Siemens Matsushita Components

SAW Components
Low Loss Filter

B4822
225,01 MHz

Data Sheet

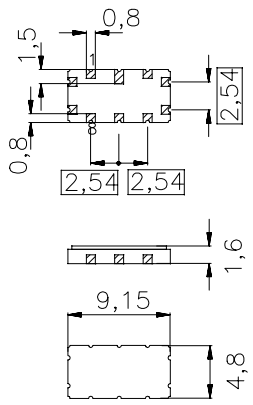
Ceramic package **QCC10B**

Features

- Low-loss IF filter for mobile telephone
- Channel selection in GSM, PCN, PCS systems
- Ceramic SMD package
- Balanced and unbalanced operation possible

Terminals

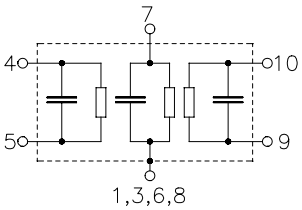
- Gold-plated Ni



Dimensions in mm, approx. weight 0,23 g

Pin configuration

5	Input
4	Input ground or balanced input
10	Output
9	Output ground or balanced output
7	External Coil
1, 3, 6, 8	Case – ground
2	To be grounded



Type	Ordering code	Marking and Package according to	Packing according to
B4822	B39231-B4822-Z710	C61157-A7-A49	F61074-V8035-Z000

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

Maximum ratings

Operable temperature range	T	– 25/+ 75	˚C	
Storage temperature range	T_{stg}	– 25/+ 85	˚C	
DC voltage	V_{DC}	0	V	
Source power	P_S	10	dBm	

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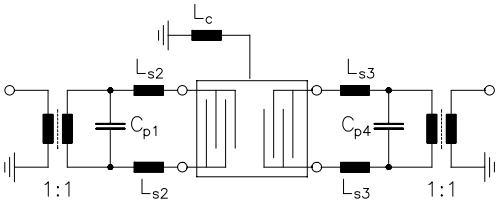
Characteristics

Operating temperature: T = 25 °C
Terminating source impedance: Z_S = 650 Ω || -2,1 pF
Terminating load impedance: Z_L = 650 Ω || -2,1 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	225,01	—	MHz
Minimum insertion attenuation					
(including losses in matching circuit)	α_{min}	3,0	4,1	5,5	dB
(excluding losses in matching circuit)		2,0	3,2	4,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,5	2,0	dB
f_N - 85,0 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 - 85,0 kHz ... f_N + 80,0 kHz		—	0,8	2,0	µs
Relative attenuation (relative to α_{min})	α_{rel}				
f_N - 25,00 MHz ... f_N - 3,00 MHz		50	65	—	dB
f_N - 3,00 MHz ... f_N - 1,60 MHz		48	55	—	dB
f_N - 1,60 MHz ... f_N - 0,60 MHz		38	47	—	dB
f_N - 0,60 MHz ... f_N - 0,40 MHz		28	49	—	dB
f_N - 0,40 MHz ... f_N - 0,20 MHz		8	15	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		8	15	—	dB
f_N + 0,40 MHz ... f_N + 0,60 MHz		28	34	—	dB
f_N + 0,60 MHz ... f_N + 1,60 MHz		38	44	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		48	53	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	65	—	dB
Impedance at f_N					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	650 || 2,1	—	Ω || pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	650 || 2,1	—	Ω || pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
Frequency inversion point	T_0	—	25	—	°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} = 82 nH
L_{s3} = 82 nH
C_{p4} = 8,2 pF
L_c = 120 nH

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Operating temperature range: T = -20 to +70 °C
Terminating source impedance: Z_S = 650 Ω || -2,1 pF
Terminating load impedance: Z_L = 650 Ω || -2,1 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	225,0	—	MHz
Minimum insertion attenuation					
(including losses in matching circuit)	α_{min}	3,0	4,1	5,5	dB
(excluding losses in matching circuit)		2,0	3,2	4,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 57,5 kHz ... f_N + 62,5 kHz		—	0,5	2,0	dB
f_N - 75,0 kHz ... f_N + 75,0 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 - 85,0 kHz ... f_N + 80,0 kHz		—	0,8	2,0	µs
Relative attenuation (relative to α_{min})	α_{rel}				
f_N - 25,00 MHz ... f_N - 3,00 MHz		50	65	—	dB
f_N - 3,00 MHz ... f_N - 1,60 MHz		48	55	—	dB
f_N - 1,60 MHz ... f_N - 0,60 MHz		38	47	—	dB
f_N - 0,60 MHz ... f_N - 0,40 MHz		28	49	—	dB
f_N - 0,40 MHz ... f_N - 0,20 MHz		6	17	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		6	13	—	dB
f_N + 0,40 MHz ... f_N + 0,60 MHz		28	34	—	dB
f_N + 0,60 MHz ... f_N + 1,60 MHz		38	44	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		48	53	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	65	—	dB
Impedance at f_N					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	650 || 2,1	—	Ω || pF
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Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
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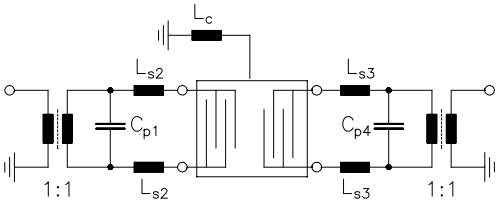

C_{p1} = 8,2 pF
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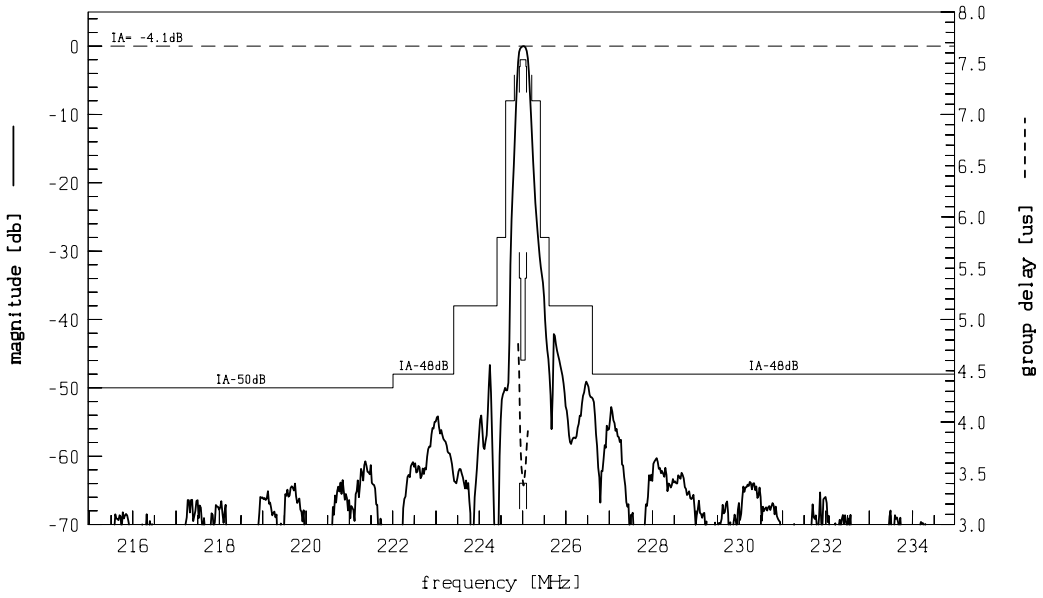
L_{s3} = 82 nH
C_{p4} = 8,2 pF
L_c = 120 nH

Transfer function:



Transfer function (pass band):