



SAW Components

Data Sheet B9300





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B9300

Low-Loss Dual Band Filter for Mobile Communication

1842,5 & 1960,0 MHz

Data Sheet



Chip Sized Saw Package QCS10H

Features

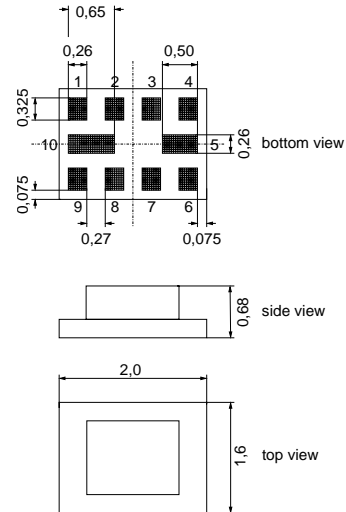
- Low-loss 2-in-1 RF filter for mobile telephone GSM1800 and GSM1900 systems, receive path
- Usable passband:
Filter 1 (GSM 1900): 60 MHz
Filter 2 (GSM 1800): 75 MHz
- Unbalanced to balanced operation for both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS class 1 to 12
- Package for **Surface Mounted Technology (SMT)**
- Pb-free

Terminals

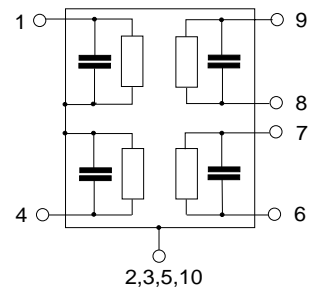
- Ni, gold-plated

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 t.b.d.



Type	Ordering code	Marking and Package according to	Packing according to
B9300	B39202-B9300-G110	C61157-A7-A141	F61074-V8152-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	- 40 /+ 85	°C	machine model, 10 pulses ¹⁾ effective power in the on-state, duty cycle 4:8
Storage temperature range	T_{stg}	- 40 /+ 85	°C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50	V	
Input power at GSM850, GSM900, GSM1800, GSM1900 TX bands	P_{IN}	15	dBm	

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



Characteristics of Filter 1 (GSM 1900)

Operating temperature range: $T = 25\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 150\ \Omega \parallel 18\text{nH}$ (balanced)

		min.	typ.	max.	
Center frequency	f_c	—	1960,0	—	MHz
Maximum insertion attenuation	α_{\max}	—	1,6	2,1	dB
1930,0 ... 1990,0MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,5	1,0	dB
1930,0 ... 1990,0MHz					
Input VSWR		—	1,7	2,0	
1930,0 ... 1990,0MHz					
Output VSWR		—	1,7	2,0	
1930,0 ... 1990,0MHz					
Output phase balance ($\Phi(S_{31}) - \Phi(S_{21}) + 180^\circ$)		-10	-2/+4	+10	degree
1930,0 ... 1990,0MHz					
Output amplitude balance (S_{31}/S_{21})		-1,2	-0,6/+0,6	+1,2	dB
1930,0 ... 1990,0MHz					
Attenuation	α_{\min}				
10,0 ... 1510,0MHz		40,0	43	—	dB
1510,0 ... 1830,0MHz		30,0	36	—	dB
1830,0 ... 1850,0MHz		26,0	32	—	dB
1850,0 ... 1890,0MHz		23,0	28	—	dB
1890,0 ... 1910,0MHz		13,0	18	—	dB
2010,0 ... 2070,0MHz		13,0	15	—	dB
2070,0 ... 2400,0MHz		22,0	26	—	dB
2400,0 ... 6000,0MHz		30,0	34	—	dB



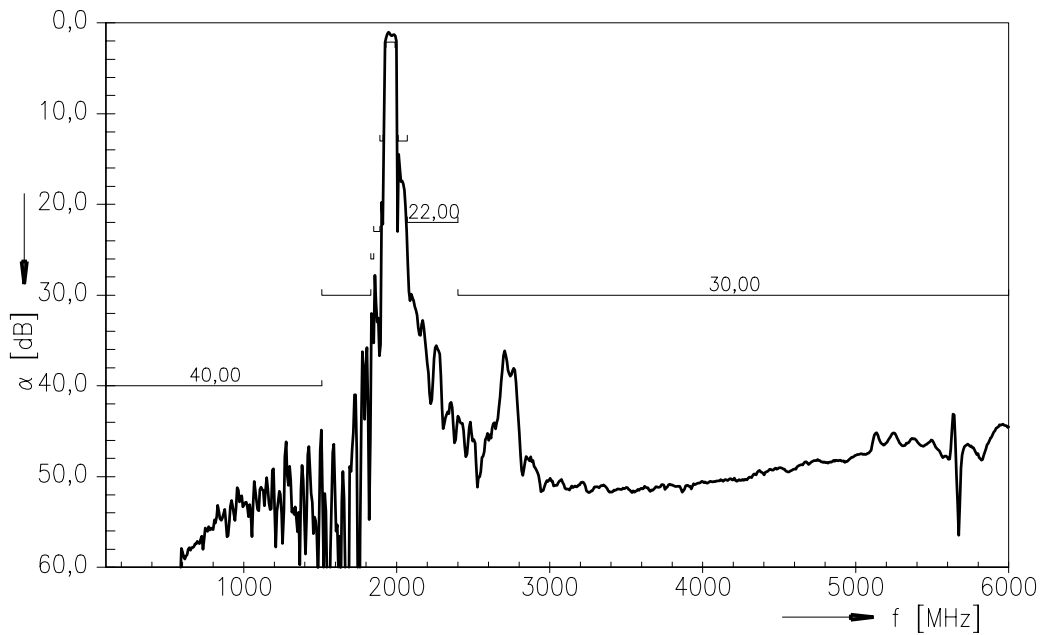
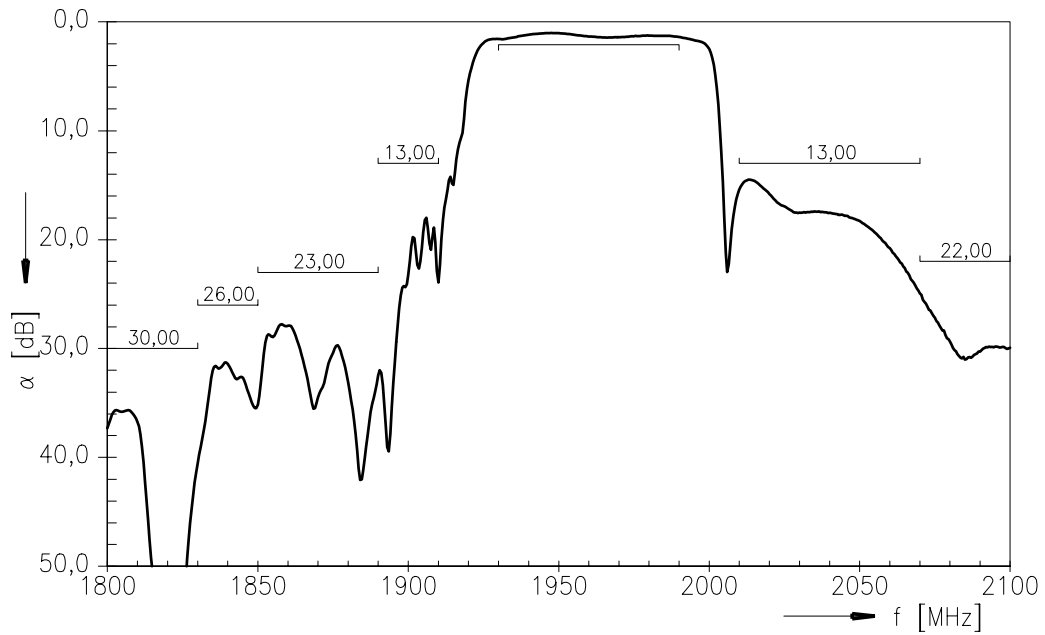
Characteristics of Filter 1 (GSM 1900)

Operating temperature range: $T = -20$ to $+75$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 150 \Omega \parallel 18nH$ (balanced)

		min.	typ.	max.	
Center frequency	f_c	—	1960,0	—	MHz
Maximum insertion attenuation	α_{max}	—	1,7	2,3	dB
1930,0 ... 1990,0MHz					
Amplitude ripple (p-p)	$\Delta\alpha$	—	0,6	1,3	dB
1930,0 ... 1990,0MHz					
Input VSWR		—	1,7	2,0	
1930,0 ... 1990,0MHz					
Output VSWR		—	1,7	2,0	
1930,0 ... 1990,0MHz					
Output phase balance ($\Phi(S_{31}) - \Phi(S_{21}) + 180^\circ$)		-10	-3/+5	+10	degree
1930,0 ... 1990,0MHz					
Output amplitude balance (S_{31}/S_{21})		-1,2	-0,7/+0,7	+1,2	dB
1930,0 ... 1990,0MHz					
Attenuation	α_{min}				
10,0 ... 1510,0MHz		40,0	43	—	dB
1510,0 ... 1830,0MHz		30,0	35	—	dB
1830,0 ... 1850,0MHz		26,0	32	—	dB
1850,0 ... 1890,0MHz		23,0	27	—	dB
1890,0 ... 1910,0MHz		12,0	16	—	dB
2010,0 ... 2070,0MHz		12,0	15	—	dB
2070,0 ... 2400,0MHz		21,0	24	—	dB
2400,0 ... 6000,0MHz		30,0	34	—	dB



Transfer Function of Filter 1 (GSM 1900)





Characteristics of Filter 2 (GSM1800)

Operating temperature range: $T = 25\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$
 Terminating load impedance: $Z_L = 150\ \Omega \parallel 15\text{nH}$ (balanced)

		min.	typ.	max.	
Center frequency	f_c	—	1842,5	—	MHz
Maximum insertion attenuation	α_{\max}	—	1,6	2,1	dB
1805,0 ... 1880,0MHz					
Amplitude ripple	$\Delta\alpha$	—	0,5	1,0	dB
1805,0 ... 1880,0MHz					
Input VSWR		—	1,8	2,2	
1805,0 ... 1880,0MHz					
Output VSWR		—	1,7	2,2	
1805,0 ... 1880,0MHz					
Output phase balance ($\Phi(S_{31}) - \Phi(S_{21}) + 180^{\circ}$)		- 10	-3/+3	+10	degree
1805,0 ... 1880,0MHz					
Output amplitude balance (S_{31}/S_{21})		-1,0	-0,6/+0,4	+1,0	dB
1805,0 ... 1880,0MHz					
Attenuation	α_{\min}	30,0	52	—	dB
10,0 ... 902,0MHz					
902,0 ... 940,0MHz		45,0	52	—	
940,0 ... 1705,0MHz		28,0	42	—	
1705,0 ... 1785,0MHz		13,0	18	—	
1920,0 ... 1980,0MHz		17,0	23	—	
1980,0 ... 2030,0MHz		24,0	28	—	
2030,0 ... 2400,0MHz		28,0	34	—	
2400,0 ... 6000,0MHz		28,0	32	—	



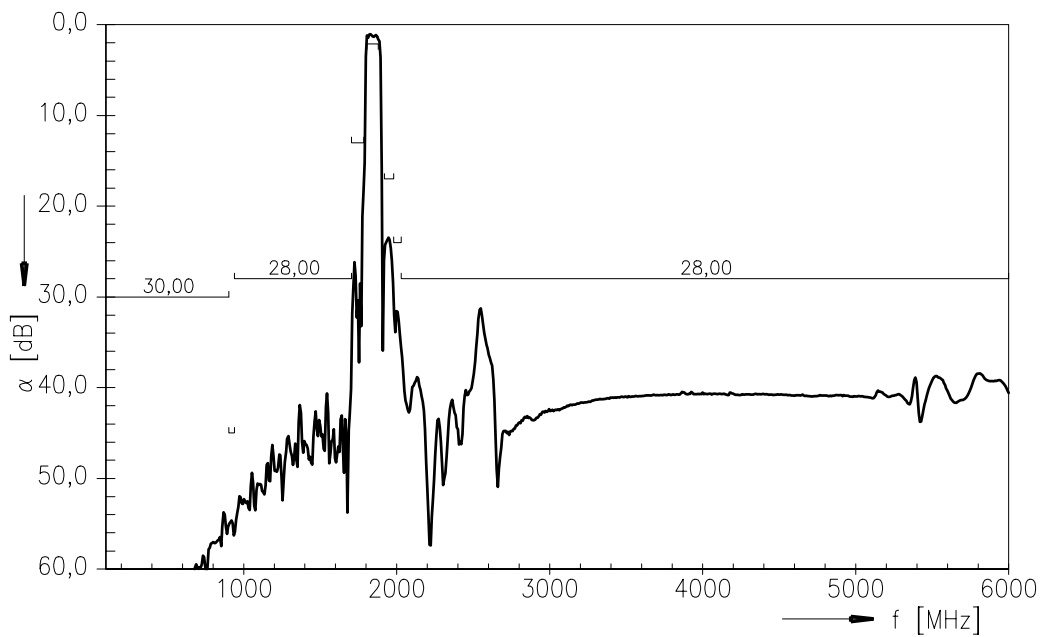
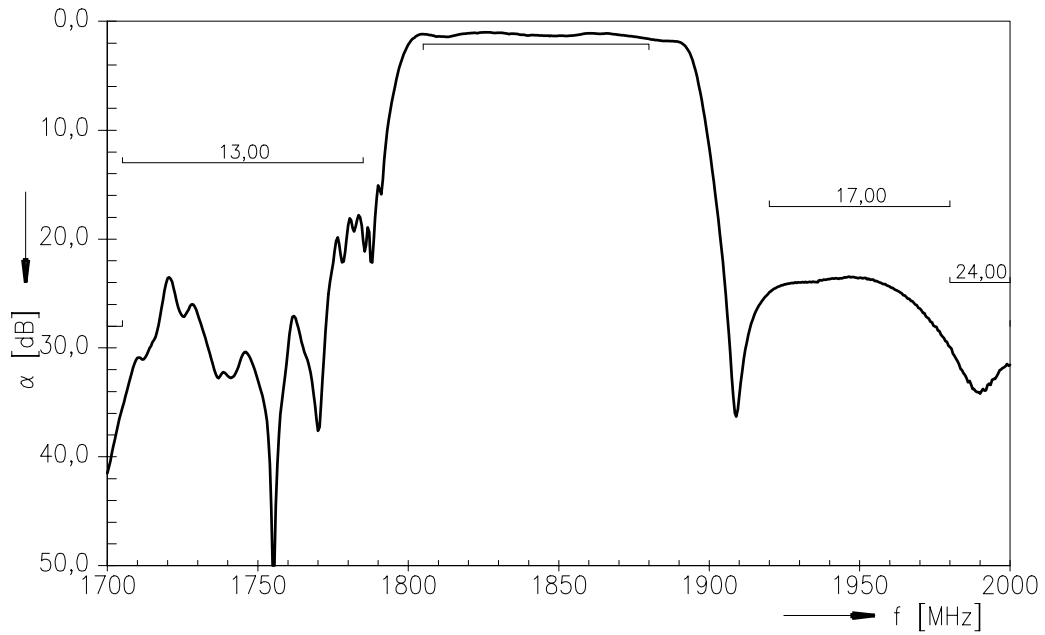
Characteristics of Filter 2 (GSM1800)

Operating temperature range: $T = -20$ to $+75$ °C
 Terminating source impedance: $Z_S = 50 \Omega$
 Terminating load impedance: $Z_L = 150 \Omega \parallel 15nH$ (balanced)

		min.	typ.	max.	
Center frequency	f_c	—	1842,5	—	MHz
Maximum insertion attenuation	α_{max}	—	1,8	2,3	dB
1805,0 ... 1880,0MHz					
Amplitude ripple	$\Delta\alpha$	—	0,7	1,3	dB
1805,0 ... 1880,0MHz					
Input VSWR		—	1,8	2,2	
1805,0 ... 1880,0MHz					
Output VSWR		—	1,7	2,2	
1805,0 ... 1880,0MHz					
Output phase balance ($\Phi(S_{31}) - \Phi(S_{21}) + 180^\circ$)		- 10	-3/+3	+10	degree
1805,0 ... 1880,0MHz					
Output amplitude balance (S_{31}/S_{21})		-1,0	-0,7/+0,5	+1,0	dB
1805,0 ... 1880,0MHz					
Attenuation	α_{min}				
10,0 ... 902,0MHz		30,0	52	—	dB
902,0 ... 940,0MHz		45,0	52	—	dB
940,0 ... 1705,0MHz		28,0	42	—	dB
1705,0 ... 1785,0MHz		12,0	15	—	dB
1920,0 ... 1980,0MHz		17,0	23	—	dB
1980,0 ... 2030,0MHz		24,0	28	—	dB
2030,0 ... 2400,0MHz		28,0	34	—	dB
2400,0 ... 6000,0MHz		28,0	32	—	dB



Transfer Function of Filter 2 (GSM 1800)





SAW Components

B9300

Low-Loss Dual Band Filter for Mobile Communication

1842,5 & 1960,0 MHz

Data Sheet



Published by EPCOS AG

Surface Acoustic Wave Components Division, SAW MC WT

P.O. Box 80 17 09, 81617 Munich, GERMANY

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