



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: 06-Feb-1998
Device Type: RM54ACT245SSA
Customer: RHA WAFER BANK
Package: F/P
Lot Number:
IPI Code: N/A

Attenuation: 1.000
Wafer Run:
Wafer Number:
Bias: INPUTS = HIGH
Dose Rate: 52.3 radSi/sec
Technician:

Summarized RHA Test Results

PROGRAM	REVISION	SPECNAME	STATUS	EXPOSURE
J245JAN	9	RHA - PRE	PASSED	0k
J245JAN	9	RHA - 3K	PASSED	3k
J245JAN	9	RHA - 10K	PASSED	10k
J245JAN	9	RHA - 100K - ANN	***	30k
J245JAN	9	RHA - 100K - ANN	***	50k
J245JAN	9	RHA - 100K - ANN	***	80k
J245JAN	9	RHA - 100K - ANN	***	100k
J245JAN	9	RHA - 100K - ANN	PASSED	72hr Rm. Anneal

*** 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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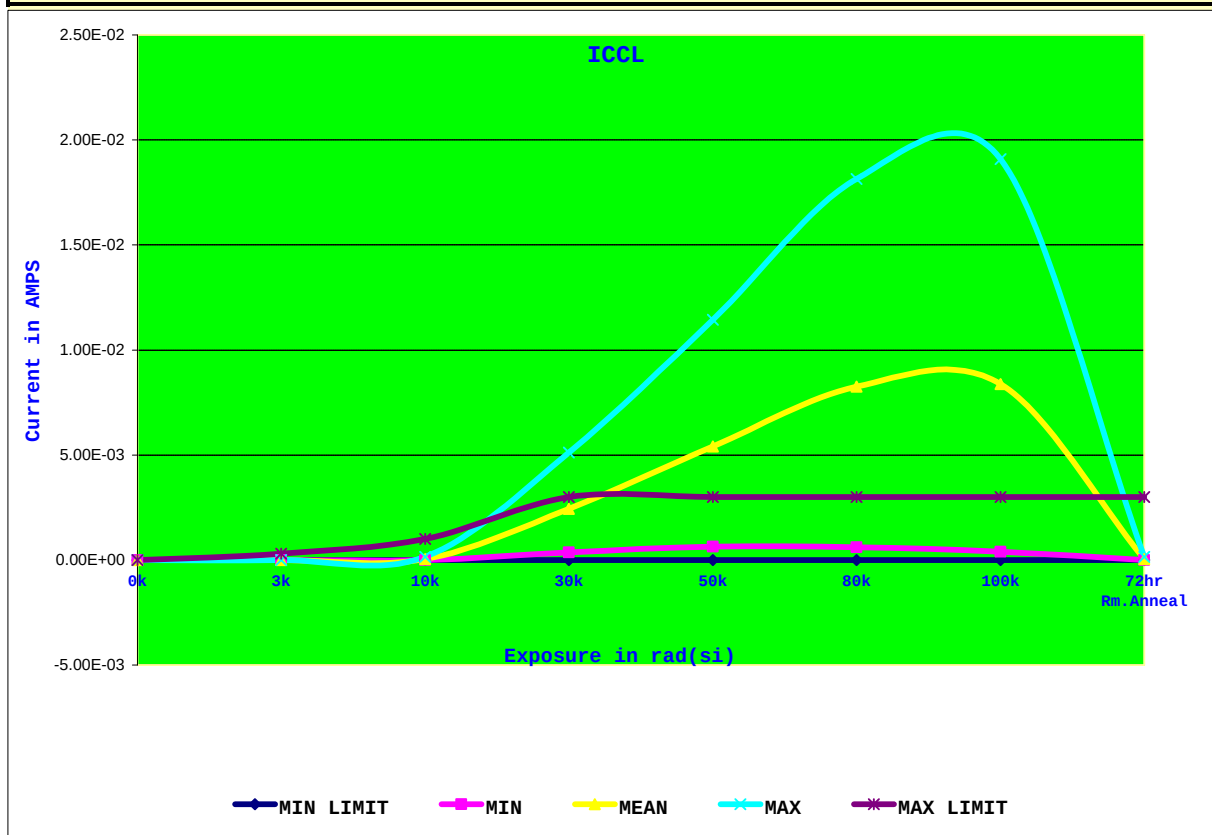
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Device Type: RM54ACT245SSA
Customer: RHA WAFER BANK
Package: F/P
Lot Number:
IPI Code: N/A

Attenuation: 1.000
Wafer Run:
Wafer Number:
Bias: INPUTS = HIGH
Dose Rate: 52.3 radSi/sec
Technician:

ICCL

Statistical Data for ICCL, INPUT 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	-5.00E-08	-7.45E-09	-7.45E-09	-7.45E-09	9.00E-08	-7.45E-09	-7.45E-09	0.00E+00	12	7.45E-09	PASS
3k	-5.00E-08	-7.45E-09	-5.47E-09	8.44E-09	3.00E-04	-2.03E-08	9.35E-09	4.94E-09	12	5.47E-09	PASS
10k	-5.00E-08	2.00E-06	4.58E-05	1.47E-04	1.00E-03	-1.08E-04	1.99E-04	5.11E-05	12	-4.58E-05	PASS
30k	-5.00E-08	3.58E-04	2.44E-03	5.12E-03	3.00E-03	-3.37E-03	8.24E-03	1.94E-03	12	-2.44E-03	*FAIL*
50k	-5.00E-08	6.35E-04	5.40E-03	1.14E-02	3.00E-03	-8.23E-03	1.90E-02	4.54E-03	12	-5.40E-03	*FAIL*
80k	-5.00E-08	6.07E-04	8.25E-03	1.81E-02	3.00E-03	-1.44E-02	3.10E-02	7.57E-03	12	-8.25E-03	*FAIL*
100k	-5.00E-08	3.89E-04	8.37E-03	1.91E-02	3.00E-03	-1.61E-02	3.29E-02	8.17E-03	12	-8.37E-03	*FAIL*
72hr Rm.Anne	-5.00E-08	5.25E-07	4.42E-05	1.44E-04	3.00E-03	-1.34E-04	2.23E-04	5.95E-05	12	-4.42E-05	PASS





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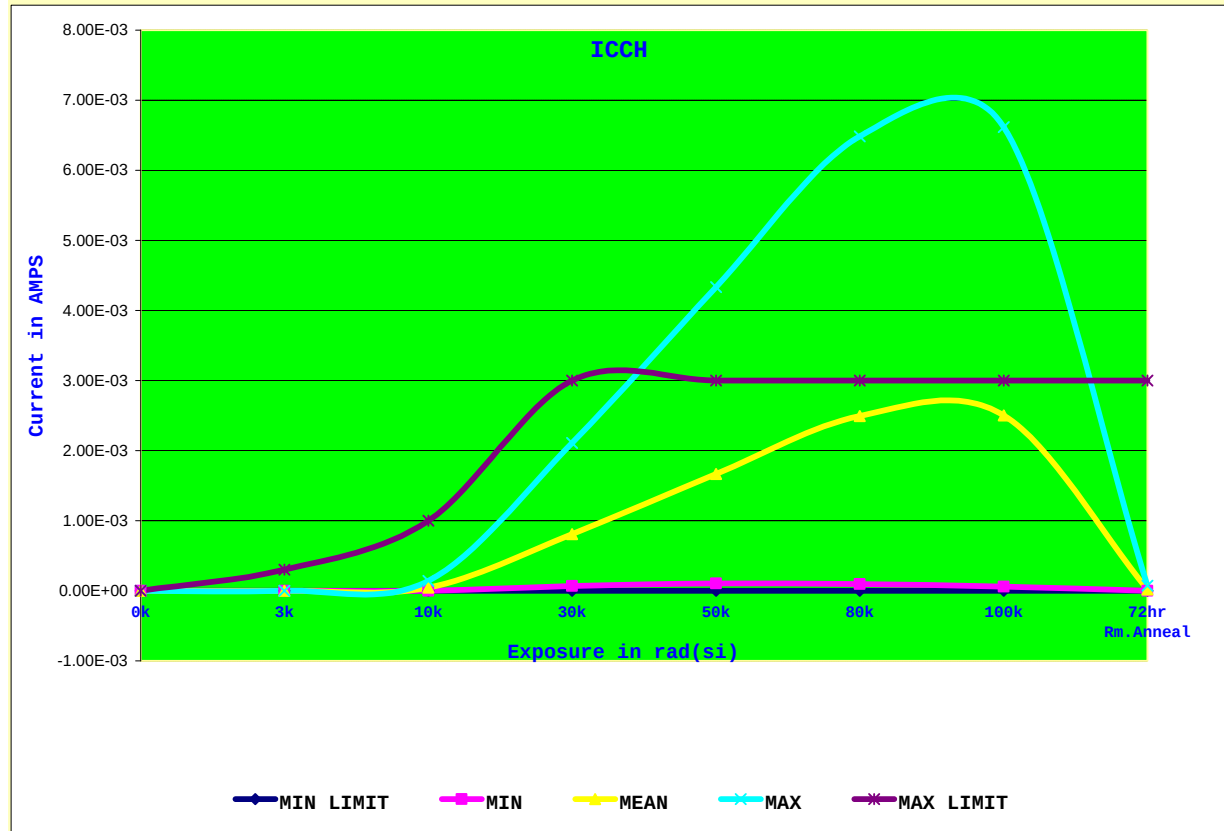
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Package: F/P
Lot Number:
IPI Code: N/A

Attenuation: 1.000
Wafer Run:
Wafer Number:
Bias: INPUTS = HIGH
Dose Rate: 52.3 radSi/sec
Technician: STEVEN COLLOMY

ICCH

Statistical Data for ICCH, INPUT 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	-5.00E-08	8.44E-09	1.11E-08	2.43E-08	9.00E-08	-4.44E-09	2.66E-08	5.18E-09	12	-1.11E-08	PASS
3k	-5.00E-08	8.44E-09	1.24E-08	1.64E-08	3.00E-04	-3.53E-11	2.49E-08	4.15E-09	12	-1.24E-08	PASS
10k	-5.00E-08	1.97E-06	4.37E-05	1.41E-04	1.00E-03	-1.04E-04	1.91E-04	4.91E-05	12	-4.37E-05	PASS
30k	-5.00E-08	6.82E-05	8.10E-04	2.11E-03	3.00E-03	-1.53E-03	3.15E-03	7.79E-04	12	-8.10E-04	PASS
50k	-5.00E-08	1.06E-04	1.67E-03	4.33E-03	3.00E-03	-3.38E-03	6.72E-03	1.68E-03	12	-1.67E-03	*FAIL*
80k	-5.00E-08	9.50E-05	2.49E-03	6.48E-03	3.00E-03	-5.41E-03	1.04E-02	2.63E-03	12	-2.49E-03	*FAIL*
100k	-5.00E-08	6.03E-05	2.50E-03	6.61E-03	3.00E-03	-5.69E-03	1.07E-02	2.73E-03	12	-2.50E-03	*FAIL*
72hr Rm.Anneal	-5.00E-08	3.98E-07	1.95E-05	7.12E-05	3.00E-03	-5.97E-05	9.86E-05	2.64E-05	12	-1.95E-05	PASS





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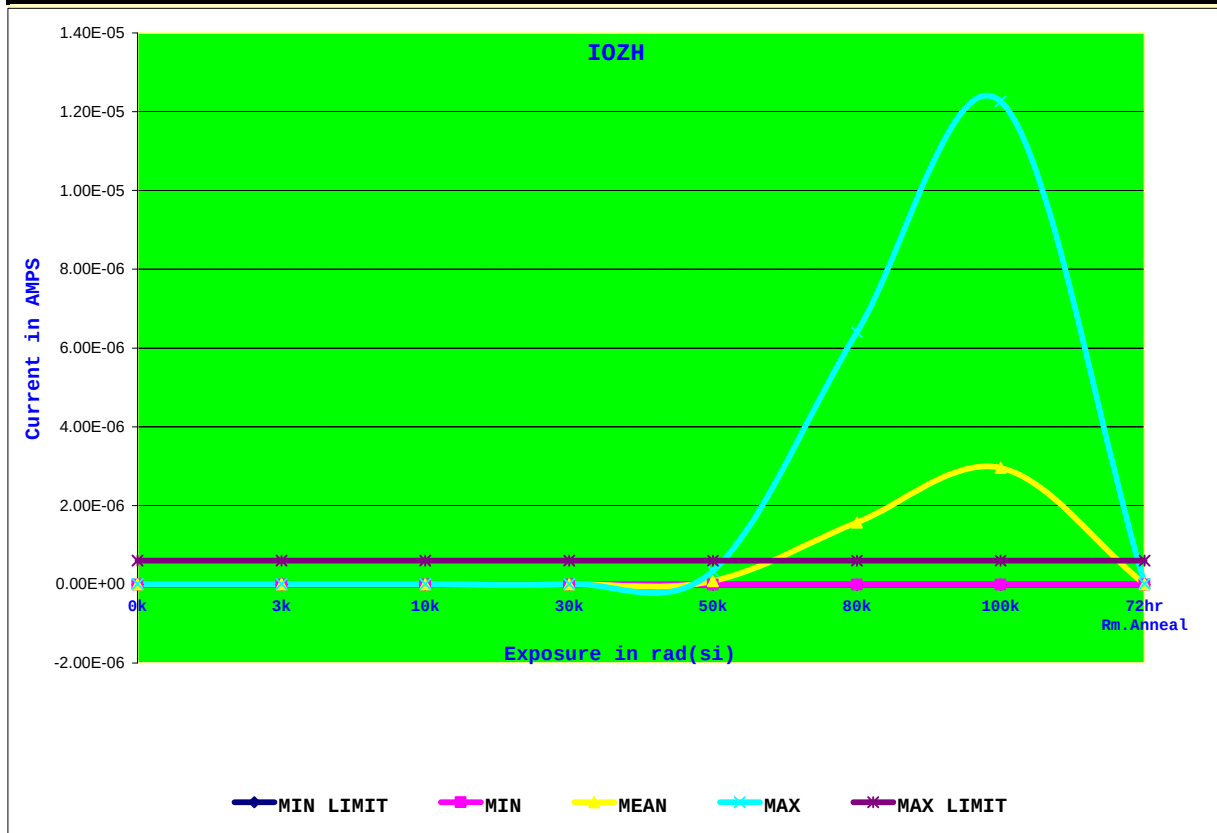
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Package: F/P
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IPI Code: N/A

Attenuation: 1.000
Wafer Run:
Wafer Number:
Bias: INPUTS = HIGH
Dose Rate: 52.3 radSi/sec
Technician:

IOZH

Statistical Data for IOZH, INPUT 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	-1.00E-08	-8.44E-09	-4.15E-10	8.93E-09	6.00E-07	-1.31E-08	1.23E-08	4.24E-09	96	4.15E-10	PASS
3k	-1.00E-08	-8.44E-09	-8.75E-13	8.93E-09	6.00E-07	-1.39E-08	1.39E-08	4.64E-09	96	8.75E-13	PASS
10k	-1.00E-08	-8.44E-09	-3.32E-10	8.93E-09	6.00E-07	-1.38E-08	1.31E-08	4.48E-09	96	3.32E-10	PASS
30k	-1.00E-08	-7.95E-09	-8.95E-13	8.93E-09	6.00E-07	-1.33E-08	1.33E-08	4.44E-09	96	8.95E-13	PASS
50k	-1.00E-08	-8.45E-09	8.00E-08	3.42E-07	6.00E-07	-2.63E-07	4.23E-07	1.14E-07	96	-8.00E-08	PASS
80k	-1.00E-08	-8.44E-09	1.57E-06	6.40E-06	6.00E-07	-5.23E-06	8.37E-06	2.27E-06	96	-1.57E-06	*FAIL*
100k	-1.00E-08	-7.95E-09	2.96E-06	1.23E-05	6.00E-07	-9.82E-06	1.57E-05	4.26E-06	96	-2.96E-06	*FAIL*
72hr Rm.Anneal	-1.00E-08	-8.44E-09	1.82E-09	1.69E-08	6.00E-07	-1.40E-08	1.76E-08	5.28E-09	96	-1.82E-09	PASS





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Wafer Number:
Bias: INPUTS = HIGH
Dose Rate: 52.3 radSi/sec
Technician:

IOZL

Statistical Data for IOZL, INPUT 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	-6.00E-07	-8.45E-09	-1.16E-09	8.93E-09	1.00E-08	-1.58E-08	1.35E-08	4.88E-09	96	1.16E-09	PASS
3k	-6.00E-07	-8.44E-09	-7.45E-10	8.93E-09	1.00E-08	-1.33E-08	1.18E-08	4.18E-09	96	7.45E-10	PASS
10k	-6.00E-07	-8.45E-09	-1.08E-09	8.93E-09	1.00E-08	-1.43E-08	1.21E-08	4.39E-09	96	1.08E-09	PASS
30k	-6.00E-07	-8.45E-09	-4.14E-10	8.93E-09	1.00E-08	-1.49E-08	1.40E-08	4.82E-09	96	4.14E-10	PASS
50k	-6.00E-07	-8.45E-09	-8.28E-10	8.93E-09	1.00E-08	-1.40E-08	1.24E-08	4.40E-09	96	8.28E-10	PASS
80k	-6.00E-07	-8.45E-09	-1.82E-09	8.93E-09	1.00E-08	-1.62E-08	1.26E-08	4.81E-09	96	1.82E-09	PASS
100k	-6.00E-07	-4.72E-08	-4.47E-09	8.93E-09	1.00E-08	-3.09E-08	2.19E-08	8.80E-09	96	4.47E-09	PASS
72hr Rm.Anneal	-6.00E-07	-8.45E-09	-1.16E-09	8.93E-09	1.00E-08	-1.51E-08	1.28E-08	4.64E-09	96	1.16E-09	PASS

