



# SAW Components

Data Sheet B4540

Data Sheet

A large, stylized, and somewhat abstract graphic of the EPCOS logo. The word "EPCOS" is rendered in a bold, sans-serif font, with the letters appearing to be part of a larger, curved structure that resembles a stylized globe or a series of overlapping planes. The graphic is in grayscale and has a high-contrast, almost glowing appearance.



## SAW Components

**B4540**

## Bandpass Filter for Mobile Communication

**112,32 MHz**

### Data Sheet

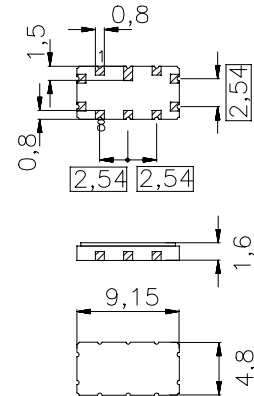
Ceramic package **QCC10B**

#### Features

- Bandpass IF filter for cordless telephone
- Channel selection in DECT system
- Ceramic package for **Surface Mounted Technology (SMT)**

#### Terminals

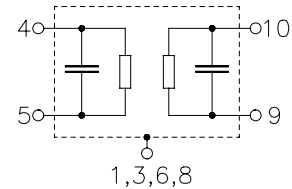
- Ni, gold-plated



Dimensions in mm, approx. weight 0,23 g

#### Pin configuration

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



Type	Ordering code	Marking and Package according to	Packing according to
B4540	B39111-B4540-Z710	C61157-A7-A49	F61074-V8035-Z000

Electrostatic Sensitive Device (ESD)

#### Maximum ratings

Operable temperature range	$T$	- 40/+ 85	°C	
Storage temperature range	$T_{stg}$	- 40/+ 85	°C	
DC voltage	$V_{DC}$	0	V	
Source power	$P_s$	10	dBm	source impedance 50 $\Omega$



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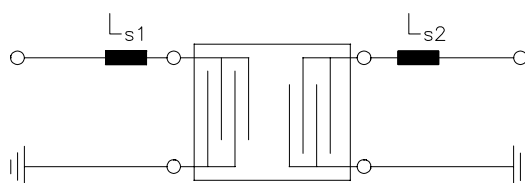
### Characteristics

Operating temperature range:	$T = -40$ to $+85$ °C
Terminating source impedance:	$Z_S = 1,1 \text{ k}\Omega \parallel 390 \text{ nH}$
Terminating load impedance:	$Z_L = 0,9 \text{ k}\Omega \parallel 340 \text{ nH}$

		min.	typ.	max.	
<b>Nominal frequency</b>	$f_N$	—	112,32	—	MHz
<b>Insertion attenuation at <math>f_N</math></b> (including losses in matching network) Reference level for the following data	$\alpha_N$	—	13,5	15,0	dB
<b>Pass bandwidth</b>	$B_{3dB}$	—	1,6	—	MHz
<b>Group delay ripple (p-p)</b> $f_N - 700,0 \text{ kHz} \dots f_N + 700,0 \text{ kHz}$	$\Delta\tau$	—	100	150	ns
<b>Relative attenuation (relative to <math>\alpha_N</math>)</b>	$\alpha_{rel}$				
$f_N - 30,00 \text{ MHz} \dots f_N - 6,32 \text{ MHz}$		45	59	—	dB
$f_N - 6,32 \text{ MHz} \dots f_N - 4,00 \text{ MHz}$		40	53	—	dB
$f_N - 4,00 \text{ MHz} \dots f_N - 1,72 \text{ MHz}$		30	42	—	dB
$f_N + 1,72 \text{ MHz} \dots f_N + 4,00 \text{ MHz}$		30	41	—	dB
$f_N + 4,00 \text{ MHz} \dots f_N + 6,00 \text{ MHz}$		40	50	—	dB
$f_N + 6,00 \text{ MHz} \dots f_N + 8,00 \text{ MHz}$		35	41	—	dB
$f_N + 8,00 \text{ MHz} \dots f_N + 30,00 \text{ MHz}$		40	45	—	dB
$f_N + 17,28 \text{ MHz}$		45	57	—	dB
<b>Impedance at <math>f_N</math></b>					
Input: $Z_{IN} = R_{IN} \parallel C_{IN}$		—	3,9 $\parallel$ 5,0	—	k $\Omega$ $\parallel$ pF
Output: $Z_{OUT} = R_{OUT} \parallel C_{OUT}$		—	3,3 $\parallel$ 6,1	—	k $\Omega$ $\parallel$ pF
<b>Temperature coefficient of frequency <sup>1)</sup></b>	$TC_f$	—	- 0,03	—	ppm/K <sup>2</sup>
<b>Turnover temperature</b>	$T_0$	—	30	—	°C

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

**Matching network to 50  $\Omega$**  (element values depend on pcb layout)



$$\begin{aligned} L_{s1} &= 330 \text{ nH} \\ L_{s2} &= 270 \text{ nH} \end{aligned}$$



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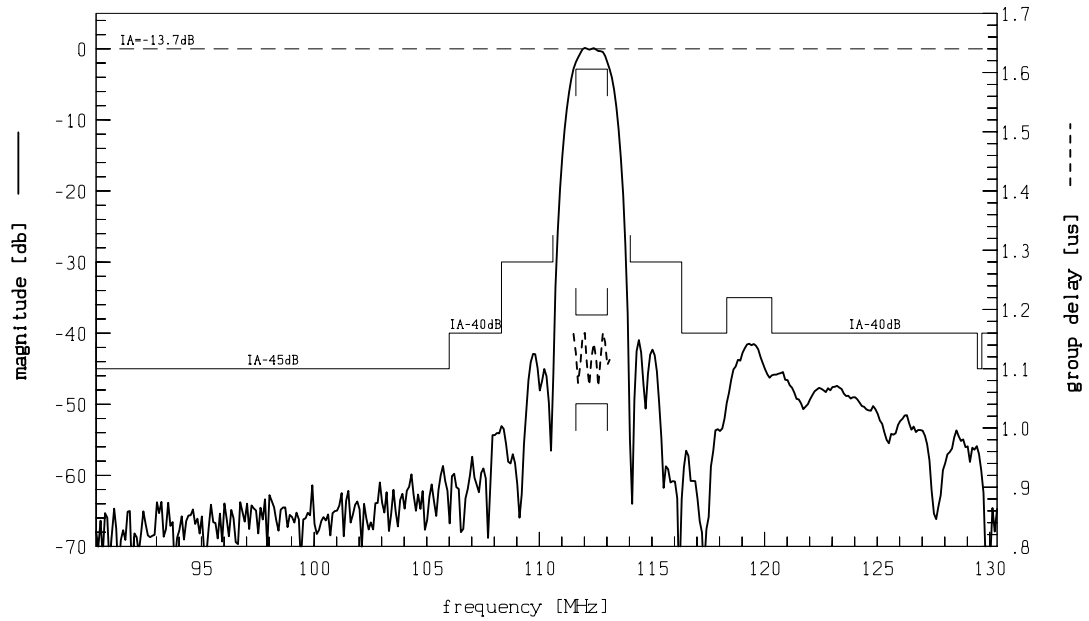
B4540

## Bandpass Filter for Mobile Communication

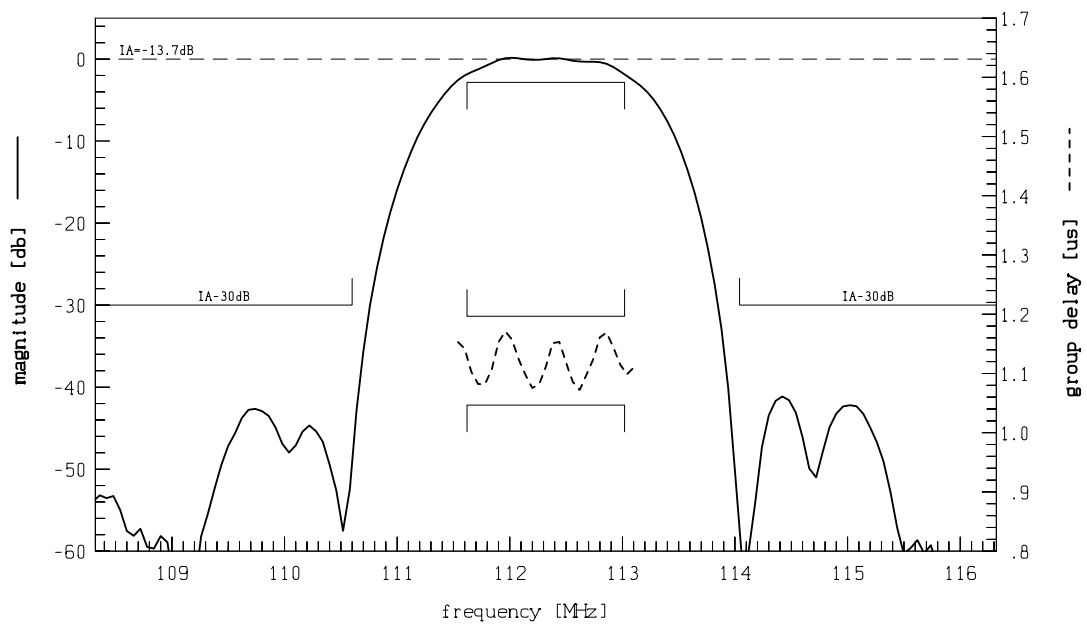
112,32 MHz

### Data Sheet

#### Transfer function



#### Transfer function (pass band)





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