DALLAS SEMICONDUCTOR MAXIM

Automotive Qualification Report

MAX9222EUM

Programmable DC-Balanced 21-Bit Serializer

Grade 3

48-Lead TSSOP

	✓ Lot # 1 (QFB4BQ001AA)	✓ Lot # 2 (QFE0AQ003C)	✓ Lot # 3 (QWB2AQ001A)	✓ Lot # 4 (QFE2AQ001Q)	✓ Lot # 5 (QIO0BQ002E)	✓ Lot # 6 (Q43ACQ001B)
Maxim Part Number	**MAX9222EUM**	MAX9209EUM	MAX9234EUM	MAX9213EUM+ (Note 2)	MAX1471ATJ	MAX1499EHJ
Description (Note 1)	**AEC-Q100**	AEC-Q100	AEC-Q100	Maxim	AEC-Q100	Maxim
Operating Temperature	**-40C to +85C**	-40C to +85C	-40C to +85C	-40C to +85C	-40 to +125C	-40C to +85C
Temperature Grade	**3**	3	3	3	1	3
Fab Location	**TSMC Fab 9**	TSMC Fab 9	TSMC Fab 9	TSMC Fab 9	TSMC Fab 9	TSMC Fab 9
Fab Process	**.35um 1P4M**	.35um 2P4M	.35um 1P4M	.35um 2P4M	.35um 2P3M	.35um 2P4M
Die	**HS31Z-6Z**	HS30Z	HS37Z-2Z	HS30Z-2Z	SC71Z	AC12Y
Assembly Location	**Anam/Amkor Philippines**	Anam/Amkor Philippines	Anam/Amkor Philippines	Anam/Amkor Philippines	NSEB Thailand	Carsem-S Malaysia
Die Size (mils)	**92 x 108**	88 x 117	97 x 139	88 x 117	90 x 78	85 x 87
Package	**48-Lead TSSOP**	48-Lead TSSOP	48-Lead TSSOP	48-Lead TSSOP	32-Lead TQFN	32-Lead TQFP
Wire Bond Material	**Au .001"**	Au .001"	Au .001"	Au .001"	Au .001"	Au .001"
Mold Compound	**G700K**	G700K	G700K	G700K	G770HC	EME7320CR
Die Attach	**8290**	8290	8290	8290	AB8200T	84-1LMISR4
Lead Frame	**Copper**	Copper	Copper	Copper	Copper	Copper
Lead Finish	**85/15 Sn/Pb**	85/15 Sn/Pb	85/15 Sn/Pb	100% Matte Sn	85/15 Sn/Pb	85/15 Sn/Pb
Reliability Lot Number	A050010, DC 0453	A050002, DC 0451	A050012, DC 0534	R040020, DC 0404	A050005, DC 0517	R020068B, DC 0309

AEC-Q100 Rev. F Tests	#	Conditions	Lot 1 Failures/Sample Size +25C	Lot 1 +85C	Lot 1 -40C	Lot 2 Failures/Sample Size +25C	Lot 2 +125C	Lot 2 -40C	Lot 3 Failures/Sample Size +25C	Lot 3 +85C	Lot 3 -40C	Lot 4 Failures/Sample Size +25C	Lot 4 +85C	Lot 4 -40C	Lot 5 Failures/Sample Size +25C	Lot 5 +125C	Lot 5 -40C	Lot 6 Failures/Sample Size +25C	Lot 6 +85C	Lot 6 -40C
MSL 3 - Preconditioning (PC)	A1	240C (Sn/Pb)	0/22			0/215			0/215									0/150		
		260C (100% Sn)										0/449								
=>CSAM		J-STD-020C (1 lot)	0/22			0/22			0/22											
Temperature Humidity-Bias (THB)	A2	85C/85%RH 1000 Hours																0/44		
Biased HAST (HAST)	A2	130C/85%RH 96 Hours				0/45	0/45		0/48	0/48		0/135								
Autoclave (AC)	A3	121C/85%RH 168 Hours										0/231						0/77		
Unbiased HAST (UHAST)	A3	130C/85%RH 96 Hours				0/45			0/50	0/50										
Temperature Cycle (TC)	A4	-65 to +150C 1000 Cycles				0/77	0/77		0/80	0/80		0/231								
=>Wirebond Pull (WBP)		>3 grams				0/240			0/200											
High Temperature Storage (HTSL)	A6	+150C 1000 Hours				0/77	0/77		0/79	0/79		0/231						0/71		
High Temperature Op Life (HTOL)	B1	+135C 1000 Hours	+115C 0/47	+115C 0/47	+115C 0/47	+115C 0/45	+115C 0/45	+115C 0/45	+115C 0/47	+115C 0/47	+115C 0/47	+115C 0/134			0/48	0/48	0/48	0/78		
Early Life Failure Rate (ELFR)	B2	+135C 48 Hours																(Note 4) 0/845	(Note 4) 0/845	
Maxim Infant Mortality Evaluation		+135C 12 Hours																0/2637		
Wire Bond Shear (WBS)	C1					(Note 3)			(Note 3)											
Wire Bond Pull (WBP)	C2					(Note 3)			(Note 3)			0/678								
Solderability (SD)	C3					0/15			0/15			0/45								
Physical Dimensions (PD)	C4					0/15			0/15			0/45								
Lead Integrity (LI)	C6					0/15			0/10			0/15								
(EM, TDDB, HCI)	D1-3		TSMC			TSMC			TSMC			TSMC			TSMC			TSMC		
Pre- and Post-Stress Electrical (TEST)	E1		All	All	All	All	All	All	All	All	All	All			All	All	All	All	All	
Human Body Model ESD (HBM)	E2	JESD22/A114	1500V	1500V																
Machine Model ESD (MM)	E2	JESD22/A115																		
Charge Device Model ESD (CDM)	E3	AEC-Q100-011	750V	750V																
Latch-Up (LU)	E4	JESD78, Class I	0/6	0/6																

(Note 1) AEC-Q100 test performed per Rev. F guidelines. Maxim tests performed to internal specification 10-3006.

(Note 2) Tests performed on three assembly lots.

(Note 3) Monitor data from assembly subcontractor.

(Note 4) Data from Lot Q43ACQ002B, per AEC-Q100 ELFR requirements.

✓ = Complete

□ = Open

Rev. B December 23, 2005