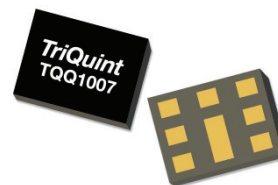


## Applications

- LTE Handsets
- Data Cards
- Mobile Routers

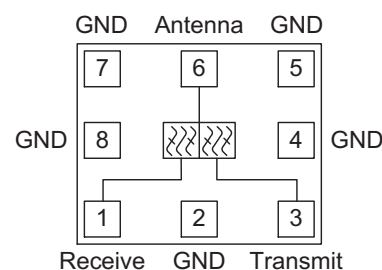


8-Pin 1.8 mm x 1.4 mm x 0.73 mm Package

## Product Features

- Performance Optimized For Wi-Fi Co-existence
- High B38 Attenuation: >11 dB Typ.
- Optimized for Low Insertion Loss:
  - Tx Band, 2500 – 2570 MHz: 2.5 dB Typ.
  - Rx Band, 2620 – 2690 MHz: 2.3 dB Typ.
- Tx-Rx Isolation > 55 dB Over Temp for Best Sensitivity With Envelope Tracking
- Single-Ended (SE) 50 Ohm Receive & Transmit Ports
- Compact Form-Factor: 1.8 mm x 1.4 mm
- RoHS Compliant, Pb-Free

## Functional Block Diagram



Top View

## General Description

The TQQ1007 is a compact, high-performance duplexer module optimized to meet stringent LTE requirements for use in Band 7 applications.

TQQ1007 is designed to provide 40 dB attenuation in the Wi-Fi band which is a must-have to enable Wi-Fi co-existence.

TQQ1007 is built up on TriQuint's high performance Bulk Acoustic Wave (BAW) technology to enable LTE applications demanding high power handling, stringent linearity requirements, and low insertion loss along with meeting the critical OOB attenuation and isolation specifications.

The TQQ1007 uses TriQuint's unique Wafer-Level-Packaging (WLP) techniques to enable a compact 1.8 mm x 1.4 mm x 0.73 mm footprint.

## Pin Configuration

Pin #	Label
1	Receive
3	Transmit
6	Antenna
4, 5, 7, 8	GND (Ground*)
2, Backside Center Pad	GND (Ground*)

\*See application section for details on optimal grounding.

## Ordering Information

Part No.	Description
TQQ1007	B7 BAW Duplexer
TQQ1007-EVB	Evaluation Board

Standard T/R size = 2500 pieces on a 7" reel.

## Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +85 °C
RF Input Power (CW, 50 Ω, T = +25 °C)	+29 dBm

Operation of this device outside the parameter ranges given above may cause permanent damage.

## Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
T <sub>CASE</sub>	-20		+85	°C

The duplexer will function over the recommended range without degradation in reliability or permanent change in performance.

## Electrical Specifications<sup>(1)</sup> Antenna-Transmit

Parameter	Conditions	-20°C		+25°C	+85°C		Units
		Min	Max	Typ	Min	Max	
Insertion Loss See Note 3	2500 – 2510 MHz		3.90			3.35	dB
	2510 – 2560 MHz			2.50			dB
	2560 – 2570 MHz		2.55			3.55	dB
VSWR	2500 – 2570 MHz (Ant Port)		2:1	1.5:1		2:1	-
	2500 – 2570 MHz (Tx Port)		2.1:1	1.5:1		2.1:1	-
Attenuation	50 – 1565 MHz	47		52	47		dB
	1574.42 – 1576.42 MHz	50		55	50		dB
	1577 – 1585 MHz	50		55	50		dB
	2402.5 – 2451.5 MHz (Ch1 – 7) See Note 2	39		43	38		dB
	2437.5 – 2461.5 MHz (Ch8 – 9) See Note 2	38		43	38		dB
	2447.5 – 2476.5 MHz (Ch10 – 12) See Note 2	37		42	37		dB
	2462.5 – 2481.5 MHz (Ch13) See Note 2	37		42	30		dB
	2595 – 2620 MHz (B38)	9		16	14		dB
	5000 – 5140 MHz (H2)	30		35	30		dB

## Electrical Specifications<sup>(1)</sup> Antenna–Receive

Parameter	Conditions	–20 °C		+25 °C	+85 °C		Units
		Min	Max	Typ	Min	Max	
Insertion Loss	2620 – 2690 MHz See Note 3		3.5	2.3		3.4	dB
VSWR	2620 – 2690 MHz (Ant Port)		2.1:1	1.8:1		2.1:1	-
	2620 – 2690 MHz (Rx Port)		2:1	1.5:1		2:1	-
Attenuation	50 – 2380 MHz	35		40	35		dB
	2380 – 2450 MHz	41.5		48	43		dB
	2450 – 2484 MHz	48		53	48		dB
	2500 – 2570 MHz	48		53	48		dB
	4900 – 5950 MHz	27		32	27		dB
	2775 – 6000MHz	21		26	21		dB

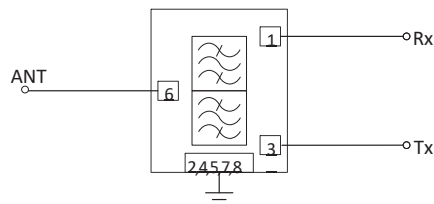
## Electrical Specifications<sup>(1)</sup> Transmit–Receive

Parameter	Conditions	–20 °C		+25 °C	+85 °C		Units
		Min	Max	Typ	Min	Max	
Isolation	2620 – 2690 MHz (Rx)	55		58	55		dB
	2500 – 2570 MHz (Tx)	55		57	55		dB

Notes:

1. All specifications are based on the TriQuint schematic for the main reference design.
2. Integrated over a 19 MHz
3. Typical IL values are integrated over 6 RB (1.4 MHz)

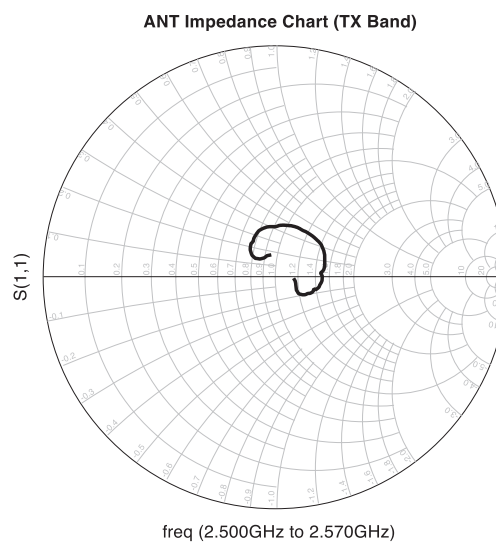
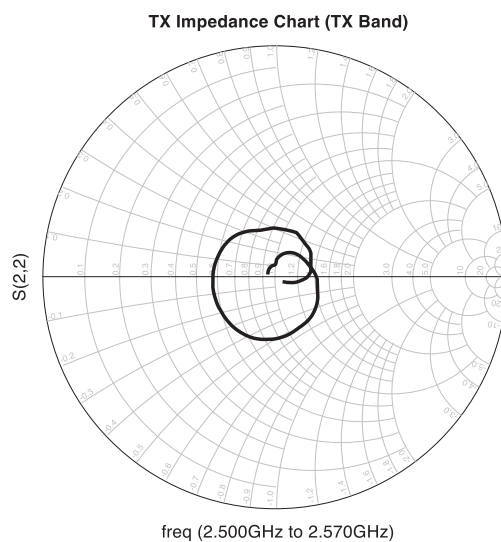
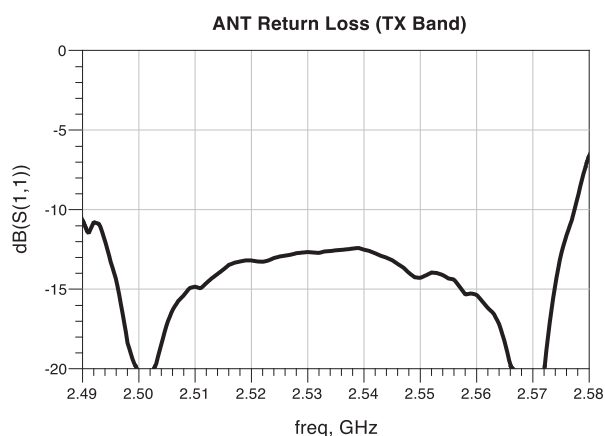
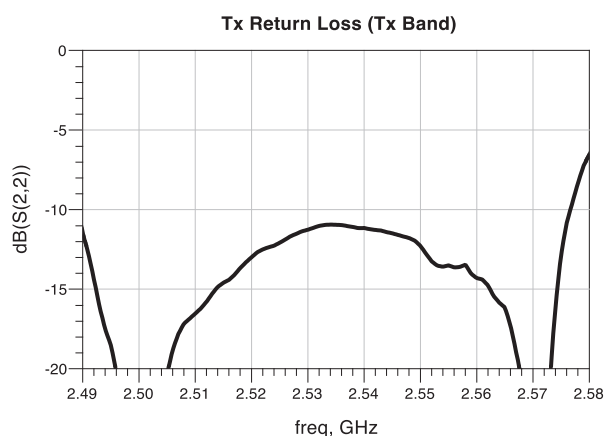
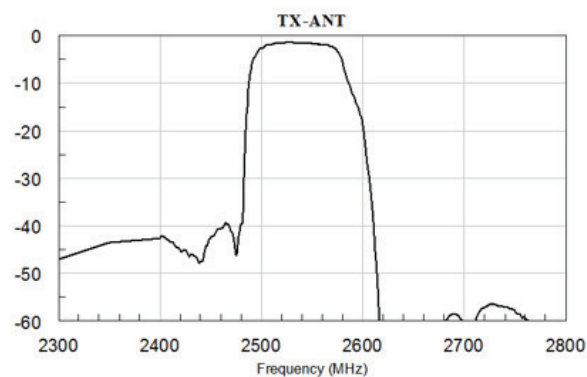
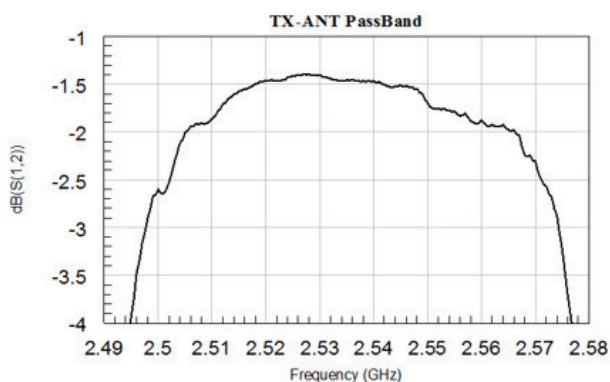
## TQQ1007-Schematic



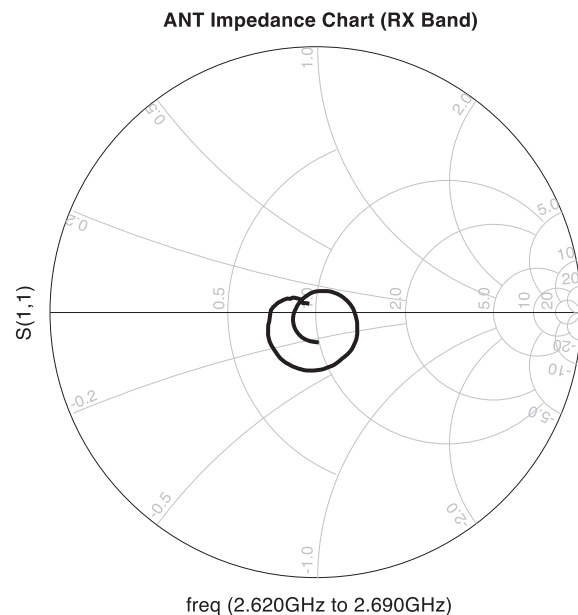
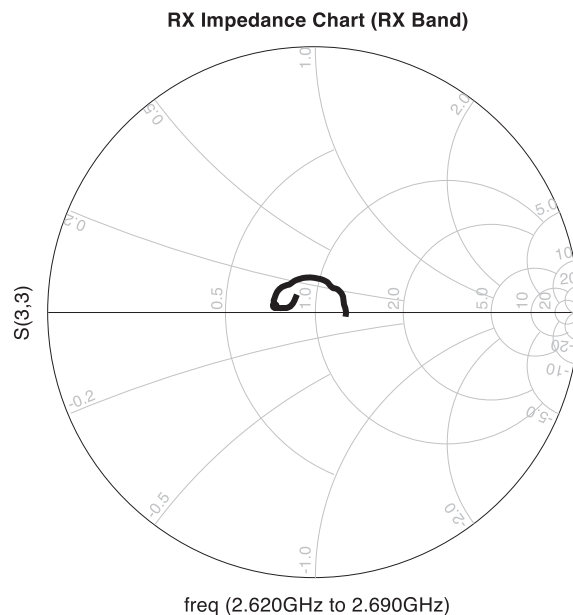
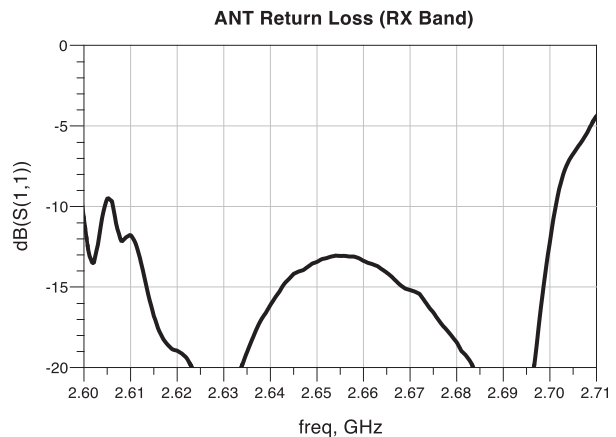
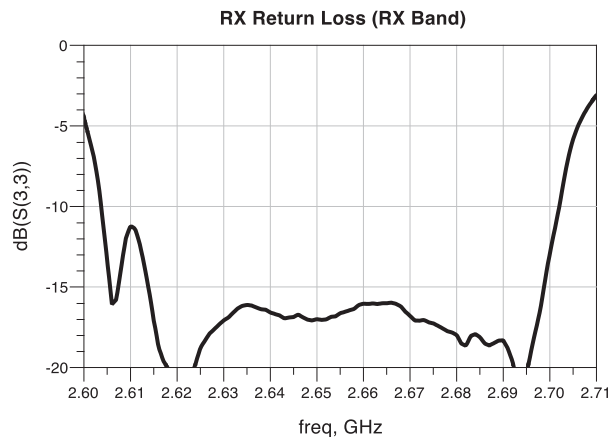
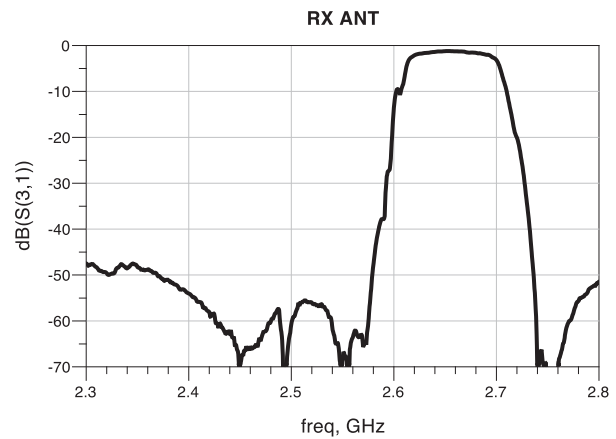
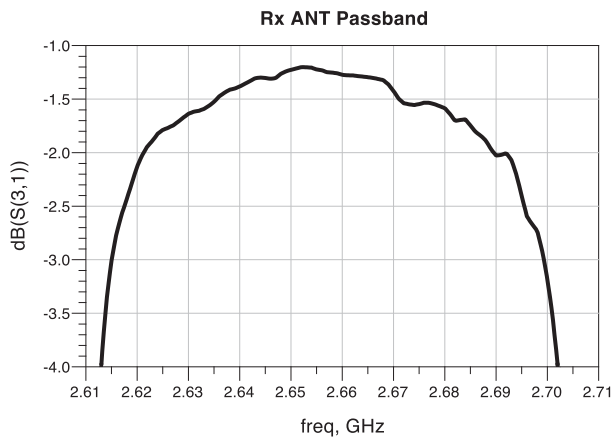
## Bill of Material – TQQ1007-EVB

Reference Des.	Value	Description	Manuf.	Part Number
U1	N/A	B7 BAW Duplexer	TriQuint	TQQ1007
PCB	N/A	4-layer		

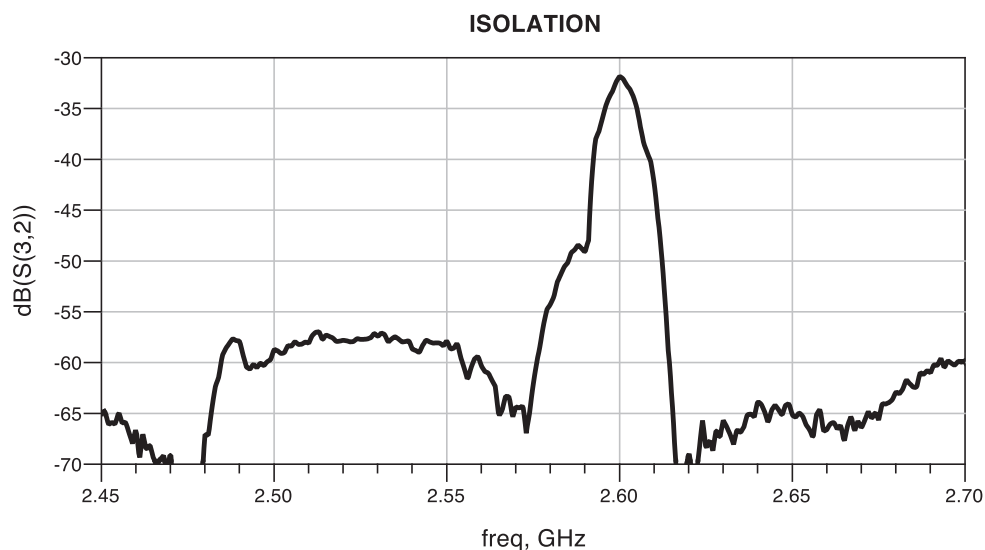
Performance Plots: Transmit Path at +25 °C



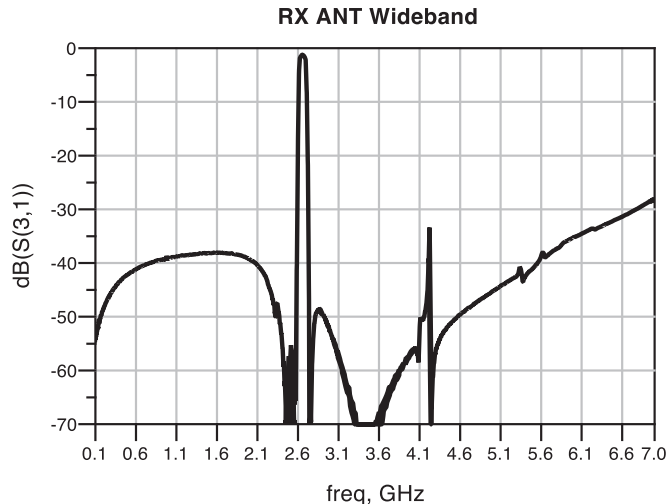
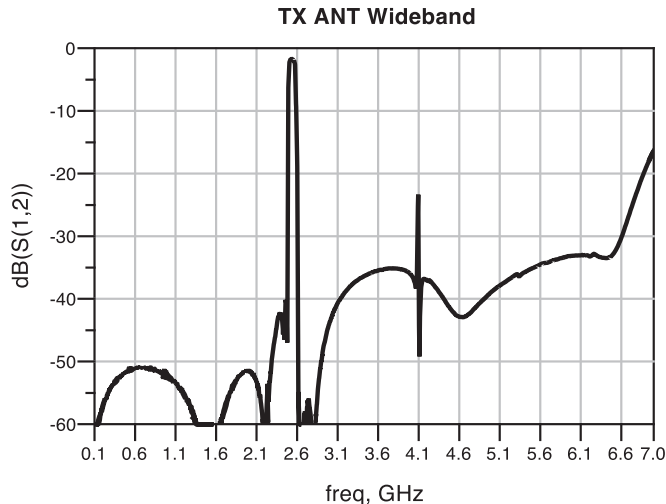
Performance Plots: Receive Path at +25 °C



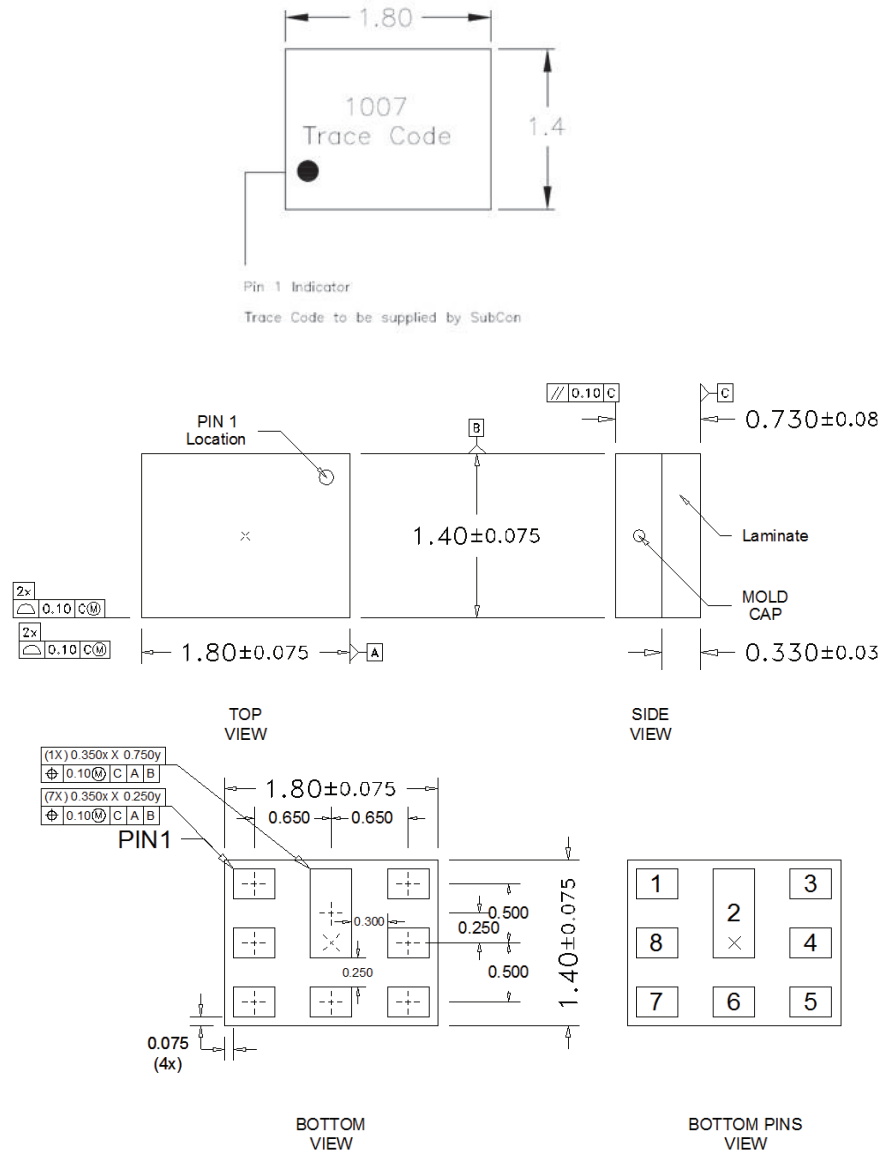
Performance Plots: Tx-Rx Isolation at +25 °C



Performance Plots: Tx & Rx Wideband at +25 °C



## Package Marking, and Dimensions



UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MILLIMETERS

DECIMAL	ANGULAR
X.X $\pm$ 0.1	$\pm 1^\circ$
X.XX $\pm$ 0.05	
X.XXX $\pm$ 0.025	

NOTES:

1. All dimensions are in millimeters. Angles are in degrees.  
2. Except where noted, this part outline conforms to JEDEC standard MO-220, Issue E (Variation VGGC) for thermally enhanced plastic very thin fine pitch quad flat no lead package (QFN).  
3. Dimension and tolerance formats conform to ASME Y14.4M-1994.

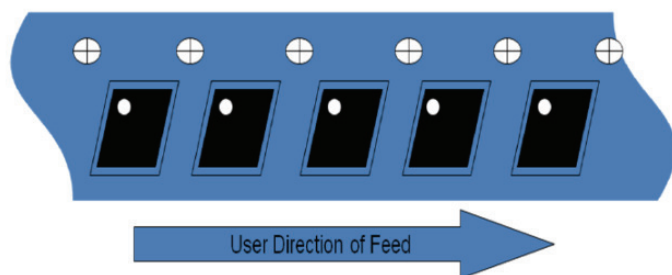
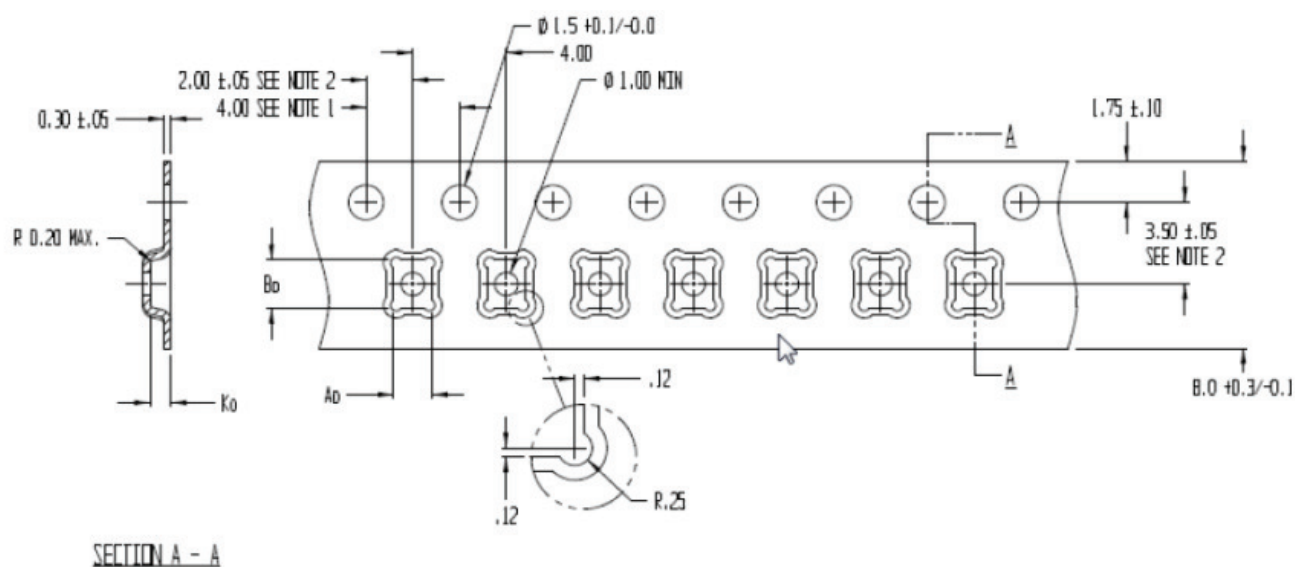
Not for New Designs. Consider QM23007 as an Alternative



## Tape and Reel Information

Standard T/R size = 2,500 units/reel. All dimensions are in millimeters

CAVITY (mm)				DISTANCE BETWEEN CENTERLINE (mm)		CARRIER TAPE (mm)	COVER TAPE (mm)
Length (A0)	Width (B0)	Depth (K0)	Pitch (P1)	Length direction (P2)	Width Direction (F)	Width (W)	Width (W)
1.66	2.06	.90	4.0	2.00	3.50	8.0	5.4



## Product Compliance Information

### ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: Class 1B  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JS-001

ESD Rating: Class C3  
Test: Charged Device Model (CDM)  
Standard: JEDEC Standard JESD22-C101

### MSL Rating

MSL Rating: Level 3  
Test: 260°C convection reflow  
Standard: JEDEC Standard IPC/JEDEC J-STD-020

### Solderability

Compatible with both lead-free (260 °C max. reflow temperature) and tin/lead (245 °C max. reflow temperature) soldering processes.

Package contact plating: TBD

### RoHS Compliance

This part is compliant with the 2011/65/EU RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as amended by Directive 2015/863/EU.

This product also has the following attributes:

Lead Free  
Halogen Free (Chlorine, Bromine)  
Antimony Free  
TBBP-A (C<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free  
PFOS Free  
SVHC Free

## Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations, and information about TriQuint:

Web: [www.triquint.com](http://www.triquint.com)  
Email: [info-sales@triquint.com](mailto:info-sales@triquint.com)

Tel: +1.407.886.8860  
Fax: +1.407.886.7061

For information about the merger of RFMD and TriQuint as Qorvo:

Web: [www.qorvo.com](http://www.qorvo.com)

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