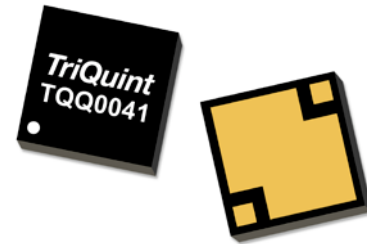


## Applications

- Band 41 TD-LTE
- General Purpose Wireless



2 x 2 x 0.83 mm leadless SMT Package

## Product Features

- Highly Selective BAW Filter
- Low Insertion Loss Over Band and Operating Conditions
- Internally Match for Single Ended 50 Ohm Operation
- Excellent Wi-Fi rejection
- Performance -20°C to +85°C
- Small Size: 2 x 2 x 0.83 mm SMT Package
- RoHS compliant, Pb-free

## General Description

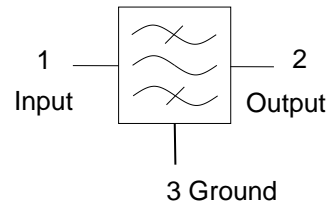
The TQQ0041 is a high-performance Bulk Acoustic Wave (BAW) Rx filter designed to meet the strict LTE rejection requirements for use in B41.

TQQ0041 is specifically designed to meet the high performance expectations for insertion loss and rejection in LTE transmit systems under all operating conditions.

The TQQ0041 uses common module packaging techniques to achieve the industry standard 2.0 x 2.0 x 0.83 mm footprint.

This module is part of TriQuint's wide portfolio of RF filters.

## Functional Block Diagram



## Pin Configuration

Pin No.	Label
1	Input
2	Output (to Antenna)
3	Ground*

\*Note, see application section for details on optimal grounding

## Ordering Information

Part No.	Description
TQQ0041	Band 41 Receive BAW Filter
TQQ0041-EVB	Evaluation board

Standard T/R size = 2500 pieces per reel

**Absolute Maximum Ratings**

Parameter	Rating
Storage Temperature	-40 to 85°C
Input Pwr (in pass-band, CW signal)	+15dBm

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>	-20		+85	°C

Electrical specifications are measured at specified test conditions.

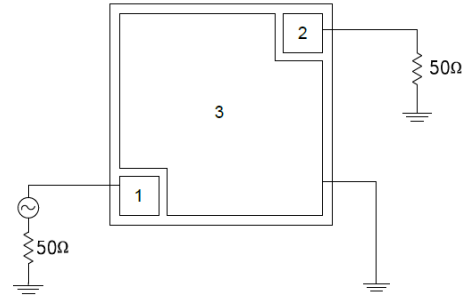
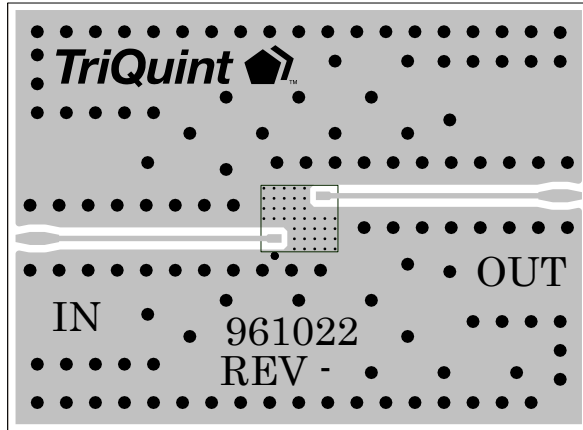
**Electrical Specifications – Band 41 <sup>(1)</sup>**

Parameter	Freq. Band	-20°C		+25°C			+85°C		Units
		Min	Max	Min	Typ <sup>(2)</sup>	Max	Min	Max	
Insertion Loss	2496 – 2500 MHz	-	4.8	-	3.0	-	-	3.2	dB
	2500 – 2530 MHz	-	3.3	-	2.6	-	-	2.9	dB
	2530 – 2690 MHz	-	2.4	-	2.1	-	-	3.3	dB
Passband Ripple	2496 – 2690 MHz	-	3.2	-	1.8	-	-	2.4	dB
Return Loss In	2496 – 2690 MHz	8.0	-	8.0	10.8	-	8.0	-	dB
Return Loss Out	2496 – 2690 MHz	8.0	-	8.0	10.8	-	8.0	-	dB
Attenuation	10 - 1564 MHz	32	-	32	35	-	32	-	dB
	1565 - 1615 MHz	37	-	37	40	-	37	-	dB
	1880 – 1920 MHz	19	-	19	22	-	18	-	dB
	2400 - 2470 MHz	38	-	36	43	-	30	-	dB
	2470 - 2478 MHz	32	-	26	34	-	11	-	dB
	2478 - 2482 MHz <sup>(3)</sup>	25	-	14	26	-	7	-	dB
	2775 - 3900 MHz	13	-	13	17	-	13	-	dB
	4200 - 4992 MHz	29	-	29	32	-	29	-	dB
	4992 - 5380 MHz	30	-	30	33	-	30	-	dB
	5381 - 7000 MHz	24	-	24	27	-	24	-	dB
7000 - 8000 MHz	20	-	20	23	-	20	-	dB	

Notes:

1. All specifications are based on the TriQuint schematic for the main reference design shown on page 3
2. Typical values are values of a nominal part.
3. The integrated value over the range is given.

**TQQ0041-EVB Evaluation Board**



**Notes:**

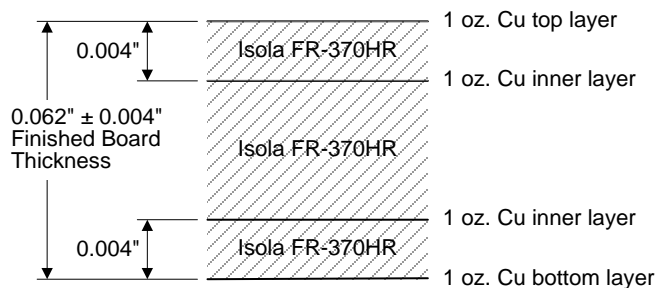
1. See PCB Mounting Pattern for recommended layout.

**Bill of Material – TQQ0041-PCB**

Reference Des.	Value	Description	Manuf.	Part Number
U1	n/a	Band 41 Receive BAW Filter	TriQuint	TQQ0041
n/a	n/a	Printed Circuit Board	TriQuint	961022
n/a	n/a	SMA Edge Connector	Radiall	9602-1111-018

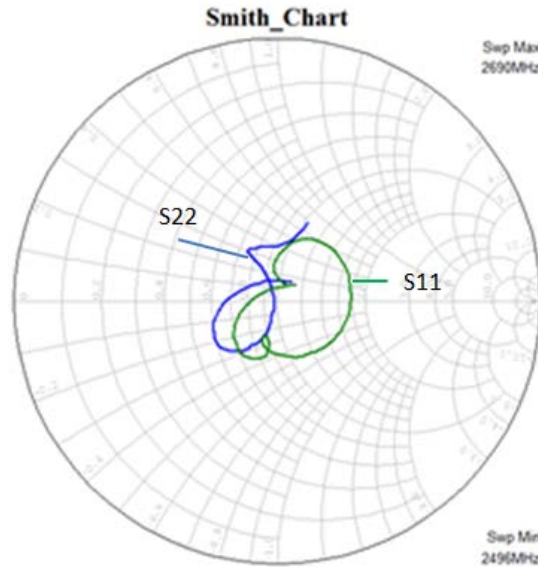
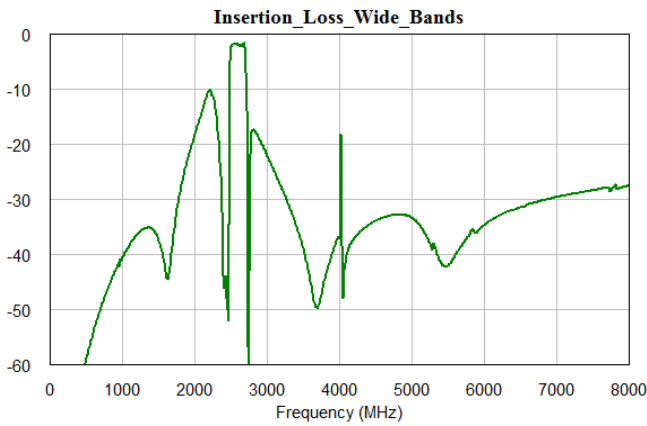
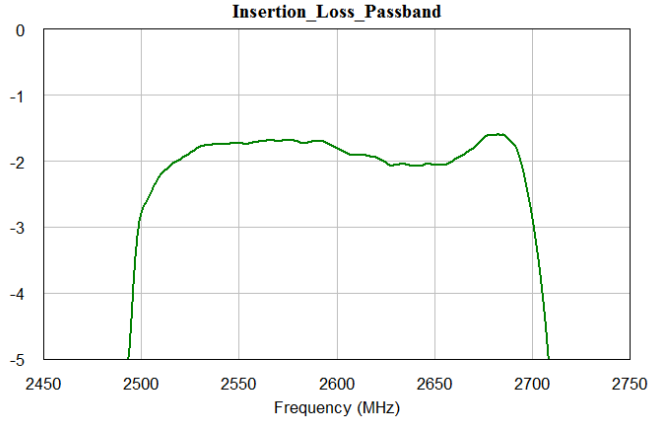
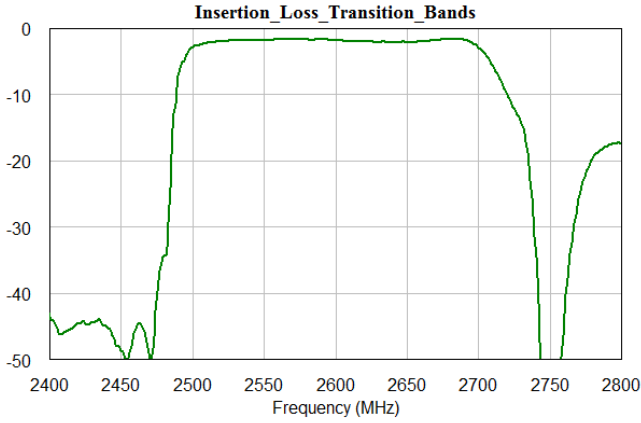
**Evaluation Board PCB Information**

TriQuint PCB 961022 Material and Stack-up



**Performance Plots – Band 41**

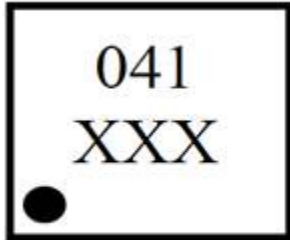
Test conditions unless otherwise noted: Temp= +25°C



**Mechanical Information**

**Package Marking and Dimensions**

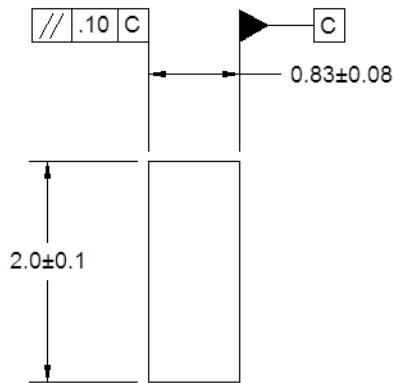
Marking: TriQuint Brand  
 Part number – TQQ0041



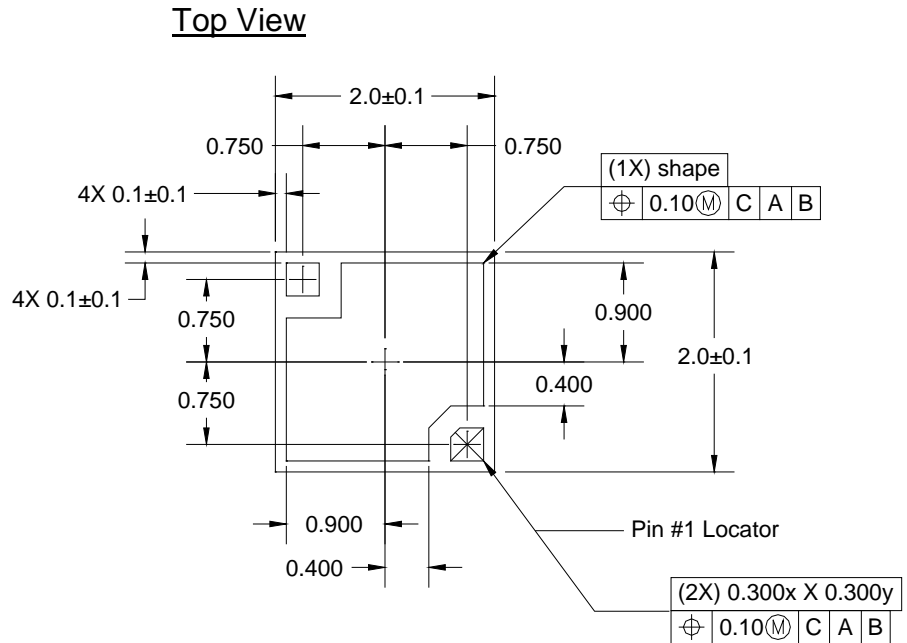
Pin 1 Location: place in the Bottom Left Hand Corner

Line 1 – Product Name (3 characters max)

Line 2 – Assembly Lot Code (3 characters only, starting right side of lot code)



Side View

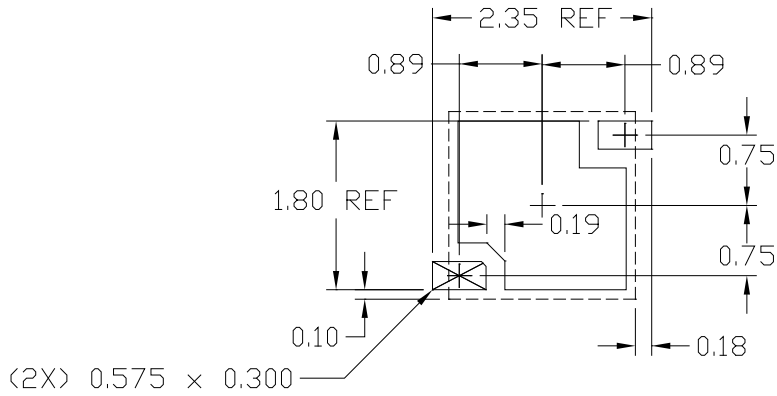


Bottom View

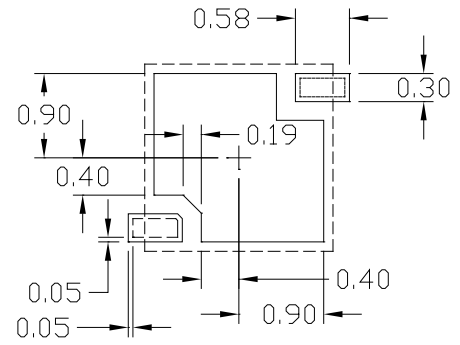
**Notes:**

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.

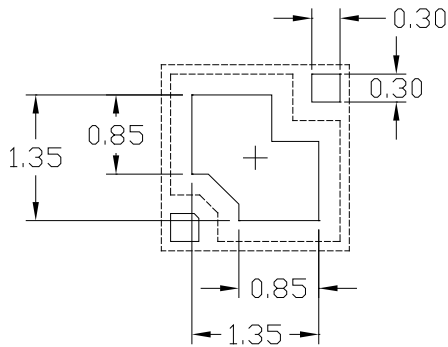
**PCB Mounting Pattern**



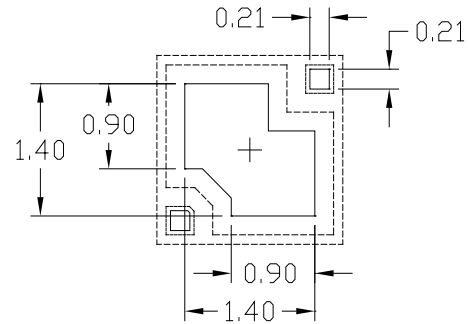
Metalization



Soldermask



Stencil Aperture Style 1



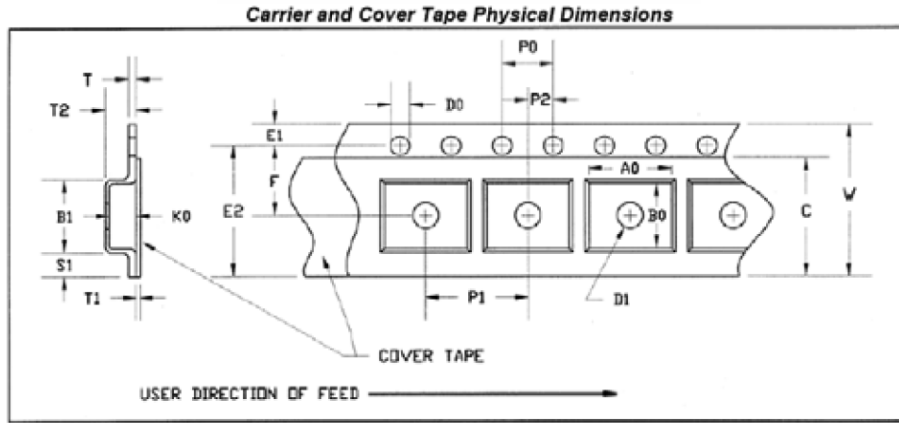
Stencil Aperture Style 2

**Notes:**

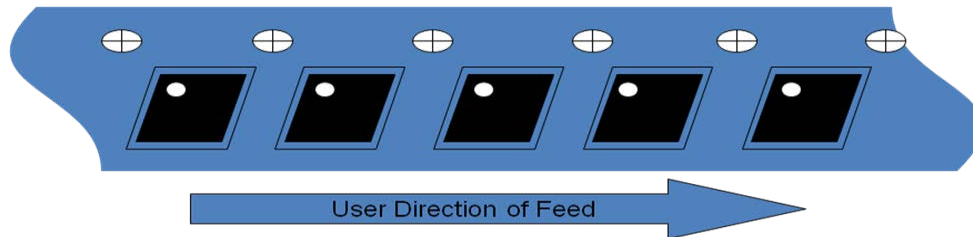
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.

**Tape and Reel Information**

Tape and reel specifications for this part are also available on the TriQuint website.  
 Standard T/R size = 5000 pieces per reel.



Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.091	2.3
	Width	B0	0.091	2.3
	Depth	K0	0.039	1.0
	Pitch	P1	0.157	4.0
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



## Product Compliance Information

### ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: Class 3A  
Value: 5000 V  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: Class IV  
Value: 2000 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: Electrolytic Ni/Au

### 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<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, and information about TriQuint:

Web: [www.triquint.com](http://www.triquint.com)  
Email: [info-sales@triquint.com](mailto:info-sales@triquint.com)

Tel: +1.407.886.8860  
Fax: +1.407.886.7061

For technical questions and application information:

Email: [info-sales@triquint.com](mailto:info-sales@triquint.com)

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