



# SAW Components

Data Sheet B7838

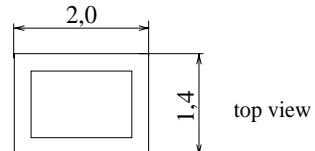
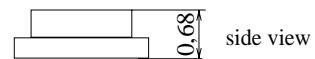
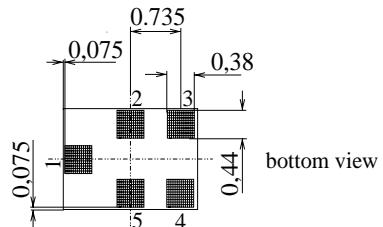
Data Sheet



**SAW Components**
**B7838**
**Low-Loss Filter for Mobile Communication**
**881,5 MHz**
**Data Sheet**

**Features**

- Low-loss RF filter for mobile telephone  
GSM850/AMPS system, receive path
- Usable passband 25 MHz
- Unbalanced to balanced operation
- Excellent symmetry
- Impedance transformation from  $50 \Omega$  to  $100 \Omega$
- Suitable for GPRS class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**

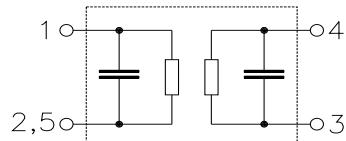
**Chip sized SAW package QCS5C**

**Terminals**

- Ni, gold-plated

Dimensions in mm, approx. weight 0,007g

**Pin configuration**

1	Unbalanced input
3, 4	Balanced output
2, 5	To be grounded



Type	Ordering code	Marking and Package according to	Packing according to
B7838	B39881-B7838-C710	C61157-A7-A111	F61074-V8151-Z000

**Electrostatic Sensitive Device (ESD)**
**Maximum ratings**

Operable temperature range	$T$	$-30 / +85$	$^{\circ}\text{C}$	Machine Model, 10 pulses peak power of GSM signal, duty cycle 4:8
Storage temperature range	$T_{\text{stg}}$	$-40 / +85$	$^{\circ}\text{C}$	
DC voltage	$V_{\text{DC}}$	5	V	
ESD voltage	$V_{\text{ESD}}^*$	100*	V	
Input power at GSM850, GSM900, GSM1800 and GSM1900	$P_{\text{IN}}$	15	dBm	
Tx bands				

\* -acc. to JESD22-A115A (Machine Model), 10 negative &amp; 10 positive pulses

**SAW Components****B7838****Low-Loss Filter for Mobile Communication****881,5 MHz****Data Sheet****Characteristics**

Operating temperature range:

 $T = +25^\circ\text{C}$ 

Terminating source impedance:

 $Z_S = 50 \Omega$  (unbalanced)

Terminating load impedance:

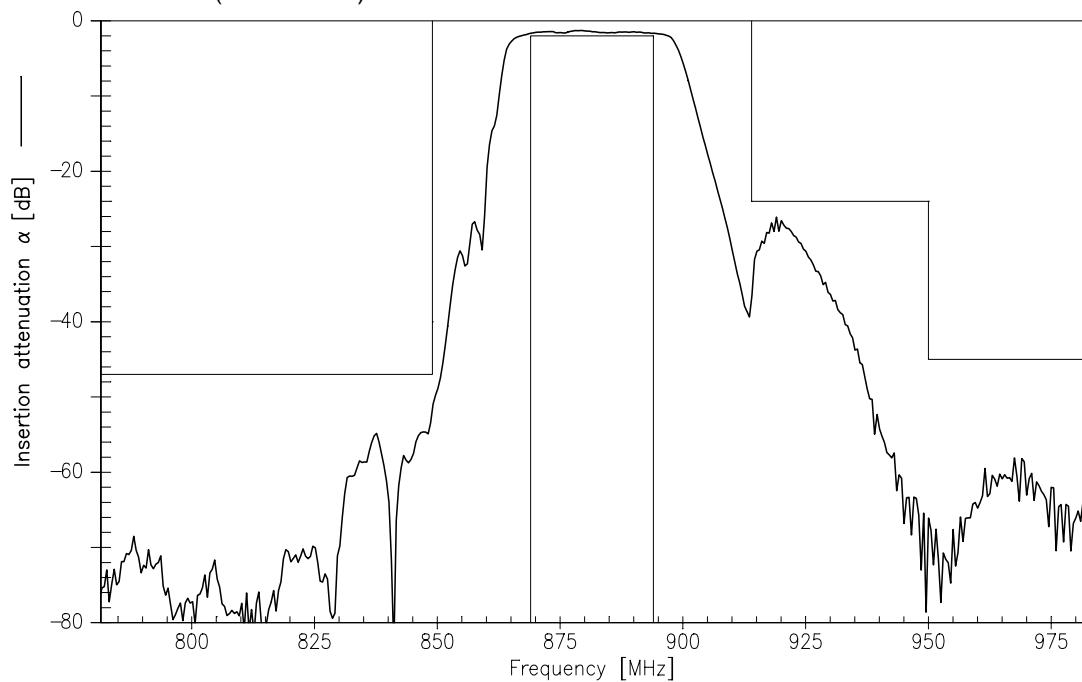
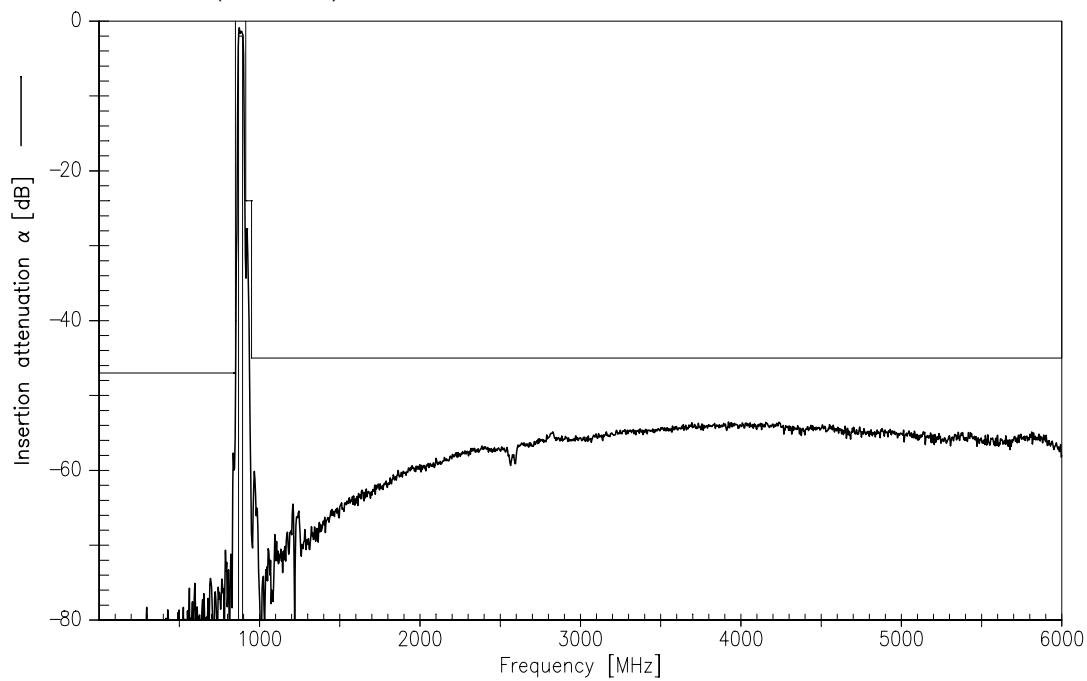
 $Z_L = 100 \Omega$  (balanced)

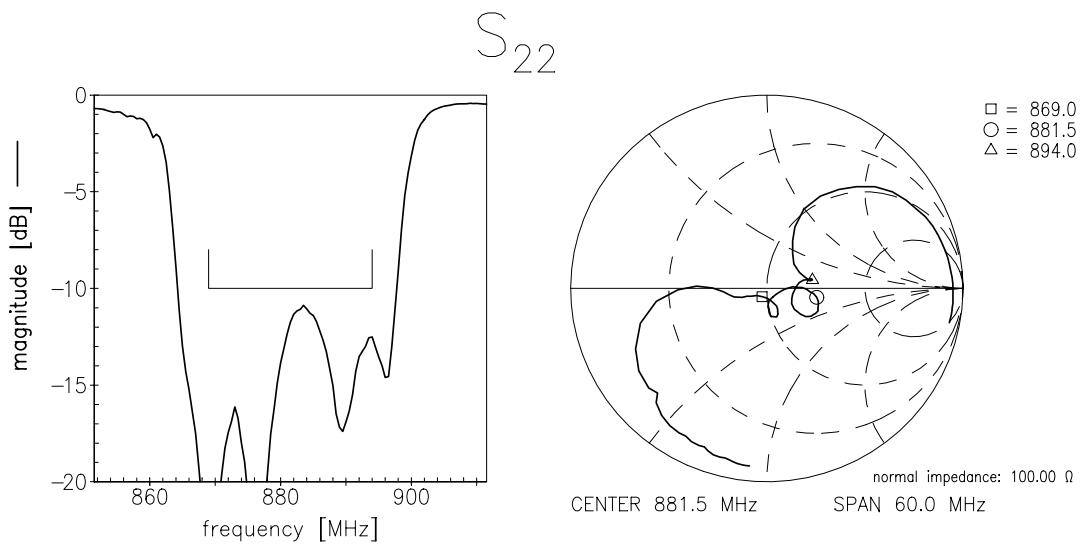
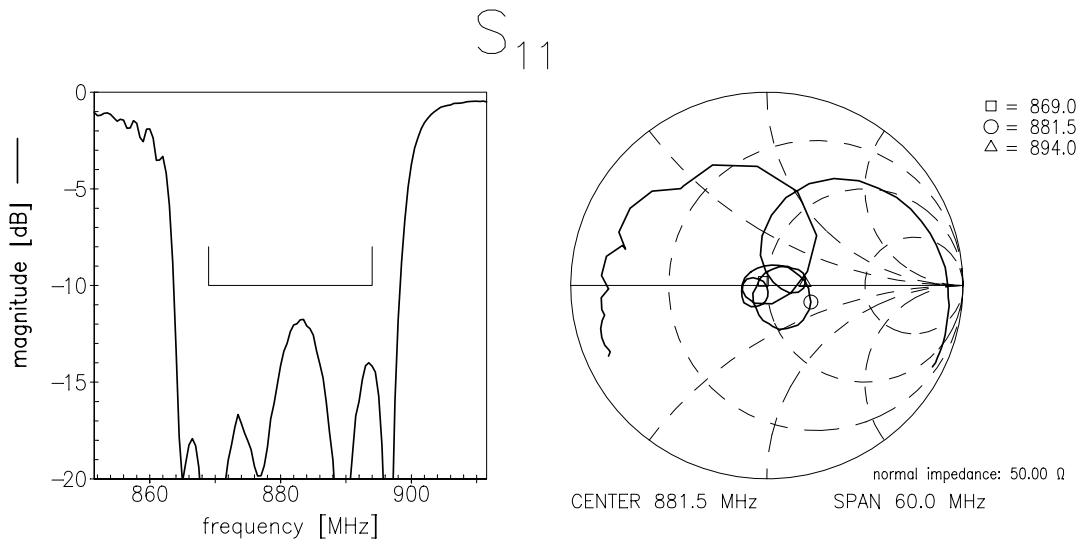
			min.	typ.	max.	
<b>Center frequency</b>		$f_C$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>		$\alpha_{\max}$	—	1,7	2,0	dB
	869,0 ... 894,0	MHz				
<b>Amplitude ripple (p-p)</b>		$\Delta\alpha$	—	0,5	0,8	dB
	869,0 ... 894,0	MHz				
<b>Input return loss</b>			10,0	11,0	—	dB
	869,0 ... 894,0	MHz				
<b>Output return loss</b>			10,0	11,0	—	dB
	869,0 ... 894,0	MHz				
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>			-0,5	0	0,5	dB
	869,0 ... 894,0	MHz				
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^\circ</math>)</b>			-5	0	5	degree
	869,0 ... 894,0	MHz				
<b>Attenuation</b>		$\alpha$				
	0,0 ... 840,0	MHz	47	55	—	dB
	840,0 ... 849,0	MHz	47	50	—	dB
	914,0 ... 950,0	MHz	24	27	—	dB
	950,0 ... 6000,0	MHz	45	55	—	dB

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Operating temperature range:  $T = -30$  to  $+85$  °C  
Terminating source impedance:  $Z_S = 50 \Omega$  (unbalanced)  
Terminating load impedance:  $Z_L = 100 \Omega$  (balanced)

			<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b>		$f_C$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>		$\alpha_{\max}$	—	1,9	2,2	dB
	869,0 ... 894,0	MHz	—	1,9	2,2	dB
<b>Amplitude ripple (p-p)</b>		$\Delta\alpha$	—	0,7	1,0	dB
	869,0 ... 894,0	MHz	—	0,7	1,0	dB
<b>Input return loss</b>			10,0	11,0	—	dB
	869,0 ... 894,0	MHz	10,0	11,0	—	dB
<b>Output return loss</b>			10,0	11,0	—	dB
	869,0 ... 894,0	MHz	10,0	11,0	—	dB
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>			-0,5	0	0,5	dB
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	869,0 ... 894,0	MHz	-5	0	5	degree
<b>Attenuation</b>		$\alpha$	47	55	—	dB
	0,0 ... 840,0	MHz	47	55	—	dB
	840,0 ... 849,0	MHz	40	45	—	dB
	914,0 ... 950,0	MHz	24	27	—	dB
	950,0 ... 6000,0	MHz	45	55	—	dB

**Transfer function (narrowband)**

**Transfer function (wideband)**


**Matching (measurement)**




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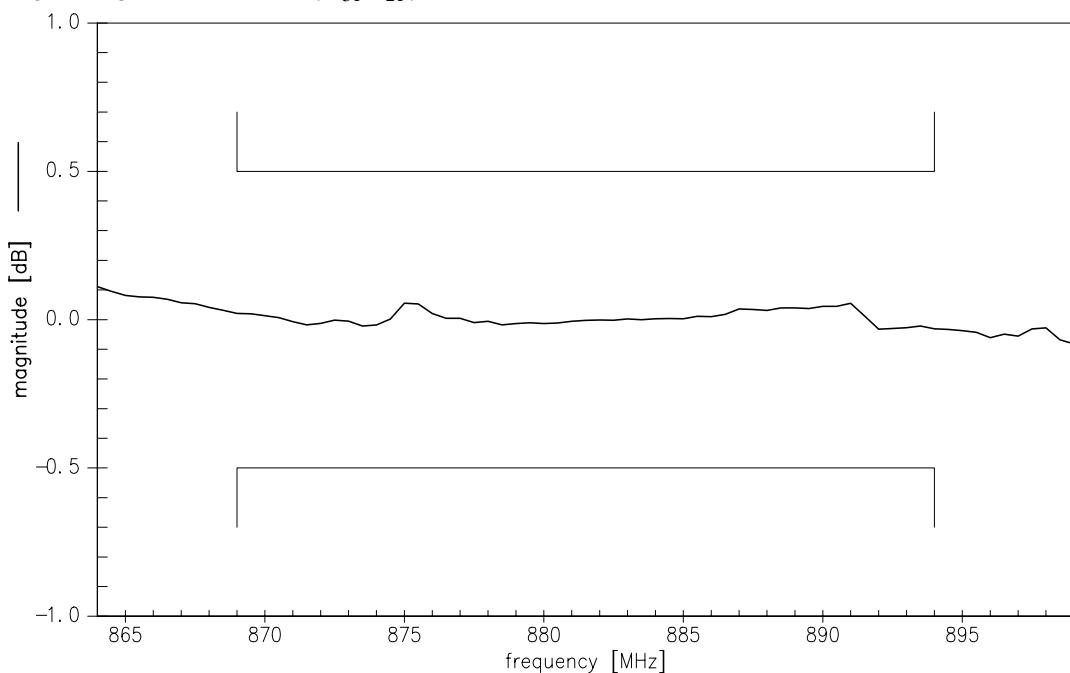
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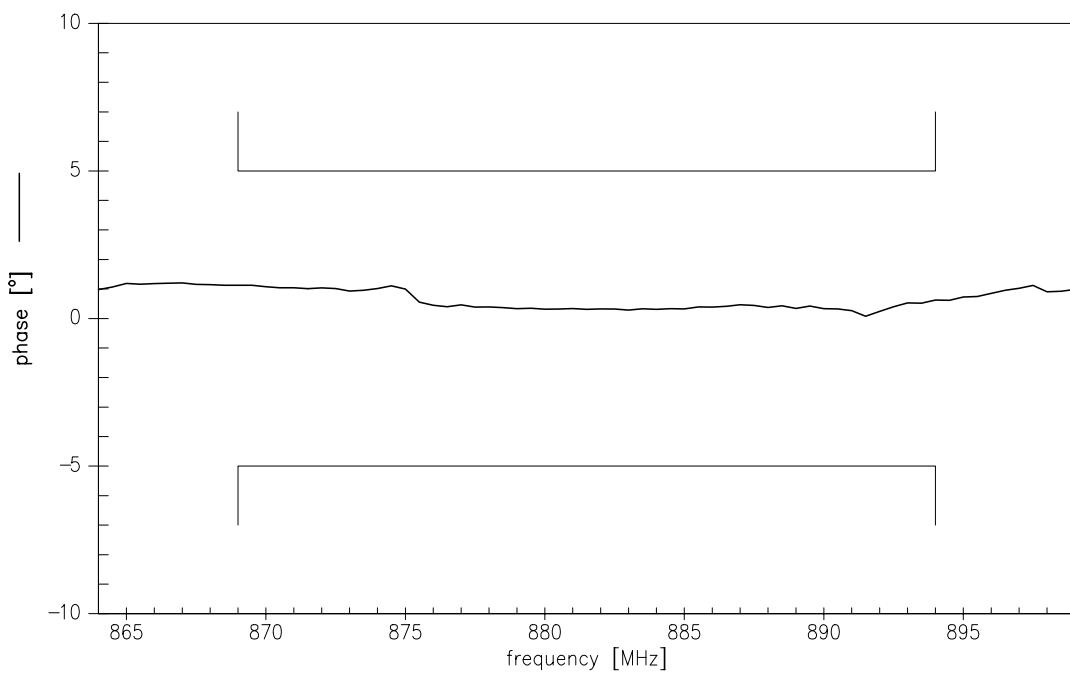
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### Output amplitude balance ( $|S_{31}/S_{21}|$ )



### Output phase balance ( $\phi(S_{31}) - \phi(S_{21}) + 180^\circ$ )





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**Published by EPCOS AG**  
**Surface Acoustic Wave Components Division, SAW MC PD**  
**P.O. Box 80 17 09, 81617 Munich, GERMANY**

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