



QPQ1298

B41 Sub-Band 160 MHz BAW Filter

General Description

The QPQ1298 is an exceptionally high-performance BAW Filter for sub-Band 41 uplink / downlink. This filter is housed in a compact 2.0 x 1.6 mm package for base station applications.

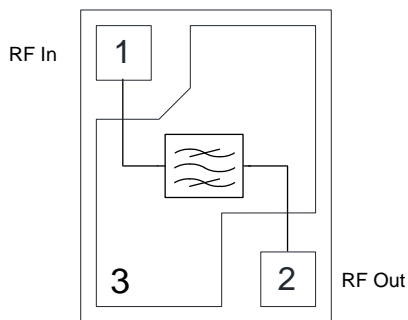
Low insertion loss coupled with high attenuation makes this filter an ideal choice for TDD Macro Cells and Small Cells.

The QPQ1298 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 – 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 | Description |
|-------------|----------------------------|
| QPQ1298TR13 | 2500 pieces on a 13" Reel. |
| QPQ1298EVB | Evaluation Board – QPQ1298 |

Absolute Maximum Ratings

| Parameter | Rating |
|-----------------------------------|---------------|
| Storage Temperature | -40 to 125 °C |
| Operation Temperature | -40 to +95 °C |
| RF Input Power, CW, 50 Ω, T=25 °C | 37.5 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 device may reduce device reliability.

Minimum Lifetime Ratings

| Conditions | Rating |
|--|--------------|
| +29 dBm at Pin 1, 2515-2675 MHz, FD-LTE, 5 MHz, 16 QAM, 25 RB, PAR 8 dB, +95°C | >10 years |
| +31 dBm at Pin 1, 2515-2675 MHz, FD-LTE, 5 MHz, 16 QAM, 25 RB, PAR 8 dB, +95°C | 43,000 hours |

Electrical Specifications (1) (2) (3)

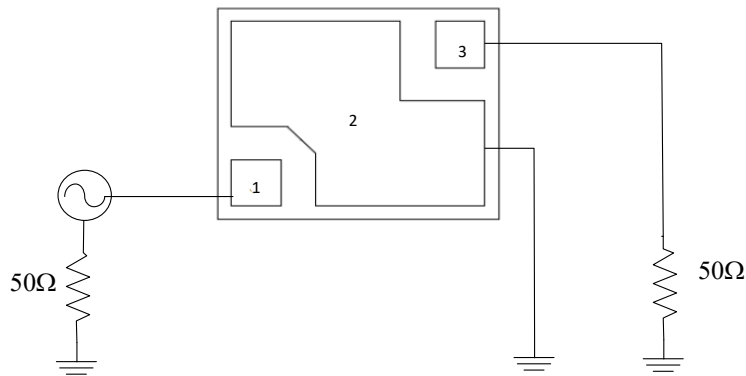
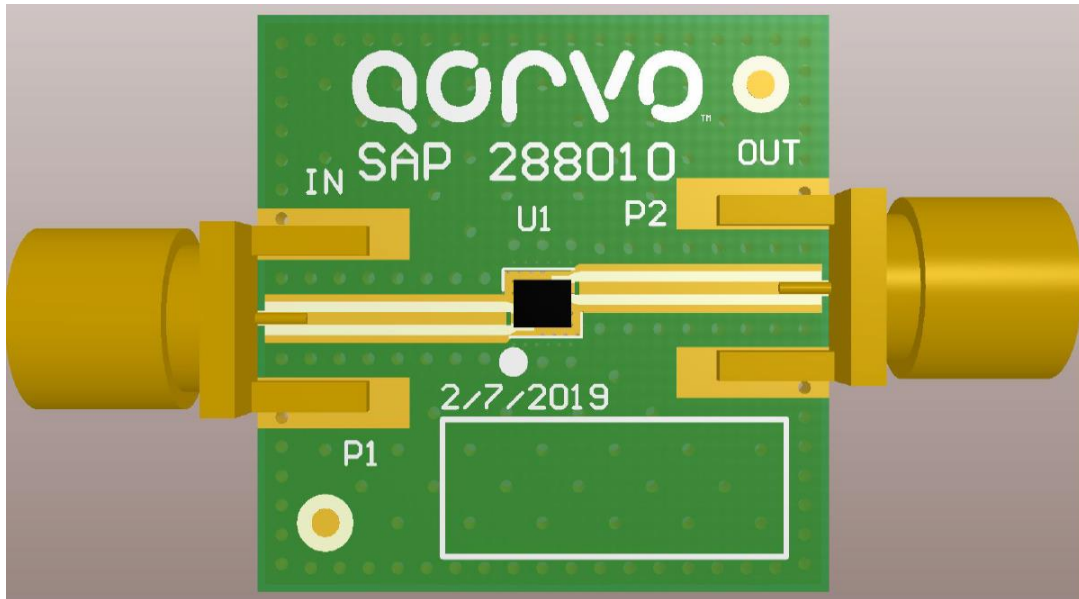
Test Conditions unless otherwise noted= -40°C to +95°C

| Parameter | Conditions | Min | Typ. ⁽⁴⁾ | Max | Unit |
|----------------------------|---|------|---------------------|-------|------|
| Frequency Range | | 2515 | | 2675 | MHz |
| Insertion Loss | | | 2.5 | 3.3 | dB |
| Amplitude Variation | | | 1.4 | 2.0 | dB |
| Input VSWR | | | 1.8:1 | 2.2:1 | - |
| Output VSWR | | | 1.8:1 | 2.2:1 | - |
| Attenuation ⁽⁵⁾ | 1 - 1785 MHz | 30 | 34 | | dB |
| | 1785 - 2200 MHz | 30 | 35 | | dB |
| | 2200 - 2300 MHz | 35 | 41 | | dB |
| | 2300 - 2400 MHz | 46 | 50 | | dB |
| | 2400 - 2483.5 MHz | 43 | 46 | | dB |
| | 2715 - 3000 MHz | 38 | 44 | | dB |
| | 3300 - 3600 MHz | 25 | 28 | | dB |
| | 4900 - 5025 MHz | 35 | 38 | | dB |
| | 5150 - 5350 MHz | 35 | 37 | | dB |
| | 5490 - 5850 MHz | 32 | 35 | | dB |
| Harmonics | H2: 5030-5350 MHz, P _{IN} = 27 dBm @+25 °C | 70 | 79 | | dBc |
| | H3: 7545-8025 MHz, P _{IN} = 27 dBm @+25 °C | 72 | 77 | | dBc |

Notes:

1. All specifications are based on the Qorvo schematic shown on page 3.
2. In production, devices will be tested at room temperature to a guard banded specification to ensure compliance over temperature.
3. Electrical margin has been built into the design to account for variations due to temperature drift and manufacturing tolerances.
4. Typical values are based on average measurements at room temperature.
5. Attenuation is referenced to ZERO dB.

QPQ1298EVB Evaluation Board

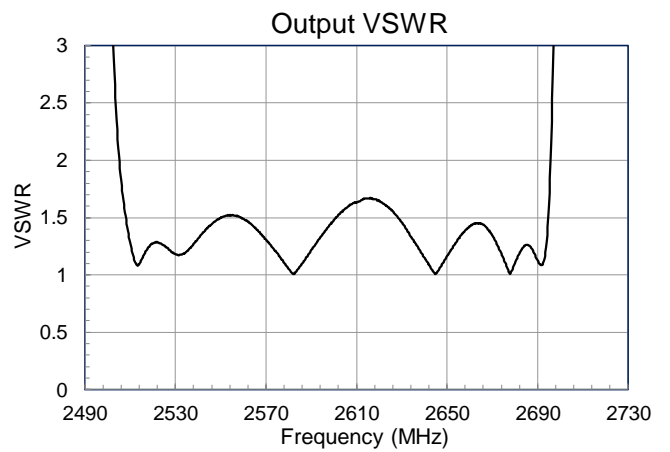
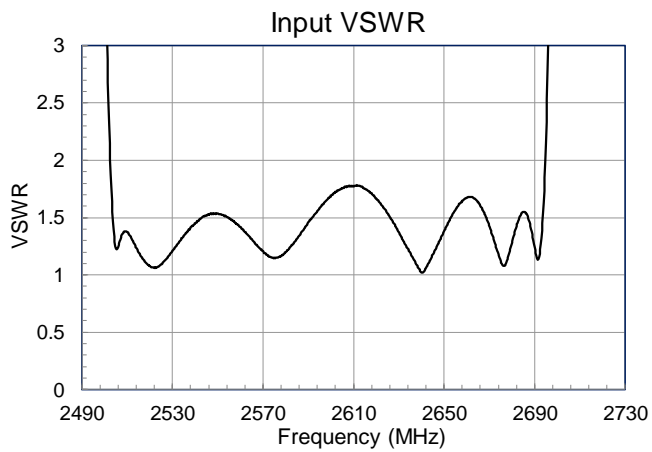
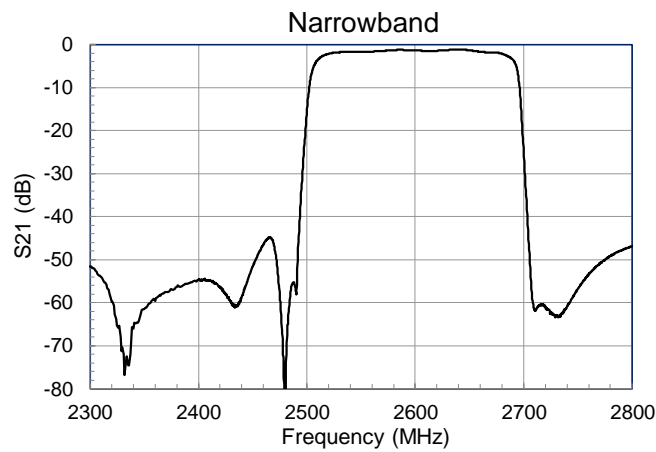
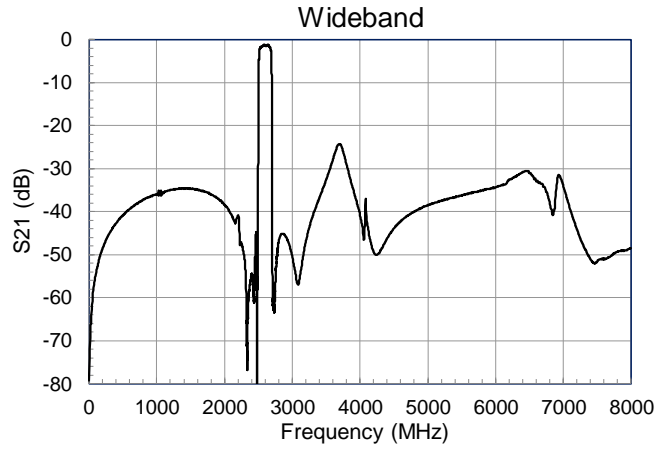
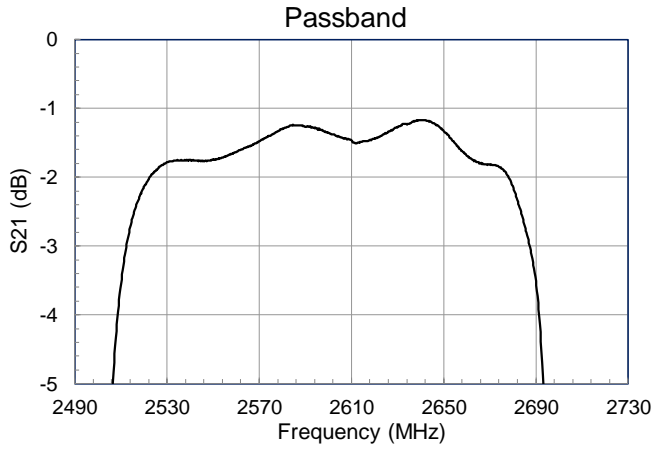


Bill of Material – QPQ1298EVB

| Reference Des. | Value | Description | Manuf. | Part Number |
|----------------|-------|--------------------------------------|---------|-------------|
| U1 | n/a | B41 Sub-Band Band 160 MHz BAW Filter | Qorvo | QPQ1298 |
| SMA | n/a | SMA Edge Connector | Various | |
| PCB | n/a | 3-Layer | Various | |

Performance Plots – Small Signal

Test conditions unless otherwise noted: Temp = +25 °C, 50 Ω system

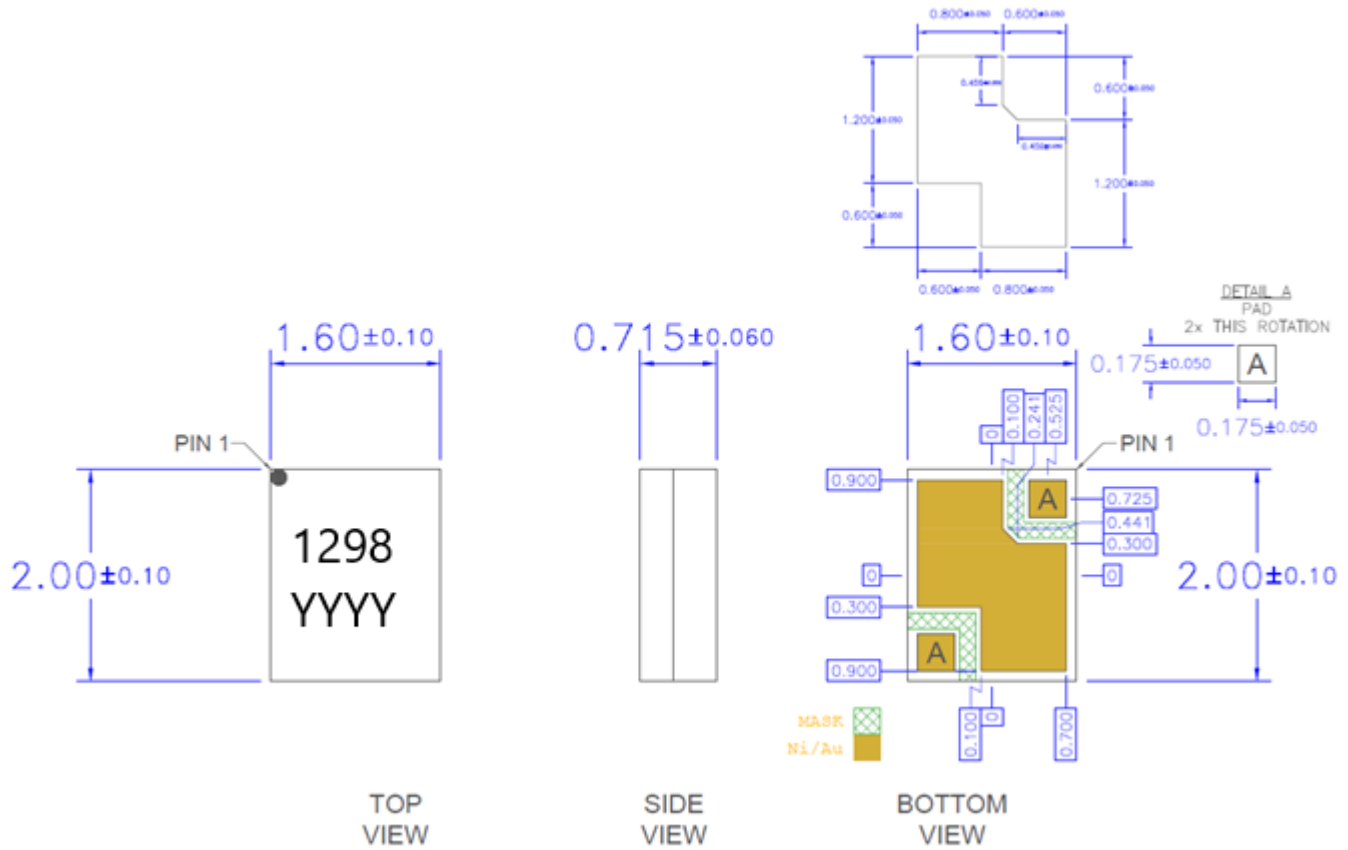


Package Marking and Dimensions

Marking

4-digit Part number: 1298

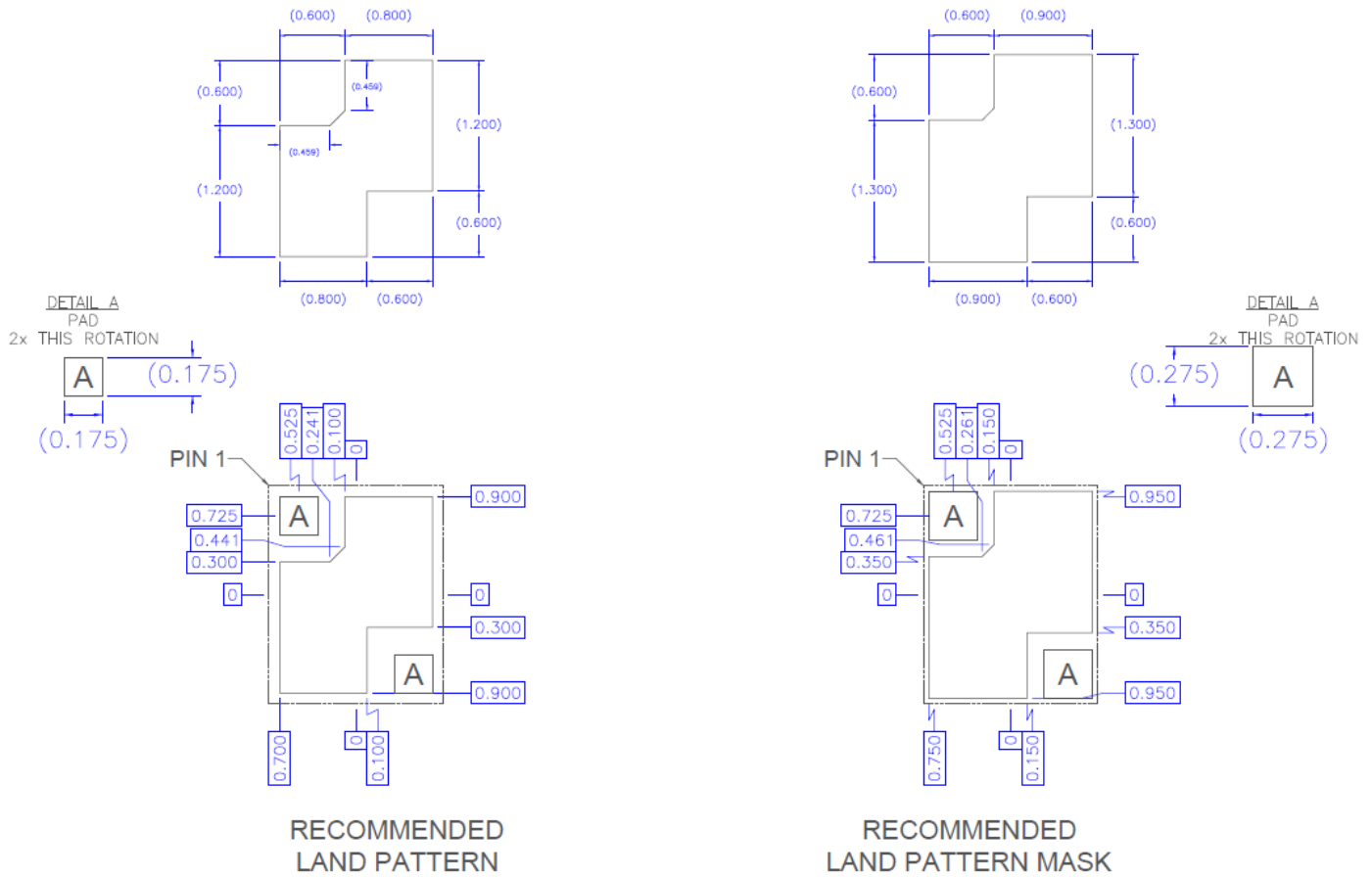
4-digit Trace code: YYYY



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

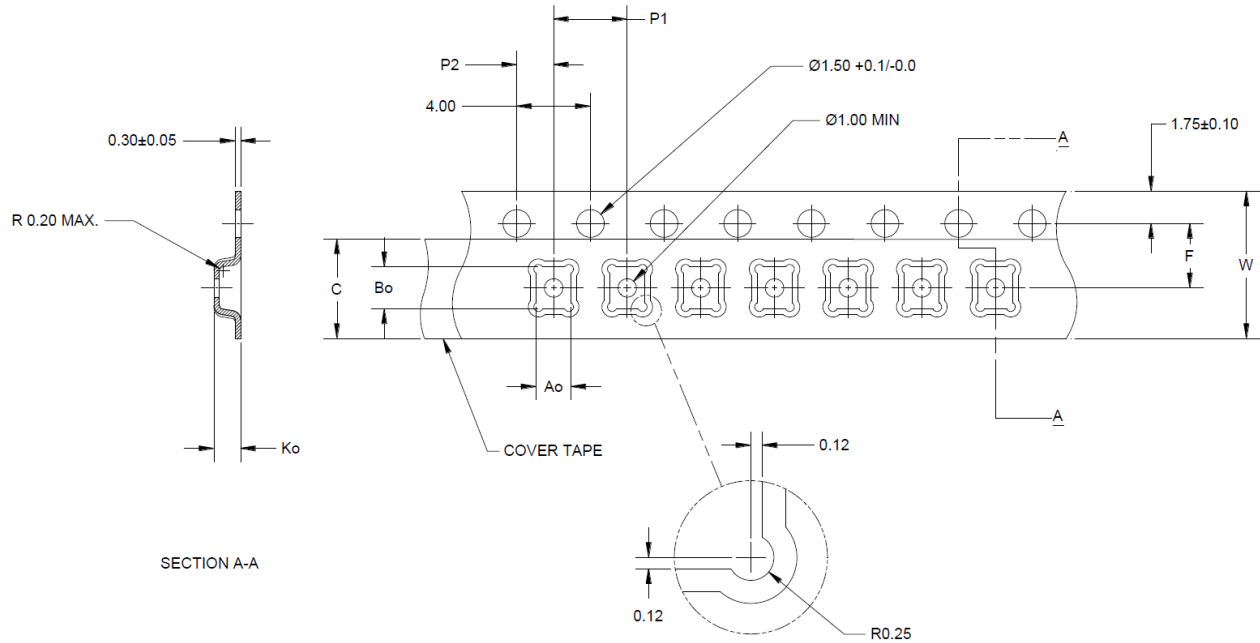


Notes:

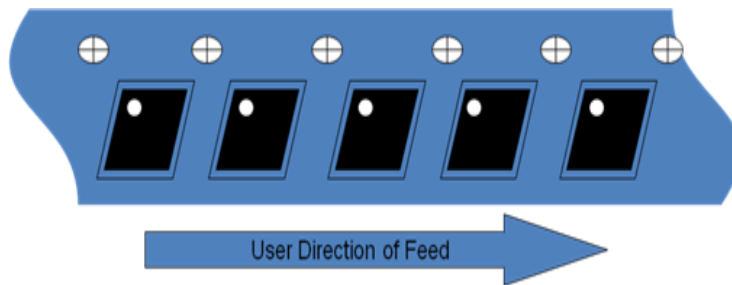
1. All dimensions are in millimeters.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes

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 13" reel.

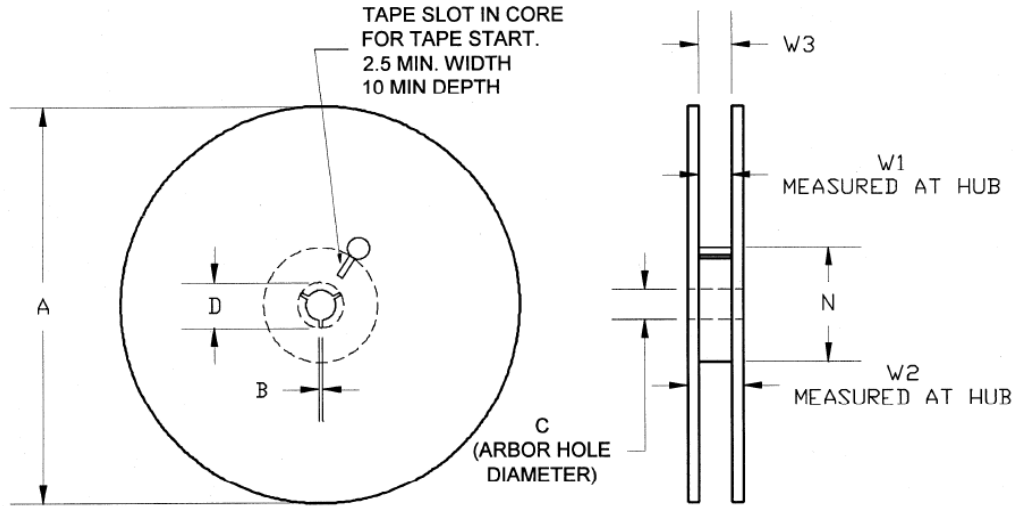


| Feature | Measure | Symbol | Size (in) | Size (mm) |
|---------------------|--|--------|-----------|-----------|
| Cavity | Length | A0 | 0.077 | 1.95 |
| | Width | B0 | 0.093 | 2.35 |
| | Depth | K0 | 0.045 | 1.15 |
| | Pitch | P1 | 0.157 | 4.00 |
| Centerline Distance | Cavity to Perforation - Length 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 13" reel.

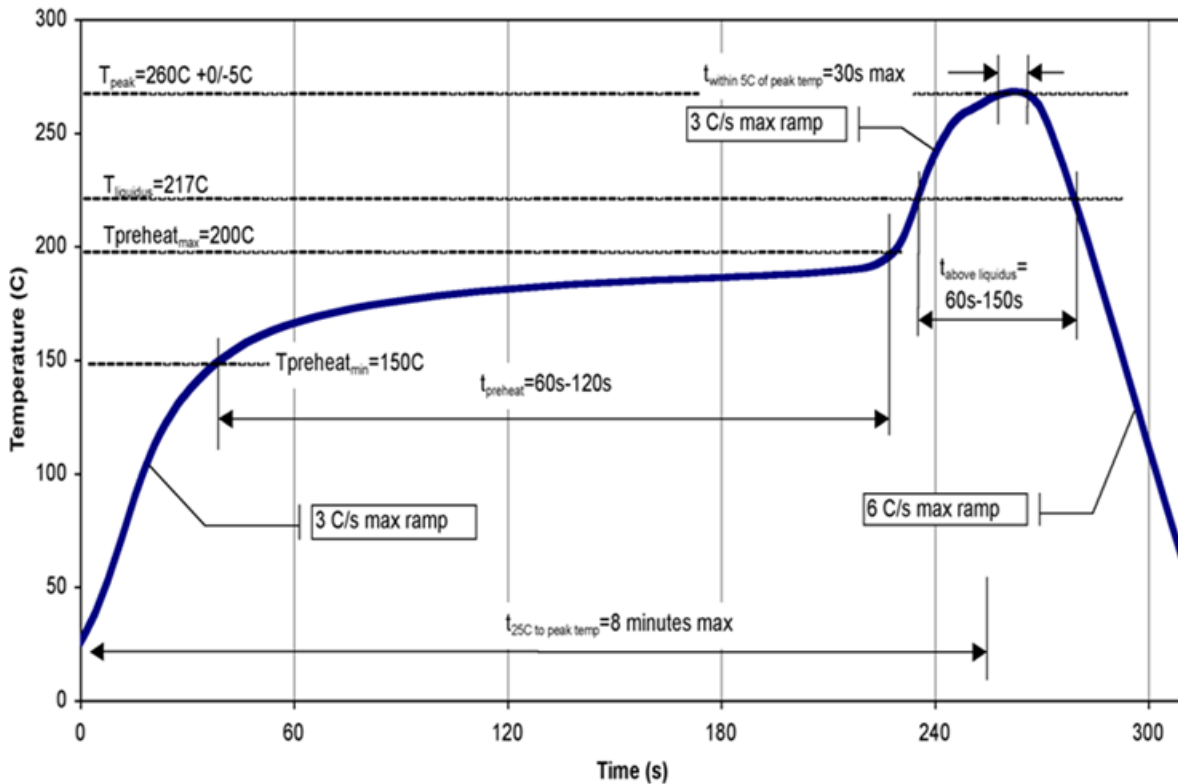


| Feature | Measure | Symbol | Size (in) | Size (mm) |
|---------|----------------------|--------|-----------|-----------|
| Flange | Diameter | A | 6.969 | 177.0 |
| | Thickness | W2 | 0.559 | 14.2 |
| | Space Between Flange | W1 | 0.346 | 8.8 |
| Hub | Outer Diameter | N | 2.283 | 58.0 |
| | Arbor Hole Diameter | C | 0.512 | 13.0 |
| | Key Slit Width | B | 0.079 | 2.0 |
| | Key Slit Diameter | D | 0.787 | 20.0 |

Assembly Notes

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

Contact plating: Ni-Au



Recommended Soldering Temperature Profile

Handling Precautions

| Parameter | Rating | Standard |
|----------------------------------|---------|---------------------------|
| ESD – Human Body Model (HBM) | 1C | ANSI / ESD / JEDEC JS-001 |
| ESD – Charged Device Model (CDM) | 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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

For the latest specifications, additional product information, worldwide sales and distribution locations:

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Tel: 1-844-890-8163

Email: customer.support@qorvo.com

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