



**National Semiconductor Corporation
Radiation Effects Laboratory
South Portland, Maine 04106**

ANALOG TOTAL DOSE RADIATION REPORT

Customer: ELDRS Testing

Part Type: RM117HRQMLV

Input Bias Circuit: 9784 IR

Dose Rate: Low Dose – 12 mrd/s

Test Program Used: RH00117HYD

Tester: WhiteSands / L.Collins

Wafer Run Number: EM03107M

Wafer Number: 12

Package Type: HT039003

Production Lot #: 102602D019

IPI #: N/A

Disposition: PASSES

Summary:

Passes Room Temp @: 100K

Part Out of Room Temp Spec @: N/A

Functional Failed @: N/A (no devices failed functionally)

Parameters over Limit:

Review By: Mike Maher

Reviewed By QA: Mike Maher – April 19, 2004

Note:

These parts may be dose rate sensitive in a space environment and demonstrate enhanced low dose rate effect.

**Standard Test Flow Sheet For Rad Testing
Customer Special Attachment
Rad Hard Linear**

NSID# RM117HRQMLV

LOT# 102602D019

IPI# N/A

Test Program: RH00117HYD

Machine: LTX 01-3

Operator: D0226

Bias Board: 9784 IR

Start Time/Date: 2:33 P.M 3/Dec/2003

Finish Time/Date: 8:31 A.M 8/Apr/2004

QA: April 19, 2004

Control Units s/n: #9 #10

Duts : #11 #12 #13 #14 #15 #16

Location Step	Operation Mtd/Cond	Qty In	Qty Out	Var	Mech	Rej	FF
PASS	Pre - Rad Read/Rec. Tp1	6	6	0	0	0	0
	<i>Irradiation</i> <i>3k</i> <i>Level</i>	6	6	0	0	N/A	N/A
PASS	Post Rad Read/Rec. Tp2	6	6	0	0	0	0
	<i>Irradiation</i> <i>20k</i> <i>Level</i>	6	6	0	0	N/A	N/A
PASS	Post Rad Read/Rec. Tp3	6	6	0	0	0	0

**Standard Test Flow Sheet For Rad Testing
Customer Special Attachment
Rad Hard Linear**

NSID# RM117HRQMLV

LOT# 102602D019

IPI# N/A

Location Step	Operation Mtd/Cond	Qty In	Qty Out	Var	Mech	Rej	FF
	<i>Irradiation</i>	6	6	0	0		
	<i>42k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp4	6	6	0	0	0	0
	<i>Irradiation</i>	6	6	0	0		
	<i>60k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp5	6	6	0	0	0	0
	<i>Irradiation</i>	6	6	0	0		
	<i>80k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp6	6	6	0	0	0	0
	<i>Irradiation</i>	6	6	0	0		
	<i>100k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp7	6	6	0	0	0	0

Note: All irradiation's are done per MAS-5010

OK LM117 102602D019 Wafer#12 WhiteSands

DEVICE	9	BIN	1	HEAD	3	02:33 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.95 V		
1.0	-28.365 UA	2.0	-29.358 UA	3.0	0.993 UA		
4.0	0.917 UA	5.0	-0.81 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.247 V	9.0	1.231 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.6 MV		
13.0	-6.5 MV	14.0	1.5 MV	15.0	-3.5 MV		
22.0	40 UV	23.0	2.7 MV	24.0	0.224 MV		
25.0	81 DB	16.0	-1.03 A	17.0	1.249 V		
18.0	-0.32 A	19.0	1.257 V	20.0	1.236 V		

DEVICE	10	BIN	1	HEAD	3	02:33 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.96 V		
1.0	-28.059 UA	2.0	-28.135 UA	3.0	0.076 UA		
4.0	0.153 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.98 MA	8.0	1.244 V	9.0	1.227 V		
10.0	1.247 V	11.0	1.246 V	12.0	-3.4 MV		
13.0	-6.9 MV	14.0	1.6 MV	15.0	-3.8 MV		
22.0	40 UV	23.0	2.7 MV	24.0	0.221 MV		
25.0	81 DB	16.0	-1.05 A	17.0	1.245 V		
18.0	-0.33 A	19.0	1.254 V	20.0	1.232 V		

DEVICE	11	BIN	1	HEAD	3	02:34 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-28.670 UA	2.0	-29.358 UA	3.0	0.688 UA		
4.0	-0.229 UA	5.0	-0.81 MA	6.0	-1.00 MA		
7.0	-1.99 MA	8.0	1.246 V	9.0	1.227 V		
10.0	1.249 V	11.0	1.248 V	12.0	-3.5 MV		
13.0	-8.6 MV	14.0	1.7 MV	15.0	-3.8 MV		
22.0	39 UV	23.0	3.0 MV	24.0	0.216 MV		
25.0	80 DB	16.0	-1.03 A	17.0	1.247 V		
18.0	-0.33 A	19.0	1.255 V	20.0	1.232 V		

DEVICE	12	BIN	1	HEAD	3	02:34 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-28.135 UA	2.0	-28.594 UA	3.0	0.458 UA		
4.0	-1.146 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.247 V	9.0	1.234 V		
10.0	1.250 V	11.0	1.249 V	12.0	-3.4 MV		
13.0	-2.5 MV	14.0	1.1 MV	15.0	-3.5 MV		
22.0	40 UV	23.0	2.8 MV	24.0	0.215 MV		
25.0	82 DB	16.0	-1.03 A	17.0	1.248 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.238 V		

DEVICE	13	BIN	1	HEAD	3	02:34 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.96 V		
1.0	-28.059 UA	2.0	-29.358 UA	3.0	1.299 UA		
4.0	-0.382 UA	5.0	-0.80 MA	6.0	-0.98 MA		
7.0	-1.96 MA	8.0	1.249 V	9.0	1.233 V		
10.0	1.252 V	11.0	1.251 V	12.0	-3.3 MV		
13.0	-5.9 MV	14.0	1.4 MV	15.0	-3.6 MV		
22.0	40 UV	23.0	2.7 MV	24.0	0.219 MV		
25.0	81 DB	16.0	-1.04 A	17.0	1.250 V		
18.0	-0.32 A	19.0	1.258 V	20.0	1.237 V		

DEVICE	14	BIN	1	HEAD	3	02:35 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.98 V		
1.0	-28.135 UA	2.0	-27.830 UA	3.0	-0.306 UA		
4.0	-0.611 UA	5.0	-0.80 MA	6.0	-1.00 MA		
7.0	-1.97 MA	8.0	1.247 V	9.0	1.231 V		
10.0	1.250 V	11.0	1.249 V	12.0	-3.4 MV		
13.0	-6.1 MV	14.0	1.4 MV	15.0	-4.5 MV		
22.0	40 UV	23.0	2.8 MV	24.0	0.219 MV		
25.0	81 DB	16.0	-1.04 A	17.0	1.248 V		
18.0	-0.32 A	19.0	1.256 V	20.0	1.236 V		

DEVICE	15	BIN	1	HEAD	3	02:35 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-28.670 UA	2.0	-29.358 UA	3.0	0.688 UA		
4.0	0.000 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.98 MA	8.0	1.246 V	9.0	1.233 V		
10.0	1.249 V	11.0	1.248 V	12.0	-3.6 MV		
13.0	-2.9 MV	14.0	1.2 MV	15.0	-3.7 MV		
22.0	40 UV	23.0	2.8 MV	24.0	0.215 MV		
25.0	82 DB	16.0	-1.04 A	17.0	1.247 V		
18.0	-0.33 A	19.0	1.255 V	20.0	1.237 V		

DEVICE	16	BIN	1	HEAD	3	02:35 PM	12/03/2003
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-29.052 UA	2.0	-29.052 UA	3.0	0.000 UA		
4.0	0.535 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.96 MA	8.0	1.246 V	9.0	1.232 V		
10.0	1.250 V	11.0	1.248 V	12.0	-3.4 MV		
13.0	-5.0 MV	14.0	1.2 MV	15.0	-3.9 MV		
22.0	40 UV	23.0	2.7 MV	24.0	0.219 MV		
25.0	82 DB	16.0	-1.04 A	17.0	1.248 V		
18.0	-0.32 A	19.0	1.255 V	20.0	1.236 V		

3K LM117 102602D019 Wafer#12 WhiteSands

DEVICE	9	BIN	1	HEAD	3	04:16 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.94 V		
1.0	-29.358 UA	2.0	-29.281 UA	3.0	-0.076 UA		
4.0	-0.688 UA	5.0	-0.81 MA	6.0	-1.00 MA		
7.0	-1.98 MA	8.0	1.248 V	9.0	1.233 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.6 MV		
13.0	-5.1 MV	14.0	1.5 MV	15.0	-3.5 MV		
22.0	41 UV	23.0	3.2 MV	24.0	0.218 MV		
25.0	79 DB	16.0	-1.03 A	17.0	1.249 V		
18.0	-0.32 A	19.0	1.257 V	20.0	1.237 V		

DEVICE	10	BIN	1	HEAD	3	04:17 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.96 V		
1.0	-28.135 UA	2.0	-27.524 UA	3.0	-0.611 UA		
4.0	-0.229 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.244 V	9.0	1.232 V		
10.0	1.248 V	11.0	1.247 V	12.0	-3.5 MV		
13.0	-1.9 MV	14.0	1.1 MV	15.0	-3.9 MV		
22.0	40 UV	23.0	3.5 MV	24.0	0.217 MV		
25.0	79 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.254 V	20.0	1.236 V		

DEVICE	11	BIN	1	HEAD	3	04:18 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.99 V		
1.0	-28.670 UA	2.0	-29.052 UA	3.0	0.382 UA		
4.0	0.306 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.98 MA	8.0	1.246 V	9.0	1.231 V		
10.0	1.250 V	11.0	1.248 V	12.0	-3.9 MV		
13.0	-5.0 MV	14.0	1.4 MV	15.0	-3.8 MV		
22.0	40 UV	23.0	3.9 MV	24.0	0.216 MV		
25.0	78 DB	16.0	-1.04 A	17.0	1.247 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.235 V		

DEVICE	12	BIN	1	HEAD	3	04:18 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.98 V		
1.0	-29.052 UA	2.0	-28.670 UA	3.0	-0.382 UA		
4.0	0.000 UA	5.0	-0.79 MA	6.0	-0.98 MA		
7.0	-1.96 MA	8.0	1.246 V	9.0	1.235 V		
10.0	1.250 V	11.0	1.249 V	12.0	-3.4 MV		
13.0	-1.8 MV	14.0	0.9 MV	15.0	-3.4 MV		
22.0	41 UV	23.0	3.1 MV	24.0	0.215 MV		
25.0	78 DB	16.0	-1.03 A	17.0	1.248 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.239 V		

DEVICE	13	BIN	1	HEAD	3	04:19 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.98 V		
1.0	-29.052 UA	2.0	-29.358 UA	3.0	0.306 UA		
4.0	-0.840 UA	5.0	-0.78 MA	6.0	-0.97 MA		
7.0	-1.95 MA	8.0	1.249 V	9.0	1.235 V		
10.0	1.253 V	11.0	1.252 V	12.0	-3.7 MV		
13.0	-4.7 MV	14.0	1.2 MV	15.0	-3.7 MV		
22.0	41 UV	23.0	3.7 MV	24.0	0.219 MV		
25.0	78 DB	16.0	-1.04 A	17.0	1.251 V		
18.0	-0.32 A	19.0	1.259 V	20.0	1.239 V		

DEVICE	14	BIN	1	HEAD	3	04:19 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.99 V		
1.0	-28.059 UA	2.0	-28.365 UA	3.0	0.306 UA		
4.0	-0.611 UA	5.0	-0.79 MA	6.0	-0.98 MA		
7.0	-1.95 MA	8.0	1.246 V	9.0	1.229 V		
10.0	1.250 V	11.0	1.249 V	12.0	-3.9 MV		
13.0	-7.6 MV	14.0	1.7 MV	15.0	-4.5 MV		
22.0	40 UV	23.0	3.3 MV	24.0	0.221 MV		
25.0	78 DB	16.0	-1.04 A	17.0	1.248 V		
18.0	-0.32 A	19.0	1.256 V	20.0	1.234 V		

DEVICE	15	BIN	1	HEAD	3	04:19 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	3.00 V		
1.0	-28.365 UA	2.0	-29.052 UA	3.0	0.688 UA		
4.0	0.688 UA	5.0	-0.79 MA	6.0	-0.98 MA		
7.0	-1.97 MA	8.0	1.246 V	9.0	1.233 V		
10.0	1.250 V	11.0	1.248 V	12.0	-3.7 MV		
13.0	-3.1 MV	14.0	1.1 MV	15.0	-3.7 MV		
22.0	40 UV	23.0	3.9 MV	24.0	0.214 MV		
25.0	78 DB	16.0	-1.04 A	17.0	1.247 V		
18.0	-0.33 A	19.0	1.255 V	20.0	1.237 V		

DEVICE	16	BIN	1	HEAD	3	04:20 PM	12/19/2003
700.0	100	800.0	25 DGR	98.0	2.99 V		
1.0	-27.830 UA	2.0	-29.205 UA	3.0	1.375 UA		
4.0	-0.688 UA	5.0	-0.79 MA	6.0	-0.97 MA		
7.0	-1.95 MA	8.0	1.247 V	9.0	1.235 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.7 MV		
13.0	-2.8 MV	14.0	1.0 MV	15.0	-3.8 MV		
22.0	41 UV	23.0	4.3 MV	24.0	0.223 MV		
25.0	78 DB	16.0	-1.04 A	17.0	1.248 V		
18.0	-0.32 A	19.0	1.257 V	20.0	1.238 V		

20K LM117 102602D019 Wafer#12 WhiteSands

DEVICE	9	BIN	1	HEAD	3	04:54 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	2.94 V		
1.0	-29.205 UA	2.0	-29.969 UA	3.0	0.764 UA		
4.0	0.000 UA	5.0	-0.81 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.247 V	9.0	1.232 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.4 MV		
13.0	-5.6 MV	14.0	1.3 MV	15.0	-3.5 MV		
22.0	41 UV	23.0	2.8 MV	24.0	0.218 MV		
25.0	81 DB	16.0	-1.03 A	17.0	1.249 V		
18.0	-0.32 A	19.0	1.257 V	20.0	1.236 V		

DEVICE	10	BIN	1	HEAD	3	04:54 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-29.052 UA	2.0	-29.358 UA	3.0	0.306 UA		
4.0	-1.222 UA	5.0	-0.81 MA	6.0	-1.00 MA		
7.0	-1.98 MA	8.0	1.244 V	9.0	1.228 V		
10.0	1.248 V	11.0	1.246 V	12.0	-3.5 MV		
13.0	-6.4 MV	14.0	1.6 MV	15.0	-4.1 MV		
22.0	40 UV	23.0	3.2 MV	24.0	0.218 MV		
25.0	81 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.254 V	20.0	1.232 V		

DEVICE	11	BIN	1	HEAD	3	04:55 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.06 V		
1.0	-29.358 UA	2.0	-29.052 UA	3.0	-0.306 UA		
4.0	0.000 UA	5.0	-0.79 MA	6.0	-0.98 MA		
7.0	-1.96 MA	8.0	1.252 V	9.0	1.239 V		
10.0	1.258 V	11.0	1.256 V	12.0	-5.7 MV		
13.0	-3.5 MV	14.0	1.4 MV	15.0	-3.5 MV		
22.0	40 UV	23.0	3.5 MV	24.0	0.217 MV		
25.0	75 DB	16.0	-1.05 A	17.0	1.253 V		
18.0	-0.35 A	19.0	1.263 V	20.0	1.243 V		

DEVICE	12	BIN	1	HEAD	3	04:55 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.06 V		
1.0	-28.594 UA	2.0	-29.052 UA	3.0	0.458 UA		
4.0	0.535 UA	5.0	-0.78 MA	6.0	-0.96 MA		
7.0	-1.95 MA	8.0	1.250 V	9.0	1.237 V		
10.0	1.255 V	11.0	1.253 V	12.0	-4.8 MV		
13.0	-3.6 MV	14.0	1.3 MV	15.0	-3.2 MV		
22.0	40 UV	23.0	3.3 MV	24.0	0.216 MV		
25.0	77 DB	16.0	-1.04 A	17.0	1.251 V		
18.0	-0.34 A	19.0	1.261 V	20.0	1.241 V		

DEVICE	13	BIN	1	HEAD	3	04:56 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.09 V		
1.0	-29.358 UA	2.0	-30.274 UA	3.0	0.917 UA		
4.0	0.000 UA	5.0	-0.77 MA	6.0	-0.97 MA		
7.0	-1.95 MA	8.0	1.259 V	9.0	1.245 V		
10.0	1.266 V	11.0	1.264 V	12.0	-6.4 MV		
13.0	-4.8 MV	14.0	1.7 MV	15.0	-3.3 MV		
22.0	41 UV	23.0	3.6 MV	24.0	0.218 MV		
25.0	73 DB	16.0	-1.07 A	17.0	1.261 V		
18.0	-0.36 A	19.0	1.272 V	20.0	1.249 V		

DEVICE	14	BIN	1	HEAD	3	04:56 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.08 V		
1.0	-28.670 UA	2.0	-28.365 UA	3.0	-0.306 UA		
4.0	0.688 UA	5.0	-0.77 MA	6.0	-0.96 MA		
7.0	-1.94 MA	8.0	1.250 V	9.0	1.232 V		
10.0	1.255 V	11.0	1.253 V	12.0	-4.9 MV		
13.0	-7.6 MV	14.0	1.5 MV	15.0	-4.4 MV		
22.0	40 UV	23.0	3.6 MV	24.0	0.220 MV		
25.0	76 DB	16.0	-1.05 A	17.0	1.251 V		
18.0	-0.34 A	19.0	1.261 V	20.0	1.237 V		

DEVICE	15	BIN	1	HEAD	3	04:56 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.08 V		
1.0	-29.358 UA	2.0	-29.587 UA	3.0	0.229 UA		
4.0	0.000 UA	5.0	-0.77 MA	6.0	-0.97 MA		
7.0	-1.95 MA	8.0	1.252 V	9.0	1.238 V		
10.0	1.258 V	11.0	1.256 V	12.0	-5.9 MV		
13.0	-3.9 MV	14.0	1.4 MV	15.0	-3.5 MV		
22.0	40 UV	23.0	3.2 MV	24.0	0.218 MV		
25.0	75 DB	16.0	-1.07 A	17.0	1.253 V		
18.0	-0.36 A	19.0	1.264 V	20.0	1.243 V		

DEVICE	16	BIN	1	HEAD	3	04:57 PM	01/08/2004
700.0	100	800.0	25 DGR	98.0	3.09 V		
1.0	-29.358 UA	2.0	-29.358 UA	3.0	0.000 UA		
4.0	0.306 UA	5.0	-0.77 MA	6.0	-0.97 MA		
7.0	-1.94 MA	8.0	1.255 V	9.0	1.243 V		
10.0	1.262 V	11.0	1.260 V	12.0	-6.4 MV		
13.0	-3.0 MV	14.0	1.5 MV	15.0	-3.4 MV		
22.0	41 UV	23.0	3.0 MV	24.0	0.221 MV		
25.0	74 DB	16.0	-1.07 A	17.0	1.257 V		
18.0	-0.36 A	19.0	1.268 V	20.0	1.247 V		

42K LM117 102602D019 Wafer#12 WhiteSands

DEVICE	9	BIN	1	HEAD	3	03:27 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	2.96 V		
1.0	-29.969 UA	2.0	-29.969 UA	3.0	0.000 UA		
4.0	-0.611 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.248 V	9.0	1.231 V		
10.0	1.251 V	11.0	1.249 V	12.0	-3.7 MV		
13.0	-7.1 MV	14.0	1.8 MV	15.0	-2.5 MV		
22.0	40 UV	23.0	3.1 MV	24.0	0.220 MV		
25.0	80 DB	16.0	-1.04 A	17.0	1.249 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.234 V		

DEVICE	10	BIN	1	HEAD	3	03:27 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	2.98 V		
1.0	-29.052 UA	2.0	-29.052 UA	3.0	0.000 UA		
4.0	-1.222 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.244 V	9.0	1.231 V		
10.0	1.248 V	11.0	1.246 V	12.0	-3.5 MV		
13.0	-3.0 MV	14.0	1.2 MV	15.0	-2.8 MV		
22.0	41 UV	23.0	3.2 MV	24.0	0.216 MV		
25.0	82 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.253 V	20.0	1.235 V		

DEVICE	11	BIN	1	HEAD	3	03:28 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.15 V		
1.0	-29.969 UA	2.0	-30.274 UA	3.0	0.306 UA		
4.0	-0.611 UA	5.0	-0.75 MA	6.0	-0.95 MA		
7.0	-1.95 MA	8.0	1.256 V	9.0	1.242 V		
10.0	1.263 V	11.0	1.261 V	12.0	-7.6 MV		
13.0	-3.7 MV	14.0	1.7 MV	15.0	-2.4 MV		
22.0	39 UV	23.0	4.4 MV	24.0	0.218 MV		
25.0	71 DB	16.0	-1.10 A	17.0	1.257 V		
18.0	-0.41 A	19.0	1.269 V	20.0	1.246 V		

DEVICE	12	BIN	1	HEAD	3	03:28 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.15 V		
1.0	-30.504 UA	2.0	-30.427 UA	3.0	-0.076 UA		
4.0	0.000 UA	5.0	-0.77 MA	6.0	-0.97 MA		
7.0	-1.96 MA	8.0	1.258 V	9.0	1.244 V		
10.0	1.266 V	11.0	1.264 V	12.0	-7.6 MV		
13.0	-4.2 MV	14.0	1.9 MV	15.0	-2.7 MV		
22.0	40 UV	23.0	3.7 MV	24.0	0.216 MV		
25.0	71 DB	16.0	-1.09 A	17.0	1.259 V		
18.0	-0.40 A	19.0	1.271 V	20.0	1.248 V		

DEVICE	13	BIN	1	HEAD	3	03:29 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.18 V		
1.0	-29.358 UA	2.0	-29.969 UA	3.0	0.611 UA		
4.0	0.917 UA	5.0	-0.75 MA	6.0	-0.95 MA		
7.0	-1.94 MA	8.0	1.259 V	9.0	1.246 V		
10.0	1.268 V	11.0	1.266 V	12.0	-8.2 MV		
13.0	-3.6 MV	14.0	1.9 MV	15.0	-2.3 MV		
22.0	39 UV	23.0	3.2 MV	24.0	0.222 MV		
25.0	70 DB	16.0	-1.12 A	17.0	1.261 V		
18.0	-0.41 A	19.0	1.273 V	20.0	1.250 V		

DEVICE	14	BIN	1	HEAD	3	03:29 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.13 V		
1.0	-28.059 UA	2.0	-29.358 UA	3.0	1.299 UA		
4.0	-0.688 UA	5.0	-0.76 MA	6.0	-0.95 MA		
7.0	-1.93 MA	8.0	1.253 V	9.0	1.239 V		
10.0	1.259 V	11.0	1.258 V	12.0	-6.5 MV		
13.0	-3.4 MV	14.0	1.7 MV	15.0	-3.0 MV		
22.0	39 UV	23.0	3.1 MV	24.0	0.242 MV		
25.0	73 DB	16.0	-1.09 A	17.0	1.254 V		
18.0	-0.38 A	19.0	1.266 V	20.0	1.244 V		

DEVICE	15	BIN	1	HEAD	3	03:30 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.15 V		
1.0	-29.587 UA	2.0	-30.274 UA	3.0	0.688 UA		
4.0	0.535 UA	5.0	-0.75 MA	6.0	-0.95 MA		
7.0	-1.94 MA	8.0	1.266 V	9.0	1.252 V		
10.0	1.274 V	11.0	1.272 V	12.0	-8.8 MV		
13.0	-3.5 MV	14.0	2.0 MV	15.0	-2.3 MV		
22.0	47 UV	23.0	4.1 MV	24.0	0.228 MV		
25.0	70 DB	16.0	-1.11 A	17.0	1.267 V		
18.0	-0.41 A	19.0	1.280 V	20.0	1.256 V		

DEVICE	16	BIN	1	HEAD	3	03:30 PM	02/03/2004
700.0	100	800.0	25 DGR	98.0	3.13 V		
1.0	-28.365 UA	2.0	-29.358 UA	3.0	0.993 UA		
4.0	0.000 UA	5.0	-0.76 MA	6.0	-0.95 MA		
7.0	-1.93 MA	8.0	1.254 V	9.0	1.240 V		
10.0	1.260 V	11.0	1.258 V	12.0	-6.5 MV		
13.0	-3.7 MV	14.0	1.8 MV	15.0	-2.1 MV		
22.0	40 UV	23.0	3.2 MV	24.0	0.219 MV		
25.0	73 DB	16.0	-1.08 A	17.0	1.255 V		
18.0	-0.38 A	19.0	1.265 V	20.0	1.244 V		

60k LM117 10602D019 WAFER#12 WHITESANDS

DEVICE	9	BIN	1	HEAD	3	02:40 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-28.670 UA	2.0	-28.670 UA	3.0	0.000 UA		
4.0	-0.458 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.248 V	9.0	1.234 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.5 MV		
13.0	-3.8 MV	14.0	1.6 MV	15.0	-2.8 MV		
22.0	40 UV	23.0	2.6 MV	24.0	0.218 MV		
25.0	81 DB	16.0	-1.04 A	17.0	1.249 V		
18.0	-0.33 A	19.0	1.257 V	20.0	1.238 V		

DEVICE	10	BIN	1	HEAD	3	02:40 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-28.059 UA	2.0	-28.135 UA	3.0	0.076 UA		
4.0	0.229 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.244 V	9.0	1.229 V		
10.0	1.248 V	11.0	1.246 V	12.0	-3.5 MV		
13.0	-5.1 MV	14.0	1.5 MV	15.0	-3.0 MV		
22.0	40 UV	23.0	2.7 MV	24.0	0.220 MV		
25.0	81 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.253 V	20.0	1.233 V		

DEVICE	11	BIN	1	HEAD	3	02:41 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.16 V		
1.0	-29.281 UA	2.0	-29.969 UA	3.0	0.688 UA		
4.0	-0.306 UA	5.0	-0.75 MA	6.0	-0.96 MA		
7.0	-1.96 MA	8.0	1.260 V	9.0	1.243 V		
10.0	1.268 V	11.0	1.266 V	12.0	-8.6 MV		
13.0	-6.4 MV	14.0	1.9 MV	15.0	-2.5 MV		
22.0	39 UV	23.0	3.0 MV	24.0	0.223 MV		
25.0	70 DB	16.0	-1.11 A	17.0	1.261 V		
18.0	-0.42 A	19.0	1.274 V	20.0	1.248 V		

DEVICE	12	BIN	1	HEAD	3	02:41 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.14 V		
1.0	-29.052 UA	2.0	-28.670 UA	3.0	-0.382 UA		
4.0	0.306 UA	5.0	-0.75 MA	6.0	-0.94 MA		
7.0	-1.94 MA	8.0	1.255 V	9.0	1.241 V		
10.0	1.262 V	11.0	1.260 V	12.0	-7.3 MV		
13.0	-4.0 MV	14.0	1.8 MV	15.0	-2.2 MV		
22.0	40 UV	23.0	3.1 MV	24.0	0.219 MV		
25.0	72 DB	16.0	-1.09 A	17.0	1.256 V		
18.0	-0.40 A	19.0	1.267 V	20.0	1.245 V		

DEVICE	13	BIN	1	HEAD	3	02:42 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.17 V		
1.0	-29.052 UA	2.0	-30.504 UA	3.0	1.452 UA		
4.0	-0.917 UA	5.0	-0.74 MA	6.0	-0.95 MA		
7.0	-1.94 MA	8.0	1.268 V	9.0	1.253 V		
10.0	1.277 V	11.0	1.275 V	12.0	-9.6 MV		
13.0	-5.1 MV	14.0	2.1 MV	15.0	-2.2 MV		
22.0	40 UV	23.0	3.3 MV	24.0	0.220 MV		
25.0	69 DB	16.0	-1.13 A	17.0	1.269 V		
18.0	-0.43 A	19.0	1.283 V	20.0	1.256 V		

DEVICE	14	BIN	1	HEAD	3	02:42 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.15 V		
1.0	-28.594 UA	2.0	-28.059 UA	3.0	-0.535 UA		
4.0	0.535 UA	5.0	-0.75 MA	6.0	-0.95 MA		
7.0	-1.99 MA	8.0	1.253 V	9.0	1.237 V		
10.0	1.261 V	11.0	1.259 V	12.0	-7.6 MV		
13.0	-6.1 MV	14.0	2.0 MV	15.0	-3.1 MV		
22.0	40 UV	23.0	3.0 MV	24.0	0.223 MV		
25.0	72 DB	16.0	-1.10 A	17.0	1.255 V		
18.0	-0.40 A	19.0	1.267 V	20.0	1.242 V		

DEVICE	15	BIN	1	HEAD	3	02:43 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.15 V		
1.0	-29.052 UA	2.0	-29.358 UA	3.0	0.306 UA		
4.0	0.229 UA	5.0	-0.74 MA	6.0	-0.95 MA		
7.0	-1.98 MA	8.0	1.256 V	9.0	1.240 V		
10.0	1.264 V	11.0	1.262 V	12.0	-8.4 MV		
13.0	-6.2 MV	14.0	1.9 MV	15.0	-2.3 MV		
22.0	40 UV	23.0	3.1 MV	24.0	0.227 MV		
25.0	70 DB	16.0	-1.11 A	17.0	1.257 V		
18.0	-0.42 A	19.0	1.270 V	20.0	1.244 V		

DEVICE	16	BIN	1	HEAD	3	02:43 PM	02/24/2004
700.0	100	800.0	25 DGR	98.0	3.19 V		
1.0	-27.830 UA	2.0	-28.670 UA	3.0	0.840 UA		
4.0	0.306 UA	5.0	-0.74 MA	6.0	-0.94 MA		
7.0	-1.95 MA	8.0	1.259 V	9.0	1.244 V		
10.0	1.268 V	11.0	1.266 V	12.0	-9.0 MV		
13.0	-5.2 MV	14.0	2.0 MV	15.0	-2.4 MV		
22.0	40 UV	23.0	3.1 MV	24.0	0.225 MV		
25.0	69 DB	16.0	-1.13 A	17.0	1.261 V		
18.0	-0.43 A	19.0	1.274 V	20.0	1.248 V		

80k LM117 10602D019 WAFER#12 WHITESANDS

DEVICE	9	BIN	1	HEAD	3	03:27 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-32.613 UA	2.0	-32.613 UA	3.0	0.000 UA		
4.0	-0.229 UA	5.0	-0.80 MA	6.0	-0.99 MA		
7.0	-1.98 MA	8.0	1.248 V	9.0	1.231 V		
10.0	1.251 V	11.0	1.249 V	12.0	-3.5 MV		
13.0	-6.7 MV	14.0	1.8 MV	15.0	-2.7 MV		
22.0	41 UV	23.0	2.2 MV	24.0	0.215 MV		
25.0	80 DB	16.0	-1.04 A	17.0	1.249 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.235 V		

DEVICE	10	BIN	1	HEAD	3	03:27 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	2.97 V		
1.0	-31.849 UA	2.0	-32.460 UA	3.0	0.611 UA		
4.0	-0.535 UA	5.0	-0.81 MA	6.0	-0.99 MA		
7.0	-1.98 MA	8.0	1.244 V	9.0	1.229 V		
10.0	1.247 V	11.0	1.246 V	12.0	-3.4 MV		
13.0	-5.4 MV	14.0	1.5 MV	15.0	-2.9 MV		
22.0	41 UV	23.0	2.3 MV	24.0	0.218 MV		
25.0	81 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.253 V	20.0	1.233 V		

DEVICE	11	BIN	1	HEAD	3	03:28 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.19 V		
1.0	-32.613 UA	2.0	-33.530 UA	3.0	0.917 UA		
4.0	-0.458 UA	5.0	-0.76 MA	6.0	-0.96 MA		
7.0	-2.01 MA	8.0	1.259 V	9.0	1.245 V		
10.0	1.269 V	11.0	1.267 V	12.0	-9.5 MV		
13.0	-4.2 MV	14.0	2.1 MV	15.0	-2.4 MV		
22.0	42 UV	23.0	2.8 MV	24.0	0.216 MV		
25.0	69 DB	16.0	-1.12 A	17.0	1.261 V		
18.0	-0.43 A	19.0	1.275 V	20.0	1.250 V		

DEVICE	12	BIN	1	HEAD	3	03:28 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.17 V		
1.0	-31.620 UA	2.0	-32.613 UA	3.0	0.993 UA		
4.0	0.306 UA	5.0	-0.75 MA	6.0	-0.95 MA		
7.0	-1.98 MA	8.0	1.254 V	9.0	1.240 V		
10.0	1.262 V	11.0	1.261 V	12.0	-8.3 MV		
13.0	-3.8 MV	14.0	1.9 MV	15.0	-2.1 MV		
22.0	41 UV	23.0	2.8 MV	24.0	0.218 MV		
25.0	71 DB	16.0	-1.10 A	17.0	1.256 V		
18.0	-0.42 A	19.0	1.268 V	20.0	1.244 V		

DEVICE	13	BIN	1	HEAD	3	03:29 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.19 V		
1.0	-33.225 UA	2.0	-33.759 UA	3.0	0.535 UA		
4.0	-1.222 UA	5.0	-0.74 MA	6.0	-0.95 MA		
7.0	-1.95 MA	8.0	1.266 V	9.0	1.250 V		
10.0	1.277 V	11.0	1.274 V	12.0	-10.1 MV		
13.0	-6.4 MV	14.0	2.3 MV	15.0	-2.3 MV		
22.0	41 UV	23.0	2.9 MV	24.0	0.220 MV		
25.0	68 DB	16.0	-1.14 A	17.0	1.268 V		
18.0	-0.44 A	19.0	1.282 V	20.0	1.254 V		

DEVICE	14	BIN	1	HEAD	3	03:29 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.18 V		
1.0	-31.620 UA	2.0	-32.308 UA	3.0	0.688 UA		
4.0	-0.688 UA	5.0	-0.75 MA	6.0	-0.96 MA		
7.0	-2.05 MA	8.0	1.252 V	9.0	1.236 V		
10.0	1.260 V	11.0	1.258 V	12.0	-8.4 MV		
13.0	-6.1 MV	14.0	2.1 MV	15.0	-3.2 MV		
22.0	42 UV	23.0	3.1 MV	24.0	0.224 MV		
25.0	71 DB	16.0	-1.11 A	17.0	1.254 V		
18.0	-0.41 A	19.0	1.267 V	20.0	1.241 V		

DEVICE	15	BIN	1	HEAD	3	03:29 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.18 V		
1.0	-32.613 UA	2.0	-33.225 UA	3.0	0.611 UA		
4.0	-0.764 UA	5.0	-0.74 MA	6.0	-0.95 MA		
7.0	-2.01 MA	8.0	1.254 V	9.0	1.238 V		
10.0	1.262 V	11.0	1.261 V	12.0	-8.9 MV		
13.0	-5.7 MV	14.0	1.9 MV	15.0	-2.4 MV		
22.0	41 UV	23.0	2.7 MV	24.0	0.217 MV		
25.0	70 DB	16.0	-1.12 A	17.0	1.255 V		
18.0	-0.44 A	19.0	1.269 V	20.0	1.242 V		

DEVICE	16	BIN	1	HEAD	3	03:30 PM	03/16/2004
700.0	100	800.0	25 DGR	98.0	3.19 V		
1.0	-31.926 UA	2.0	-33.225 UA	3.0	1.299 UA		
4.0	0.000 UA	5.0	-0.73 MA	6.0	-0.95 MA		
7.0	-1.97 MA	8.0	1.257 V	9.0	1.242 V		
10.0	1.266 V	11.0	1.264 V	12.0	-9.1 MV		
13.0	-4.9 MV	14.0	1.9 MV	15.0	-2.2 MV		
22.0	41 UV	23.0	3.3 MV	24.0	0.225 MV		
25.0	69 DB	16.0	-1.13 A	17.0	1.258 V		
18.0	-0.43 A	19.0	1.272 V	20.0	1.246 V		

100K LM117 102602D019 Wafer#12 WhiteSands

DEVICE	9	BIN	1	HEAD	3	08:28 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	2.95 V		
1.0	-31.620 UA	2.0	-31.391 UA	3.0	-0.229 UA		
4.0	-0.306 UA	5.0	-0.79 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.248 V	9.0	1.234 V		
10.0	1.251 V	11.0	1.250 V	12.0	-3.5 MV		
13.0	-4.1 MV	14.0	1.5 MV	15.0	-2.6 MV		
22.0	39 UV	23.0	3.1 MV	24.0	0.218 MV		
25.0	82 DB	16.0	-1.04 A	17.0	1.249 V		
18.0	-0.33 A	19.0	1.256 V	20.0	1.238 V		

DEVICE	10	BIN	1	HEAD	3	08:28 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	2.96 V		
1.0	-31.085 UA	2.0	-31.620 UA	3.0	0.535 UA		
4.0	-0.229 UA	5.0	-0.81 MA	6.0	-0.99 MA		
7.0	-1.97 MA	8.0	1.244 V	9.0	1.229 V		
10.0	1.247 V	11.0	1.246 V	12.0	-3.5 MV		
13.0	-4.7 MV	14.0	1.5 MV	15.0	-2.9 MV		
22.0	40 UV	23.0	2.8 MV	24.0	0.226 MV		
25.0	81 DB	16.0	-1.05 A	17.0	1.246 V		
18.0	-0.33 A	19.0	1.253 V	20.0	1.234 V		

DEVICE	11	BIN	1	HEAD	3	08:29 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.17 V		
1.0	-31.620 UA	2.0	-32.308 UA	3.0	0.688 UA		
4.0	-0.076 UA	5.0	-0.75 MA	6.0	-0.97 MA		
7.0	-2.02 MA	8.0	1.258 V	9.0	1.244 V		
10.0	1.268 V	11.0	1.266 V	12.0	-10.1 MV		
13.0	-4.2 MV	14.0	2.2 MV	15.0	-2.2 MV		
22.0	39 UV	23.0	3.4 MV	24.0	0.220 MV		
25.0	69 DB	16.0	-1.12 A	17.0	1.260 V		
18.0	-0.44 A	19.0	1.274 V	20.0	1.249 V		

DEVICE	12	BIN	1	HEAD	3	08:29 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.17 V		
1.0	-31.238 UA	2.0	-32.613 UA	3.0	1.375 UA		
4.0	0.000 UA	5.0	-0.73 MA	6.0	-0.96 MA		
7.0	-1.99 MA	8.0	1.253 V	9.0	1.239 V		
10.0	1.262 V	11.0	1.260 V	12.0	-8.7 MV		
13.0	-4.4 MV	14.0	2.1 MV	15.0	-2.1 MV		
22.0	39 UV	23.0	3.1 MV	24.0	0.221 MV		
25.0	70 DB	16.0	-1.11 A	17.0	1.255 V		
18.0	-0.43 A	19.0	1.267 V	20.0	1.243 V		

DEVICE	13	BIN	1	HEAD	3	08:30 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.19 V		
1.0	-32.613 UA	2.0	-32.690 UA	3.0	0.076 UA		
4.0	0.000 UA	5.0	-0.72 MA	6.0	-0.94 MA		
7.0	-1.95 MA	8.0	1.264 V	9.0	1.248 V		
10.0	1.275 V	11.0	1.272 V	12.0	-10.2 MV		
13.0	-5.7 MV	14.0	2.1 MV	15.0	-2.0 MV		
22.0	39 UV	23.0	3.3 MV	24.0	0.223 MV		
25.0	68 DB	16.0	-1.14 A	17.0	1.266 V		
18.0	-0.45 A	19.0	1.280 V	20.0	1.253 V		

DEVICE	14	BIN	1	HEAD	3	08:30 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.18 V		
1.0	-31.085 UA	2.0	-31.467 UA	3.0	0.382 UA		
4.0	0.306 UA	5.0	-0.73 MA	6.0	-0.95 MA		
7.0	-2.05 MA	8.0	1.251 V	9.0	1.235 V		
10.0	1.259 V	11.0	1.257 V	12.0	-8.4 MV		
13.0	-6.0 MV	14.0	1.8 MV	15.0	-3.0 MV		
22.0	39 UV	23.0	3.2 MV	24.0	0.228 MV		
25.0	70 DB	16.0	-1.12 A	17.0	1.252 V		
18.0	-0.42 A	19.0	1.266 V	20.0	1.240 V		

DEVICE	15	BIN	1	HEAD	3	08:30 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.18 V		
1.0	-31.849 UA	2.0	-32.843 UA	3.0	0.993 UA		
4.0	0.076 UA	5.0	-0.73 MA	6.0	-0.94 MA		
7.0	-2.01 MA	8.0	1.251 V	9.0	1.235 V		
10.0	1.260 V	11.0	1.258 V	12.0	-9.0 MV		
13.0	-6.1 MV	14.0	2.1 MV	15.0	-2.4 MV		
22.0	39 UV	23.0	3.2 MV	24.0	0.224 MV		
25.0	70 DB	16.0	-1.13 A	17.0	1.253 V		
18.0	-0.44 A	19.0	1.266 V	20.0	1.240 V		

DEVICE	16	BIN	1	HEAD	3	08:31 AM	04/08/2004
700.0	100	800.0	25 DGR	98.0	3.20 V		
1.0	-31.620 UA	2.0	-31.926 UA	3.0	0.306 UA		
4.0	-1.146 UA	5.0	-0.72 MA	6.0	-0.93 MA		
7.0	-1.98 MA	8.0	1.254 V	9.0	1.241 V		
10.0	1.263 V	11.0	1.261 V	12.0	-9.2 MV		
13.0	-3.1 MV	14.0	1.9 MV	15.0	-2.3 MV		
22.0	39 UV	23.0	3.2 MV	24.0	0.224 MV		
25.0	69 DB	16.0	-1.14 A	17.0	1.255 V		
18.0	-0.44 A	19.0	1.269 V	20.0	1.245 V		