

### Applications

- LTE Band 7 Uplink Infrastructure
- Base Station
- General Purpose Wireless

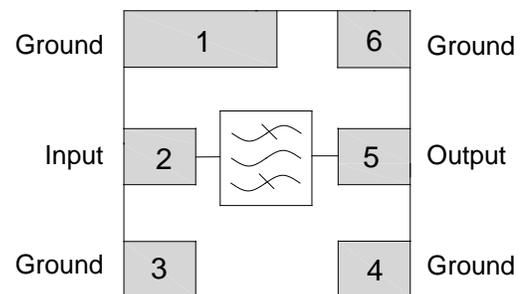


6 Pin 3 x 3 mm leadless SMT Package

### Product Features

- 70 MHz Bandwidth
- High Attenuation
- Low Loss
- 50 Ohm Input/Output Impedance
- Single-ended Operation
- Small Size: 3 x 3 x 1.02 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

### Functional Block Diagram



Top View

### General Description

The TQQ7307 is a general purpose uplink BAW filter for LTE Band 7. This filter is housed in a compact 3 x 3 mm package for base station applications.

Low insertion loss, coupled with high attenuation makes this filter an ideal choice for uplink RF filtering needs.

The TQQ7307 is part of TriQuint's extensive portfolio of RF BAW and SAW filters.

### Pin Configuration

Pin No.	Label
2	Input
5	Output
1,3,4,6	Ground

### Ordering Information

Part No.	Description
TQQ7307	2535 MHz BAW Filter
TQQ7307-EVB	Evaluation board

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

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +95°C
RF Input Power (CW, +55°C for 10,000 hours)	+30 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>	-40		+85	°C

Electrical specifications are measured at specified test conditions.

### Electrical Specifications (1,2,3)

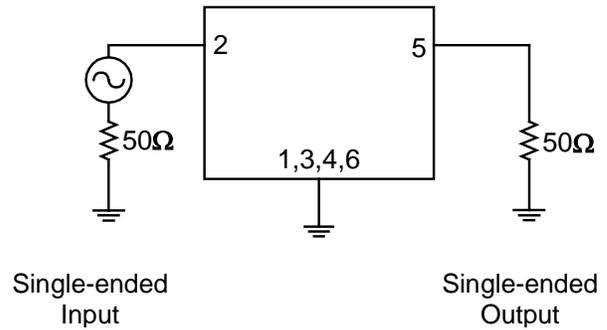
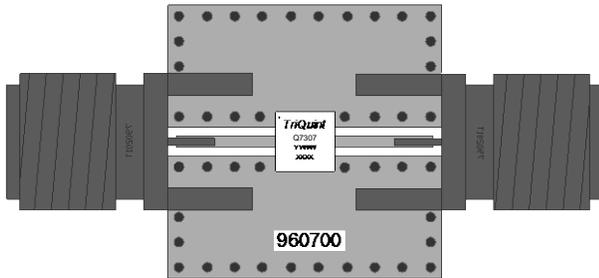
Test conditions unless otherwise specified: Temp. +25 °C, Z<sub>S</sub>=Z<sub>L</sub>=50 Ohms

Parameter	Conditions	Min	Typ <sup>(4)</sup>	Max	Units
Pass Band Frequency		2500		2570	
Center Frequency		-	2535	-	MHz
3.5 dB Bandwidth		-	83	-	MHz
Maximum Insertion Loss	2500 – 2570 MHz	-	2.0	3.5	dB
Amplitude Variation <sup>(5)</sup>	2500 – 2570 MHz	-	0.9	2.4	dB
Group Delay Variation <sup>(6)</sup>	2500 – 2570 MHz	-	14	30	ns p-p
Group Delay Variation <sup>(6)</sup>	Any 5 MHz band in passband	-	7	13	ns p-p
Input VSWR	2500 – 2570 MHz	-	1.9:1	2.4:1	-
Output VSWR	2500 – 2570 MHz	-	1.8:1	2.4:1	-
Stopband Attenuation (relative to zero dB)	0.9 – 1100 MHz	36	40	-	dB
	1100 – 2170 MHz	30	34	-	
	2170 – 2260 MHz	38	45	-	
	2260 – 2450 MHz	32	39	-	
	2450 – 2480 MHz	12	20	-	
	2590 – 2620 MHz	8	12	-	
	2620 – 2690 MHz	40	48	-	
	2690 – 2900 MHz	40	47	-	
	2900 – 3800 MHz	30	37	-	
3800 – 5000 MHz	13	17	-		
	5000 – 6000 MHz	-	4	-	
Source/Load Impedance <sup>(7)</sup>	Single ended	-	50	-	Ohms

#### Notes:

- All specifications are based on the TriQuint schematic for the main reference design.
- Production test is performed at room temp. to a guard-banded specification to ensure electrical compliance over temperature.
- Electrical margin has been built into the design to account for variation due to temperature drift and manufacturing tolerances.
- Typical values are based on average measurements at room temperature of 25°C.
- This is defined as the difference between the maximum and minimum insertion loss within the specified band.
- This is defined as the worst case difference between a peak and adjacent valley within defined frequency points.
- This is the optimum impedance in order to achieve the performance shown.

## TQQ7307-PCB Evaluation Board



## Bill of Material – TQQ7307-PCB

Reference Des.	Value	Description	Manuf.	Part Number
U1	n/a	2535 MHz BAW Filter	TriQuint	TQQ7307
n/a	n/a	Printed Circuit Board	TriQuint	960700
n/a	n/a	SMA Edge Connector	Radiall	9602-1111-018

## Evaluation Board PCB Information

Top, middle & bottom layers: 1 oz copper

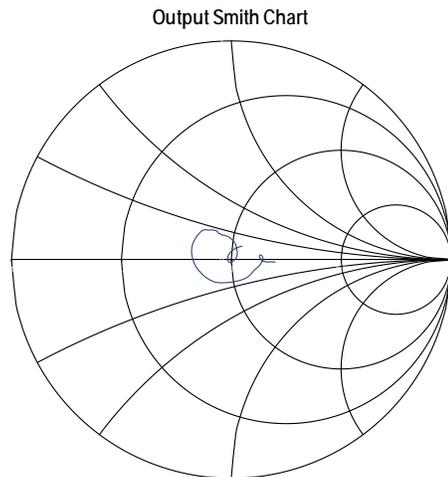
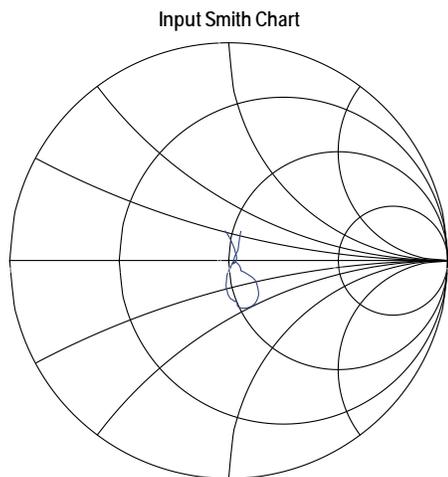
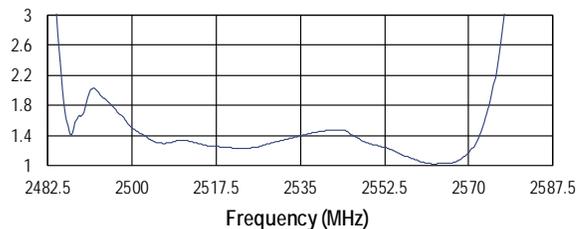
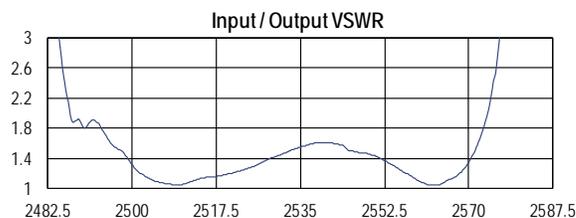
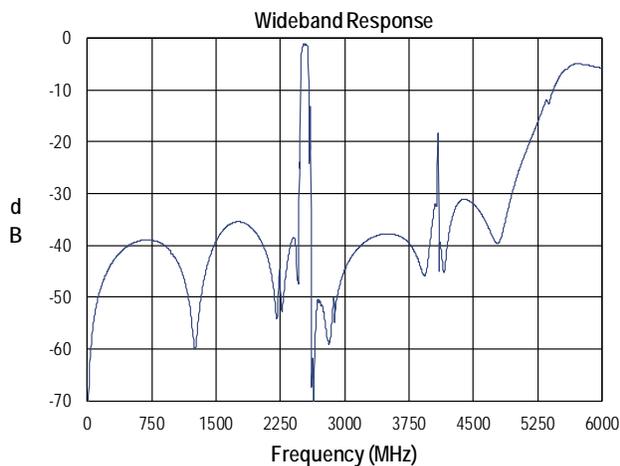
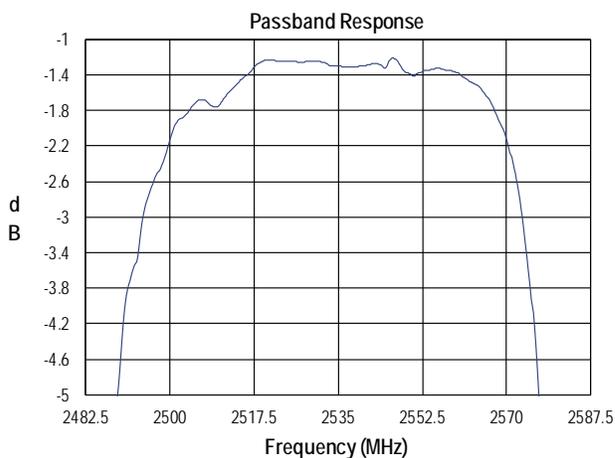
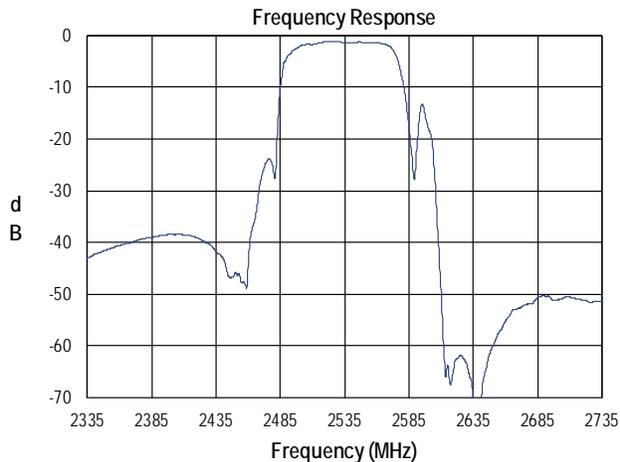
Substrates: FR4 dielectric, .031" thick

Finish plating: Nickel: 3-8 $\mu$ m thick, Gold: .03-.2 $\mu$ m thick

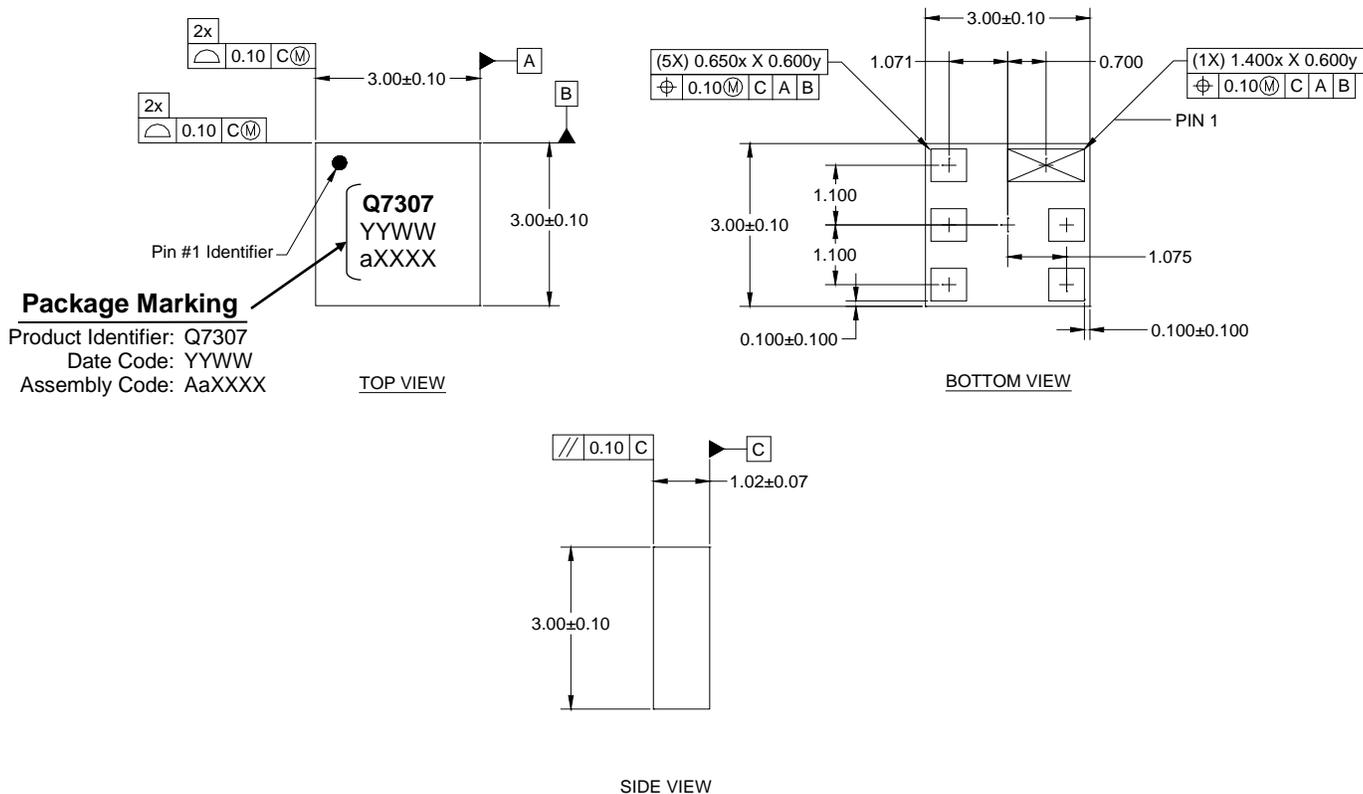
Hole plating: Copper min .0008 $\mu$ m thick

**Performance Plots**

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



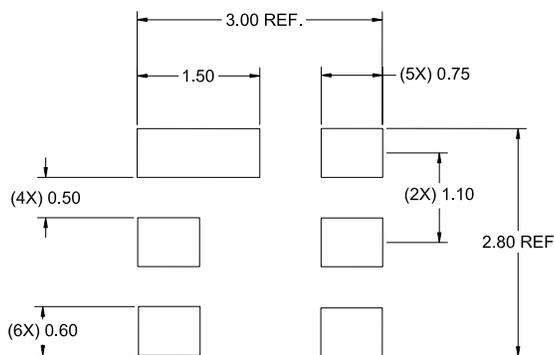
### Package Marking and Dimensions



**Notes:**

1. All dimensions are in millimeters
2. All tolerances are  $\pm 0.15$  mm except overall length and width  $\pm 0.10$  mm
3. Contact plating : ENIG (Electroless Nickel Immersion Gold)
4. Terminations:  $0.5 - 1.0 \mu\text{m Au}$  plating, over a  $2 - 6 \mu\text{m Ni}$  plating

### PCB Mounting Pattern

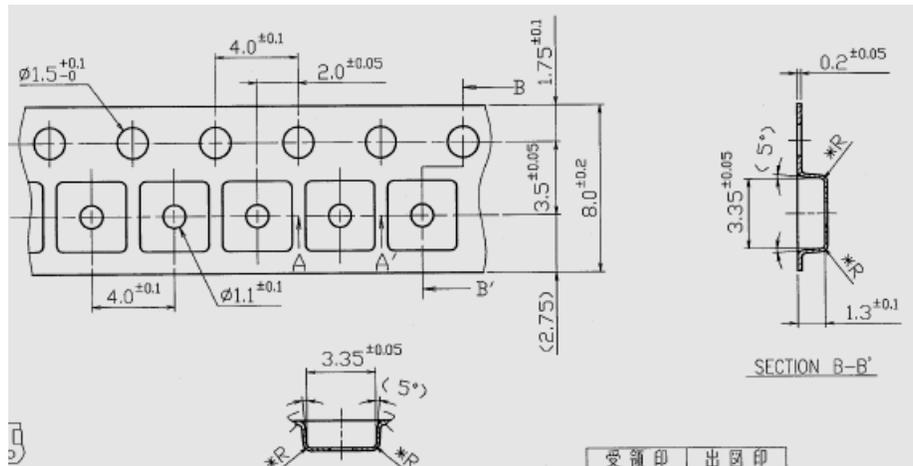


**Notes:**

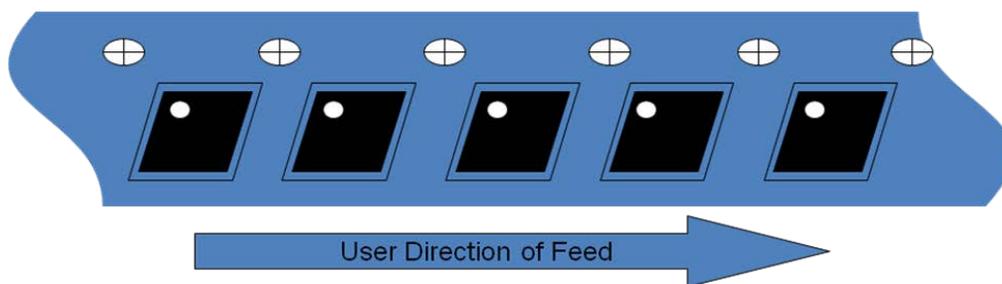
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

**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.

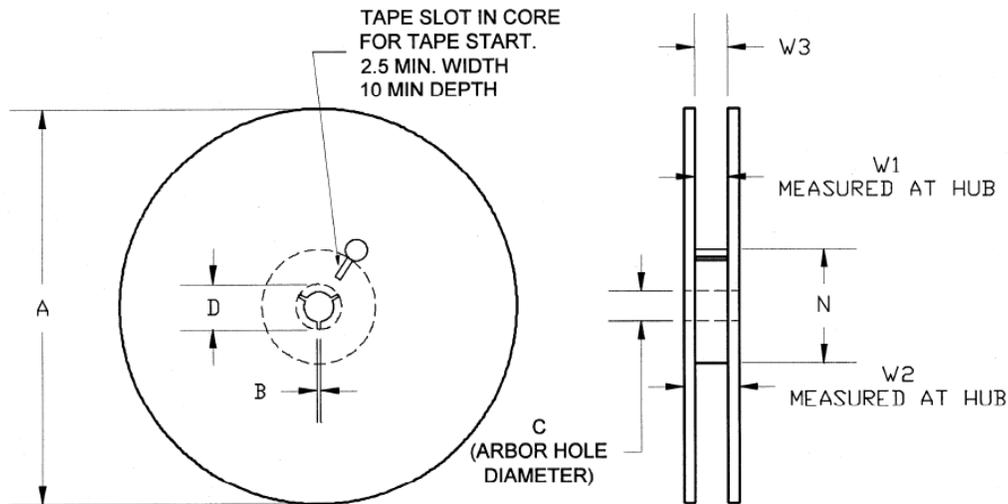


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.132	3.35
	Width	B0	0.132	3.35
	Depth	K0	0.055	1.40
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier 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: Passes  $\geq 500V$  to  $< 1000V$   
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JS-001-2012

ESD Rating: Class B  
Value: Passes  $\geq 200V$  to  $< 400V$   
Test: Machine Model (MM)  
Standard: JEDEC Standard JESD22-A115

### MSL Rating

MSL Rating: Level 3  
Test:  $260^{\circ}C$  convection reflow  
Standard: JEDEC Standard IPC/JEDEC J-STD-020

### Solderability

Compatible with both lead-free ( $260^{\circ}C$  maximum reflow temperature) and tin/lead ( $245^{\circ}C$  maximum reflow temperature) soldering processes.

Contact plating: ENIG (Electroless Nickel Immersion Gold)

### 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:

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