EPCOS

SAW Components

Data Sheet B4858

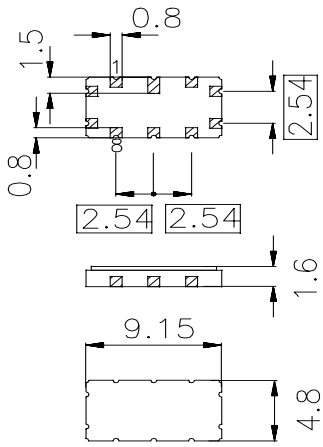
Features

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

Terminals

- Ni, gold plated

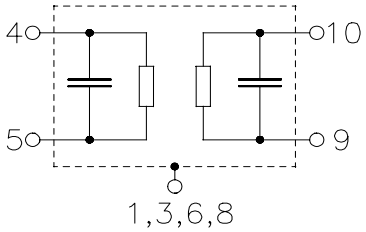
Ceramic package **QCC10B**



Dimensions in mm, approx. weight 0,23 g

Pin configuration

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



Type	Ordering code	Marking and Package according to	Packing according to
B4858	B39860-B4858-Z710	C61157-A7-A49	F61064-V8035-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

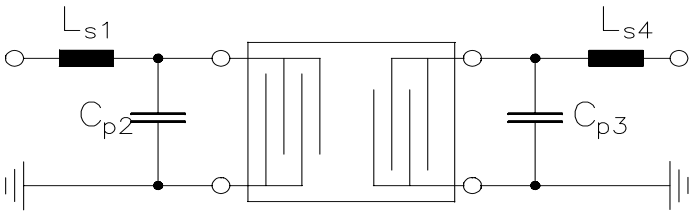
Operating temperature range: T = -30˚C ... 85˚C
Terminating source impedance: Z_S = 1000 Ω || 2600 nH
Terminating load impedance: Z_L = 1000 Ω || 2600 nH

		min.	typ.	max.	
Nominal frequency	f_N	—	85,38	—	MHz
3 dB Bandwidth		+-14	—	—	kHz
Minimum insertion attenuation (including losses in the matching network)	α_{min}	—	3,8	5,0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
f_N – 12,0 kHz ... f_N + 12,0 kHz		—	0,3	1,5	dB
Group delay ripple (p-p)	$\Delta\tau$				
f_N – 12,0 kHz ... f_N + 12,0 kHz		—	3,0	10,0	µs
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N \pm$ 14,0 kHz		—	0,5	3,0	dB
$f_N \pm$ 60,0 kHz ... $f_N \pm$ 120,0 kHz		25	32	—	dB
$f_N \pm$ 120,0 kHz ... $f_N \pm$ 240,0 kHz		50	57	—	dB
$f_N \pm$ 240,0 kHz ... $f_N \pm$ 330,0 kHz		55	65	—	dB
$f_N \pm$ 330,0 kHz ... $f_N \pm$1200,0 kHz		55	70	—	dB
$f_N \pm$1200,0 kHz ... $f_N \pm$ 2,5 MHz		55	75	—	dB
Impedance within the passband					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	1000 || 1,4	—	Ω || pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	1000 || 1,4	—	Ω || pF
Temperature coefficient of frequency [1]	TC_f	—	– 0,036	—	ppm/K²
Turnover temperature	T_0	—	25	—	˚C

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

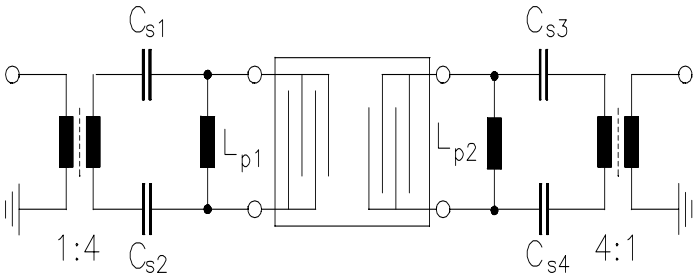
Test matching networks to 50 Ω (element values depend on pcb layout)

a) Unbalanced - unbalanced matching network



Input: Pin 10
Output: Pin 5
L_{s1} = 470 nH
C_{p2} = 4,3 pF
C_{p3} = 4,3 pF
L_{s4} = 470 nH

b) Balanced - balanced matching network



Input: Pins 10 and 9
Output: Pins 5 and 4
C_{s1} = 8,2 pF
C_{s2} = 8,2 pF
L_{p1} = 680 nH
L_{p2} = 680 nH
C_{s3} = 10 pF
C_{s4} = 8,2 pF

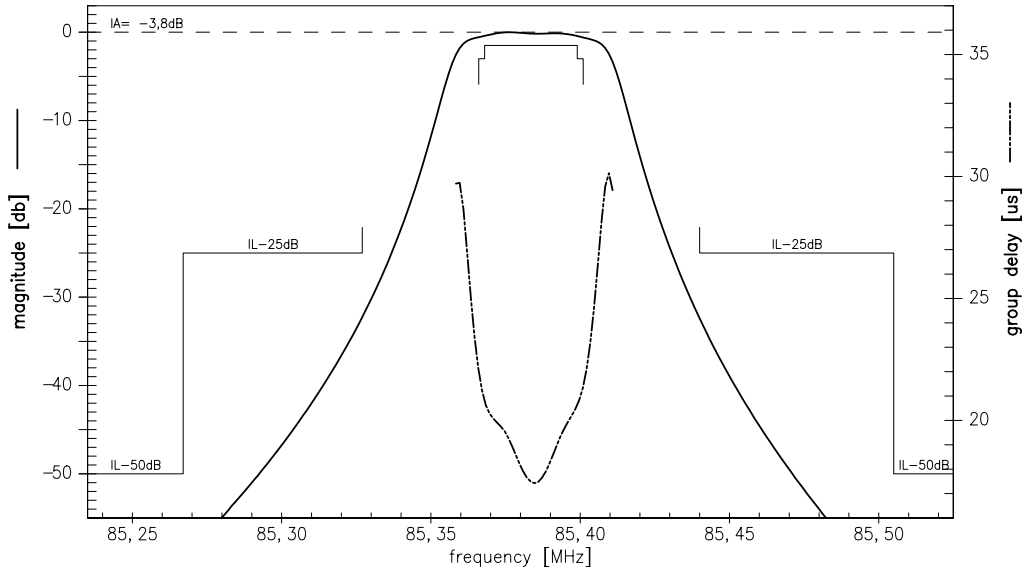
Note :

The balanced - balanced network is realized using M/A-COM 1:4 baluns TP-103. The insertion attenuation of each balun is 0,4 dB at f_N. The loss of the baluns is not included in the specified filter insertion attenuation. S-Parameters of the M/A-COM 1:4 baluns TP-103 are available on request.

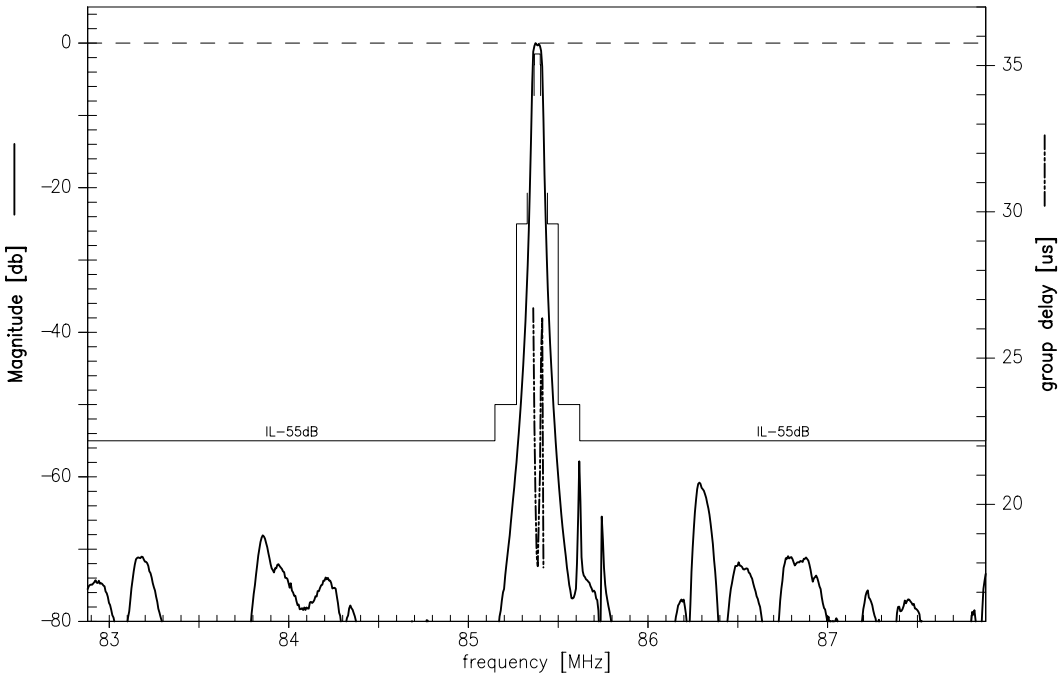
The level of ultimate suppression may be limited by electromagnetic feedthrough depending on the layout of the pcb and the arrangement of the matching components.
The above mentioned characteristics can be realized either in balanced or in unbalanced mode of operation.

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

Normalized transfer function (passband, measured single ended - single ended)



Normalized transfer function (wideband, measured single ended - single ended)



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