885033

2.4GHz WLAN/BT LTE Co-Existence Filter

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

Product Features

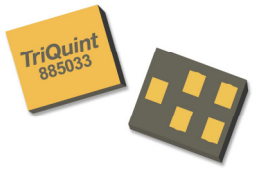
- Low Loss in WLAN band with extended upper corner for inclusion of Bluetooth
- High Rejection in B38/B40 bands
- Industry leading small size: 1.4 x 1.2 x 0.46 mm
- Performance over -30 to +85 ºC
- Single Ended operation
- Hermetically sealed
- RoHS compliant, Pb-free module package

General Description

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 2.6GHz bands.

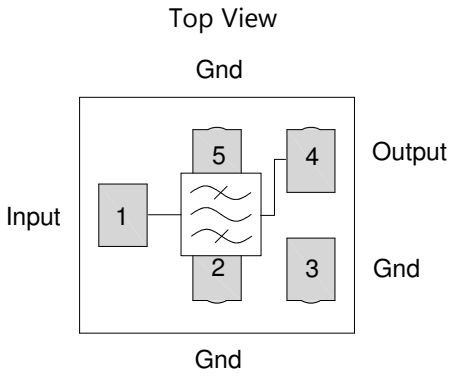
885033 is specifically designed to enable coexistence of WiFi and LTE signals within the same device or in close proximity to one another.

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



CSP-5CT package: 1.4x1.2x0.46mm

Functional Block Diagram



Pin Configuration

Pin No.	Label
1	Input
4	Output (to Antenna)
2,3,5	Ground*

Ordering Information

Part No.	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 [1]	-40 to +85°C
Operable Temperature	-30 to +85°C
Absolute Max Input Power[2]	+31dBm

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.

Electrical Specifications [1]

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

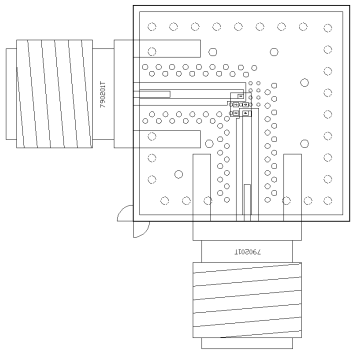
Parameter [2]	Conditions	Min	Typ (+25°C)	Max	Units
Insertion Loss [3]	2402.5 – 2421.5 MHz (WiFi Ch.1) 2407.5 – 2426.5 MHz (WiFi Ch.2) 2412.5 – 2471.5 MHz (WiFi Ch.3-11) 2457.5 – 2476.5 MHz (WiFi Ch.12) 2462.5 – 2481.5 MHz (WiFi Ch.13)	-	1.7 1.5 1.5 1.6 1.7	2.2 2.0 1.9 2.1 2.2	dB
Passband Ripple	2402.5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

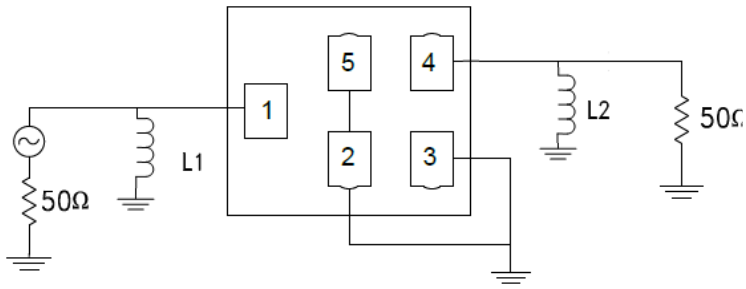
Notes:

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 s-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 s-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

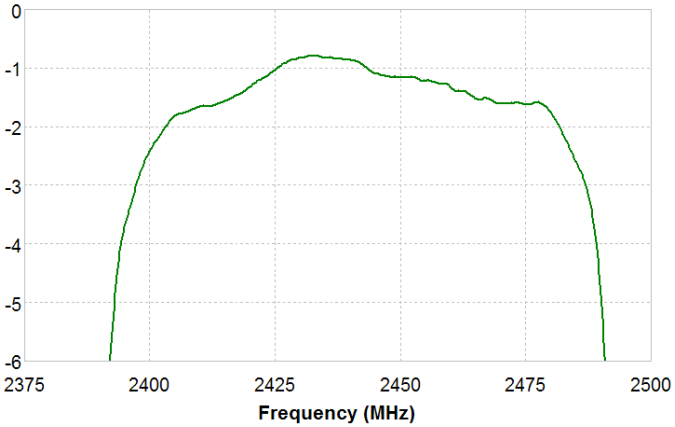
Reference Des.	Value	Description	Manuf.	Part Number
L1	8.2 nH	Chip Inductor, 0201, +/- 5%	Murata	
L2	6.8 nH	Chip Inductor, 0201, +/- 5%	Murata	
PCB	N/A	3-layer	Multiple	960999

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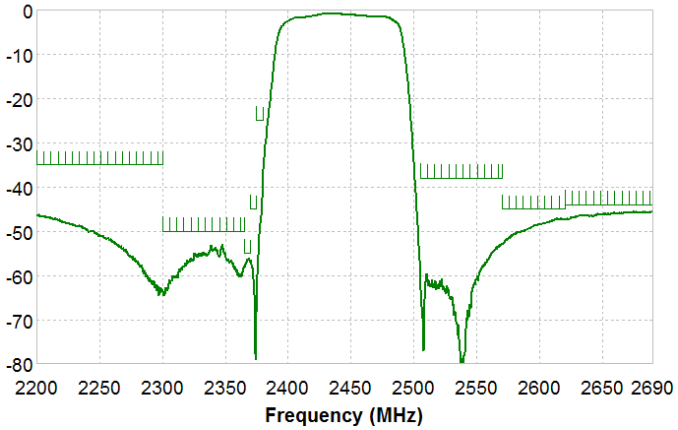
Performance Plots

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

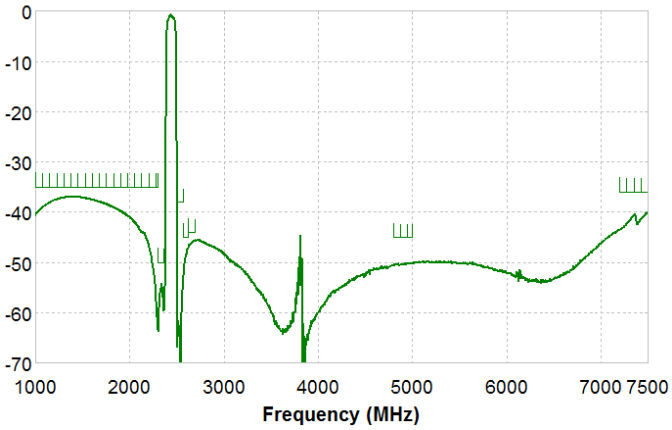
Passband Insertion Loss



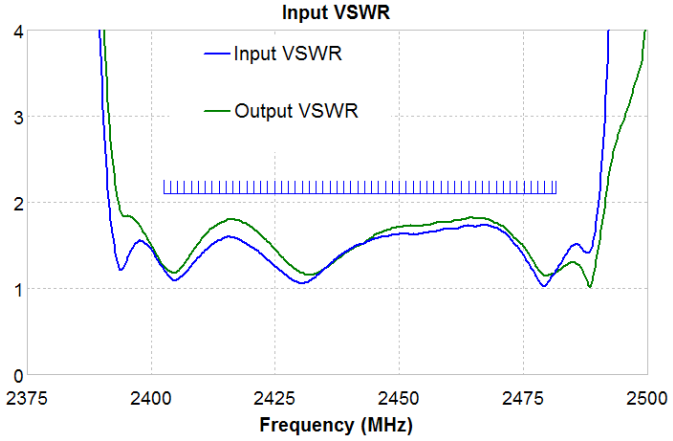
Narrowband Insertion Loss



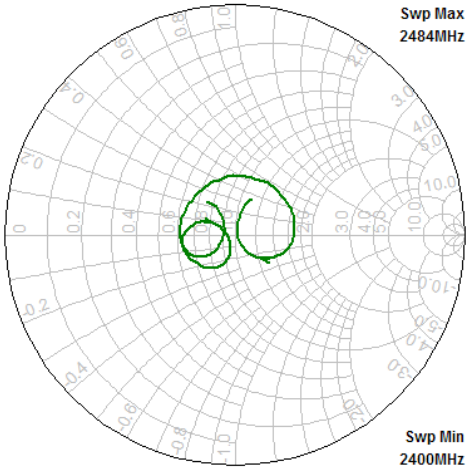
Wideband Insertion Loss



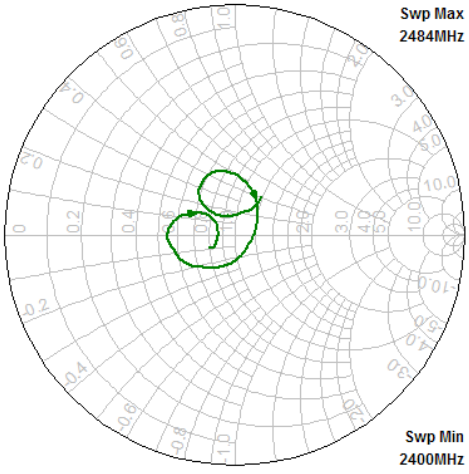
Input VSWR



Input Smith Chart

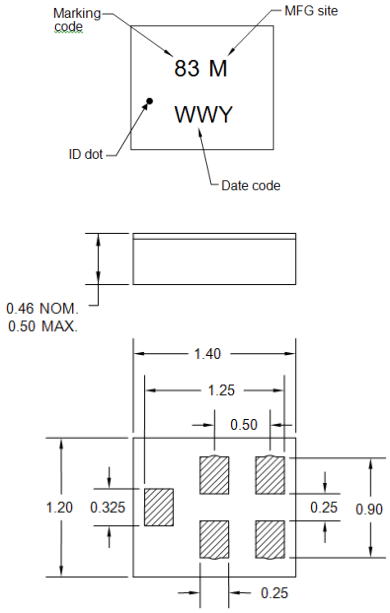


Output Smith Chart



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Package Information, Marking and Dimensions



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

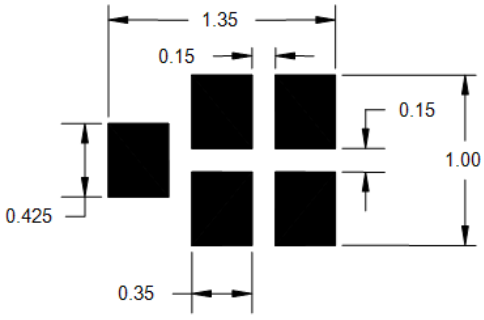
Body: Al_2O_3 ceramic
Lid: *Kovar* or *Alloy 42*, *Au* over *Ni* plated
Terminations: *Au* plating 0.5 - 1.0µm, over a 2-6µm *Ni* plating

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 ±0.05mm except overall length and width ±0.10mm

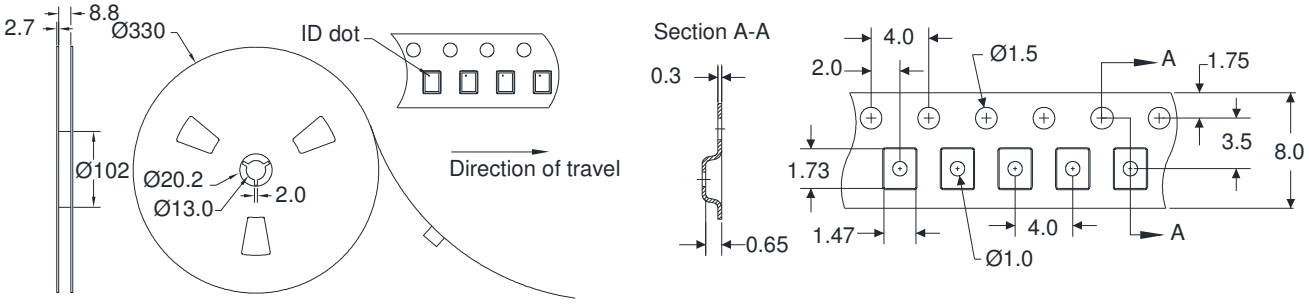
PCB Mounting Pattern



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.

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Product Compliance Information

ESD Sensitivity Ratings



Caution! ESD-Sensitive Device

ESD Rating: Class 1B
Value: 800V
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114F

ESD Rating: 350V
Value: 350V
Test: Machine Model (MM)
Standard: JEDEC Standard JESD22-A115

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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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

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