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

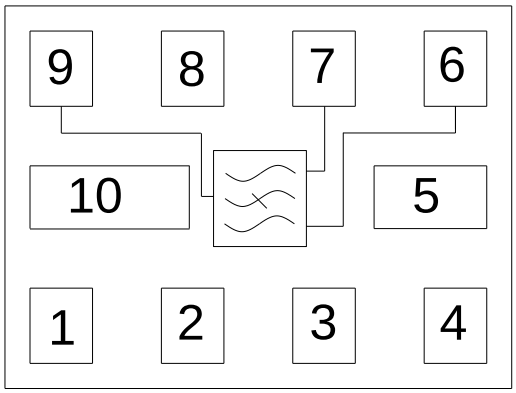
1.7 x 1.3 x 0.46 mm

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 ºC
- Ceramic chip-scale Package (CSP)
- Hermetic **RoHS** compliant, **Pb**-free

Functional Block Diagram

Top view



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.

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.

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Specifications

Electrical Specifications [1]

Specified Temperature Range: [2] +25 ºC

Parameter	Conditions	Min	Typical [3]	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 [4]	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: [2] -30 to +85 ºC

Parameter	Conditions	Min	Typical [3]	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 [4]	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) [5]		-	50	-	Ω
Load Impedance (single-ended) [5]		-	50	-	Ω

Notes:
1. All specifications are based on the TriQuint schematic for the main reference design shown on page 3
2. In production, devices will be tested at room temperature to a guardbanded specification to ensure electrical compliance over temperature
3. Typical values are based on average measurements at room temperature, unless otherwise noted
4. Relative to zero dB
5. This is the optimum impedance in order to achieve the performance shown

Absolute Maximum Ratings

Parameter [6]	Rating
Operating Temperature	-30 to +85 °C
Storage Temperature	-40 to +85 °C
Input Power, operating [7] (In band, CW signal) (equivalent to OFDM P_{av})	+28 dBm
Input Power, instantaneous peak [7] (In band, CW signal) (OFDM P_{max})	+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

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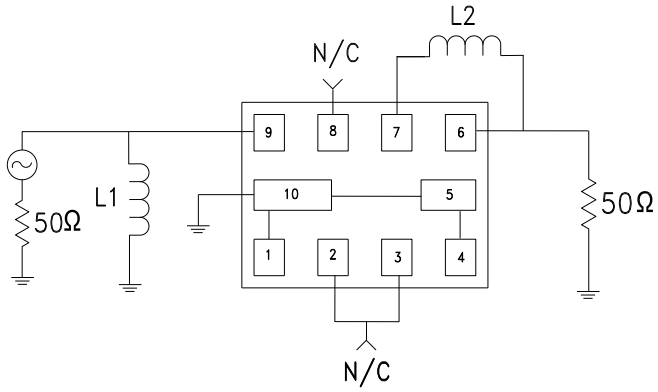
Reference Design – 50Ω SE Input, 50Ω SE Output

Schematic (top view)

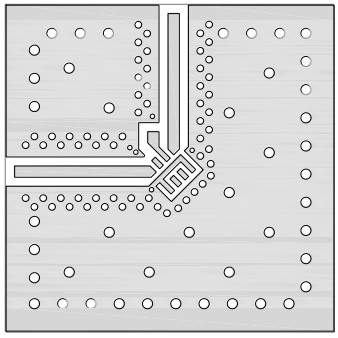


Pin Functions

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

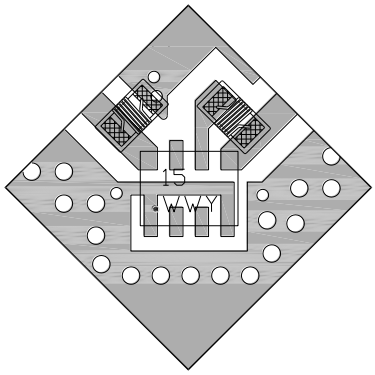
Notes:
1. Actual matching values may vary due to PCB layout and parasitics
2. Ground paths are optimized for max attn in WLAN band

PC Board



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

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	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

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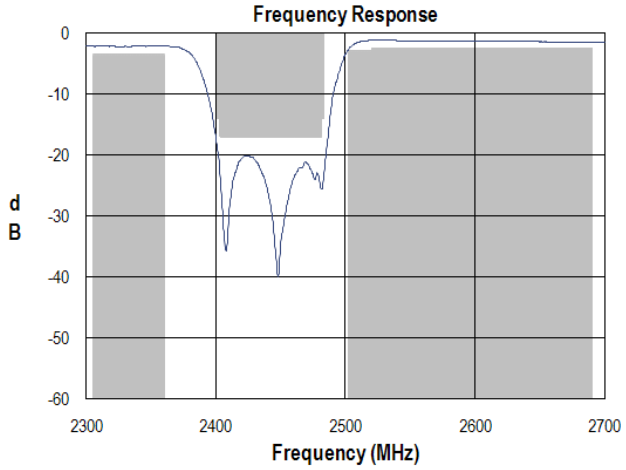
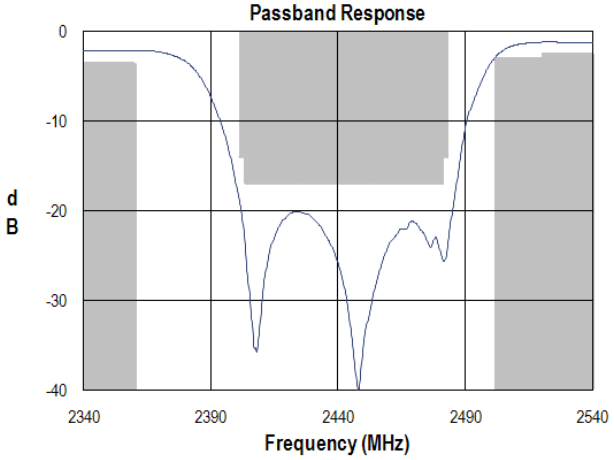
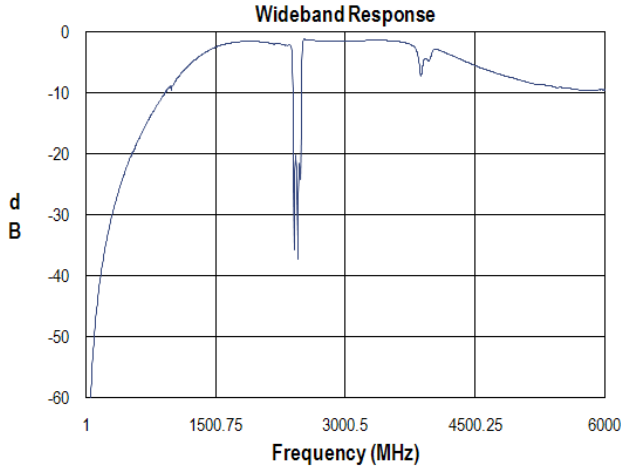
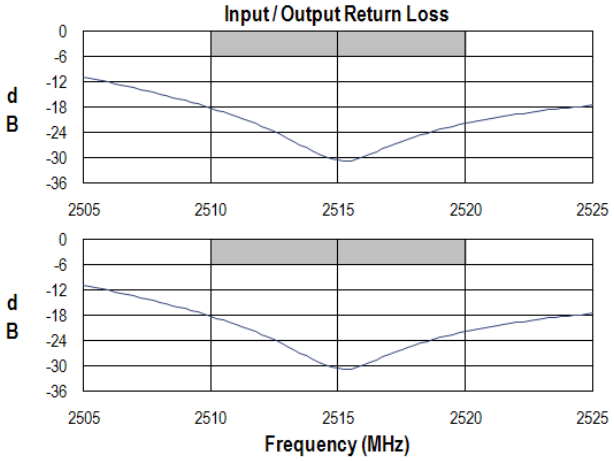
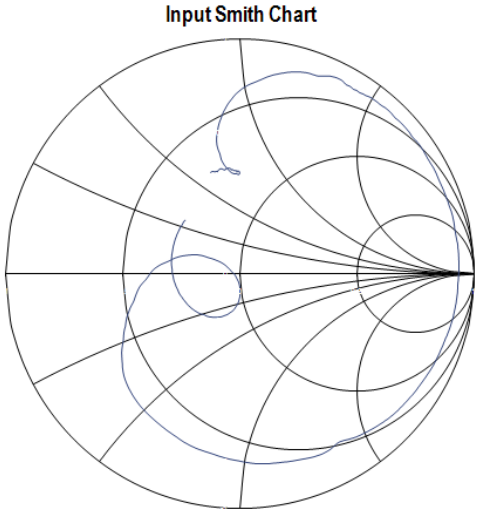
Typical Performance (at room temperature)

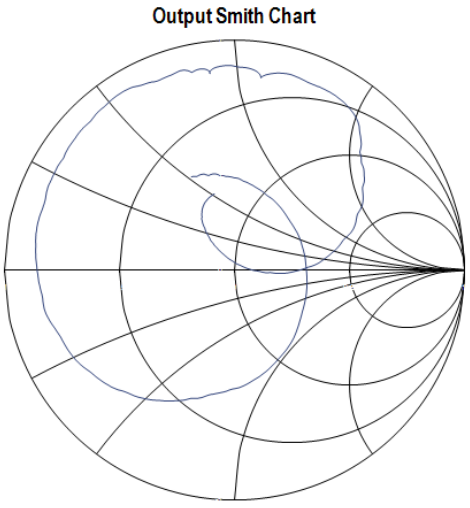












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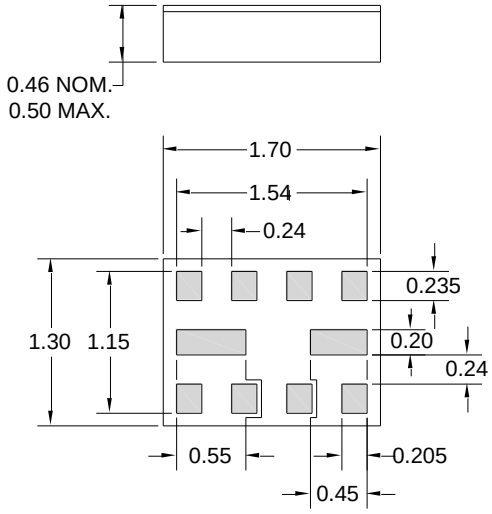
Mechanical Information

Package Information, Dimensions and Marking

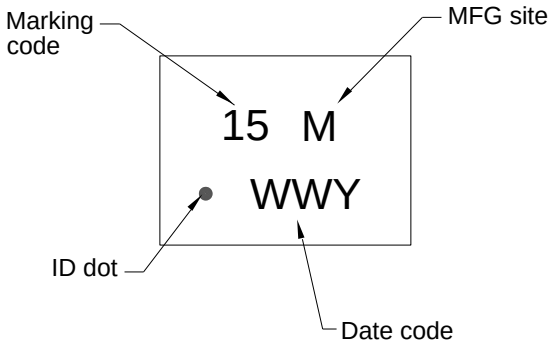


Package Style: CSP-1713
Dimensions: 1.70 x 1.30 x 0.46 mm

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

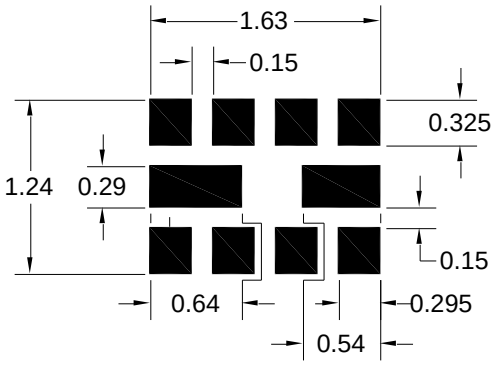
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

Marking



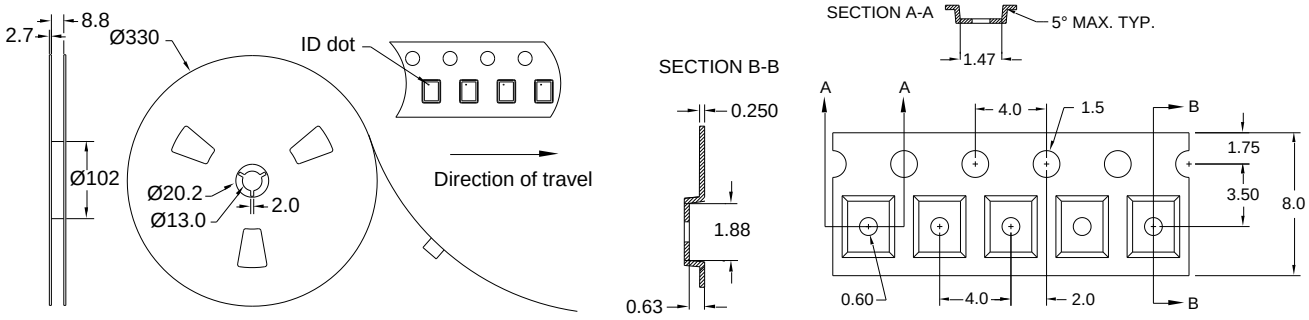
The date code consists of: WW = 2 digit week,
Y = last digit of year, M = manufacturing site code

PCB Footprint



Tape and Reel Information

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



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Product Compliance Information

ESD Information

Caution! ESD-Sensitive Device

ESD Rating: 3A
Value: Passes ≥ 6000 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: C
Value: Passes ≥ 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 ($C_{15}H_{12}Br_4O_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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