EPCOS

SAW Components

Data Sheet B9201

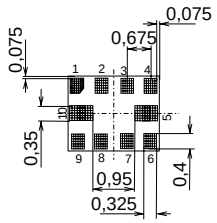
Low-Loss Dual Band Filter for Mobile Communication 942,5 / 1842,5 MHz

Data Sheet

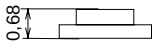
Chip sized SAW package **QCS10F**

Features

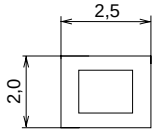
- Low-loss 2in1 RF filter for mobile telephone GSM900/1800 systems, receive path
- Usable passband:
  Filter 1 (GSM1800): 75 MHz
  Filter 2 (GSM900): 35 MHz
- Unbalanced to balanced operation of both filters
- Impedance transformation from 50 Ω to 150 Ω for both filters
- Suitable for GPRS Class 1 to 12
- Ceramic package for **S**urface **M**ounted **T**echnology (**SMT**)



bottom view



side view



top view

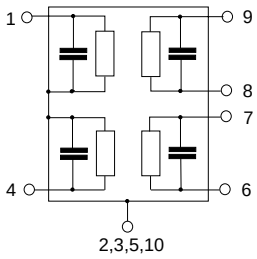
Dimensions in mm, approx. weight 12mg

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



Type	Ordering code	Marking and Package according to	Packing according to
B9201	B39182-B9201-G810	C61157-A7-A133	F61074-V8153-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}	3	V	
ESD voltage	V_{ESD}*	50*	V	Machine Model, 10 pulses
Input power at GSM850, GSM900, GSM1800, GSM1900 Tx bands:				
Filter 1 (GSM1800-Rx)	P_{IN}	12	dBm	peak power of GSM signal,
Filter 2 (GSM900-Rx)	P_{IN}	15	dBm	duty cycle 4:8

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

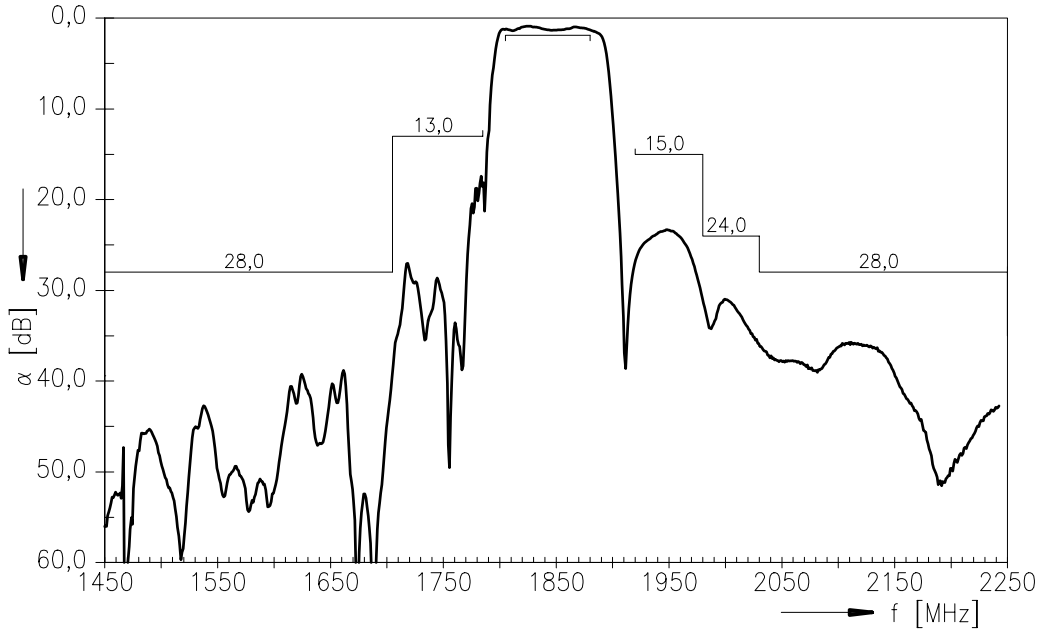
Characteristics Filter 1 (GSM1800)

Operating temperature range: T = -20 to +75˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 12nH

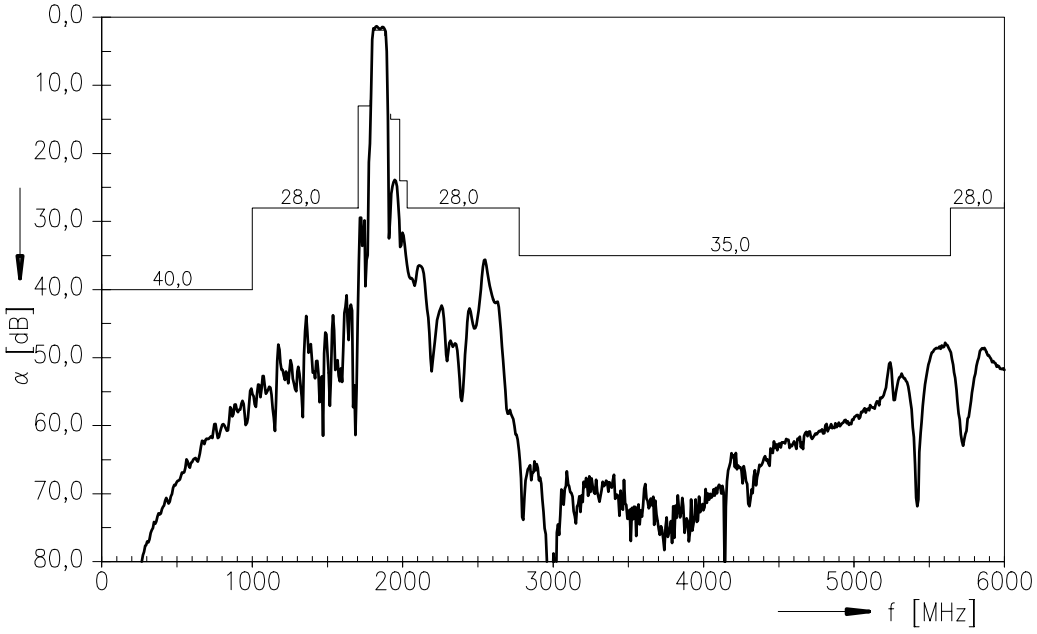
		min.	typ.	max.	
Center frequency	f_c	—	1842,5	—	MHz
Maximum insertion attenuation	α_{max}				
1805,0 ...1880,0 MHz		—	1,5	2,2	dB
1805,0 ...1880,0 MHz	1)	—	1,4	1,9	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
1805,0 ...1880,0 MHz		—	0,7	1,4	dB
1805,0 ...1880,0 MHz	1)	—	0,6	1,1	dB
Input VSWR					
1805,0 ...1880,0 MHz		—	2,0	2,3	
Output VSWR					
1805,0 ...1880,0 MHz		—	1,9	2,2	
Output amplitude balance ($\lvert S_{31}/S_{21}\rvert$)					
1805,0 ...1880,0 MHz		-1,0	-0,6/+0,7	1,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
1805,0 ...1880,0 MHz		-10	-4/+4	10	degree
Attenuation	α_{min}				
10,0 ...1000,0 MHz		40	54	—	dB
1000,0 ...1705,0 MHz		28	38	—	dB
1705,0 ...1785,0 MHz		13	18	—	dB
1920,0 ...1980,0 MHz		15	23	—	dB
1980,0 ...2030,0 MHz		24	30	—	dB
2030,0 ...2775,0 MHz		28	36	—	dB
2775,0 ...5640,0 MHz		35	49	—	dB
5640,0 ...6000,0 MHz		28	49	—	dB

1) T = +25 ± 2˚C

Transfer function Filter 1 (GSM1800)



Transfer function Filter 1 (GSM1800) - wideband



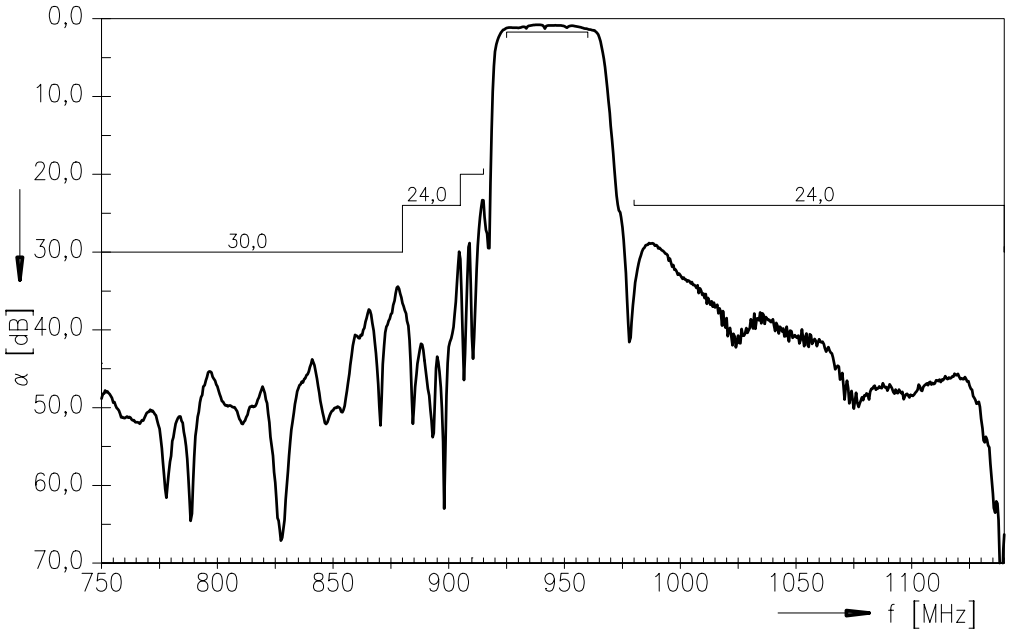
Characteristics Filter 2 (GSM900)

Operating temperature range: T = -20 to +75˚C
Terminating source impedance: Z_S = 50 Ω (unbalanced)
Terminating load impedance: Z_L = 150 Ω (balanced) || 56nH

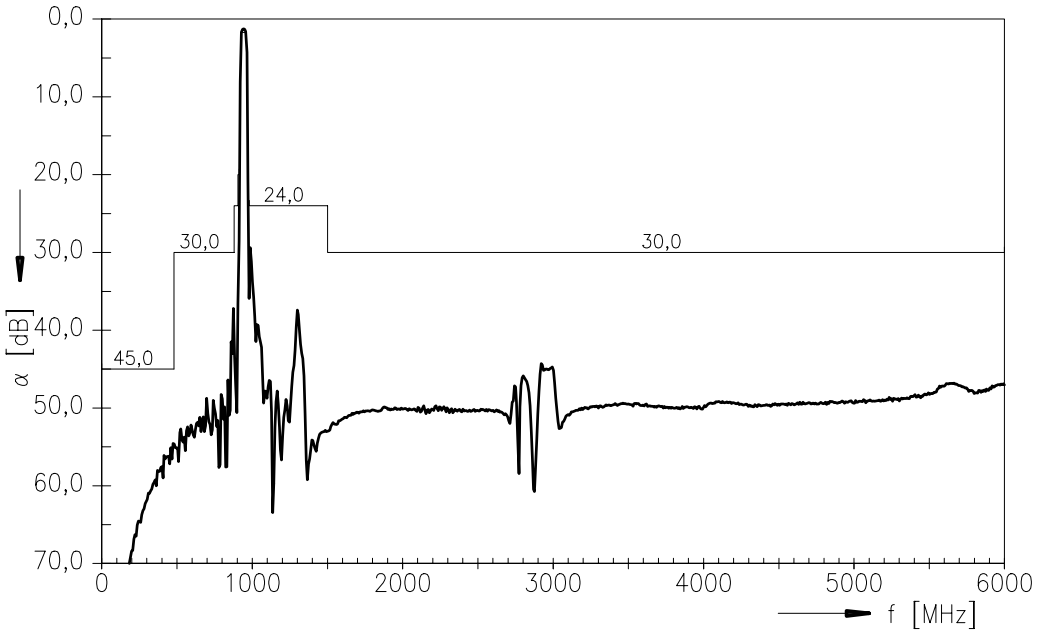
		min.	typ.	max.	
Center frequency	f_c	—	942,50	—	MHz
Maximum insertion attenuation	α_{max}				
925,0 ... 960,0 MHz		—	1,5	2,1	dB
925,0 ... 960,0 MHz	1)	—	1,4	1,7	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
925,0 ... 960,0 MHz		—	0,7	1,4	dB
925,0 ... 960,0 MHz	1)	—	0,6	1,0	dB
Input VSWR					
925,0 ... 960,0 MHz		—	1,8	2,0	
Output VSWR					
925,0 ... 960,0 MHz		—	1,7	2,0	
Output amplitude balance ($\|S_{31}/S_{21}\|$)					
925,0 ... 960,0 MHz		-1,0	-0,5/+0,6	1,0	dB
Output phase balance ($\phi(S_{31})-\phi(S_{21})+180^\circ$)					
925,0 ... 960,0 MHz		-10	-3/+2	10	degree
Attenuation	α_{min}				
10,0 ... 480,0 MHz		45	54	—	dB
480,0 ... 880,0 MHz		30	34	—	dB
880,0 ... 905,0 MHz		24	30	—	dB
905,0 ... 915,0 MHz		20	23	—	dB
980,0 ...1500,0 MHz		24	29	—	dB
1500,0 ...6000,0 MHz		30	44	—	dB

1) T = +25 ± 2˚C

Transfer function Filter 2 (GSM900)



Transfer function Filter 2 (GSM900) - wideband



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