



## IF Filters for Narrowband Cellular Phones

**Series/Type:**        **B4874**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39860B4874Z710		2003-03-07	2003-07-31	2003-09-30

For further information please contact your nearest EPCOS sales office, which will also support you in selecting a suitable substitute. The addresses of our worldwide sales network are presented at [www.epcos.com/sales](http://www.epcos.com/sales).



# SAW Components

Data Sheet B4874





SAW Components

B4874

Low Loss Filter for Mobile Communication

85,38 MHz

Data Sheet



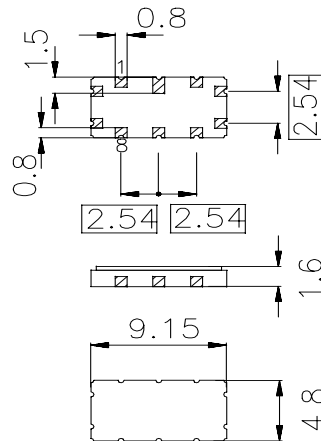
**Features**

- 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 **Surface Mounted Technology (SMT)**

**Terminals**

- Ni, gold plated

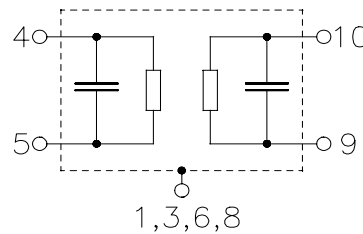
Ceramic package **QCC10B**



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
B4874	B39860-B4874-Z710	C61157-A7-A49	F61064-V8035-Z000

Electrostatic Sensitive Device (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



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**Characteristics**

Operating temperature range:  $T = -30^{\circ}\text{C} \dots 85^{\circ}\text{C}$   
 Terminating source impedance:  $Z_S = 1000 \Omega \parallel 2600 \text{ nH}$   
 Terminating load impedance:  $Z_L = 1000 \Omega \parallel 2600 \text{ nH}$

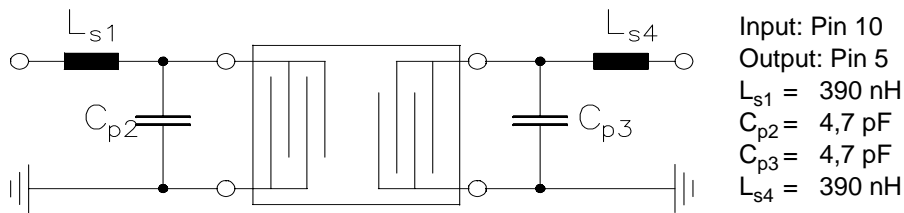
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Nominal frequency</b>	$f_N$	—	85,38	—	MHz
<b>3 dB Bandwidth</b>		+14	—	—	kHz
<b>Minimum insertion attenuation</b> (including losses in the matching network)	$\alpha_{\min}$	—	3,0	4,5	dB
<b>Amplitude ripple (p-p)</b> $f_N - 12,0 \text{ kHz} \dots f_N + 12,0 \text{ kHz}$	$\Delta\alpha$	—	0,3	1,5	dB
<b>Group delay ripple (p-p)</b> $f_N - 12,0 \text{ kHz} \dots f_N + 12,0 \text{ kHz}$	$\Delta\tau$	—	3,0	10,0	$\mu\text{s}$
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_N \pm 14,0 \text{ kHz}$		—	0,5	3,0	dB
$f_N \pm 60,0 \text{ kHz} \dots f_N \pm 120,0 \text{ kHz}$		25	32	—	dB
$f_N \pm 120,0 \text{ kHz}$		45	57	—	dB
$f_N \pm 120,0 \text{ kHz} \dots f_N \pm 2,5 \text{ MHz}$		40	57	—	dB
<b>Impedance within the passband</b>					
Input: $Z_{\text{IN}} = R_{\text{IN}} \parallel C_{\text{IN}}$		—	1000 $\parallel$ 1,4	—	$\Omega \parallel \text{pF}$
Output: $Z_{\text{OUT}} = R_{\text{OUT}} \parallel C_{\text{OUT}}$		—	1000 $\parallel$ 1,4	—	$\Omega \parallel \text{pF}$
<b>Temperature coefficient of frequency</b> <sup>1)</sup>	$TC_f$	—	-0,036	—	ppm/K <sup>2</sup>
<b>Turnover temperature</b>	$T_0$	—	25	—	$^{\circ}\text{C}$

<sup>1)</sup> Temperature dependance of  $f_c$ :  $f_c(T) = f_c(T_0)(1 + TC_f(T - T_0)^2)$

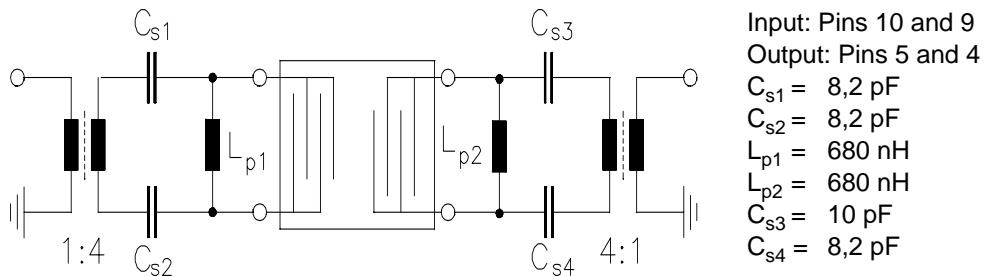


Test matching networks to 50 Ω (element values depend on pcb layout)

a) Unbalanced - unbalanced matching network



b) Balanced - balanced matching network



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.

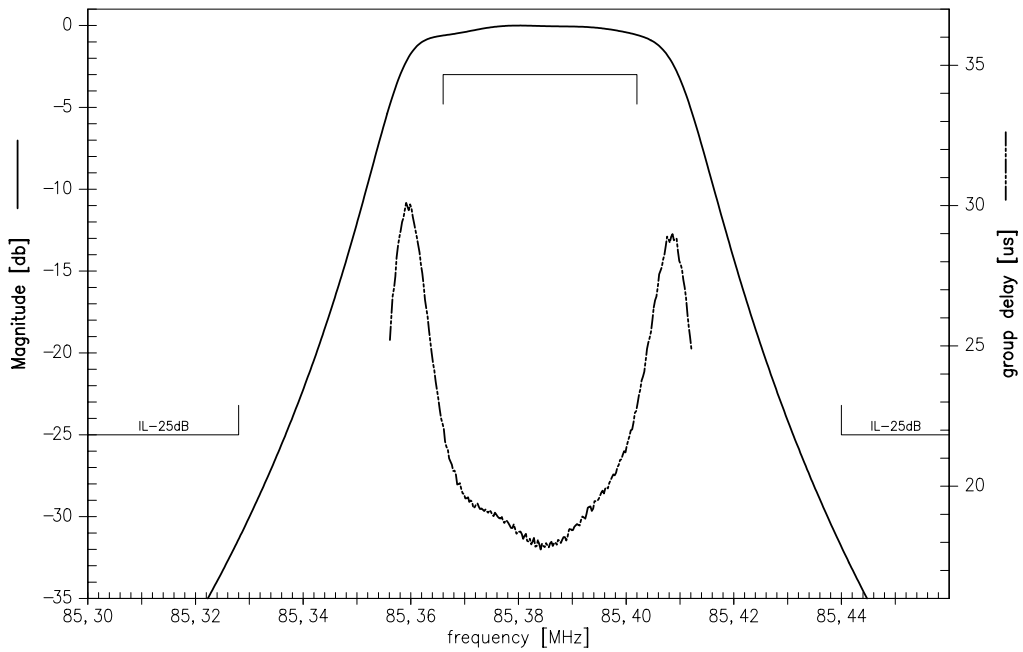
The level of ultimate suppression may be limited by electromagnetic feedthrough depending on the layout of the pcb and the arrangement of the matching components.

The above mentioned characteristics can be realized either in balanced or in unbalanced mode of operation.

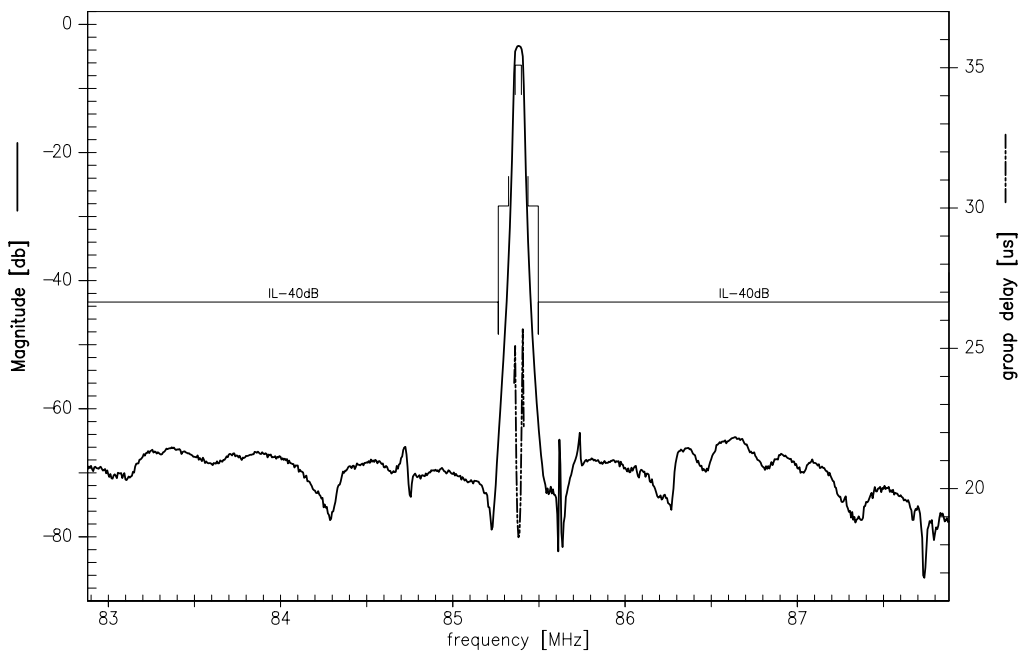
For more details see our application note *PCB Layout for Highly Selective IF Filters*.



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



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





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**P.O. Box 80 17 09, D-81617 München**

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