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885033

## 2.4 GHz WLAN/BT LTE Co-Existence Filter

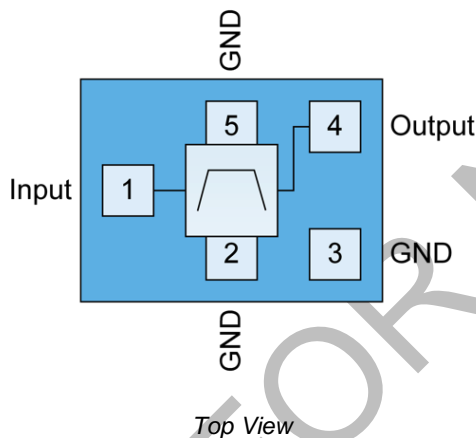
### Product Overview

The 885033 is a high-performance, high power Bulk Acoustic Wave (BAW) band-pass filter with extremely steep skirts, simultaneously exhibiting low loss in the WiFi band and high near-in rejection in the 2.6 GHz bands.

885033 is specifically designed to enable coexistence of WiFi and LTE signals within the same device or in close proximity to one another.

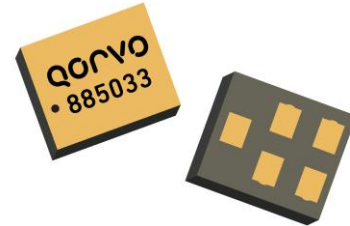
The 885033 uses common module packaging techniques to achieve the industry standard 1.4 mm x 1.2 mm x 0.46 mm footprint. The filter exhibits excellent power handling capabilities.

### Functional Block Diagram



### Pin Configuration

Pin Number	Label
1	Input
4	Output (to Antenna)
2,3,5	Ground*



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

### Key Features

- Low loss in WLAN band with extended upper corner for inclusion of bluetooth
- High rejection in B38/B40 bands
- Industry leading small size: 1.4 mm x 1.2 mm x 0.46 mm
- Performance over -30 to +85 °C
- Single ended operation
- Hermetically sealed
- RoHS compliant, Pb-free module package

### Applications

- WiFi bandpass filter that enables the coexistence of 4G (WiMAX/LTE/TD-LTE) & WiFi signals
- Handsets
- Portable Hotspots
- Mobile Routers
- Smart Meters
- High-power WLAN Access Points
- Applicable reject bands: 2.6 GHz WiMAX/LTE, TDD-LTE Bands 38 & 40

### Ordering Information

Part Number	Description
885033	Packaged Part
885033-EVB	Evaluation Board

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

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## Absolute Maximum Ratings

Parameter	Rating
Storage Temperature <sup>1</sup>	-40 to +85 °C
Operable Temperature	-30 to +85 °C
Absolute Max Input Power <sup>2</sup>	+31 dBm

Notes:

1. Operation of this device outside the parameter ranges given may cause permanent damage.
2. Maximum CW signal applied for up to 100 msec with no damage.

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## Electrical Specifications<sup>1</sup>

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

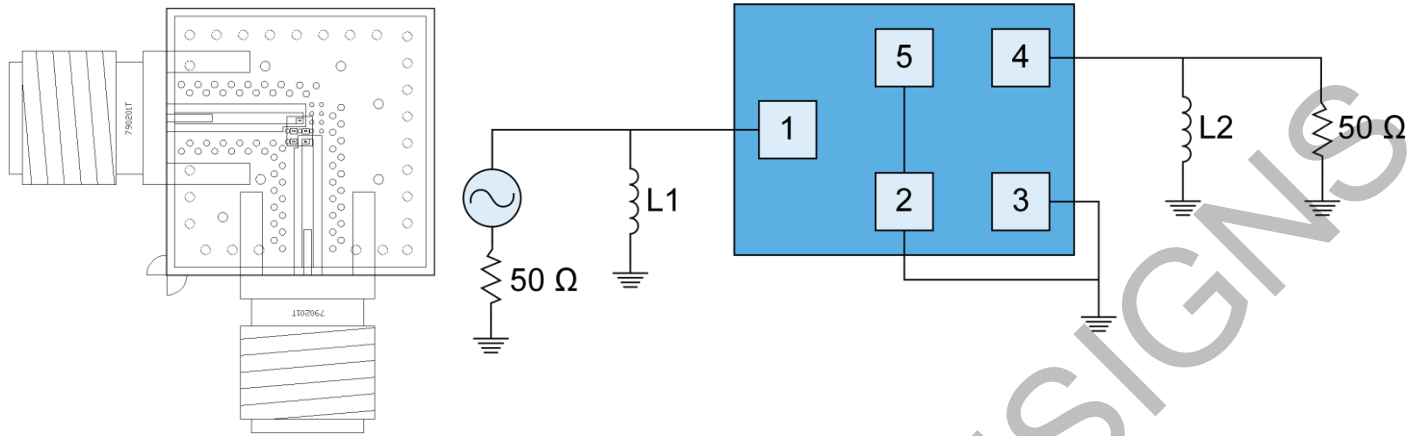
Parameter <sup>2</sup>	Condition	Min.	Typ. (+25 °C)	Max.	Unit
Insertion Loss <sup>3</sup>	2402.5 – 2421.5 MHz (WiFi Ch.1)	–	1.7	2.2	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		1.5	2.0	
	2412.5 – 2471.5 MHz (WiFi Ch.3 – 11)		1.5	1.9	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		1.6	2.1	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		1.7	2.2	
Passband Ripple	2402.5 – 2421.5 MHz (WiFi Ch.1)	–	0.8	1.5	dB
	2407.5 – 2426.5 MHz (WiFi Ch.2)		0.8	1.1	
	2412.5 – 2471.5 MHz (WiFi Ch.3 – 11)		0.9	1.1	
	2457.5 – 2476.5 MHz (WiFi Ch.12)		0.4	1.0	
	2462.5 – 2481.5 MHz (WiFi Ch.13)		0.6	1.8	
VSWR, In & Out	2402.5 – 2481.5 MHz (WiFi Ch.1 – 13)	–	1.9	2.2	–
Impulse Response Length <sup>4</sup>	2401 – 2483 MHz	–	160	200	ns
Rejection/Attenuation	100 – 2300 MHz	35	37	–	dB
	2300 – 2365 MHz (+25 to +85 °C) <sup>5</sup>	50	53	–	dB
	2300 – 2365 MHz (-30 to +25 °C) <sup>5</sup>	50	53	–	dB
	2365 – 2370 MHz (+25 to +85 °C) <sup>5</sup>	54	58	–	dB
	2365 – 2370 MHz (-30 to +25 °C) <sup>5</sup>	54	58	–	dB
	2370 – 2375 MHz (+25 to +85 °C) <sup>5</sup>	45	61	–	dB
	2370 – 2375 MHz (-30 to +25 °C) <sup>5</sup>	56	61	–	dB
	2375 – 2380 MHz (+25 to +85 °C) <sup>5</sup>	25	49	–	dB
	2375 – 2380 MHz (-30 to +25 °C) <sup>5</sup>	34	49	–	dB
	2500 – 2505 MHz (+25 to +85 °C) <sup>5</sup>	29	41	–	dB
	2500 – 2505 MHz (-30 to +25 °C) <sup>5</sup>	20	41	–	dB
	2505 – 2570 MHz (+25 to +85 °C) <sup>5</sup>	49	55	–	dB
	2505 – 2570 MHz (-30 to +25 °C) <sup>5</sup>	38	55	–	dB
	2570 – 2620 MHz <sup>5</sup>	45	48	–	dB
	2620 – 2690 MHz <sup>5</sup>	44	46	–	dB
4800 – 5000 MHz	45	49	–	dB	
7200 – 7500 MHz	36	40	–	dB	
2 <sup>nd</sup> Harmonics	CW Tone = 2442 MHz @ 22.5 dBm	–	60	–	dBc
3 <sup>rd</sup> Harmonics	CW Tone = 2442 MHz @ 22.5 dBm	–	138	–	dBc
RF Input Power <sup>6</sup>	2401 – 2481.5 MHz		27		dBm

**Notes:**

1. In production, devices will be tested at room temperature to a guard-banded specification to ensure electrical compliance over temperature.
2. Electrical margin has been built into the design to account for the variations due to temperature drift and manufacturing tolerances.
3. Data is the integrated value of the linear-parameter over the indicated band at the specified temperature.
4. Duration in ns between the maxima and the point 40 dB below the maxima.
5. Data is the integrated value of the linear-parameter over 5MHz range at the specified temperature.
6. Input power applied at 50% duty cycle for a minimum of 5,000 hrs at 55 °C in the frequency band specified.

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## 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.

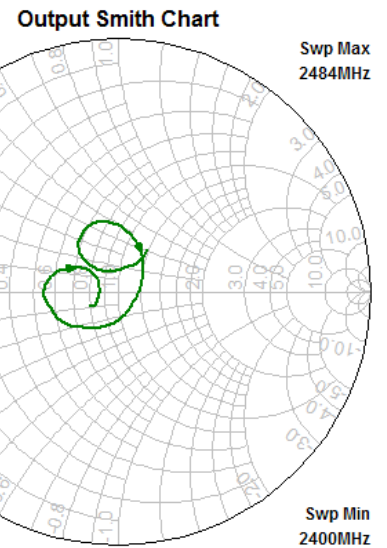
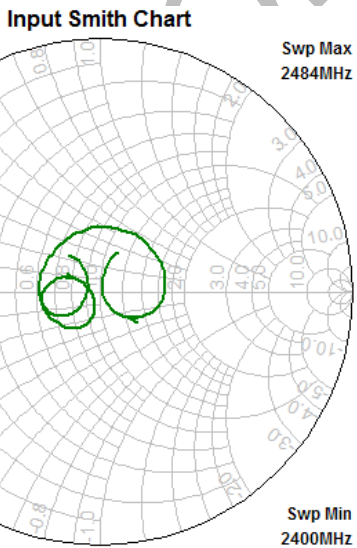
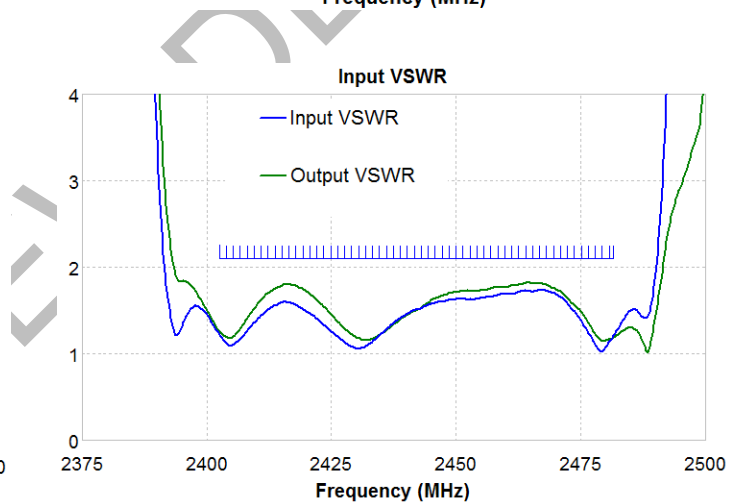
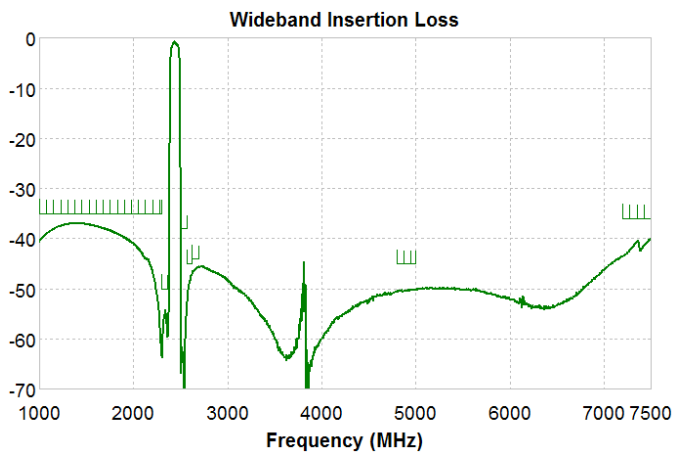
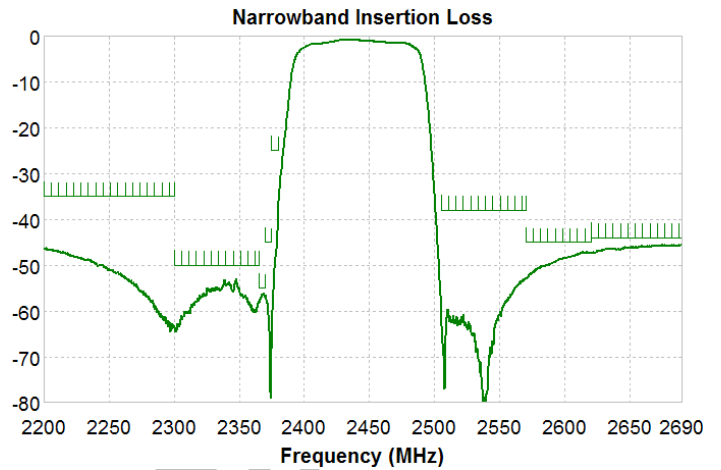
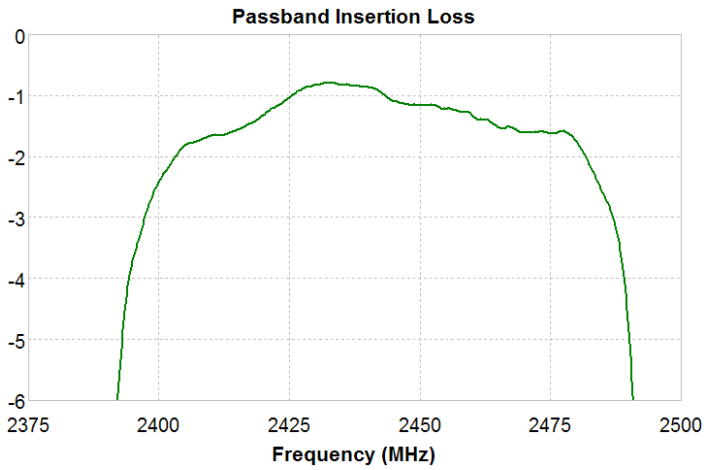
## Bill of Material

Reference Des.	Value	Description	Manuf.	Part Number
L1	8.2 nH	Chip Inductor, 0201, +/- 5%	Murata	
L2	6.8 nH	Chip Inductor, 0201, +/- 5%	Murata	
PCB	N/A	3-layer	Multiple	960999

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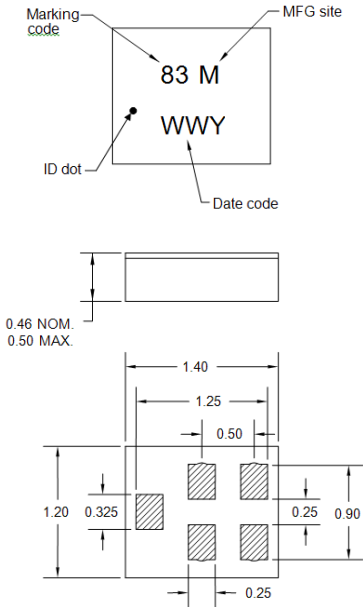
## Performance Plots

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



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## Package Information, Marking and Dimensions



**Package Style: CSP-5CT**

**Dimensions: 1.4 mm x 1.2 mm x 0.46 mm**

**Body: Al<sub>2</sub>O<sub>3</sub> ceramic**

**Lid: Kovar or Alloy 42, Au over Ni plated**

**Terminations: Au plating 0.5 – 1.0 μm, over a 2 – 6 μm Ni plating**

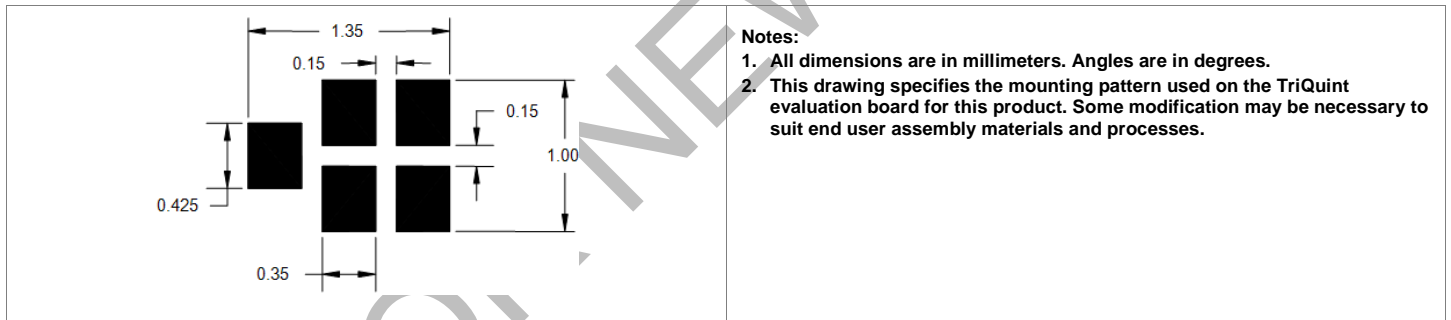
The date code consists of: WW = 2 digit week, Y = last digit of year, M = manufacturing site code

An asterisk (\*) in front of the marking code indicates prototype.

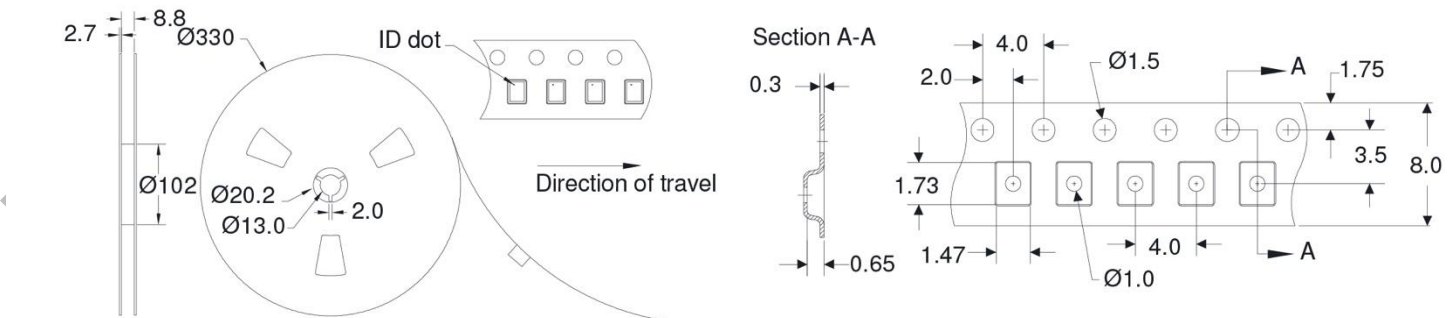
All dimensions shown are nominal in millimeters.

All tolerances are ±0.05 mm except overall length and width ±0.10 mm

## PCB Mounting Pattern



## Tape and Reel information



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

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## Handling Precautions

PARAMETER	RATING	STANDARD
ESD – Human Body Model (HBM)	Class 1B	ESDA/JEDEC JS-001
ESD – Machine Model (MM))	350V	JESD22-A115
MSL – Moisture Sensitivity Level	Not applicable. Hermetic package	IPC/JEDEC J-STD-020



Caution!  
ESD sensitive device

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## Solderability

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Compatible with both lead-free (260 °C max. reflow temperature) and tin/lead (245 °C max. reflow temperature) soldering processes.  
Package lead plating: Plated Au over Ni

## RoHS Compliance

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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

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

**Web:** [www.qorvo.com](http://www.qorvo.com)

**Tel:** 1-844-890-8163

**Email:** [customer.support@qorvo.com](mailto:customer.support@qorvo.com)

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