

### General Description

The TQQ0303 is an exceptionally high performance BAW filter for the LTE Band 3 downlink. This filter is housed in a compact 3 x 3 mm package for base station applications.

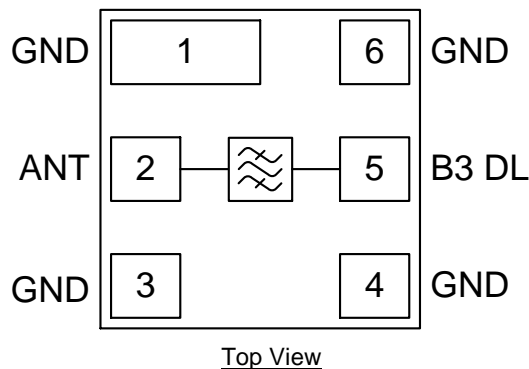
Low insertion loss, coupled with high attenuation makes this filter an ideal choice for downlink RF filtering needs.

The TQQ0303 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



### Product Features

- Usable Bandwidth 75 MHz at 1842.5 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 DL

### Ordering Information

Part No.	Description
TQQ0303	2,500 pieces on a 7" reel (standard)
TQQ0303-PCB	Evaluation Board

## Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +85 °C
Operation Temperature	-40 to +85 °C
RF Input Power <sup>(1)</sup> (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 <sub>CASE</sub>	0	-	+70	°C

Electrical specifications are measured at specified test conditions.

## Electrical Specifications – B3 DL

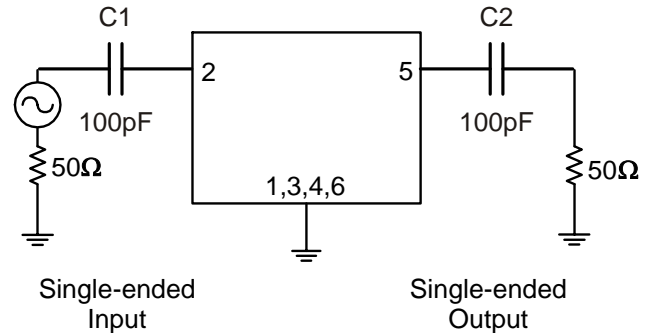
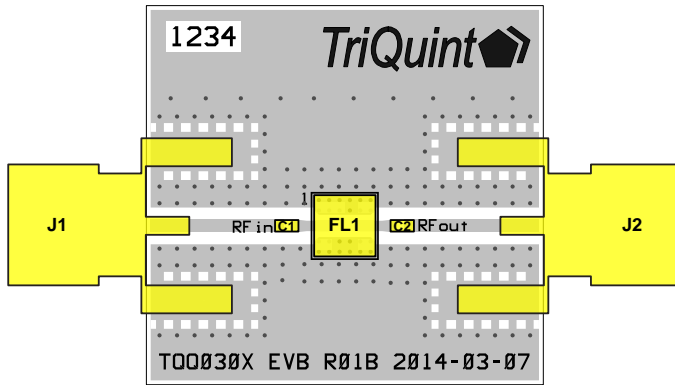
Operating Temperature Range: +0 to +70°C.

Parameter	Conditions	Min	Typ	Max	Units
Center Frequency [fo]		-	1842.5	-	MHz
Insertion Loss	1805 MHz – 1880 MHz	-	2.58	3.8	dB
Amplitude Variation <sup>(1)</sup>	1805 MHz – 1880 MHz	-	1.6	-	dB
Lower Band Edge <sup>(2)</sup>	Insertion Loss = -15 dB	1795	1796.3	-	MHz
Upper Band Edge <sup>(2)</sup>	Insertion Loss = -15 dB		1894.6	1900	MHz
Absolute Attenuation	500 MHz – 1200 MHz	20	23	-	dB
	1300 MHz – 1770 MHz	22	25	-	dB
	1785 MHz – 1795 MHz	15 <sup>(2)</sup>	23.7	-	dB
	1900 MHz – 1925 MHz	15 <sup>(2)</sup>	30	-	dB
Input Return Loss	1805 MHz – 1880 MHz	8	9.1	-	dB
Output Return Loss	1805 MHz – 1880 MHz	8	10.9	-	dB
Load/Source Impedance		-	50	-	Ω

Notes:

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

**TQQ0303-PCB Evaluation Board**



**Bill of Material – TQQ0303-PCB**

Reference Des.	Value	Description	Manuf.	Part Number
n/a	n/a	Printed Circuit Board	Qorvo	1124609
U1	n/a	Band 3 Downlink BAW Filter	Qorvo	TQQ0303
C1, C2	100 pF	Cap., Chip, 0402, 5%, 50V, NPO/COG	various	various
J1, J2	n/a	SMA Edge Connector	Johnson	142-0701-851

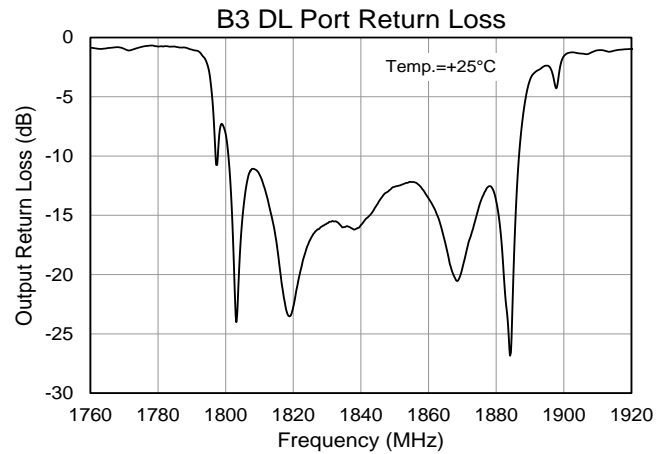
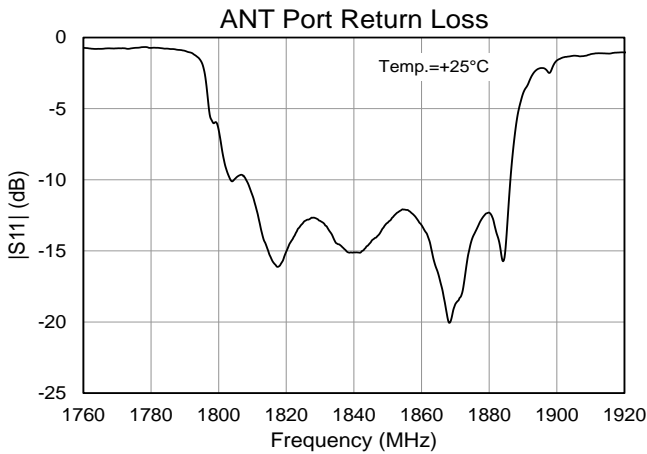
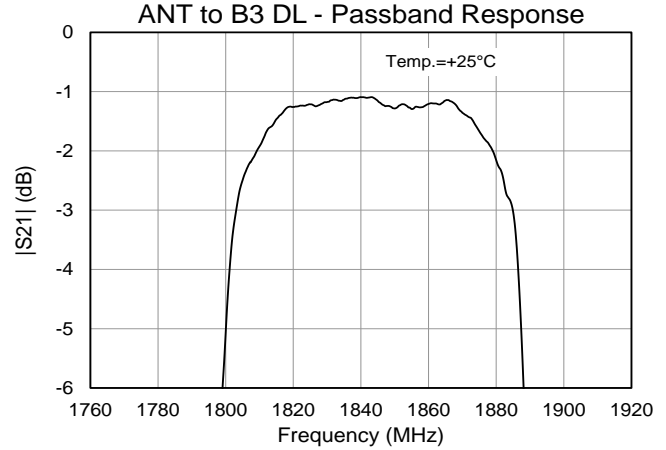
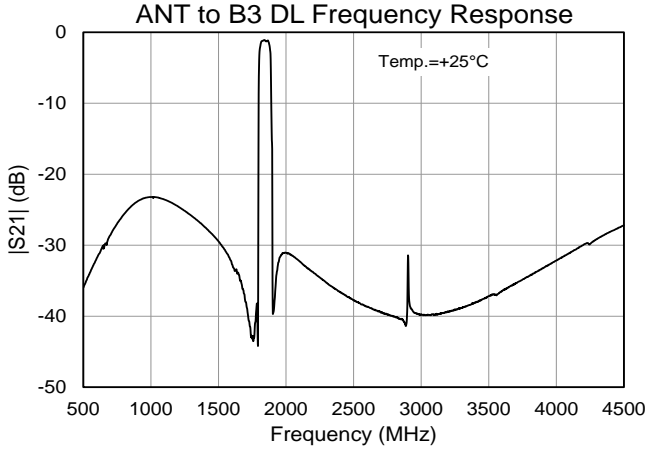
**Evaluation Board PCB Information**

Top, middle & bottom layers: 1 oz copper

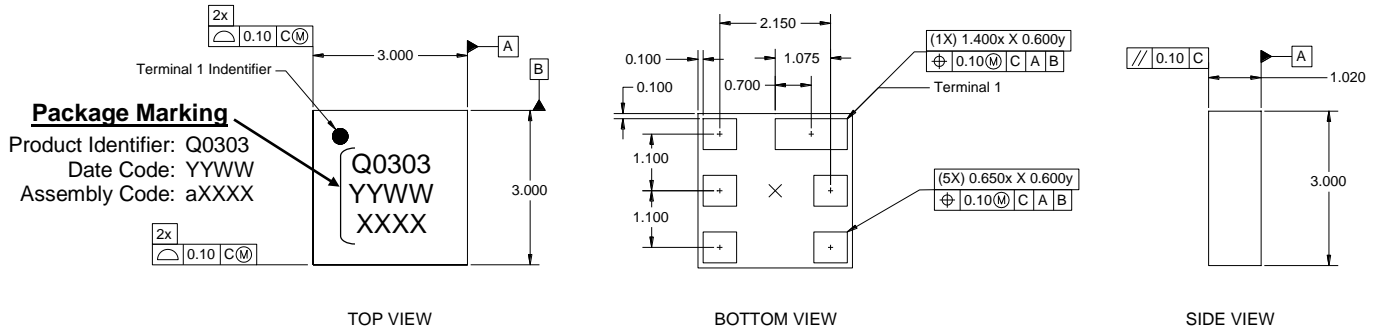
Substrates: FR4 dielectric, 0.0139", 0.028", 0.0139" thick

**Performance Plots – Band 3 DL**

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



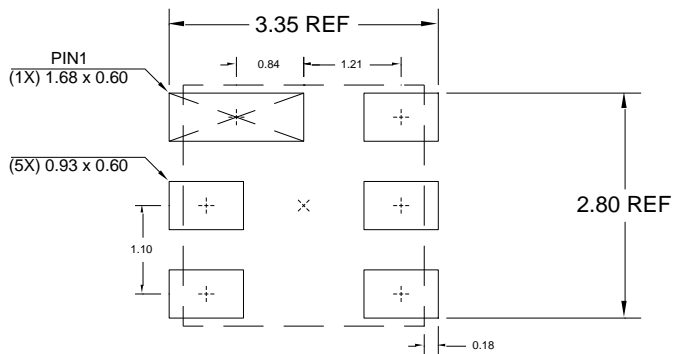
## Package Marking and Dimensions



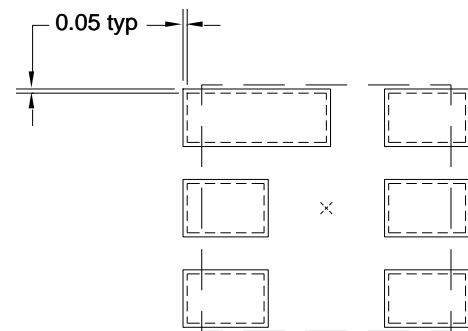
**Notes:**

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.



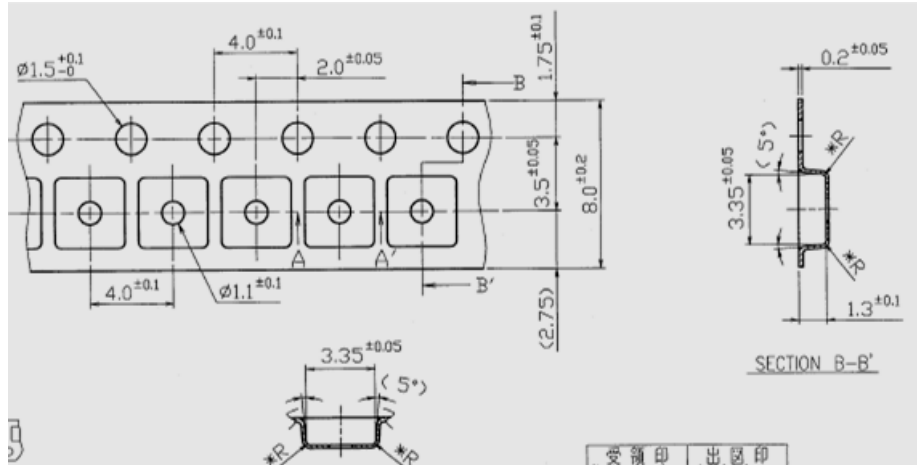
Top view recommended land pattern stencil aperture.

**Notes:**

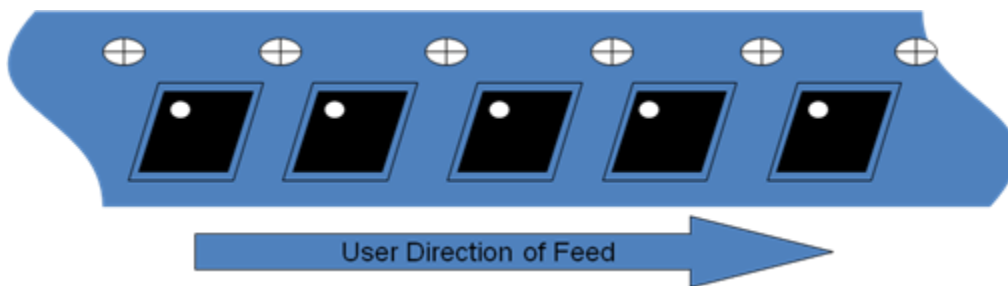
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

**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.

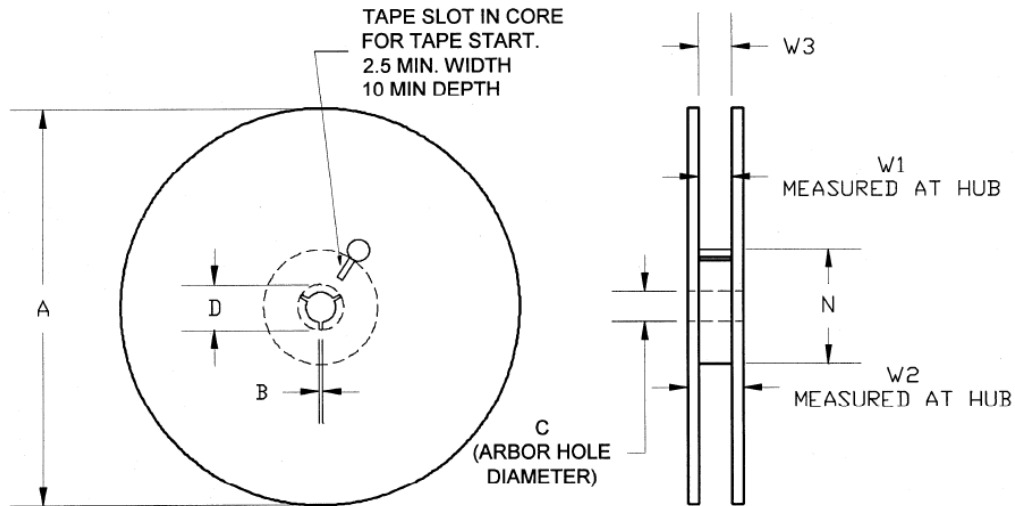


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.132	3.35
	Width	B0	0.132	3.35
	Depth	K0	0.051	1.30
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier 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 1B	ANSI / ESD / JEDEC JS-001
ESD – Charged Device Model (CDM)	Class B	ANSI / ESD / JEDEC JS-002
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 (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:

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

**Tel:** 1-844-890-8163

**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

For technical questions and application information: **Email:** [appsupport@qorvo.com](mailto:appsupport@qorvo.com)

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Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)