



## **SAW Components**

### **SAW Rx Filter**

GSM 1800

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

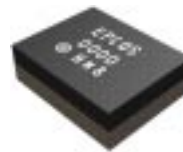


Data sheet



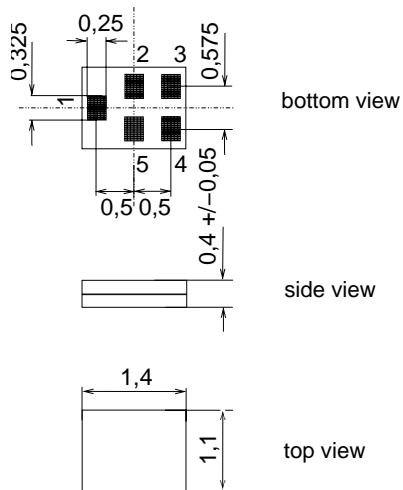
Application

- Low-loss RF filter for mobile telephone GSM 1800 systems, receive path (RX)
- Impedance transform from 50 Ω to 150 Ω
- 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 x 1.1 x 0.4 mm<sup>3</sup>
- 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





Data sheet



**Characteristics**

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

		min.	typ. @ 25°C	max.	
<b>Center frequency</b>	$f_C$	—	1842.5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	1.6	2.4	dB
1805.0 ... 1880.0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0.6	1.4	dB
1805.0 ... 1880.0 MHz					
<b>Input VSWR</b>		—	1.8	2.2	
1805.0 ... 1880.0 MHz					
<b>Output VSWR</b>		—	1.8	2.2	
1805.0 ... 1880.0 MHz					
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1.0	-0.7/0.8	1.0	dB
1805.0 ... 1880.0 MHz					
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^\circ</math>)</b>		-10	-3/+4	10	°
1805.0 ... 1880.0 MHz					
<b>Attenuation</b>	$\alpha$				
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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1842.50 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
Input Power at				
GSM850, GSM900	P <sub>IN</sub>	15	dBm	effecttive power in the on-state, duty cycle 4:8
GSM1800, GSM1900	P <sub>IN</sub>	15	dBm	
Tx bands				

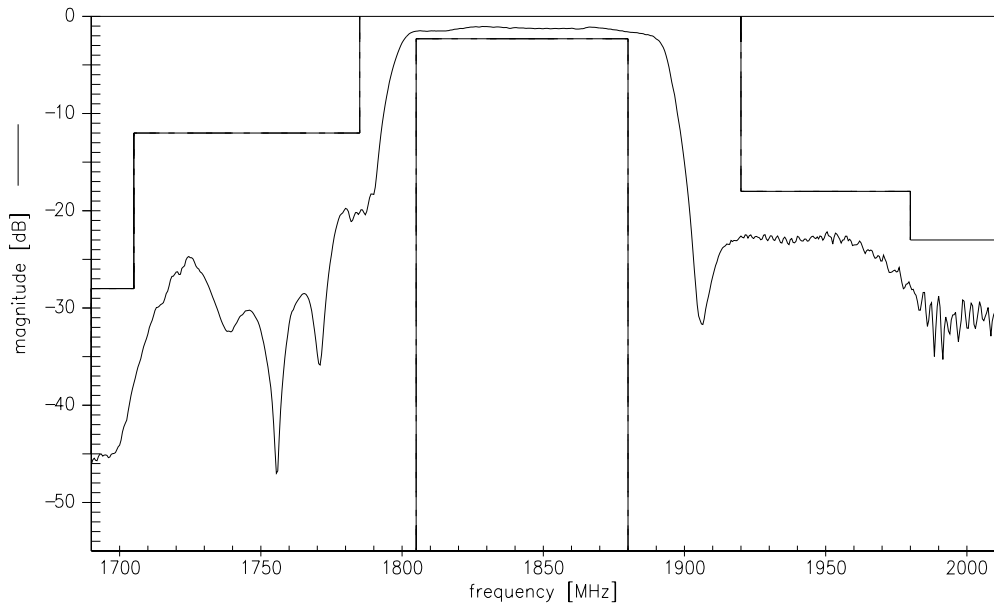
<sup>1)</sup> acc. to JESD22-A115A (machine model), 10 negative & 10 positive pulses.



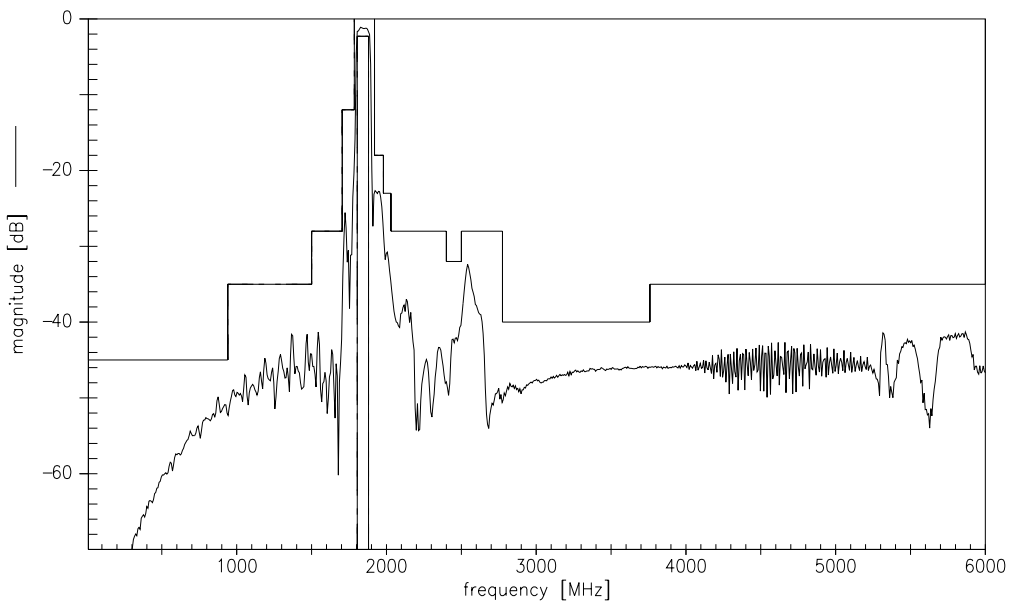
Data sheet



Transfer function



Transfer function



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

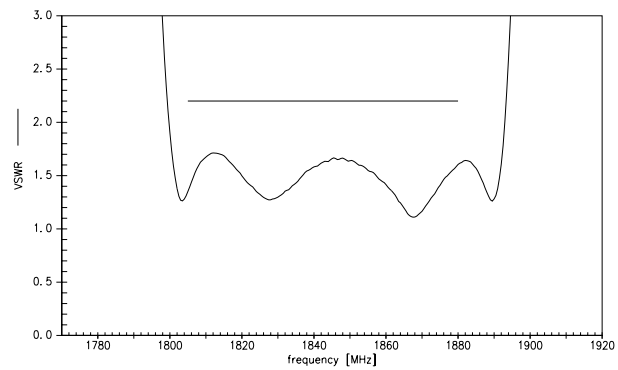
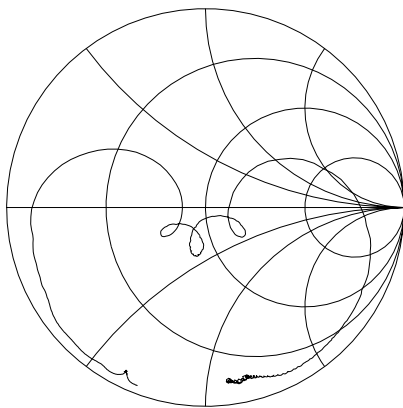


Data sheet

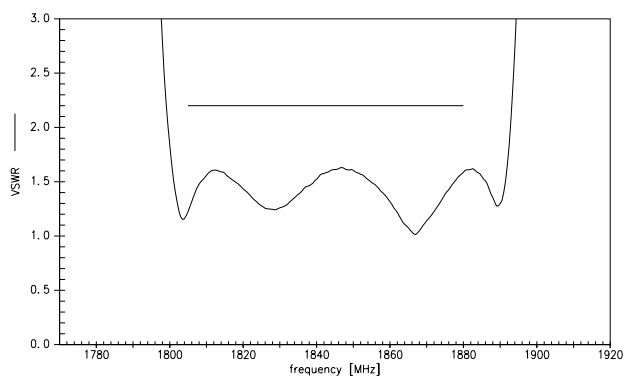
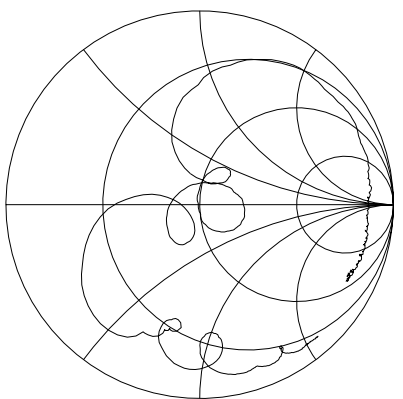


Smith charts, VSWR

$S_{11}$  function



$S_{22}$  function



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1842.50 MHz

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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.

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