

# **SAW Components**

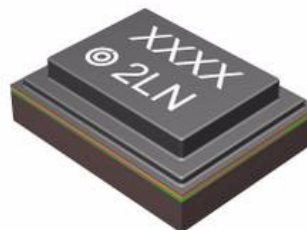
## **BAW Bluetooth/WLAN Filter**

<b>Series/type:</b>	<b>B9604</b>
<b>Ordering code:</b>	<b>B39242B9604P810</b>
<b>Date:</b>	<b>June 27, 2012</b>
<b>Version:</b>	<b>2.0</b>

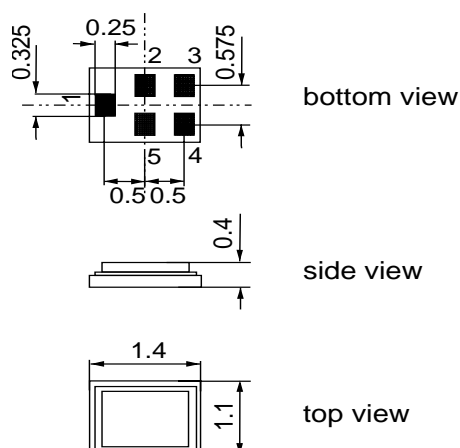
**Data Sheet**

**Application**

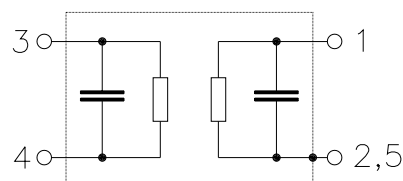
- Low-loss RF filter for Bluetooth/WLAN with LTE Band 7 coexistence
- Usable passband: 79.0 MHz
- Unbalanced to unbalanced operation
- Good insertion attenuation
- High out of band selectivity
- Filter impedance 50  $\Omega$


**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Moisture Sensitivity Level 3


**Pin configuration**

- 1 Input unbalanced
- 4 Output unbalanced
- 2,3,5 To be grounded



**SAW Components**
**B9604**
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**2441.0 MHz**
**Data Sheet**

**Characteristics**

Temperature range for specification:

 $T = -20\text{ }^{\circ}\text{C to }+85\text{ }^{\circ}\text{C}$ 

Terminating source impedance:

 $Z_S = 50\text{ }\Omega$  (unbalanced)

Terminating load impedance:

 $Z_L = 50\text{ }\Omega$  shunt coil 15nH

		<b>B9604</b>			
		<b>min.</b>	<b>typ. @ 25 °C</b>	<b>max.</b>	
<b>Center frequency</b>	$f_C$	—	2441.0	—	MHz
<b>Maximum insertion attenuation - BT<sup>1)</sup></b>	$\alpha_{\max}$				
2401.5 ... 2480.5 MHz		—	1.9 <sup>1)</sup>	2.6 <sup>1)</sup>	dB
<b>Maximum insertion attenuation - WLAN<sup>2)</sup></b>	$\alpha_{\max}$				
2403.1 ... 2480.9 MHz		—	2.4 <sup>2)</sup>	3.3 <sup>2)</sup>	dB
<b>VSWR (Input and Output)</b>					
2401.5 ... 2480.9 MHz		—	1.8	2.3 <sup>3)</sup>	
2401.5 ... 2480.9 MHz		—	1.8	2.4	
<b>Attenuation</b>	$\alpha$				
100.0 ... 699.0 MHz		38	40	—	dB
699.0 ... 960.0 MHz		35	38	—	dB
960.0 ... 1428.0 MHz		34	37	—	dB
1428.0 ... 1607.0 MHz		35	38	—	dB
1607.0 ... 1995.0 MHz		37	39	—	dB
1995.0 ... 2110.0 MHz		39	42	—	dB
2110.0 ... 2170.0 MHz		42	45	—	dB
2300.0 ... 2370.0 MHz		40	47	—	dB
2500.0 ... 2502.0 MHz		26	60	—	dB
2500.0 ... 2502.0 MHz		50 <sup>4)</sup>	60	—	dB
2502.0 ... 2530.0 MHz		50	60	—	dB
2530.0 ... 2570.0 MHz		45	49	—	dB
2570.0 ... 2690.0 MHz		43	47	—	dB
4800.0 ... 5805.0 MHz		27	35	—	dB

<sup>1)</sup> Averaged value over whole passband due to frequency hopping in Bluetooth mode

<sup>2)</sup> Averaged for any 17.8 MHz BW over frequency range

<sup>3)</sup> At +25 °C

<sup>4)</sup> +25 °C to +85 °C

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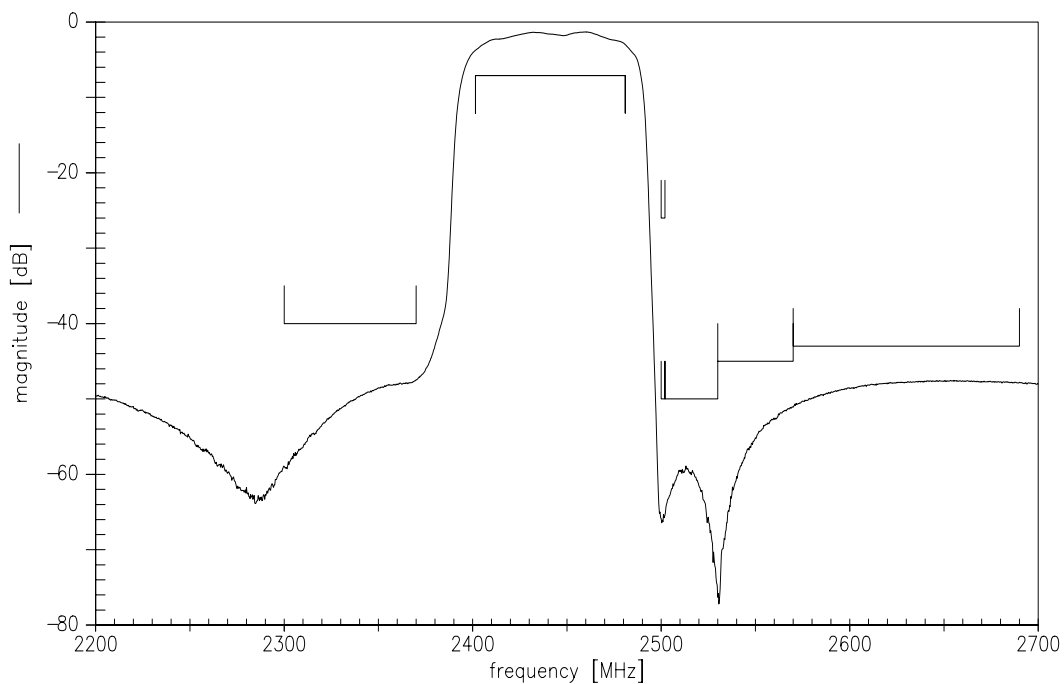
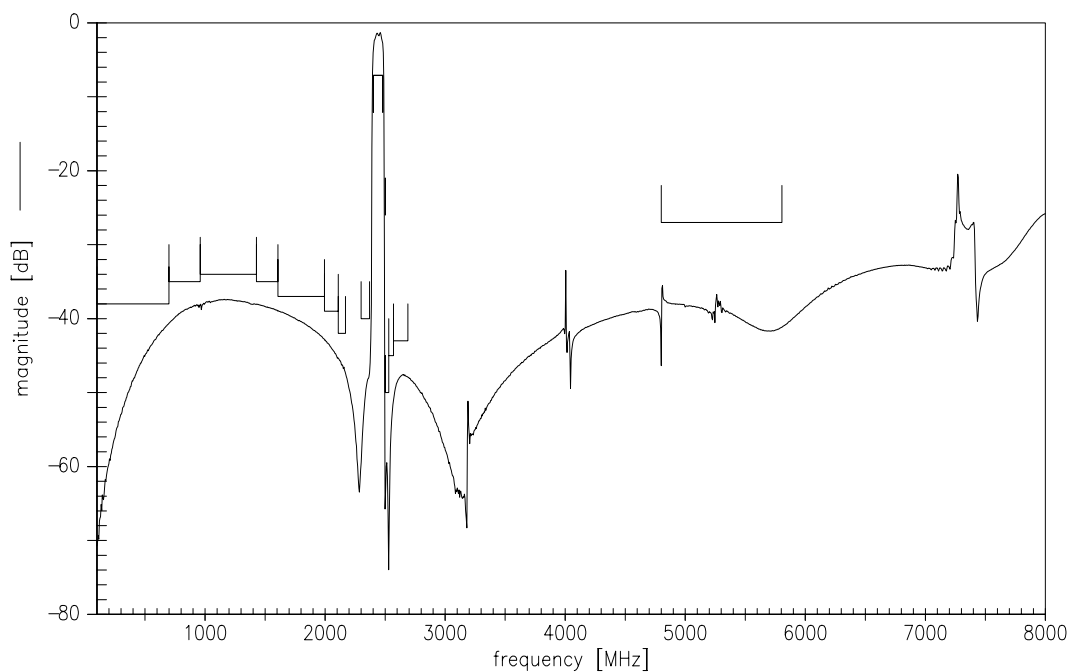
**Maximum ratings**

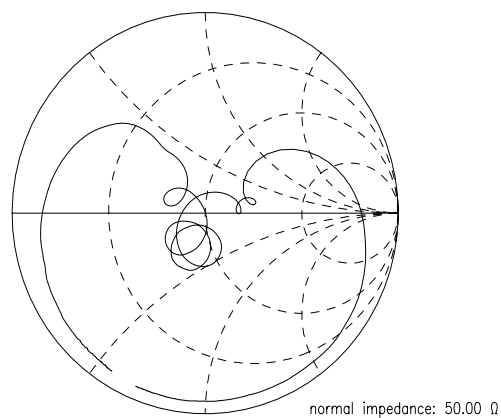
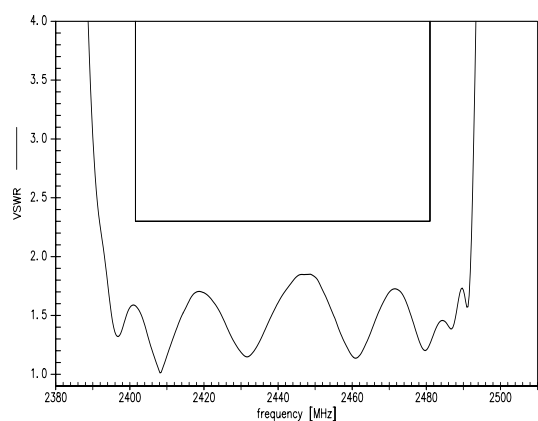
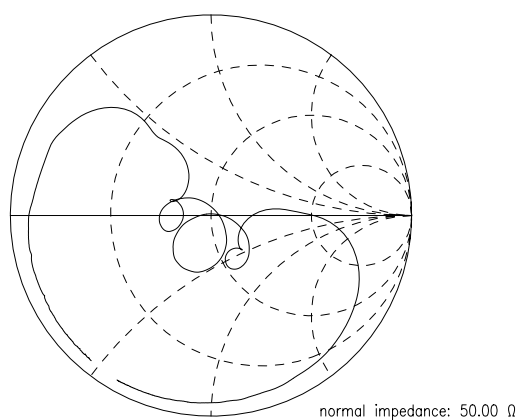
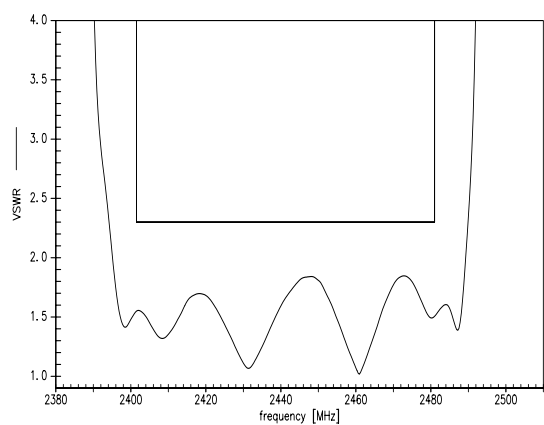
Operable temperature range	T	−30/+85	°C	
Storage temperature range	T <sub>stg</sub>	−40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	Machine Model
ESD voltage	V <sub>ESD</sub>	500 <sup>2)</sup>	V	Human Body Model
ESD voltage	V <sub>ESD</sub>	600 <sup>3)</sup>	V	Charge Device Model
Input power at 2401.5 - 2480.5 MHz	P <sub>IN</sub>	24	dBm	20 MHz OFDM signal, 65 °C, 2000hr

<sup>1)</sup> acc. to JESD22-A115A.

<sup>2)</sup> acc. to JESD22-A114F.

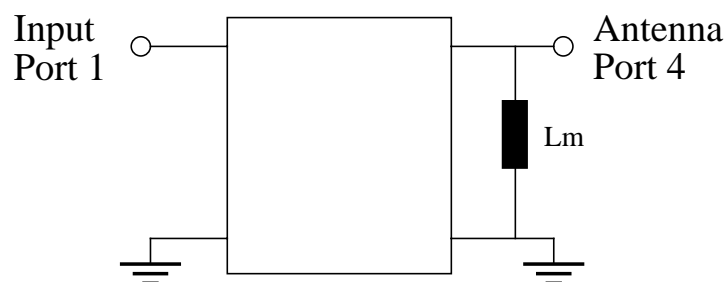
<sup>3)</sup> acc. to JESD22-C101.

**Transfer function**

**Transfer function (wideband)**


**S11 VSWR**

**S22 VSWR**


**Matching network**

- $L_m = 15 \text{ nH}$
- Recommendation to use TDK MLG0603 P-series



<b>SAW Components</b>	<b>B9604</b>
<b>BAW Bluetooth/WLAN Filter</b>	<b>2441.0 MHz</b>

Data Sheet



## References

<b>Type</b>	B9604
<b>Ordering code</b>	B39242B9604P810
<b>Marking and package</b>	C61157-A8-A59
<b>Packaging</b>	F61074-V8212-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9604_NB.s2p B9604_WB.s2p See file header for port/pin assignment table
<b>Soldering profile</b>	S_6001
<b>RoHS compatible</b>	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
<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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**Published by EPCOS AG**  
**Systems, Acoustics, Waves Business Group**  
**P.O. Box 80 17 09, 81617 Munich, GERMANY**

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