Siemens Matsushita Components

SAW Components
Low Loss Filter

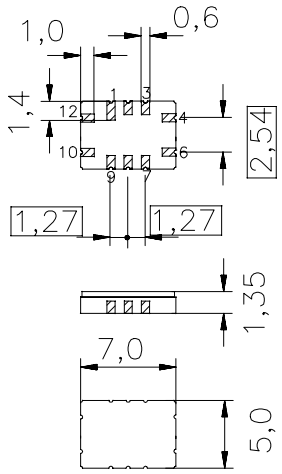
B4833
225,0 MHz

Data Sheet

Features

Ceramic package **QCC12B**

- Low-loss IF filter for mobile telephone
- Channel selection in GSM systems
- Ceramic SMD package
- Balanced and unbalanced operation possible
- High stopband attenuation



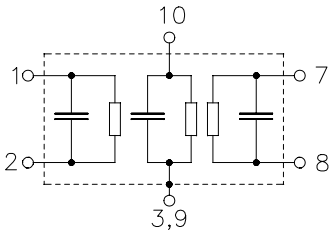
Terminals

- Gold-plated Ni

Dimensions in mm, approx. weight 0,2 g

Pin configuration

2	Input
1	Input ground or balanced input
8	Output
7	Output ground or balanced output
10	Expansion coil
3, 9	Case – ground
4, 6, 12	To be grounded



Type	Ordering code	Marking and Package according to	Packing according to
B4833	B39231-B4833-Z910	C61157-A7-A52	F61074-V8038-Z000

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

Maximum ratings

Operable temperature range	T	– 25/+ 85	˚C
Storage temperature range	T_{stg}	– 25/+ 85	˚C
DC voltage	V_{DC}	5	V
Source power	P_s	10	dBm

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Characteristics

Reference temperature: T = 25 °C
Terminating source impedance: Z_S = 730 Ω || -2,9 pF
Terminating load impedance: Z_L = 730 Ω || -2,9 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	225,01	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{min}	3,0	4,3	5,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	1,6	dB
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	3,0	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N - 50,0 kHz ... f_N + 50,0 kHz		—	0,4	1,2	µs
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	1,5	µs
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	2,1	µs
Relative attenuation (relative to α_{min})	α_{rel}				
f_N - 25,00 MHz ... f_N - 3,00 MHz		50	71	—	dB
f_N - 3,00 MHz ... f_N - 1,60 MHz		50	71	—	dB
f_N - 1,60 MHz ... f_N - 1,50 MHz		50	66	—	dB
f_N - 1,50 MHz ... f_N - 0,60 MHz		38	50	—	dB
f_N - 0,60 MHz ... f_N - 0,40 MHz		28	41	—	dB
f_N - 0,40 MHz ... f_N - 0,20 MHz		8	19	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		8	13	—	dB
f_N + 0,40 MHz ... f_N + 0,60 MHz		28	34	—	dB
f_N + 0,60 MHz ... f_N + 1,50 MHz		38	50	—	dB
f_N + 1,50 MHz ... f_N + 1,60 MHz		50	57	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		50	65	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	63	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	730 ‖ 2,9	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	730 ‖ 2,9	—	Ω ‖ pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
Frequency inversion point	T_0	—	20	—	°C

[1] Temperature dependence of f_c: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

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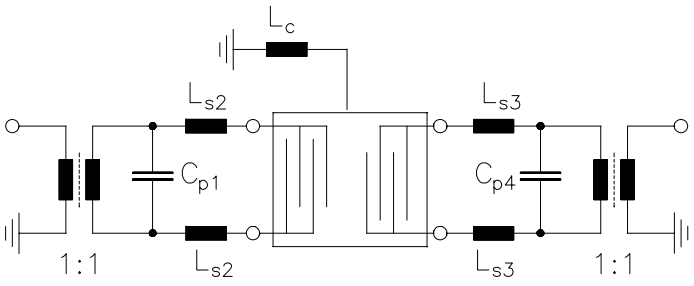
Characteristics

Reference temperature: T = -20 to +70 °C
Terminating source impedance: Z_S = 730 Ω || -2,9 pF
Terminating load impedance: Z_L = 730 Ω || -2,9 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	225,00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{min}	3,0	4,3	5,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	2,0	dB
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	3,0	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N - 50,0 kHz ... f_N + 50,0 kHz		—	0,4	1,2	µs
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	1,7	µs
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	2,1	µs
Relative attenuation (relative to α_{min})	α_{rel}				
f_N - 25,00 MHz ... f_N - 3,00 MHz		50	71	—	dB
f_N - 3,00 MHz ... f_N - 1,60 MHz		50	71	—	dB
f_N - 1,60 MHz ... f_N - 1,50 MHz		50	66	—	dB
f_N - 1,50 MHz ... f_N - 0,60 MHz		38	50	—	dB
f_N - 0,60 MHz ... f_N - 0,40 MHz		28	41	—	dB
f_N - 0,40 MHz ... f_N - 0,20 MHz		7	19	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		7	13	—	dB
f_N + 0,40 MHz ... f_N + 0,60 MHz		28	34	—	dB
f_N + 0,60 MHz ... f_N + 1,50 MHz		38	50	—	dB
f_N + 1,50 MHz ... f_N + 1,60 MHz		50	57	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		50	65	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	63	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	730 ‖ 2,9	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	730 ‖ 2,9	—	Ω ‖ pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
Frequency inversion point	T_0	—	20	—	°C

[1] Temperature dependence of f_c: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

Test matching network to 50 Ω (element values depend on PCB layout):



C_{p1} = 8,2 pF
L_{s2} = 65 nH
L_{s3} = 65 nH
C_{p4} = 8,2 pF
L_c = 120 nH

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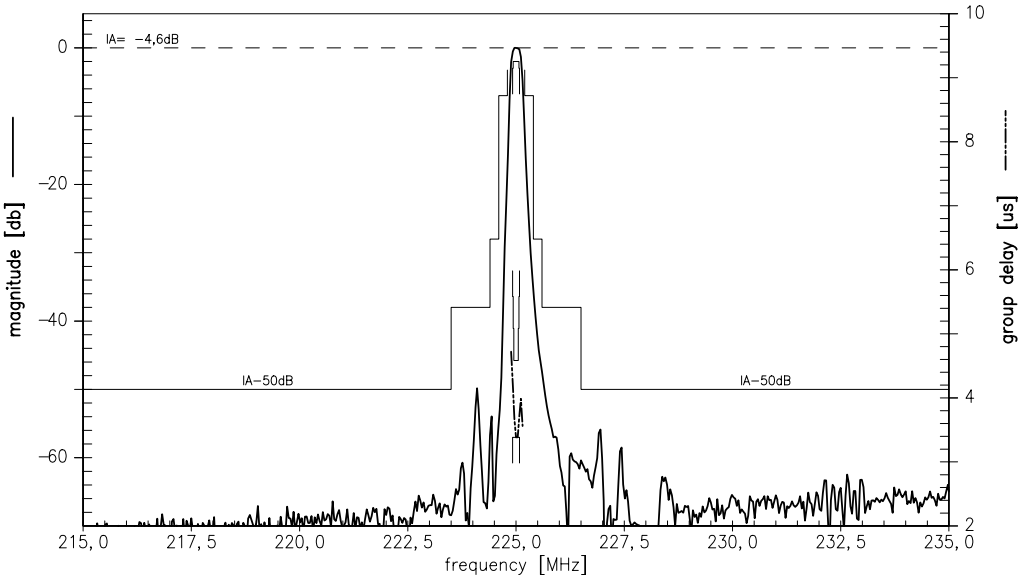
Transfer function:



Transfer function (pass band):