



## **SAW Components**

### **SAW filter**

Bluetooth

<b>Series/type:</b>	<b>B9410</b>
<b>Ordering code:</b>	<b>B39242B9410K610</b>
<b>Date:</b>	<b>May 30, 2006</b>
<b>Version:</b>	<b>2.1</b>



Data Sheet



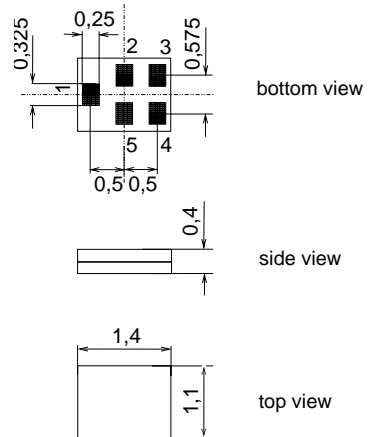
Application

- Low-loss RF filter for mobile telephone bluetooth systems
- Impedance transformation from 50 Ω to 150 Ω
- Unbalanced to balanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 83.5 MHz



Features

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS5F
- RoHS compatible
- Approximate weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



Pin configuration

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





Data Sheet



Characteristics

Temperature range for specification: T = -20 °C to +75 °C  
 Terminating source impedance: Z<sub>S</sub> = 50 Ω  
 Terminating load impedance: Z<sub>L</sub> = 150 Ω || 11 nH (balanced)

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	2441.75	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
2400.0 ... 2483.5 MHz		—	2.0	2.6	dB
<b>Amplitude ripple (p-p)</b>	Δα				
2400.0 ... 2483.5 MHz		—	0.6	1.5	dB
<b>Input VSWR</b>					
2400.0 ... 2483.5 MHz		—	1.8	2.1	
<b>Output VSWR</b>					
2400.0 ... 2483.5 MHz		—	1.7	2.1	
<b>Output amplitude balance ( S<sub>31</sub>/S<sub>21</sub> )</b>					
2400.0 ... 2483.5 MHz		-1.5	-0.5/0.8	1.5	dB
<b>Output phase balance (φ(S<sub>31</sub>) - φ(S<sub>21</sub>)+180°)</b>					
2400.0 ... 2483.5 MHz		-10	-4/+4	10	°
<b>Attenuation</b>	α				
0.0 ... 960.0 MHz		55	58	—	dB
960.0 ... 1850.0 MHz		40	47	—	dB
1850.0 ... 1990.0 MHz		40 <sup>1)</sup>	45	—	dB
1990.0 ... 2170.0 MHz		40	45	—	dB
2170.0 ... 2250.0 MHz		20	40	—	dB
2650.0 ... 2800.0 MHz		20	31	—	dB
2800.0 ... 4000.0 MHz		25	36	—	dB
4000.0 ... 6000.0 MHz		30	46	—	dB

1) except 1 narrow spike at ~1886 MHz with typical 41 dB



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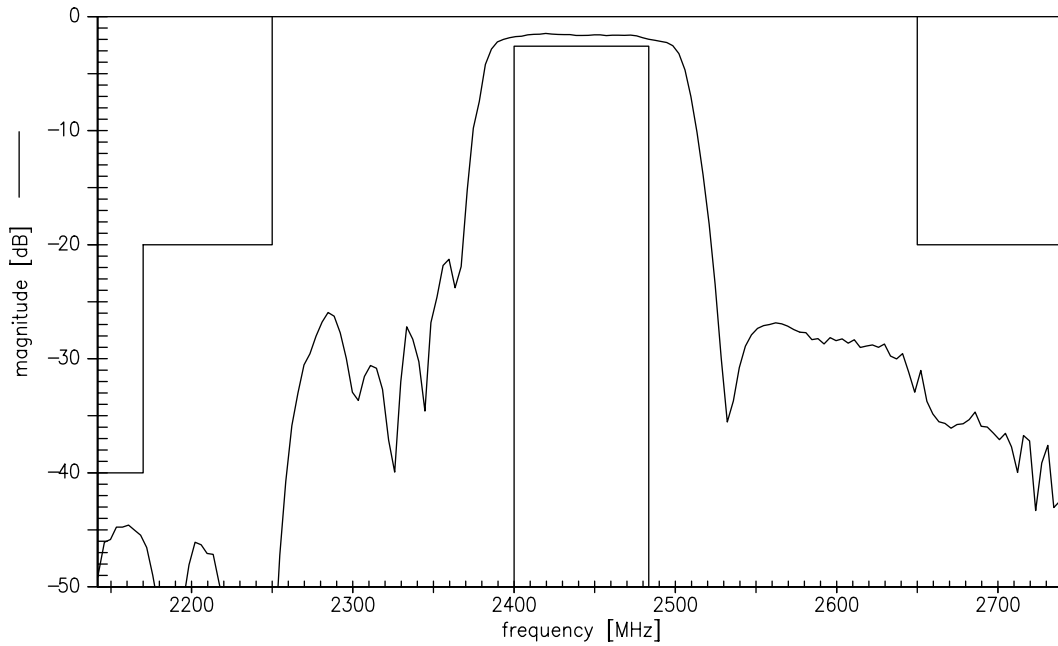
**Maximum ratings**

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	3.5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at				source/load impedance 50Ω/50Ω
2400 ... 2483.5 MHz	P <sub>IN</sub>	8	dBm	bluetooth signal
824 ... 849, 880 ... 915 MHz	P <sub>IN</sub>	15	dBm	cw
1710... 785, 1850... 1910 MHz	P <sub>IN</sub>	15	dBm	cw

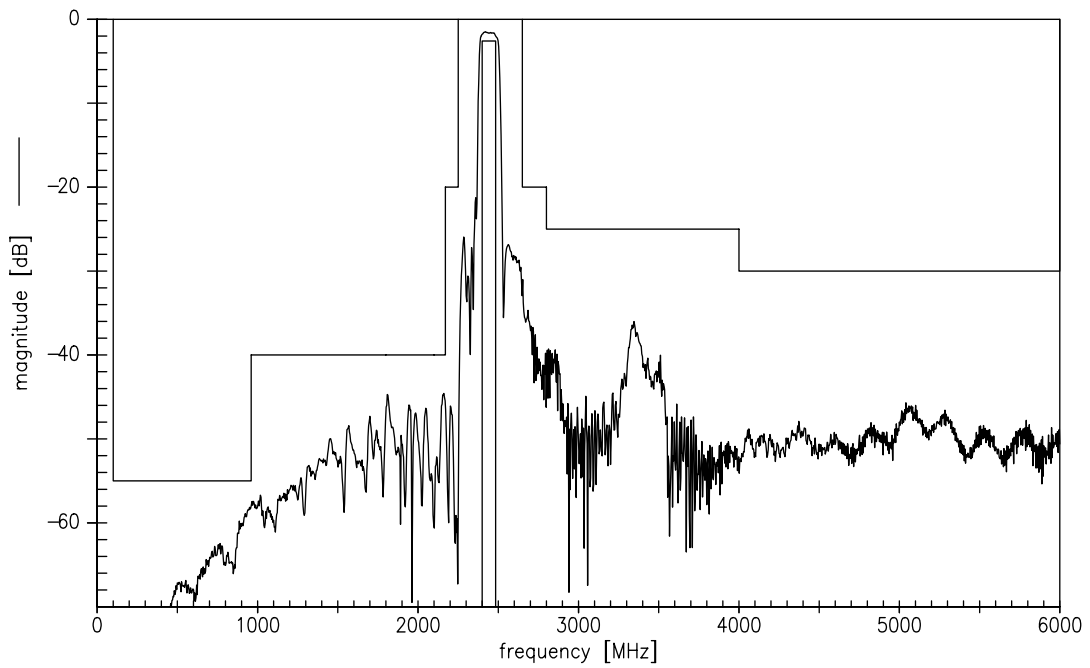
<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function (narrow band)



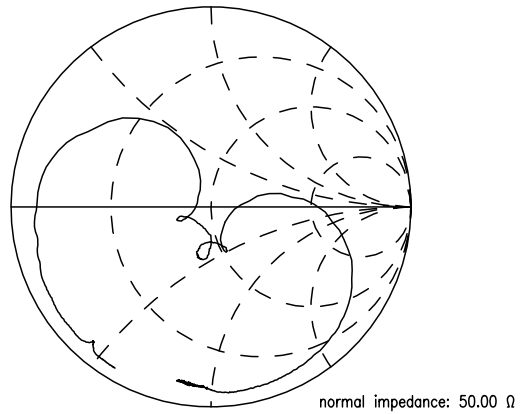
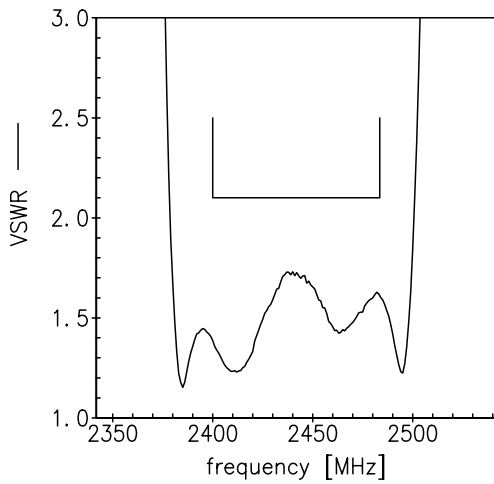
Transfer function (wide band)



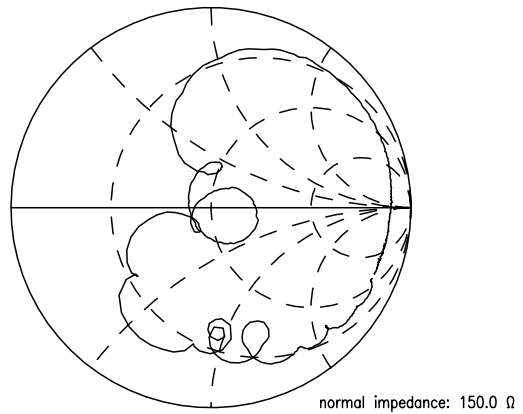
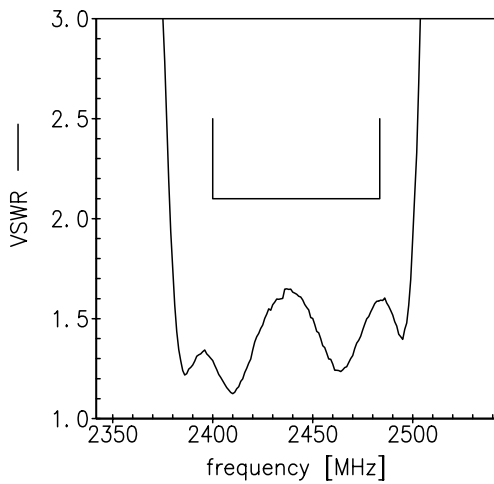


Smith charts

S<sub>11</sub> function



S<sub>22</sub> function





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**2441.75 MHz**

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## References

<b>Type</b>	B9410
<b>Ordering code</b>	B39242B9410K610
<b>Marking and package</b>	C61157-A8-A1
<b>Packaging</b>	F61074-V8212-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	LP14E_NB.s3p LP14E_WB.s3p
<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>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.

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