

# 885010

## 2442 MHz BAW Filter

### Applications

- WiFi/Bluetooth/ISM notch filter to enable coexistence between WiMAX/LTE/TD-LTE & WiFi/BT/ISM radios
- Applicable passbands: 2.6 GHz WiMAX/LTE, 2.3 GHz WiMAX/LTE, LTE Bands 7 & 38, TD-LTE Band 40, WCS, WiBro, Indian 2.3GHz 4G band
- Handsets
- Portable Hotspots
- Mobile Routers
- Smart Meters

### Product Features

- Rejects entire 2.4 GHz WiFi/BT/ISM bands
- Low Loss in 2502-2690 MHz bands: WiMAX/LTE/TD-LTE/Bands 7 & 38
- Low Loss in 2300-2360 MHz bands: WiMAX/WCS/WiBro/Band 40/Indian 4G band
- Industry-leading small size: 1.7 x 1.3 x .46 mm
- Power Handling: +28 dBm (ave), +37.5 dBm (peak)
- Performance -30 to +85 °C
- Ceramic chip-scale Package (CSP)
- Hermetic **RoHS** compliant, **Pb-free**

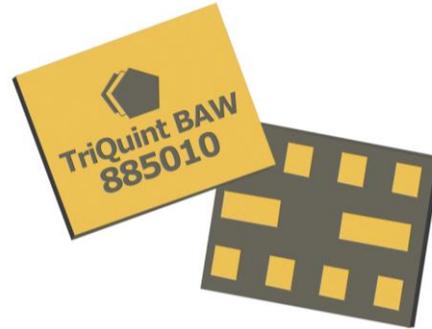
### General Description

885010 is a high-performance Bulk Acoustic Wave (BAW) notch filter designed to reject emissions in the WiFi, Bluetooth, and ISM bands, while passing both the 2.3GHz & 2.6GHz WiMAX/LTE/TD-LTE bands.

885010 is specifically designed to enable coexistence of WiFi/BT/ISM and 4G signals within the same device or in close proximity to one another. It is specified to support WiMAX requirements in the entire 2496-2690 MHz band & LTE Bands 7 & 38. The filter also passes the 2.3GHz band: WiBro, WCS, Band 40 & the Indian 4G band.

The 885010 uses advanced and inexpensive packaging techniques to achieve an industry-leading 1.7 x 1.3 x .46 mm package. The filter exhibits excellent power handling capabilities.

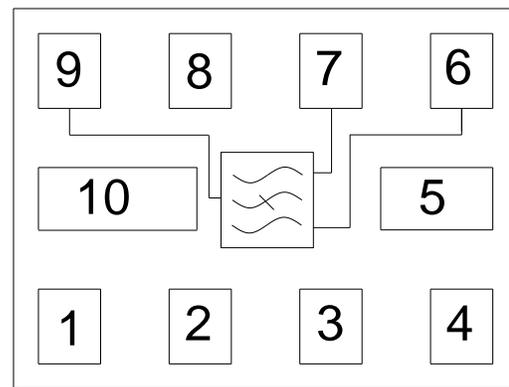
885010 is referenced on multiple designs with the leading WiMAX chipset makers.



1.7 x 1.3 x 0.46 mm

### Functional Block Diagram

Top view



### Pin Configuration

Pin #	Description
9	Input
6	Output
7	AUX1
8	N/C
1,2,3,4,5,10	Ground*

\*Note, see application section for details on optimal grounding

### Ordering Information

Part No.	Description
885010	packaged part
885010-EVB	evaluation board

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

## Specifications

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

Specified Temperature Range: <sup>(2)</sup> +25 °C

Parameter	Conditions	Min	Typical <sup>(3)</sup>	Max	Units
Center Frequency		-	2442	-	MHz
Maximum Insertion Loss	2305 - 2360 MHz	-	2.8	3.5	dB
	2360 - 2380 MHz	-	5.0	-	dB
	2496 - 2502 MHz	-	3.5	-	dB
	2502 - 2520 MHz	-	1.8	3.0	dB
	2520 - 2690 MHz	-	1.5	2.5	dB
Absolute Attenuation <sup>(4)</sup>	2401 - 2403 MHz	14	20	-	dB
	2403 - 2481 MHz	17	20	-	dB
	2481 - 2483 MHz	14	20	-	dB
Amplitude Variation	2496 - 2506 MHz	-	2.5	4.0	dB p-p

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

Parameter	Conditions	Min	Typical <sup>(3)</sup>	Max	Units
Maximum Insertion Loss	2305 - 2360 MHz	-	3.8 (@+85 °C)	4.5	dB
	2360 - 2380 MHz	-	7.0 (@+85 °C)	-	dB
	2496 - 2502 MHz	-	5.0 (@-30 °C)	-	dB
	2502 - 2520 MHz	-	2.3 (@-30 °C)	4.0	dB
	2520 - 2690 MHz	-	1.8	3.5	dB
Absolute Attenuation <sup>(4)</sup>	2401 - 2403 MHz	10	12 (@-30 °C)	-	dB
	2403 - 2481 MHz	11	20	-	dB
	2481 - 2483 MHz	10	12 (@+85 °C)	-	dB
Amplitude Variation	2401 - 2403 MHz	-	0.4	1.5	dB p-p
	2403 - 2481 MHz	-	0.6	1.5	dB p-p
	2481 - 2483 MHz	-	1.0	1.5	dB p-p
Input/output Return Loss	2510 - 2520 MHz	6	12	-	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, unless otherwise noted
- Relative to zero dB
- This is the optimum impedance in order to achieve the performance shown

### Absolute Maximum Ratings

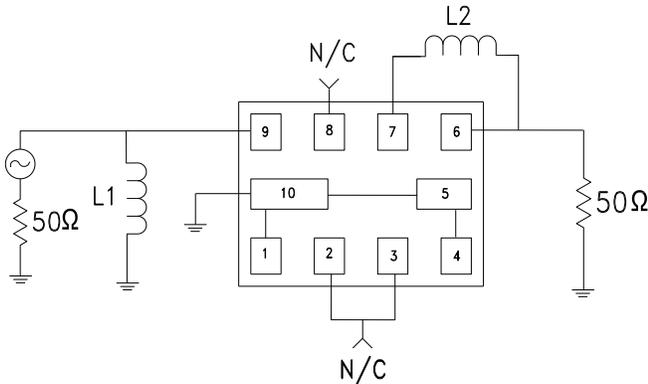
Parameter <sup>(6)</sup>	Rating
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power, operating <sup>(7)</sup> (In band, CW signal) (equivalent to OFDM P <sub>av</sub> )	+28 dBm
Input Power, instantaneous peak <sup>(7)</sup> (In band, CW signal) (OFDM P <sub>max</sub> )	+37.5 dBm

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

7. Power handling capability supports WiMAX/OFDM applications

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

#### Schematic (top view)



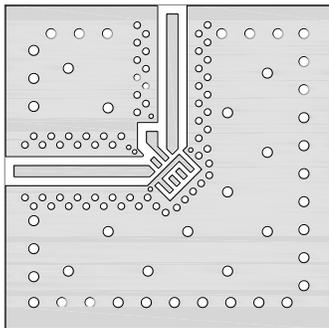
#### Pin Functions

1	Input Ret Gnd – connect to 10
2,3	Ground – N/C
4	Output Ret Gnd – connect to 5
5	Ground – connect to 10
6	Output
7	Output 2 (AUX)
8	N/C
9	Input
10	Ground

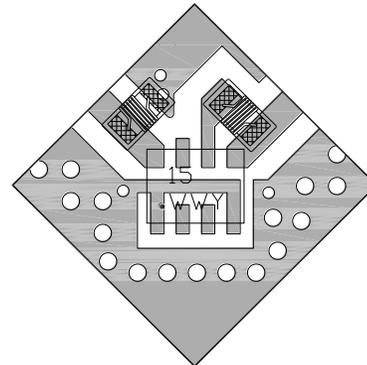
#### Notes:

1. Actual matching values may vary due to PCB layout and parasitics
2. Ground paths are optimized for max attn in WLAN band

#### PC Board



#### PCB routing detail



#### Notes:

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

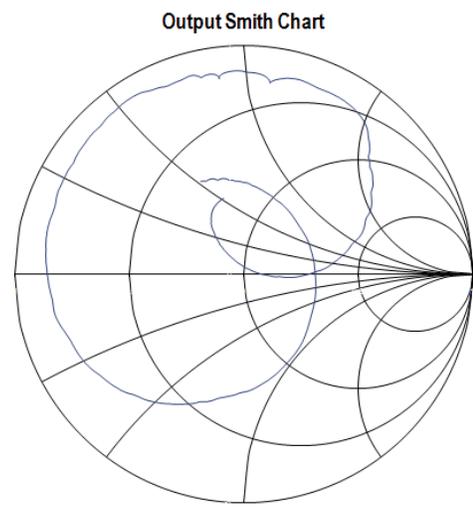
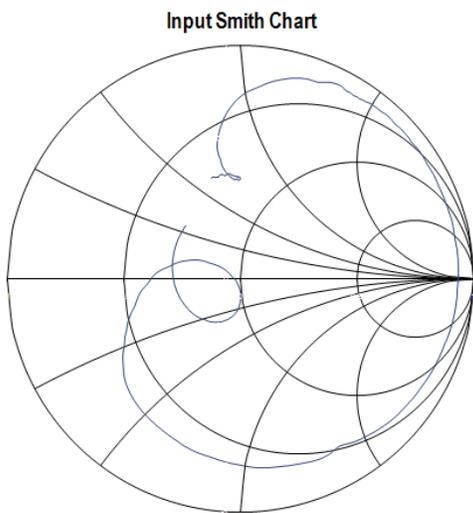
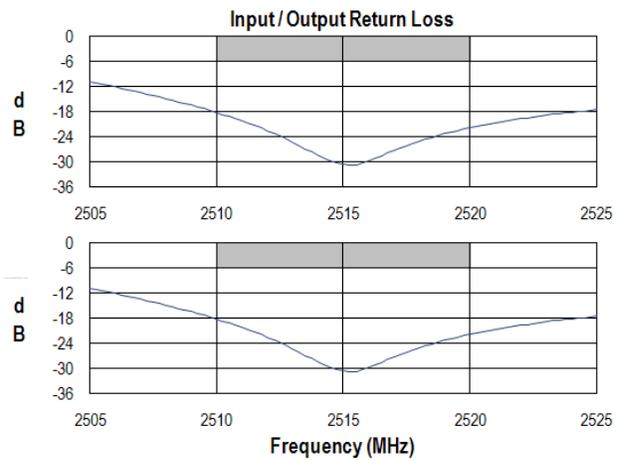
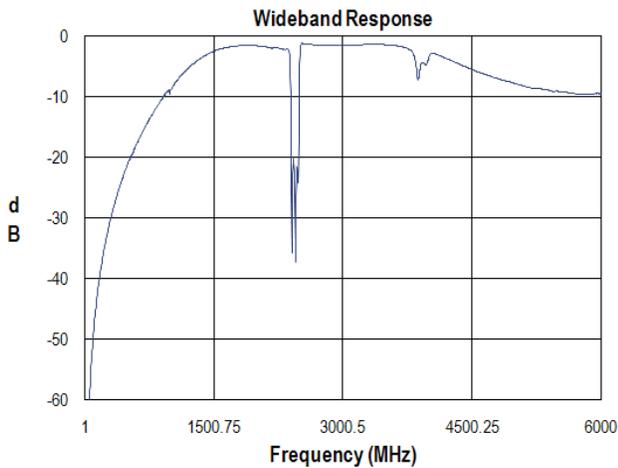
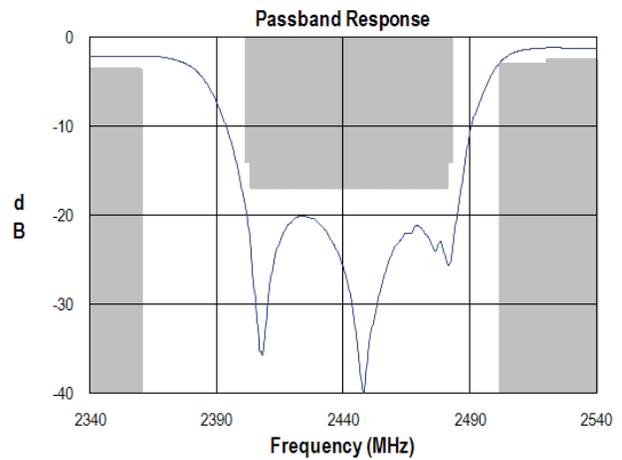
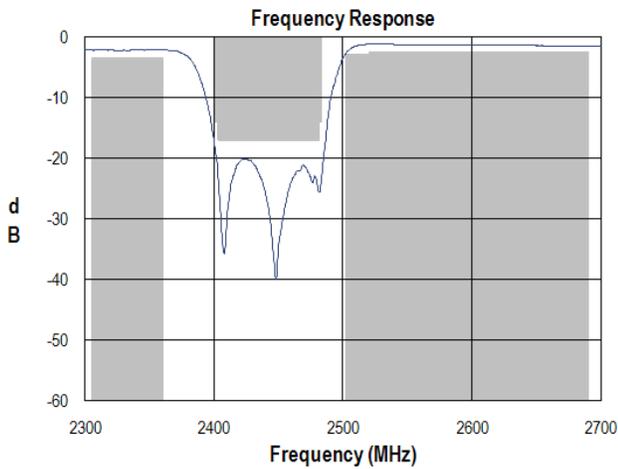
#### Notes:

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

#### Bill of Material

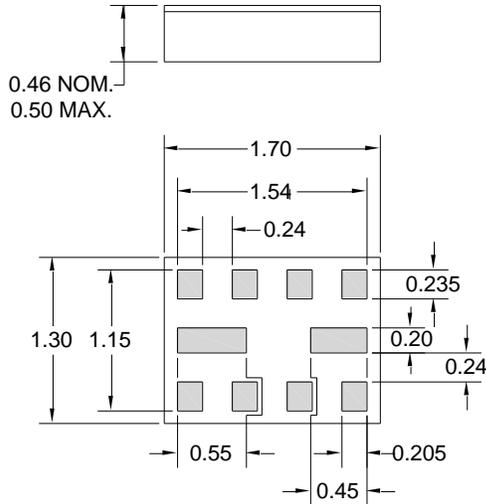
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	4.3 nH	Coil Wire-wound, 0402, +/- 0.2nH	MuRata	LQW15AN4N3C00
L2	3.9 nH	Coil Wire-wound, 0402, +/- 0.2nH	MuRata	LQW15AN3N9C00
PCB	N/A	3-layer	multiple	960858a

### Typical Performance (at room temperature)



**Mechanical Information**

**Package Information, Dimensions and Marking**

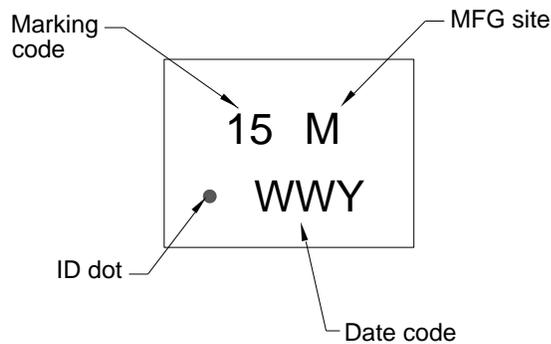


Package Style: CSP-1713  
 Dimensions: 1.70 x 1.30 x 0.46 mm

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

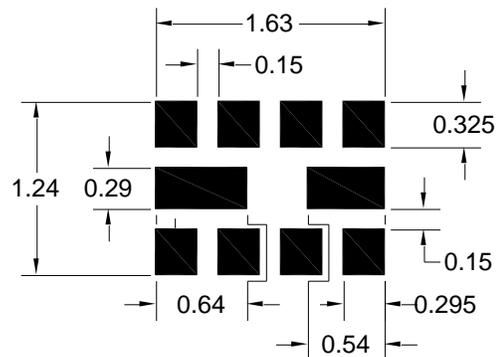
All dimensions shown are nominal in millimeters  
 All tolerances are  $\pm 0.15$ mm except overall length and width  $\pm 0.10$ mm

**Marking**



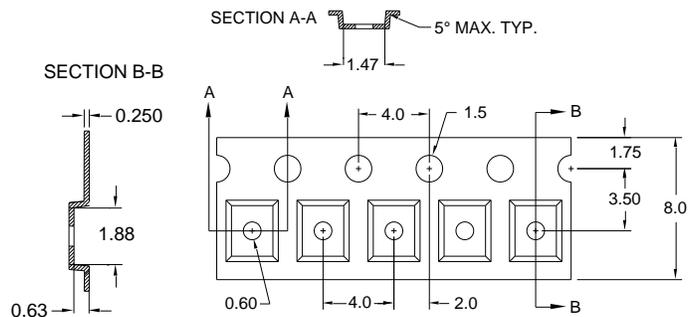
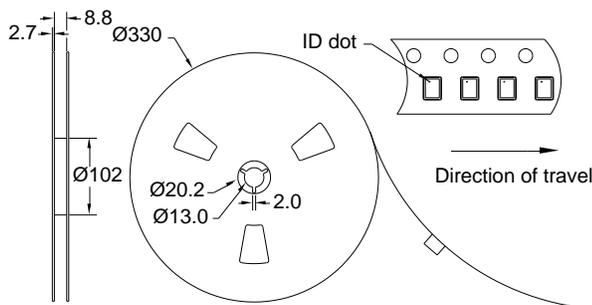
The date code consists of: WW = 2 digit week,  
 Y = last digit of year, M = manufacturing site code

**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: 3A

Value: Passes  $\geq 6000$  V min.  
Test: Human Body Model (HBM)  
Standard: JEDEC Standard JESD22-A114

ESD Rating: C

Value: Passes  $\geq 400$  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

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