



# 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

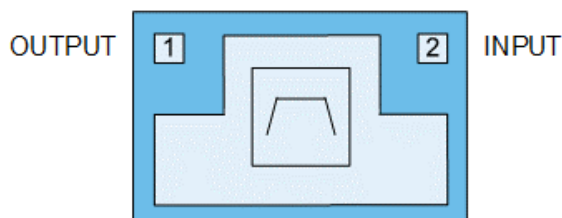
### Key Features

- 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 <sub>OPERATING</sub> *	-20		+95	°C

Electrical specifications are measured at specified test conditions. Specifications are not guaranteed over all recommended operating conditions. \* T<sub>OPERATING</sub> is temperature at the package ground

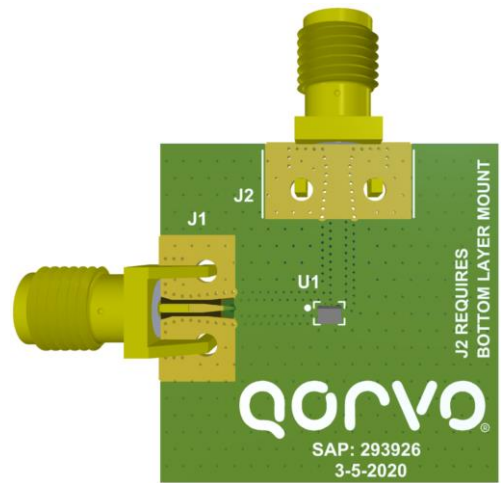
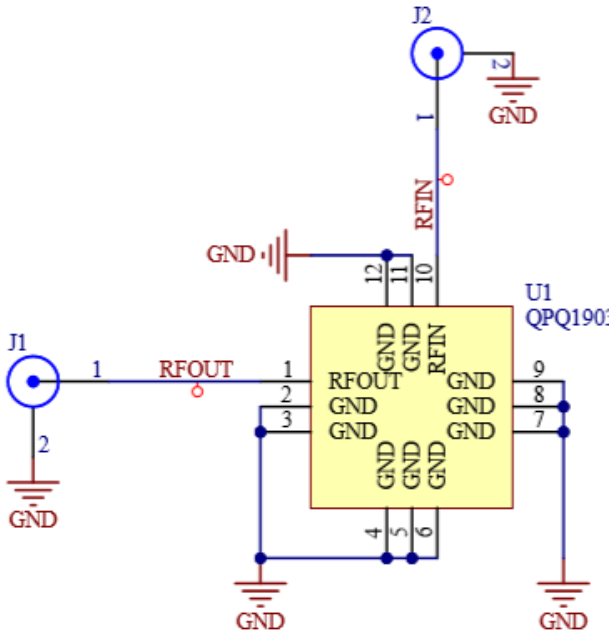
## Electrical Specifications

Parameter (INPUT-OUTPUT) <sup>(1)(2)</sup>	Conditions	Min.	Typ.	Max.	Units
Insertion Loss <sup>(3)</sup>	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
2 <sup>nd</sup> and 3 <sup>rd</sup> Harmonics	P <sub>IN</sub> = +28 dBm		-55		dBm/MHz
	P <sub>IN</sub> = +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

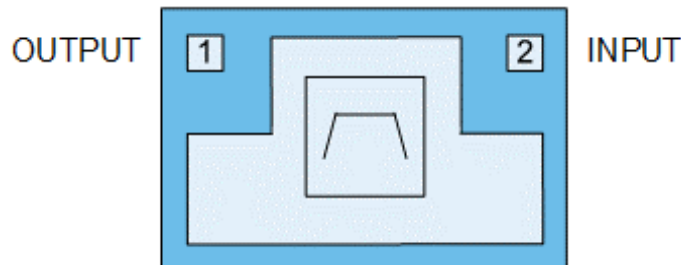
Evaluation Board Schematic



Bill of Material

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

Pin Configuration and Description

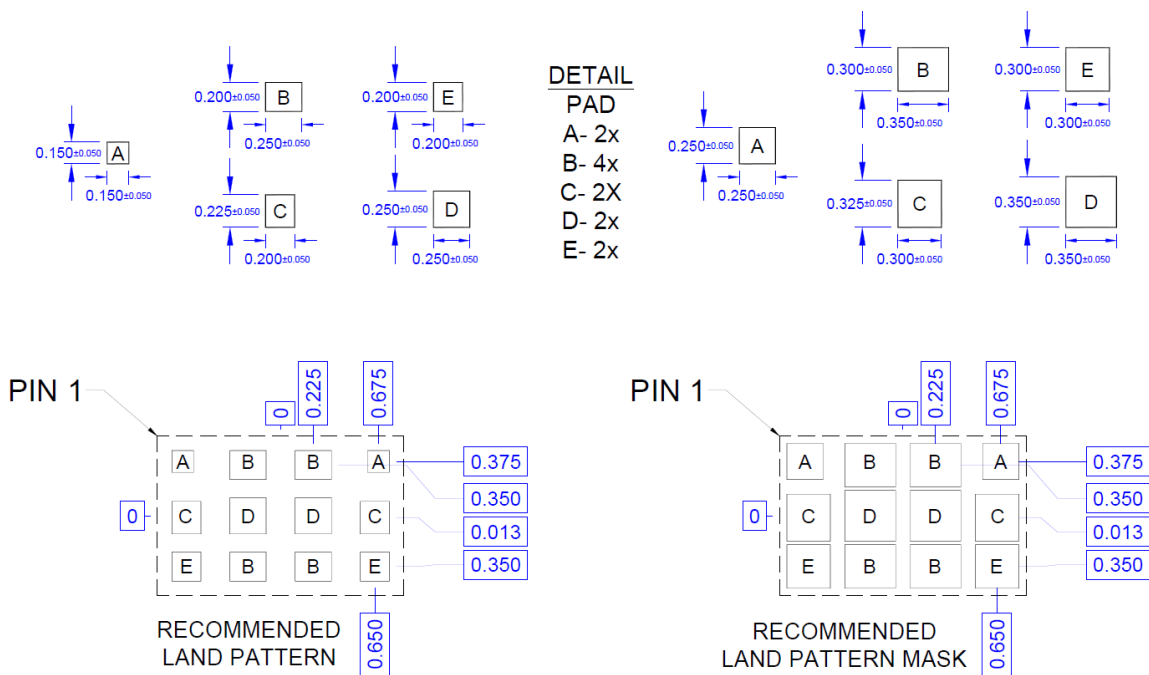
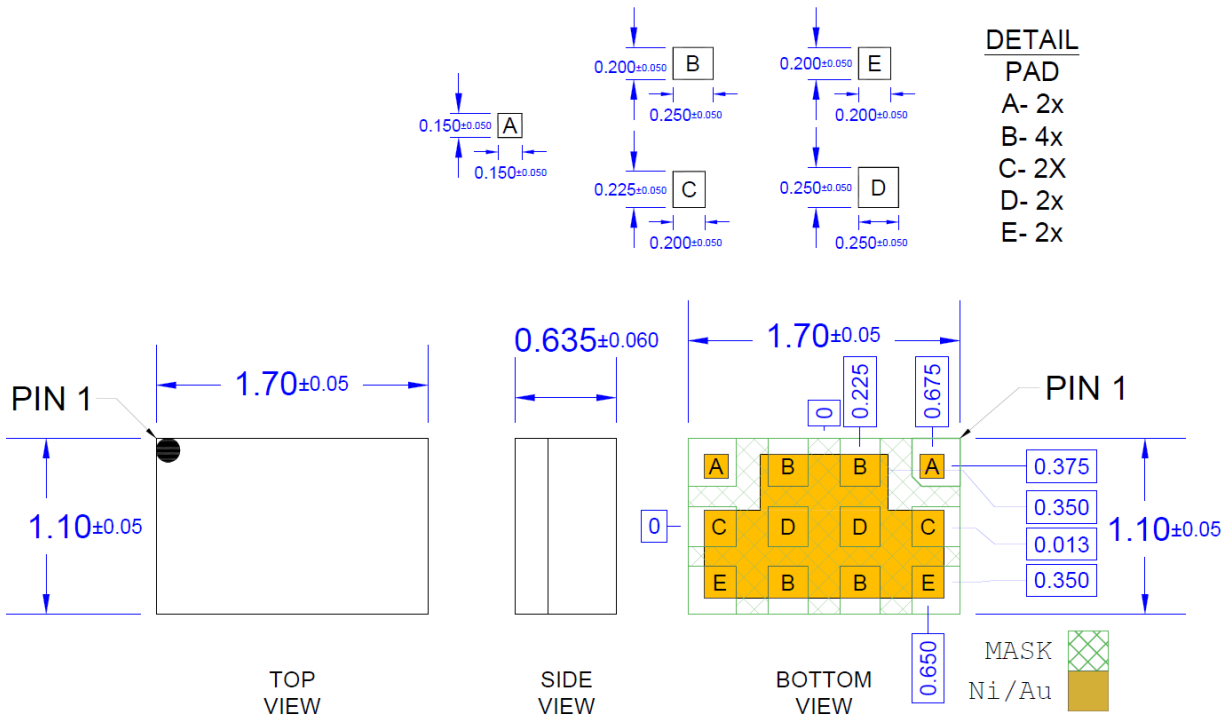


Top View

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<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) Free
- SVHC Free



## Contact Information

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

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