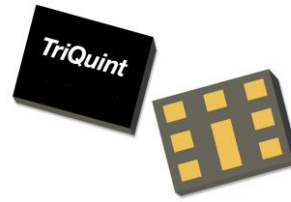


## Applications

- Full Band 41 TDD-LTE Tx / Rx

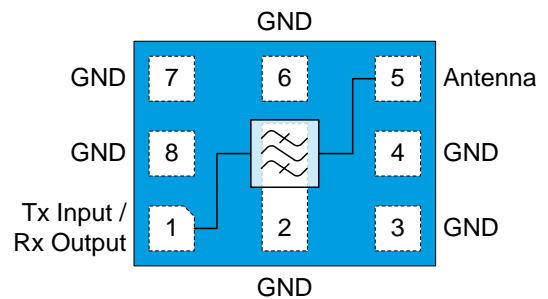


8-Pin 2.0 x 1.6 x 0.73 mm Leadless SMT Package

## Product Features

- Highly Selective BAW Filter
- Low Insertion Loss Over Full Bandwidth and Operating Conditions
- Excellent Wi-Fi Rejection
- Performance -20 to +85 °C
- Small Size: 2.0 x 1.6 x 0.83 mm SMT Package
- RoHS Compliant, Pb-free Module Package

## Functional Block Diagram



Top View

## General Description

The QPQ1291 is a high-performance Bulk Acoustic Wave (BAW) Tx/Rx filter designed to meet the strict LTE rejection requirements for use in B41.

QPQ1291 is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE transmit systems under all operating conditions.

The QPQ1291 uses common module packaging techniques to achieve the industry standard 2.0 x 1.6 x 0.73 mm footprint.

## Pin Configuration

Pin No.	Label
1	Tx Input / Rx Output
5	Antenna
2, 3, 4, 6, 7, 8	Ground <sup>(1)</sup>

Notes:

1. See application section for details on optimal grounding

## Ordering Information

Part No.	Description
QPQ1291	Band 41 Tx / Rx Filter
QPQ1291-EVB	Evaluation board

Standard T/R size = 2,500 Units / Reel

### Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 to +85 °C
Input Power (In pass-band, CW signal, Pin1)	+29 dBm
Max DC Voltage (pin 1)	+5 V

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.

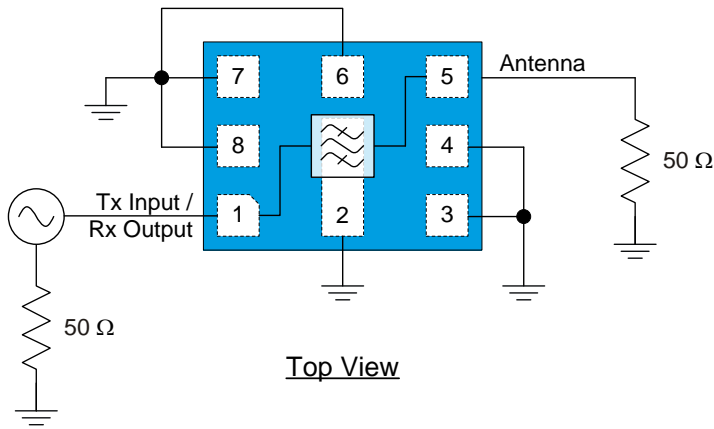
### Electrical Specifications – Band 41 <sup>(1)</sup>

Parameter	Freq. Band	-20 °C to +85 °C			Units
		Min	Typ <sup>(2)</sup>	Max	
Insertion Loss	2496 – 2500 MHz	-	3.0	3.8	dB
	2500 – 2686 MHz	-	2.7	3.4	
	2686 – 2690 MHz	-	2.2	3.2	
Passband Ripple	2496 – 2690 MHz <sup>(3)</sup>	-	1.0	2.0	dB
Return Loss In	2496 – 2690 MHz	9.0	12.2	-	dB
Return Loss Out	2496 – 2690 MHz	8.0	11.5	-	dB
Attenuation	10 – 1564 MHz	30	52	-	dB
	1565 – 1615 MHz	32	46	-	
	1616 – 2400 MHz	5	6	-	
	2401 – 2453 MHz (WiFi CH1-7) <sup>(4)</sup>	40	43	-	
	2436 – 2468 MHz (WiFi CH8-10) <sup>(4)</sup>	38	47	-	
	2451 – 2473 MHz (WiFi CH11) <sup>(4)</sup>	38	43	-	
	2456 – 2478 MHz (WiFi CH12) <sup>(4)</sup>	18	39	-	
	2461 – 2483 MHz (WiFi CH13) <sup>(4)</sup>	10	23	-	
	2775 – 4991 MHz	12	15	-	
	4992 – 5380 MHz	25	32	-	
5381 – 7487 MHz	18	20	-		
7488 – 8000 MHz	15	23	-		

Notes:

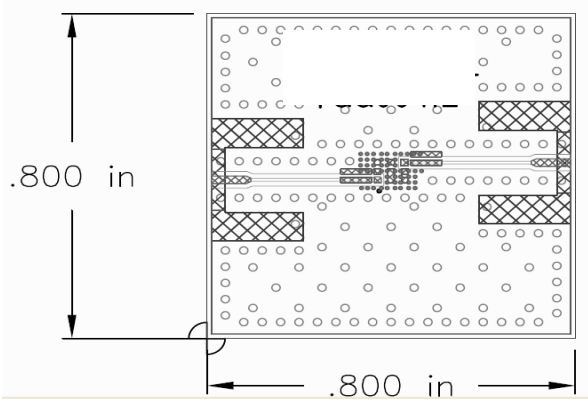
1. All specifications are based on the Qorvo schematic for the main reference design shown on page 3.
2. Typical values are values of a nominal part at 25°C.
3. Measured as Amplitude variation.
4. Averaging |S<sub>21</sub>| over the center 19 MHz of the channels and converting to dB value.

**Reference Design – B41 TX/RX 50 Ohms SE / Ant 50 Ohms SE**



Notes:  
1. Pin 1 is indicated on the package top side by a round mark. See Package Marking and Dimensions section.

**Evaluation Board PCB Information**



Notes:  
Top, middle & bottom layers: 1 Oz Copper  
Substrates: FR-370HR  
Finish plating: SMOBC with immersion silver plating  
Hole plating: Through holes

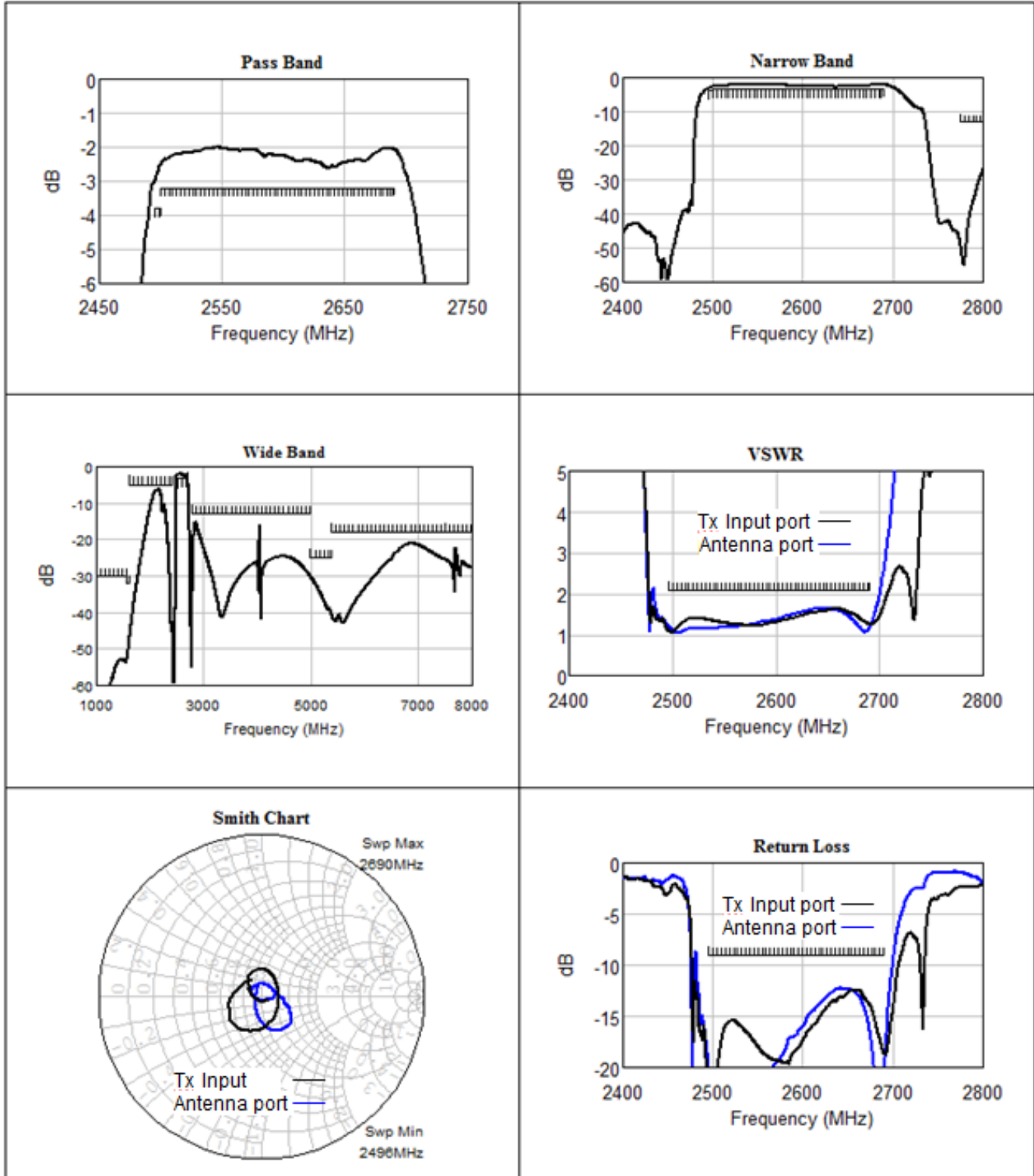
Notes:  
The footprint shown represents a recommendation only  
For solder pad recommendation see mechanical information

**Bill of Material – QPQ1291-PCB**

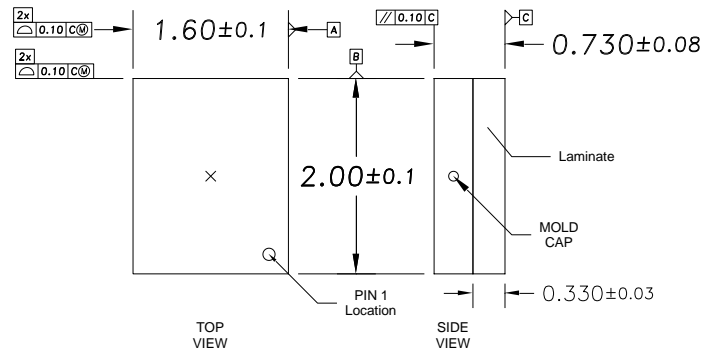
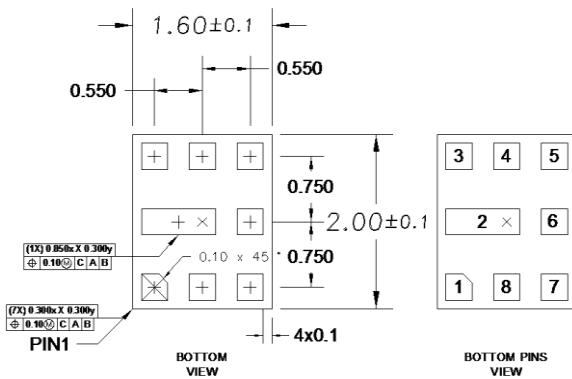
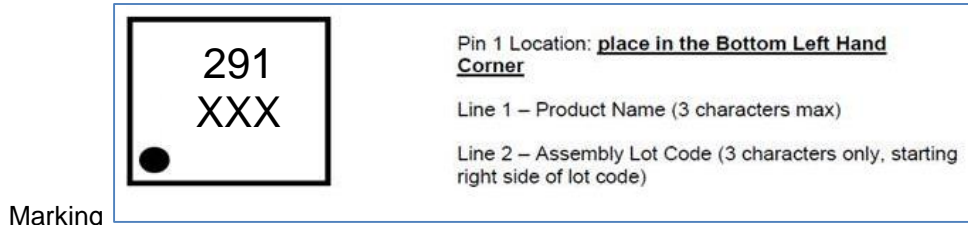
Reference Des.	Value	Description	Manuf.	Part Number
U1	N/A	Band 41 BAW Filter	TriQuint	QPQ1291
N/A	N/A	Printed Circuit Board	TriQuint	961108
N/A	N/A	SMA Edge Connector	Radiall	9602-1111-018

**Performance Plots – Band 41**

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



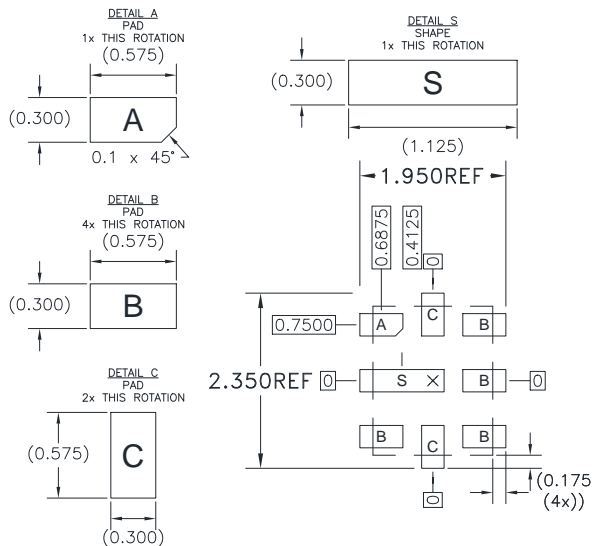
**Package Marking and Dimensions**



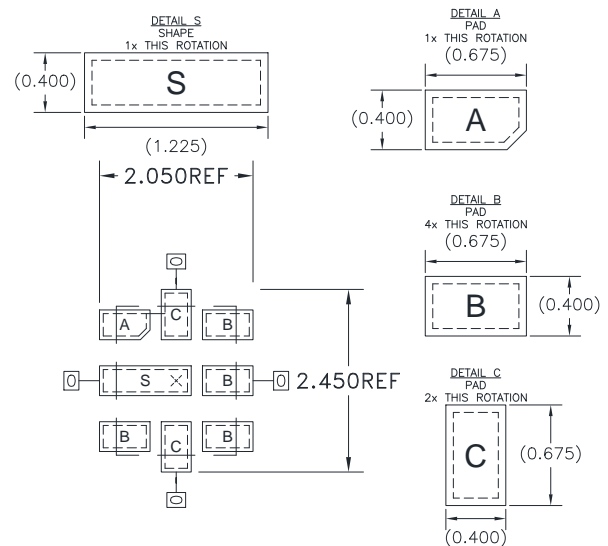
**Notes:**

1. Package Style: Laminate Overmold Module
2. Dimensions: 2.0 x 1.6 x 0.73 mm
3. All dimensions shown are typical in millimeters

**PCB Mounting Pattern and Solder Mask**



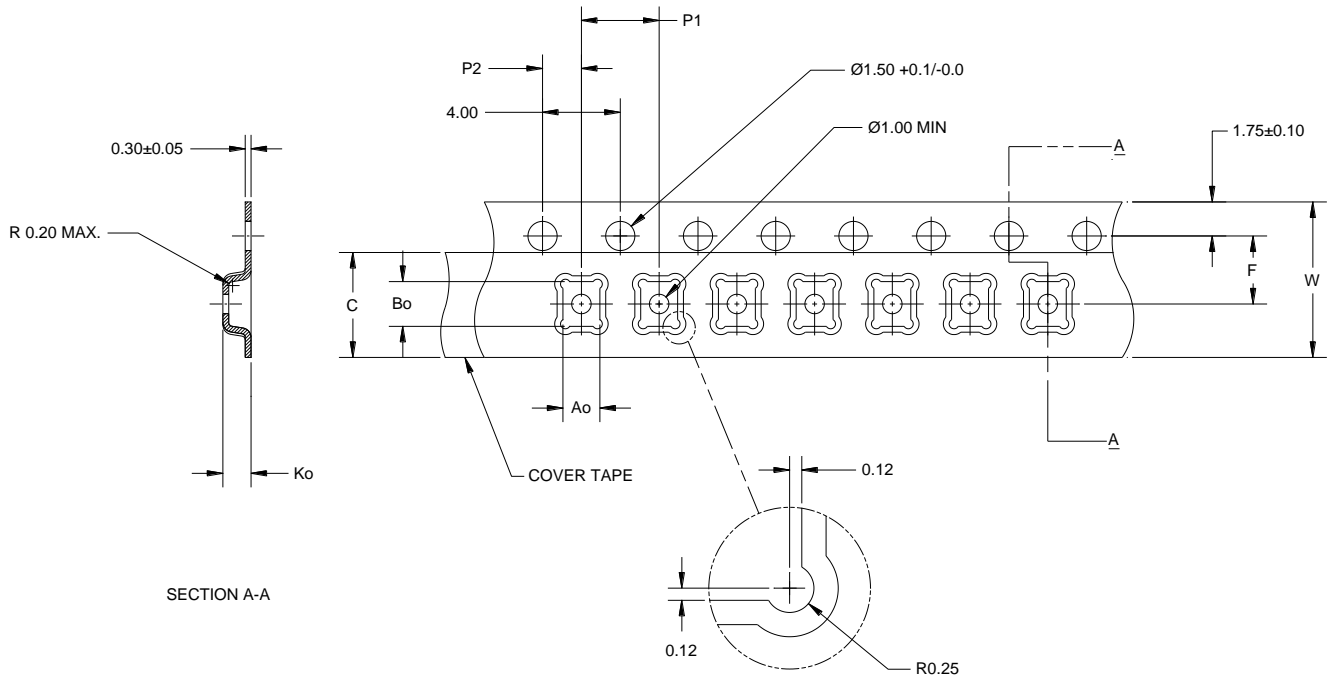
PCB Mounting Pattern



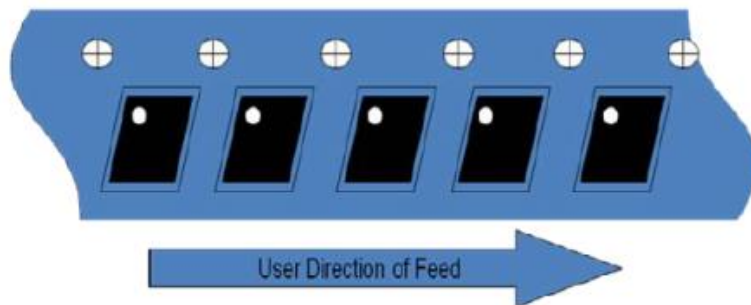
Solder Mask

**Tape and Reel Information**

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



Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.075	1.95
	Width	B0	0.093	2.35
	Depth	K0	0.045	1.15
	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



## Product Compliance Information

### ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Class: 2  
Volt. Range:  $\geq 2000$  V to  $< 4000$  V  
Test: Human Body Model (HBM)  
Standard: ANSI/ESDA/JEDEC JS-001-2012

ESD Class: C3  
Volt. Range:  $\geq 1000$  V  
Test: Charged Device Model (CDM)  
Standard: JEDEC Standard JESD22-C101F

### 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.

### 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:

Web: [www.triquint.com](http://www.triquint.com)

Tel: 877-800-8584

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

For information about the merger of RFMD and TriQuint as Qorvo:

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

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