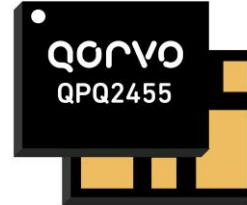


Product Overview

The Qorvo® QPQ2455 is a high-performance, high power, BAWplexer which takes advantage of Qorvo’s coexBoost technologies to deliver extremely steep skirts, simultaneously exhibiting low loss in the Wi-Fi bands and high near-in rejection to prevent interference with LTE B7/B41/B38 and B40 signals, to a diplexer that has a low loss bandpass covering UNII1-8 Wi-Fi channels (5150-7125MHz.)

The BAWplexer enables single antenna implementation combining both 2.4 GHz and 5-7 GHz Wi-Fi applications. The 2.4 GHz path integrates a BAW filter to enable simultaneous usage of Wi-Fi and LTE signals without interference thus leading to longer range of Wi-Fi and an increase in network capacity. The 5-7 GHz path is a low-loss bandpass incorporating the expanded spectrum including all Wi-Fi channels in the UNII1-8 bands. The diplexer is designed for thermally challenging environment and exhibits excellent power handling capabilities.

Using advanced laminate module packaging techniques to achieve high integration in an industry leading compact footprint. The QPQ2455 negates the challenges of matching the filter to the diplexer helping end customers achieve a faster time to market

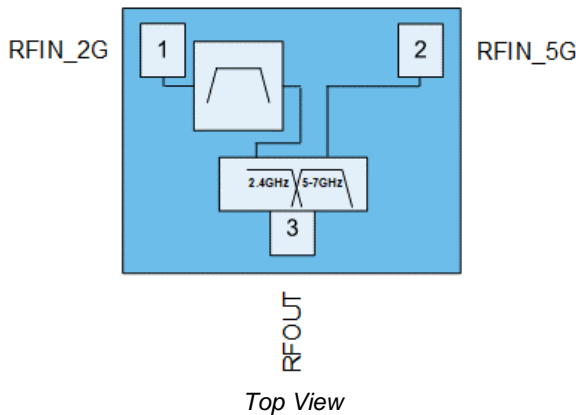


4 Pad 1.9 x 1.5 mm Laminate Package

Key Features

- 2402-2482 MHz & 5150-7125 MHz
- Integrated 2.4GHz Rejection in LTE B7/B41/B38/B40
- Wide passband that incorporates all Wi-Fi 6 & 6E channels in UNII1-8
- Low insertion loss in both passbands
- Extended temperature performance from -20 to +95 °C
- High power handling to +28dBm averaged Input Power

Functional Block Diagram



Applications

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

Ordering Information

Part Number	Description
QPQ2455SB	Sample bag with 5 pieces
QPQ2455SR	7" reel with 100 pieces
QPQ2455TR13	13" reel with 10,000 pieces
QPQ2455EVB-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
RF Signal	CW, 25 °C, 20 mS	+39 dBm

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 >2M hours, +70°C	802.11n MCS7 signal, CH 11, applied to Pin 1	+28 dBm
Power Handling MTTF >2M hours, +70°C	802.11n MCS7 signal, CH165, 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

2.4 GHz Electrical Specifications

Parameter (RFIN_2G-RFOUT) ⁽¹⁾⁽⁴⁾	Conditions	Min.	Typ.	Max.	Units
Insertion Loss ⁽²⁾	f = 2402.5-2421.5 MHz (CH1)	-	1.5	2.2	dB
	f = 2407.5-2426.5 MHz (CH2)	-	1.3	1.9	dB
	f = 2412.5-2471.5 MHz (CH3-11)	-	1.2	2.0	dB
	f = 2457.5-2476.5 MHz (CH12)	-	1.5	2.2	dB
	f = 2462.5-2481.5 MHz (CH13)	-	1.7	2.5	dB
Amplitude Variation	f = 2402.5-2421.5 MHz (CH1)	-	0.9	1.7	dB
	f = 2407.5-2426.5 MHz (CH2)	-	0.5	1.2	dB
	f = 2412.5-2471.5 MHz (CH3-11)	-	0.7	1.1	dB
	f = 2457.5-2476.5 MHz (CH12)	-	0.7	1.0	dB
	f = 2462.5-2481.5 MHz (CH13)	-	0.7	1.5	dB
RFIN_2G VSWR	f = 2402.5-2481.5 MHz		1.8:1	2.4:1	
RFOUT VSWR	f = 2402.5-2481.5 MHz		1.6:1	2.1:1	
Attenuation	f = 925 – 960 MHz	30	35	-	dB
	f = 1559 – 1606 MHz	30	35	-	dB
	f = 2110 – 2170 MHz	39	45	-	dB
	f = 2300 – 2370 MHz ⁽³⁾	37	41	-	dB
	f = 2500 – 2505 MHz ⁽³⁾ , T = +25 to +95 °C	22	35	-	dB
	f = 2500 – 2505 MHz ⁽³⁾ , T = -20 to +25 °C	13	33	-	dB
	f = 2505 – 2570 MHz ⁽³⁾ , T = +25 to +95 °C	33	49	-	dB

Parameter	Conditions	Min.	Typ.	Max.	Units
	$f = 2505 - 2570 \text{ MHz}^{(3)}$, $T = -20 \text{ to } +25 \text{ }^\circ\text{C}$	39	49	-	dB
	$f = 2570 - 2620 \text{ MHz}^{(3)}$	42	48	-	dB
	$f = 2620 - 2690 \text{ MHz}^{(3)}$	42	50	-	dB
	$f = 3550 - 3700 \text{ MHz}$	29	40	-	dB
	$f = 4800 - 5000 \text{ MHz}$	29	45	-	dB
	$f = 7200 - 7500 \text{ MHz}$	23	33	-	dB
Isolation	$f = 5150 - 5850 \text{ MHz}$	30	37		dB
	$f = 5850 - 5925 \text{ MHz}$	29	37		dB
	$f = 5925 - 6425 \text{ MHz}$	28	35		dB
	$f = 6425 - 7125 \text{ MHz}$	28	35		dB
2 nd & 3 rd Harmonics	$P_{IN} = +28 \text{ dBm}$, CW, $f = 2402.5 - 2471.5 \text{ MHz}$		70		dBc

Notes:

- 1) All specifications are based on the QPQ2455 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.

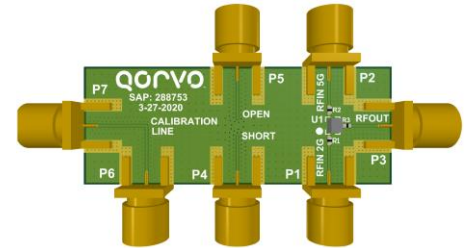
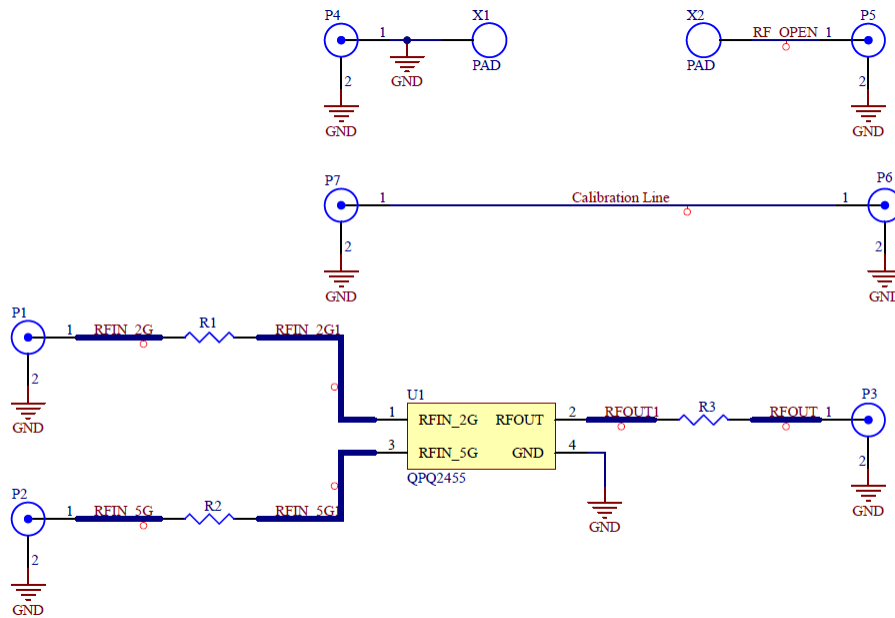
5 to 7 GHz Electrical Specifications

Parameter (RFIN_5G-RFOUT) ⁽⁵⁾⁽⁷⁾	Conditions	Min.	Typ.	Max.	Units
Unless otherwise noted: Typ. T = 35°C					
Insertion Loss ⁽⁶⁾	$f = 5150 - 5850 \text{ MHz}$	-	1.0	1.5	dB
	$f = 5850 - 5925 \text{ MHz}$	-	1.0	1.3	dB
	$f = 5925 - 6425 \text{ MHz}$	-	1.0	1.5	dB
	$f = 6425 - 7125 \text{ MHz}$	-	1.0	1.6	dB
Amplitude Variation	$f = 5150 - 5850 \text{ MHz}$ (Any 160 MHz CH)	-	0.13	0.3	dB
	$f = 5850 - 5925 \text{ MHz}$	-	0.02	0.1	dB
	$f = 5925 - 6425 \text{ MHz}$ (Any 160 MHz CH)	-	0.02	0.1	dB
	$f = 6425 - 7125 \text{ MHz}$ (Any 160 MHz CH)	-	0.04	0.3	dB
RFIN_5G VSWR	$f = 5150 - 5850 \text{ MHz}$	-	1.4:1	1.8:1	
	$f = 5850 - 5925 \text{ MHz}$	-	1.4:1	1.7:1	
	$f = 5925 - 6425 \text{ MHz}$	-	1.4:1	1.8:1	
	$f = 6425 - 7125 \text{ MHz}$	-	1.5:1	1.9:1	
RFOUT VSWR	$f = 5150 - 5850 \text{ MHz}$	-	1.4:1	1.7:1	
	$f = 5850 - 5925 \text{ MHz}$	-	1.4:1	1.7:1	
	$f = 5925 - 6425 \text{ MHz}$	-	1.4:1	1.7:1	
	$f = 6425 - 7125 \text{ MHz}$	-	1.4:1	1.7:1	
Attenuation	$f = 2400 - 2500 \text{ MHz}$	25	35	-	dB
	$f = 10000 - 12000 \text{ MHz}$	12	24	-	dB
Isolation	$f = 2400 - 2500 \text{ MHz}$	28	38	-	dB
2 nd & 3 rd Harmonics	$P_{IN} = +28 \text{ dBm}$, CW, $f = 5150 - 5850 \text{ MHz}$		70		dBc

Notes:

- 5) All specifications are based on the QPQ2455 Applications Circuit
- 6) Includes 0.2dB of loss to atone for copper metal loss due to temperature variation
- 7) Pin 2 must be used for input. The large signal performance of this filter, such as power handling, may not be symmetric.

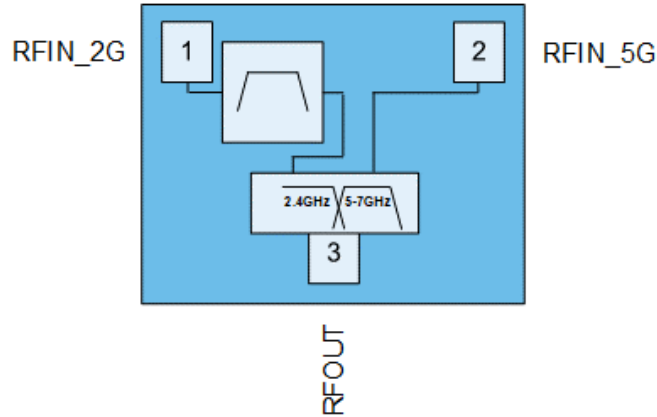
Evaluation Board Schematic



Bill of Material

Ref. Des.	Value	Description	Manuf.	Part number
-	-	Printed Circuit Board		
U1	-	Wi-Fi LTE Coexistence BAWPlexer	Qorvo	QPQ2455
R1, R2, R3	0 Ω	Resistor, Chip, 1/10W, 0402, JMPR	Panasonic	ERJ2GE0R00X

Pin Configuration and Description

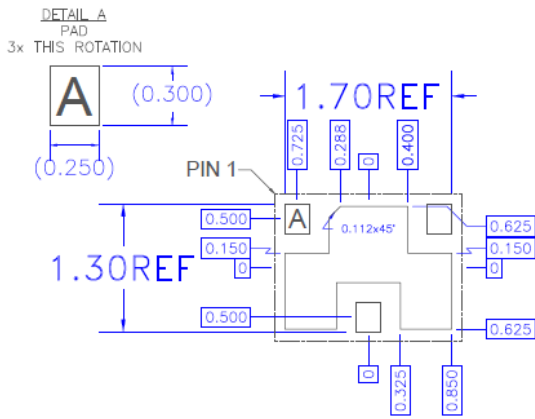
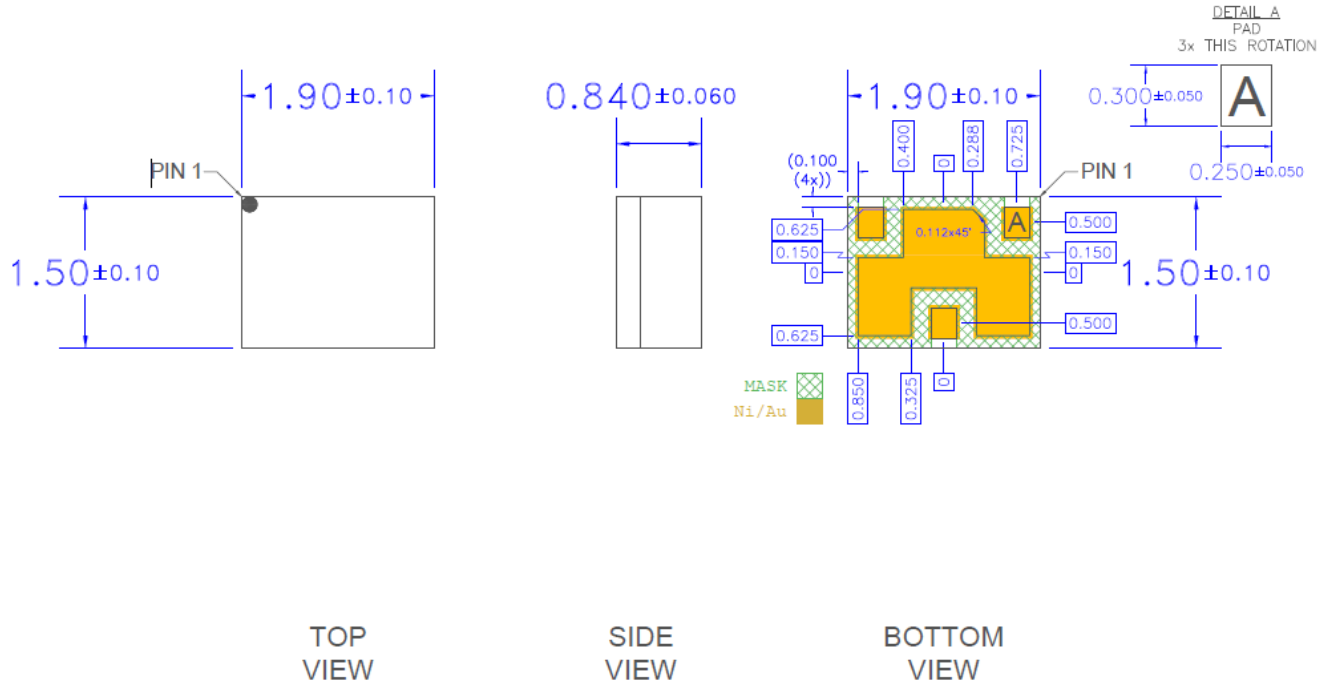


Top View

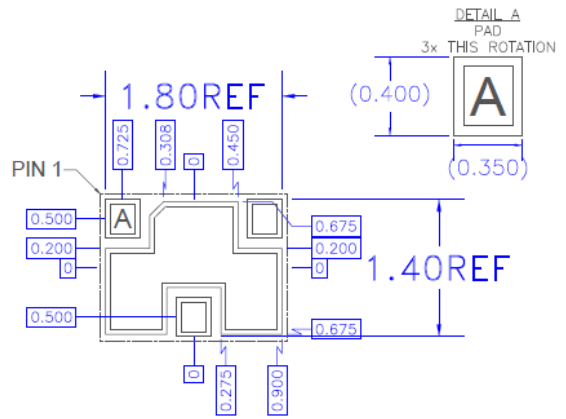
Pin Number	Label	Description
1	RFIN_2G	RF input. Internally matched to 50 Ω .
2	RFIN_5G	Ground connection.
3	RFOUT	Ground connection.
Backside Paddle	GND	RF/DC ground. Use recommended via pattern to minimize inductance and thermal resistance. See PCB Mounting Pattern for suggested footprint.

Mechanical Information

Dimensions and PCB Mounting Pattern



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.

Handling Precautions

Parameter	Rating	Standard
ESD – Human Body Model (HBM)	Class 1A (250V)	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 (C₁₅H₁₂Br₄O₂) Free
- SVHC Free



Contact Information

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