



# SAW filters for infrastructure systems

## Series/Type: B3881

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39171B3881Z710		2012-01-13	2012-12-31	2013-03-30

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).

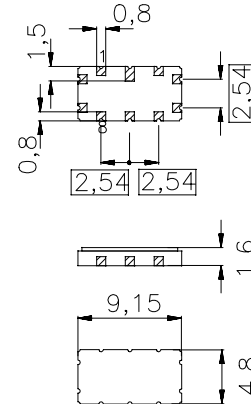
**Data Sheet**

 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**

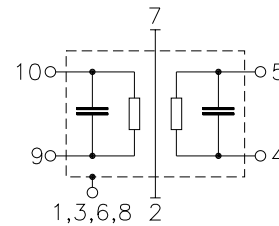
- Gold plated



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	°
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	1,5	2,0	°
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	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>	<i>EVM</i>				
$f_N \pm 1,92 \text{ MHz}$		—	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

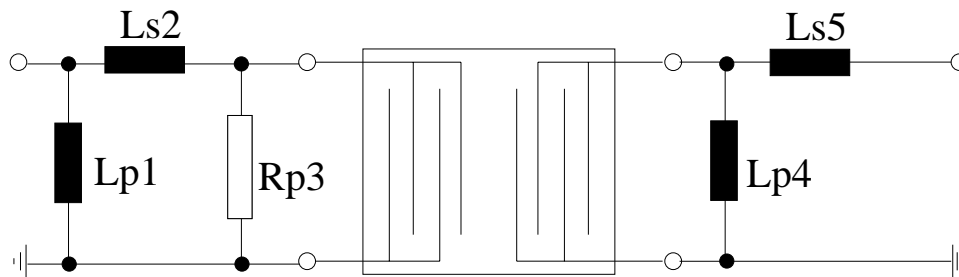
		<b>min.</b>	<b>typ.</b>	<b>max.</b>	
<b>Nominal frequency</b>	$f_N$	—	168,96	—	MHz
<b>Minimum insertion attenuation</b> (including matching network)	$\alpha_{\min}$	—	18,5	20,5	dB
<b>Passband width</b>					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	14,1	—	MHz
$\alpha_{\text{rel}} \leq 2 \text{ dB}$	$B_{2\text{dB}}$	—	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>	$EVM$				
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<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)



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

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

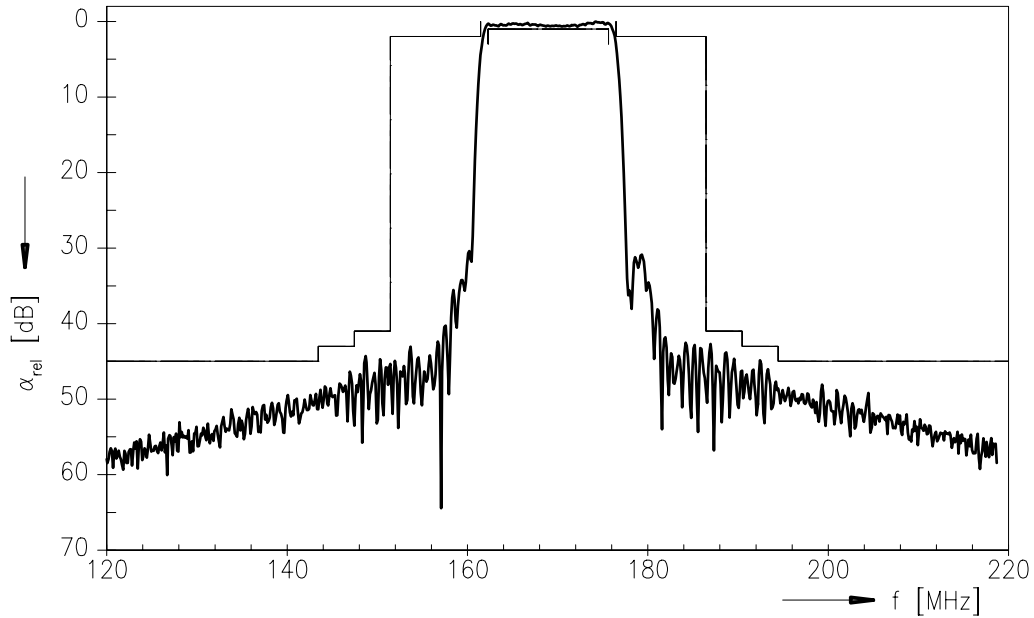
$$R_{p3} = 1,8 \text{ k}\Omega$$

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

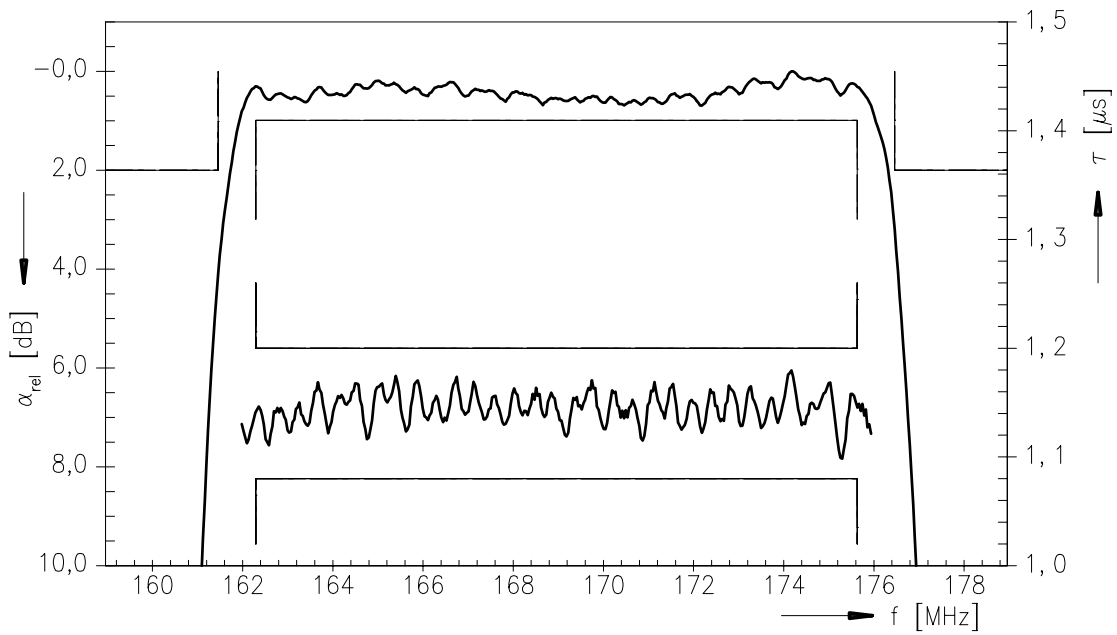
$$L_{s5} = 82 \text{ nH}$$

Data Sheet

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



Normalized frequency response (pass band), matching network





**SAW Components**

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**Low-Loss Filter**

**168,96 MHz**

Data Sheet

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