


Applications

- Automotive Telematics and Infotainment
- 2.4 GHz ISM Applications & Smart Energy
- WiFi bandpass filter that enables the coexistence of 3G/4G/LTE/TD-LTE & WiFi signals
- WLAN systems (Higher power applications)
- WiFi in Outdoor Small Cells and Access Points

Product Features

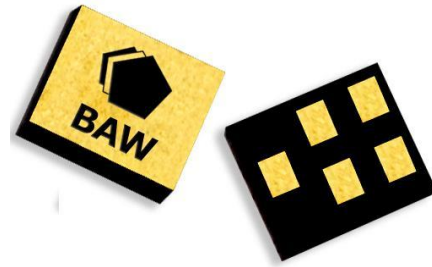
- Qualified for automotive applications based on AEC-Q200 standard
- Best in class rejection in LTE B7/B41 bands
- Industry leading small size: 1.4 x 1.2 x 0.46 mm
- Performance over -40 °C to +95 °C
- Ceramic chip-scale Package (CSP)
- Hermetically sealed
- RoHS compliant, Pb-free 
- Low Loss in WLAN CH1-Ch13
- Single-ended operation

General Description

885071-A is a high-performance, high-power Bulk Acoustic Wave (BAW) bandpass filter with extremely steep skirts, simultaneously exhibiting low loss in the WiFi band & high near-in rejection.

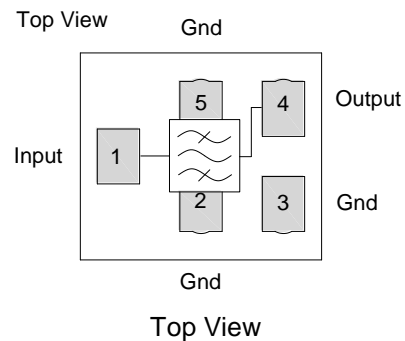
885071-A is specifically designed to enable coexistence of WiFi and LTE signals within the same device or in close proximity to one another. Its unique power handling capability allows for implementation into access points, small cell base stations, and other high power ISM band applications.

885071-A uses advanced packaging techniques to achieve an industry-leading 1.4 x 1.2 x 0.46 mm package. The filter has met stringent automotive requirements derived from AEC-Q200 standard and is suitable for use in infotainment and telematics applications.



CSP-5CT package: 1.4 x 1.2 x 0.46 mm

Functional Block Diagram



Pin Configuration

Pin No.	Label
1	Input
4	Output
2,3,5	Ground

Note:

1. Pin 1 must be used for input. The large signal performance of this filter (power handling and nonlinear response) is not symmetric

Ordering Information

Part No.	Description
885071-A	Packaged Part
885071-A-EVB	Evaluation board

Standard T/R size = 15,000 units/reel

Absolute Maximum Ratings ⁽¹⁾

Parameter	Rating
Storage Temperature ⁽¹⁾	- 55 °C to + 125 °C
Operable Temperature	- 40 °C to + 95 °C

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

Electrical Specifications ⁽¹⁾

Conditions unless otherwise noted: Device Temperature = -30 °C to +85 °C.

Parameter ⁽²⁾	Conditions	Min	Typ	Max	Units
Insertion Loss ⁽³⁾	2402.5 – 2421.5 MHz (WiFi Ch.1)	-	1.8	2.1	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		1.7	2.0	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		1.7	2.1	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		1.8	2.3	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		2.0	2.7	
Amplitude Variation	2402.5 – 2421.5 MHz (WiFi Ch.1)	-	0.7	1.1	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		0.8	1.3	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		0.9	1.3	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		0.6	1.6	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.4	3.7	
Input/Output VSWR	2402.5 – 2476.5 MHz (WiFi Ch.1-12)	-	1.9	2.4	-
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.8	2.3	
Impulse Response Length ⁽⁴⁾	2401 – 2483 MHz	-	160	TBD	ns
Attenuation	100 – 2300 MHz	37	38	-	dB
	2300 – 2370 MHz ⁽⁵⁾	47	54		
	2496 – 2501 MHz (+25 °C to +85 °C) ⁽⁵⁾	32	50		
	2496 – 2501 MHz (-30 °C to +25 °C) ⁽⁵⁾	18	50		
	2500 – 2505 MHz (+25 °C to +85 °C) ⁽⁵⁾	54	68		
	2500 – 2505 MHz (-30 °C to +25 °C) ⁽⁵⁾	45	68		
	2505 – 2570 MHz ⁽⁵⁾	48	53		
	2570 – 2620 MHz ⁽⁵⁾	44	48		
	2620 – 2690 MHz ⁽⁵⁾	43	47		
	4800 – 5000 MHz	36	48		
7200 – 7500 MHz	33	43			
2 nd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	-	60	-	dBc
3 rd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	-	138	-	dBc

Notes:

- In production, devices will be tested at room temperature to a guard-banded specification to ensure electrical compliance over temperature.
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances.
- Data is the integrated value of the linear s-parameter over 19 MHz window in the indicated band at the specified temperature.
- Duration in ns between the maxima and the point 40 dB below the maxima.
- Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature.
- An external impedance matching network with $\pm 3\%$ tolerance will be necessary to achieve the stated specifications. This is the optimum impedance in order to achieve the performance shown.

Electrical Specifications ⁽¹⁾

Conditions unless otherwise noted: Device Temperature = -40 °C to +95 °C.

Parameter ⁽²⁾	Conditions	Min	Typ	Max	Units
Insertion Loss ⁽³⁾	2402.5 – 2421.5 MHz (WiFi Ch.1)	-	1.8	2.1	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		1.7	2.0	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		1.7	2.1	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		1.8	2.3	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		2.0	2.8	
Amplitude Variation	2402.5 – 2421.5 MHz (WiFi Ch.1)	-	0.7	1.1	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		0.8	1.4	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		0.9	1.3	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		0.6	1.7	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.4	4.3	
Input/Output VSWR	2402.5 – 2476.5 MHz (WiFi Ch.1-12)	-	1.9	2.4	-
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.8	2.3	
Impulse Response Length ⁽⁴⁾	2401 – 2483 MHz	-	160	TBD	ns
Attenuation	100 – 2300 MHz	37	38	-	dB
	2300 – 2370 MHz ⁽⁵⁾	46	54		
	2496 – 2501 MHz (+25 °C to +95 °C) ⁽⁵⁾	32	50		
	2496 – 2501 MHz (-40 °C to +25 °C) ⁽⁵⁾	17	50		
	2500 – 2505 MHz (+25 °C to +95 °C) ⁽⁵⁾	53	68		
	2500 – 2505 MHz (-40 °C to +25 °C) ⁽⁵⁾	42	68		
	2505 – 2570 MHz ⁽⁵⁾	48	53		
	2570 – 2620 MHz ⁽⁵⁾	44	48		
	2620 – 2690 MHz ⁽⁵⁾	43	47		
	4800 – 5000 MHz	36	48		
7200 – 7500 MHz	33	43			
2 nd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	-	60	-	dBc
3 rd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	-	138	-	dBc

Notes:

- In production, devices will be tested at room temperature to a guard-banded specification to ensure electrical compliance over temperature.
- Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances.
- Data is the integrated value of the linear s-parameter over 19 MHz window in the indicated band at the specified temperature.
- Duration in ns between the maxima and the point 40 dB below the maxima.
- Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature.
- An external impedance matching network with $\pm 3\%$ tolerance will be necessary to achieve the stated specifications. This is the optimum impedance in order to achieve the performance shown.

Electrical Specifications ⁽¹⁾

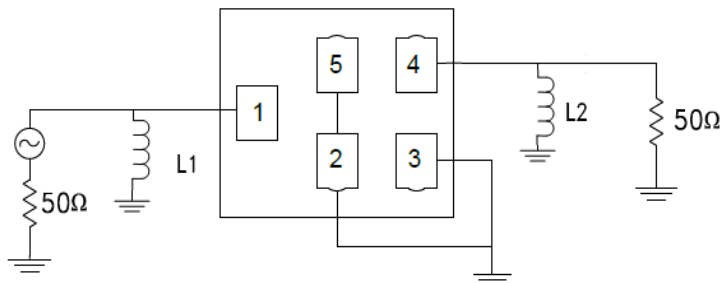
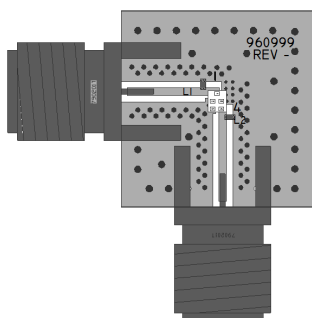
Conditions unless otherwise noted: Device Temperature = 0 °C to +70 °C.

Parameter ⁽²⁾	Conditions	Min	Typ	Max	Units
Insertion Loss ⁽³⁾	2402.5 – 2421.5 MHz (WiFi Ch.1)	–	1.8	2.1	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		1.7	2.0	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		1.7	2.0	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		1.8	2.2	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		2.0	2.6	
Amplitude Variation	2402.5 – 2421.5 MHz (WiFi Ch.1)	–	0.7	1.0	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		0.8	1.3	
	2412.5 – 2471.5 MHz (WiFi Ch.3-11)		0.9	1.3	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		0.6	1.3	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.4	3.2	
Input/Output VSWR	2402.5 – 2476.5 MHz (WiFi Ch.1-12)	–	1.9	2.4	–
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.8	2.3	
Impulse Response Length ⁽⁴⁾	2401 – 2483 MHz	–	160	TBD	ns
Attenuation	100 – 2300 MHz	37	38	–	dB
	2300 – 2370 MHz ⁽⁵⁾	47	54		
	2496 – 2501 MHz (+25 °C to +70 °C) ⁽⁵⁾	32	50		
	2496 – 2501 MHz (–0 °C to +25 °C) ⁽⁵⁾	27	50		
	2500 – 2505 MHz (+25 °C to +70 °C) ⁽⁵⁾	59	68		
	2500 – 2505 MHz (–0 °C to +25 °C) ⁽⁵⁾	53	68		
	2505 – 2570 MHz ⁽⁵⁾	48	53		
	2570 – 2620 MHz ⁽⁵⁾	44	48		
	2620 – 2690 MHz ⁽⁵⁾	43	47		
	4800 – 5000 MHz	36	48		
7200 – 7500 MHz	33	43			
2 nd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	–	60	–	dBc
3 rd Harmonics	CW Tone = 2442 MHz at 22.5 dBm	–	138	–	dBc

Notes:

- In production, devices will be tested at room temperature to a guard-banded specification to ensure electrical compliance over temperature.
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- Data is the integrated value of the linear s-parameter over 5 MHz range at the specified temperature.
- An external impedance matching network with $\pm 3\%$ tolerance will be necessary to achieve the stated specifications. This is the optimum impedance in order to achieve the performance shown.

Evaluation Board



Notes:

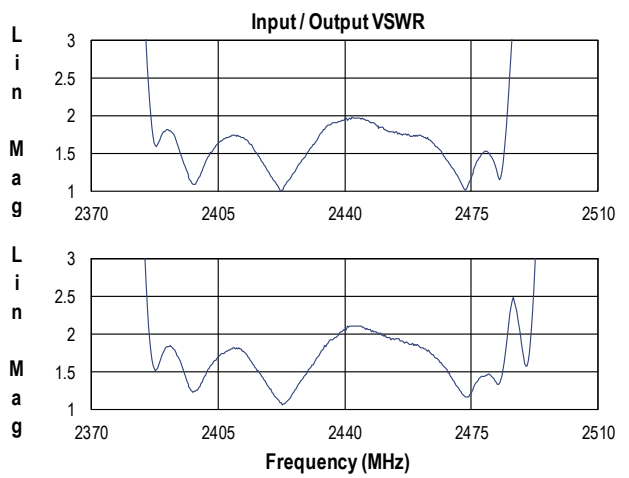
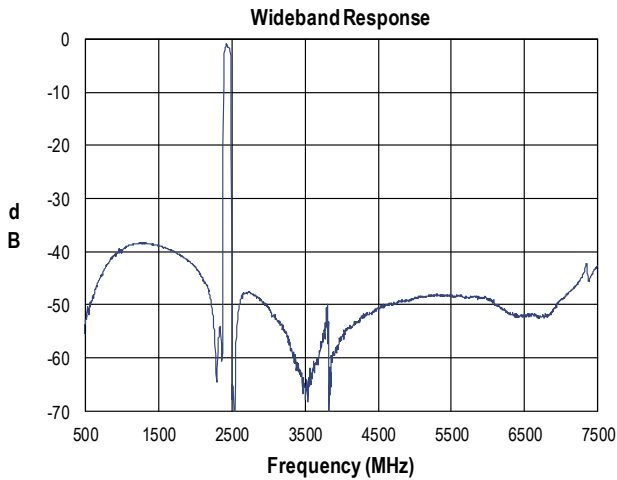
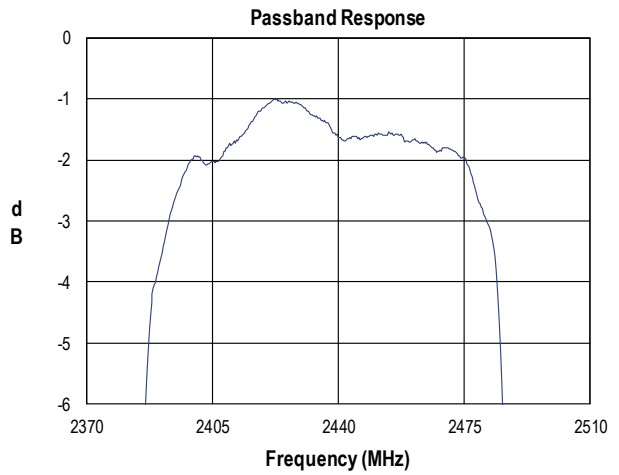
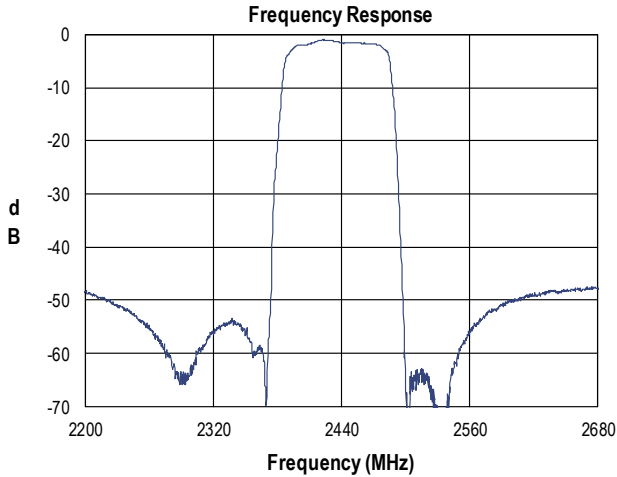
1. Matching component values shown are for the specified TriQuint evaluation board. Value adjustment may be required in end user product circuits depending on component manufacturer and PCB material.
2. PCB: .500 x .500 x .062; Construction: ½ oz Cu Top Layer; TLY-5A (.0075) ½ oz Cu Middle Layer, FR4; ½ oz Cu Bottom Layer. (dimensions are in inches)

Bill of Material

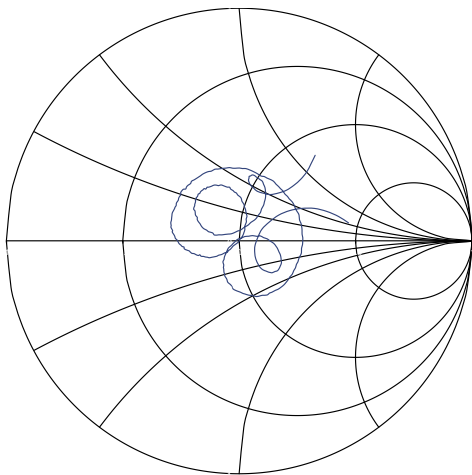
Reference Des.	Value	Description	Manuf.	Part Number
L1	7.5 nH	0201 chip inductor ±3 %	MuRata	LQP03TN7N5H02
L2	8.2 nH	0201 chip inductor ±3 %	MuRata	LQP03TN8N2H02
SMA	N/A	SMA connector	Radiall USA	9602-1111-018
PCB	N/A	3-layer	Multiple	960999

Performance Plots

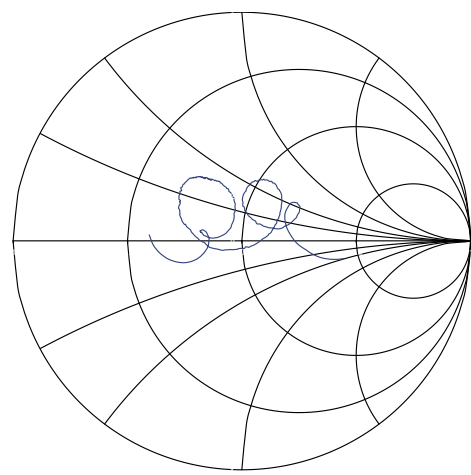
Test conditions unless otherwise noted: Temp.= +25 °C



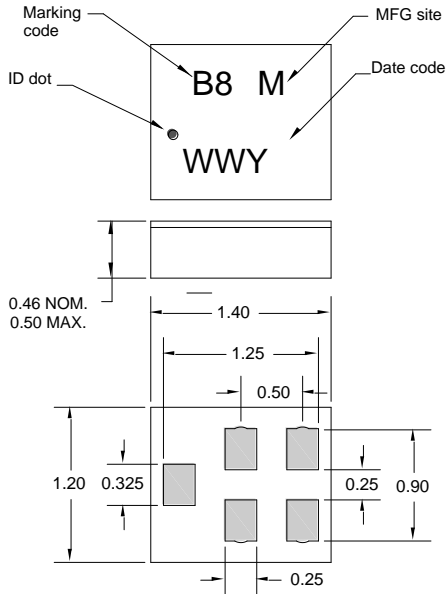
Input Smith Chart



Output Smith Chart



Package Information, Marking and Dimensions



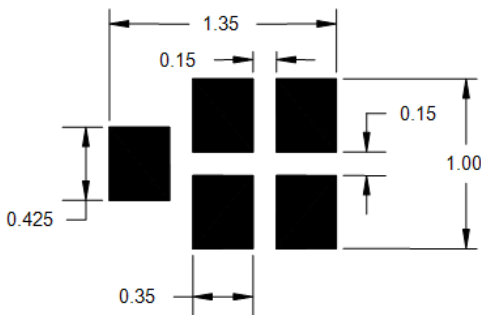
Package Style: CSP-5CT
Dimensions: 1.4 x 1.2 x 0.46 mm

Body: Al_2O_3 ceramic
Lid: Kovar or Alloy 42, Au over Ni plated
Terminations: Au plating 0.5 - 1.0 μ m, over a 2-6 μ m Ni plating

All dimensions shown are nominal in millimeters
All tolerances are ± 0.05 mm except overall length and width ± 0.10 mm

The date code consists of: WW = 2 digit week,
Y = last digit of year, M = manufacturing site code

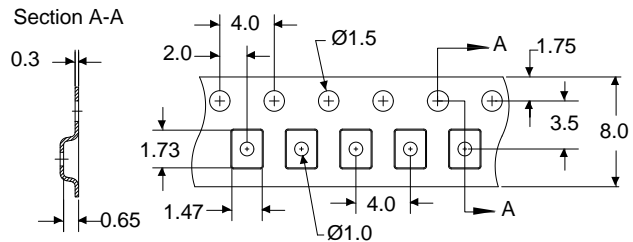
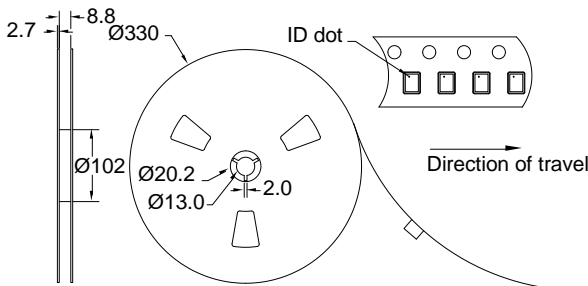
PCB Mounting Pattern



Notes:

1. All dimensions are in millimeters. Angles are in degrees.
2. This drawing specifies the mounting pattern used on the TriQuint evaluation board for this product. Some modification may be necessary to suit end user assembly materials and processes.

Tape and Reel information



Standard T/R size=15,000 units/reel.
All dimensions are in millimeters.

Product Compliance Information

ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: 1C
Test: Human Body Model (HBM)
Standard: ESDA/JEDEC JS-001

ESD Rating: C3
Test: Charge Device Model (CDM)
Standard: ESDA/JEDEC JES-002

MSL Rating

Not applicable. Hermetic package.

Solderability

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

Refer to [Soldering Profile](#) for recommended guidelines.

RoHS Compliance

This part is compliant with EU 2002/95/EC RoHS directive (Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment).

This product also has the following attributes:

- Halogen Free (Chlorine, Bromine)
- Antimony Free
- TBBP-A (C₁₅H₁₂Br₄O₂) Free
- PFOS Free
- SVHC Free

Contact Information

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

Web: www.triquint.com Tel: 877-800-8584
Email: customer.support@qorvo.com

For information about the merger of RFMD and TriQuint as Qorvo:

Web: www.qorvo.com

For technical questions and application information: Email: flapplication.engineering@tqs.com

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