



# SAW Components

Data Sheet B3804

Data Sheet

A large, stylized, 3D-rendered graphic of the word "EPCOS" in a light gray, sans-serif font. The letters are tilted and appear to be floating or emerging from a dark, textured background that resembles a globe or a complex circuit board. The lighting creates a sense of depth and movement.



## SAW Components

**B3804**

## Low-Loss Filter

**170,2 MHz**

### Data Sheet

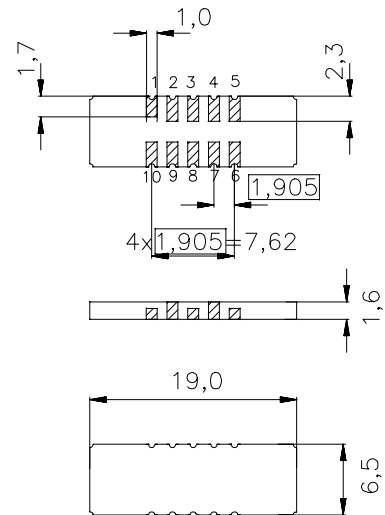
#### Features

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

#### Terminals

- Gold plated

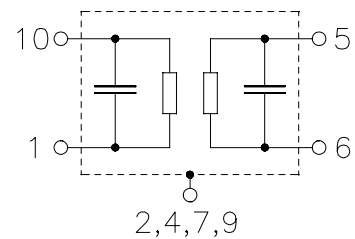
#### Ceramic package DCC18



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.	
<b>Nominal frequency</b>	$f_N$	—	170,2	—	MHz
<b>Minimum insertion attenuation</b>	$\alpha_{\min}$	—	6,5	7,5	dB
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
	$f_N \pm 135 \text{ kHz}$	—	0,35	0,7	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
	$f_N \pm 135 \text{ kHz}$	—	0,35	0,7	$\mu\text{s}$
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_N \pm 0,35 \text{ MHz} \dots f_N \pm 0,6 \text{ MHz}$		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
<b>VSWR (Input and output)</b>	$f_N \pm 135 \text{ kHz}$	—	1,5	2,0	
<b>Temperature coefficient of frequency <sup>1)</sup></b>	$TC_f$	—	-0,036	—	ppm/K <sup>2</sup>
<b>Turnover temperature</b>	$T_0$	—	45	—	$^{\circ}\text{C}$

<sup>1)</sup> 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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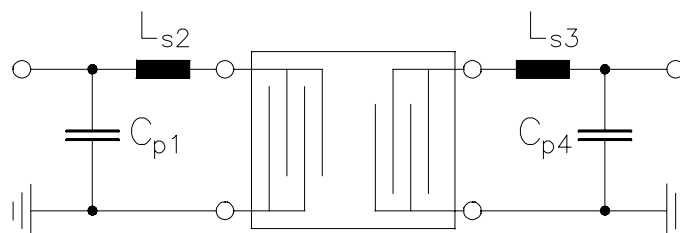
### Low-Loss Filter

170,2 MHz

#### Data Sheet

#### Matching network to 50 $\Omega$ unbalanced

(Element values depend upon PCB layout)



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

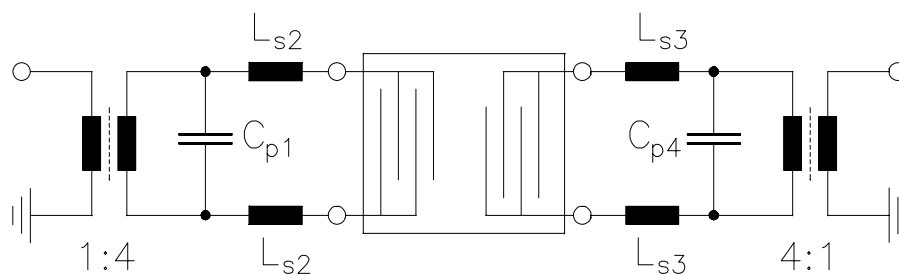
$$L_{s2} = 39,0 \text{ nH}$$

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

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

#### Matching network to 200 $\Omega$ 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

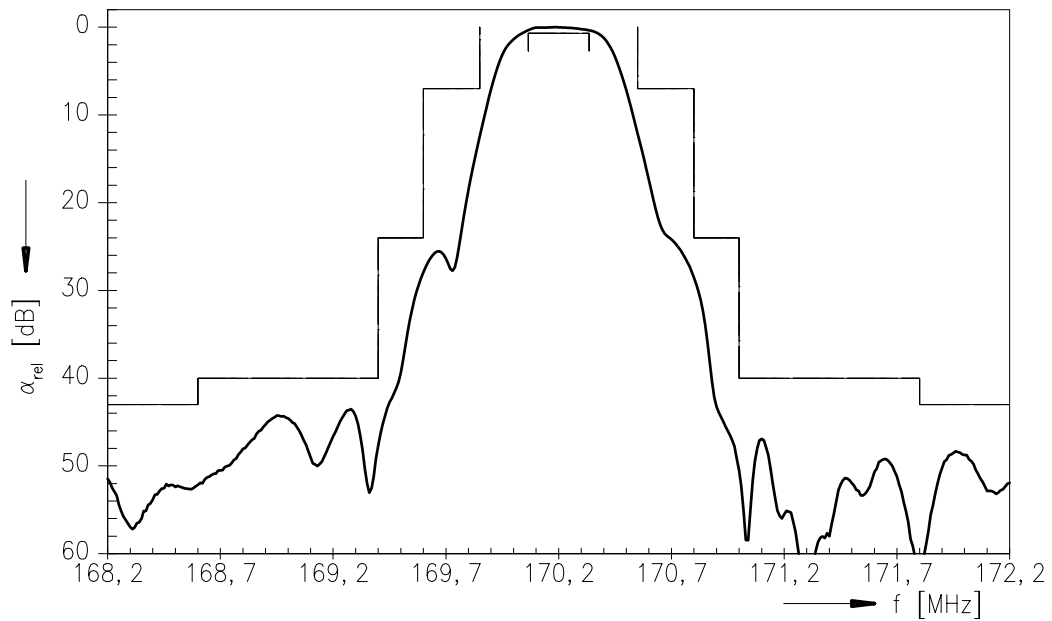
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Low-Loss Filter

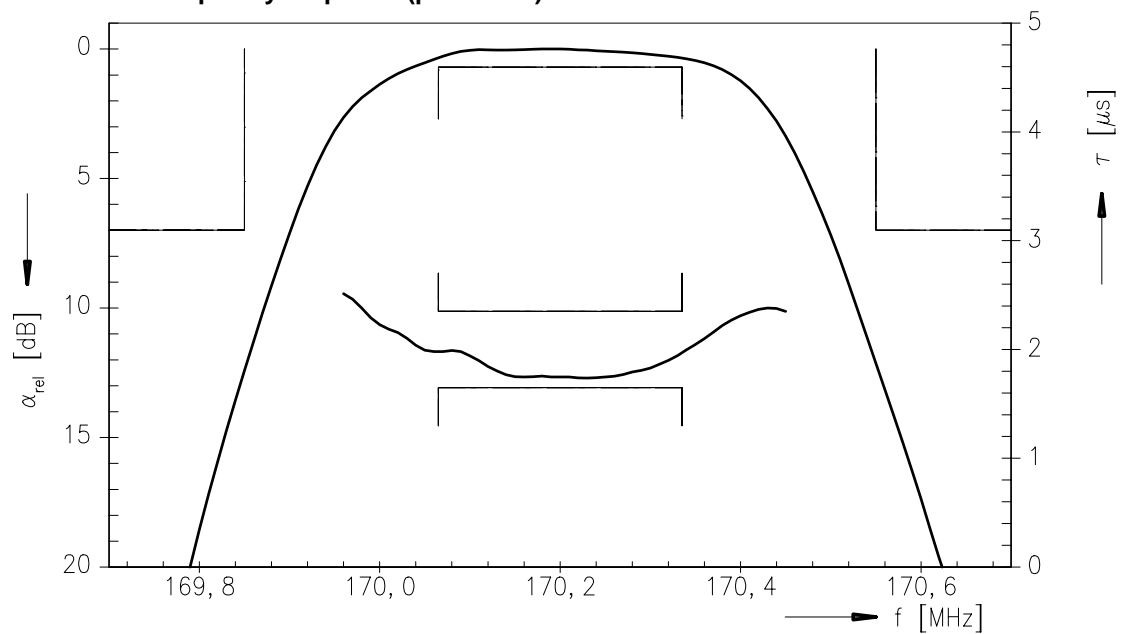
170,2 MHz

Data Sheet

Normalized frequency response



Normalized frequency response (passband)





SAW Components

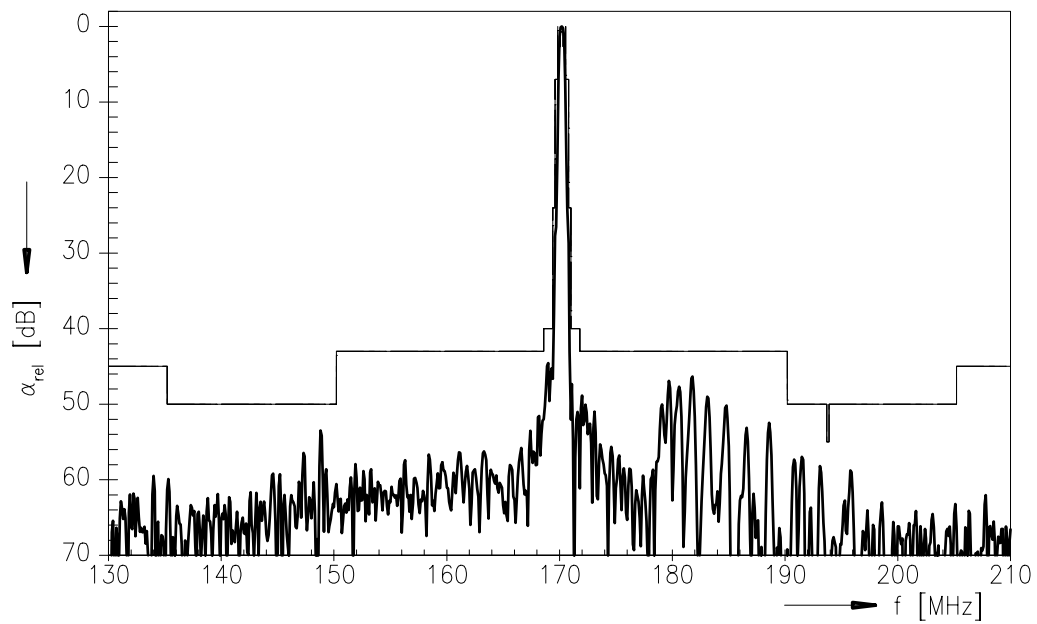
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Low-Loss Filter

170,2 MHz

Data Sheet

Transfer function





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