



# SAW Components

Data Sheet B7701, Pb Free

Data Sheet

A large, stylized EPCOS logo is superimposed over a grayscale image of a globe. The logo is white and semi-transparent, allowing the globe's details to be visible through it. The globe shows continents and a grid of latitude and longitude lines.



## SAW Components

B7701

## Low-Loss Filter for Mobile Communication

881,5 MHz

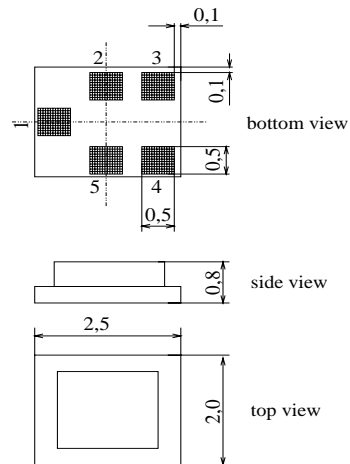
### Data Sheet



### Features

- Low-loss RF filter for mobile telephone AMPS system, receive path
- Low amplitude ripple
- Usable passband 25 MHz
- Unbalanced to balanced operation
- Impedance transformation from 50  $\Omega$  to 200  $\Omega$
- Suitable for GPRS class 1 to 12
- Package for **Surface Mounted Technology (SMT)**
- Pb-Free

### Chip Sized SAW Package QCS5H

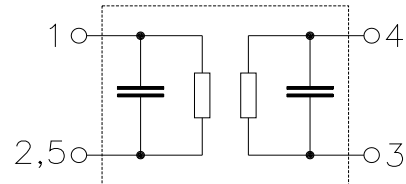


### Terminals

Dimensions in mm, approx. weight 0,015g

### Pin configuration

- |      |                        |
|------|------------------------|
| 1    | Input                  |
| 3, 4 | Balanced output        |
| 2, 5 | Ground, to be grounded |



Type	Ordering code	Marking and Package according to	Packing according to
B7701	B39881-B7701-K910	C61157-A7-A139	F61074-V8189-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	$P_{\text{IN}}$	15	dBm	
GSM850, GSM900 GSM1800 and GSM1900 Tx bands				

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



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<b>Low-Loss Filter for Mobile Communication</b>	<b>881,5 MHz</b>
<b>Data Sheet</b>	<b>SMD</b>

### Characteristics

Operating temperature range:  $T = +25\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$   
 Terminating load impedance:  $Z_L = 200\ \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$				
869,0 ... 894,0 MHz		—	2,3	2,6	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,6	1,0	dB
<b>VSWR</b>					
869,0 ... 894,0 MHz		—	1,8	2,0	
<b>Output phase balance</b> ( $\phi(S_{31}) - \phi(S_{32}) + 180^\circ$ )					
869,0 ... 894,0 MHz		-10,0	0	10,0	degree
<b>Output amplitude balance</b> ( $ S_{31}/S_{32} $ )					
869,0 ... 894,0 MHz		-1,0	0	1,0	dB
<b>Attenuation</b>	$\alpha$				
0,0 ... 824,0 MHz		50,0	60,0	—	dB
824,0 ... 849,0 MHz		35,0	40,0	—	dB
914,0 ... 924,0 MHz		25,0	28,0	—	dB
924,0 ... 970,0 MHz		30,0	36,0	—	dB
970,0 ... 3000,0 MHz		50,0	70,0	—	dB
3000,0 ... 6000,0 MHz		45,0	60,0	—	dB
<b>Tx band suppression</b>	$\alpha$				
824,0 ... 849,0 MHz		35,0	40,0	—	dB



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### Characteristics

Operating temperature range:  $T = -30 \text{ to } +85 \text{ }^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$   
 Terminating load impedance:  $Z_L = 200 \text{ } \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$				
869,0 ... 894,0 MHz		—	2,6	3,0	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	1,0	1,4	dB
<b>VSWR</b>					
869,0 ... 894,0 MHz		—	1,8	2,0	
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{32}) + 180^{\circ}</math>)</b>					
869,0 ... 894,0 MHz		-10,0	0	10,0	degree
<b>Output amplitude balance (<math> S_{31}/S_{32} </math>)</b>					
869,0 ... 894,0 MHz		-1,0	0	1,0	dB
<b>Attenuation</b>	$\alpha$				
0,0 ... 824,0 MHz		50,0	60,0	—	dB
824,0 ... 849,0 MHz		35,0	40,0	—	dB
914,0 ... 924,0 MHz		22,0	26,0	—	dB
924,0 ... 970,0 MHz		30,0	36,0	—	dB
970,0 ... 3000,0 MHz		50,0	70,0	—	dB
3000,0 ... 6000,0 MHz		45,0	60,0	—	dB
<b>Tx band suppression</b>	$\alpha$				
824,0 ... 849,0 MHz		35,0	40,0	—	dB



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### Characteristics

Operating temperature range:	$T = -40 \text{ to } +85 \text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 50 \text{ } \Omega$
Terminating load impedance:	$Z_L = 200 \text{ } \Omega$

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2,6	3,1	dB
869,0 ... 894,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,0	1,5	dB
869,0 ... 894,0 MHz					
<b>VSWR</b>		—	1,8	2,2	
869,0 ... 894,0 MHz					
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{32}) + 180^{\circ}</math>)</b>		-10,0	0	10,0	degree
869,0 ... 894,0 MHz					
<b>Output amplitude balance (<math> S_{31} / S_{32} </math>)</b>		-1,0	0	1,0	dB
869,0 ... 894,0 MHz					
<b>Attenuation</b>	$\alpha$				
0,0 ... 824,0 MHz		50,0	60,0	—	dB
824,0 ... 849,0 MHz		35,0	40,0	—	dB
914,0 ... 924,0 MHz		22,0	26,0	—	dB
924,0 ... 970,0 MHz		30,0	36,0	—	dB
970,0 ... 3000,0 MHz		50,0	70,0	—	dB
3000,0 ... 6000,0 MHz		45,0	60,0	—	dB
<b>Tx band suppression</b>	$\alpha$				
824,0 ... 849,0 MHz		35,0	40,0	—	dB



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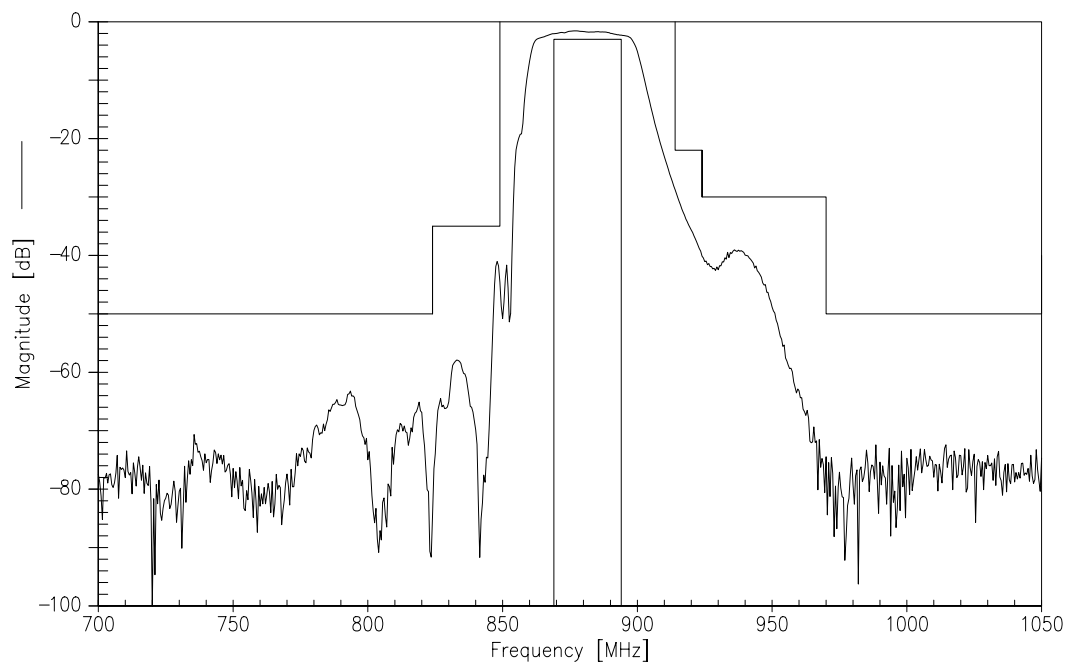
Low-Loss Filter for Mobile Communication

881,5 MHz

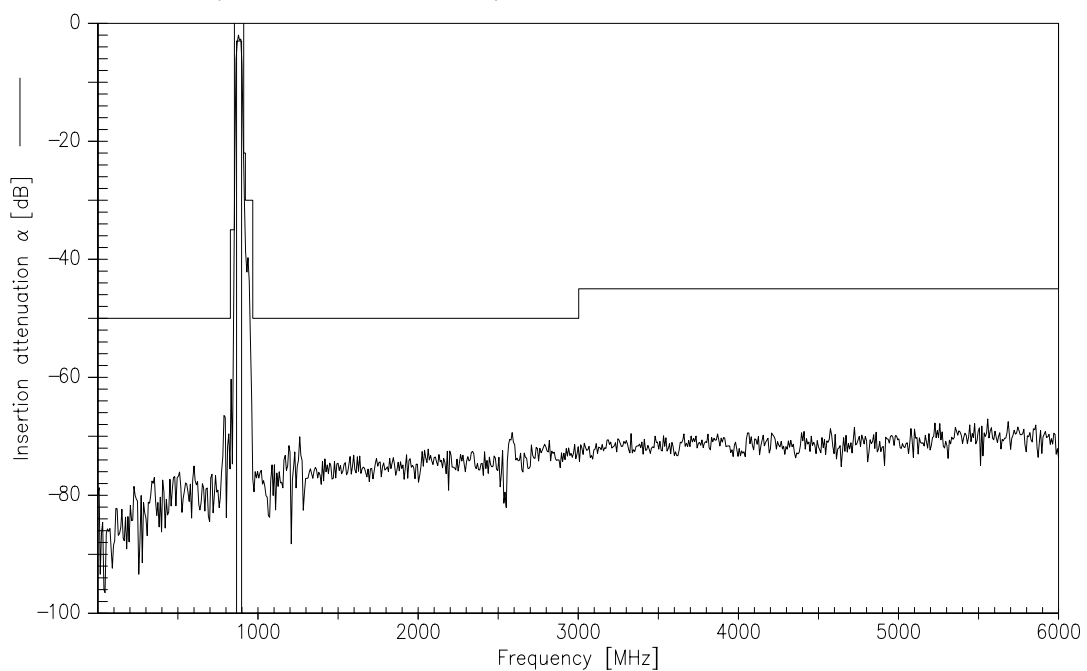
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**Transfer function (narrowband measurement)**



**Transfer function (wideband measurement)**





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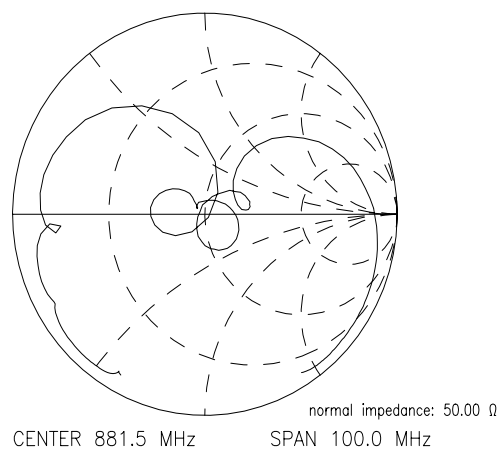
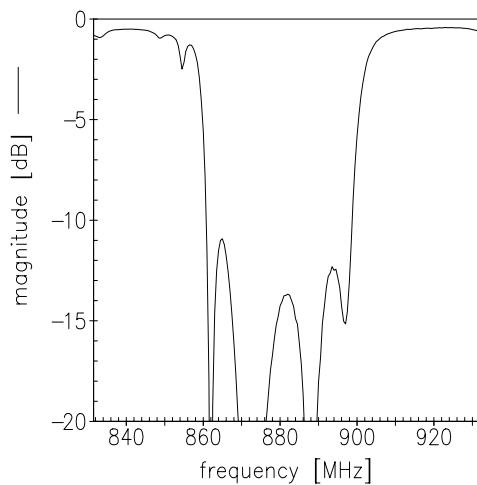
881,5 MHz

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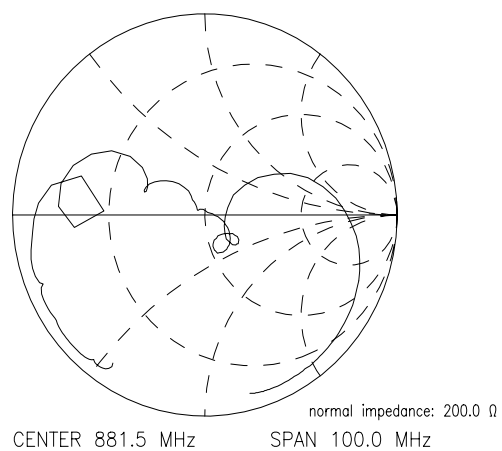
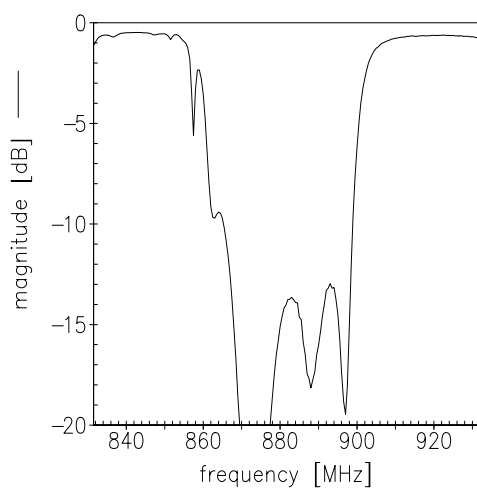


### Reflection functions (measurement)

$S_{11}$



$S_{22}$





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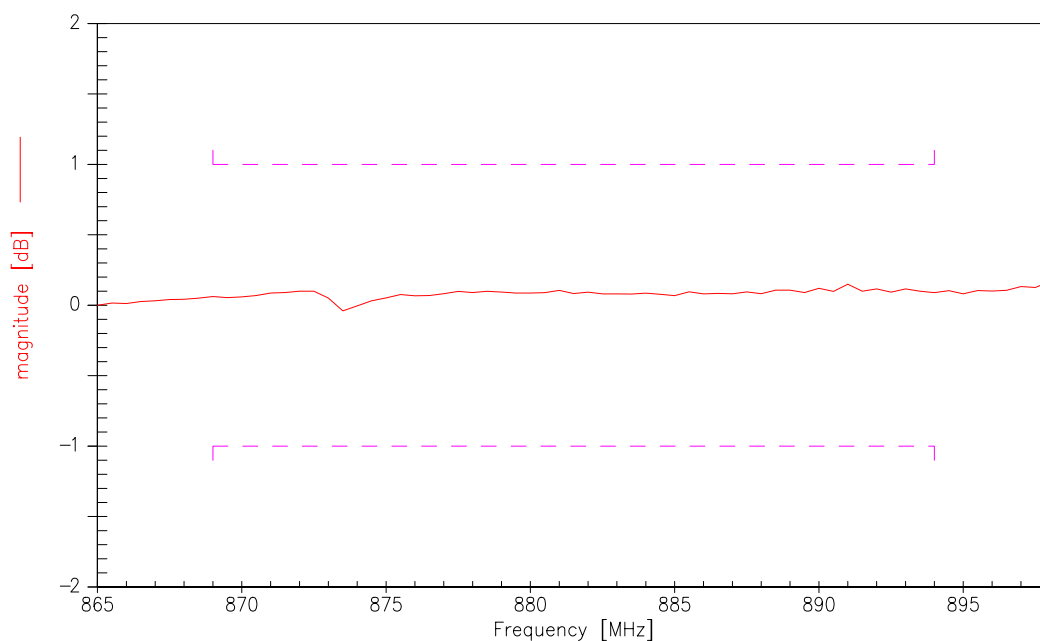
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881,5 MHz

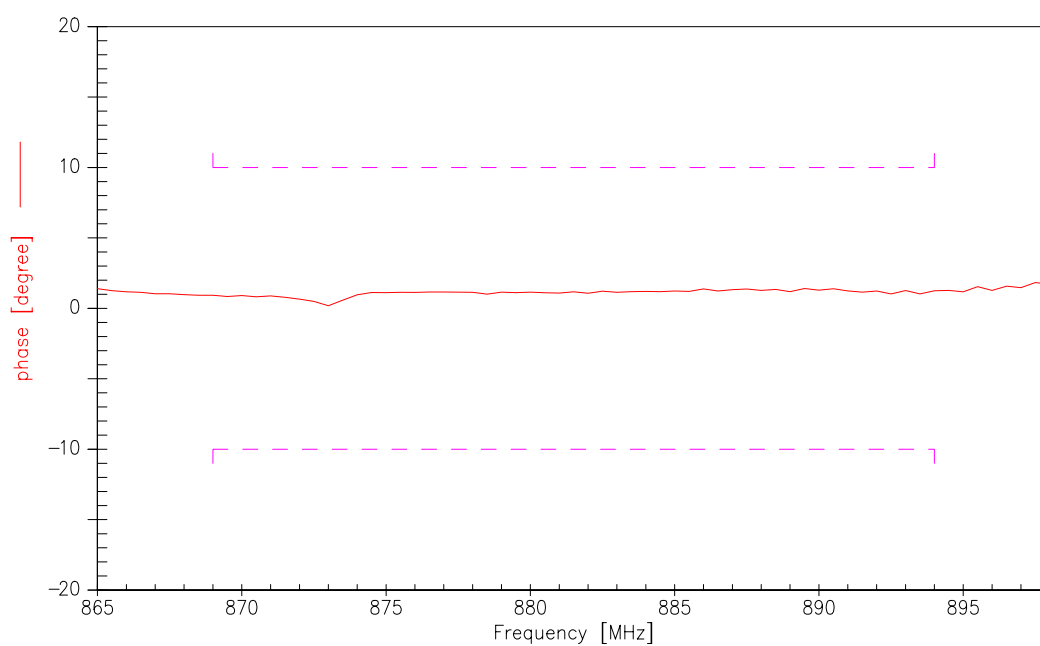
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**Output amplitude balance** ( $|S_{31}/S_{21}|$ ; measurement)



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







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