EPCOS

SAW Components

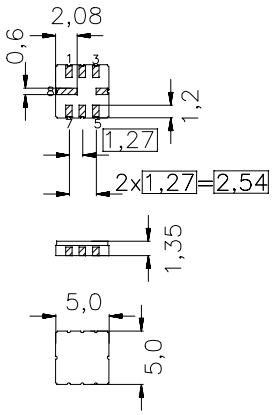
Data Sheet B3571

Data Sheet

Ceramic package **QCC8C**

Features

- RF low-loss filter for remote control receivers
- Package for **S**urface **M**ounted **T**echnology (**SMT**)



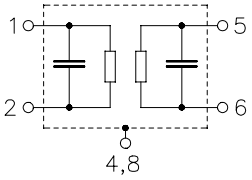
typ. dimensions in mm, approx. weight 0,1 g

Terminals

- Ni, gold plated

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

Electrostactic **S**ensitive **D**evice (**ESD**)

Maximum ratings

Operable temperature range	T_A	–45/+90	˚C	
Storage temperature range	T_{stg}	–45/+90	˚C	
DC voltage	V_{DC}	0	V	
Source power	P_S	0	dBm	source impedance 50 Ω

Data Sheet

Characteristics

Reference temperature: T_A = 25 °C
Terminating source impedance: Z_S = 50 Ω and matching network
Terminating load impedance: Z_L = 50 Ω and matching network

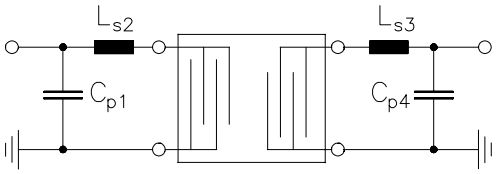
		min.	typ.	max.	
Center frequency (center frequency between 3 dB points)	f_C	—	868,69	—	MHz
Minimum insertion attenuation	α_{min}				
868,00 ... 869,38 MHz		—	3,1	4,6	dB
Pass band (relative to α_{min})					
868,00 ... 869,38 MHz		—	1,5	3,0	dB
867,92 ... 869,46 MHz		—	2,0	6,0	dB
Relative attenuation (relative to α_{min})	α_{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
Impedance for pass band matching [2]					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	226 ‖ 2,30	—	Ω ‖ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	222 ‖ 2,20	—	Ω ‖ pF
Temperature coefficient of frequency [1]	TC_f	—	–0,03	—	ppm/K²
Frequency inversion point	T_0	—	25	—	°C

[1] Temperature dependence of f_C: $f_C(T_A) = f_C(T_0)\ (1 + TC_f(T_A - T_0)^2)$

[2] 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.

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



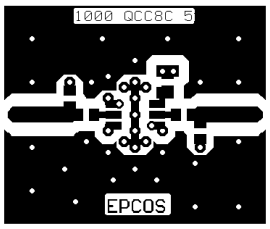
C_{p1} = 3,3 pF
L_{s2} = 15 nH
L_{s3} = 15 nH
C_{p4} = 3,3 pF

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.

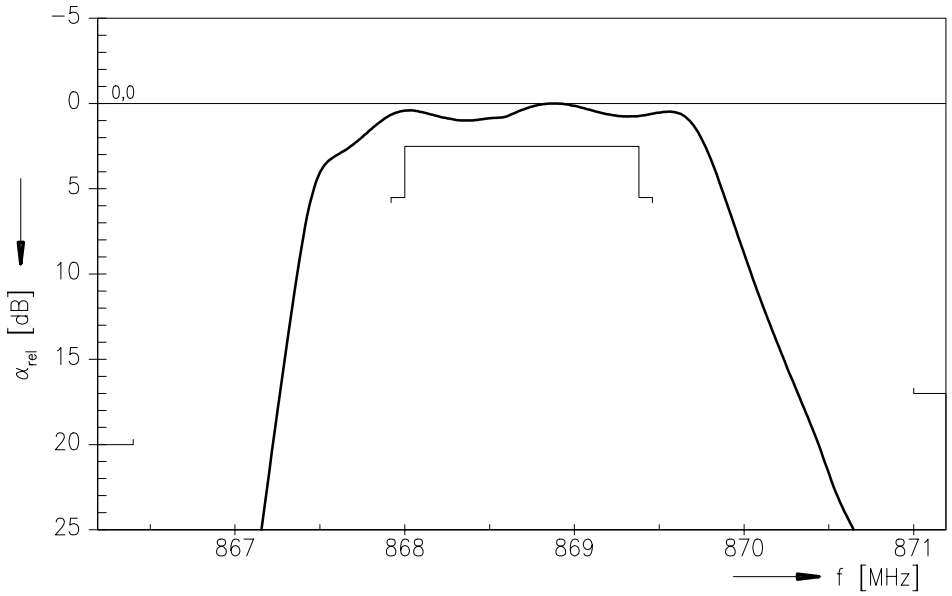


Optimised PCB layout for SAW filters in QCC8C package, pinning 2,6 (top side, scale 1:1)

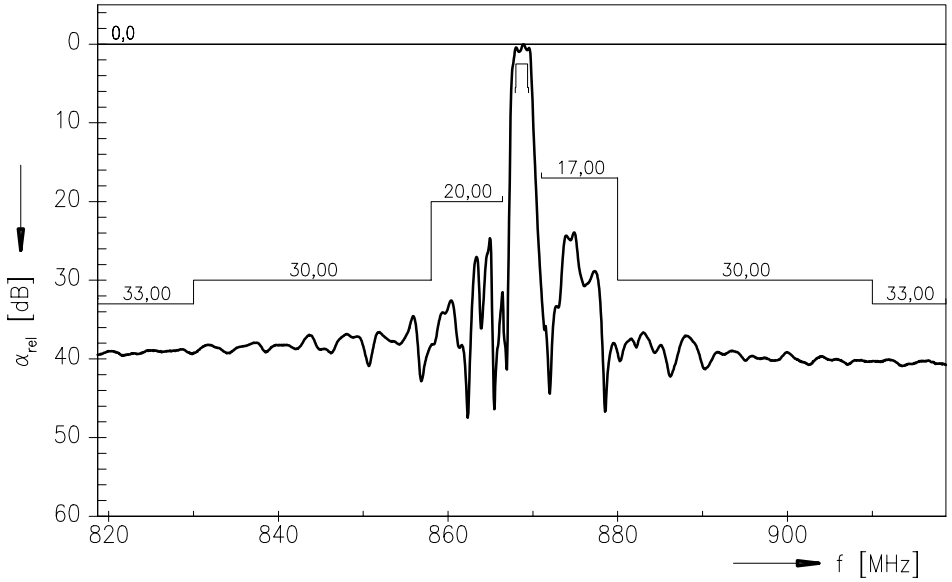
The bottom side is a copper plane (system ground area).

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

Normalized frequency response



Normalized frequency response (wideband)



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