EPCOS

SAW Components

Data Sheet B4865

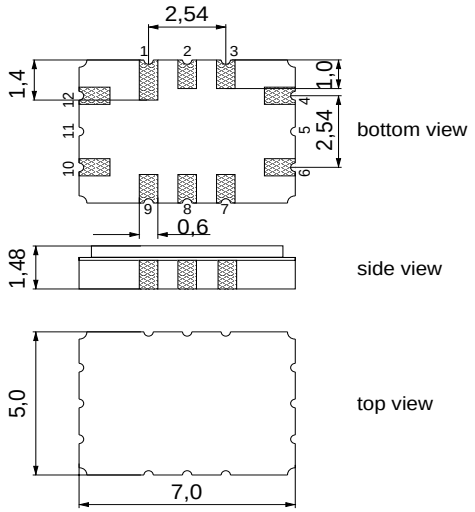
SMD ceramic package **QCC12C**

Features

- Low-loss IF filter for mobile telephone
- Channel selection in AMPS/TDMA systems
- Filter surface passivated
- Balanced or unbalanced operation possible
- Package for **S**urface **M**ounted **T**echnology (**SMT**)

Terminals

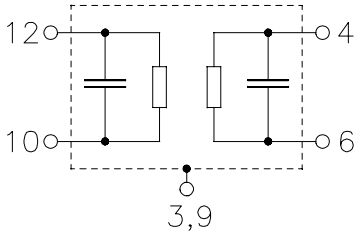
- Ni, gold plated



Dimensions in mm, approx. weight 0,25 g

Pin configuration

12	Input
6	Output
10	Balanced input or input ground
4	Balanced output or output ground
3,9	Case ground
1,2,7,8	Not connected



Type	Ordering code	Marking and Package according to	Packing according to
B4865	B39131-B4865-H310	C61157-A7-A95	F61074-V8132-Z000

Electrostatic **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}	13	V	
Source power	P_s	10	dBm	

Characteristics

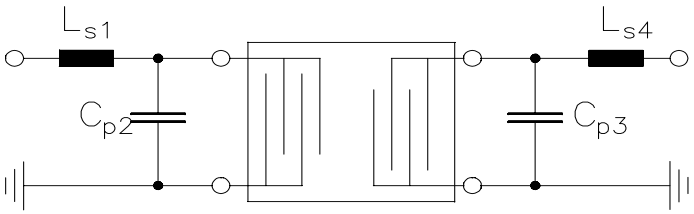
Operating temperature range: T = -30˚C ... 85˚C
Terminating source impedance: Z_S = 850 Ω || - 0,8 pF
Terminating load impedance: Z_L = 850 Ω || - 0,8 pF

		min.	typ.	max.	
Nominal frequency	f_N	—	134,04	—	MHz
3 dB Bandwidth		—	57	—	kHz
Minimum insertion attenuation (including losses in the matching network)	α_{min}	—	3,6	4,5	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N – 10,0 kHz ... f_N + 10,0 kHz		—	0,2	1,5	dB
f_N – 13,0 kHz ... f_N + 13,0 kHz		—	0,5	3,0	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N – 13,0 kHz ... f_N + 13,0 kHz		—	3,5	10,0	µs
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N \pm$ 60 kHz		14	24	—	dB
$f_N \pm$ 120 kHz		40	50	—	dB
$f_N \pm$ 240 kHz		50	56	—	dB
$f_N \pm$ 330 kHz		55	65	—	dB
$f_N \pm$ 480 kHz		55	62	—	dB
$f_N \pm$ 660 kHz		55	70	—	dB
Spurious responses $f_N \pm$ 480 kHz ... 1 MHz		40	45	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	850 || 0,8	—	Ω || pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	850 || 0,8	—	Ω || pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,034	—	ppm/K²
Turnover temperature	T_0	—	25	—	˚C

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

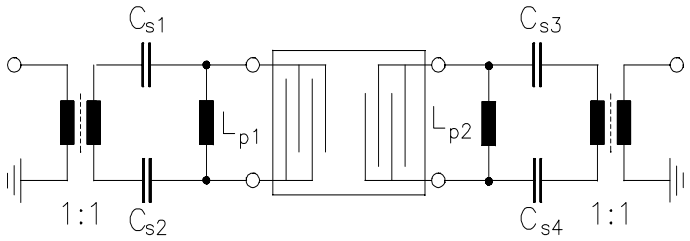
Test matching networks to 50 Ω (element values depend on pcb layout)

a) Unbalanced - unbalanced matching network



L_{s1} = 220 nH
C_{p2} = 3,9 pF
C_{p3} = 3,9 pF
L_{s4} = 180 nH

b) Balanced - balanced matching network



C_{s1} = C_{s3} =15 pF
L_{p1} = 150 nH
L_{p2} = 150 nH
C_{s2} = C_{s4} = 15 pF

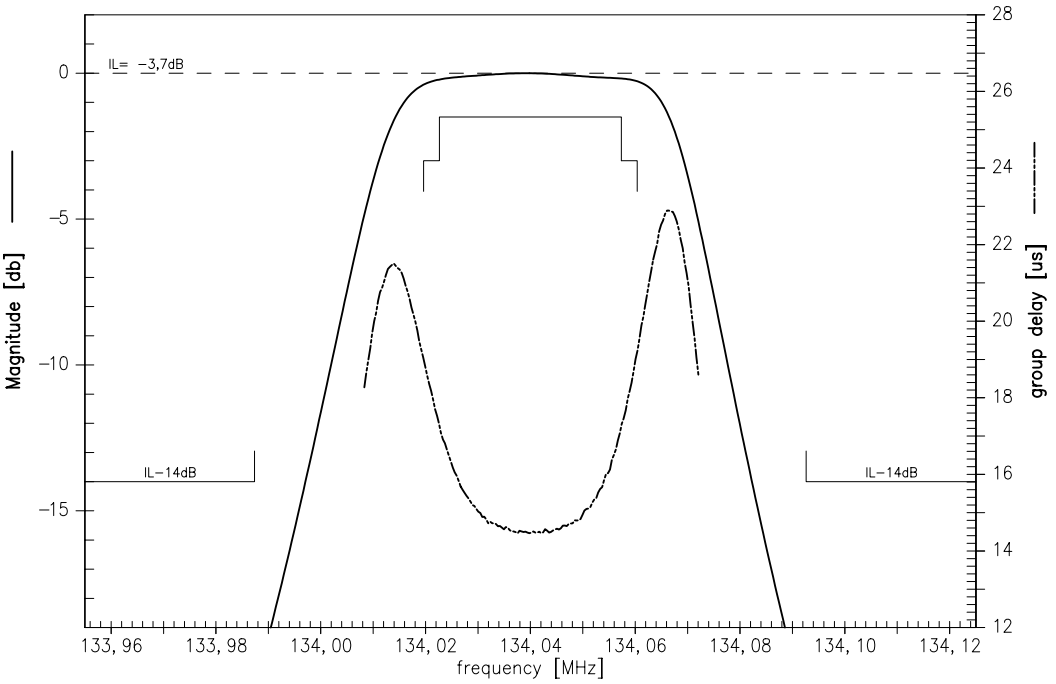
Note :

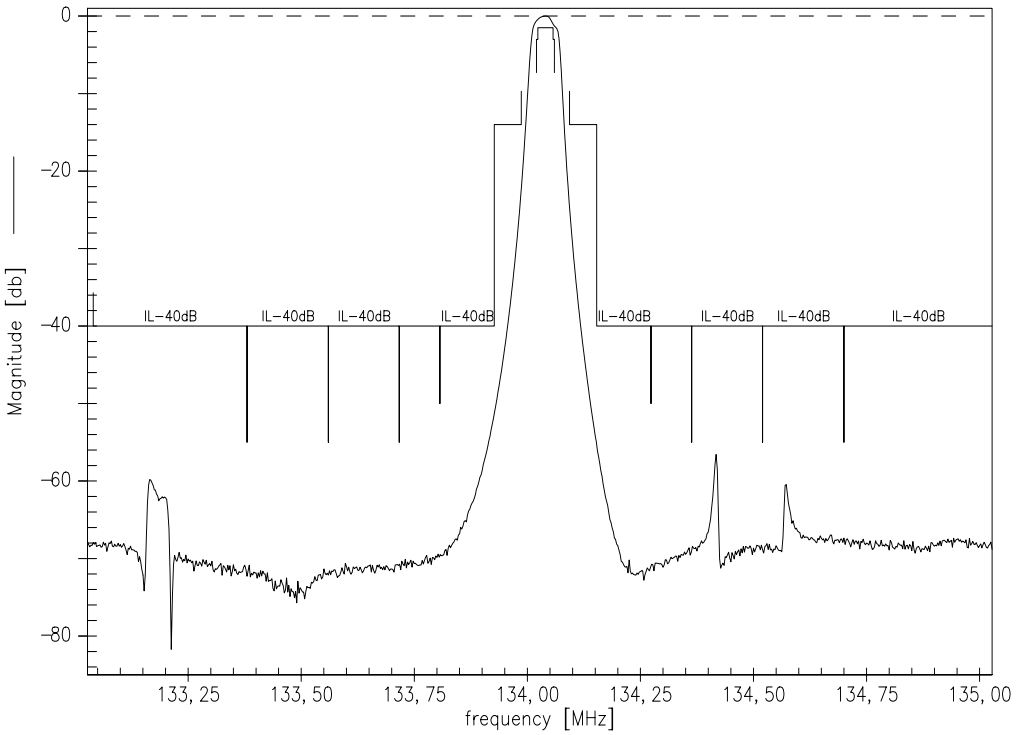
The balanced - balanced network is realized using TOKO 1:1 baluns B5FL. The insertion attenuation of each balun is 0,6 dB at f_N. The loss of the baluns is not included in the specified filter insertion attenuation.

The level of ultimate suppression may be limited by electromagnetic feedthrough depending on the layout of the pcb and the arrangement of the matching components.
The above mentioned characteristics can be realized either in balanced or in unbalanced mode of operation.

For more details see our application note *PCB Layout for Highly Selective IF Filters*.

Transfer functions passband and wideband, measured se/se on PCB





Published by EPCOS AG
Surface Acoustic Wave Components Division, SAW MC WT PD
P.O. Box 80 17 09, D-81617 München

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This brochure replaces the previous edition.

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