

# 885017

## 2436 MHz BAW 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, 2.3GHz WiMAX/LTE, LTE Bands 7 & 38, TD-LTE Band 40, WCS, WiBro, Indian 2.3GHz 4G band

### Product Features

- Low Loss in WLAN band w/ extended upper corner for inclusion of Bluetooth
- High Rejection in 2300-2380 MHz bands: WiMAX/WCS/WiBro/Band 40/Indian 4G band
- Industry-leading small size: 1.4 x 1.2 x 0.46 mm
- +28 dBm (CW) power handling
- Performance over -30 to +85 °C
- Single-ended operation
- Ceramic chip-scale package (CSP)
- Hermetically Sealed
- RoHS compliant, Pb-free

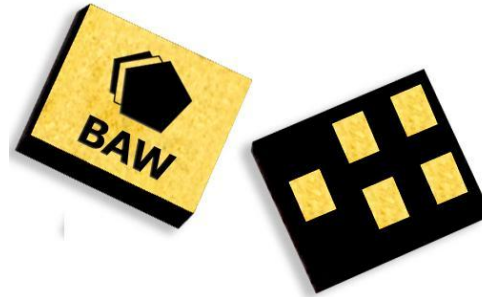
### General Description

885017 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 in the 2.3GHz & 2.6GHz WiMAX/LTE/TD-LTE bands.

885017 is specifically designed to enable coexistence of WiFi and WiMAX/LTE signals within the same device or in close proximity to one another.

885017 uses advanced and inexpensive packaging techniques to achieve an industry-leading 1.4 x 1.2 x 0.46 mm package. The filter exhibits excellent power handling capabilities.

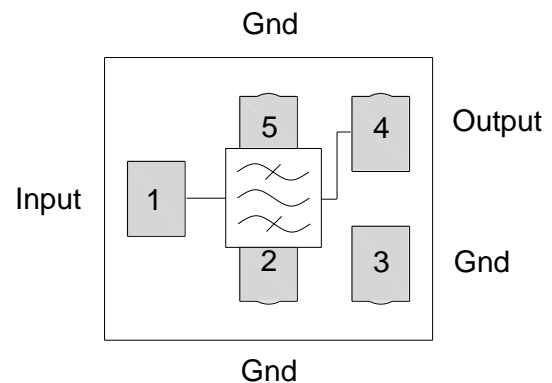
885017 is referenced on multiple designs with the leading WiMAX chipset makers



1.4 x 1.2 x 0.46 mm

### Functional Block Diagram

Top view



### Pin Configuration

Pin # SE	Description
1	Input
4	Output
2,3,5	Case Ground

### Ordering Information

Part No.	Description
885017	packaged part
885017-EVB	evaluation board

Standard T/R size = 10,000 units/reel.

## Specifications

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

Specified Temperature Range: <sup>(2)</sup> -30 to + 85 °C (unless otherwise noted)

Parameter	Conditions	Min	Typical <sup>(3)</sup>	Max	Units
Center Frequency		-	2436	-	MHz
Maximum Insertion Loss	2400 - 2472 MHz @ 25 °C	-	1.8	2.5	dB
	2400 - 2472 MHz -30 to +85 °C	-	-	3.5	dB
	2401 - 2480 MHz -30 to +55 °C	-	2.5	3.5	dB
	2401 - 2480 MHz +55 to +85 °C	-	2.5	5.0	dB
	2480 - 2482 MHz <sup>(6)</sup> +25 °C	-	3.0	5.0	dB
Absolute Attenuation <sup>(4)</sup>	800 - 2000 MHz	22	25	-	dB
	2000 - 2300 MHz	24	26	-	dB
	2300 - 2360 MHz	25	36	-	dB
	2360 - 2370 MHz <sup>(6)</sup>	15	20	-	dB
	2370 - 2380 MHz <sup>(6)</sup>	5	8	-	dB
	2496 - 2502 MHz <sup>(7)</sup>	-	20	-	dB ave
	2500 - 2502 MHz	-	30	-	dB
	2500 - 2510 MHz <sup>(7)</sup>	-	45	-	dB ave
	2502 - 2690 MHz	25	30	-	dB
	2690 - 5000 MHz	25	28	-	dB
	7200 - 7416 MHz	-	14	-	dB
Amplitude Ripple	2400 - 2472 MHz (within any 18MHz Channel)	-	1.3	2.0	dB p-p
Input/output Return Loss	2400 - 2472MHz	6.0	10	-	dB
Source Impedance (single-ended) <sup>(5)</sup>		-	50	-	Ω
Load Impedance (single-ended) <sup>(5)</sup>		-	50	-	Ω

Notes:

- All specifications are based on the TriQuint schematic for the main reference design shown on page 3
- In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
- Typical values are based on average measurements at room temperature
- Relative to zero dB
- This is the optimum impedance in order to achieve the performance shown
- These bands fall on the filter transitions, thus the typical attenuation/loss values given are prone to high variability
- Average attenuation level over the band

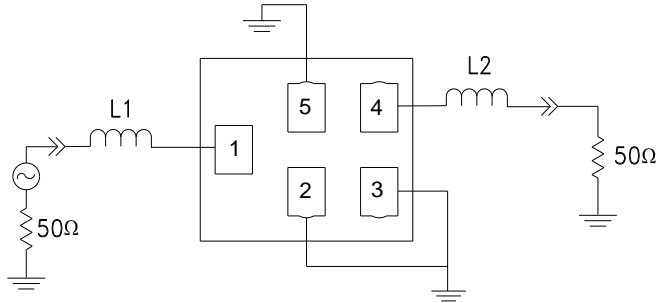
### Absolute Maximum Ratings

Parameter <sup>(8)</sup>	Rating
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power <sup>(9)</sup> (In passband, CW signal)	+28 dBm

- Operation of this device outside the parameter ranges given above may cause permanent damage.
- Represents the maximum allowable power level without electrical degradation equivalent to duration of 10,000 hours at 55°C

**Reference Design – 50Ω SE Input, 50Ω SE Output**

**Schematic (top view)**

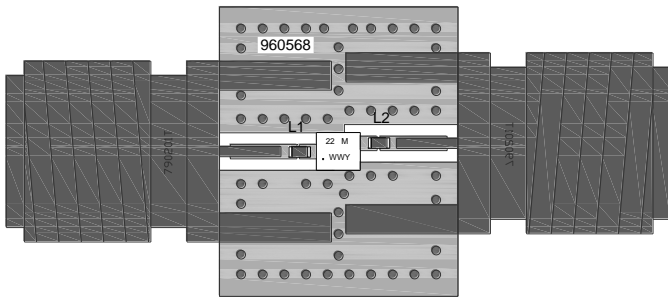


1. Notes:  
 Actual matching values may vary due to PCB layout and parasitic

**Pin Functions**

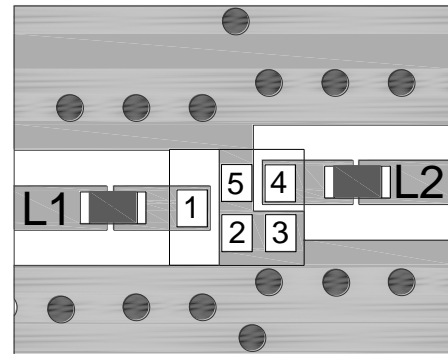
Pin #	Description
1	Input
4	Output
2,3,5	Ground

**PC Board**



Notes:  
 Top, middle & bottom layers: 1 oz copper  
 Substrates: FR4 dielectric, .031” thick  
 Finish plating: Nickel: 3-8μm thick, Gold: .03-.2μm thick  
 Hole plating: Copper min .0008μm thick

**PCB routing detail**

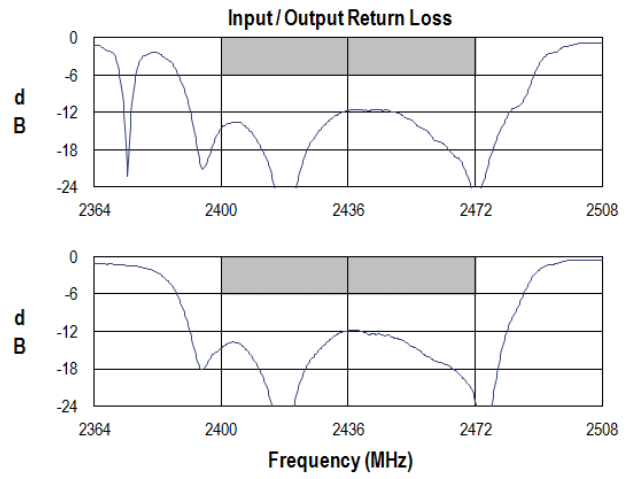
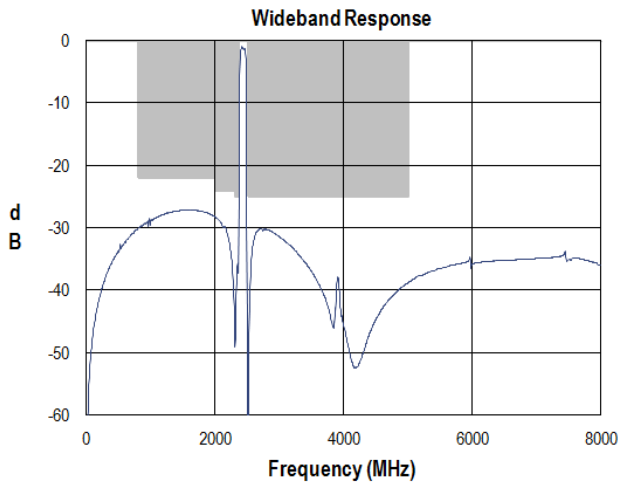
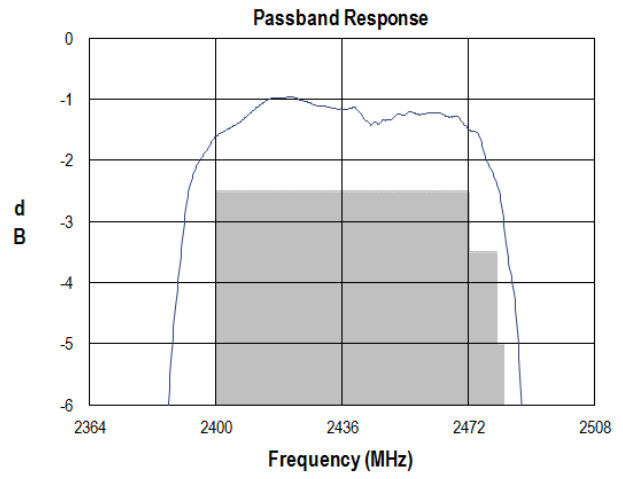
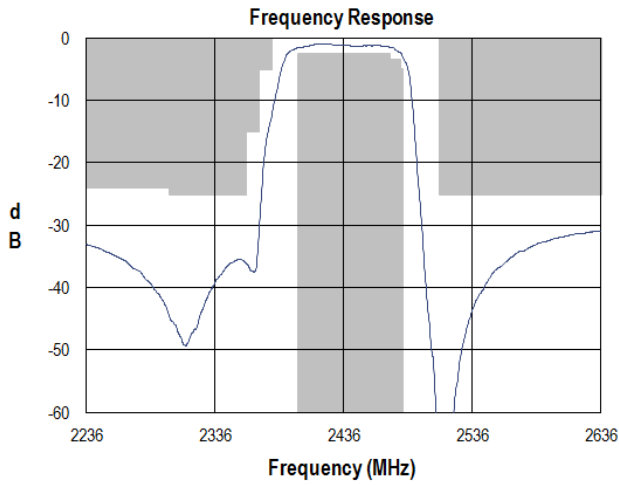


Notes:  
 1. Grey indicates metalized area  
 2. This footprint represents a recommendation only  
 3. For solder pad recommendation see mechanical information

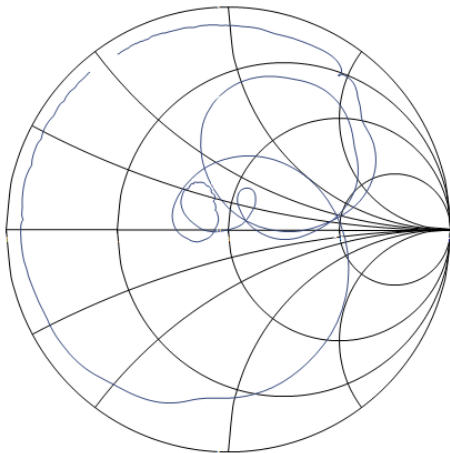
**Bill of Material**

Reference Desg.	Value	Description	Manufacturer	Part Number
L1	1.5nH	Chip Inductor, 0402, +/- 0.2nH	MuRata	LQG15HN1N5S02
L2	1.5nH	Chip Inductor, 0402, +/- 0.2nH	MuRata	LQG15HN1N5S02
PCB	N/A	3-layer	multiple	960568

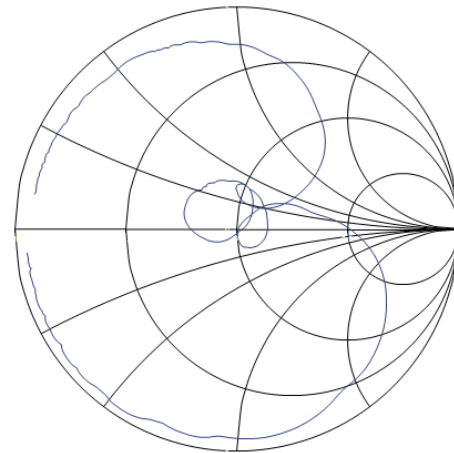
**Typical Performance** (at room temperature)



**Input Smith Chart**

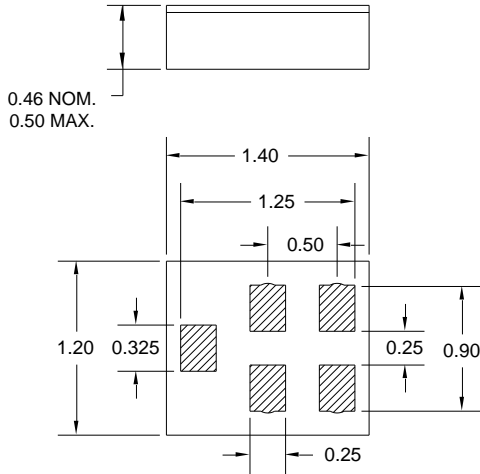


**Output Smith Chart**



**Mechanical Information**

**Package Information, Dimensions and Marking**

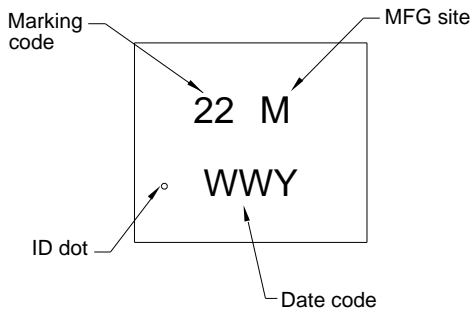


Package Style: CSP-5BT  
 Dimensions: 1.4 x 1.2 x 0.46 mm

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

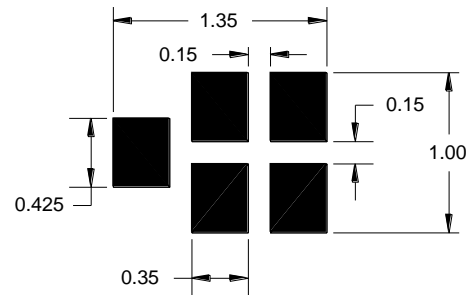
All dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15$ mm except overall length and width  $\pm 0.10$ mm

**Marking**



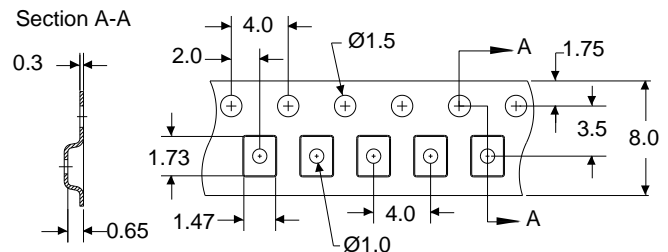
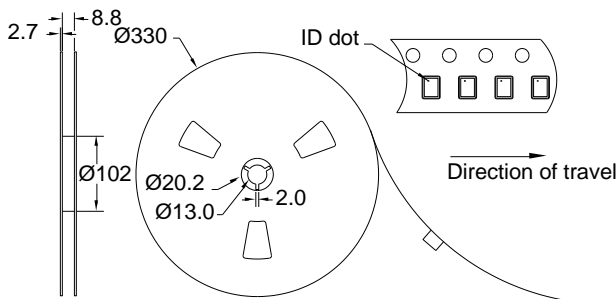
The date code consists of: WW = 2 digit week,  
 Y = last digit of year, M = manufacturing site code

**PCB Footprint**



**Tape and Reel Information**

Standard T/R size = 10,000 units/reel. All dimensions are in millimeters



## Product Compliance Information

### ESD Information



#### Caution! ESD-Sensitive Device

ESD Rating: 1C

Value: Passes  $\geq 1600$  V min.  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: B

Value: Passes  $\geq 350$  V min.  
Test: Machine Model (MM)  
Standard: JEDEC Standard JESD22-A115

### MSL Rating

Devices are hermetic, therefore MSL is not applicable.

### Solderability

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

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

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<sub>15</sub>H<sub>12</sub>Br<sub>4</sub>O<sub>2</sub>) 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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