



SAW Components

Data Sheet B3555





SAW Components

B3555

Low-loss Filter

433,92 MHz

Data Sheet

Ceramic package **QCC8C**

Features

- RF low-loss filter for remote control receivers
- Package for **Surface Mounted Technology (SMT)**
- Balanced and unbalanced operation possible

Terminals

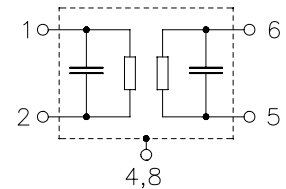
- Ni, gold plated



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

Pin configuration

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



| Type | Ordering code | Marking and package according to | Packing according to |
|-------|-------------------|----------------------------------|----------------------|
| B3555 | B39431-B3555-U310 | C61157-A7-A356 | F61074-V8070-Z000 |

Electrostatic Sensitive Device (ESD)

Maximum ratings

| | | | | |
|----------------------------|-----------|----------|-----|------------------------------|
| Operable temperature range | T_A | -45/+120 | °C | source impedance 50 Ω |
| Storage temperature range | T_{stg} | -45/+120 | °C | |
| DC voltage | V_{DC} | 0 | V | |
| Source power | P_S | 10 | dBm | |


SAW Components
B3555
Low-loss Filter
433,92 MHz
Data Sheet
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

| | | min. | typ. | max. | |
|--|-----------------------|------|---------------------|------|------------------------------|
| Center frequency (center frequency between 3 dB points) | f_C | — | 433,96 | — | MHz |
| Minimum insertion attenuation 433,80 ... 434,12 MHz | α_{\min} | — | 2,2 | 4,0 | dB |
| Pass band (relative to α_{\min}) | | | | | |
| 433,715 ... 434,205 MHz | | — | 1,0 | 2,0 | dB |
| 433,675 ... 434,245 MHz | | — | 1,0 | 3,0 | dB |
| 433,615 ... 434,305 MHz | | — | 2,0 | 6,0 | dB |
| Relative attenuation (relative to α_{\min}) | α_{rel} | | | | |
| 10,00 ... 400,00 MHz | | 40 | 50 | — | dB |
| 400,00 ... 429,10 MHz | | 38 | 45 | — | dB |
| 429,10 ... 430,70 MHz | | 20 | 30 | — | dB |
| 430,70 ... 432,00 MHz | | 35 | 45 | — | dB |
| 435,30 ... 436,80 MHz | | 15 | 25 | — | dB |
| 436,80 ... 438,40 MHz | | 8 | 13 | — | dB |
| 438,40 ... 450,00 MHz | | 24 | 32 | — | dB |
| 450,00 ... 600,00 MHz | | 38 | 48 | — | dB |
| Impedance for pass band matching ²⁾ | | | | | |
| Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$ | | — | 225 \parallel 3,4 | — | $\Omega \parallel \text{pF}$ |
| Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$ | | — | 225 \parallel 3,4 | — | $\Omega \parallel \text{pF}$ |
| Temperature coefficient of frequency ¹⁾ | TC_f | — | -0,03 | — | ppm/K ² |
| Frequency inversion point | T_0 | — | 25 | — | °C |

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

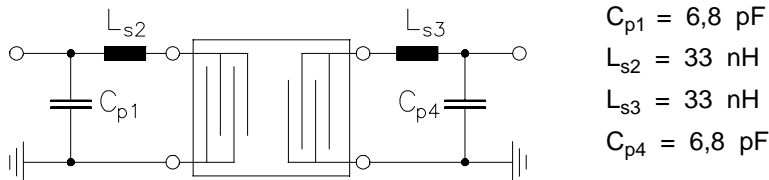
²⁾ Impedance for passband matching bases on an ideal, perfect matching of the SAW filter to source- and to load impedance (here 50 Ohm). After the SAW filter is removed and input impedance into the input matching / output matching network is calculated.

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.



Data Sheet

Matching network to 50 Ω (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. The major crosstalk mechanism is caused by the “ground-loop” problem.

Grounding loops are created if input-and output transducer GND are connected on the top-side of the PCB and fed to the system grounding plane by a common via hole. To avoid the common ground path, the ground pin of the input- and output transducer are fed to the system ground plane (bottom PCB plane) by their own via hole. The transducers’ grounding pins should be isolated from the upper grounding plane.

A common GND inductivity of 0.5nH degrades the ultimate rejection (crosstalk) by 20dB.

The optimised PCB layout, including matching network for transformation to 50 Ohm, is shown here. In this PCB layout the grounding loops are minimised to realise good ultimate rejection.



Optimised PCB layout for SAW filters in QCC8C package, pinning 2,5 (top side, scale 1:1)

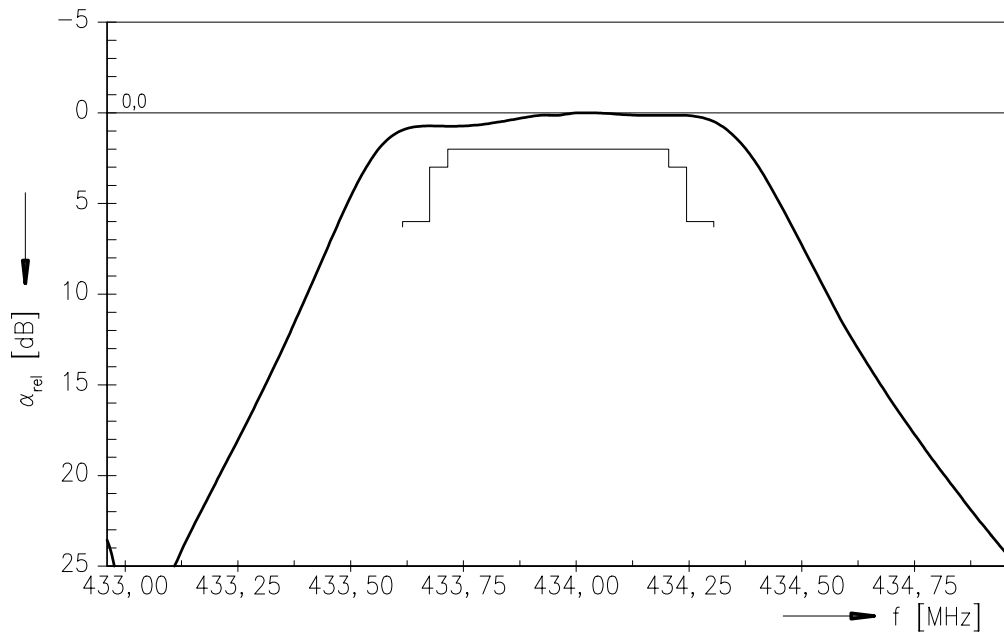
The bottom side is a copper plane (system ground area). The input and output grounding pins are isolated and connected to the common ground by separated via holes.

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

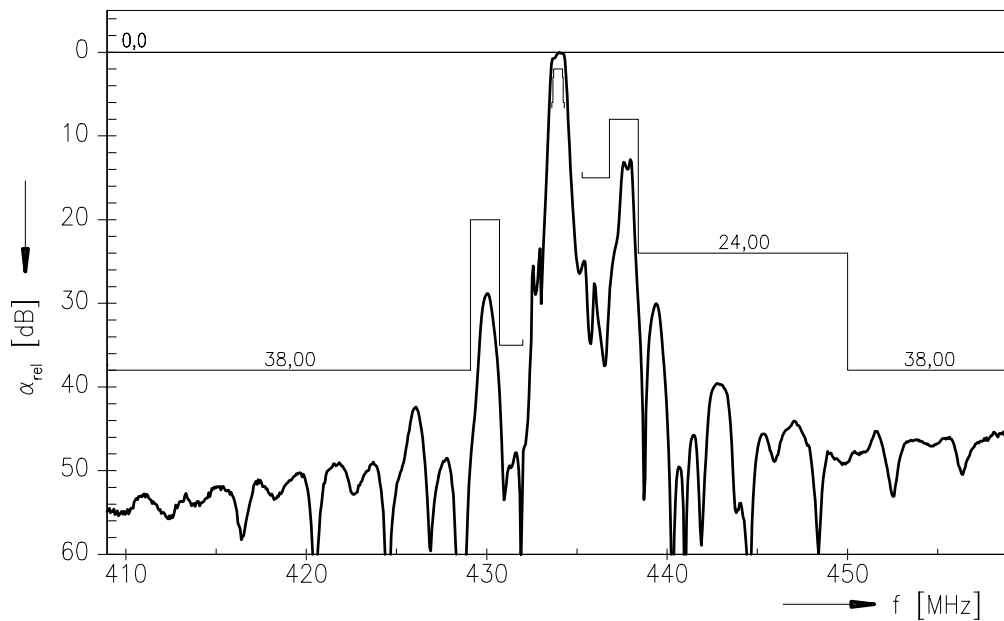


Data Sheet

Normalized frequency response



Normalized frequency response (wideband)





SAW Components

B3555

Low-loss Filter

433,92 MHz

Data Sheet

Published by EPCOS AG

Surface Acoustic Wave Components Division, SAW CE AE PD

P.O. Box 80 17 09, D-81617 München

© EPCOS AG 2001. All Rights Reserved.

As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented within components or assemblies.

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved.

For questions on technology, prices and delivery please contact the sales offices of EPCOS AG or the international representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our sales offices.