EPCOS

# *SAW Components*

*Data Sheet B3688*


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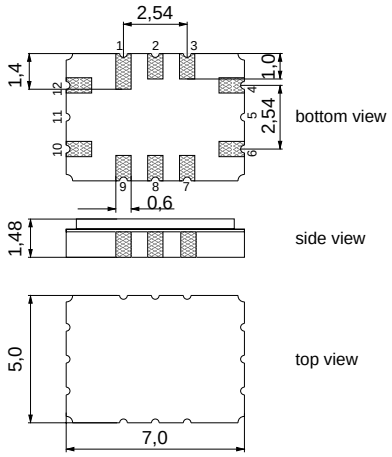
**Ceramic package QCC12C**

### Features

- Low-loss filter
- Temperature stable
- Package for Surface Mounted Technology (SMT)
- Hermetically sealed ceramic package

### Terminals

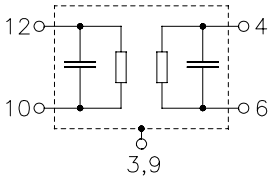
- Gold-plated




Dimensions in mm, approx. weight 0,2 g

### Pin configuration

| | |
|---|---|
| 10 | Input |
| 12 | Input ground or bal. input |
| 4 | Output |
| 6 | Output ground or bal. output |
| 3, 9 | Case - ground |
| 1, 2, 7, 8 | To be grounded |




| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B3688 | B39501-B3688-H310 | C61157-A7-A95 | F61074-V8170-Z000 |

**E**lectrostatic **S**ensitive **D**evice (**ESD**)

### Maximum ratings

| | | | | |
|---|---|---|---|---|
| Operable temperature range | $T$ | – 45/+ 85 | ˚C | |
| Storage temperature range | $T_{stg}$ | – 40/+ 85 | ˚C | |
| DC voltage | $V_{DC}$ | 0 | V | |
| Source power | $P_s$ | 10 | dBm | source impedance 50 Ω |



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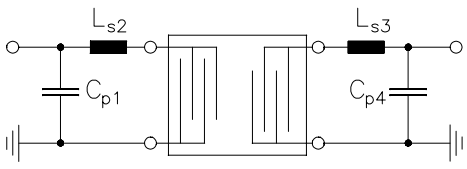
Data Sheet

## Characteristics

Operating temperature: T = -25 ... +75 ˚C
Terminating source impedance: $Z_S$ = 50 Ω and matching network
Terminating load impedance: $Z_L$ = 50 Ω and matching network

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** | $f_N$ | — | 499,25 | — | MHz |
| **Insertion attenuation at** $f_N$ (T=25 ˚C) | $\alpha_N$ | 6,0 | 8,0 | 9,0 | dB |
| **Variation of insertion att.** (rel. to $\alpha_N$) | $\alpha_{rel}$ | — | — | ±0,9 | dB |
| **Frequency response** | | | | | |
| 3 dB Lower frequency | $f_{L\ 3dB}$ | — | 498,27 | 498,75 | MHz |
| 3 dB Upper frequency | $f_{U\ 3dB}$ | 499,75 | 500,23 | — | MHz |
| 35 dB Lower frequency | $f_{L35dB}$ | 496,25 | 496,75 | — | MHz |
| 35 dB Upper frequency | $f_{U35dB}$ | — | 501,85 | 502,25 | MHz |
| **Amplitude ripple** (peak to adjacent valley) | | | | | |
| $f_N$ ± 100 kHz | | — | — | 0,5 | dB |
| **Relative attenuation** | $\alpha_{rel}$ | | | | |
| $f_N$ - 200,0 MHz ... $f_N$ - 10,0 MHz | | 40 | 55 | — | dB |
| $f_N$ - 10,0 MHz ... $f_N$ - 3,0 MHz | | 35 | 48 | — | dB |
| $f_N$ + 3,0 MHz ... $f_N$ + 10,0 MHz | | 35 | 43 | — | dB |
| $f_N$ + 10,0 MHz ... $f_N$ + 200,0 MHz | | 40 | 51 | — | dB |
| **Temperature coefficient of frequency** 1) | $TC_f$ | — | – 0,036 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | — | 25 | — | ˚C |

**Matching circuit:**




$C_{p1}$ = 14pF 2)
$L_{s2}$ = 21nH 2)
$L_{s3}$ = 22nH 2)
$C_{p4}$ = 13pF 2)

1) Temperature dependance of $f_c$: $f_c(T_A) = f_c(T_0)(1 + TC_f(T_A - T_0)^2)$

2) Element values depend on PCB layout



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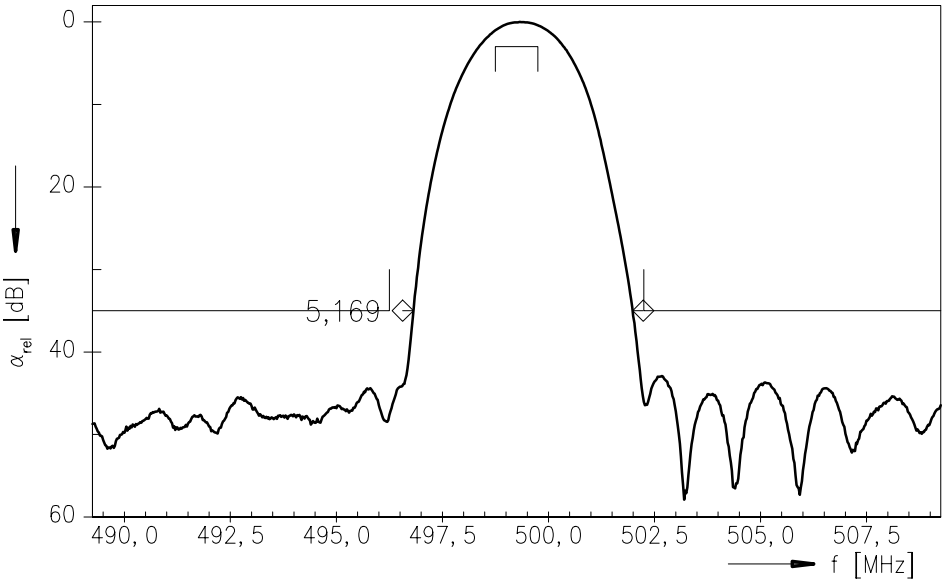
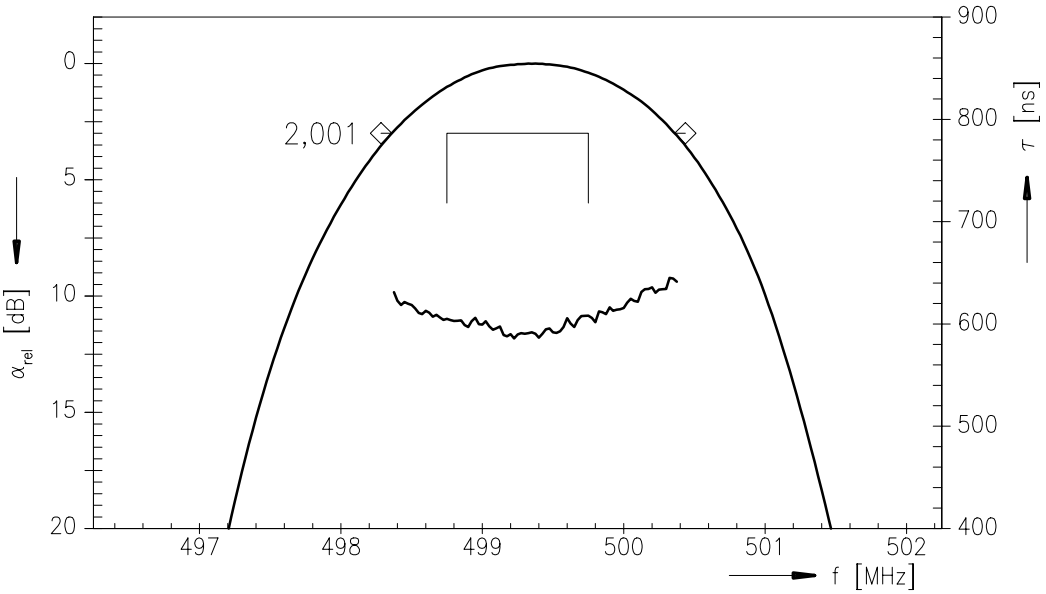
**Normalized frequency response**




**Normalized frequency response (pass band)**



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