



SAW Components

SAW IF filter

LTE

Series/type:	B5204
Ordering code:	B39161B5204H810
Date:	November 17, 2009
Version:	2.1



Data Sheet



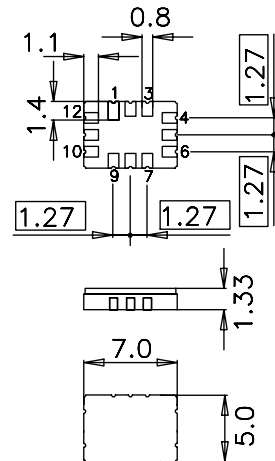
Application

- Low-loss IF filter for LTE base station
- Usable passband 20.0 MHz
- Unbalanced or balanced operation



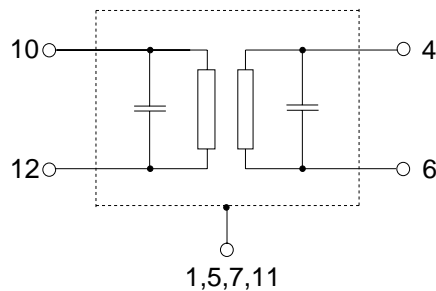
Features

- Package size 7.0 x 5.0 x 1.33 mm³
- Package code QCC12E
- RoHS compatible
- Approximate weight 0.25 g
- Ceramic Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- Filter surface passivated



Pin configuration

- 10 Input
- 12 Input ground or balanced input
- 4 Output
- 6 Output ground or balanced output
- 2, 3, 8, 9 To be grounded
- 1, 5, 7, 11 Case ground





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164.0 MHz

Data Sheet



Characteristics

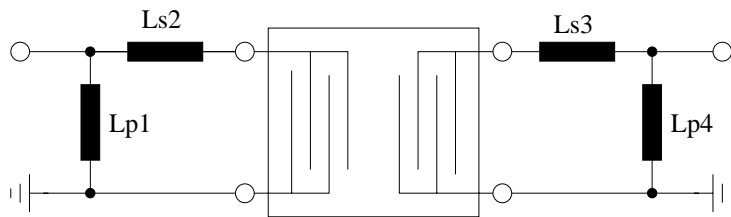
Temperature range for specification: $T = -40\text{ °C to }+85\text{ °C}$
 Terminating source impedance: $Z_S = 50\ \Omega$ and matching network
 Terminating load impedance: $Z_L = 50\ \Omega$ and matching network

		min.	typ. @ 25 °C	max.	
Nominal frequency	f_N	—	164.0	—	MHz
Minimum insertion attenuation (including matching network)	α_{\min}	—	7.5	9.0	dB
Passband width	$\alpha_{\text{rel}} \leq 1.0\text{ dB}$	$B_{1.0\text{dB}}$	20.0	23.8	—
					MHz
Amplitude ripple (p-p)	$f_N \pm 10.0\text{ MHz}$	$\Delta\alpha$	—	0.2	1.0
					dB
Phase ripple (rms)	$f_N \pm 10.0\text{ MHz}$	$\Delta\phi_{\text{rms}}$	—	0.5	2.0
					°
Group delay ripple (p-p)	$f_N \pm 10.0\text{ MHz}$	$\Delta\tau$	—	15	50
					ns
Absolute group delay (mean)	$f_N \pm 10.0\text{ MHz}$	τ	—	0.5	—
					µs
Average Error Vector Magnitude	$f_{N, \text{WCDMA}(k)} \pm 1.92\text{ MHz}$	EVM	—	1.0	4.0
					%
Input IP3			40	—	—
					dBm
Relative attenuation (relative to α_{\min})		α_{rel}			
	10 MHz ... 123 MHz		40	65	—
	194 MHz ... 1 GHz		40	50	—
					dB
Temperature coefficient of frequency	TC_f	—	-87	—	ppm/K

¹⁾ $f_{N, \text{WCDMA}(k)} = 156.5\text{ MHz} + k \cdot 5\text{ MHz}; \quad k = (0, 1, 2, 3)$



Matching network to 50 Ω



- $L_{p1} = 33 \text{ nH}$
- $L_{s2} = 33 \text{ nH}$
- $L_{s3} = 22 \text{ nH}$
- $L_{p4} = 33 \text{ nH}$

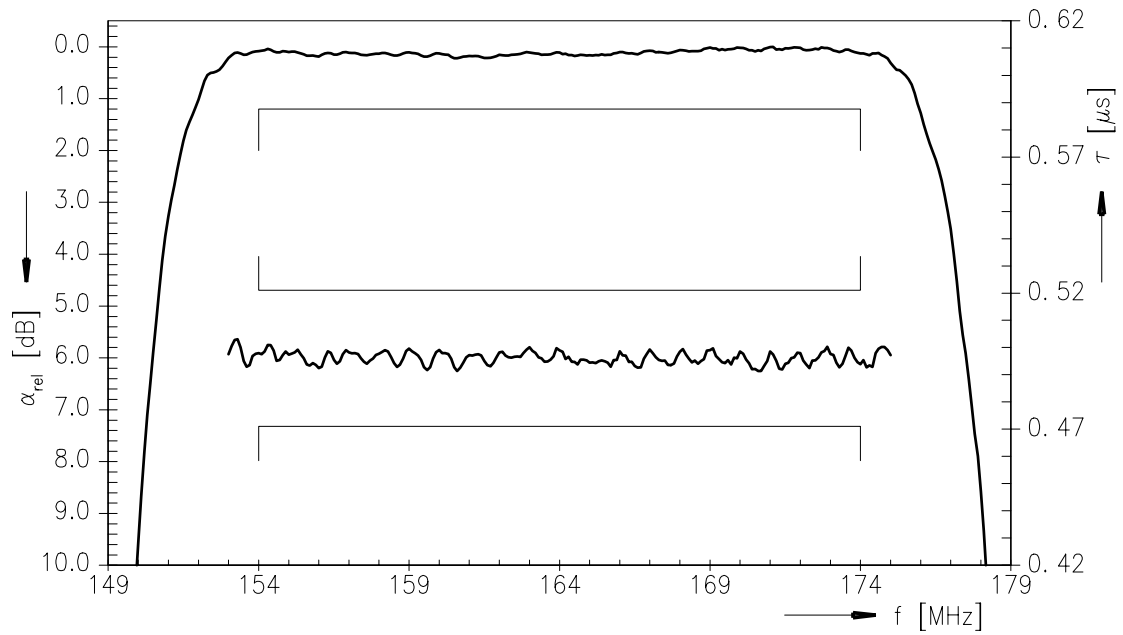
Element values depend upon board layout and properties.

Maximum ratings

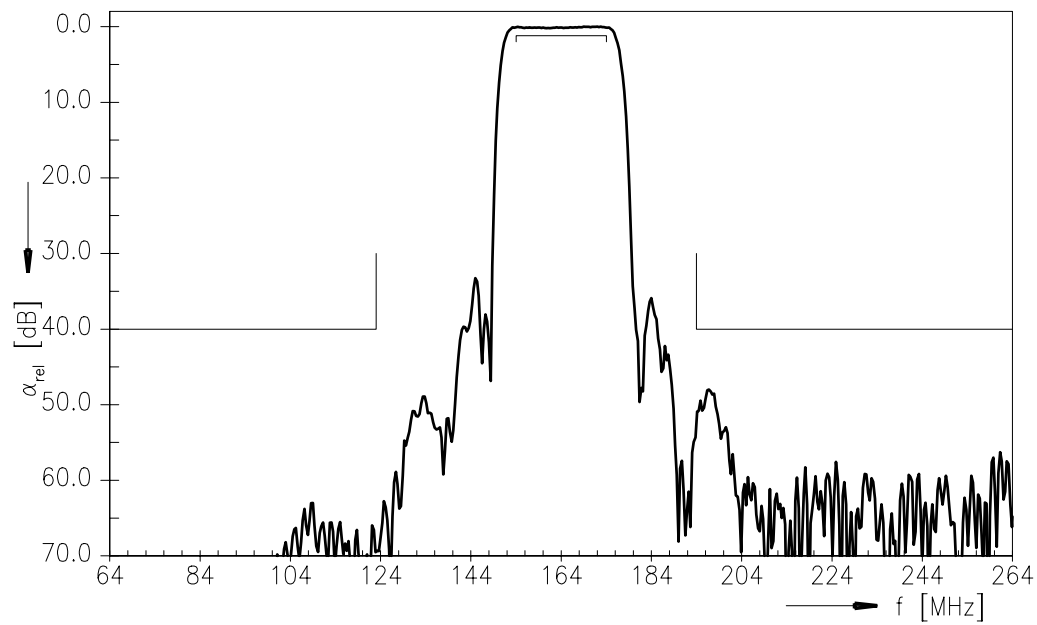
Operable temperature range	T	-40/+85	°C	
Storage temperature range	T _{stg}	-40/+85	°C	
DC voltage	V _{DC}	0	V	
Input power	P _{IN}	15	dBm	
Input power	P _{IN}	21	dBm	lifetime-test ongoing
Input power (peak)	P _{IN}	22	dBm	for 2 minutes



Transfer function (S21, Narrowband)



Transfer function (S21, Wideband)





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SAW IF filter	164.0 MHz
Data Sheet	

References

Type	B5204
Ordering code	B39161B5204H810
Marking and package	C61157-A7-A103
Packaging	F61074-V8170-Z000
Date codes	L_1126
S-parameters	B5204_NB.s2p B5204_NB_UN.s4p, B5204_WB_UN.s4p
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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