Siemens Matsushita Components

SAW Components
Low Loss Filter

B4829
246,0 MHz

Data Sheet

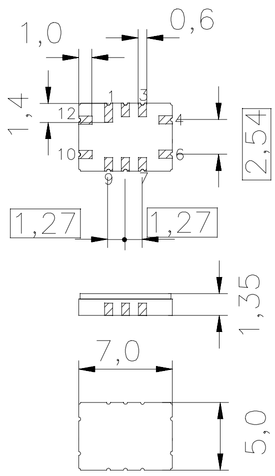
Features

- 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

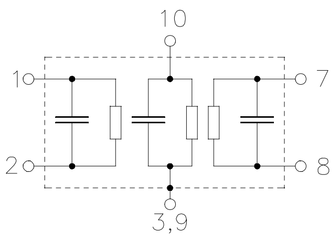
Ceramic package **QCC12B**



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
B4829	B39251-B4829-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}	– 40/+ 90	˚C	
DC voltage	V_{DC}	5	V	
Source power	P_s	10	dBm	

Data Sheet

Characteristics

Reference temperature:	T	= 25 ˚C
Terminating source impedance:	Z_S	= 650 Ω ‖ -2,3 pF
Terminating load impedance:	Z_L	= 650 Ω ‖ -2,3 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	246,01	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{min}	3,0	4,1	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		—	0,3	1,2	µs
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,6	2,0	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		48	71	—	dB
f_N - 1,60 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 + 1,60 MHz		38	50	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		48	65	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	63	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	650 ‖ 2,3	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	650 ‖ 2,3	—	Ω ‖ pF
Temperature coefficient of frequency [1)]	TC_f	—	– 0,036	—	ppm/K^2
Frequency inversion point	T_0	—	20	—	˚C

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

Characteristics

Reference temperature: T = -20 to +70 ˚C
Terminating source impedance: Z_S = 650 Ω || -2,3 pF
Terminating load impedance: Z_L = 650 Ω || -2,3 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	246,00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{min}	3,0	4,1	5,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	2,2	dB
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	3,5	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N - 50,0 kHz ... f_N + 50,0 kHz		—	0,3	1,2	µs
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,6	2,2	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		48	71	—	dB
f_N - 1,60 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		5	19	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		5	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	50	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		48	65	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	63	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	650 || 2,3	—	Ω || pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	650 || 2,3	—	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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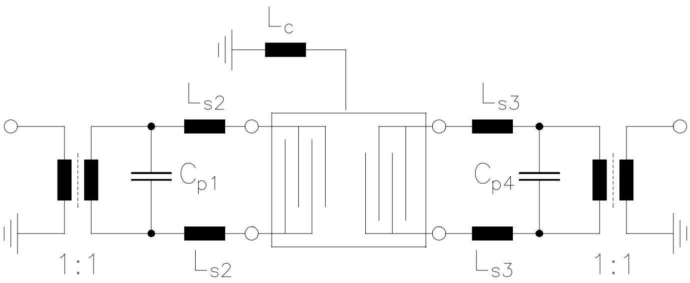
Characteristics

Reference temperature: T = -25 to +85 ˚C
Terminating source impedance: Z_S = 650 Ω || -2,3 pF
Terminating load impedance: Z_L = 650 Ω || -2,3 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	246,00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	α_{min}	3,0	4,1	6,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N - 67,5 kHz ... f_N + 67,5 kHz		—	0,6	3,6	dB
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,8	5,0	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N - 50,0 kHz ... f_N + 50,0 kHz		—	0,3	1,2	µs
f_N - 80,0 kHz ... f_N + 80,0 kHz		—	0,6	2,2	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		48	71	—	dB
f_N - 1,60 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		3,5	19	—	dB
f_N + 0,20 MHz ... f_N + 0,40 MHz		3,5	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	50	—	dB
f_N + 1,60 MHz ... f_N + 3,00 MHz		48	65	—	dB
f_N + 3,00 MHz ... f_N + 25,00 MHz		50	63	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	650 ‖ 2,3	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	650 ‖ 2,3	—	Ω ‖ pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
Frequency inversion point	T_0	—	20	—	˚C

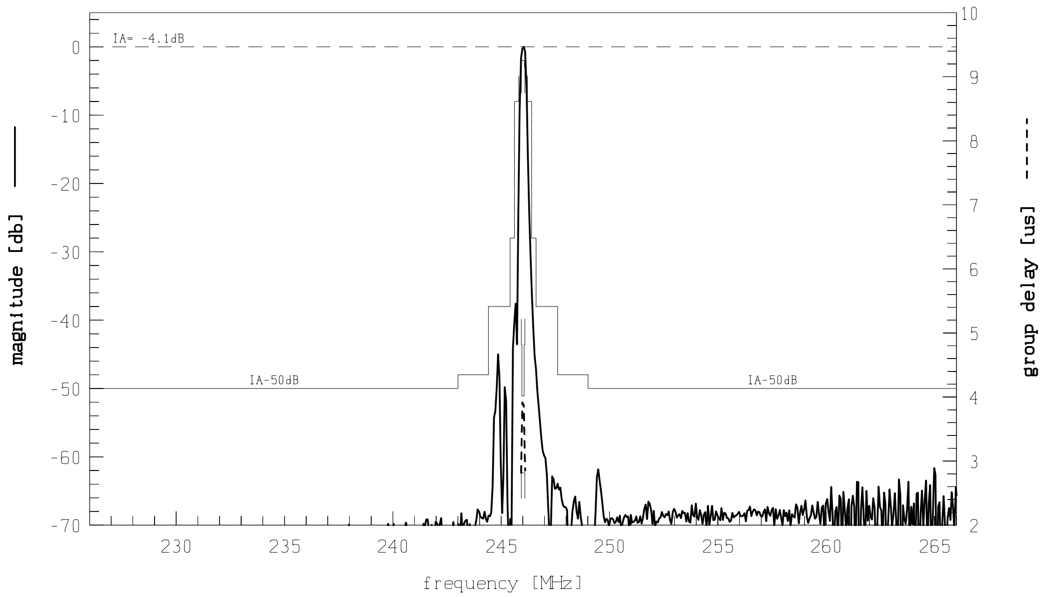
[1] Temperature dependence of f_c: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

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



C_{p1}	=	6,8	pF
L_{s2}	=	68	nH
L_{s3}	=	68	nH
C_{p4}	=	6,8	pF
L_c	=	82	nH

Transfer function:



Transfer function (pass band):