



## SAW Components

### SAW filter

GPS

<b>Series/type:</b>	<b>B9416</b>
<b>Ordering code:</b>	<b>B39162B9416K610</b>
<b>Date:</b>	<b>March 22, 2006</b>
<b>Version:</b>	<b>2.0</b>

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Data sheet



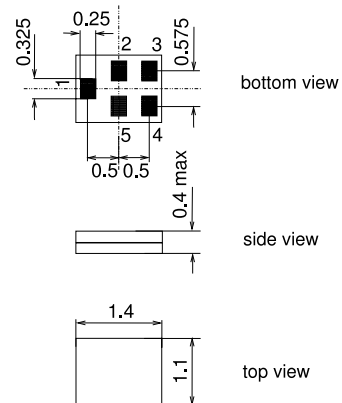
### Application

- Low-loss RF filter for mobile telephone  
GPS systems
- Filter impedance 50  $\Omega$
- Unbalanced to unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 2.0 MHz



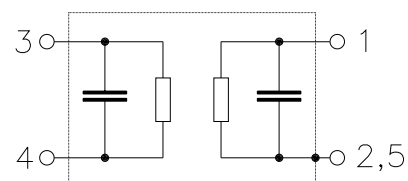
### Features

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



### Pin configuration

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





**SAW Components**

**B9416**

**SAW filter**

**1575.42 MHz**

Data sheet



**Characteristics**

Operating temperature range:  $T = -30\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	1575.42	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	0.9	1.2	dB
1574.42 ... 1576.42 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.05	0.3	dB
1574.42 ... 1576.42 MHz					
<b>Input VSWR</b>		—	1.1	1.8	
1574.42 ... 1576.42 MHz					
<b>Output VSWR</b>		—	1.1	1.8	
1574.42 ... 1576.42 MHz					
<b>Attenuation</b>	$\alpha$				
0.1 ... 960.0 MHz		38	40	—	dB
960.0 ... 1460.0 MHz		35	39	—	dB
1460.0 ... 1513.0 MHz		22	28	—	dB
1648.0 ... 1710.0 MHz		22	26	—	dB
1710.0 ... 1990.0 MHz		25	33	—	dB
1990.0 ... 2300.0 MHz		25	30	—	dB
2300.0 ... 4000.0 MHz		30	38	—	dB
4000.0 ... 6000.0 MHz		20	35	—	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	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at				source/load impedance 50Ω/50Ω
1574.42 ... 1576.42 MHz	P <sub>IN</sub>	3	dBm	cw
50...1460, 1710...4000 MHz	P <sub>IN</sub>	15	dBm	cw

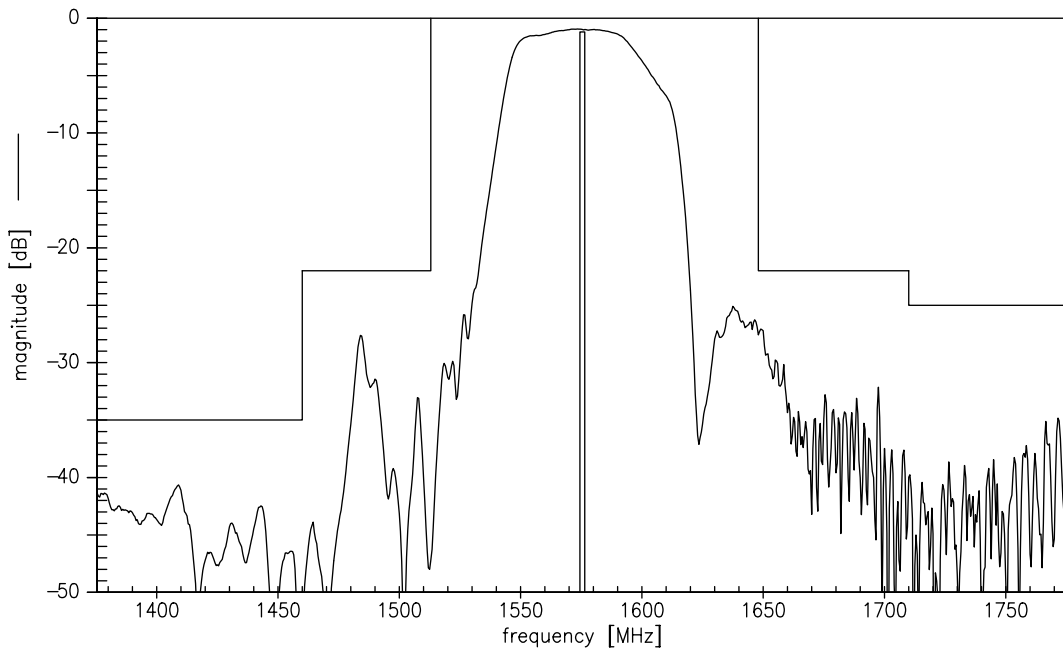
1) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



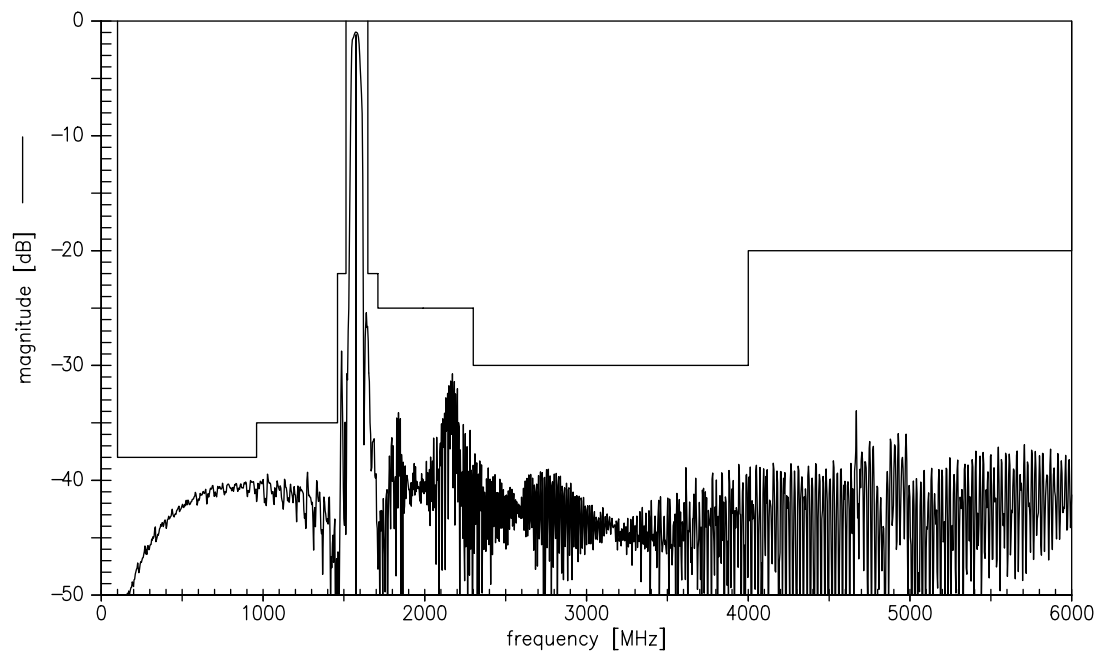
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Transfer function (narrow band)



Transfer function (wide band)





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**B9416**

**SAW filter**

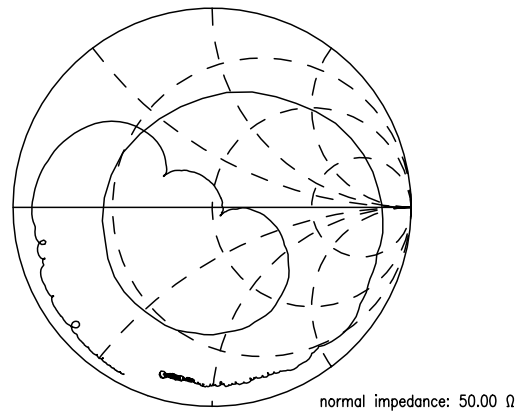
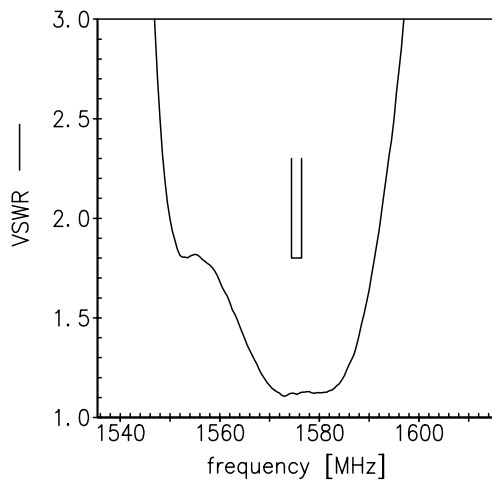
**1575.42 MHz**

Data sheet

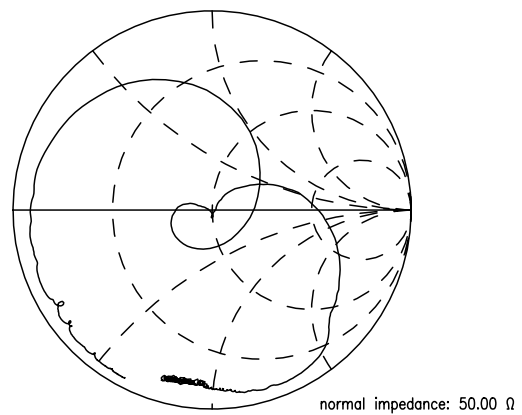
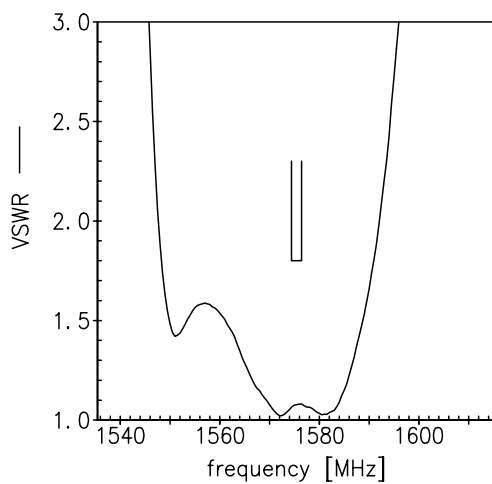


Smith charts

$S_{11}$  function



$S_{22}$  function





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#### References

<b>Type</b>	B9416
<b>Ordering code</b>	B39162B9416K610
<b>Marking and package</b>	C61157-A8-A1
<b>Packaging</b>	F61074-V8212-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9416_NB.s2p B9416_WB.s2p
<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."

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