1,560E -01	1,550E -01	1,550E -01	1,730E -01	2,100E -01	2,120E -01
Statistics								
Min	1,550E -01	1,560E -01	1,540E -01	1,520E -01	1,540E -01	1,660E -01	2,050E -01	2,060E -01
Max	1,610E -01	1,620E -01	1,600E -01	1,610E -01	1,610E -01	1,790E -01	2,220E -01	2,240E -01
Mean	1,575E -01	1,580E -01	1,568E -01	1,557E -01	1,570E -01	1,717E -01	2,123E -01	2,140E -01
Sigma	2,517E -03	2,708E -03	2,500E -03	3,775E -03	3,162E -03	5,620E -03	8,737E -03	9,165E -03

Test Step	192 hours
Serial #	
0 Ref.	1,630E -01
1	1,560E -01
2	1,580E -01
3	1,630E -01
4	1,570E -01
Statistics	
Min	1,560E -01
Max	1,630E -01
Mean	1,585E -01
Sigma	3,109E -03





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O15: VoL I/O15  
IoL = 8mA

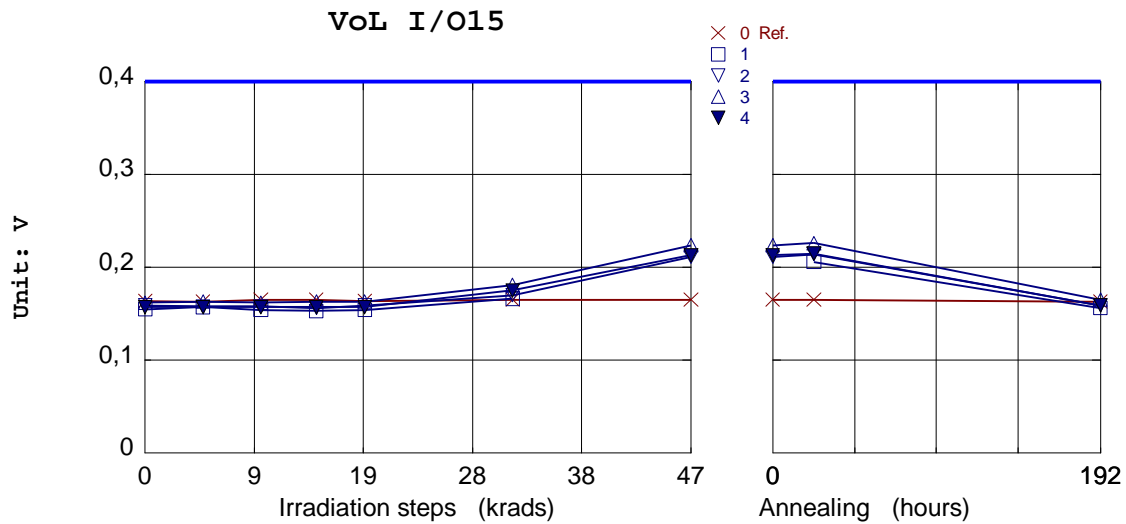
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,640E -01	1,630E -01	1,650E -01	1,650E -01	1,640E -01	1,650E -01	1,650E -01	1,650E -01
1	1,550E -01	1,570E -01	1,540E -01	1,530E -01	1,540E -01	1,660E -01		2,060E -01
2	1,590E -01	1,580E -01	1,580E -01	1,560E -01	1,590E -01	1,700E -01	2,110E -01	2,140E -01
3	1,620E -01	1,630E -01	1,620E -01	1,630E -01	1,630E -01	1,810E -01	2,240E -01	2,260E -01
4	1,570E -01	1,570E -01	1,570E -01	1,570E -01	1,570E -01	1,750E -01	2,130E -01	2,150E -01
Statistics								
Min	1,550E -01	1,570E -01	1,540E -01	1,530E -01	1,540E -01	1,660E -01	2,110E -01	2,060E -01
Max	1,620E -01	1,630E -01	1,620E -01	1,630E -01	1,630E -01	1,810E -01	2,240E -01	2,260E -01
Mean	1,583E -01	1,588E -01	1,578E -01	1,573E -01	1,583E -01	1,730E -01	2,160E -01	2,153E -01
Sigma	2,986E -03	2,872E -03	3,304E -03	4,193E -03	3,775E -03	6,481E -03	7,000E -03	8,221E -03

Test Step	192 hours
Serial #	
0 Ref.	1,630E -01
1	1,560E -01
2	1,590E -01
3	1,650E -01
4	1,590E -01
Statistics	
Min	1,560E -01
Max	1,650E -01
Mean	1,597E -01
Sigma	3,775E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O14: VoL I/O14  
IoL = 8mA

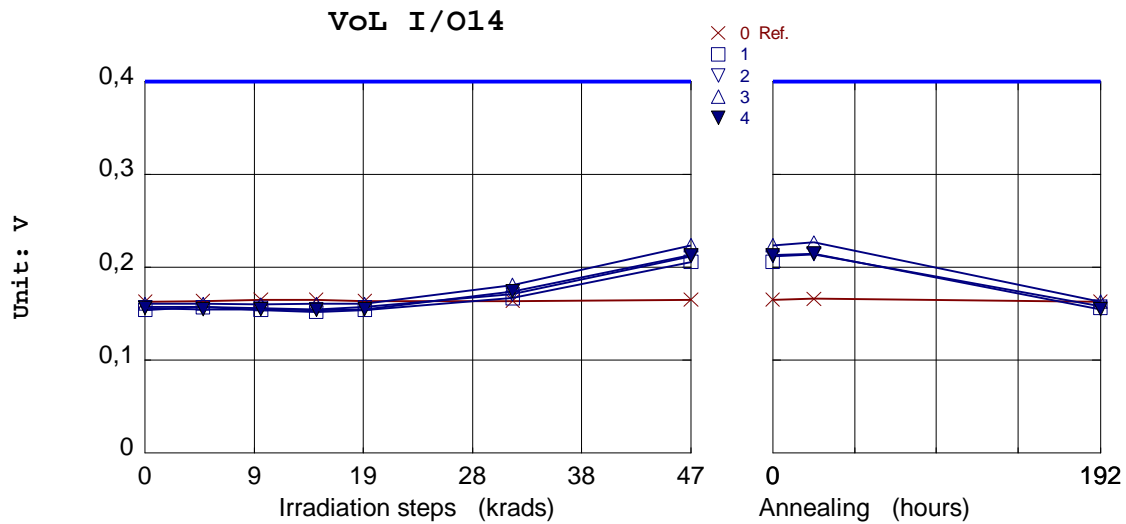
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,630E -01	1,640E -01	1,650E -01	1,650E -01	1,640E -01	1,640E -01	1,650E -01	1,660E -01
1	1,540E -01	1,570E -01	1,540E -01	1,520E -01	1,540E -01	1,670E -01	2,060E -01	
2	1,570E -01	1,570E -01	1,560E -01	1,550E -01	1,570E -01	1,710E -01	2,120E -01	2,140E -01
3	1,610E -01	1,610E -01	1,600E -01	1,610E -01	1,610E -01	1,810E -01	2,240E -01	2,270E -01
4	1,560E -01	1,550E -01	1,550E -01	1,540E -01	1,550E -01	1,740E -01	2,130E -01	2,150E -01
Statistics								
Min	1,540E -01	1,550E -01	1,540E -01	1,520E -01	1,540E -01	1,670E -01	2,060E -01	2,140E -01
Max	1,610E -01	1,610E -01	1,600E -01	1,610E -01	1,610E -01	1,810E -01	2,240E -01	2,270E -01
Mean	1,570E -01	1,575E -01	1,563E -01	1,555E -01	1,568E -01	1,732E -01	2,138E -01	2,187E -01
Sigma	2,944E -03	2,517E -03	2,630E -03	3,873E -03	3,096E -03	5,909E -03	7,500E -03	7,234E -03

Test Step	192 hours
Serial #	
0 Ref.	1,630E -01
1	1,560E -01
2	1,580E -01
3	1,630E -01
4	1,550E -01
Statistics	
Min	1,550E -01
Max	1,630E -01
Mean	1,580E -01
Sigma	3,559E -03



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O13: VoL I/O13  
IoL = 8mA

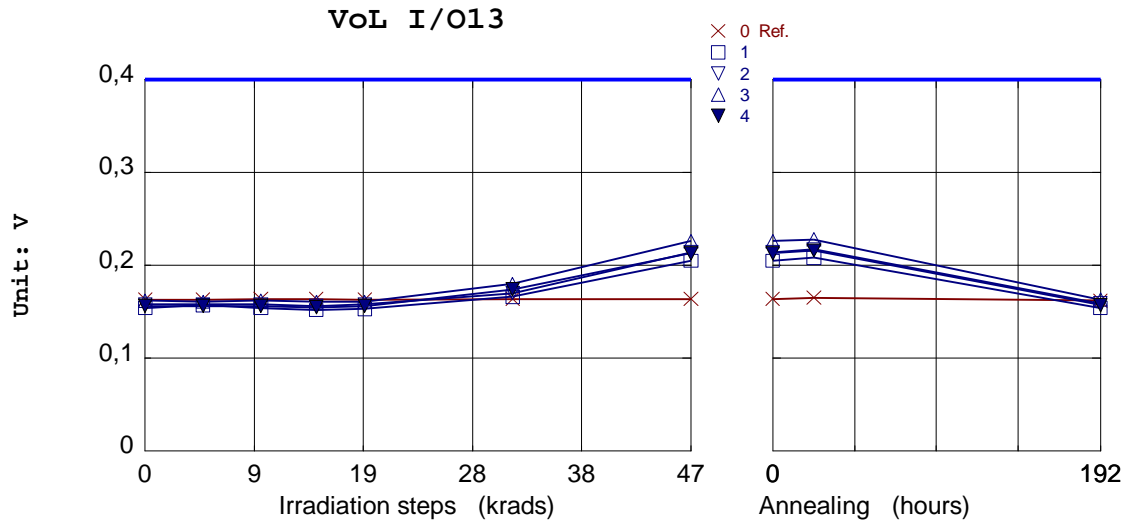
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,630E -01	1,630E -01	1,640E -01	1,640E -01	1,630E -01	1,640E -01	1,640E -01	1,650E -01
1	1,540E -01	1,570E -01	1,540E -01	1,520E -01	1,530E -01	1,660E -01	2,050E -01	2,080E -01
2	1,580E -01	1,580E -01	1,580E -01	1,560E -01	1,580E -01	1,700E -01	2,140E -01	2,170E -01
3	1,620E -01	1,610E -01	1,620E -01	1,610E -01	1,610E -01	1,800E -01	2,260E -01	2,280E -01
4	1,560E -01	1,560E -01	1,560E -01	1,550E -01	1,560E -01	1,740E -01	2,130E -01	2,160E -01
Statistics								
Min	1,540E -01	1,560E -01	1,540E -01	1,520E -01	1,530E -01	1,660E -01	2,050E -01	2,080E -01
Max	1,620E -01	1,610E -01	1,620E -01	1,610E -01	1,610E -01	1,800E -01	2,260E -01	2,280E -01
Mean	1,575E -01	1,580E -01	1,575E -01	1,560E -01	1,570E -01	1,725E -01	2,145E -01	2,173E -01
Sigma	3,416E -03	2,160E -03	3,416E -03	3,742E -03	3,367E -03	5,972E -03	8,660E -03	8,221E -03

Test Step	192 hours
Serial #	
0 Ref.	1,620E -01
1	1,540E -01
2	1,590E -01
3	1,630E -01
4	1,570E -01
Statistics	
Min	1,540E -01
Max	1,630E -01
Mean	1,583E -01
Sigma	3,775E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O12: VoL I/O12  
IoL = 8mA

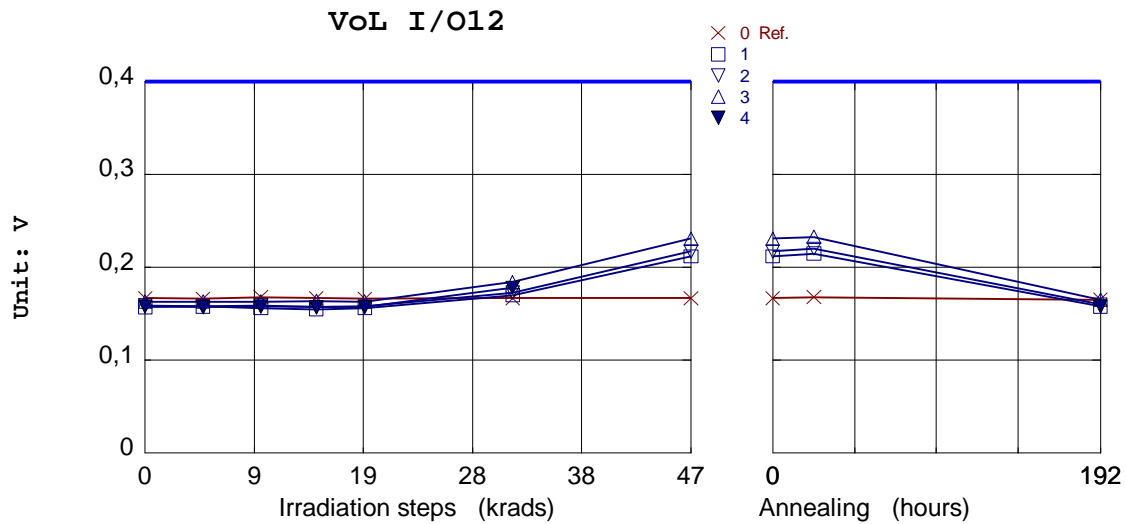
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,670E -01	1,660E -01	1,680E -01	1,670E -01	1,660E -01	1,670E -01	1,670E -01	1,680E -01
1	1,570E -01	1,580E -01	1,560E -01	1,550E -01	1,560E -01	1,700E -01	2,120E -01	2,150E -01
2	1,590E -01	1,580E -01	1,590E -01	1,570E -01	1,580E -01	1,730E -01	2,170E -01	2,200E -01
3	1,630E -01	1,630E -01	1,630E -01	1,640E -01	1,630E -01	1,840E -01	2,310E -01	2,330E -01
4	1,580E -01	1,570E -01	1,580E -01	1,570E -01	1,570E -01	1,780E -01		
Statistics								
Min	1,570E -01	1,570E -01	1,560E -01	1,550E -01	1,560E -01	1,700E -01	2,120E -01	2,150E -01
Max	1,630E -01	1,630E -01	1,630E -01	1,640E -01	1,630E -01	1,840E -01	2,310E -01	2,330E -01
Mean	1,593E -01	1,590E -01	1,590E -01	1,583E -01	1,585E -01	1,762E -01	2,200E -01	2,227E -01
Sigma	2,630E -03	2,708E -03	2,944E -03	3,948E -03	3,109E -03	6,131E -03	9,849E -03	9,292E -03

Test Step	192 hours
Serial #	
0 Ref.	1,650E -01
1	1,580E -01
2	1,600E -01
3	1,650E -01
4	1,580E -01
Statistics	
Min	1,580E -01
Max	1,650E -01
Mean	1,603E -01
Sigma	3,304E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O11: VoL I/O11  
IoL = 8mA

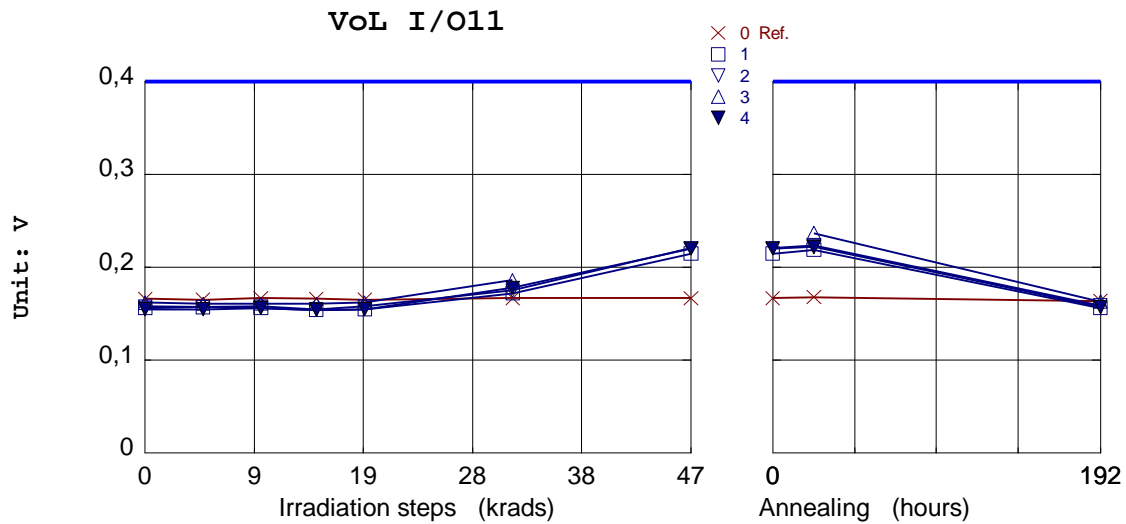
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,660E -01	1,650E -01	1,670E -01	1,660E -01	1,650E -01	1,670E -01	1,670E -01	1,680E -01
1	1,560E -01	1,570E -01	1,560E -01	1,540E -01	1,550E -01	1,720E -01	2,150E -01	2,190E -01
2	1,580E -01	1,570E -01	1,580E -01	1,550E -01	1,580E -01	1,750E -01	2,210E -01	2,240E -01
3	1,620E -01	1,610E -01	1,610E -01	1,610E -01	1,620E -01	1,860E -01		2,370E -01
4	1,550E -01	1,550E -01	1,560E -01	1,540E -01	1,550E -01	1,780E -01	2,200E -01	2,220E -01
Statistics								
Min	1,550E -01	1,550E -01	1,560E -01	1,540E -01	1,550E -01	1,720E -01	2,150E -01	2,190E -01
Max	1,620E -01	1,610E -01	1,610E -01	1,610E -01	1,620E -01	1,860E -01	2,210E -01	2,370E -01
Mean	1,578E -01	1,575E -01	1,578E -01	1,560E -01	1,575E -01	1,778E -01	2,187E -01	2,255E -01
Sigma	3,096E -03	2,517E -03	2,363E -03	3,367E -03	3,317E -03	6,021E -03	3,215E -03	7,937E -03

Test Step	192 hours
Serial #	
0 Ref.	1,640E -01
1	1,560E -01
2	1,590E -01
3	1,630E -01
4	1,570E -01
Statistics	
Min	1,560E -01
Max	1,630E -01
Mean	1,588E -01
Sigma	3,096E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O10: VoL I/O10  
IoL = 8mA

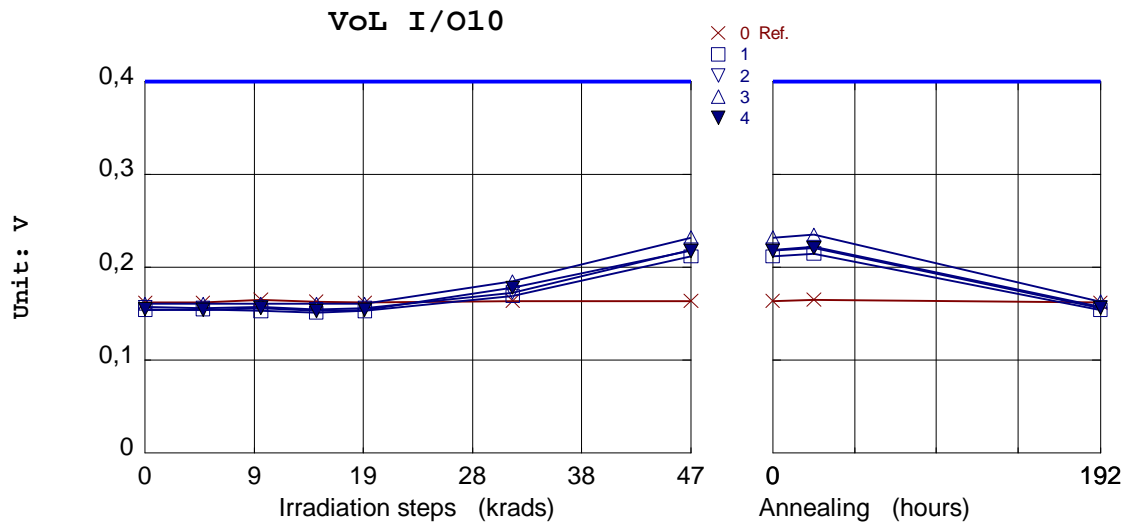
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,620E -01	1,620E -01	1,650E -01	1,630E -01	1,620E -01	1,640E -01	1,640E -01	1,650E -01
1	1,540E -01	1,550E -01	1,530E -01	1,510E -01	1,530E -01	1,690E -01	2,120E -01	2,150E -01
2	1,570E -01	1,560E -01	1,570E -01	1,550E -01	1,560E -01	1,730E -01	2,190E -01	2,220E -01
3	1,610E -01	1,610E -01	1,610E -01	1,610E -01	1,610E -01	1,850E -01	2,320E -01	2,350E -01
4	1,550E -01	1,540E -01	1,560E -01	1,530E -01	1,540E -01	1,780E -01	2,180E -01	2,210E -01
Statistics								
Min	1,540E -01	1,540E -01	1,530E -01	1,510E -01	1,530E -01	1,690E -01	2,120E -01	2,150E -01
Max	1,610E -01	1,610E -01	1,610E -01	1,610E -01	1,610E -01	1,850E -01	2,320E -01	2,350E -01
Mean	1,568E -01	1,565E -01	1,568E -01	1,550E -01	1,560E -01	1,762E -01	2,202E -01	2,233E -01
Sigma	3,096E -03	3,109E -03	3,304E -03	4,320E -03	3,559E -03	6,898E -03	8,421E -03	8,421E -03

Test Step	192 hours
Serial #	
0 Ref.	1,620E -01
1	1,540E -01
2	1,570E -01
3	1,630E -01
4	1,560E -01
Statistics	
Min	1,540E -01
Max	1,630E -01
Mean	1,575E -01
Sigma	3,873E -03



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O9: VoL I/O9

IoL = 8mA

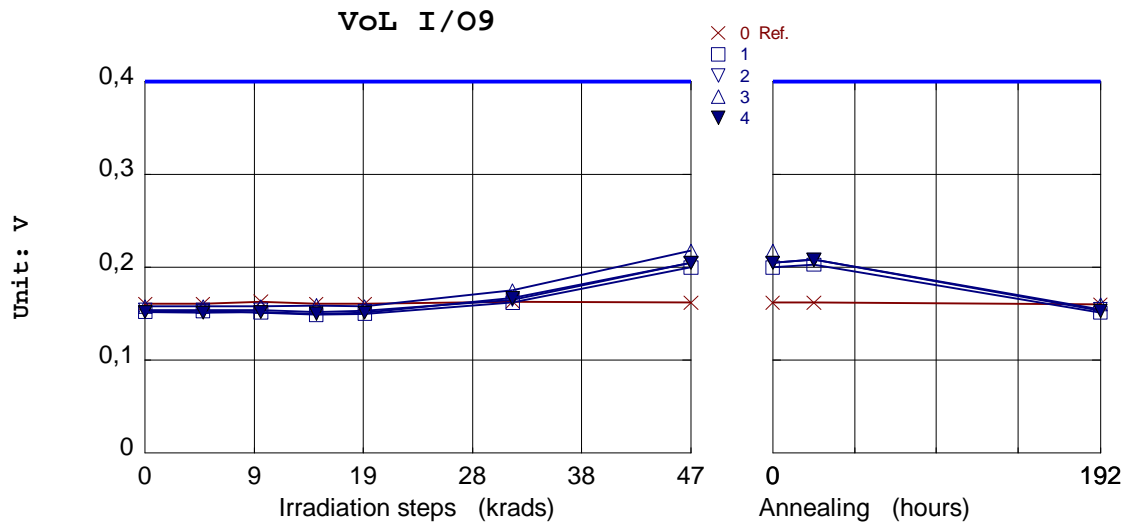
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,610E -01	1,610E -01	1,630E -01	1,610E -01	1,610E -01	1,630E -01	1,620E -01	1,620E -01
1	1,520E -01	1,530E -01	1,510E -01	1,490E -01	1,500E -01	1,620E -01	2,000E -01	2,030E -01
2	1,540E -01	1,540E -01	1,540E -01	1,520E -01	1,530E -01	1,650E -01	2,050E -01	2,080E -01
3	1,580E -01	1,580E -01	1,580E -01	1,590E -01	1,580E -01	1,750E -01	2,180E -01	
4	1,520E -01	1,510E -01	1,520E -01	1,500E -01	1,510E -01	1,670E -01	2,050E -01	2,080E -01
Statistics								
Min	1,520E -01	1,510E -01	1,510E -01	1,490E -01	1,500E -01	1,620E -01	2,000E -01	2,030E -01
Max	1,580E -01	1,580E -01	1,580E -01	1,590E -01	1,580E -01	1,750E -01	2,180E -01	2,080E -01
Mean	1,540E -01	1,540E -01	1,537E -01	1,525E -01	1,530E -01	1,672E -01	2,070E -01	2,063E -01
Sigma	2,828E -03	2,944E -03	3,096E -03	4,509E -03	3,559E -03	5,560E -03	7,703E -03	2,887E -03

Test Step	192 hours
Serial #	
0 Ref.	1,600E -01
1	1,510E -01
2	1,550E -01
3	1,600E -01
4	1,530E -01
Statistics	
Min	1,510E -01
Max	1,600E -01
Mean	1,547E -01
Sigma	3,862E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O8: VoL I/O8  
IoL = 8mA

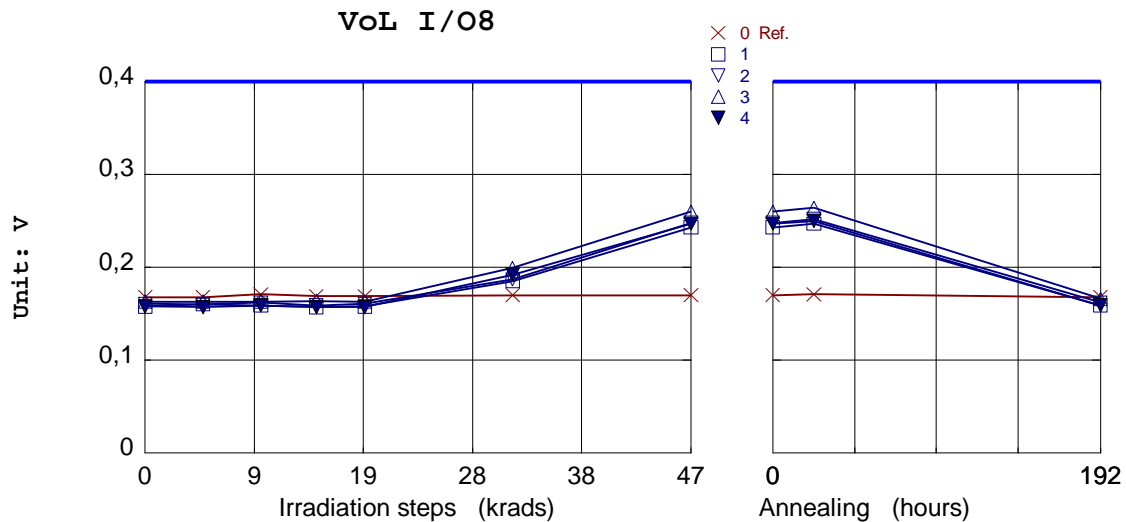
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,680E -01	1,680E -01	1,710E -01	1,690E -01	1,690E -01	1,700E -01	1,700E -01	1,710E -01
1	1,580E -01	1,600E -01	1,590E -01	1,570E -01	1,580E -01	1,850E -01	2,430E -01	2,470E -01
2	1,610E -01	1,600E -01	1,620E -01	1,590E -01	1,610E -01	1,870E -01	2,480E -01	2,520E -01
3	1,630E -01	1,630E -01	1,630E -01	1,640E -01	1,630E -01	1,990E -01	2,600E -01	2,640E -01
4	1,580E -01	1,570E -01	1,590E -01	1,570E -01	1,570E -01	1,920E -01	2,470E -01	2,500E -01
Statistics								
Min	1,580E -01	1,570E -01	1,590E -01	1,570E -01	1,570E -01	1,850E -01	2,430E -01	2,470E -01
Max	1,630E -01	1,630E -01	1,630E -01	1,640E -01	1,630E -01	1,990E -01	2,600E -01	2,640E -01
Mean	1,600E -01	1,600E -01	1,607E -01	1,593E -01	1,598E -01	1,908E -01	2,495E -01	2,532E -01
Sigma	2,449E -03	2,449E -03	2,062E -03	3,304E -03	2,754E -03	6,238E -03	7,326E -03	7,455E -03

Test Step	192 hours
Serial #	
0 Ref.	1,680E -01
1	1,590E -01
2	1,620E -01
3	1,660E -01
4	1,590E -01
Statistics	
Min	1,590E -01
Max	1,660E -01
Mean	1,615E -01
Sigma	3,317E -03





<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O7: VoL I/O7  
IoL = 8mA

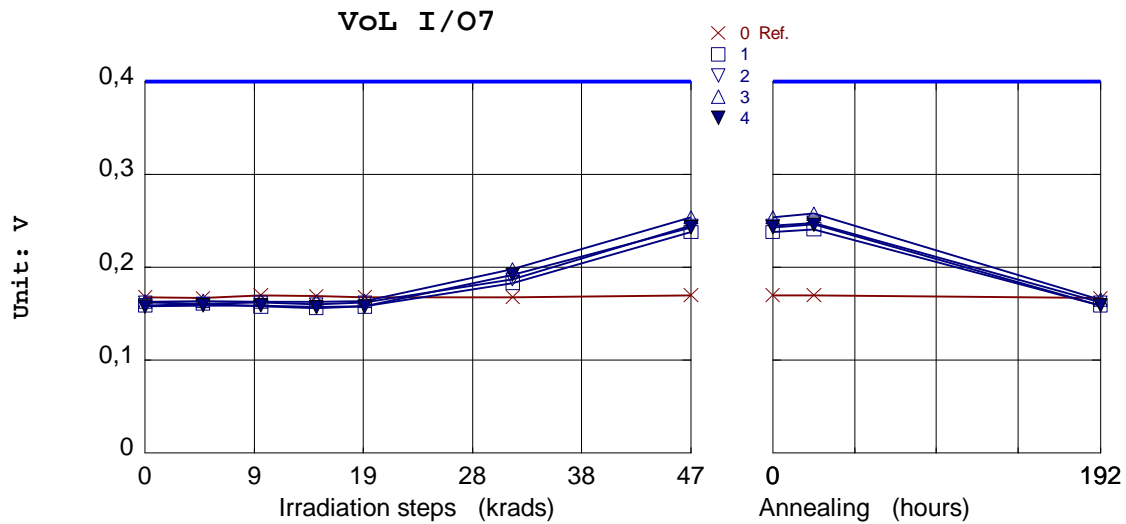
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,680E -01	1,670E -01	1,700E -01	1,690E -01	1,680E -01	1,680E -01	1,700E -01	1,700E -01
1	1,590E -01	1,610E -01	1,580E -01	1,560E -01	1,580E -01	1,830E -01	2,380E -01	2,410E -01
2	1,620E -01	1,610E -01	1,620E -01	1,600E -01	1,620E -01	1,870E -01	2,450E -01	2,480E -01
3	1,630E -01	1,640E -01	1,630E -01	1,630E -01	1,640E -01	1,980E -01	2,540E -01	2,580E -01
4	1,580E -01	1,590E -01	1,590E -01	1,570E -01	1,580E -01	1,920E -01	2,430E -01	2,460E -01
Statistics								
Min	1,580E -01	1,590E -01	1,580E -01	1,560E -01	1,580E -01	1,830E -01	2,380E -01	2,410E -01
Max	1,630E -01	1,640E -01	1,630E -01	1,630E -01	1,640E -01	1,980E -01	2,540E -01	2,580E -01
Mean	1,605E -01	1,612E -01	1,605E -01	1,590E -01	1,605E -01	1,900E -01	2,450E -01	2,482E -01
Sigma	2,380E -03	2,062E -03	2,380E -03	3,162E -03	3,000E -03	6,481E -03	6,683E -03	7,136E -03

Test Step	192 hours
Serial #	
0 Ref.	1,670E -01
1	1,590E -01
2	1,620E -01
3	1,650E -01
4	1,590E -01
Statistics	
Min	1,590E -01
Max	1,650E -01
Mean	1,612E -01
Sigma	2,872E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O6: VoL I/O6  
IoL = 8mA

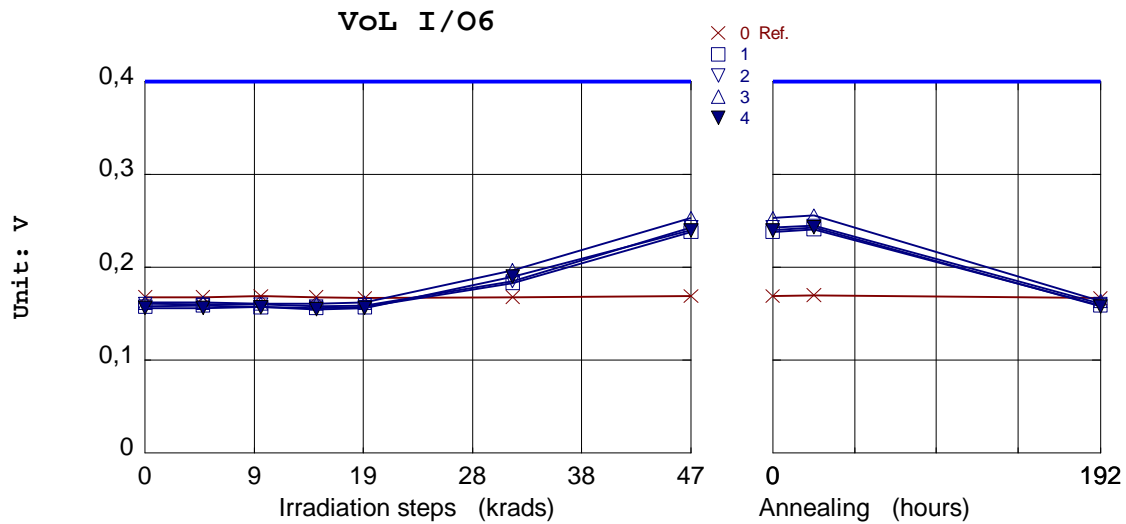
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,680E -01	1,680E -01	1,690E -01	1,680E -01	1,670E -01	1,680E -01	1,690E -01	1,700E -01
1	1,580E -01	1,590E -01	1,570E -01	1,560E -01	1,570E -01	1,830E -01	2,380E -01	2,410E -01
2	1,610E -01	1,600E -01	1,600E -01	1,580E -01	1,590E -01	1,850E -01	2,430E -01	2,450E -01
3	1,620E -01	1,620E -01	1,610E -01	1,610E -01	1,620E -01	1,970E -01	2,530E -01	2,560E -01
4	1,560E -01	1,560E -01	1,570E -01	1,550E -01	1,560E -01	1,900E -01	2,400E -01	2,430E -01
Statistics								
Min	1,560E -01	1,560E -01	1,570E -01	1,550E -01	1,560E -01	1,830E -01	2,380E -01	2,410E -01
Max	1,620E -01	1,620E -01	1,610E -01	1,610E -01	1,620E -01	1,970E -01	2,530E -01	2,560E -01
Mean	1,593E -01	1,592E -01	1,588E -01	1,575E -01	1,585E -01	1,887E -01	2,435E -01	2,463E -01
Sigma	2,754E -03	2,500E -03	2,062E -03	2,646E -03	2,646E -03	6,238E -03	6,658E -03	6,702E -03

Test Step	192 hours
Serial #	
0 Ref.	1,670E -01
1	1,590E -01
2	1,610E -01
3	1,640E -01
4	1,580E -01
Statistics	
Min	1,580E -01
Max	1,640E -01
Mean	1,605E -01
Sigma	2,646E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O5: VoL I/O5  
IoL = 8mA

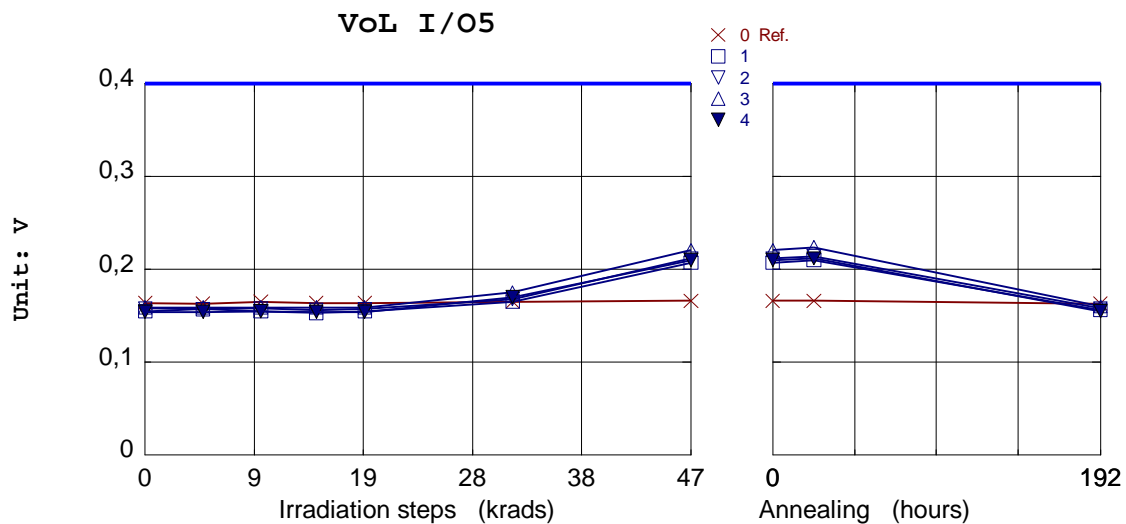
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,640E -01	1,630E -01	1,650E -01	1,640E -01	1,640E -01	1,650E -01	1,660E -01	1,660E -01
1	1,550E -01	1,570E -01	1,550E -01	1,530E -01	1,550E -01	1,650E -01	2,070E -01	2,100E -01
2	1,580E -01	1,570E -01	1,580E -01	1,560E -01	1,570E -01	1,680E -01	2,120E -01	2,140E -01
3	1,590E -01	1,590E -01	1,590E -01	1,590E -01	1,590E -01	1,750E -01	2,210E -01	2,240E -01
4	1,540E -01	1,540E -01	1,550E -01	1,540E -01	1,540E -01	1,700E -01	2,100E -01	2,120E -01
Statistics								
Min	1,540E -01	1,540E -01	1,550E -01	1,530E -01	1,540E -01	1,650E -01	2,070E -01	2,100E -01
Max	1,590E -01	1,590E -01	1,590E -01	1,590E -01	1,590E -01	1,750E -01	2,210E -01	2,240E -01
Mean	1,565E -01	1,568E -01	1,568E -01	1,555E -01	1,563E -01	1,695E -01	2,125E -01	2,150E -01
Sigma	2,380E -03	2,062E -03	2,062E -03	2,646E -03	2,217E -03	4,203E -03	6,028E -03	6,218E -03

Test Step	192 hours
Serial #	
0 Ref.	1,630E -01
1	1,560E -01
2	1,580E -01
3	1,600E -01
4	1,550E -01
Statistics	
Min	1,550E -01
Max	1,600E -01
Mean	1,573E -01
Sigma	2,217E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O4: VoL I/O4  
IoL = 8mA

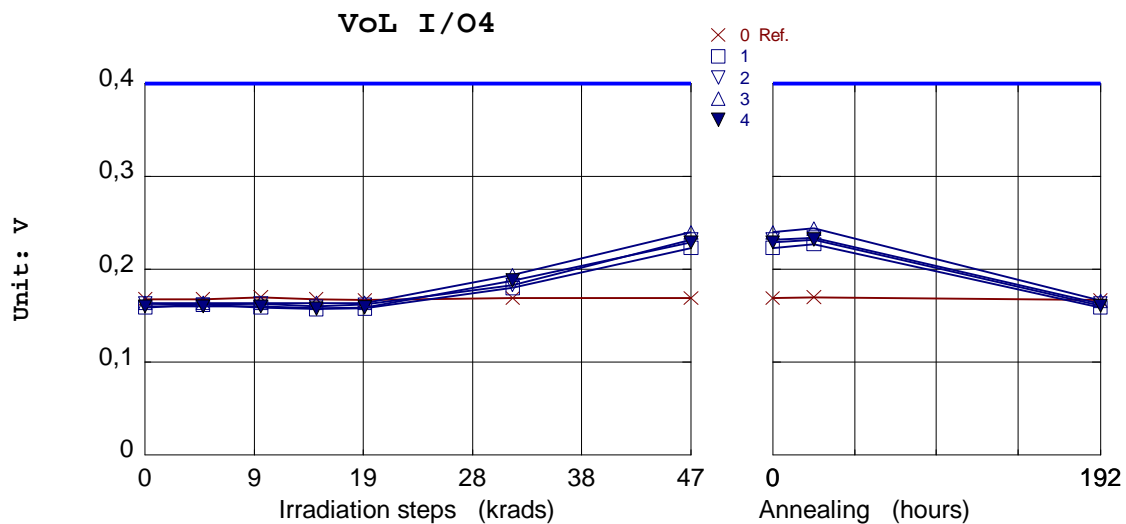
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,680E -01	1,680E -01	1,700E -01	1,680E -01	1,670E -01	1,690E -01	1,690E -01	1,700E -01
1	1,590E -01	1,620E -01	1,590E -01	1,570E -01	1,580E -01	1,800E -01	2,230E -01	2,270E -01
2	1,630E -01	1,620E -01	1,630E -01	1,600E -01	1,620E -01	1,830E -01	2,320E -01	2,340E -01
3	1,640E -01	1,640E -01	1,640E -01	1,640E -01	1,640E -01	1,940E -01	2,400E -01	2,440E -01
4	1,600E -01	1,600E -01	1,600E -01	1,580E -01	1,590E -01	1,880E -01	2,290E -01	2,320E -01
Statistics								
Min	1,590E -01	1,600E -01	1,590E -01	1,570E -01	1,580E -01	1,800E -01	2,230E -01	2,270E -01
Max	1,640E -01	1,640E -01	1,640E -01	1,640E -01	1,640E -01	1,940E -01	2,400E -01	2,440E -01
Mean	1,615E -01	1,620E -01	1,615E -01	1,598E -01	1,608E -01	1,863E -01	2,310E -01	2,342E -01
Sigma	2,380E -03	1,633E -03	2,380E -03	3,096E -03	2,754E -03	6,131E -03	7,071E -03	7,136E -03

Test Step	192 hours
Serial #	
0 Ref.	1,670E -01
1	1,590E -01
2	1,630E -01
3	1,660E -01
4	1,610E -01
Statistics	
Min	1,590E -01
Max	1,660E -01
Mean	1,622E -01
Sigma	2,986E -03



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O3: VoL I/O3

IoL = 8mA

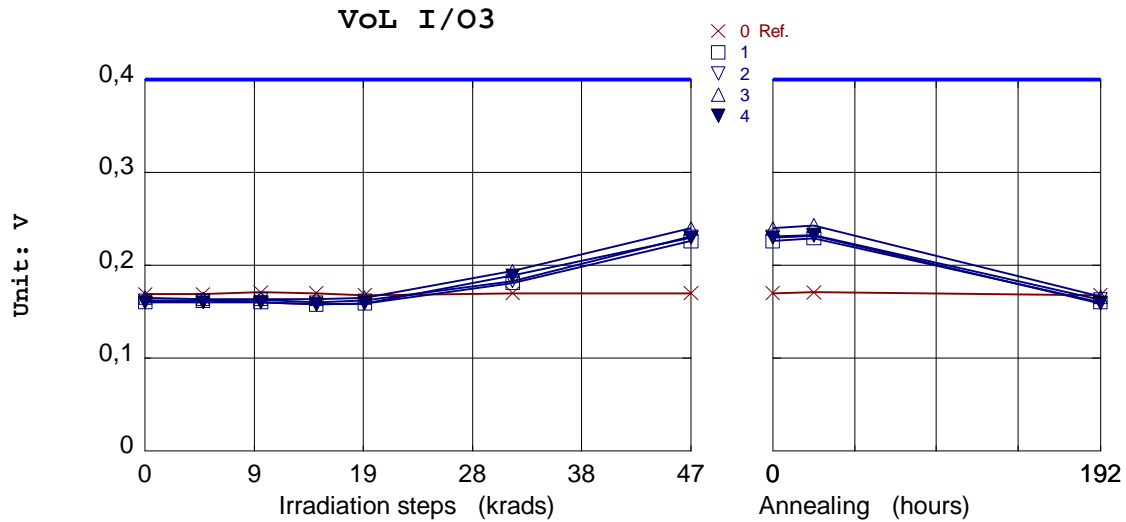
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,690E -01	1,690E -01	1,710E -01	1,700E -01	1,680E -01	1,700E -01	1,700E -01	1,710E -01
1	1,600E -01	1,620E -01	1,600E -01	1,580E -01	1,590E -01	1,810E -01	2,260E -01	2,290E -01
2	1,620E -01	1,620E -01	1,630E -01	1,600E -01	1,620E -01	1,830E -01	2,310E -01	2,330E -01
3	1,650E -01	1,640E -01	1,640E -01	1,640E -01	1,650E -01	1,940E -01	2,400E -01	2,430E -01
4	1,600E -01	1,600E -01	1,600E -01	1,580E -01	1,590E -01	1,890E -01	2,300E -01	2,320E -01
Statistics								
Min	1,600E -01	1,600E -01	1,600E -01	1,580E -01	1,590E -01	1,810E -01	2,260E -01	2,290E -01
Max	1,650E -01	1,640E -01	1,640E -01	1,640E -01	1,650E -01	1,940E -01	2,400E -01	2,430E -01
Mean	1,617E -01	1,620E -01	1,617E -01	1,600E -01	1,612E -01	1,867E -01	2,318E -01	2,342E -01
Sigma	2,363E -03	1,633E -03	2,062E -03	2,828E -03	2,872E -03	5,909E -03	5,909E -03	6,076E -03

Test Step	192 hours
Serial #	
0 Ref.	1,680E -01
1	1,600E -01
2	1,630E -01
3	1,660E -01
4	1,590E -01
Statistics	
Min	1,590E -01
Max	1,660E -01
Mean	1,620E -01
Sigma	3,162E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O2: VoL I/O2  
IoL = 8mA

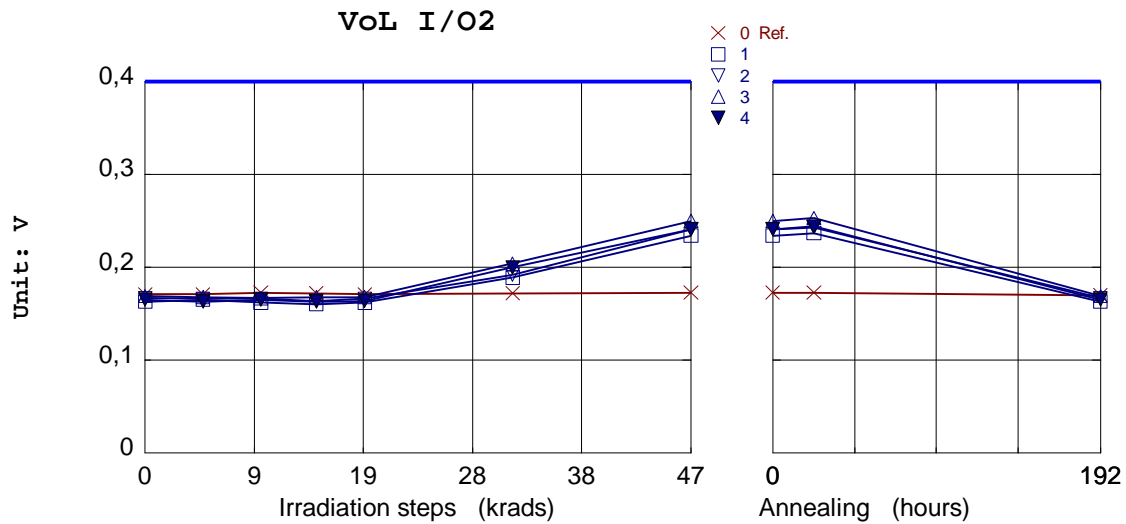
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,710E -01	1,710E -01	1,730E -01	1,720E -01	1,710E -01	1,720E -01	1,730E -01	1,730E -01
1	1,630E -01	1,650E -01	1,620E -01	1,600E -01	1,620E -01	1,890E -01	2,340E -01	2,370E -01
2	1,670E -01	1,660E -01	1,660E -01	1,640E -01	1,660E -01	1,920E -01	2,410E -01	2,430E -01
3	1,690E -01	1,680E -01	1,670E -01	1,680E -01	1,680E -01	2,040E -01	2,500E -01	2,530E -01
4	1,650E -01	1,630E -01	1,650E -01	1,630E -01	1,640E -01	2,000E -01	2,410E -01	2,440E -01
Statistics								
Min	1,630E -01	1,630E -01	1,620E -01	1,600E -01	1,620E -01	1,890E -01	2,340E -01	2,370E -01
Max	1,690E -01	1,680E -01	1,670E -01	1,680E -01	1,680E -01	2,040E -01	2,500E -01	2,530E -01
Mean	1,660E -01	1,655E -01	1,650E -01	1,638E -01	1,650E -01	1,962E -01	2,415E -01	2,442E -01
Sigma	2,582E -03	2,082E -03	2,160E -03	3,304E -03	2,582E -03	6,946E -03	6,557E -03	6,602E -03

Test Step	192 hours
Serial #	
0 Ref.	1,700E -01
1	1,630E -01
2	1,670E -01
3	1,690E -01
4	1,650E -01
Statistics	
Min	1,630E -01
Max	1,690E -01
Mean	1,660E -01
Sigma	2,582E -03



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage Low Level Pin I/O1: VoL I/O1  
IoL = 8mA

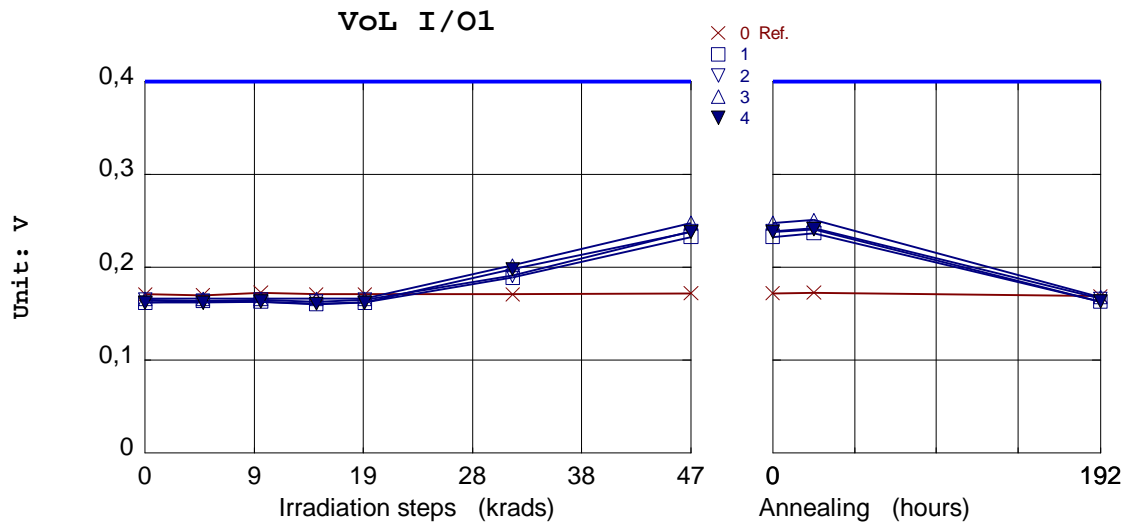
Unit= V

Spec limit max: 40,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,710E -01	1,700E -01	1,730E -01	1,710E -01	1,710E -01	1,710E -01	1,720E -01	1,730E -01
1	1,620E -01	1,640E -01	1,630E -01	1,600E -01	1,620E -01	1,890E -01	2,330E -01	2,370E -01
2	1,650E -01	1,640E -01	1,650E -01	1,630E -01	1,650E -01	1,910E -01	2,390E -01	2,420E -01
3	1,660E -01	1,660E -01	1,660E -01	1,660E -01	1,660E -01	2,020E -01	2,480E -01	2,510E -01
4	1,620E -01	1,620E -01	1,630E -01	1,610E -01	1,620E -01	1,980E -01	2,380E -01	2,410E -01
Statistics								
Min	1,620E -01	1,620E -01	1,630E -01	1,600E -01	1,620E -01	1,890E -01	2,330E -01	2,370E -01
Max	1,660E -01	1,660E -01	1,660E -01	1,660E -01	1,660E -01	2,020E -01	2,480E -01	2,510E -01
Mean	1,638E -01	1,640E -01	1,643E -01	1,625E -01	1,638E -01	1,950E -01	2,395E -01	2,427E -01
Sigma	2,062E -03	1,633E -03	1,500E -03	2,646E -03	2,062E -03	6,055E -03	6,245E -03	5,909E -03

Test Step	192 hours
Serial #	
0 Ref.	1,690E -01
1	1,630E -01
2	1,660E -01
3	1,680E -01
4	1,630E -01
Statistics	
Min	1,630E -01
Max	1,680E -01
Mean	1,650E -01
Sigma	2,449E -03



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O16: VoH I/O16  
IoH = -4mA

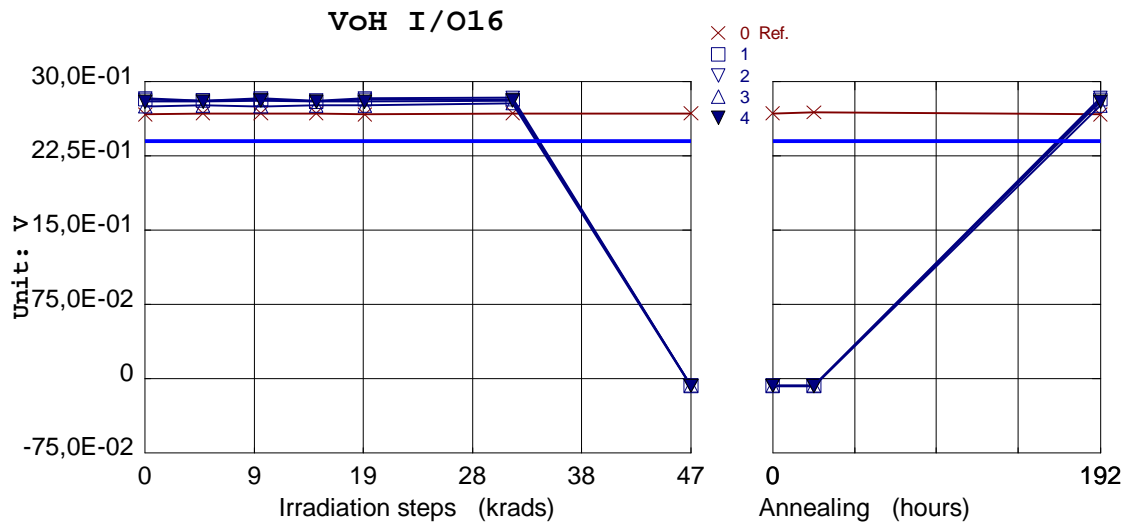
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,680E +00	2,680E +00	2,680E +00	2,670E +00	2,680E +00	2,680E +00	2,690E +00
1	2,820E +00	2,810E +00	2,820E +00	2,800E +00	2,820E +00	2,820E +00	-6,800E -02	-7,000E -02
2	2,830E +00	2,810E +00	2,830E +00	2,810E +00	2,830E +00	2,840E +00	-7,100E -02	-7,200E -02
3	2,750E +00	2,760E +00	2,750E +00	2,760E +00	2,760E +00	2,780E +00	-7,600E -02	-7,500E -02
4	2,800E +00	2,800E +00	2,810E +00	2,800E +00	2,800E +00	2,810E +00	-7,100E -02	-7,200E -02
Statistics								
Min	2,750E +00	2,760E +00	2,750E +00	2,760E +00	2,760E +00	2,780E +00	-7,600E -02	-7,500E -02
Max	2,830E +00	2,810E +00	2,830E +00	2,810E +00	2,830E +00	2,840E +00	-6,800E -02	-7,000E -02
Mean	2,800E +00	2,795E +00	2,802E +00	2,792E +00	2,802E +00	2,812E +00	-7,150E -02	-7,225E -02
Sigma	3,559E -02	2,380E -02	3,594E -02	2,217E -02	3,096E -02	2,500E -02	3,317E -03	2,062E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,820E +00
2	2,840E +00
3	2,760E +00
4	2,800E +00
Statistics	
Min	2,760E +00
Max	2,840E +00
Mean	2,805E +00
Sigma	3,416E -02





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O15: VoH I/O15  
IoH = -4mA

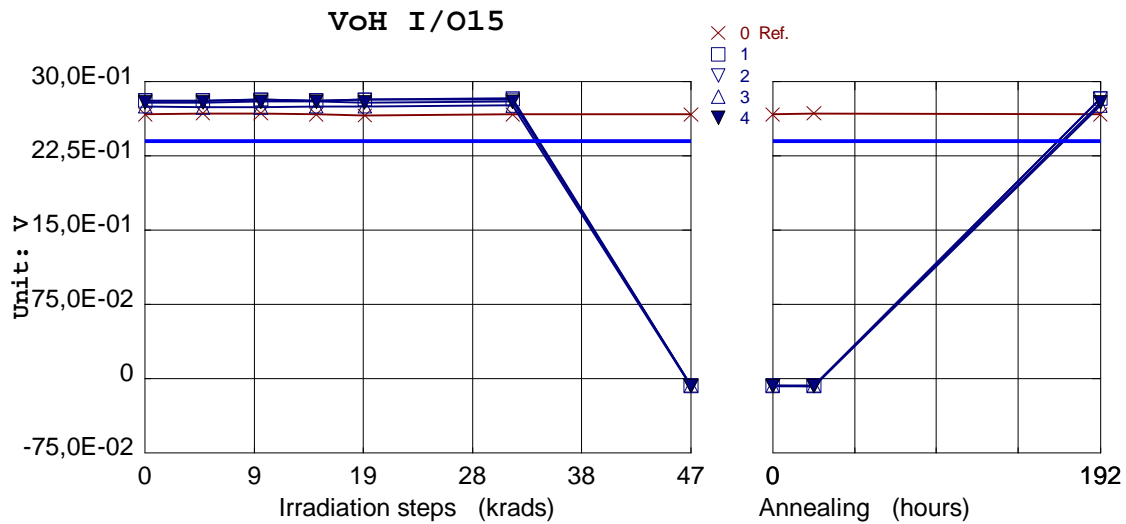
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,680E +00	2,680E +00	2,670E +00	2,660E +00	2,670E +00	2,670E +00	2,680E +00
1	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,820E +00	-6,800E -02	-7,000E -02
2	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-7,200E -02	-7,300E -02
3	2,750E +00	2,740E +00	2,740E +00	2,750E +00	2,750E +00	2,760E +00	-7,600E -02	-7,600E -02
4	2,790E +00	2,790E +00	2,800E +00	2,800E +00	2,790E +00	2,800E +00	-7,200E -02	-7,200E -02
Statistics								
Min	2,750E +00	2,740E +00	2,740E +00	2,750E +00	2,750E +00	2,760E +00	-7,600E -02	-7,600E -02
Max	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-6,800E -02	-7,000E -02
Mean	2,790E +00	2,787E +00	2,795E +00	2,792E +00	2,795E +00	2,802E +00	-7,200E -02	-7,275E -02
Sigma	2,828E -02	3,304E -02	3,786E -02	2,872E -02	3,317E -02	3,096E -02	3,266E -03	2,500E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,830E +00
2	2,830E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,802E +00
Sigma	3,403E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O14: VoH I/O14  
IoH = -4mA

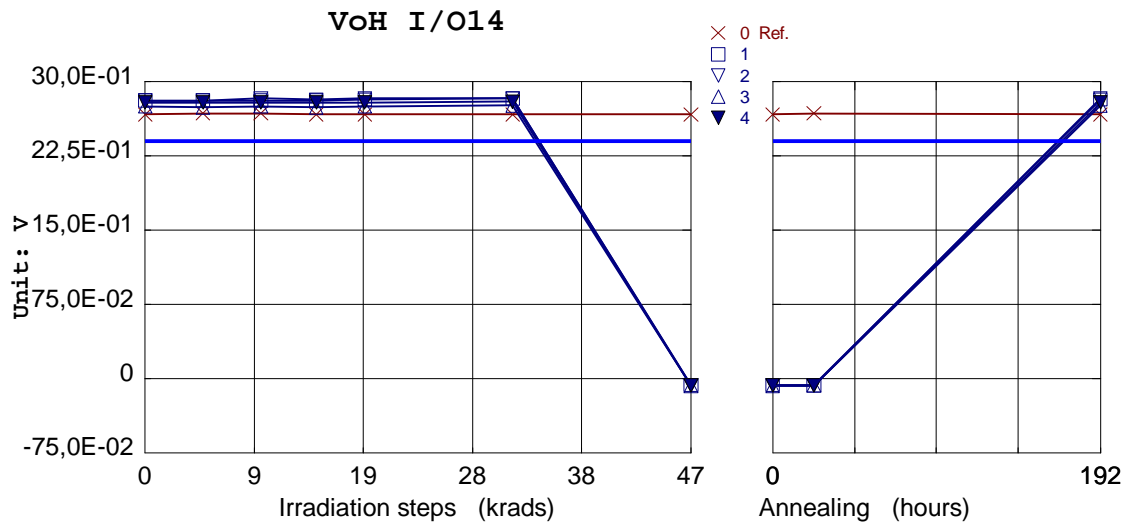
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,680E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,680E +00
1	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,820E +00	2,830E +00	-6,400E -02	-6,600E -02
2	2,810E +00	2,810E +00	2,830E +00	2,820E +00	2,830E +00	2,830E +00	-6,800E -02	-6,900E -02
3	2,750E +00	2,740E +00	2,750E +00	2,740E +00	2,750E +00	2,760E +00	-7,200E -02	-7,100E -02
4	2,790E +00	2,790E +00	2,790E +00	2,790E +00	2,790E +00	2,800E +00	-6,700E -02	-6,800E -02
Statistics								
Min	2,750E +00	2,740E +00	2,750E +00	2,740E +00	2,750E +00	2,760E +00	-7,200E -02	-7,100E -02
Max	2,810E +00	2,810E +00	2,830E +00	2,820E +00	2,830E +00	2,830E +00	-6,400E -02	-6,600E -02
Mean	2,790E +00	2,787E +00	2,795E +00	2,790E +00	2,797E +00	2,805E +00	-6,775E -02	-6,850E -02
Sigma	2,828E -02	3,304E -02	3,416E -02	3,559E -02	3,594E -02	3,317E -02	3,304E -03	2,082E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,820E +00
2	2,830E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,162E -02



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O13: VoH I/O13  
IoH = -4mA

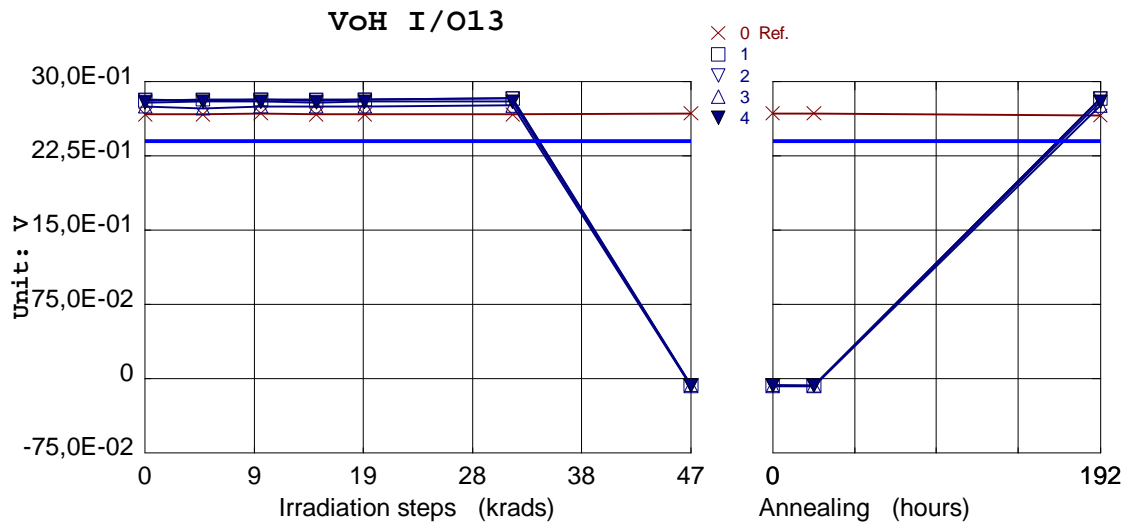
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,680E +00	2,680E +00
1	2,810E +00	2,820E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-6,500E -02	-6,700E -02
2	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	-7,000E -02	-7,000E -02
3	2,750E +00	2,730E +00	2,750E +00	2,750E +00	2,750E +00	2,760E +00	-7,400E -02	-7,300E -02
4	2,790E +00	2,800E +00	2,800E +00	2,790E +00	2,800E +00	2,800E +00	-6,800E -02	-6,900E -02
Statistics								
Min	2,750E +00	2,730E +00	2,750E +00	2,750E +00	2,750E +00	2,760E +00	-7,400E -02	-7,300E -02
Max	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	-6,500E -02	-6,700E -02
Mean	2,792E +00	2,790E +00	2,797E +00	2,792E +00	2,797E +00	2,805E +00	-6,925E -02	-6,975E -02
Sigma	3,096E -02	4,082E -02	3,304E -02	3,096E -02	3,304E -02	3,317E -02	3,775E -03	2,500E -03

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,830E +00
2	2,830E +00
3	2,760E +00
4	2,800E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,805E +00
Sigma	3,317E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O12: VoH I/O12  
IoH = -4mA

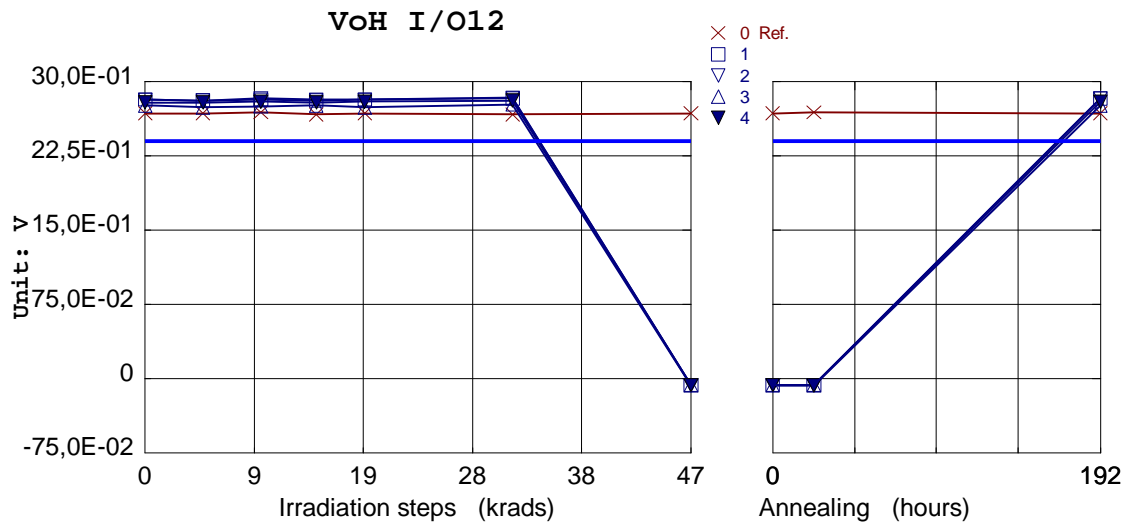
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,680E +00	2,680E +00	2,690E +00	2,670E +00	2,680E +00	2,670E +00	2,680E +00	2,690E +00
1	2,820E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-6,200E -02	-6,500E -02
2	2,820E +00	2,810E +00	2,830E +00	2,820E +00	2,820E +00	2,840E +00	-6,600E -02	-6,600E -02
3	2,760E +00	2,740E +00	2,750E +00	2,760E +00	2,740E +00	2,770E +00	-6,900E -02	-7,000E -02
4	2,790E +00	2,790E +00	2,800E +00	2,790E +00	2,800E +00	2,810E +00	-6,500E -02	-6,600E -02
Statistics								
Min	2,760E +00	2,740E +00	2,750E +00	2,760E +00	2,740E +00	2,770E +00	-6,900E -02	-7,000E -02
Max	2,820E +00	2,810E +00	2,830E +00	2,820E +00	2,820E +00	2,840E +00	-6,200E -02	-6,500E -02
Mean	2,797E +00	2,787E +00	2,800E +00	2,795E +00	2,795E +00	2,812E +00	-6,550E -02	-6,675E -02
Sigma	2,872E -02	3,304E -02	3,559E -02	2,646E -02	3,786E -02	3,096E -02	2,887E -03	2,217E -03

Test Step	192 hours
Serial #	
0 Ref.	2,680E +00
1	2,830E +00
2	2,830E +00
3	2,760E +00
4	2,800E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,805E +00
Sigma	3,317E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O11: VoH I/O11  
IoH = -4mA

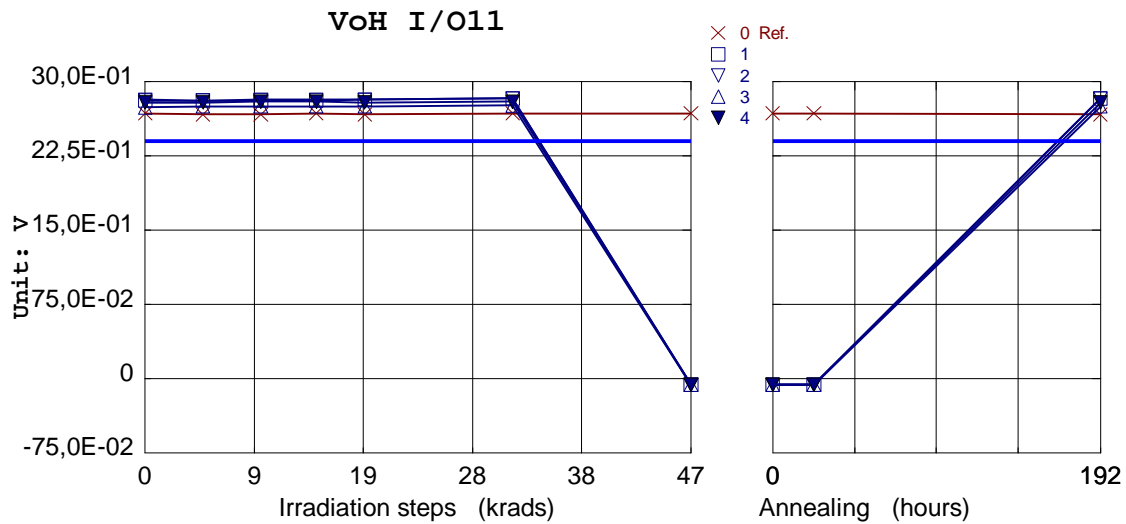
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,680E +00	2,670E +00	2,670E +00	2,680E +00	2,670E +00	2,680E +00	2,680E +00	2,680E +00
1	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,820E +00	2,830E +00	-5,800E -02	-6,000E -02
2	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	-6,100E -02	-6,100E -02
3	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,750E +00	2,760E +00	-6,500E -02	-6,400E -02
4	2,790E +00	2,790E +00	2,800E +00	2,800E +00	2,790E +00	2,800E +00	-6,000E -02	-6,000E -02
Statistics								
Min	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,750E +00	2,760E +00	-6,500E -02	-6,400E -02
Max	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	-5,800E -02	-6,000E -02
Mean	2,790E +00	2,790E +00	2,795E +00	2,795E +00	2,795E +00	2,805E +00	-6,100E -02	-6,125E -02
Sigma	3,559E -02	2,828E -02	3,109E -02	3,109E -02	3,317E -02	3,317E -02	2,944E -03	1,893E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,830E +00
2	2,830E +00
3	2,750E +00
4	2,790E +00
Statistics	
Min	2,750E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,830E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O10: VoH I/O10  
IoH = -4mA

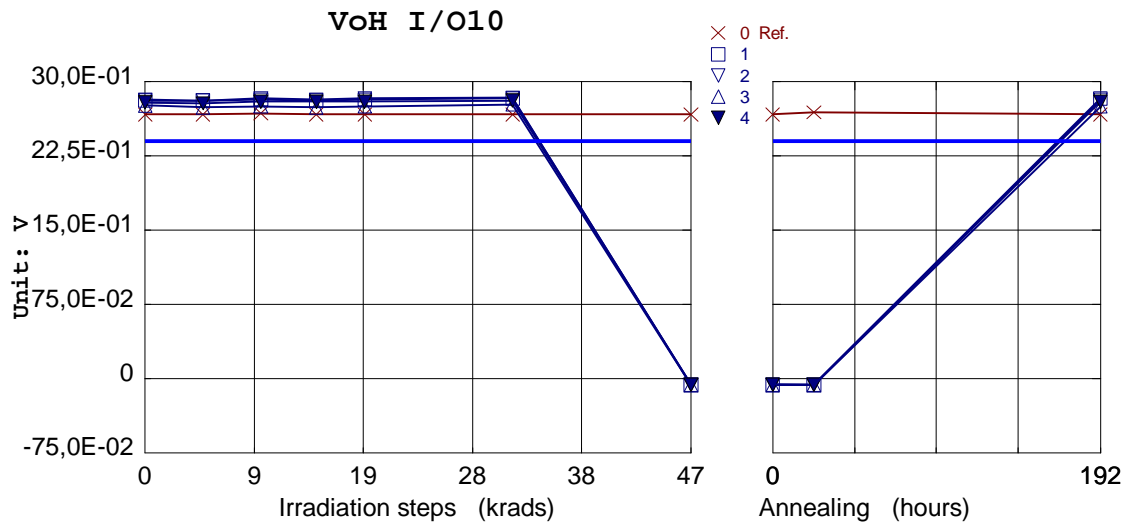
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,690E +00
1	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-5,800E -02	-5,900E -02
2	2,820E +00	2,810E +00	2,830E +00	2,820E +00	2,830E +00	2,840E +00	-6,100E -02	-6,100E -02
3	2,760E +00	2,740E +00	2,750E +00	2,740E +00	2,750E +00	2,770E +00	-6,600E -02	-6,600E -02
4	2,790E +00	2,780E +00	2,800E +00	2,800E +00	2,800E +00	2,810E +00	-6,000E -02	-6,100E -02
Statistics								
Min	2,760E +00	2,740E +00	2,750E +00	2,740E +00	2,750E +00	2,770E +00	-6,600E -02	-6,600E -02
Max	2,820E +00	2,810E +00	2,830E +00	2,820E +00	2,830E +00	2,840E +00	-5,800E -02	-5,900E -02
Mean	2,795E +00	2,785E +00	2,800E +00	2,792E +00	2,800E +00	2,812E +00	-6,125E -02	-6,175E -02
Sigma	2,646E -02	3,317E -02	3,559E -02	3,594E -02	3,559E -02	3,096E -02	3,403E -03	2,986E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,830E +00
2	2,820E +00
3	2,750E +00
4	2,800E +00
Statistics	
Min	2,750E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,559E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O9: VoH I/O9  
IoH = -4mA

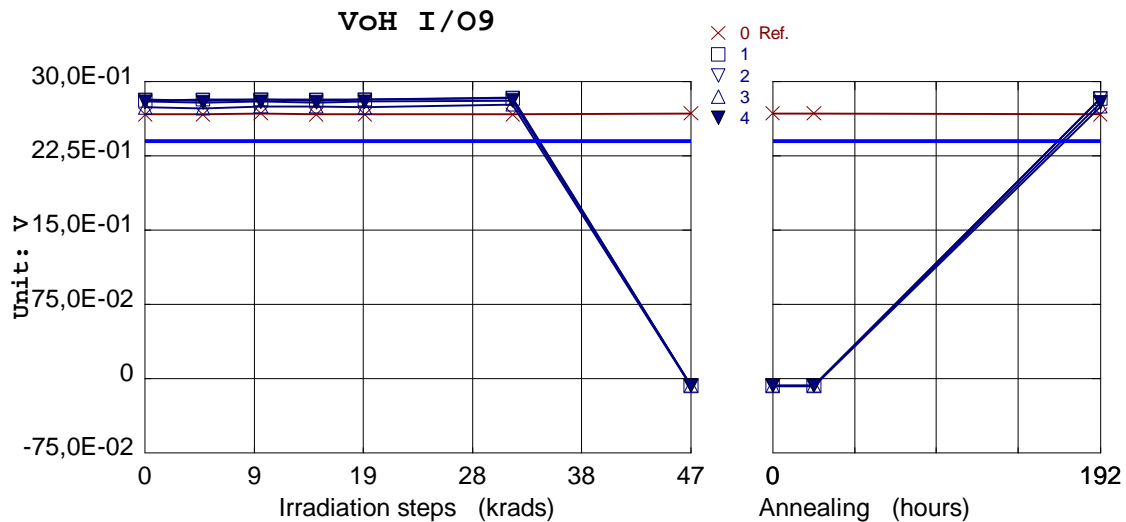
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,680E +00	2,680E +00
1	2,810E +00	2,820E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	-6,700E -02	-6,900E -02
2	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	-7,100E -02	-7,100E -02
3	2,740E +00	2,730E +00	2,750E +00	2,750E +00	2,740E +00	2,770E +00	-7,500E -02	-7,400E -02
4	2,800E +00	2,790E +00	2,800E +00	2,790E +00	2,800E +00	2,810E +00	-7,000E -02	-7,000E -02
Statistics								
Min	2,740E +00	2,730E +00	2,750E +00	2,750E +00	2,740E +00	2,770E +00	-7,500E -02	-7,400E -02
Max	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	-6,700E -02	-6,900E -02
Mean	2,792E +00	2,787E +00	2,797E +00	2,792E +00	2,795E +00	2,812E +00	-7,075E -02	-7,100E -02
Sigma	3,594E -02	4,031E -02	3,304E -02	3,096E -02	3,786E -02	3,096E -02	3,304E -03	2,160E -03

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,830E +00
2	2,830E +00
3	2,750E +00
4	2,790E +00
Statistics	
Min	2,750E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,830E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O8: VoH I/O8  
IoH = -4mA

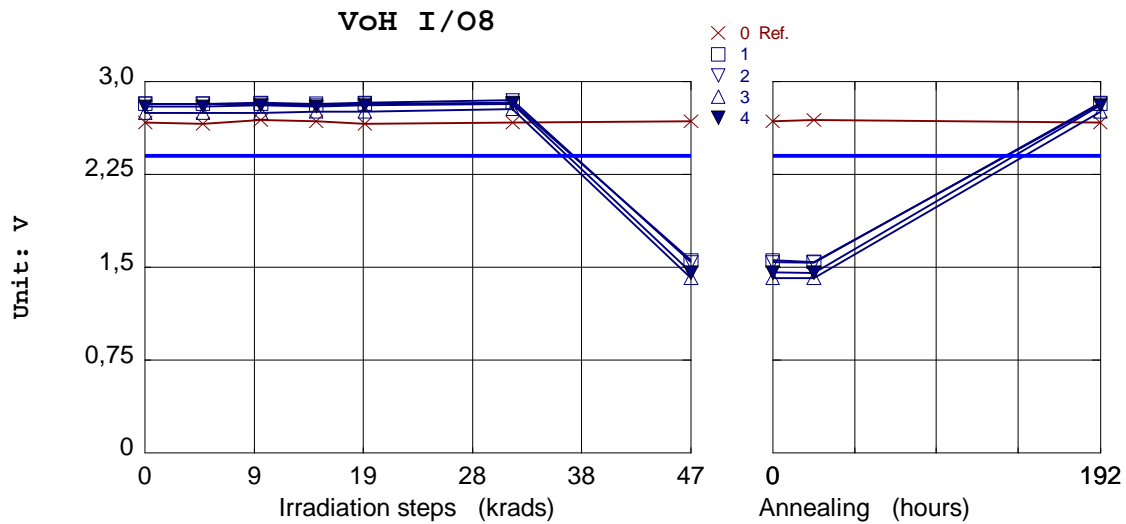
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,660E +00	2,690E +00	2,680E +00	2,660E +00	2,670E +00	2,680E +00	2,690E +00
1	2,820E +00	2,820E +00	2,820E +00	2,810E +00	2,820E +00	2,830E +00	1,556E +00	1,545E +00
2	2,820E +00	2,820E +00	2,830E +00	2,820E +00	2,830E +00	2,850E +00	1,541E +00	1,538E +00
3	2,750E +00	2,750E +00	2,750E +00	2,760E +00	2,760E +00	2,780E +00	1,414E +00	1,415E +00
4	2,800E +00	2,800E +00	2,810E +00	2,800E +00	2,810E +00	2,820E +00	1,458E +00	1,456E +00
Statistics								
Min	2,750E +00	2,750E +00	2,750E +00	2,760E +00	2,760E +00	2,780E +00	1,414E +00	1,415E +00
Max	2,820E +00	2,820E +00	2,830E +00	2,820E +00	2,830E +00	2,850E +00	1,556E +00	1,545E +00
Mean	2,797E +00	2,797E +00	2,802E +00	2,797E +00	2,805E +00	2,820E +00	1,492E +00	1,488E +00
Sigma	3,304E -02	3,304E -02	3,594E -02	2,630E -02	3,109E -02	2,944E -02	6,767E -02	6,351E -02

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,820E +00
2	2,830E +00
3	2,760E +00
4	2,810E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,805E +00
Sigma	3,109E -02





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O7: VoH I/O7  
IoH = -4mA

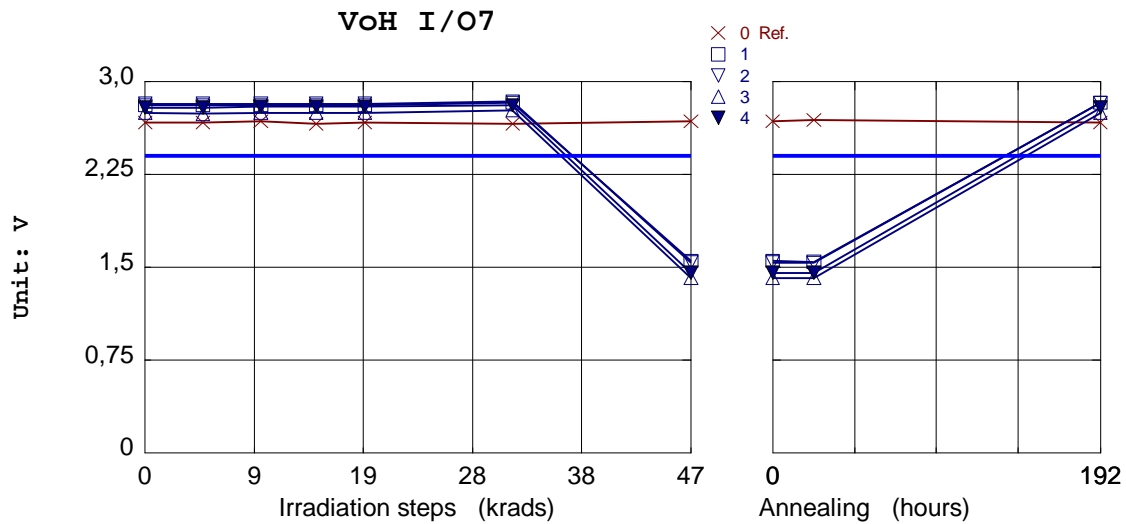
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,680E +00	2,660E +00	2,670E +00	2,660E +00	2,680E +00	2,690E +00
1	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,830E +00	1,553E +00	1,543E +00
2	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,540E +00	1,537E +00
3	2,750E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,412E +00	1,415E +00
4	2,790E +00	2,790E +00	2,800E +00	2,800E +00	2,800E +00	2,810E +00	1,456E +00	1,456E +00
Statistics								
Min	2,750E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,412E +00	1,415E +00
Max	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,553E +00	1,543E +00
Mean	2,792E +00	2,790E +00	2,795E +00	2,795E +00	2,795E +00	2,812E +00	1,490E +00	1,488E +00
Sigma	3,096E -02	3,559E -02	3,109E -02	3,109E -02	3,109E -02	3,096E -02	6,760E -02	6,266E -02

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,830E +00
2	2,830E +00
3	2,750E +00
4	2,790E +00
Statistics	
Min	2,750E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,830E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O6: VoH I/O6  
IoH = -4mA

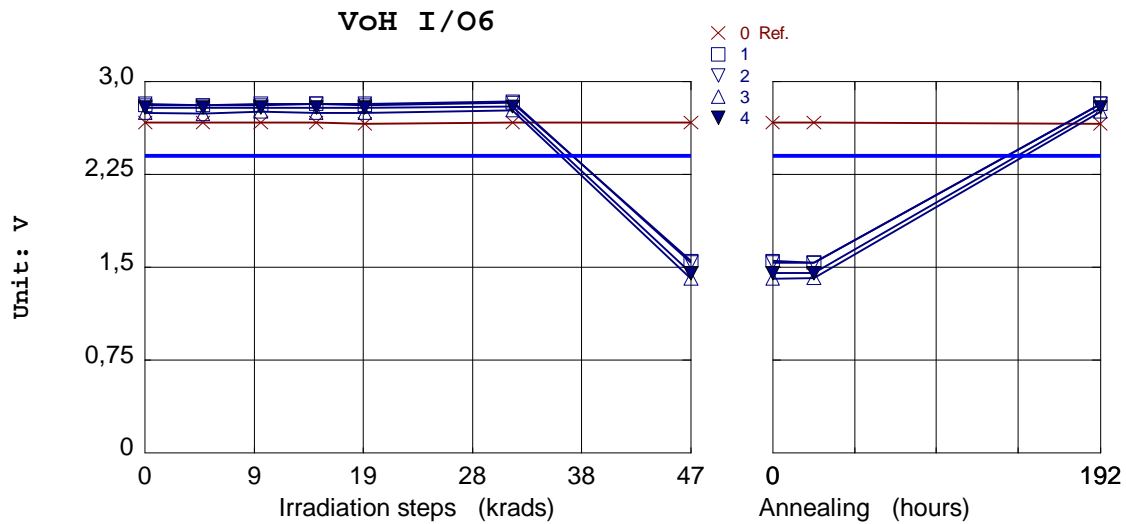
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,660E +00	2,670E +00	2,670E +00	2,670E +00
1	2,810E +00	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,830E +00	1,551E +00	1,540E +00
2	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,538E +00	1,535E +00
3	2,750E +00	2,740E +00	2,760E +00	2,750E +00	2,750E +00	2,770E +00	1,410E +00	1,412E +00
4	2,790E +00	2,790E +00	2,790E +00	2,790E +00	2,790E +00	2,800E +00	1,453E +00	1,452E +00
Statistics								
Min	2,750E +00	2,740E +00	2,760E +00	2,750E +00	2,750E +00	2,770E +00	1,410E +00	1,412E +00
Max	2,820E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,551E +00	1,540E +00
Mean	2,792E +00	2,787E +00	2,795E +00	2,795E +00	2,792E +00	2,810E +00	1,488E +00	1,485E +00
Sigma	3,096E -02	3,304E -02	2,646E -02	3,317E -02	3,096E -02	3,162E -02	6,777E -02	6,309E -02

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,820E +00
2	2,820E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,820E +00
Mean	2,797E +00
Sigma	2,872E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O5: VoH I/O5  
IoH = -4mA

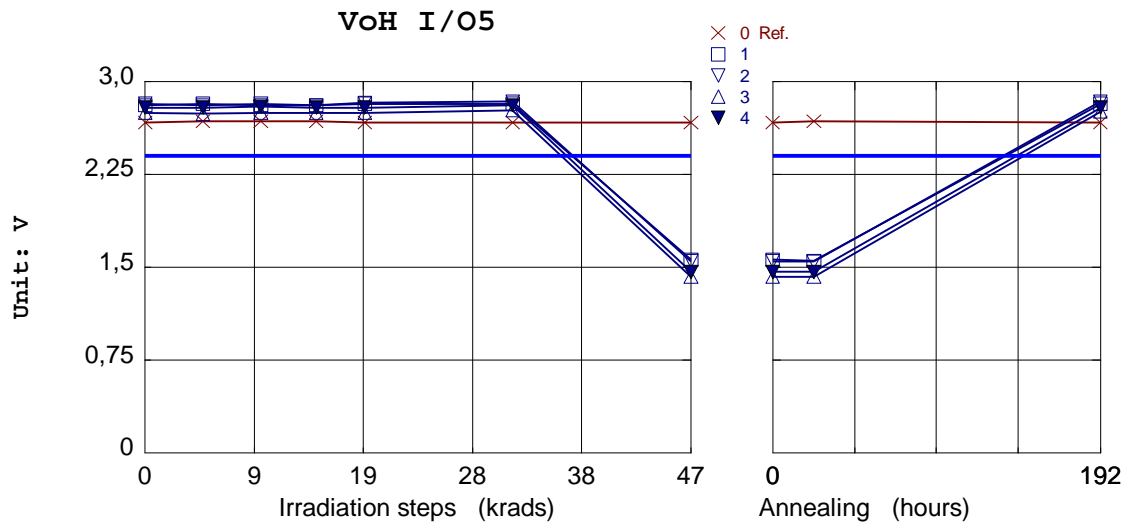
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,680E +00	2,680E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,680E +00
1	2,810E +00	2,820E +00	2,810E +00	2,810E +00	2,820E +00	2,820E +00	1,561E +00	1,551E +00
2	2,820E +00	2,810E +00	2,820E +00	2,810E +00	2,830E +00	2,840E +00	1,548E +00	1,546E +00
3	2,750E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,424E +00	1,425E +00
4	2,790E +00	2,790E +00	2,800E +00	2,790E +00	2,790E +00	2,810E +00	1,463E +00	1,462E +00
Statistics								
Min	2,750E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,424E +00	1,425E +00
Max	2,820E +00	2,820E +00	2,820E +00	2,810E +00	2,830E +00	2,840E +00	1,561E +00	1,551E +00
Mean	2,792E +00	2,790E +00	2,795E +00	2,790E +00	2,797E +00	2,810E +00	1,499E +00	1,496E +00
Sigma	3,096E -02	3,559E -02	3,109E -02	2,828E -02	3,594E -02	2,944E -02	6,625E -02	6,251E -02

Test Step	192 hours
Serial #	
0 Ref.	2,670E +00
1	2,820E +00
2	2,840E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,840E +00
Mean	2,802E +00
Sigma	3,500E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O4: VoH I/O4  
IoH = -4mA

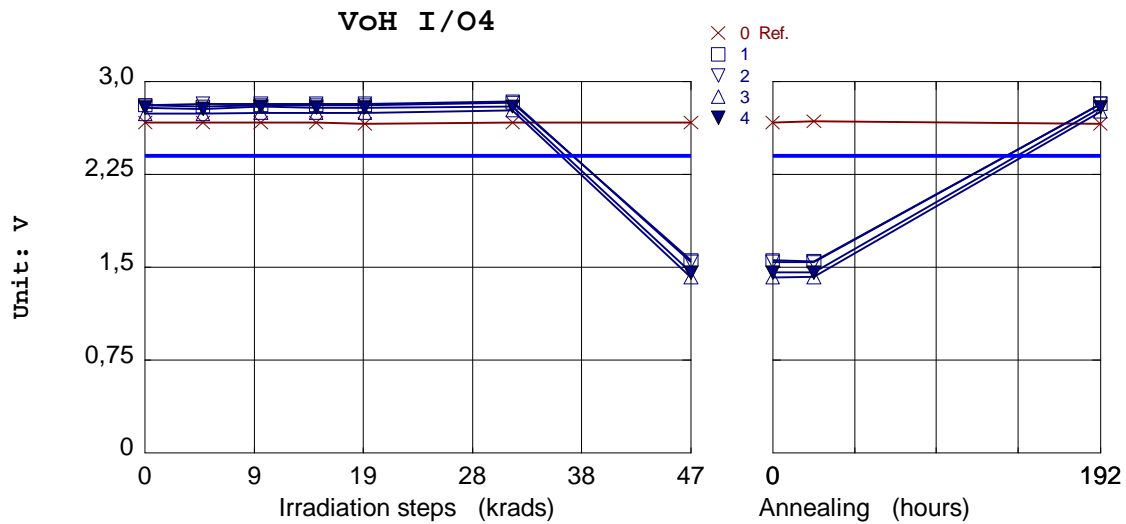
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,660E +00	2,670E +00	2,670E +00	2,680E +00
1	2,810E +00	2,800E +00	2,810E +00	2,810E +00	2,810E +00	2,830E +00	1,559E +00	1,548E +00
2	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,544E +00	1,541E +00
3	2,740E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,419E +00	1,422E +00
4	2,790E +00	2,780E +00	2,800E +00	2,790E +00	2,790E +00	2,800E +00	1,459E +00	1,458E +00
Statistics								
Min	2,740E +00	2,740E +00	2,750E +00	2,750E +00	2,750E +00	2,770E +00	1,419E +00	1,422E +00
Max	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,559E +00	1,548E +00
Mean	2,787E +00	2,785E +00	2,795E +00	2,792E +00	2,792E +00	2,810E +00	1,495E +00	1,492E +00
Sigma	3,304E -02	3,416E -02	3,109E -02	3,096E -02	3,096E -02	3,162E -02	6,725E -02	6,216E -02

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,820E +00
2	2,820E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,820E +00
Mean	2,797E +00
Sigma	2,872E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O3: VoH I/O3  
IoH = -4mA

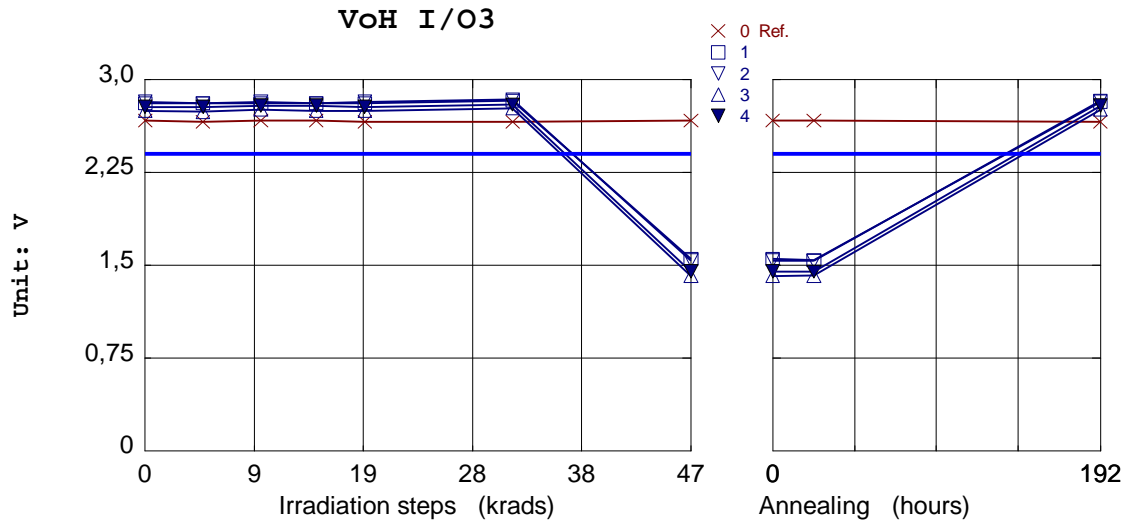
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,660E +00	2,670E +00	2,670E +00	2,660E +00	2,660E +00	2,670E +00	2,670E +00
1	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,810E +00	2,830E +00	1,553E +00	1,542E +00
2	2,820E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,840E +00	1,538E +00	1,535E +00
3	2,750E +00	2,740E +00	2,760E +00	2,750E +00	2,750E +00	2,770E +00	1,415E +00	1,417E +00
4	2,780E +00	2,780E +00	2,790E +00	2,790E +00	2,780E +00	2,800E +00	1,451E +00	1,450E +00
Statistics								
Min	2,750E +00	2,740E +00	2,760E +00	2,750E +00	2,750E +00	2,770E +00	1,415E +00	1,417E +00
Max	2,820E +00	2,810E +00	2,820E +00	2,810E +00	2,820E +00	2,840E +00	1,553E +00	1,542E +00
Mean	2,790E +00	2,785E +00	2,795E +00	2,790E +00	2,790E +00	2,810E +00	1,489E +00	1,486E +00
Sigma	3,162E -02	3,317E -02	2,646E -02	2,828E -02	3,162E -02	3,162E -02	6,687E -02	6,217E -02

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,820E +00
2	2,830E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,830E +00
Mean	2,800E +00
Sigma	3,162E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O2: VoH I/O2  
IoH = -4mA

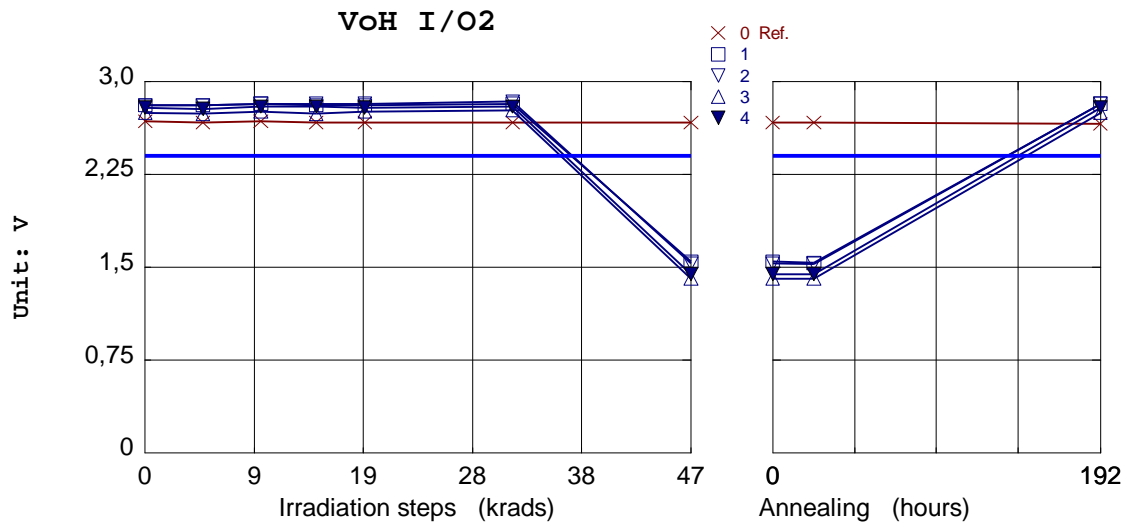
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,680E +00	2,670E +00	2,680E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00
1	2,810E +00	2,810E +00	2,820E +00	2,810E +00	2,810E +00	2,820E +00	1,547E +00	1,536E +00
2	2,810E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,530E +00	1,528E +00
3	2,750E +00	2,740E +00	2,760E +00	2,740E +00	2,760E +00	2,770E +00	1,409E +00	1,410E +00
4	2,790E +00	2,780E +00	2,800E +00	2,800E +00	2,790E +00	2,800E +00	1,446E +00	1,445E +00
Statistics								
Min	2,750E +00	2,740E +00	2,760E +00	2,740E +00	2,760E +00	2,770E +00	1,409E +00	1,410E +00
Max	2,810E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,840E +00	1,547E +00	1,536E +00
Mean	2,790E +00	2,785E +00	2,800E +00	2,792E +00	2,795E +00	2,807E +00	1,483E +00	1,480E +00
Sigma	2,828E -02	3,317E -02	2,828E -02	3,594E -02	2,646E -02	2,986E -02	6,621E -02	6,209E -02

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,820E +00
2	2,820E +00
3	2,750E +00
4	2,790E +00
Statistics	
Min	2,750E +00
Max	2,820E +00
Mean	2,795E +00
Sigma	3,317E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Output Voltage High Level Pin I/O1: VoH I/O1  
IoH = -4mA

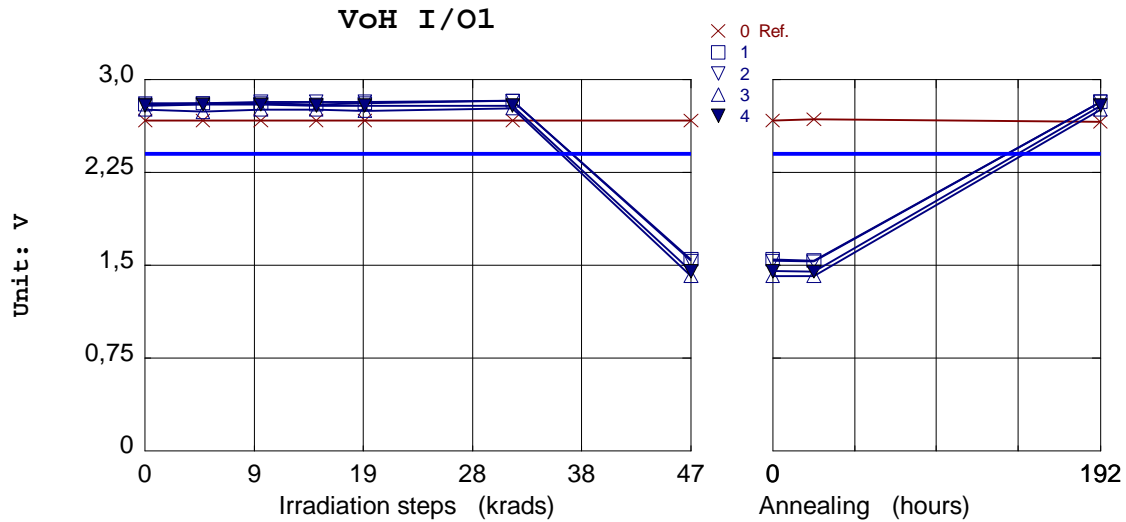
Unit= V

Spec limit min: 240,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,670E +00	2,680E +00
1	2,800E +00	2,810E +00	2,810E +00	2,800E +00	2,810E +00	2,830E +00	1,550E +00	1,540E +00
2	2,810E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	1,535E +00	1,532E +00
3	2,760E +00	2,740E +00	2,760E +00	2,760E +00	2,750E +00	2,770E +00	1,413E +00	1,415E +00
4	2,790E +00	2,800E +00	2,800E +00	2,790E +00	2,790E +00	2,790E +00	1,452E +00	1,450E +00
Statistics								
Min	2,760E +00	2,740E +00	2,760E +00	2,760E +00	2,750E +00	2,770E +00	1,413E +00	1,415E +00
Max	2,810E +00	2,810E +00	2,820E +00	2,820E +00	2,820E +00	2,830E +00	1,550E +00	1,540E +00
Mean	2,790E +00	2,790E +00	2,797E +00	2,792E +00	2,792E +00	2,805E +00	1,487E +00	1,484E +00
Sigma	2,160E -02	3,366E -02	2,630E -02	2,500E -02	3,096E -02	3,000E -02	6,576E -02	6,153E -02

Test Step	192 hours
Serial #	
0 Ref.	2,660E +00
1	2,820E +00
2	2,820E +00
3	2,760E +00
4	2,790E +00
Statistics	
Min	2,760E +00
Max	2,820E +00
Mean	2,797E +00
Sigma	2,872E -02



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Standby Power Supply Current: ISB\_CMOS  
 15ns Cycle Time ; Vin = Vii/Vih

Unit= A

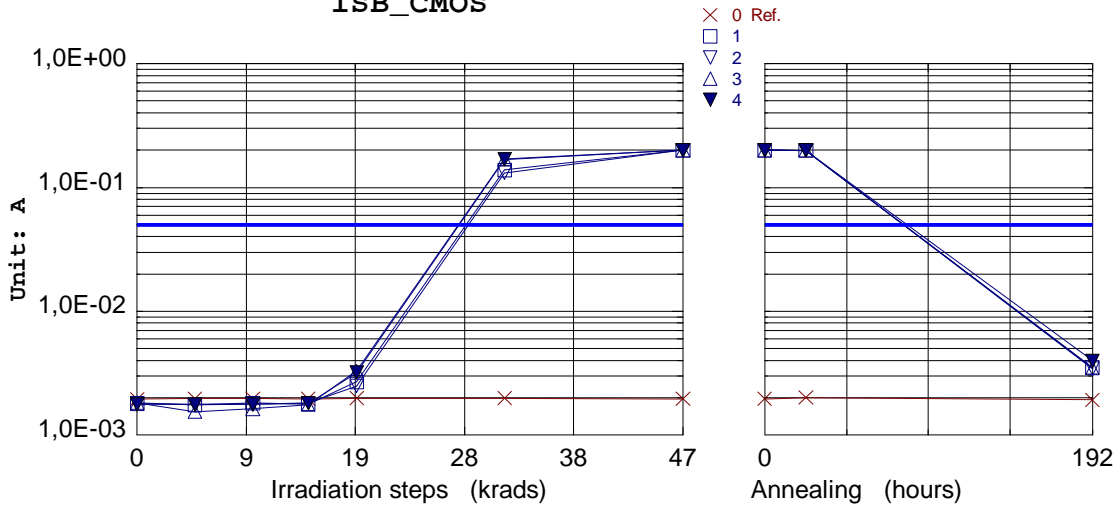
Spec limit max: 50,0E-3

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,953E -03	1,970E -03	1,971E -03	1,960E -03	1,983E -03	1,980E -03	1,962E -03	2,001E -03
1	1,789E -03	1,753E -03	1,804E -03	1,777E -03	2,684E -03	1,387E -01	2,000E -01	1,999E -01
2	1,813E -03	1,754E -03	1,771E -03	1,816E -03	2,488E -03	1,311E -01	2,000E -01	1,999E -01
3	1,824E -03	1,548E -03	1,624E -03	1,756E -03	3,308E -03	1,697E -01	2,000E -01	1,999E -01
4	1,773E -03	1,774E -03	1,770E -03	1,802E -03	3,195E -03	1,687E -01	2,000E -01	1,999E -01
Statistics								
Min	1,773E -03	1,548E -03	1,624E -03	1,756E -03	2,488E -03	1,311E -01	2,000E -01	1,999E -01
Max	1,824E -03	1,774E -03	1,804E -03	1,816E -03	3,308E -03	1,697E -01	2,000E -01	1,999E -01
Mean	1,800E -03	1,707E -03	1,742E -03	1,788E -03	2,919E -03	1,521E -01	2,000E -01	1,999E -01
Sigma	2,306E -05	1,066E -04	8,040E -05	2,661E -05	3,952E -04	2,006E -02	1,915E -05	9,999E -06

Test Step	192 hours
Serial #	
0 Ref.	1,928E -03
1	3,501E -03
2	3,444E -03
3	3,455E -03
4	3,964E -03
Statistics	
Min	3,444E -03
Max	3,964E -03
Mean	3,591E -03
Sigma	2,499E -04

ISB\_CMOS





HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Operating Power Supply Current: ICC  
Iout=0A ; 15ns Cycle Time ; ; Vin = Vii/Iih

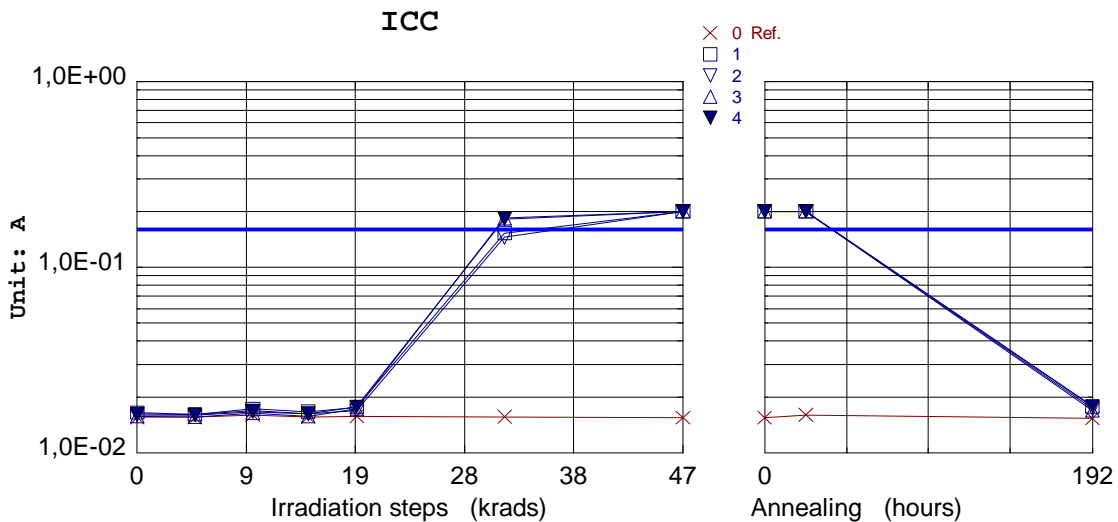
Unit= A

Spec limit max: 16,0E-2

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,560E -02	1,560E -02	1,600E -02	1,570E -02	1,580E -02	1,570E -02	1,550E -02	1,600E -02
1	1,650E -02	1,610E -02	1,730E -02	1,670E -02	1,760E -02	1,530E -01	2,000E -01	2,000E -01
2	1,600E -02	1,600E -02	1,670E -02	1,620E -02	1,690E -02	1,450E -01	2,000E -01	2,000E -01
3	1,580E -02	1,570E -02	1,640E -02	1,580E -02	1,730E -02	1,840E -01	2,000E -01	2,000E -01
4	1,620E -02	1,610E -02	1,690E -02	1,630E -02	1,770E -02	1,820E -01	2,000E -01	2,000E -01
Statistics								
Min	1,580E -02	1,570E -02	1,640E -02	1,580E -02	1,690E -02	1,450E -01	2,000E -01	2,000E -01
Max	1,650E -02	1,610E -02	1,730E -02	1,670E -02	1,770E -02	1,840E -01	2,000E -01	2,000E -01
Mean	1,613E -02	1,598E -02	1,682E -02	1,625E -02	1,737E -02	1,660E -01	2,000E -01	2,000E -01
Sigma	2,986E -04	1,893E -04	3,775E -04	3,697E -04	3,594E -04	1,992E -02	9,505E -11	9,505E -11

Test Step	192 hours
Serial #	
0 Ref.	1,540E -02
1	1,770E -02
2	1,730E -02
3	1,690E -02
4	1,790E -02
Statistics	
Min	1,690E -02
Max	1,790E -02
Mean	1,745E -02
Sigma	4,435E -04



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Address Access Time Low to High Level:taaL->H  
 RL=50R to 1,5V

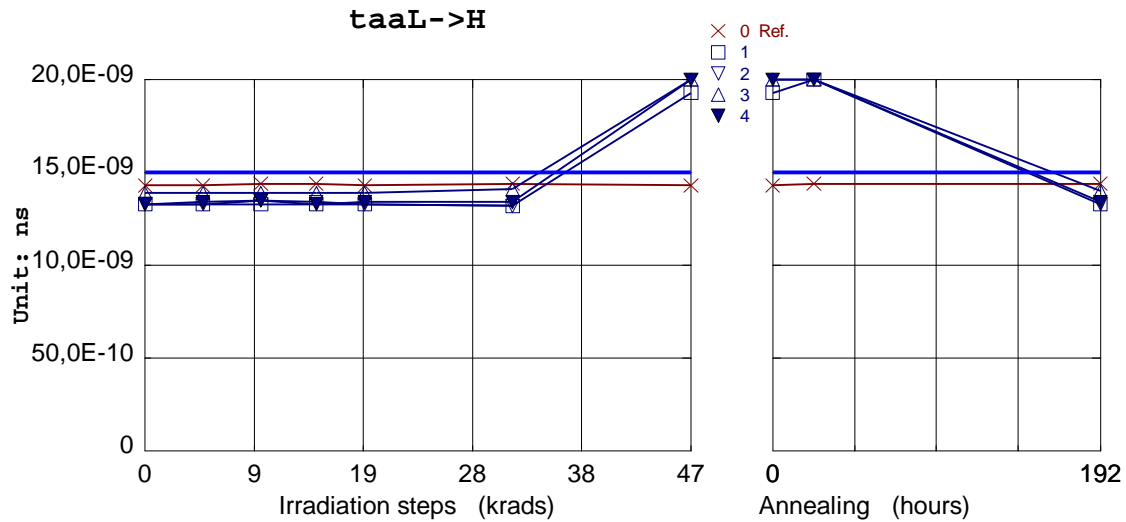
Unit= ns

Spec limit max: 15,0E-9

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,430E -08	1,430E -08	1,440E -08	1,440E -08	1,430E -08	1,440E -08	1,430E -08	1,440E -08
1	1,330E -08	1,330E -08	1,330E -08	1,330E -08	1,330E -08	1,320E -08	1,930E -08	2,000E -08
2	1,330E -08	1,330E -08	1,350E -08	1,340E -08	1,330E -08	1,320E -08		
3	1,390E -08	1,390E -08	1,390E -08	1,390E -08	1,390E -08	1,410E -08	2,000E -08	2,000E -08
4	1,330E -08	1,340E -08	1,350E -08	1,330E -08	1,340E -08	1,340E -08	2,000E -08	2,000E -08
Statistics								
Min	1,330E -08	1,330E -08	1,330E -08	1,330E -08	1,330E -08	1,320E -08	1,930E -08	2,000E -08
Max	1,390E -08	1,390E -08	1,390E -08	1,390E -08	1,390E -08	1,410E -08	2,000E -08	2,000E -08
Mean	1,345E -08	1,348E -08	1,355E -08	1,348E -08	1,348E -08	1,348E -08	1,977E -08	2,000E -08
Sigma	3,000E -10	2,872E -10	2,517E -10	2,872E -10	2,872E -10	4,272E -10	4,041E -10	9,813E -18

Test Step	192 hours
Serial #	
0 Ref.	1,440E -08
1	1,330E -08
2	1,330E -08
3	1,400E -08
4	1,340E -08
Statistics	
Min	1,330E -08
Max	1,400E -08
Mean	1,350E -08
Sigma	3,367E -10



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Address Access Time High to Low Level:taaH->L  
 RL=50R to 1,5V

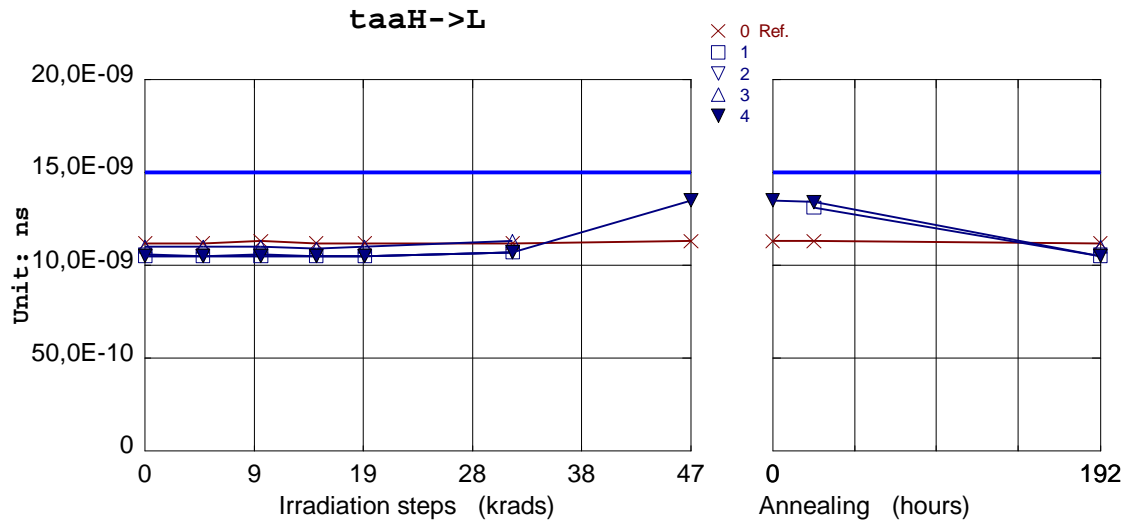
Unit= ns

Spec limit max: 15,0E-9

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	1,120E -08	1,120E -08	1,130E -08	1,120E -08	1,120E -08	1,120E -08	1,130E -08	1,130E -08
1	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,070E -08		1,310E -08
2	1,060E -08	1,050E -08	1,060E -08	1,050E -08	1,050E -08	1,070E -08		
3	1,100E -08	1,100E -08	1,100E -08	1,090E -08	1,100E -08	1,130E -08		
4	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,070E -08	1,350E -08	1,340E -08
Statistics								
Min	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,050E -08	1,070E -08		1,310E -08
Max	1,100E -08	1,100E -08	1,100E -08	1,090E -08	1,100E -08	1,130E -08		1,340E -08
Mean	1,065E -08	1,062E -08	1,065E -08	1,060E -08	1,062E -08	1,085E -08		1,325E -08
Sigma	2,380E -10	2,500E -10	2,380E -10	2,000E -10	2,500E -10	3,000E -10		2,121E -10

Test Step	192 hours
Serial #	
0 Ref.	1,120E -08
1	1,050E -08
2	1,060E -08
3	1,100E -08
4	1,050E -08
Statistics	
Min	1,050E -08
Max	1,100E -08
Mean	1,065E -08
Sigma	2,380E -10



HIREX Engineering	Total Dose Test Report			Réf. : HRX/TID/0073
				Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Address Set-up time: tas  
 RL=50R to 1,5V

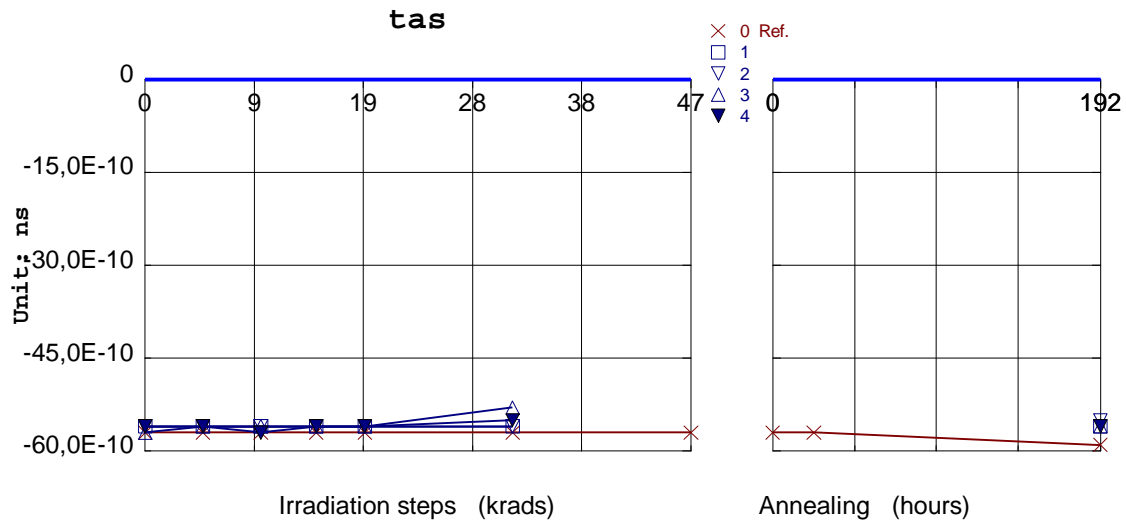
Unit= ns

Spec limit min: 000,0E+0

Spec limits are represented in bold lines on the graphic.

Test Step	Initial	5 krads	10 krads	14,8 krads	19 krads	31,8 krads	47,2 krads	24 hours
Serial #								
0 Ref.	-5,700E -09	-5,700E -09	-5,700E -09	-5,700E -09	-5,700E -09	-5,700E -09	-5,700E -09	-5,700E -09
1	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	
2	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09		
3	-5,700E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,300E -09		
4	-5,600E -09	-5,600E -09	-5,700E -09	-5,600E -09	-5,600E -09	-5,500E -09		
Statistics								
Min	-5,700E -09	-5,600E -09	-5,700E -09	-5,600E -09	-5,600E -09	-5,600E -09		
Max	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,600E -09	-5,300E -09		
Mean	-5,625E -09	-5,600E -09	-5,625E -09	-5,600E -09	-5,600E -09	-5,500E -09		
Sigma	5,000E -11	5,666E -18	5,000E -11	5,666E -18	5,666E -18	1,414E -10		

Test Step	192 hours
Serial #	
0 Ref.	-5,900E -09
1	-5,600E -09
2	-5,500E -09
3	-5,600E -09
4	-5,600E -09
Statistics	
Min	-5,600E -09
Max	-5,500E -09
Mean	-5,575E -09
Sigma	5,000E -11



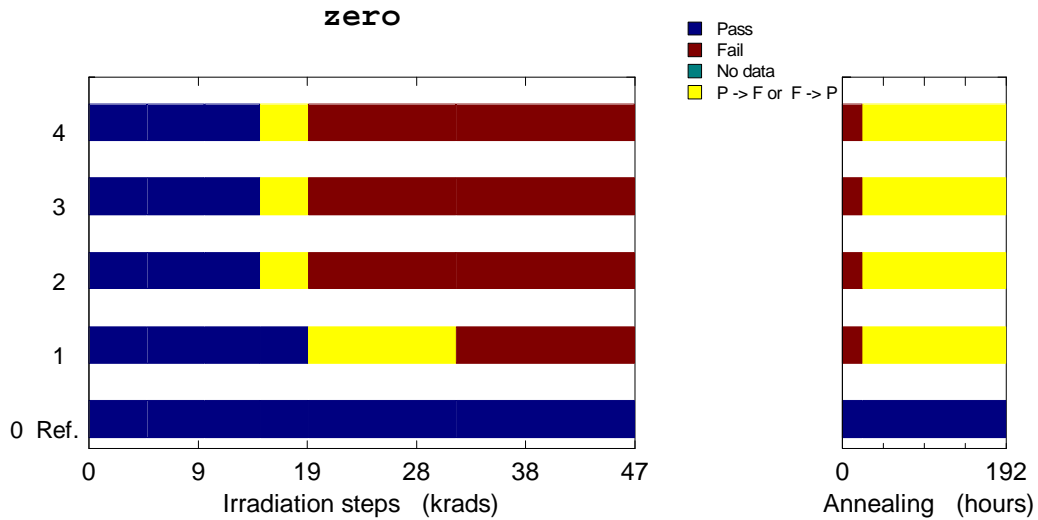
<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

Parameter : Functional Test : Zero Pattern: zero  
15ns Cycle Time

No spec limit specified.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	P	P	P	P	P	P	P	P
1	P	P	P	P	P	F	F	F
2	P	P	P	P	F	F	F	F
3	P	P	P	P	F	F	F	F
4	P	P	P	P	F	F	F	F

Test Step	192 hours
Serial #	
0 Ref.	P
1	P
2	P
3	P
4	P



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

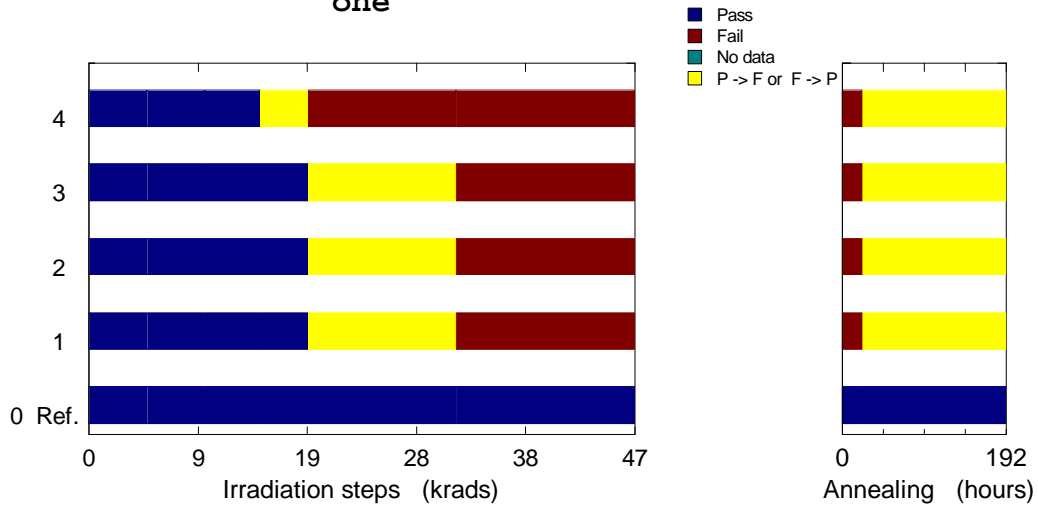
Parameter : Functional Test : One Pattern: one  
15ns Cycle Time

No spec limit specified.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	P	P	P	P	P	P	P	P
1	P	P	P	P	P	F	F	F
2	P	P	P	P	P	F	F	F
3	P	P	P	P	P	F	F	F
4	P	P	P	P	F	F	F	F

Test Step	192 hours
Serial #	
0 Ref.	P
1	P
2	P
3	P
4	P

one



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

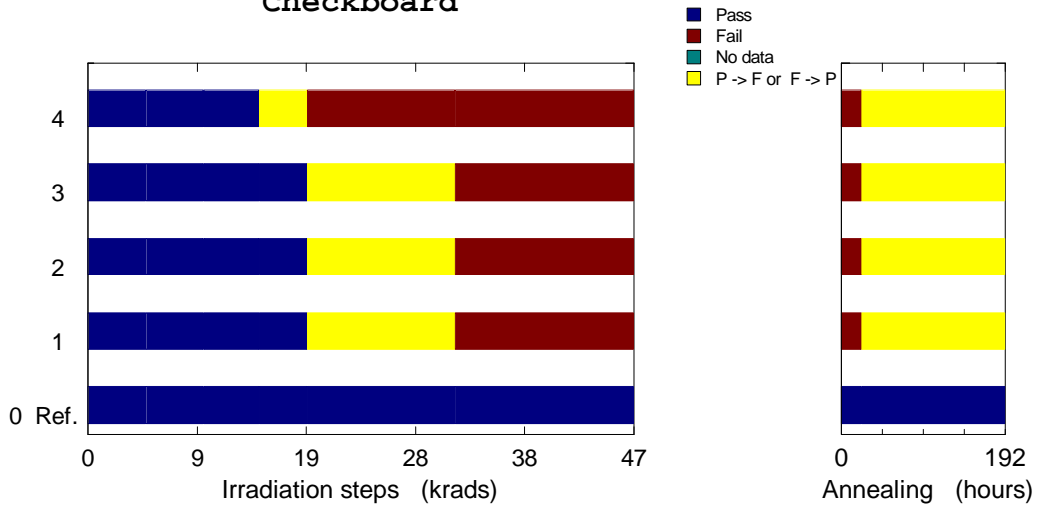
**Parameter : Functional Test : CheckBoard Pattern: Checkboard**  
**15ns Cycle Time**

No spec limit specified.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	P	P	P	P	P	P	P	P
1	P	P	P	P	P	F	F	F
2	P	P	P	P	P	F	F	F
3	P	P	P	P	P	F	F	F
4	P	P	P	P	F	F	F	F

Test Step	192 hours
Serial #	
0 Ref.	P
1	P
2	P
3	P
4	P

**Checkboard**



<b>HIREX Engineering</b>	<b>Total Dose Test Report</b>			Réf. : HRX/TID/0073 Issue : 01
Part Type :	HM6216255H	Manufacturer :	Hitachi	

**Parameter : Functional Test : Complementary CheckBoard Pattern: \*Checkboard**  
**15ns Cycle Time**

No spec limit specified.

Test Step	Initial	5 krad	10 krad	14,8 krad	19 krad	31,8 krad	47,2 krad	24 hours
Serial #								
0 Ref.	P	P	P	P	P	P	P	P
1	P	P	P	P	P	F	F	F
2	P	P	P	P	F	F	F	F
3	P	P	P	P	F	F	F	F
4	P	P	P	P	F	F	F	F

Test Step	192 hours
Serial #	
0 Ref.	P
1	P
2	P
3	P
4	P

**\*Checkboard**

