



Single-Event-Effects Summary Report

IR RAD-Hard Gen-6 100V N-channel

SEE Qualifications of:

JANTXVR, F, G, H AND JANSR, F, G, H 2N7587U3 MIL-PRF-19500/746

JANTXVR, F, G, H AND JANSR, F, G, H 2N7588T3 MIL-PRF-19500/755

JANTXVR, F, G, H AND JANSR, F, G, H 2N7579U2 MIL-PRF-19500/760

JANTXVR, F, G, H AND JANSR, F, G, H 2N7580T1 MIL-PRF-19500/753

IRHNJ67130, IRHNJ63130, IRHNJ66130, IRHNJ68130 SCV AND SCS

IRHYS67130CM, IRHYS63130CM, IRHYS66130CM, IRHYS68130CM SCV AND SCS

IRHNA67160, IRHNA63160, IRHNA66160, IRHNA68160 SCV AND SCS

IRHMS67160, IRHMS63160, IRHMS66160, IRHMS68160 SCV AND SCS



Fab-2 Wafer Lot: Q779706A
SEE Test Date: April 18th 2008
SEE Test Facility: Texas A&M Cyclotron

Ion	Kr	Xe	Au
LET	38.9	63.4	87.2
Energy	319	348	370
Range	39.5	32.5	28.4
Run Numbers	80-93	207-214	445-448

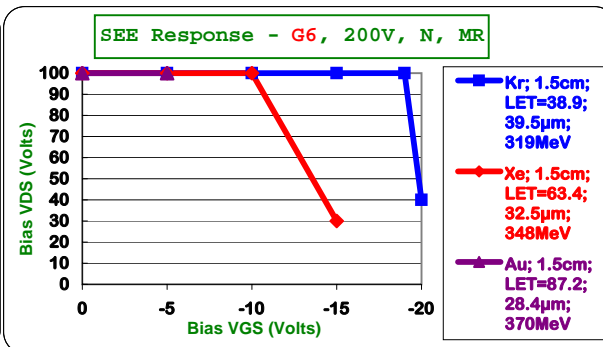
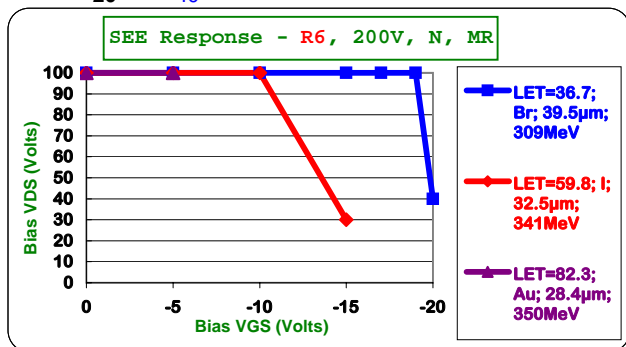
IR Fab-5 Specs

VGS Bias	VDS Bias (Volts)		
	LET=36.7; Br; 39.5µm; 309MeV	LET=59.8; I; 32.5µm; 341MeV	LET=82.3; Au; 28.4µm; 350MeV
0	100	100	100
-5	100	100	100
-10	100	100	100
-15	100	30	100
-17	100		100
-19	100		100
-20	40		100

IR Fab-2 Qual to Specs

VGS Bias	VDS Bias (Volts)		
	Kr; 1.5cm; LET=38.9; 39.5µm; 319MeV	Xe; 1.5cm; LET=63.4; 32.5µm; 348MeV	Au; 1.5cm; LET=87.2; 28.4µm; 370MeV
0	100	100	100
-5	100	100	100
-10	100	100	100
-15	100	30	100
-19	100		100
-20	40		100

Also qualified to Kr at -20V & 100V



Test Date	Run No.	Ion	DUT Id	Socket	Wafer	Serial	Batch	VGS Volts	VDS Volts	Pass/Fail
4/18/2009	80	Kr	I1	1	1	1	5	-19	100	Blank=Pass
4/18/2009	81	Kr	I2	2	1	2	5	-19	100	CurvePoint-1
4/18/2009	82	Kr	I3	3	1	3	5	-19	100	CurvePoint-1
4/18/2009	83	Kr	I4	4	1	4	5	-20	40	CurvePoint-1
4/18/2009	84	Kr	I5	5	1	5	5	-20	40	CurvePoint-2
4/18/2009	85	Kr	I6	6	1	6	5	-20	40	CurvePoint-2
4/18/2009	86	Kr	I7	7	1	7	5	-20	50	
4/18/2009	87	Kr	I7	7	1	7	5	-20	60	
4/18/2009	88	Kr	I7	7	1	7	5	-20	70	
4/18/2009	89	Kr	I7	7	1	7	5	-20	80	
4/18/2009	90	Kr	I7	7	1	7	5	-20	90	
4/18/2009	91	Kr	I7	7	1	7	5	-20	100	CurvePoint-2 (better)
4/18/2009	92	Kr	I10	8	1	10	5	-20	100	CurvePoint-2 (better)
4/18/2009	93	Kr	I11	9	1	11	5	-20	100	CurvePoint-2 (better)
4/18/2009	207	Xe	I12	1	2	12	12	-10	100	CurvePoint-1
4/18/2009	208	Xe	I13	2	2	13	12	-10	100	CurvePoint-1
4/18/2009	209	Xe	I14	3	2	14	12	-10	100	CurvePoint-1
4/18/2009	210	Xe	I15	4	3	15	12	-10	100	CurvePoint-1
4/18/2009	211	Xe	I16	5	3	16	12	-15	30	CurvePoint-2
4/18/2009	212	Xe	I17	6	3	17	12	-15	30	CurvePoint-2
4/18/2009	213	Xe	I18	7	3	18	12	-15	30	CurvePoint-2
4/18/2009	214	Xe	I19	8	3	19	12	-15	30	CurvePoint-2
4/19/2009	445	Au	I21	1	3	21	25	-5	100	CurvePoint
4/19/2009	446	Au	I22	2	4	22	25	-5	100	CurvePoint
4/19/2009	447	Au	I23	3	4	23	25	-5	100	CurvePoint
4/19/2009	448	Au	I24	4	4	24	25	-5	100	CurvePoint



RadHard MOSFET - G6, Size 6, 100V, N-channel

BATCH5		TAMU	IRHC67160	PRE	4/18/2009	2:30 PM	Kr		
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME		
	1	PASS	6.63E-09	4.74E-09	1.84E-07	108.9	4/18/2009	2:30:53 PM	
	2	PASS	5.31E-09	3.24E-09	1.5E-07	108.21	4/18/2009	2:31:02 PM	
	3	PASS	1.067E-08	7.73E-09	1.92E-07	108.99	4/18/2009	2:31:11 PM	
	4	PASS	1.537E-08	9.76E-09	1.74E-07	108.38	4/18/2009	2:31:23 PM	
	5	PASS	1.894E-08	1.081E-08	2.03E-07	109.07	4/18/2009	2:31:32 PM	
	6	PASS	1.904E-08	4.402E-08	1.88E-07	108.94	4/18/2009	2:31:41 PM	
	7	PASS	7.24E-09	4.41E-09	1.35E-07	108.26	4/18/2009	2:31:49 PM	
	8	PASS	6.21E-09	3.56E-09	1.8E-07	108.88	4/18/2009	2:31:58 PM	
	9	PASS	5.06E-09	2.73E-09	2.09E-07	109.15	4/18/2009	2:32:06 PM	
BATCH5		TAMU	IRHC67160	POST	4/18/2009	3:08 PM	Kr		
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME	Ion, Insitu & SEE Results	
I1	1	PASS	8.68E-09	6.86E-09	3.16E-07	108.86	4/18/2009	3:08:54 PM	Kr Pass -19V / 100V
I2	2	PASS	5.49E-09	3.38E-09	1.96E-07	108.16	4/18/2009	3:09:03 PM	Kr Pass -19V / 100V
I3	3	PASS	1.142E-08	9.09E-09	2.34E-07	108.94	4/18/2009	3:09:12 PM	Kr Pass -19V / 100V
I4	4	PASS	1.675E-08	1.108E-08	2E-07	108.34	4/18/2009	3:09:21 PM	Kr Pass -20V / 40V
I5	5	PASS	2.031E-08	1.193E-08	2.51E-07	109.03	4/18/2009	3:09:30 PM	Kr Pass -20V / 40V
I6	6	PASS	2.103E-08	1.456E-08	2.37E-07	108.9	4/18/2009	3:09:38 PM	Kr Pass -20V / 40V
I7	7	PASS	7.66E-09	4.73E-09	1.6E-07	108.2	4/18/2009	3:09:48 PM	Kr Pass -20V / 100V (Better)
I10	8	PASS	6.35E-09	3.53E-09	1.83E-07	108.83	4/18/2009	3:09:56 PM	Kr Pass -20V / 100V (Better)
I11	9	PASS	5.26E-09	3.00E-09	1.78E-07	109.09	4/18/2009	3:10:06 PM	Kr Pass -20V / 100V (Better)
BATCH12		TAMU	IRHC67160	PRE	4/18/2009	8:52 PM	Xe		
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME		
	1	PASS	5.28E-09	3.48E-09	1.78E-07	108.94	4/18/2009	8:52:44 PM	
	2	PASS	4.9E-09	2.81E-09	1.45E-07	108.61	4/18/2009	8:52:53 PM	
	3	PASS	8.98E-09	6.37E-09	2.21E-07	108.91	4/18/2009	8:53:02 PM	
	4	PASS	1.382E-08	8.61E-09	2.23E-07	109.22	4/18/2009	8:53:10 PM	
	5	PASS	1.693E-08	9.55E-09	2.01E-07	108.8	4/18/2009	8:53:18 PM	
	6	PASS	1.683E-08	1.132E-08	2.1E-07	109.22	4/18/2009	8:53:26 PM	
	7	PASS	6.75E-09	4.24E-09	1.28E-07	109.13	4/18/2009	8:53:35 PM	
	8	PASS	5.94E-09	2.85E-09	1.61E-07	108.91	4/18/2009	8:53:43 PM	
	9	PASS	4.81E-09	2.73E-09	1.8E-07	109.33	4/18/2009	8:53:52 PM	
BATCH12		TAMU	IRHC67160	POST	4/18/2009	9:17 PM	Xe		
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME	Ion, Insitu & SEE Results	
I12	1	PASS	7.55E-09	5.58E-09	3.24E-07	108.81	4/18/2009	9:17:48 PM	Xe Pass -10V / 100V
I13	2	PASS	5.22E-09	3.11E-09	1.87E-07	108.48	4/18/2009	9:17:57 PM	Xe Pass -10V / 100V
I14	3	PASS	1.102E-08	8.07E-09	1.98E-07	108.81	4/18/2009	9:18:07 PM	Xe Pass -10V / 100V
I15	4	PASS	1.581E-08	1.032E-08	2.37E-07	109.13	4/18/2009	9:18:16 PM	Xe Pass -10V / 100V
I16	5	PASS	1.893E-08	1.102E-08	2.12E-07	108.71	4/18/2009	9:18:24 PM	Xe Pass -15V / 30V
I17	6	PASS	1.957E-08	1.336E-08	2.39E-07	109.14	4/18/2009	9:18:35 PM	Xe Pass -15V / 30V
I18	7	PASS	7.17E-09	4.43E-09	2.07E-07	109.03	4/18/2009	9:18:43 PM	Xe Pass -15V / 30V
I19	8	PASS	6.16E-09	3.27E-09	1.44E-07	108.83	4/18/2009	9:18:52 PM	Xe Pass -15V / 30V
I20	9	PASS	5.08E-09	2.67E-09	1.55E-07	109.26	4/18/2009	9:19:00 PM	Xe Un-Tested



BATCH25	TAMU	IRHC67160	PRE	4/20/2009	12:38 AM	Au	
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME
1	PASS	3.63E-09	1.46E-09	6.42E-08	109.22	4/20/2009	12:38:48 AM
2	PASS	3.84E-09	1.48E-09	2.21E-07	108.88	4/20/2009	12:38:57 AM
3	PASS	4.47E-09	2.55E-09	1.98E-07	108.9	4/20/2009	12:39:05 AM
4	PASS	5.68E-09	3.8E-09	1.91E-07	108.99	4/20/2009	12:39:13 AM
5	PASS	6.74E-09	4.29E-09	1.68E-07	108.51	4/20/2009	12:39:22 AM
6	PASS	6.55E-09	3.76E-09	1.8E-07	108.99	4/20/2009	12:39:31 AM
7	PASS	3.93E-09	2.03E-09	1.46E-07	108.88	4/20/2009	12:39:39 AM
8	PASS	3.92E-09	1.93E-09	1.44E-07	108.72	4/20/2009	12:39:48 AM
9	PASS	3.66E-09	1.88E-09	1.89E-07	109.11	4/20/2009	12:39:56 AM

BATCH25	TAMU	IRHC67160	POST	4/20/2009	12:52 AM	Au			
SOCKET	BIN	(-)IGSS (A)	(+)IGSS (A)	IDSS (A)	BVR (V)	DATE	TIME	Ion, Insitu & SEE Results	
I21	1	PASS	3.75E-09	1.14E-09	2.38E-07	109.09	4/20/2009	12:53:01 AM	Au Pass -5V / 100V
I22	2	PASS	3.57E-09	1.67E-09	2.82E-07	108.78	4/20/2009	12:53:10 AM	Au Pass -5V / 100V
I23	3	PASS	5.07E-09	2.8E-09	2.56E-07	108.8	4/20/2009	12:53:18 AM	Au Pass -5V / 100V
I24	4	PASS	5.47E-09	3.41E-09	2.5E-07	108.89	4/20/2009	12:53:27 AM	Au Pass -5V / 100V
I25	5	PASS	6.93E-09	3.84E-09	2.16E-07	108.43	4/20/2009	12:53:35 AM	Au Un-Tested
I26	6	PASS	6.73E-09	3.8E-09	1.96E-07	108.91	4/20/2009	12:53:43 AM	Au Un-Tested
I27	7	PASS	1.77E-09	2.45E-09	1.88E-07	108.78	4/20/2009	12:53:52 AM	Au Un-Tested
I28	8	PASS	3.83E-09	1.66E-09	1.91E-07	108.63	4/20/2009	12:54:00 AM	Au Un-Tested
I29	9	PASS	3.8E-09	1.71E-09	1.91E-07	109.03	4/20/2009	12:54:08 AM	Au Un-Tested

VGS (Volts)	LET=39±5%; 40µm±5%; 315MeV±5%	LET=61±5%; 32µm±7.5%; 345MeV±5%	LET=90±5%; 29µm±7.5%; 375MeV±7.5%
0	100	100	100
-5	100	100	100
-10	100	100	100
-15	100	30	100
-19	100		
-20	40		

Final QPL Specs

for 2N7587U3/746 (IRHNJ67130)
 for 2N7588T3/755 (IRHYS67130CM)
 for 2N7579U2/760 (IRHNA67160)
 for 2N7580T1/753 (IRHMS67160)

