



# SAW Components

Data Sheet B3881



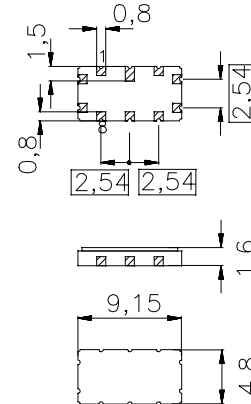
**Data Sheet**

 Ceramic package **QCC10B**
**Features**

- High performance IF bandpass filter
- Multichannel W-CDMA and CDMA capable
- Hermetically sealed ceramic package
- unbalanced to unbalanced and unbalanced to balanced operation possible

**Terminals**

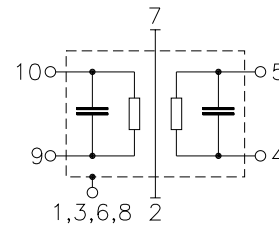
- Gold plated



Dimensions in mm, approx. weight 0,23 g

**Pin configuration**

9	Input
10	Input ground
4	Output
5	Output ground or balanced output
2, 7	Ground
1, 3, 6, 8	To be grounded



Type	Ordering code	Marking and Package according to	Packing according to
B3881	B39171-B3881-Z710	C61157-A7-A49	F61074-V8172-Z000

Electrostatic Sensitive Device (ESD)

**Maximum ratings**

Operable temperature range	$T$	-40/ +85	°C	
Storage temperature range	$T_{stg}$	-40/ +85	°C	
DC voltage	$V_{DC}$	5	V	
Source power	$P_s$	10	dBm	



**SAW Components**

**B3881**

**Low-Loss Filter**

**168,96 MHz**

**Data Sheet**

**Characteristics**

Operating temperature:  $T = +35 \dots +85 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S=50 \text{ }\Omega$  single ended and matching network  
 Terminating load impedance:  $Z_S=50 \text{ }\Omega$  single ended and matching network

		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Nominal frequency</b>	$f_N$	—	168,96	—	MHz
<b>Minimum insertion attenuation</b> (including matching network)	$\alpha_{\min}$	—	18,5	20,5	dB
<b>Passband width</b>					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	14,1	—	MHz
$\alpha_{\text{rel}} \leq 2 \text{ dB}$	$B_{2\text{dB}}$	—	14,5	—	MHz
$\alpha_{\text{rel}} \leq 40 \text{ dB}$	$B_{40\text{dB}}$	—	17,1	—	MHz
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
$f_N \pm 6,67 \text{ MHz}$		—	0,6	0,9	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
$f_N \pm 6,67 \text{ MHz}$		—	80	120	ns
<b>Phase Linearity<sup>1)</sup> (rms)</b>	$\Delta\phi$				
$f_N \pm 1,92 \text{ MHz}$		—	0,5	1,0	$^\circ$
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	1,5	2,0	$^\circ$
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	0,9	1,5	$^\circ$
$f_N + k*1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	0,7	1,3	$^\circ$
<b>Average Error Vector Magnitude <sup>1)</sup></b>	$EVM$				
$f_N \pm 1,92 \text{ MHz}$		—	1,3	3,0	%
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	3,0	4,0	%
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	2,5	4,0	%
$f_N + k*1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	1,8	4,0	%
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_N \pm 7,5 \text{ MHz} \dots f_N \pm 17,5 \text{ MHz}$		2	4	—	dB
$f_N \pm 17,5 \text{ MHz} \dots f_N \pm 21,5 \text{ MHz}$		41	45	—	dB
$f_N \pm 21,5 \text{ MHz} \dots f_N \pm 25,5 \text{ MHz}$		43	48	—	dB
$f_N \pm 25,5 \text{ MHz} \dots f_N \pm 66,0 \text{ MHz}$		45	50	—	dB
$f_N \pm 66,0 \text{ MHz} \dots f_N \pm 111,0 \text{ MHz}$		40	45	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	- 18	—	ppm/K

1) Phase Linearity/Average Error Vector Magnitude: where  $k = (-5, -4 \dots +5)$



**SAW Components**

**B3881**

**Low-Loss Filter**

**168,96 MHz**

**Data Sheet**

**Characteristics**

Operating temperature:  $T = 0 \dots +85 \text{ }^\circ\text{C}$   
 Terminating source impedance:  $Z_S=50 \text{ }\Omega$  single ended and matching network  
 Terminating load impedance:  $Z_S=50 \text{ }\Omega$  single ended and matching network

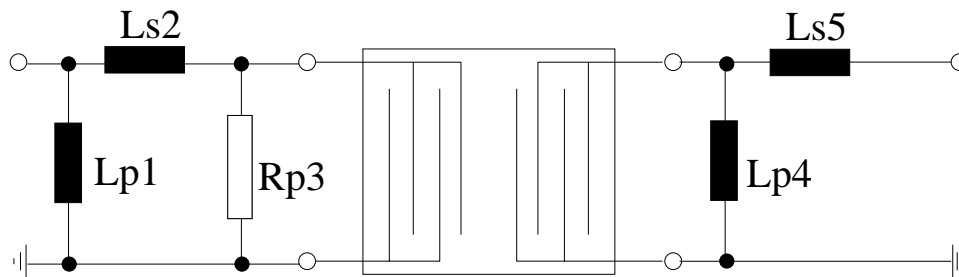
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Nominal frequency</b>	$f_N$	—	168,96	—	MHz
<b>Minimum insertion attenuation</b> (including matching network)	$\alpha_{\min}$	—	18,5	20,5	dB
<b>Passband width</b>					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	14,1	—	MHz
$\alpha_{\text{rel}} \leq 2 \text{ dB}$	$B_{2\text{dB}}$	—	14,5	—	MHz
$\alpha_{\text{rel}} \leq 40 \text{ dB}$	$B_{40\text{dB}}$	—	17,1	—	MHz
<b>Amplitude ripple (p-p)</b>	$\Delta\alpha$				
$f_N \pm 6,67 \text{ MHz}$		—	0,6	0,9	dB
<b>Group delay ripple (p-p)</b>	$\Delta\tau$				
$f_N \pm 6,67 \text{ MHz}$		—	80	120	ns
<b>Phase Linearity<sup>1)</sup> (rms)</b>	$\Delta\phi$				
$f_N \pm 1,92 \text{ MHz}$		—	0,5	1,0	°
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	1,5	2,5	°
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	0,9	1,5	°
$f_N + k*1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	0,7	1,3	°
<b>Average Error Vector Magnitude <sup>1)</sup></b>	$EVM$				
$f_N \pm 1,92 \text{ MHz}$		—	1,3	3,0	%
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	3,0	4,5	%
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	2,5	4,0	%
$f_N + k*1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	1,8	4,0	%
<b>Relative attenuation (relative to <math>\alpha_{\min}</math>)</b>	$\alpha_{\text{rel}}$				
$f_N - 7,5 \text{ MHz} \dots f_N - 17,5 \text{ MHz}$		2	4	—	dB
$f_N + 7,5 \text{ MHz} \dots f_N + 17,5 \text{ MHz}$		1,5	4	—	dB
$f_N \pm 17,5 \text{ MHz} \dots f_N \pm 21,5 \text{ MHz}$		41	45	—	dB
$f_N \pm 21,5 \text{ MHz} \dots f_N \pm 25,5 \text{ MHz}$		43	48	—	dB
$f_N \pm 25,5 \text{ MHz} \dots f_N \pm 66,0 \text{ MHz}$		45	50	—	dB
$f_N \pm 66,0 \text{ MHz} \dots f_N \pm 111,0 \text{ MHz}$		40	45	—	dB
<b>Temperature coefficient of frequency</b>	$TC_f$	—	- 18	—	ppm/K

1) Phase Linearity/Average Error Vector Magnitude: where k = (-5, -4 .... +5)

## Data Sheet

**Matching network to 50 Ohm:**

(Element values depend upon PCB layout)



$$L_{p1} = 47 \text{ nH}$$

$$L_{s2} = 100 \text{ nH}$$

$$R_{p3} = 1,8 \text{ k}\Omega$$

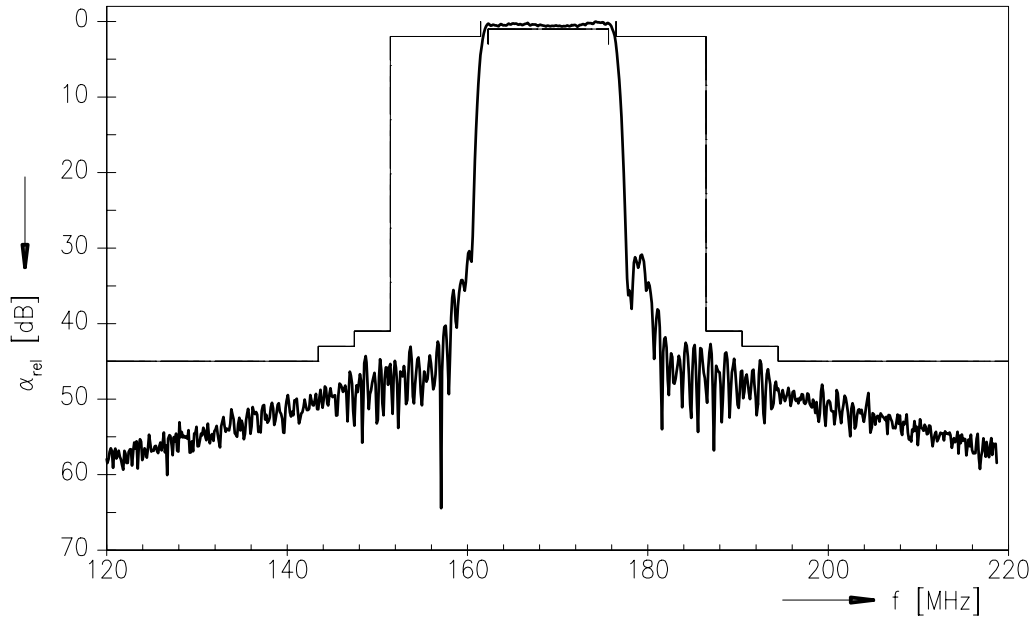
$$L_{p4} = 220 \text{ nH}$$

$$L_{s5} = 82 \text{ nH}$$

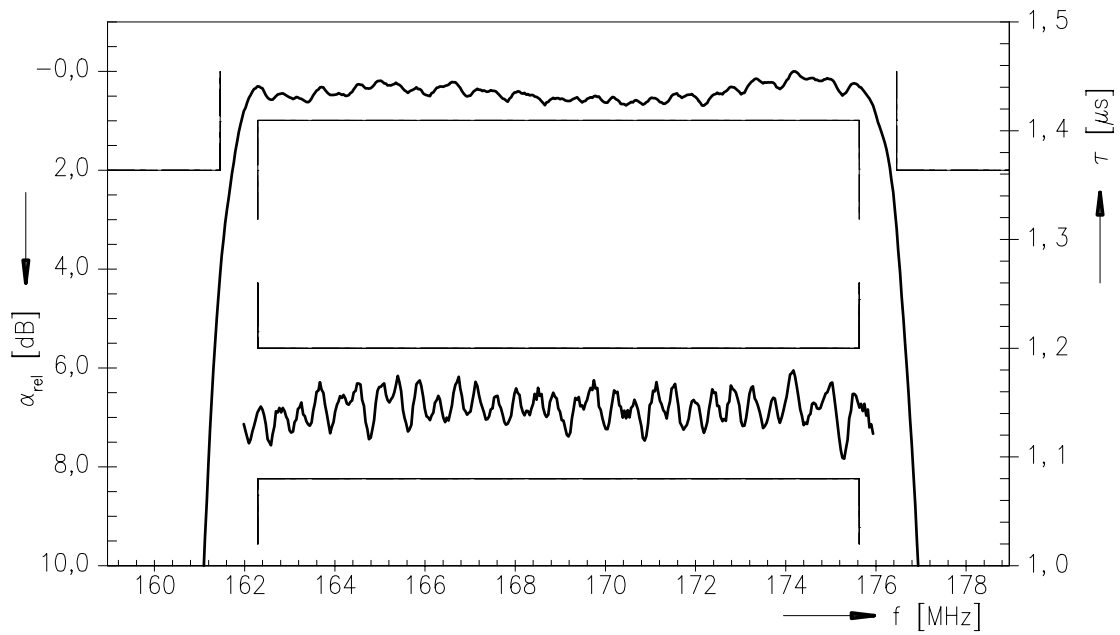


Data Sheet

Normalized frequency response, matching network (single ended to single ended)



Normalized frequency response (pass band), matching network





**SAW Components**

**B3881**

**Low-Loss Filter**

**168,96 MHz**

Data Sheet

**Published by EPCOS AG**

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

**P.O. Box 80 17 09, 81617 Munich, GERMANY**

© EPCOS AG 2004. Reproduction, publication and dissemination of this brochure and the information contained therein without EPCOS' prior express consent is prohibited.

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.