

### Product Overview

The QPQ1296 is an exceptionally high performance BAW filter for Band 25 Uplink. This filter is housed in a compact 3.00x3.00 x 0.91 mm package for base station applications.

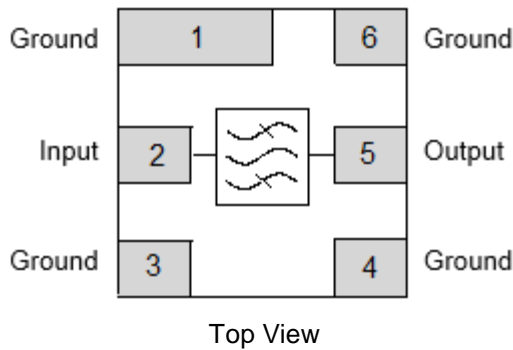
Low insertion loss, coupled with high attenuation makes this filter an ideal choice for RF filtering needs.

The QPQ1296 is part of Qorvo's extensive portfolio of RF BAW and SAW filters.



6 Pad 3.00 mm x 3.00 mm x 0.91 mm SMP

### Functional Block Diagram



### Pin Configuration - Single Ended

Pin No.	Label
2	Input
5	Output
1, 3, 4, 6	Case Ground

### Key Features

- 65 MHz Bandwidth
- High Attenuation
- Low Loss
- Single-ended Operation
- Small Size: 3.00 x 3.00 x 0.91 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

### Applications

- Band 25 UL
- Small Cell
- Base Station Infrastructure
- General Purpose Wireless

### Ordering Information

Part No.	Description
QPQ1296SR	Sample Reel with 100 pieces
QPQ1296TR7	7" Taped Reel with 2500 pieces
QPQ1296EVB	Assembled Evaluation Board

### Absolute Maximum Ratings <sup>(1)</sup>

Parameter	Rating
Storage Temperature	-40 to +125°C
Operating Temperature	0 to +70 °C
RF in <sup>(2)</sup>	+37 dBm

Notes:

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. 500ms Pulse Width, 5% Duty Cycle Pulses

### Minimum Lifetime Ratings

Conditions	Rating
+27 dBm In-band at Input, +70°C, CW	>1,000,000 hours
+28 dBm In-band at Input, +55°C, CW	>800,000 hours

### Electrical Specifications <sup>(1)</sup>

Test conditions unless otherwise specified. Temperature Range: 0 to +70 °C

Parameter	Conditions <sup>(1, 2)</sup>	Min	Typ	Max	Unit
Insertion Loss <sup>(2)</sup>	1850 – 1913 MHz	-	2.0	3.5	dB
	1913 – 1915 MHz	-	2.7	7.0	dB
Input VSWR	1850 – 1915 MHz	-	1.7:1	2.0	-
Output VSWR	1850 – 1913 MHz	-	1.7:1	2.3	-
	1913 – 1915 MHz	-	1.8:1	2.75	-
Attenuation <sup>(4)</sup>	1922.5 – 1930 MHz at +25°C	17	37	-	dB
	1930 – 1995 MHz	35	38	-	dB
	2110 – 2155 MHz	35	40	-	dB
	2155 – 2800 MHz	30	34	-	dB
	2800 – 3000 MHz	27	33	-	dB
	3000 – 6000 MHz	15	21	-	dB

Notes:

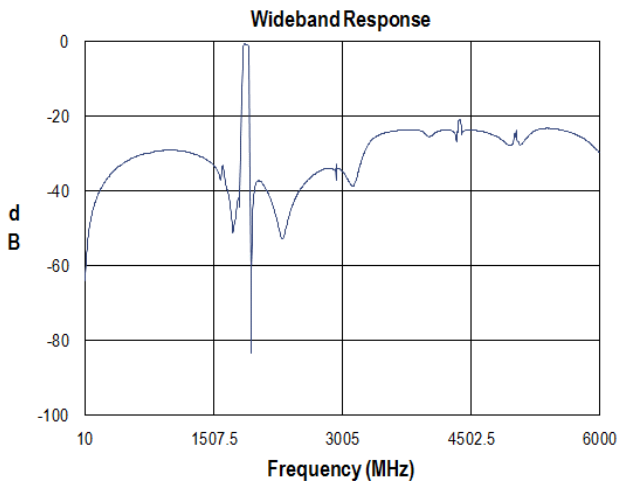
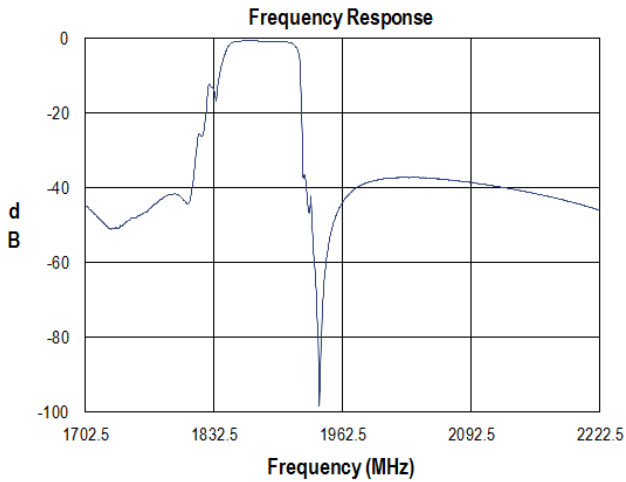
1. All specifications are based on the QORVO schematic for the main reference design.
2. Maximum Insertion Loss within defined frequency range.
3. Attenuation is referenced to zero dB

### Evaluation Board and Schematic – QPQ1296EVB

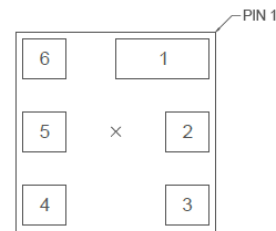


**Performance Plots**

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



Package Dimensions



BOTTOM VIEW

BOTTOM PINS VIEW

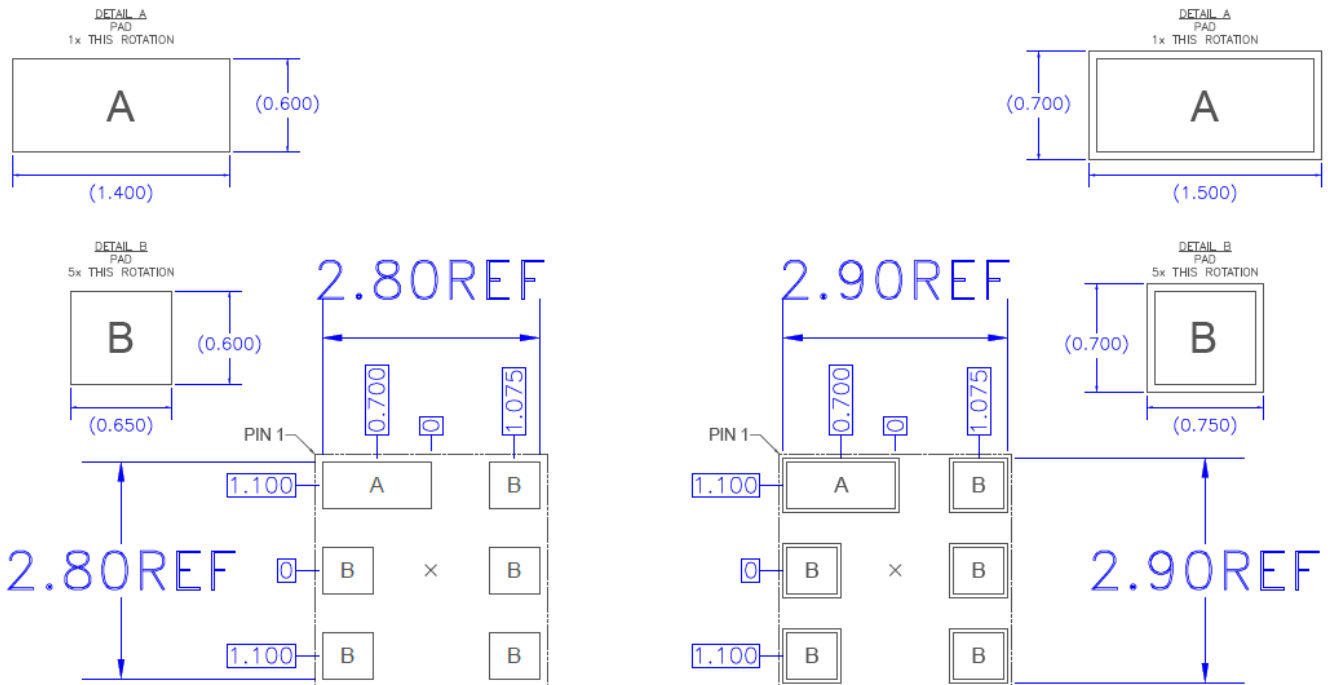
Notes:

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.

**Package Marking**



**PCB Mounting Pattern**



**RECOMMENDED  
 LAND PATTERN**

**RECOMMENDED  
 LAND PATTERN MASK**

**Notes:**

1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

**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	ESDA / JEDEC JS-001-2012
ESD – Charged Device Model (CDM)	Class C3	ESDA / JEDEC JS-002-2014
MSL – Moisture Sensitivity Level	Level 3	IPC/JEDEC J-STD-020



Caution!  
ESD-Sensitive Device

## Solderability

Compatible with both lead-free (260°C max. reflow temp.) and tin/lead (245°C max. reflow temp.) soldering processes. Solder profiles available upon request.

Contact Plating: ENIG (Electroless Nickel Immersion Gold)

## 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)

## Important Notice

The information contained herein is believed to be reliable; however, Qorvo makes no warranties regarding the information contained herein and assumes no responsibility or liability whatsoever for the use of the information contained herein. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for Qorvo products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. **THIS INFORMATION DOES NOT CONSTITUTE A WARRANTY WITH RESPECT TO THE PRODUCTS DESCRIBED HEREIN, AND QORVO HEREBY DISCLAIMS ANY AND ALL WARRANTIES WITH RESPECT TO SUCH PRODUCTS WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

Without limiting the generality of the foregoing, Qorvo products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

Copyright 2018 © Qorvo, Inc. | Qorvo is a registered trademark of Qorvo, Inc.