



## SAW Components

### SAW Rx Filter

GSM 1800

Series/Type:	<b>B9402</b>
Ordering code:	<b>B39182B9402K610</b>
Date:	March 14, 2006
Version:	2.0

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**SAW Components**

**B9402**

**Low-Loss Filter for Mobile Communication**

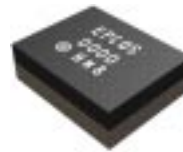
**1842.50 MHz**

Data sheet



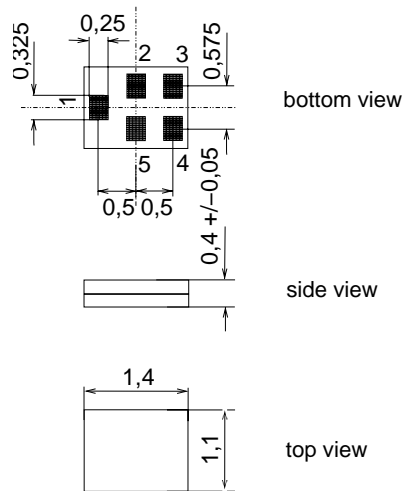
**Application**

- Low-loss RF filter for mobile telephone  
GSM 1800 systems, receive path (RX)
- Impedance transform from 50 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



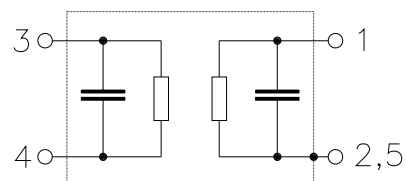
**Features**

- Package size 1.4 x 1.1 x 0.4 mm<sup>3</sup>
- 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:  $Z_S = 50\Omega$   
 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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### 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.



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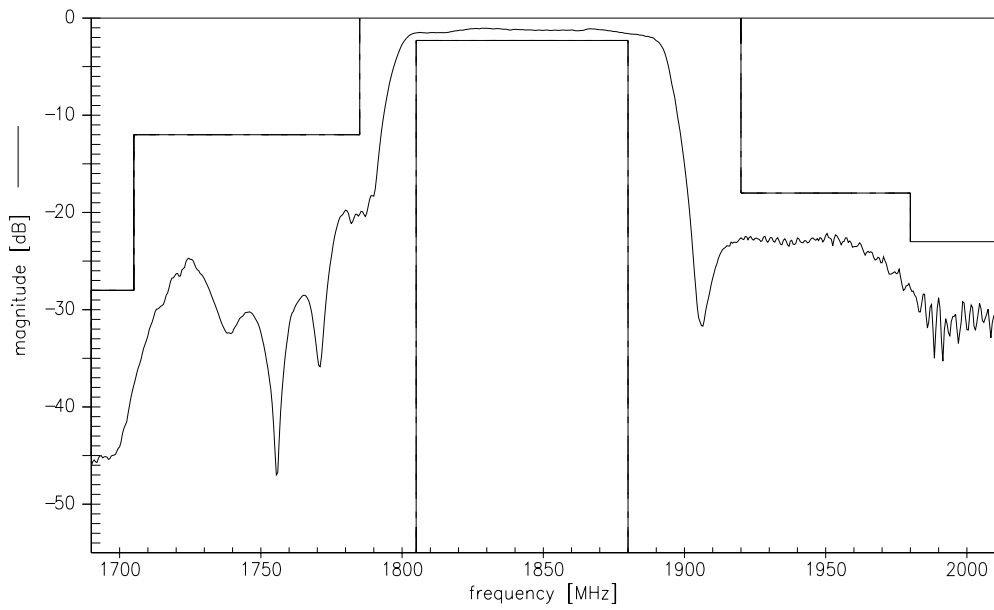
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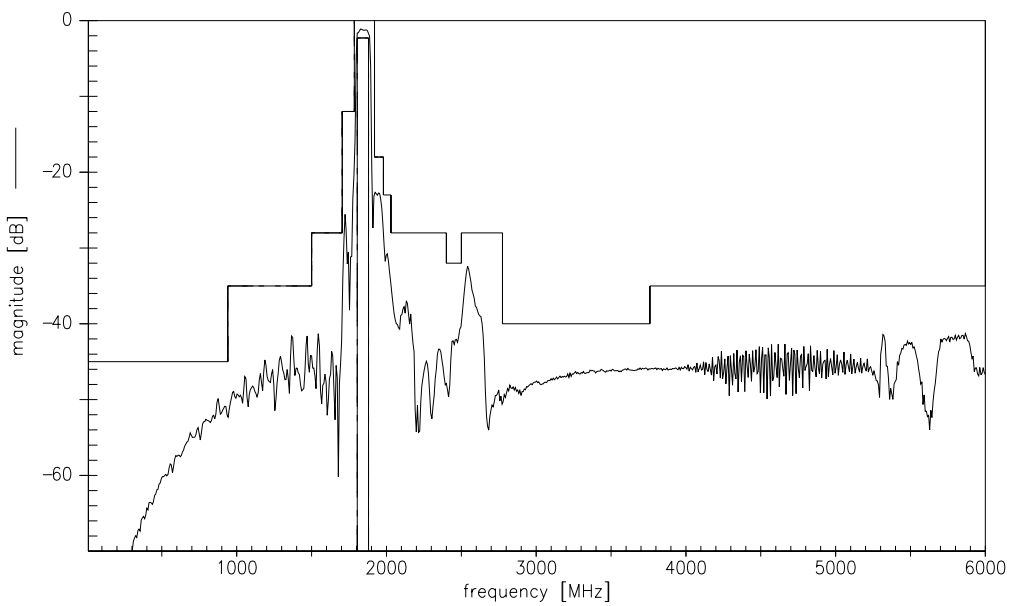
Data sheet



### Transfer function



### Transfer function





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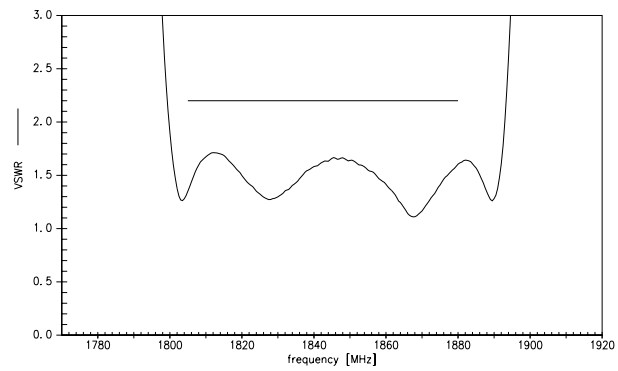
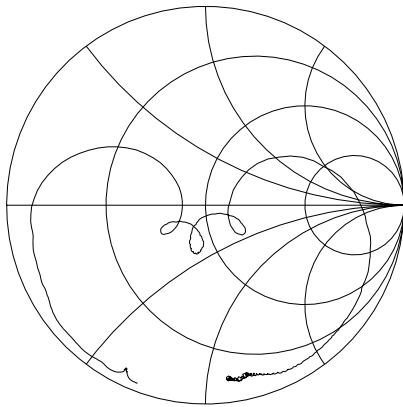
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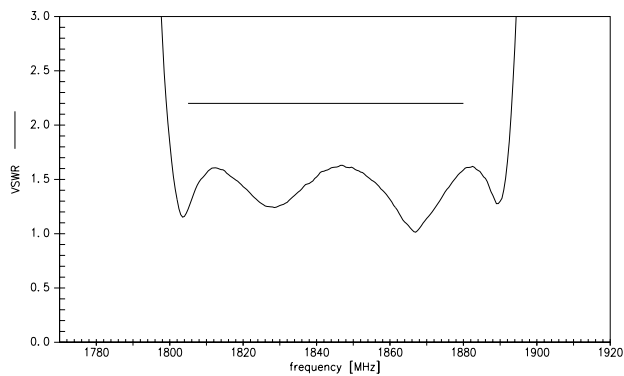
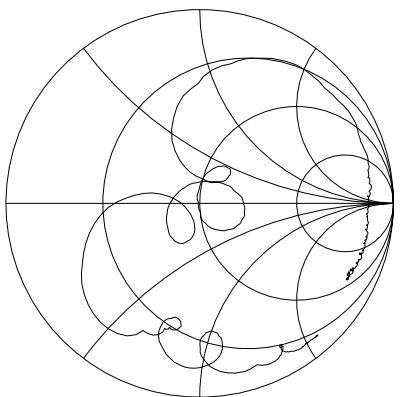


Smith charts, VSWR

$S_{11}$  function



$S_{22}$  function





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<b>Type</b>	B9402	
<b>Ordering code</b>	B39182-B9402-K610	
<b>Marking and Package</b>	C61157-A8-A1	
<b>Packaging</b>	F61074-V8212-Z000	
<b>Date Codes</b>	L_1126	
<b>S-Parameters</b>	B9402_NB.s3p B9402_WB.s3p	
<b>Soldering profile</b>	S_6001	

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