



SAW filters for infrastructure systems

Series/Type: B5051

The following products presented in this data sheet are being withdrawn.

Ordering Code	Substitute Product	Date of Withdrawal	Deadline Last Orders	Last Shipments
B39161B5051Z710		2012-01-13	2012-12-31	2013-03-30

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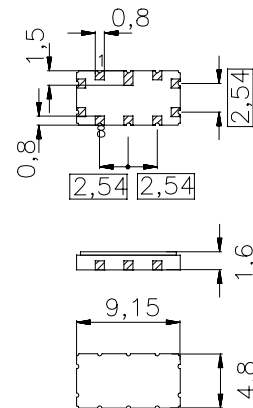
Application

- Low-loss IF filter for WCDMA base station
- Usable passband 20 MHz
- Balanced or unbalanced operation possible



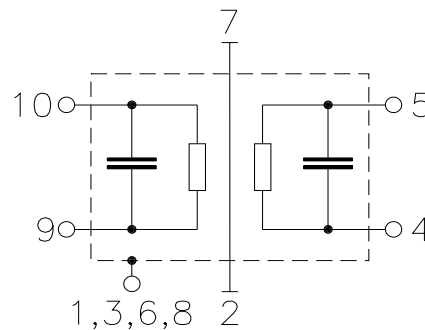
Features

- Package size 9.15 x 4.8 x 1.6 mm³
- Package code QCC10B
- RoHS compatible
- Approx. weight 0.23 g
- Ceramic package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Filter surface passivated



Pin configuration

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





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Characteristics

Operating temperature range: $T = -30$ to $85\text{ }^{\circ}\text{C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ single-ended and matching network
 Terminating load impedance: $Z_L = 200\ \Omega$ balanced and matching network

		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	161.28	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	9.2	10.0	dB
Amplitude ripple (p-p) $f_N \pm 10.0$ MHz	$\Delta\alpha$	—	0.6	1.0	dB
Group delay ripple (p-p) $f_N \pm 10.0$ MHz	$\Delta\tau$	—	25	60	ns
Absolute group delay mean within $f_N \pm 10.0$ MHz	τ_{mean}	407	412	417	ns
Phase Linearity (rms)	$\Delta\varphi$				
$f_N - 7.5$ MHz \pm 1.92 MHz		—	0.8	2.5	deg
$f_N - 2.5$ MHz \pm 1.92 MHz		—	1.0	2.5	deg
$f_N + 2.5$ MHz \pm 1.92 MHz		—	1.2	2.5	deg
$f_N + 7.5$ MHz \pm 1.92 MHz		—	0.9	2.5	deg
Average Error Vector Magnitude	EVM				
$f_N - 7.5$ MHz \pm 1.92 MHz		—	1.0	4.5	%
$f_N - 2.5$ MHz \pm 1.92 MHz		—	1.6	4.5	%
$f_N + 2.5$ MHz \pm 1.92 MHz		—	1.7	4.5	%
$f_N + 7.5$ MHz \pm 1.92 MHz		—	1.3	4.5	%
Relative attenuation (relative to α_{\min})	α_{rel}				
10.00 MHz ... $f_N - 58.08$ MHz		40	58	—	dB
$f_N - 58.08$ MHz ... $f_N - 34.08$ MHz		50	56	—	dB
$f_N - 58.08$ MHz ... $f_N - 34.08$ MHz		50 ¹⁾	64	—	dB _{INT}
$f_N - 34.08$ MHz ... $f_N - 20.72$ MHz		25	42	—	dB
$f_N - 20.72$ MHz ... $f_N - 17.50$ MHz		10	27	—	dB
$f_N + 17.50$ MHz ... $f_N + 20.72$ MHz		10	29	—	dB
$f_N + 20.72$ MHz ... $f_N + 34.08$ MHz		25	38	—	dB
$f_N + 34.08$ MHz ... $f_N + 58.08$ MHz		45	57	—	dB
$f_N + 34.08$ MHz ... $f_N + 58.08$ MHz		50 ¹⁾	67	—	dB _{INT}
$f_N + 58.08$ MHz ... $f_N + 66.00$ MHz		40	66	—	dB
$f_N + 66.00$ MHz ... $f_N + 138.72$ MHz		40	65	—	dB



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SAW IF filter

161.28 MHz

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		min.	typ. @ 25 °C	max.	
Adjacent Channel Suppression	ACS				
$f_N - 22.5 \text{ MHz} \pm 1.92 \text{ MHz}$		39	45	—	dB
$f_N - 17.5 \text{ MHz} \pm 1.92 \text{ MHz}$		25	31	—	dB
$f_N + 17.5 \text{ MHz} \pm 1.92 \text{ MHz}$		23	29	—	dB
$f_N + 22.5 \text{ MHz} \pm 1.92 \text{ MHz}$		37	43	—	dB
Temperature coefficient of frequency	TC_f	—	-87	—	ppm/K

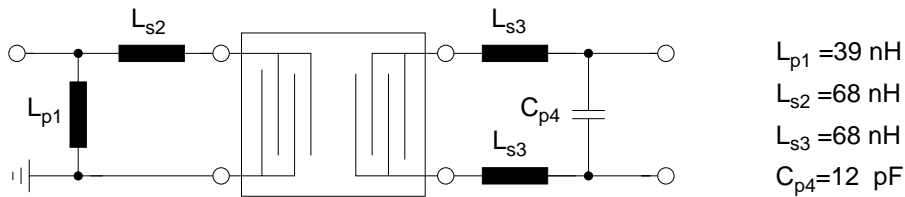
1) dB_{INT} is integrated rejection (see formula below)

$$dB_{INT} = \frac{\sum_{n=1}^N \frac{Loss(F_{n-1}) + Loss(F_n)}{2} \times (F_n - F_{n-1})}{F_N - F_1}$$

where $Loss(F_n) = 10^{(S_{21} \text{ indB})/20}$

N = Number of frequency, insertion pairs

Matching network, 50 Ω Input, 200 Ω Output



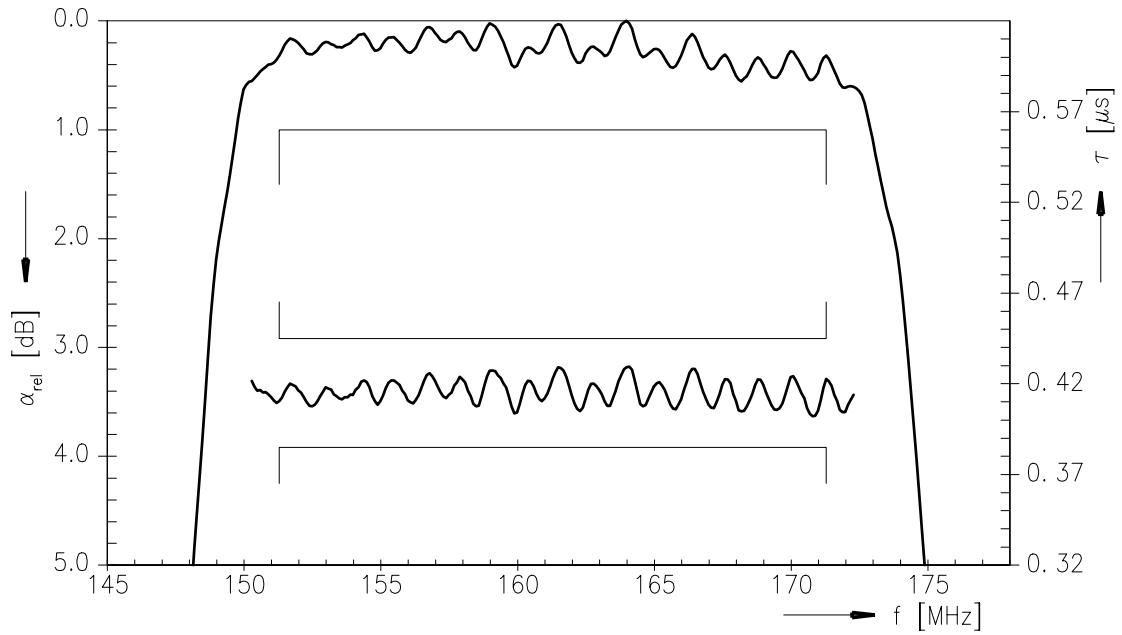
Maximum ratings

Operable temperature range	T	-40/+85	°C	machine model, 1 pulse
Storage temperature range	T_{stq}	-40/+85	°C	
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	200 ¹⁾	V	
Input power	P_{IN}	10	dBm	

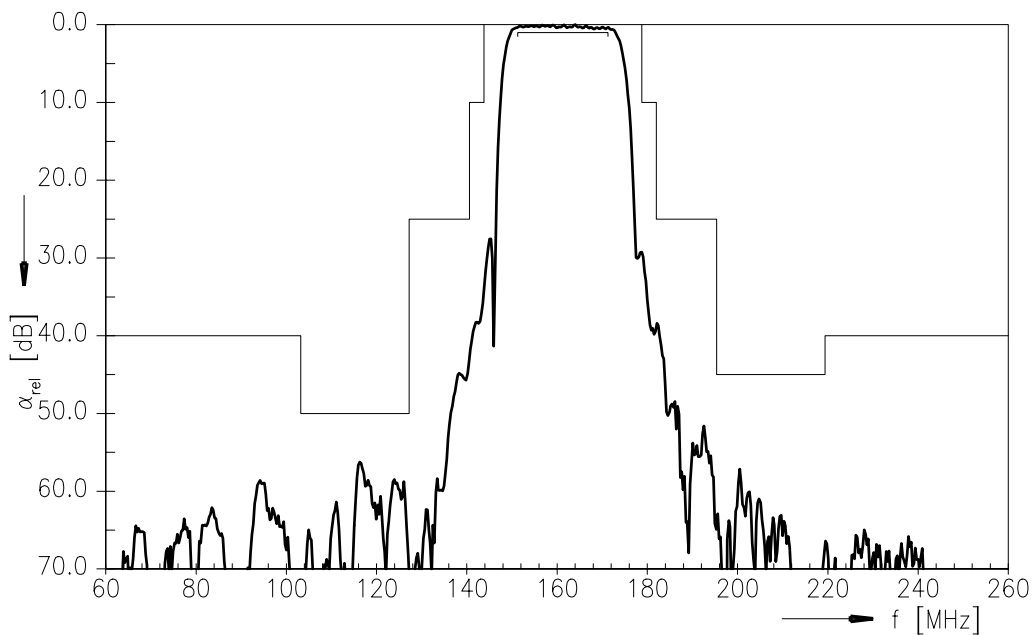
1) acc. to J-STD22A-0115A (machine model, 1 pulse +/-).



Transfer function



Transfer function (wideband)





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SAW IF filter

161.28 MHz

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References

Type	B5051
Ordering code	B39161-B5051-Z710
Marking and package	C61157-A7-A49
Packaging	F61074-V8172-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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