



# SAW Components

Data Sheet B3820





**SAW Components**

**B3820**

**Low-Loss Filter**

**110,00 MHz**

Data Sheet



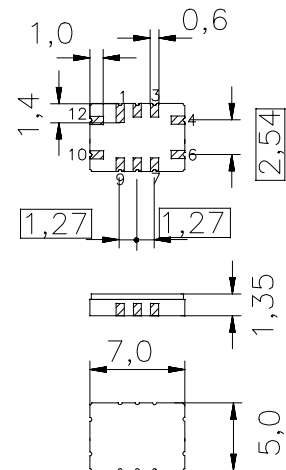
Ceramic package **QCC12B**

**Features**

- Low-loss IF filter
- Channel selection for Bluetooth and HomeRF
- Ceramic package for **Surface Mounted Technology (SMT)**

**Terminals**

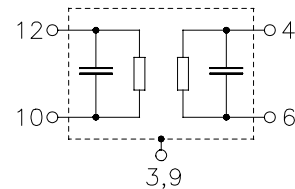
- Ni, gold-plated



Dimensions in mm, approx. weight 0,23 g

**Pin configuration**

- 12 Input
- 10 Input ground or balanced input
- 6 Output
- 4 Output ground or balanced output
- 3, 9 Case – ground
- 1, 2, 7, 8 To be grounded



Type	Ordering code	Marking and Package according to	Packing according to
B3820	B39111-B3820-Z910	C61157-A7-A52	F61074-V8038-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	


**SAW Components**
**B3820**
**Low-Loss Filter**
**110,00 MHz**
**Data Sheet**

**Characteristics**

Reference temperature:	$T = +25\text{ °C}$
Terminating source impedance:	$Z_S = 50\ \Omega$ unbalanced and matching network
Terminating load impedance:	$Z_L = 50\ \Omega$ unbalanced and matching network

		min.	typ.	max.	
<b>Nominal frequency</b>	$f_N$	—	110,00	—	MHz
<b>Center frequency</b> (center frequency between -3 dB points)	$f_c$	109,96	110,00	110,04	MHz
<b>Minimum insertion attenuation</b> (including loss in matching elements)	$\alpha_{\min}$	—	8,5	10,0	dB
<b>Band width</b>	$B_{3\text{dB}}$	940	980	—	kHz
	$B_{25\text{dB}}$	—	1900	2060	kHz
	$B_{40\text{dB}}$	—	2800	4000	kHz
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
$f_c - 650\text{ kHz} \dots f_c + 650\text{ kHz}$		—	350	450	ns
$f_c - 800\text{ kHz} \dots f_c + 800\text{ kHz}$		—	400	500	ns
$f_c - 850\text{ kHz} \dots f_c + 850\text{ kHz}$		—	450	600	ns
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_c \dots f_c \pm 0,20\text{ MHz}$		—	0,4	1,0	dB
$f_c \pm 0,20\text{ MHz} \dots f_c \pm 0,30\text{ MHz}$		—	0,8	1,5	dB
$f_c \pm 0,30\text{ MHz} \dots f_c \pm 0,44\text{ MHz}$		—	2,2	3,0	dB
$f_c \pm 0,44\text{ MHz} \dots f_c \pm 0,475\text{ MHz}$		—	2,8	3,7	dB
$f_c \pm 0,6\text{ MHz} \dots f_c \pm 1,0\text{ MHz}$		3	6,0	—	dB
$f_c \pm 1,0\text{ MHz} \dots f_c \pm 1,03\text{ MHz}$		22	26	—	dB
$f_c \pm 1,03\text{ MHz} \dots f_c \pm 1,6\text{ MHz}$		25	31	—	dB
$f_c \pm 2, \pm 3, \pm 4, \pm 5, \pm 6, \pm 7, \pm 8, \pm 9, \pm 10\text{ MHz}$		42*)	47	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	- 18	—	ppm/K

\*) average value over  $f_a - 500\text{kHz} \dots f_a + 500\text{kHz}$


**SAW Components**
**B3820**
**Low-Loss Filter**
**110,00 MHz**
**Data Sheet**

**Characteristics**

Reference temperature:  $T = -10 \dots 70 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S = 50 \text{ } \Omega$  unbalanced and matching network  
 Terminating load impedance:  $Z_L = 50 \text{ } \Omega$  unbalanced and matching network

		min.	typ.	max.	
<b>Nominal frequency</b>	$f_N$	—	110,00	—	MHz
<b>Center frequency</b> (center frequency between -3 dB points)	$f_c$	109,87	110,00	110,11	MHz
<b>Minimum insertion attenuation</b> (including loss in matching elements)	$\alpha_{\min}$	—	8,5	10,0	dB
<b>Band width</b>	$B_{3\text{dB}}$	940	980	—	kHz
	$B_{25\text{dB}}$	—	1900	2060	kHz
	$B_{40\text{dB}}$	—	2800	4000	kHz
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
$f_c - 650 \text{ kHz} \dots f_c + 650 \text{ kHz}$		—	350	450	ns
$f_c - 800 \text{ kHz} \dots f_c + 800 \text{ kHz}$		—	400	500	ns
$f_c - 850 \text{ kHz} \dots f_c + 850 \text{ kHz}$		—	450	600	ns
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_c \dots f_c \pm 0,20 \text{ MHz}$		—	0,4	1,0	dB
$f_c \pm 0,20 \text{ MHz} \dots f_c \pm 0,30 \text{ MHz}$		—	0,8	1,5	dB
$f_c \pm 0,30 \text{ MHz} \dots f_c \pm 0,44 \text{ MHz}$		—	2,2	3,0	dB
$f_c \pm 0,44 \text{ MHz} \dots f_c \pm 0,475 \text{ MHz}$		—	2,8	3,7	dB
$f_c \pm 0,6 \text{ MHz} \dots f_c \pm 1,0 \text{ MHz}$		3	6,0	—	dB
$f_c \pm 1,0 \text{ MHz} \dots f_c \pm 1,03 \text{ MHz}$		22	26	—	dB
$f_c \pm 1,03 \text{ MHz} \dots f_c \pm 1,6 \text{ MHz}$		25	31	—	dB
$f_c \pm 2, \pm 3, \pm 4, \pm 5, \pm 6, \pm 7, \pm 8, \pm 9, \pm 10 \text{ MHz}$		42*)	47	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	- 18	—	ppm/K

\*) average value over  $f_a - 500\text{kHz} \dots f_a + 500\text{kHz}$



SAW Components

B3820

Low-Loss Filter

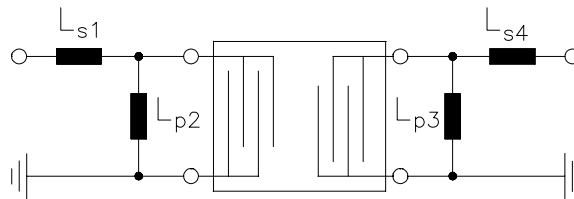
110,00 MHz

Data Sheet



Matching network (element values may depend on pcb layout)

50  $\Omega$  unbalanced:



$$L_{s1} = 0 \text{ nH}$$

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

$$L_{p3} = 68 \text{ nH}$$

$$L_{s4} = 56 \text{ nH}$$



SAW Components

B3820

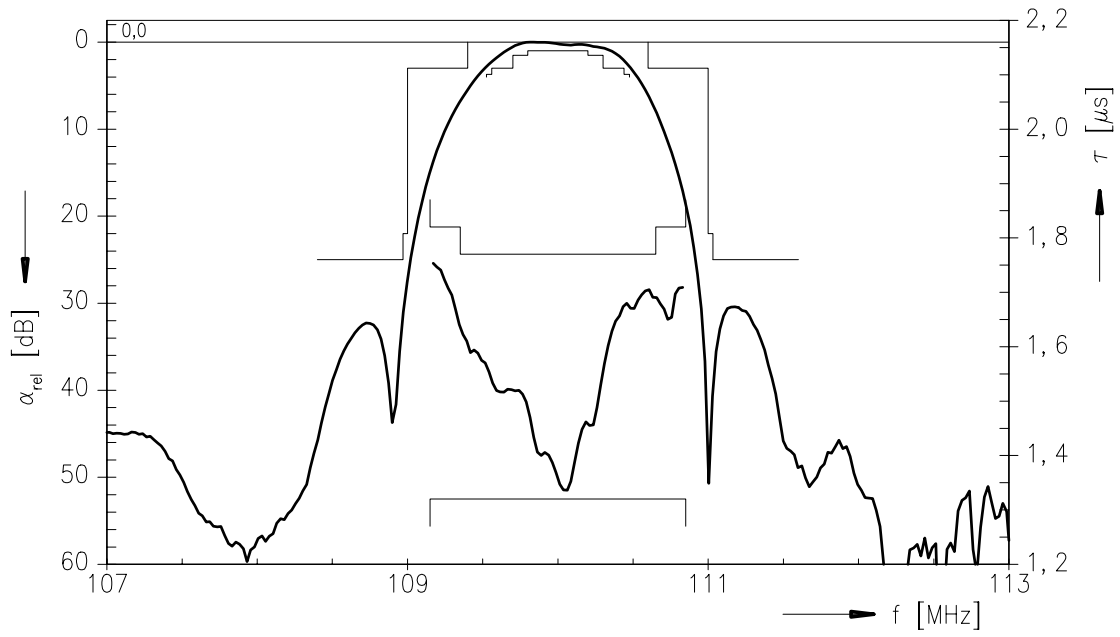
Low-Loss Filter

110,00 MHz

Data Sheet



Transfer function:





**SAW Components**

**B3820**

**Low-Loss Filter**

**110,00 MHz**

Data Sheet



**Published by EPCOS AG**

**Surface Acoustic Wave Components Division, SAW MC IS**

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

© EPCOS AG 2000. All Rights Reserved. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

The information contained in this brochure describes the type of component and shall not be considered as guaranteed characteristics. Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

This brochure replaces the previous edition.

For questions on technology, prices and delivery please contact the Sales Offices of EPCOS AG or the international Representatives.

Due to technical requirements components may contain dangerous substances. For information on the type in question please also contact one of our Sales Offices.