



SAW Components

SAW Tx Filter

WCDMA Band I

Series/Type:	B9409
Ordering code:	B39202B9409K610
Date:	December 09, 2005
Version:	2.0

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B9409

Low-Loss Filter for Mobile Communication

1950.0 MHz

Data Sheet



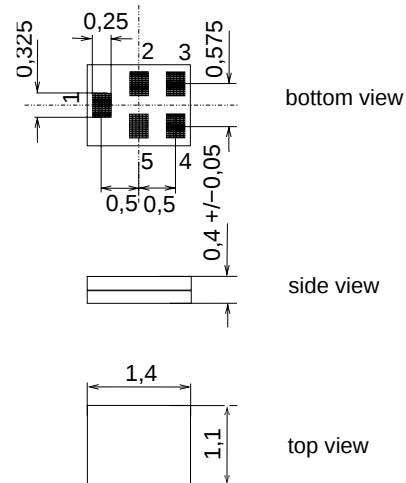
Application

- Low-loss RF filter for mobile telephone WCDMA systems, transmit path (TX)
- Impedance transform from 200 Ω to 50 Ω
- Balanced to unbalanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 60 MHz



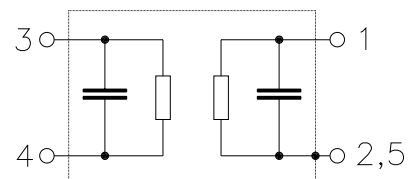
Features

- Package size 1.4 x 1.1 x 0.4 mm³
- Package code QCS5F
- RoHS compliant
- Approx. weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals



Pin configuration

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





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Characteristics

Operating temperature range:	$T = -10\text{ °C to }+85\text{ °C}$
Terminating source impedance:	$Z_S = 200\ \Omega \parallel 47\text{ nH (balanced)}$
Terminating load impedance:	$Z_L = 50\ \Omega \text{ (unbalanced)}$

		min.	typ. @ 25 °C	max.	
Center frequency	f_C	—	1950.0	—	MHz
Maximum insertion attenuation	$\alpha_{\max}$	—	2.5	3.2	dB
1920.0 ... 1980.0 MHz		—	2.5	3.2	dB
Amplitude ripple (p-p)	$\Delta\alpha$	—	1.2	1.6	dB
1920.0 ... 1980.0 MHz		—	1.2	1.6	dB
Amplitude ripple per 5 MHz channel	$\Delta\alpha$	—	0.4	0.5	dB
1920.0 ... 1980.0 MHz		—	0.4	0.5	dB
Input VSWR		—	1.7	2.0	
1920.0 ... 1980.0 MHz		—	1.7	2.0	
Output VSWR		—	1.6	2.0	
1920.0 ... 1980.0 MHz		—	1.6	2.0	
Input amplitude balance (S_{31}/S_{21})		—1.5	—0.5/0.5	1.5	dB
1920.0 ... 1980.0 MHz		—1.5	—0.5/0.5	1.5	dB
Input phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)		—10	—3/3	10	°
1920.0 ... 1980.0 MHz		—10	—3/3	10	°
Attenuation	α				
50.0 ... 1000.0 MHz		45	55	—	dB
1000.0 ... 1795.0 MHz		40	43	—	dB
1795.0 ... 1805.0 MHz		30	40	—	dB
1805.0 ... 1880.0 MHz		30	34	—	dB
2110.0 ... 2170.0 MHz		32	36	—	dB
2170.0 ... 2800.0 MHz		32	36	—	dB
2800.0 ... 6000.0 MHz		40	48	—	dB



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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
Source Power	P _S	5	dBm	cw signal

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



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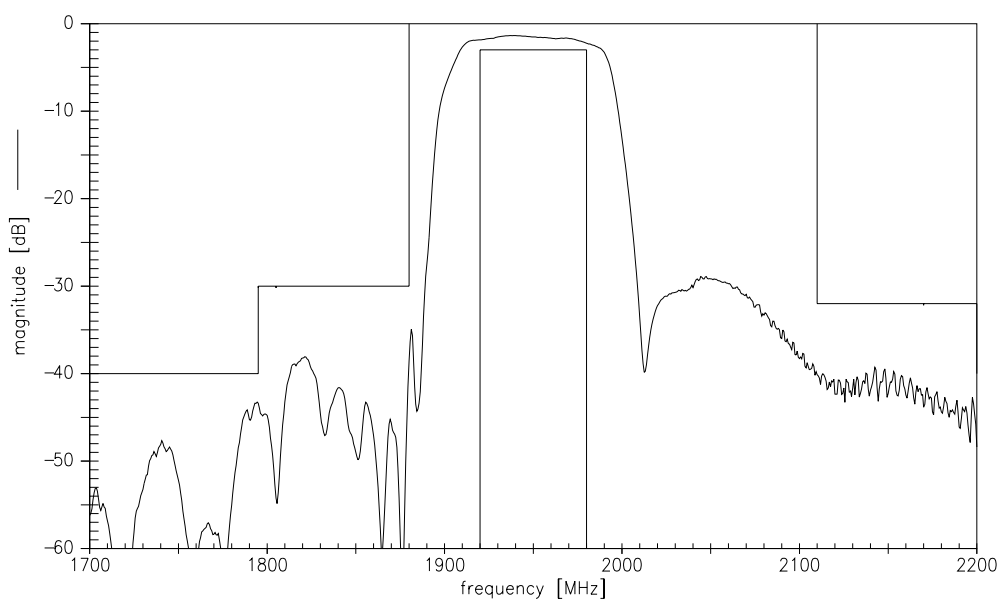
Low-Loss Filter for Mobile Communication

1950.0 MHz

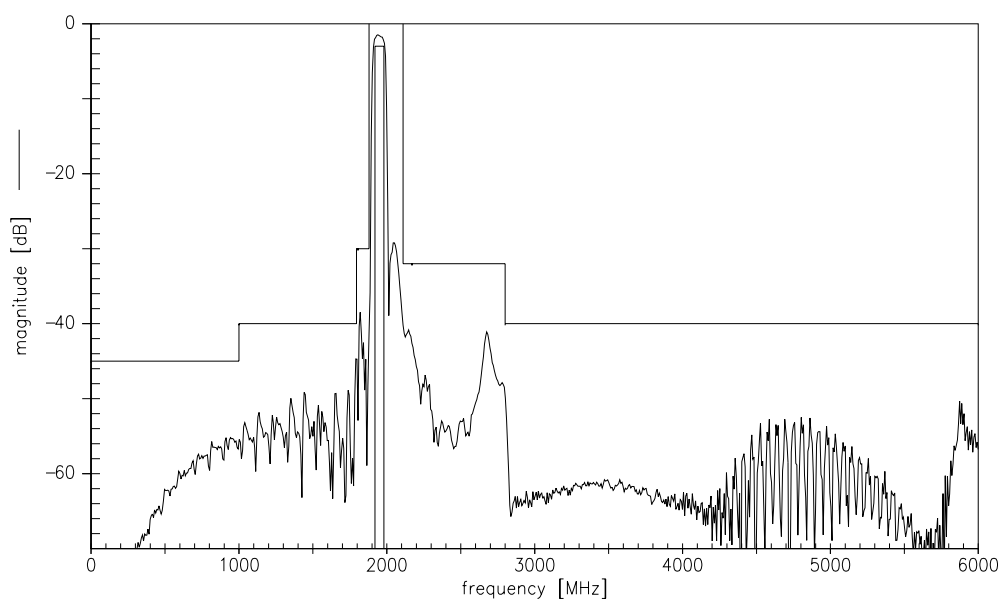
Data Sheet



Transfer function



Transfer function (wideband)





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Low-Loss Filter for Mobile Communication

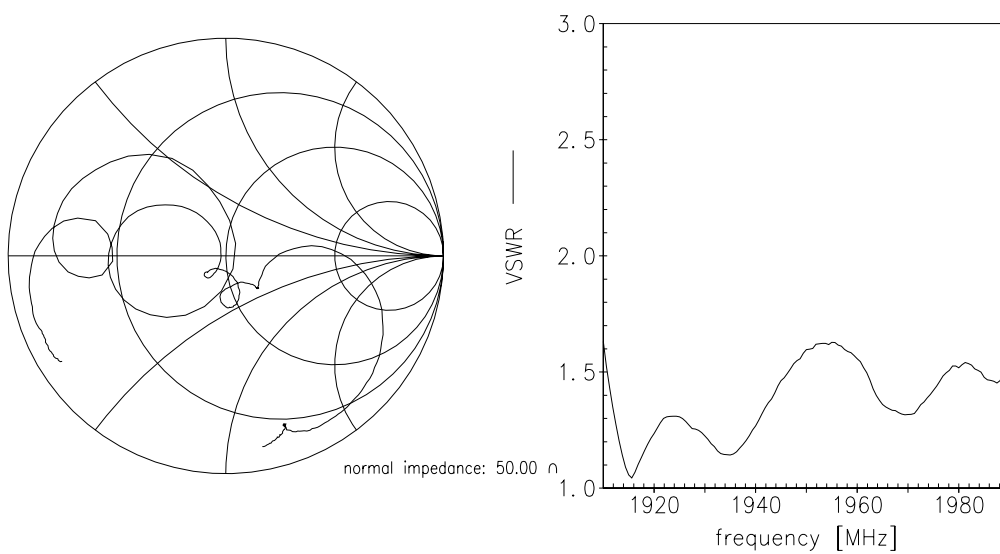
1950.0 MHz

Data Sheet

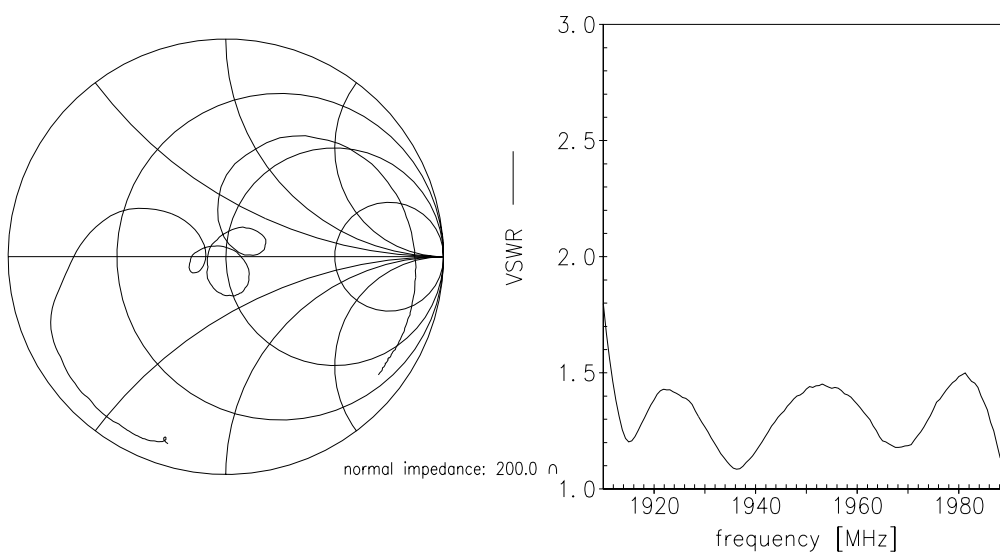


Smith chart

S_{11} function



S_{22} function





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Type	B9409	
Ordering code	B39202B9409K610	
Marking and Package		
Packaging		
Date Codes	L_1126	
S-Parameters	B9409_NB.s3p B9409_WB.s3p	
Soldering profile	S_6001	

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

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