DALLAS SEMICONDUCTOR MAXIM

Automotive Qualification Report

MAX9220EUM

Programmable DC-Balanced 21-Bit Serializer

Grade 3

48-Lead TSSOP

			✓	✓	✓	□	✓	✓	✓
			Lot # 1 (QFB4BQ001AA)	Lot # 2 (QFB6AQ002C)	Lot # 3 (QFE0AQ003C)	Lot # 4 (QWB2AQ001A)	Lot # 5 (QFE2AQ001Q)	Lot # 6 (QIO0BQ002E)	Lot # 7 (Q43ACQ001B)
	Maxim Part Number		**MAX9220EUM**	MAX9222EUM	MAX9209EUM	MAX9234EUM	MAX9213EUM+ (Note 2)	MAX1471ATJ	MAX1499EHJ
	Description (Note 1)		**AEC-Q100**	AEC-Q100	AEC-Q100	AEC-Q100	Maxim	AEC-Q100	Maxim
	Operating Temperature		**-40C to +85C**	-40C to +85C	-40C to +85C	-40C to +85C	-40C to +85C	-40 to +125C	-40C to +85C
	Temperature Grade		**3**	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	TSMC Fab 9
	Fab Process		**.35um 1P4M**	.35um 1P4M	.35um 2P4M	.35um 1P4M	.35um 2P4M	.35um 2P3M	.35um 2P4M
	Die		**HS31Z-4Z**	HS31Z-6Z	HS30Z	HS37Z-2Z	HS30Z-2Z	SC71Z	AC12Y
	Assembly Location		**Anam/Amkor Philippines**	Anam/Amkor Philippines	Anam/Amkor Philippines	Anam/Amkor Philippines	Anam/Amkor Philippines	NSEB Thailand	Carsem-S Malaysia
	Die Size (mils)		**92 x 108**	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	48-Lead TSSOP	32-Lead TQFN	32-Lead TQFP
	Wire Bond Material		**Au .001"**	Au .001"	Au .001"	Au .001"	Au .001"	Au .001"	Au .001"
	Mold Compound		**G700K**	G700K	G700K	G700K	G700K	G770HC	EME7320CR
	Die Attach		**8290**	8290	8290	8290	8290	AB8200T	84-1LMISR4
	Lead Frame		**Copper**	Copper	Copper	Copper	Copper	Copper	Copper
	Lead Finish		**85/15 Sn/Pb**	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		A050015	A050010	A050002	A050012	R040020	A05005	R020068FQ
			Fails/Sample Size	**Fails/Sample Size**	**Fails/Sample Size**	**Fails/Sample Size**	**Fails/Sample Size**	**Fails/Sample Size**	**Fails/Sample Size**

AEC-Q100 Rev. F Tests	**#**	**Conditions**	**+25C**	**+85C**	**-40C**	**+25C**	**+85C**	**-40C**	**+25C**	**+125C**	**-40C**	**+25C**	**+85C**	**-40C**	**+25C**	**+85C**	**-40C**	**+25C**	**+85C**	**-40C**	**+25C**	**+125C**	**-40C**	**+25C**	**+85C**	**-40C**
MSL 3 - Preconditioning (PC)	A1	240C (Sn/Pb)				0/22			0/215			0/215												0/150		
		260C (100% Sn)													0/449											
=>CSAM						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	0/45	0/45	0/45	428 Hrs. 0/47	428 Hrs. 0/47	428 Hrs. 0/47	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			Pending			0/45											
Lead Integrity (LI)	C6								0/15			0/10			0/15											
(EM, TDDB, HCI)	D1-3		TSMC			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	All			All	All	
Human Body Model ESD (HBM)	E2		1500V	1500V																						
Machine Model ESD (MM)	E2																									
Charge Device Model ESD (CDM)	E3		750V	750V																						
Latch-Up (LU)	E4		0/5	0/5																						

(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