



SAW Components

Data Sheet B3804

Data Sheet

An abstract, grayscale background graphic featuring a globe with a grid pattern. Overlaid on the globe is a large, stylized, 3D-effect word "EPCOS" in a light gray color. The word is tilted and appears to be floating or emerging from the globe. The overall image has a soft, ethereal quality with some light flares and a dark, smoky background.

EPCOS



SAW Components

B3804

Low-Loss Filter

170,2 MHz

Data Sheet

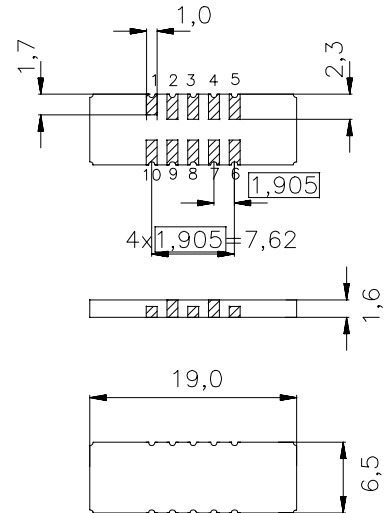
Features

- Low-loss IF filter for GSM base station
- Temperature stable
- Ceramic SMD package

Terminals

- Gold plated

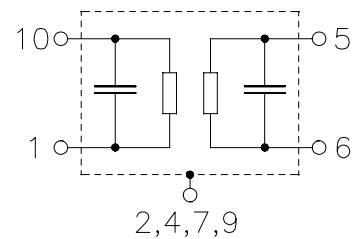
Ceramic package DCC18



Dimensions in mm, approx. weight 0,8 g

Pin configuration

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



Type	Ordering code	Marking and Package according to	Packing according to
B3804	B39171-B3804-U210	C61157-A7-A54	F61074-V8081-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: $T = -10 \dots 85 \text{ }^{\circ}\text{C}$

Terminating source impedance: $Z_S = 50 \text{ } \Omega$ unbalanced or $200 \text{ } \Omega$ balanced and matching network

Terminating load impedance: $Z_L = 50 \text{ } \Omega$ unbalanced or $200 \text{ } \Omega$ balanced and matching network

		min.	typ.	max.	
Nominal frequency	f_N	—	170,2	—	MHz
Minimum insertion attenuation	$\alpha_{\min}$	—	6,5	7,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
	$f_N \pm 135 \text{ kHz}$	—	0,35	0,7	dB
Group delay ripple (p-p)	$\Delta\tau$				
	$f_N \pm 135 \text{ kHz}$	—	0,35	0,7	μs
Relative attenuation (relative to $\alpha_{\min}$)	α_{rel}				
$f_N \pm 0,35 \text{ MHz} \dots f_N \pm 0,6 \text{ MHz}$		7	11	—	dB
$f_N \pm 0,6 \text{ MHz} \dots f_N \pm 0,8 \text{ MHz}$		24	30	—	dB
$f_N \pm 0,8 \text{ MHz} \dots f_N \pm 1,6 \text{ MHz}$		40	45	—	dB
$f_N \pm 1,6 \text{ MHz} \dots f_N \pm 20,0 \text{ MHz}$		43	50	—	dB
$f_N \pm 20,0 \text{ MHz} \dots f_N \pm 35,0 \text{ MHz}$		50	55	—	dB
$f_N \pm 35,0 \text{ MHz} \dots f_N \pm 75,0 \text{ MHz}$		45	60	—	dB
$f_N + 23,5 \text{ MHz} \dots f_N + 23,7 \text{ MHz}$		55	60	—	dB
$f_N + 75,0 \text{ MHz} \dots f_N + 2,0 \text{ GHz}$		40	60	—	dB
VSWR (Input and output)	$f_N \pm 135 \text{ kHz}$	—	1,5	2,0	
Temperature coefficient of frequency ¹⁾	TC_f	—	-0,036	—	ppm/K ²
Turnover temperature	T_0	—	45	—	$^{\circ}\text{C}$

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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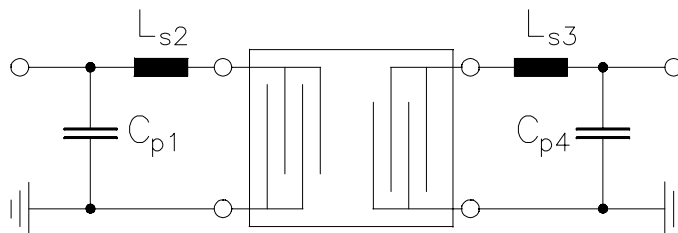
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Matching network to 50 Ω unbalanced

(Element values depend upon PCB layout)



$$C_{p1} = 36,3 \text{ pF}$$

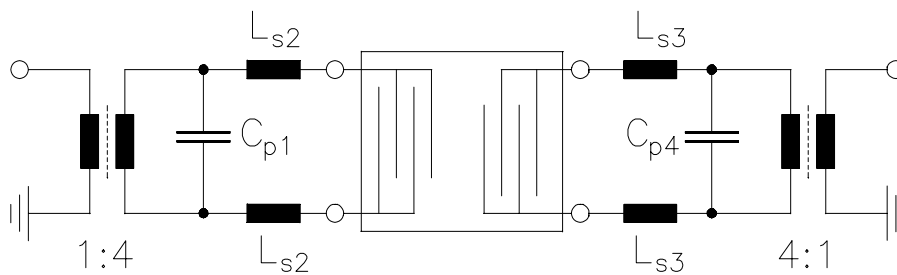
$$L_{s2} = 39,0 \text{ nH}$$

$$L_{s3} = 39,0 \text{ nH}$$

$$C_{p4} = 36,3 \text{ pF}$$

Matching network to 200 Ω balanced

(Element values depend upon PCB layout)



$$C_{p1} = 17,7 \text{ pF}$$

$$L_{s2} = 27,0 \text{ nH}$$

$$L_{s3} = 27,0 \text{ nH}$$

$$C_{p4} = 17,7 \text{ pF}$$



SAW Components

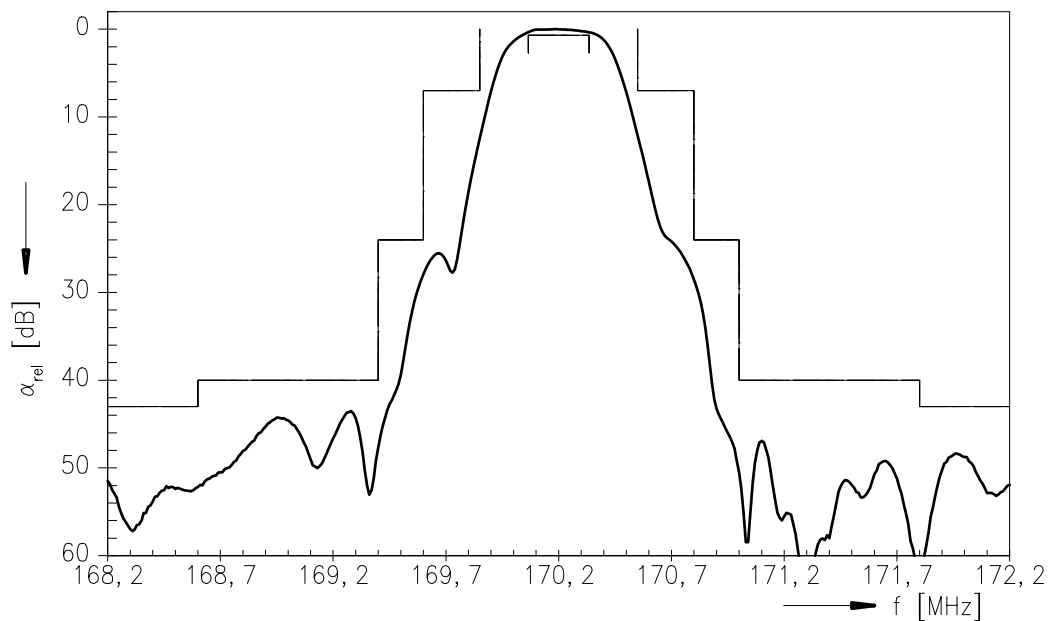
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Low-Loss Filter

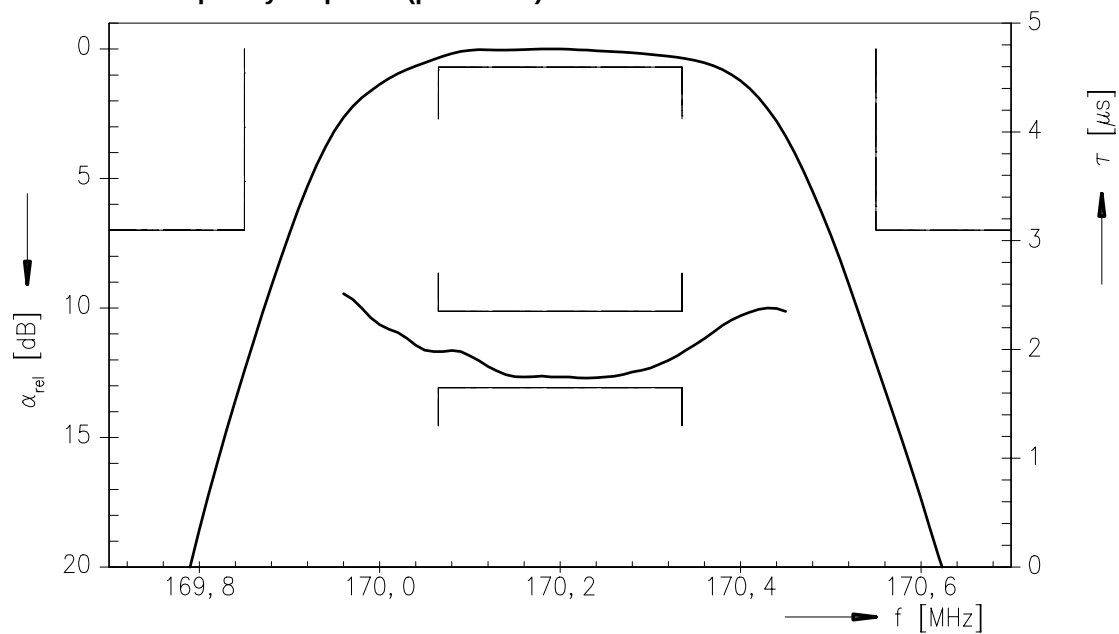
170,2 MHz

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Normalized frequency response



Normalized frequency response (passband)





SAW Components

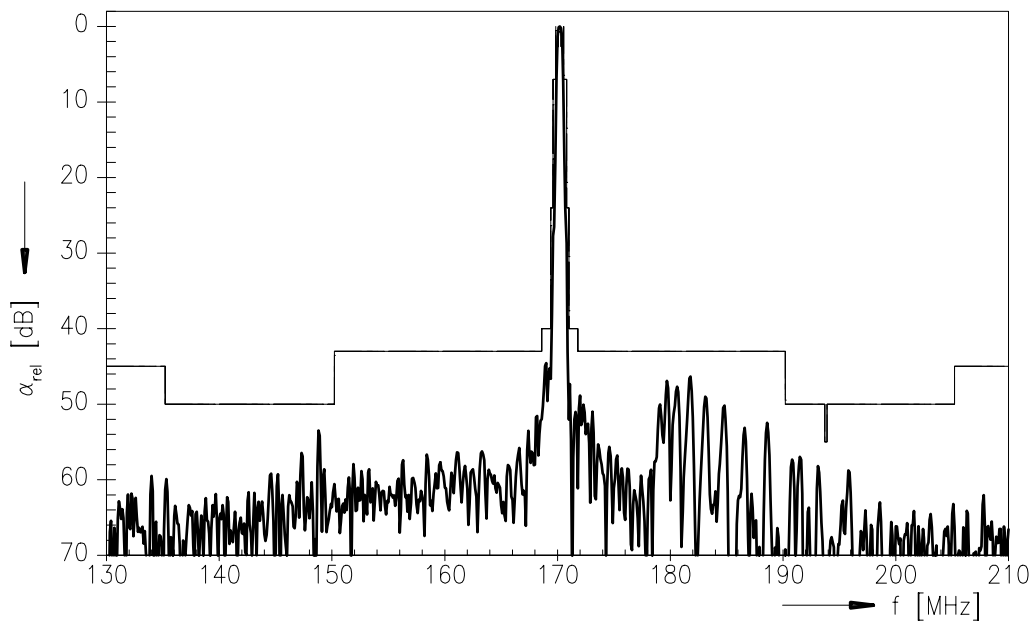
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Transfer function





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