



QPQ1300

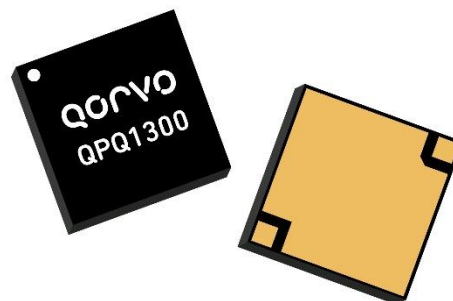
LTE Band 41 High Power BAW Filter

Product Overview

The QPQ1300 is a high-power high-performance Bulk Acoustic Wave (BAW) filter. It is specifically designed to address sub band 41 (60 MHz BW).

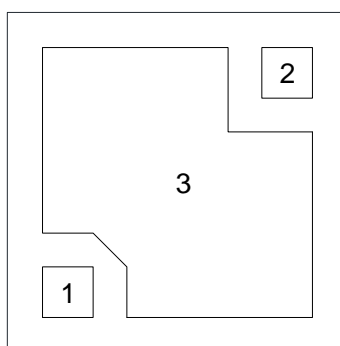
The QPQ1300 is able to withstand approximately 4W of input power while maintaining 2W output power and high rejection, making it an ideal choice for Massive MIMO applications. This filter is housed in a compact, RoHS-compliant 5.00 mm x 5.00 mm x 0.93 mm surface mount package (SMP).

The QPQ1300 is part of Qorvo's extensive portfolio of RF BAW and SAW filters.



3 Pad 5.00 mm x 5.00 mm x 0.93 mm SMP

Functional Block Diagram



Top View

Pin Configuration - Single Ended

Pin No.	Function
1	Down Link Input Port
2	Antenna Port
3	Ground Connection

Key Features

- 60 MHz Bandwidth
- 4W High Input Power Capability
- High Out of Band Attenuation
- Low in Band Insertion Loss
- Excellent Wi-Fi Rejection
- Single Ended Operation on Input and Output
- Small Size: 5.00 x 5.00 x 0.93 mm
- Surface Mount Device
- **RoHS** compliant (2002/95/EC), **Pb-free**



Applications

- Partial Band 41
- Pico Cell Base Station
- General Purpose Wireless
- Macro Cells

Ordering Information

Part No.	Description
QPQ1300SR	Sample Reel with 100 pieces
QPQ1300TR13	13" Taped Reel with 2500 pieces
QPQ1300EVBPO3	Assembled Evaluation Board

Absolute Maximum Ratings ⁽¹⁾

Parameter	Rating
Storage Temperature	-40 to +125°C
Operating Temperature ⁽²⁾	-40 to +95 °C

Notes:

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Device will function, but performance will vary.

Minimum Lifetime Ratings

Conditions	Rating
Pout = +33 dBm, +95°C, CW ⁽¹⁾	>1,000,000 hours

Notes:

1. Pout at PIN 2 antenna port

Electrical Specifications ⁽¹⁾

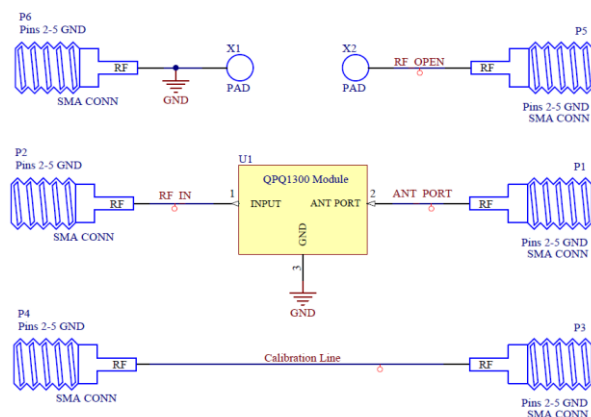
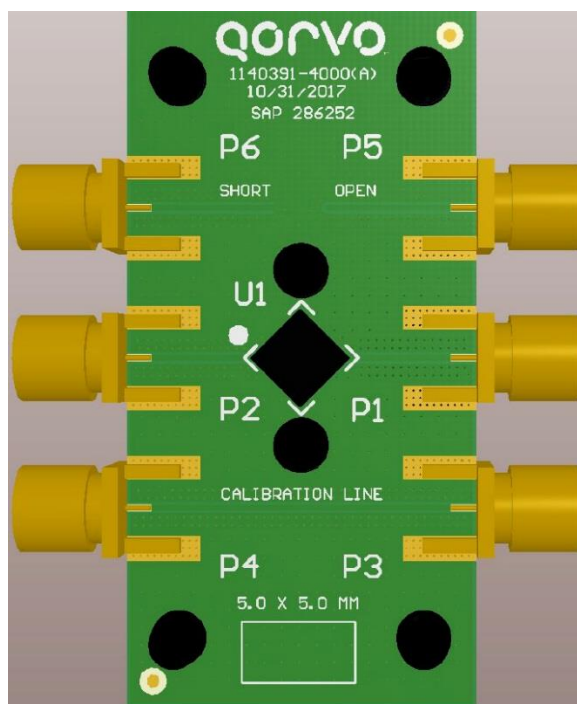
Test conditions unless otherwise specified. Temperature Range: -40 to +95 °C

Parameter	Conditions ^(1, 2)	Min	Typ	Max	Unit
Average Insertion Loss	2575 – 2635 MHz		1.9	2.4	dB
	2575 – 2595 MHz		2.0	2.5	dB
	2615 – 2635 MHz		1.8	2.5	dB
Maximum Insertion Loss ⁽²⁾	2575 – 2635 MHz		2.5	2.9	dB
Integrated Insertion Loss	2575 – 2595 MHz (Over any 5 MHz bandwidth)		2.3	2.8	dB
	2615 – 2635 MHz (Over any 5 MHz bandwidth)		1.9	2.8	dB
Input / Output Return Loss	2575 – 2635 MHz	9	14		dB
Insertion Loss Variation ⁽³⁾	2575 – 2635 MHz		0.8	1.2	dB
Group Delay	2575 – 2635 MHz		14.6		ns
Group Delay Variation	2575 – 2635 MHz (Over any 5 MHz bandwidth)		5.9		ns
Attenuation – Refer to zero dB	0.9 – 2000 MHz	36	62		dB
	440 – 470 MHz	61	79		dB
	470 – 690 MHz	41	78		dB
	690 – 951 MHz	61	79		dB
	1400 – 1660 MHz	61	66		dB
	1660 – 1710 MHz	36	65		dB
	1710 – 1980 MHz; 2010 – 2170 MHz	61	62		dB
	1980 – 2010 MHz	36	62		dB
	2170 – 2300 MHz	36	66		dB
	2300 – 2483.5 MHz; 3400 – 3800 MHz	58	62		dB
	2483.5 – 2500 MHz	47	60		dB
	2700 – 3200 MHz	47	63		dB
	3200 – 3400 MHz	30	67		dB
	3800 – 5150 MHz	32	38		dB
	5150 – 5270 MHz	60	64		dB
	5270 – 5350 MHz	58	64		dB
	5725 – 5850 MHz	45	60		dB
	5850 – 7725 MHz	8	13		dB
	7725 – 7905 MHz	8	18		dB
	7905 – 12000 MHz	10	17		dB

Notes:

1. All specifications are based on small signal evaluations with QORVO EVB circuits as the main reference design.
2. Maximum Insertion Loss within defined frequency range.
3. Insertion Loss Variation is the difference between the maximum peak and the adjacent valley within specified frequency range.

Evaluation Board and Schematic – QPQ1300EVB



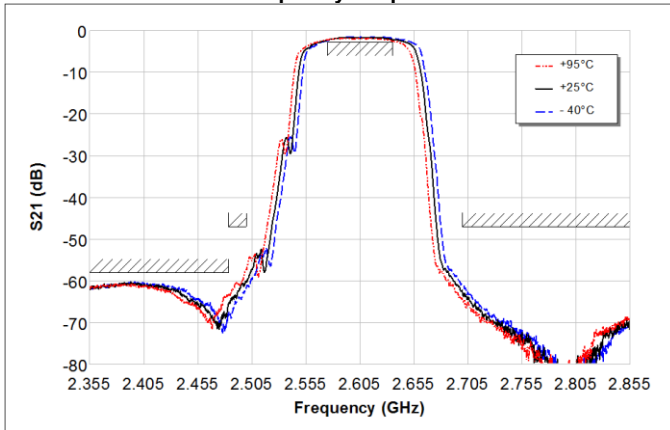
Bill of Material – QPQ1300EVB

Ref. Des.	Description	Manufacturer	Part Number
U1	Filter, Partial Band 41, BAW	Qorvo	QPQ1300
PCB	Printed Circuit Board, 3-Layer FR4	Qorvo	286252
P1, P2, P3, P4, P5, P6	Connector, SMA HP Edge	Radial USA Inc.	9602-1111-018
H1	Heatsink, 452354-002	Qorvo	1069008
S1, S2, S3, S4, S5, S6	Screw, 2-56 x 1/4"	McMaster-Carr Supply Co.	91251A077
W1, W2, W3, W4, W5, W6	Washer, Flat, #2	McMaster-Carr Supply Co.	92217A350

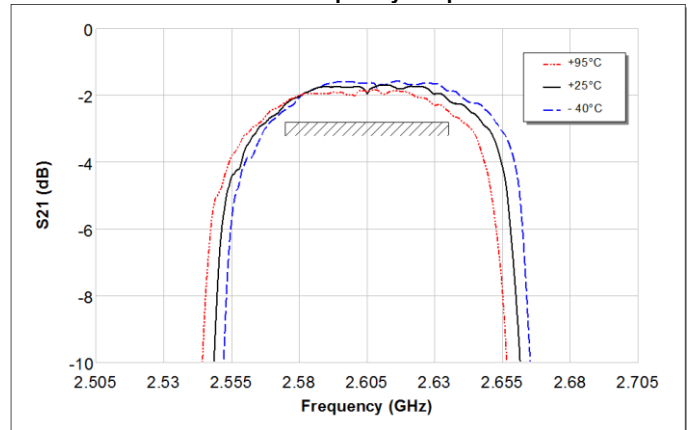
Performance Plots

Test conditions unless otherwise noted: Temperature -40°C, +25°C & +95°C

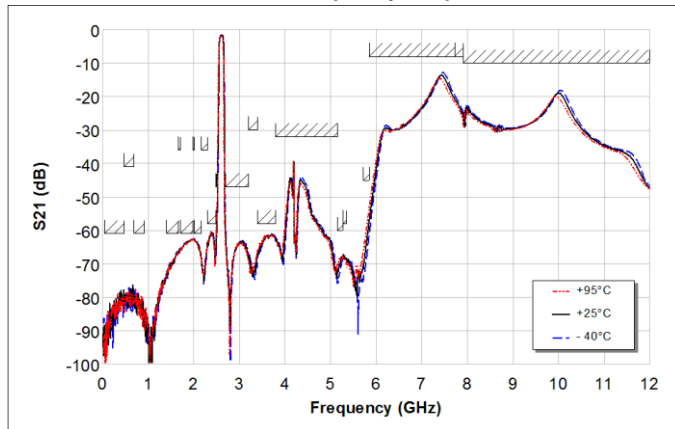
Frequency Response



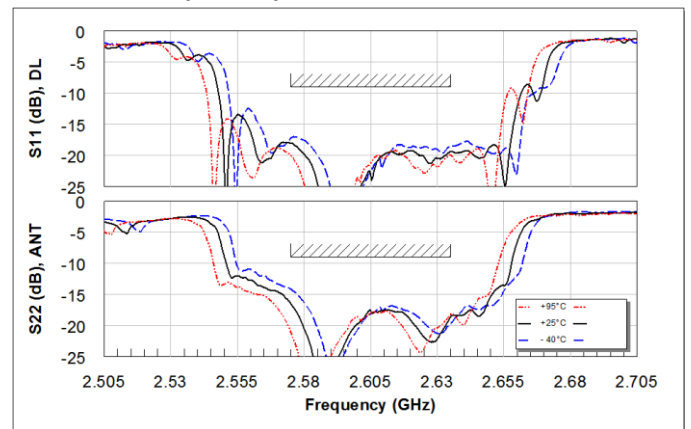
Passband Frequency Response



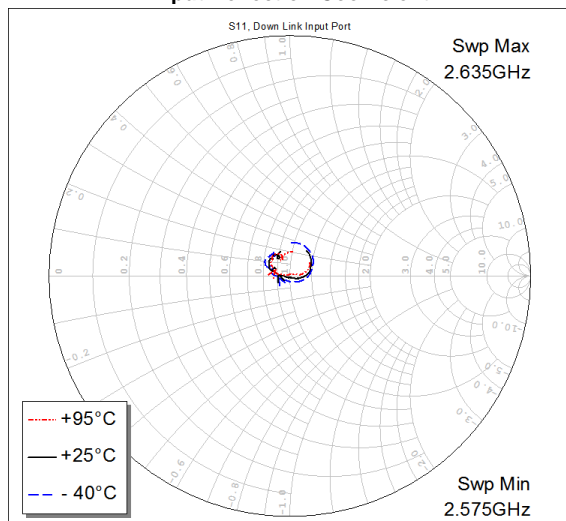
Wideband Frequency Response



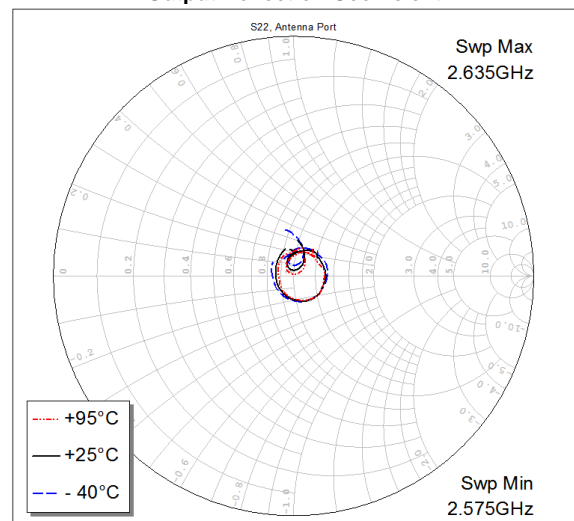
Input / Output Reflection Coefficient



Input Reflection Coefficient



Output Reflection Coefficient



Side view drawing of a mechanical part. The drawing shows a vertical profile with the following dimensions and features:

- Top surface: A horizontal line with a dimension of 0.930 ± 0.080 across the main body.
- Top left corner: A chamfer dimensioned as 0.10 C.
- Top right corner: A fillet dimensioned as $.060$ C.
- Right side: A vertical dimension of 5.00 ± 0.10 from the top surface to the seating plane.
- Seating Plane: A horizontal line labeled "Seating Plane" with a dimension of 0.330 ± 0.030 from the left edge to the right edge.
- Left side: A vertical dimension of 0.600 from the seating plane to the bottom edge.
- Feature: A circular feature labeled "MOLD CAP" is located on the left side, intersecting the seating plane.
- Label: "Laminate" points to the main body of the part.

SIDE VIEW

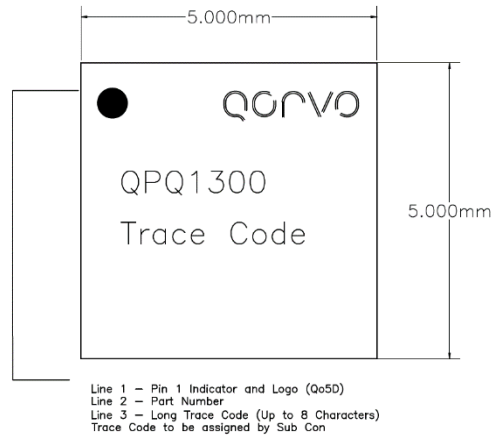


1. All dimensions are in millimeters. Angles are in degrees.
2. Dimension and tolerance formats conform to ASME Y14.4M-1994.
3. The terminal #1 identifier and terminal numbering conform to JESD 95-1 SPP-012.

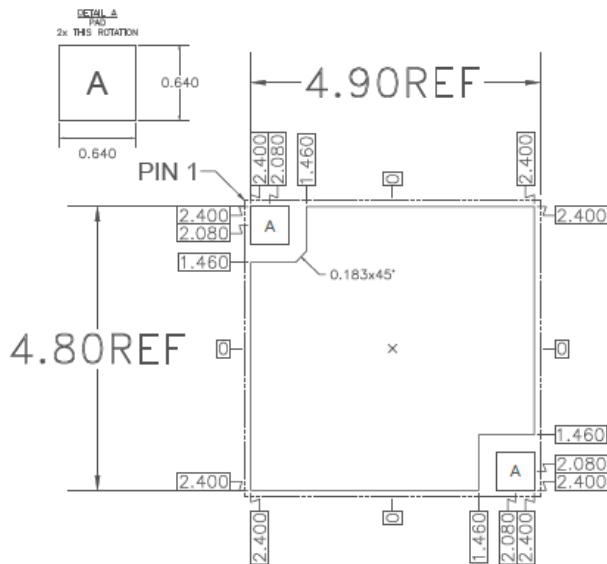
Package Marking

Package Marking

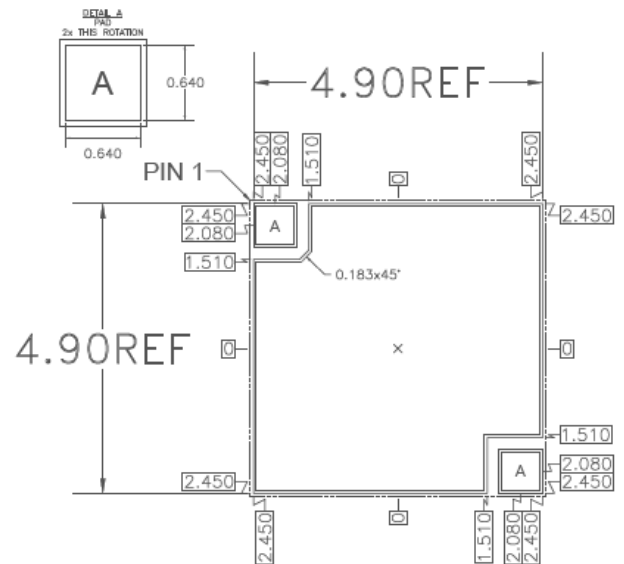
Qorvo Logo
Product Identifier: QPQ1300
Trace Code: XXXX



PCB Mounting Pattern



**RECOMMENDED
LAND PATTERN**



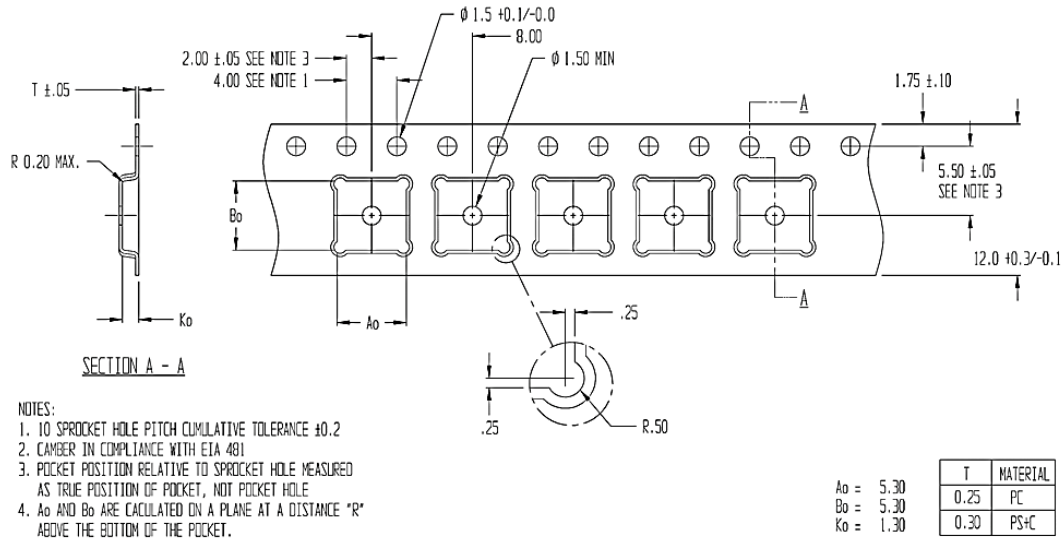
**RECOMMENDED
LAND PATTERN MASK**

Notes:

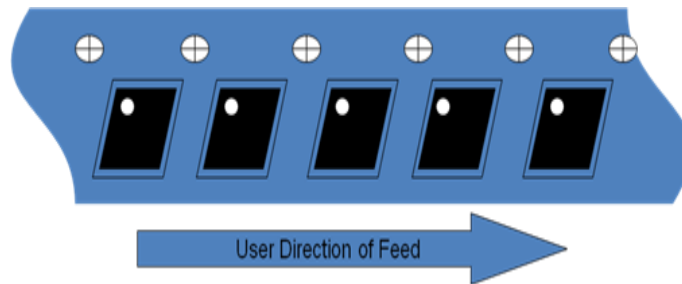
1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the Qorvo evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

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.

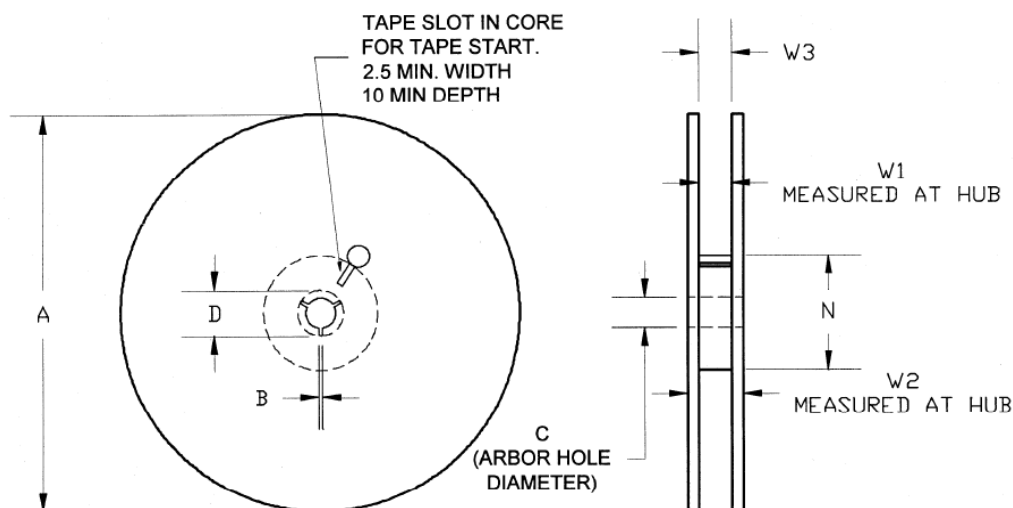


Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.209	5.30
	Width	B0	0.209	5.30
	Depth	K0	0.051	1.30
	Pitch	(P1)	0.315	8.00
Centerline Distance	Cavity to Perforation - Length Direction	(P2)	0.079	2.00
	Cavity to Perforation - Width Direction	(F)	0.217	5.50
Carrier Tape	Width	(W)	0.472	12.0
Cover Tape	Width	(C)	0.362	9.20



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	12.992	330
	Thickness	W2	0.717	18.2
	Space Between Flange	W1	0.504	12.8
Hub	Outer Diameter	N	4.016	102.0
	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 1B	ESDA / JEDEC JS-001-2012
ESD – Charged Device Model (CDM)	Class TBD	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:

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Email: customer.support@qorvo.com

For technical questions and application information:

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