SAW Components

SAW IF filter

WiMAX

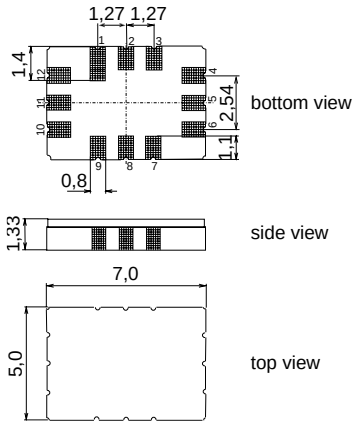
Series/type:	**B5040**
Ordering code:	**B39471-B5040-H810**
Date:	Mar 16, 2006
Version:	2.1

Application

- Low-loss IF filter for WiMAX
- Usable passband 4.5 MHz

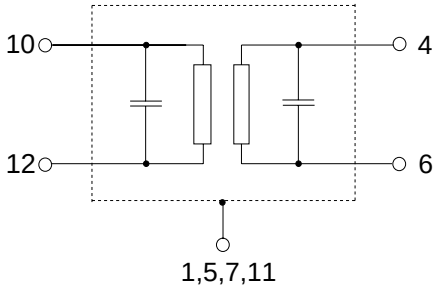
Features

- Package size 7.0 x 5.0 x 1.33 mm^3
- Package code QCC12E
- RoHS compatible
- Approx. weight 0.2 g
- Ceramic package for **S**urface **M**ount **T**echnology (**SMT**)
- Ni, gold-plated terminals
- **E**lectrostatic **S**ensitive **D**evice (**ESD**)



Pin configuration

■	10	Input
■	12	Input ground
■	4	Output
■	6	Output ground
■	2, 3, 8, 9	To be grounded
■	1, 5, 7, 11	Case ground



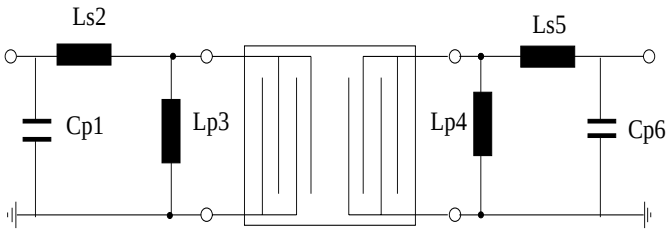
Characteristics

Operating temperature range: T = –40 to 85 ˚C
Terminating source impedance: Z_S = 50 Ω single ended and matching network
Terminating load impedance: Z_L = 50 Ω single ended and matching network

		min.	typ. @ 25 ˚C	max.	
Nominal frequency	f_N	—	468.0	—	MHz
Minimum insertion attenuation (including matching network)	α_{min}	—	11.2	13.0	dB
Amplitude ripple (p-p)	$\Delta\alpha$				
$f_N \pm 2.25$ MHz		—	0.6	1.2	dB
$f_N \pm 2.50$ MHz		—	1.3	2.0	dB
Group delay ripple (p-p)	$\Delta\tau$				
$f_N \pm 2.25$ MHz		—	120	250	ns
Absolute group delay					
$f_N \pm 2.50$ MHz	τ	—	0.5	1.5	µs
Relative attenuation (relative to α_{min})	α_{rel}				
$f_N \pm 3.5$ ... $f_N \pm 5.0$ MHz		10	15	—	dB
$f_N \pm 5.0$ ... $f_N \pm 10.0$ MHz		35	42	—	dB
$f_N \pm 10.0$ ... $f_N \pm 20.0$ MHz		40	48	—	dB
30.0 MHz ... $f_N - 20.0$ MHz		50	57	—	dB
$f_N + 20.0$ MHz ... $f_N + 24.0$ MHz		45	52	—	dB
$f_N + 24.0$ MHz ... 1000 MHz		50	55	—	dB
Return loss, input $f_N \pm 2.25$ MHz		8	12	—	dB
Return loss, output $f_N \pm 2.25$ MHz		8	20	—	dB
Temperature coefficient of frequency[1]	TC_f	—	–0.036	—	ppm/K²
Turnover temperature	T_0	—	20	—	˚C

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

Matching network to 50 Ω



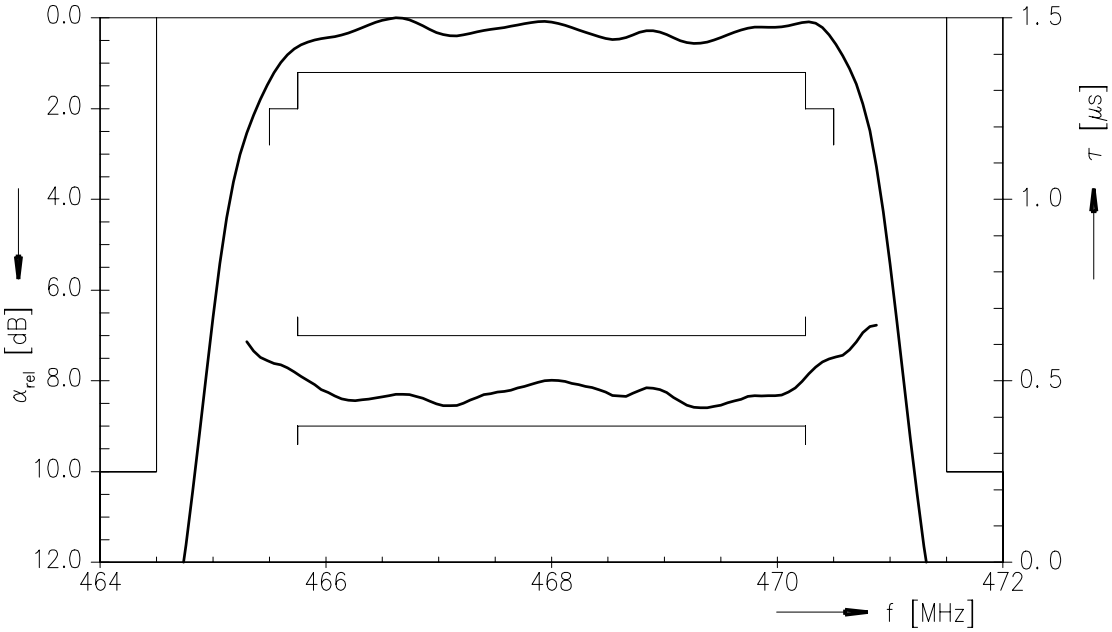
C_{p1} = not used
L_{s2} = 47.0 nH
L_{p3} = 22.0 nH
L_{p4} = not used
L_{s5} = 18.0 nH
C_{p6} = 18.0 pF

Maximum ratings

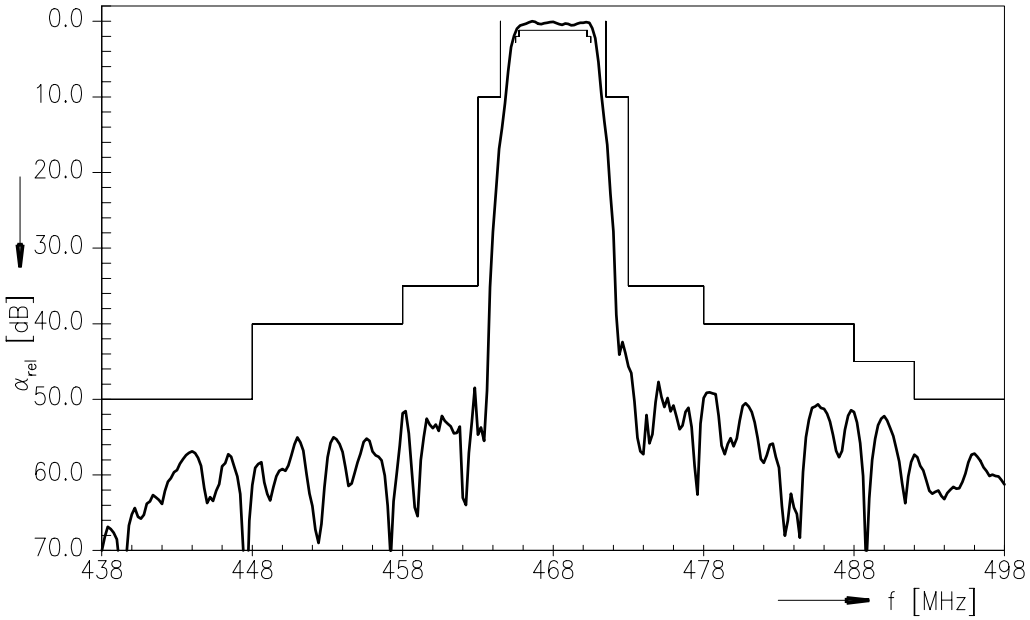
Operable temperature range	T	–40/+85	°C	
Storage temperature range	T_{stg}	–40/+85	°C	
DC voltage	V_{DC}	0	V	
ESD voltage	V_{ESD}	500[1)]	V	HBM; 5 pulse +/-
Input power (average)	P_{IN}	5	dBm	
Input power (peak)	P_{IN}	15	dBm	

1) acc. to JESD22A-A114-B (Human body model, 5 pulses +/-).

Transfer function



Transfer function (wideband)



References

Type	B5040
Ordering code	B39471-B5040-H810
Marking and package	C61157-A7-A103
Packaging	F61074-V8170-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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