



# QPQ1296

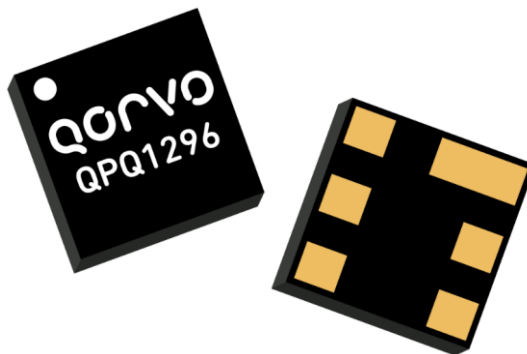
## Band 25 Uplink BAW Filter

### 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.

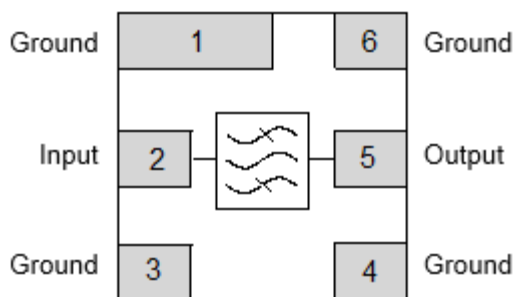
Low insertion loss, coupled with high attenuation makes this filter an ideal choice for RF filtering needs.

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



Top View

### Key Features

- 65 MHz Bandwidth
- High Attenuation
- Low Loss
- Single-ended Operation
- Small Size: 3.00x3.00x0.91 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

### Applications

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

### Pin Configuration - Single Ended

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

### 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>

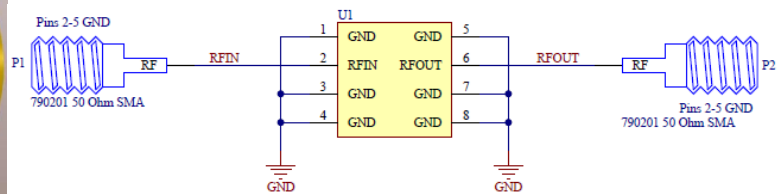
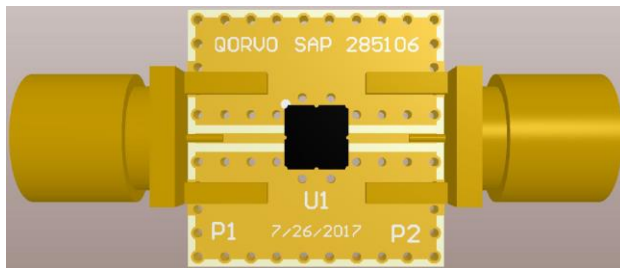
Test conditions unless otherwise specified. Temperature Range: 0 to +70 °C

| 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:

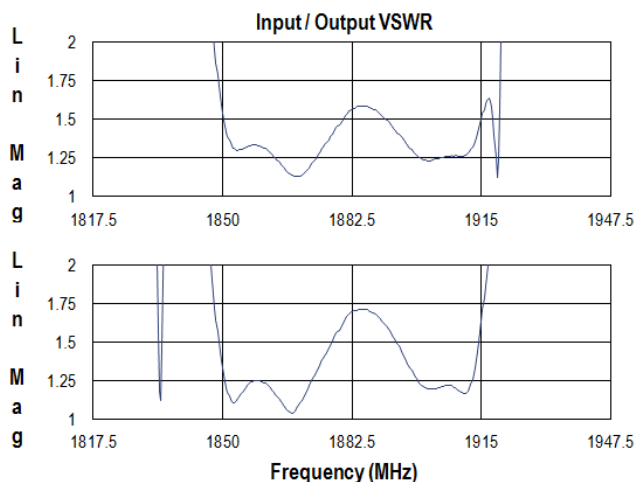
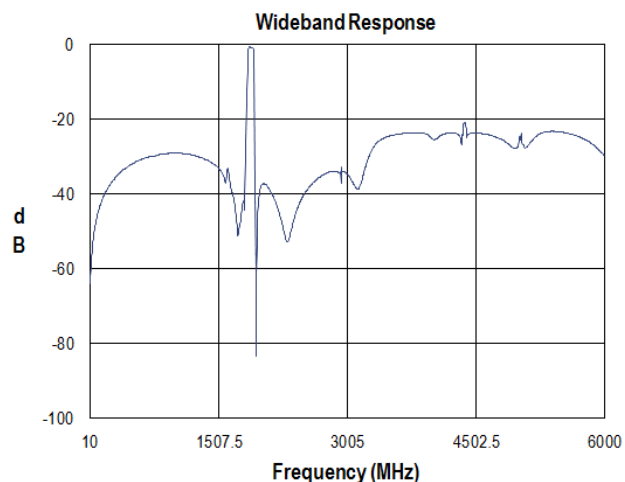
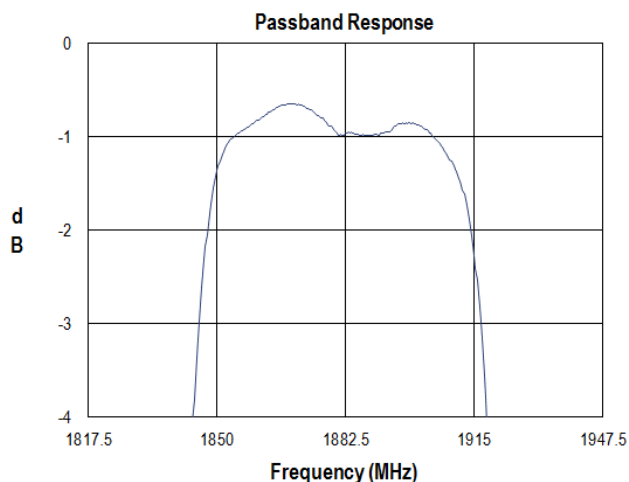
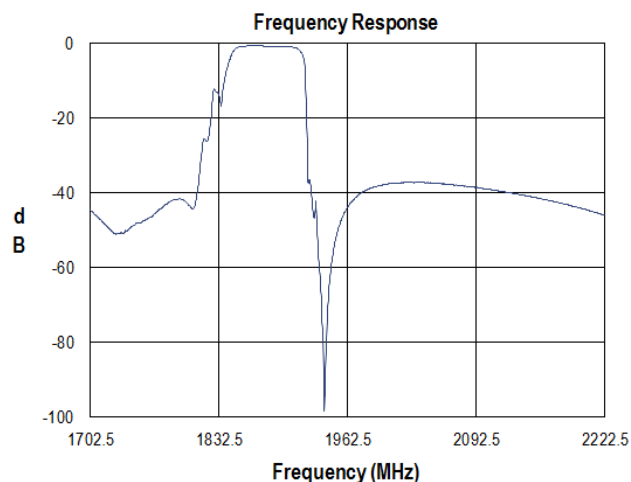
1. All specifications are based on the QORVO schematic for the main reference design.
2. Maximum Insertion Loss within defined frequency range.
3. Attenuation is referenced to zero dB

## Evaluation Board and Schematic – QPQ1296EVB

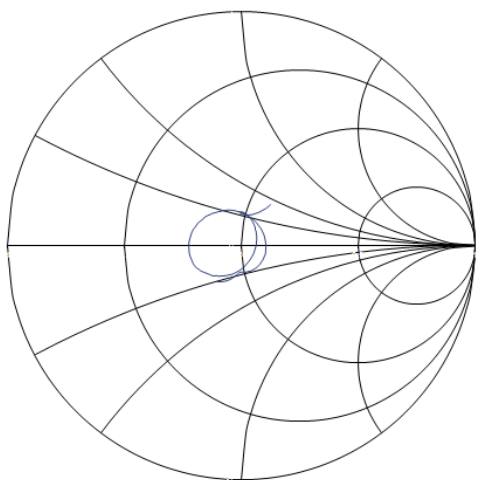


## Performance Plots

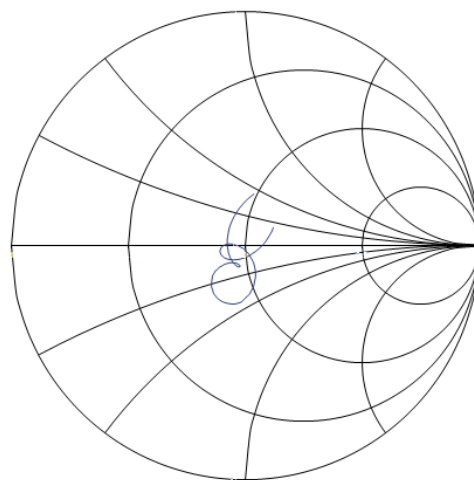
Test conditions unless otherwise noted: Temp= +25°C



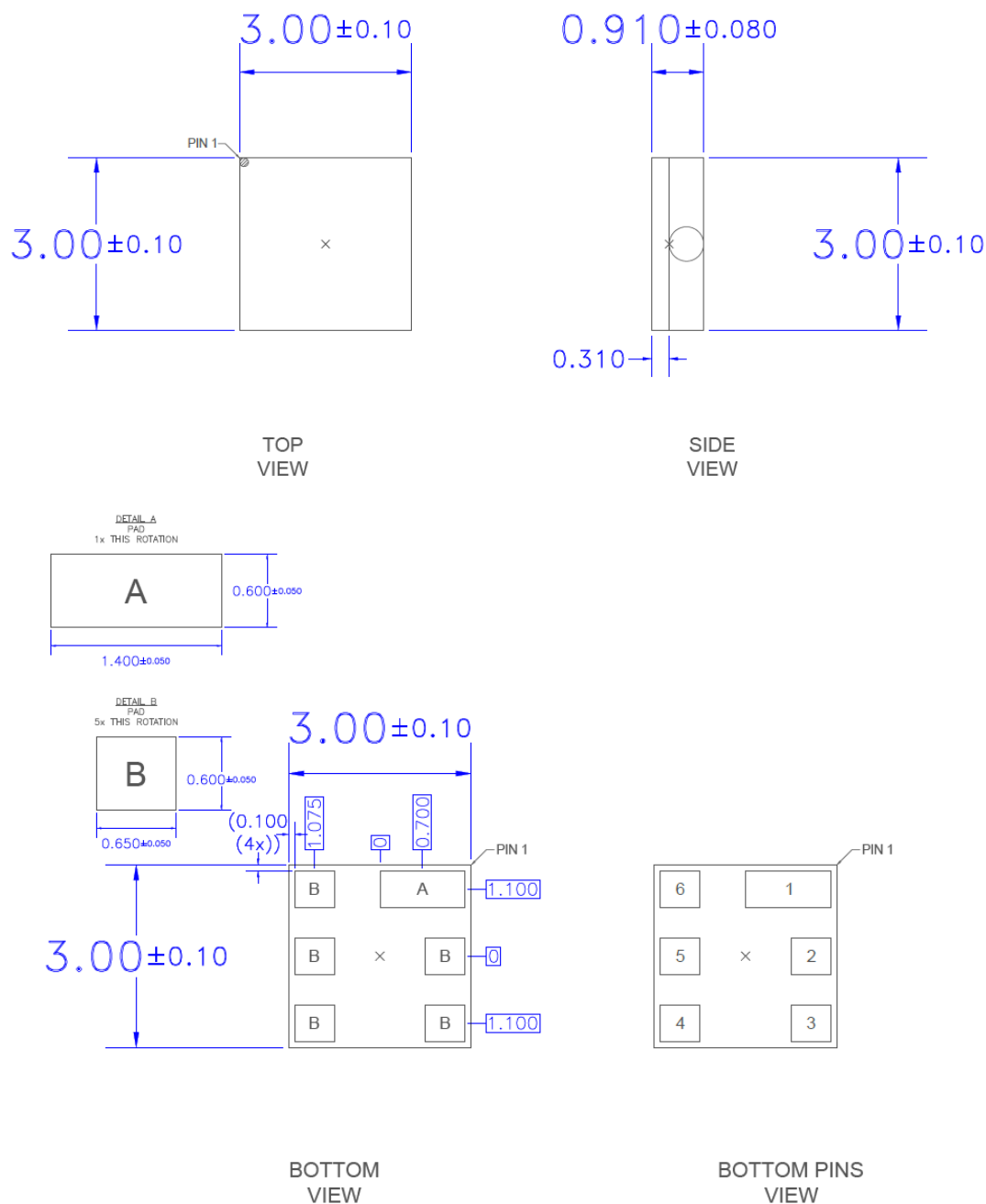
Input Smith Chart



Output Smith Chart



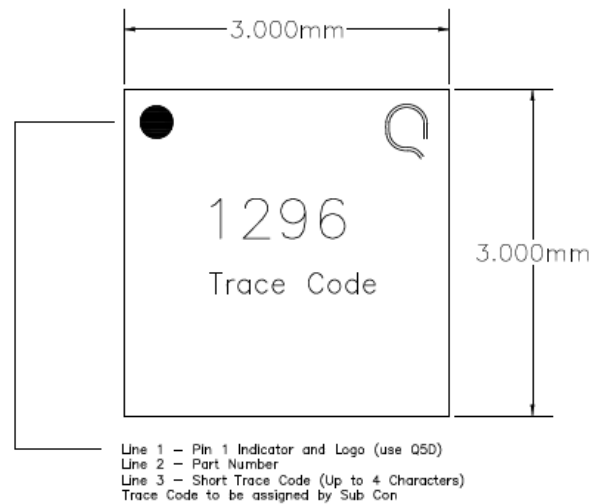
## Package Dimensions



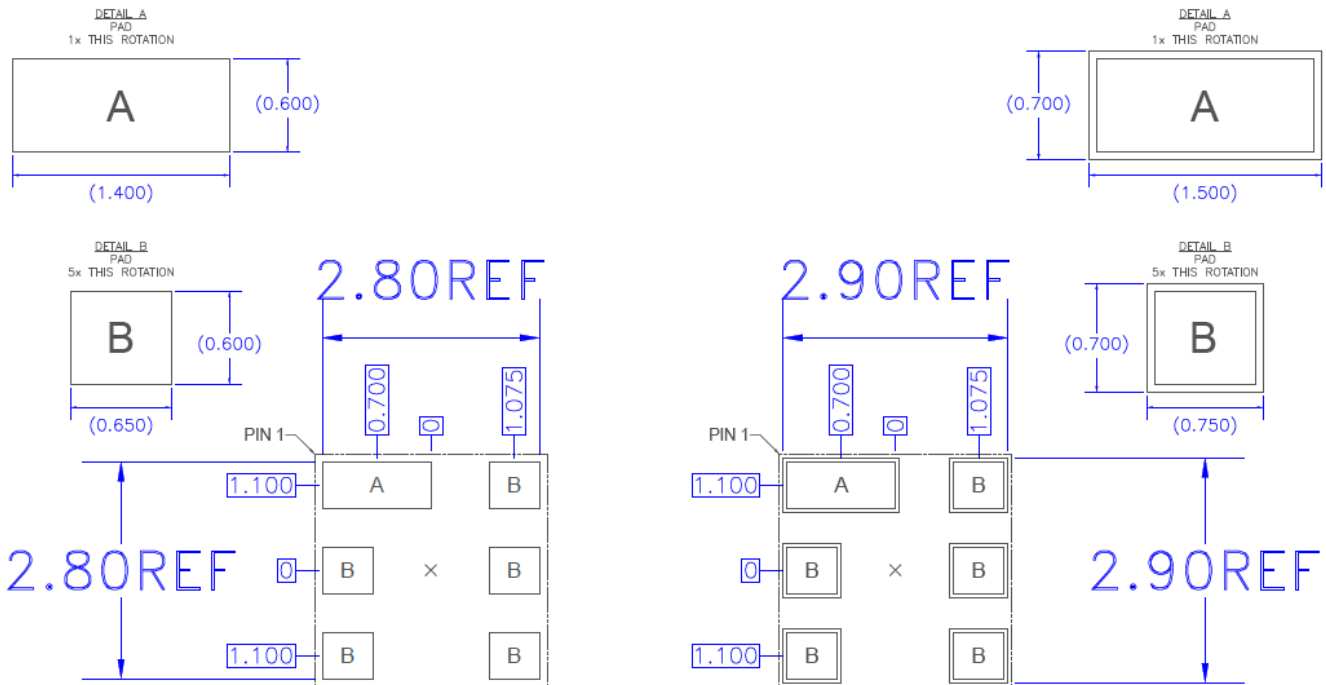
### Notes:

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.

## Package Marking



## PCB Mounting Pattern

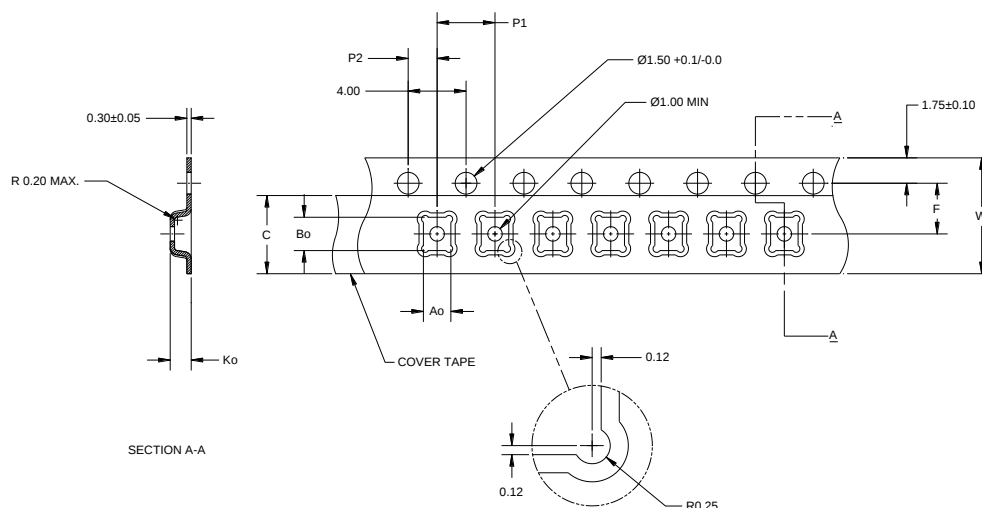


### Notes:

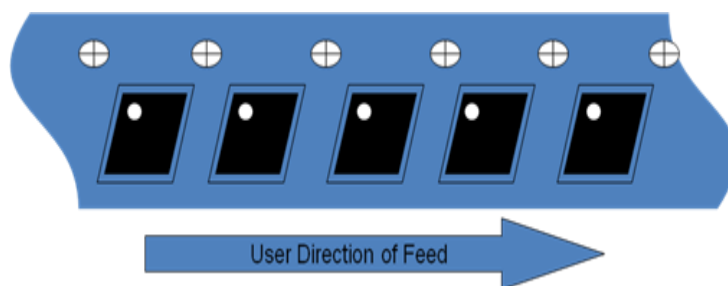
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

## 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.

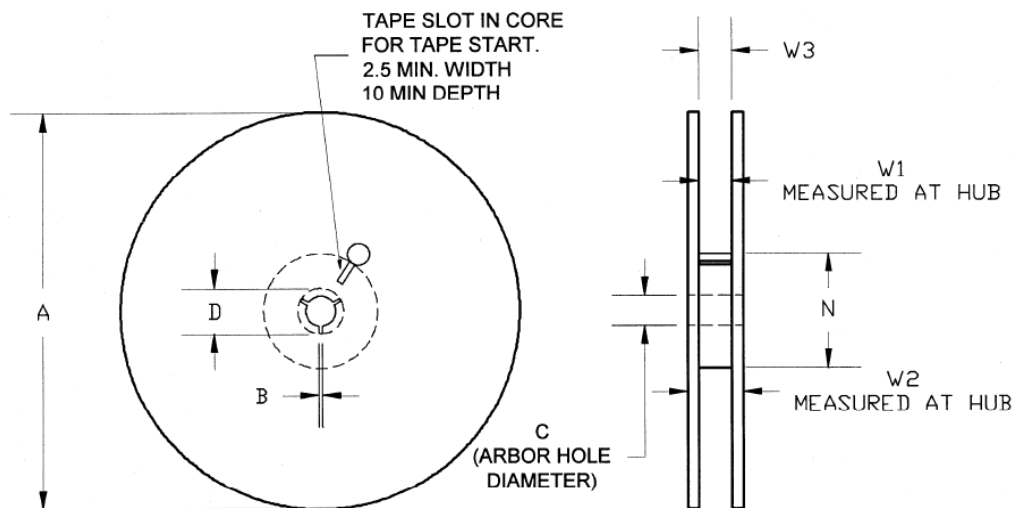


| Feature             | Measure                                  | Symbol | Size (in) | Size (mm) |
|---------------------|------------------------------------------|--------|-----------|-----------|
| Cavity              | Length                                   | A0     | 0.132     | 3.35      |
|                     | 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)

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