



SAW Components

Data Sheet B3881

Data Sheet

EPCOS



SAW Components

B3881

Low-Loss Filter

168,96 MHz

Data Sheet

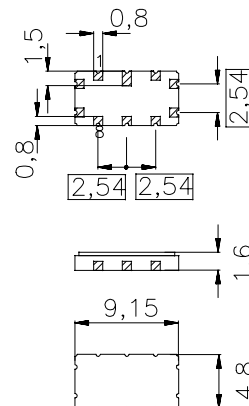
Ceramic package **QCC10B**

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

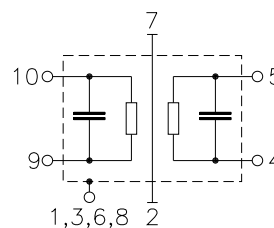
- Gold plated



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

		min.	typ.	max.	
Nominal frequency	f_N	—	168,96	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	18,5	20,5	dB
Passband width					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	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
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 6,67 \text{ MHz}$		—	0,6	0,9	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 6,67 \text{ MHz}$		—	80	120	ns
Phase Linearity¹⁾ (rms)	$\Delta\phi$				
$f_N \pm 1,92 \text{ MHz}$		—	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	$^{\circ}$
$f_N + k \cdot 1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	0,7	1,3	$^{\circ}$
Average Error Vector Magnitude ¹⁾	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	%
$f_N + k \cdot 1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	1,8	4,0	%
Relative attenuation (relative to α_{\min})	α_{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
Temperature coefficient of frequency	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:	$Z_L = 50 \text{ } \Omega$ single ended and matching network

		min.	typ.	max.	
Nominal frequency	f_N	—	168,96	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	18,5	20,5	dB
Passband width					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	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
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 6,67 \text{ MHz}$		—	0,6	0,9	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 6,67 \text{ MHz}$		—	80	120	ns
Phase Linearity¹⁾ (rms)	$\Delta\phi$				
$f_N \pm 1,92 \text{ MHz}$		—	0,5	1,0	$^{\circ}$
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	1,5	2,5	$^{\circ}$
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	0,9	1,5	$^{\circ}$
$f_N + k \cdot 1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	0,7	1,3	$^{\circ}$
Average Error Vector Magnitude ¹⁾	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	%
$f_N + k \cdot 1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	1,8	4,0	%
Relative attenuation (relative to α_{\min})	α_{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
Temperature coefficient of frequency	TC_f	—	- 18	—	ppm/K

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



SAW Components

B3881

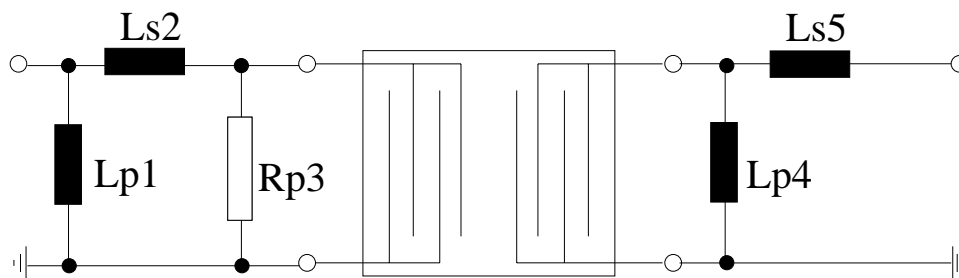
Low-Loss Filter

168,96 MHz

Data Sheet

Matching network to 50 Ohm:

(Element values depend upon PCB layout)



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

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

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

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

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



SAW Components

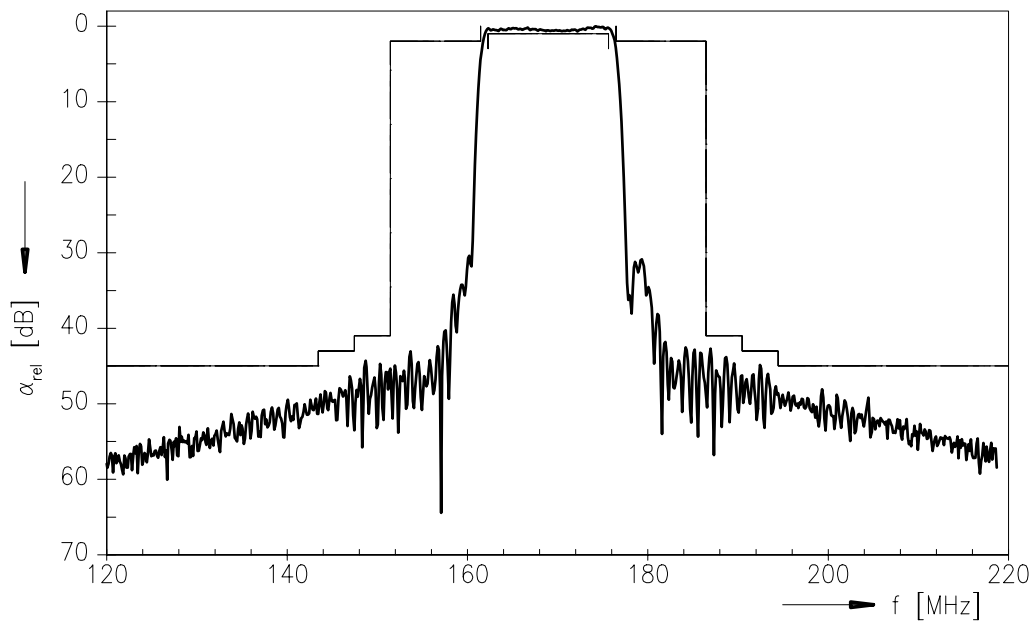
B3881

Low-Loss Filter

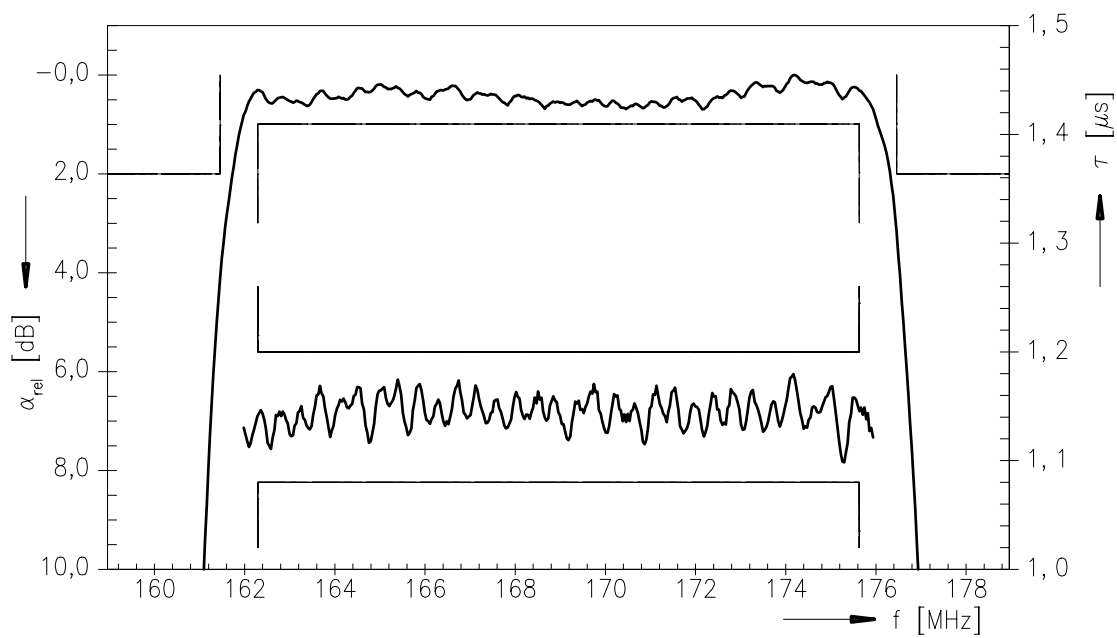
168,96 MHz

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.