



## **SAW Components**

### **SAW IF filter**

BWA

|                       |                        |
|-----------------------|------------------------|
| <b>Series/type:</b>   | <b>B5093</b>           |
| <b>Ordering code:</b> | <b>B39141B5093Z510</b> |
| <b>Date:</b>          | <b>Aug 17, 2009</b>    |
| <b>Version:</b>       | <b>2.1</b>             |



## SAW Components

B5093

## SAW IF filter

140.00 MHz

## Datasheet



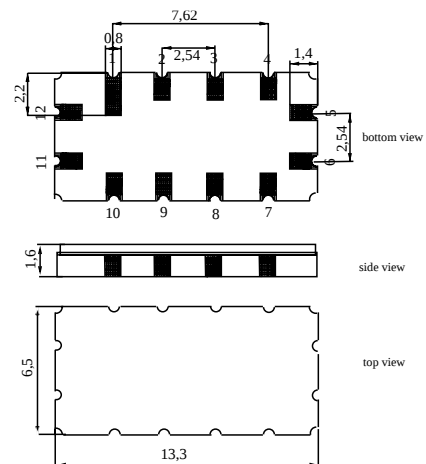
## Application

- Low-loss IF filter for Broadband Wireless Access



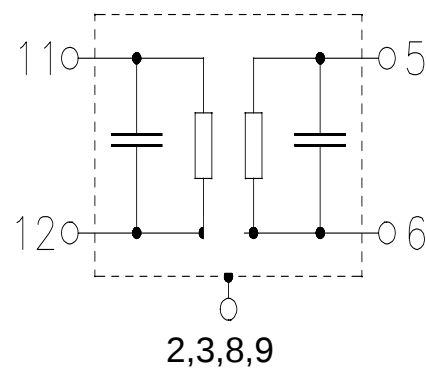
## Features

- Package size 13.3 x 6.5 x 1.6 mm<sup>3</sup>
- Package code QCC12
- 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

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





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#### Characteristics

|                               |                                         |
|-------------------------------|-----------------------------------------|
| Operating temperature range:  | $T = -35$ to $75\text{ °C}$             |
| Terminating source impedance: | $Z_S = 50\ \Omega$ and matching network |
| Terminating load impedance:   | $Z_L = 50\ \Omega$ and matching network |

|                                                                      |                       | min. | typ.<br>@ 25 °C | max. |               |
|----------------------------------------------------------------------|-----------------------|------|-----------------|------|---------------|
| <b>Nominal frequency</b>                                             | $f_N$                 | —    | 140.0           | —    | MHz           |
| <b>Minimum insertion attenuation</b><br>(including matching network) | $\alpha_{\min}$       | —    | 6.0             | 7.5  | dB            |
| <b>Passband bandwidth</b>                                            |                       |      |                 |      |               |
| $\alpha_{\text{rel}} \leq 1\text{ dB}$                               | $B_{1\text{dB}}$      | 7.5  | 8.0             | —    | MHz           |
| $\alpha_{\text{rel}} \leq 3\text{ dB}$                               | $B_{3\text{dB}}$      | 8.4  | 8.8             | —    | MHz           |
| $\alpha_{\text{rel}} \leq 35\text{ dB}$                              | $B_{35\text{dB}}$     | —    | 12.6            | 13.0 | MHz           |
| <b>Amplitude ripple (p-p)</b>                                        | $\Delta\alpha$        |      |                 |      |               |
| $f_N \pm 2.6\text{ MHz}$                                             |                       | —    | 0.35            | 1.0  | dB            |
| <b>Group delay ripple (p-p)</b>                                      | $\Delta\tau$          |      |                 |      |               |
| $f_N \pm 2.6\text{ MHz}$                                             |                       | —    | 87              | 150  | ns            |
| <b>Absolute group delay at <math>f_N</math></b>                      | $\tau$                | —    | 1.07            | —    | $\mu\text{s}$ |
| <b>Relative attenuation</b> (relative to $\alpha_{\min}$ )           | $\alpha_{\text{rel}}$ |      |                 |      |               |
| 10.00 MHz ... 132.00 MHz                                             |                       | 40   | 55              | —    | dB            |
| 148.00 MHz ... 153.00 MHz                                            |                       | 35   | 40              | —    | dB            |
| 153.00 MHz ... 250.00 MHz                                            |                       | 40   | 45              | —    | dB            |
| <b>Triple Transit Suppression</b>                                    |                       | 30   | 37              | —    | dB            |
| <b>Temperature coefficient of frequency</b>                          | $TC_f$                | —    | -86             | —    | ppm/K         |

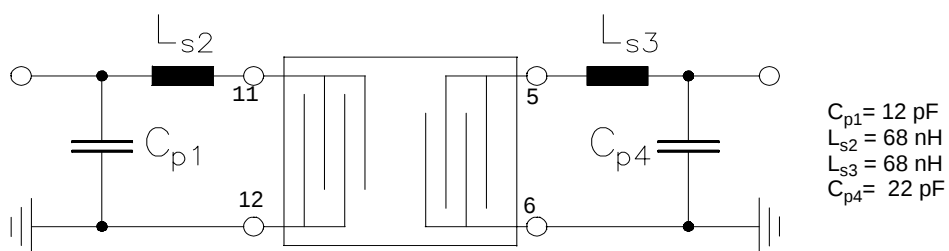


|                |            |
|----------------|------------|
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Matching network to 50  $\Omega$



Element values depend upon board layout

#### Maximum ratings

|                            |                  |         |     |  |
|----------------------------|------------------|---------|-----|--|
| Operable temperature range | T                | -40/+85 | °C  |  |
| Storage temperature range  | T <sub>stg</sub> | -40/+85 | °C  |  |
| DC voltage                 | V <sub>DC</sub>  | 0       | V   |  |
| Input power                | P <sub>IN</sub>  | 10      | dBm |  |



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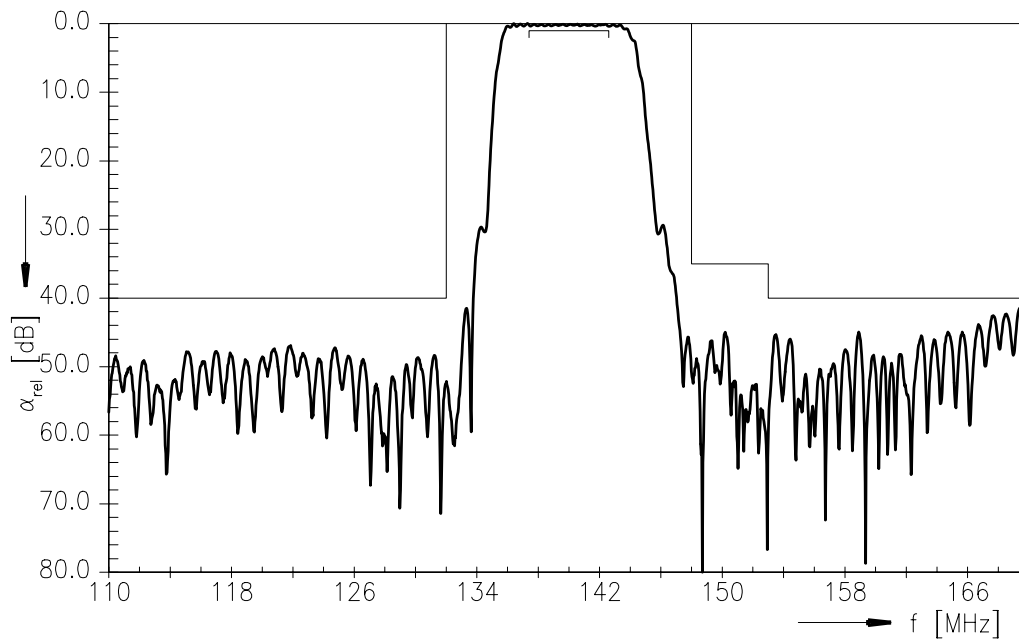
SAW IF filter

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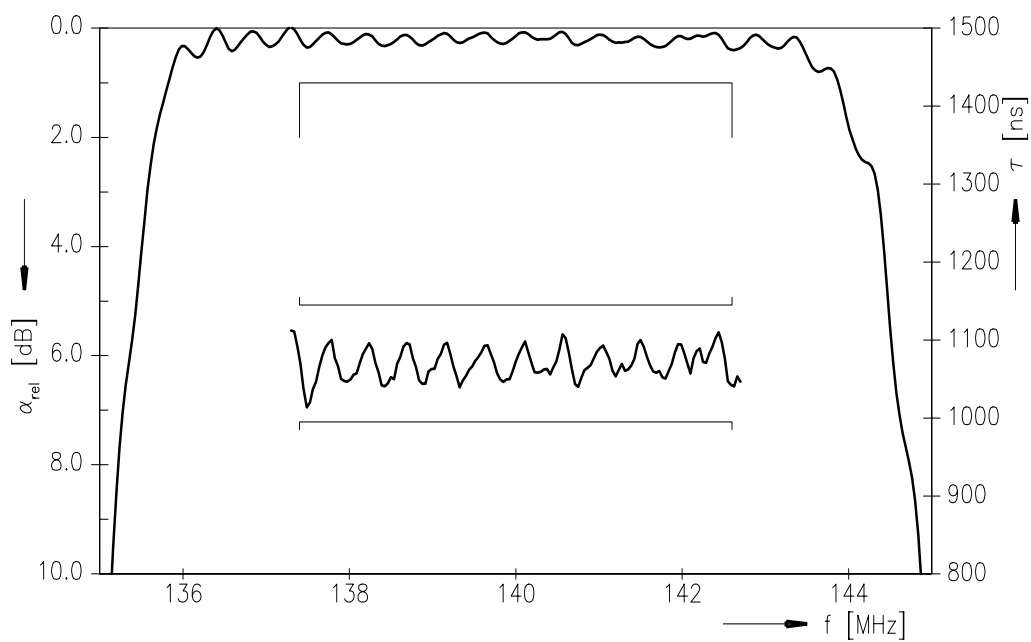
Datasheet



### Transfer function (wideband measurement)



### Transfer function (Passband)



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

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Datasheet

**References**

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                | B5093                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ordering code       | B39141B5093Z510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Marking and package | C61157-A7-A55                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Packaging           | F61074-V8163-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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