



# QPQ1909

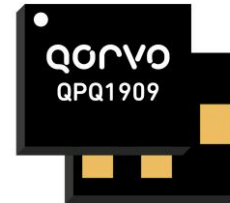
## Wi-Fi edgeBoost BAW Filter

### Product Overview

The Qorvo® QPQ1909 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 band (Channels 1-14) and high near-in rejection in the 2.4GHz bands.

The filter module is specifically designed to enable industry leading bandedge performance in Wi-Fi applications that result in higher regulatory power capability in more Wi-Fi channels than systems with no or traditional filter solutions. End users will see a better capability to deliver Quality of Service (QoS) features at a system level. With Channels 1-14 enabled, users can accommodate any regulatory region needed by the end product

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



5 Pad 1.4x1.2mm Laminate Package

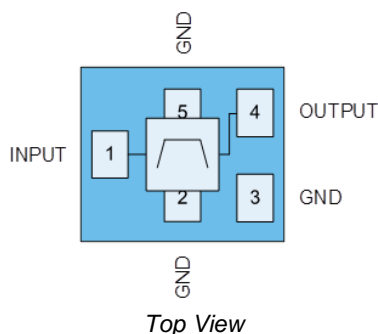
### Key Features

- 2402-2494 MHz
- Low Insertion Loss in Wi-Fi Channels 1-14
- Increased bandedge compliance for more Wi-Fi channels
- Extended temperature performance from 0 to +90 °C
- High power handling to +30dBm averaged Input Power

### Applications

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

### Functional Block Diagram



### Ordering Information

Part Number	Description
QPQ1909SB	Sample bag with 5 pieces
QPQ1909SR	7" reel with 100 pieces
QPQ1909TR13	13" reel with 10,000 pieces
QPQ1909EVB-01	Assembled Evaluation Board

## Absolute Maximum Ratings

Parameter	Conditions	Rating
Operating Case Temperature	No damage	-40 to 105 °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, +90°C	802.11n MCS0 signal, 10dB PAR, applied to Pin 1	+30 dBm

## Recommended Operating Conditions

Parameter	Min.	Typ.	Max.	Units
T <sub>OPERATING</sub> *	0		+90	°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

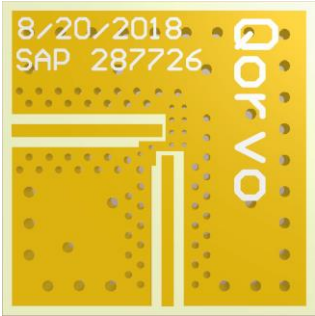
## Electrical Specifications

Parameter (INPUT-OUTPUT) <sup>(1)(4)</sup>	Conditions	Min.	Typ.	Max.	Units
Unless otherwise noted: Typ. T = 45°C					
Insertion Loss <sup>(2)</sup>	f = 2402.5-2421.5 MHz (CH1)	-	1.2	2.0	dB
	f = 2407.5-2426.5 MHz (CH2)	-	1.0	1.5	dB
	f = 2412.5-2476.5 MHz (CH3-12)	-	0.9	1.5	dB
	f = 2462.5-2481.5 MHz (CH13)	-	0.8	1.5	dB
	f = 2474.5-2493.5 MHz (CH14)	-	1.0	2.0	dB
Amplitude Variation	f = 2402.5-2421.5 MHz (CH1)	-	1.3	4.7	dB
	f = 2407.5-2426.5 MHz (CH2)	-	0.6	2.0	dB
	f = 2412.5-2476.5 MHz (CH3-12)	-	0.4	1.4	dB
	f = 2462.5-2481.5 MHz (CH13)	-	0.3	0.8	dB
	f = 2474.5-2493.5 MHz (CH14)	-	0.6	2.1	dB
INPUT VSWR	f = 2402.5-2493.5 MHz		1.5:1	2.8:1	
OUTPUT VSWR	f = 2402.5-2493.5 MHz		1.5:1	2.7:1	
INPUT Return Loss	f = 2402.5-2493.5 MHz		14		dB
OUTPUT Return Loss	f = 2402.5-2493.5 MHz		14		dB
Attenuation	f = 1900 – 2300 MHz <sup>(3)</sup>	17	20	-	dB
	f = 2300 – 2390 MHz <sup>(3)</sup>	19	26	-	dB

### Notes:

- 1) All specifications are based on the QPQ1909 Applications Circuit
- 2) Data is the integrated value of the linear s-parameter over 19 MHz channel
- 3) Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature
- 4) Pin 1 must be used for input. The large signal performance of this filter, such as power handling, may not be symmetric.

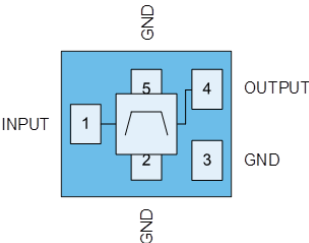
Evaluation Board Schematic



Bill of Material

Ref. Des.	Value	Description	Manuf.	Part number
-	-	Printed Circuit Board		
U1	-	Wi-Fi Bandedge BAW Filter	Qorvo	QPQ1909

Pin Configuration and Description

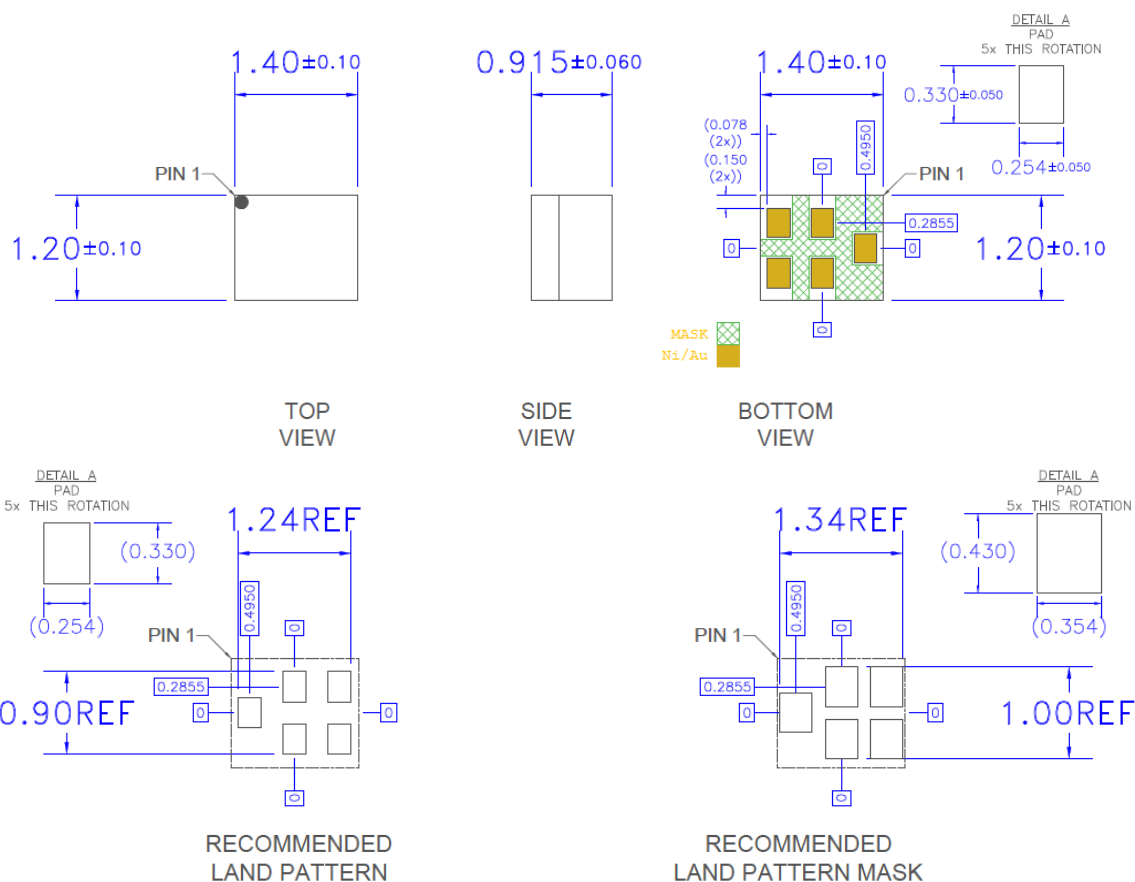


Top View

Pin Number	Label	Description
1	INPUT	RF input. Internally matched to 50 $\Omega$ .
2	GND	Ground connection.
3	GND	Ground connection.
4	OUTPUT	RF bi-directional antenna port. Internally matched to 50 $\Omega$ .
5	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)	Class 1B (500V)	ANSI/ESD/JEDEC JS-001
ESD – Charged Device Model (CDM)	Class C3 (1000V)	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: Electroless Ni/Electroless Pd/Immersion Au (ENEPIG)

## 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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