# SAW Components

## SAW IF filter

WiMAX

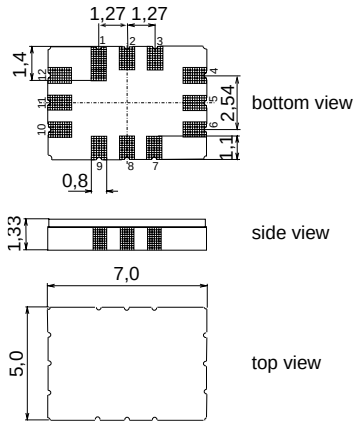
| | |
|---|---|
| **Series/type:** | **B5032** |
| **Ordering code:** | **B39461-B5032-H810** |
| Date: | Jun 29, 2009 |
| Version: | 2.3 |

## Application

- Low-loss IF filter for WiMAX
- Usable passband 10.4 MHz
- Balanced or unbalanced operation possible

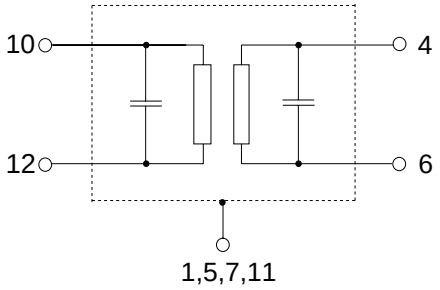

## Features

- Package size 7.0 x 5.0 x 1.33 mm³
- 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**)
- 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 |



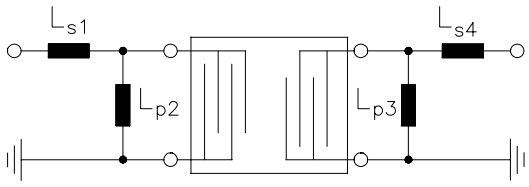
## Characteristics

Operating temperature range: T = –40 to 90 ˚C
Terminating source impedance: $Z_S$ = 50 Ω single ended or 200 Ω balanced and matching network
Terminating load impedance: $Z_L$ = 50 Ω single ended or 200 Ω balanced and matching network

| | | min. | typ. @ 25 ˚C | max. | |
|---|---|---|---|---|---|
| **Nominal frequency** | $f_N$ | — | 456.0 | — | MHz |
| **Minimum insertion attenuation** (including matching network) | $\alpha_{min}$ | — | 8.7 | 11.0 | dB |
| **Amplitude ripple** (p-p) | $\Delta\alpha$ | | | | |
| $f_N \pm 2.9$ MHz | | — | 0.4 | 1.5 | dB |
| $f_N \pm 5.2$ MHz | | — | 0.5 | 2.0 | dB |
| **Group delay ripple** (p-p) | $\Delta\tau$ | | | | |
| $f_N \pm 5.2$ MHz | | — | 35 | 150 | ns |
| **Absolute group delay** (at $f_N$) | | | | | |
| | $\tau$ | — | 0.7 | 2.0 | µs |
| **Relative attenuation** (relative to $\alpha_{min}$) | $\alpha_{rel}$ | | | | |
| $f_N \pm$ 10.0 ... $f_N \pm$ 43.0 MHz | | 37[1)] | 43 | — | dB |
| 411 - 413 MHz | | 40 | 50 | — | dB |
| 393 - 411 MHz | | 40 | 50 | — | dB |
| 343 - 393 MHz | | 42 | 50 | — | dB |
| **Temperature coefficient of frequency** | $TC_f$ | — | –18 | — | ppm/K |

1) for balanced operation mode only a minimum selectivity of 30 dB could be specified

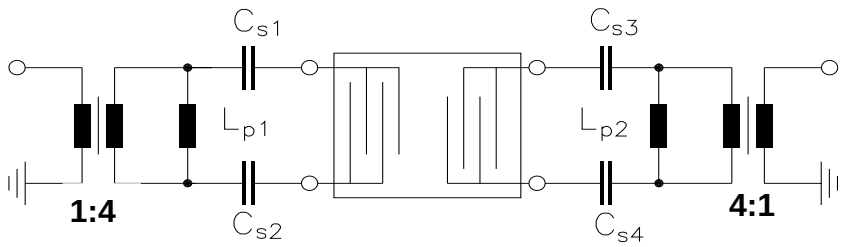
**Matching network to 50 Ω single ended** (element values depend on PCB layout)




$L_{s1}$ = 33.0 nH
$L_{p2}$ = 15.0 nH
$L_{p3}$ = 15.0 nH
$L_{s4}$ = 33.0 nH

**Matching network to 200 Ω balanced** (element values depend on PCB layout)

4:1 transformer is only required for measurement in a 50 Ω environment



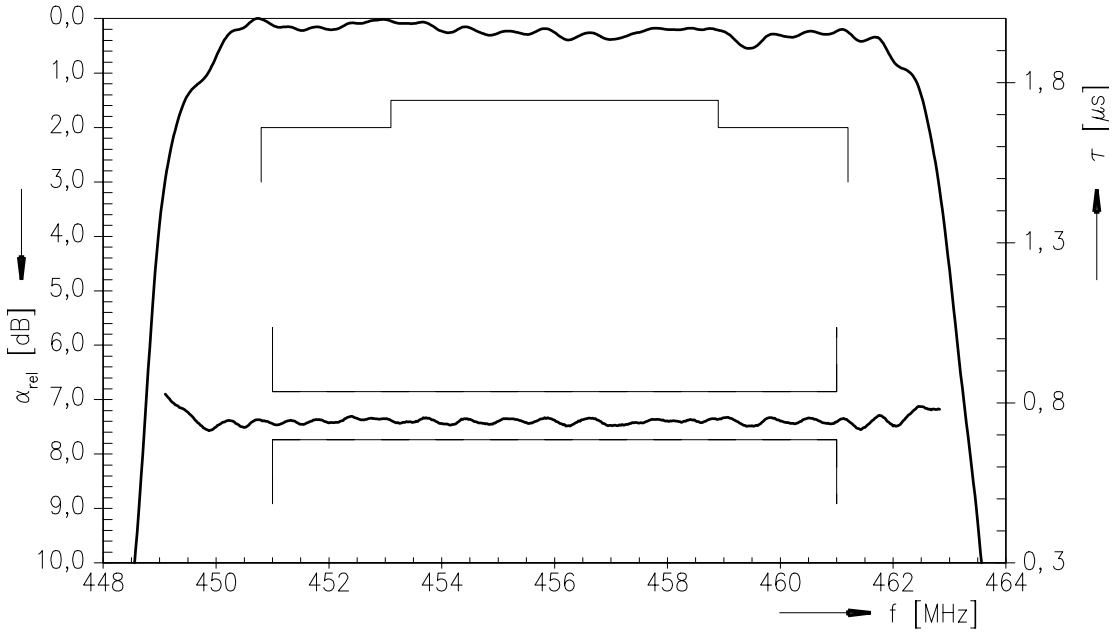

$C_{s1}$, $C_{s2}$ not used
$L_{p1}$ = 15 nH
$C_{s3}$, $C_{s4}$ not used
$L_{p2}$ = 15 nH

**Maximum ratings**

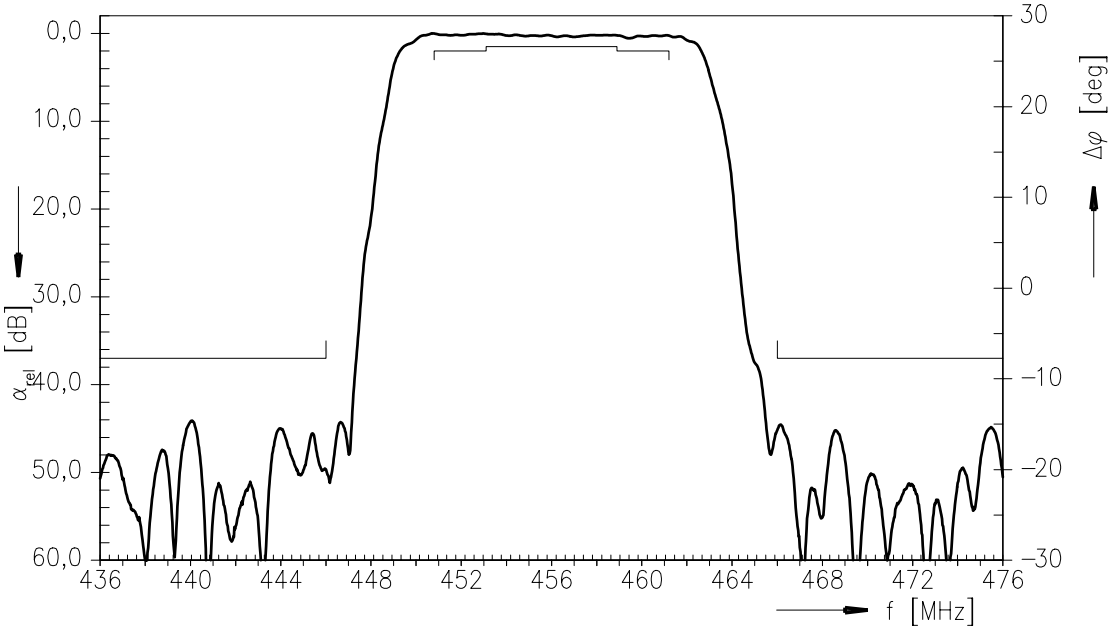
| | | | | |
|---|---|---|---|---|
| Operable temperature range | T | –40/+90 | °C | |
| Storage temperature range | $T_{stg}$ | –40/+90 | °C | |
| DC voltage | $V_{DC}$ | 5 | V | between input, output and ground |
| DC voltage | $V_{DC}$ | 0 | V | between 10,12 and between 4,6 |
| ESD voltage | $V_{ESD}$ | 200[1)] | V | machine model, 1 pulse |
| Input power | $P_{IN}$ | 10 | dBm | |

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

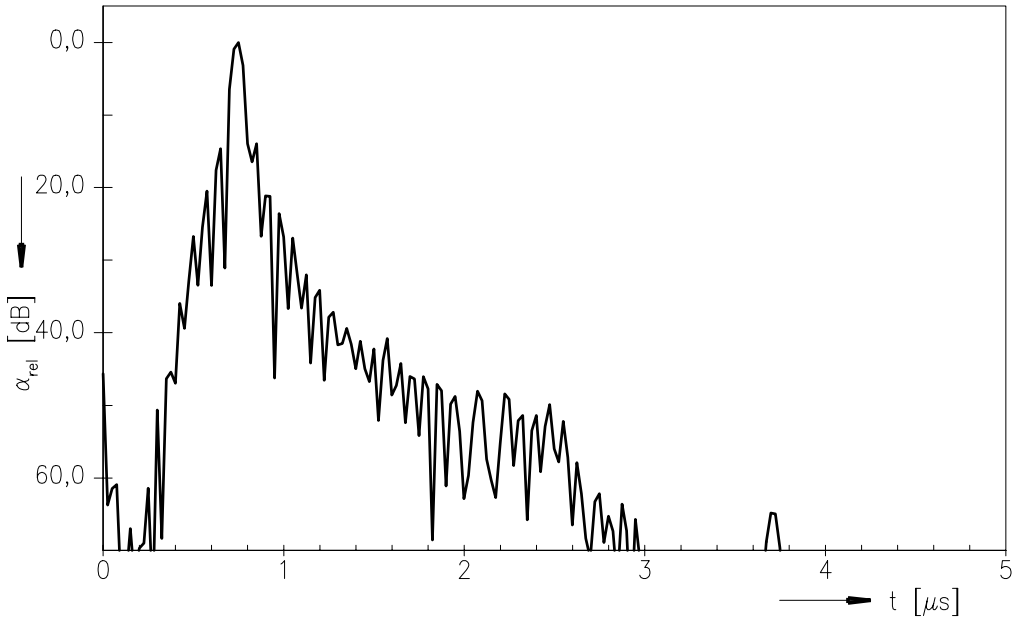
**Normalized transfer function (pass band)**



**Transfer function** (wide band)




**Normalized time response**



**References**

| | |
|---|---|
| **Type** | B5032 |
| **Ordering code** | B39461-B5032-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:<br>"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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