



## **SAW Components**

### **SAW Tx Filter**

WCDMA Band I

<b>Series/Type:</b>	<b>B9414</b>
<b>Ordering code:</b>	<b>B39202B9414M410</b>
<b>Date:</b>	<b>August 16, 2006</b>
<b>Version:</b>	<b>2.0</b>



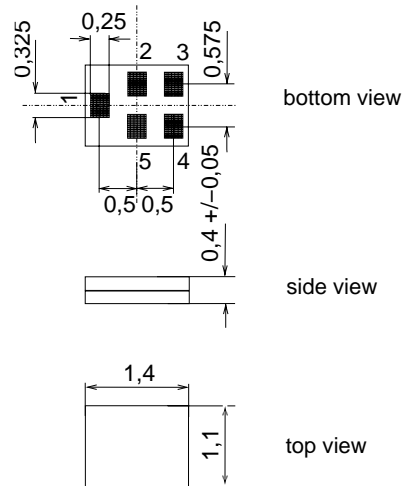
**Application**

- Low-loss RF filter for mobile telephone WCDMA systems, transmit path (TX)
- Unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Very low Error Vector Magnitude (EVM)
- High Rx-suppression
- Usable passband 60 MHz



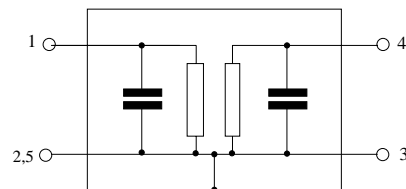
**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- Package code QCS51
- RoHS compatible
- Approx. weight 0.003 g
- Package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)



**Pin configuration**

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





Data Sheet



Characteristics

Operating temperature range:  $T = -20\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 50\ \Omega$  (unbalanced)

		min.	typ. @ 25 °C	max.	
<b>Center frequency</b>	$f_C$	—	1950.0	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$				
1920.0 ... 1980.0	MHz	—	2.5	3.2 <sup>1)</sup>	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
1920.0 ... 1980.0	MHz	—	1.1	1.8 <sup>2)</sup>	dB
<b>Input VSWR</b>					
1920.0 ... 1980.0	MHz	—	1.8	2.2	
<b>Output VSWR</b>					
1920.0 ... 1980.0	MHz	—	1.8	2.2	
<b>Attenuation</b>	$\alpha$				
0.0 ... 960.0	MHz	27	34	—	dB
960.0 ... 1575.0	MHz	25	35	—	dB
1575.0 ... 1576.0	MHz	32	35	—	dB
1576.0 ... 1730.0	MHz	30	35	—	dB
1730.0 ... 1880.0	MHz	30	38	—	dB
2025.0 ... 2050.0	MHz	35	54	—	dB
2110.0 ... 2170.0	MHz	35	38	—	dB
2200.0 ... 3100.0	MHz	33	37	—	dB
3100.0 ... 3960.0	MHz	30	42	—	dB
3960.0 ... 6000.0	MHz	20	34	—	dB

<sup>1)</sup> IA max. 3.0dB at 25°C

<sup>2)</sup> AR max. 1.6dB at 25°C  
 EVM typ. < 1.3% at 25°C, typ. < 2.2% over temperature



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B9414

SAW Filter

1950.0 MHz

Data Sheet



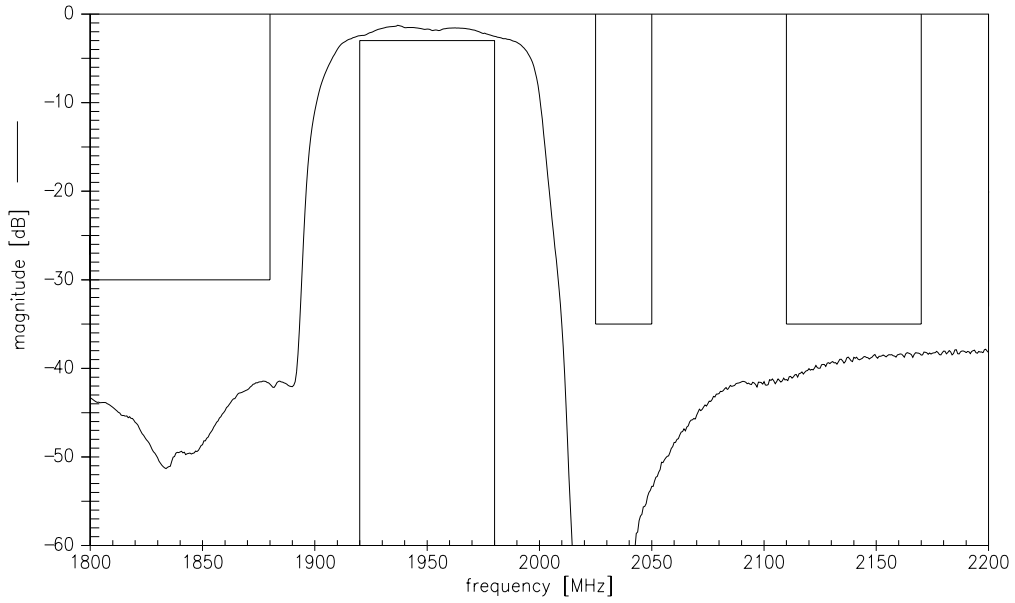
### Maximum ratings

Operable temperature range	T	-30/+85	°C	
Storage temperature range	T <sub>stg</sub>	-40/+85	°C	
DC voltage	V <sub>DC</sub>	5	V	
ESD voltage	V <sub>ESD</sub>	50 <sup>1)</sup>	V	machine model, 10 pulses
Source Power	P <sub>S</sub>	10	dBm	cw signal

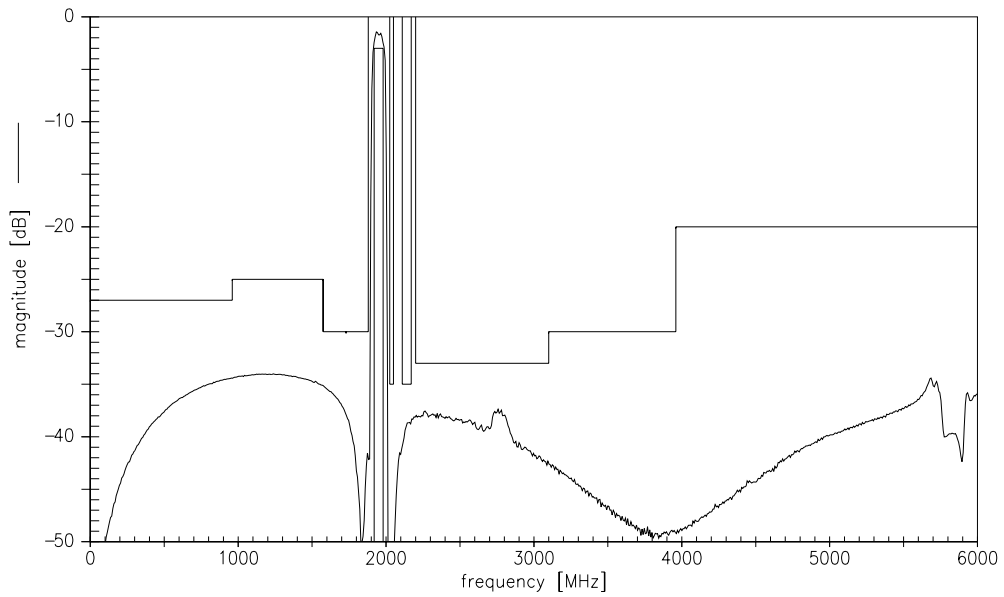
1) acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



Transfer function



Transfer function (wideband)



Please read *cautions and warnings and important notes* at the end of this document.

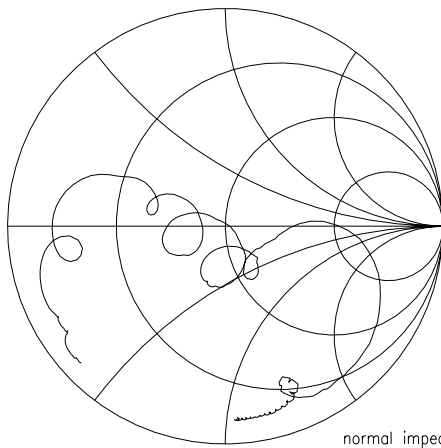


Data Sheet

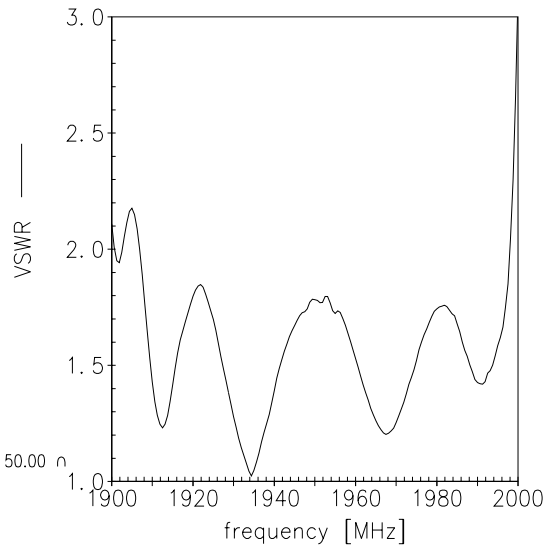


Smith chart

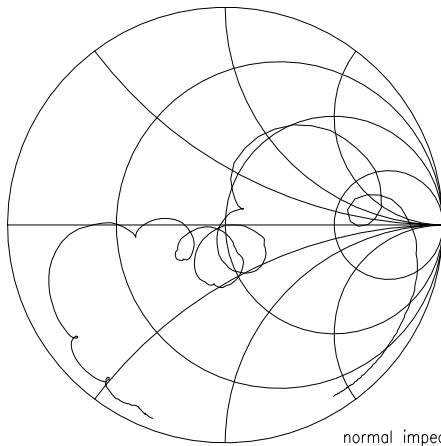
S<sub>11</sub> function



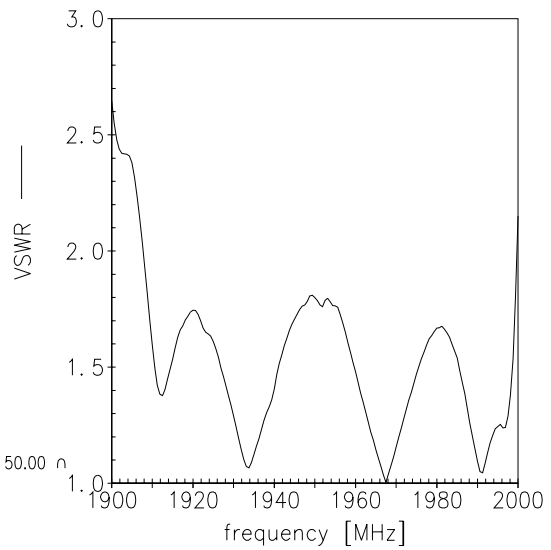
normal impedance: 50.00  $\Omega$



S<sub>22</sub> function



normal impedance: 50.00  $\Omega$





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**B9414**

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**1950.0 MHz**

Data Sheet



References

<b>Type</b>	B9414
<b>Ordering Code</b>	B39202B9414M410
<b>Marking and Package</b>	C61157-A8-A3-2-27
<b>Packaging</b>	F61074-V8212-Z000-2-27
<b>Date Codes</b>	L_1126
<b>Soldering profile</b>	S_6001
<b>S-Parameters</b>	B9414_NB.s2p B9414_WB.s2p
<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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