

# **SAW Components**

SAW filter GPS

Series/type: B9417

Ordering code: B39162B9417K610

Date: January 23, 2009

Version: 2.4

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SAW Components B9417

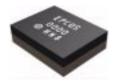
SAW filter 1575.42 MHz

**Data sheet** 



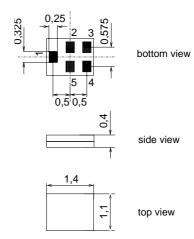
#### **Application**

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



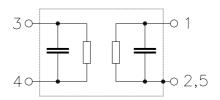
#### **Features**

- Package size 1.4 x1.1 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





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### **Characteristics**

Temperature range for specification:  $T = -30 \,^{\circ}\text{C}$  to +85  $^{\circ}\text{C}$ 

Terminating source impedance:  $Z_S = 50 \Omega$ Terminating load impedance:  $Z_L = 100 \Omega$ 

	min.	typ. @ 25 °C	max.	
Center frequency f <sub>C</sub>	_	1575.42	_	MHz
1574.42 1576.42 MHz	_	1.1	1.4 <sup>1)</sup>	dB
<b>Amplitude ripple</b> (p-p) $\Delta\alpha$ 1574.42 1576.42 MHz	_	0.1	0.3	dB
Input VSWR				
1574.42 1576.42 MHz	_	1.3	1.8	
Output VSWR				
1574.42 1576.42 MHz	_	1.3	1.8	
Output amplitude balance ( $ S_{31}/S_{21} $ ) 1574.42 1576.42 MHz	-1.0	0.6	1.0	dB
Output phase balance $(\phi(S_{31}) - \phi(S_{21}) + 180^{\circ})$ 1574.42 1576.42 MHz	40	4	40	0
1374.42 1370.42 WILL	<b>–10</b>	7	10	
Attenuation $\alpha$				
Attenuation $\alpha$ 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	<u> </u>	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) 1.3</sup> dB max. at 25 °C



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**Data sheet** 



# **Maximum ratings**

Operable temperature range	Т	-40/+85	°C	
Storage temperature range	$T_{stg}$	-40/+85	°C	
DC voltage	$V_{DC}$	3	V	
ESD voltage	$V_{ESD}$	50 <sup>1)</sup>	V	machine model, 10 pulses
Input power at				source $50\Omega$ , load $100\Omega$
1574.42 1576.42 MHz	$P_{IN}$	5	dBm	cw
2400 2483.5 MHz	$P_{IN}$	20	dBm	cw
824960, 17102170 MHz	$P_{IN}$	25	dBm	cw
9601525 MHz	$P_{IN}$	10	dBm	cw

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



SAW Components

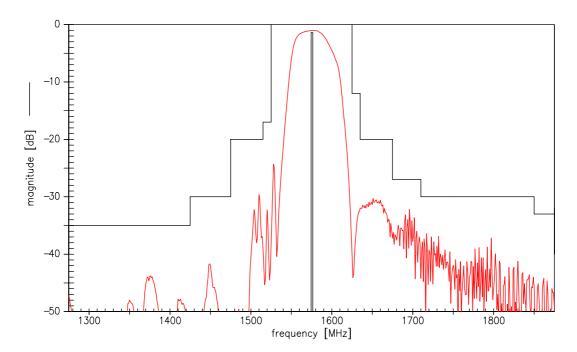
SAW filter

Data sheet

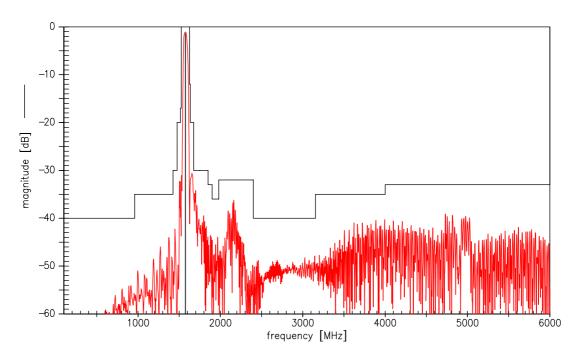
B9417

1575.42 MHz

## Transfer function (narrow band)



# Transfer function (wide band)





SAW Components B9417

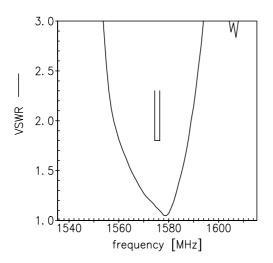
SAW filter 1575.42 MHz

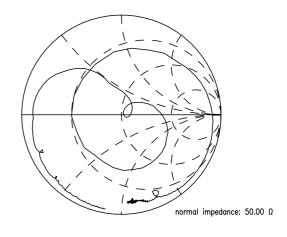
**Data sheet** 

=MD

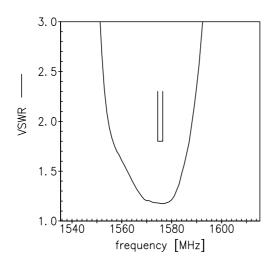
**Smith charts** 

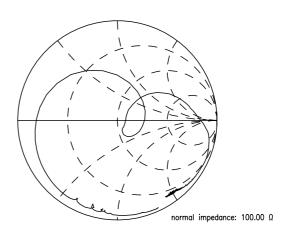
S<sub>11</sub> function





# $S_{22}$ function







SAW Components		B9417
SAW filter		1575.42 MHz
Data sheet	SMD	

#### References

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

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