

SAW Components

Low-Loss Filter

B4811
188,0 MHz

Data Sheet

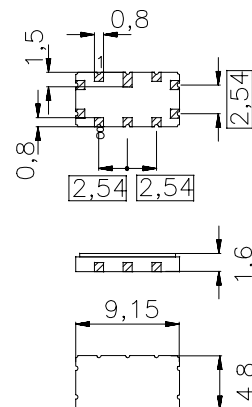
SMD ceramic package **QCC10B**

Features

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

Terminals

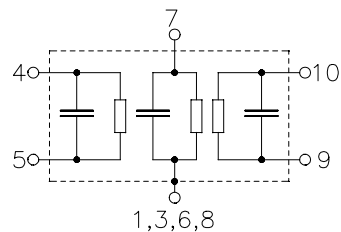
- Gold-plated Ni



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) $f_c - 80,0\text{ kHz} \dots f_c + 80,0\text{ kHz}$	$\Delta\tau$	—	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 : $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$



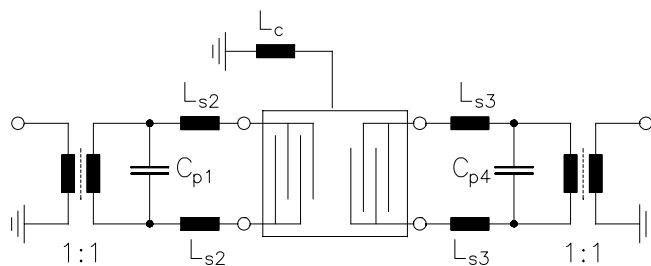
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Test matching network to 50 Ω (element values depend on pcb layout)



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

Transfer function

