



# SAW Components

## SAW Rx Filter

GSM 850

<b>Series/Type:</b>	<b>B9022</b>
<b>Ordering code:</b>	<b>B39881B9022E610</b>
<b>Date:</b>	<b>Apr 30, 2009</b>
<b>Version:</b>	<b>2.0</b>

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Data sheet



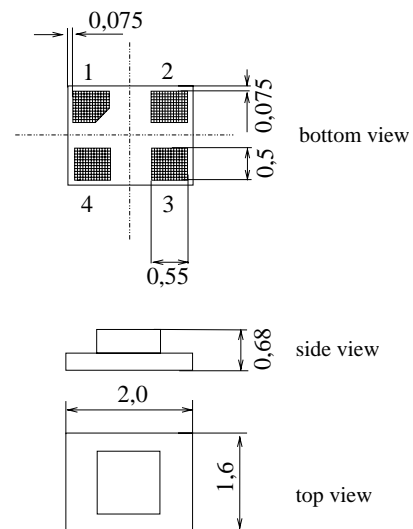
**Application**

- Low-loss RF filter for mobile telephone Cellular systems, receive path
- Usable passband 25 MHz
- Unbalanced operation
- Impedance 50 Ω input and output
- Suitable for GPRS Class 1 to 12



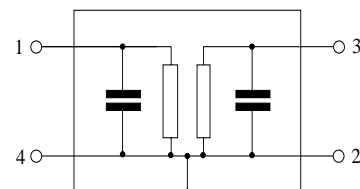
**Features**

- Package size 2.0 x 1.6 x 0.68 mm<sup>3</sup>
- Package code DCS4F
- RoHS compatible
- Approx. weight 0.007g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



**Pin configuration**

- 1 Input, unbalanced
- 3 Output, unbalanced
- 2,4 Case-ground



Data sheet


**Characteristics**

Temperature range for specification:  $T = +25\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

				min.	typ.	max.	
<b>Center frequency</b>			$f_C$	—	881.5	—	MHz
<b>Maximum insertion attenuation</b>			$\alpha_{\max}$				
	869.0 ... 894.0	MHz		—	1.9	2.0	dB
<b>Amplitude ripple (p-p)</b>			$\Delta\alpha$				
	869.0 ... 894.0	MHz		—	0.6	0.7	dB
<b>Input VSWR</b>							
	869.0 ... 894.0	MHz		—	1.7	2.0	
<b>Output VSWR</b>							
	869.0 ... 894.0	MHz		—	1.7	2.0	
<b>Attenuation</b>			$\alpha$				
	0.0 ... 780.0	MHz		50	54	—	dB
	780.0 ... 840.0	MHz		42	50	—	dB
	840.0 ... 849.0	MHz		39	39	—	dB
	914.0 ... 950.0	MHz		28	30	—	dB
	950.0 ... 1500.0	MHz		45	52	—	dB
	1500.0 ... 2200.0	MHz		40	45	—	dB
	2200.0 ... 3000.0	MHz		33	38	—	dB
	3000.0 ... 4000.0	MHz		28	32	—	dB
	4000.0 ... 6000.0	MHz		15	21	—	dB

Data sheet


**Characteristics**

Temperature range for specification:  $T = -30\text{ °C to }+85\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 50\ \Omega$

				min.	typ.	max.	
<b>Center frequency</b>			$f_C$	—	881.5	—	MHz
<b>Maximum insertion attenuation</b>			$\alpha_{\max}$	—	2.0	2.3	dB
	869.0 ... 894.0	MHz					
<b>Amplitude ripple (p-p)</b>			$\Delta\alpha$	—	0.7	1.0	dB
	869.0 ... 894.0	MHz					
<b>Input VSWR</b>				—	1.7	2.0	
	869.0 ... 894.0	MHz					
<b>Output VSWR</b>				—	1.7	2.0	
	869.0 ... 894.0	MHz					
<b>Attenuation</b>			$\alpha$				
	0.0 ... 780.0	MHz		50	54	—	dB
	780.0 ... 840.0	MHz		42	50	—	dB
	840.0 ... 849.0	MHz		35	39	—	dB
	914.0 ... 950.0	MHz		25	28	—	dB
	950.0 ... 1500.0	MHz		45	52	—	dB
	1500.0 ... 2200.0	MHz		40	45	—	dB
	2200.0 ... 3000.0	MHz		33	38	—	dB
	3000.0 ... 4000.0	MHz		28	32	—	dB
	4000.0 ... 6000.0	MHz		15	21	—	dB

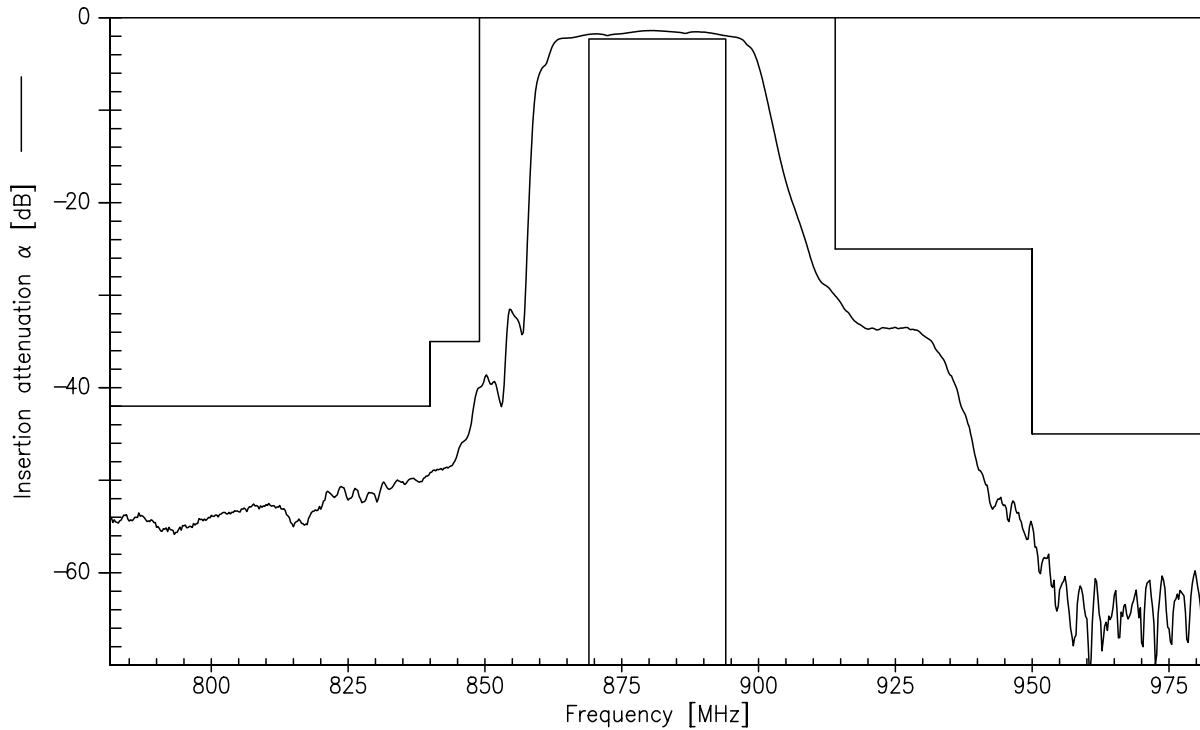

**Maximum ratings**

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>	100 <sup>1)</sup>	V	machine model, 1 pulse
Input Power at GSM850, GSM900 GSM1800, GSM1900 Tx bands	P <sub>IN</sub>	15	dBm	peak power of GSM signal, duty cycle 4:8

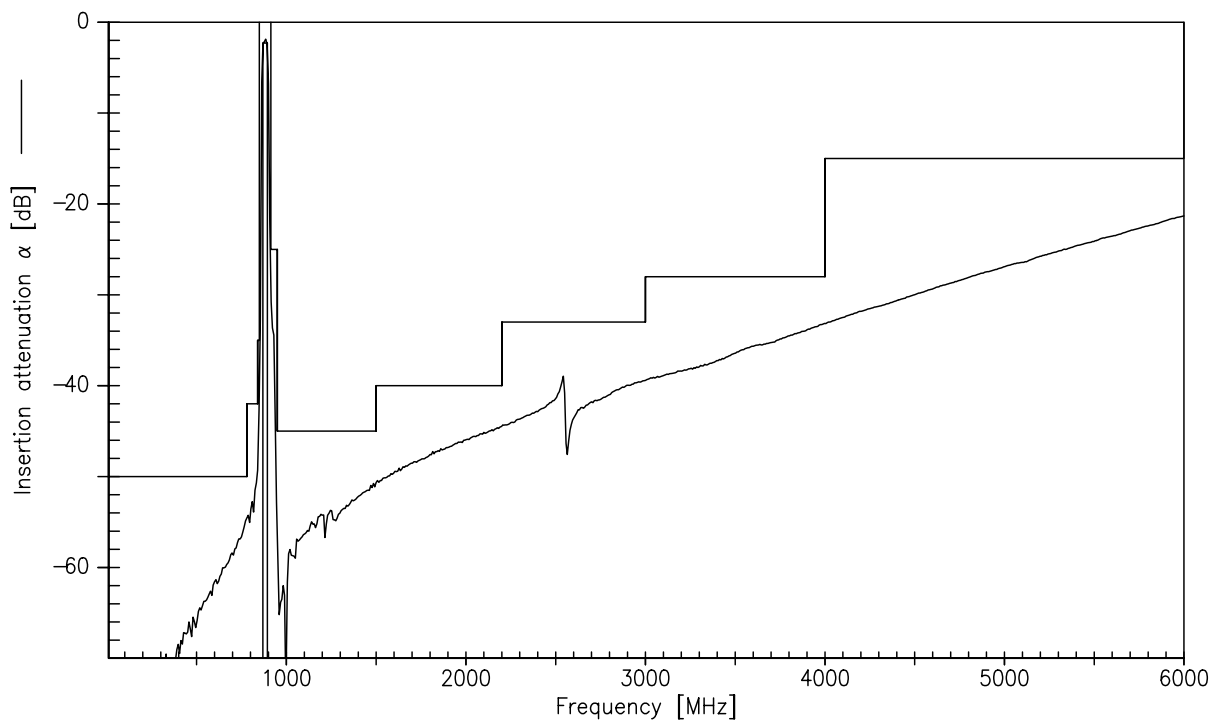
<sup>1)</sup> acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulses.



Transfer function (narrowband)



Transfer function (wideband)

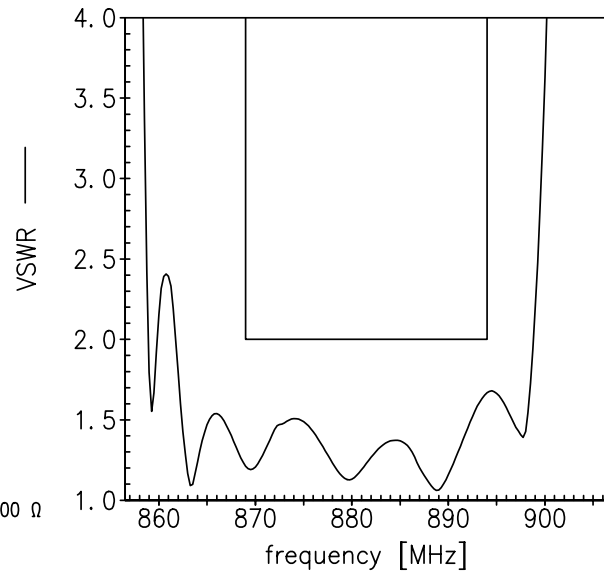
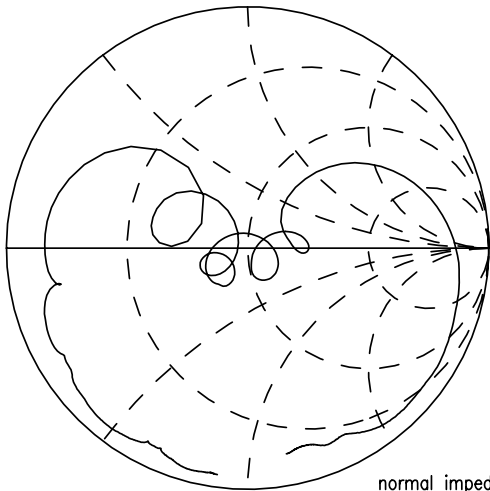


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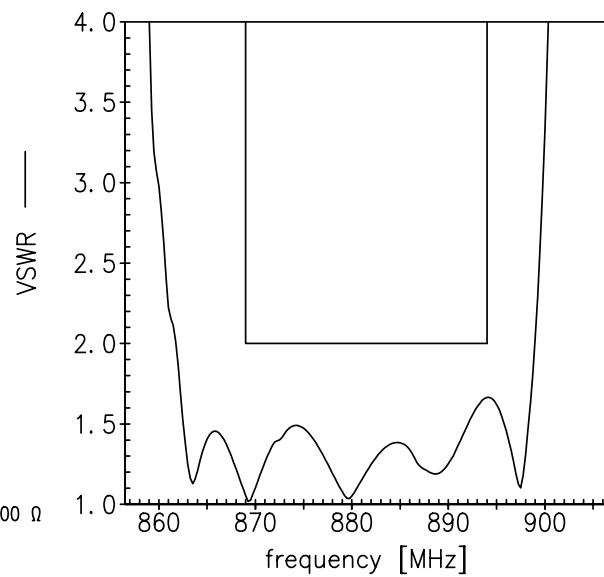
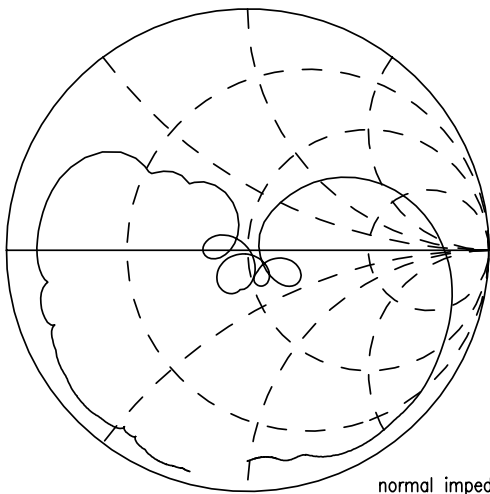


Smith charts

$S_{11}$  function



$S_{22}$  function



**SAW Components****B9022****SAW Rx Filter****881.5 MHz**

Data sheet

**References**

<b>Type</b>	B9022
<b>Ordering code</b>	B39881B9022E610
<b>Marking and package</b>	C61157-A7-A113
<b>Packaging</b>	F61074-V8152-Z000
<b>Date codes</b>	L_1126
<b>S-parameters</b>	B9022_NB.s2p B9022_WB.s2p
<b>Soldering profile</b>	S_6001
<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."

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