

MAX24287 Revision B RELIABILITY QUALIFICATION REPORT SUMMARY

Product Description	The MAX24287 is a flexible, low-cost Ethernet interface conversion IC. The parallel interface can be configured for GMII, RGMII, TBI, RTBI, or 10/100 MII, while the serial interface can be configured for 1.25Gbps SGMII or 1000BASE-X operation. In SGMII mode, the device interfaces directly to Ethernet switch ICs, ASIC MACs, and 1000BASE-T electrical SFP modules. In 1000BASE-X mode, the device interfaces directly to 1Gbps 1000BASE-X SFP optical modules. The MAX24287 performs automatic translation of link speed and duplex auto-negotiation between parallel MII MDIO and the serial interface. Microprocessor interaction is optional for device operation. Hardware-configured modes support SGMII master and 1000BASE-X auto-negotiation without software involvement. This device is ideal for interfacing single-channel GMII/MII devices such as microprocessors, FPGAs, network processors, Ethernet-over-SONET or -PDH mappers, and TDM-over-packet circuit emulation devices. The device also provides a convenient solution to interface such devices with electrical or optical Ethernet SFP modules.
Technology Description	TSMC 0.13um Mixed signal, General Purpose, Single poly Six metal, 1.2V/3.3V. Volume manufacturing is 12-inch wafer in Hsinchu, Taiwan.
Product Nomenclature Fab Code Product Revision Code Internal Device Number	1Gbps Parallel-to-Serial MII Converter: MAX24287 T B TMCC68A
External Part Numbers	RoHS6 Compliant/GREEN (No-LEAD) MAX24287ETK+, MAX24287ETK+T in 68L Thin(t)QFN(8x8) Key References: MAX24288 Revision A Qualification (Report #145265) MAX branded tQFN at UTAC, Thailand (Report #145267)
Die Dimensions:	3.12 mm x 3.37 mm
Data sheet	Report # 145358

Package:	tQFN
UL flammability class	UL 94 V-0
Lead Frame	Copper alloy
Die Attach	Henkel Ablebond AB8200T
Mold Compound	Sumitomo G770HCD (Green)
Bond Wire	Gold
Lead Finish	Matte Tin (Pb Free)

Factory Locations	
Wafer Fabrication	Taiwan Semiconductor Manufacturing Co., Ltd. (TSMC), Hsinchu, Taiwan
Assembly	UTAC, Thailand
Final Test	ASE Penang, Malaysia

Availability	
Samples:	Yes
Production:	Yes

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Qualification Stress Tests	#fails/#samples
High Temperature Operating Life (HTOL) <u>0.13um CMOS Technology (MAX Branded)</u> Early Life Failure Rate (Duration 168 hrs): Inherent Life (Duration 500 hrs): Extended Life (Duration 1000 hrs): Beyond Extended Life (Duration 2000 hrs):	FIT rate calculated @ 60% confidence level, 55 °C, Ea=0.70eV 123 FITs (~492 dppm, MTBF = ~928yrs) 0/240 @ 135C (Ref Report #145265) 0/80 @ 125C (Ref Report #145265) 0/135 @ 120C (Ref Report #145265) 48 FITs 0/240 @ 135C (Ref Report #145265) 0/135 @ 120C (Ref Report #145265) 24 FITs 0/240 @ 135C (Ref Report #145265) 0/135 @ 120C (Ref Report #145265) 0/80 @ 135C (Ref Report #145265)
ESD-HBM	0/3 @ +/- 2kV - Jedec Class 2 (Ref Report #145265)
Latch-Up	0/6 @ 25°C for +/-100mA & +/-250mA (Ref Report #145265)
Preconditioning Jedec Moisture Sensitivity Level 3 (30°C/60%RH/192hrs) with 3xPb-Free Reflow at 260°C (Performed prior to Temperature Cycle, Unbiased-HAST)	0/300 (Ref #145267)
Temperature Cycle (-65°C/+150°C)	0/154 (1000cyc, Ref #145267)
High Temperature Storage (150°C)	0/154 (1000hrs, Ref #145267)
Autoclave (100%R.H., 121°C)	0/154 (168hrs, Ref #145267)
Unbiased-HAST (85%R.H., 130°C)	0/90 (500hrs, Ref #145267)
Solder Shock (260°C)	0/30 (10sec, Ref #145267)
Resistance to Soldering Heat (260°C)	0/30 (10sec, Ref #145267)
Solderability (150°C)	0/30 (16hrs, Ref #145267)

Prepared by: Quality Engineering