



# *SAW Components*

*Data Sheet B7706*





**SAW Components**

**B7706**

**Low-Loss Filter for Mobile Communication**

**942,5 MHz**

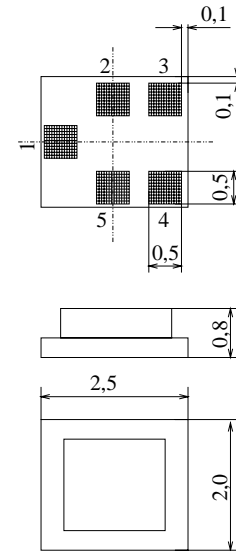
**Data Sheet**



**Features**

- Low-loss RF filter for mobile telephone EGSM system, receive path
- Usable passband 35 MHz
- Unbalanced to balanced operation
- Excellent symmetry between balanced ports
- Impedance transformation from 50 Ω to 200 Ω
- Suitable for GPRS class 1 to 12
- Ceramic Package for **Surface Mounted Technology (SMT)**

**Chip sized SAW package QCS5A**



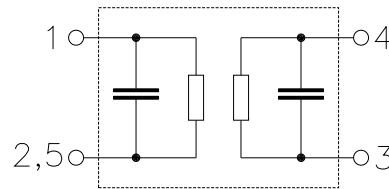
Dimensions in mm, approx. weight 0,015 g

**Terminals**

- Ni, gold-plated

**Pin configuration**

- 1 Input, unbalanced
- 3, 4 Output, balanced
- 2, 5 Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B7706	B39941-B7706-B610	C61157-A7-A71	F61074-V8104-Z000

**Electrostatic Sensitive Device (ESD)**

**Maximum ratings**

Operable temperature range	$T$	- 30 / + 85	°C	peak power of GSM signal, duty cycle 4:8
Storage temperature range	$T_{stg}$	- 40 / + 85	°C	
DC voltage	$V_{DC}$	3	V	
Input power at GSM850, GSM900, GSM1800 and GSM1900 Tx bands	$P_{IN}$	15	dBm	



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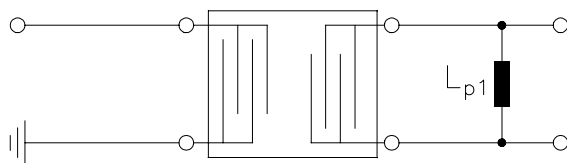


**Characteristics**

Operating temperature:  $T = 25 \pm 2^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 200 \Omega$  including matching network

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	2,6	3,2	dB
925,0 ... 960,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,3	1,9	dB
925,0 ... 960,0 MHz					
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^\circ</math>)</b>		-4	0	4	degree
925,0 ... 960,0 MHz					
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-0,3	0	0,3	dB
925,0 ... 960,0 MHz					
<b>Input VSWR</b>		—	1,8	2,3	
925,0 ... 960,0 MHz					
<b>Output VSWR</b>		—	1,8	2,3	
925,0 ... 960,0 MHz					
<b>Attenuation</b>	$\alpha$				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		20	27	—	dB
980,0 ... 1050,0 MHz		22	24	—	dB
1050,0 ... 6000,0 MHz		50	65	—	dB

**Test matching network**



$L_{p1} = 100 \text{ nH}$   
 (20% tolerance,  $Q = 30$ )



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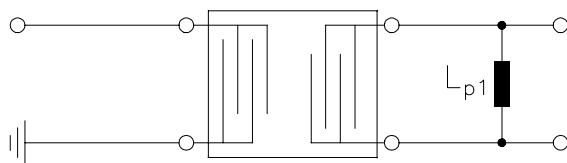


**Characteristics**

Operating temperature range:  $T = -10$  to  $+80$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 200 \Omega$  including matching network

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	2,7	3,5	dB
925,0 ... 960,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,4	2,2	dB
925,0 ... 960,0 MHz					
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^\circ</math>)</b>		-4	0	4	degree
925,0 ... 960,0 MHz					
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-0,3	0	0,3	dB
925,0 ... 960,0 MHz					
<b>Input VSWR</b>		—	1,8	2,3	
925,0 ... 960,0 MHz					
<b>Output VSWR</b>		—	1,8	2,3	
925,0 ... 960,0 MHz					
<b>Attenuation</b>	$\alpha$				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		20	27	—	dB
980,0 ... 1050,0 MHz		22	23	—	dB
1050,0 ... 6000,0 MHz		50	65	—	dB

**Test matching network**



$L_{p1} = 100$  nH  
 (20% tolerance,  $Q = 30$ )



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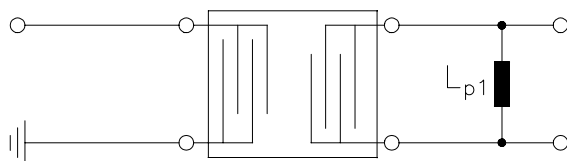


**Characteristics**

Operating temperature range:  $T = -30$  to  $+85$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$   
 Terminating load impedance:  $Z_L = 200 \Omega$  including matching network

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{max}$	—	2,8	3,6	dB
925,0 ... 960,0 MHz					
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	1,5	2,3	dB
925,0 ... 960,0 MHz					
<b>Output phase balance (<math>\phi(S_{31}) - \phi(S_{21}) + 180^\circ</math>)</b>		-10	0	10	degree
925,0 ... 960,0 MHz					
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1	0	1	dB
925,0 ... 960,0 MHz					
<b>Input VSWR</b>		—	2,0	—	
925,0 ... 960,0 MHz					
<b>Output VSWR</b>		—	2,0	—	
925,0 ... 960,0 MHz					
<b>Attenuation</b>	$\alpha$				
0,0 ... 880,0 MHz		50	60	—	dB
880,0 ... 905,0 MHz		30	40	—	dB
905,0 ... 915,0 MHz		16	20	—	dB
980,0 ... 1050,0 MHz		20	22	—	dB
1050,0 ... 6000,0 MHz		50	65	—	dB

**Test matching network**



$L_{p1} = 100$  nH  
 (20% tolerance,  $Q = 30$ )



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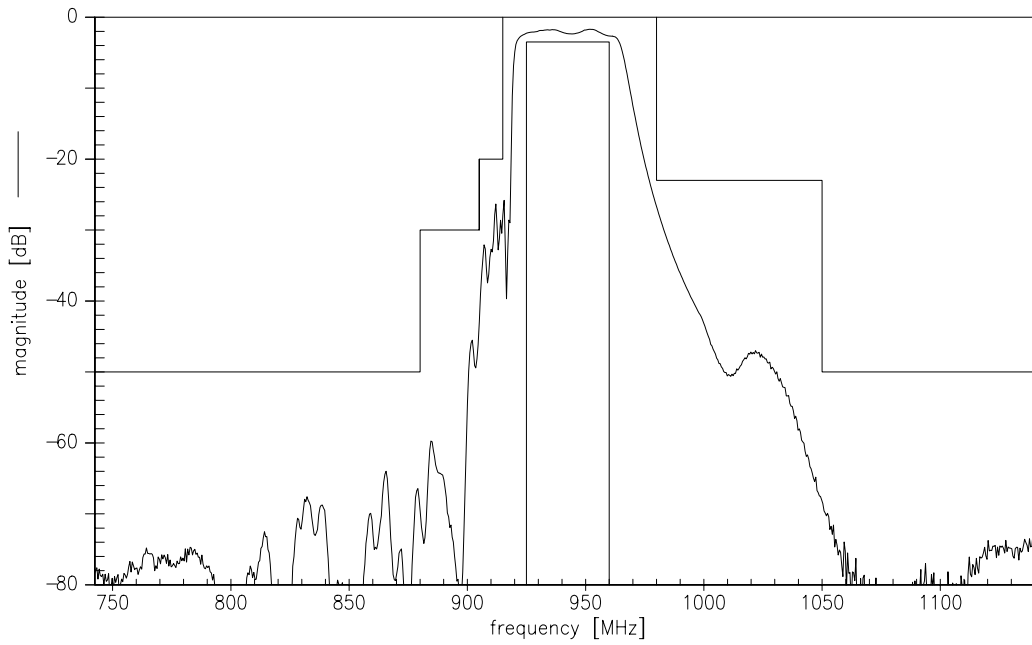
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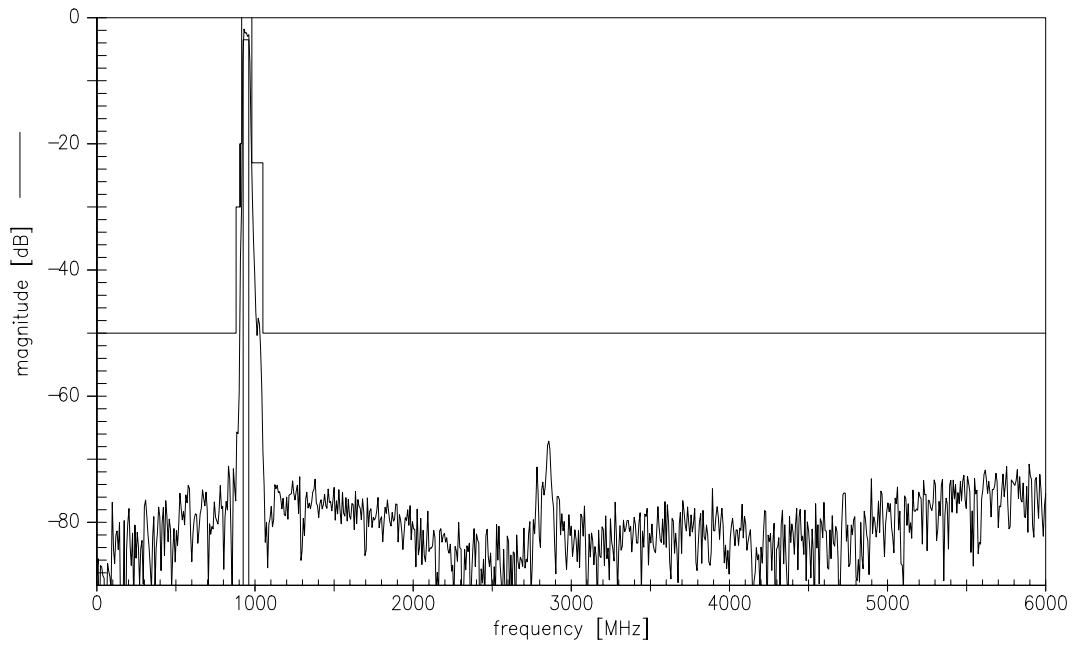
Data Sheet



Transfer function

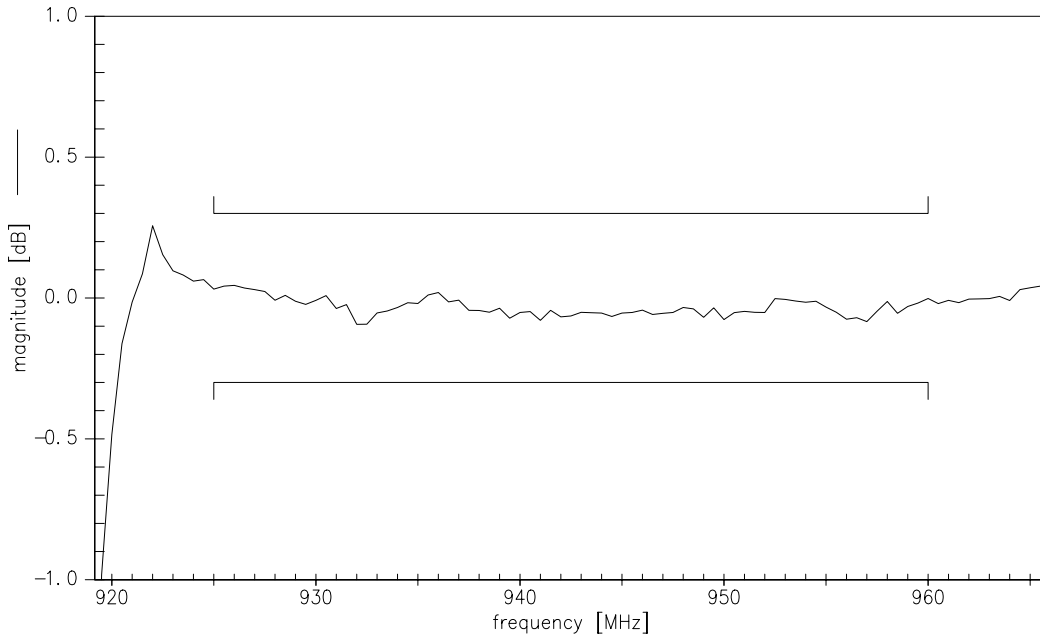


Transfer function (wideband)

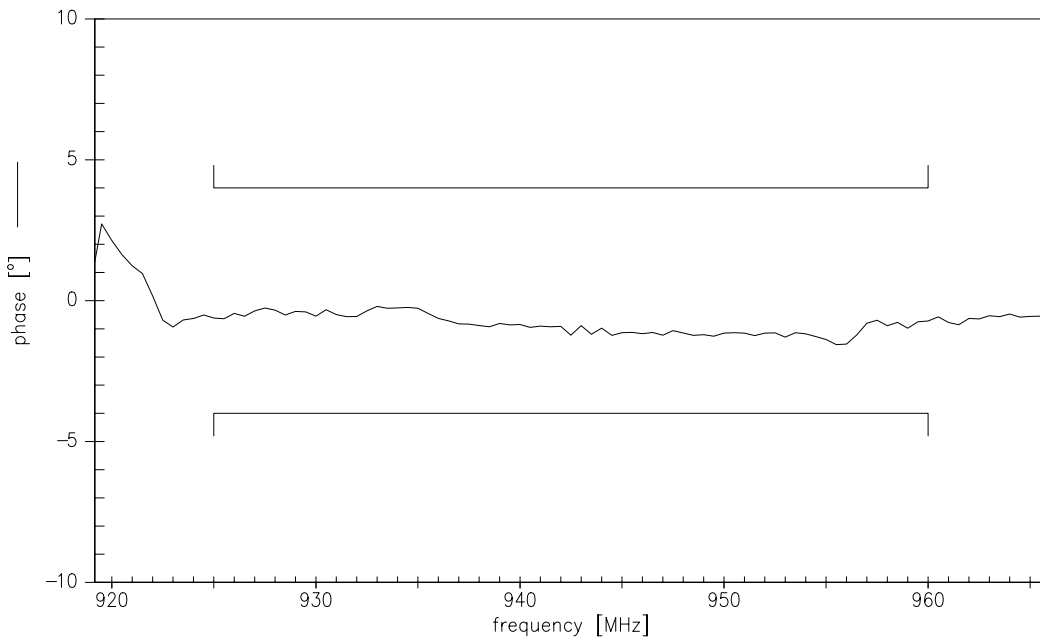




Output amplitude balance ( $|S_{31}|/|S_{21}|$ )



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





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