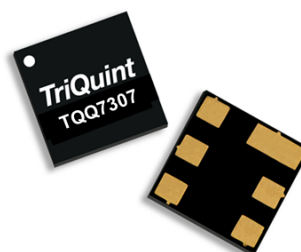


### Applications

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

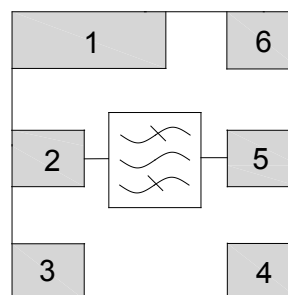


6 Pin 3x3 mm leadless SMT Package

### Product Features

- 70 MHz Bandwidth
- High Attenuation
- Low Loss
- 50 Ohm Input/Output Impedance
- Single-ended Operation
- Small Size: 3.00 x 3.00 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 3x3 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 | Case 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<br>(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<sup>(1,2,3,4)</sup>

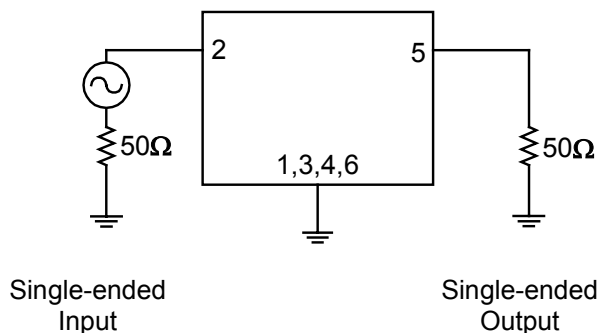
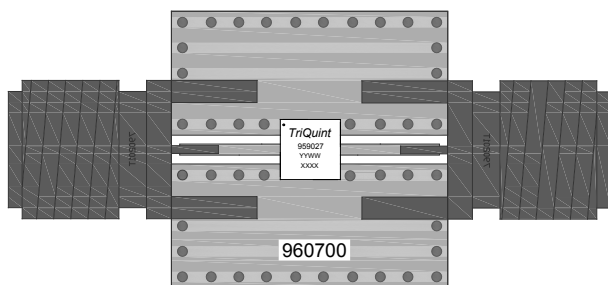
Test conditions unless otherwise specified: Passband Freq.=2500-2570 MHz, Temp. Range=-40 to +85°C, Z<sub>S</sub>=Z<sub>L</sub>=50 Ohms

| Parameter                                     | Conditions                 | Min | Typ <sup>(4)</sup> | Max   | Units  |
|---|----------------------------|-----|--------------------|-------|--------|
| Center Frequency                              |                            | -   | 2535               | -     | MHz    |
| 3.5 dB Bandwidth                              |                            | -   | 83                 | -     | MHz    |
| Maximum Insertion Loss                        |                            | -   | 2.0                | 3.5   | dB     |
| Amplitude Variation <sup>(5)</sup>            |                            | -   | 0.9                | 2.4   | dB     |
| Group Delay Variation <sup>(6)</sup>          |                            | -   | 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<br>(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:

1. All specifications are based on the TriQuint schematic for the main reference design.
2. Production test is performed at room temp. to a guard-banded specification to ensure electrical compliance over temperature.
3. Electrical margin has been built into the design to account for variation due to temperature drift and manufacturing tolerances.
4. Typical values are based on average measurements at room temperature of 25°C.
5. This is defined as the difference between the maximum and minimum insertion loss within the specified band.
6. This is defined as the worst case difference between a peak and adjacent valley within defined frequency points.
7. 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

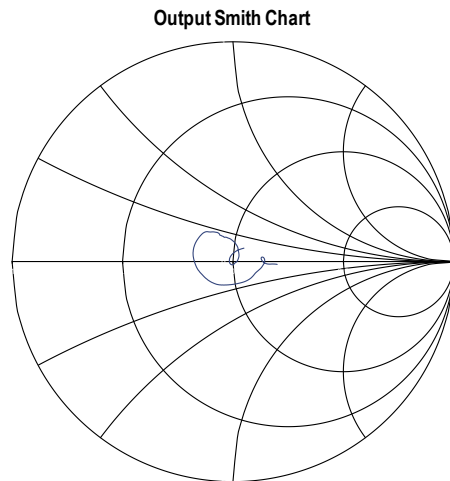
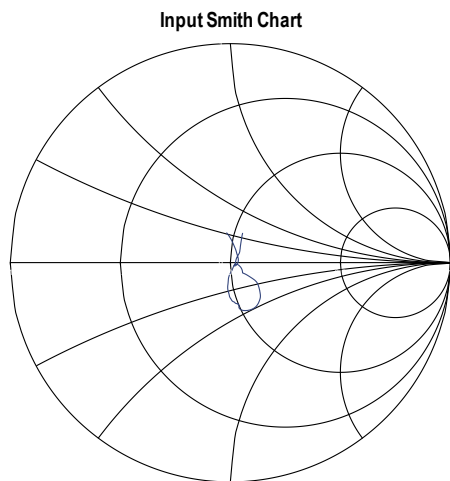
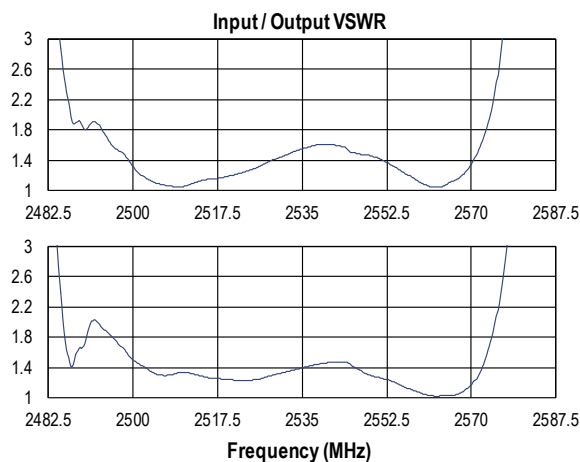
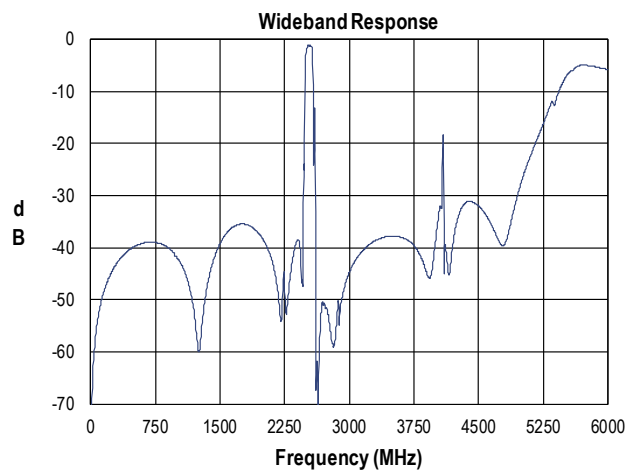
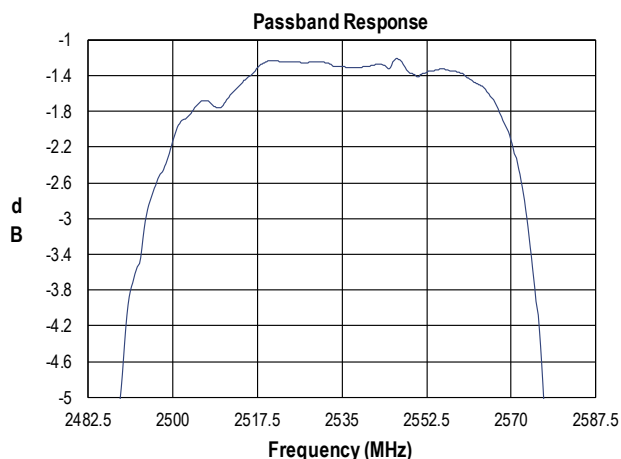
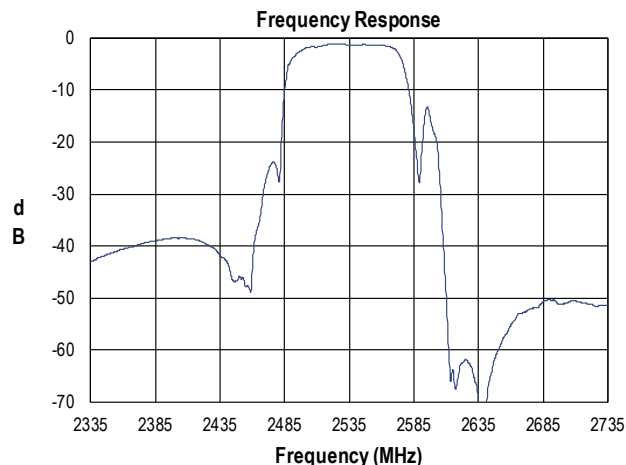
Substrates: FR4 dielectric, .031" thick

Finish plating: Nickel: 3-8μm thick, Gold: .03-.2μm thick

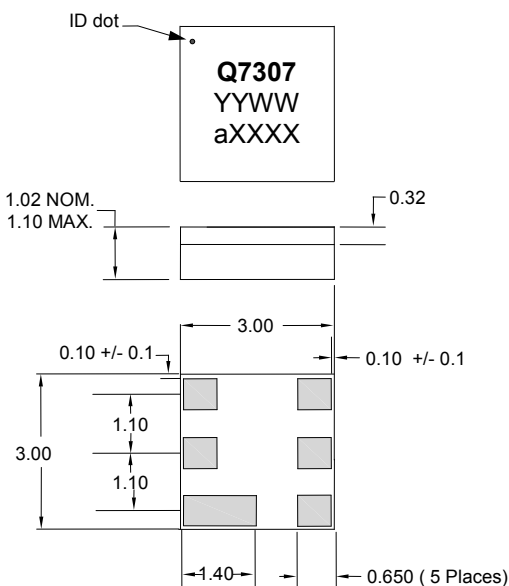
Hole plating: Copper min .0008μm thick

### Performance Plots

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



### Package Material, Marking and Dimensions



Package Style: 6-pin 3x3 leadless SMT  
Dimensions: 3.00 x 3.00 x 1.02 mm

4 layer laminate based over-molded module

Contact plating : ENIG (Electroless Nickel Immersion Gold)  
Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating

All dimensions shown are nominal in millimeters  
All tolerances are ±0.15mm except overall length and width ±0.10mm

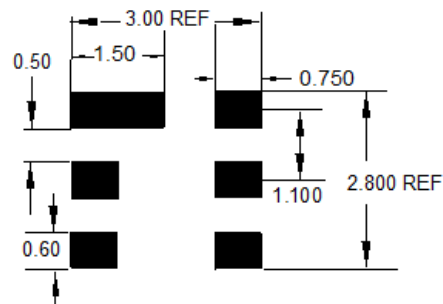
Package Marking:

Part Number: Q7307  
Year/Week: YYWW  
Assembly Code: aXXXX

### PCB Mounting Pattern

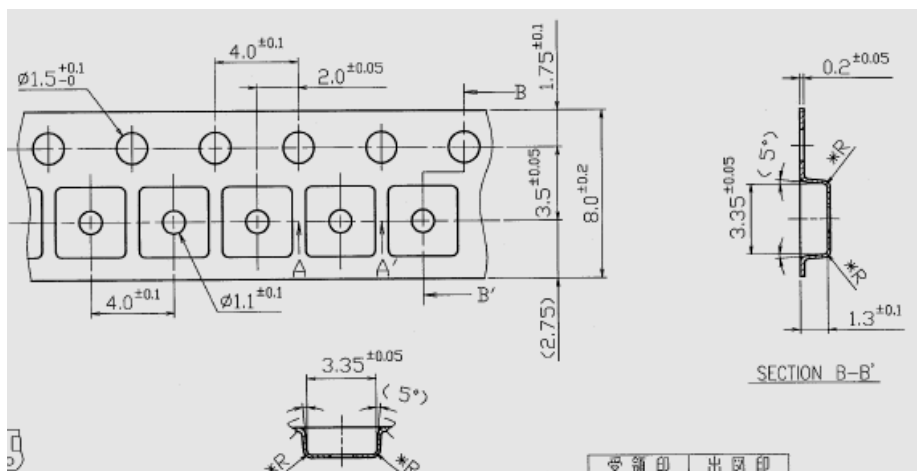
Notes:

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

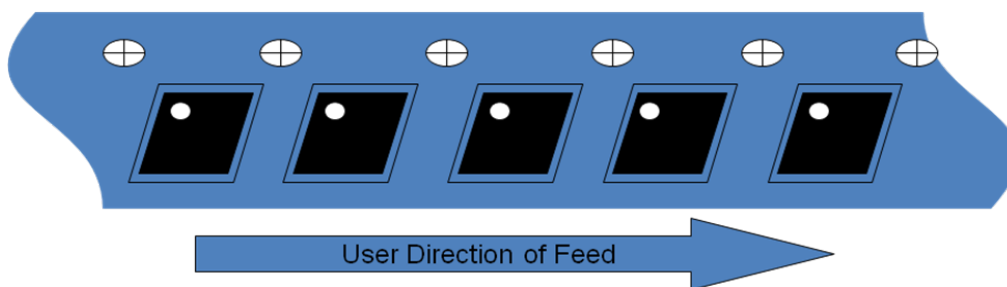


### Tape and Reel Information – Carrier and Cover Tape Dimensions

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

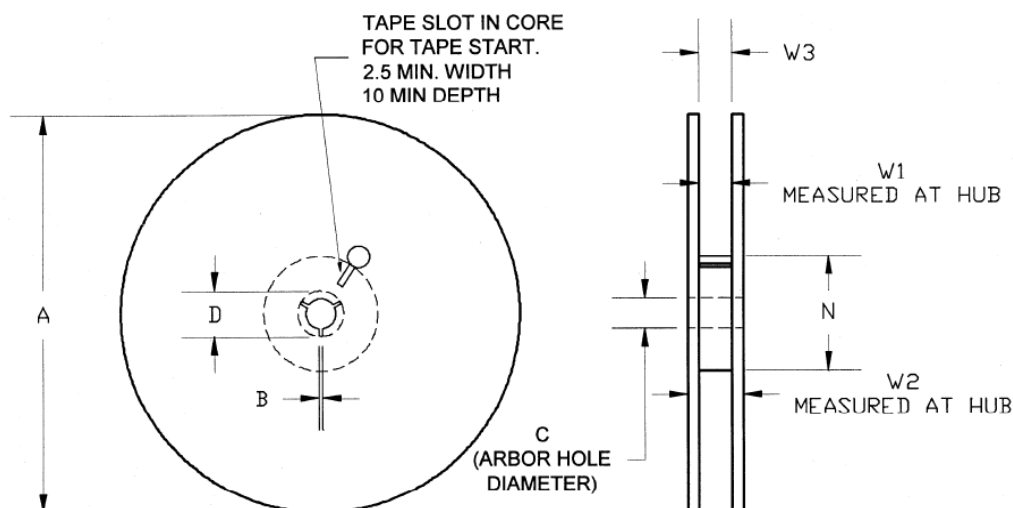


| Feature             | Measure                                  | Symbol | Size (in) | Size (mm) |
|---------------------|--|--------|-----------|-----------|
| Cavity              | Length                                   | A0     | 0.132     | 3.35      |
|                     | Width                                    | 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 JESD22-A114

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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For technical questions and application information:

Email: [flapplication.engineering@triquint.com](mailto:flapplication.engineering@triquint.com)

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