EPCOS

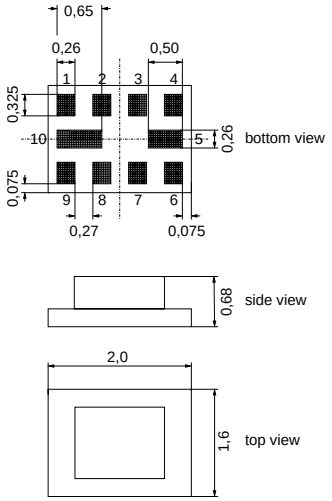
SAW Components

Data Sheet B9309

Chip Sized Saw Package **QCS10H**

Features

- Low-loss 2in1 RF filter for mobile telephone GSM850/1900 systems, receive path
- Usable passband:
  Filter 1 (GSM850): 25 MHz
  Filter 2 (GSM1900): 60 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 **S**urface **M**ounted **T**echnology (**SMT**)
- Pb-free

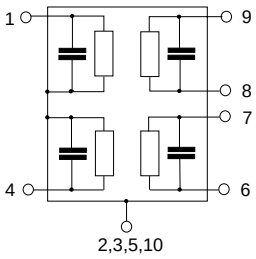


Dimensions in mm, approx. weight 0,008g.

Terminals

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



Type	Ordering code	Marking and Package according to	Packing according to
B9309	B39202-B9309-G110	C61157-A7-A141	F61074-V8152-Z000

Electrostatic **S**ensitive **D**evice (**ESD)**

Maximum ratings

Operable temperature range	T	– 40 / + 85	˚C	
Storage temperature range	T_{stg}	– 40 / + 85	˚C	
DC voltage	V_{DC}	5	V	
ESD voltage	V_{ESD}	50*	V	Machine Model, 10 pulses
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands:				
Filter 1 (GSM850)	P_{IN}	15	dBm	effective power in the on-state,
Filter 2 (GSM1900)	P_{IN}	15	dBm	duty cycle 4:8

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

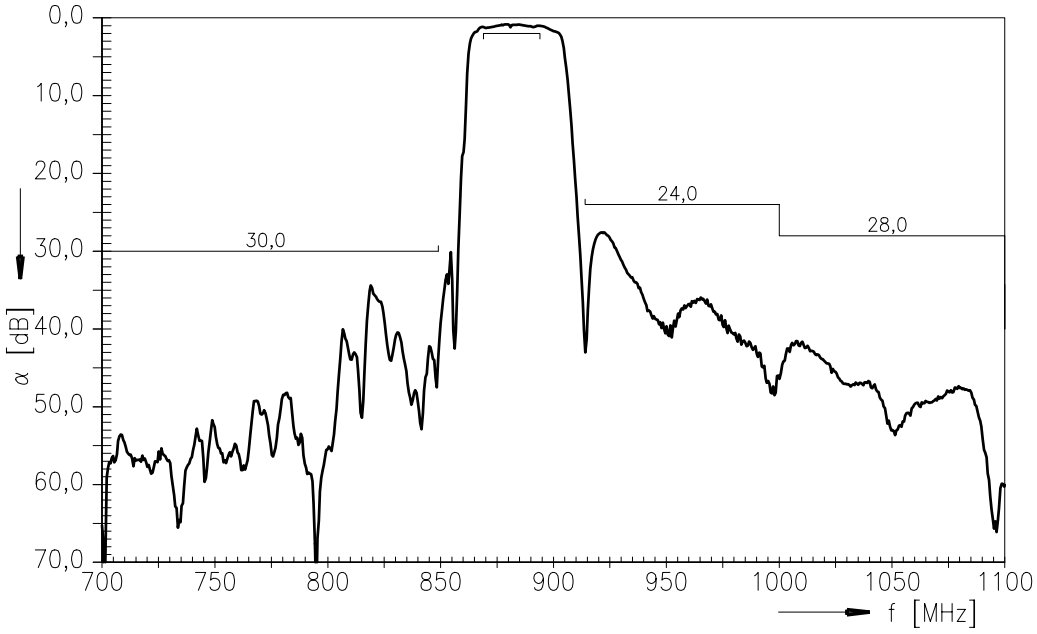
Characteristics Filter 1 (GSM850)

Operating temperature range: T = -20 to +75˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω || 82nH (balanced)

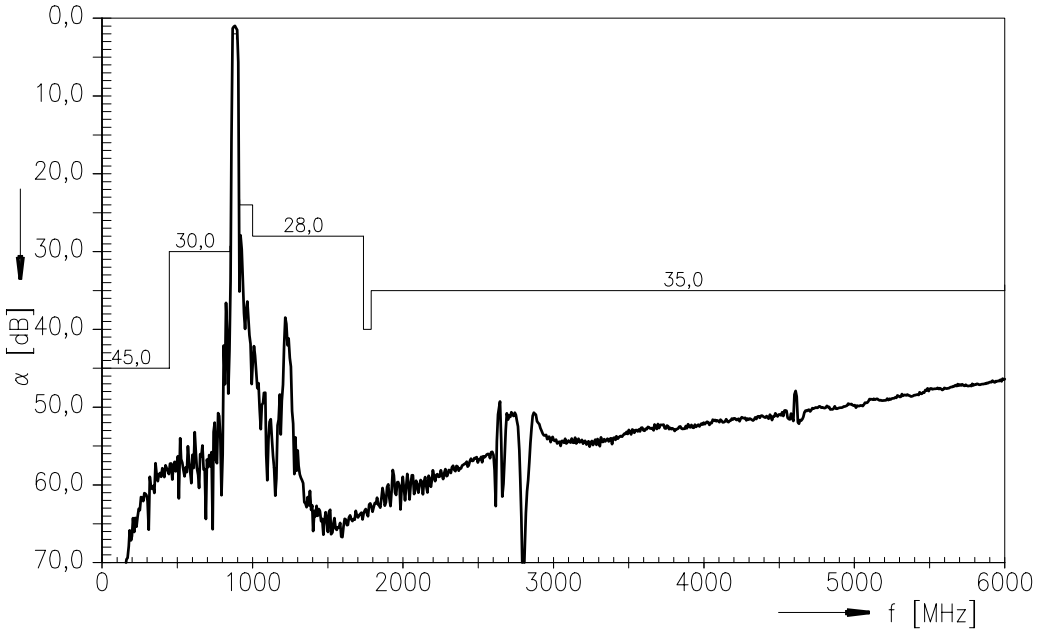
		min.	typ.	max.	
Center frequency	f_c	—	881,5	—	MHz
Maximum insertion attenuation	α_{max}				
869,0 ... 894,0 MHz		—	1,6	1,8	dB
869,0 ... 894,0 MHz	1)	—	1,5	1,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
869,0 ... 894,0 MHz		—	0,7	1,0	dB
Input VSWR					
869,0 ... 894,0 MHz		—	2,0	2,2	
Output VSWR					
869,0 ... 894,0 MHz		—	2,0	2,2	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
869,0 ... 894,0 MHz		-1,0	-0,7/+0,2	1,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
869,0 ... 894,0 MHz		-10	-3 /+3	10	degree
Attenuation	α_{min}				
10,0 ... 447,0 MHz		45	50	—	dB
447,0 ... 849,0 MHz		30	34	—	dB
914,0 ...1000,0 MHz		24	26	—	dB
1000,0 ...1738,0 MHz		28	38	—	dB
1738,0 ...1788,0 MHz		40	50	—	dB
1788,0 ...6000,0 MHz		35	44	—	dB

1) T = +25 ± 2˚C

Transfer Function Filter 1 (GSM850)



Transfer Function Filter 1 (GSM850) - wideband



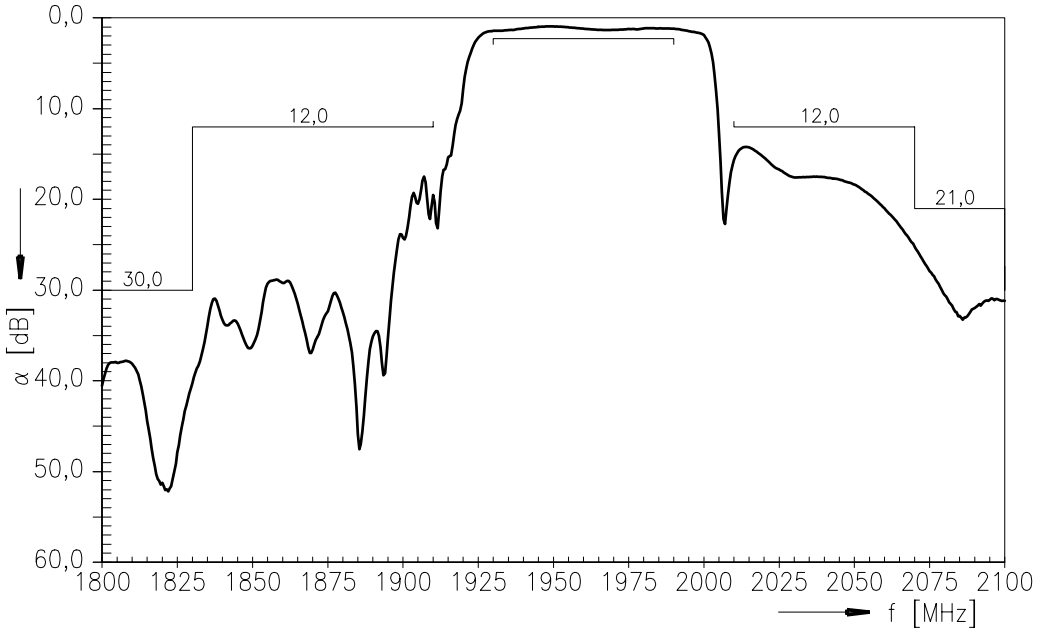
Characteristics Filter 2 (GSM1900)

Operating temperature range: T = -20 to +75˚C
Terminating source impedance: Z_S = 50 Ω
Terminating load impedance: Z_L = 150 Ω || 18nH (balanced)

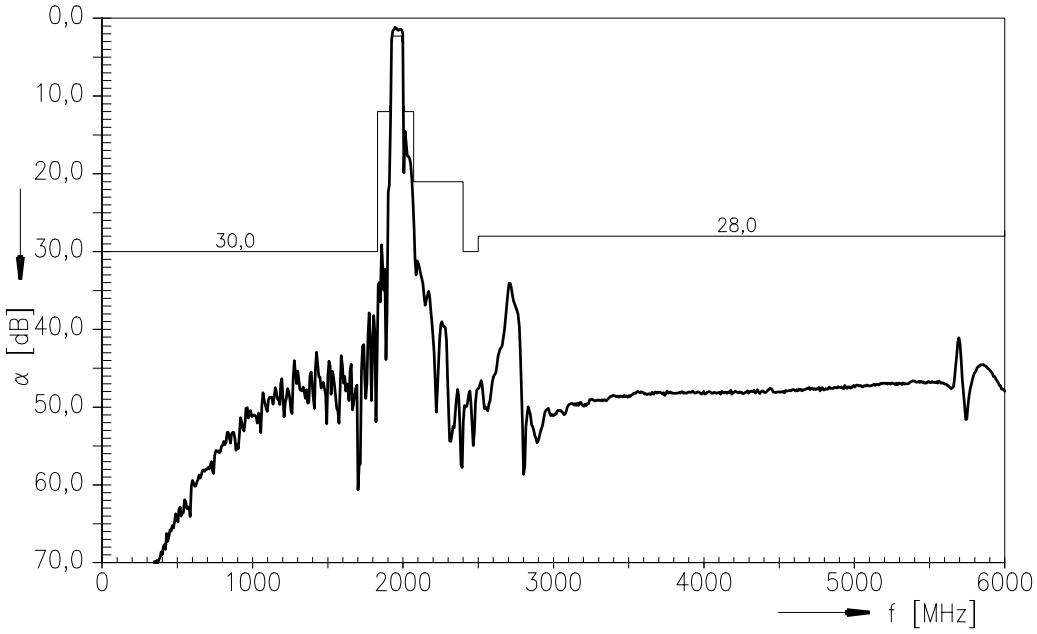
		min.	typ.	max.	
Center frequency	f_C	—	1960,0	—	MHz
Maximum insertion attenuation	α_{max}				
1930,0 ... 1990,0 MHz		—	1,7	2,3	dB
1930,0 ... 1990,0 MHz	1)	—	1,6	2,1	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1930,0 ... 1990,0 MHz		—	0,5	1,0	dB
Input VSWR					
1930,0 ... 1990,0 MHz		—	1,7	2,0	
Output VSWR					
1930,0 ... 1990,0 MHz		—	1,7	2,0	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
1930,0 ...1990,0 MHz		-1,0	-0,6/+0,6	+1,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
1930,0 ...1990,0 MHz		-10	-2/+4	+10	˚
Attenuation	α				
10,0 ... 1830,0 MHz		30	36	—	dB
1830,0 ... 1910,0 MHz		12	16	—	dB
2010,0 ... 2070,0 MHz		12	16	—	dB
2070,0 ... 2400,0 MHz		21	24	—	dB
2400,0 ... 2500,0 MHz		30	34	—	dB
2500,0 ... 4000,0 MHz		28	34	—	dB
4000,0 ... 6000,0 MHz		28	34	—	dB

1) T = +25 ± 2˚C

Transfer Function Filter 2 (GSM1900)



Transfer Function Filter 2 (GSM1900) - wideband



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