QPQ1907

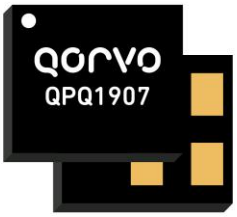
Wi-Fi/LTE coexBoost BAW Filter

Product Overview

The QPQ1907 is a high-performance, high power Bulk Acoustic Wave (BAW) band-pass filter with extremely steep skirts, simultaneously exhibiting low loss in the Wi-Fi band and high near-in rejection in the 2.6GHz bands.

QPQ1907 is specifically designed to enable coexistence of Wi-Fi and LTE signals within the same device or in close proximity to one another..

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.

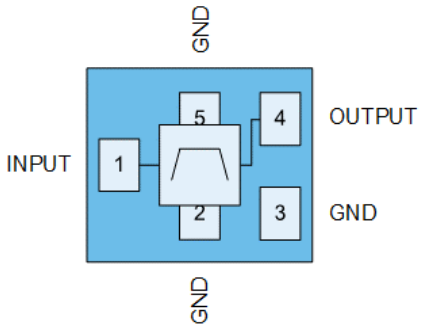


5 Pad 1.4 x 1.2 mm Laminate Package

Key Features

- 2402-2482 MHz
- Low loss in Wi-Fi band with extended upper corner for inclusion of Bluetooth
- High Rejection in LTE bands especially B7/B41
- Extended Temperature performance over -20 to +95 °C
- Self matched to Single Ended 50Ohm operation
- High power handling to +28dBm averaged Input Power

Functional Block Diagram



Top View

Applications

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

Ordering Information

Part Number	Description
QPQ1907SB	Sample bag with 5 pieces
QPQ1907SR	7” reel with 100 pieces
QPQ1907TR13-10K	13” reel with 10,000 pieces
QPQ1907EVB-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
MTTF >1M hours, +95°C	802.11n MCS7 OFDM signal, 10dB PAR, applied to Pin 1	+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	Conditions	Min.	Typ.	Max.	Units
(INPUT-OUTPUT) (1)	**Unless otherwise noted: Typ. T = 35°C**				
Insertion Loss (2)	*f* = 2402.5-2421.5 MHz (CH1)	-	1.5	2.2	dB
	f = 2407.5-2426.5 MHz (CH2)	-	1.3	1.6	dB
	f = 2412.5-2471.5 MHz (CH3-11)	-	0.8	1.3	dB
	f = 2457.5-2476.5 MHz (CH12)	-	1.0	1.5	dB
	f = 2462.5-2481.5 MHz (CH13)	-	1.4	2.2	dB
Amplitude Ripple	*f* = 2402.5-2421.5 MHz (CH1)	-	0.7	1.5	dB
	f = 2407.5-2426.5 MHz (CH2)	-	0.4	0.7	dB
	f = 2412.5-2471.5 MHz (CH3-11)	-	0.4	1.1	dB
	f = 2457.5-2476.5 MHz (CH12)	-	0.4	0.7	dB
	f = 2462.5-2481.5 MHz (CH13)	-	0.7	1.5	dB
INPUT VSWR	*f* = 2402.5-2481.5 MHz		1.5:1	1.8:1	dB
OUTPUT VSWR	*f* = 2402.5-2481.5 MHz		1.5:1	2.0:1	dB
Attentuation	*f* = 925–960 MHz	34	36	-	dB
	f = 1559–1606 MHz	34	46	-	dB
	f = 2110–2170 MHz	44	48	-	dB
	f = 2300–2370 MHz(3)	38	45	-	dB
	f = 2500–2505 MHz(3)(4)	30	39	-	dB
	f = 2500–2505 MHz(3)(5)	10	39	-	dB
	f = 2505–2570 MHz(3)(4)	43	62	-	dB
	f = 2505–2570 MHz(3)(5)	40	62	-	dB
	f = 2570–2620 MHz(3)	48	55	-	dB
	f = 2620–2690 MHz(3)	48	52	-	dB

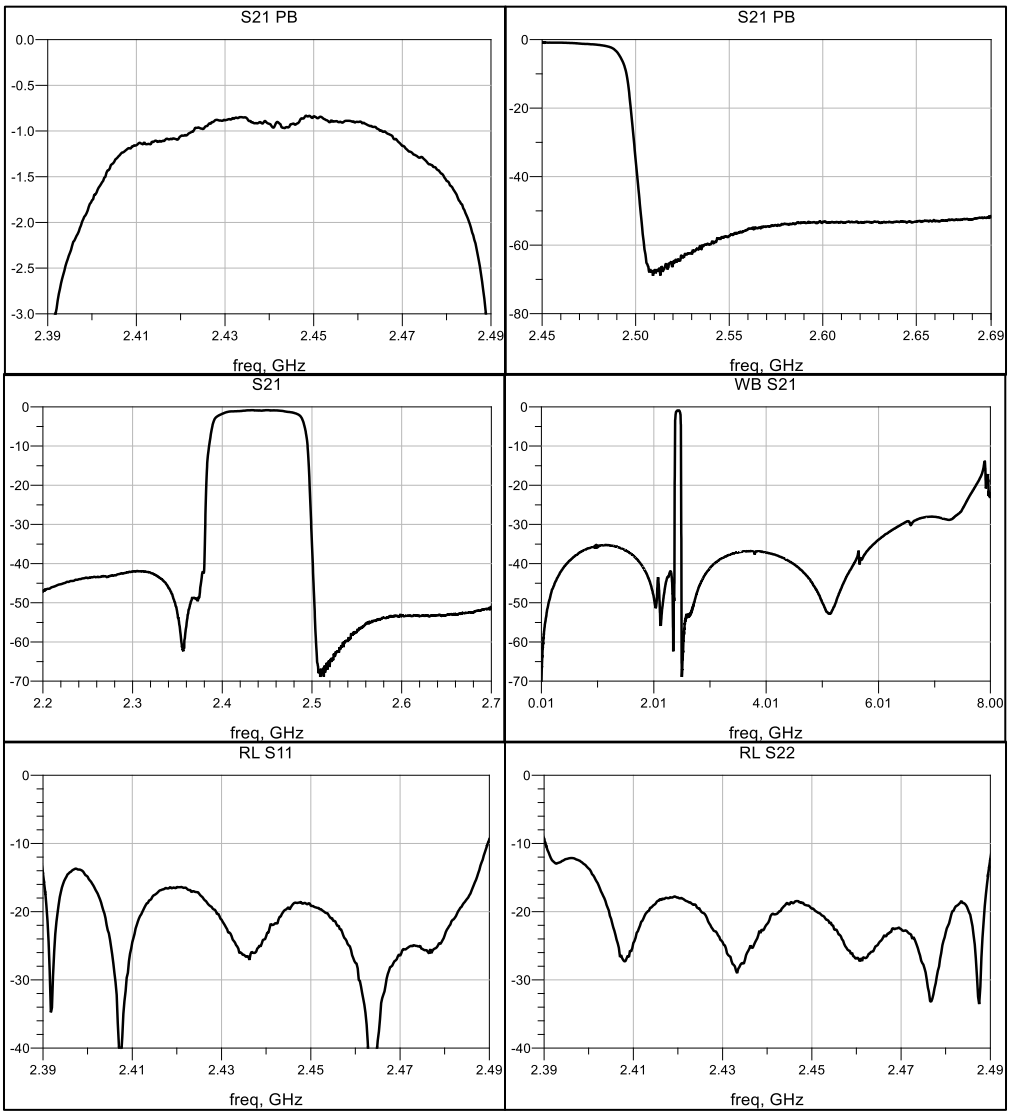
Parameter	Conditions	Min.	Typ.	Max.	Units
	f = 4800–5000 MHz	37	43	-	dB
	f = 7200–7500 MHz	7	21	-	dB

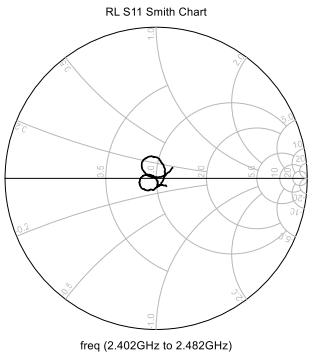
Notes:

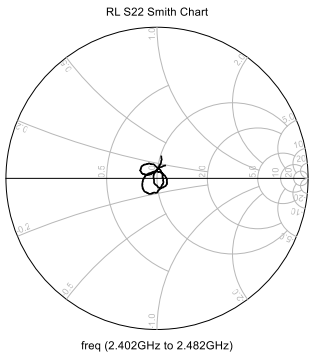
1) All specifications are based on the QPQ1907 Applications Circuit
2) Data is the integrated value of the linear s-parameter over 19 MHz channel
3) Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature
4) T = +25 to +95°C
5) T = -20 to +25°C
6) Pin 1 must be used for input. The large signal performance of this filter, such as power handling, may not be symmetric.

Performance Plots – QPQ1907EVB-01

Test conditions unless otherwise noted: Temp. = +25 °C





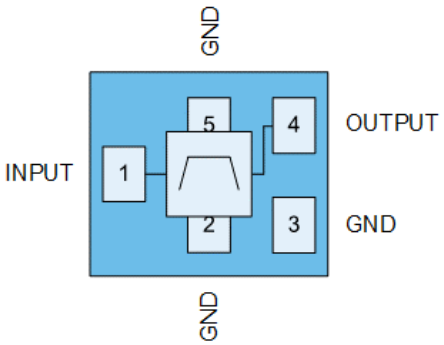


Evaluation Board

Bill of Material

Ref. Des.	Value	Description	Manuf.	Part number
-	-	Printed Circuit Board		
U1	-	Wi-Fi/LTE coexBoost BAW Filter	Qorvo	QPQ1907

Pin Configuration and Description

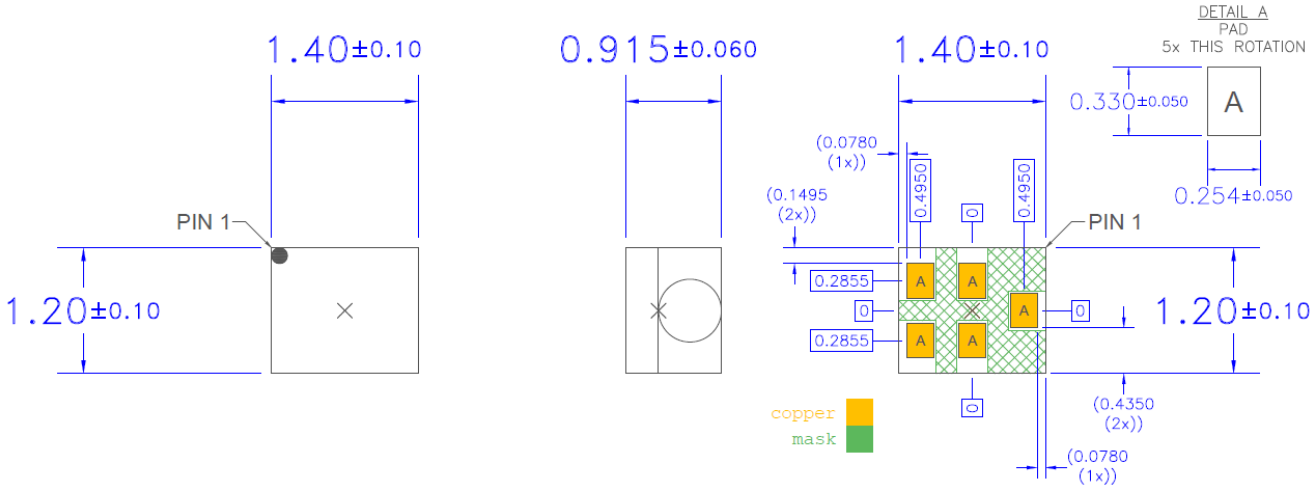


Top View

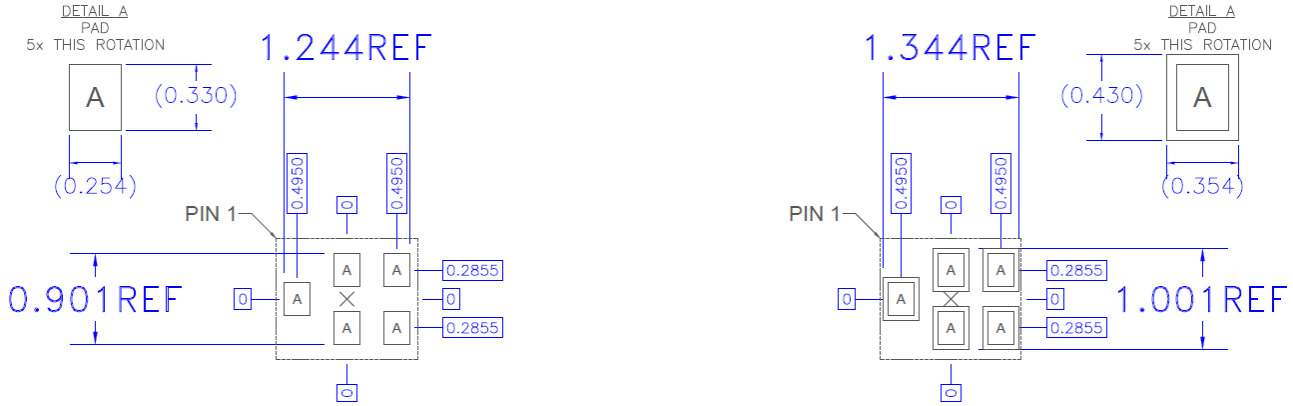
Pin Number	Label	Description
1	INPUT	RF input. Internally matched to 50 Ω.
2	GND	Ground connection.
3	GND	Ground connection.
4	OUTPUT	RF bi-directional port. Internally matched to 50 Ω
5	GND	Ground connection.

Mechanical Information

Dimensions and PCB Mounting Pattern



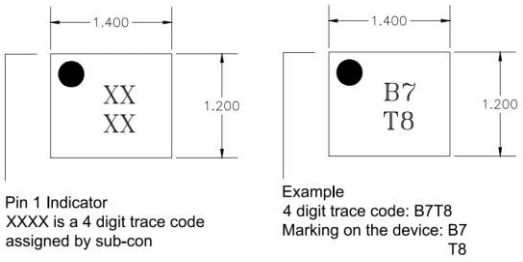
TOP VIEW | SIDE VIEW | BOTTOM VIEW



RECOMMENDED LAND PATTERN | RECOMMENDED LAND PATTERN MASK

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.

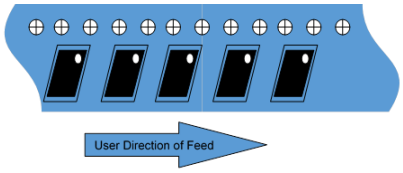
Part Marking

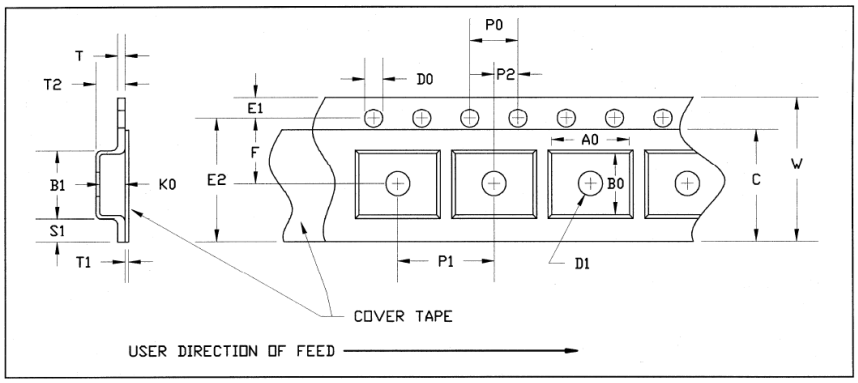


Tape and Reel Information – Carrier and Cover Tape Dimensions

Tape and reel specifications for this part are also available on the Qorvo website.

Standard T/R size = 10,000 pieces on a 13” reel.

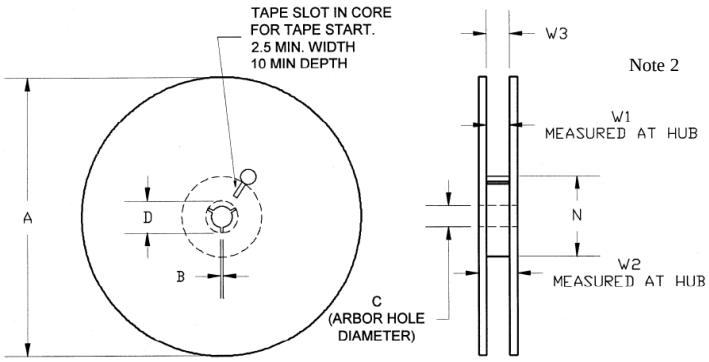




Feature	Measure	Symbol	Size (in)	Size (mm)
Cavity	Length	A0	0.053	1.35
	Width	B0	0.063	1.6
	Depth	K0	0.043	1.1
	Pitch	P1	0.157	4.0
Centerline Distance	Cavity to Perforation - Length Direction	P2	0.079	2.0
C2	Cavity to Perforation - Width Direction	F	0.138	3.50
Cover Tape	Width	C	0.213	5.40
Carrier Tape	Width	W	0.315	8.0

Tape and Reel Information – Reel Dimensions

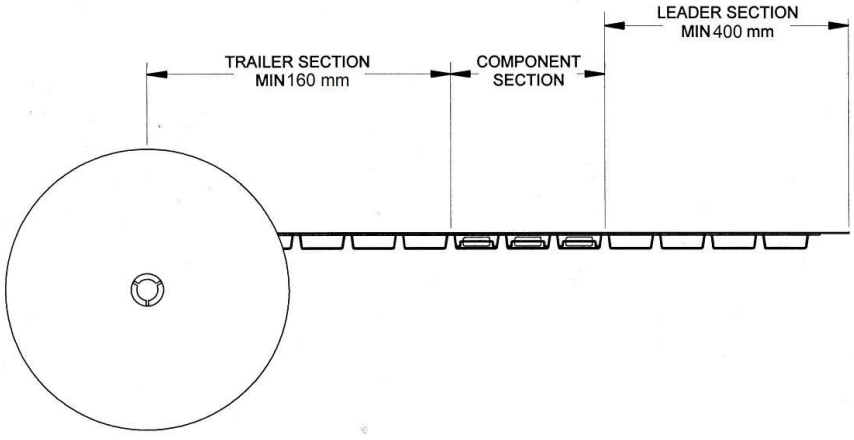
Packaging reels are used to prevent damage to devices during shipping and storage, loaded carrier tape is typically wound onto a plastic take-up reel. The reel size is 13" diameter. The reels are made from high-impact injection-molded polystyrene (HIPS), which offers mechanical and ESD protection to packaged devices.

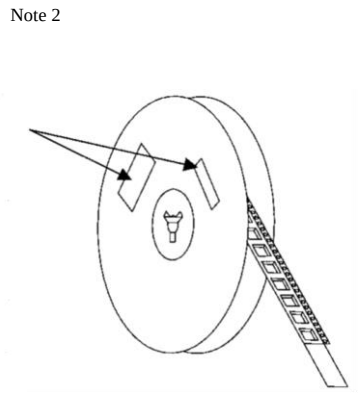


Feature	Measure	Symbol	Size (in)	Size (mm)
Flange	Diameter	A	12.992	330.0
	Thickness	W2	0.559	14.2
	Space Between Flange	W1	0.346	8.8
Hub	Outer Diameter	N	4.016	102.0
	Arbor Hole Diameter	C	0.512	13.0
	Key Slit Width	B	0.079	2.0
	Key Slit Diameter	D	0.795	20.2

Tape and Reel Information – Tape Length & Label Placement

Tape and reel specifications for this part are also available on the Qorvo website.





Notes:
1. Empty part cavities at the trailing and leading ends are sealed with cover tape. See EIA 481.
2. Labels are placed on the flange opposite the sprockets in the carrier tape..

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: Au (0.5-1.0µm) over Ni (2- 6µm)

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:

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Email: customer.support@qorvo.com

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