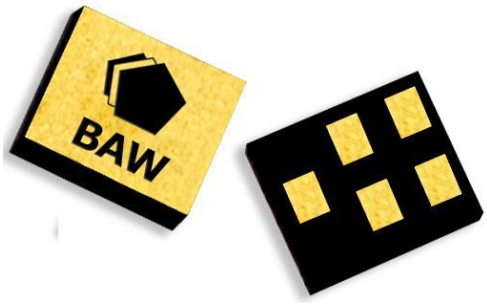
885017

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



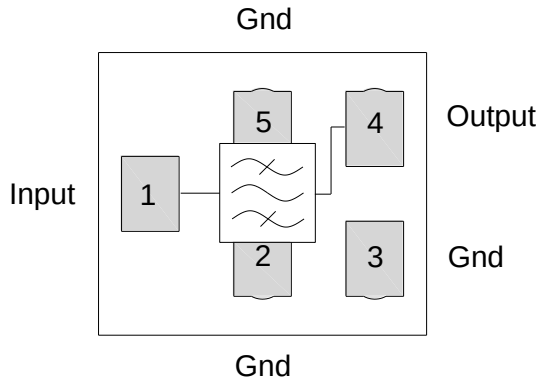
1.4 x 1.2 x 0.46 mm

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 ºC
- Single-ended operation
- Ceramic chip-scale package (CSP)
- Hermetically Sealed
- RoHS compliant, Pb-free

Functional Block Diagram

Top view



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

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 [1]

Specified Temperature Range: [2] -30 to + 85 ºC (unless otherwise noted)

Parameter	Conditions	Min	Typical [3]	Max	Units
Center Frequency		-	2436	-	MHz
Maximum Insertion Loss	2400 - 2472 MHz @ 25 ºC	-	1.8	2.5	dB
	2400 - 2472 MHz -30 to +85 ºC	-	-	3.5	dB
	2401 - 2480 MHz -30 to +55 ºC	-	2.5	3.5	dB
	2401 - 2480 MHz +55 to +85 ºC	-	2.5	5.0	dB
	2480 - 2482 MHz [6] +25 ºC	-	3.0	5.0	dB
Absolute Attenuation [4]	800 - 2000 MHz	22	25	-	dB
	2000 - 2300 MHz	24	26	-	dB
	2300 - 2360 MHz	25	36	-	dB
	2360 - 2370 MHz [6]	15	20	-	dB
	2370 - 2380 MHz [6]	5	8	-	dB
	2496 - 2502 MHz [7]	-	20	-	dB ave
	2500 - 2502 MHz	-	30	-	dB
	2500 - 2510 MHz [7]	-	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) [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
4. Relative to zero dB
5. This is the optimum impedance in order to achieve the performance shown
6. These bands fall on the filter transitions, thus the typical attenuation/loss values given are prone to high variability
7. Average attenuation level over the band

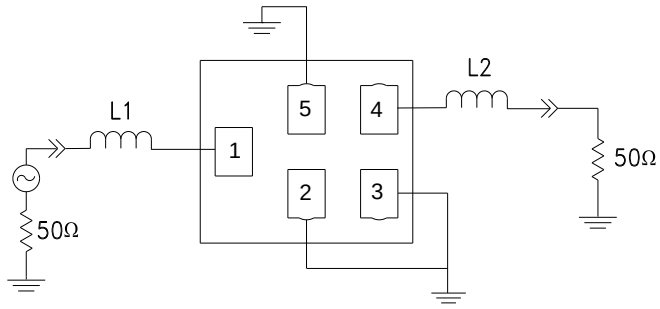
Absolute Maximum Ratings

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

8. Operation of this device outside the parameter ranges given above may cause permanent damage.
9. 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)

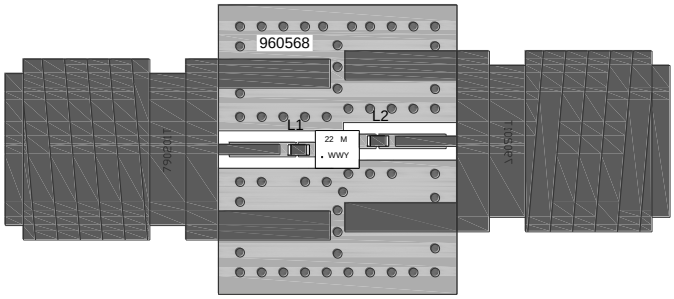


1. Notes:
Actual matching values may vary due to PCB layout and parasitic

Pin Functions

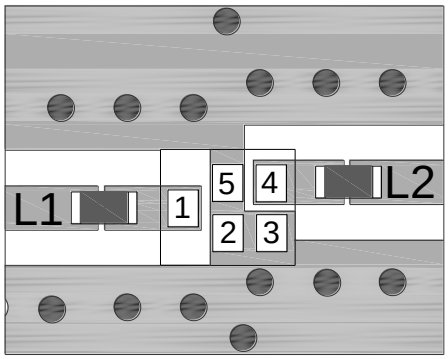
Pin #	Description
1	Input
4	Output
2,3,5	Ground

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



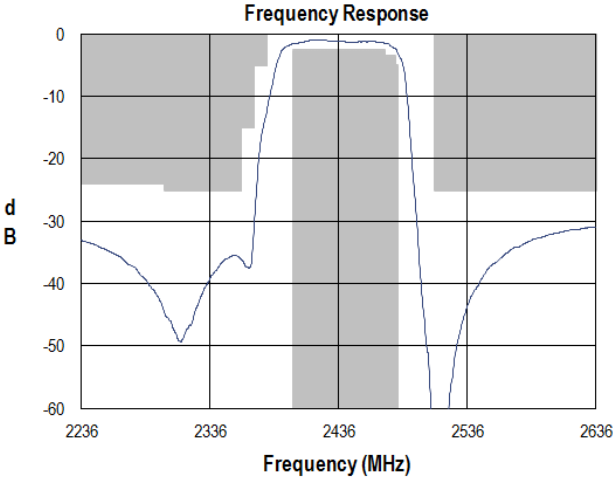
Notes:
1. Grey indicates metalized area
2. This footprint represents a recommendation only
3. For solder pad recommendation see mechanical information

Bill of Material

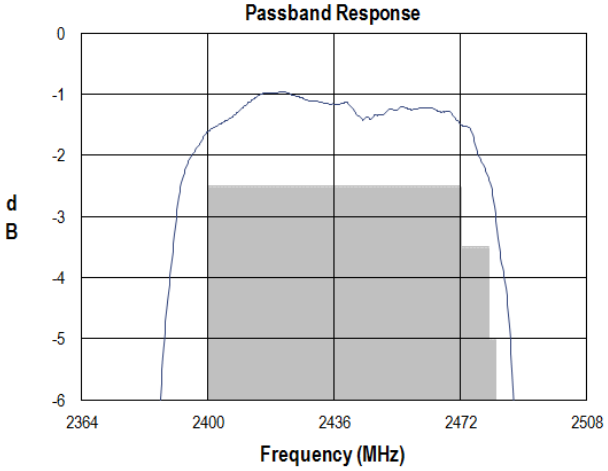
Reference Desg.	Value	Description	Manufacturer	Part Number
L1	1.5nH	Chip Inductor, 0402, +/- 0.2nH	MuRata	LQG15HN1N5S02
L2	1.5nH	Chip Inductor, 0402, +/- 0.2nH	MuRata	LQG15HN1N5S02
PCB	N/A	3-layer	multiple	960568

Typical Performance (at room temperature)

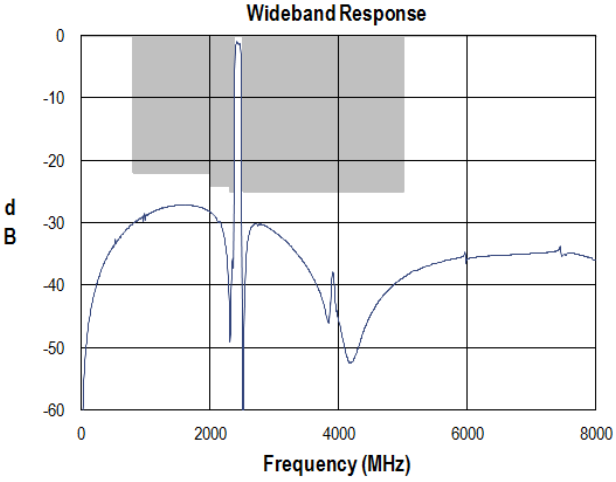
Frequency Response



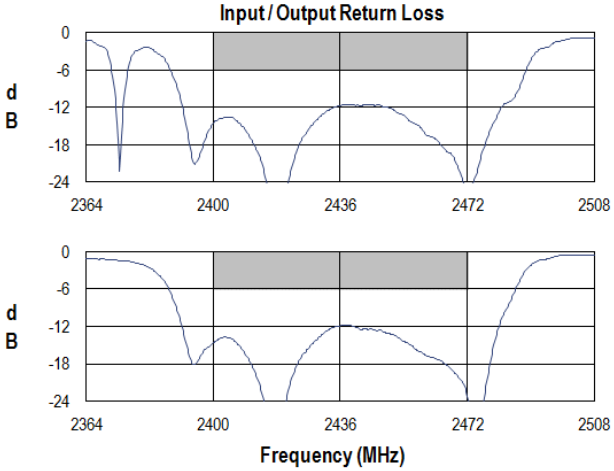
Passband Response



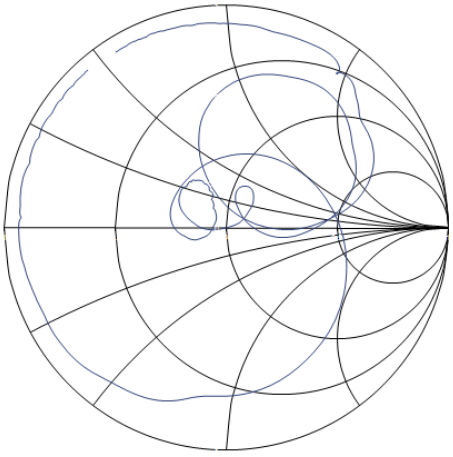
Wideband Response



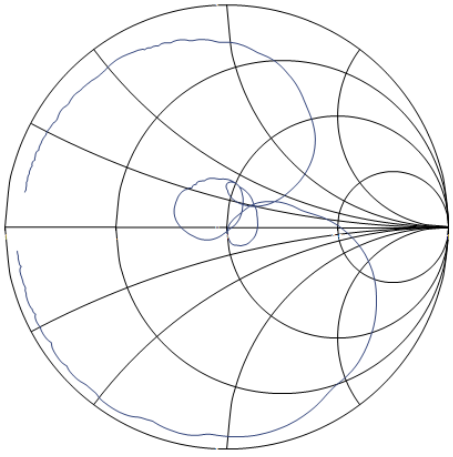
Input / Output Return Loss



Input Smith Chart

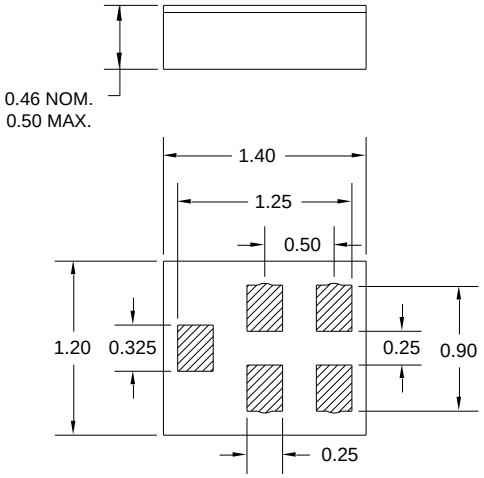


Output Smith Chart



Mechanical Information

Package Information, Dimensions and Marking

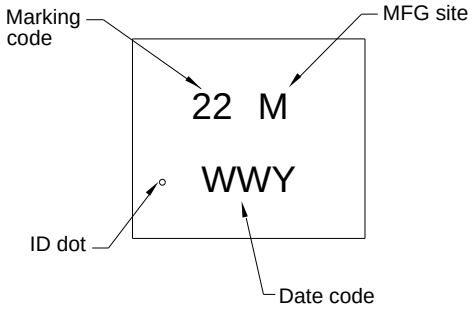


Package Style: CSP-5BT
Dimensions: 1.4 x 1.2 x 0.46 mm

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

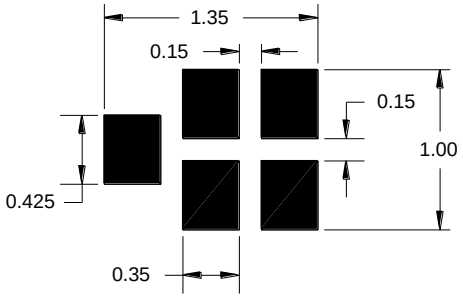
All dimensions shown are nominal in millimeters
All tolerances are ±0.15mm except overall length and width ±0.10mm

Marking



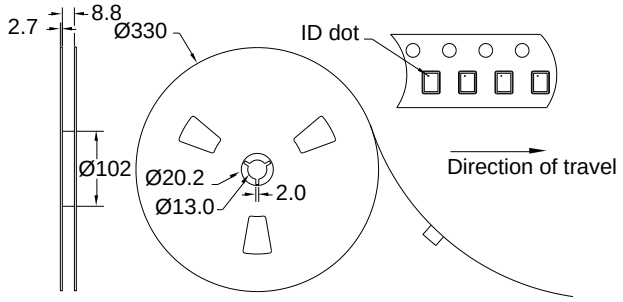
The date code consists of: WW = 2 digit week,
Y = last digit of year, M = manufacturing site code

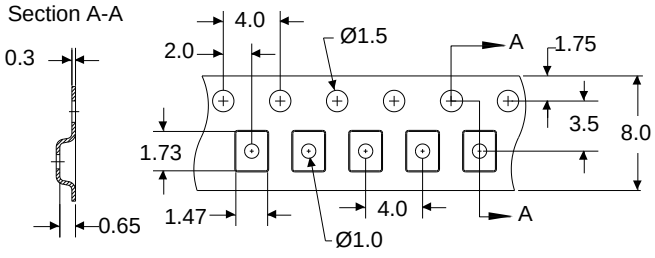
PCB Footprint



Tape and Reel Information

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





Product Compliance Information

ESD Information

Caution! ESD-Sensitive Device

ESD Rating: 1C
Value: Passes ≥ 1600 V min.
Test: Human Body Model (HBM)
Standard: JEDEC Standard JESD22-A114

ESD Rating: B
Value: Passes ≥ 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 ($C_{15}H_{12}Br_40_2$) Free
- PFOS Free
- SVHC Free

Contact Information

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