



# QPQ4900

## n79 Sub-Band 160 MHz BAW Filter Module

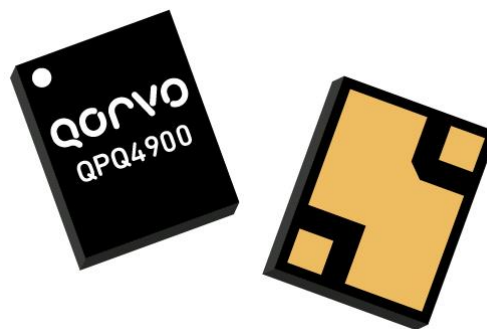
Classification | [PRIVATE](#)

### General Description

The QPQ4900 is an exceptionally high-performance BAW Filter for Sub-Band n79. This filter is housed in a compact 2.0 x 1.6 mm package for base station applications.

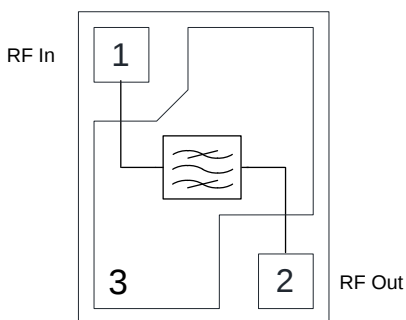
Low insertion loss coupled with high attenuation makes this filter an ideal choice for TDD Macro Cells and Small Cells.

The QPQ4900 is part of Qorvo's extensive portfolio of RF BAW and SAW filters.



3 Pin 2.0 x 1.6 mm leadless SMT Package

### Functional Block Diagram



Top View

### Product Features

- 160 MHz Bandwidth – n79 Sub-Band
- 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 0.89 mm
- Surface Mount Device
- RoHS Compliant, Pb-Free

### Applications

- n79 Sub-Band
- 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         | Description                |
|--------------|----------------------------|
| QPQ4900TR7   | 2500 pieces on a 7" Reel.  |
| QPQ4900SB    | Sample Bag with 5 pieces   |
| QPQ4900EVB01 | Evaluation Board – QPQ4900 |

## Absolute Maximum Ratings

| Parameter                                                           | Rating            |
|---------------------------------------------------------------------|-------------------|
| Storage Temperature                                                 | -40 °C to +125 °C |
| Operation Temperature                                               | -40 °C to +95 °C  |
| RF Input Power - Test conditions:<br>PW = 500ms, DC = 50%, @ +25 °C | +36.5 dBm         |

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.

## Minimum Lifetime Ratings

| Conditions                                                 | Rating    |
|------------------------------------------------------------|-----------|
| 29 dBm at Pin 1,<br>FD-LTE, 5 MHz, 16 QAM, PAR 8 dB, +95°C | >10 years |

## Electrical Specifications

Test conditions unless otherwise noted: with Qorvo evaluation circuit on page 3, Temp = -40°C to +95°C, 50 Ω system

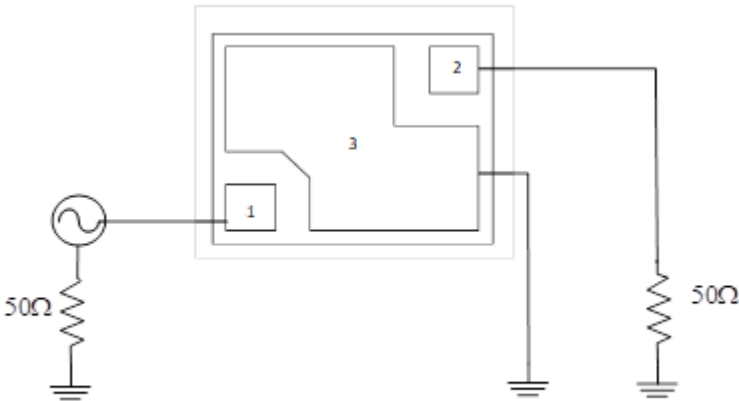
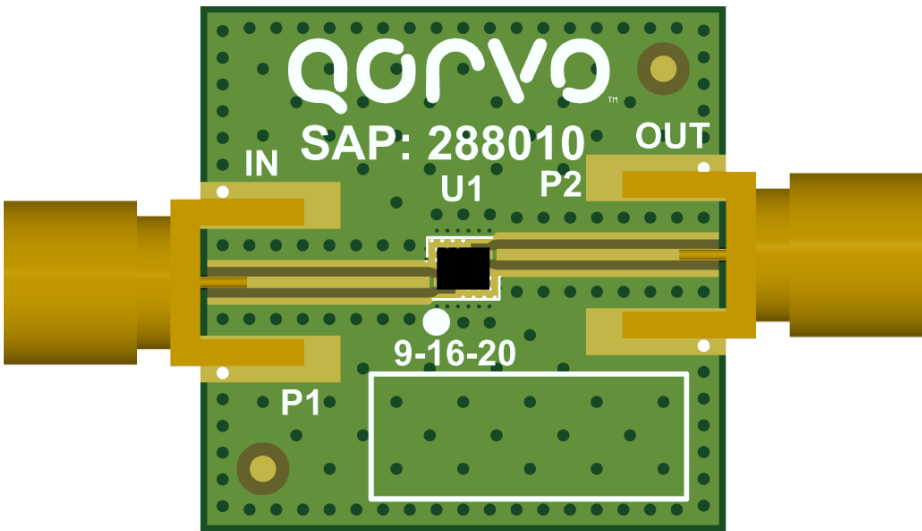
| Parameter                                      | Conditions <sup>(1) (2)</sup>  | Min  | Typ. <sup>(3)</sup> | Max  | Unit  |
|------------------------------------------------|--------------------------------|------|---------------------|------|-------|
| Frequency Range                                |                                | 4800 |                     | 4960 | MHz   |
| Integrated Insertion Loss,<br>Over any 5MHz BW | 4800 – 4810 MHz                |      | 1.9                 | 2.6  | dB    |
|                                                | 4810 – 4950 MHz                |      | 1.6                 | 2.0  | dB    |
|                                                | 4950 – 4960 MHz                |      | 1.4                 | 2.6  | dB    |
| Amplitude Variation <sup>(4)</sup>             | 4800 – 4960 MHz                |      | 0.9                 | 2    | dB    |
| Input Return Loss                              | 4800 – 4960 MHz                | 9.5  | 12.4                |      | dB    |
| Output Return Loss                             | 4800 – 4960 MHz                | 9.5  | 13.5                |      | dB    |
| Input VSWR                                     | 4800 – 4960 MHz                |      | 1.6                 | 2.0  | ratio |
| Output VSWR                                    | 4800 – 4960 MHz                |      | 1.5                 | 2.0  | ratio |
| Error Vector Magnitude <sup>(5)(6)</sup>       | 4800 – 4960 MHz                |      | 0.5                 | 5    | %     |
| Group Delay Variation <sup>(5)</sup>           | 4800 – 4960 MHz                |      | 1.7                 | 5    | ns    |
| Integrated Rejection,<br>Over 100 MHz BW       | 4699 – 4800 MHz                | 7    | 11                  |      | dB    |
|                                                | 4960 – 5061 MHz                | 5    | 8                   |      | dB    |
| Attenuation,<br>Reference to ZERO dB           | 10 – 2370 MHz                  | 30   | 33                  |      | dB    |
|                                                | 2400 – 2483 MHz                | 30   | 33                  |      | dB    |
|                                                | 2496 – 2690 MHz                | 30   | 33                  |      | dB    |
|                                                | 3300 – 3800 MHz                | 30   | 35                  |      | dB    |
|                                                | 4600 – 4720 MHz                | 20   | 27                  |      | dB    |
|                                                | 5040 – 5100 MHz                | 20   | 55                  |      | dB    |
|                                                | 5150 – 5350 MHz                | 45   | 53                  |      | dB    |
|                                                | 5725 – 5850 MHz                | 35   | 51                  |      | dB    |
|                                                | 6000 – 6500 MHz                | 25   | 33                  |      | dB    |
|                                                | 6500 – 8000 MHz                | 15   | 21                  |      | dB    |
|                                                | 9600 – 9920 MHz <sup>(6)</sup> | 10   | 16                  |      | dB    |

### Notes:

1. In production, devices will be tested at room temperature to a guard banded specification to ensure compliance over temperature
2. Electrical margin has been built into the design to account for variations due to temperature drift and manufacturing tolerances
3. Typical values are based on average measurements at room temperature
4. Maximum Insertion Loss Variation between specified frequencies over any 5 MHz bandwidth
5. Across the band between specified frequencies in 5 MHz sliding window
6. This specification will be guaranteed by design (GBD) and will not be tested in final production test



QPQ4900EVB Evaluation Board

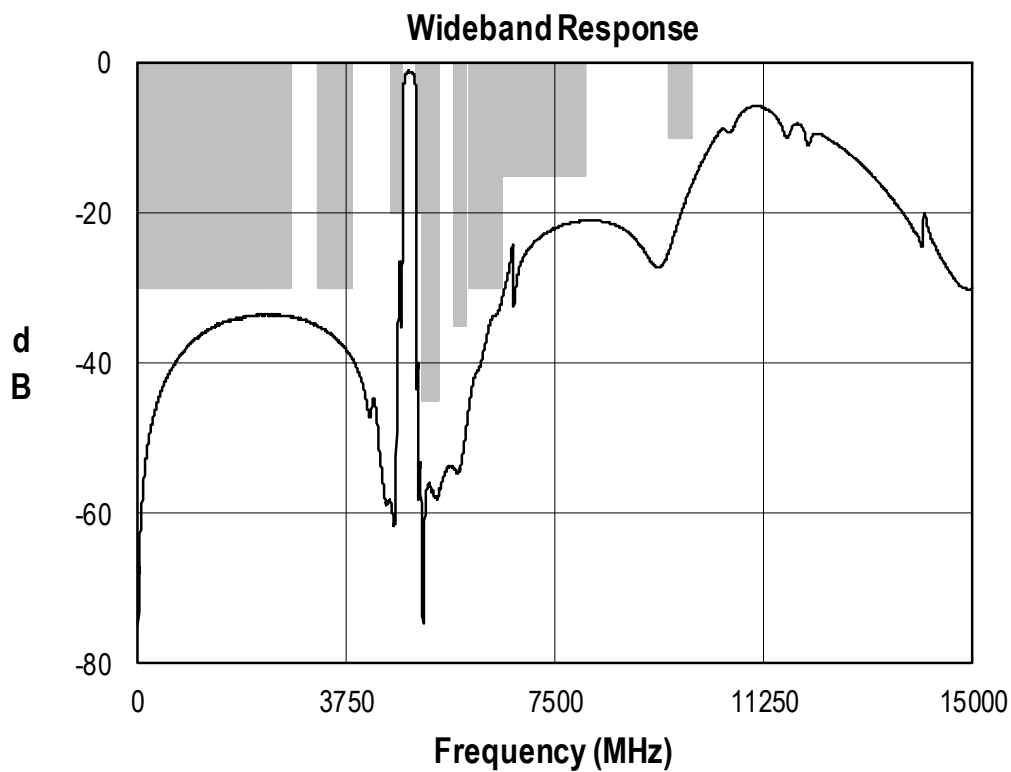
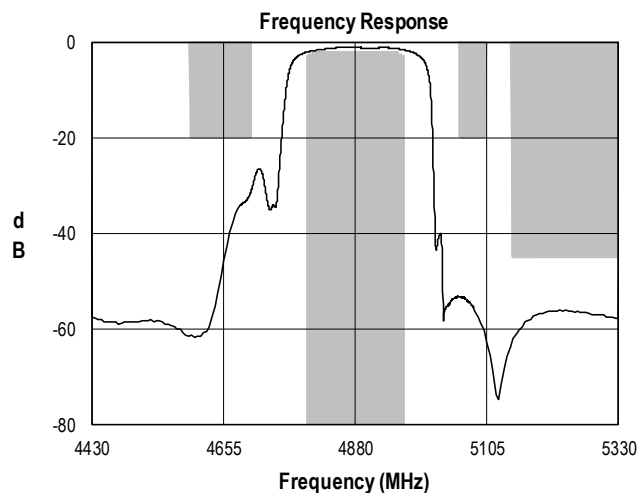
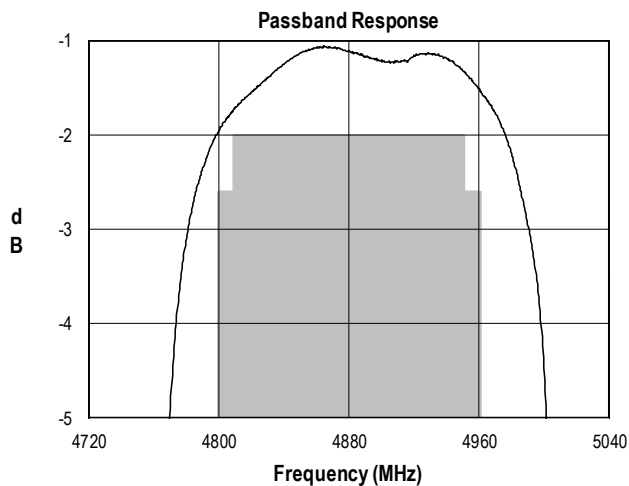


Bill of Material – QPQ4900EVB

| Reference Des. | Value | Description                             | Manuf.  | Part Number   |
|----------------|-------|-----------------------------------------|---------|---------------|
| U1             | -     | FILTER, n79 Sub-band 160 MHz BAW Filter | Qorvo   | QPQ4900       |
| P1, P2         | SMA   | CONN, SMA Edge Connector                | Radiall | 9602-1111-018 |
| PCB            | -     | PCB, 3-Layer                            | Qorvo   | 288010        |

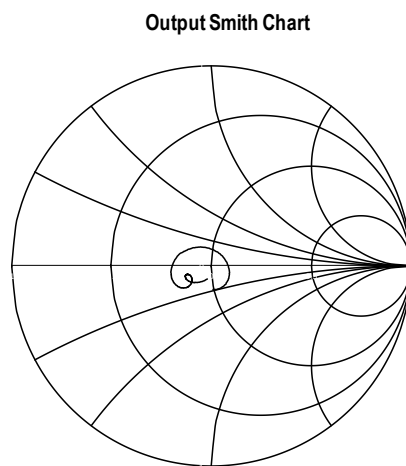
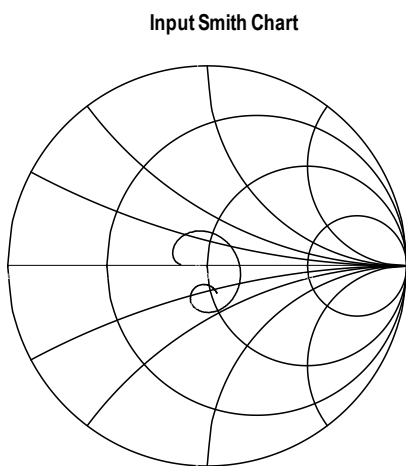
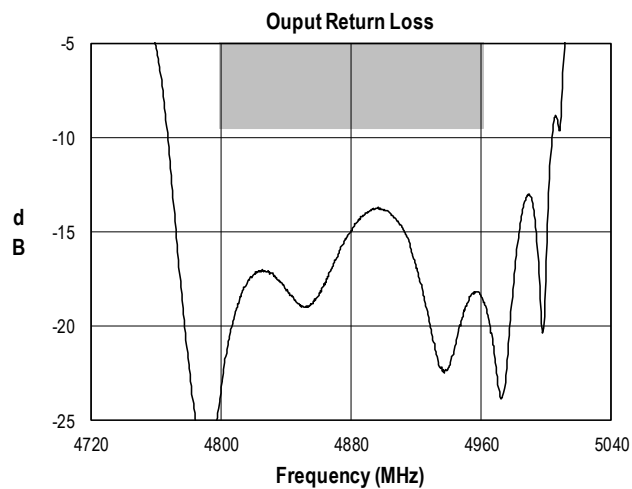
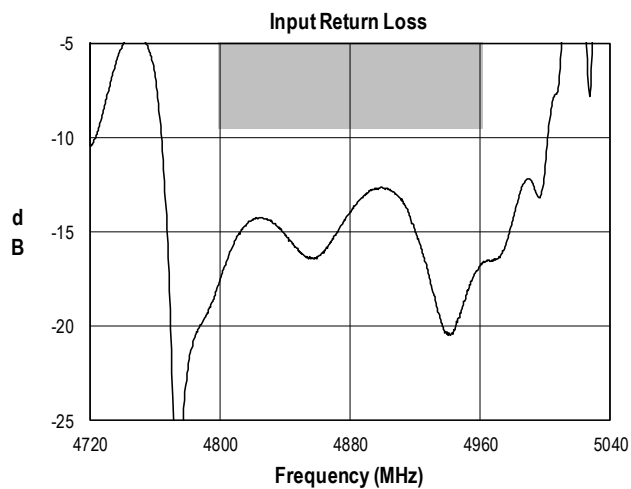
## Performance Plots – Small Signal

Test conditions unless otherwise noted: with Qorvo evaluation circuit on page 3, Temp = +25 °C, 50  $\Omega$  system



## Performance Plots – Small Signal

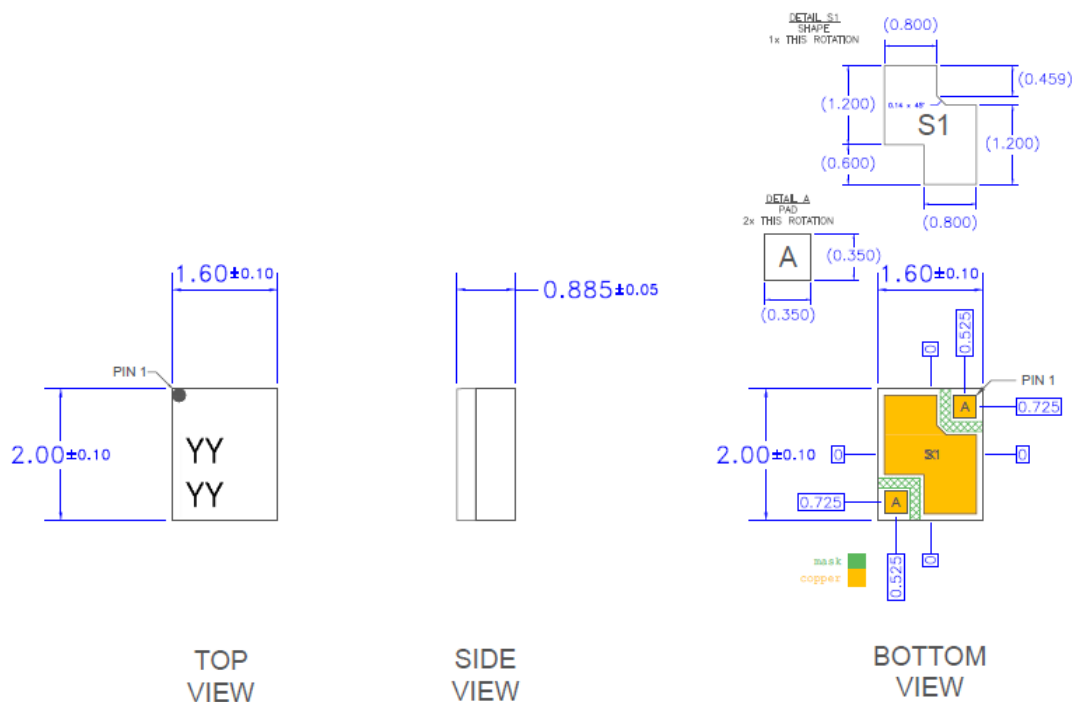
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## Package Marking and Dimensions

Marking:

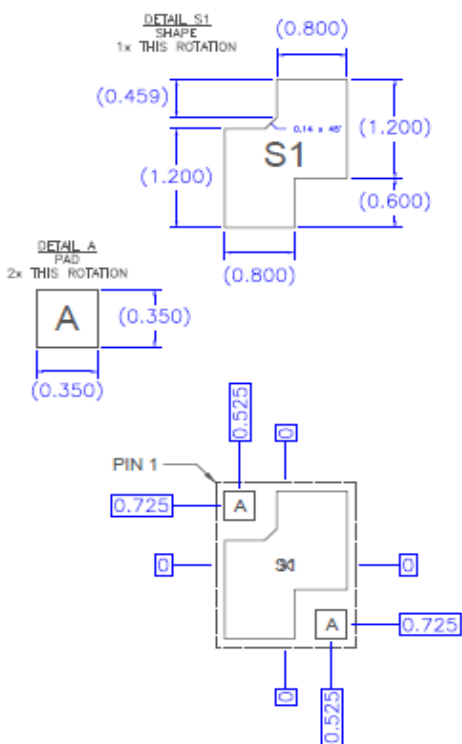
YYYY indicates the Trace Code



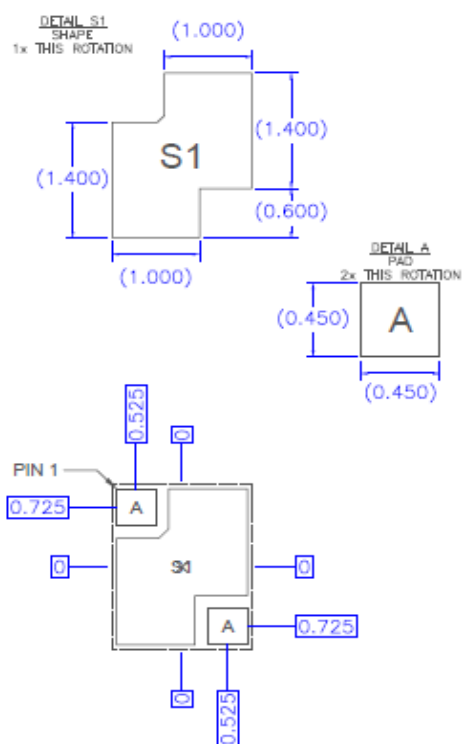
Notes:

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



**RECOMMENDED  
LAND PATTERN**



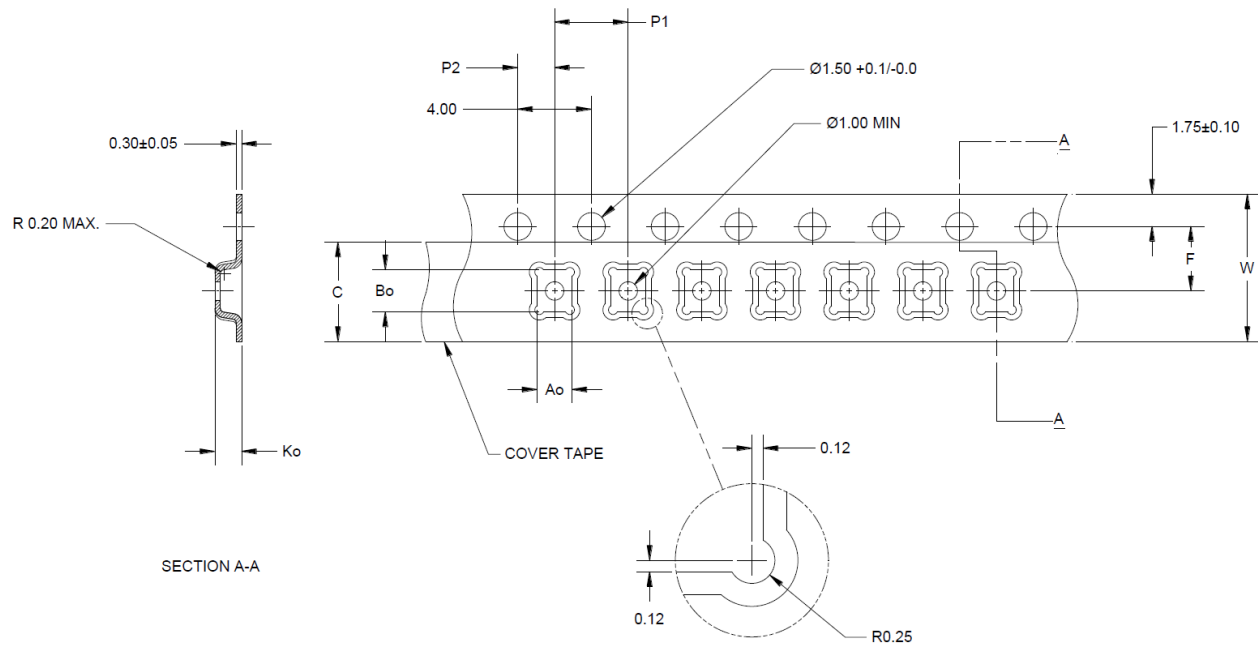
**RECOMMENDED  
LAND PATTERN MASK**

**Notes:**

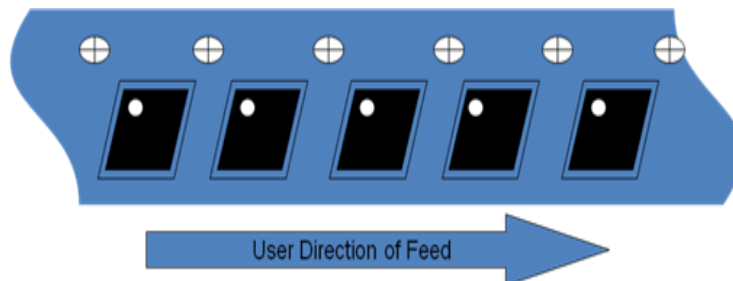
1. All dimensions are in millimeters.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes

## 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.

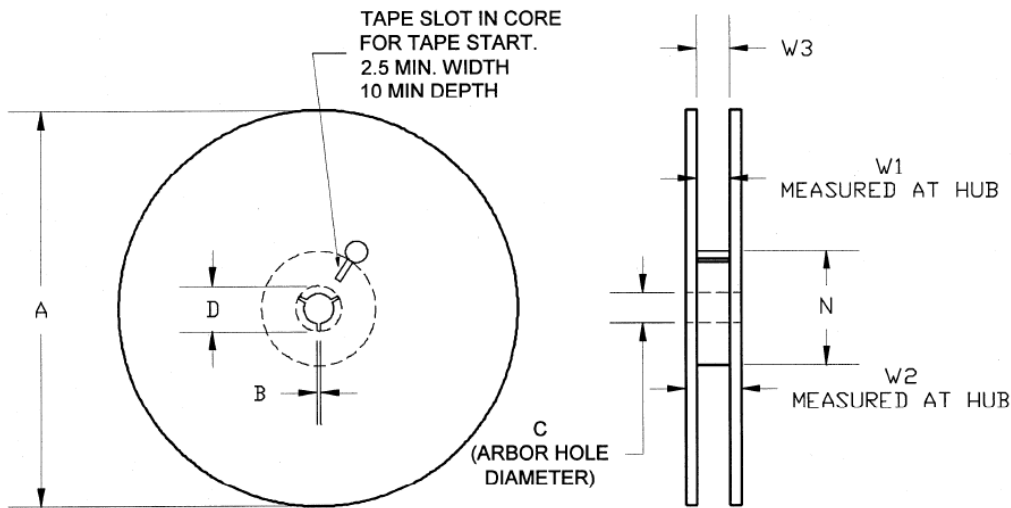


| Feature             | Measure                                  | Symbol | Size (in) | Size (mm) |
|---------------------|------------------------------------------|--------|-----------|-----------|
| Cavity              | Length                                   | A0     | 0.077     | 1.95      |
|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



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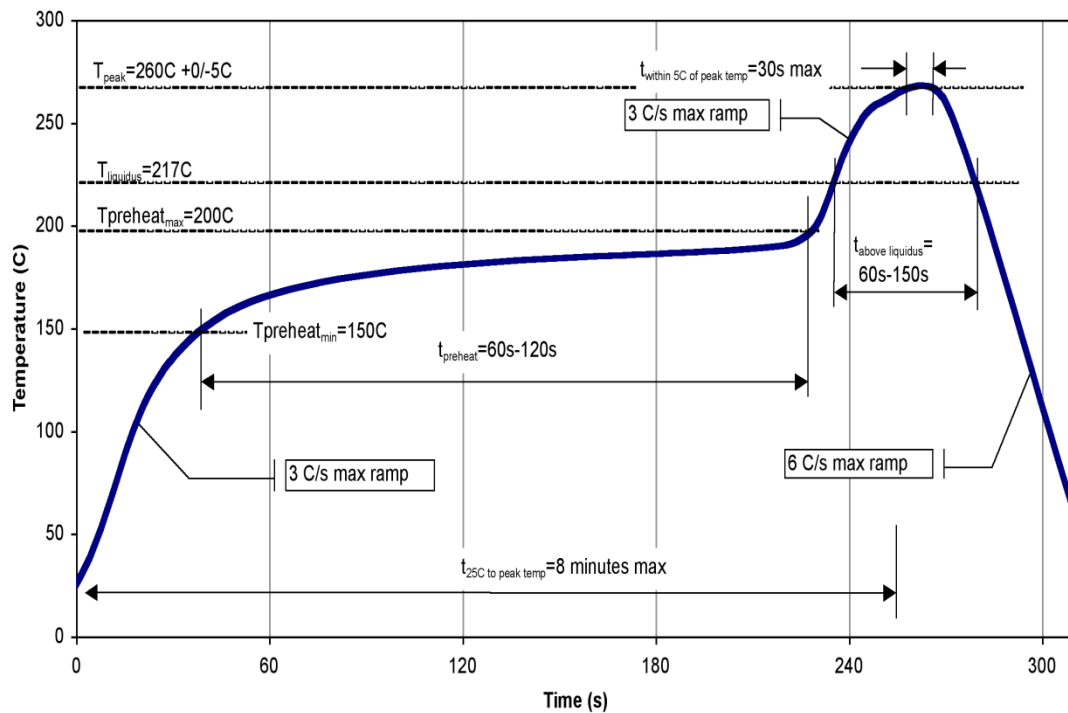
| Feature | Measure              | Symbol | Size (in) | Size (mm) |
|---------|----------------------|--------|-----------|-----------|
| Flange  | Diameter             | A      | 6.969     | 177.0     |
|         | Thickness            | W2     | 0.559     | 14.2      |
|         | Space Between Flange | 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      |

## Assembly Notes

Compatible with both lead-free (260°C peak reflow temperature) and tin/lead (245°C peak reflow temperature) soldering processes.

Contact plating: ENEPIG

## Recommended Soldering Profile



## 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

## RoHS Compliance

This product is compliant with the 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)

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