TQQ6107

Band 7 BAW Duplexer

Applications

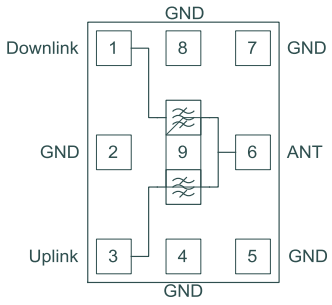
- Band 7 Duplexer for Small cell BTS
- General Purpose Wireless

9 Pin 2 x 2.5 mm leadless SMT Package

Product Features

- 70 MHz Bandwidth
- High Attenuation
- Low Loss
- No External Matching Required
- Small Size: 2.0 x 2.5 x 1.0 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

Functional Block Diagram



Top View

General Description

The TQQ6107 is an exceptionally high performance BAW duplexer for Band 7. This filter is housed in a compact 2 x 2.5 mm package.

Low insertion loss, coupled with high attenuation makes this filter an ideal choice for small cell BTS needs.

Pin Configuration

Pin No.	Label
1	Downlink
3	Uplink
6	ANT
2, 4, 5, 7, 8, 9	GND

Ordering Information

Part No.	Description
TQQ6107	Band 7 Duplexer
TQQ6107-PCB	Evaluation Board

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

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	−40 to +105°C
RF Input Power DL(1)	+29 dBm
RF Input Power UL (CW)	+23 dBm
Max DC Voltage	+5 V

Notes:

1. LTE, 5MHz, PAR = 8dB

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

Recommended Operating Conditions

Parameter	Min	Typ	Max	Units
T_{CASE}	−20		+85	°C

Electrical specifications are measured at specified test conditions.

Electrical Specifications – Downlink

Operating Temperature Range: −20 to +85 °C

Parameter	Conditions	Min	Typ(1)	Max	Units
Passband		2620	-	2690	MHz
Insertion Loss(1)	2620 – 2690 MHz	-	2.6	3.4	dB
Amplitude Variation	2620 – 2690 MHz	-	1.3	2.5	dB
Return Loss(1)	Antenna port	7	8.6	-	dB
Return Loss(1)	Downlink port	6	8.5	-	dB
Attenuation	600 – 960 MHz	23	26	-	dB
	960 – 1710 MHz	20	23	-	
	1710 – 1785 MHz	20	23	-	
	1785 – 1920 MHz	20	23	-	
	1920 – 2400 MHz	20	23	-	
	2400 – 2500 MHz	38	41	-	
	2500 – 2570 MHz	31	52	-	
	2570 – 2610 MHz	1	3.4	-	
	2700 – 2720 MHz	1	3	-	
	2720 – 2800 MHz	1	6.5	-	
	2800 – 3400 MHz	33	35	-	
	3400 – 3800 MHz	45	49	-	
	3800 – 5150 MHz	32	38	-	
	5150 – 5850 MHz	45	51	-	
2nd Harmonic Distortion(2)	Pout = +29dBm	63	72	-	dBc

Notes:

1. Average value over the indicated band
2. Additional 2nd harmonic improvement can be achieved using appropriate application. Refer to product technical notes for details.

Electrical Specifications – Uplink

Operating Temperature Range: −20 to +85 °C

Parameter	Conditions	Min	Typ(1)	Max	Units
Passband		2500	-	2570	MHz
Insertion Loss (1)	2500 – 2570 MHz	-	2.3	3.4	dB
Amplitude Variation	2500 – 2570 MHz	-	1.2	2.0	dB
Return Loss (1)	Antenna port	10	12	-	dB
Return Loss (1)	Uplink port	10	16	-	dB
Attenuation	600 – 1805 MHz	32	35	-	dB
	1805 – 1880 MHz	32	35	-	
	1880 – 2110 MHz	32	35	-	
	2110 – 2170 MHz	34	43	-	
	2170 – 2300 MHz	36	41	-	
	2300 – 2472 MHz	20	29	-	
	2590 – 2620 MHz	4	9.0	-	
	2620 – 2690 MHz	48	52	-	
	2690 – 2900 MHz	39	44	-	
	2900 – 3800 MHz	20	23	-	
	3800 – 5150 MHz	17	20	-	
	5150 – 5850 MHz	20	23	-	
Input / Output Impedance		-	50	-	Ohms

Notes:
1. Average value over the indicated band

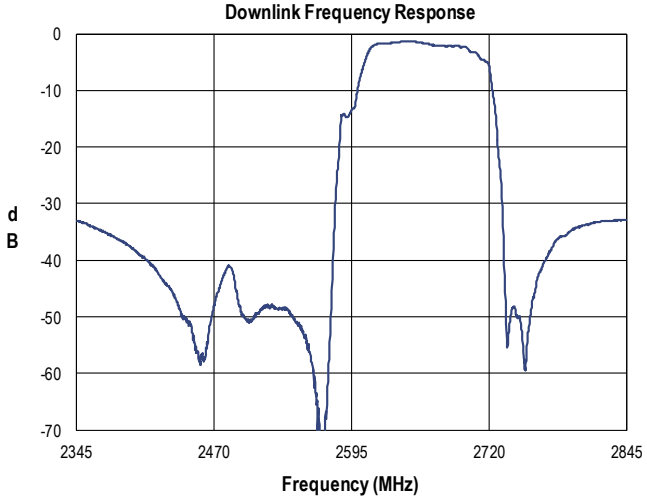
Electrical Specifications – Isolation Uplink to Downlink

Operating Temperature Range: −20 to +85 °C

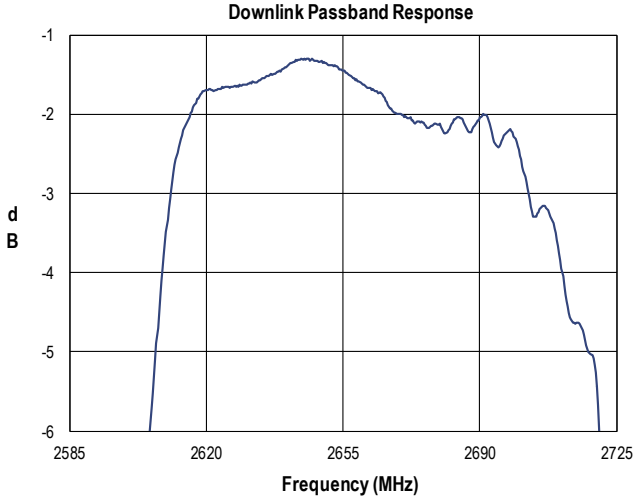
Parameter	Conditions	Min	Typ	Max	Units
Isolation in Uplink	2500 – 2570 MHz	50	57		dB
Isolation in Downlink	2620 – 2690 MHz	50	54		dB

Performance Plots – Downlink

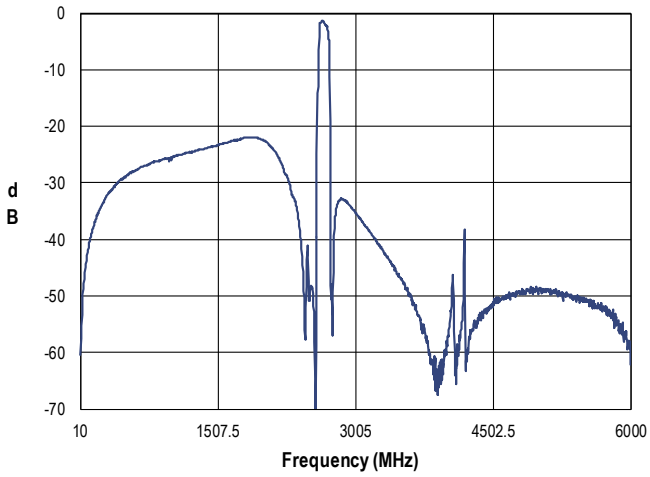
Downlink Frequency Response



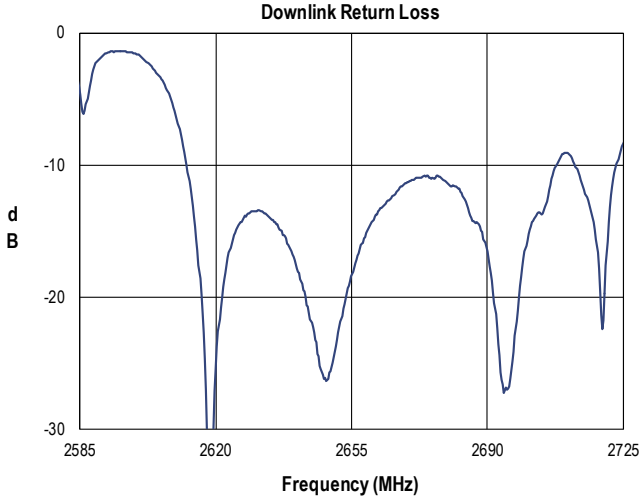
Downlink Passband Response



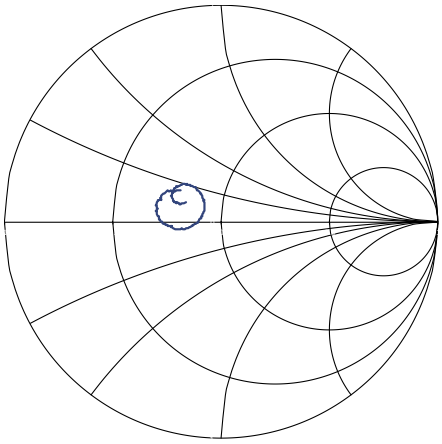
Downlink Wideband Response



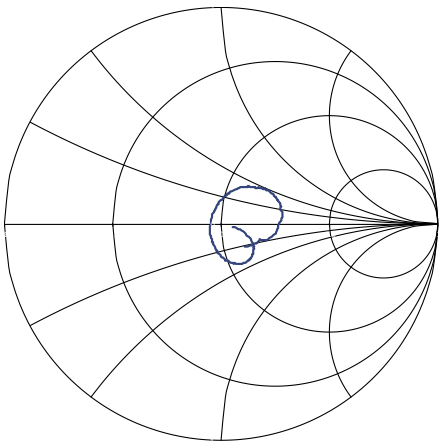
Downlink Return Loss



Downlink Path - Ant Port Impedance

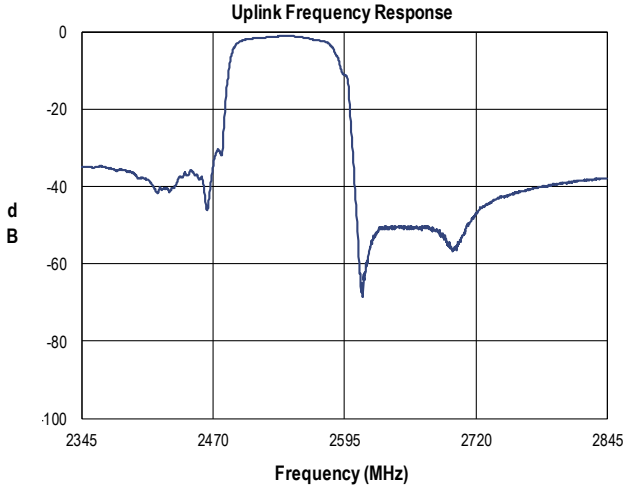


Downlink Port Impedance

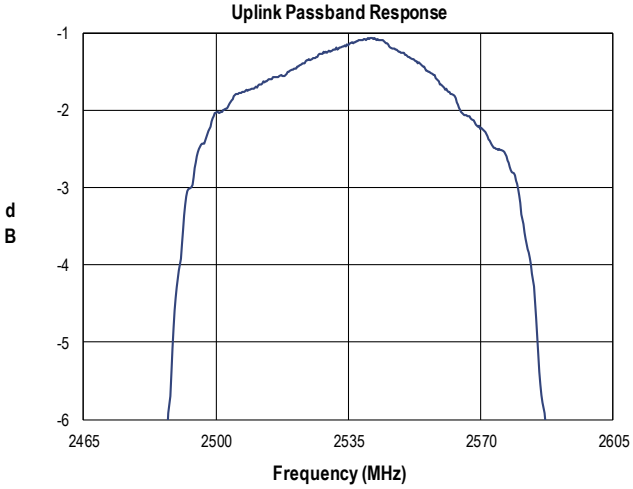


Performance Plots – Uplink

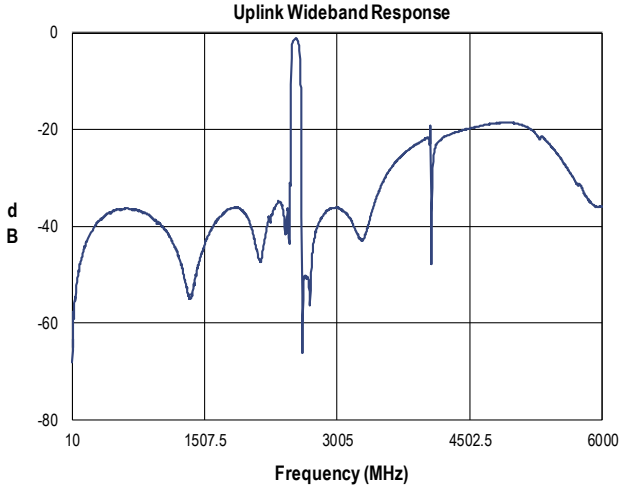
Uplink Frequency Response



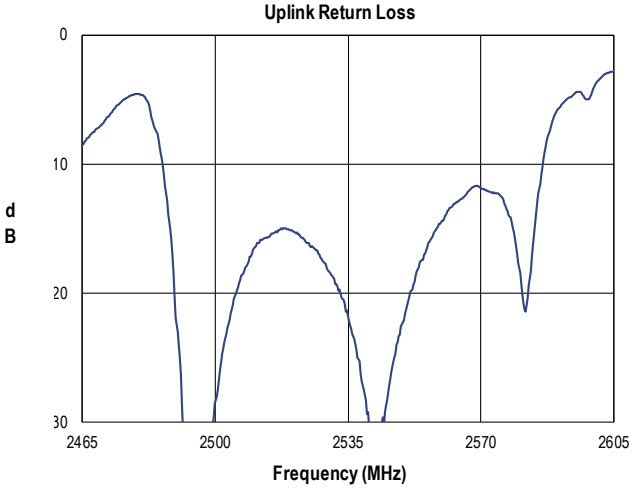
Uplink Passband Response



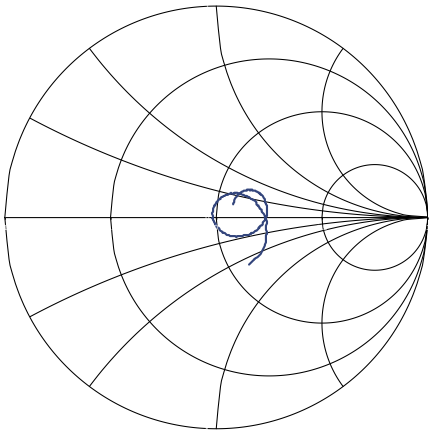
Uplink Wideband Response



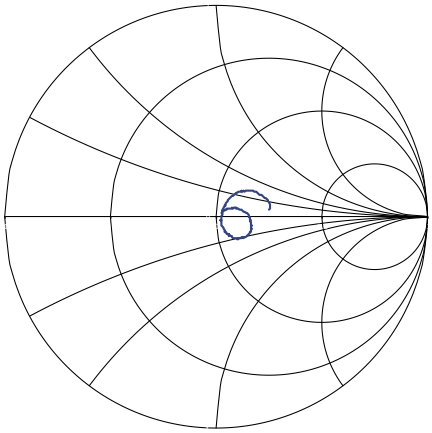
Uplink Return Loss



Uplink Path - Ant Port Impedance

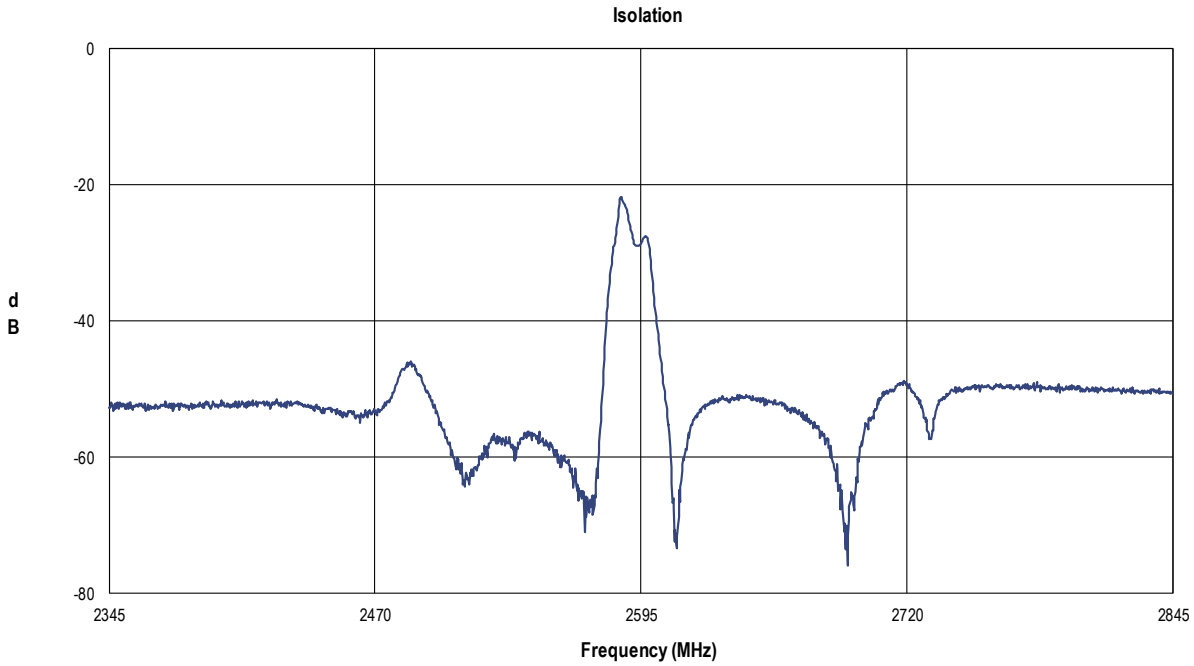


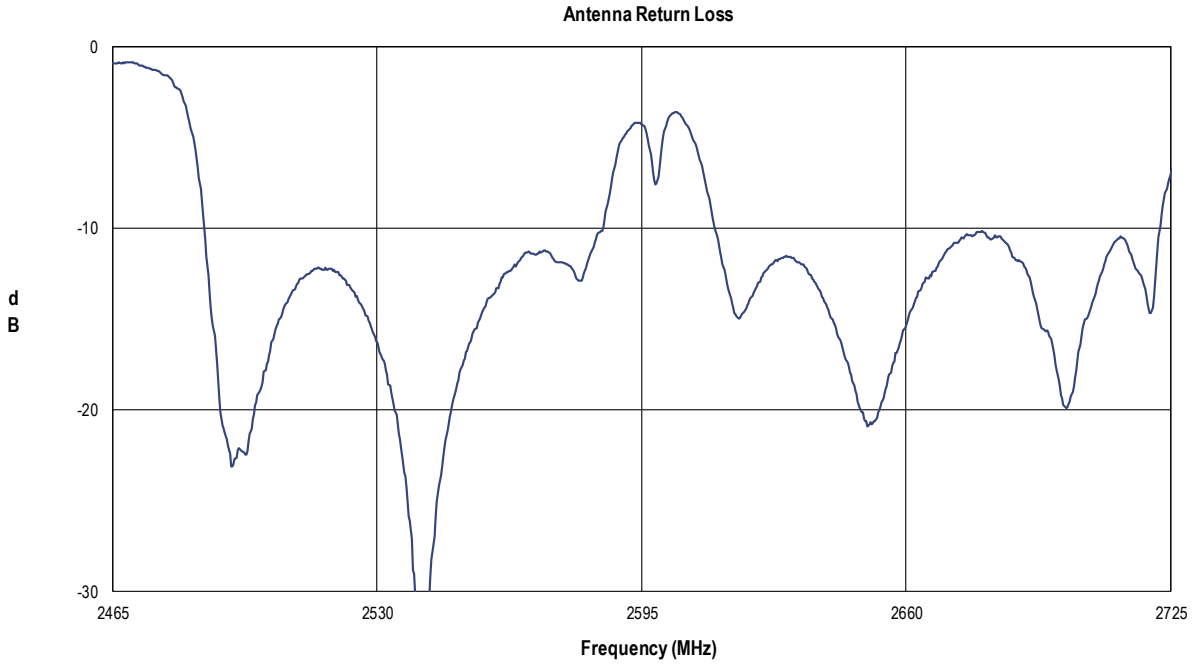
Uplink Port Impedance



Performance Plots (cont'd.)

Test conditions unless otherwise noted: Temp= +25 °C

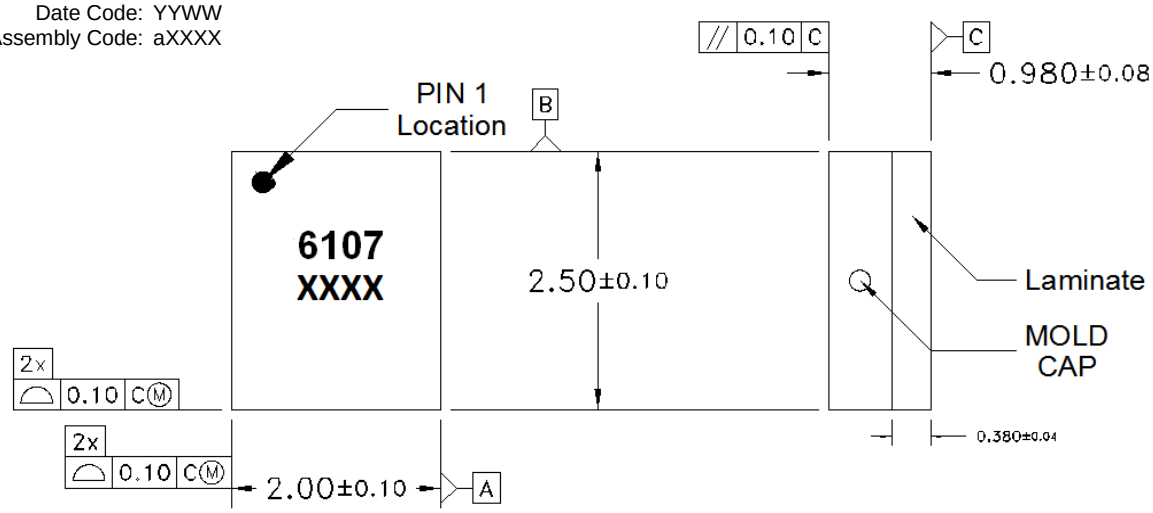




Package Marking and Dimensions

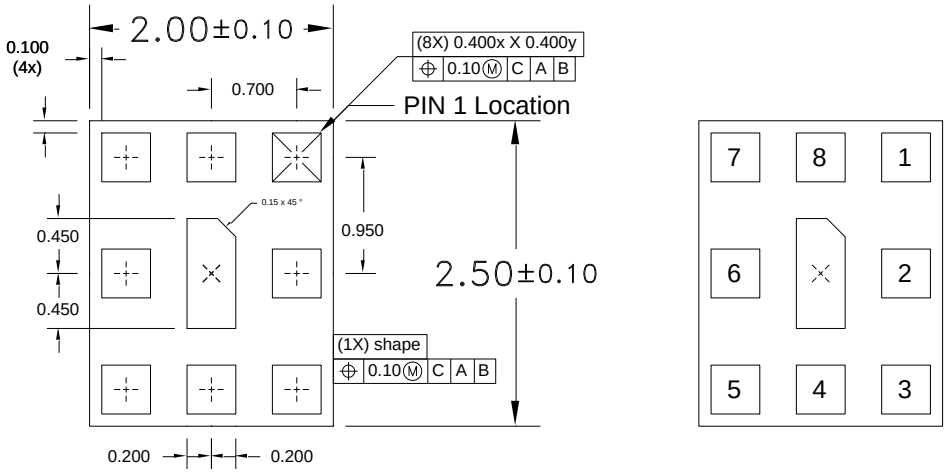
Package Marking

Product Identifier: Q6107
Date Code: YYWW
Assembly Code: aXXXX



TOP VIEW

SIDE VIEW



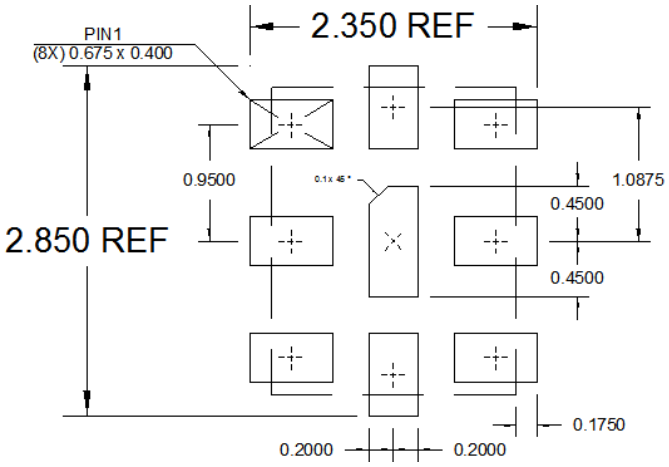
BOTTOM VIEW

BOTTOM PINS VIEW

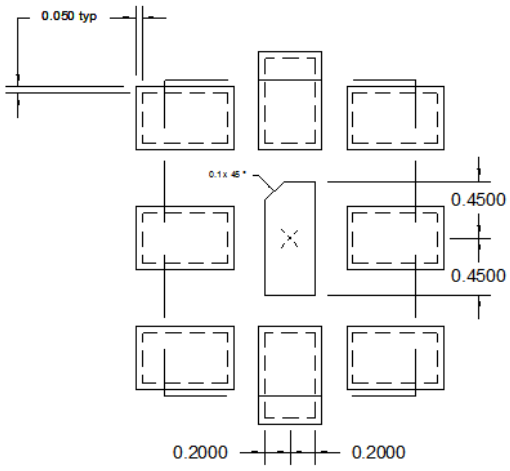
Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Except where noted, this part outline conforms to JEDEC standard MO-229.
3. Dimension and tolerance formats conform to ASME Y14.4M-1994.
4. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

PCB Mounting Pattern



Top view recommended land pattern metallization.



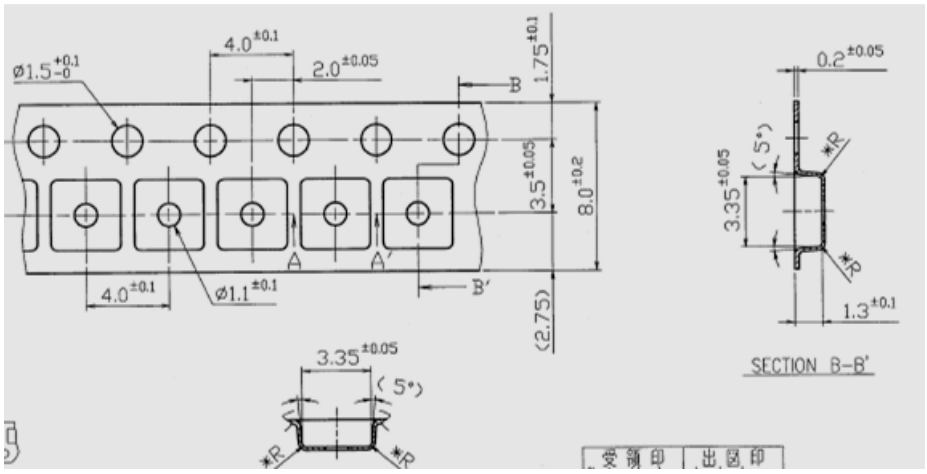
Top view recommended land pattern stencil aperture.

Notes:

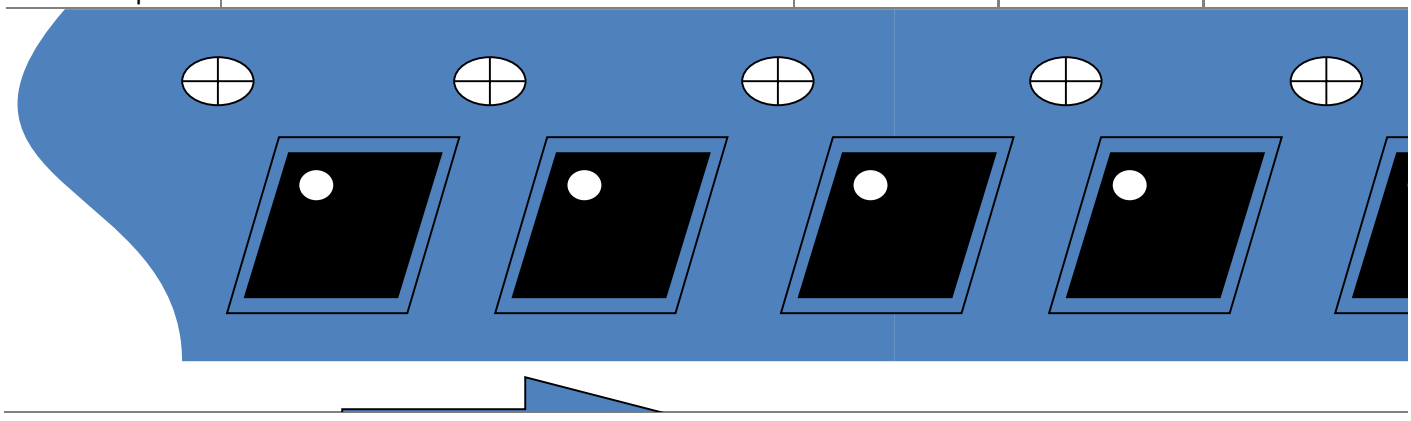
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

Tape and Reel Information – Carrier and Cover Tape Dimensions

Tape and reel specifications for this part are also available on the TriQuint website.
Standard T/R size = 2500 pieces on a 7" reel.

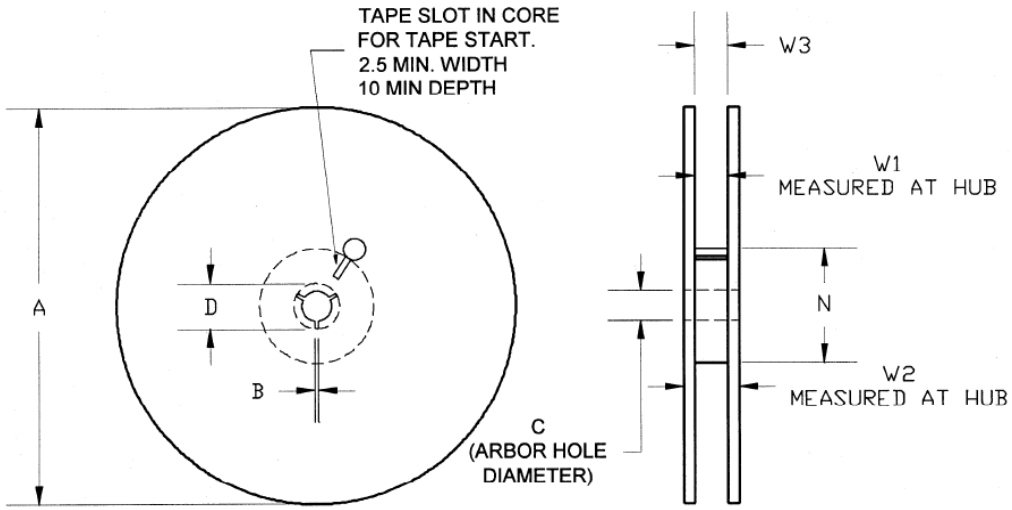


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.092	2.34
	Width	B0	0.112	2.85
	Depth	K0	0.043	1.10
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier Tape	Width	W	0.315	8.00



Tape and Reel Information – Reel Dimensions

Tape and reel specifications for this part are also available on the TriQuint website.
Standard T/R size = 2,500 pieces on a 7” reel.



Feature	Measure	Symbol	Size (in)	Size (mm)
Flange	Diameter	A	6.969	177.0
	Thickness	W2	0.559	14.2
	Space Between Flange	W1	0.346	8.8
Hub	Outer Diameter	N	2.283	58.0
	Arbor Hole Diameter	C	0.512	13.0
	Key Slit Width	B	0.079	2.0
	Key Slit Diameter	D	0.787	20.0

Product Compliance Information

ESD Sensitivity Ratings

Caution! ESD-Sensitive Device

ESD Rating: Class 1B
Value: ≥ 500 V to < 1000 V
Test: Human Body Model (HBM)
Standard: ESDA / JEDEC Standard JS-001-2012

ESD Rating: Class C3
Value: > 1000 V
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 maximum reflow temperature) and tin/lead (+245 °C maximum reflow temperature) soldering processes.
Contact plating: ENIG (Electroless Nickel Immersion Gold)

Refer to **Soldering Profile** for recommended guidelines.

RoHs Compliance

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)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) 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 **Tel:** 877-800-8584
Email: customer.support@qorvo.com

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

Web: www.qorvo.com

For technical questions and application information: **Email:** sjcapplications.engineering@triquint.com

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