



QPQ1281

TDD B40 Band Pass Filter – 70MHz

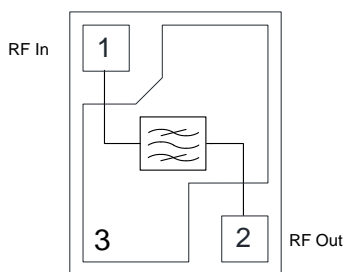
Product Overview

The QPQ1281 is a high performance Bulk Acoustic Wave (BAW) filter designed to meet the strict LTE rejection requirements for use in B40, Sub-Band 2300-2370 MHz

QPQ1281 is specifically designed to meet the high performance expectations of insertion loss and rejection for LTE TDD systems under all operating conditions.

The QPQ1281 uses common module packaging techniques to achieve the industry standard 2.0 x 1.6 x 0.73 mm footprint.

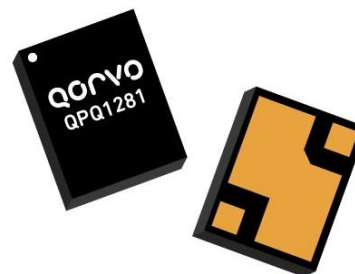
Functional Block Diagram



Top View

Pin Configuration

Pin No.	Label	Function
1	RF In	RF Input
2	RF Out	RF Output
3		Ground



3 Pin 2.0 x 1.6 x 0.73 mm leadless SMT Package

Key Features

- Highly selective BAW filter achieving low insertion loss over full bandwidth and operating conditions
- Performance -20 to +90 °C
- Excellent Wi-Fi rejection
- Single-ended operation
- High Power Handling Compatible for Small Cells
- Small Size
- RoHS compliant, Pb-free

Applications

- For Band 40 TD-LTE applications
- 2300 – 2370 MHz Sub-Band
- For Small Cell Base Stations

Ordering Information

Part No.	Description
QPQ1281SR	100 pieces on a 7" reel
QPQ1281TR7	2,500 pieces on a 7" reel (standard)
QPQ1281EVB	Evaluation Board

Absolute Maximum Ratings

Parameter	Rating
Storage Temperature ⁽¹⁾	–40 to +125°C
Operation Temperature ⁽²⁾	–40 to +95 °C

Notes:

1. Operation of this device outside the parameter ranges given above may cause permanent damage.
2. Device will function over the recommended range without degradation in reliability but is not guaranteed to meet electrical specifications.

Electrical Specifications ⁽¹⁾

Parameter	Conditions	Min	Typ ⁽⁴⁾	Max	Units
Passband		2300	–	2370	MHz
Insertion Loss		–	1.9	3.2	dB
Amplitude Variation ⁽²⁾		–	1.0	1.7	dB
Group Delay Variation ⁽³⁾		–	12	25	ns
Phase Ripple ⁽³⁾		–	28	55	°p-p
VSWR	Input / Output	–	1.5:1	2:1	–
Return Loss		9.5	14	–	dB
Attenuation ⁽⁵⁾	10–960 MHz	35	45	–	dB
	961–1709 MHz	30	33	–	
	1710–1880 MHz	29	32	–	
	1920–2170 MHz	29	32	–	
	2110–2170 MHz	29	32	–	
	2171–2280 MHz	10	23	–	
	2393–2400 MHz	10	17	–	
	2400–2440 MHz	42	47	–	
	2440–2480 MHz	37	40	–	
	2480–2500 MHz	35	38	–	
	2500–3660 MHz	31	34	–	
	3750–4900 MHz	35	38	–	
	4901–6000 MHz	27	30	–	
	6001–8000 MHz	31	35	–	
2 nd Harmonic	Pin = +29 dBm	65	86		dBc
Impedance ⁽⁶⁾	Input / Output	–	50	–	Ω

Notes:

Test conditions unless otherwise noted: Temp= -20 to +90°C

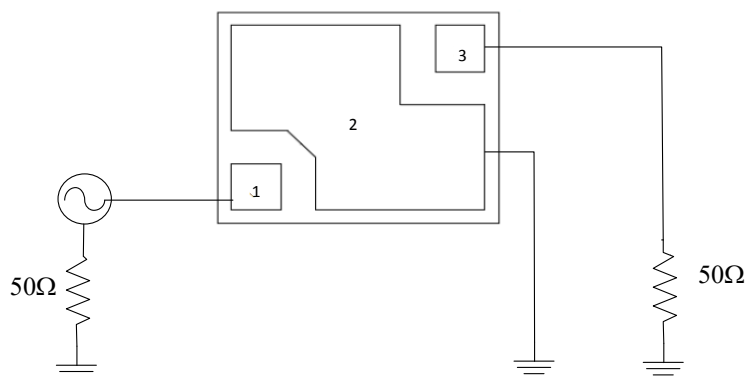
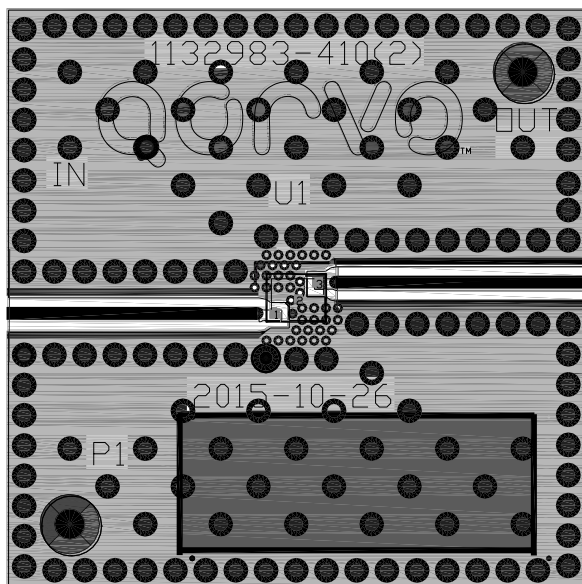
1. All specifications are based on the Qorvo schematic for the main reference design.
2. Amplitude Variation is defined as the difference between the lowest loss and the highest loss within define frequency points.
3. This is defined as the worst difference between a peak and adjacent valley within defined frequency points.
4. Typical values are based on average measurements of 20 devices at a temperature of +25°C
5. Attenuation is referenced to zero dB
6. This is the optimum impedance in order to achieve the performance shown.

Life Test

Conditions	Rating
+29 dBm DL, +85°C LTE, 5MHz 16QAM, PAR =8dB	> 87,600 hours

Electrical specifications are measured at specified test conditions.

QPQ1281EVB Evaluation Board



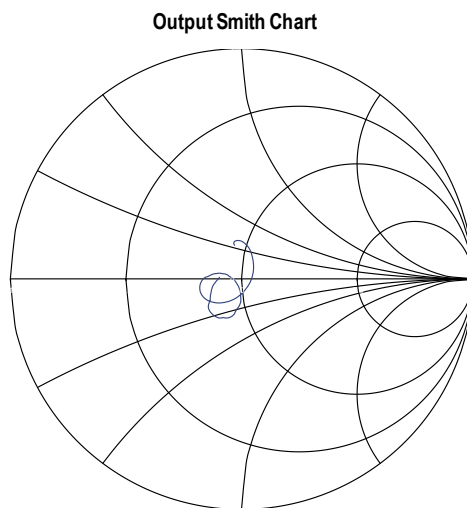
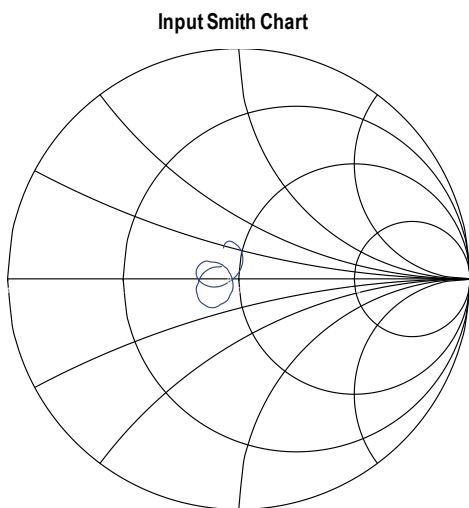
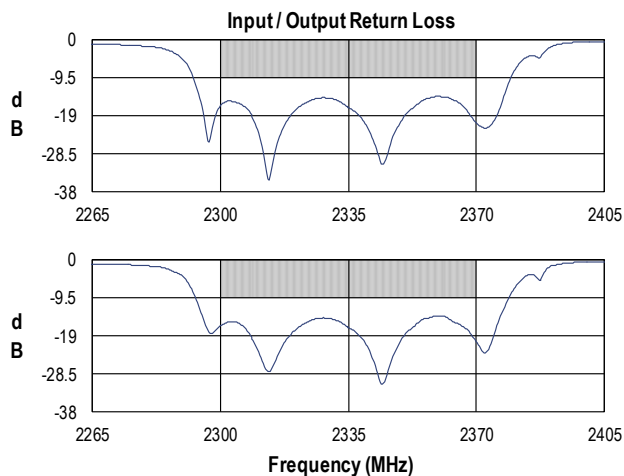
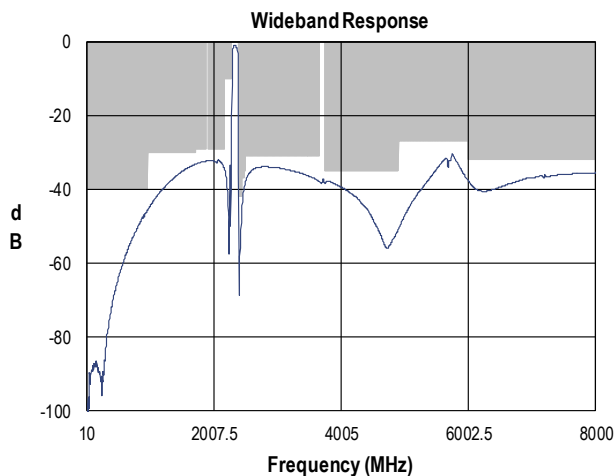
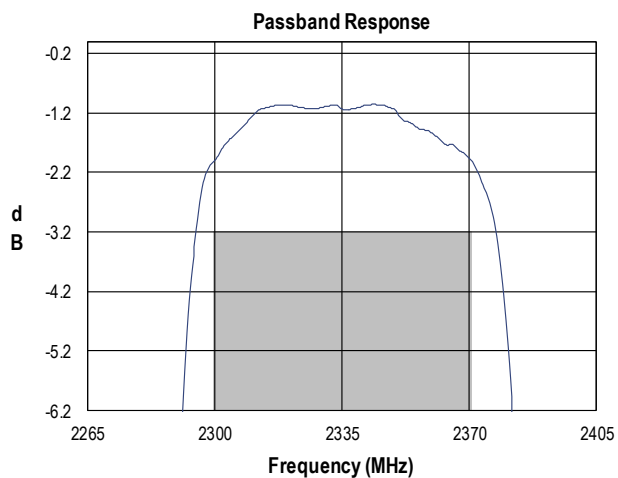
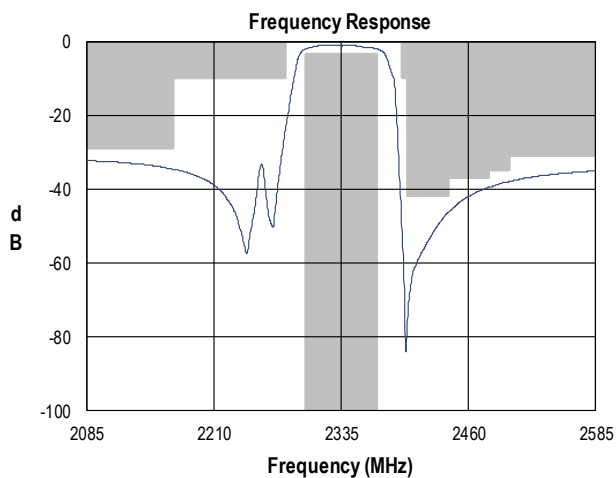
Notes:

1. Top, middle & bottom layers: 1/2 oz copper, Substrates: FR4 dielectric, 0.062" thick, Finish plating: Nickel: 3-8 μm thick, Gold: 0.03-0.2 μm thick, Hole plating: Copper min 0.0008 μm thick

Bill of Material – QPQ1281EVB

Reference Des.	Value	Description	Manuf.	Part Number
U1	n/a	Band 40 BAW Filter	Qorvo	QPQ1281
SMA	n/a	SMA Edge Connector	Radiall USA Inc.	9602-1111-018
PCB	n/a	3-Layer	Qorvo	960568

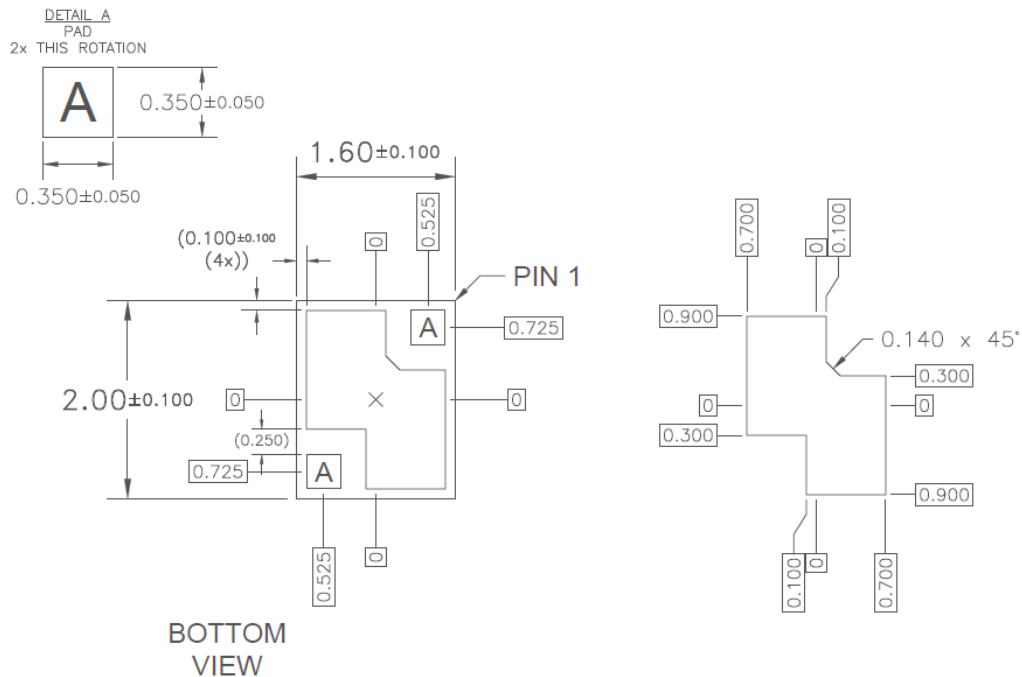
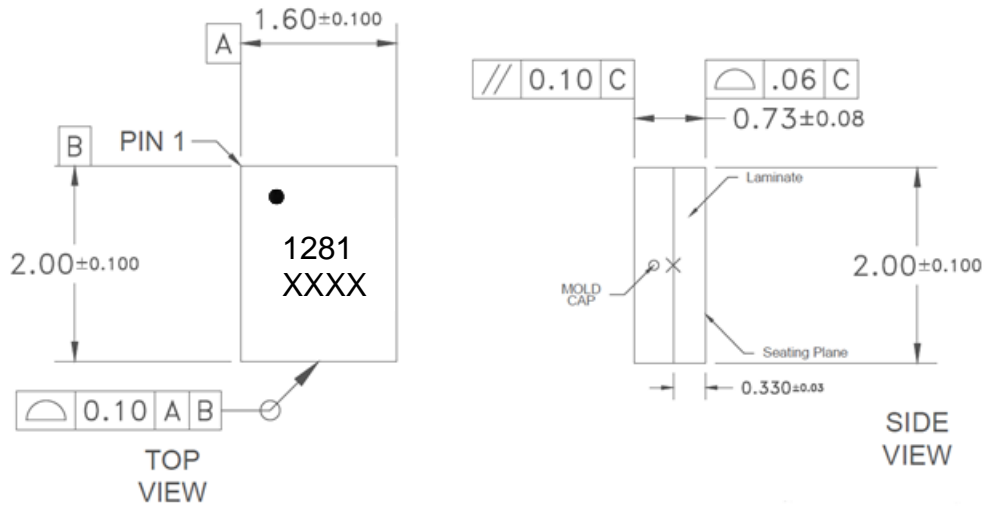
Performance Plots



Package Marking and Dimensions

Marking

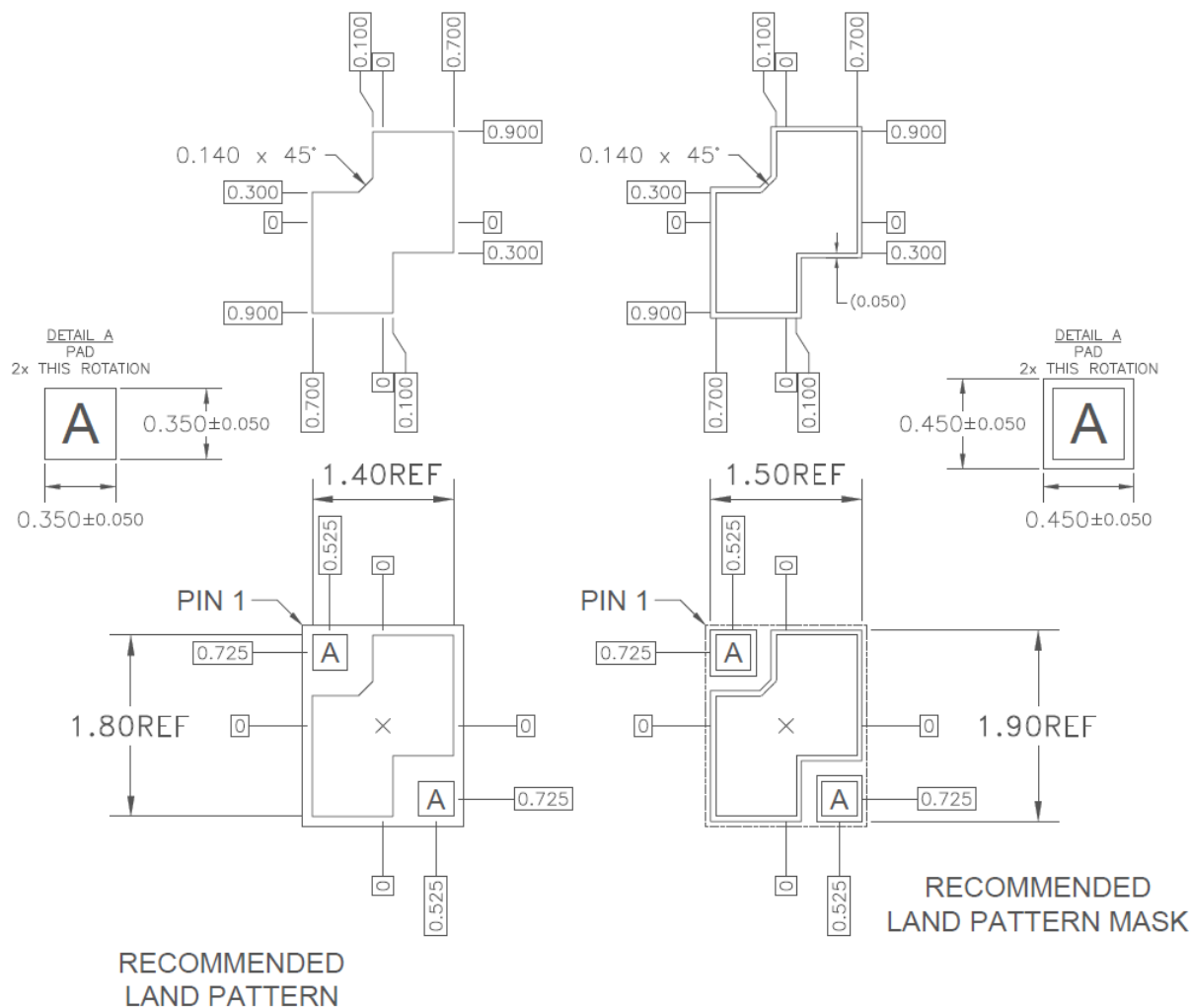
4-digit Part Number: 1281
4-digit Trace Code: XXXX



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

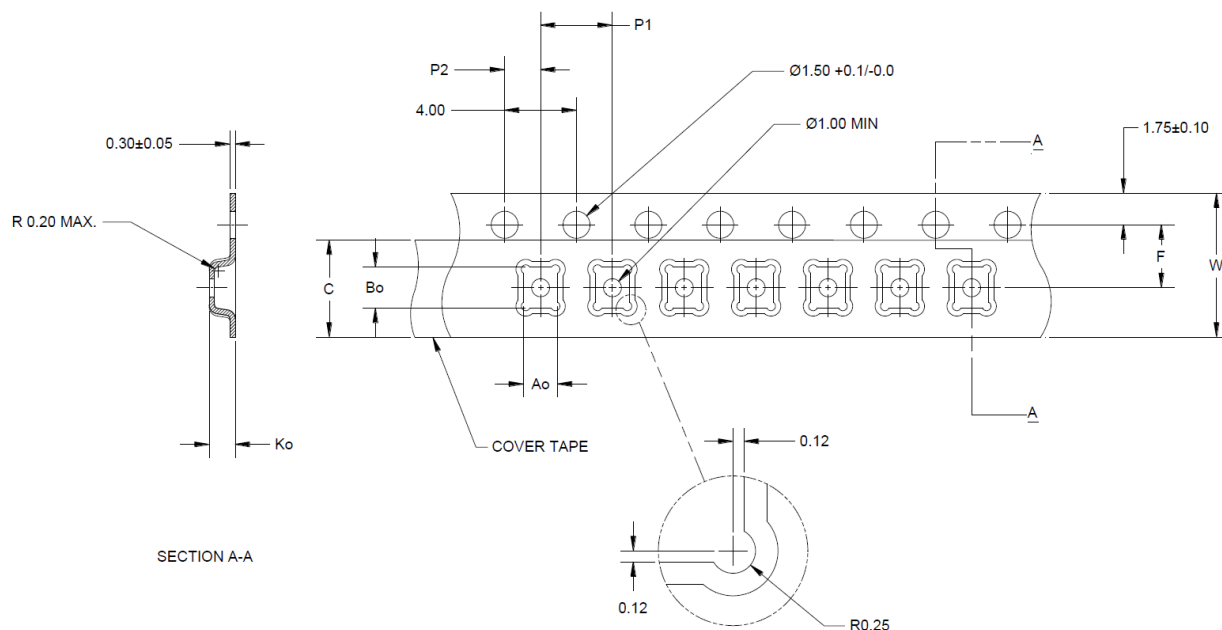


Notes:

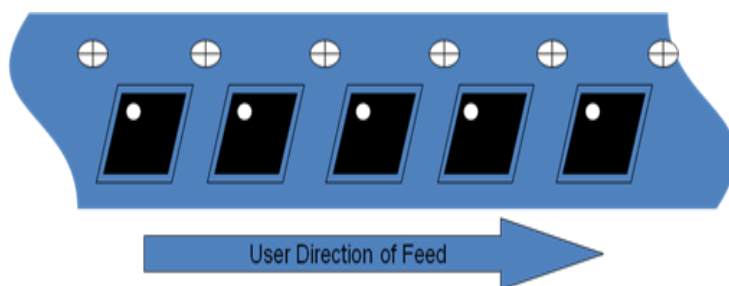
1. All dimensions are in millimeters. Angles are in degrees.
2. Use 1 oz. copper minimum for top and bottom layer metal.
3. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

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.

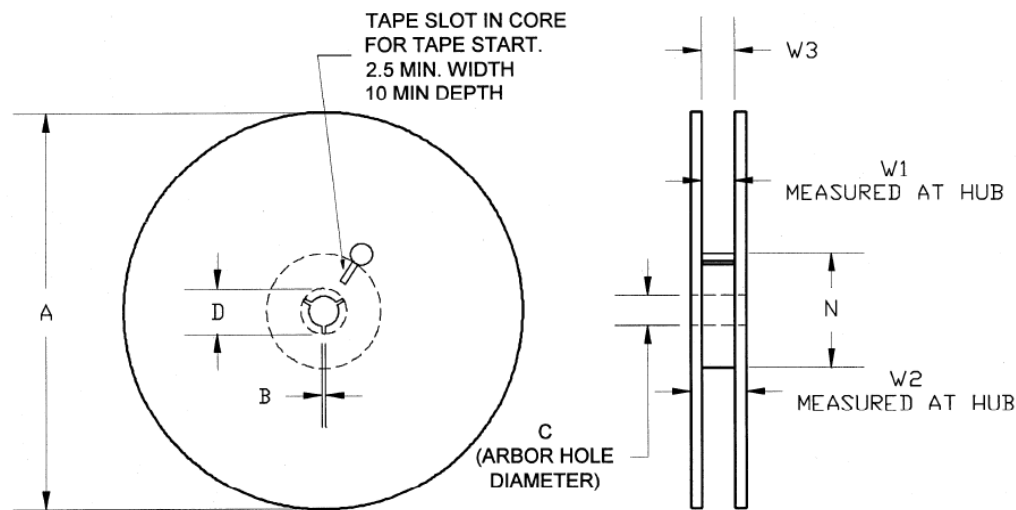


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.077	1.95
	Width	B0	0.093	2.35
	Depth	K0	0.045	1.15
	Pitch	P1	0.157	4.00
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.00
	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier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



Tape and Reel Information – Reel Dimensions

Tape and reel specifications for this part are also available on the Qorvo website.
Standard T/R size = 2,500 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 3B	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 (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

For technical questions and application information:

Email: appsupport@qorvo.com

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