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EPCOS

SAW Components

Data Sheet B3881

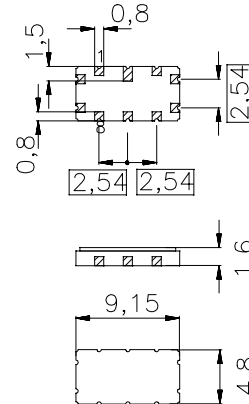| SAW Components	B3881
Low-Loss Filter	**168,96 MHz**

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
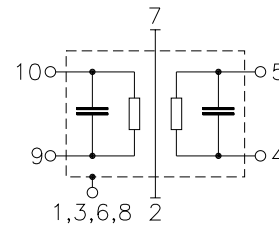
Terminals

- 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 **S**ensitive **D**evice (**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	

Data Sheet

Characteristics

|	
Operating temperature:	T = +35 .. +85 $^{\circ}$C
Terminating source impedance:	Z_S=50 Ω single ended and matching network
Terminating load impedance:	Z_S=50 Ω 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					
$\alpha_{rel} \leq 1$ dB	B_{1dB}	—	14,1	—	MHz
$\alpha_{rel} \leq 2$ dB	B_{2dB}	—	14,5	—	MHz
$\alpha_{rel} \leq 40$ dB	B_{40dB}	—	17,1	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 6{,}67$ MHz		—	0,6	0,9	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 6{,}67$ MHz		—	80	120	ns
Phase Linearity[1] (rms)	$\Delta\varphi$				
$f_N \pm 1{,}92$ MHz		—	0,5	1,0	$^{\circ}$
f_N - 5,0 MHz $\pm 1{,}92$ MHz		—	1,5	2,0	$^{\circ}$
f_N + 5,0 MHz $\pm 1{,}92$ MHz		—	0,9	1,5	$^{\circ}$
f_N + k*1,25 MHz $\pm 0{,}6144$ MHz		—	0,7	1,3	$^{\circ}$
Average Error Vector Magnitude [1]	EVM				
$f_N \pm 1{,}92$ MHz		—	1,3	3,0	%
f_N - 5,0 MHz $\pm 1{,}92$ MHz		—	3,0	4,0	%
f_N + 5,0 MHz $\pm 1{,}92$ MHz		—	2,5	4,0	%
f_N + k*1,25 MHz $\pm 0{,}6144$ MHz		—	1,8	4,0	%
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N \pm 7{,}5$ MHz ... $f_N \pm 17{,}5$ MHz		2	4	—	dB
$f_N \pm 17{,}5$ MHz ... $f_N \pm 21{,}5$ MHz		41	45	—	dB
$f_N \pm 21{,}5$ MHz ... $f_N \pm 25{,}5$ MHz		43	48	—	dB
$f_N \pm 25{,}5$ MHz ... $f_N \pm 66{,}0$ MHz		45	50	—	dB
$f_N \pm 66{,}0$ MHz ... $f_N \pm 111{,}0$ MHz		40	45	—	dB
Temperature coefficient of frequency	TC_f	—	– 18	—	ppm/K

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

SAW Components	B3881
Low-Loss Filter	**168,96 MHz**

Data Sheet

Characteristics

Operating temperature:	T = 0 .. +85 ˚C	
Terminating source impedance:	Z_S=50 Ω single ended and matching network	
Terminating load impedance:	Z_S=50 Ω 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					
$\alpha_{rel} \leq 1$ dB	B_{1dB}	—	14,1	—	MHz
$\alpha_{rel} \leq 2$ dB	B_{2dB}	—	14,5	—	MHz
$\alpha_{rel} \leq 40$ dB	B_{40dB}	—	17,1	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 6{,}67$ MHz		—	0,6	0,9	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 6{,}67$ MHz		—	80	120	ns
Phase Linearity[1] (rms)	$\Delta\varphi$				
$f_N \pm 1{,}92$ MHz		—	0,5	1,0	˚
f_N - 5,0 MHz $\pm 1{,}92$ MHz		—	1,5	2,5	˚
f_N + 5,0 MHz $\pm 1{,}92$ MHz		—	0,9	1,5	˚
f_N + k*1,25 MHz $\pm 0{,}6144$ MHz		—	0,7	1,3	˚
Average Error Vector Magnitude [1]	EVM				
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f_N - 5,0 MHz $\pm 1{,}92$ MHz		—	3,0	4,5	%
f_N + 5,0 MHz $\pm 1{,}92$ MHz		—	2,5	4,0	%
f_N + k*1,25 MHz $\pm 0{,}6144$ MHz		—	1,8	4,0	%
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$f_N + 7{,}5$ MHz ... $f_N + 17{,}5$ MHz		1,5	4	—	dB
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$f_N \pm 21{,}5$ MHz ... $f_N \pm 25{,}5$ MHz		43	48	—	dB
$f_N \pm 25{,}5$ MHz ... $f_N \pm 66{,}0$ MHz		45	50	—	dB
$f_N \pm 66{,}0$ MHz ... $f_N \pm 111{,}0$ MHz		40	45	—	dB
Temperature coefficient of frequency	TC_f	—	− 18	—	ppm/K

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

Matching network to 50 Ohm:

(Element values depend upon PCB layout)
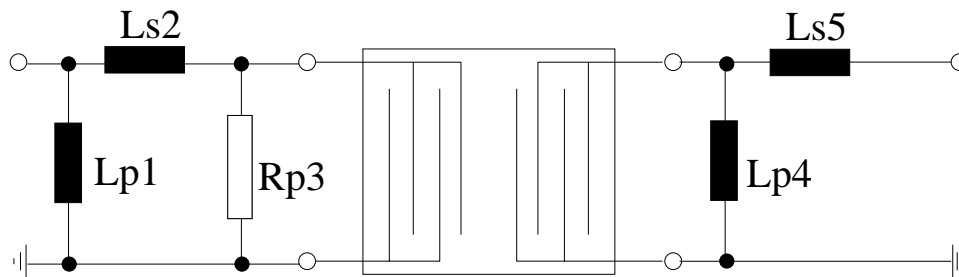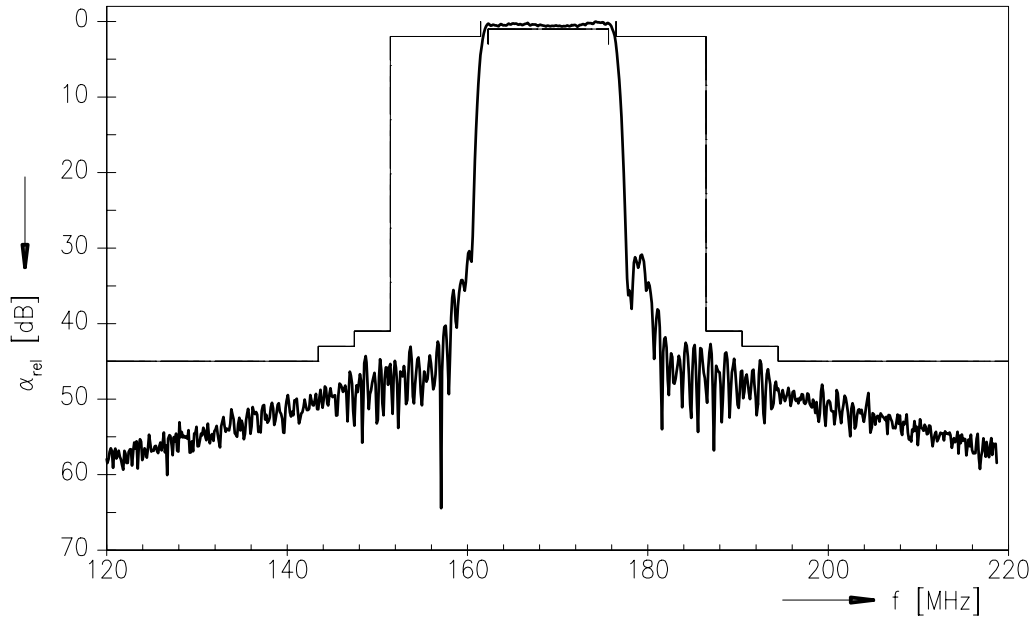

L_{p1} = 47 nH

L_{s2} = 100 nH
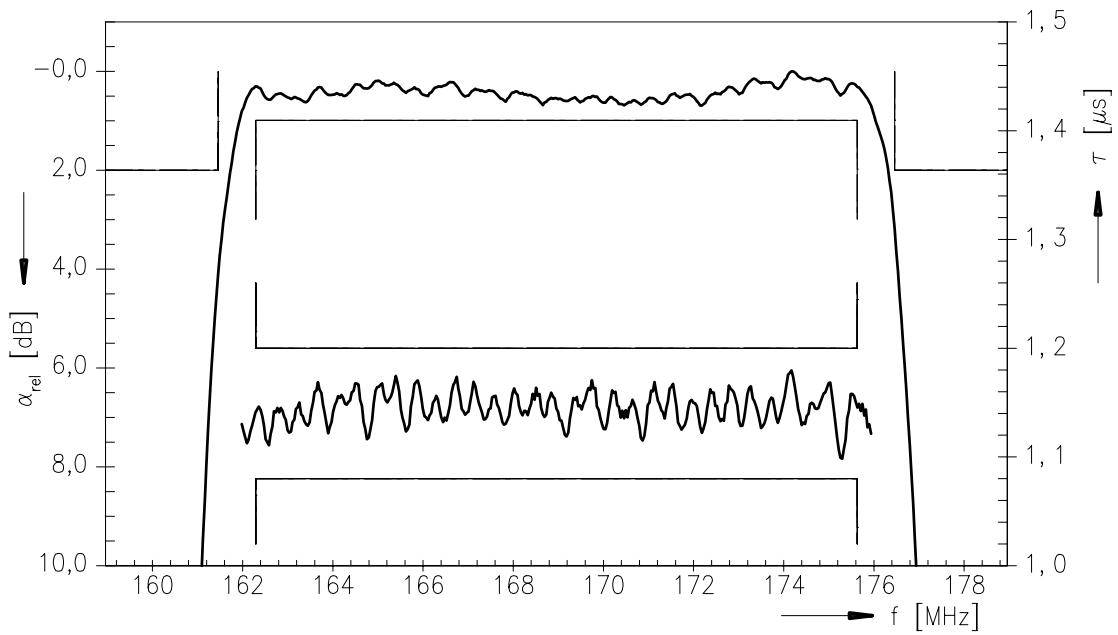
R_{p3} = 1,8 kΩ

L_{p4} = 220 nH

L_{s5} = 82 nH

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

Normalized frequency response (pass band), **matching network**

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