National Semiconductor™

Military Aerospace Division
Quality Assurance Mail Stop 10-225
1120 Kifer Road
Sunnyvale, CA 94086-3737 USA

Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=H
Lot Number:	TH3817C019	Dose Rate:	70.17 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

Summarized RHA Test Results

PROGRAM	REVISION	SPECNAME	STATUS	EXPOSURE
Z005JAN	5	RHA-PRE	PASSED	0K
Z005JAN	5	RHA-3K	PASSED	3K
Z005JAN	5	RHA-10K	PASSED	10K
Z005JAN	5	RHA-100K-ANN	PASSED	30K
Z005JAN	5	RHA-100K-ANN	PASSED	50K
Z005JAN	5	RHA-100K-ANN	PASSED	80K
Z005JAN	5	RHA-100K-ANN	PASSED	100K

*** EXCEEDED POST IRRADIATION PARAMETRIC LIMITS, REQUIRES EXTENDED ROOM ANNEAL.

This lot PASSES per Mil Std 883 Method 1019

DISCLAIMER:

The results reported are representative only of the lot tested in this specific sample and should not be used as generic RHA qualification data for any similar products not Radiation Certified by National Semiconductor Corporation.

National Semiconductor uses different process flows for different product qualification levels and National Semiconductor will not guarantee the RHA performance of any product unless National Semiconductor has tested and certified the specific manufacturing lot.

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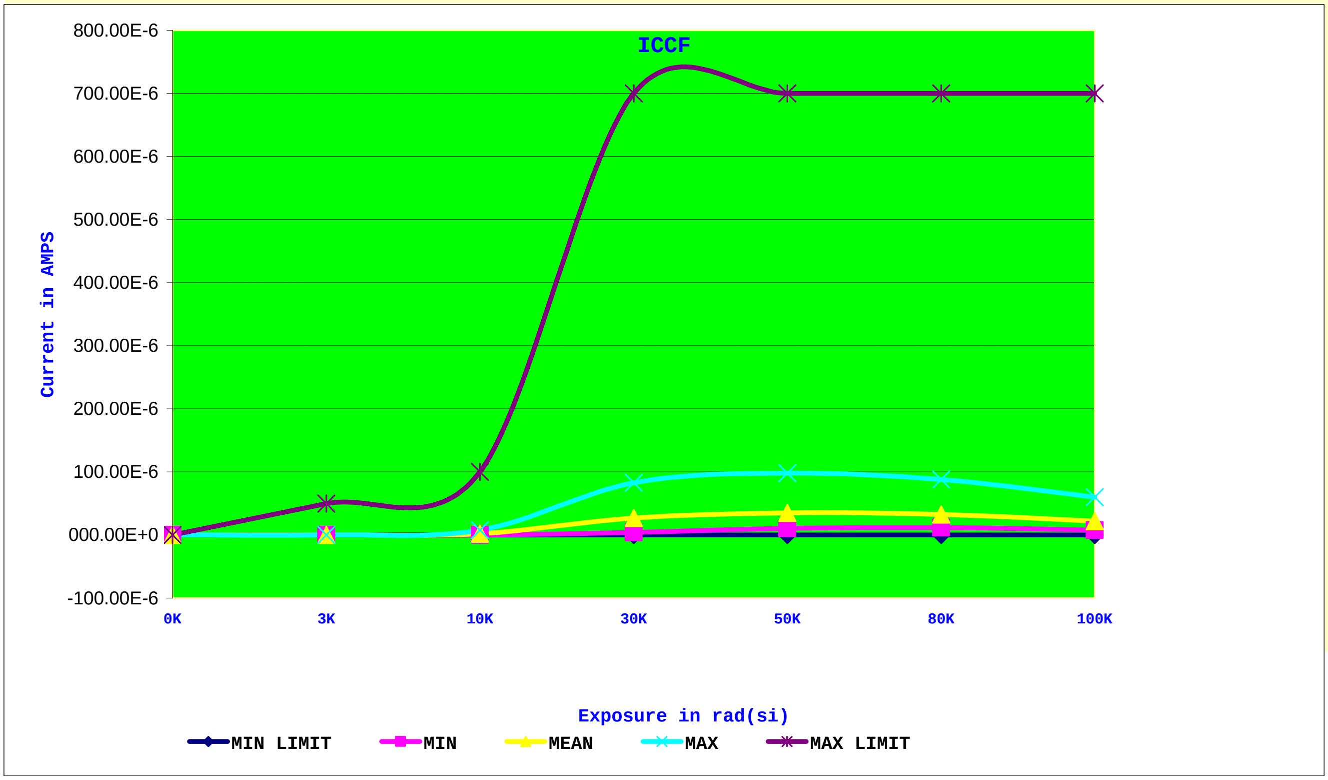
Irradiation Date:	25-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=H
Lot Number:	TH3817C019	Dose Rate:	70.17 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

ICCF

Statistical Data for ICCF, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	1.43E-9	2.10E-9	3.81E-9	90.00E-9	-122.82E-12	4.33E-9	742.57E-12	24	000.00E+0	PASS
3K	-50.00E-9	953.17E-12	1.93E-9	3.81E-9	50.00E-6	-439.35E-12	4.29E-9	788.51E-12	24	-178.71E-12	PASS
10K	-50.00E-9	10.49E-9	1.88E-6	7.37E-6	100.00E-6	-3.93E-6	7.69E-6	1.94E-6	24	1.87E-6	PASS
30K	-50.00E-9	4.22E-6	26.82E-6	82.74E-6	700.00E-6	-34.11E-6	87.75E-6	20.31E-6	24	26.82E-6	PASS
50K	-50.00E-9	10.65E-6	35.13E-6	97.89E-6	700.00E-6	-32.85E-6	103.12E-6	22.66E-6	24	35.13E-6	PASS
80K	-50.00E-9	11.43E-6	32.38E-6	87.87E-6	700.00E-6	-27.36E-6	92.11E-6	19.91E-6	24	32.38E-6	PASS
100K	-50.00E-9	7.59E-6	21.62E-6	60.01E-6	700.00E-6	-18.82E-6	62.06E-6	13.48E-6	24	21.62E-6	PASS



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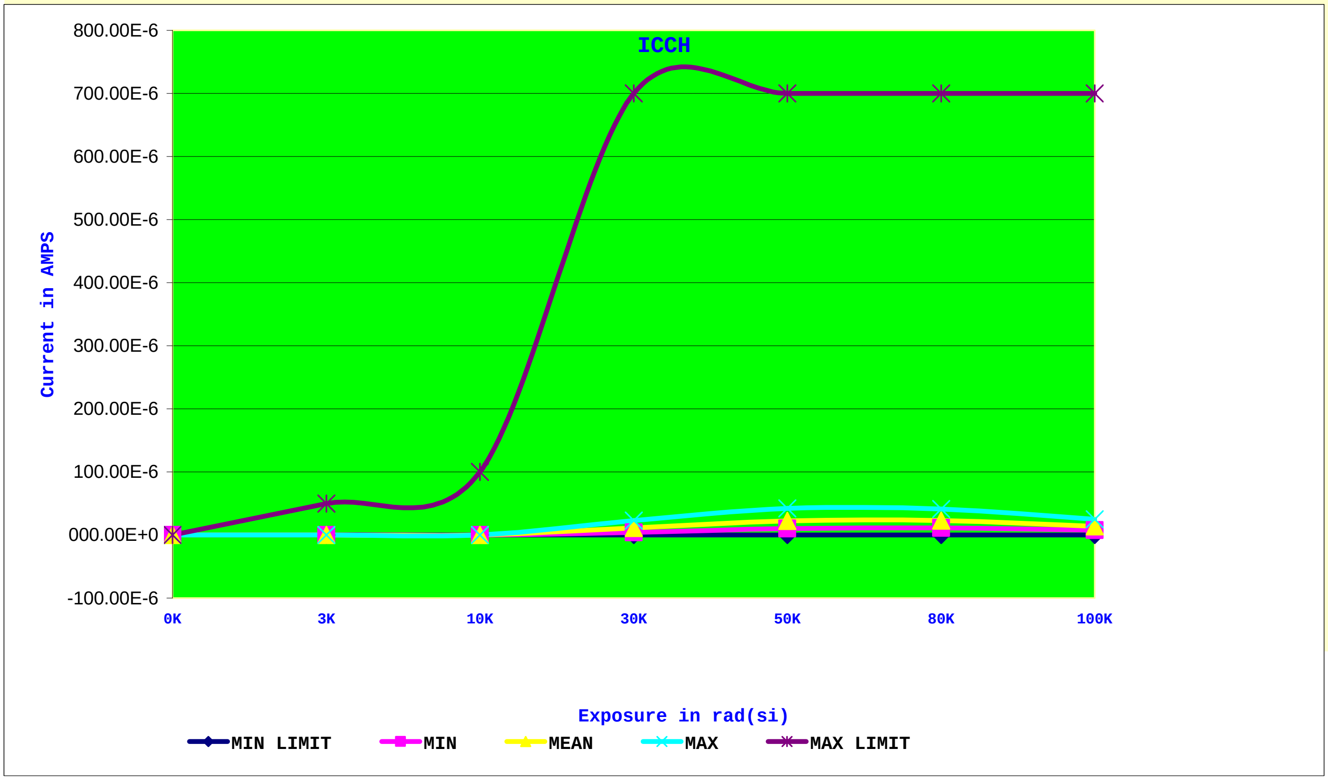
Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

ICCH

Statistical Data for ICCH, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	1.43E-9	2.22E-9	3.81E-9	90.00E-9	-279.82E-12	4.73E-9	834.62E-12	6	000.00E+0	PASS
3K	-50.00E-9	476.58E-12	1.11E-9	1.91E-9	50.00E-6	-364.57E-12	2.59E-9	492.20E-12	6	-1.11E-9	PASS
10K	-50.00E-9	9.53E-9	16.84E-9	30.50E-9	100.00E-6	-6.17E-9	39.85E-9	7.67E-9	6	14.62E-9	PASS
30K	-50.00E-9	4.07E-6	11.29E-6	22.61E-6	700.00E-6	-9.18E-6	31.75E-6	6.82E-6	6	11.29E-6	PASS
50K	-50.00E-9	10.39E-6	22.28E-6	41.92E-6	700.00E-6	-13.37E-6	57.93E-6	11.88E-6	6	22.28E-6	PASS
80K	-50.00E-9	11.19E-6	22.60E-6	40.94E-6	700.00E-6	-11.79E-6	56.99E-6	11.46E-6	6	22.60E-6	PASS
100K	-50.00E-9	7.40E-6	13.95E-6	24.81E-6	700.00E-6	-6.30E-6	34.20E-6	6.75E-6	6	13.95E-6	PASS



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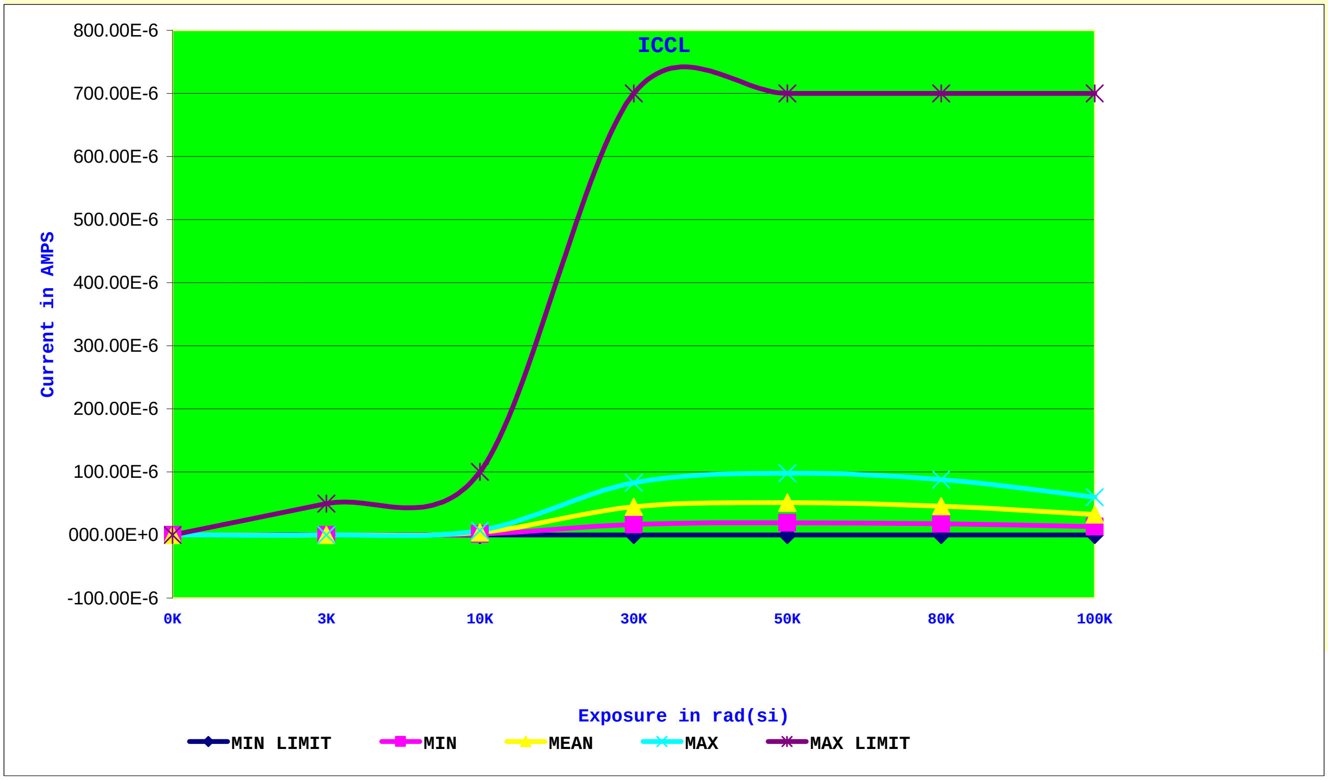
Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

ICCL

Statistical Data for ICCL, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	1.43E-9	1.99E-9	3.34E-9	90.00E-9	-304.92E-12	4.28E-9	763.55E-12	6	000.00E+0	PASS
3K	-50.00E-9	1.91E-9	2.62E-9	3.34E-9	50.00E-6	650.36E-12	4.59E-9	656.95E-12	6	635.47E-12	PASS
10K	-50.00E-9	1.63E-6	3.91E-6	7.31E-6	100.00E-6	-2.65E-6	10.47E-6	2.19E-6	6	3.91E-6	PASS
30K	-50.00E-9	16.74E-6	44.77E-6	82.61E-6	700.00E-6	-31.89E-6	121.43E-6	25.55E-6	6	44.77E-6	PASS
50K	-50.00E-9	19.06E-6	51.29E-6	97.77E-6	700.00E-6	-39.27E-6	141.84E-6	30.19E-6	6	51.29E-6	PASS
80K	-50.00E-9	17.60E-6	45.89E-6	87.87E-6	700.00E-6	-35.65E-6	127.43E-6	27.18E-6	6	45.89E-6	PASS
100K	-50.00E-9	13.07E-6	32.24E-6	59.88E-6	700.00E-6	-22.36E-6	86.84E-6	18.20E-6	6	32.24E-6	PASS



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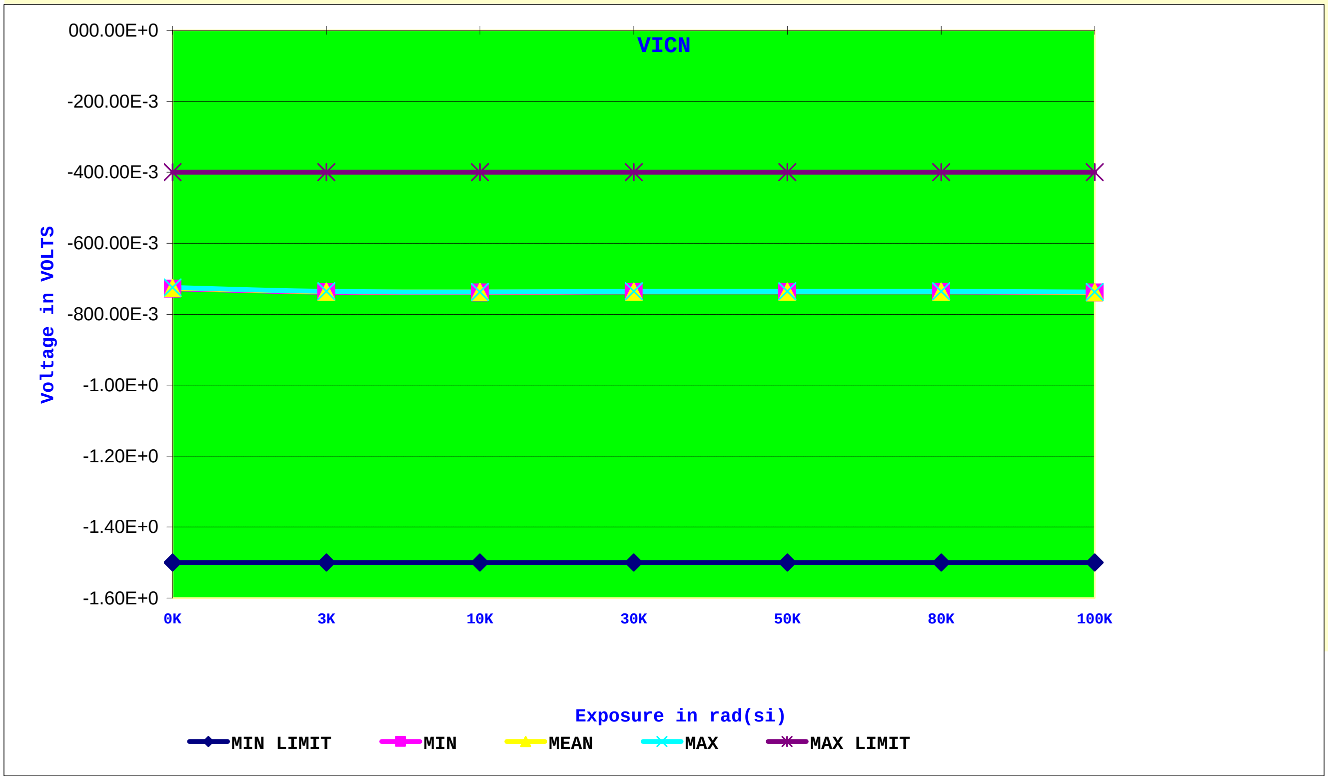
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=H
Lot Number:	TH3817C019	Dose Rate:	70.17 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

VICN

Statistical Data for VICN, Test Condition of -0.001 AMPS, VCC=0 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-1.50E+0	-727.86E-3	-726.37E-3	-724.47E-3	-400.00E-3	-729.04E-3	-723.70E-3	889.66E-6	36	000.00E+0	PASS
3K	-1.50E+0	-737.86E-3	-736.76E-3	-735.73E-3	-400.00E-3	-738.88E-3	-734.65E-3	705.16E-6	36	-10.39E-3	PASS
10K	-1.50E+0	-738.98E-3	-737.39E-3	-736.98E-3	-400.00E-3	-738.89E-3	-735.89E-3	500.10E-6	36	-11.02E-3	PASS
30K	-1.50E+0	-736.98E-3	-736.07E-3	-735.73E-3	-400.00E-3	-737.27E-3	-734.87E-3	400.92E-6	36	-9.70E-3	PASS
50K	-1.50E+0	-737.73E-3	-736.21E-3	-735.73E-3	-400.00E-3	-737.93E-3	-734.48E-3	575.31E-6	36	-9.84E-3	PASS
80K	-1.50E+0	-736.98E-3	-736.10E-3	-735.73E-3	-400.00E-3	-737.38E-3	-734.83E-3	424.12E-6	36	-9.73E-3	PASS
100K	-1.50E+0	-739.11E-3	-738.19E-3	-736.98E-3	-400.00E-3	-739.95E-3	-736.42E-3	588.07E-6	36	-11.81E-3	PASS



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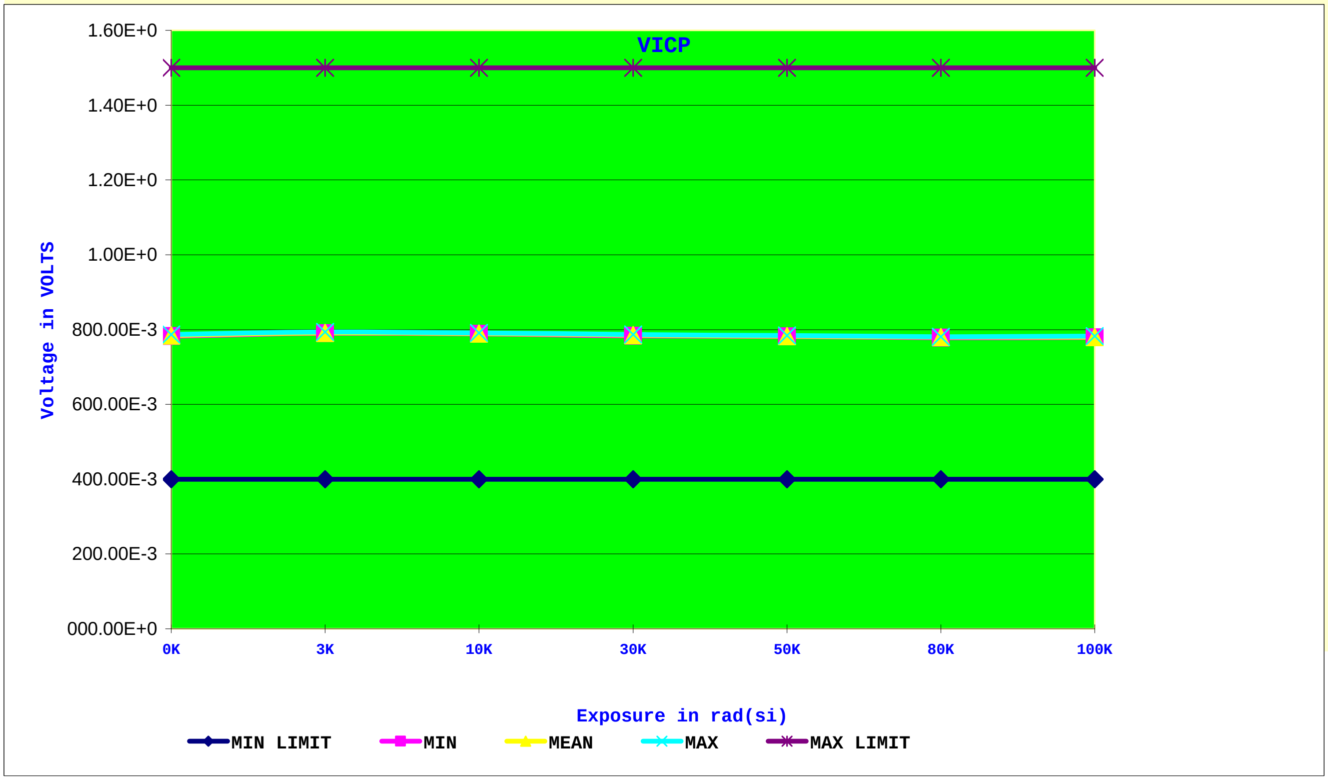
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

VICP

Statistical Data for VICP, Test Condition of 0.001 AMPS, VCC=0 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	400.00E-3	782.14E-3	784.34E-3	787.03E-3	1.50E+0	780.82E-3	787.86E-3	1.17E-3	36	000.00E+0	PASS
3K	400.00E-3	790.39E-3	791.22E-3	793.28E-3	1.50E+0	789.23E-3	793.22E-3	665.73E-6	36	6.88E-3	PASS
10K	400.00E-3	788.30E-3	789.45E-3	790.81E-3	1.50E+0	787.31E-3	791.60E-3	715.42E-6	36	5.11E-3	PASS
30K	400.00E-3	783.39E-3	784.90E-3	787.03E-3	1.50E+0	782.73E-3	787.07E-3	724.52E-6	36	556.71E-6	PASS
50K	400.00E-3	781.63E-3	782.71E-3	784.53E-3	1.50E+0	780.77E-3	784.65E-3	646.45E-6	36	-1.63E-3	PASS
80K	400.00E-3	778.29E-3	779.75E-3	780.97E-3	1.50E+0	777.73E-3	781.78E-3	676.02E-6	36	-4.59E-3	PASS
100K	400.00E-3	779.13E-3	780.24E-3	782.05E-3	1.50E+0	778.07E-3	782.41E-3	722.35E-6	36	-4.10E-3	PASS



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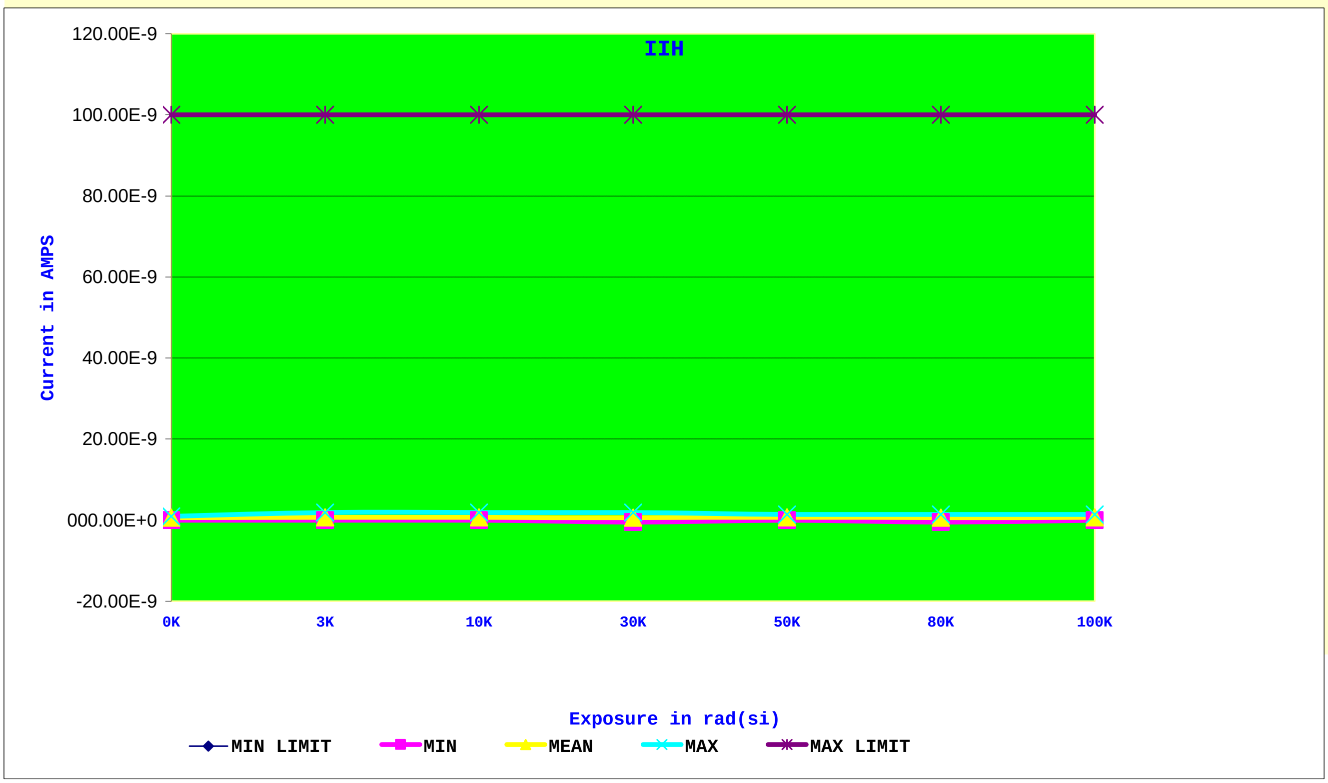
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

IIH

Statistical Data for IIH, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		000.00E+0	581.38E-12	942.43E-12	100.00E-9	-439.52E-12	1.60E-9	340.30E-12	36	000.00E+0	PASS
3K		000.00E+0	713.79E-12	1.88E-9	100.00E-9	-771.44E-12	2.20E-9	495.08E-12	36	132.41E-12	PASS
10K		000.00E+0	727.03E-12	1.88E-9	100.00E-9	-751.50E-12	2.21E-9	492.84E-12	36	145.65E-12	PASS
30K		-476.48E-12	647.60E-12	1.88E-9	100.00E-9	-977.74E-12	2.27E-9	541.78E-12	36	66.21E-12	PASS
50K		000.00E+0	660.83E-12	1.41E-9	100.00E-9	-734.83E-12	2.06E-9	465.22E-12	36	79.45E-12	PASS
80K		-476.48E-12	621.11E-12	1.41E-9	100.00E-9	-843.60E-12	2.09E-9	488.24E-12	36	39.73E-12	PASS
100K		000.00E+0	727.03E-12	1.41E-9	100.00E-9	-670.28E-12	2.12E-9	465.77E-12	36	145.65E-12	PASS



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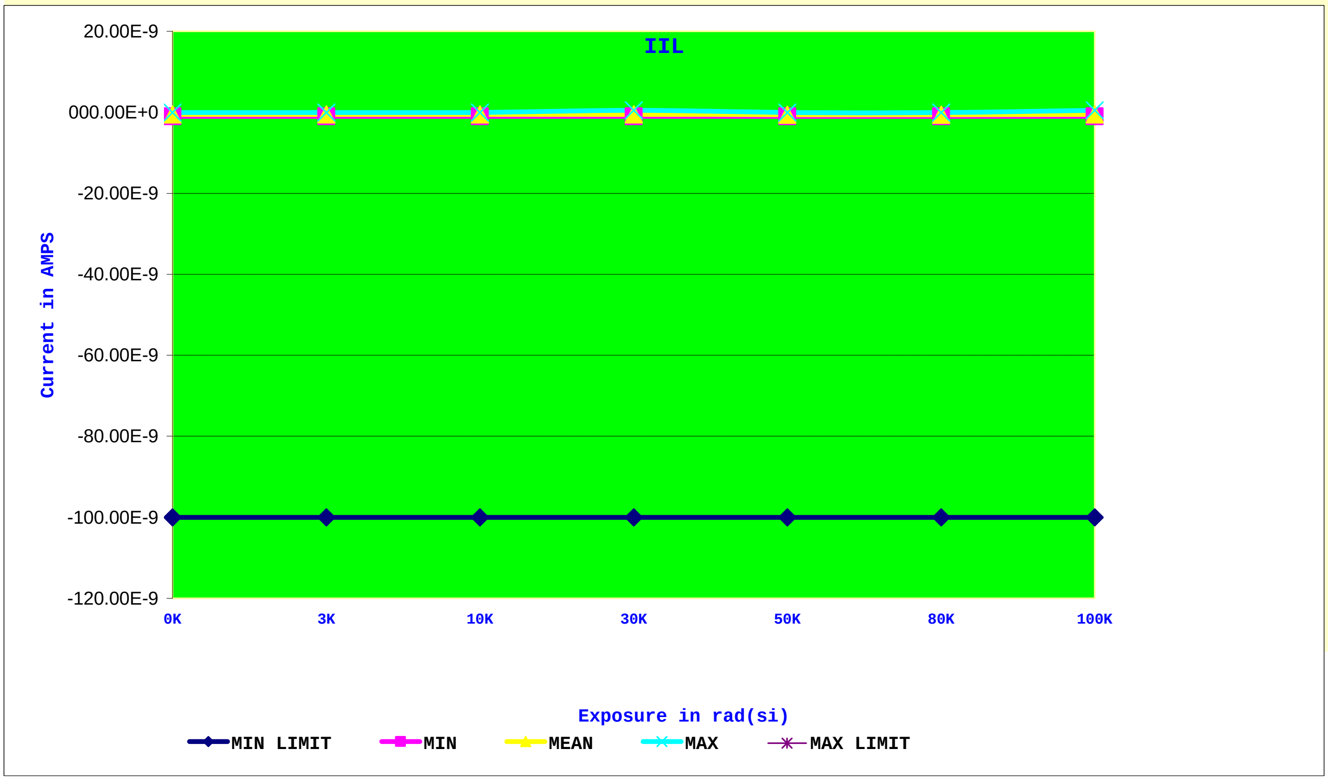
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

IIL

Statistical Data for IIL, Test Condition of 0 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-100.00E-9	-996.22E-12	-557.23E-12	-22.02E-12		-1.47E-9	359.81E-12	305.68E-12	36	000.00E+0	PASS
3K	-100.00E-9	-996.22E-12	-557.23E-12	-22.02E-12		-1.47E-9	352.51E-12	303.25E-12	36	7.22E-15	PASS
10K	-100.00E-9	-996.22E-12	-517.51E-12	-22.02E-12		-1.42E-9	381.72E-12	299.75E-12	36	39.72E-12	PASS
30K	-100.00E-9	-996.22E-12	-504.27E-12	465.79E-12		-1.56E-9	548.86E-12	351.04E-12	36	52.96E-12	PASS
50K	-100.00E-9	-996.22E-12	-596.94E-12	-22.02E-12		-1.58E-9	384.56E-12	327.17E-12	36	-39.71E-12	PASS
80K	-100.00E-9	-996.22E-12	-596.94E-12	-22.02E-12		-1.58E-9	385.89E-12	327.61E-12	36	-39.71E-12	PASS
100K	-100.00E-9	-996.22E-12	-530.75E-12	465.79E-12		-1.58E-9	519.17E-12	349.98E-12	36	26.48E-12	PASS



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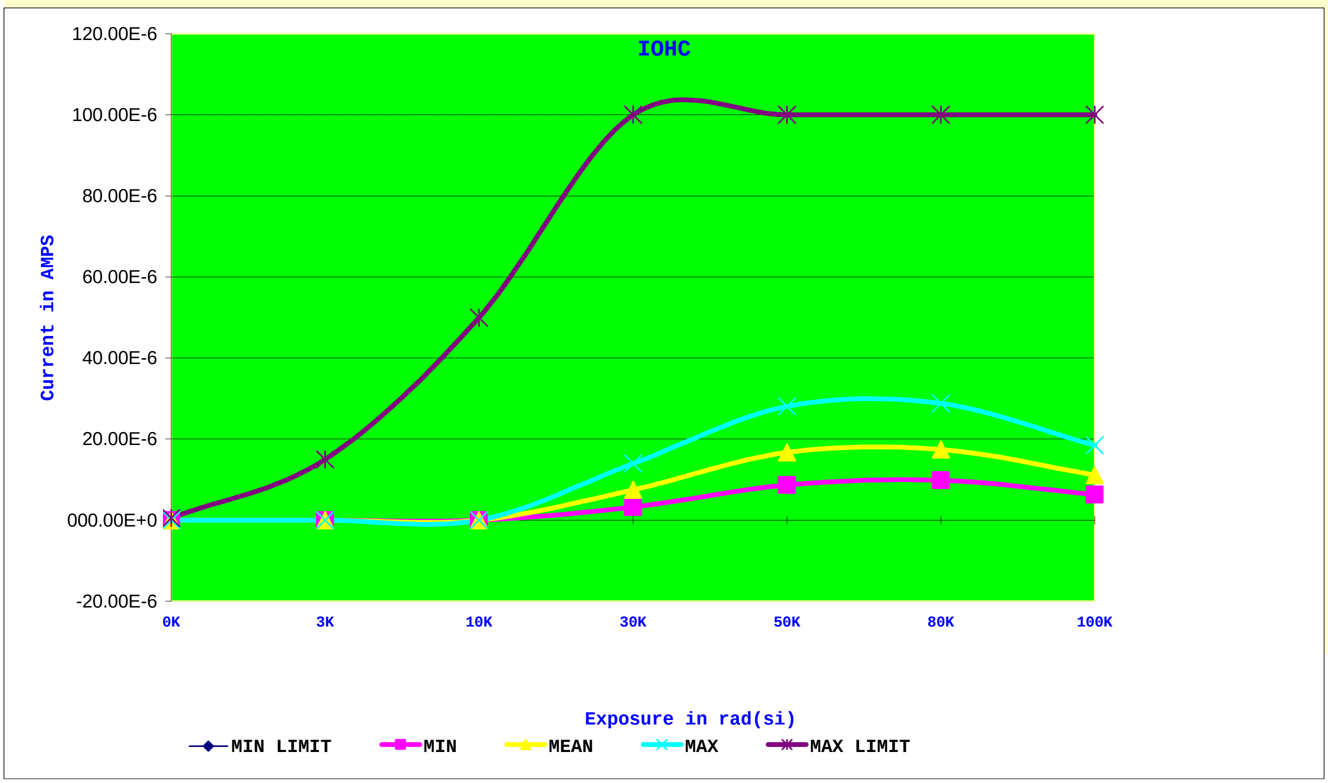
Irradiation Date:	**25-Jun-2002**	**Attenuation:**	**1.000**
Device Type:	**RM54AC05SDA**	**Wafer Run:**	**CF07ACC0**
Customer:	**Rad Qual**	**Wafer Number:**	**2**
Package:	**JCPAC014**	**Bias:**	**I=H**
Lot Number:	**TH3817C019**	**Dose Rate:**	**70.17 radSi/sec**
IPI Code:	**N/A**	**Technician:**	**L.Collins**

IOHC

Statistical Data for IOHC, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		-454.91E-12	256.92E-12	1.41E-9	500.00E-9	-909.10E-12	1.42E-9	388.67E-12	36	000.00E+0	PASS
3K		-454.91E-12	309.89E-12	1.41E-9	15.00E-6	-977.78E-12	1.60E-9	429.22E-12	36	52.97E-12	PASS
10K		1.42E-9	3.99E-9	9.52E-9	50.00E-6	-2.25E-9	10.23E-9	2.08E-9	36	3.73E-9	PASS
30K		3.18E-6	7.50E-6	13.93E-6	100.00E-6	-2.19E-6	17.18E-6	3.23E-6	36	7.50E-6	PASS
50K		8.63E-6	16.70E-6	28.11E-6	100.00E-6	-1.46E-6	34.87E-6	6.06E-6	36	16.70E-6	PASS
80K		9.88E-6	17.47E-6	28.84E-6	100.00E-6	-360.91E-9	35.29E-6	5.94E-6	36	17.46E-6	PASS
100K		6.29E-6	11.08E-6	18.46E-6	100.00E-6	-186.68E-9	22.36E-6	3.76E-6	36	11.08E-6	PASS



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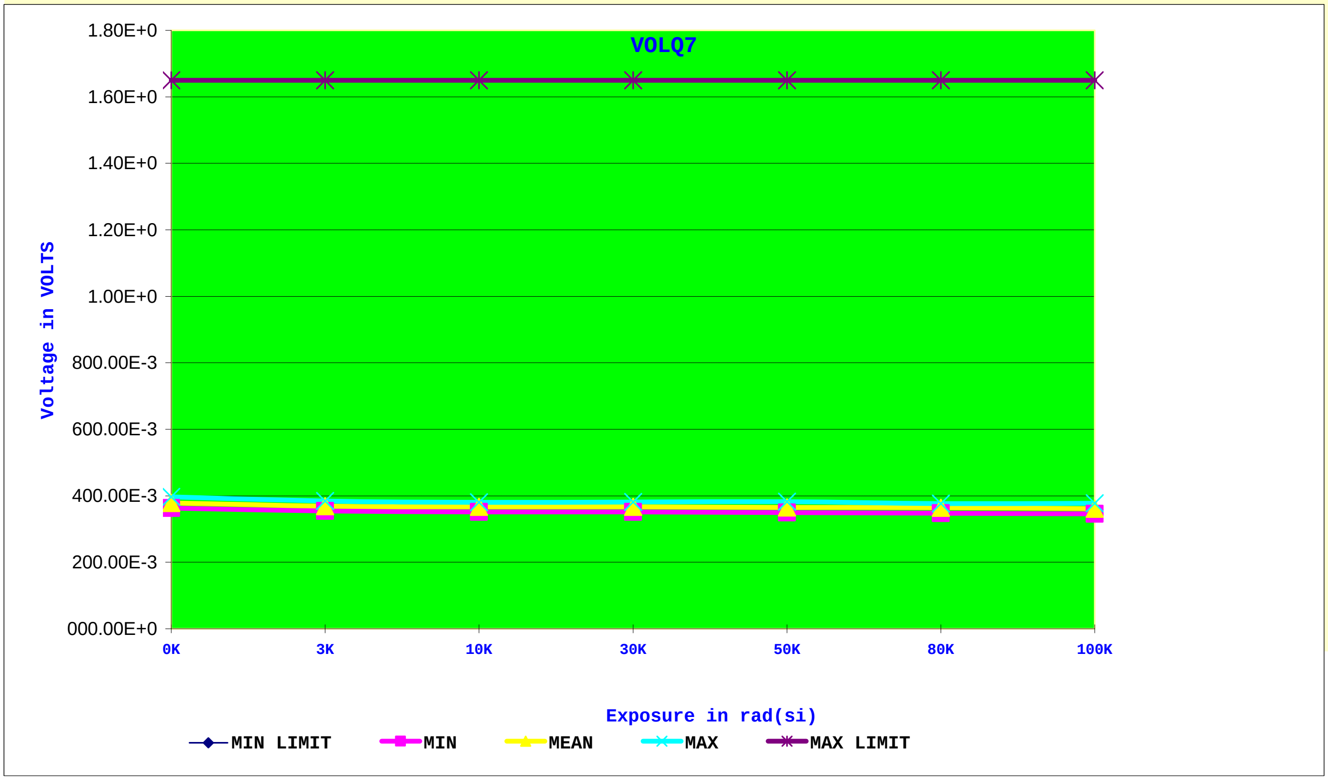
Irradiation Date:	25-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=H
Lot Number:	TH3817C019	Dose Rate:	70.17 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

VOLQ7

Statistical Data for VOLQ7, Test Condition of 0.05 AMPS, VCC=5.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		362.95E-3	378.11E-3	396.54E-3	1.65E+0	354.26E-3	401.96E-3	7.95E-3	36	000.00E+0	PASS
3K		354.19E-3	369.18E-3	384.03E-3	1.65E+0	346.34E-3	392.02E-3	7.61E-3	36	-8.93E-3	PASS
10K		351.69E-3	366.57E-3	380.28E-3	1.65E+0	344.68E-3	388.47E-3	7.30E-3	36	-11.54E-3	PASS
30K		351.69E-3	366.95E-3	381.53E-3	1.65E+0	344.42E-3	389.48E-3	7.51E-3	36	-11.16E-3	PASS
50K		349.18E-3	364.63E-3	382.78E-3	1.65E+0	340.96E-3	388.29E-3	7.89E-3	36	-13.49E-3	PASS
80K		347.93E-3	363.65E-3	376.53E-3	1.65E+0	342.66E-3	384.65E-3	7.00E-3	36	-14.46E-3	PASS
100K		345.43E-3	360.87E-3	377.78E-3	1.65E+0	337.74E-3	384.01E-3	7.71E-3	36	-17.24E-3	PASS



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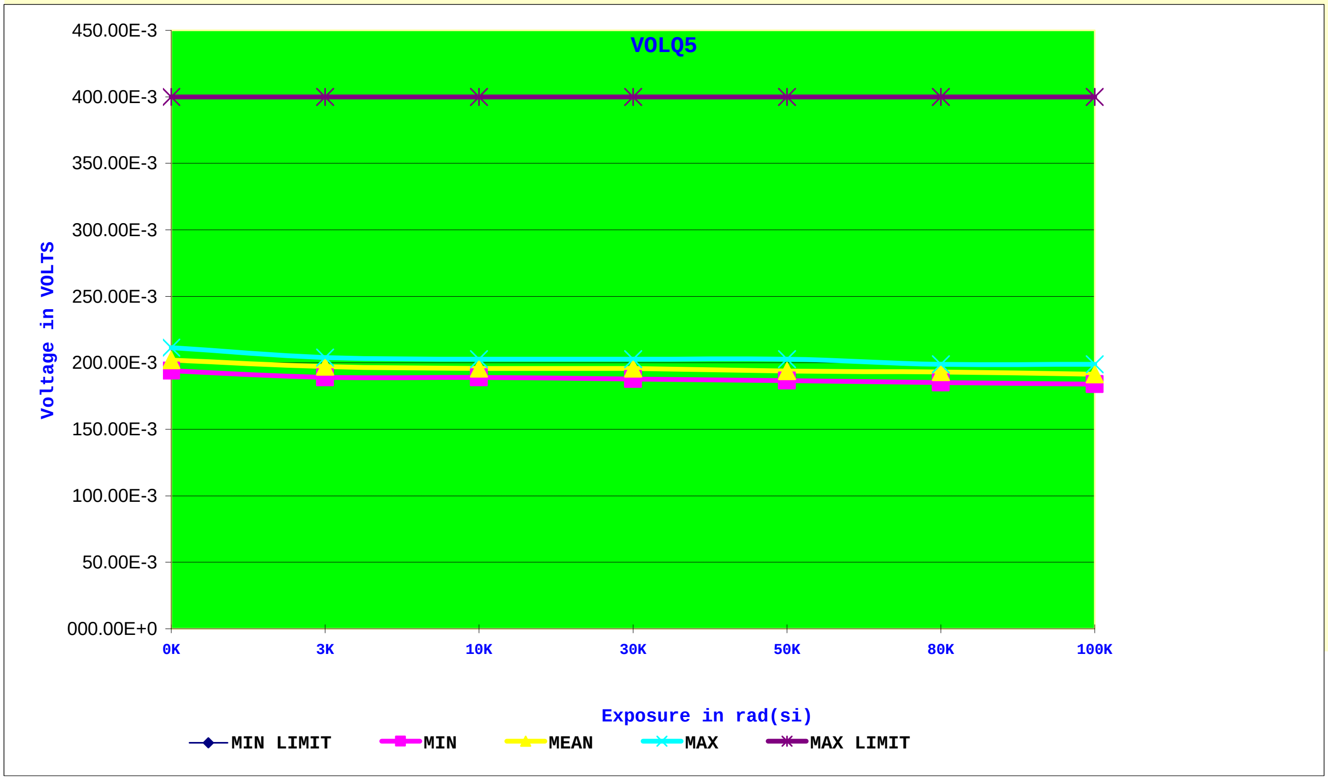
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

VOLQ5

Statistical Data for VOLQ5, Test Condition of 0.024 AMPS, VCC=4.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		193.99E-3	202.10E-3	211.41E-3	400.00E-3	190.42E-3	213.78E-3	3.89E-3	36	000.00E+0	PASS
3K		188.98E-3	197.10E-3	203.90E-3	400.00E-3	186.22E-3	207.99E-3	3.63E-3	36	-5.00E-3	PASS
10K		188.98E-3	195.75E-3	202.65E-3	400.00E-3	185.42E-3	206.08E-3	3.44E-3	36	-6.36E-3	PASS
30K		187.73E-3	195.64E-3	202.65E-3	400.00E-3	185.02E-3	206.26E-3	3.54E-3	36	-6.46E-3	PASS
50K		186.48E-3	193.94E-3	202.65E-3	400.00E-3	182.71E-3	205.17E-3	3.74E-3	36	-8.17E-3	PASS
80K		185.23E-3	193.17E-3	198.90E-3	400.00E-3	183.38E-3	202.97E-3	3.26E-3	36	-8.93E-3	PASS
100K		183.98E-3	191.40E-3	198.90E-3	400.00E-3	180.45E-3	202.35E-3	3.65E-3	36	-10.70E-3	PASS



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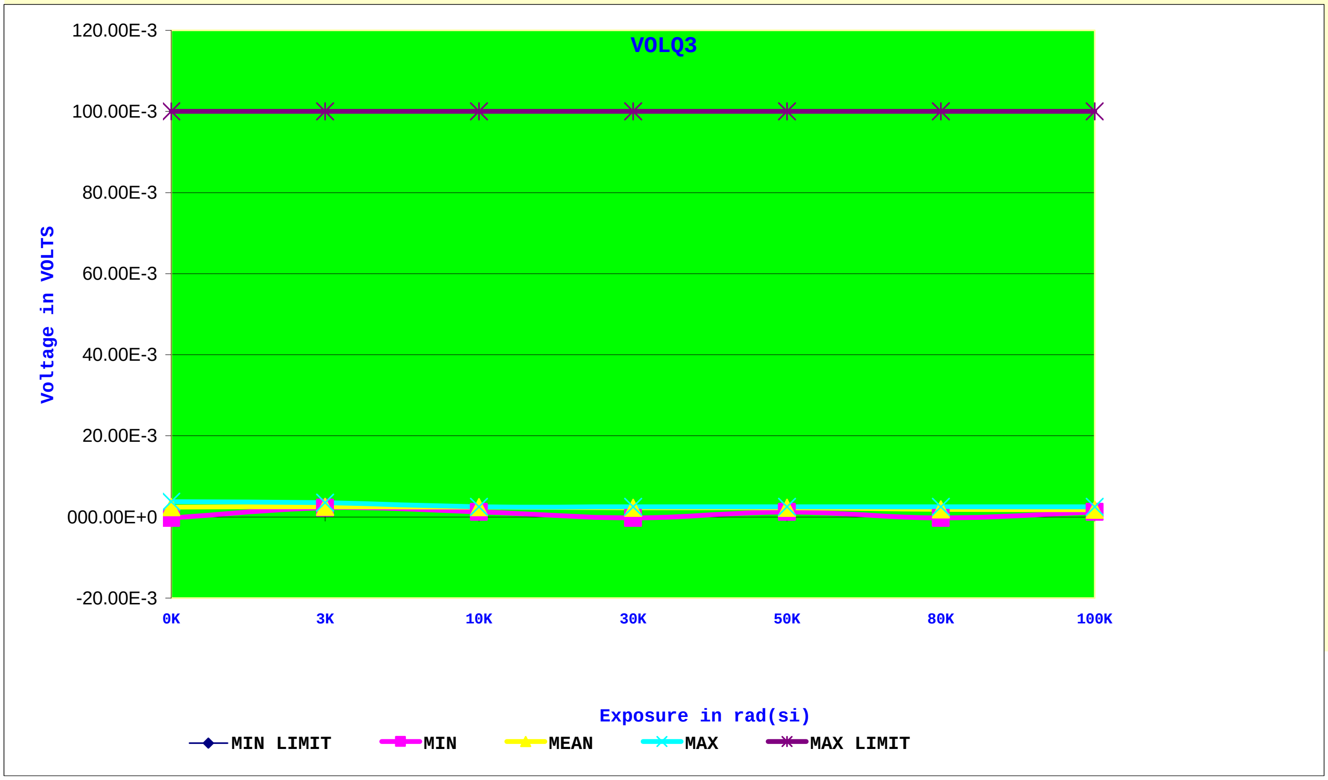
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

VOLQ3

Statistical Data for VOLQ3, Test Condition of 0.00005 AMPS, VCC=5.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		-234.60E-6	2.39E-3	3.75E-3	100.00E-3	283.19E-6	4.50E-3	703.56E-6	36	000.00E+0	PASS
3K		2.27E-3	2.50E-3	3.52E-3	100.00E-3	1.92E-3	3.08E-3	193.32E-6	36	104.26E-6	PASS
10K		1.25E-3	2.43E-3	2.50E-3	100.00E-3	1.77E-3	3.09E-3	220.32E-6	36	34.74E-6	PASS
30K		-234.60E-6	2.29E-3	2.50E-3	100.00E-3	620.79E-6	3.96E-3	556.26E-6	36	-104.31E-6	PASS
50K		1.25E-3	2.25E-3	2.50E-3	100.00E-3	864.85E-6	3.64E-3	463.31E-6	36	-139.07E-6	PASS
80K		-234.60E-6	1.87E-3	2.50E-3	100.00E-3	-466.04E-6	4.21E-3	779.51E-6	36	-521.38E-6	PASS
100K		1.25E-3	1.80E-3	2.50E-3	100.00E-3	12.77E-6	3.59E-3	596.74E-6	36	-590.88E-6	PASS



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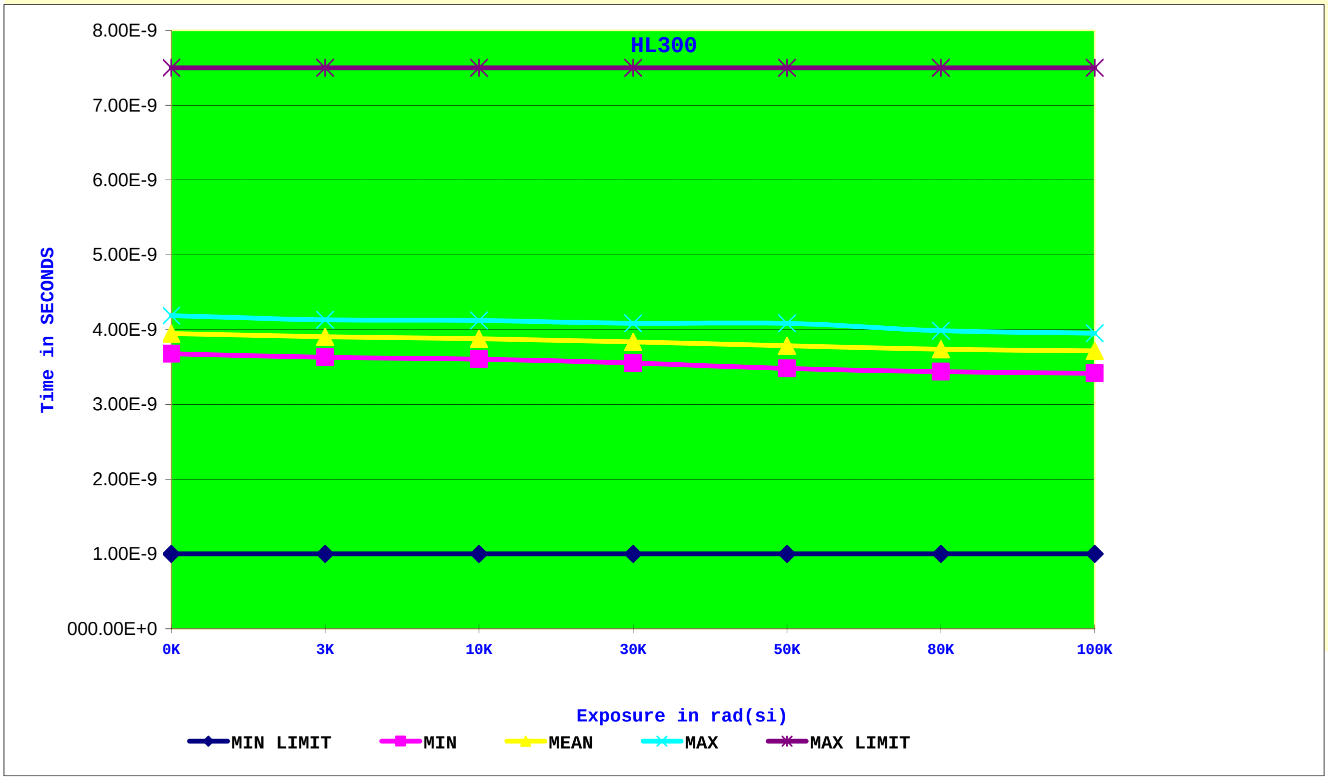
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

HL300

Statistical Data for HL300, Phase Relationship is "+-", VCC=3 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.00E-9	3.68E-9	3.95E-9	4.18E-9	7.50E-9	3.60E-9	4.30E-9	116.78E-12	36	000.00E+0	PASS
3K	1.00E-9	3.63E-9	3.90E-9	4.13E-9	7.50E-9	3.56E-9	4.25E-9	116.12E-12	36	-44.01E-12	PASS
10K	1.00E-9	3.60E-9	3.88E-9	4.12E-9	7.50E-9	3.54E-9	4.22E-9	113.10E-12	36	-70.87E-12	PASS
30K	1.00E-9	3.55E-9	3.84E-9	4.08E-9	7.50E-9	3.48E-9	4.19E-9	118.08E-12	36	-112.39E-12	PASS
50K	1.00E-9	3.48E-9	3.78E-9	4.08E-9	7.50E-9	3.41E-9	4.16E-9	125.69E-12	36	-163.44E-12	PASS
80K	1.00E-9	3.44E-9	3.74E-9	3.99E-9	7.50E-9	3.37E-9	4.10E-9	122.66E-12	36	-211.26E-12	PASS
100K	1.00E-9	3.42E-9	3.72E-9	3.95E-9	7.50E-9	3.37E-9	4.06E-9	114.99E-12	36	-232.22E-12	PASS



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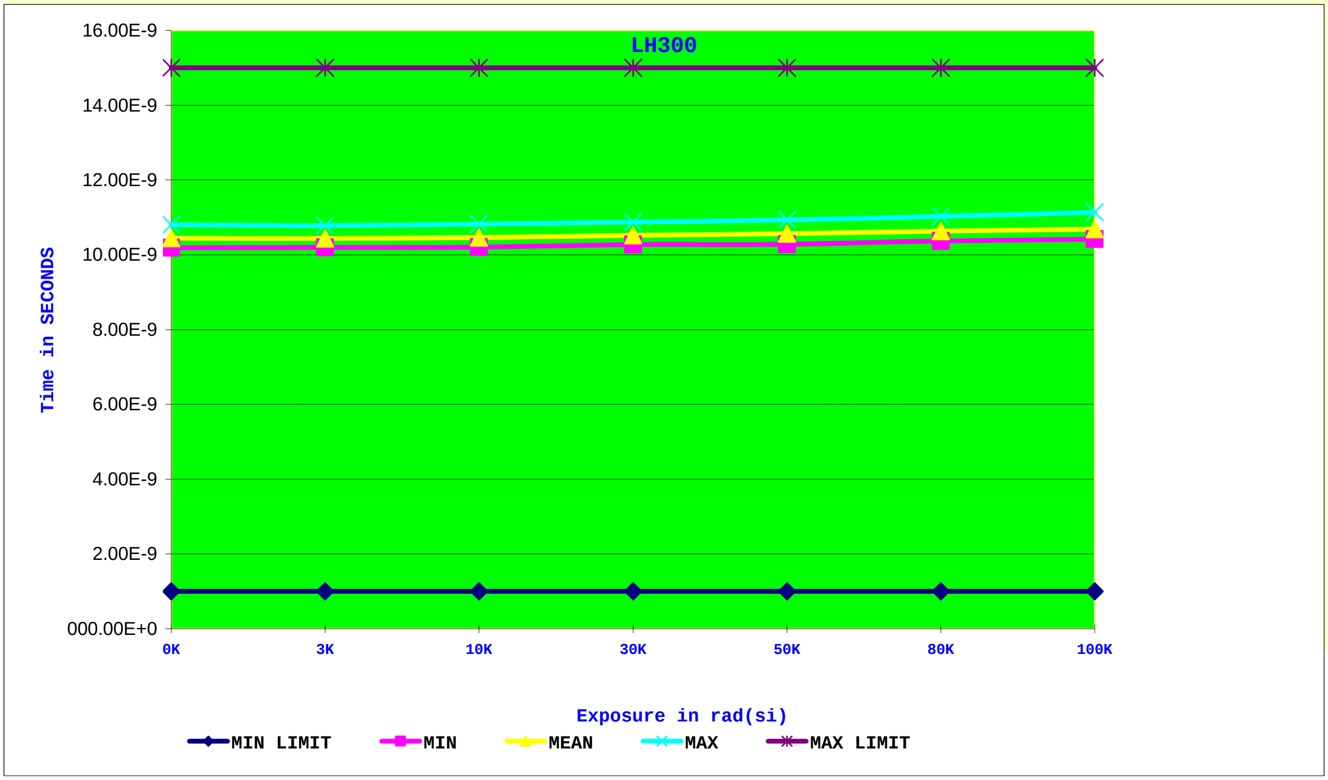
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

LH300

Statistical Data for LH300, Phase Relationship is "-+", VCC=3 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.00E-9	10.19E-9	10.45E-9	10.80E-9	15.00E-9	9.99E-9	10.90E-9	151.64E-12	36	000.00E+0	PASS
3K	1.00E-9	10.20E-9	10.44E-9	10.78E-9	15.00E-9	9.99E-9	10.89E-9	149.85E-12	36	-10.44E-12	PASS
10K	1.00E-9	10.20E-9	10.46E-9	10.82E-9	15.00E-9	10.01E-9	10.91E-9	150.57E-12	36	11.75E-12	PASS
30K	1.00E-9	10.27E-9	10.52E-9	10.87E-9	15.00E-9	10.07E-9	10.97E-9	150.66E-12	36	72.30E-12	PASS
50K	1.00E-9	10.29E-9	10.57E-9	10.93E-9	15.00E-9	10.10E-9	11.03E-9	156.00E-12	36	117.14E-12	PASS
80K	1.00E-9	10.37E-9	10.63E-9	11.02E-9	15.00E-9	10.17E-9	11.10E-9	154.29E-12	36	185.61E-12	PASS
100K	1.00E-9	10.42E-9	10.68E-9	11.14E-9	15.00E-9	10.20E-9	11.17E-9	161.26E-12	36	234.19E-12	PASS



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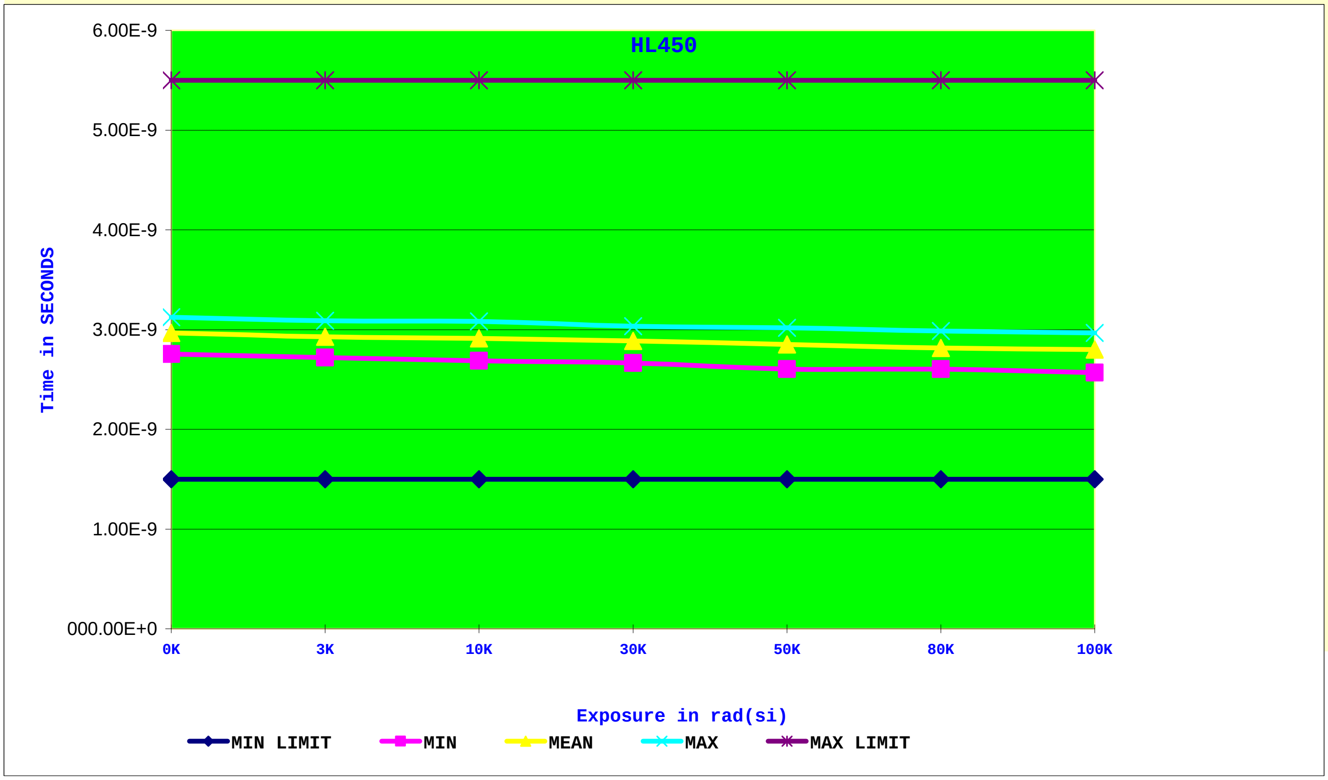
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

HL450

Statistical Data for HL450, Phase Relationship is "+-", VCC=4.5 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.50E-9	2.75E-9	2.97E-9	3.12E-9	5.50E-9	2.71E-9	3.22E-9	85.90E-12	36	000.00E+0	PASS
3K	1.50E-9	2.72E-9	2.93E-9	3.09E-9	5.50E-9	2.69E-9	3.17E-9	81.25E-12	36	-37.92E-12	PASS
10K	1.50E-9	2.69E-9	2.91E-9	3.08E-9	5.50E-9	2.65E-9	3.17E-9	86.52E-12	36	-53.73E-12	PASS
30K	1.50E-9	2.67E-9	2.89E-9	3.03E-9	5.50E-9	2.63E-9	3.14E-9	85.83E-12	36	-80.40E-12	PASS
50K	1.50E-9	2.60E-9	2.85E-9	3.02E-9	5.50E-9	2.58E-9	3.12E-9	90.37E-12	36	-115.64E-12	PASS
80K	1.50E-9	2.60E-9	2.81E-9	2.98E-9	5.50E-9	2.54E-9	3.09E-9	92.06E-12	36	-152.40E-12	PASS
100K	1.50E-9	2.57E-9	2.80E-9	2.97E-9	5.50E-9	2.54E-9	3.06E-9	87.77E-12	36	-168.01E-12	PASS



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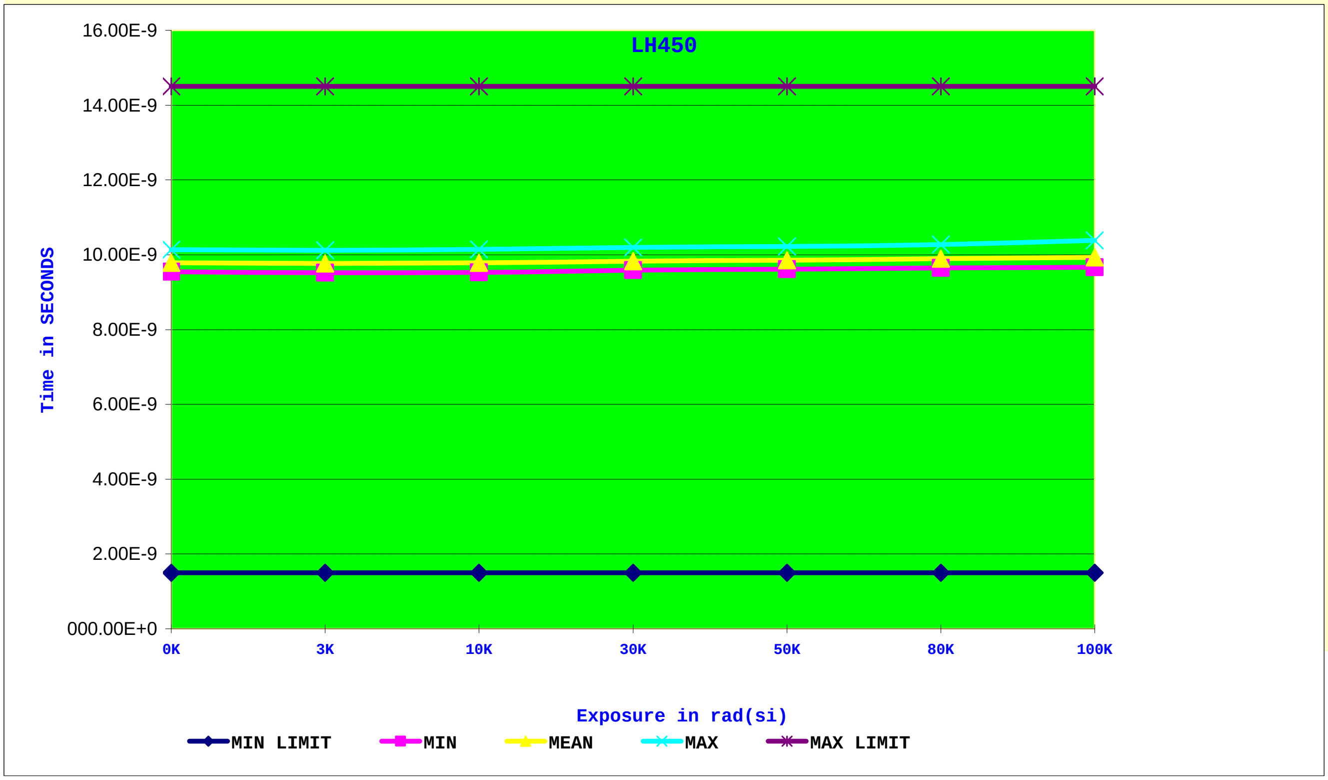
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	25-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=H
Lot Number:	TH3817C019	**Dose Rate:**	70.17 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

LH450

Statistical Data for LH450, Phase Relationship is "-+", VCC=4.5 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.50E-9	9.54E-9	9.79E-9	10.14E-9	14.50E-9	9.34E-9	10.23E-9	148.94E-12	36	000.00E+0	PASS
3K	1.50E-9	9.52E-9	9.77E-9	10.12E-9	14.50E-9	9.33E-9	10.21E-9	145.26E-12	36	-17.73E-12	PASS
10K	1.50E-9	9.53E-9	9.79E-9	10.15E-9	14.50E-9	9.34E-9	10.23E-9	147.99E-12	36	-1.73E-12	PASS
30K	1.50E-9	9.59E-9	9.83E-9	10.20E-9	14.50E-9	9.39E-9	10.27E-9	147.22E-12	36	40.00E-12	PASS
50K	1.50E-9	9.61E-9	9.85E-9	10.22E-9	14.50E-9	9.40E-9	10.30E-9	149.57E-12	36	64.55E-12	PASS
80K	1.50E-9	9.64E-9	9.90E-9	10.28E-9	14.50E-9	9.46E-9	10.34E-9	148.01E-12	36	111.62E-12	PASS
100K	1.50E-9	9.66E-9	9.93E-9	10.38E-9	14.50E-9	9.46E-9	10.40E-9	157.19E-12	36	139.81E-12	PASS



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Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	26-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=L
Lot Number:	TH3817C019	Dose Rate:	70.14 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

Summarized RHA Test Results

PROGRAM	REVISION	SPECNAME	STATUS	EXPOSURE
Z005JAN	5	RHA-PRE	PASSED	0K
Z005JAN	5	RHA-3K	PASSED	3K
Z005JAN	5	RHA-10K	PASSED	10K
Z005JAN	5	RHA-100K-ANN	PASSED	30K
Z005JAN	5	RHA-100K-ANN	PASSED	50K
Z005JAN	5	RHA-100K-ANN	PASSED	80K
Z005JAN	5	RHA-100K-ANN	PASSED	100K

*** EXCEEDED POST IRRADIATION PARAMETRIC LIMITS, REQUIRES EXTENDED ROOM ANNEAL.

This lot PASSES per Mil Std 883 Method 1019

DISCLAIMER:

The results reported are representative only of the lot tested in this specific sample and should not be used as generic RHA qualification data for any similar products not Radiation Certified by National Semiconductor Corporation.

National Semiconductor uses different process flows for different product qualification levels and National Semiconductor will not guarantee the RHA performance of any product unless National Semiconductor has tested and certified the specific manufacturing lot.

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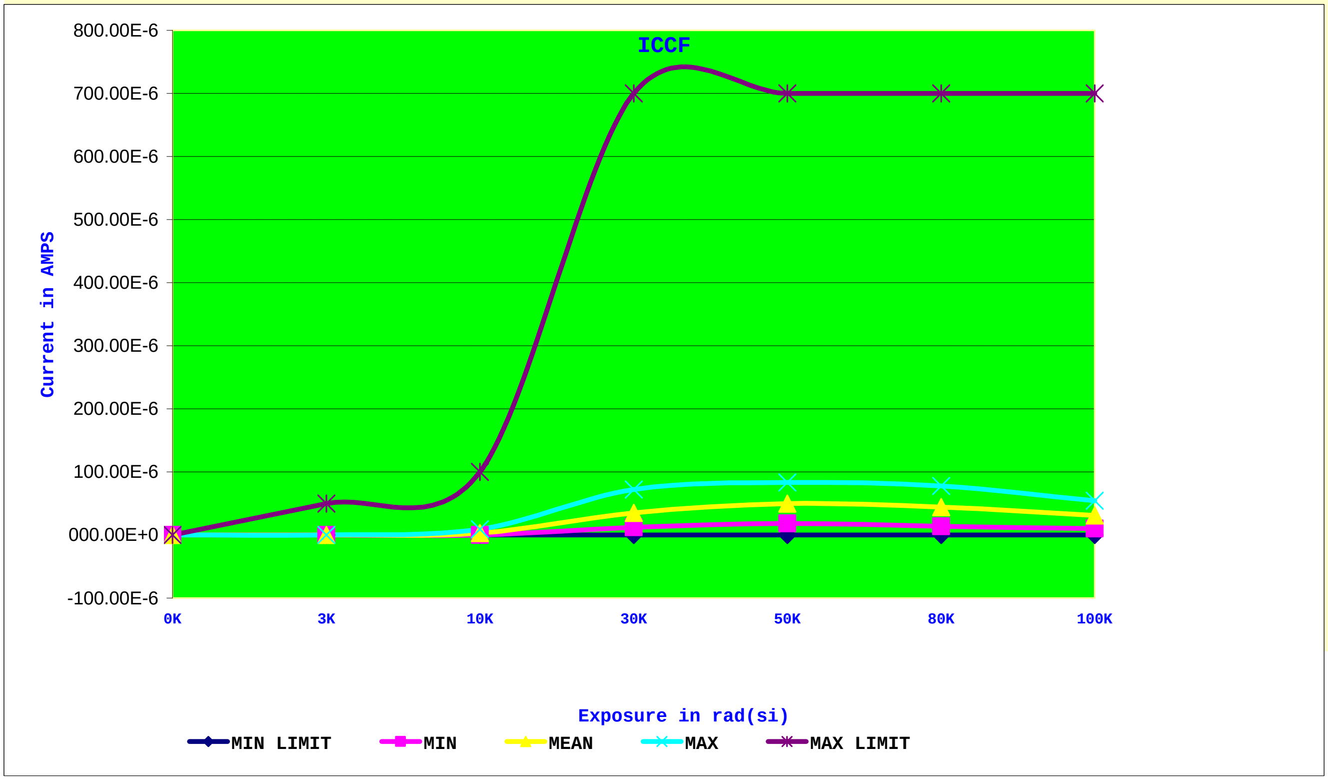
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	**26-Jun-2002**	**Attenuation:**	**1.000**
Device Type:	**RM54AC05SDA**	**Wafer Run:**	**CF07ACC0**
Customer:	**Rad Qual**	**Wafer Number:**	**2**
Package:	**JCPAC014**	**Bias:**	**I=L**
Lot Number:	**TH3817C019**	**Dose Rate:**	**70.14 radSi/sec**
IPI Code:	**N/A**	**Technician:**	**L.Collins**

ICCF

Statistical Data for ICCF, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	953.17E-12	1.43E-9	1.91E-9	90.00E-9	397.03E-12	2.46E-9	344.23E-12	24	000.00E+0	PASS
3K	-50.00E-9	476.58E-12	2.84E-9	7.15E-9	50.00E-6	-2.70E-9	8.38E-9	1.85E-9	24	1.41E-9	PASS
10K	-50.00E-9	6.20E-9	2.98E-6	8.98E-6	100.00E-6	-4.66E-6	10.62E-6	2.55E-6	24	2.98E-6	PASS
30K	-50.00E-9	12.40E-6	35.16E-6	71.98E-6	700.00E-6	-14.02E-6	84.34E-6	16.39E-6	24	35.16E-6	PASS
50K	-50.00E-9	18.09E-6	49.72E-6	83.10E-6	700.00E-6	-6.23E-6	105.67E-6	18.65E-6	24	49.72E-6	PASS
80K	-50.00E-9	13.69E-6	44.34E-6	77.85E-6	700.00E-6	-9.98E-6	98.65E-6	18.11E-6	24	44.33E-6	PASS
100K	-50.00E-9	9.91E-6	30.74E-6	54.14E-6	700.00E-6	-7.76E-6	69.25E-6	12.84E-6	24	30.74E-6	PASS



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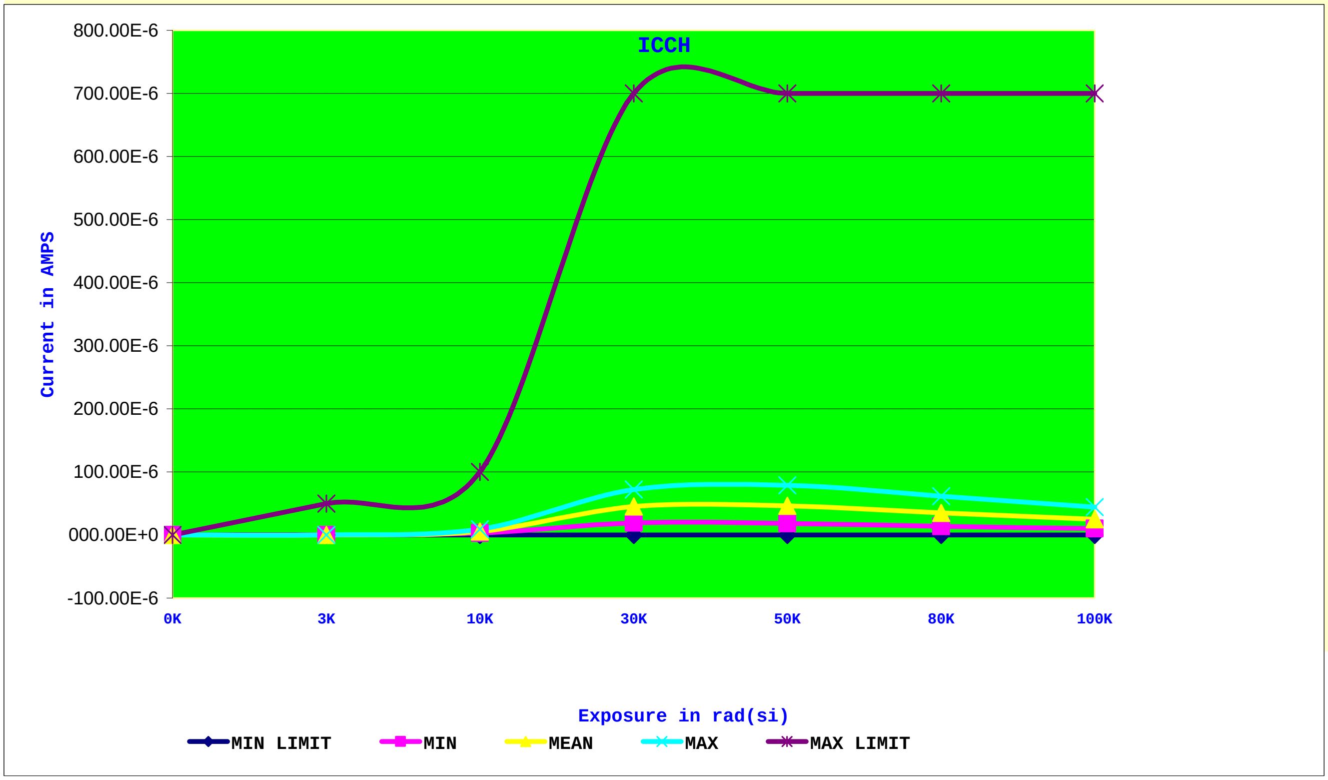
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

ICCH

Statistical Data for ICCH, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	953.17E-12	1.59E-9	1.91E-9	90.00E-9	421.22E-12	2.76E-9	389.12E-12	6	000.00E+0	PASS
3K	-50.00E-9	4.29E-9	5.16E-9	6.67E-9	50.00E-6	1.98E-9	8.35E-9	1.06E-9	6	3.57E-9	PASS
10K	-50.00E-9	3.11E-6	5.67E-6	8.92E-6	100.00E-6	-851.69E-9	12.18E-6	2.17E-6	6	5.66E-6	PASS
30K	-50.00E-9	19.18E-6	44.93E-6	72.11E-6	700.00E-6	-13.49E-6	103.36E-6	19.47E-6	6	44.93E-6	PASS
50K	-50.00E-9	18.21E-6	46.17E-6	78.58E-6	700.00E-6	-19.29E-6	111.64E-6	21.82E-6	6	46.17E-6	PASS
80K	-50.00E-9	13.81E-6	35.20E-6	61.59E-6	700.00E-6	-16.43E-6	86.82E-6	17.21E-6	6	35.19E-6	PASS
100K	-50.00E-9	9.95E-6	24.86E-6	44.00E-6	700.00E-6	-11.57E-6	61.29E-6	12.14E-6	6	24.85E-6	PASS



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Microcircuit Performance Radiation Report
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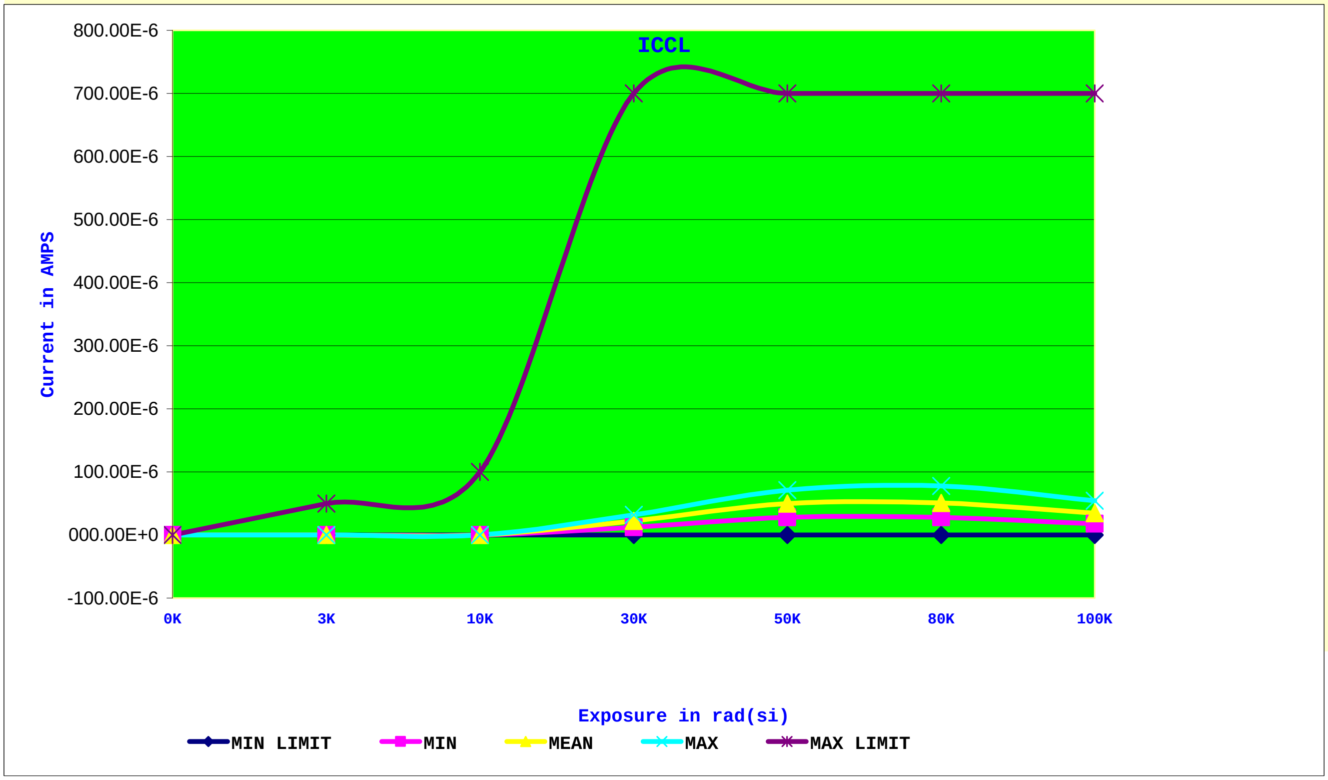
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

ICCL

Statistical Data for ICCL, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-50.00E-9	953.17E-12	1.27E-9	1.43E-9	90.00E-9	532.62E-12	2.01E-9	246.08E-12	6	000.00E+0	PASS
3K	-50.00E-9	476.58E-12	635.44E-12	953.17E-12	50.00E-6	-102.89E-12	1.37E-9	246.11E-12	6	-635.41E-12	PASS
10K	-50.00E-9	5.72E-9	8.26E-9	12.39E-9	100.00E-6	877.71E-12	15.64E-9	2.46E-9	6	6.99E-9	PASS
30K	-50.00E-9	12.36E-6	22.37E-6	31.77E-6	700.00E-6	218.99E-9	44.51E-6	7.38E-6	6	22.36E-6	PASS
50K	-50.00E-9	28.11E-6	49.68E-6	71.25E-6	700.00E-6	3.00E-6	96.35E-6	15.56E-6	6	49.68E-6	PASS
80K	-50.00E-9	27.74E-6	50.55E-6	77.85E-6	700.00E-6	-2.79E-6	103.89E-6	17.78E-6	6	50.55E-6	PASS
100K	-50.00E-9	17.60E-6	34.38E-6	54.14E-6	700.00E-6	-4.42E-6	73.18E-6	12.93E-6	6	34.38E-6	PASS



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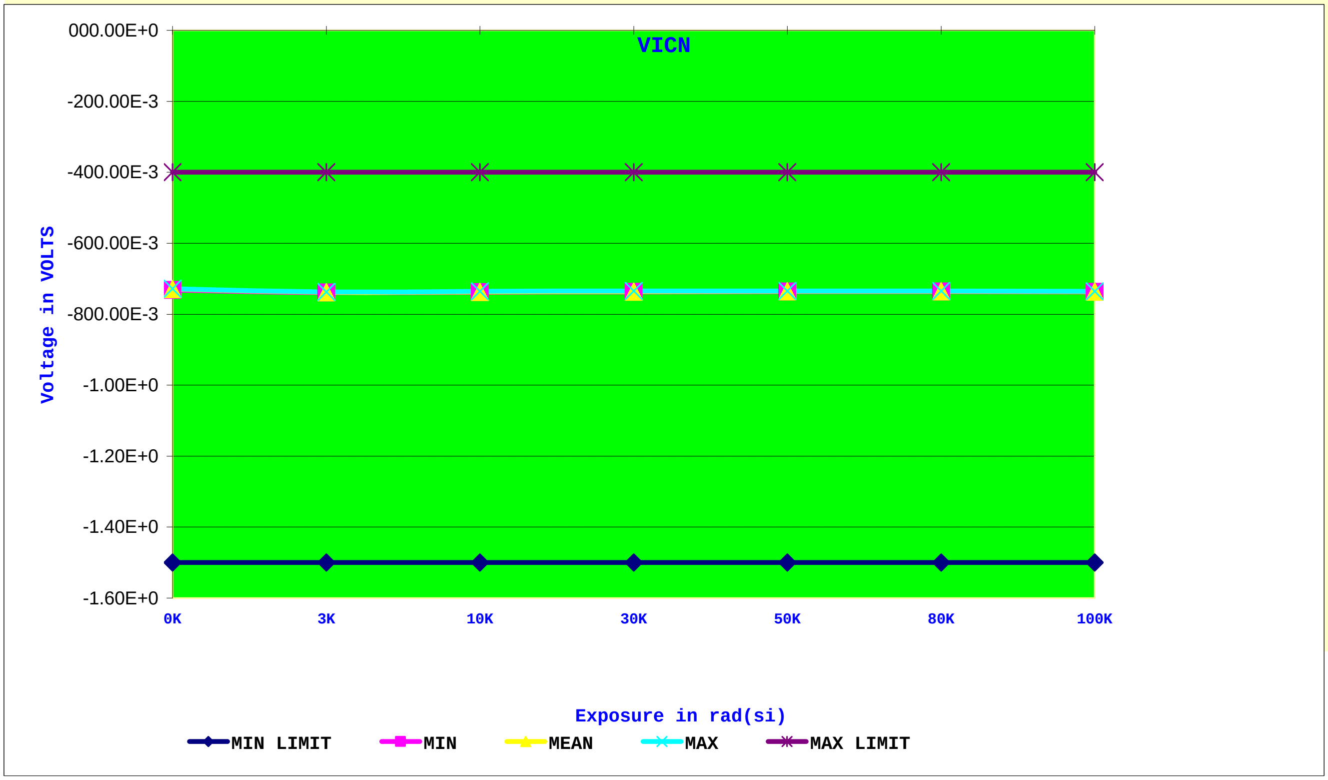
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

VICN

Statistical Data for VICN, Test Condition of -0.001 AMPS, VCC=0 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-1.50E+0	-731.48E-3	-729.33E-3	-728.22E-3	-400.00E-3	-731.84E-3	-726.81E-3	838.63E-6	36	000.00E+0	PASS
3K	-1.50E+0	-739.11E-3	-738.19E-3	-736.98E-3	-400.00E-3	-740.25E-3	-736.13E-3	686.69E-6	36	-8.86E-3	PASS
10K	-1.50E+0	-738.23E-3	-737.04E-3	-735.73E-3	-400.00E-3	-739.03E-3	-735.05E-3	662.63E-6	36	-7.71E-3	PASS
30K	-1.50E+0	-736.98E-3	-735.93E-3	-734.50E-3	-400.00E-3	-737.51E-3	-734.35E-3	525.86E-6	36	-6.60E-3	PASS
50K	-1.50E+0	-736.61E-3	-735.83E-3	-734.48E-3	-400.00E-3	-737.47E-3	-734.18E-3	547.25E-6	36	-6.50E-3	PASS
80K	-1.50E+0	-736.61E-3	-735.55E-3	-734.48E-3	-400.00E-3	-737.76E-3	-733.34E-3	735.57E-6	36	-6.22E-3	PASS
100K	-1.50E+0	-737.73E-3	-736.17E-3	-735.73E-3	-400.00E-3	-737.72E-3	-734.63E-3	514.08E-6	36	-6.85E-3	PASS



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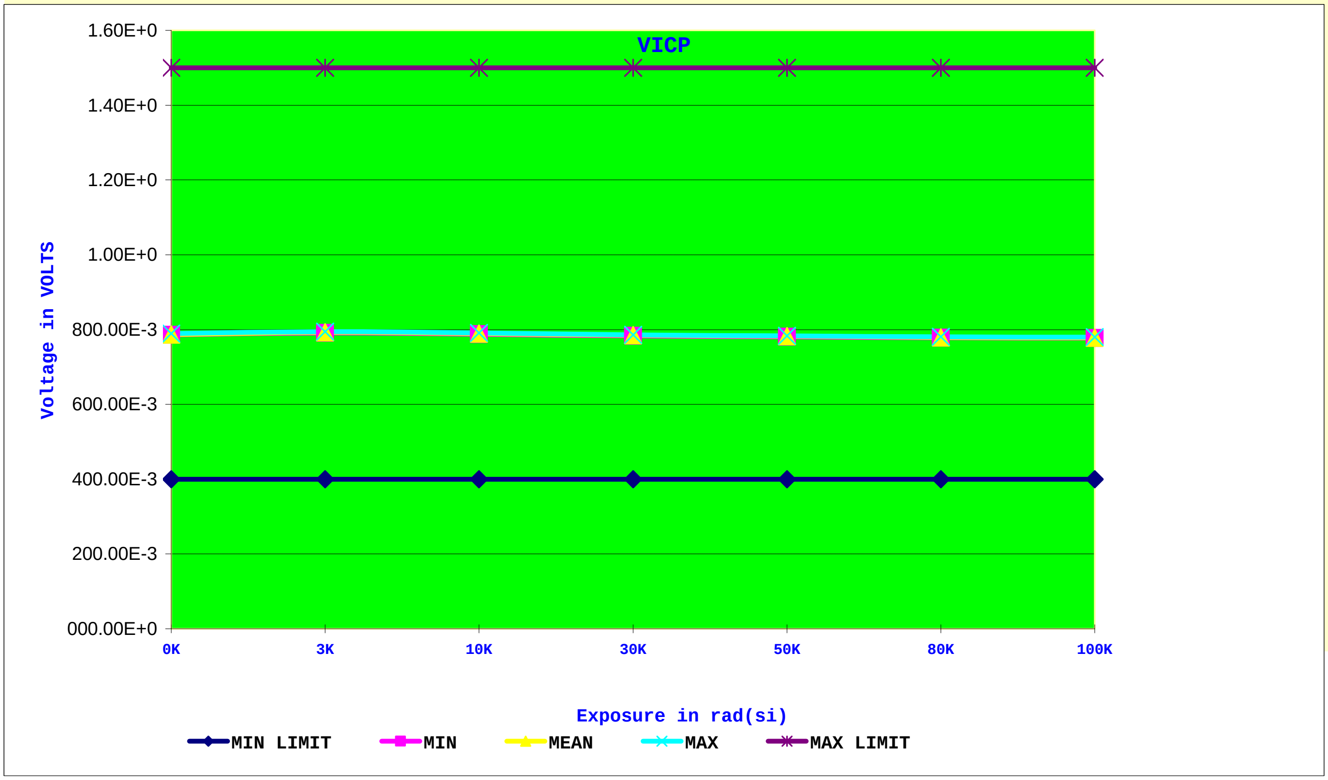
Irradiation Date:	26-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=L
Lot Number:	TH3817C019	Dose Rate:	70.14 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

VICP

Statistical Data for VICP, Test Condition of 0.001 AMPS, VCC=0 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	400.00E-3	785.78E-3	787.12E-3	789.53E-3	1.50E+0	784.55E-3	789.69E-3	857.48E-6	36	000.00E+0	PASS
3K	400.00E-3	790.90E-3	792.54E-3	794.54E-3	1.50E+0	790.34E-3	794.75E-3	735.91E-6	36	5.42E-3	PASS
10K	400.00E-3	787.89E-3	789.17E-3	790.78E-3	1.50E+0	787.10E-3	791.25E-3	691.84E-6	36	2.05E-3	PASS
30K	400.00E-3	783.30E-3	784.66E-3	785.80E-3	1.50E+0	782.59E-3	786.72E-3	688.87E-6	36	-2.47E-3	PASS
50K	400.00E-3	780.89E-3	782.22E-3	783.47E-3	1.50E+0	780.18E-3	784.27E-3	681.50E-6	36	-4.90E-3	PASS
80K	400.00E-3	777.88E-3	779.02E-3	780.77E-3	1.50E+0	776.88E-3	781.17E-3	714.29E-6	36	-8.10E-3	PASS
100K	400.00E-3	777.02E-3	778.16E-3	779.54E-3	1.50E+0	775.89E-3	780.43E-3	756.61E-6	36	-8.97E-3	PASS



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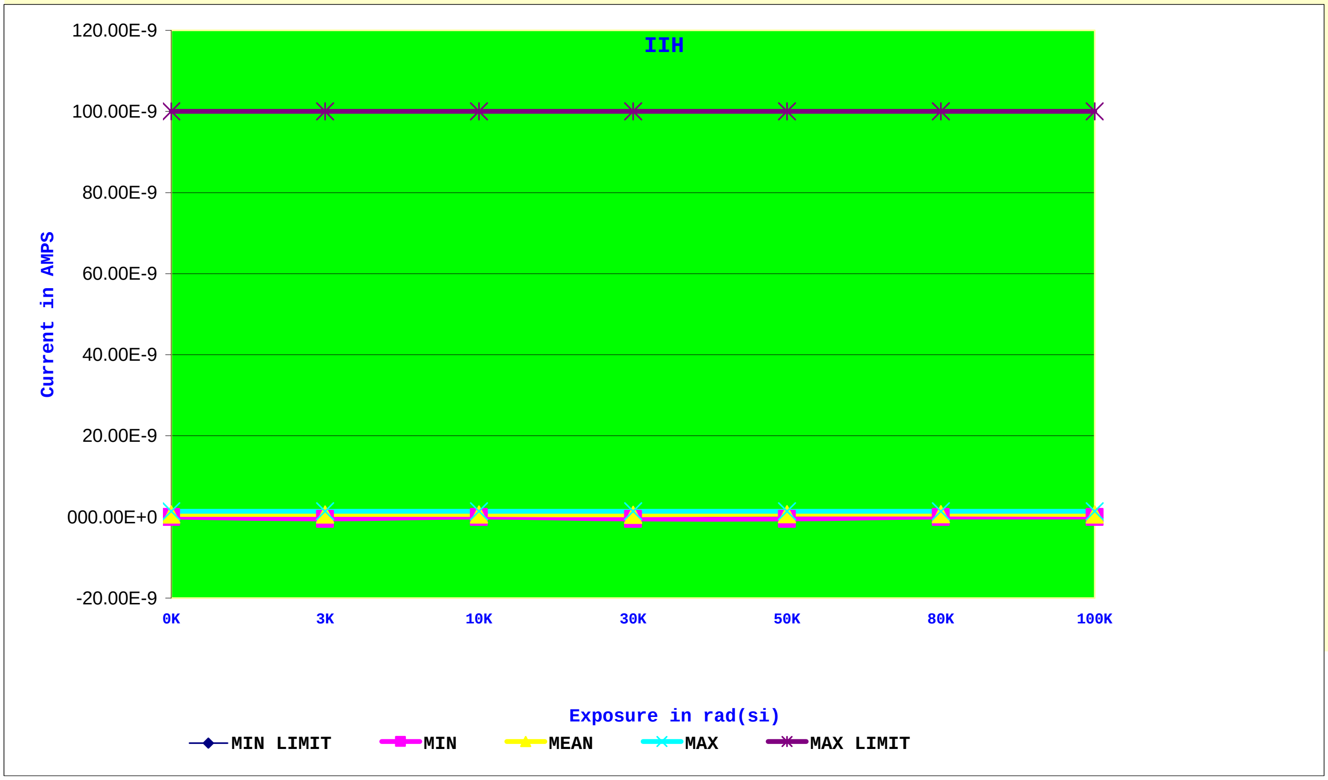
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

IIH

Statistical Data for IIH, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		000.00E+0	647.59E-12	1.41E-9	100.00E-9	-517.23E-12	1.81E-9	388.27E-12	36	000.00E+0	PASS
3K		-476.48E-12	621.11E-12	1.41E-9	100.00E-9	-760.61E-12	2.00E-9	460.57E-12	36	-26.48E-12	PASS
10K		000.00E+0	647.59E-12	1.41E-9	100.00E-9	-618.75E-12	1.91E-9	422.11E-12	36	-1.61E-15	PASS
30K		-476.48E-12	528.43E-12	1.41E-9	100.00E-9	-816.67E-12	1.87E-9	448.37E-12	36	-119.16E-12	PASS
50K		-476.48E-12	687.30E-12	1.41E-9	100.00E-9	-670.26E-12	2.04E-9	452.52E-12	36	39.72E-12	PASS
80K		000.00E+0	687.31E-12	1.41E-9	100.00E-9	-631.63E-12	2.01E-9	439.65E-12	36	39.73E-12	PASS
100K		000.00E+0	634.36E-12	1.41E-9	100.00E-9	-671.44E-12	1.94E-9	435.27E-12	36	-13.22E-12	PASS



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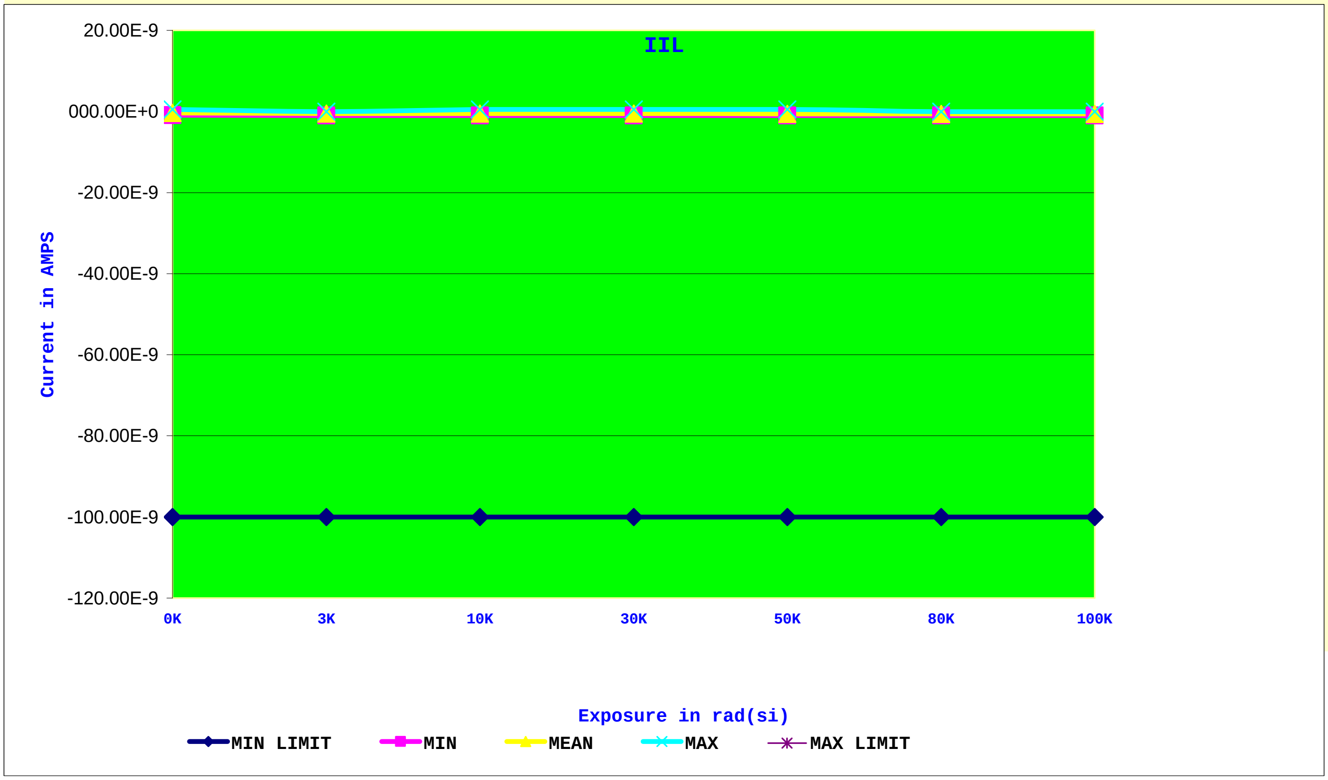
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

IIL

Statistical Data for IIL, Test Condition of 0 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	-100.00E-9	-964.15E-12	-398.37E-12	465.79E-12		-1.29E-9	489.99E-12	296.12E-12	36	000.00E+0	PASS
3K	-100.00E-9	-996.22E-12	-517.52E-12	-21.63E-12		-1.42E-9	387.64E-12	301.72E-12	36	-119.15E-12	PASS
10K	-100.00E-9	-996.22E-12	-543.98E-12	465.79E-12		-1.61E-9	521.47E-12	355.15E-12	36	-145.61E-12	PASS
30K	-100.00E-9	-996.22E-12	-517.51E-12	465.79E-12		-1.54E-9	508.60E-12	342.04E-12	36	-119.14E-12	PASS
50K	-100.00E-9	-996.22E-12	-583.71E-12	465.79E-12		-1.60E-9	434.42E-12	339.38E-12	36	-185.34E-12	PASS
80K	-100.00E-9	-996.22E-12	-583.71E-12	-22.02E-12		-1.48E-9	316.78E-12	300.16E-12	36	-185.34E-12	PASS
100K	-100.00E-9	-996.22E-12	-570.47E-12	-22.02E-12		-1.45E-9	309.54E-12	293.34E-12	36	-172.10E-12	PASS



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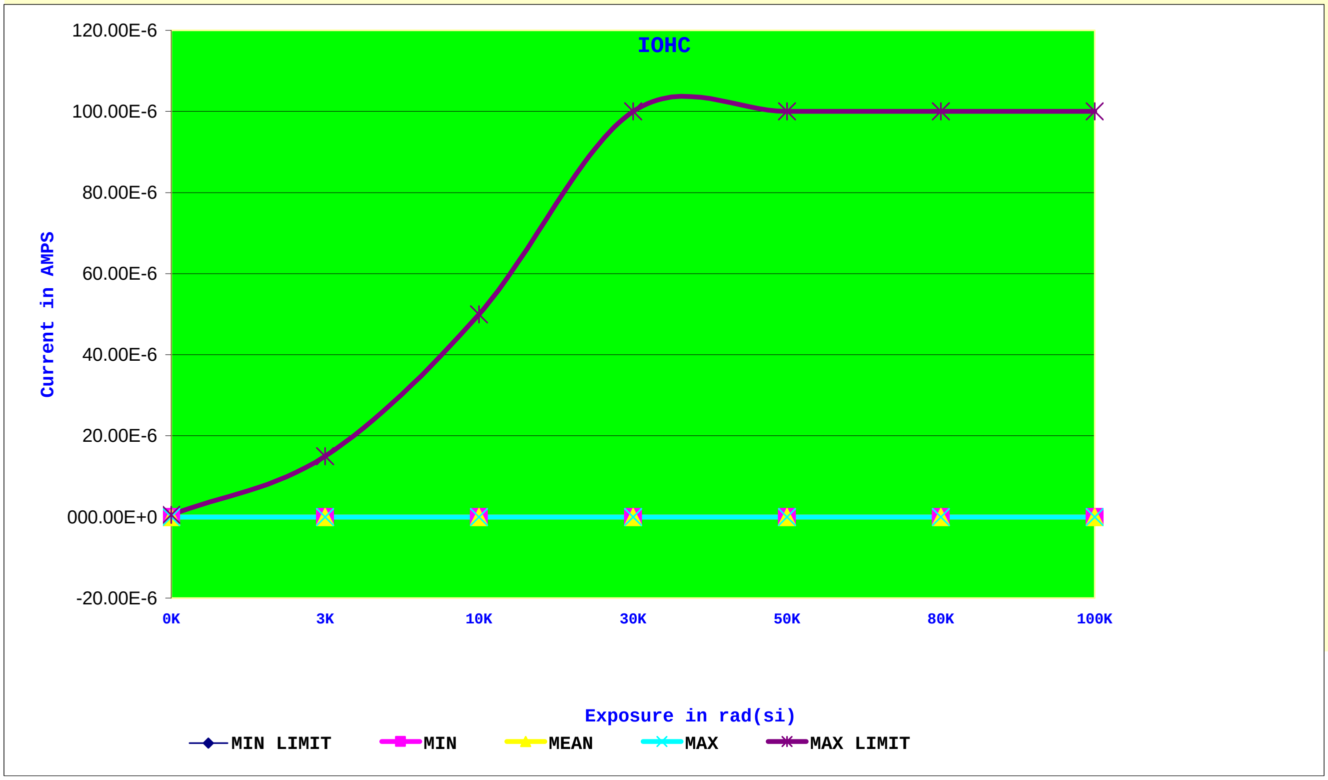
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

IOHC

Statistical Data for IOHC, Test Condition of 5.5 VOLTS, VCC=5.5 VOLTS. Measured Values are in AMPS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		-454.91E-12	376.08E-12	952.78E-12	500.00E-9	-778.33E-12	1.53E-9	384.80E-12	36	000.00E+0	PASS
3K		-487.34E-12	349.61E-12	1.41E-9	15.00E-6	-835.66E-12	1.53E-9	395.09E-12	36	-26.47E-12	PASS
10K		-931.58E-12	323.11E-12	952.78E-12	50.00E-6	-1.13E-9	1.77E-9	483.09E-12	36	-52.97E-12	PASS
30K		-454.91E-12	389.33E-12	1.41E-9	100.00E-6	-929.19E-12	1.71E-9	439.51E-12	36	13.25E-12	PASS
50K		-454.91E-12	733.57E-12	1.89E-9	100.00E-6	-747.50E-12	2.21E-9	493.69E-12	36	357.49E-12	PASS
80K		942.35E-12	1.98E-9	3.32E-9	100.00E-6	352.41E-12	3.60E-9	541.90E-12	36	1.60E-9	PASS
100K		2.39E-9	4.04E-9	5.22E-9	100.00E-6	1.91E-9	6.18E-9	711.33E-12	36	3.67E-9	PASS



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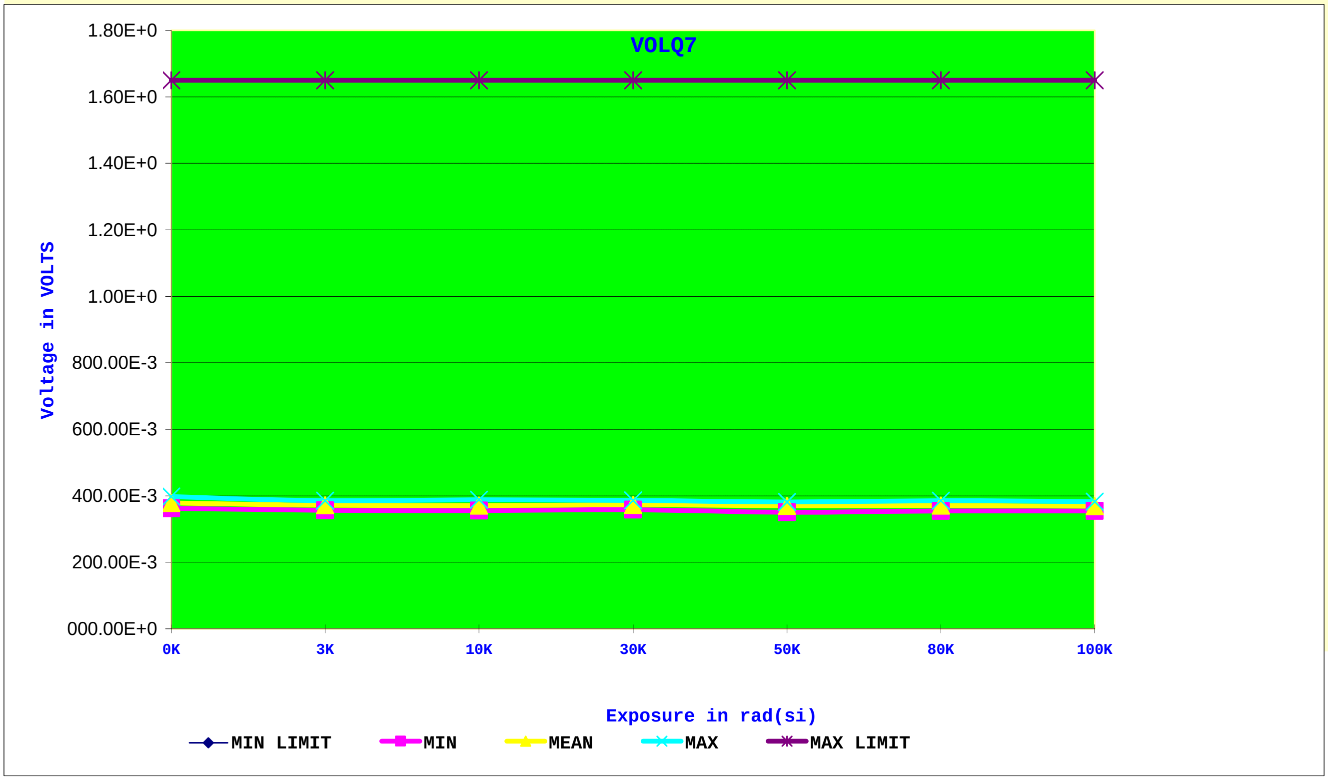
Irradiation Date:	26-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=L
Lot Number:	TH3817C019	Dose Rate:	70.14 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

VOLQ7

Statistical Data for VOLQ7, Test Condition of 0.05 AMPS, VCC=5.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		361.70E-3	378.15E-3	397.79E-3	1.65E+0	354.08E-3	402.21E-3	8.02E-3	36	000.00E+0	PASS
3K		356.69E-3	371.54E-3	385.28E-3	1.65E+0	349.69E-3	393.40E-3	7.29E-3	36	-6.60E-3	PASS
10K		355.44E-3	370.43E-3	387.79E-3	1.65E+0	348.41E-3	392.45E-3	7.34E-3	36	-7.72E-3	PASS
30K		357.94E-3	372.38E-3	386.54E-3	1.65E+0	351.46E-3	393.29E-3	6.97E-3	36	-5.77E-3	PASS
50K		350.43E-3	369.42E-3	381.53E-3	1.65E+0	346.83E-3	392.01E-3	7.53E-3	36	-8.72E-3	PASS
80K		354.19E-3	370.57E-3	385.28E-3	1.65E+0	348.30E-3	392.84E-3	7.42E-3	36	-7.58E-3	PASS
100K		354.19E-3	368.45E-3	382.78E-3	1.65E+0	347.76E-3	389.14E-3	6.90E-3	36	-9.70E-3	PASS



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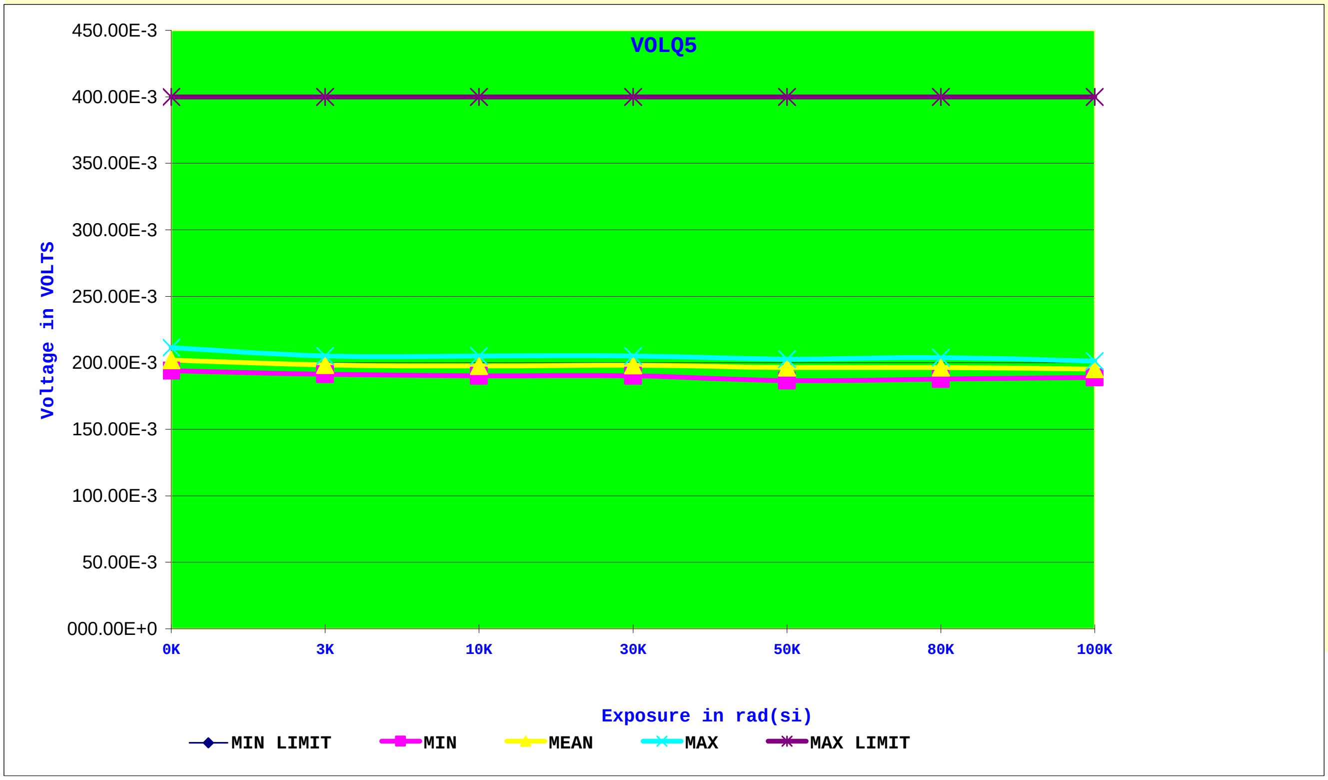
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

VOLQ5

Statistical Data for VOLQ5, Test Condition of 0.024 AMPS, VCC=4.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		193.99E-3	202.07E-3	211.41E-3	400.00E-3	190.73E-3	213.41E-3	3.78E-3	36	000.00E+0	PASS
3K		191.49E-3	198.42E-3	205.15E-3	400.00E-3	188.21E-3	208.63E-3	3.40E-3	36	-3.65E-3	PASS
10K		190.24E-3	197.62E-3	205.15E-3	400.00E-3	187.44E-3	207.80E-3	3.39E-3	36	-4.45E-3	PASS
30K		190.24E-3	198.11E-3	205.15E-3	400.00E-3	188.32E-3	207.90E-3	3.26E-3	36	-3.96E-3	PASS
50K		186.48E-3	196.48E-3	202.65E-3	400.00E-3	185.69E-3	207.26E-3	3.60E-3	36	-5.59E-3	PASS
80K		187.73E-3	196.44E-3	203.90E-3	400.00E-3	186.01E-3	206.87E-3	3.48E-3	36	-5.63E-3	PASS
100K		188.98E-3	195.22E-3	201.40E-3	400.00E-3	185.71E-3	204.74E-3	3.17E-3	36	-6.84E-3	PASS



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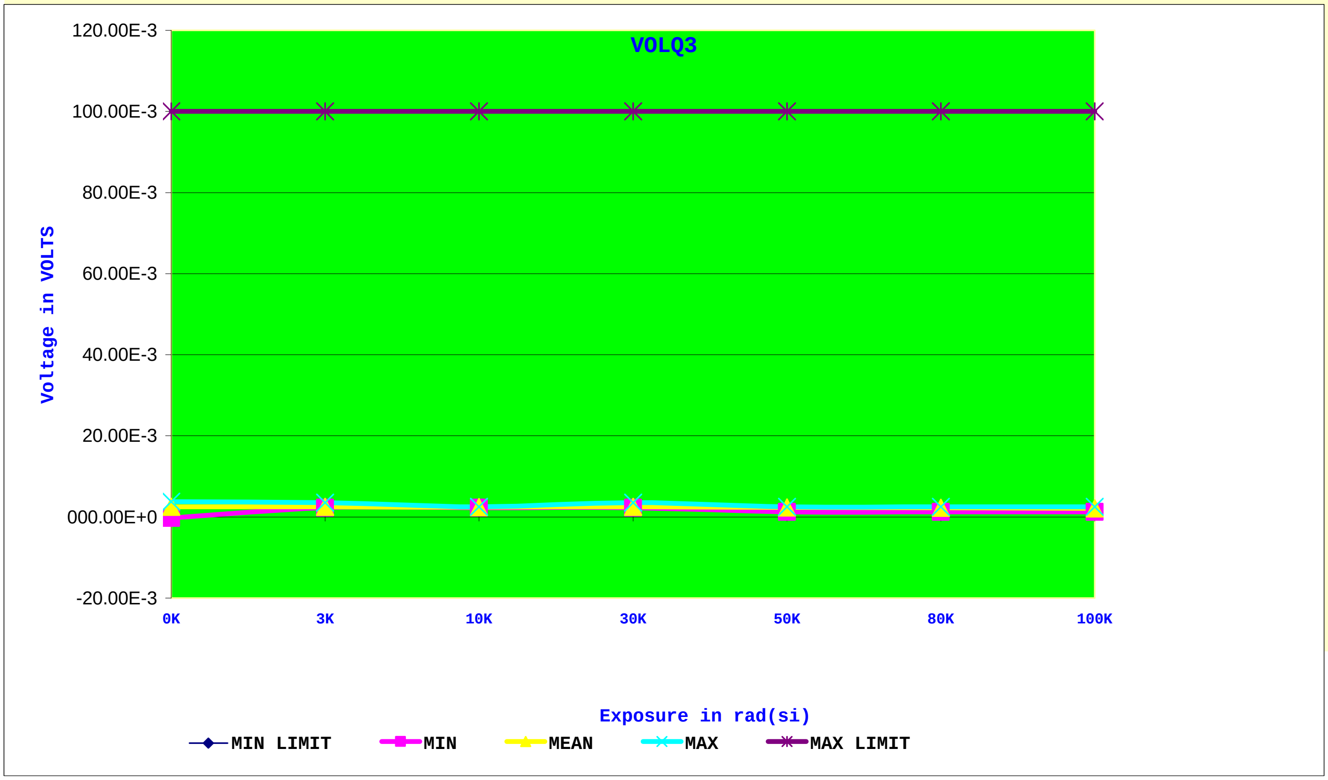
Irradiation Date:	26-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=L
Lot Number:	TH3817C019	Dose Rate:	70.14 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

VOLQ3

Statistical Data for VOLQ3, Test Condition of 0.00005 AMPS, VCC=5.5 VOLTS. Measured Values are in VOLTS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K		-234.60E-6	2.50E-3	3.75E-3	100.00E-3	794.51E-6	4.20E-3	567.87E-6	36	000.00E+0	PASS
3K		2.27E-3	2.50E-3	3.52E-3	100.00E-3	1.92E-3	3.08E-3	193.32E-6	36	5.59E-9	PASS
10K		2.27E-3	2.46E-3	2.50E-3	100.00E-3	2.20E-3	2.73E-3	88.70E-6	36	-34.75E-6	PASS
30K		2.27E-3	2.50E-3	3.52E-3	100.00E-3	1.92E-3	3.08E-3	193.32E-6	36	5.59E-9	PASS
50K		1.25E-3	2.36E-3	2.50E-3	100.00E-3	1.31E-3	3.41E-3	349.89E-6	36	-139.05E-6	PASS
80K		1.25E-3	2.25E-3	2.50E-3	100.00E-3	864.85E-6	3.64E-3	463.31E-6	36	-243.33E-6	PASS
100K		1.25E-3	2.12E-3	2.50E-3	100.00E-3	464.74E-6	3.77E-3	550.34E-6	36	-382.36E-6	PASS



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Military Aerospace Division
Quality Assurance Mail Stop 10-225
1120 Kifer Road
Sunnyvale, CA 94086-3737 USA

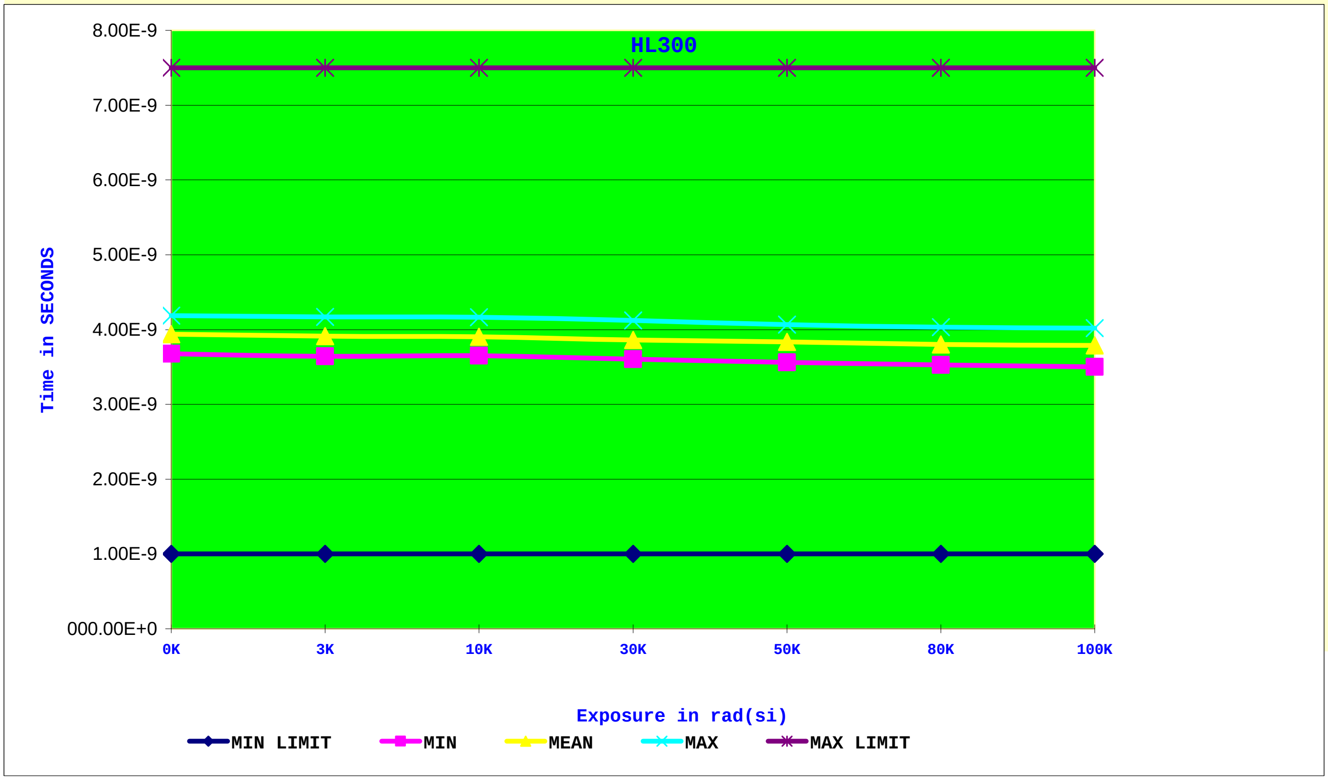
Microcircuit Performance Radiation Report
Mil Std 883 Method 1019 Total Dose Radiation
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	26-Jun-2002	Attenuation:	1.000
Device Type:	RM54AC05SDA	Wafer Run:	CF07ACC0
Customer:	Rad Qual	Wafer Number:	2
Package:	JCPAC014	Bias:	I=L
Lot Number:	TH3817C019	Dose Rate:	70.14 radSi/sec
IPI Code:	N/A	Technician:	L.Collins

HL300

Statistical Data for HL300, Phase Relationship is "+-", VCC=3 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.00E-9	3.68E-9	3.94E-9	4.18E-9	7.50E-9	3.57E-9	4.31E-9	122.27E-12	36	000.00E+0	PASS
3K	1.00E-9	3.64E-9	3.91E-9	4.17E-9	7.50E-9	3.53E-9	4.29E-9	126.15E-12	36	-25.33E-12	PASS
10K	1.00E-9	3.65E-9	3.90E-9	4.16E-9	7.50E-9	3.52E-9	4.29E-9	128.51E-12	36	-36.02E-12	PASS
30K	1.00E-9	3.60E-9	3.86E-9	4.12E-9	7.50E-9	3.48E-9	4.24E-9	125.70E-12	36	-76.21E-12	PASS
50K	1.00E-9	3.56E-9	3.83E-9	4.07E-9	7.50E-9	3.45E-9	4.22E-9	128.07E-12	36	-103.45E-12	PASS
80K	1.00E-9	3.53E-9	3.80E-9	4.03E-9	7.50E-9	3.42E-9	4.18E-9	126.63E-12	36	-136.02E-12	PASS
100K	1.00E-9	3.50E-9	3.79E-9	4.02E-9	7.50E-9	3.40E-9	4.18E-9	128.96E-12	36	-148.78E-12	PASS



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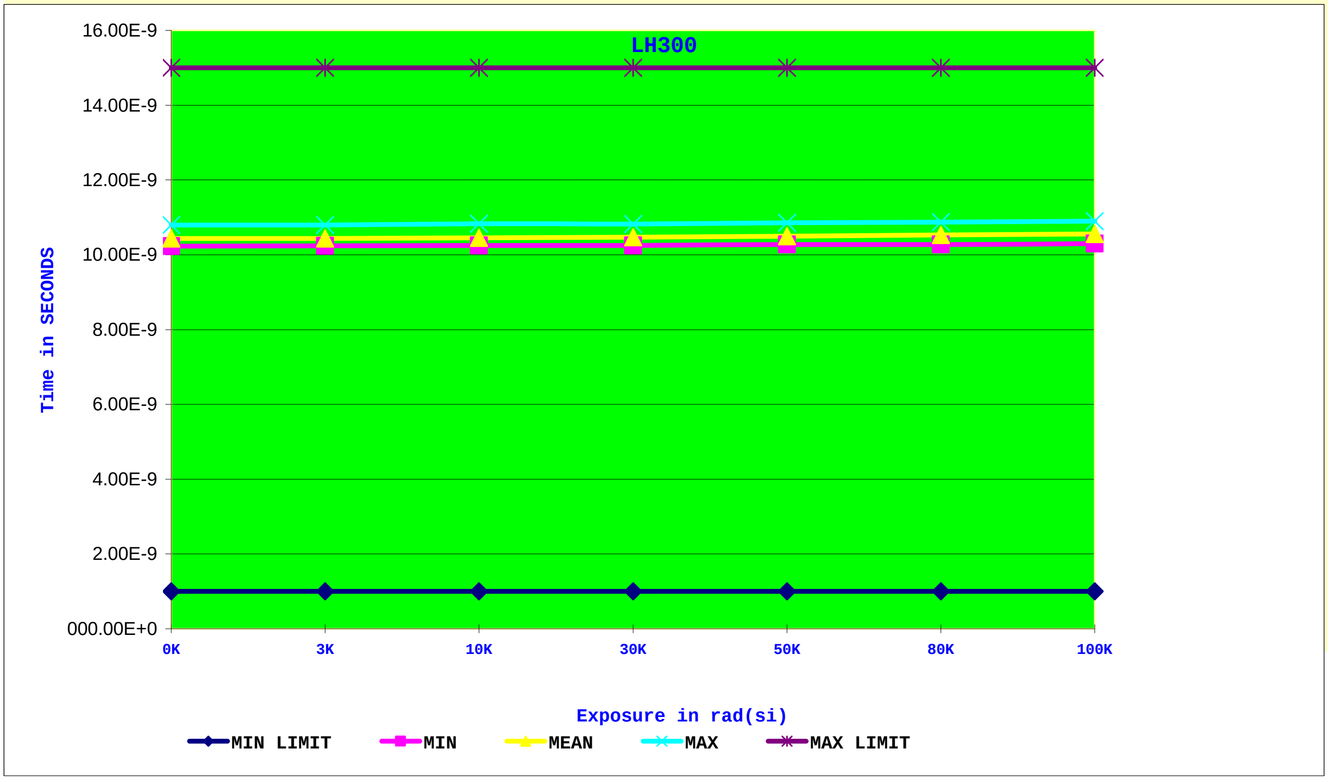
Office(408)721-5000 FAX(408)721-3683

Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

LH300

Statistical Data for LH300, Phase Relationship is "-+", VCC=3 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.00E-9	10.23E-9	10.44E-9	10.80E-9	15.00E-9	10.04E-9	10.83E-9	132.18E-12	36	000.00E+0	PASS
3K	1.00E-9	10.24E-9	10.44E-9	10.79E-9	15.00E-9	10.03E-9	10.85E-9	136.51E-12	36	-972.56E-15	PASS
10K	1.00E-9	10.24E-9	10.45E-9	10.83E-9	15.00E-9	10.04E-9	10.85E-9	135.06E-12	36	12.56E-12	PASS
30K	1.00E-9	10.24E-9	10.47E-9	10.82E-9	15.00E-9	10.07E-9	10.87E-9	133.80E-12	36	35.19E-12	PASS
50K	1.00E-9	10.27E-9	10.50E-9	10.85E-9	15.00E-9	10.09E-9	10.91E-9	136.28E-12	36	60.61E-12	PASS
80K	1.00E-9	10.27E-9	10.53E-9	10.87E-9	15.00E-9	10.12E-9	10.95E-9	137.86E-12	36	95.39E-12	PASS
100K	1.00E-9	10.30E-9	10.56E-9	10.90E-9	15.00E-9	10.14E-9	10.98E-9	141.13E-12	36	122.28E-12	PASS



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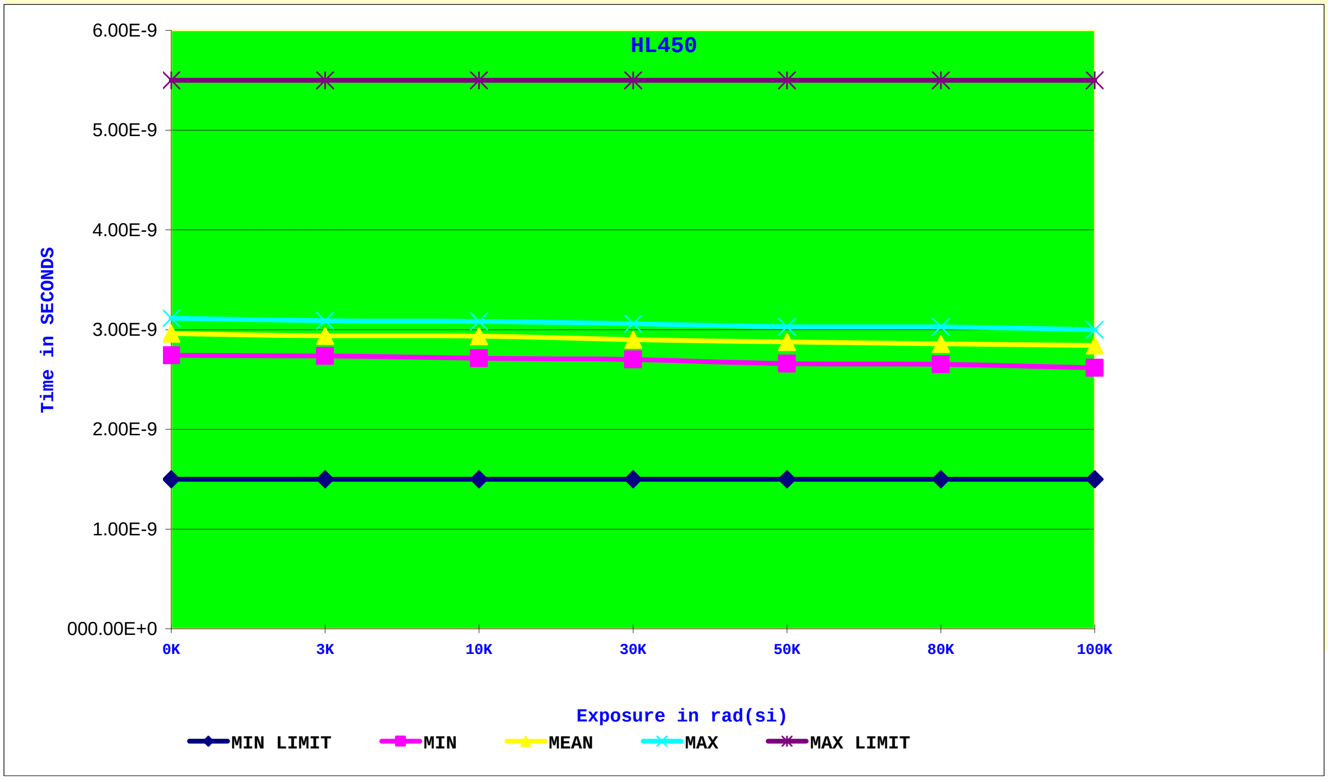
Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

HL450

Statistical Data for HL450, Phase Relationship is "+-", VCC=4.5 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.50E-9	2.74E-9	2.96E-9	3.12E-9	5.50E-9	2.67E-9	3.25E-9	95.76E-12	36	000.00E+0	PASS
3K	1.50E-9	2.73E-9	2.94E-9	3.09E-9	5.50E-9	2.65E-9	3.23E-9	95.88E-12	36	-21.33E-12	PASS
10K	1.50E-9	2.71E-9	2.93E-9	3.08E-9	5.50E-9	2.63E-9	3.23E-9	99.80E-12	36	-25.71E-12	PASS
30K	1.50E-9	2.70E-9	2.90E-9	3.06E-9	5.50E-9	2.60E-9	3.20E-9	99.69E-12	36	-60.01E-12	PASS
50K	1.50E-9	2.66E-9	2.88E-9	3.03E-9	5.50E-9	2.58E-9	3.18E-9	99.56E-12	36	-81.53E-12	PASS
80K	1.50E-9	2.65E-9	2.86E-9	3.03E-9	5.50E-9	2.56E-9	3.15E-9	98.32E-12	36	-103.25E-12	PASS
100K	1.50E-9	2.62E-9	2.84E-9	3.00E-9	5.50E-9	2.53E-9	3.15E-9	103.25E-12	36	-118.29E-12	PASS



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Irradiation Date:	26-Jun-2002	**Attenuation:**	1.000
Device Type:	RM54AC05SDA	**Wafer Run:**	CF07ACC0
Customer:	Rad Qual	**Wafer Number:**	2
Package:	JCPAC014	**Bias:**	I=L
Lot Number:	TH3817C019	**Dose Rate:**	70.14 radSi/sec
IPI Code:	N/A	**Technician:**	L.Collins

LH450

Statistical Data for LH450, Phase Relationship is "-+", VCC=4.5 Volts. Measured Values are in SECONDS.

Dose	MIN LIMIT	MIN	MEAN	MAX	MAX LIMIT	MEAN-3STD	MEAN+3STD	STDEV	COUNT	Delta	P/F
0K	1.50E-9	9.54E-9	9.78E-9	10.08E-9	14.50E-9	9.37E-9	10.18E-9	135.73E-12	36	000.00E+0	PASS
3K	1.50E-9	9.55E-9	9.77E-9	10.05E-9	14.50E-9	9.37E-9	10.18E-9	135.09E-12	36	-3.59E-12	PASS
10K	1.50E-9	9.55E-9	9.78E-9	10.09E-9	14.50E-9	9.38E-9	10.19E-9	136.30E-12	36	9.35E-12	PASS
30K	1.50E-9	9.56E-9	9.80E-9	10.09E-9	14.50E-9	9.38E-9	10.22E-9	138.70E-12	36	23.82E-12	PASS
50K	1.50E-9	9.57E-9	9.81E-9	10.11E-9	14.50E-9	9.40E-9	10.23E-9	139.41E-12	36	39.65E-12	PASS
80K	1.50E-9	9.62E-9	9.84E-9	10.11E-9	14.50E-9	9.43E-9	10.25E-9	136.67E-12	36	61.73E-12	PASS
100K	1.50E-9	9.64E-9	9.85E-9	10.13E-9	14.50E-9	9.43E-9	10.28E-9	141.63E-12	36	78.71E-12	PASS