SAW Components

SAW Rx filter

WCDMA Band II (PCS-Band)

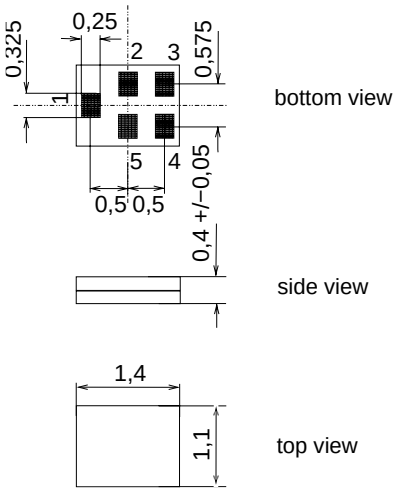
Series/type:	**B9419**
Ordering code:	**B39202B9419K610**
Date:	January 22, 2007
Version:	2.0

Application

- Low-loss RF filter for mobile telephone WCDMA system (Band II, PCS band), receive path (RX)
- Low insertion loss and very high Tx blocking
- Usable passband 60 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50 Ω to 100 Ω

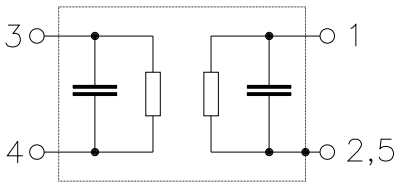
Features

- Package size 1.4 x1.1 x 0.4 mm³
- Package code QCS5F
- 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



Data sheet SMD

Characteristics

Temperature range for specification: T = –30 ˚C to +85 ˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 100 Ω (balanced) || 30 nH

		min.	typ. @ 25 ˚C	max.	
Center frequency	f_C	—	1960.0	—	MHz
Maximum insertion attenuation	α_{max}				
1930.0 ... 1990.0 MHz		—	2.5	3.5	dB
1930.0 ... 1990.0 MHz		—	2.5	3.0[1)]	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930.0 ... 1990.0 MHz		—	1.2	2.2	dB
Input VSWR					
1930.0 ... 1990.0 MHz		—	1.8	2.2	
Output VSWR					
1930.0 ... 1990.0 MHz		—	1.8	2.2	
Output amplitude balance ($\|S_{31}/S_{21}\|$)					
1930.0 ... 1990.0 MHz		–1.0	—	+1.0	dB
Output phase balance ($\phi(S_{31}) - \phi(S_{21})+180^\circ$)					
1930.0 ... 1990.0 MHz		–10	—	+10	°
Attenuation	α				
10.0 ... 1600.0 MHz		40	50	—	dB
1600.0 ... 1850.0 MHz		30	36	—	dB
1850.0 ... 1910.0 MHz		23[2)]	26	—	dB
2040.0 ... 2200.0 MHz		25	27	—	dB
2200.0 ... 2800.0 MHz		30	39	—	dB
2800.0 ... 6000.0 MHz		40	46	—	dB

1) 0 ˚C to +85 ˚C

2) Attenuation of WCDMA signal determined by

$$\int_{-\infty}^{\infty} \left| S_{ds21}(f) H_{RRC}(f - f_C) \right|^2 df$$

with f_C ranging from 1852.4 MHz (lowest Tx channel) to 1907.6 MHz (highest Tx channel). $H_{RRC}(f)$ is the transfer function of the root-raised cosine transmit pulse shaping filter according to 3GPP TS 25.101 with the following normalization:

$$\int_{-\infty}^{\infty} \left| H_{RRC}(f) \right|^2 df = 1$$

Characteristics

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		min.	typ. @ 25 ˚C	max.	
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Input VSWR					
1930.6 ... 1989.4 MHz		—	1.8	2.2	
Output VSWR					
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Output amplitude balance ($\|S_{31}/S_{21}\|$)					
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2040.0 ... 2200.0 MHz		25	27	—	dB
2200.0 ... 2800.0 MHz		30	39	—	dB
2800.0 ... 6000.0 MHz		40	46	—	dB

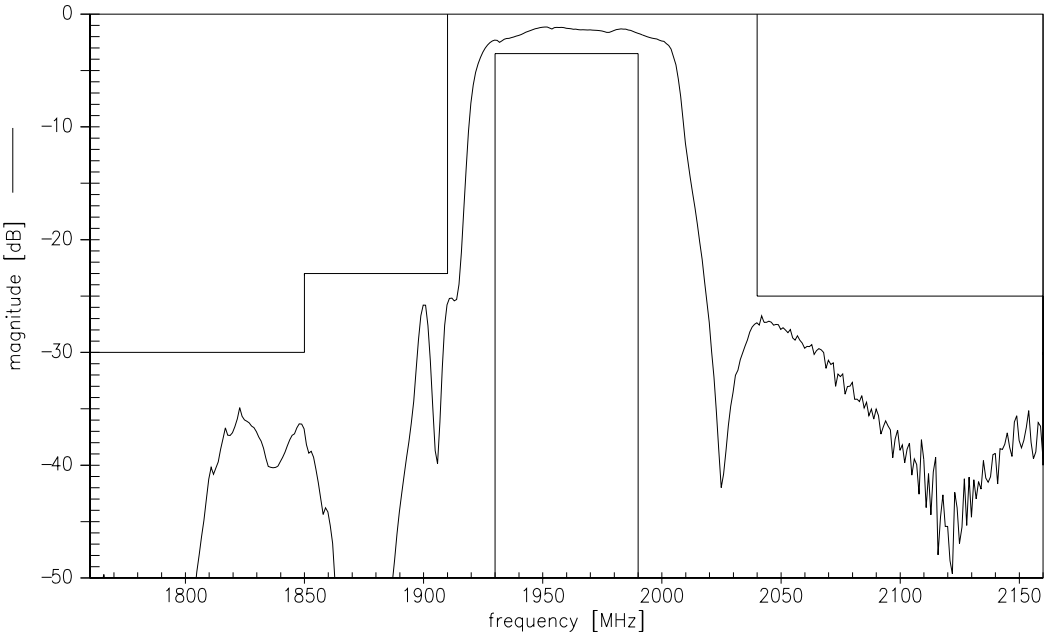
1) 0 ˚C to +85 ˚C

Maximum ratings

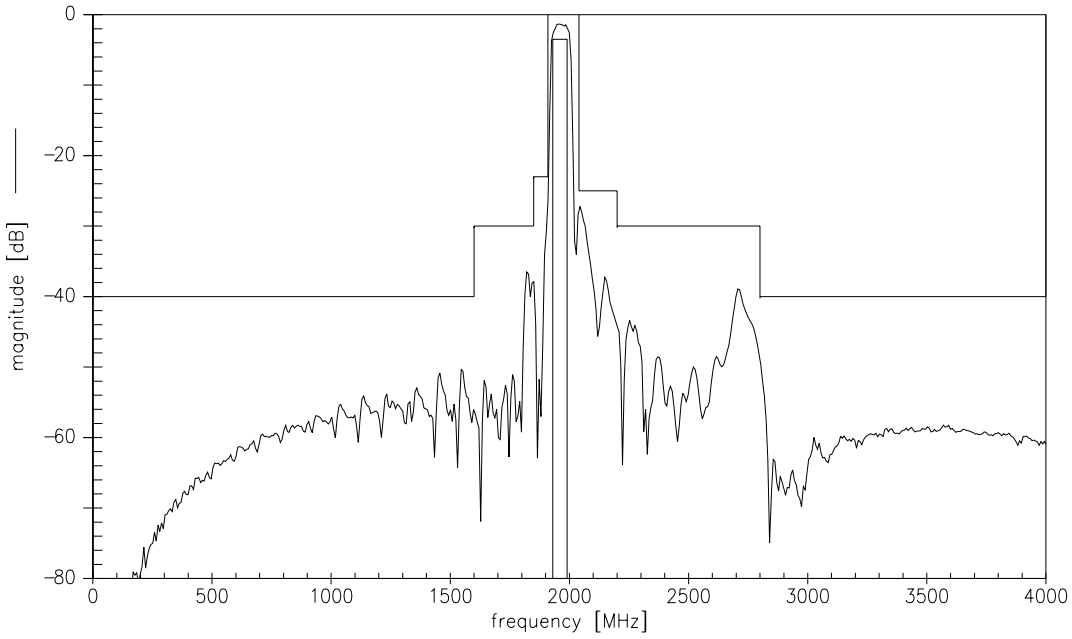
Operable temperature range	T	–30/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50[1)]	V	machine model, 10 pulses
Input power	P_{IN}	10	dBm	CW signal

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

Transfer function

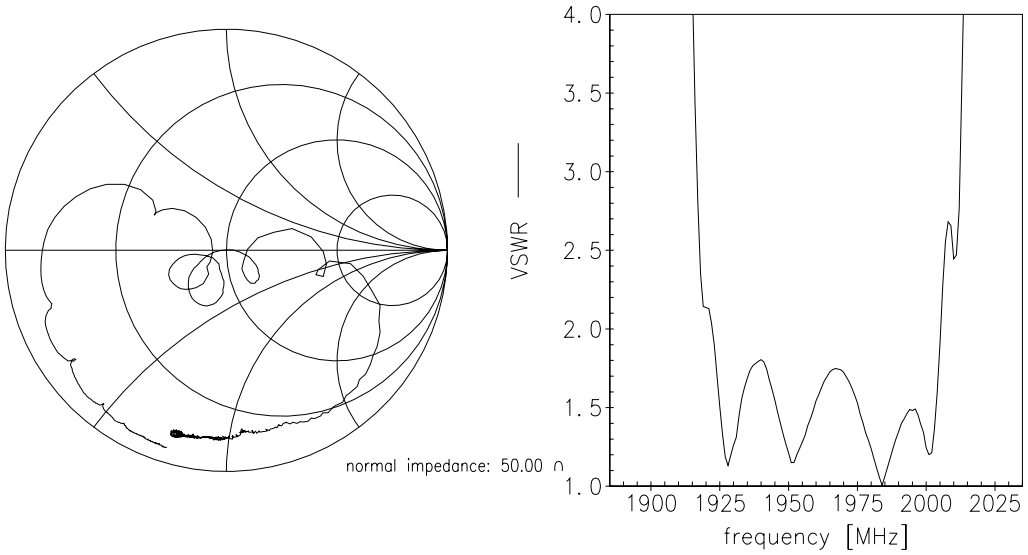


Transfer function (wideband)

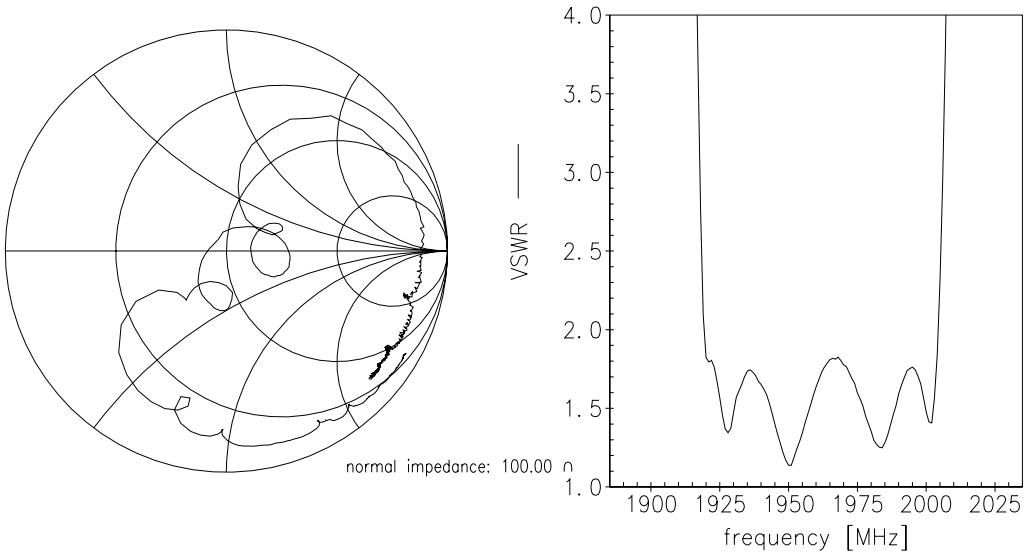


Smith charts

S_{11} function



S_{22} function



References

Type	B9419
Ordering code	B39202B9419K610
Marking and package	C61157-A8-A1
Packaging	F61074-V8212-Z000
Date codes	L_1126
S-parameters	B9419_NB.s3p B9419_WB.s3p
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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