EPCOS

# SAW Components

*Data Sheet B4847*

Data Sheet

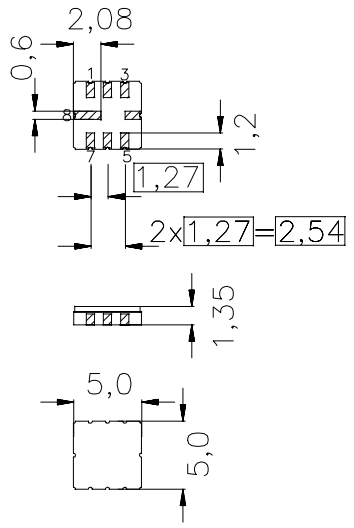
SMD ceramic package **QCC8C**

### Features

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

### Terminals

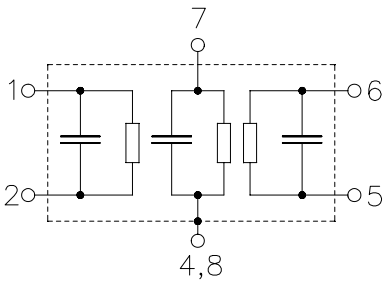
- Gold-plated Ni




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 |
| 7 | External coil |
| 4,8 | Case ground |
| 3 | To be grounded |




| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B4847 | B39361-B4847-U310 | C61157-A7-A56 | F61074-V8070-Z000 |

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

### Maximum ratings

| | | | | |
|---|---|---|---|---|
| Operable temperature range | $T$ | – 30 / +85 | ˚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: $Z_S$ = 340 Ω || -1,9 pF
Terminating load impedance: $Z_L$ = 340 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 elements) | $\alpha_{min}$ | — | 4,3 | 5,0 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N$ -67,7kHz .. $f_N$+67,7 kHz | | — | 0,6 | 2,0 | dB |
| $f_N$ -80,0kHz .. $f_N$+80,0 kHz | | — | 0,9 | 3,0 | dB |
| **Passband width** $\alpha_{rel} \leq$ 3,0 dB | $B_{3,0dB}$ | — | 315 | — | kHz |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N$ -67,7 kHz .. $f_N$+67,7 kHz | | — | 0,5 | 1,8 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N \pm 400$ kHz ... $f_N \pm 600$ kHz | | 24 | 32 | — | dB |
| $f_N \pm 600$ kHz ... $f_N \pm 800$ kHz | | 38 | 48 | — | dB |
| $f_N \pm 800$ kHz ... $f_N \pm 1,6$ MHz | | 42 | 48 | — | dB |
| $f_N \pm 1,6$ MHz ... $f_N \pm 5,0$ MHz | | * 52 | 54 | — | dB |
| $f_N \pm 5,0$ MHz ... $f_N \pm 30,0$ MHz | | 55 | 62 | — | dB |
| **Impedance** within the pass band | | | | | |
| Input: $Z_{IN} = R_{IN} \parallel C_{IN}$ | | — | 340 \|\| 1,9 | — | Ω \|\| pF |
| Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$ | | — | 340 \|\| 1,9 | — | Ω \|\| pF |
| **Temperature coefficient of frequency** 1) | $TC_f$ | — | - 0,036 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | — | 28 | — | ˚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 362,5 MHz to 364,0 MHz there exists one spurious response. The minimum attenuation $\alpha_{rel}$ of this spurious response is more than 48 dB.

**Data Sheet** SMD

**Characteristics**

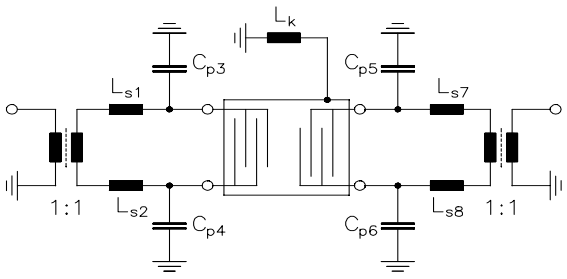
Ambient temperature: $T$ = -30˚C to +85˚C
Terminating source impedance: $Z_S$ = 340 Ω || -1,9 pF
Terminating load impedance: $Z_L$ = 340 Ω || -1,9 pF

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** (center frequency between 3 dB points) | $f_N$ | — | 360,00 | — | MHz |
| **Minimum insertion attenuation** (including loss in matching elements) | $\alpha_{min}$ | — | 4,3 | 5,0 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N$ -67,7kHz .. $f_N$+67,7 kHz | | — | 0,6 | 3,0 | dB |
| $f_N$ -80,0kHz .. $f_N$+80,0 kHz | | — | 0,9 | 4,5 | dB |
| **Passband width** $\alpha_{rel} \leq$ 3,0 dB | $B_{3,0dB}$ | — | 315 | — | kHz |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N$ -67,7 kHz .. $f_N$+67,7 kHz | | — | 0,5 | 1,8 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N \pm 400$ kHz ... $f_N \pm 600$ kHz | | 24 | 32 | — | dB |
| $f_N \pm 600$ kHz ... $f_N \pm 800$ kHz | | 38 | 48 | — | dB |
| $f_N \pm 800$ kHz ... $f_N \pm 1,6$ MHz | | 42 | 48 | — | dB |
| $f_N \pm 1,6$ MHz ... $f_N \pm 5,0$ MHz | | * 52 | 54 | — | dB |
| $f_N \pm 5,0$ MHz ... $f_N \pm 30,0$ MHz | | 55 | 62 | — | dB |
| **Impedance** within the pass band | | | | | |
| Input: $Z_{IN} = R_{IN} \parallel C_{IN}$ | | — | 340 \|\| 1,9 | — | Ω \|\| pF |
| Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$ | | — | 340 \|\| 1,9 | — | Ω \|\| pF |
| **Temperature coefficient of frequency** 1) | $TC_f$ | — | - 0,036 | — | ppm/K² |
| **Turnover temperature** | $T_0$ | — | 28 | — | ˚C |

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

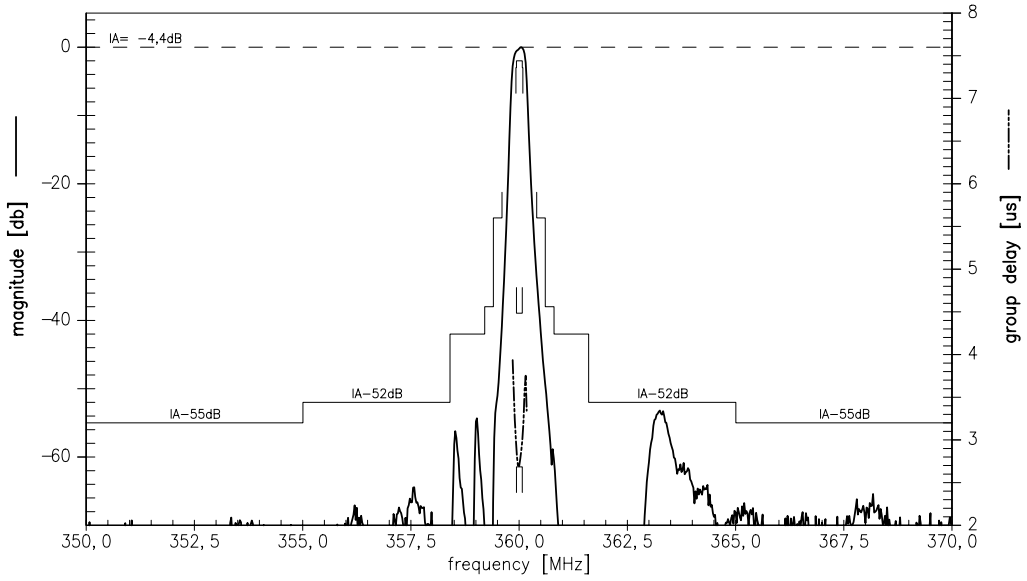
*) In the frequency range from 362,5 MHz to 364,0 MHz there exists one spurious response. The minimum attenuation $\alpha_{rel}$ of this spurious response is more than 48 dB.

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

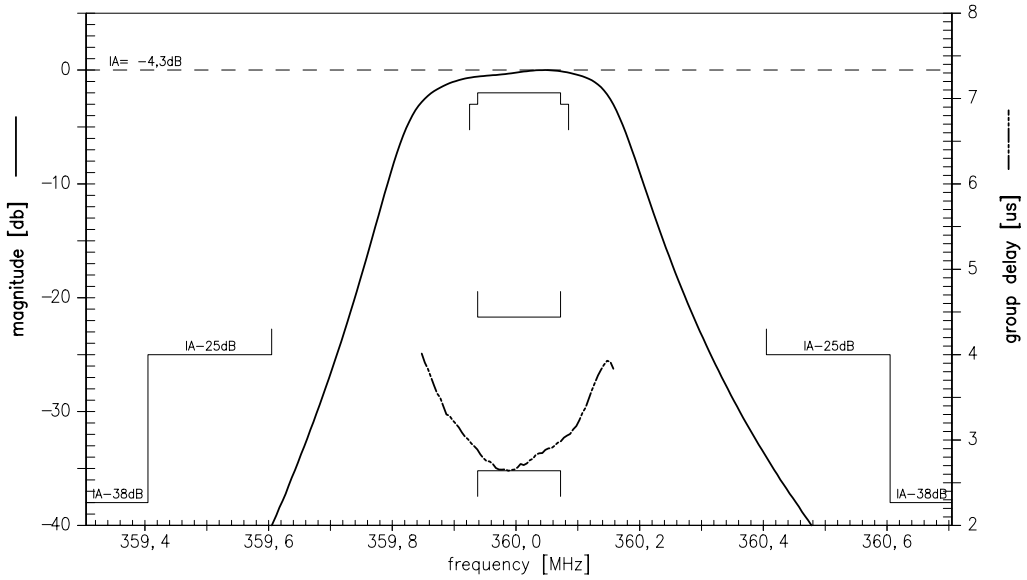



$L_{s1} = L_{s2} = 18nH$
$C_{p3} = C_{p4} = 1,2pF$
$C_{p5} = C_{p6} = 1,2pF$
$L_{s7} = L_{s8} = 18nH$
$L_k = 68\ nH$

**Transfer function**:




**Transfer function** (pass band):



**Published by EPCOS AG**
**Surface Acoustic Wave Components Division, SAW MC WT**
**P.O. Box 80 17 09, 81617 Munich, GERMANY**



Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

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.