SAW Components

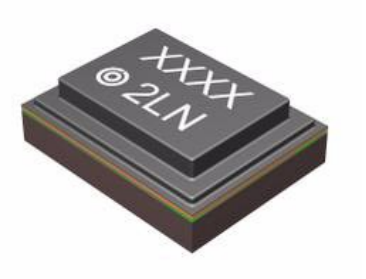
BAW Bluetooth/WLAN Filter

Series/type:	**B9604**
Ordering code:	**B39242B9604P810**
Date:	June 27, 2012
Version:	2.0

EPCOS AG is a TDK Group Company.

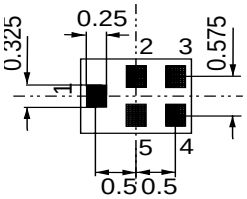
Application

- 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 Ω

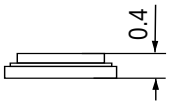


Features

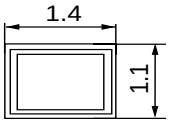
- Package size 1.4 x1.1 x 0.4 mm³
- RoHS compatible
- Approximate weight 0.003 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- Moisture Sensitivity Level 3



bottom view



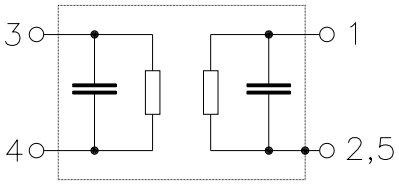
side view



top view

Pin configuration

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



Data Sheet SMD

Characteristics

Temperature range for specification: T = –20 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 50 Ω shunt coil 15nH

		B9604			
		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	2441.0	—	MHz
Maximum insertion attenuation - BT[1]	α_{max}				
2401.5 ... 2480.5 MHz		—	1.9[1]	2.6[1]	dB
Maximum insertion attenuation - WLAN[2]	α_{max}				
2403.1 ... 2480.9 MHz		—	2.4[2]	3.3[2]	dB
VSWR (Input and Output)					
2401.5 ... 2480.9 MHz		—	1.8	2.3[3]	
2401.5 ... 2480.9 MHz		—	1.8	2.4	
Attenuation	α				
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[4]	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

1) Averaged value over whole passband due to frequency hopping in Bluetooth mode
2) Averaged for any 17.8 MHz BW over frequency range
3) At +25 ˚C
4) +25 ˚C to +85 ˚C

Maximum ratings

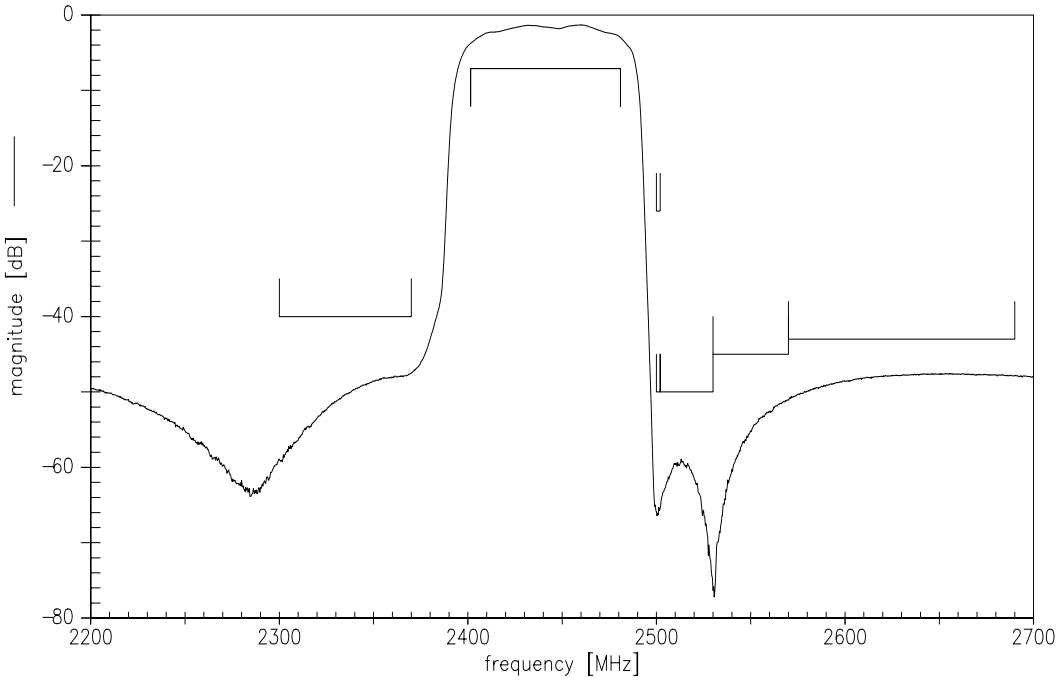
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	Machine Model
ESD voltage	V_{ESD}	500[2)]	V	Human Body Model
ESD voltage	V_{ESD}	600[3)]	V	Charge Device Model
Input power at 2401.5 - 2480.5 MHz	P_{IN}	24	dBm	20 MHz OFDM signal, 65 ˚C, 2000hr

1) acc. to JESD22-A115A.

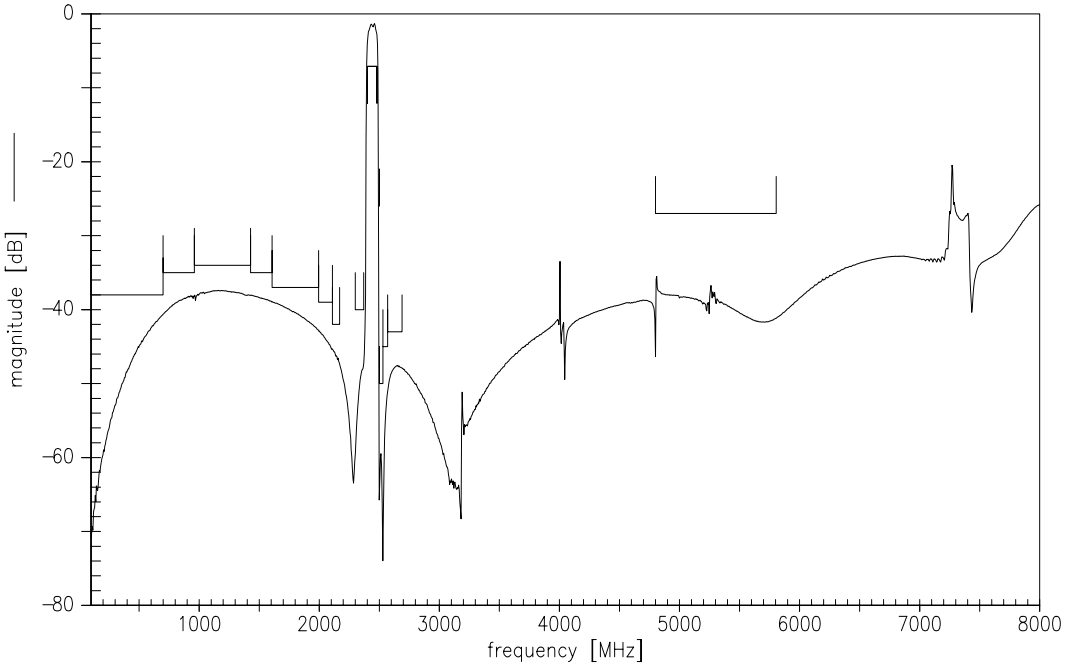
2) acc. to JESD22-A114F.

3) acc. to JESD22-C101.

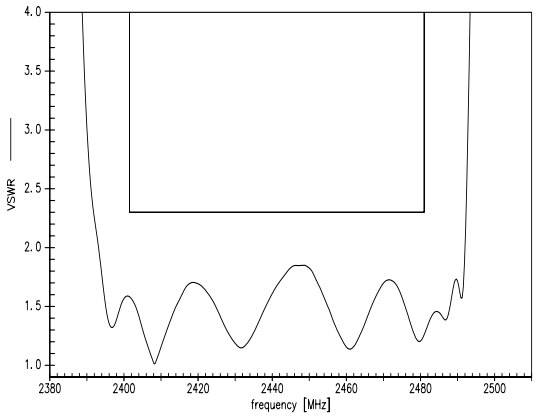
Transfer function

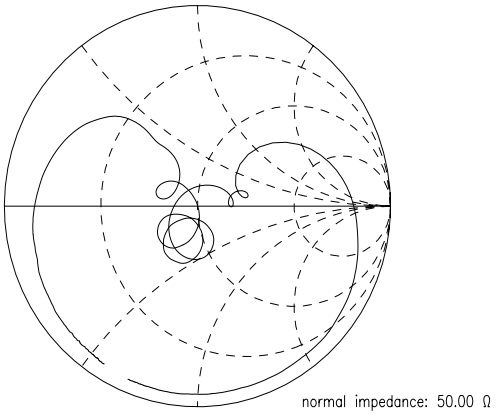


Transfer function (wideband)

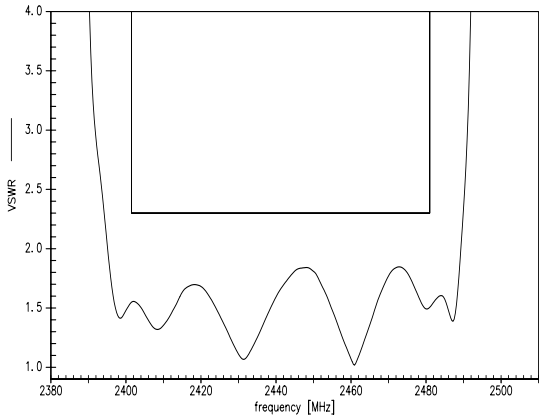


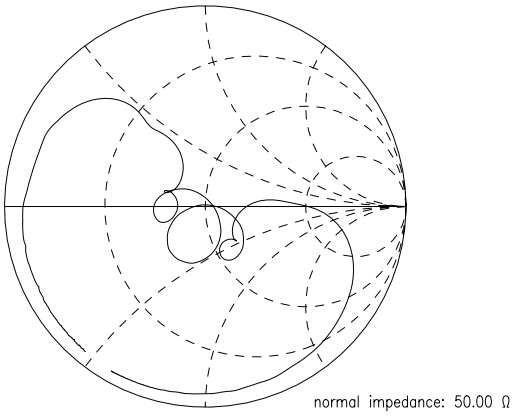
S11 VSWR





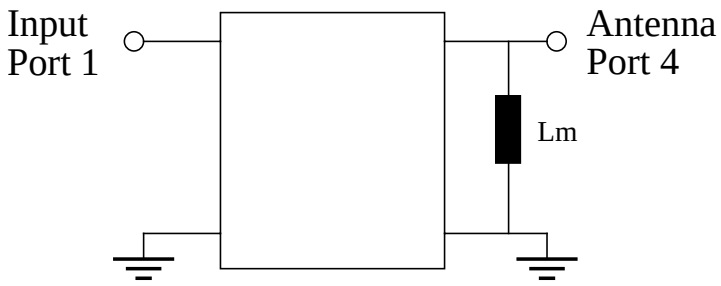
S22 VSWR





Matching network

- Lm = 15 nH
- Recommendation to use TDK MLG0603 P-series



References

Type	B9604
Ordering code	B39242B9604P810
Marking and package	C61157-A8-A59
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	B9604_NB.s2p B9604_WB.s2p See file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	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."
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm
Moldability	Before using in overmolding environment, please contact your EPCOS sales office.

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Systems, Acoustics, Waves Business Group
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