



# SAW filters for infrastructure systems

## **Series/Type: B5201**

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39181B5201H510		2012-01-13	2012-12-31	2013-03-30

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<b>SAW Components</b>	<b>B5201</b>
<b>Low-Loss Filter</b>	<b>183.6 MHz</b>

Data sheet SMD

**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

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

## SAW Components

B5201

### Low-Loss Filter

183.6 MHz

Data sheet



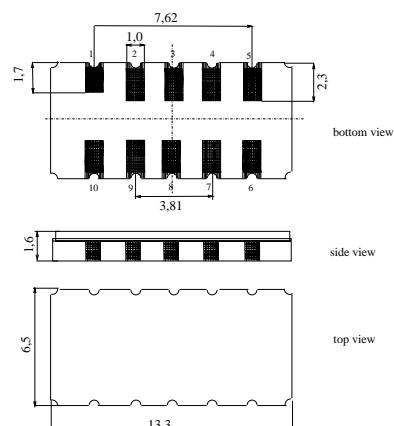
#### Application

- 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



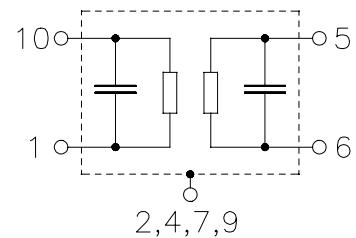
#### Features

- Package size 13.3 x 6.5 x 1.6 mm<sup>3</sup>
- 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 or Output ground
- 3, 8 To be grounded
- 2, 4, 7, 9 Case ground



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**SAW Components****B5201****Low-Loss Filter****183.6 MHz****Data sheet****Characteristics**Operating temperature range:  $T = 0$  to  $+85$  °CTerminating source impedance:  $Z_S = 1 \text{ k}\Omega \parallel 0.75 \text{ pF}$  bal or  $50 \Omega$  single ended and matching networkTerminating load impedance:  $Z_L = 1 \text{ k}\Omega \parallel 0.75 \text{ pF}$  bal or  $50 \Omega$  single ended and matching network

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

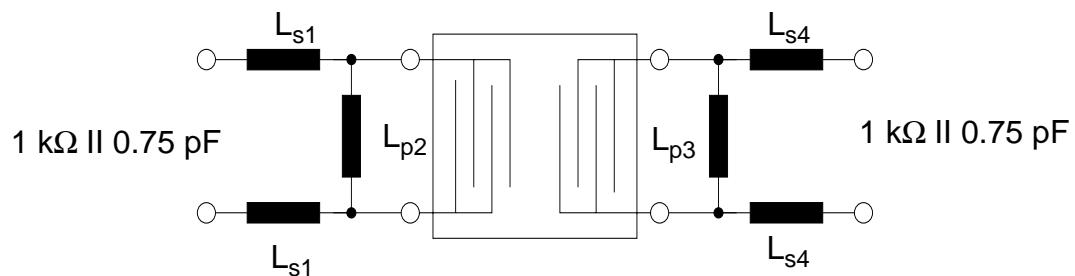
<sup>1)</sup> for balanced operation degraded to 44 dB typical<sup>2)</sup> Temperature dependance of  $f_c$ :  $f_c(T_A) = f_c(T_0) (1 + T_C f(T_A - T_0)^2)$ **Maximum ratings**

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

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

**Matching network to 1 kΩ || 0.75 pF balanced:**

(element values depend on PCB layout):



$$L_{s1} = 68 \text{ nH}$$

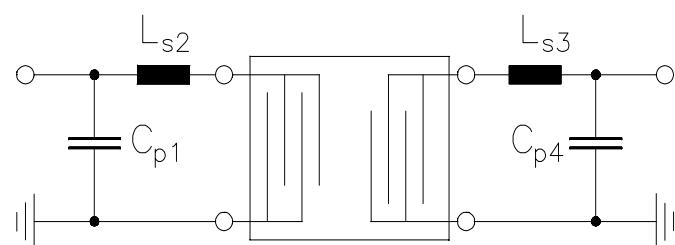
$$L_{p2} = 33 \text{ nH}$$

$$L_{p3} = 39 \text{ nH}$$

$$L_{s4} = 220 \text{ nH}$$

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

(element values depend on PCB layout):

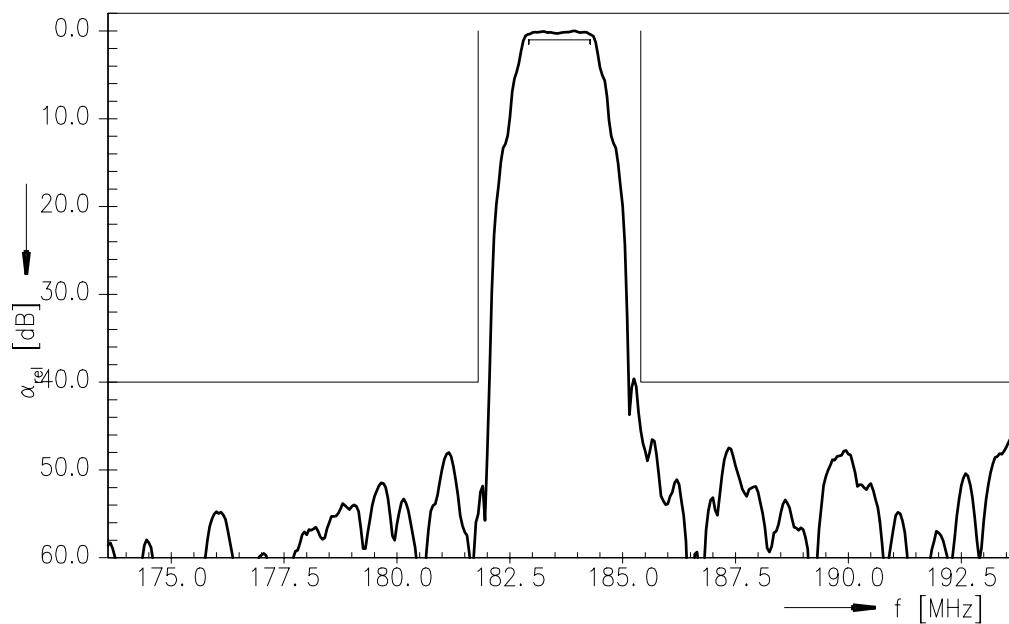
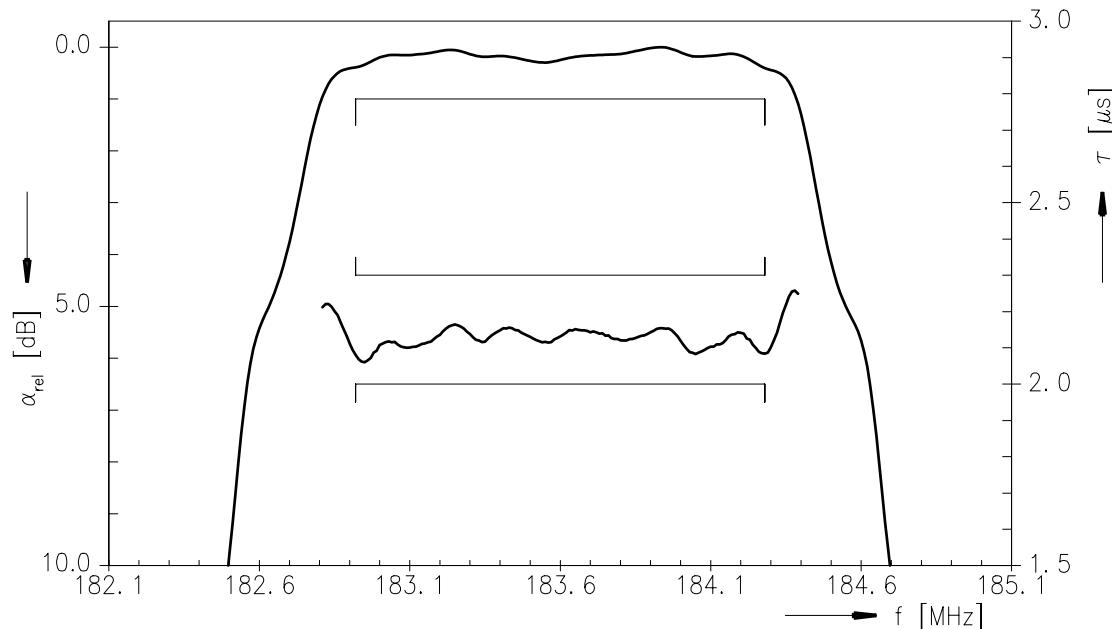


$$C_{p1} = 56 \text{ pF}$$

$$L_{s2} = 47 \text{ nH}$$

$$L_{s3} = 47 \text{ nH}$$

$$C_{p4} = 47 \text{ pF}$$


**Transfer function (passband)**


**SAW Components****B5201****Low-Loss Filter****183.6 MHz**

Data sheet



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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