



SAW Components

SAW IF Filter

CDMA base station, Rx

Series/Type:	B5201
Ordering code:	B39181-B5201-H510
Date:	Jul 16, 2008
Version:	2.0



SAW Components	B5201
Low-Loss Filter	183.6 MHz

Data sheet



Revision History: Changes compared to previous iteration issue

ISSUE	ORIGINATOR	DETAIL SPEC CHANGES	DATE
0.1	M.Stoerkle	initial release	03.12.2007
LT64A			
1.0	M. Stoerkle	selectivity around 185.5 MHz relaxed IL improved to 12 dB single ended matching proposal added	24.01.2008
B5201			
2.0	M. Stoerkle	fc adjusted to enable widened passband spec(+/-0.68 MHz) and improve selectivity at up- per stopband to initial DG value	16.07.2008



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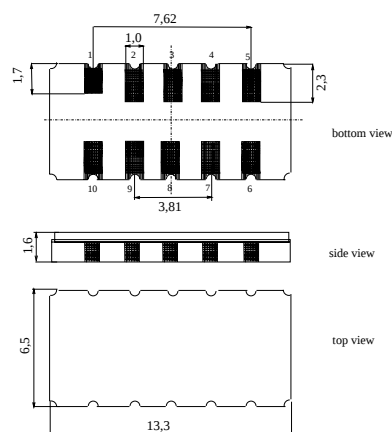
Application

- Low-loss IF filter for CDMA base station, receive path (Rx)
- Usable passband 1.36 MHz
- Unbalanced or balanced operation possible
- High near-by selectivity
- Temperature stable



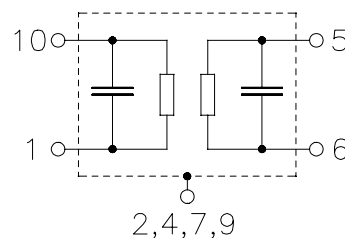
Features

- Package size 13.3 x 6.5 x 1.6 mm³
- Package code DCC12A
- RoHS compatible
- Approx. weight 0.4 g
- Ceramic package for Surface Mount Technology (SMT)
- Ni, gold-plated terminals
- Electrostatic Sensitive Device (ESD)
- Filter surface passivated



Pin configuration

- 10 Input
- 1 Balanced Input or Input ground
- 5 Output
- 6 Balanced Output of Output ground
- 3, 8 To be grounded
- 2, 4, 7, 9 Case ground





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Characteristics

Operating temperature range: $T = 0$ to $+85$ °C

Terminating source impedance: $Z_S = 1\text{ k}\Omega \parallel 0.75\text{ pF}$ bal or $50\text{ }\Omega$ single ended and matching network

Terminating load impedance: $Z_L = 1\text{ k}\Omega \parallel 0.75\text{ pF}$ bal or $50\text{ }\Omega$ single ended and matching network

			min.	typ. @ 25°C	max.	
Nominal frequency	f_N		—	183.6	—	MHz
Minimum insertion attenuation (including matching network)	$\alpha_{\min}$		—	10	12.0	dB
Passband width	$\alpha_{\text{rel}} \leq 1\text{ dB}$	$B_{1\text{dB}}$	1.36	1.57	—	MHz
	$\alpha_{\text{rel}} \leq 40\text{ dB}$	$B_{40\text{dB}}$	—	3.1	3.6	MHz
Amplitude ripple (p-p)	$f_N \pm 0.68\text{ MHz}$	$\Delta\alpha$	—	0.4	1.0	dB
Phase ripple (rms)	$f_N \pm 0.68\text{ MHz}$	$\Delta\phi$	—	0.9	2.0	° rms
Absolute group delay mean value within $f_N \pm 0.68\text{ MHz}$ at 25 °C		$\bar{\tau}$	—	2120	—	ns
Error vector magnitude	$f_N \pm 0.68\text{ MHz}$	EVM	—	2.0	3.5	%
Alternate channel suppression $f_N \pm 1.845\text{ MHz} \dots f_N \pm 3.075\text{ MHz}$		ACS	—	53 ¹⁾	—	dB
Relative attenuation (relative to $\alpha_{\min}$) $f_N \pm 1.8\text{ MHz} \dots f_N \pm 40\text{ MHz}$		α_{rel}	40	47 ¹⁾	—	dB
VSWR (input and output)	$f_N \pm 0.68\text{ MHz}$		—	1.5:1	2.0:1	
Temperature coefficient of frequency ²⁾	TC_f		—	-0.036	—	ppm/K ²
Turnover temperature	T_0		—	35	—	°C

¹⁾ for balanced operation degraded to 44 dB typical

²⁾ Temperature dependance of f_c : $f_c(T_A) = f_c(T_0) (1 + TC_f(T_A - T_0)^2)$

Maximum ratings

Operable temperature range	T	-40/+85	°C
Storage temperature range	T_{stg}	-40/+85	°C
DC voltage	V_{DC}	0	V
Input Power	P_{IN}	10	dBm

Please read *cautions and warnings* and *important notes* at the end of this document.



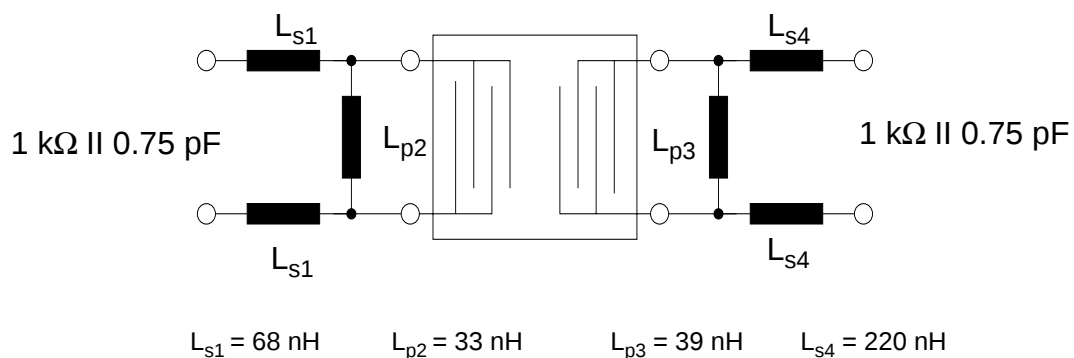
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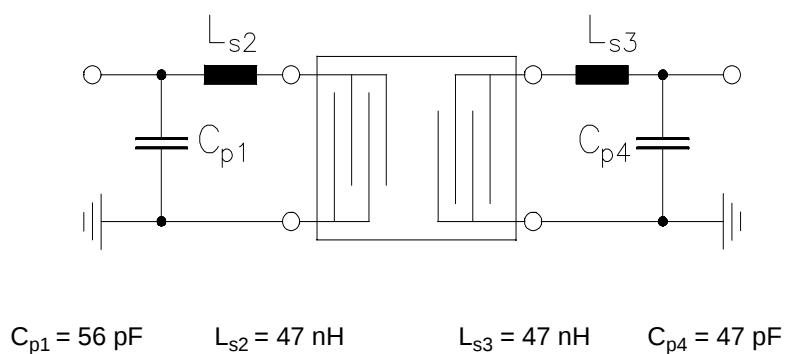
Matching network to $1\text{ k}\Omega \parallel 0.75\text{ pF}$ balanced:

(element values depend on PCB layout):



Matching network to $50\ \Omega$ single ended :

(element values depend on PCB layout):





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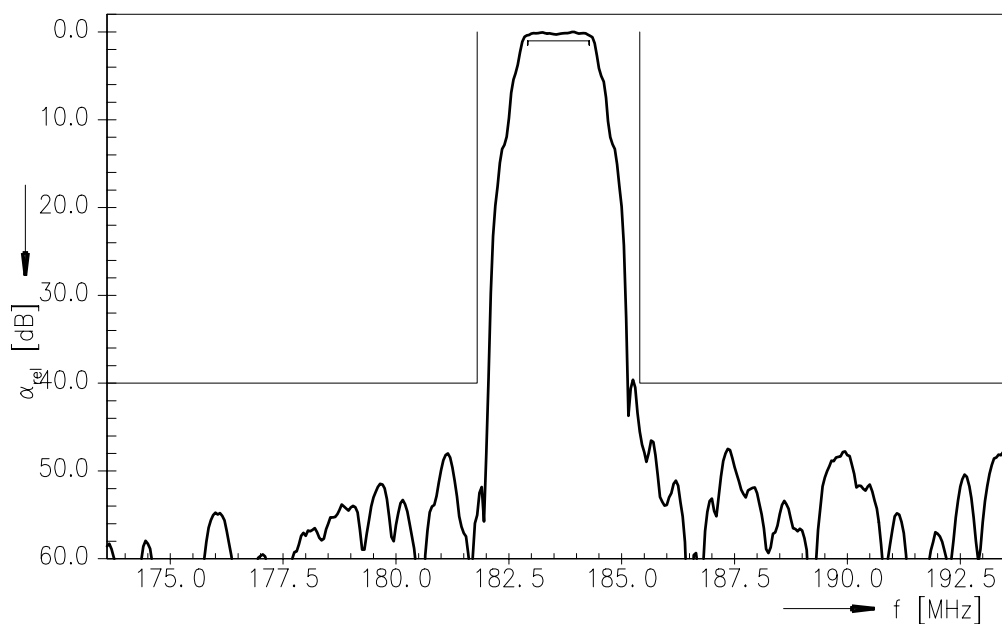
Low-Loss Filter

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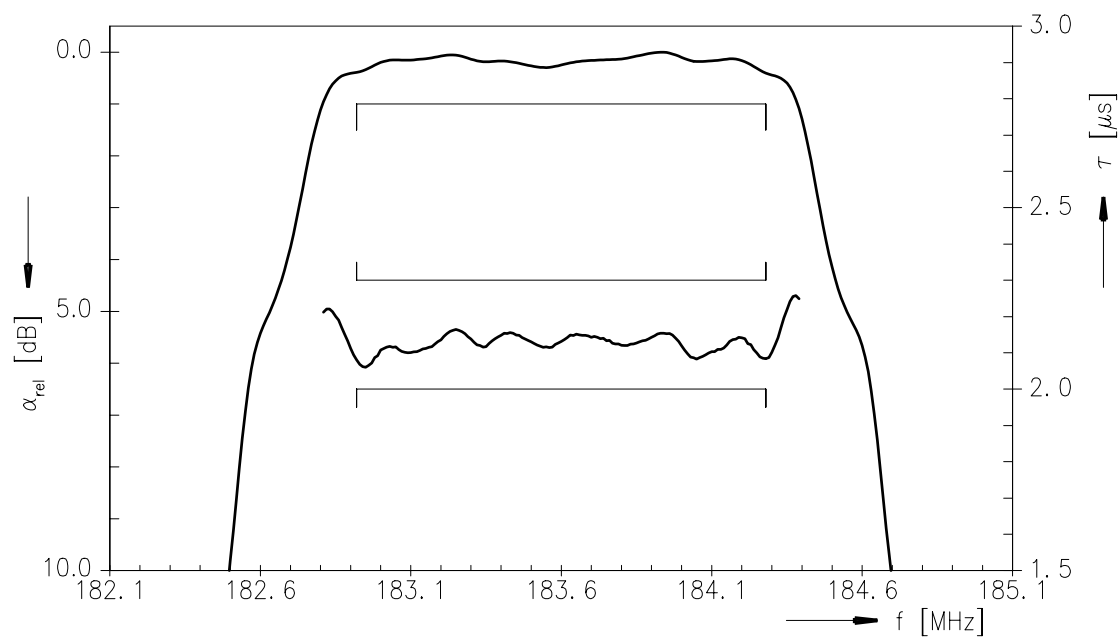
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Transfer function



Transfer function (passband)





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References

Type	B5201
Ordering code	B39181-B5201-H510
Marking and Package	C61157-A7-A94
Packaging	F61074-V8163-Z000
Date Codes	L_1126
S-Parameters	
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."

For further information please contact your local EPCOS sales office or visit our webpage at www.epcos.com.

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