



# SAW Components

Data Sheet B3802





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B3802

## Low-Loss Filter

110,0 MHz

## Data Sheet

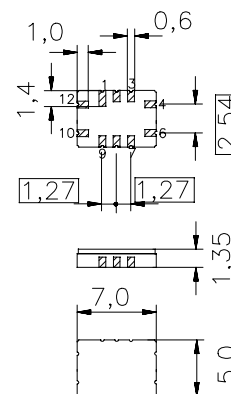
## Ceramic package QCC12B

## Features

- Low-loss IF filter
- Package for Surface Mounted Technology (SMT)
- Hermetically sealed ceramic package
- Balanced or unbalanced operation

## Terminals

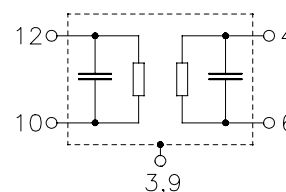
- Gold-plated



Dimensions in mm, approx. weight 0,2 g

## Pin configuration

12	Input
10	Input or input ground
4	Output
6	Output or output ground
1, 2, 7, 8	Ground
3, 9	Case ground



Type	Ordering code	Marking and Package according to	Packing according to
B3802	B39111-B3802-Z910	C61157-A7-A56	F61064-V8070-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



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## Characteristics

Operating temperature:

T = 25 °C

Terminating source impedance:

 $Z_S = 50 \Omega$  and matching network

Terminating load impedance:

 $Z_L = 50 \Omega$  and matching network

		min.	typ.	max.	
<b>Center frequency</b>	$f_C$	109,9	110,0	110,1	MHz
<b>Minimum insertion attenuation</b>	$\alpha_{\min}$	—	6,8	10,0	dB
<b>Pass bandwidth</b>	$\alpha_{\text{rel}} \leq 3,0 \text{ dB}$	$B_{3\text{dB}}$	3,75	4,0	—
	$\alpha_{\text{rel}} \leq 1,0 \text{ dB}$	$B_{1\text{dB}}$	—	3,1	—
<b>Amplitude ripple</b> (max peak to adjacent valley)	$\Delta\alpha$				
	$f_C \pm 1,6 \text{ MHz}$	—	0,5	—	dB
<b>Group delay ripple</b>	$\Delta\tau$				
	$f_C \pm 1,6 \text{ MHz}$	—	45	80	ns
<b>Relative attenuation</b> (relative to $\alpha_{\min}$ )	$\alpha_{\text{rel}}$				
	60,0 MHz ... 100,0 MHz	40	42	—	dB
	100,0 MHz ... 105,5 MHz	36	41	—	dB
	114,5 MHz ... 120,0 MHz	36	41	—	dB
		38	43	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-18	—	ppm/K



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## Characteristics

Operating temperature:

 $T = -10 \dots 70 \text{ }^\circ\text{C}$ 

Terminating source impedance:

 $Z_S = 50 \text{ } \Omega$  and matching network

Terminating load impedance:

 $Z_L = 50 \text{ } \Omega$  and matching network

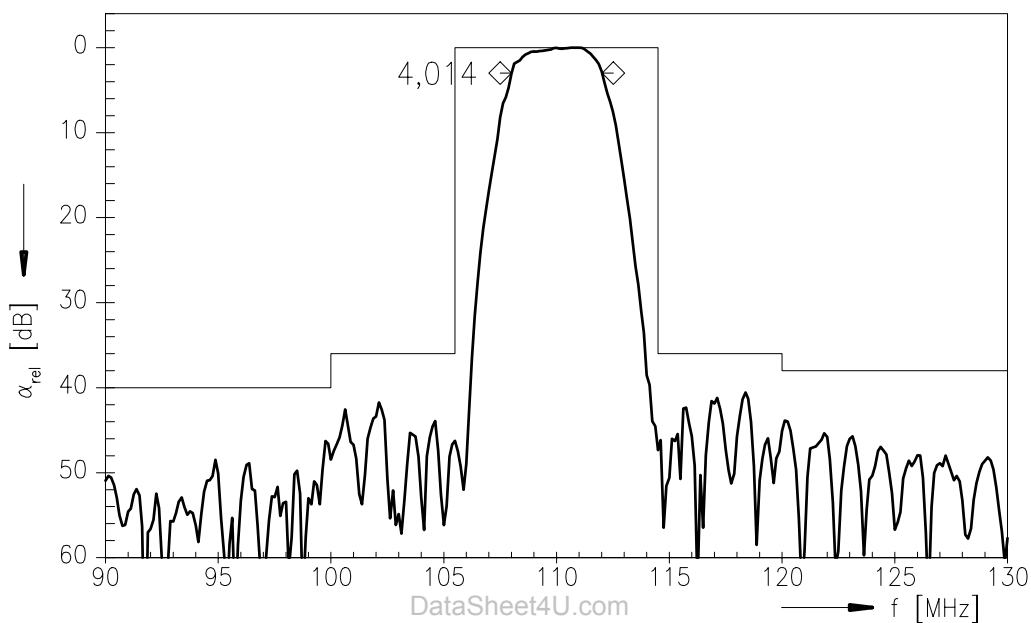
		min.	typ.	max.		
<b>Center frequency</b>	$f_C$	109,8	110,0	110,18	MHz	
<b>Minimum insertion attenuation</b>	$\alpha_{\min}$	—	6,8	10,0	dB	
<b>Pass bandwidth</b>	$\alpha_{\text{rel}} \leq 3,0 \text{ dB}$	$B_{3\text{dB}}$	3,75	4,0	—	MHz
	$\alpha_{\text{rel}} \leq 1,0 \text{ dB}$	$B_{1\text{dB}}$	—	3,1	—	MHz
<b>Amplitude ripple</b> (max peak to adjacent valley)	$\Delta\alpha$					
	$f_C \pm 1,6 \text{ MHz}$	—	0,5	—	dB	
<b>Group delay ripple</b>	$\Delta\tau$					
	$f_C \pm 1,6 \text{ MHz}$	—	45	80	ns	
<b>Relative attenuation</b> (relative to $\alpha_{\min}$ )	$\alpha_{\text{rel}}$					
	60,0 MHz ... 100,0 MHz	40	42	—	dB	
	100,0 MHz ... 105,5 MHz	36	41	—	dB	
	114,5 MHz ... 120,0 MHz	36	41	—	dB	
	120,0 MHz ... 160,0 MHz	38	43	—	dB	
<b>Temperature coefficient of frequency</b>	$TC_f$	—	-18	—	ppm/K	



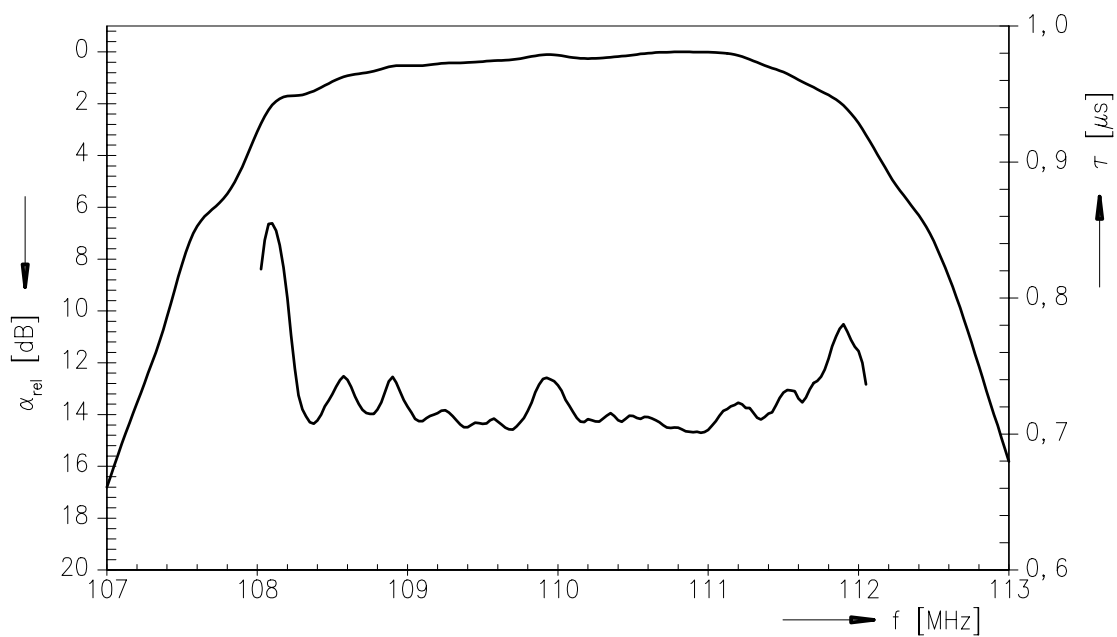
<b>SAW Components</b>	<b>B3802</b>
<b>Low-Loss Filter</b>	<b>110,0 MHz</b>

**Data Sheet**

**Normalized frequency response**



**Normalized frequency response (pass band)**





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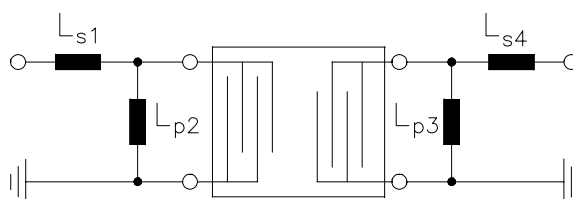
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**Matching network** (element values may depend on pcb layout)

**50  $\Omega$  unbalanced:**



$$L_{s1} = 82 \text{ nH}$$

$$L_{p2} = 47 \text{ nH}$$

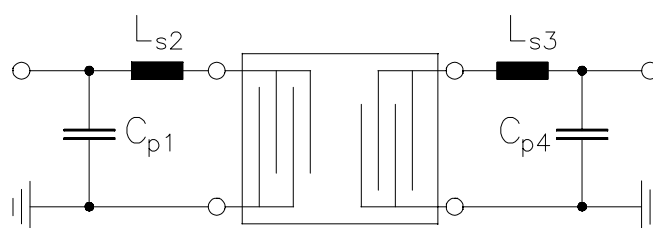
$$L_{p3} = 33 \text{ nH}$$

$$L_{s4} = 12 \text{ nH}$$

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**50  $\Omega$  unbalanced :** (higher IL, but more attenuation in the upper stopband)



$$C_{p1} = 100 \text{ nF}$$

$$L_{s2} = 56 \text{ nH}$$

$$L_{s3} = 56 \text{ nH}$$

$$C_{p4} = 68 \text{ nF}$$



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