SAW Components

SAW filter

GPS

Series/type:	**B9417**
Ordering code:	**B39162B9417K610**
Date:	January 23, 2009
Version:	2.4

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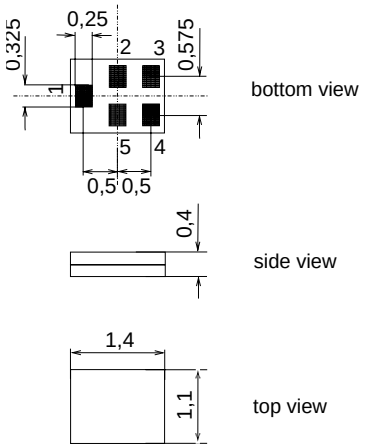
Application

- 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



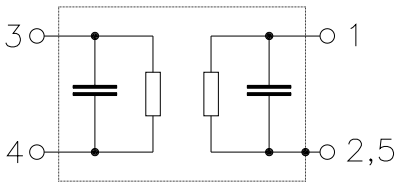
Features

- Package size 1.4 x1.1 x 0.4 mm³
- Package code QCS5U
- RoHS compatible
- Approximate weight 0.003 g
- Package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

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



Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 100 Ω

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1575.42	—	MHz
Maximum insertion attenuation	α_{max}				
1574.42 ... 1576.42 MHz		—	1.1	1.4[1)]	dB
Amplitude ripple (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 ($\lvert S_{31}/S_{21}\rvert$)					
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		–10	4	10	°
Attenuation	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

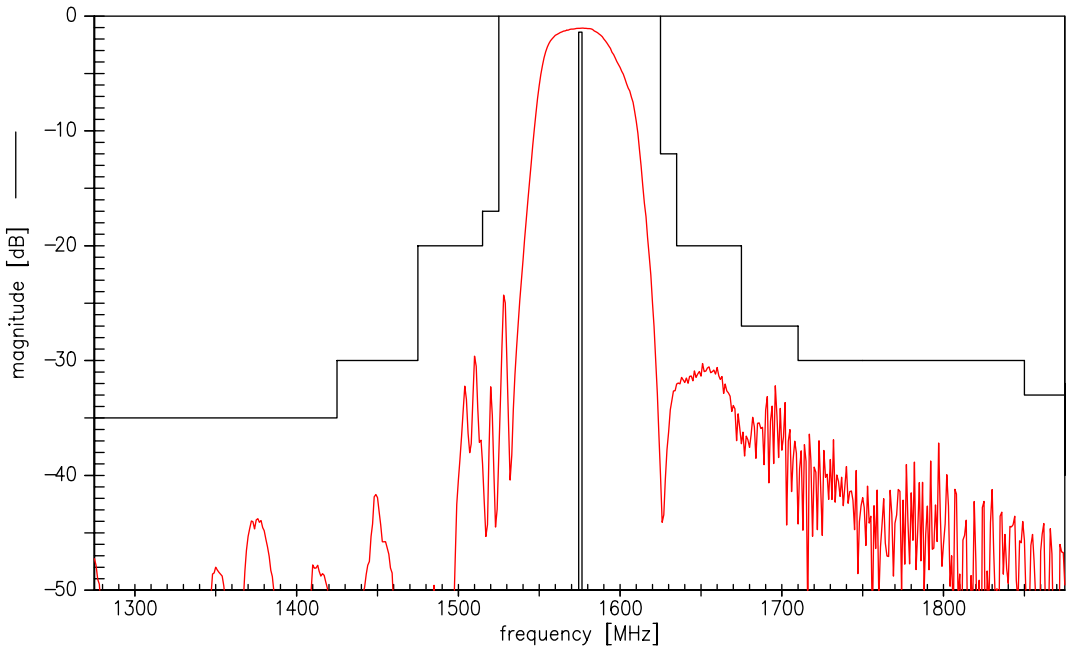
[1)] 1.3 dB max. at 25 ˚C

Maximum ratings

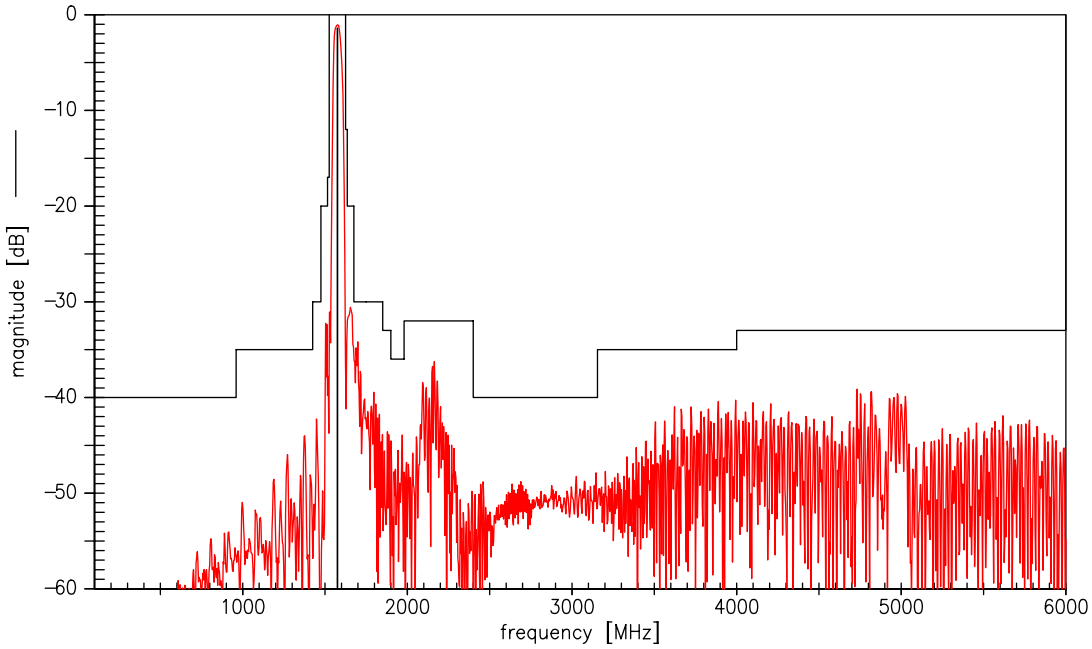
Operable temperature range	T	–40/+85	°C	
Storage temperature range	T_{stg}	–40/+85	°C	
DC voltage	V_{DC}	3	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power at				source 50Ω, load100Ω
1574.42 ... 1576.42 MHz	P_{IN}	5	dBm	cw
2400 ... 2483.5 MHz	P_{IN}	20	dBm	cw
824...960, 1710...2170 MHz	P_{IN}	25	dBm	cw
960...1525 MHz	P_{IN}	10	dBm	cw

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

Transfer function (narrow band)

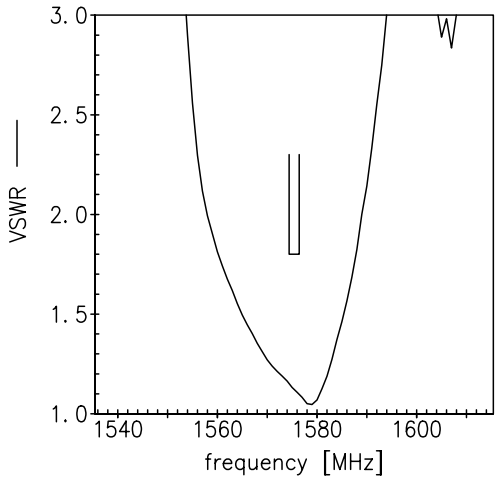


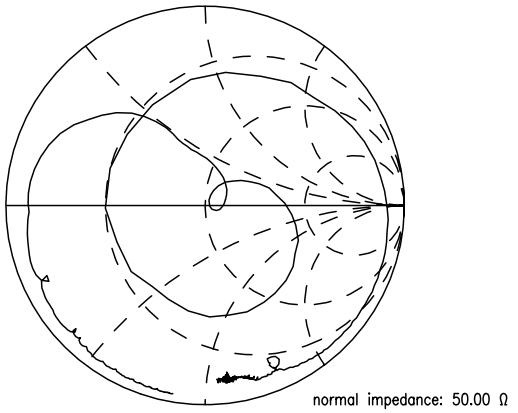
Transfer function (wide band)



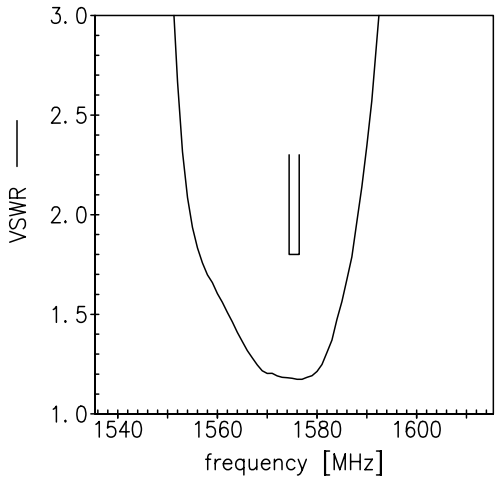
Smith charts

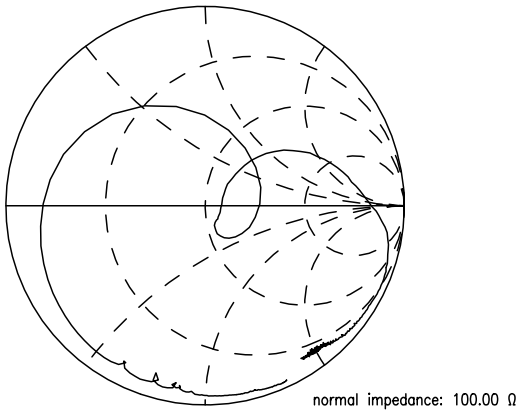
S_{11} function





S_{22} function





References

Type	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.

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com .

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