



## **SAW Components**

SAW filter

GPS

<b>Series/type:</b>	<b>B9417</b>
<b>Ordering code:</b>	<b>B39162B9417K610</b>
<b>Date:</b>	<b>January 23, 2009</b>
<b>Version:</b>	<b>2.4</b>



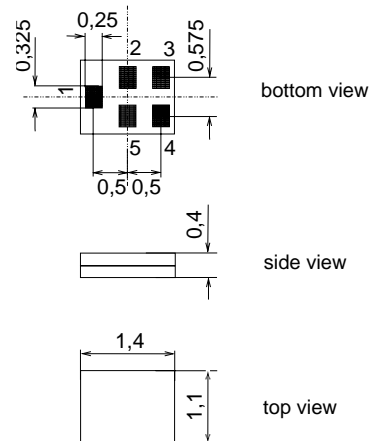
### Application

- Low-loss RF filter for mobile telephone  
GPS systems
- Impedance transformation from 50 Ω to 100 Ω
- Unbalanced to balanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 2.0 MHz



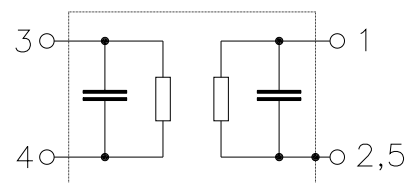
### Features

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS5U
- 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 = -30 °C to +85 °C  
 Terminating source impedance: Z<sub>S</sub> = 50 Ω  
 Terminating load impedance: Z<sub>L</sub> = 100 Ω

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	f <sub>C</sub>	—	1575.42	—	MHz
<b>Maximum insertion attenuation</b>	α <sub>max</sub>				
1574.42 ... 1576.42 MHz		—	1.1	1.4 <sup>1)</sup>	dB
<b>Amplitude ripple (p-p)</b>	Δα				
1574.42 ... 1576.42 MHz		—	0.1	0.3	dB
<b>Input VSWR</b>					
1574.42 ... 1576.42 MHz		—	1.3	1.8	
<b>Output VSWR</b>					
1574.42 ... 1576.42 MHz		—	1.3	1.8	
<b>Output amplitude balance ( S<sub>31</sub>/S<sub>21</sub> )</b>					
1574.42 ... 1576.42 MHz		-1.0	0.6	1.0	dB
<b>Output phase balance (φ(S<sub>31</sub>) - φ(S<sub>21</sub>)+180°)</b>					
1574.42 ... 1576.42 MHz		-10	4	10	°
<b>Attenuation</b>	α				
100.0 ... 960.0 MHz		40	48	—	dB
960.0 ... 1425.0 MHz		35	42	—	dB
1425.0 ... 1475.0 MHz		30	42	—	dB
1475.0 ... 1515.0 MHz		20	32	—	dB
1515.0 ... 1525.0 MHz		17	27	—	dB
1625.0 ... 1635.0 MHz		12	30	—	dB
1635.0 ... 1675.0 MHz		20	30	—	dB
1675.0 ... 1710.0 MHz		27	32	—	dB
1710.0 ... 1850.0 MHz		30	32	—	dB
1850.0 ... 1900.0 MHz		33	38	—	dB
1900.0 ... 1980.0 MHz		36	43	—	dB
1980.0 ... 2400.0 MHz		32	36	—	dB
2400.0 ... 3155.0 MHz		40	46	—	dB
3155.0 ... 4000.0 MHz		35	39	—	dB
4000.0 ... 6000.0 MHz		33	37	—	dB

<sup>1)</sup> 1.3 dB max. at 25 °C



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**SAW filter** **1575.42 MHz**

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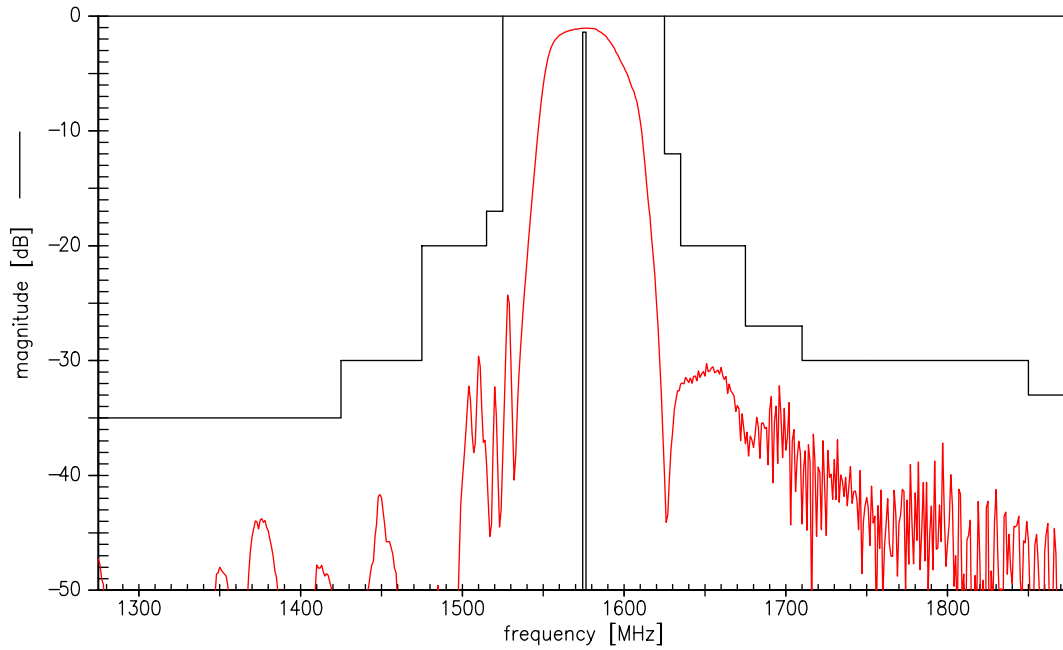
**Maximum ratings**

Operable temperature range	T	-40/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	3	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at				source 50Ω, load100Ω
1574.42 ... 1576.42 MHz	P <sub>IN</sub>	5	dBm	cw
2400 ... 2483.5 MHz	P <sub>IN</sub>	20	dBm	cw
824...960, 1710...2170 MHz	P <sub>IN</sub>	25	dBm	cw
960...1525 MHz	P <sub>IN</sub>	10	dBm	cw

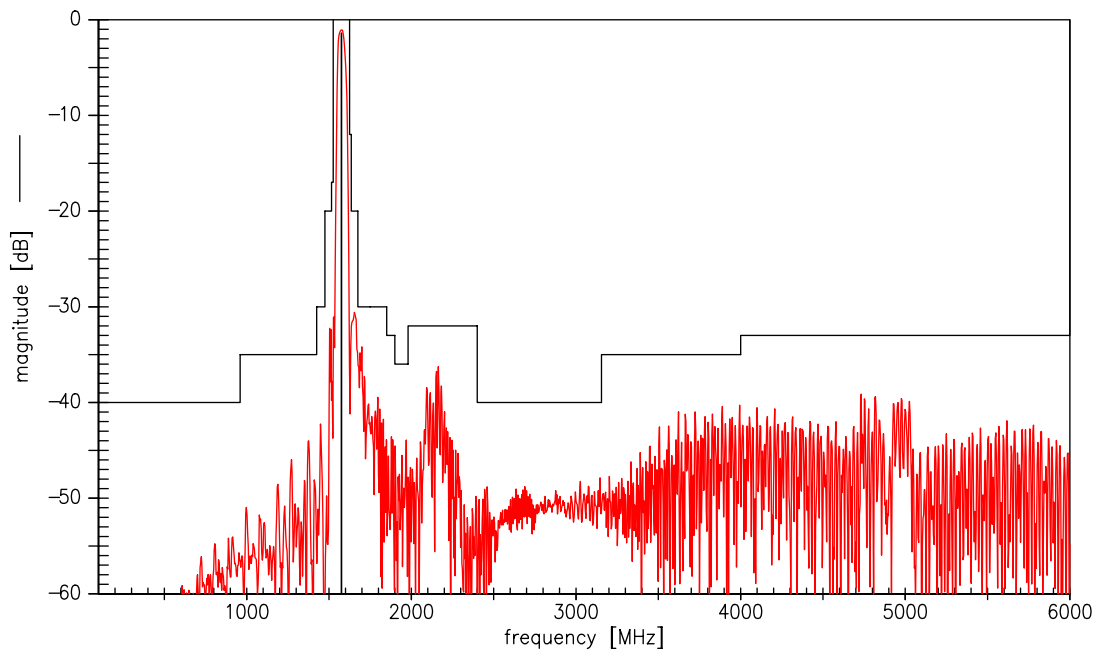
<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function (narrow band)



Transfer function (wide band)



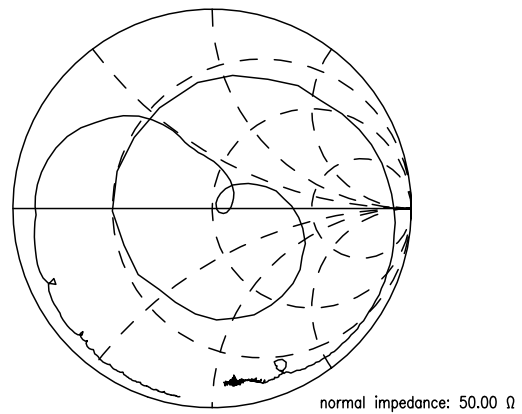
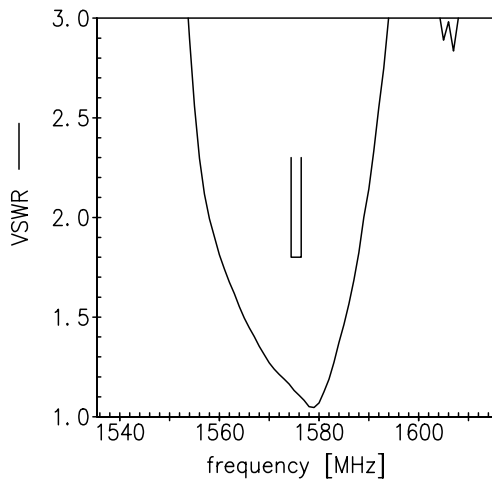


Data sheet

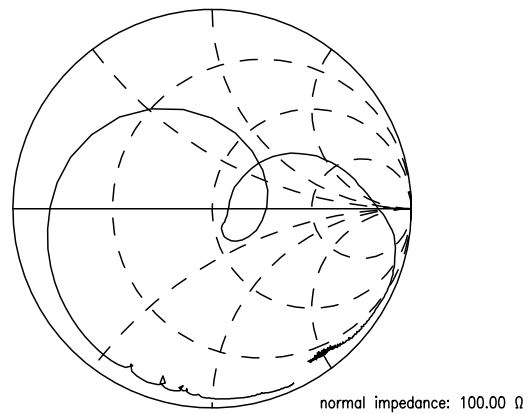
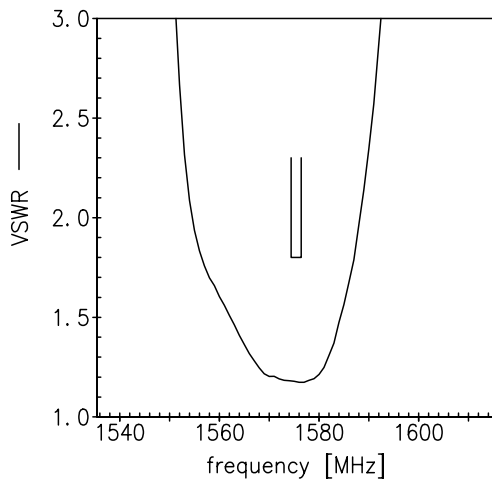


Smith charts

S<sub>11</sub> function



S<sub>22</sub> function





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<b>SAW filter</b>	<b>1575.42 MHz</b>
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## References

<b>Type</b>	B9417
<b>Ordering code</b>	B39162B9417K610
<b>Marking and package</b>	C61157-A8-A14
<b>Packaging</b>	F61074-V8237-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9417_NB.s3p B9417_WB.s3p "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>Moldability</b>	Before using in overmolding environment, please contact your EPCOS sales office.

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