# SAW Components

Data Sheet B4916

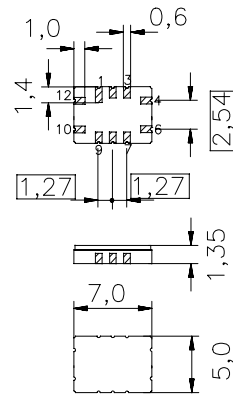**Low-Loss Filter for Mobile Communication** **135,0 MHz**

**Data Sheet**

Ceramic package **QCC12B**

## Features

- Low-loss IF filter for mobile telephone
- Channel selection in GSM systems
- Hermetically sealed ceramic SMD package
- Balanced and unbalanced operation possible
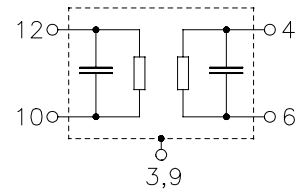- No coupling coil required

## Terminals

- Gold-plated Ni

Dimensions in mm, approx. weight 0,2 g

## Pin configuration

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

| Type | Ordering code | Marking and Package according to | Packing according to |
|---|---|---|---|
| B4916 | B39141-B4916-Z910 | C61157-A7-A52 | F61074-V8038-Z000 |

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

## Maximum ratings

| | | | |
|---|---|---|---|
| Operable temperature range | $T$ | – 30/+ 85 | ˚C |
| Storage temperature range | $T_{stg}$ | – 40/+ 85 | ˚C |
| DC voltage | $V_{DC}$ | 0 | V |
| Source power | $P_s$ | 10 | dBm |

**Data Sheet** ᔕᗰᗡ

### Characteristics

Operating temperature range:     $T$   = -10 ˚C ... +70 ˚C
Terminating source impedance:   $Z_S$  =   800 Ω  || 135 nH
Terminating load impedance:      $Z_L$  = 1400 Ω  || 170 nH

| | | min. | typ. | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** | $f_N$ | — | 135,00 | — | MHz |
| **Minimum insertion attenuation** | $\alpha_{min}$ | | | | |
| (excluding losses in matching circuit) | | | 4,8 | 6,0 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N$ - 100,0 kHz    ...  $f_N$ + 100,0 kHz | | — | 0,4 | 1,0 | dB |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N$ - 100,0 kHz    ...  $f_N$ + 100,0 kHz | | — | 0,3 | 1,0 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N$ - 30,00 MHz   ...  $f_N$ - 7,00 MHz | | 40 | 49 | — | dB |
| $f_N$ - 7,00 MHz    ...  $f_N$ - 3,00 MHz | | 35 | 39 | — | dB |
| $f_N$ - 3,00 MHz    ...  $f_N$ - 0,80 MHz | | 30 | 32 | — | dB |
| $f_N$ - 0,80 MHz    ...  $f_N$ - 0,60 MHz | | 20 | 28 | — | dB |
| $f_N$ - 0,60 MHz    ...  $f_N$ - 0,40 MHz | | 15 | 17 | — | dB |
| $f_N$ - 0,40 MHz    ...  $f_N$ - 0,25 MHz | | 3 | 5 | — | dB |
| $f_N$ + 0,25 MHz    ...  $f_N$ + 0,40 MHz | | 3 | 5 | — | dB |
| $f_N$ + 0,40 MHz    ...  $f_N$ + 0,60 MHz | | 15 | 17 | — | dB |
| $f_N$ + 0,60 MHz    ...  $f_N$ + 0,80 MHz | | 20 | 28 | — | dB |
| $f_N$ + 0,80 MHz    ...  $f_N$ + 3,00 MHz | | 30 | 32 | — | dB |
| $f_N$ + 3,00 MHz    ...  $f_N$ + 7,00 MHz | | 35 | 38 | — | dB |
| $f_N$ + 7,00 MHz    ...  $f_N$ + 30,00 MHz | | 40 | 43 | — | dB |
| **Impedance** at $f_N$ | | | | | |
| Input:   $Z_{IN}$   = $R_{IN}$   || $C_{IN}$ | | — | 800 ||10,3 | — | Ω || pF |
| Output: $Z_{OUT}$ = $R_{OUT}$ || $C_{OUT}$ | | — | 1400 || 8,2 | — | Ω || pF |
| **Temperature coefficient of frequency** [1] | $TC_f$ | — | – 0,042 | — | ppm/K² |
| **Frequency inversion point** | $T_0$ | — | 25 | — | ˚C |

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

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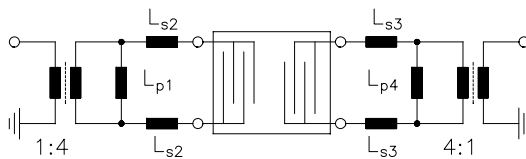


$L_{p1}$  = 82 nH
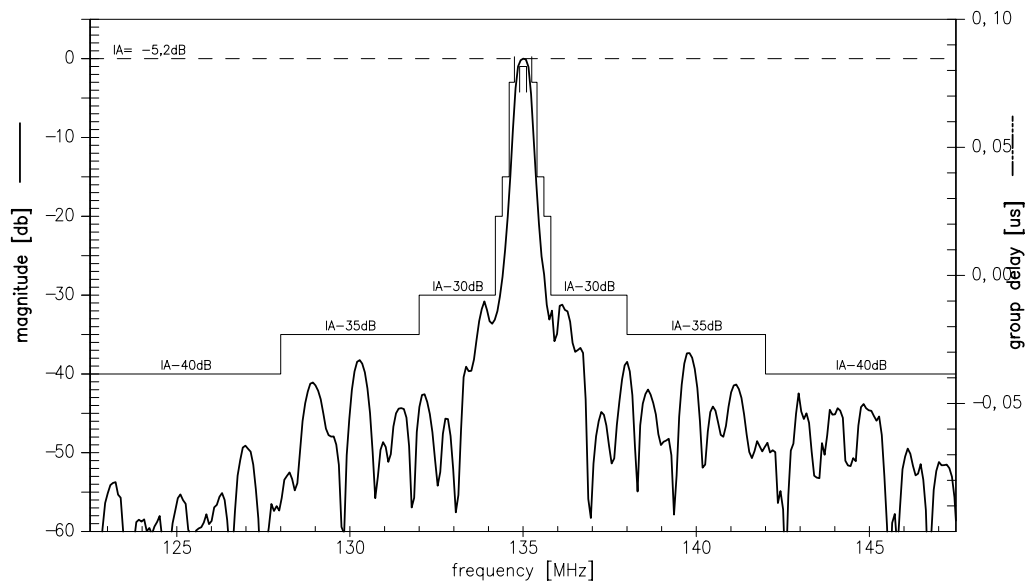$L_{s2}$  = 27 nH
$L_{s3}$  = 43 nH
$L_{p4}$  = 82 nH

**Transfer function:**



**Transfer function (pass band):**
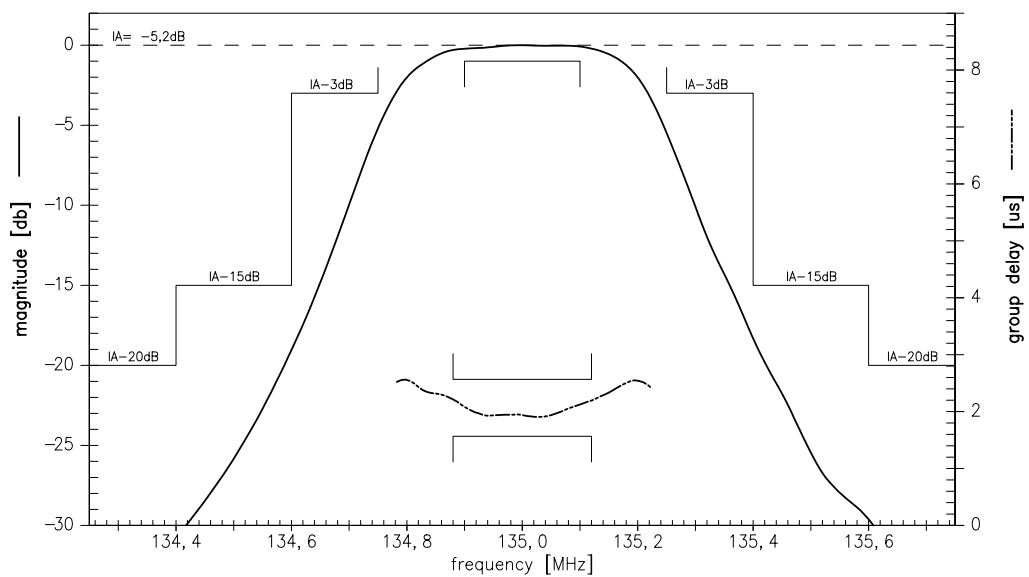
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