



SAW Components

Data Sheet B3891

Data Sheet

EPCOS



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B3891

Low-Loss Filter

71,0 MHz

Data Sheet

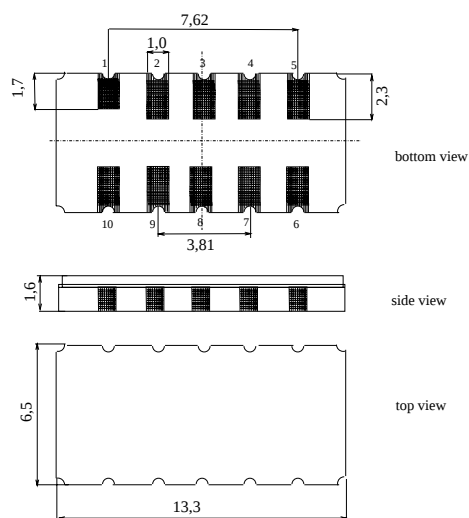
Ceramic package DCC12A

Features

- Low-loss IF filter for GSM/EDGE base station, receive path
- Usable passband 250 kHz
- Balanced or unbalanced operation possible
- Temperature stable
- Ceramic SMD package

Terminals

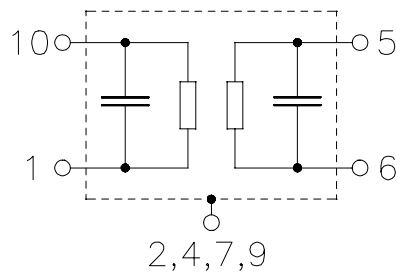
- Gold plated



Dim. in mm, approx. weight 0,4 g

Pin configuration

10, 1	Input
5, 6	Output
3, 8	Ground
2, 4, 7, 9	Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B3891	B39710-B3891-H510	C61157-A7-A94	F61074-V8163-Z000

Electrostatic Sensitive Device (ESD)

Maximum ratings

Operable temperature range	T	-40 / +85	°C
Storage temperature range	T_{stg}	-40 / +85	°C
DC voltage	V_{DC}	0	V
Source power	P_s	10	dBm



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Characteristics

Operating temperature range:	$T = 0 \dots 70 \text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 200 \text{ } \Omega$ balanced and matching network
Terminating load impedance:	$Z_L = 200 \text{ } \Omega$ balanced and matching network

		min.	typ.	max.	
Nominal frequency	f_N	—	71,0	—	MHz
Minimum insertion attenuation (including matching network)	$\alpha_{\min}$	—	6,5	8,0	dB
Passband width	$B_{1,0\text{dB}}$	250	290	—	kHz
	$\alpha_{\text{rel}} \leq 1 \text{ dB}$				
Amplitude ripple	$\Delta\alpha$	—	0,6	$\pm 1,0$	dB
	$f_N \pm 125 \text{ kHz}$				
Absolute group delay (at f_N)	τ_N	1,9	2,1	2,3	μs
Group delay ripple (p-p)	$\Delta\tau$	—	0,5	1,5	μs
	$f_N \pm 125 \text{ kHz}$				
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
$f_N \pm 300 \text{ kHz} \dots f_N \pm 500 \text{ kHz}$		14	18	—	dB
$f_N \pm 500 \text{ kHz} \dots f_N \pm 700 \text{ kHz}$		30	35	—	dB
$f_N \pm 700 \text{ kHz} \dots f_N \pm 3 \text{ MHz}$		39	45	—	dB
@ $f_N \pm 800 \text{ kHz}$		41	45	—	dB
$f_N \pm 3 \text{ MHz} \dots f_N \pm 35 \text{ MHz}$		43	60	—	dB
IM3 level	$IM3$				
$f_1 = f_N - 0,8 \text{ MHz}$, input power -14 dBm $f_2 = f_N - 1,6 \text{ MHz}$, input power -14 dBm @ f_N		—	—	-95	dBm
$f_1 = f_N + 0,8 \text{ MHz}$, input power -14 dBm $f_2 = f_N + 1,6 \text{ MHz}$, input power -14 dBm @ f_N		—	—	-95	dBm
Temperature coefficient of frequency ¹⁾	TC_f	—	- 0,036	—	ppm/K ²
Turnover temperature	T_0	—	25	—	$^{\circ}\text{C}$

¹⁾ Temperature dependance of f_c : $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$



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Characteristics (extended temperature range)

Operating temperature range:	$T = -40 \dots +85 \text{ }^{\circ}\text{C}$
Terminating source impedance:	$Z_S = 200 \text{ } \Omega$ balanced and matching network
Terminating load impedance:	$Z_L = 200 \text{ } \Omega$ balanced and matching network

		min.	typ.	max.	
Nominal frequency	f_N	—	71,0	—	MHz
Minimum insertion attenuation (including matching network)	$\alpha_{\min}$	—	6,5	8,5	dB
Passband width $\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1,0\text{dB}}$	250	290	—	kHz
Amplitude ripple (p-p) $f_N \pm 125 \text{ kHz}$	$\Delta\alpha$	—	0,6	$\pm 1,5$	dB
Absolute group delay (at f_N)	τ_N	1,9	2,1	2,3	μs
Group delay ripple (p-p) $f_N \pm 125 \text{ kHz}$	$\Delta\tau$	—	0,5	1,5	μs
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
$f_N \pm 300 \text{ kHz} \dots f_N \pm 500 \text{ kHz}$		12	18	—	dB
$f_N \pm 500 \text{ kHz} \dots f_N \pm 700 \text{ kHz}$		30	35	—	dB
$f_N \pm 700 \text{ kHz} \dots f_N \pm 3 \text{ MHz}$		39	45	—	dB
@ $f_N \pm 800 \text{ kHz}$		41	45	—	dB
$f_N \pm 3 \text{ MHz} \dots f_N \pm 35 \text{ MHz}$		43	60	—	dB
IM3 level	$IM3$				
$f_1 = f_N - 0,8 \text{ MHz}$, input power -14 dBm $f_2 = f_N - 1,6 \text{ MHz}$, input power -14 dBm @ f_N		—	—	-95	dBm
$f_1 = f_N + 0,8 \text{ MHz}$, input power -14 dBm $f_2 = f_N + 1,6 \text{ MHz}$, input power -14 dBm @ f_N		—	—	-95	dBm
Temperature coefficient of frequency ¹⁾	TC_f	—	- 0,036	—	ppm/K ²
Turnover temperature	T_0	—	25	—	$^{\circ}\text{C}$

¹⁾ Temperature dependance of f_c : $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$



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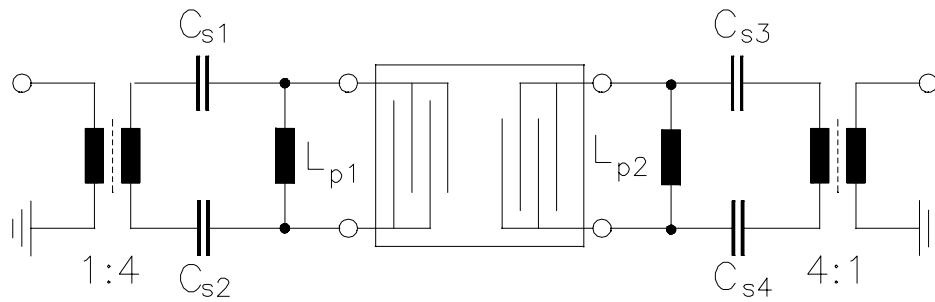
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Matching network to 200 Ω

Transformers are only required for measurement in a 50 Ω environment



$$C_{s1} = C_{s2} = 12 \text{ pF}$$

$$L_{p1} = 220 \text{ nH}$$

$$C_{s3} = C_{s4} = 18 \text{ pF}$$

$$L_{p2} = 180 \text{ nH}$$

Element values depend upon board layout



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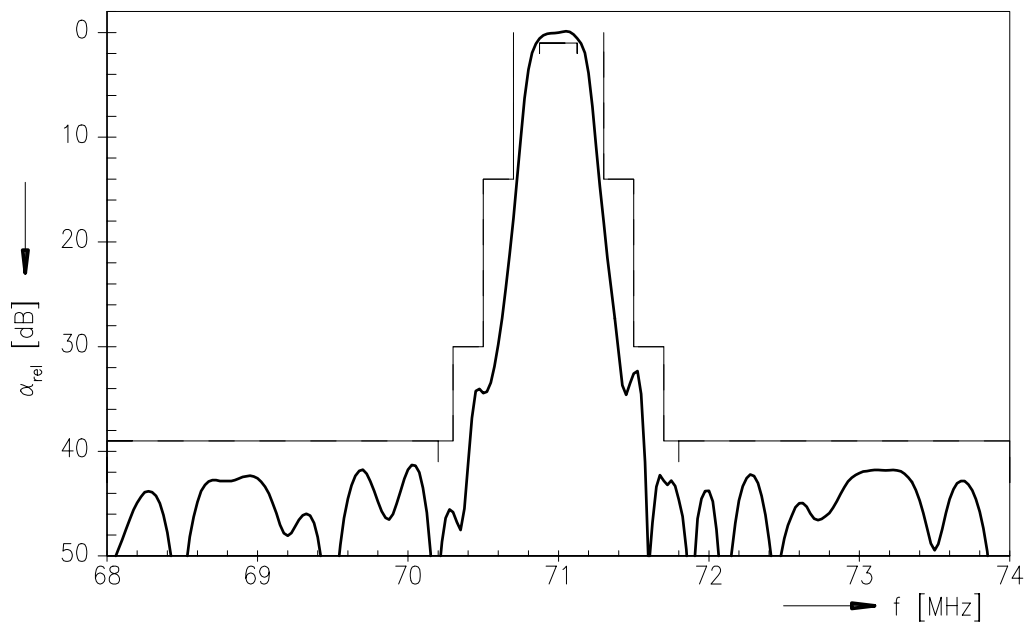
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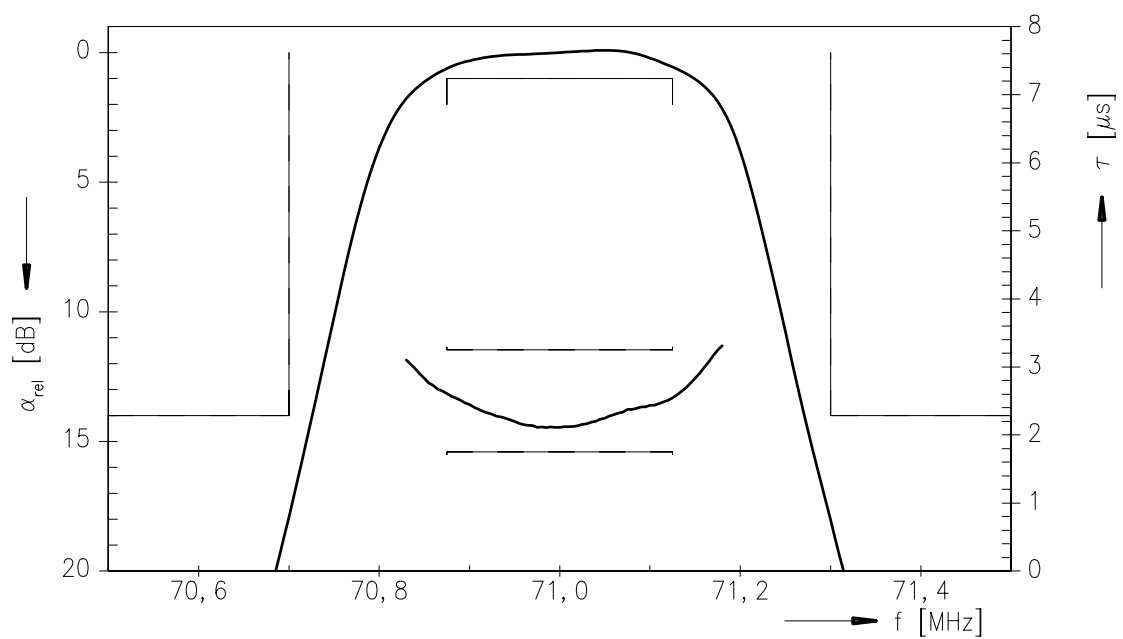
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Normalized frequency response



Normalized frequency response (pass band)





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