TQM969001

PCS Duplexer

Applications

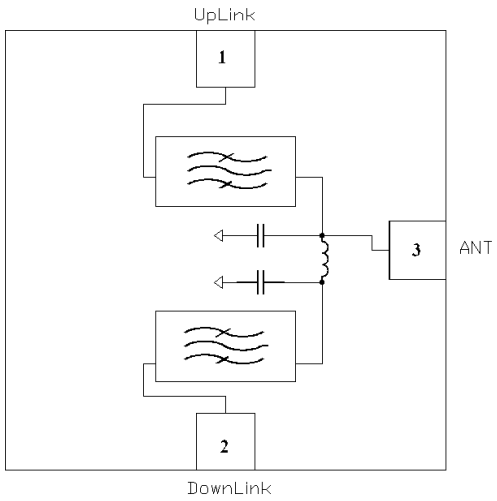
- Coverage enhancement repeaters
- Femtocells
- Test Mobiles

3-pin 3.8x3.8mm leadless LGA package

Product Features

- Small form factor of 3.8 X 3.8 mm
- Max height of 1.2 mm
- Max Uplink/Downlink peak power of 38dBm
- Halogen and Lead free construction

Functional Block Diagram



General Description

TQM969001 is a duplexer designed for US PCS base station/repeater applications. It exhibits excellent power handling, pass band flatness, rejection, and Uplink/Downlink isolation.

The TQM969001 increases the sensitivity and dynamic range of receivers by providing more than 50 dB attenuation of the Uplink signal at the receiver input and more than 50 dB rejection of Uplink-generated noise in the receiver band.

Typical insertion loss at the Uplink channel is only 1.32 dB and the typical insertion loss in the Downlink channel is 1.52 dB, which improves the receiver sensitivity.

Pin Configuration

Pin #	Symbol
UpLink	1
DownLink	2
ANT	3

Ordering Information

Part No.	Description
TQM969001	PCS Duplexer
TQM969001EVB	PCS Duplexer evaluation board

Specifications

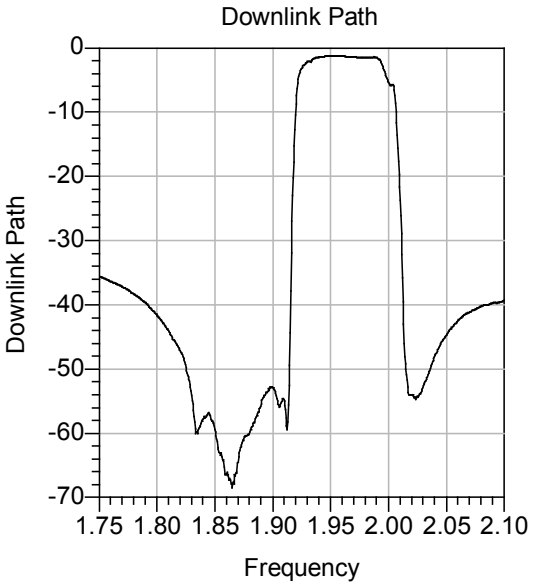
Electrical Specifications

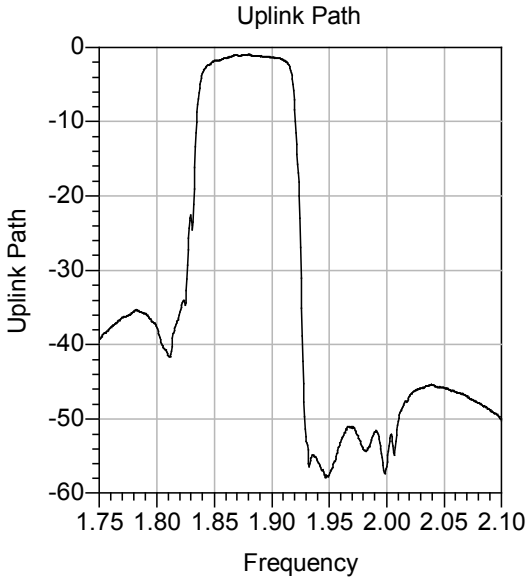
Test conditions unless otherwise noted: +25ºC

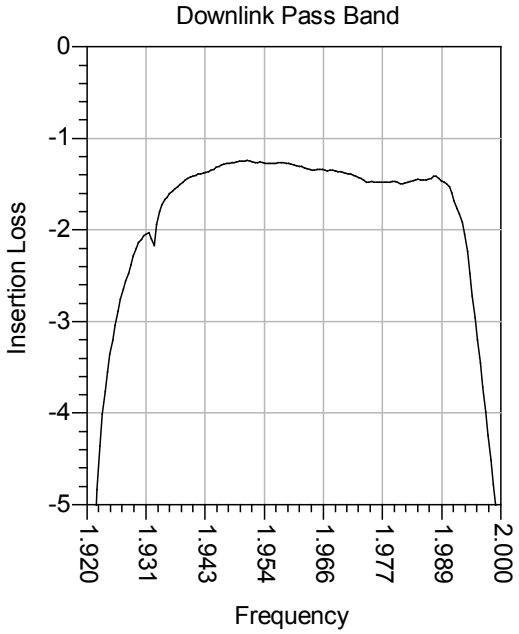
Parameter	Conditions	Min	Typical	Max	Units
Antenna - Downlink					
Frequency (f_o)		1930.5		1989.5	MHz
Operating temperature		-40	+25	+85	C
Insertion loss	1930.5 – 1989.5 MHz		1.52	3.0	dB
Ripple (p-p)			0.84	1.25	dB
VSWR, 50 Ω	In/out		2.1:1	2.7:1	
Absolute attenuation	824 – 849 MHz	35	37		dB
Absolute attenuation	1850 – 1910 MHz	50	53		dB
Absolute attenuation	2400 – 2484 MHz	42	45		dB
Absolute attenuation	3860 – 3980 MHz	50	53		dB
Antenna – Uplink					
Frequency (f_o)		1850.5		1909.5	MHz
Operating temperature		-40	+25	+85	C
Insertion loss	1850.5 – 1909.5 MHz		1.32	2.8	dB
Ripple (p-p)			0.65	1.45	dB
VSWR, 50 Ω	In/out		1.8:1	2.1:1	
Absolute att□nuation	869 – 894 MHz	38	41		dB
Absolute attenuation	1574.42 – 1576.42 MHz	40	43		dB
Absolute attenuation	1930 – 1990 MHz	44	50		dB
Absolute attenuation	3690 – 3830 MHz	27	30		dB
Absolute attenuation	5540 – 5740 MHz	15	17		dB
Absolute attenuation	7390 – 7650 MHz	12	24		dB
Uplink – Downlink					
Uplink – Downlink isolation	1850 – 1910 MHz	52	55		dB
	1930 – 1990 MHz	47	53		dB
	1910 - 1930 MHz	15	19		dB
Average Power (1850 – 1910 MHz)	10,000,Hours @ 55 C			29	dBm
Average Power (1930 – 1990 MHz)	10,000,Hours @ 55 C			29	dBm
Peak Power (1850 – 1910 MHz)	200 msec @ 55 C			38	dBm
Peak Power (1930 – 1990 MHz)	200 msec @ 55 C			38	dBm

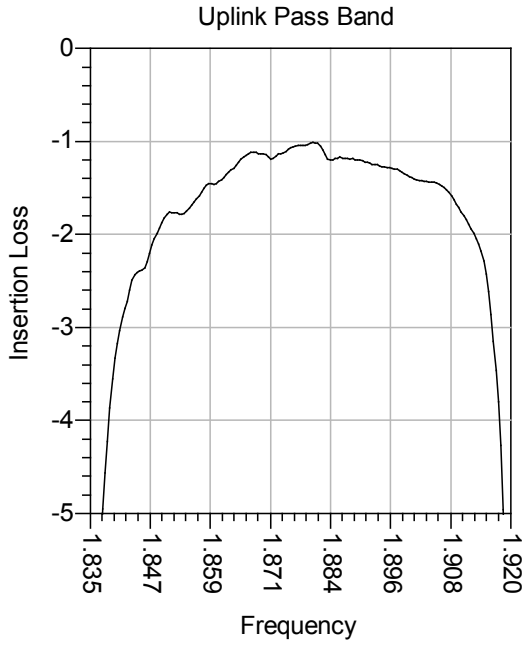
Notes:
1. Network Analyzer is calibrated at -30 dBm power level for small signal measurements.
2. Triquint Test Board.

Device Characterization Data









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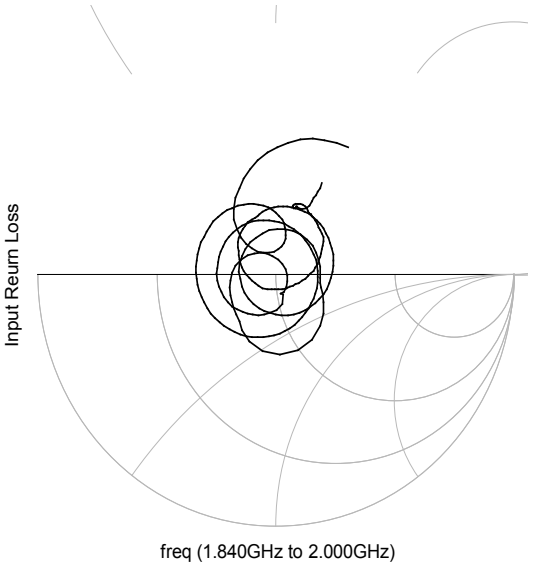
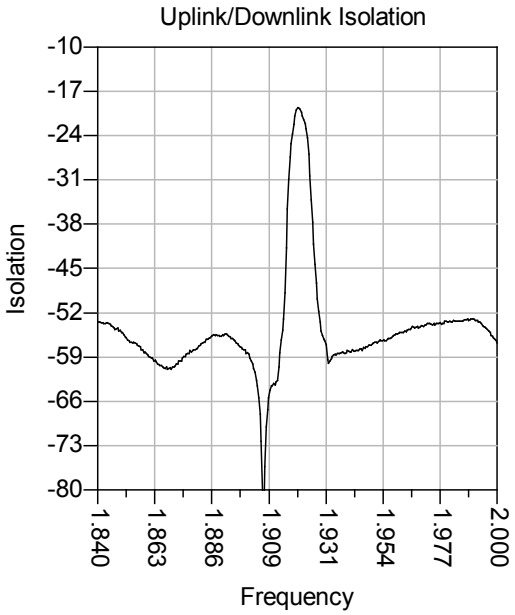
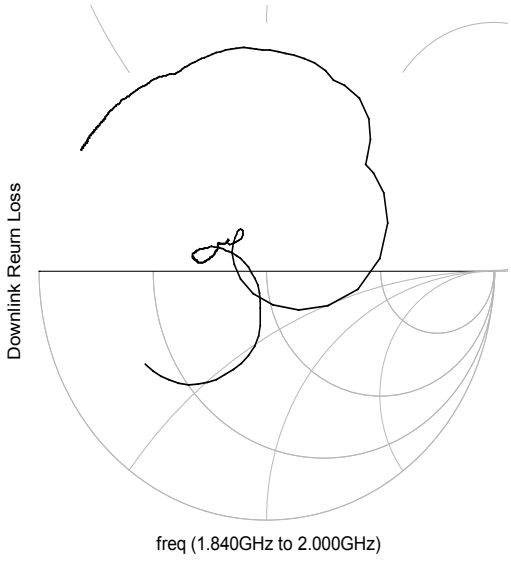
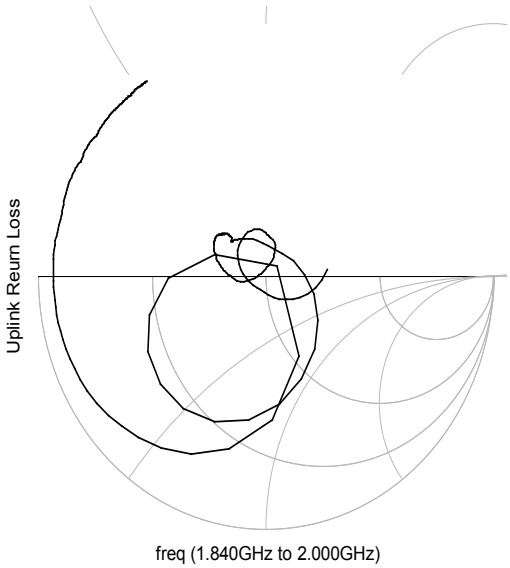




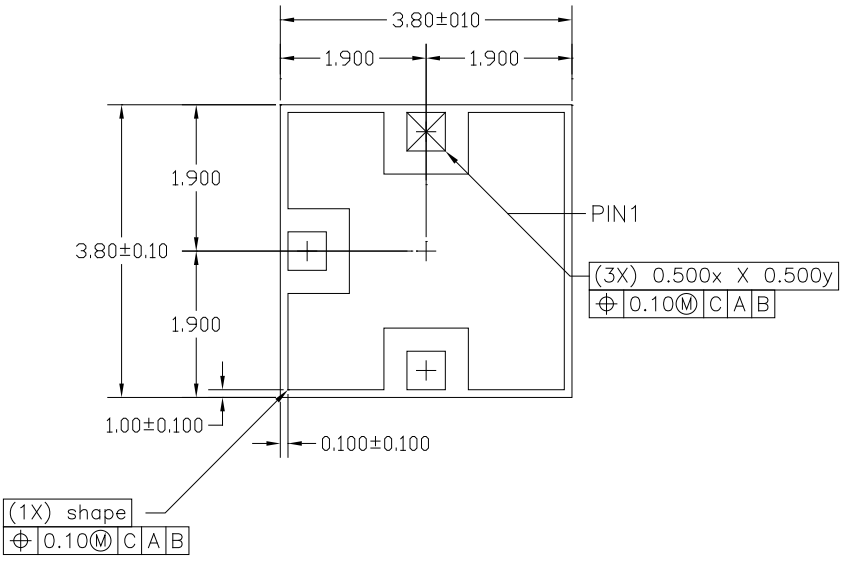




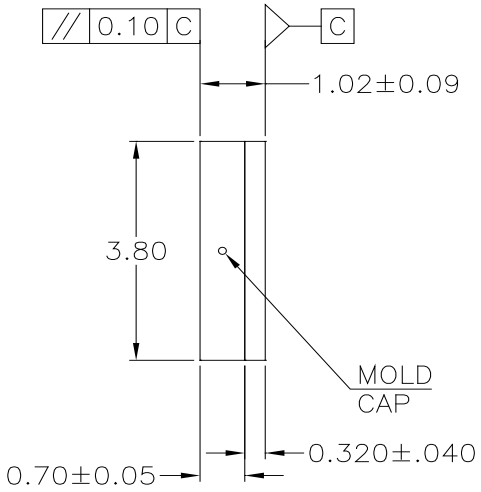
Mechanical Information

The pad pattern shown has been developed and tested for optimized assembly at TriQuint Semiconductor. The PCB land pattern has been developed to accommodate lead and package tolerances. Since surface mount processes vary from company to company, careful process development is recommended.

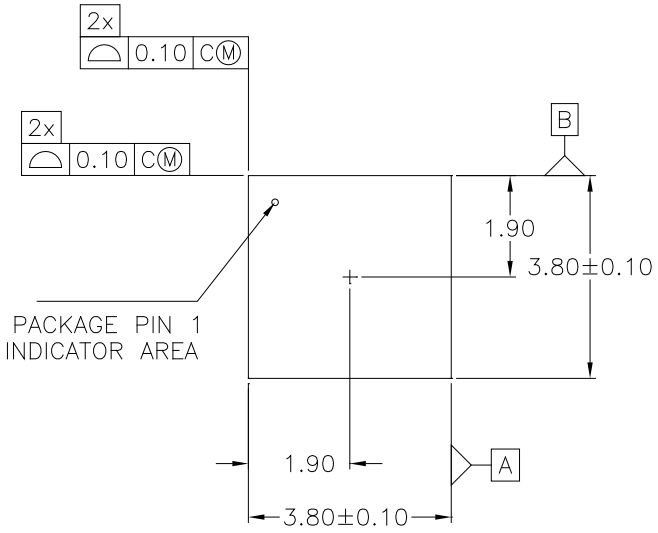
Package Outline Drawing:



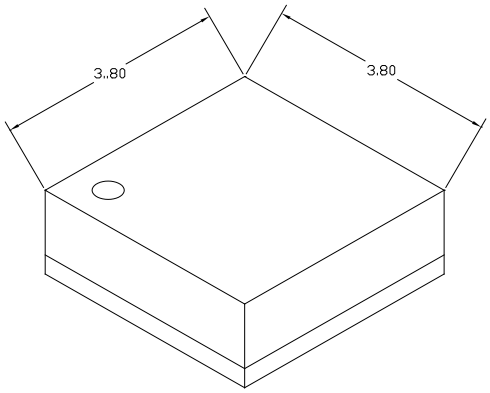
Bottom View



Side View



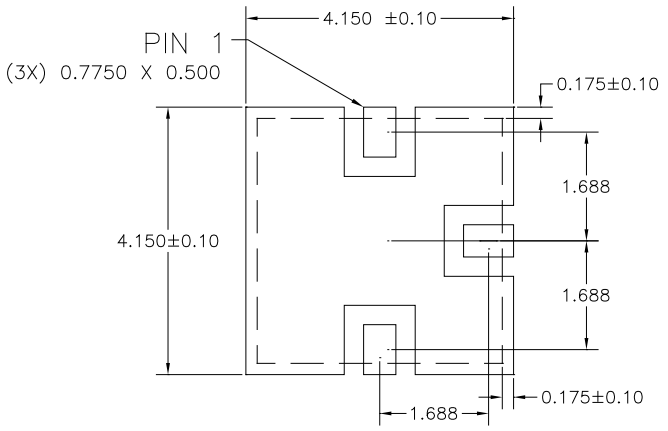
Bottom View



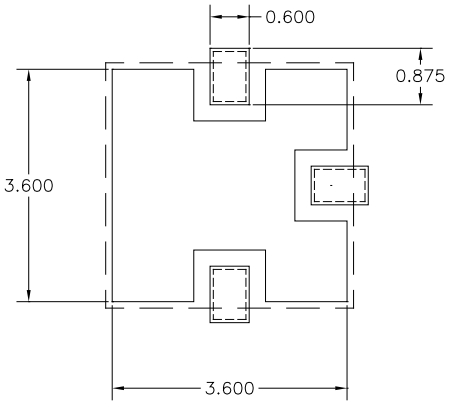
3-D View

Packaging Style:
SIP LGA (system in package land grid array)

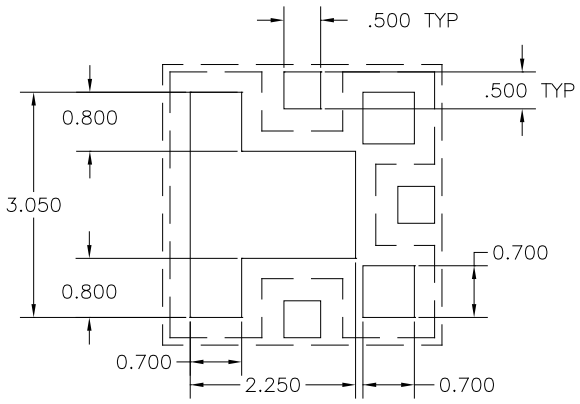
Recommend land-pad/approach pattern:



Recommended Land Pattern Metallization



Recommended Land Pattern Solder Mask Opening

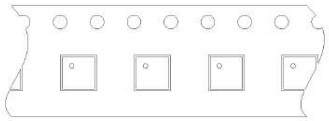


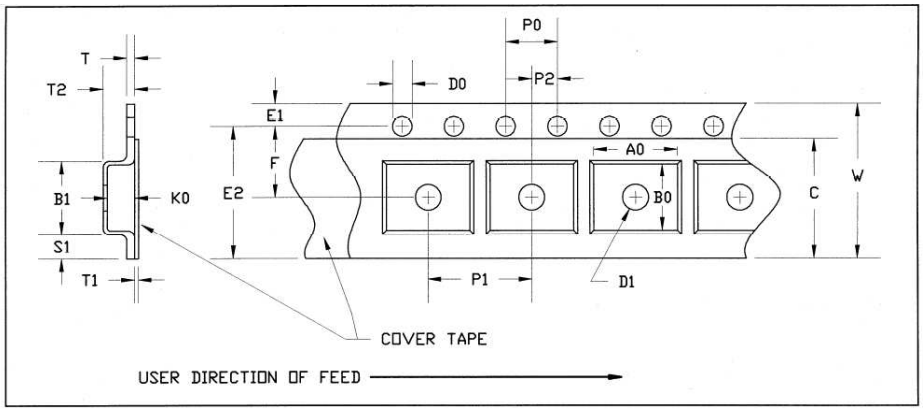
Recommended Land Pattern Stencil Aperture Style

Tape and Reel Information

Tape and reel specifications for this part are also available on the TriQuint website in the "Application Notes" section.

MODULE 3.5x3.5, 3.8x3.8, 4x4, 5x5 and 6x6
User Direction of Feed →





MODULE – 3.8X3.8 CARRIER AND COVER TAPE DIMENSIONS

Part	Feature	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.165	4.10
	Width	B0	0.165	4.10
	Depth	K0	0.055	1.80
	Pitch	P1	0.315	8.00
Distance Between Centerline	Cavity to Perforation Length Direction	P2	0.079	2.00
	Cavity to Perforation Width Direction	F	0.217	5.50
Cover Tape	Width	C	0.362	9.20
Carrier Tape	Width	W	0.472	12.00

Product Compliance Information

ESD Information

Caution! ESD-Sensitive Device

ESD Rating: Class 1C
Value: Passes ≥ 1000 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: Class IV
Value: Passes ≥ 1000 V min.
Test: Charged Device Model (CDM)
Standard: JEDEC Standard JESD22-C101

MSL Rating

Level 3 at +260 °C convection reflow
The part is rated Moisture Sensitivity Level 3 at 260°C per JEDEC standard IPC/JEDEC J-STD-020.

Solderability

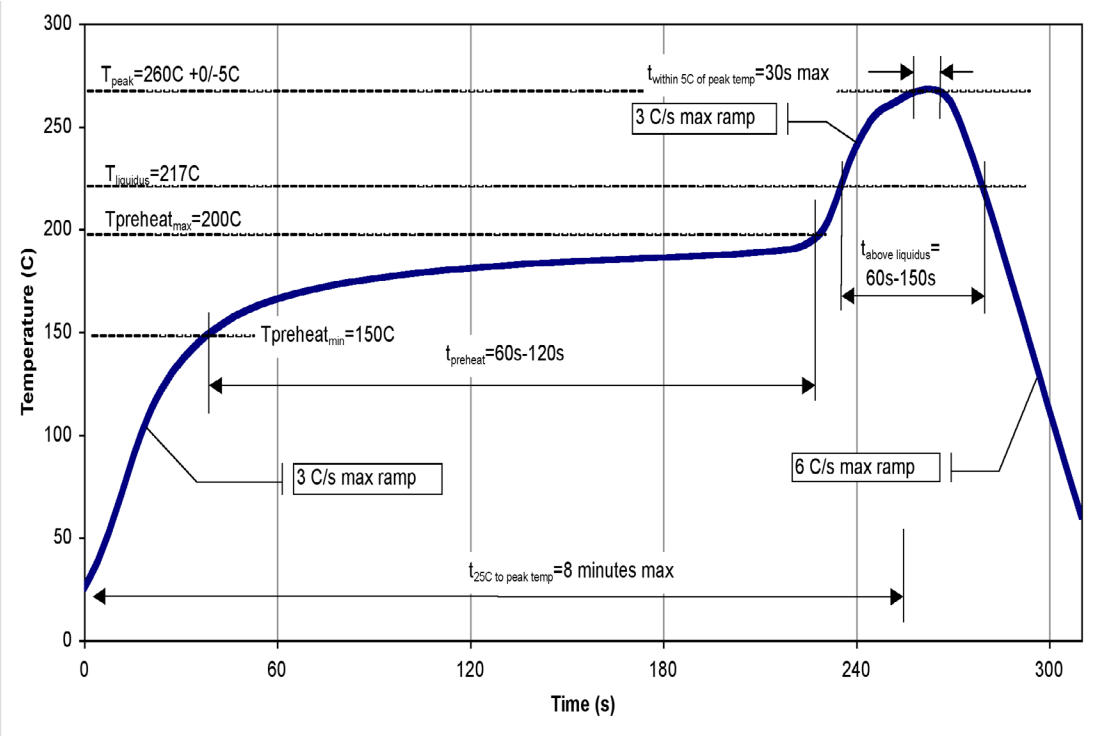
Compatible with the latest version of J-STD-020, Lead free solder, 260°

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Lead Free
- Halogen Free (Chlorine, Bromine)

Recommended Soldering Temperature Profile



Contact Information

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Email: info-sales@tqs.com **Fax:** +1.503.615.8902

For technical questions and application information:

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