



QPQ4900

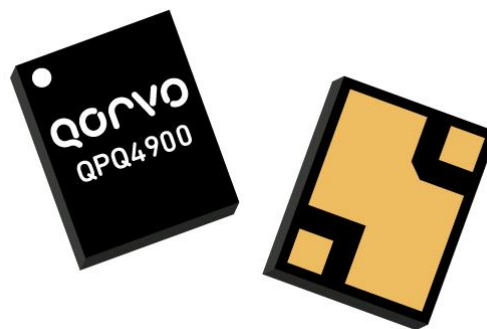
n79 Sub-Band 160 MHz BAW Filter Module

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.

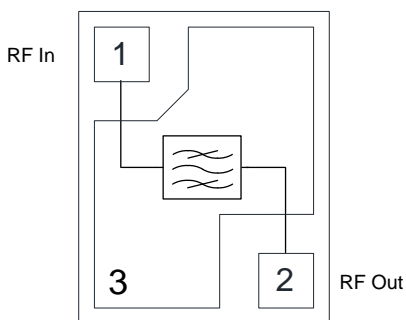
Low insertion loss coupled with high attenuation makes this filter an ideal choice for TDD Macro Cells and Small Cells.

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.
QPQ4900EVB	Evaluation Board – QPQ4900

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature	-40 °C to +125 °C
RF Input Power - Test conditions: 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.

Recommended Operating Conditions

Operation Parameter	Min	Max
Operation Temperature	-40°C	+95°C
RF Input Power at Pin 1, >10-year Lifetime ⁽¹⁾		+29 dBm

Note:

1. FD-LTE, 5 MHz, 16 QAM, PAR 8 dB, +95°C

Electrical Specifications

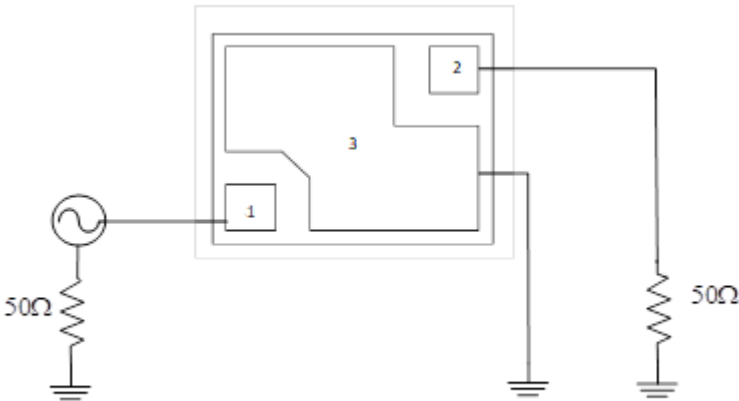
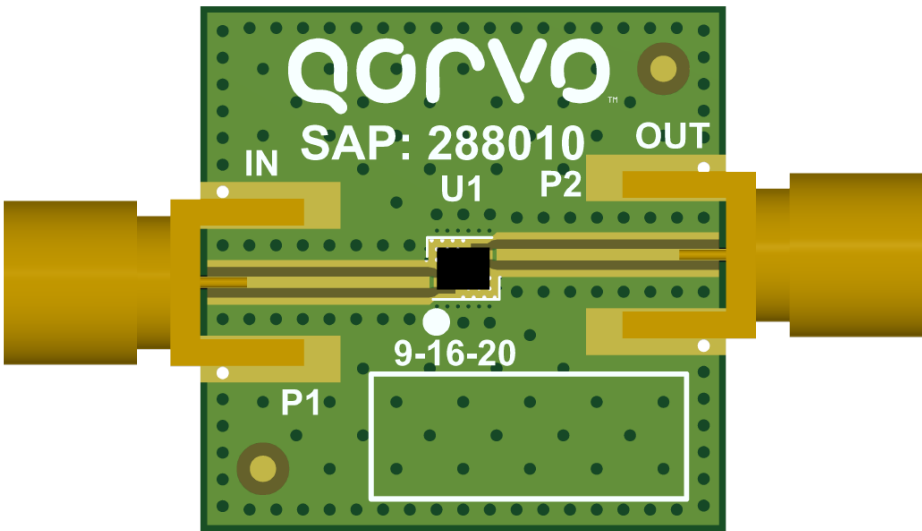
Test conditions unless otherwise noted: with Qorvo evaluation circuit on page 3, Temp = -40°C to +95°C, 50 Ω system

Parameter	Conditions ^{(1) (2)}	Min	Typ. ⁽³⁾	Max	Unit
Frequency Range		4800		4960	MHz
Integrated Insertion Loss, 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 ⁽⁴⁾	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 ⁽⁵⁾⁽⁶⁾	4800 – 4960 MHz		0.5	5	%
Group Delay Variation ⁽⁵⁾	4800 – 4960 MHz		1.7	5	ns
Integrated Rejection, Over 100 MHz BW	4699 – 4800 MHz	7	11		dB
	4960 – 5061 MHz	5	8		dB
Attenuation, 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 ⁽⁶⁾	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)

QPQ4900EVB Evaluation Board

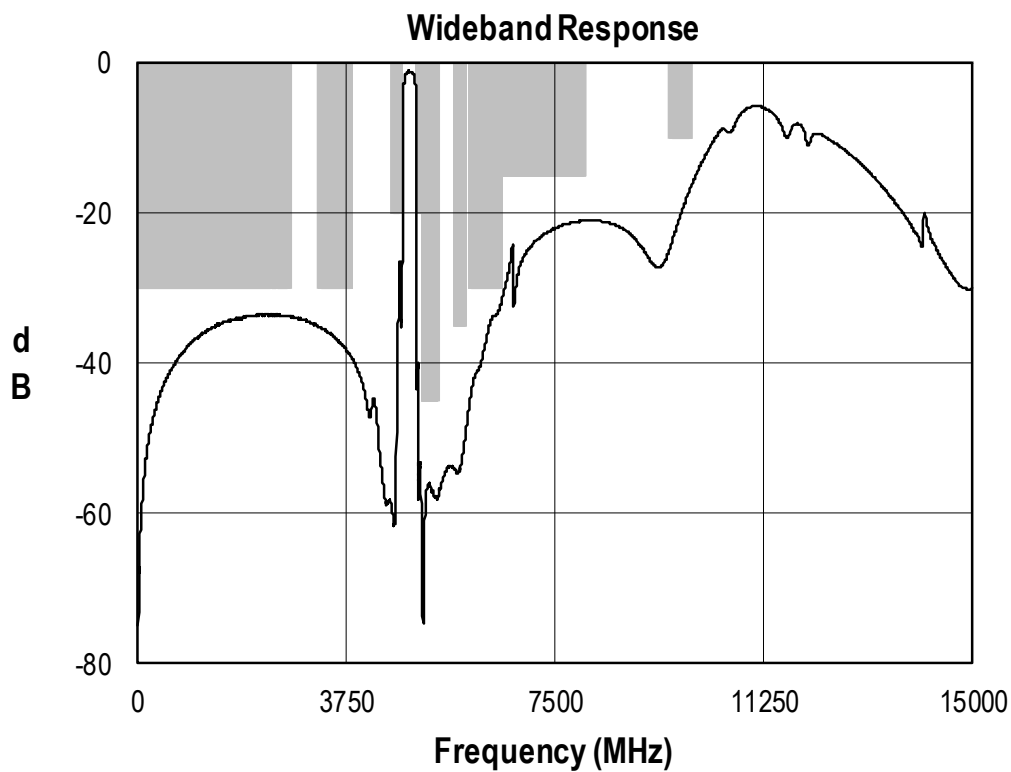
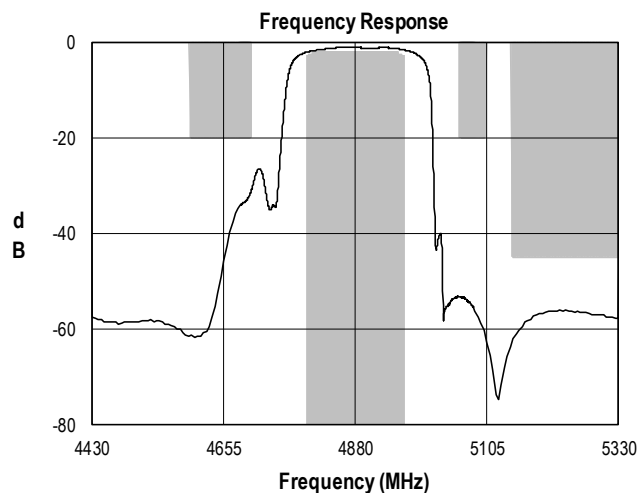
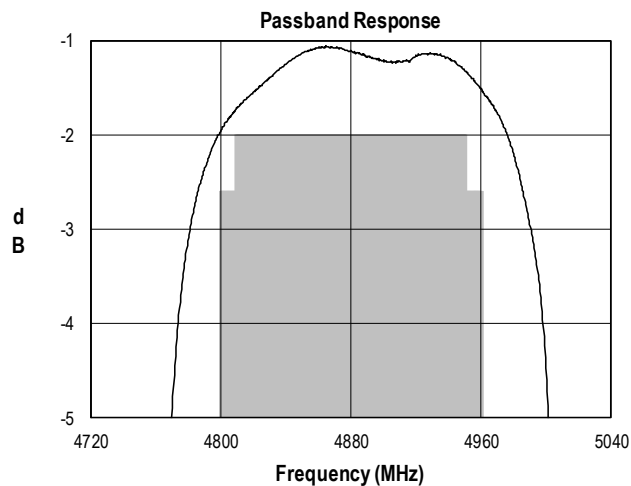


Bill of Material – QPQ4900EVB

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

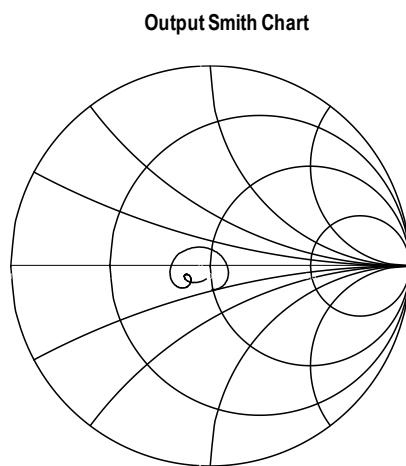
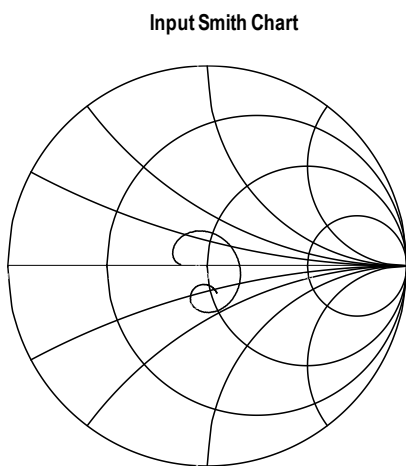
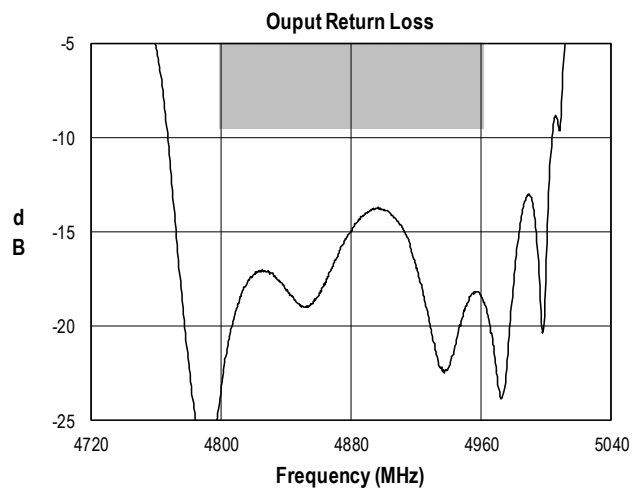
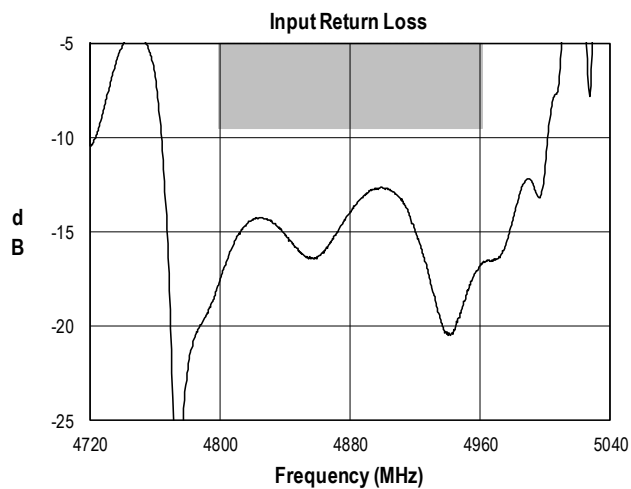
Performance Plots – Small Signal

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



Performance Plots – Small Signal

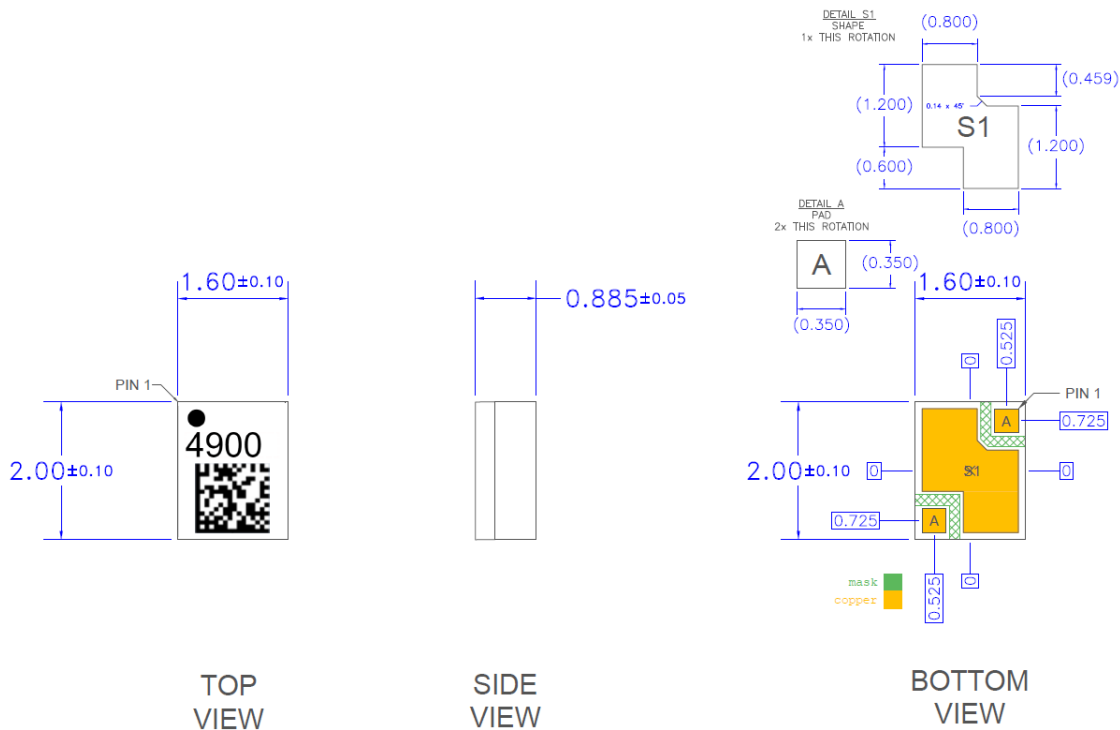
Test conditions unless otherwise noted: with Qorvo evaluation circuit on page 3, Temp = +25 °C, 50 Ω system



Package Marking and Dimensions

Marking:

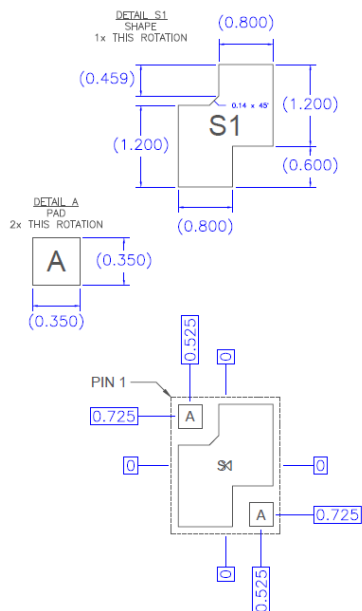
- - Pin 1 Indicator
- 4900 - Last 4-digits of part number
- 2DID - Trace information



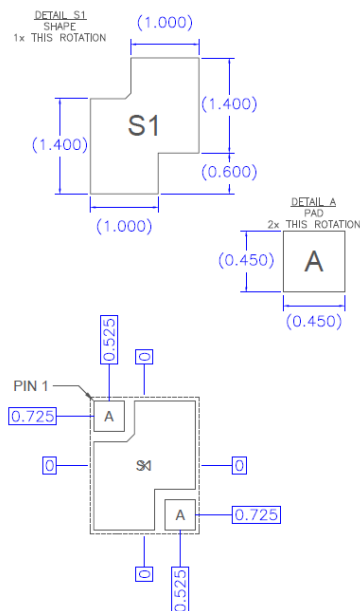
Notes:

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



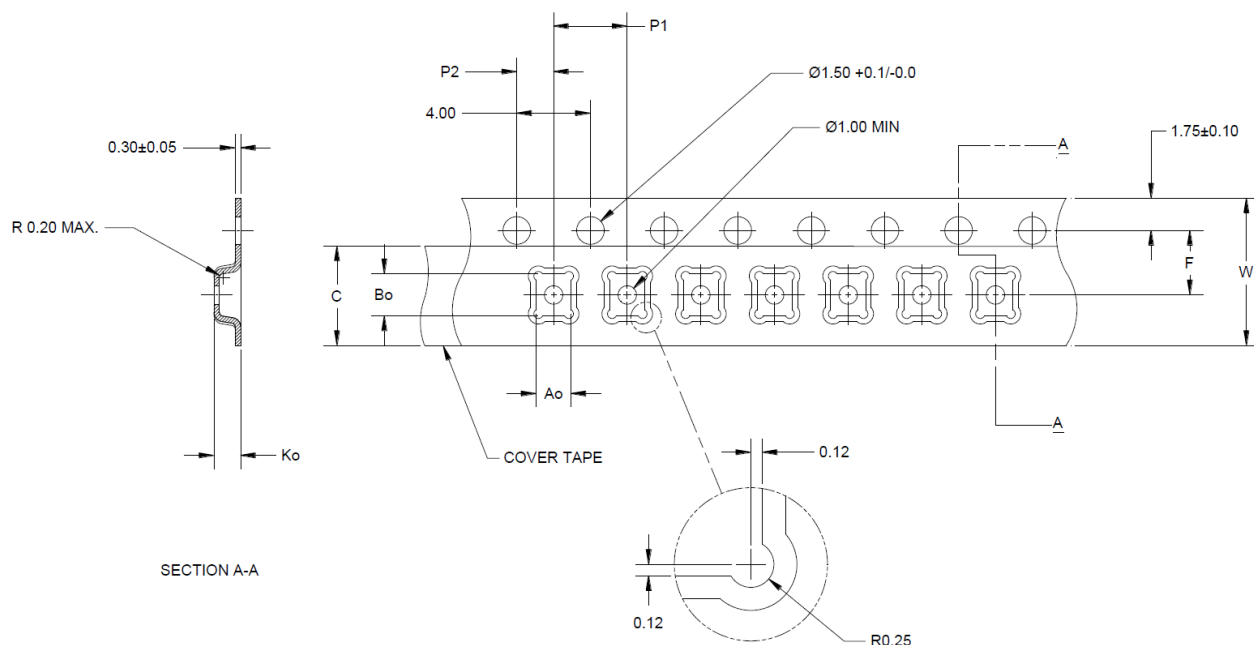
RECOMMENDED
LAND PATTERN MASK

Notes:

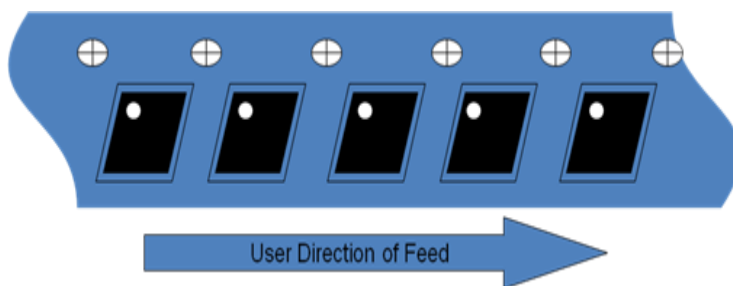
1. All dimensions are in millimeters.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes

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.

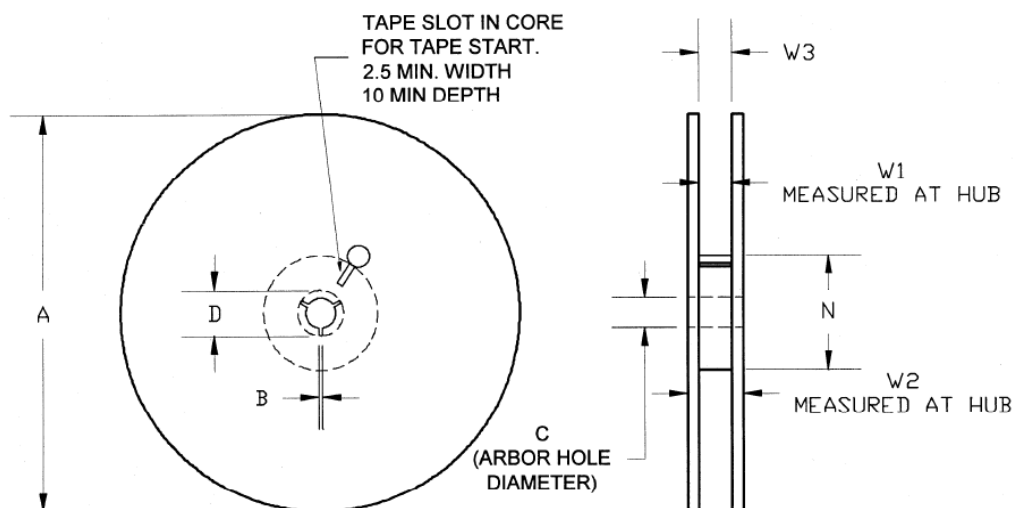


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.077	1.95
	Width	B0	0.093	2.35
	Depth	K0	0.045	1.15
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width (Reference Only)	C	0.213	5.40
Carrier Tape	Width	W	0.315	8.00



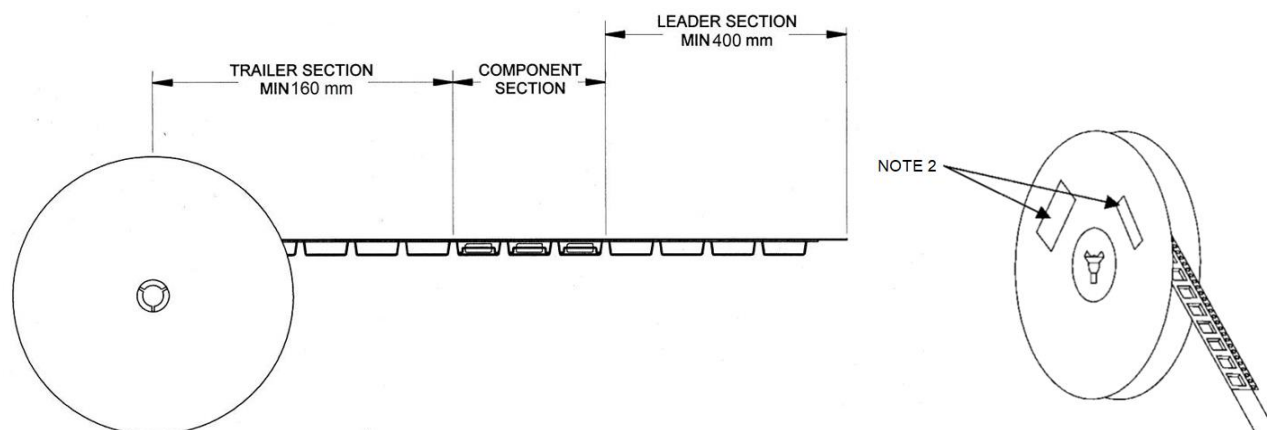
Tape and Reel Information – Reel Dimensions

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

Tape and Reel Information – Tape Length and Label Placement



Notes:

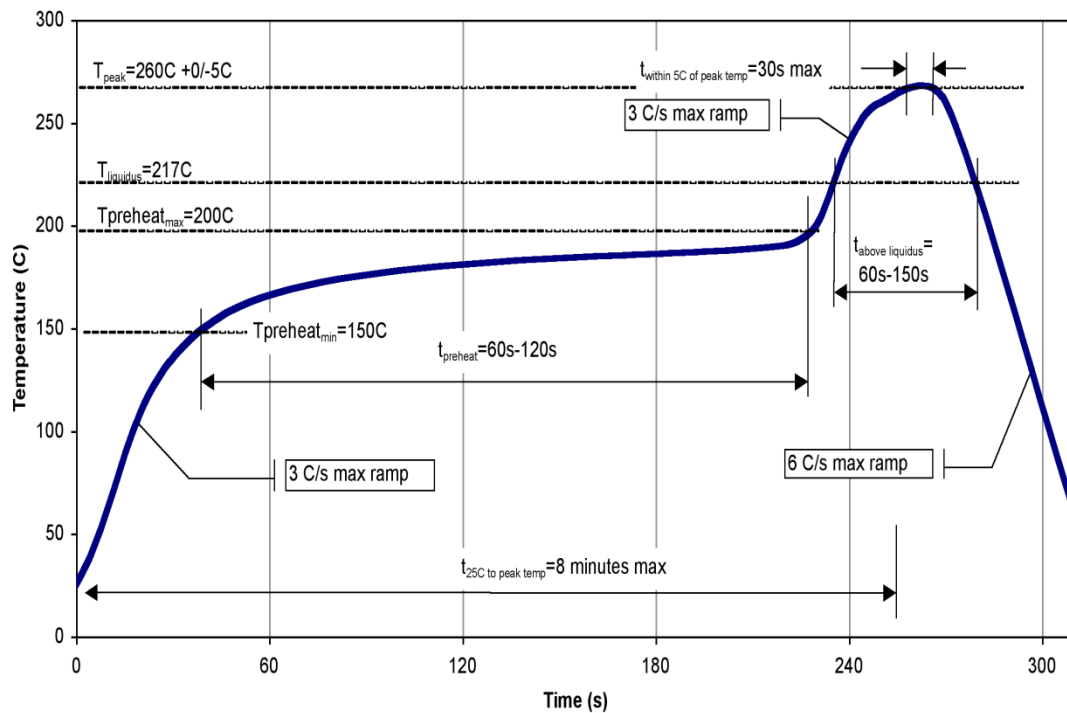
1. Empty part cavities at the trailing and leading ends are sealed with cover tape. See EIA 481-1-A.
2. Labels are placed on the flange opposite the sprockets in the carrier tape.

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 (Plating thickness: Ni 0.40±0.10µm, Pd 0.145±0.035µm, Au 0.095±0.025µm)

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 (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free



Contact Information

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

Web: www.qorvo.com

Tel: 1-844-890-8163

Email: customer.support@qorvo.com

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