



Siemens Matsushita Components

SAW Components
Low-Loss Filter

B4811
188,0 MHz

Data Sheet

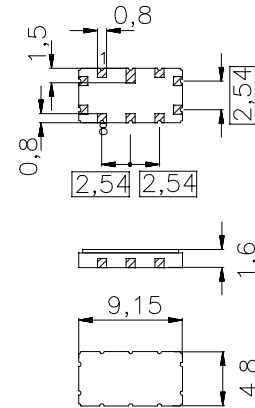
SMD ceramic package **QCC10B**

Features

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

Terminals

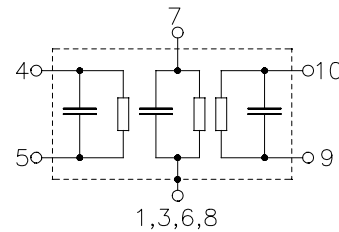
- Gold-plated Ni



Dimensions in mm, approx. weight 0,23 g

Pin configuration

- | | |
|---------|--------------------------------|
| 9,10 | Input, balanced or unbalanced |
| 4,5 | Output, balanced or unbalanced |
| 7 | External Coil |
| 1,3,6,8 | Case - Ground |
| 2 | Not connected |



| Type | Ordering code | Marking and Package according to | Packing according to |
|-------|-------------------|----------------------------------|----------------------|
| B4811 | B39191-B4811-Z710 | C61157-A7-A49 | F61064-V8035-Z000 |

Electrostatic Sensitive Device (ESD)

Maximum ratings

| | | | | |
|----------------------------|-----------|-----------|-----|------------------------------|
| Operable temperature range | T | - 25 /+75 | °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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Characteristics

| | |
|-------------------------------|---|
| Operating temperature range: | $T = -25\text{ °C to } +75\text{ °C}$ |
| Terminating source impedance: | $Z_S = 580\ \Omega \parallel 210\text{ nH}$ |
| Terminating load impedance: | $Z_L = 820\ \Omega \parallel 255\text{ nH}$ |
| External coil | $L_C = 120\text{ nH}$ |

| | | min. | typ. | max. | |
|--|-----------------------|------|---------------------|------|------------------------------|
| Center frequency (center frequency between 3 dB points) | f_c | — | 188,0 | — | MHz |
| Minimum insertion attenuation (including matching network) | α_{\min} | 3,5 | 5,0 | 6,5 | dB |
| Variation in insertion loss | $\Delta\alpha_{\min}$ | — | 1,0 | 3,0 | dB |
| Amplitude ripple in passband (p-p) | $\Delta\alpha$ | | | | |
| $f_c - 60,0\text{ kHz} \dots f_c + 60,0\text{ kHz}$ | | — | 1,0 | 2,0 | dB |
| $f_c - 80,0\text{ kHz} \dots f_c + 80,0\text{ kHz}$ | | — | 1,5 | 3,0 | dB |
| Group delay at f_c | τ | 3,0 | 4,0 | 5,0 | μs |
| Group delay ripple (p-p) | $\Delta\tau$ | | | | |
| $f_c - 80,0\text{ kHz} \dots f_c + 80,0\text{ kHz}$ | | — | 1,0 | 1,5 | μs |
| Relative attenuation (relative to α_{\min}) | α_{rel} | | | | |
| $f_c \pm 200\text{ kHz} \dots f_c \pm 300\text{ kHz}$ | | 6,5 | 8 | — | dB |
| $f_c \pm 300\text{ kHz} \dots f_c \pm 400\text{ kHz}$ | | 18 | 25 | — | dB |
| $f_c \pm 400\text{ kHz} \dots f_c \pm 600\text{ kHz}$ | | 30 | 40 | — | dB |
| $f_c \pm 600\text{ kHz} \dots f_c \pm 1,6\text{ MHz}$ | | 35 | 48 | — | dB |
| $f_c \pm 1,6\text{ MHz} \dots f_c \pm 3,0\text{ MHz}$ | | 36 | 50 | — | dB |
| $f_c \pm 3,0\text{ MHz} \dots f_c \pm 75,0\text{ MHz}$ | | 42 | 50 | — | dB |
| $f_c - 12,0\text{ MHz}$ | | 50 | 55 | — | dB |
| Impedance at 188,0 MHz | | | | | |
| Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$ | | — | 580 \parallel 3,4 | — | $\Omega \parallel \text{pF}$ |
| Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$ | | — | 820 \parallel 2,8 | — | $\Omega \parallel \text{pF}$ |
| Temperature coefficient of frequency ¹⁾ | TC_f | — | -0,036 | — | ppm/K ² |
| Turnover temperature | T_0 | — | 20 | — | °C |

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



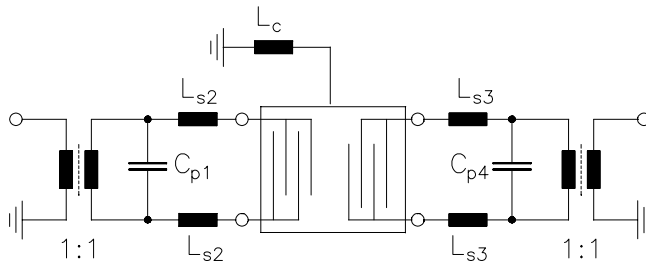
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Test matching network to 50 Ω (element values depend on pcb layout)



$C_{p1} = 12,0 \text{ pF}$
 $C_{p4} = 10,0 \text{ pF}$
 $L_{s2} = L_{s3} = 82 \text{ nH}$
 $L_c = 120 \text{ nH}$

Transfer function

