

PROCESS CHANGE NOTICE
 PRODUCT CHANGE NOTICE
**MAXIM INTEGRATED HEREBY ISSUES NOTIFICATION OF CHANGE
 THAT MAY AFFECT THE FOLLOWING CATEGORIES:**

<input type="checkbox"/> DESIGN	<input checked="" type="checkbox"/> WAFER FAB	<input type="checkbox"/> ASSEMBLY	<input type="checkbox"/> TEST	<input type="checkbox"/> ELEC/MECH SPECS
---------------------------------	---	-----------------------------------	-------------------------------	--

AFFECTED PRODUCT:

Ordering P/N: (See PN listing XLS in PCN ZIP file)

CHANGE FROM: Devices fabricated at Maxim's X3 fabrication facility in San Jose, CA on the S18UM LV process

CHANGE TO: Devices moved to be fabricated at Maxim's San Antonio, TX facility on the S18UM LV process

JUSTIFICATION: Maxim will be closing its X3 fabrication facility located in San Jose, CA. Production is targeted to shut down by 25 JUN 2015. Maxim currently produces the following process technology families at this wafer fabrication site: C6, MBIC3 and S18. These process technologies are qualified and running in production volume at our San Antonio, TX facility and Epson in Japan, our foundry partner.


This PCN is specific to the devices in the S18U (up to 48V) fabrication process which was fully qualified and initially released to production at San Antonio in July, 2011. Each of these PCN devices has been transferred to San Antonio and completed the AEC-Q100 testing. Product shipments will commence starting mid July 2015 upon successful approval of the PCN.

There will be no change to the form, fit, function, die geometry or guaranteed electrical datasheet EC table performance of these devices.

Attached are the AEC-Q100 reports for the transfer to the San Antonio fabrication facility for the specific devices.

TRACEABILITY: Maxim Integrated maintains full traceability by device marking, packaging labels and shipment documents.

Maxim Integrated's Change Notification System is designed to keep our customer base apprised of major product, manufacturing, or facility improvements.



Deborah Meeker / PCN Coordinator

For further information, please contact either of the people listed below.

Contact your local Maxim Integrated Company Representative

or Deborah Meeker, PCN Coordinator

408-601-5618 / pcn.coordinator@maximintegrated.com



MAX16990ATCx/V+
MAX16992ATCx/V+
36V, 2.5MHz Automotive Boost/SEPIC Controllers
Temperature Grade 1
12L TQFN 3x3
T1233+4

MAX16990ATCx/V+ MAX16992ATCx/V+ 36V, 2.5MHz Automotive Boost/SEPIC Controllers

Summary:

This report summarizes the results of the reliability tests performed by Maxim to qualify the [MAX16990ATCD/V+ for automotive applications.

Conclusion:

The MAX16990ATCD/V+ successfully meets the reliability requirements performed by Maxim in accordance with the automotive qualification standard, AEC-Q100.

AEC-Q100 Qualification Requirements/Acceptance Criteria:

	Stress	ABV	AEC #	#of Lots	SS/Lot	ACC	ATE Temp	Method
Device Specific Tests	Electrostatic Discharge (Human Body/Machine Model)	ESD (HBM/M M)	E2	1	25	HBM:2000V MM:200V	RH	AEC-Q100-002 AEC-Q100-003
	Electrostatic Discharge (Device Model)	ESD (CDM)	E3	1	15	750V corner pins, 500V all other pins	RH	AEC-Q100-011
	Latch-Up	LU	E4	1	6	0	RH	AEC-Q100-004
	Electrical Distribution	ED	E5	3 (1)	30	Cpk > 1.33 [^]	RHC	AEC-Q100-009
Package/ Process Related Tests	Preconditioning (Per MSL)	PC	A1	3	77	0	R	J-STD-020 JESD22- A113
	Temp Hum Bias (85°C / 85% RH, 1000hrs)	THB	A2	3	77	0	RH	JESD22- A101 or A110
	Biased HAST (130°C / 85% RH, 96hrs)	BHAST						
	Unbiased HAST (130°C / 85% RH, 96hrs)	UHAST	A3	3	77	0	R	JESD22- A102, A118, or A101
	Temperature Cycle (-65°C to 150°C, 500X)	TC	A4	3	77	0	RH	JESD22-A104 and Appendix 3
	Wire Bond Pull (Post – TC)	WBP	C2	3	5	0	N/A	MIL-STD883 Method 2011
	High Temp Storage (150°C, 1000hrs or 500hrs)	HTSL ⁺	A6	1	45	0	RH	JESD22- A103
	Solderability	SD	C3	1	15	0	N/A	JESD22-B102
	High Temp Operating Life (2)	HTOL ^{**}	B1	3	77	0	RHC	JESD22-A108
	Early Life Failure Rate (3)	ELFR	B2	3	800	0	RH	AEC Q100-008

Note1:

- 1 – One lot process skewed may be used
- 2 – Grade 1 (1000hrs), Grade 2 (500hrs), Grade 3 (192hrs)
- 3 – Grade 1 (48hrs), Grade 2 (24hrs), Grade 3 (12hrs)

Note2:

- [^] – Statistical process controls to Cpk ≥ 1.67 for new products introduced after February 2013.
- ⁺ – Stress duration per temperature grade of the part.
- ^{**} – BI T_{AMB} is 135°C unless otherwise stated on schematic.

Test Results/Lot information (Device Specific):

Table 1:

Lot Number:		TAQJ4Q001F	
Part Number:		MAX16990ATCD/V+	
Temperature Grade:		1	
Fab Site:		SAN ANTONIO	
Fab Process Core:		S18	
Fab Process Tech:		S18UM4S 8" 0.18um	
Metallization/# Layers:		AlCu / 4	
Passivation:		SiN / SiO2	
Die Type:		AP37A-0C	
Package Assembly Site:		ASE CHUNG-LI	
Die Size:		50 X 50	
Package Type:		12L TQFN 3X3	
Wire Bond Material/Dia.:		Au 1.0 mil	
Mold Compound:		G770HJ	
Die Attach:		EN4900G	
Leadframe Material:		COPPER	
Lead Finish:		100% MATTE TIN	
Date Code:		1424	
Rel Lot Number:		R27202A	
AEC #	Test	Results	
		SS	Temp
E2	ESD (HBM)	2500V	RH
E3	ESD (CDM)	750V	RH
E4	Latch-Up	CI 0/6	OV 0/6
E5	Electrical Distribution	Cpk >1.33	RHC

Note:

(1) One lot process skewed.

Test Results/Lot information (Package Technology): ASE CHUNG-LI

Table 2:

Lot Number:		TAQJ4Q001F		SAEN9Q001DD		SAIW3Q002C	
Part Number:		MAX16990ATCD/V+		MAX16936RATEA/V+		MAX16936RATEA/V+	
Temperature Grade:		1		1		1	
Fab Site:		SAN ANTONIO		SAN JOSE		SAN JOSE	
Fab Process Core:		S18		S18		S18	
Fab Process Tech:		S18UM4S 8" 0.18um		S18UM4 8" 0.18um		S18UM4 8" 0.18um	
Metallization/# Layers:		AlCu / 4		AlCu / 4		AlCu / 4	
Passivation:		SiN / SiO2		SiN / SiO2		SiN / SiO2	
Die Type:		AP37A-0C		AP33A-0B		AP33A-0C	
Package Assembly Site:		ASE CHUNG-LI		ASE CHUNG-LI		ASE CHUNG-LI	
Die Size:		50 X 50		64.17 X 66.14		64.17 X 66.14	
Package Type:		12L TQFN 3X3		16L TQFN 5X5		16L TQFN 5X5	
Wire Bond Material/Dia.:		Au 1.0 mil		Au 1.3 mils		Au 1.3 mils	
Mold Compound:		G770HJ		G770HJ		G770HJ	
Die Attach:		EN4900G		EN4900G		EN4900G	
Leadframe Material:		COPPER		COPPER		COPPER	
Lead Finish:		100% MATTE TIN		100% MATTE TIN		100% MATTE TIN	
Date Code:		1424		1219		1252	
Rel Lot Number:		R27202A		R26114A		R26114B	
AEC #	Test	Results		Results		Results	
		SS	Temp	SS	Temp	SS	Temp
A1	Preconditioning	0/231	R	0/231	R	0/231	R
A2	HAST	0/77	RH	0/77	RH	0/77	RH
A3	Unbiased HAST	0/77	R	0/77	R	0/77	R
A4	Temperature Cycle	500x – 0/77	RH	500x – 0/77	RH	500x – 0/77	RH
C2	Wire Bond Pull	0/140	N/A	0/103	N/A	-	N/A
A6	High Temp Storage	1000hrs – 0/45	RH	1000hrs – 0/45	RH	-	N/A
C3	Solderability	-	N/A	0/15	N/A	-	N/A
B1	High Temp Op/Life	1000hrs – 0/77	RHC	1000hrs – 0/77	RHC	1000hrs – 0/77	RHC

Test Results/Lot information (Package Technology): UTL

Table 3:

Lot Number:		TTDZIQ002BA		SAE9Q001FA		SAKZ3A004AA	
Part Number:		MAX16903RATB33/V+		MAX16936RATEA/V+		MAX16936RATEA/V+	
Temperature Grade:		1		1		1	
Fab Site:		SAN ANTONIO		SAN JOSE		SAN JOSE	
Fab Process Core:		S4		S18		S18	
Fab Process Tech:		S45JRS 8" 0.4um		S18UM4 8" 0.18um		S18UM4 8" 0.18um	
Metallization/# Layers:		AlCu / 4		AlCu / 4		AlCu / 4	
Passivation:		SiN / SiO2		SiN / SiO2		SiN / SiO2	
Die Type:		AP08Y		AP33A-0B		AP33A-0B	
Package Assembly Site:		UTL		UTL		UTL	
Die Size:		63 X 70		64.17 X 66.14		64.17 X 66.14	
Package Type:		10L QFN 3X3		16L TQFN 5X5		16L TQFN 5X5	
Wire Bond Material/Dia.:		Au 1.3 MILS		Au 1.3 MILS		Au 1.3 MILS	
Mold Compound:		G770HCD		G770HCD		G770HCD	
Die Attach:		AB8200T		AB8200T		AB8200T	
Leadframe Material:		COPPER		COPPER		COPPER	
Lead Finish:		100% MATTE TIN		100% MATTE TIN		100% MATTE TIN	
Date Code:		1116		1305		1318	
Rel Lot Number:		R25301A		R26114E		R26114F	
AEC #	Test	Results		Results		Results	
		SS	Temp	SS	Temp	SS	Temp
A1	Preconditioning	0/231	R	0/231	R	0/231	R
A2	HAST	0/77	RH	0/77	RH	0/77	RH
A3	Unbiased HAST	0/77	R	0/77	R	0/77	R
A4	Temperature Cycle	500x – 0/77	RH	500x – 0/77	RH	500x – 0/77	RH
C2	Wire Bond Pull	0/75	N/A	0/102	N/A	-	N/A
A6	High Temp Storage	1000hrs – 0/45	RH	-	N/A	-	N/A
C3	Solderability	0/15	N/A	-	N/A	-	N/A
B1	High Temp Op/Life	-	N/A	1000hrs – 0/77	RHC	-	N/A

Test Results/Lot information (Wafer Process Technology):

Table 4:

Lot Number:	TAQJ4Q001F	TAQT1Q001A	TAQT1Q002BA
Part Number:	MAX16990ATCD/V+	MAX16936RATEA/V+CA	MAX16936RATEA/V+CA
Temperature Grade:	1	1	1
Fab Site:	SAN ANTONIO	SAN ANTONIO	SAN ANTONIO
Fab Process Core:	S18	S18	S18
Fab Process Tech:	S18UM4S 8" 0.18um	S18UM4S 8" 0.18um	S18UM4S 8" 0.18um
Metallization/# Layers:	AlCu / 4	AlCu / 4	AlCu / 4
Passivation:	SiN / SiO2	SiN / SiO2	SiN / SiO2
Die Type:	AP37A-0C	AP33A-0E	AP33A-0E
Package Assembly Site:	ASE CHUNG-LI	ASE CHUNG-LI	ASECL
Die Size:	50 X 50	64.17 X 66.14	64.17 X 66.14
Package Type:	12L TQFN 3X3	16L TQFN 5X5	16L TQFN 5X5
Wire Bond Material/Dia.:	Au 1.0 mil	Au 1.3 mil	Au 1.3 mil
Mold Compound:	G770HJ	G770HJ	G770HJ
Die Attach:	EN4900G	EN4900G	EN4900G
Leadframe Material:	COPPER	COPPER	COPPER
Lead Finish:	100% MATTE TIN	100% MATTE TIN	100% MATTE TIN
Date Code:	1424	1415	1426
Rel Lot Number:	R27202A	R26410G	R27254A

AEC #	Test	Results		Results		Results	
		SS	Temp	SS	Temp	SS	Temp
A1	Preconditioning	0/231	R	0/231	R	0/231	R
A2	HAST	0/77	RH	0/77	RH	0/77	RH
A3	Unbiased HAST	0/77	R	0/77	R	0/77	R
A4	Temperature Cycle	500x – 0/77	RH	500x – 0/77	RH	500x – 0/77	RH
A6	High Temp Storage	1000hrs – 0/45	RH	1000hrs – 0/77	RH	-	N/A
B1	High Temp Operating Life	1000hrs – 0/77	RHC	1000hrs – 0/77	RHC	1000hrs – 0/77	RHC
B2	Early Life Failure Rate	48hrs – 0/800	RH	48hrs – 0/800	RH	48hrs – 0/800	RH

Test Results/Lot information (Wafer Process Technology):

Table 5:

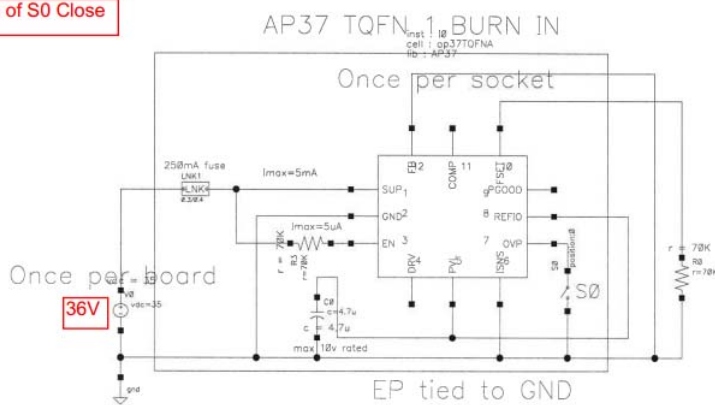
Lot Number:	TAQT1Q003BA	TAMB0Z001BC	TAMC4U005P
Part Number:	MAX16936RATEA/V+CA	MAX5704AUB+	MAX16840ATB+T
Temperature Grade:	1	1	1
Fab Site:	SAN ANTONIO	SAN ANTONIO	SAN ANTONIO
Fab Process Core:	S18	S18	S18
Fab Process Tech:	S18UM4S 8" 0.18um	S18UM4S 8" 0.18um	S18UM3S 8" 0.18um
Metallization/# Layers:	AlCu / 4	AlCu / 4	AlCu / 3
Passivation:	SiN / SiO2	SiN / SiO2	SiN / SiO2
Die Type:	AP33A-0E	DB50A-0C	SP26A-0A
Package Assembly Site:	ASECL	ATP	ASE CHUNG-LI
Die Size:	64.17 X 66.14	31.89 X 62.6	46.85 X 61.42
Package Type:	16L TQFN 5X5	10L MSOP	10L TDFN 3X3
Wire Bond Material/Dia.:	Au 1.3 mil	Au 1.0 mil	Au 1.3 mil
Mold Compound:	G770HJ	G700K	G770HJ
Die Attach:	EN4900G	AB8290	EN4900G
Leadframe Material:	COPPER	COPPER	COPPER
Lead Finish:	100% MATTE TIN	100% MATTE TIN	100% MATTE TIN
Date Code:	1425	1334	1337
Rel Lot Number:	R27254B	R26410E	R26410Z11

AEC #	Test	Results		Results		Results	
		SS	Temp	SS	Temp	SS	Temp
A1	Preconditioning	0/231	R	0/231	R	-	N/A
A2	HAST	0/77	RH	0/77	R	-	N/A
A3	Unbiased HAST	0/77	R	-	N/A	-	N/A
A4	Temperature Cycle	500x – 0/77	RH	500x – 0/77	R	-	N/A
A6	High Temp Storage	-	N/A	-	N/A	-	N/A
B1	High Temp Operating Life	1000hrs – 0/76	RHC	1000hrs – 0/77	R	-	N/A
B2	Early Life Failure Rate	48hrs – 0/800	RH	-	N/A	12hrs – 0/3584	R

Test Schematics: (Burn-in schematic)

MAX16990/MAX16992 ATCC/D /V+: Close switch S0.
 MAX16990/MAX16992 ATCE/F /V+: Open switch S0.
 Package: 12pin TQFN (T1233+4)
 Continuous power dissipation(TA=70C) 1176.5mW
 Tjmax 150C
 Thermal shutdown: 175C.
 Typ supply current: 1.1mA Max 5mA
 Typ die power: 150mW. Max die power: 400mW.
 MOV is 36v.
 Check PVL=5V
 DRV (pin4)shows a 400KHz square waveform with higher than 90% duty cycle.(high is 5v)
 Pin 4,9,11 are floated

Default position of S0 Close



Electrical Distribution: One Lot Process Skewed

Test Name	Temp	Unit	EC / QA Min (Output)	EC / QA Max (Output)	QA CPK
ISUP	-40	mAMPS	200.0E-03	10.0E+00	14.75
ISUP	125	mAMPS	200.0E-03	10.0E+00	14.07
ISUP	25	mAMPS	200.0E-03	10.0E+00	15.32
PVL_Voltage	-40	VOLTS	4.7E+00	5.3E+00	1.70
PVL_Voltage	125	VOLTS	4.7E+00	5.3E+00	3.92
PVL_Voltage	25	VOLTS	4.7E+00	5.3E+00	3.47
Post_Lockbit	-40	VOLTS	4.7E+00	5.3E+00	192.76
Post_Lockbit	125	VOLTS	4.7E+00	5.3E+00	109.58
Post_Lockbit	25	VOLTS	4.7E+00	5.3E+00	109.89
OTP_REF_Post	-40	VOLTS	1.2375E+00	1.2625E+00	3.62
OTP_REF_Post	125	VOLTS	1.2375E+00	1.2625E+00	2.25
OTP_REF_Post	25	VOLTS	1.24E+00	1.26E+00	4.56
OTP_IBIAS_Post	-40	uAMPS	4.5E+00	5.5E+00	2.39
OTP_IBIAS_Post	125	uAMPS	4.5E+00	5.5E+00	2.36
OTP_IBIAS_Post	25	uAMPS	4.5E+00	5.5E+00	2.58
OTP_LOSC_Post	-40	KHERTZ	360.0E+00	440.0E+00	4.40
OTP_LOSC_Post	125	KHERTZ	360.0E+00	440.0E+00	4.80
OTP_LOSC_Post	25	KHERTZ	360.0E+00	440.0E+00	5.65
OTP_ACS_POST	-40	mVOLTS	212.0E+00	288.0E+00	3.86
OTP_ACS_POST	125	mVOLTS	212.0E+00	288.0E+00	3.81
OTP_ACS_POST	25	mVOLTS	212.0E+00	288.0E+00	4.00
V_PGOOD_DC	-40	VOLTS	4.0E+00	5.5E+00	14.42
V_PGOOD_DC	125	VOLTS	4.0E+00	5.5E+00	20.92
V_PGOOD_DC	25	VOLTS	4.0E+00	5.5E+00	17.10
V_PVL_DC	-40	VOLTS	5.0E+00	5.5E+00	595.77
V_PVL_DC	125	VOLTS	5.0E+00	5.5E+00	596.95
V_PVL_DC	25	VOLTS	5.0E+00	5.5E+00	569.95
MAX_DC	-40	%%	93.0E+00	98.0E+00	4.28
MAX_DC	125	%%	93.0E+00	98.0E+00	5.15
MAX_DC	25	%%	93.0E+00	98.0E+00	4.71

SYNC_REG	-40	VOLTS	800.0E-03	1.0E+00	4.06
SYNC_REG	125	VOLTS	800.0E-03	1.0E+00	5.63
SYNC_REG	25	VOLTS	800.0E-03	1.0E+00	4.96
SYNC_FREQ_HR	-40	KHERTZ	950.0E+00	1.05E+03	126.05
SYNC_FREQ_HR	125	KHERTZ	950.0E+00	1.05E+03	120.74
SYNC_FREQ_HR	25	KHERTZ	950.0E+00	1.05E+03	113.24
SYNC_FREQ_LR	-40	KHERTZ	209.0E+00	231.0E+00	247.07
SYNC_FREQ_LR	125	KHERTZ	209.0E+00	231.0E+00	263.23
SYNC_FREQ_LR	25	KHERTZ	209.0E+00	231.0E+00	261.38
SYNC_FREQ_LR_EXT_RES	-40	KHERTZ	80.0E+00	120.0E+00	2.93
SYNC_FREQ_LR_EXT_RES	125	KHERTZ	80.0E+00	120.0E+00	5.46
SYNC_FREQ_LR_EXT_RES	25	KHERTZ	80.0E+00	120.0E+00	3.96
SYNC_FREQ_HR_EXT_RES	-40	KHERTZ	800.0E+00	1.2E+03	9.91
SYNC_FREQ_HR_EXT_RES	125	KHERTZ	800.0E+00	1.2E+03	7.10
SYNC_FREQ_HR_EXT_RES	25	KHERTZ	800.0E+00	1.2E+03	9.20
FSET_Thres_R	-40	VOLTS	1.5E+00	2.5E+00	19.41
FSET_Thres_R	125	VOLTS	1.5E+00	2.5E+00	28.68
FSET_Thres_R	25	VOLTS	1.5E+00	2.5E+00	24.03
FSET_Thres_F	-40	VOLTS	1.0E+00	2.3E+00	16.76
FSET_Thres_F	125	VOLTS	1.0E+00	2.3E+00	24.32
FSET_Thres_F	25	VOLTS	1.0E+00	2.3E+00	20.71
FSET_Thres_Hys	-40	VOLTS	-500.0E-03	500.0E-03	32.38
FSET_Thres_Hys	125	VOLTS	-500.0E-03	500.0E-03	45.70
FSET_Thres_Hys	25	VOLTS	-500.0E-03	500.0E-03	37.60
REFIO_Thres_R	-40	VOLTS	4.2E+00	4.9E+00	6.63
REFIO_Thres_R	125	VOLTS	4.2E+00	4.9E+00	4.58
REFIO_Thres_R	25	VOLTS	4.2E+00	4.9E+00	7.27
REFIO_Thres_F	-40	VOLTS	4.2E+00	4.9E+00	4.45
REFIO_Thres_F	125	VOLTS	4.2E+00	4.9E+00	7.36
REFIO_Thres_F	25	VOLTS	4.2E+00	4.9E+00	7.04
REFIO_Thres_Hys	-40	mVOLTS	-250.0E+00	250.0E+00	62.25
REFIO_Thres_Hys	125	mVOLTS	-250.0E+00	250.0E+00	79.85
REFIO_Thres_Hys	25	mVOLTS	-250.0E+00	250.0E+00	70.06
REFIO_G	-40	VOLTS	-500.0E-03	500.0E-03	1457.67
REFIO_G	125	VOLTS	-500.0E-03	500.0E-03	716.98

REFIO_G	25	VOLTS	-500.0E-03	500.0E-03	626.11
REFIO_NG	-40	VOLTS	4.0E+00	6.0E+00	644.64
REFIO_NG	125	VOLTS	4.5E+00	5.5E+00	182.65
REFIO_NG	25	VOLTS	4.5E+00	5.5E+00	194.21
Slopecomp_lpeak	-40	uAMPS	-60.0E+00	-40.0E+00	2.84
Slopecomp_lpeak	125	uAMPS	-60.0E+00	-40.0E+00	3.51
Slopecomp_lpeak	25	uAMPS	-60.0E+00	-40.0E+00	3.30
GAIN_I	-40	V/V	6.5E+00	9.5E+00	2.24
GAIN_I	125	V/V	2.5E+00	9.5E+00	2.70
GAIN_I	25	V/V	6.5E+00	9.5E+00	2.18
Softstart_time	-40	mSECONDS	6.0E+00	12.0E+00	3.80
Softstart_time	125	mSECONDS	6.0E+00	12.0E+00	2.97
Softstart_time	25	mSECONDS	6.0E+00	12.0E+00	3.52
Hiccup_time	-40	mSECONDS	35.0E+00	75.0E+00	4.45
Hiccup_time	125	mSECONDS	35.0E+00	75.0E+00	3.84
Hiccup_time	25	mSECONDS	35.0E+00	75.0E+00	4.26
FB_Reg_5p0	-40	VOLTS	990.0E-03	1.01E+00	2.52
FB_Reg_5p0	125	VOLTS	990.0E-03	1.01E+00	1.92
FB_Reg_5p0	25	VOLTS	990.0E-03	1.01E+00	4.12
FB_Reg_2p0	-40	VOLTS	1.98E+00	2.02E+00	15.33
FB_Reg_2p0	125	VOLTS	1.98E+00	2.02E+00	18.09
FB_Reg_2p0	25	VOLTS	1.98E+00	2.02E+00	16.94
FB_Reg_0p5	-40	VOLTS	495.0E-03	505.0E-03	3.97
FB_Reg_0p5	125	VOLTS	495.0E-03	505.0E-03	3.99
FB_Reg_0p5	25	VOLTS	495.0E-03	505.0E-03	4.37
FB_I	-40	nAMPS	-500.0E+00	500.0E+00	80.08
FB_I	125	nAMPS	-500.0E+00	500.0E+00	92.70
FB_I	25	nAMPS	-500.0E+00	500.0E+00	89.14
EAMP_GM	-40	uSECONDS	100.0E+00	2.2E+03	1.34
EAMP_GM	125	uSECONDS	100.0E+00	2.0E+03	2.22
EAMP_GM	25	uSECONDS	100.0E+00	2.0E+03	1.66
EAMP_SINK_I _{max}	-40	uAMPS	-500.0E+00	500.0E+00	4.40
EAMP_SINK_I _{max}	125	uAMPS	-500.0E+00	500.0E+00	4.59
EAMP_SINK_I _{max}	25	uAMPS	-500.0E+00	500.0E+00	3.93
EAMP_SOURCE_I _{max}	-40	uAMPS	-500.0E+00	500.0E+00	4.45

EAMP_SOURCE_I_max	125	uAMPS	-500.0E+00	500.0E+00	4.83
EAMP_SOURCE_I_max	25	uAMPS	-500.0E+00	500.0E+00	4.04
COMP_Clamp_N	-40	VOLTS	2.7E+00	3.3E+00	3.28
COMP_Clamp_N	125	VOLTS	2.7E+00	3.3E+00	3.75
COMP_Clamp_N	25	VOLTS	2.7E+00	3.3E+00	3.52
PGOOD_Thres_5p0_R	-40	VOLTS	850.0E-03	950.0E-03	3.54
PGOOD_Thres_5p0_R	125	VOLTS	850.0E-03	950.0E-03	4.08
PGOOD_Thres_5p0_R	25	VOLTS	850.0E-03	950.0E-03	3.87
PGOOD_Thres_5p0_F	-40	VOLTS	800.0E-03	900.0E-03	3.64
PGOOD_Thres_5p0_F	125	VOLTS	800.0E-03	900.0E-03	4.21
PGOOD_Thres_5p0_F	25	VOLTS	800.0E-03	900.0E-03	3.98
PGOOD_Thres_5p0_Hys	-40	mVOLTS	-250.0E+00	250.0E+00	134.05
PGOOD_Thres_5p0_Hys	125	mVOLTS	-250.0E+00	250.0E+00	153.64
PGOOD_Thres_5p0_Hys	25	mVOLTS	-250.0E+00	250.0E+00	132.30
PGOOD_G_5p0	-40	VOLTS	3.5E+00	5.5E+00	317.54
PGOOD_G_5p0	125	VOLTS	3.5E+00	5.5E+00	189.01
PGOOD_G_5p0	25	VOLTS	3.5E+00	5.5E+00	210.53
PGOOD_NG_5p0	-40	VOLTS	-500.0E-03	500.0E-03	937.77
PGOOD_NG_5p0	125	VOLTS	-500.0E-03	500.0E-03	690.42
PGOOD_NG_5p0	25	VOLTS	-500.0E-03	500.0E-03	396.37
PGOOD_HI_I_5p0	-40	nAMPS	-1.0E+03	1.0E+03	440.97
PGOOD_HI_I_5p0	125	nAMPS	-1.0E+03	1.0E+03	410.34
PGOOD_HI_I_5p0	25	nAMPS	-1.0E+03	1.0E+03	490.19
PGOOD_LO_V_5p0	-40	mVOLTS	1.0E+00	400.0E+00	15.61
PGOOD_LO_V_5p0	125	mVOLTS	1.0E+00	400.0E+00	13.70
PGOOD_LO_V_5p0	25	mVOLTS	1.0E+00	400.0E+00	7.58
PGOOD_Thres_2p0_R	-40	VOLTS	1.7E+00	1.9E+00	7.42
PGOOD_Thres_2p0_R	125	VOLTS	1.7E+00	1.9E+00	9.06
PGOOD_Thres_2p0_R	25	VOLTS	1.7E+00	1.9E+00	8.23
PGOOD_Thres_2p0_F	-40	VOLTS	1.6E+00	1.8E+00	7.37
PGOOD_Thres_2p0_F	125	VOLTS	1.6E+00	1.8E+00	8.81
PGOOD_Thres_2p0_F	25	VOLTS	1.6E+00	1.8E+00	8.05
PGOOD_Thres_2p0_Hys	-40	mVOLTS	-250.0E+00	250.0E+00	86.82
PGOOD_Thres_2p0_Hys	125	mVOLTS	-250.0E+00	250.0E+00	93.50
PGOOD_Thres_2p0_Hys	25	mVOLTS	-250.0E+00	250.0E+00	91.29

PGOOD_G_2p0	-40	VOLTS	3.5E+00	5.5E+00	84.13
PGOOD_G_2p0	125	VOLTS	3.5E+00	5.5E+00	80.98
PGOOD_G_2p0	25	VOLTS	3.5E+00	5.5E+00	69.76
PGOOD_NG_2p0	-40	VOLTS	-500.0E-03	500.0E-03	948.04
PGOOD_NG_2p0	125	VOLTS	-500.0E-03	500.0E-03	670.35
PGOOD_NG_2p0	25	VOLTS	-500.0E-03	500.0E-03	386.18
PGOOD_Thres_0p5_R	-40	VOLTS	425.0E-03	475.0E-03	1.76
PGOOD_Thres_0p5_R	125	VOLTS	425.0E-03	475.0E-03	2.10
PGOOD_Thres_0p5_R	25	VOLTS	425.0E-03	475.0E-03	1.93
PGOOD_Thres_0p5_F	-40	VOLTS	400.0E-03	450.0E-03	1.66
PGOOD_Thres_0p5_F	125	VOLTS	400.0E-03	450.0E-03	2.10
PGOOD_Thres_0p5_F	25	VOLTS	400.0E-03	450.0E-03	1.86
PGOOD_Thres_0p5_Hys	-40	mVOLTS	-250.0E+00	250.0E+00	149.30
PGOOD_Thres_0p5_Hys	125	mVOLTS	-250.0E+00	250.0E+00	149.64
PGOOD_Thres_0p5_Hys	25	mVOLTS	-250.0E+00	250.0E+00	151.15
PGOOD_G_0p5	-40	VOLTS	3.5E+00	5.5E+00	71.39
PGOOD_G_0p5	125	VOLTS	3.5E+00	5.5E+00	80.02
PGOOD_G_0p5	25	VOLTS	3.5E+00	5.5E+00	64.76
PGOOD_NG_0p5	-40	VOLTS	-500.0E-03	500.0E-03	954.76
PGOOD_NG_0p5	125	VOLTS	-500.0E-03	500.0E-03	698.34
PGOOD_NG_0p5	25	VOLTS	-500.0E-03	500.0E-03	395.38
OVP_Thres_5p0_R	-40	VOLTS	1.05E+00	1.15E+00	3.74
OVP_Thres_5p0_R	125	VOLTS	1.05E+00	1.15E+00	4.22
OVP_Thres_5p0_R	25	VOLTS	1.05E+00	1.15E+00	4.05
OVP_Thres_5p0_F	-40	VOLTS	1.025E+00	1.125E+00	3.78
OVP_Thres_5p0_F	125	VOLTS	1.025E+00	1.125E+00	4.27
OVP_Thres_5p0_F	25	VOLTS	1.025E+00	1.125E+00	4.14
OVP_Thres_5p0_Hys	-40	mVOLTS	-500.0E+00	500.0E+00	362.44
OVP_Thres_5p0_Hys	125	mVOLTS	-500.0E+00	500.0E+00	329.33
OVP_Thres_5p0_Hys	25	mVOLTS	-500.0E+00	500.0E+00	357.16
OVP_G_5p0	-40	VOLTS	3.0E+00	5.5E+00	14.18
OVP_G_5p0	125	VOLTS	3.0E+00	5.5E+00	63.40
OVP_G_5p0	25	VOLTS	3.0E+00	5.5E+00	60.99
OVP_NG_5p0	-40	VOLTS	-500.0E-03	500.0E-03	1136.94
OVP_NG_5p0	125	VOLTS	-500.0E-03	500.0E-03	739.98

OVP_NG_5p0	25	VOLTS	-500.0E-03	500.0E-03	517.12
OVP_Thres_2p0_R	-40	VOLTS	2.1E+00	2.3E+00	8.24
OVP_Thres_2p0_R	125	VOLTS	2.1E+00	2.3E+00	9.78
OVP_Thres_2p0_R	25	VOLTS	2.1E+00	2.3E+00	8.90
OVP_Thres_2p0_F	-40	VOLTS	2.05E+00	2.25E+00	8.13
OVP_Thres_2p0_F	125	VOLTS	2.05E+00	2.25E+00	9.55
OVP_Thres_2p0_F	25	VOLTS	2.05E+00	2.25E+00	8.86
OVP_Thres_2p0_Hys	-40	mVOLTS	-500.0E+00	500.0E+00	357.82
OVP_Thres_2p0_Hys	125	mVOLTS	-500.0E+00	500.0E+00	328.96
OVP_Thres_2p0_Hys	25	mVOLTS	-500.0E+00	500.0E+00	315.46
OVP_G_2p0	-40	VOLTS	3.0E+00	5.5E+00	73.49
OVP_G_2p0	125	VOLTS	3.0E+00	5.5E+00	70.05
OVP_G_2p0	25	VOLTS	3.0E+00	5.5E+00	65.06
OVP_NG_2p0	-40	VOLTS	-500.0E-03	500.0E-03	1136.24
OVP_NG_2p0	125	VOLTS	-500.0E-03	500.0E-03	760.14
OVP_NG_2p0	25	VOLTS	-500.0E-03	500.0E-03	507.45
OVP_Thres_0p5_R	-40	VOLTS	525.0E-03	575.0E-03	1.84
OVP_Thres_0p5_R	125	VOLTS	525.0E-03	575.0E-03	2.14
OVP_Thres_0p5_R	25	VOLTS	525.0E-03	575.0E-03	1.97
OVP_Thres_0p5_F	-40	VOLTS	512.5E-03	562.5E-03	1.86
OVP_Thres_0p5_F	125	VOLTS	512.5E-03	562.5E-03	2.25
OVP_Thres_0p5_F	25	VOLTS	512.5E-03	562.5E-03	2.06
OVP_Thres_0p5_Hys	-40	mVOLTS	-250.0E+00	250.0E+00	153.88
OVP_Thres_0p5_Hys	125	mVOLTS	-250.0E+00	250.0E+00	169.62
OVP_Thres_0p5_Hys	25	mVOLTS	-250.0E+00	250.0E+00	157.81
OVP_G_0p5	-40	VOLTS	3.0E+00	5.5E+00	64.17
OVP_G_0p5	125	VOLTS	3.0E+00	5.5E+00	68.95
OVP_G_0p5	25	VOLTS	3.0E+00	5.5E+00	64.78
OVP_NG_0p5	-40	VOLTS	-500.0E-03	500.0E-03	1095.02
OVP_NG_0p5	125	VOLTS	-500.0E-03	500.0E-03	742.54
OVP_NG_0p5	25	VOLTS	-500.0E-03	500.0E-03	520.29
I_SUP_SHDN	-40	uAMPS	1.0E+00	7.0E+00	15.79
I_SUP_SHDN	125	uAMPS	1.0E+00	7.0E+00	14.26
I_SUP_SHDN	25	uAMPS	1.0E+00	7.0E+00	15.70
I_PVL_SHDN	-40	uAMPS	1.0E+00	10.0E+00	25.44

I_PVL_SHDN	125	uAMPS	1.0E+00	10.0E+00	23.54
I_PVL_SHDN	25	uAMPS	1.0E+00	10.0E+00	22.79
I_SUP_14p0_NSW	-40	mAMPS	100.0E-03	1.3E+00	13.24
I_SUP_14p0_NSW	125	mAMPS	100.0E-03	1.3E+00	8.95
I_SUP_14p0_NSW	25	mAMPS	100.0E-03	1.3E+00	11.45
I_EN_14p0V	-40	nAMPS	-1.0E+03	1.0E+03	5539.80
I_EN_14p0V	125	nAMPS	-1.0E+03	1.0E+03	1113.25
I_EN_14p0V	25	nAMPS	-1.0E+03	1.0E+03	7943.43
I_REFIO_5p0V	-40	nAMPS	-1.0E+03	1.0E+03	9269.38
I_REFIO_5p0V	125	nAMPS	-1.0E+03	1.0E+03	5367.33
I_REFIO_5p0V	25	nAMPS	-1.0E+03	1.0E+03	10072.66
I_OVP	-40	nAMPS	-1.0E+03	1.0E+03	167.82
I_OVP	125	nAMPS	-1.0E+03	1.0E+03	193.13
I_OVP	25	nAMPS	-1.0E+03	1.0E+03	173.43
PVL_Voltage_14p0_0mA	-40	VOLTS	4.7E+00	5.3E+00	1.93
PVL_Voltage_14p0_0mA	125	VOLTS	4.7E+00	5.3E+00	3.94
PVL_Voltage_14p0_0mA	25	VOLTS	4.7E+00	5.3E+00	3.51
PVL_Voltage_4p5_0mA	-40	VOLTS	4.0E+00	5.0E+00	12.72
PVL_Voltage_4p5_0mA	125	VOLTS	4.0E+00	5.0E+00	17.39
PVL_Voltage_4p5_0mA	25	VOLTS	4.0E+00	5.0E+00	16.30

Written By:



Brian Vuong
Reliability Engineer

Approved By:



Jeff Aquino
Manager, Reliability

Revision and Release Date	Description of Revision and Author	Approved By	Effective By (Date)
A 12 Dec 2014	Initial release; Brian Vuong	J. Aquino	12 Dec 2014