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# *SAW Components*

*Data Sheet B3571*

Data Sheet

A large, stylized, 3D-rendered graphic of the EPCOS logo. The letters "EPCOS" are rendered in a white, glowing, sans-serif font, appearing to be part of a larger, curved structure that resembles a globe or a stylized wave. The background is dark and textured.



**SAW Components**

**B3571**

**Low-loss Filter**

**868,60 MHz**

**Data Sheet**

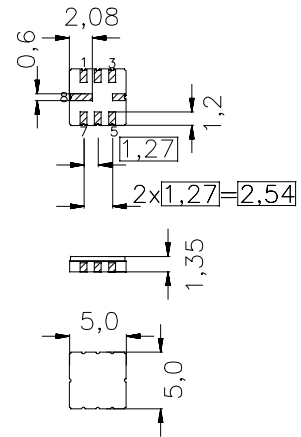
Ceramic package **QCC8C**

**Features**

- RF low-loss filter for remote control receivers
- Package for **Surface Mounted Technology (SMT)**

**Terminals**

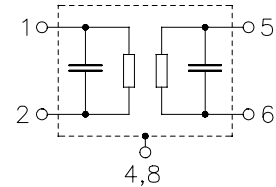
- Ni, gold plated



typ. dimensions in mm, approx. weight 0,1 g

**Pin configuration**

- 2 Input
- 1,3 Input Ground
- 6 Output
- 5,7 Output Ground
- 4,8 Case - Ground



Type	Ordering code	Marking and package according to	Packing according to
B3571	B39871-B3571-U310	C61157-A7-A56	F61074-V8070-Z000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T_A$	-45/+90	°C	source impedance 50 $\Omega$
Storage temperature range	$T_{stg}$	-45/+90	°C	
DC voltage	$V_{DC}$	0	V	
Source power	$P_S$	0	dBm	



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**Characteristics**

Reference temperature:  $T_A = 25\text{ °C}$   
 Terminating source impedance:  $Z_S = 50\ \Omega$  and matching network  
 Terminating load impedance:  $Z_L = 50\ \Omega$  and matching network

		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Center frequency</b> (center frequency between 3 dB points)	$f_C$	—	868,69	—	MHz
<b>Minimum insertion attenuation</b> 868,00 ... 869,38 MHz	$\alpha_{\min}$	—	3,1	4,6	dB
<b>Pass band</b> (relative to $\alpha_{\min}$ ) 868,00 ... 869,38 MHz		—	1,5	3,0	dB
867,92 ... 869,46 MHz		—	2,0	6,0	dB
<b>Relative attenuation</b> (relative to $\alpha_{\min}$ )	$\alpha_{\text{rel}}$				
10,00 ... 700,00 MHz		50	55	—	dB
700,00 ... 830,00 MHz		33	38	—	dB
830,00 ... 858,00 MHz		30	35	—	dB
858,00 ... 866,40 MHz		20	25	—	dB
871,00 ... 880,00 MHz		17	22	—	dB
880,00 ... 910,00 MHz		30	35	—	dB
910,00 ... 1000,00 MHz		33	38	—	dB
<b>Impedance</b> for pass band matching <sup>2)</sup> Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$ Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	226    2,30 222    2,20	—	$\Omega \parallel \text{pF}$ $\Omega \parallel \text{pF}$
<b>Temperature coefficient of frequency</b> <sup>1)</sup>	$TC_f$	—	-0,03	—	ppm/K <sup>2</sup>
<b>Frequency inversion point</b>	$T_0$	—	25	—	°C

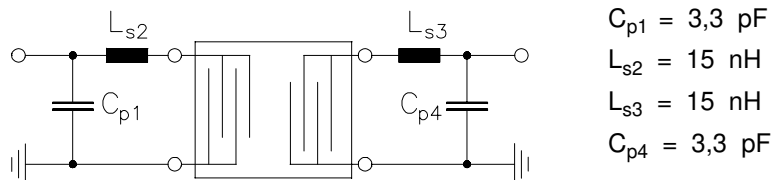
<sup>1)</sup>Temperature dependence of  $f_C$ :  $f_C(T_A) = f_C(T_0) (1 + TC_f(T_A - T_0)^2)$

<sup>2)</sup> Impedance for passband matching bases on an ideal, perfect matching of the SAW filter to source- and to load impedance (here 50 Ohm). After the SAW filter is removed and input impedance into the input matching / output matching network is calculated.

The conjugate complex value of these characteristic impedances are the input and output impedances for flat passband. For more details, we refer to EPCOS application note #4.

**Data Sheet**

**Matching network to 50  $\Omega$**  (element values depend on pcb layout and equivalent circuit)

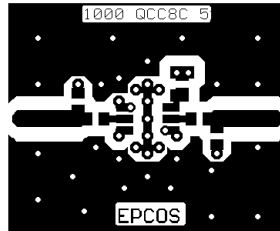


Minimising the crosstalk

For a good ultimate rejection a low crosstalk is necessary. Low crosstalk can be realised with a good RF layout.

Grounding pins for input transducer are pin 1,3 and for output transducer 5,7. Close to those pins via holes (through holes) should be placed to achieve a low impedance path to system ground. If a grounding plane at the top side of the PCB is present, the grounding plane can be connected to pin 1,3,5,7 at the top side too.

The optimised PCB layout, including matching network for transformation to 50 Ohm, is shown here.



Optimised PCB layout for SAW filters in QCC8C package, pinning 2,6 (top side, scale 1:1)

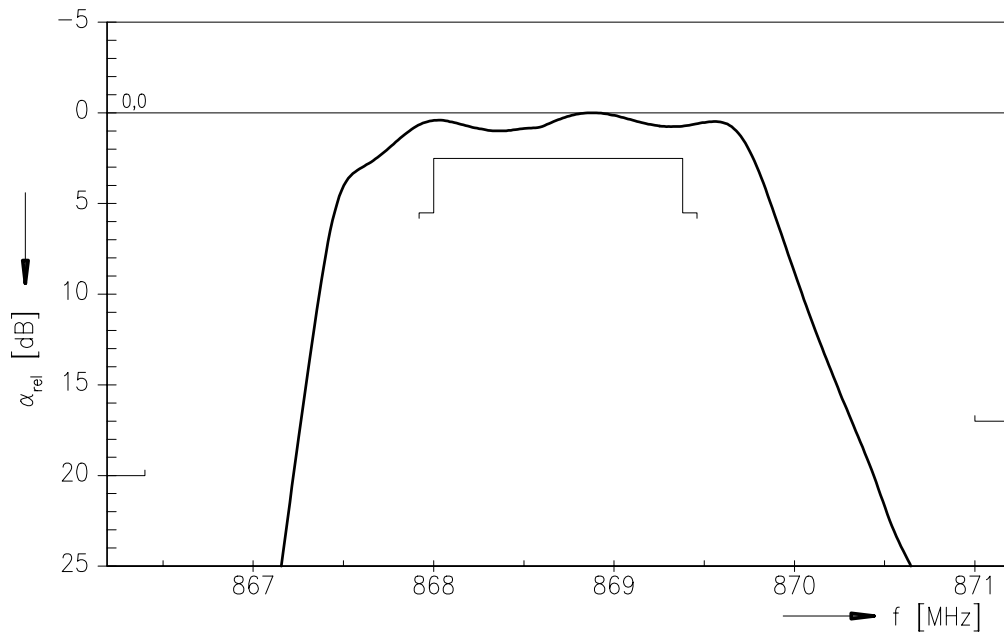
The bottom side is a copper plane (system ground area).

For good contact of the upper grounding area with the lower side it is necessary to place enough via holes.

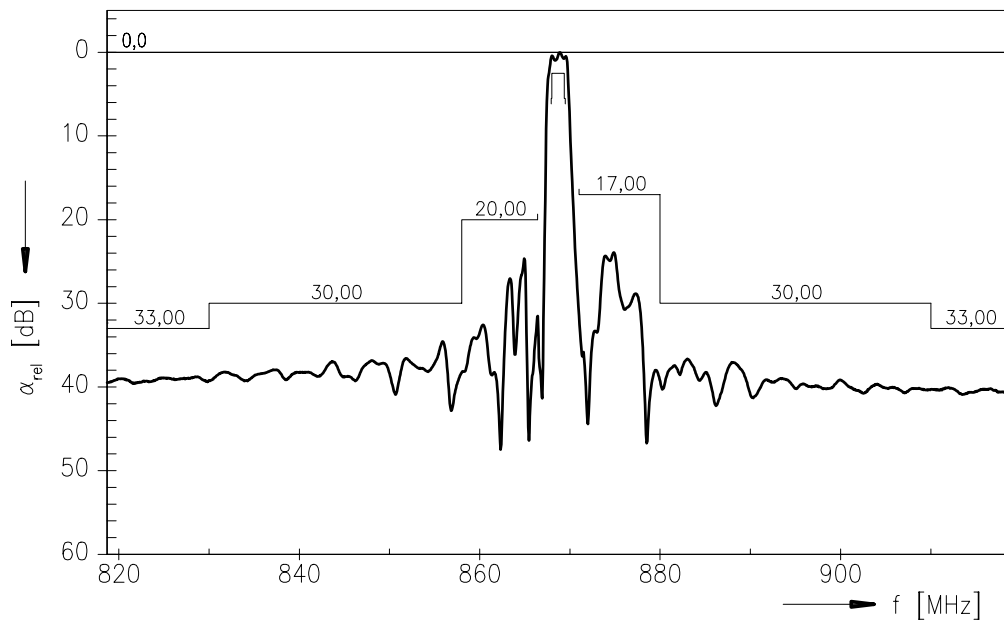


Data Sheet

Normalized frequency response



Normalized frequency response (wideband)





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