

RF360 Europe GmbH

A Qualcomm – TDK Joint Venture

## SAW Components

### BAW Bluetooth/WLAN Filter

Datasheet

Series/type: B8850  
Ordering code: B39242B8850P810  
Date: October 07, 2015  
Version: 2.2

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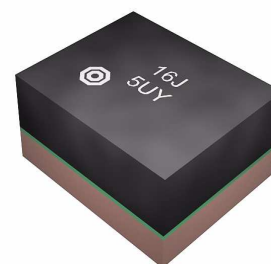
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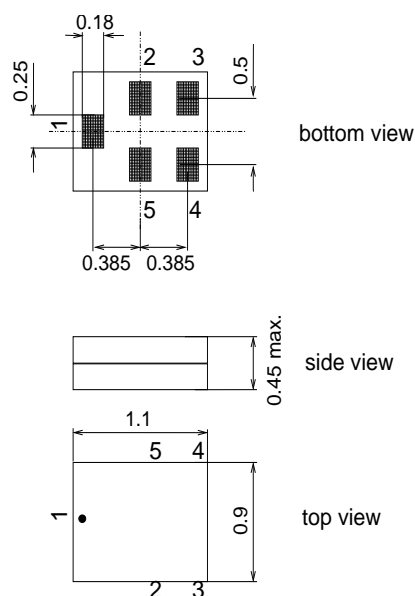
**Datasheet**

**Application**

- Ultra low-loss BAW RF single filter for Bluetooth/WLAN with LTE Band 7 / Band 40 / Band 41 coexistence
- Usable passband 79.0 MHz
- Unbalanced to unbalanced operation
- Excellent insertion attenuation
- High out of band selectivity
- Filter impedance 50 Ω
- Good B40 attenuation
- Very low 2nd harmonic generation
- Excellent VSWR flatness across passband


**Features**

- Package size 1.1 x 0.9 mm<sup>2</sup>
- Package height 0.45 mm max
- RoHS compatible
- Approximate weight 0.0012 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- **Moisture Sensitivity Level 3 (MSL 3)**


**Pin configuration**

B8850 supports two I/O pinning configurations

- 1) For 2G only stand alone applications, recommend Pin 4 to PA, Pin 1 to ANT orientation for best harmonics performance.
- 2) For 2G+5G applications (with diplexer), filter supports either Pin 4 to PA, Pin 1 to ANT (or) Pin 4 to ANT, Pin 1 to PA configuration.

Pins 2,3,5 : To be grounded

**Datasheet**

**Characteristics of Filter**

Temperature range for specification:	T = -30 °C to +85 °C
Terminating source impedance:	Z <sub>S</sub> = 50 Ω shunt coil 8.2 nH
Terminating load impedance:	Z <sub>L</sub> = 50 Ω shunt coil 10 nH

Characteristics	min.	typ. @ 25 °C	max.	
<b>Center frequency</b> $f_c$	—	2442.0	—	MHz
<b>Maximum insertion attenuation - WLAN<sup>1)</sup></b> $\alpha_{max}$				
2403.1 ... 2420.9 MHz (channel 1)	—	1.35 <sup>1)</sup>	1.9 <sup>1)</sup>	dB
2408.1 ... 2425.9 MHz (channel 2)	—	1.15 <sup>1)</sup>	1.8 <sup>1)</sup>	dB
2413.1 ... 2470.9 MHz (channel 3-11)	—	1.00 <sup>1)</sup>	1.8 <sup>1)</sup>	dB
2458.1 ... 2475.9 MHz (channel 12)	—	1.05 <sup>1)</sup>	1.8 <sup>1)</sup>	dB
2463.1 ... 2480.9 MHz (channel 13)	—	1.25 <sup>1)</sup>	2.0 <sup>1)</sup>	dB
<b>VSWR (Pin 1)</b>				
2403.1 ... 2425.9 MHz	—	1.6	2.3 <sup>3)</sup>	
2425.9 ... 2480.9 MHz	—	1.6	2.4	
<b>VSWR (Pin 4)</b>				
2403.1 ... 2425.9 MHz	—	1.4	2.3 <sup>3)</sup>	
2425.9 ... 2480.9 MHz	—	1.4	2.4	
<b>Attenuation</b> $\alpha$				
699.0 ... 960.0 MHz	29	32	—	dB
1710.0 ... 2170.0 MHz	28	31	—	dB
2300.0 ... 2360.0 MHz	32	37	—	dB
2360.0 ... 2370.0 MHz	33 <sup>2)</sup>	40 <sup>2)</sup>	—	dB
2370.0 ... 2380.0 MHz	6 <sup>2)</sup>	34 <sup>2)</sup>	—	dB
2500.0 ... 2505.0 MHz	30 <sup>2)3)</sup>	55 <sup>2)</sup>	—	dB
2505.0 ... 2570.0 MHz	36 <sup>2)</sup>	41 <sup>2)</sup>	—	dB
2570.0 ... 2620.0 MHz	34 <sup>2)</sup>	39 <sup>2)</sup>	—	dB
2620.0 ... 2690.0 MHz	34 <sup>2)</sup>	39 <sup>2)</sup>	—	dB
4800.0 ... 5805.0 MHz	20	28	—	dB

1) Averaged values within each WiFi channel width of 17.8 MHz

2) Averaged value of linear S-parameter over any 5 MHz

3) From 25°C to 85°C

Datasheet

**Maximum ratings**

Operable temperature range	T	-30/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+90	°C	
DC voltage	V <sub>DC</sub>	5 <sup>1)</sup>	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>2)</sup>	V	Machine Model
		300 <sup>3)</sup>	V	Human Body Model
		600 <sup>4)</sup>	V	Charged Device Model
Input power at PIN 1 or PIN 4 channel 1 to channel 13		+26	dBm	20 MHz OFDM signal, 65°C, 5000hr

1) 168h Damp Heat Steady State acc. to IE C60068-2-67 Cy

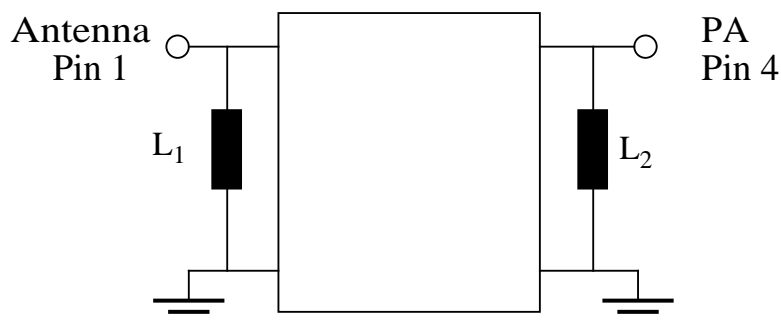
2) acc. to JESD22-A115B (MM - Machine Model), 10 negative and 10 positive pulses

3) acc. to JESD22-A114F (HBM - Human Body Model), 1 negative and 1 positive pulses

4) acc. to JESD22-C101C (CDM - Field Induced Charged Device Model), 3 negative and 3 positive pulses

**Matching network**

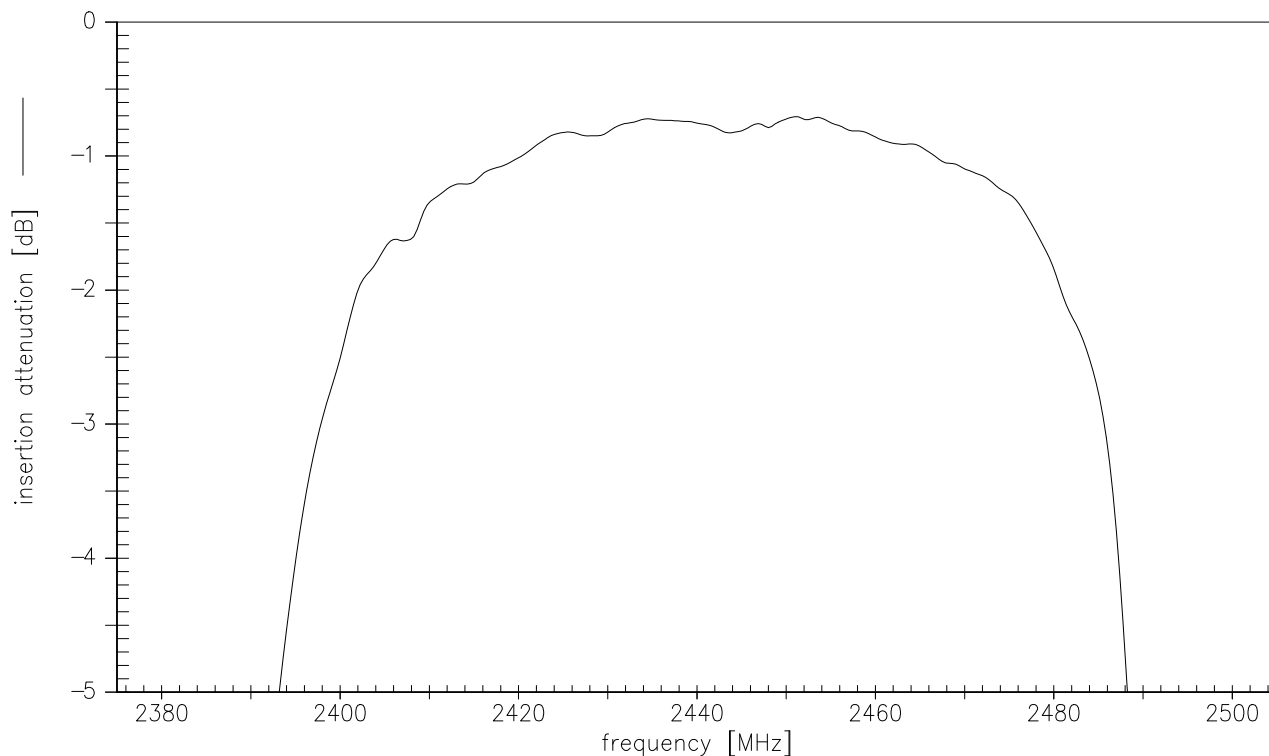
- L<sub>1</sub> = 8.2 nH
- L<sub>2</sub> = 10 nH
- Recommendation to use TDK MLG0603 P-series



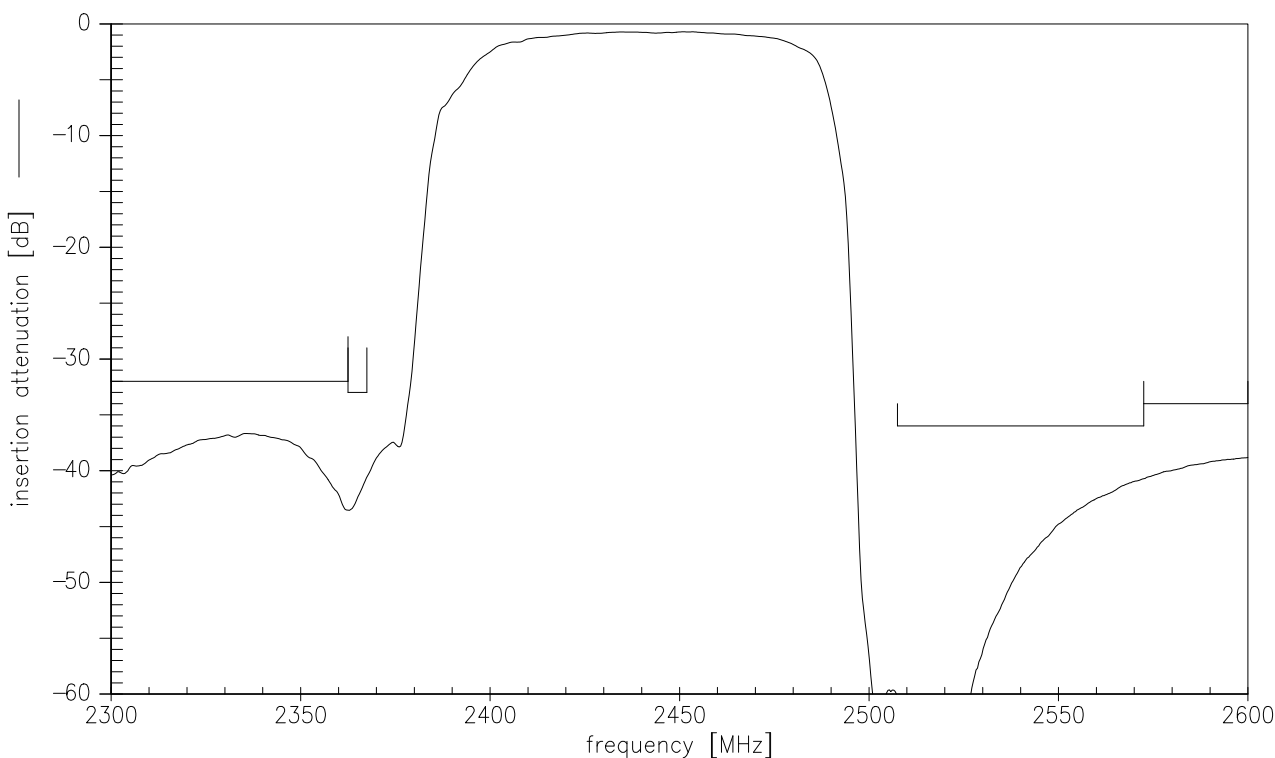
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**SMD**

**Transfer function**



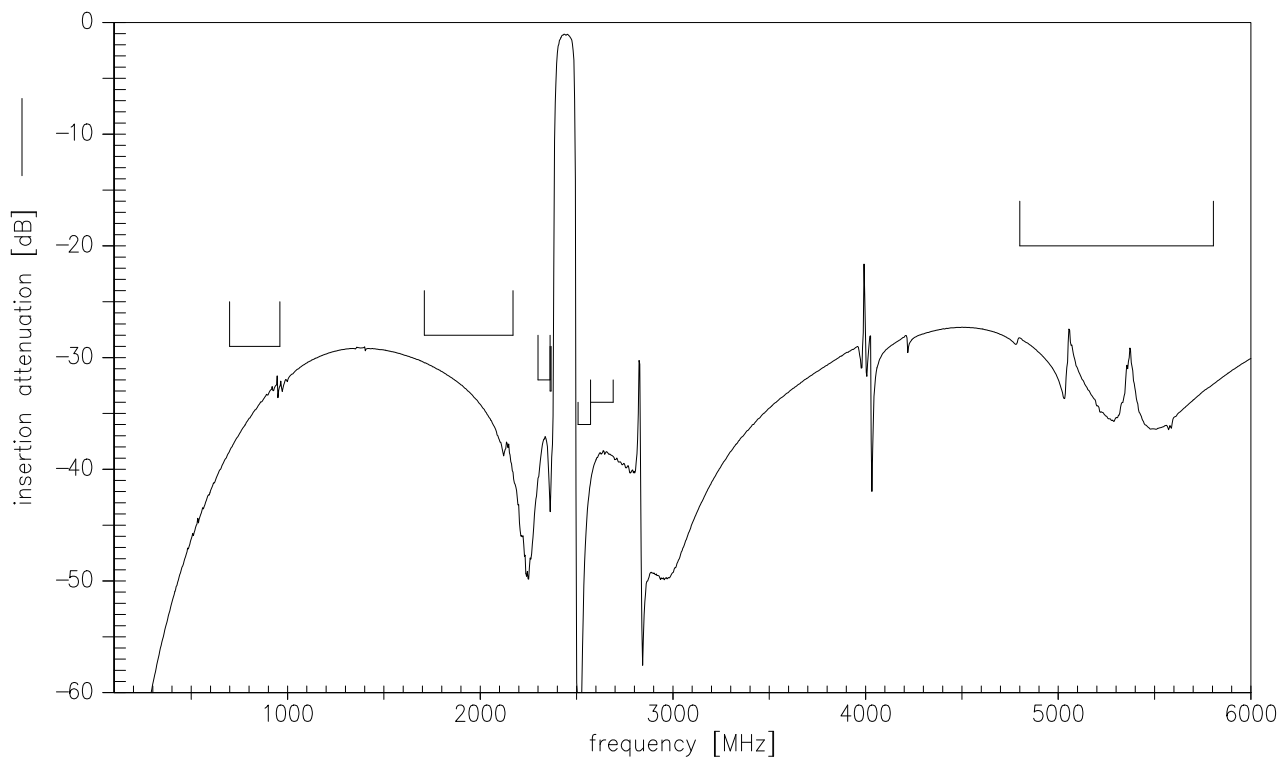
**Transfer function**



Datasheet

**SMD**

Transfer function

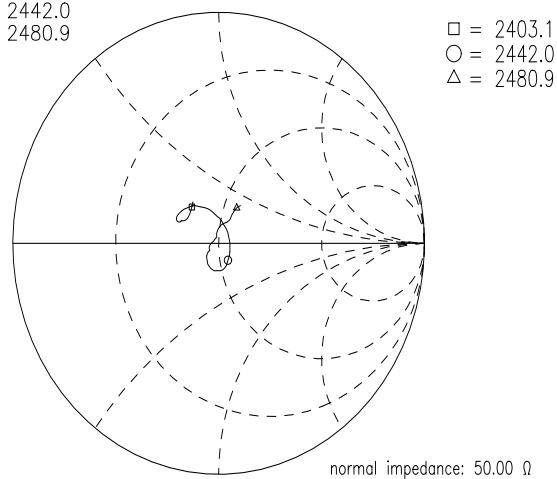
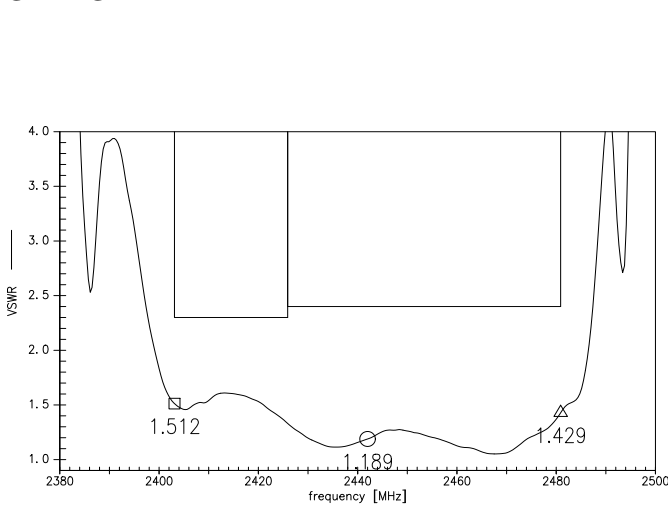




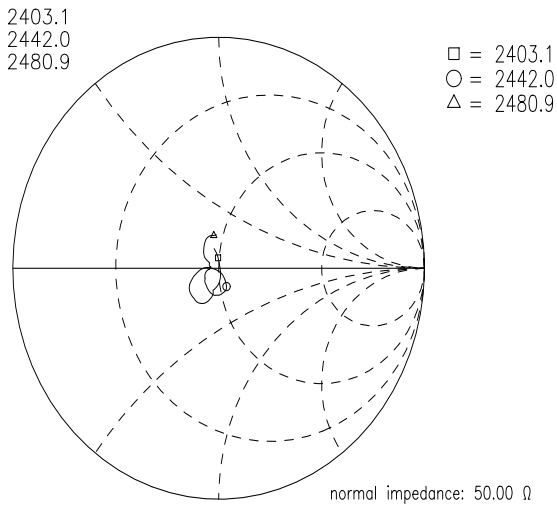
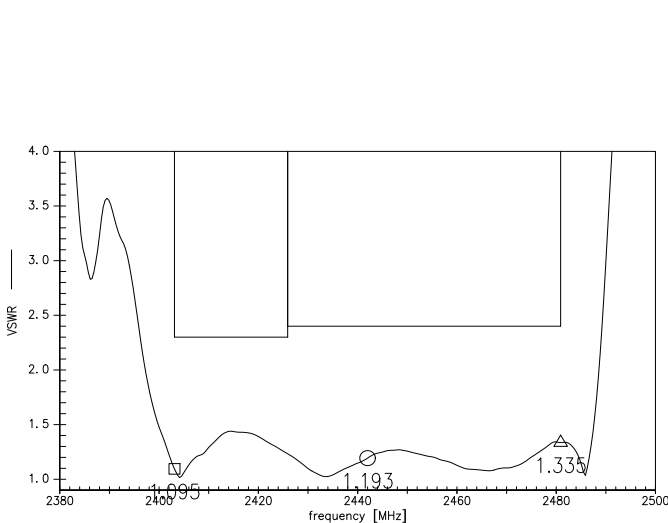
Datasheet

**SMD**

**S11 VSWR Pin 1**



**S22 VSWR Pin 4**



Datasheet



References

<b>Type</b>	B8850
<b>Ordering code</b>	B39242B8850P810
<b>Marking and package</b>	C61157-A8-A185
<b>Packaging</b>	F61074-V8255-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B8850_HDWB.s2p See file header for port/pin assignment table.
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8 <sup>th</sup> , 2011, on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("Directive") with due regard to the application of exemptions as per Annex III of the Directive in certain cases.
<b>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.
<b>Matching coils</b>	See Inductor pdf-catalog <a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a> and Data Library for circuit simulation <a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>

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