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SAW Components

SAW filter

Multi Carrier 3G Rx Filter

Series/type:	**B3881(LG01E-ELPAS)**
Ordering code:	**B39171B3881Z710**
Date:	Apr 24, 2012
Version:	1.0

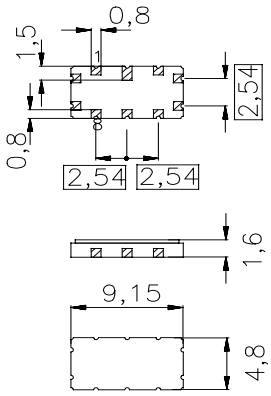
Sample data

Application

- High performance IF bandpass filter
- Multichannel W-CDMA and CDMA capable
- Hermetically sealed ceramic package
- unbalanced to unbalanced and unbalanced to balanced operation possible

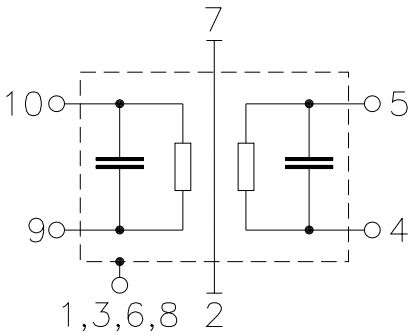
Features

- Package size 9.15 x 4.8 x 1.6 mm³
- Package code QCC10B
- RoHS compatible
- Approx. weight 0.23 g
- Ceramic package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- Filter surface passivated
- **M**oisture **S**ensitive **L**evel **1**



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



Sample data

SMD

Characteristics

Operating temperature range: T = +35 to 85 ˚C
Terminating source impedance: Z_S = 50 Ω single ended and matching network
Terminating load impedance: Z_L = 50 Ω single ended and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal frequency	f_N	—	168.96	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	—	19.8	21.5	dB
Passband Width					
$\alpha_{rel} \leq$ 1dB	B_{1dB}	—	14.1	—	MHz
$\alpha_{rel} \leq$ 2dB	B_{2dB}	—	14.5	—	MHz
$\alpha_{rel} \leq$ 40dB	B_{40dB}	—	17.1	—	MHz
		—	17.1	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm$ 6.67 MHz		—	0.6	1.0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm$ 6.67MHz		—	60	120	ns
Phase Linearity[1] (rms)	$\Delta\varphi$				
$f_N \pm$1.92 MHz		—	0.5	1.0	˚
f_N -5.0MHz ±1.92MHz		—	1.5	2.0	˚
f_N +5.0MHz ±1.92MHz		—	0.9	1.5	˚
f_N +k*1.25 MHz ± 0.6144MHz		—	0.7	1.3	˚
Average Error Vector Magnitude [1]	EVM				
f_N ±1.92MHz		—	1.3	3.0	%
f_N -5.0MHz ±1.92MHz		—	3.0	4.0	%
f_N +5.0MHz ±1.92MHz		—	2.5	4.0	%
f_N +k*1.25 MHz ±0.6144MHz		—	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		35	38	—	dB
$f_N \pm$ 21.5 MHz ... $f_N \pm$ 25.5 MHz		36	40	—	dB
$f_N \pm$ 25.5 MHz ... $f_N \pm$ 49.0 MHz		38	42	—	dB
$f_N \pm$ 49.0 MHz ... $f_N \pm$ 66.0 MHz		45	50	—	dB
$f_N \pm$ 66.0 MHz ... $f_N \pm$ 111.0 MHz		40	50	—	dB
Temperature coefficient of frequency	TC_f	—	–18	—	ppm/K²

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

Sample data

SMD

Characteristics

Operating temperature range: T = 0 to 85 ˚C
Terminating source impedance: Z_S = 50 Ω single ended and matching network
Terminating load impedance: Z_L = 50 Ω single ended and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal frequency	f_N	—	168.96	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	—	19.8	21.5	dB
Passband Width					
$\alpha_{rel} \leq$ 1dB	B_{1dB}	—	14.1	—	MHz
$\alpha_{rel} \leq$ 2dB	B_{2dB}	—	14.5	—	MHz
$\alpha_{rel} \leq$ 40dB	B_{40dB}	—	17.1	—	MHz
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm$ 6.67 MHz		—	0.6	1.0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm$ 6.67MHz		—	60	120	ns
Phase Linearity[1] (rms)	$\Delta\varphi$				
$f_N \pm$ 1.92 MHz		—	0.5	1.0	˚
f_N -5.0MHz ±1.92 MHz		—	1.5	2.5	˚
f_N +5.0MHz ±1.92 MHz		—	0.9	1.5	˚
f_N +k*1.25 MHz ± 0.6144 MHz		—	0.7	1.3	˚
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$f_N \pm$ 1.92 MHz		—	1.3	3.0	%
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f_N +k*1.25 MHz ± 0.6144 MHz		—	1.8	4.0	%
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N -$ 7.5 MHz ... $f_N -$ 17.5 MHz		2	4	—	dB
$f_N +$ 7.5 MHz ... $f_N +$ 17.5 MHz		1.5	4	—	dB
$f_N \pm$ 17.5 MHz ... $f_N \pm$ 21.5 MHz		35	38	—	dB
$f_N \pm$ 21.5 MHz ... $f_N \pm$ 25.5 MHz		36	40	—	dB
$f_N \pm$ 25.5 MHz ... $f_N \pm$ 49.0 MHz		38	42	—	dB
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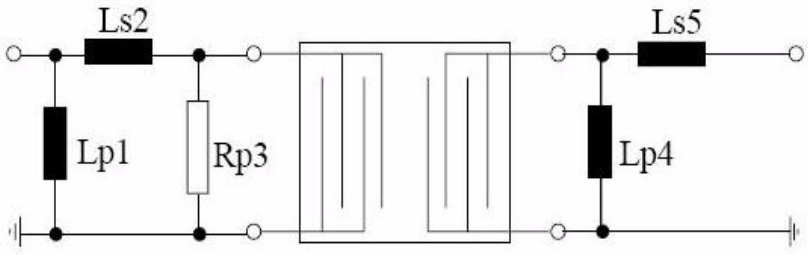
$f_N \pm$ 66.0 MHz ... $f_N \pm$ 111.0 MHz		40	50	—	dB
Temperature coefficient of frequency	TC_f	—	–18	—	ppm/K²

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

Matching network to 50 Ω
(Element values depend upon PCB layout)



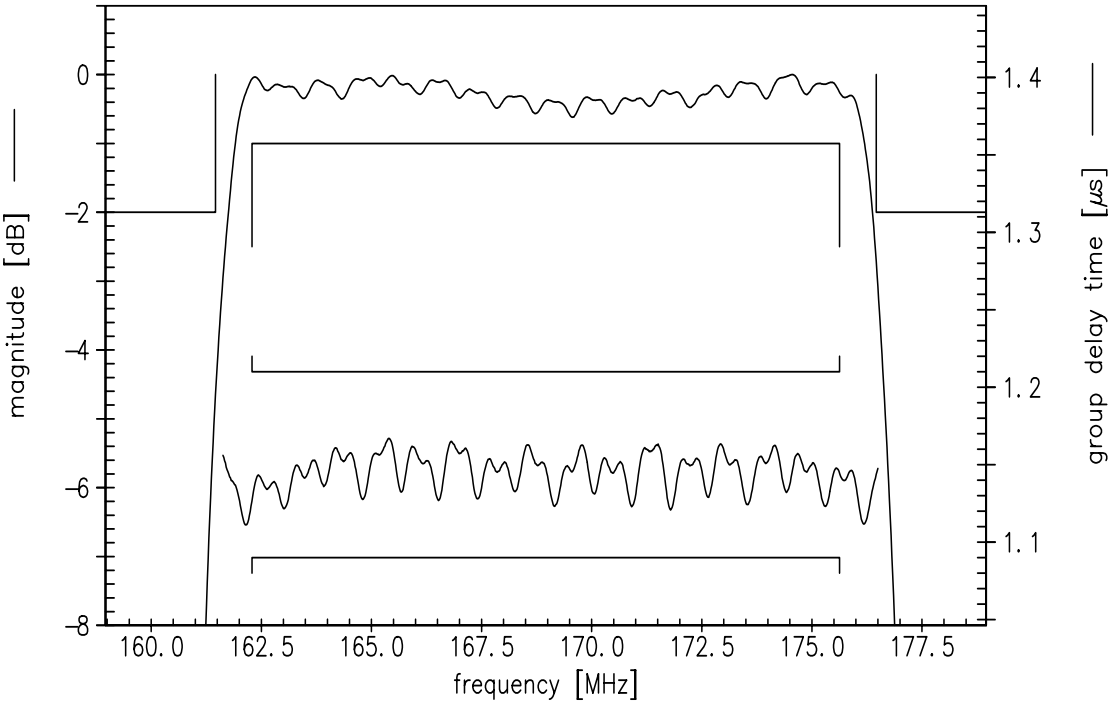
L_{p1} = 47.0 nH
L_{s2} = 100.0 nH
R_{p3} =1.8 kΩ
L_{p4} =220.0 nH
L_{s5} = 82.0 nH

Maximum ratings

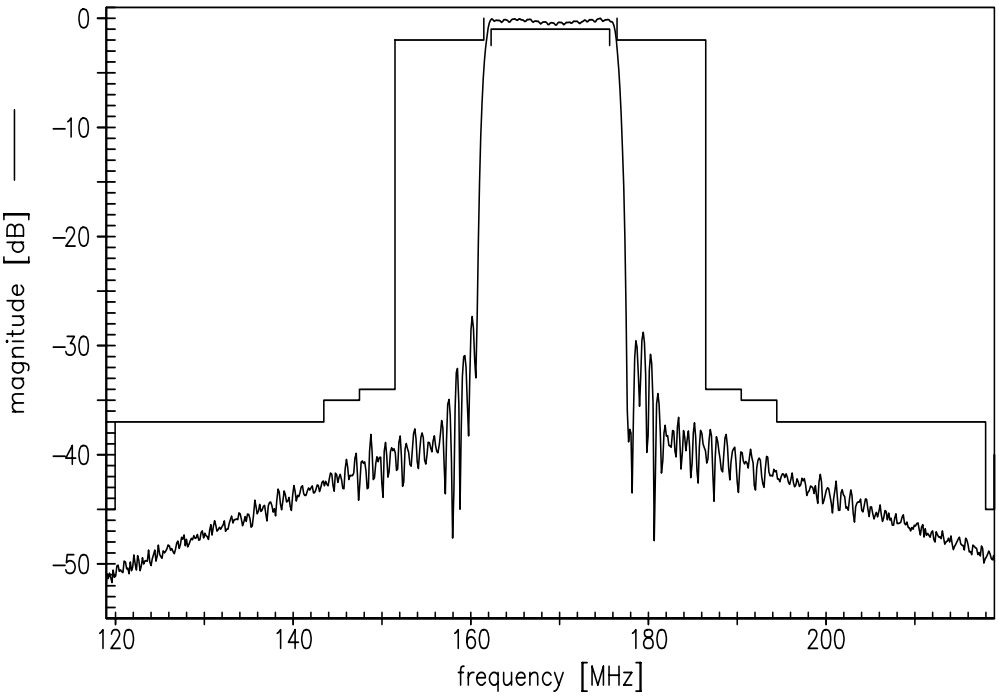
Operable temperature range	T	–40/+85	˚C	
Storage temperature range	T_{stg}	–40/+85	˚C	
DC voltage	V_{DC}	5	V	
Input power	P_{IN}	10	dBm	

Sample data SMD

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



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



References

Type	B3881
Ordering code	B39171B3881Z710
Marking and package	C61157-A7-A49
Packaging	F61074-V8172-Z000
Date codes	L_1126
S-parameters	B3881.NB.s2p B3881.WB.s2p see file header for port/pin assignment table
Soldering profile	S_6001
RoHS compatible	defined as compatible with the following documents: "DIRECTIVE 2002/95/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. 2005/618/EC from April 18th, 2005, amending Directive 2002/95/EC of the European Parliament and of the Council for the purposes of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment."
Matching coils	See Inductor pdf-catalog http://www.tdk.co.jp/tefe02/coil.htm#aname1 and Data Library for circuit simulation http://www.tdk.co.jp/etvcl/index.htm

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