PRELIMINARY

QPQ1904

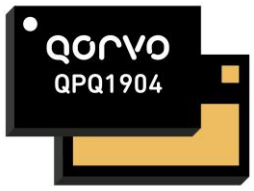
Wi-Fi bandBoost BAW Filter

Product Overview

The Qorvo® QPQ1904 is an high-performance, high power, Bulk Acoustic Wave (BAW) band-pass filter with extremely steep skirts, simultaneously exhibiting low loss in the Wi-Fi UNII2c-3 band and high near-in rejection in the UNII1-2a band.

The filter module is specifically designed to enable industry leading capacity performance in Wi-Fi applications that result in higher power capability in more Wi-Fi channels than systems with no or traditional filter solutions. End users will see a better capability to deliver features that take advantage of sub-banding the 5GHz Wi-Fi spectrum in use cases such as tri-radio Wi-Fi mesh applications.

Using common module packaging techniques to achieve the industry standard footprint while negating as many external passive placements to help end users ease of integration into their circuits



3 Pad 1.7x1.1mm Laminate Package

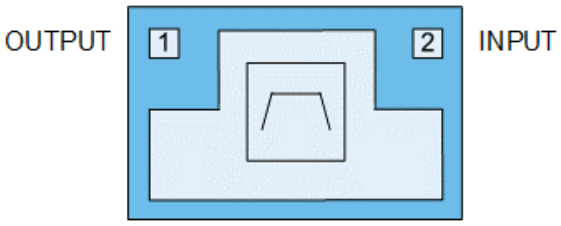
Key Features

- 5490-5835 MHz
- Low Insertion Loss in Wi-Fi UNII2c-3 bands
- High rejection in Wi-Fi UNII1-2a bands
- Extended temperature performance from -20 to +95 °C
- High power handling to +28dBm averaged Input Power

Applications

- Access Points
- Wireless Routers
- Residential Gateways
- Customer Premise Equipment
- Internet of Things

Functional Block Diagram



Top View

Ordering Information

Part Number	Description
QPQ1904SB	Sample bag with 5 pieces
QPQ1904SR	7” reel with 100 pieces
QPQ1904TR13	13” reel with 10,000 pieces
QPQ1904EVB01	Assembled Evaluation Board

Absolute Maximum Ratings

Parameter	Conditions	Rating
Operating Case Temperature	No damage	-40 to 125 °C
Storage Temperature		-40 to 125 °C

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device.

Minimum Lifetime Ratings

Parameter	Conditions	Rating
Power Handling MTTF >1M hours, +95°C	HT20 802.11n MCS0 signal, 10dB PAR, applied to Pin 2	+28 dBm

Recommended Operating Conditions

Parameter	Min.	Typ.	Max.	Units
$T_{OPERATING}$*	-20		+95	°C

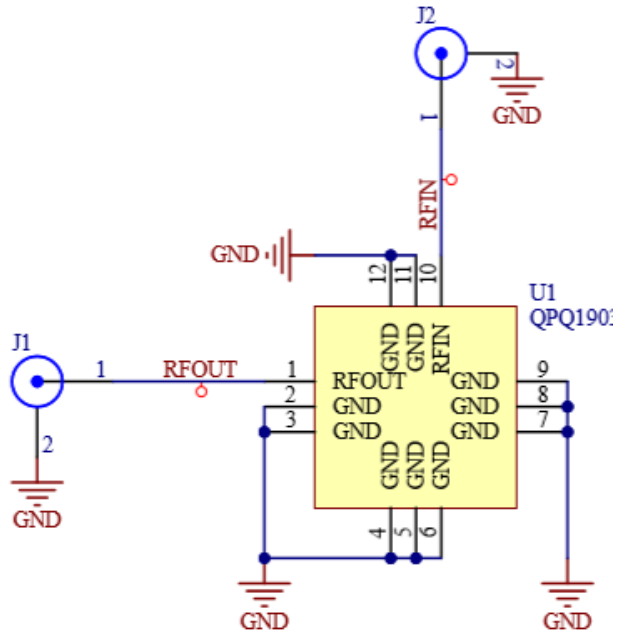
Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions. * $T_{OPERATING}$ is temperature at the package ground

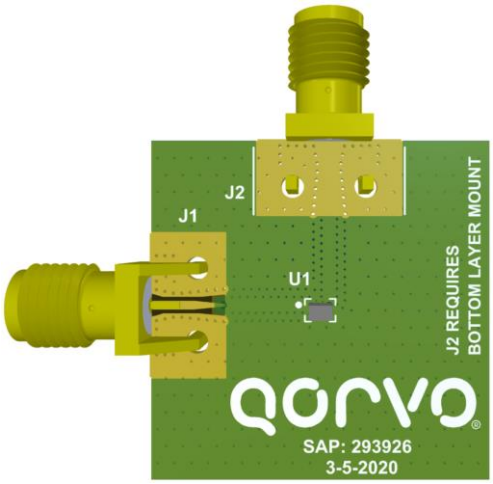
Electrical Specifications

Parameter (INPUT-OUTPUT) [1][2]	Conditions	Min.	Typ.	Max.	Units
	Unless otherwise noted: Typ. T = 25°C				
Insertion Loss[3]	*f* = 5490-5835 MHz	-	1.6	2.0	dB
Amplitude Variation	*f* = 5490-5835 MHz (20MHz BW Channel)	-	0.47	0.76	dB
	f = 5490-5835 MHz (40MHz BW Channel)	-	0.82	1.3	dB
	f = 5490-5835 MHz (80MHz BW Channel)	-	1.19	1.8	dB
	f = 5490-5835 MHz (160MHz BW Channel)	-	1.36	2.1	dB
Rejection	*f* = 30-2400 MHz	30	34		dB
	f = 2400-2500 MHz	30	34		dB
	f = 2400-3000 MHz	29	34		dB
	f = 3400-3800 MHz	29	34		dB
	f = 3800-4900 MHz	29	34		dB
	f = 5170-5330 MHz	55	59		dB
	f = 7200-7500 MHz	40	50		dB
	f = 10300-11800 MHz	30	46		dB
INPUT VSWR	*f* = 5490-5835 MHz		1.6:1		Mag
OUTPUT VSWR	*f* = 5490-5835 MHz		1.6:1		Mag
2nd and 3rd Harmonics	P_{IN} = +28 dBm		-55		dBm/MHz
	P_{IN} = +30 dBm		-55		dBm/MHz

Notes:
1) All specifications are based on the QPQ1904 Applications Circuit
2) Pin 2 must be used for input. The large signal performance of this filter, such as power handling, may not be symmetric.
3) Integrated IL referenced to 0dB. 345MHz bandwidth

Evaluation Board Schematic

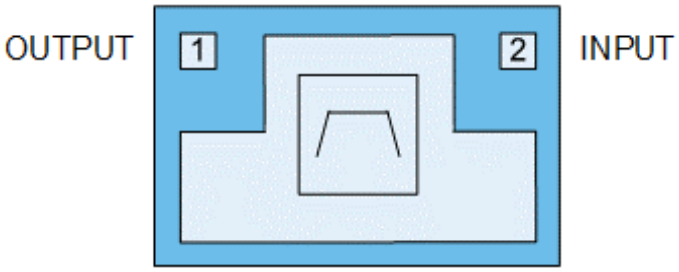




Bill of Material

Ref. Des.	Value	Description	Manuf.	Part number
-	-	Printed Circuit Board		
U1	-	Wi-Fi BAW Filter	Qorvo	QPQ1904

Pin Configuration and Description

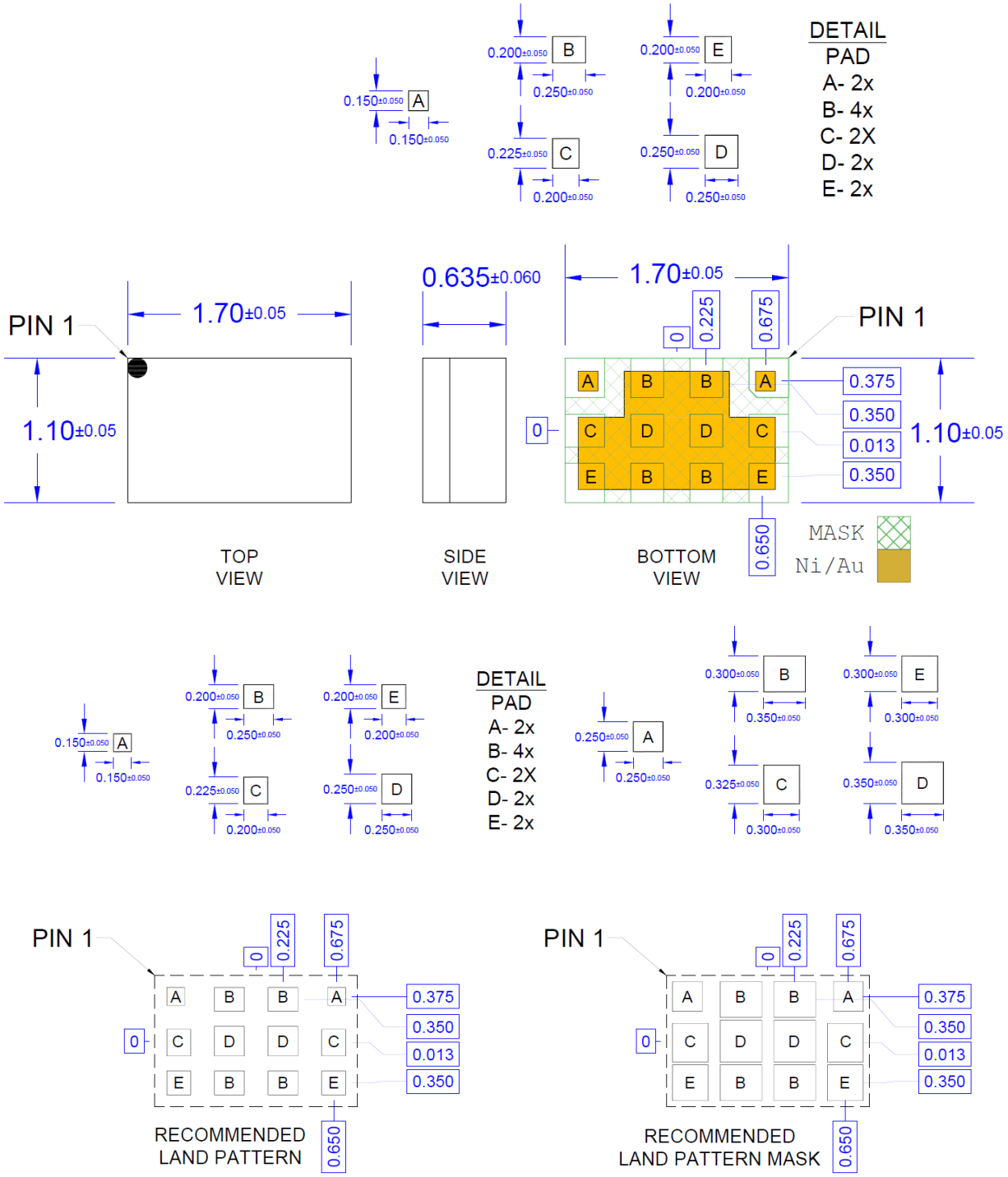


Top View

Pin Number	Label	Description
1	OUTPUT	RF output. Internally matched to 50 Ω.
2	INPUT	RF input. Internally matched to 50 Ω.
-	GND	Ground connection.

Mechanical Information

Dimensions and PCB Mounting Pattern



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.

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	TBD	ANSI/ESD/JEDEC JS-001
ESD – Charged Device Model (CDM)	TBD	ANSI/ESD/JEDEC JS-002
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 temperature) and tin/lead (245 °C max. reflow temperature) soldering processes.

Package lead plating: Bussed Ni/Au

RoHS Compliance

This part 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 ($C_{15}H_{12}Br_4O_2$) 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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