

General Description

The TQQ0302 is an exceptionally high performance BAW filter for the LTE Band 3 uplink. This filter is housed in a compact 3 x 3 mm package for base station applications.

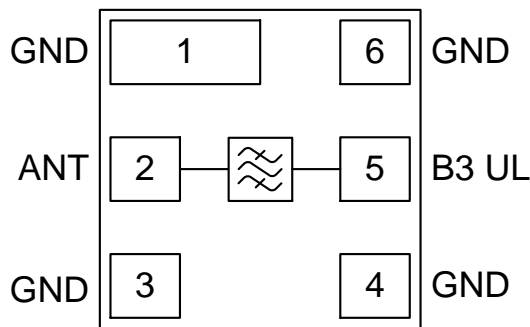
Low insertion loss, coupled with high attenuation makes this filter an ideal choice for uplink RF filtering needs.

The TQQ0302 is part of Qorvo's extensive portfolio of RF BAW and SAW filters.



6 Pin 3 x 3 mm leadless SMT Package

Functional Block Diagram



Top View

Product Features

- Usable Bandwidth 75 MHz at 1747.5 MHz
- Internally Match for 50 Ohm Operation
- Low Insertion Loss
- Small Size: 3.00 x 3.00 x 1.07 mm
- Surface Mount Device
- RoHS compliant, Pb-free
- High power handling of 1W

Applications

- Base Station Infrastructure
- Repeaters
- General Purpose Wireless

Pin Configuration

| Pin No. | Label |
|------------|--------|
| 1, 3, 4, 6 | Ground |
| 2 | ANT |
| 5 | B3 UL |

Ordering Information

| Part No. | Description |
|-------------|--------------------------------------|
| TQQ0302 | 2,500 pieces on a 7" reel (standard) |
| TQQ0302-PCB | Evaluation Board |

Absolute Maximum Ratings

| Parameter | Rating |
|--|---------------|
| Storage Temperature | -40 to +85 °C |
| Operation Temperature | -40 to +85 °C |
| RF Input Power ⁽¹⁾ (Pin 2, 5) | +30 dBm |

Notes:

1. Input Power: CW, at +55 °C for 10,000 hours.

Recommended Operating Conditions

| Parameter | Min | Typ | Max | Units |
|-------------------|-----|-----|-----|-------|
| T _{CASE} | 0 | - | +70 | °C |

Electrical specifications are measured at specified test conditions.

Electrical Specifications – B3 UL

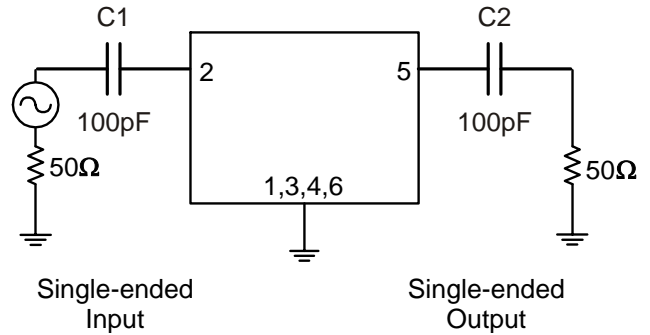
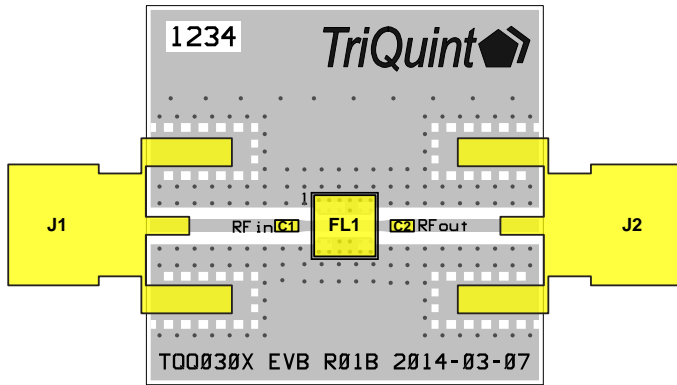
Operating Temperature Range: +0 to +70°C.

| Parameter | Conditions | Min | Typ | Max | Units |
|------------------------------------|---------------------|--------------------|--------|-----|-------|
| Center Frequency [fo] | | - | 1747.5 | - | MHz |
| Insertion Loss | 1710 MHz – 1785 MHz | - | 2.4 | 3.3 | dB |
| Amplitude Variation ⁽¹⁾ | 1710 MHz – 1785 MHz | - | 1.6 | - | dB |
| Absolute Attenuation | 500 MHz – 1200 MHz | 25 | 28 | - | dB |
| | 1600 MHz – 1680 MHz | 25 | 36 | - | dB |
| | 1795 MHz – 1805 MHz | 4.5 ⁽²⁾ | 6.2 | - | dB |
| | 1805 MHz – 2600 MHz | 30 | 36 | - | dB |
| Input Return Loss | 1710 MHz – 1785 MHz | 9 | 10.4 | - | dB |
| Output Return Loss | 1710 MHz – 1785 MHz | 9 | 11.4 | - | dB |
| Load/Source Impedance | | - | 50 | - | Ω |

Notes:

1. Describe the total variation over the defined frequency range
2. At +25°C only.

TQQ0302-PCB Evaluation Board



Bill of Material – TQQ0302-PCB

| Reference Des. | Value | Description | Manuf. | Part Number |
|----------------|--------|------------------------------------|---------|--------------|
| n/a | n/a | Printed Circuit Board | Qorvo | 1124609 |
| U1 | n/a | Band 3 Uplink BAW Filter | Qorvo | TQQ0302 |
| C1, C2 | 100 pF | Cap., Chip, 0402, 5%, 50V, NPO/COG | various | various |
| J1, J2 | n/a | SMA Edge Connector | Johnson | 142-0701-851 |

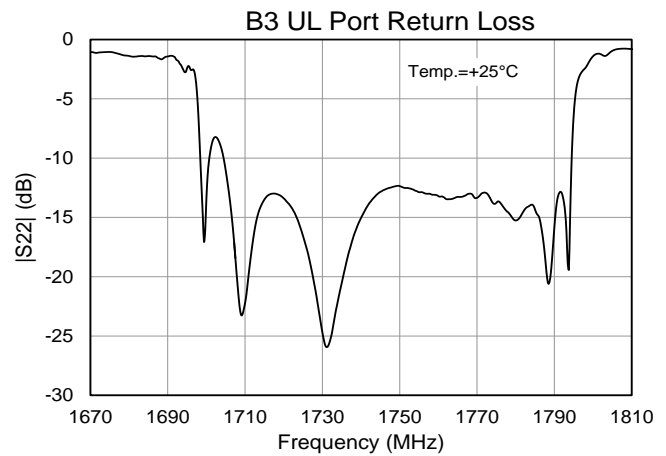
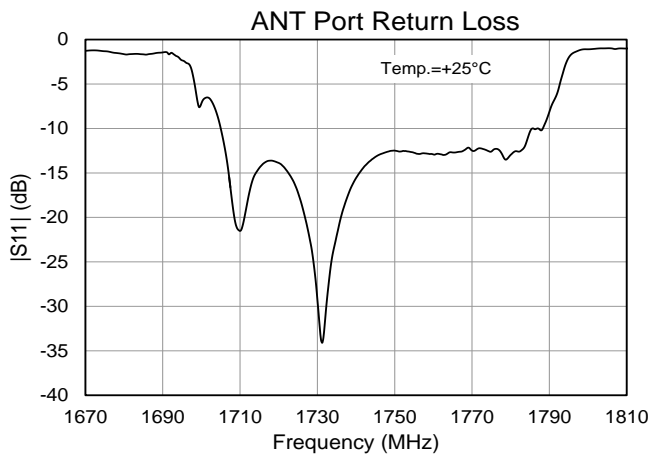
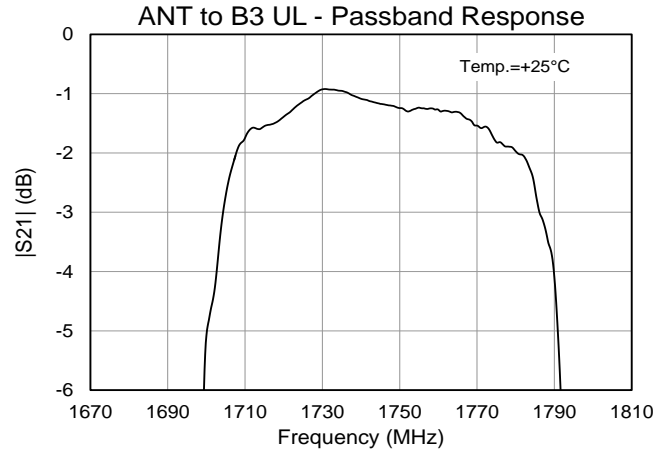
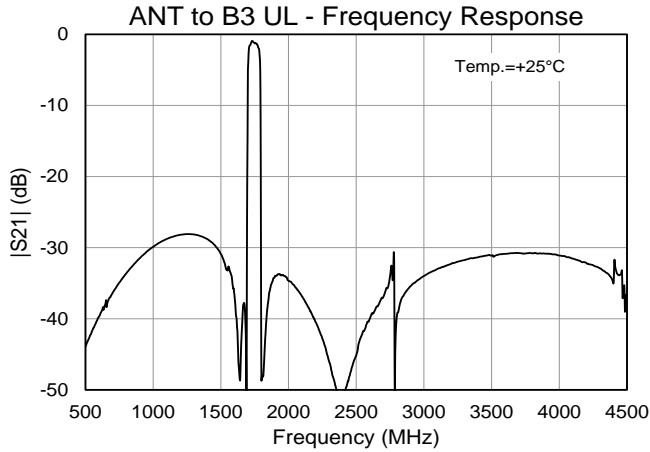
Evaluation Board PCB Information

Top, middle & bottom layers: 1 oz copper

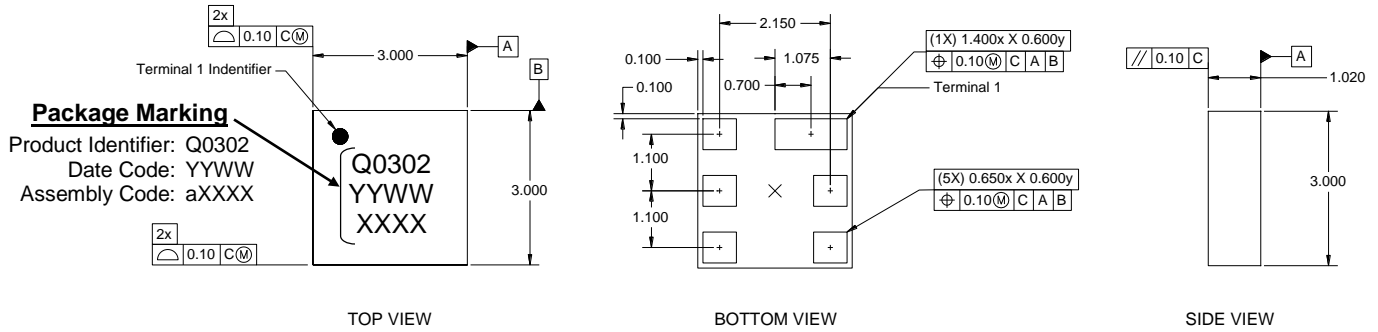
Substrates: FR4 dielectric, 0.0139", 0.028", 0.0139" thick

Performance Plots – Band 3 UL

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



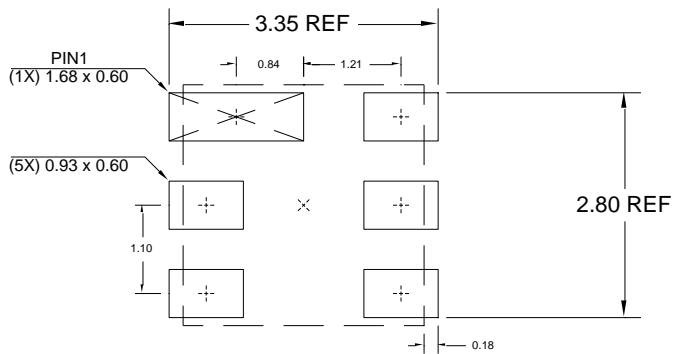
Package Marking and Dimensions



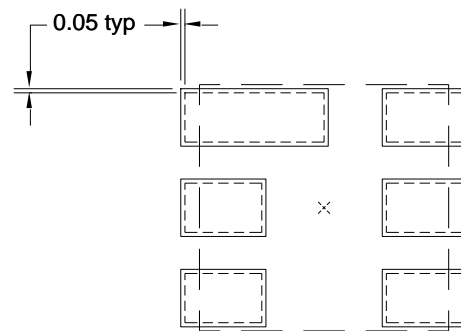
Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

PCB Mounting Pattern



Top view recommended land pattern metallization.



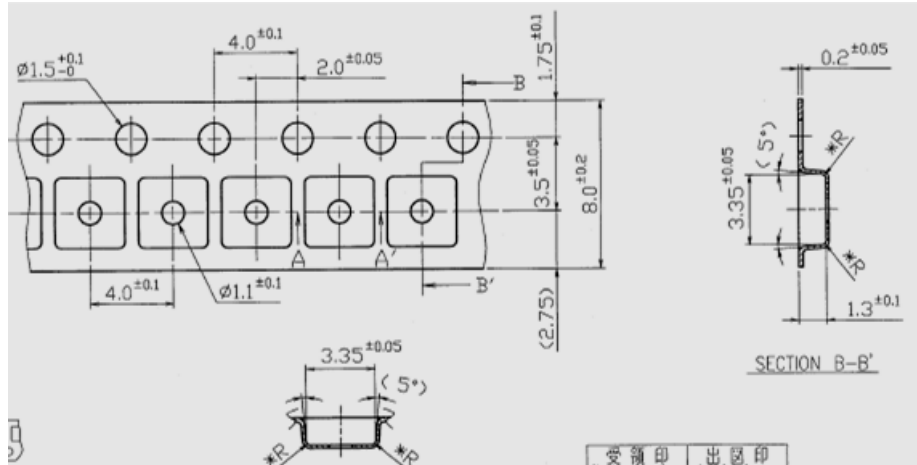
Top view recommended land pattern stencil aperture.

Notes:

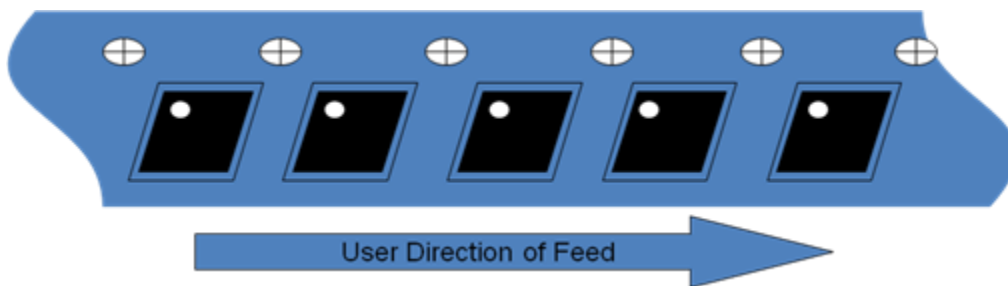
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

Tape and Reel Information – Carrier and Cover Tape Dimensions

Tape and reel specifications for this part are also available on the Qorvo 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 | 0.051 | 1.30 |
| | 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 Qorvo website.
 Standard T/R size = 2500 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 |

Handling Precautions

| Parameter | Rating | Standard |
|----------------------------------|----------|---------------------------|
| ESD – Human Body Model (HBM) | Class 1C | ANSI / ESD / JEDEC JS-001 |
| ESD – Machine Model (MM) | Class B | ANSI / ESD / JESD22-C101 |
| MSL – Moisture Sensitivity Level | Level 3 | IPC/JEDEC J-STD-020 |



Caution!
ESD-Sensitive Device

Solderability

Compatible with lead-free (260°C max. reflow temp.) soldering process.
Solder profiles available upon request.

Contact plating: Ni Au

RoHS Compliance

This part is compliant with 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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free



Contact Information

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

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Email: customer.support@qorvo.com

For technical questions and application information: **Email:** appsupport@qorvo.com

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