



# SAW Components

Data Sheet B9301





**SAW Components**

**B9301**

**Low-Loss Dual Band Filter for Mobile Communication**

**881,5 / 942,5 MHz**

**Data Sheet**



**Chip Sized Saw Package QCS10H**

**Features**

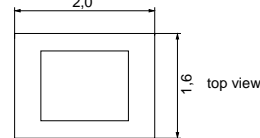
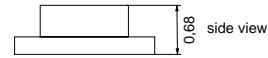
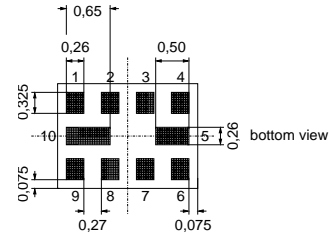
- Low-loss 2in1 RF filter for mobile telephone GSM850/900 systems, receive path
- Usable passband:  
Filter 1 (GSM900): 35 MHz  
Filter 2 (GSM850): 25 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS Class 1 to 12
- Ceramic package for **Surface Mounted Technology (SMT)**

**Terminals**

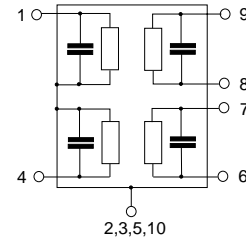
- Ni, gold-plated

**Pin configuration**

- |            |                               |
|------------|-------------------------------|
| 1          | Input [ Filter 1 ]            |
| 4          | Input [ Filter 2 ]            |
| 6, 7       | Output, balanced [ Filter 2 ] |
| 8, 9       | Output, balanced [ Filter 1 ] |
| 2, 3, 5,10 | Case ground                   |



Dimensions in mm, approx. weight 8mg



Type	Ordering code	Marking and Package according to	Packing according to
B9301	B39941-B9301-G110	C61157-A7-A141	F61074-V8152-Z000

**Electrostatic Sensitive Device (ESD)**

**Maximum ratings**

Operable temperature range	$T$	- 40 / + 85	°C	Machine Model, 10 pulses
Storage temperature range	$T_{stg}$	- 40 / + 85	°C	
DC voltage	$V_{DC}$	5	V	
ESD voltage	$V_{ESD}^*$	100	V	
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands:				
Filter 1 (GSM900-Rx)	$P_{IN}$	15	dBm	effective power in the on-state, duty cycle 4:8
Filter 2 (GSM850-Rx)	$P_{IN}$	15	dBm	

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



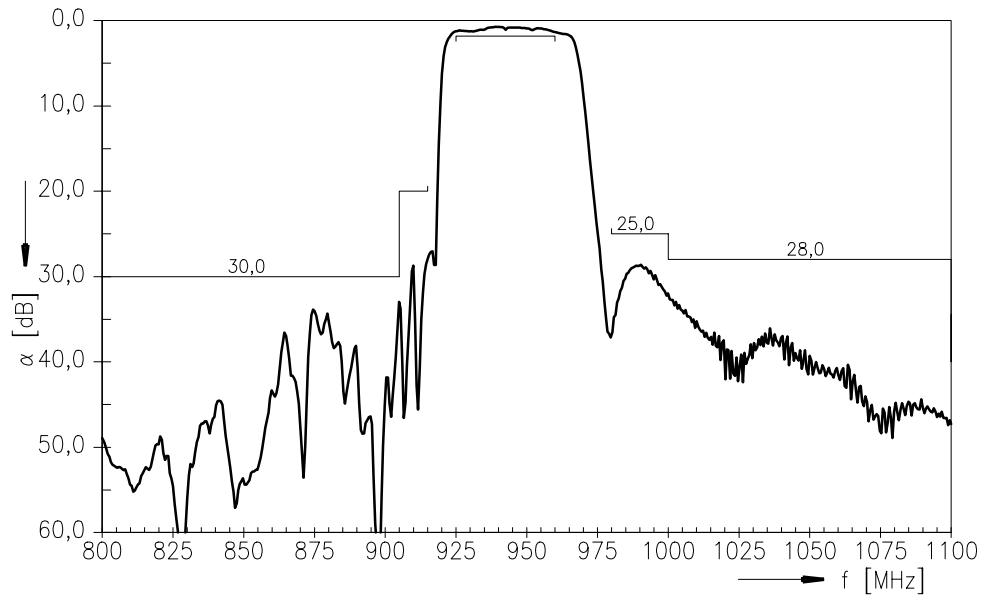
**Characteristics Filter 1 ( GSM900 )**

Operating temperature range:  $T = -20$  to  $+85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 150\ \Omega$  (balanced) || 82nH

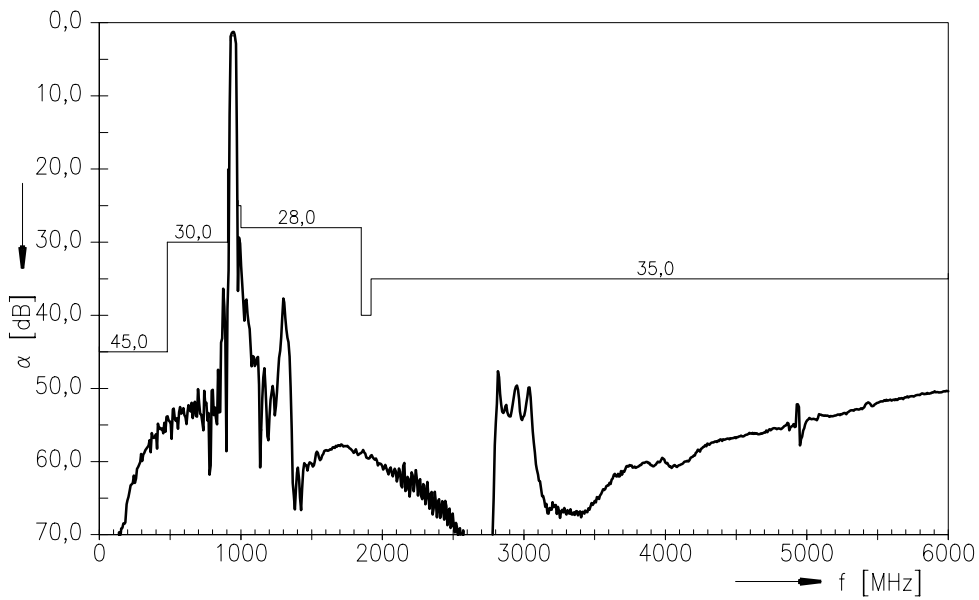
		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	942,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	1,6	2,1	dB
	925,0 ... 960,0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0,9	1,4	dB
	925,0 ... 960,0 MHz				
<b>Input VSWR</b>		—	1,8	2,1	
	925,0 ... 960,0 MHz				
<b>Output VSWR</b>		—	1,9	2,2	
	925,0 ... 960,0 MHz				
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1,1	-0,6/+0,6	1,1	dB
	925,0 ... 960,0 MHz				
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^{\circ}</math>)</b>		-10	-2/+1	10	degree
	925,0 ... 960,0 MHz				
<b>Attenuation</b>	$\alpha_{\min}$				
	10,0 ... 480,0 MHz	45	54	—	dB
	480,0 ... 905,0 MHz	30	33	—	dB
	905,0 ... 915,0 MHz	20	27	—	dB
	980,0 ... 1000,0 MHz	25	28	—	dB
	1000,0 ... 1850,0 MHz	28	32	—	dB
	1850,0 ... 1920,0 MHz	40	58	—	dB
	1920,0 ... 6000,0 MHz	35	47	—	dB



Transfer function Filter 1 ( GSM900 )



Transfer function Filter 1 ( GSM900 ) - wideband





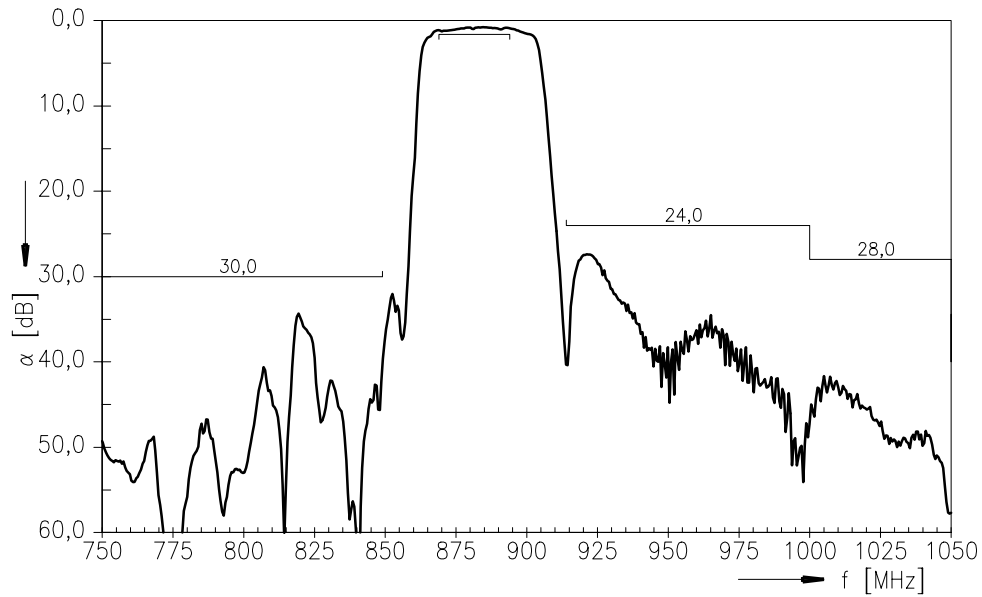
**Characteristics Filter 2 ( GSM850 )**

Operating temperature range:  $T = -20$  to  $+85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$  (unbalanced)  
 Terminating load impedance:  $Z_L = 150\ \Omega$  (balanced) || 82nH

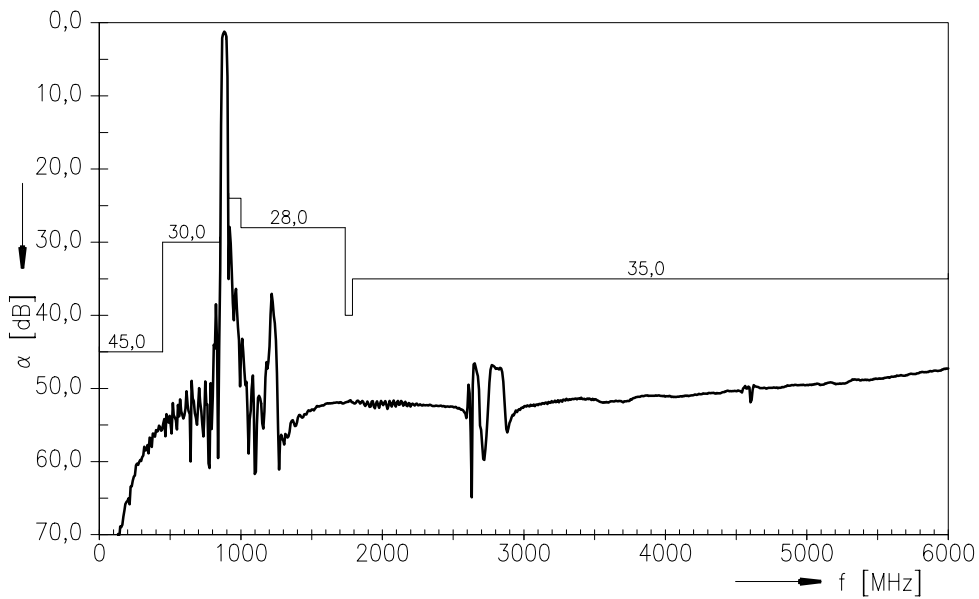
		min.	typ.	max.	
<b>Center frequency</b>	$f_c$	—	881,5	—	MHz
<b>Maximum insertion attenuation</b>	$\alpha_{\max}$	—	1,2	1,8	dB
	869,0 ... 894,0 MHz				
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$	—	0,5	1,0	dB
	869,0 ... 894,0 MHz				
<b>Input VSWR</b>		—	1,8	2,1	
	869,0 ... 894,0 MHz				
<b>Output VSWR</b>		—	1,7	2,0	
	869,0 ... 894,0 MHz				
<b>Output amplitude balance (<math> S_{31}/S_{21} </math>)</b>		-1,0	-0,5/+0,2	1,0	dB
	869,0 ... 894,0 MHz				
<b>Output phase balance (<math>\phi(S_{31})-\phi(S_{21})+180^{\circ}</math>)</b>		-10	-3/+4	10	degree
	869,0 ... 894,0 MHz				
<b>Attenuation</b>	$\alpha_{\min}$				dB
	10,0 ... 447,0 MHz	45	55	—	dB
	447,0 ... 849,0 MHz	30	34	—	dB
	914,0 ... 1000,0 MHz	24	27	—	dB
	1000,0 ... 1738,0 MHz	28	37	—	dB
	1738,0 ... 1788,0 MHz	40	52	—	dB
	1788,0 ... 6000,0 MHz	35	46	—	dB



Transfer function Filter 2 ( GSM850 )



Transfer function Filter 2 ( GSM850 ) - wideband





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**881,5 / 942,5 MHz**

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

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