EPCOS

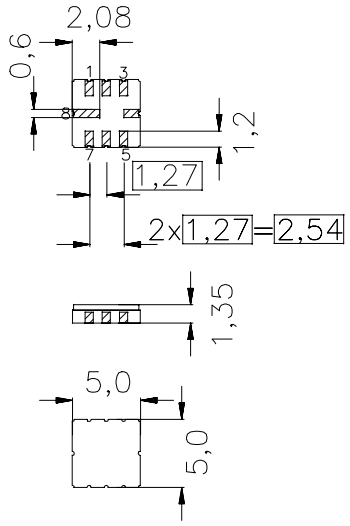
# *SAW Components*

*Data Sheet B4843*

SMD ceramic package **QCC8C**

### Features

- Low-loss IF filter for mobile telephone
- Channel selection in GSM, PCN systems
- Ceramic SMD package
- Very small size



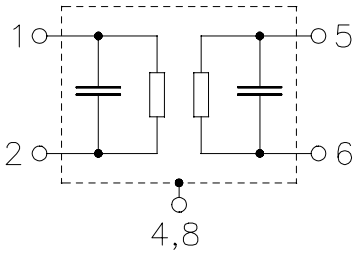

### Terminals

- Gold-plated Ni

Dimensions in mm, approx. weight 0,10 g

### Pin configuration

| | |
|---|---|
| 1 | Input or input ground |
| 2 | Input or balanced input |
| 5 | Output or output ground |
| 6 | Output or balanced output |
| 4,8 | Case ground |
| 3,7 | To be grounded |




| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B4843 | B39361-B4843-U310 | C61157-A7-A56 | F61074-V8070-Z000 |

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

### Maximum ratings

| | | | | |
|---|---|---|---|---|
| Operable temperature range | $T$ | – 20 / +75 | ˚C | |
| Storage temperature range | $T_{stg}$ | – 35 / +85 | ˚C | |
| DC voltage | $V_{DC}$ | 3 | V | |
| Source power | $P_s$ | 10 | dBm | |

Data Sheet SMD

**Characteristics**

Ambient temperature: $T$ = -20˚C to +75˚C
Terminating source impedance: $Z_S$ = 780 Ω || -1,9 pF
Terminating load impedance: $Z_L$ = 780 Ω || -1,9 pF

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** (center frequency between 3 dB points) | $f_N$ | — | 360,00 | — | MHz |
| **Minimum insertion attenuation** | | | | | |
| including loss in matching network | $\alpha_{min}$ | 5,0 | 5,6 | 6,4 | dB |
| excluding loss in matching elements | $\alpha_{min}$ | 4,3 | 4,9 | 5,5 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N$ -67,5kHz .. $f_N$+67,5 kHz | | — | 0,5 | 2,0 | dB |
| $f_N$ -80,0 kHz .. $f_N$+80,0 kHz | | — | 0,5 | 3,0 | dB |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N$ -67,5 kHz .. $f_N$+67,5 kHz | | — | 0,50 | 1,5 | µs |
| $f_N$ -80,0 kHz .. $f_N$+80,0 kHz | | — | 0,65 | 2,0 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N \pm 300$ kHz ... $f_N \pm 400$ kHz | | 8 | 16 | — | dB |
| $f_N \pm 400$ kHz ... $f_N \pm 600$ kHz | | 21 | 25 | — | dB |
| $f_N \pm 600$ kHz ... $f_N \pm 800$ kHz | | 35 | 38 | — | dB |
| $f_N \pm 800$ kHz ... $f_N \pm 1,6$ MHz | | 40 | 46 | — | dB |
| $f_N \pm 1,6$ MHz ... $f_N \pm 3,0$ MHz | | 48*) | 54 | — | dB |
| $f_N \pm 3,0$ MHz ... $f_N \pm 4,0$ MHz | | 50 | 55 | — | dB |
| $f_N \pm 4,0$ MHz ... $f_N \pm 15$ MHz | | 50 | 65 | — | dB |
| **Impedance** within the pass band | | | | | |
| Input: $Z_{IN} = R_{IN} \parallel C_{IN}$ | | — | 780 ‖ 1,9 | — | Ω \|\| pF |
| Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$ | | — | 780 ‖ 1,9 | — | Ω \|\| pF |
| **Temperature coefficient of frequency** 1) | $TC_f$ | — | -0,028 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | — | 25 | — | ˚C |

1) Temperature dependence of $f_c$: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

*) In the frequency range from 357,8 MHz to 358,2 MHz there exists one spurious response with a maximum 3 dB - bandwidth of 150 kHz. The minimum attenuation $\alpha_{rel}$ of this spurious response is more than 46 dB.

**Characteristics**

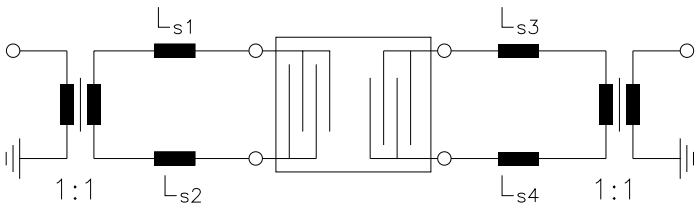
Ambient temperature: $T$ = 25˚C
Terminating source impedance: $Z_S$ = 780 Ω || -1,9 pF
Terminating load impedance: $Z_L$ = 780 Ω || -1,9 pF

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** (center frequency between 3 dB points) | $f_N$ | — | 360,01 | — | MHz |
| **Minimum insertion attenuation** | | | | | |
| including loss in matching network | $\alpha_{min}$ | 5,0 | 5,6 | 6,4 | dB |
| excluding loss in matching elements | $\alpha_{min}$ | 4,3 | 4,9 | 5,5 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N$ -67,5kHz .. $f_N$+67,5 kHz | | — | 0,5 | 2,0 | dB |
| $f_N$ -80,0 kHz .. $f_N$+80,0 kHz | | — | 0,5 | 3,0 | dB |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N$ -67,5 kHz .. $f_N$+67,5 kHz | | — | 0,50 | 1,5 | µs |
| $f_N$ -80,0 kHz .. $f_N$+80,0 kHz | | — | 0,65 | 2,0 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N \pm 300$ kHz ... $f_N \pm 400$ kHz | | 11 | 18 | — | dB |
| $f_N \pm 400$ kHz ... $f_N \pm 600$ kHz | | 22 | 27 | — | dB |
| $f_N \pm 600$ kHz ... $f_N \pm 800$ kHz | | 36 | 39 | — | dB |
| $f_N \pm 800$ kHz ... $f_N \pm 1,6$ MHz | | 40 | 46 | — | dB |
| $f_N \pm 1,6$ MHz ... $f_N \pm 3,0$ MHz | | 48*) | 54 | — | dB |
| $f_N \pm 3,0$ MHz ... $f_N \pm 4,0$ MHz | | 50 | 55 | — | dB |
| $f_N \pm 4,0$ MHz ... $f_N \pm 15$ MHz | | 50 | 65 | — | dB |
| **Impedance** within the pass band | | | | | |
| Input: $Z_{IN} = R_{IN} \parallel C_{IN}$ | | — | 780 ‖ 1,9 | — | Ω \|\| pF |
| Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$ | | — | 780 ‖ 1,9 | — | Ω \|\| pF |
| **Temperature coefficient of frequency** 1) | $TC_f$ | — | -0,028 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | — | 25 | — | ˚C |

1) Temperature dependence of $f_c$: $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

*) In the frequency range from 357,8 MHz to 358,2 MHz there exists one spurious response with a maximum 3 dB - bandwidth of 150 kHz. The minimum attenuation $\alpha_{rel}$ of this spurious response is more than 46 dB.

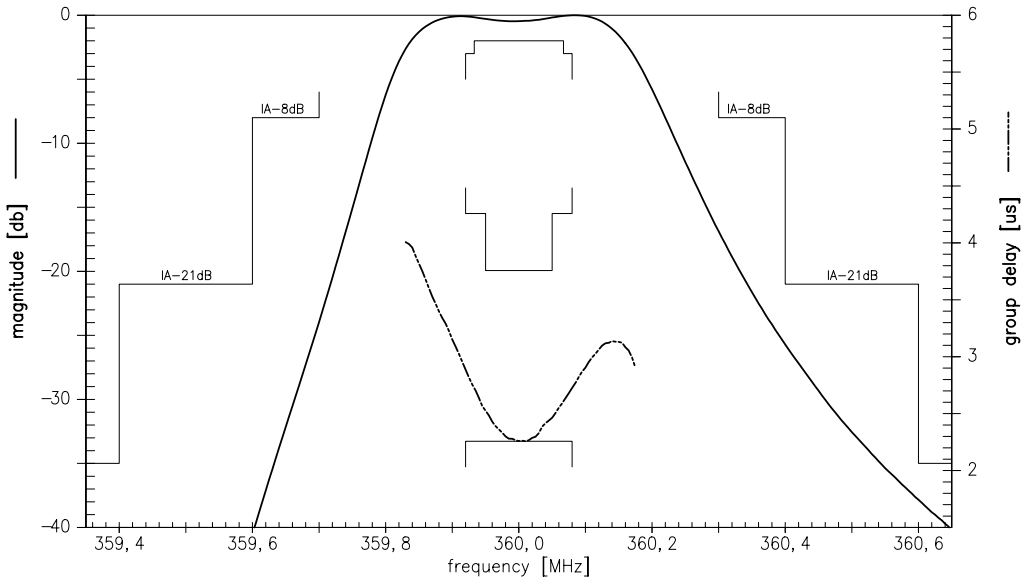
**Test matching network to 50** Ω (element values depend on PCB layout):

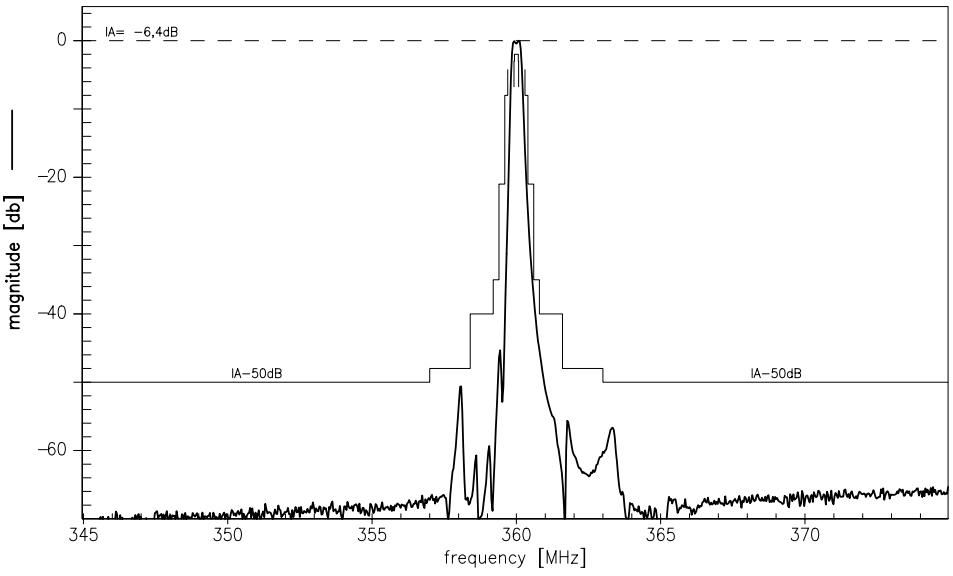



$L_{s1} = L_{s2} = 25{,}5$ nH

$L_{s3} = L_{s4} = 25{,}5$ nH

**Transfer function** (normalized plot):



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