

# 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



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

Electrostatic Sensitive Device (ESD)

#### **Maximum ratings**

Operable temperature range	Т	-40/ +85	°C
Storage temperature range	$T_{stg}$	-40/ +85	°C
DC voltage	V <sub>DC</sub>	5	V
Source power	Ps	10	dBm



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Characteristics					
Operating temperature:	T = +35 +	85 °C			
Terminating source impedance:	$Z_{s}=50 \Omega sir$	nale ended	and match	ing netwo	rk
Terminating load impedance:	$Z_{\circ}=50 \Omega sir$	ale ended	and match	ina netwo	rk
	_3 00 11 0	.9.0 0.1.200			
		min.	typ.	max.	
Nominal frequency	f <sub>N</sub>	—	168,96	_	MHz
Minimum insertion attenuation	α <sub>min</sub>	_	18,5	20,5	dB
(including matching network)					
Passhand width					
$\alpha = 1 dB$	Bus		14 1	_	MHz
$\alpha_{rel} \leq 2 dB$		_	14.5	_	MHz
$\alpha_{rel} \leq 40 \text{ dB}$	- 206 В <sub>40d</sub> в	_	17,1	_	MHz
	HOUD				
Amplitude ripple (p-p)	Δα				
$f_{\sf N} \pm 6,67$ M	1Hz	—	0,6	0,9	dB
Group delay ripple (p-p)	Δτ				
f <sub>N</sub> ± 6,67 N	1Hz	—	80	120	ns
Phase Linearity <sup>1)</sup> (rms)	Δφ				
<i>f</i> <sub>N</sub> ± 1,92 N	1Hz		0,5	1,0	•
<i>f</i> <sub>N</sub> - 5,0 MHz ± 1,92 M	/Hz	_	1,5	2,0	0
f <sub>N</sub> + 5,0 MHz ± 1,92 M	MHz		0,9	1,5	۰
<i>f</i> <sub>N</sub> + k*1,25 MHz ± 0,6144	MHz	—	0,7	1,3	0
Average Error Vector Magnitude <sup>1)</sup>	EVM				
f <sub>N</sub> ± 1,92 N	1Hz	—	1,3	3,0	%
$f_{\sf N}$ - 5,0 MHz $\pm$ 1,92 M	/Hz	—	3,0	4,0	%
f <sub>N</sub> + 5,0 MHz ± 1,92 M	MHz	—	2,5	4,0	%
<i>f</i> <sub>N</sub> + k*1,25 MHz ± 0,6144	MHz	—	1,8	4,0	%
Relative attenuation (relative to $\alpha_{min}$ )	$\alpha_{rel}$				
$f_{\rm N} \pm 7,5$ MHz $f_{\rm N} \pm 17,5$ M	MHz	2	4	_	dB
$f_{\rm N} \pm 17,5$ MHz $f_{\rm N} \pm 21,5$ M	ЛНz	41	45	_	dB
$f_{\rm N} \pm 21,5$ MHz $f_{\rm N} \pm 25,5$ M	ЛНz	43	48	_	dB
$f_{\rm N} \pm 25,5$ MHz $f_{\rm N} \pm 66,0$ M	MHz	45	50	_	dB
$f_{\rm N} \pm 66,0$ MHz $f_{\rm N} \pm 111,0$ M	MHz	40	45		dB
Temperature coefficient of frequency	TC <sub>f</sub>	_	- 18		ppm/K

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

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Characteristics					
Operating temperature:	= 0 +85	5°C			
Terminating source impedance: Z <sub>e</sub>	=50 Ω sir	nale ended	and match	ina netwo	rk
Terminating load impedance: 7 <sub>c</sub>	=50 Q sir	nale ended	and match	ina netwo	rk
		igio cilaca		ing notife	
		min.	typ.	max.	
Nominal frequency	f <sub>N</sub>		168,96	—	MHz
Minimum insertion attenuation	α <sub>min</sub>	_	18,5	20,5	dB
(including matching network)			- , -	- , -	-
Passband width					
$\alpha_{rel} \le 1 \text{ dB}$	B <sub>1dB</sub>	_	14,1	—	MHz
$\alpha_{rel} \le 2 \text{ dB}$	B <sub>2dB</sub>		14,5		MHz
$\alpha_{rel} \le 40 \text{ dB}$	$B_{40dB}$		17,1	—	MHz
Amplitude ripple (p-p)	Δα				
$f_{\rm N} \pm 6.67 {\rm MHz}$	100	_	0,6	0,9	dB
N = 2,22			-,-	-,-	
Group delay ripple (p-p)	$\Delta \tau$				
$f_{ m N}\pm 6,67~ m MHz$		_	80	120	ns
Phase Lipearity(1) (rms)	A (2)				
f + 1.02  MHz	Δφ		0.5	10	•
f 5 0 MHz + 1 92 MHz			1.5	2.5	•
$f_{\rm N}$ = 5,0 MHz ± 1,32 MHz $f_{\rm N}$ + 5.0 MHz ± 1.92 MHz	,		0.9	2,0 1.5	•
$f_{\rm N}$ + 6,0 MHz ± 1,02 MHz $f_{\rm N}$ + k*1 25 MHz + 0.6144 MHz	-		0.7	1,3	•
Average Error Vector Magnitude 1) $EVM$					
f <sub>N</sub> ± 1,92 MHz		_	1,3	3,0	%
<i>f</i> <sub>N</sub> - 5,0 MHz ± 1,92 MHz			3,0	4,5	%
<i>f</i> <sub>N</sub> + 5,0 MHz ± 1,92 MHz		_	2,5	4,0	%
<i>f</i> <sub>N</sub> + k*1,25 MHz ± 0,6144 MH	Ηz	_	1,8	4,0	%
Relative attenuation (relative to $\alpha_{min}$ )	$\alpha_{rel}$				
f <sub>N</sub> – 7,5 MHz f <sub>N</sub> – 17,5 MHz	-	2	4	—	dB
f <sub>N</sub> + 7,5 MHz f <sub>N</sub> + 17,5 MHz	:	1,5	4	—	dB
$f_{\rm N} \pm 17,5$ MHz $f_{\rm N} \pm 21,5$ MHz		41	45	—	dB
$f_{ m N} \pm 21,5$ MHz $f_{ m N} \pm 25,5$ MHz		43	48		dB
$f_{\rm N} \pm 25,5$ MHz $f_{\rm N} \pm 66,0$ MHz		45	50		dB
<i>f</i> <sub>N</sub> ± 66,0 MHz <i>f</i> <sub>N</sub> ± 111,0 MHz	<u>.</u>	40	45		dB
Temperature coefficient of frequency	TC <sub>f</sub>		– 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 <sub>p1</sub> = 47 nH	L <sub>p4</sub> = 220 nH
L <sub>s2</sub> = 100 nH	L <sub>s5</sub> = 82 nH
R <sub>p3</sub> = 1,8 kΩ	



**Data Sheet** 

Low-Loss Filter

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



Normalized frequency response (pass band), matching network



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SAW Components Low-Loss Filter B3881 168,96 MHz

**Data Sheet** 

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