



# QPQ1285

## TDD B41 Band Pass Filter – 194 MHz

### General Description

The QPQ1285 is an exceptionally high performance BAW Filter for sub-Band 41 uplink / downlink. This filter is housed in a compact 2x1.6 mm package for base station applications.

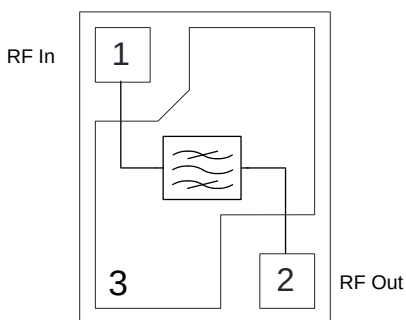
Low insertion loss, coupled with high attenuation makes this filter an ideal choice for TDD Macro Cells and Small Cells.

The QPQ1285 is part of Qorvo's extensive portfolio of RF BAW and SAW filters.



3 Pin 2 x 1.6 mm leadless SMT Package

### Functional Block Diagram



Top View

### Product Features

- 194 MHz Bandwidth – Band 41
- High Attenuation
- Low Loss
- No External Matching Required
- Excellent Wi-Fi Rejection
- Single Input, Single Output Operation
- Small Size: 2.00 x 1.60 x 0.73 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

### Applications

- Band 41
- Base Station Infrastructure
- Small Cells
- Repeaters
- Routers
- LTE Dongles
- General Purpose Wireless

### Pin Configuration

| Pin No. | Label                |
|---------|----------------------|
| 1       | RF In                |
| 2       | RF Out               |
| 3       | GND Back Side Paddle |

### Ordering Information

| Part No.   | Description                          |
|------------|--------------------------------------|
| QPQ1285SR  | 100 pieces on a 7" reel              |
| QPQ1285TR7 | 2,500 pieces on a 7" reel (standard) |
| QPQ1285EVB | Evaluation Board                     |

## Absolute Maximum Ratings

| Parameter             | Rating         |
|-----------------------|----------------|
| Storage Temperature   | -40 to +125 °C |
| Operation Temperature | -40 to +95 °C  |

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability.

## Life Test

| Conditions                                              | Rating        |
|---------------------------------------------------------|---------------|
| +29 dBm, +95 °C, FD-LTE, 5MHz<br>16QAM, 5MHz, PAR=8.5dB | >102,000 Hrs. |
| +29 dBm, +85 °C, FD-LTE, 5MHz<br>16QAM, 5MHz, PAR=8.5dB | >294,000 Hrs. |
| +24 dBm, +95 °C, FD-LTE, 5MHz<br>16QAM, 5MHz, PAR=8.5dB | >15M Hrs.     |

Power is applied to Pin 1.

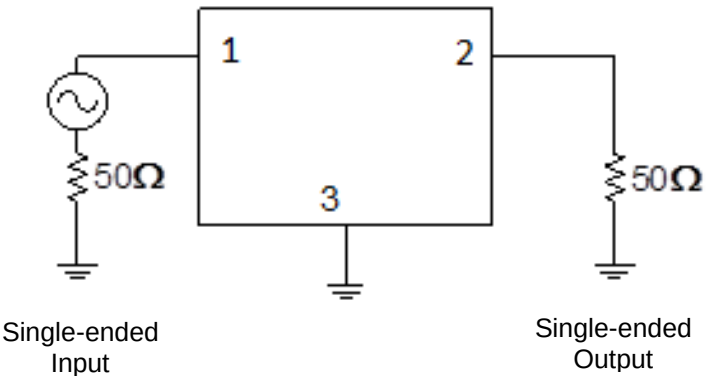
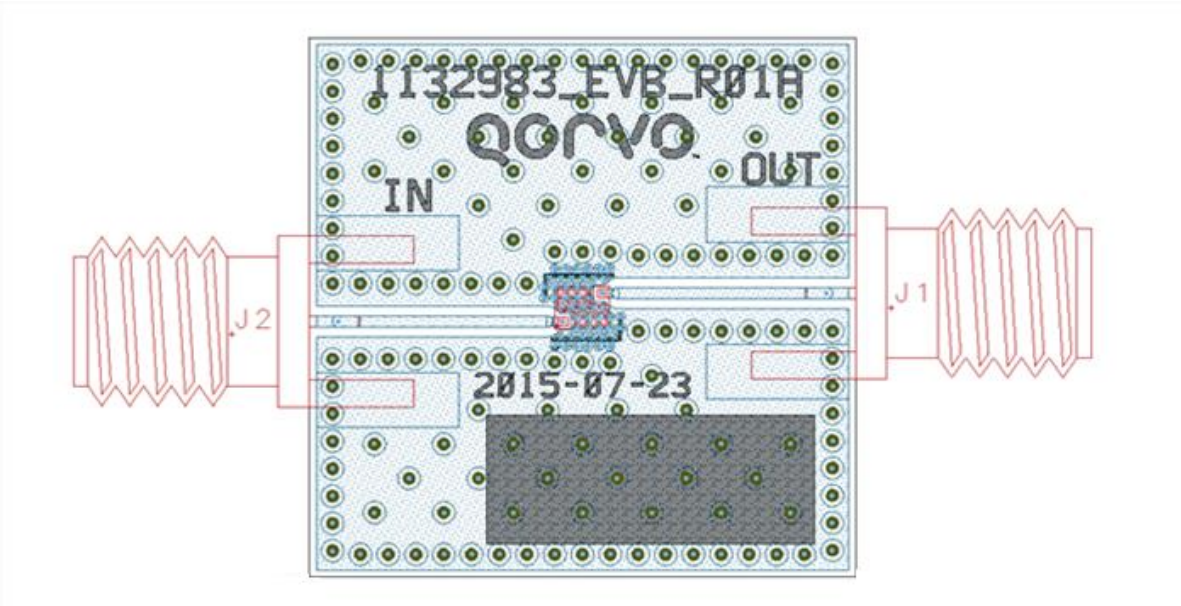
## Electrical Specifications

| Parameter                                    | Conditions                            | Min  | Typ | Max  | Unit |
|----------------------------------------------|---------------------------------------|------|-----|------|------|
| Frequency Range                              |                                       | 2496 |     | 2690 | MHz  |
| Insertion Loss                               |                                       | -    | 3.5 | 4.3  | dB   |
| Amplitude Variation <sup>(3)</sup>           |                                       | -    | 1.1 | 2.1  | dB   |
|                                              | Any 5 MHz Window                      | -    | 0.4 | 1.2  | dB   |
| Input / Output Return Loss                   |                                       | 10   | 13  | -    | dB   |
| Integrated Rejection (over 20 MHz Bandwidth) | 2402 - 2422 MHz                       | 40   | 53  | -    | dB   |
|                                              | 2407 - 2427 MHz                       | 45   | 57  | -    | dB   |
|                                              | 2412 - 2432 MHz                       | 50   | 60  | -    | dB   |
|                                              | 2417 - 2437 MHz                       | 50   | 61  | -    | dB   |
|                                              | 2422 - 2442 MHz                       | 50   | 60  | -    | dB   |
|                                              | 2427 - 2447 MHz                       | 50   | 60  | -    | dB   |
|                                              | 2432 - 2452 MHz                       | 50   | 60  | -    | dB   |
|                                              | 2437 - 2457 MHz                       | 50   | 60  | -    | dB   |
|                                              | 2442 - 2462 MHz                       | 50   | 59  | -    | dB   |
|                                              | 2447 - 2467 MHz                       | 50   | 57  | -    | dB   |
|                                              | 2452 - 2472 MHz                       | 50   | 55  | -    | dB   |
|                                              | 2412 - 2467 MHz                       | 50   | 57  | -    | dB   |
| Attenuation <sup>(4)</sup>                   | 10 - 700 MHz                          | 41   | 48  | -    | dB   |
|                                              | 701 - 900 MHz                         | 28   | 34  | -    | dB   |
|                                              | 901 - 1564 MHz                        | 22   | 28  | -    | dB   |
|                                              | 1565 - 1615 MHz (GPS)                 | 33   | 41  | -    | dB   |
|                                              | 1616 - 1709 MHz                       | 31   | 40  | -    | dB   |
|                                              | 1710 - 1880 MHz (B3)                  | 26   | 32  | -    | dB   |
|                                              | 1920 - 2170 MHz (B1)                  | 15   | 18  | -    | dB   |
|                                              | 2300 - 2330 MHz                       | 17   | 21  | -    | dB   |
|                                              | 2472 - 2477 MHz (WiFi Ch12)           |      | 36  | -    | dB   |
|                                              | 3000 - 3900 MHz                       | 27   | 30  | -    | dB   |
|                                              | 3900 - 4100 MHz                       | 15   | 18  | -    | dB   |
|                                              | 4100 - 6000 MHz                       | 34   | 27  | -    | dB   |
|                                              | 6000 - 7500 MHz                       | 29   | 36  | -    | dB   |
|                                              | 7500 - 8000 MHz                       | 25   | 33  | -    | dB   |
| Harmonics                                    | H2: 2496-2690 MHz, 5 MHz Step, 28 dBm | 60   | 70  | -    | dBc  |
|                                              | H3: 2496-2690 MHz, 5 MHz Step, 28 dBm | 100  | 110 | -    | dBc  |

### Notes:

1. Test conditions unless otherwise noted: Temp = -40 °C to +95 °C
2. All specifications are based on the QORVO schematic for the main reference design shown on page 3.
3. This is defined as the worst difference between a peak and adjacent valley within defined frequency points
4. Attenuation is referenced to ZERO dB

Evaluation Board and Schematic

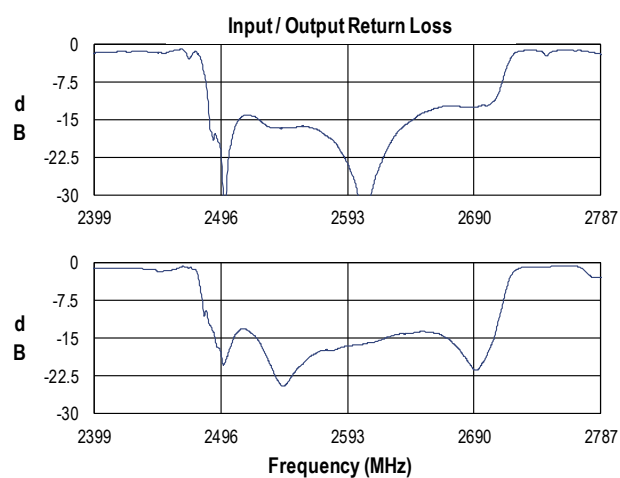
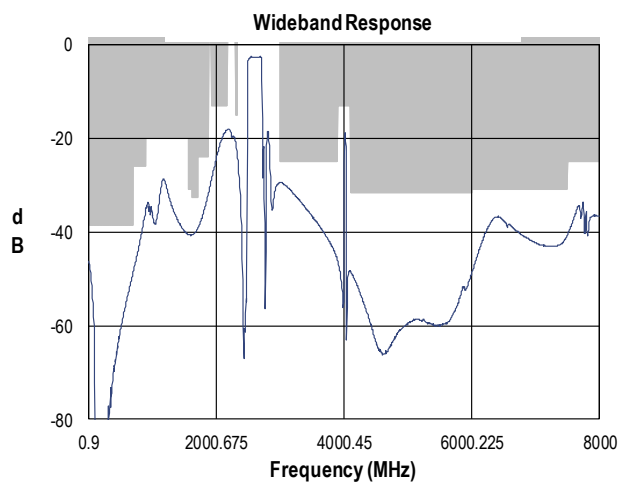
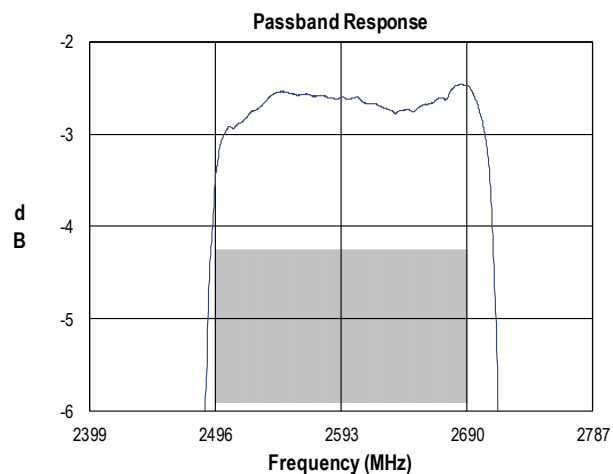
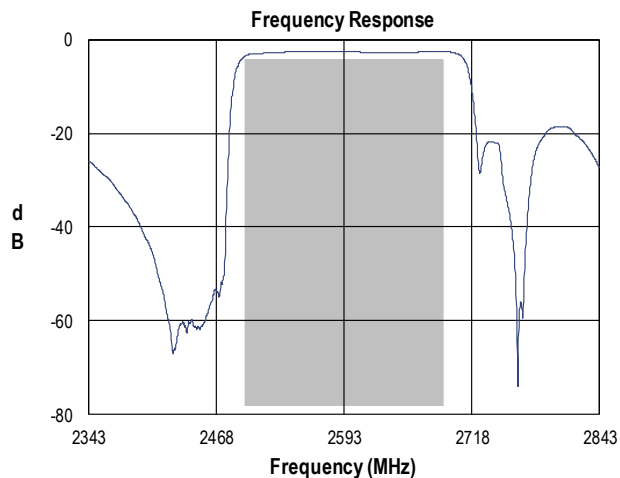


Bill of Material

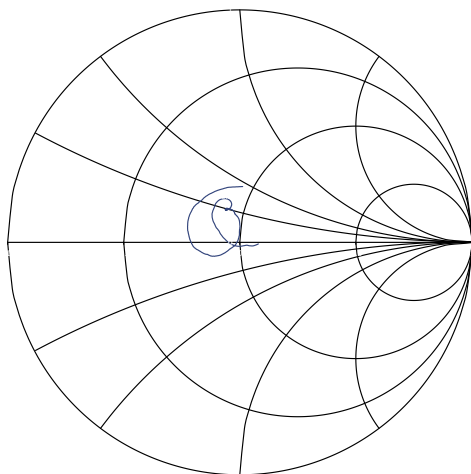
| Reference | Value | Description           | Manufacturer | Part Number   |
|-----------|-------|-----------------------|--------------|---------------|
| U1        | N/A   | Band 41 BAW Filter    | Qorvo        | QPQ1285       |
| N/A       | N/A   | Printed Circuit Board | Qorvo        | 1132983       |
| N/A       | N/A   | SMA Edge Connector    | Radial       | 9602-1111-018 |

## Performance Plots – Application Circuit

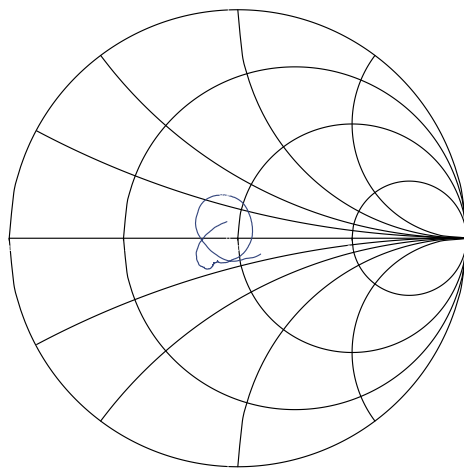
Test conditions unless otherwise noted: Temp.= +25 °C



**Input Smith Chart**



**Output Smith Chart**



## Package Marking and Dimensions

### Marking

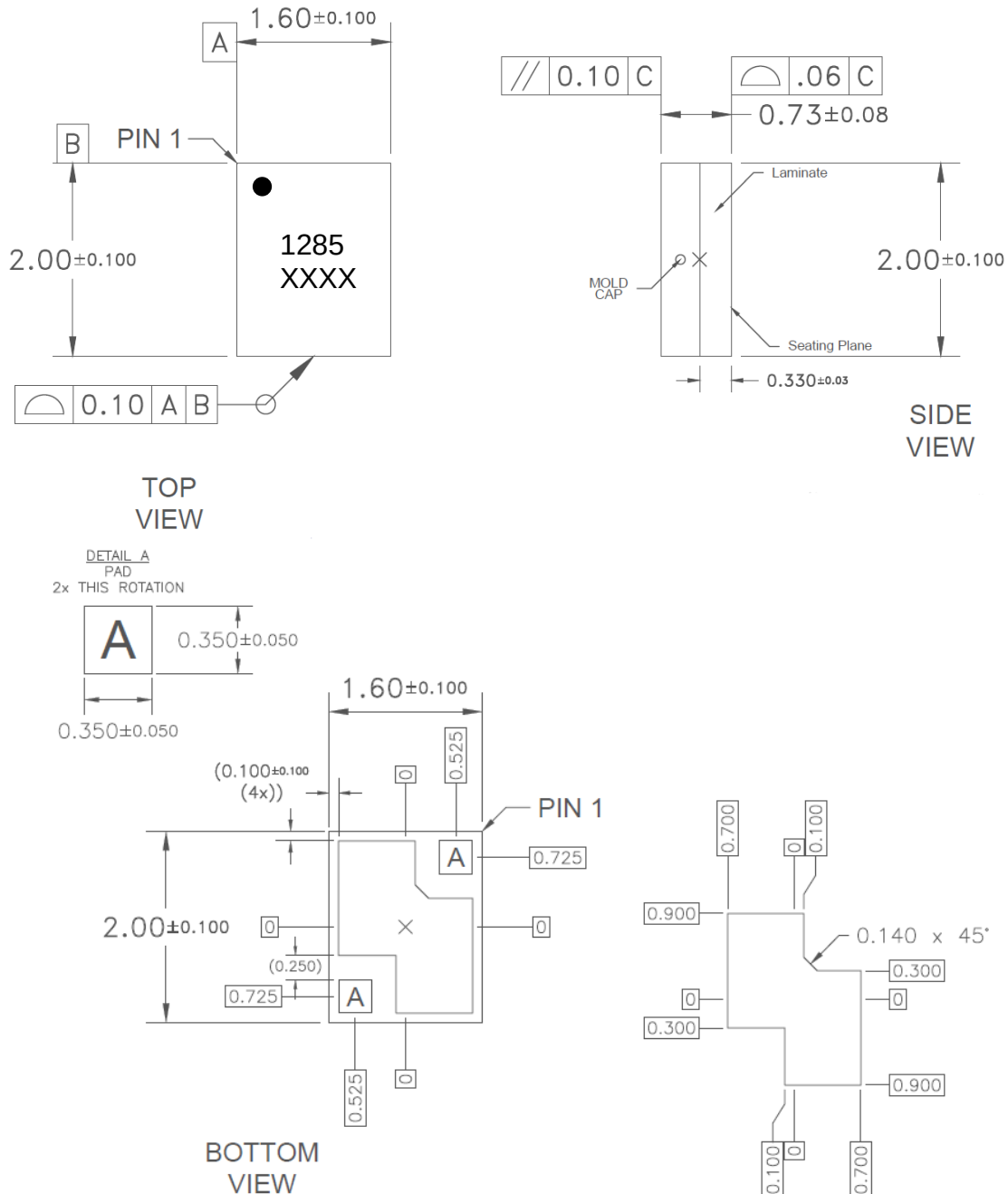
4-digit Part number: 1285

4-digit Trace code: XXXX

Body: Al<sub>2</sub>O<sub>3</sub> ceramic

Lid: Kovar, Au over Ni plating

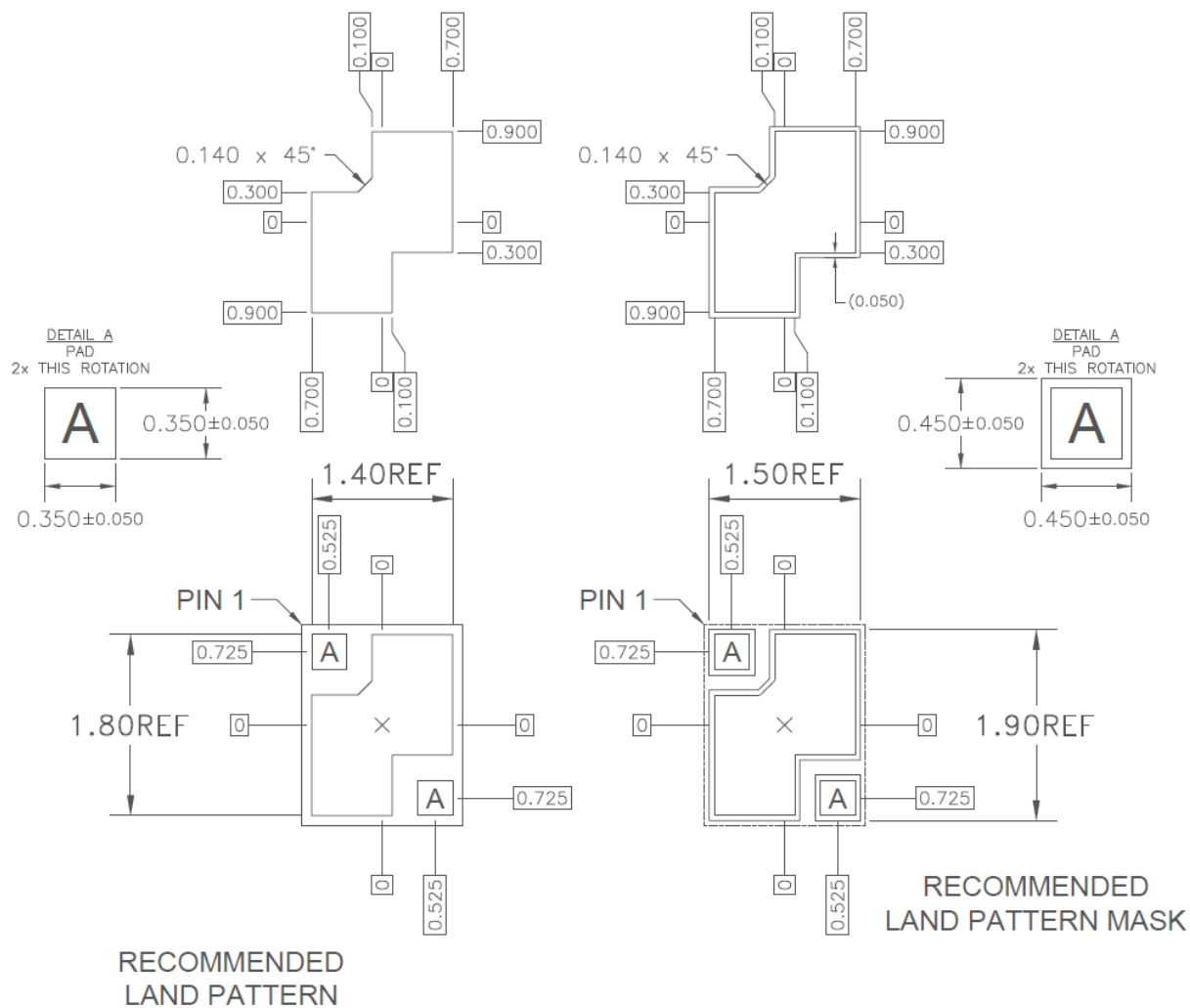
Terminations: Au plating 0.5 - 1.0µm, over a 2-6µm Ni plating



### Notes:

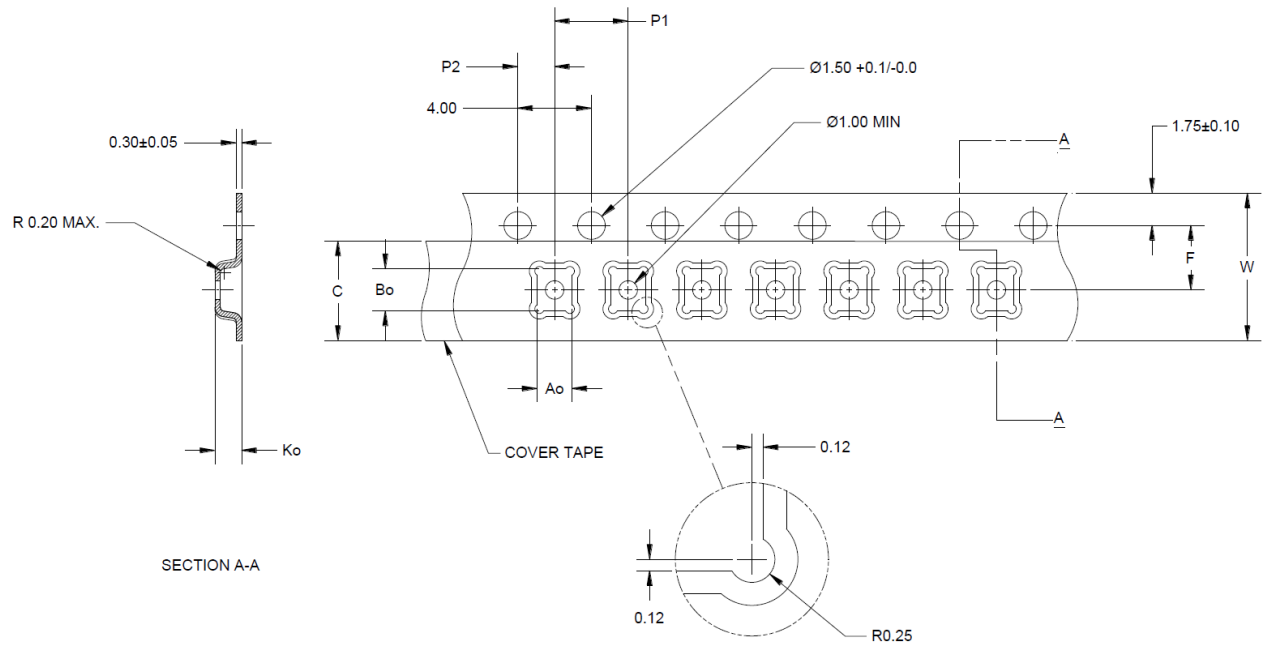
1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

All dimensions are in millimeters

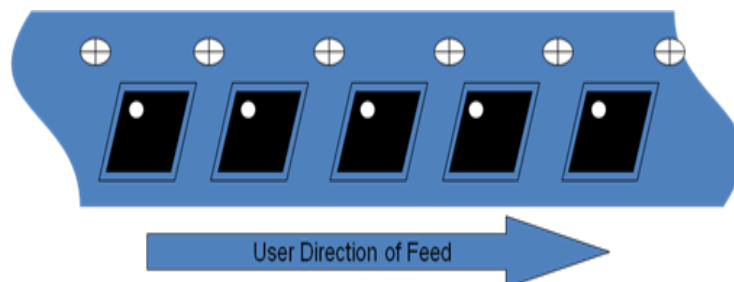


## Tape and Reel Information – Carrier and Cover Tape Dimensions

Tape and reel specifications for this part are also available on the Qorvo website.  
Standard T/R size = 2500 pieces on a 7" reel.



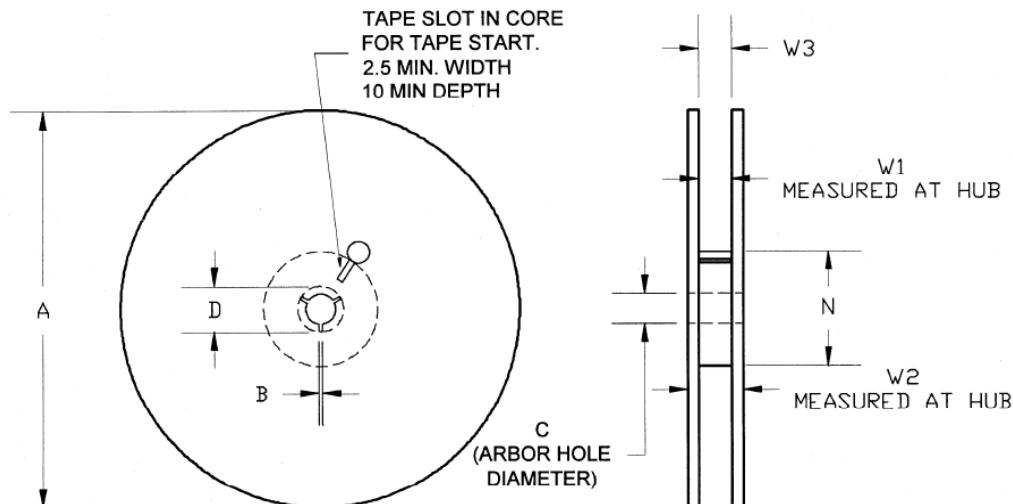
| Feature             | Measure                                  | Symbol | Size (in) | Size (mm) |
|---------------------|------------------------------------------|--------|-----------|-----------|
| Cavity              | Length                                   | A0     | 0.077     | 1.95      |
|                     | 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      |



## 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 | ANSI / ESD / JEDEC JS-001 |
| ESD – Charged Device Model (CDM) | Class C3 | 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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