SAW Components

SAW IF Filter

CDMA base station, Rx

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

Revision History: Changes compared to previous iteration issue

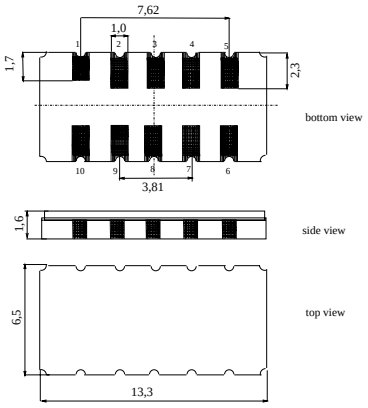
ISSUE	ORIGINATOR	DETAIL SPEC CHANGES	DATE
0.1	M.Stoerkle	initial release	03.12.2007
LT64A			
1.0	M. Stoerkle	selectivity around 185.5 MHz relaxed IL improved to 12 dB single ended matching proposal added	24.01.2008
B5201			
2.0	M. Stoerkle	fc adjusted to enable widened passband spec(+/-0.68 MHz) and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

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

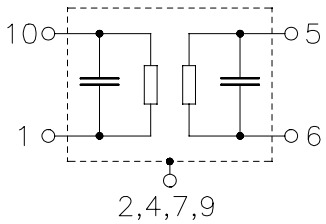
Features

- Package size 13.3 x 6.5 x 1.6 mm³
- Package code DCC12A
- RoHS compatible
- Approx. weight 0.4 g
- Ceramic package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)
- Filter surface passivated



Pin configuration

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



Characteristics

Operating temperature range: T = 0 to +85 ˚C
Terminating source impedance: Z_S = 1 kΩ || 0.75 pF bal or 50 Ω single ended and matching network
Terminating load impedance: Z_L = 1 kΩ || 0.75 pF bal or 50 Ω single ended and matching network

			min.	typ. @ 25˚C	max.	
Nominal frequency		f_N	—	183.6	—	MHz
Minimum insertion attenuation (including matching network)		α_{min}	—	10	12.0	dB
Passband width	$\alpha_{rel} \leq 1$ dB	B_{1dB}	1.36	1.57	—	MHz
	$\alpha_{rel} \leq 40$ dB	B_{40dB}	—	3.1	3.6	MHz
Amplitude ripple (p-p)	$f_N \pm 0.68$ MHz	$\Delta\alpha$	—	0.4	1.0	dB
Phase ripple (rms)	$f_N \pm 0.68$ MHz	$\Delta\varphi$	—	0.9	2.0	˚ rms
Absolute group delay mean value within $f_N \pm 0.68$ MHz at 25 ˚C		$\bar{\tau}$	—	2120	—	ns
Error vector magnitude	$f_N \pm 0.68$ MHz	EVM	—	2.0	3.5	%
Alternate channel suppression $f_N \pm 1.845$ MHz ... $f_N \pm 3.075$ MHz		ACS	—	53 [1]	—	dB
Relative attenuation (relative to α_{min}) $f_N \pm 1.8$ MHz ... $f_N \pm$ 40 MHz		α_{rel}	40	47 [1]	—	dB
VSWR (input and output)	$f_N \pm 0.68$ MHz		—	1.5:1	2.0:1	
Temperature coefficient of frequency [2]		TC_f	—	–0.036	—	ppm/K²
Turnover temperature		T_0	—	35	—	˚C

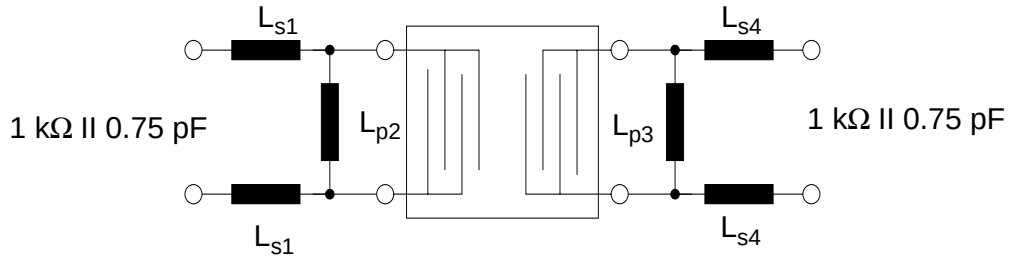
[1] for balanced operation degraded to 44 dB typical
[2] Temperature dependance of f_c: $f_c(T_A) = f_c(T_0)\ (1 + T_C f(T_A - T_0)^2)$

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

Matching network to 1 kΩ || 0.75 pF balanced:

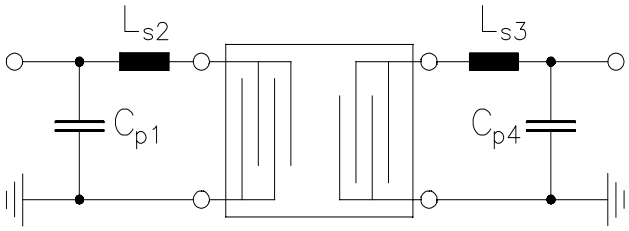
(element values depend on PCB layout):



L_{s1} = 68 nH L_{p2} = 33 nH L_{p3} = 39 nH L_{s4} = 220 nH

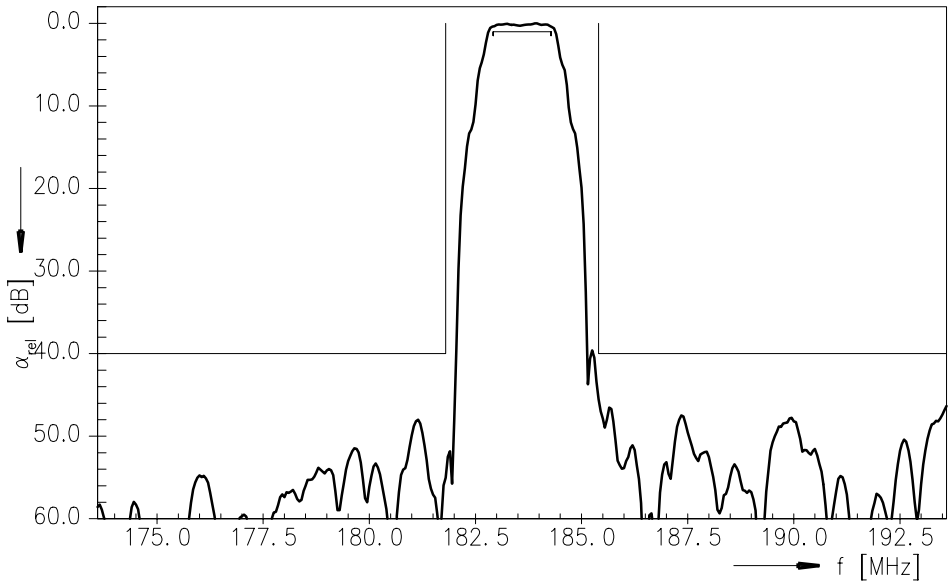
Matching network to 50 Ω single ended **:**

(element values depend on PCB layout):

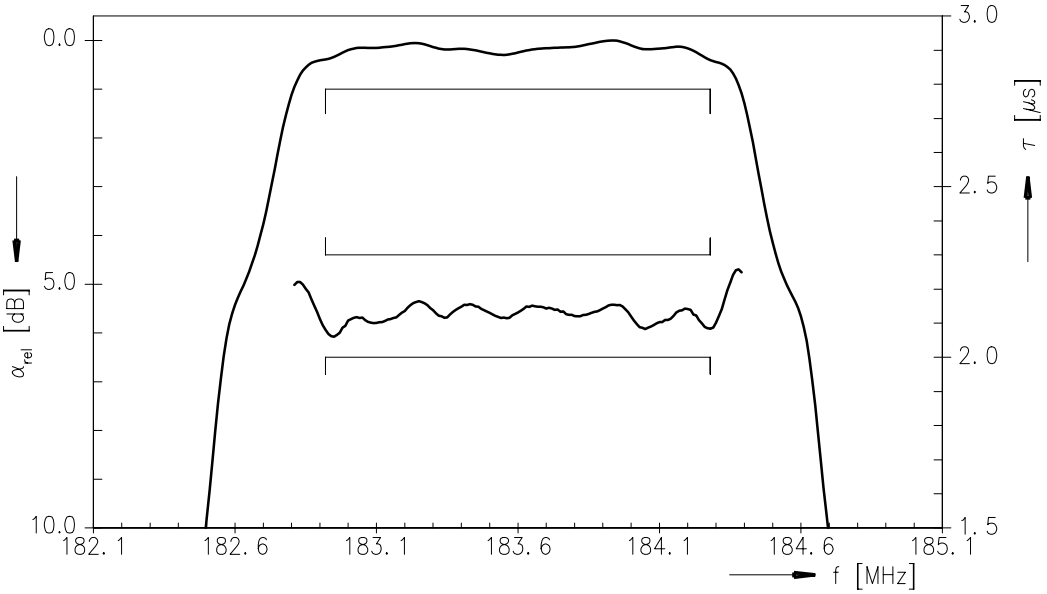


C_{p1} = 56 pF L_{s2} = 47 nH L_{s3} = 47 nH C_{p4} = 47 pF

Transfer function



Transfer function (passband)



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."

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