



## **SAW Components**

### **SAW filter**

Bluetooth

<b>Series/type:</b>	<b>B9410</b>
<b>Ordering code:</b>	<b>B39242B9410K610</b>
<b>Date:</b>	<b>April 15, 2008</b>
<b>Version:</b>	<b>2.2</b>

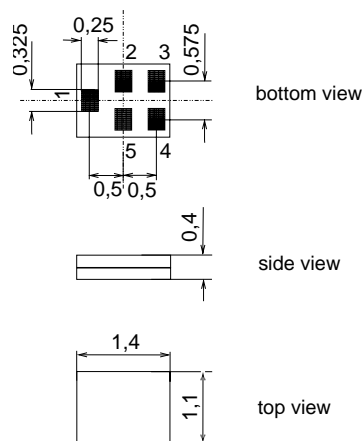
### Application

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



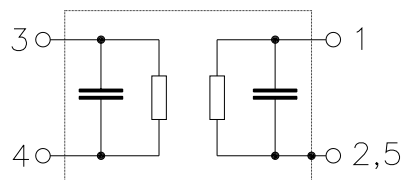
### Features

- 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





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B9410

## SAW filter

2441.75 MHz

### Data Sheet



### Characteristics

Temperature range for specification:  $T = -20\text{ °C to }+75\text{ °C}$   
Terminating source impedance:  $Z_S = 50\ \Omega$   
Terminating load impedance:  $Z_L = 150\ \Omega \parallel 11\text{ nH (balanced)}$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	2441.75	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2.0	2.6	dB
2400.0 ... 2483.5 MHz		—	2.0	2.6	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.6	1.5	dB
2400.0 ... 2483.5 MHz		—	0.6	1.5	dB
<b>Input VSWR</b>		—	1.8	2.1	
2400.0 ... 2483.5 MHz		—	1.8	2.1	
<b>Output VSWR</b>		—	1.7	2.1	
2400.0 ... 2483.5 MHz		—	1.7	2.1	
<b>Common mode suppression</b>		22	25	—	dB
2400.0 ... 2483.5 MHz		22	25	—	dB
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1.5	-0.5/0.8	1.5	dB
2400.0 ... 2483.5 MHz		-1.5	-0.5/0.8	1.5	dB
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^\circ</math>)</b>		-10	-4/+4	10	°
2400.0 ... 2483.5 MHz		-10	-4/+4	10	°
<b>Attenuation</b>	$\alpha$	55	58	—	dB
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

<sup>1)</sup> 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, 1 pulse
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), 1 negative & 1 positive pulse.



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B9410

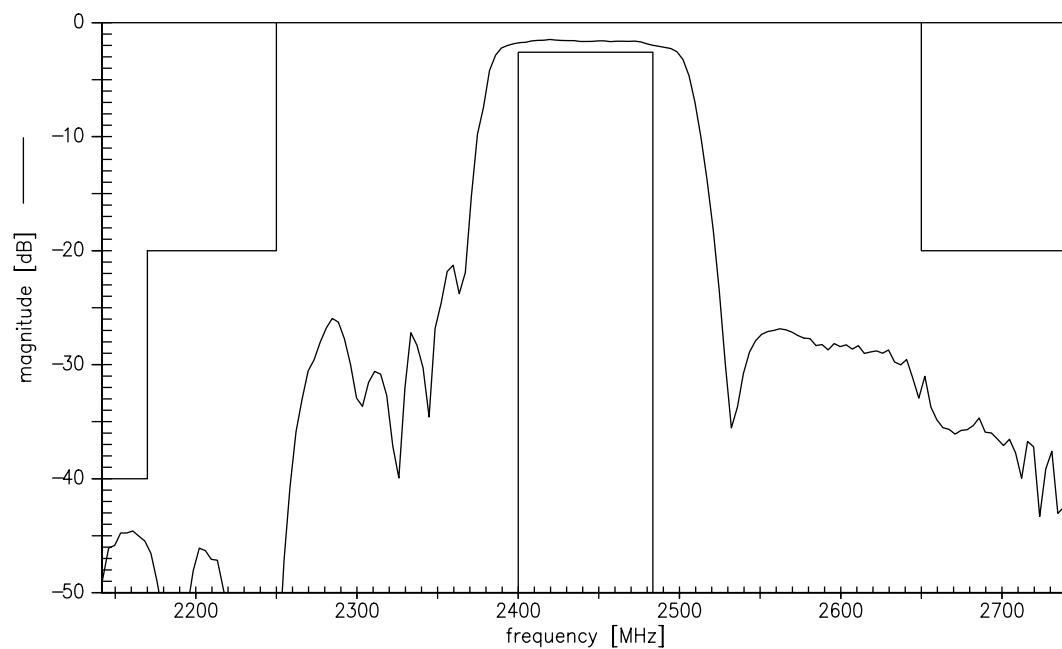
## SAW filter

2441.75 MHz

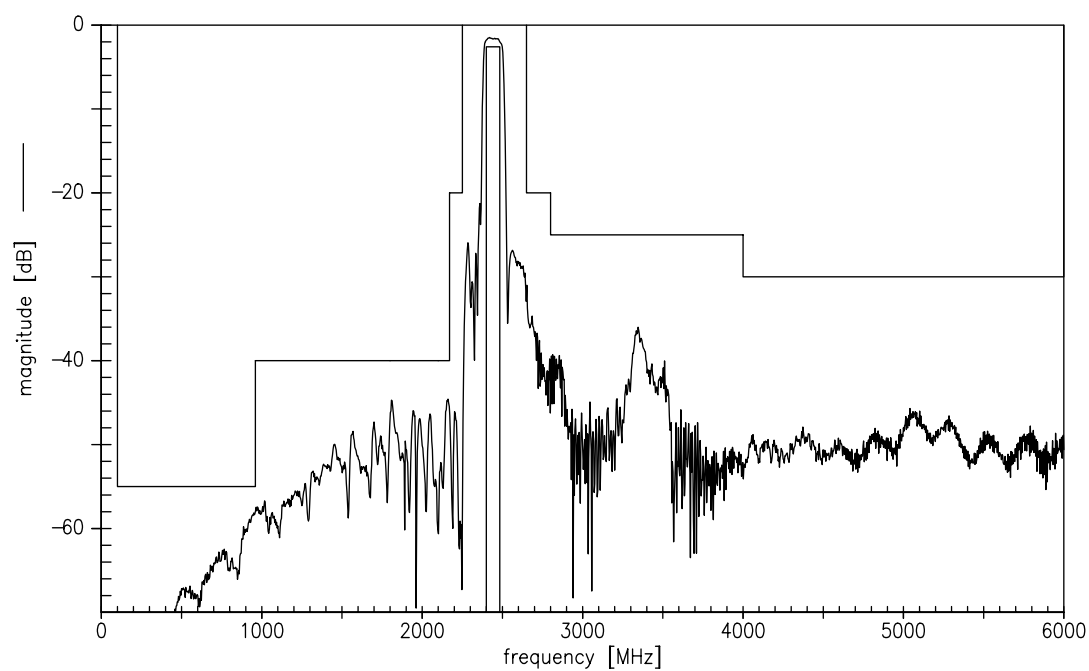
## Data Sheet

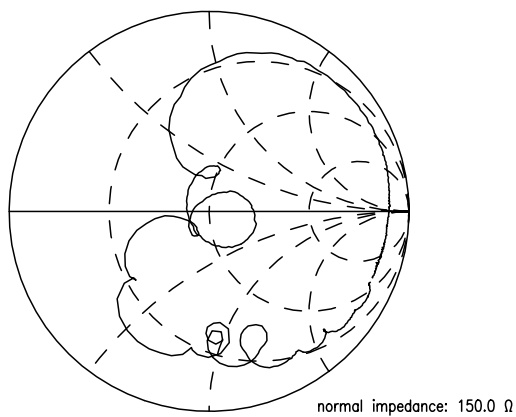
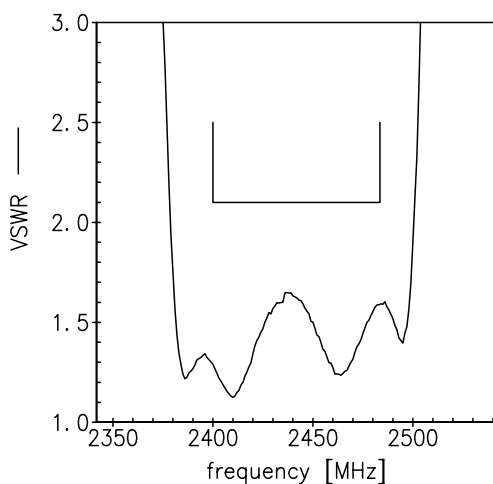
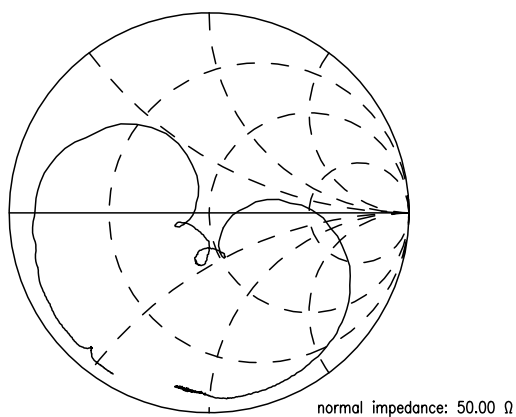
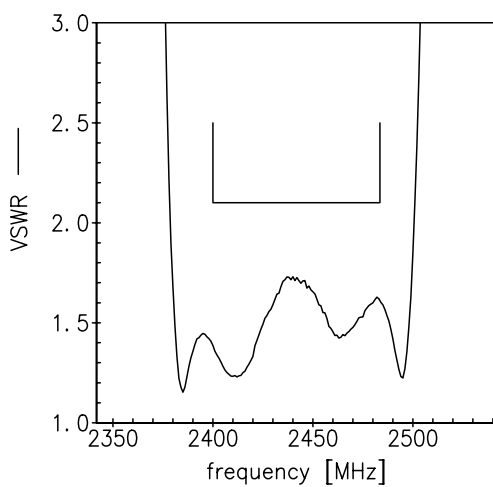


### Transfer function (narrow band)



### Transfer function (wide band)







<b>SAW Components</b>	<b>B9410</b>
<b>SAW filter</b>	<b>2441.75 MHz</b>
<b>Data Sheet</b>	<b>SMD</b>

## 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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