

Automotive Qualification Report
MAX12000ETB+

		✓	✓	✓	○	○								
		Lot # 1 (NZD0AQ001F)	Lot # 2 (NEZ0C2037A)	Lot # 3 (NEZ0C2037A)	Lot # 4	Lot # 5								
1575MHz GPS Front-End Amplifier	Maxim Part Number	MAX12000ETB+	MAX2821ETM+ (Note 2)	MAX2140ETH										
	Description (Note 1)	AEC-Q100	Maxim	AEC-Q100										
	Operating Temperature	-40C to +85C	-40C to +85C	-40C to +85C										
	Temperature Grade	3	3	3										
	Fab Location	Maxim, Beaverton	Maxim, Beaverton	Maxim, Beaverton										
	Fab Process	G4MDBG	G4MDBG	G4MDBG										
	Die	WG25Z	WD05Y-1Z	WG18Z										
	Assembly Location	NSEB Thailand	NSEB Thailand	ASAT										
	Die Size (mils)	58 x 49	142 x 166	128 x 115										
	Package	10-Lead TDFN (3x3)	48-Lead TQFN (7x7)	44-Lead TQFN (7x7)										
	Wire Bond Material	Au .001" (w/downbond)	Au .001" (w/downbond)	Au .001" (w/downbond)										
	Mold Compound	G770HCD	G770HCD	KMC218										
	Die Attach	AB8200T	AB8200T	84-1LMIS										
	Lead Frame	Copper	Copper	Copper										
	Lead Finish	100% Matte Sn	100% Matte Sn	85/15 Sn/Pb										
Reliability Lot Number	A060001, DC 0613	R050139, DC 0527	A050013, DC 0523											
		Failures/Sample Size		Failures/Sample Size		Failures/Sample Size								
AEC-Q100 Rev. F Tests	#	Conditions	+25C	+85C	-40C	+25C	+85C	-40C	+25C	+85C	-40C	+25C	+85C	-40C
MSL 1 - Preconditioning (PC)	A1	240C (Sn/Pb)				0/215								
		260C (100% Sn)	0/213			0/350								
=>CSAM		J-STD-020C (1 lot)	0/22											
Temperature Humidity-Bias (THB)	A2	85C/85%RH 1000 Hours												
Biased HAST (HAST)	A2	130C/85%RH 96 Hours	0/78	0/78		(Note 4) 0/135								
Autoclave (AC)	A3	121C/85%RH 168 Hours				0/231								
Unbiased HAST (UHAST)	A3	130C/85%RH 96 Hours	0/79	0/79			0/80	0/80						
Temperature Cycle (TC)	A4	-65 to +150C 1000 Cycles	0/80	0/80		(Note 4) 0/231	0/80	0/80						
=>Wirebond Pull (WBP)		>3 grams	0/148											
High Temperature Storage (HTSL)	A6	+150C 1000 Hours	0/79	0/79		(Note 4) 0/135	0/80	0/80						
High Temperature Op Life (HTOL)	B1	+135C 1000 Hours	0/76	0/76	0/76	0/135	0/48	0/48	0/48					
Early Life Failure Rate (ELFR)	B2	+135C 48 Hours	0/797	0/797										
Wire Bond Shear (WBS)	C1		(Note 3)											
Wire Bond Pull (WBP)	C2		(Note 3)			0/602								
Solderability (SD)	C3		0/15			0/45								
Physical Dimensions (PD)	C4		0/10			0/45								
Lead Integrity (LI)	C6		N/A			N/A								
(EM, TDDb, HCI)	D1-3													
Pre- and Post-Stress Electrical (TEST)	E1		All	All	All	All	All	All	All					
Human Body Model ESD (HBM)	E2	JESD22/A114	2000V	2000V										
Machine Model ESD (MM)	E2	JESD22/A115												
Charged Device Model ESD (CDM)	E3	AEC-Q100-011	750V	750V										
Latch-Up (LU)	E4	JESD78, Class II	0/15	0/15										

(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) Post stress Sn whisker inspection (50 um)

✓ = Complete

○ = Open