



Siemens Matsushita Components

SAW Components Low Loss Filter

B4829
246,0 MHz

Data Sheet

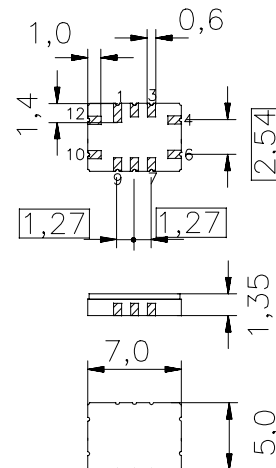
Features

- 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

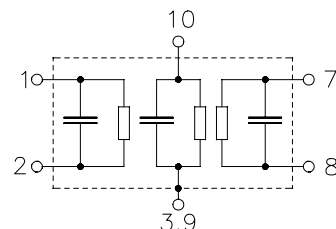
Ceramic package **QCC12B**



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 Sensitive Device (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



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Reference temperature: $T = 25\text{ }^{\circ}\text{C}$
Terminating source impedance: $Z_S = 650\text{ }\Omega \parallel -2,3\text{ pF}$
Terminating load impedance: $Z_L = 650\text{ }\Omega \parallel -2,3\text{ pF}$

		min.	typ.	max.	
Nominal frequency	f_N	—	246,01	—	MHz
Minimum insertion attenuation (including loss in matching elements)	$\alpha_{\min}$	3,0	4,1	5,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N - 67,5\text{ kHz} \dots f_N + 67,5\text{ kHz}$		—	0,6	1,6	dB
$f_N - 80,0\text{ kHz} \dots f_N + 80,0\text{ kHz}$		—	0,8	3,0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N - 50,0\text{ kHz} \dots f_N + 50,0\text{ kHz}$		—	0,3	1,2	μs
$f_N - 80,0\text{ kHz} \dots f_N + 80,0\text{ kHz}$		—	0,6	2,0	μs
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
$f_N - 25,00\text{ MHz} \dots f_N - 3,00\text{ MHz}$		50	71	—	dB
$f_N - 3,00\text{ MHz} \dots f_N - 1,60\text{ MHz}$		48	71	—	dB
$f_N - 1,60\text{ MHz} \dots f_N - 0,60\text{ MHz}$		38	50	—	dB
$f_N - 0,60\text{ MHz} \dots f_N - 0,40\text{ MHz}$		28	41	—	dB
$f_N - 0,40\text{ MHz} \dots f_N - 0,20\text{ MHz}$		8	19	—	dB
$f_N + 0,20\text{ MHz} \dots f_N + 0,40\text{ MHz}$		8	13	—	dB
$f_N + 0,40\text{ MHz} \dots f_N + 0,60\text{ MHz}$		28	34	—	dB
$f_N + 0,60\text{ MHz} \dots f_N + 1,60\text{ MHz}$		38	50	—	dB
$f_N + 1,60\text{ MHz} \dots f_N + 3,00\text{ MHz}$		48	65	—	dB
$f_N + 3,00\text{ MHz} \dots f_N + 25,00\text{ MHz}$		50	63	—	dB
Impedance within the passband					
Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel \text{pF}$
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel \text{pF}$
Temperature coefficient of frequency ¹⁾	TC_f	—	− 0,036	—	ppm/K ²
Frequency inversion point	T_0	—	20	—	$^{\circ}\text{C}$

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



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Reference temperature: $T = -20 \text{ to } +70 \text{ }^{\circ}\text{C}$
Terminating source impedance: $Z_S = 650 \text{ } \Omega \parallel -2,3 \text{ pF}$
Terminating load impedance: $Z_L = 650 \text{ } \Omega \parallel -2,3 \text{ pF}$

		min.	typ.	max.	
Nominal frequency	f_N	—	246,00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	$\alpha_{\min}$	3,0	4,1	5,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N - 67,5 \text{ kHz} \dots f_N + 67,5 \text{ kHz}$		—	0,6	2,2	dB
$f_N - 80,0 \text{ kHz} \dots f_N + 80,0 \text{ kHz}$		—	0,8	3,5	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N - 50,0 \text{ kHz} \dots f_N + 50,0 \text{ kHz}$		—	0,3	1,2	μs
$f_N - 80,0 \text{ kHz} \dots f_N + 80,0 \text{ kHz}$		—	0,6	2,2	μs
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
$f_N - 25,00 \text{ MHz} \dots f_N - 3,00 \text{ MHz}$		50	71	—	dB
$f_N - 3,00 \text{ MHz} \dots f_N - 1,60 \text{ MHz}$		48	71	—	dB
$f_N - 1,60 \text{ MHz} \dots f_N - 0,60 \text{ MHz}$		38	50	—	dB
$f_N - 0,60 \text{ MHz} \dots f_N - 0,40 \text{ MHz}$		28	41	—	dB
$f_N - 0,40 \text{ MHz} \dots f_N - 0,20 \text{ MHz}$		5	19	—	dB
$f_N + 0,20 \text{ MHz} \dots f_N + 0,40 \text{ MHz}$		5	13	—	dB
$f_N + 0,40 \text{ MHz} \dots f_N + 0,60 \text{ MHz}$		28	34	—	dB
$f_N + 0,60 \text{ MHz} \dots f_N + 1,60 \text{ MHz}$		38	50	—	dB
$f_N + 1,60 \text{ MHz} \dots f_N + 3,00 \text{ MHz}$		48	65	—	dB
$f_N + 3,00 \text{ MHz} \dots f_N + 25,00 \text{ MHz}$		50	63	—	dB
Impedance within the passband					
Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel \text{pF}$
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel \text{pF}$
Temperature coefficient of frequency ¹⁾	TC_f	—	- 0,036	—	ppm/K ²
Frequency inversion point	T_0	—	20	—	$^{\circ}\text{C}$

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



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Reference temperature: $T = -25$ to $+85$ °C
Terminating source impedance: $Z_S = 650 \Omega \parallel -2,3$ pF
Terminating load impedance: $Z_L = 650 \Omega \parallel -2,3$ pF

		min.	typ.	max.	
Nominal frequency	f_N	—	246,00	—	MHz
Minimum insertion attenuation (including loss in matching elements)	$\alpha_{\min}$	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 $\alpha_{\min}$)	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: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel$ pF
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	650 $\parallel$ 2,3	—	$\Omega \parallel$ 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 : $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$



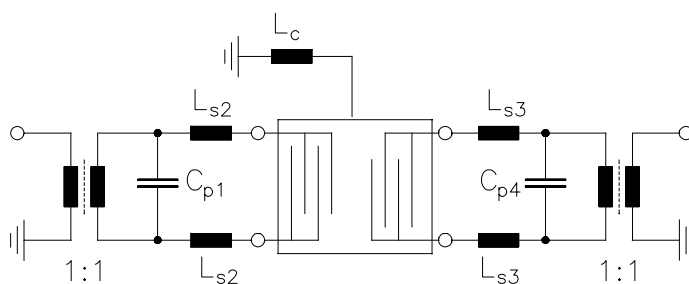
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Test matching network to 50 Ω (element values depend on PCB layout):



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



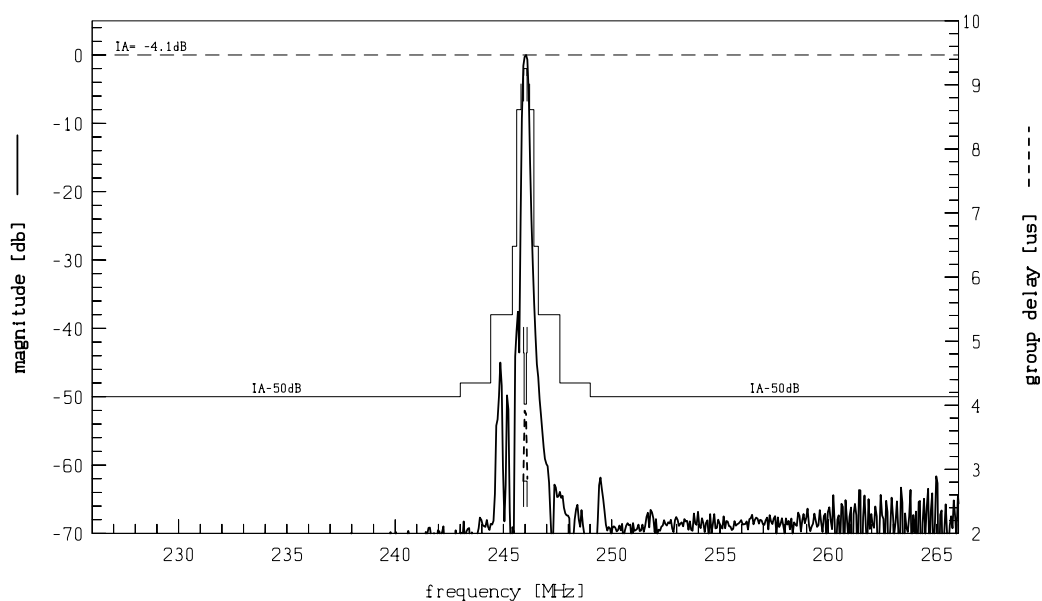
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Transfer function:



Transfer function (pass band):

