



SAW Components

SAW Rx Filter

GSM 1800

Series/Type:	B9402
Ordering code:	B39182B9402K610
Date:	November 26, 2008
Version:	2.1



SAW Components

B9402

Low-Loss Filter for Mobile Communication

1842.50 MHz

Data sheet



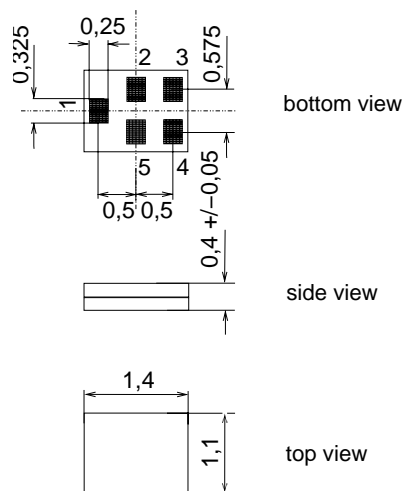
Application

- Low-loss RF filter for mobile telephone
GSM 1800 systems, receive path (RX)
- Impedance transform from $50\ \Omega$ to $150\ \Omega$
- Unbalanced to balanced operation
- Very low insertion attenuation
- Low amplitude ripple
- Usable passband 75 MHz
- Suitable for GPRS class 1 to 12



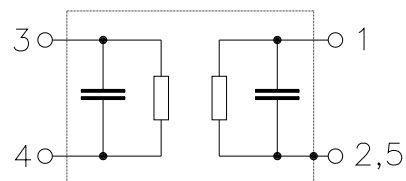
Features

- Package size $1.4 \times 1.1 \times 0.4\ \text{mm}^3$
- Package code QCS5U
- RoHS compliant
- Approx. weight 0.003 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals



Pin configuration

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





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Characteristics

Operating temperature range:	T = -20 to +75 °C
Terminating source impedance:	Z_S = 50 Ω
Terminating load impedance:	Z_L = 150 Ω 22 nH (balanced)

		min.	typ. @ 25°C	max.	
Center frequency	f_C	—	1842.5	—	MHz
Maximum insertion attenuation	α_{\max}	—	1.6	2.4	dB
1805.0 ... 1880.0 MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0.6	1.4	dB
1805.0 ... 1880.0 MHz					
Input VSWR		—	1.8	2.2	
1805.0 ... 1880.0 MHz					
Output VSWR		—	1.8	2.2	
1805.0 ... 1880.0 MHz					
Output amplitude balance (S_{31}/S_{21})		-1.0	-0.7/0.8	1.0	dB
1805.0 ... 1880.0 MHz					
Output phase balance ($\phi(S_{31}) - \phi(S_{21}) + 180^\circ$)		-10	-3/+4	10	°
1805.0 ... 1880.0 MHz					
Attenuation	α				
0.0 ... 902.0 MHz		45	50	—	dB
902.0 ... 940.0 MHz		45	51	—	dB
940.0 ... 1500.0 MHz		35	43	—	dB
1500.0 ... 1705.0 MHz		28	35	—	dB
1705.0 ... 1785.0 MHz		12	18	—	dB
1920.0 ... 1980.0 MHz		18	23	—	dB
1980.0 ... 2030.0 MHz		23	26	—	dB
2030.0 ... 2400.0 MHz		28	32	—	dB
2400.0 ... 2500.0 MHz		32	40	—	dB
2500.0 ... 2775.0 MHz		28	33	—	dB
2775.0 ... 3760.0 MHz		40	50	—	dB
3760.0 ... 6000.0 MHz		35	43	—	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
Input Power at				
GSM850, GSM900	P _{IN}	15	dBm	effective power in the on-state, duty cycle 4:8
GSM1800, GSM1900	P _{IN}	15	dBm	
Tx bands				

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



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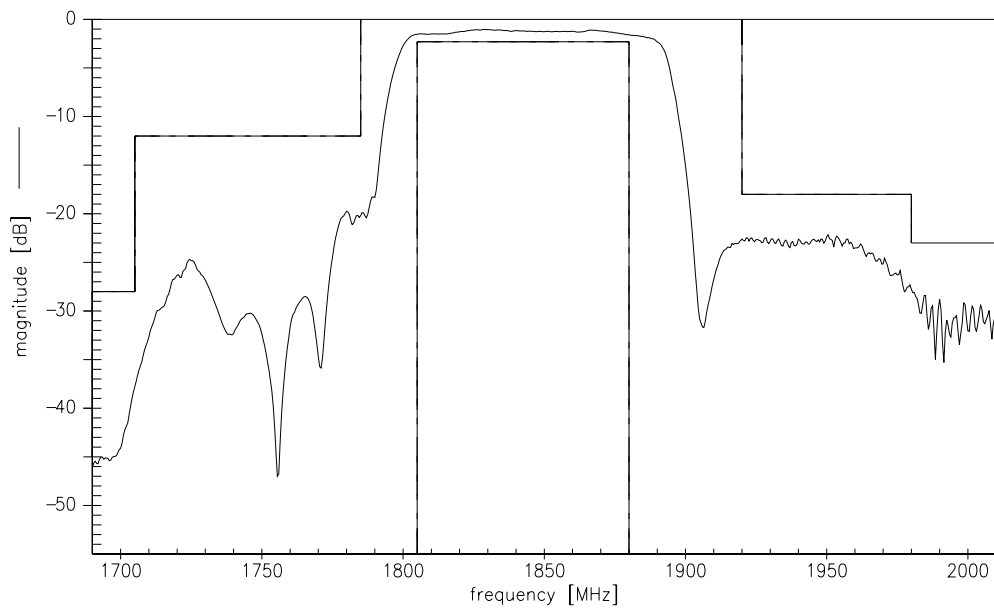
Low-Loss Filter for Mobile Communication

1842.50 MHz

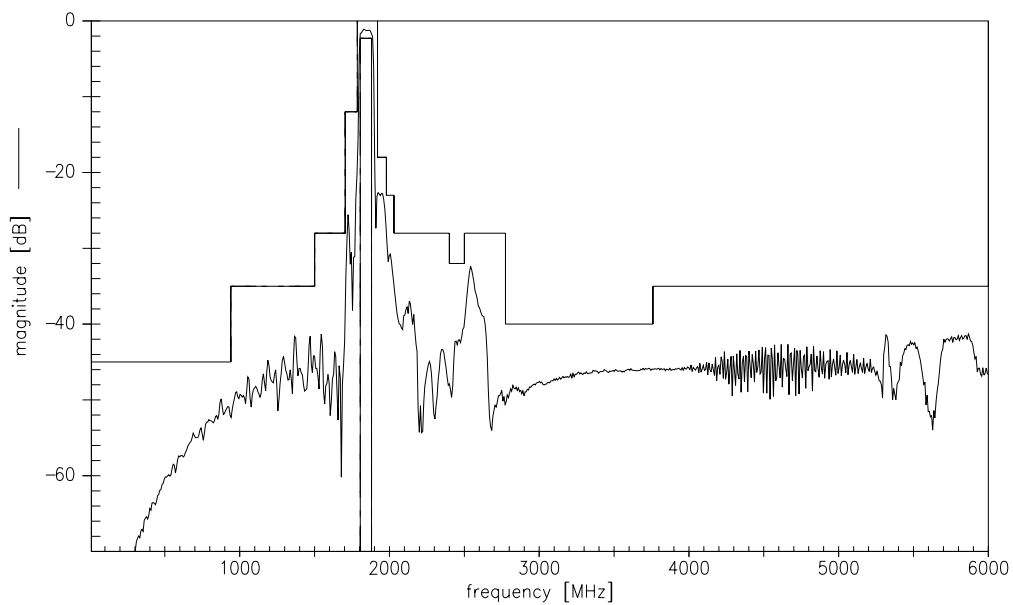
Data sheet



Transfer function



Transfer function



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



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Low-Loss Filter for Mobile Communication

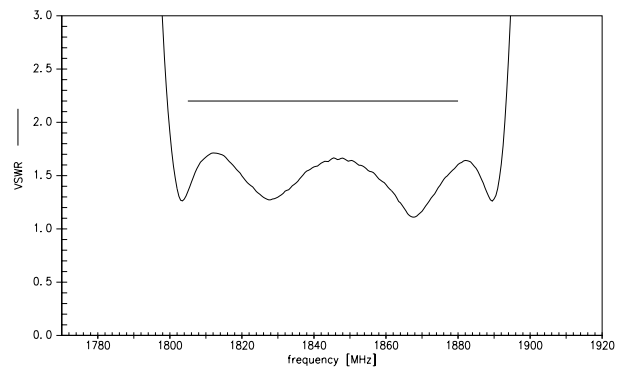
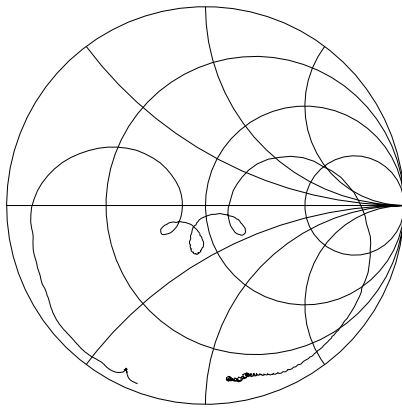
1842.50 MHz

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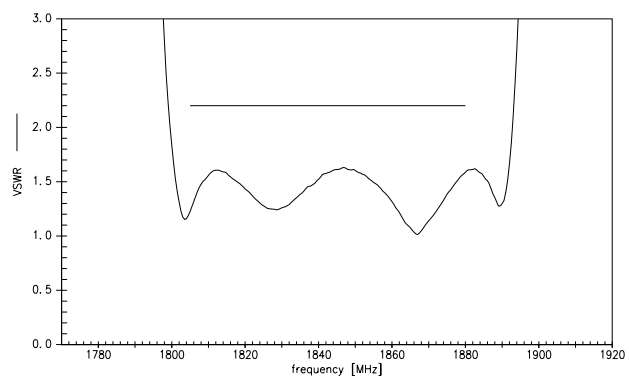
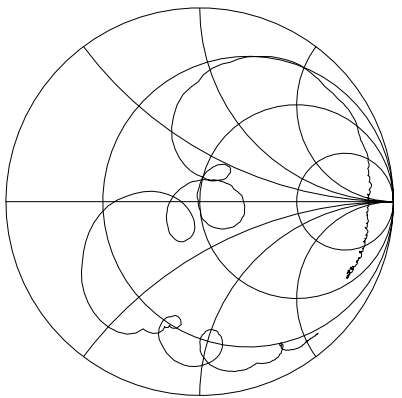


Smith charts, VSWR

S_{11} function



S_{22} function



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**References**

Type	B9402
Ordering code	B39182B9402K610
Marking and package	C61157-A8-A14
Packaging	F61074-V8237-Z000
Date codes	L_1126
S-parameters	B9402_NB.s3p, B9402_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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