



SAW Components

Data Sheet B3881





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B3881

Low-Loss Filter

168,96 MHz

Data Sheet

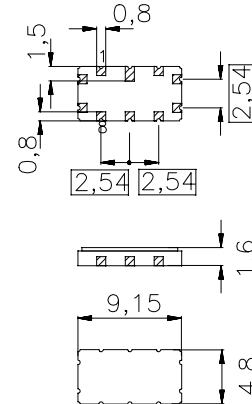
Ceramic package **QCC10B**

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

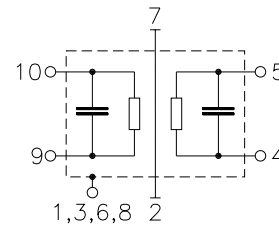
- Gold plated



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



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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

		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	°
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	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	°
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	%
$f_N + k*1,25 \text{ MHz} \pm 0,6144 \text{ MHz}$		—	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 $k = (-5, -4 \dots +5)$



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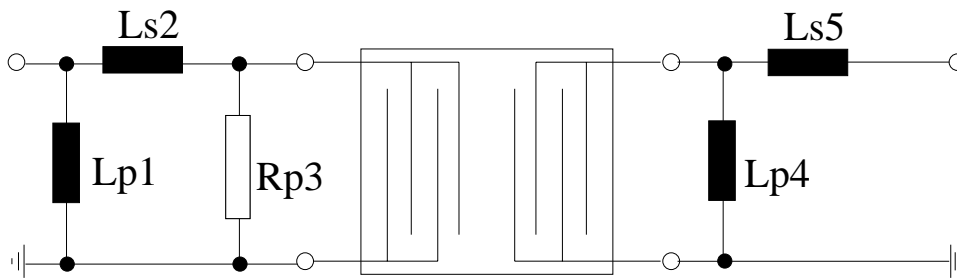
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Passband width					
$\alpha_{\text{rel}} \leq 1 \text{ dB}$	$B_{1\text{dB}}$	—	14,1	—	MHz
$\alpha_{\text{rel}} \leq 2 \text{ dB}$	$B_{2\text{dB}}$	—	14,5	—	MHz
$\alpha_{\text{rel}} \leq 40 \text{ dB}$	$B_{40\text{dB}}$	—	17,1	—	MHz
Amplitude ripple (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	°
$f_N - 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	1,5	2,5	°
$f_N + 5,0 \text{ MHz} \pm 1,92 \text{ MHz}$		—	0,9	1,5	°
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$f_N \pm 21,5 \text{ MHz} \dots f_N \pm 25,5 \text{ MHz}$		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 +5)

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Matching network to 50 Ohm:

(Element values depend upon PCB layout)



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

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

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

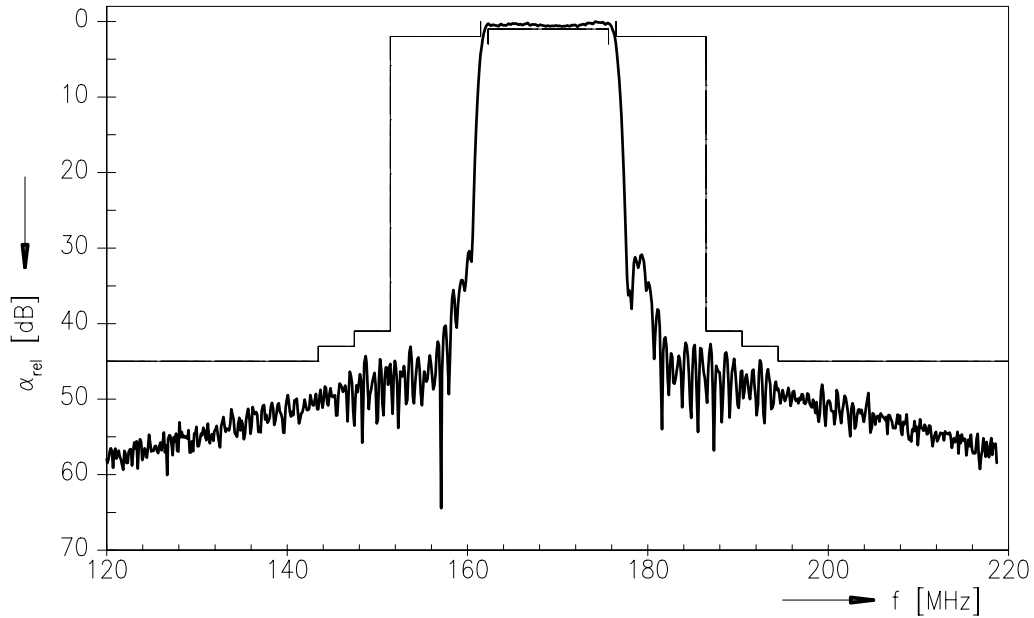
$$L_{p4} = 220 \text{ nH}$$

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

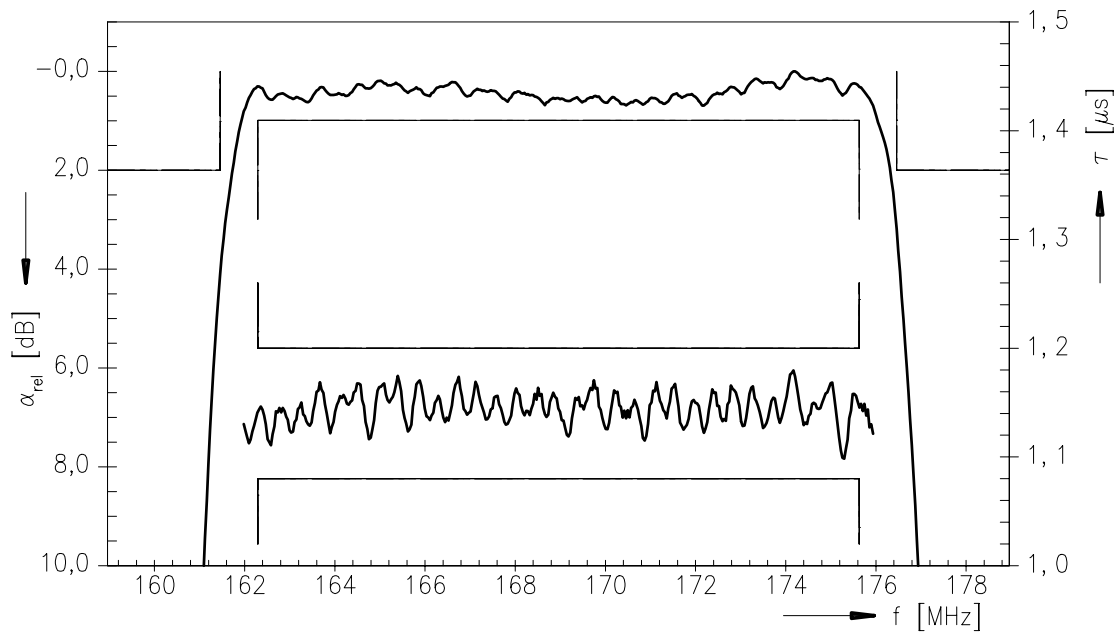


Data Sheet

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



Normalized frequency response (pass band), matching network





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