QPQ1907

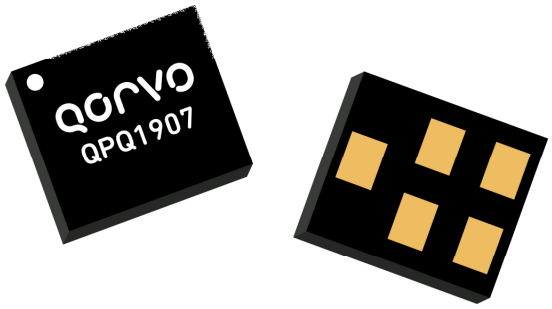
2.4GHz Wi-Fi/BT/LTE Co-Existence BAW Filter

Product Description

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.

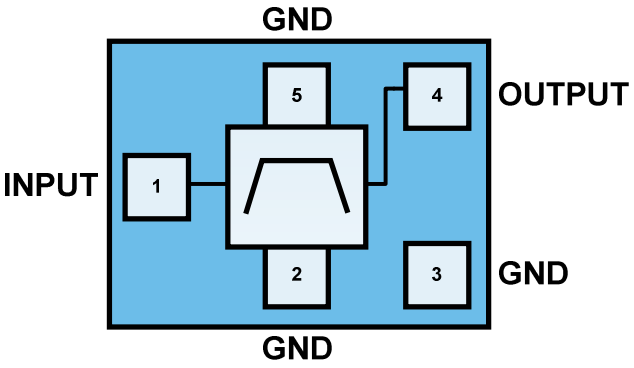
QPQ1907 is specifically designed to enable coexistence of Wi-Fi and LTE signals within the same device or in close proximity to one another.

The QPQ1907 uses common module packaging techniques to achieve the industry standard 1.4 x 1.2 x 0.915 mm footprint. The filter exhibits excellent power handling capabilities meeting FCC max limits of 1W average power.



1.4 x 1.2 x 0.915 mm 5-pin Laminate

Functional Block Diagram



Top View

Feature Overview

- Low loss in Wi-Fi band with extended upper corner for inclusion of Bluetooth
- High Rejection in LTE bands especially B7/B41
- Industry standard small size: 1.4 x 1.2 x 0.915 mm
- Extended Temperature performance over -20 to +95 °C
- Self matched to Single Ended 50Ohm operation
- RoHS Compliant, Pb-free module package
- High power handling to +28dBm averaged input power

Applications

- Wi-Fi bandpass filter that enables the coexistence of LTE & Wi-Fi/Bluetooth signals
- Consumer Premise Equipment (CPE)
- Small Cells
- Wi-Fi or LTE Gateways, Routers, and Set top boxes
- Smart Meters
- High-power Wi-Fi Access Points

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	RANGE/VALUE	UNITS
Operating Case Temperature (no damage)	–40 to +105	℃
Storage Temperature	–40 to +125	℃
Power handling input power with Wi-Fi MCS7 OFDM signal, 10dB PAR, MTTF >1M hours, +95degC, applied to Pin1	+28	dBm

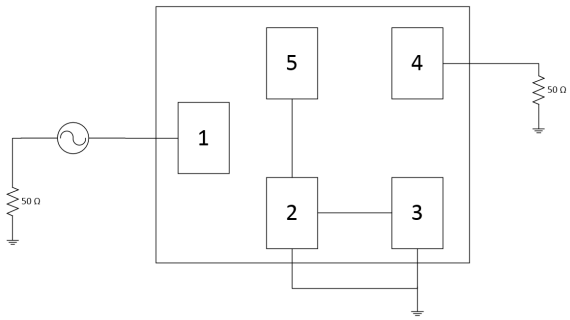
Operation of this device outside any of the parameter ranges given above may cause permanent damage.

Electrical Specifications(1)

PARAMETER	CONDITIONS TEMP = -20 TO 95°C UNLESS OTHERWISE NOTED	MIN	TYP. 35°C	MAX.	UNITS
Insertion Loss(2)	2402.5-2421.5 MHz (ch1)	-	1.5	2.2	dB
	2407.5-2426.5 MHz (ch2)	-	1.3	1.6	
	2412.5-2471.5 MHz (ch 3-11)	-	0.8	1.3	
	2457.5-2476.5 MHz (ch 12)	-	1.0	1.5	
	2462.5-2481.5 MHz (ch13)	-	1.4	2.2	
Amplitude Ripple	2402.5-2421.5 MHz (ch1)	-	0.7	1.5	dB
	2407.5-2426.5 MHz (ch2)	-	0.4	0.7	
	2412.5-2471.5 MHz (ch 3-11)	-	0.4	1.1	
	2457.5-2476.5 MHz (ch 12)	-	0.4	0.7	
	2462.5-2481.5 MHz (ch13)	-	0.7	1.5	
VSWR (INPUT)	2402.5 – 2481.5 MHz	-	1.5:1	1.8:1	-
VSWR (OUTPUT)		-	1.5:1	2.0:1	
Attenuation	925 – 960 MHz	34	36	-	dB
	1559 – 1606 MHz	34	46	-	
	2110 – 2170 MHz	44	48	-	
	2300 – 2370 MHz(3)	38	45	-	
	2500 – 2505 MHz (+25 to +95℃)(3)	30	39	-	
	2500 – 2505 MHz (-20 to +25℃)(3)	10	39	-	
	2505 – 2570 MHz (+25 to +95℃)(3)	43	62	-	
	2505 – 2570 MHz (-20 to +25℃)(3)	40	62	-	
	2570 – 2620 MHz(3)	48	55	-	
	2620 – 2690 MHz(3)	48	52	-	
	4800 – 5000 MHz	37	43	-	
	7200 – 7500 MHz	7	21	-	

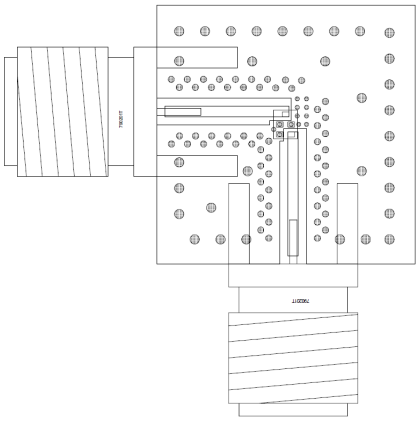
Notes:
1. All specifications are based on the QPQ1907 Applications Circuit
2. Data is the integrated value of the linear s-parameter over 19 MHz channel
3. Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature
4. Pin 1 must be used for input. The large signal performance of this filter such as power handling may not be symmetric

QPQ1907 Applications Circuit



QPQ1907-EVB PCB Information

Evaluation Board Layer Description/Stackup	
Top:	1/2 oz. plated up to 1 mil holes
Dielectric 1:	7.5 mils total dielectric thickness using Taconic TYL-5A
Mid 1:	1/2 oz. Copper
Dielectric 2:	52.5 mils total dielectric thickness using FR4 material
Bottom:	1/2 oz. copper plated up to 1 mil holes
Overall Thickness:	62 mils

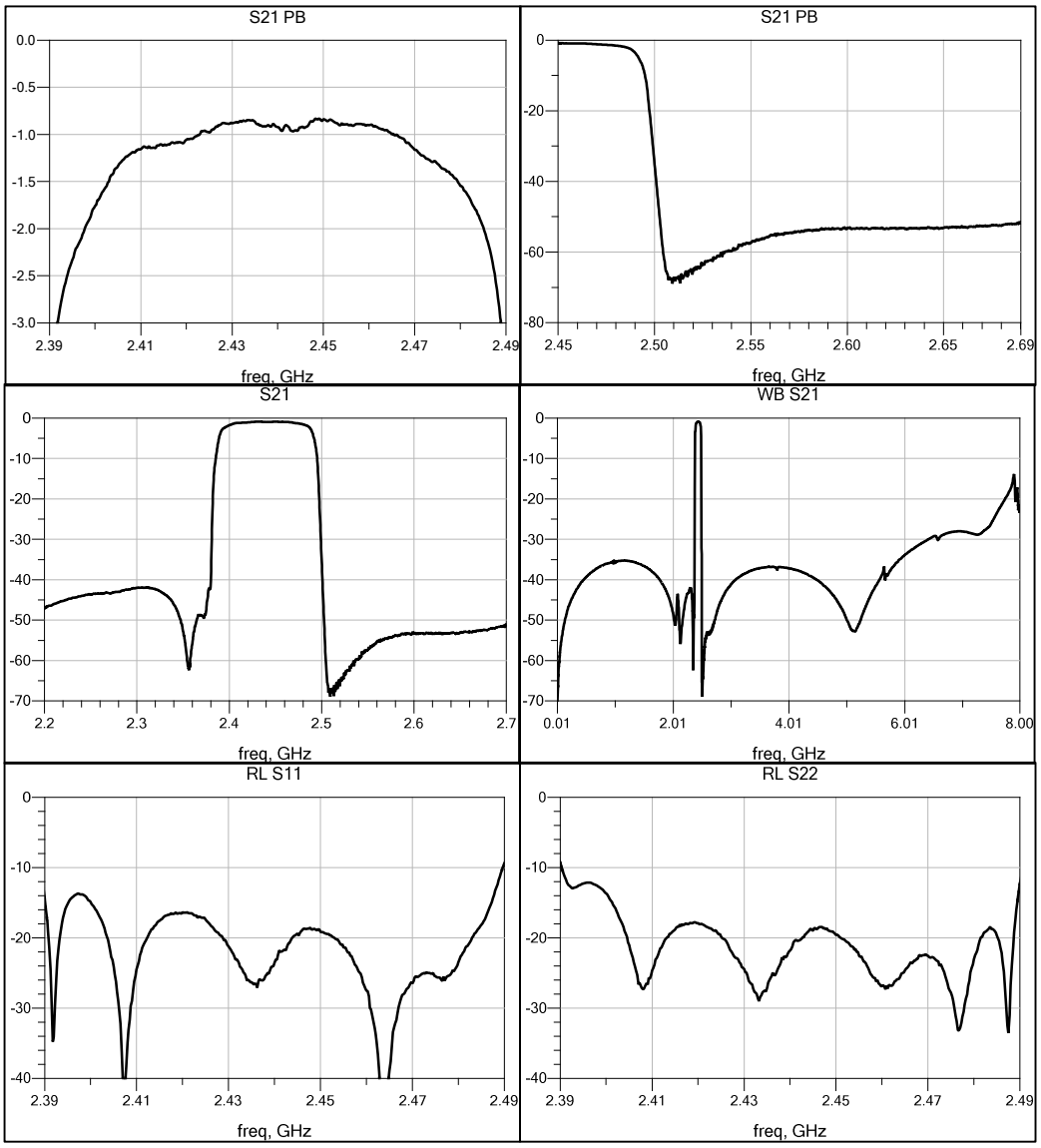


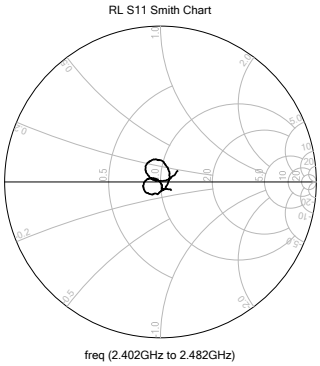
QPQ1907-EVB Bill of Material

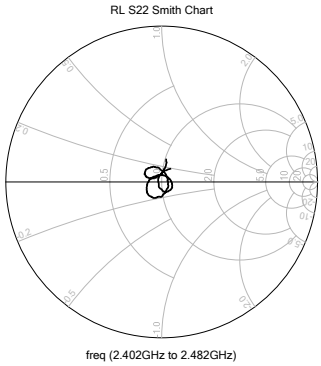
REF. DES.	VALUE	DESCRIPTION	MANUF.	PART NUMBER
PCB	N/A	3 Layer	Multiple	QPQ1907-EVB
U1	N/A	2.4GHz Wi-Fi/BT LTE Co-Existence Filter	Qorvo	QPQ1907

Performance Plots – QPQ1907-EVB

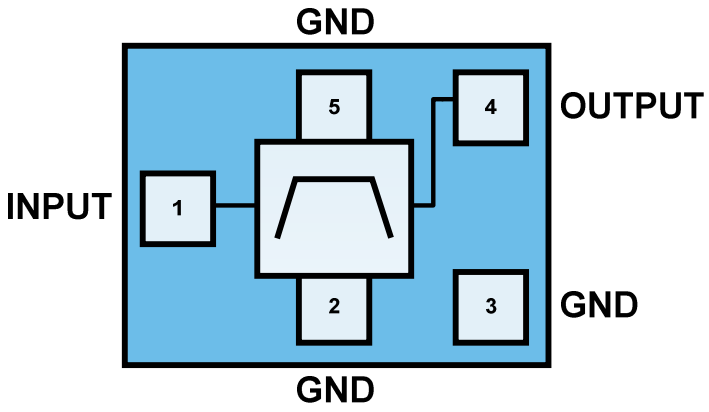
Test conditions unless otherwise noted: Temp. = +25 °C







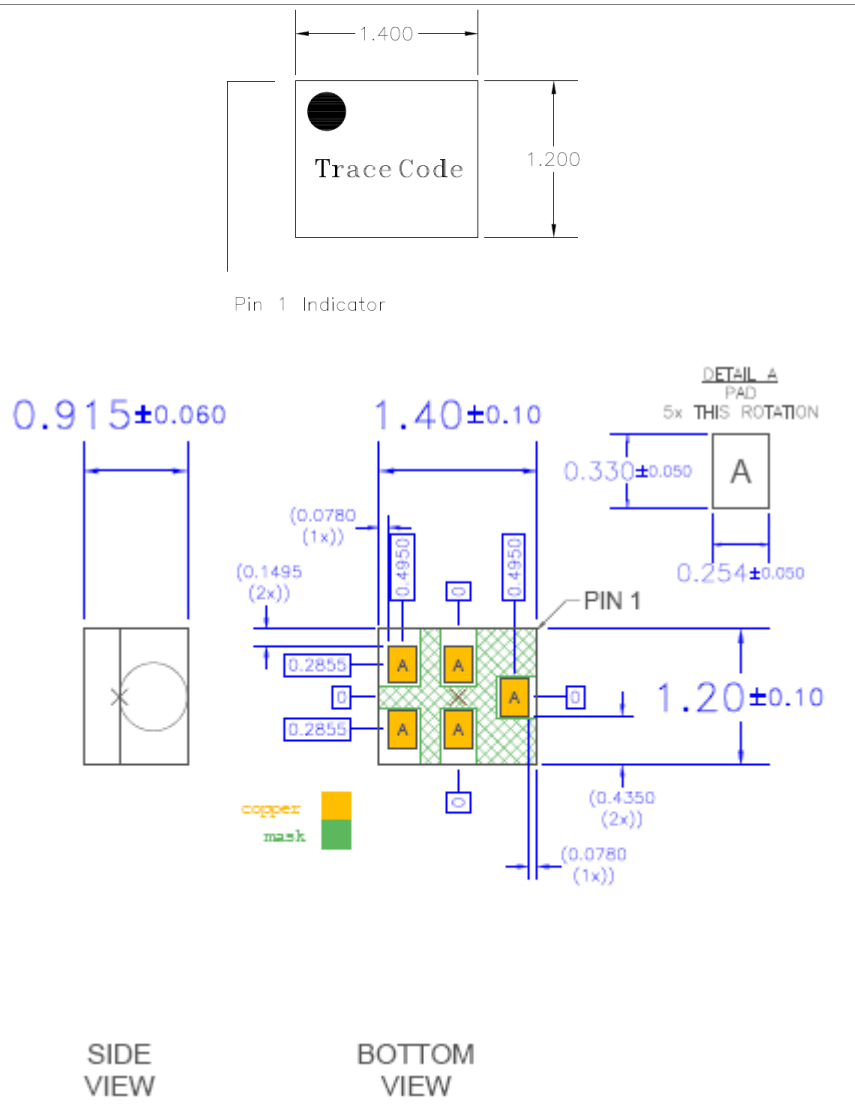
Pin Configuration and Description



Top View

PIN NUMBER	LABEL	DESCRIPTION
1	Input	TX Transmit Port, (power testing applied to this pin)
4	Output	ANT Antenna Port
2, 3, and 5	GND	Ground

Package Marking and Dimensions

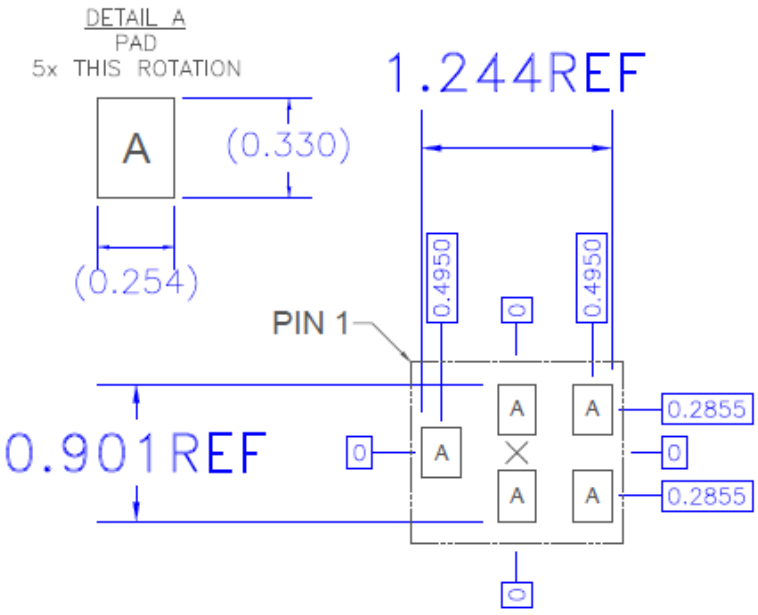


Package Style: Laminate
Dimensions: 1.4 x 1.2 x 0.915 mm

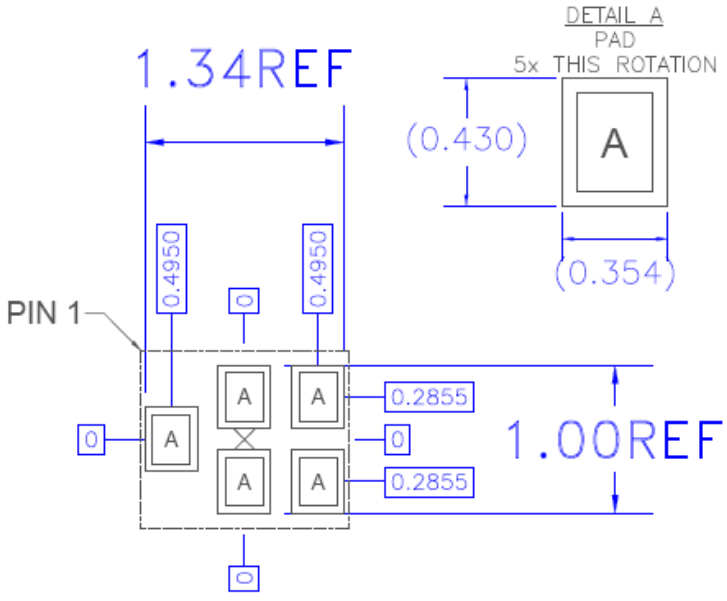
Package for Surface Mount Technology
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni*
Plating
Approximate weight 1.546 mg

All dimensions shown are nominal in millimeters

PCB Landing Pattern



Reocmmended Landing Pattern

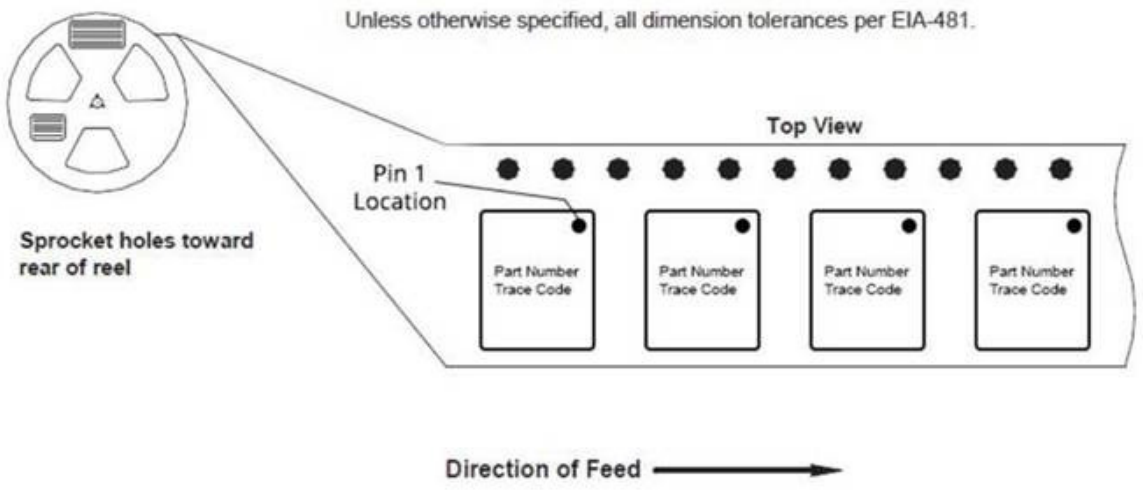


Reocmmended Landing Pattern Mask

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 Information



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
	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

Handling Precautions

PARAMETER	RATING	STANDARD
ESD – Human Body Model (HBM)	Class 1B	ESDA/JEDEC JS-001
ESD – Charged Device Model (CDM)	Class C3	ESDA/JEDEC JS-002
MSL – Moisture Sensitivity Level	Level 3	IPC/JEDEC J-STD-020

Caution!

ESD sensitive device

Solderability

Compatible with the latest version of J-STD-020, lead free solder, 260°C

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.

- Lead-free
- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free
- Qorvo Green

Contact Information

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