



## **SAW Components**

### **SAW IF filter for base stations**

|                       |                        |
|-----------------------|------------------------|
| <b>Series/type:</b>   | <b>B5087</b>           |
| <b>Ordering code:</b> | <b>B39191B5087H810</b> |
| <b>Date:</b>          | <b>Sep 03, 2010</b>    |
| <b>Version:</b>       | <b>2.2</b>             |



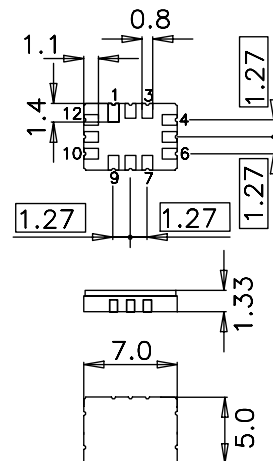
**Application**

- Low-loss IF filter for WCDMA base station
- Usable passband 60 MHz
- Balanced or unbalanced operation possible



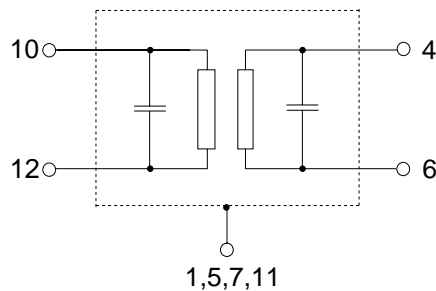
**Features**

- Package size 7.0 x 5.0 x 1.33 mm<sup>3</sup>
- Package code QCC12E
- RoHS compatible
- Approx. 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 input balance
- 4 Output
- 6 Output ground or output balance
- 2, 3, 8, 9 To be grounded
- 1, 5, 7, 11 Case ground





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**SAW IF filter**

**192.0 MHz**

Data sheet



**Characteristics**

Operating temperature range:  $T = -30$  to  $85$  °C  
 Terminating source impedance:  $Z_S = 50 \Omega$  and matching network  
 Terminating load impedance:  $Z_L = 50 \Omega$  and matching network

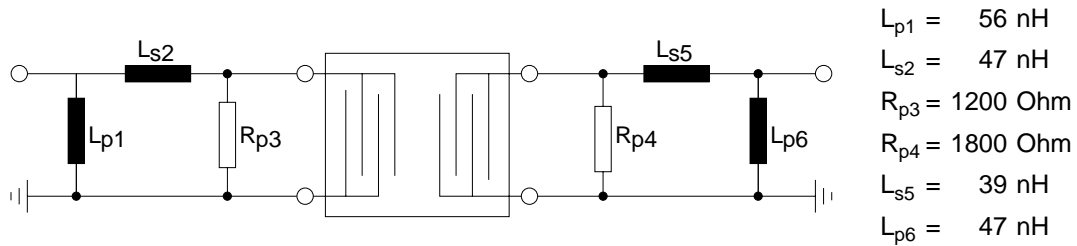
|  |                            | min.             | typ.<br>@ 25 °C | max. |        |
|--|----------------------------|------------------|-----------------|------|--------|
| <b>Nominal frequency</b>   | $f_N$                      | —                | 192.0           | —    | MHz    |
| <b>Minimum insertion attenuation</b><br>(including matching network) | $\alpha_{min}$             | —                | 15.2            | 16.0 | dB     |
| <b>Passband width</b>  | $\alpha_{rel} \leq 1.2$ dB | $B_{1,2dB}$      | 60.0            | 64.7 | — MHz  |
| <b>Amplitude ripple (p-p)</b>  | $\Delta\alpha$             | $f_N \pm 30$ MHz | —               | 0.6  | 1.2 dB |
| <b>Group delay ripple (p-p)</b>                                      | $\Delta\tau$               | $f_N \pm 30$ MHz | —               | 30   | 60 ns  |
| <b>Mean value of absolute group delay</b>                            | $\bar{\tau}$               | $f_N \pm 30$ MHz | —               | 550  | — ns   |
| <b>Relative attenuation (relative to <math>\alpha_{min}</math>)</b>  | $\alpha_{rel}$             |                  |                 |      |        |
|  | 10.0 MHz ... 145.5 MHz     | 40               | 47              | —    | dB     |
|  | 238.5 MHz ... 450.0 MHz    | 40               | 49              | —    | dB     |
|  | 450.0 MHz ... 770.0 MHz    | 35               | 46              | —    | dB     |
|  | 770.0 MHz ... 1000.0 MHz   | 40               | 66              | —    | dB     |
| <b>Temperature coefficient of frequency</b>                          | $TC_f$                     | —                | -87             | —    | ppm/K  |



Data sheet

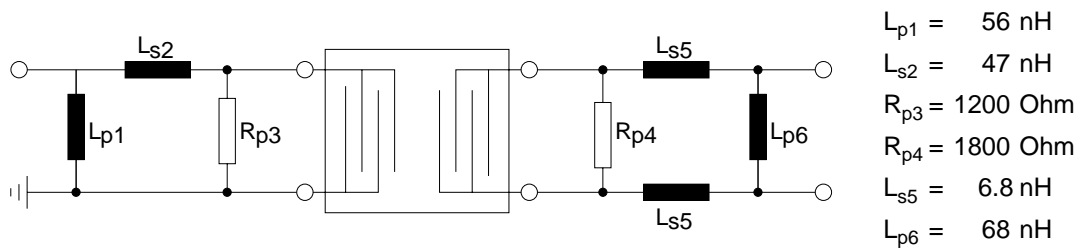


Matching network to 50 Ω (input unbalanced) and 50 Ω (output unbalanced)



Element values depend upon PCB layout.

Alternative matching network to 50 Ω (input unbalanced) and 150 Ω (output balanced)



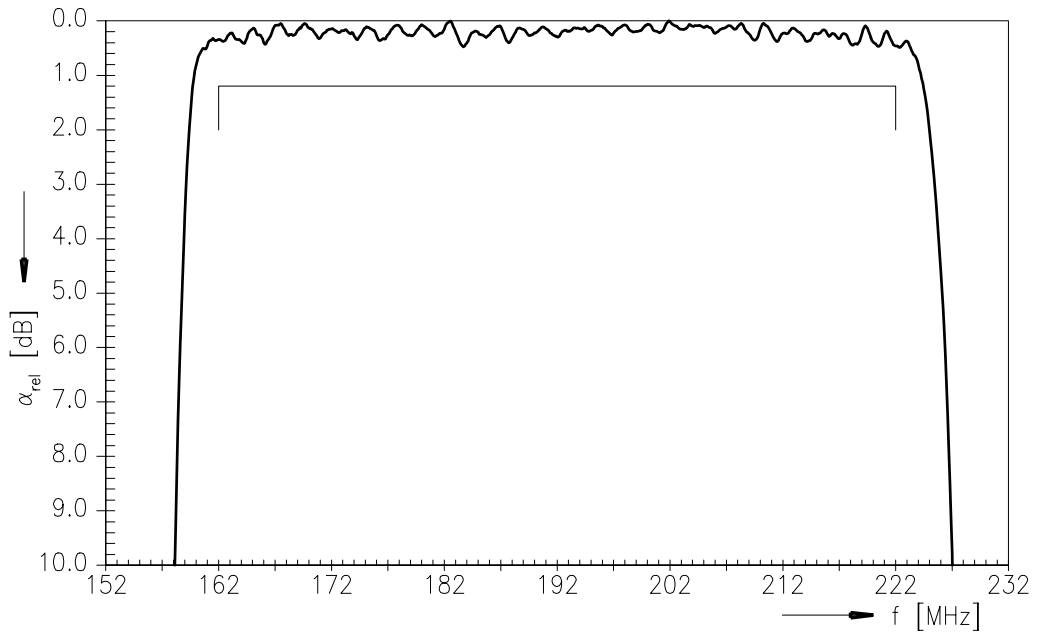
Element values depend upon PCB layout.

Maximum ratings

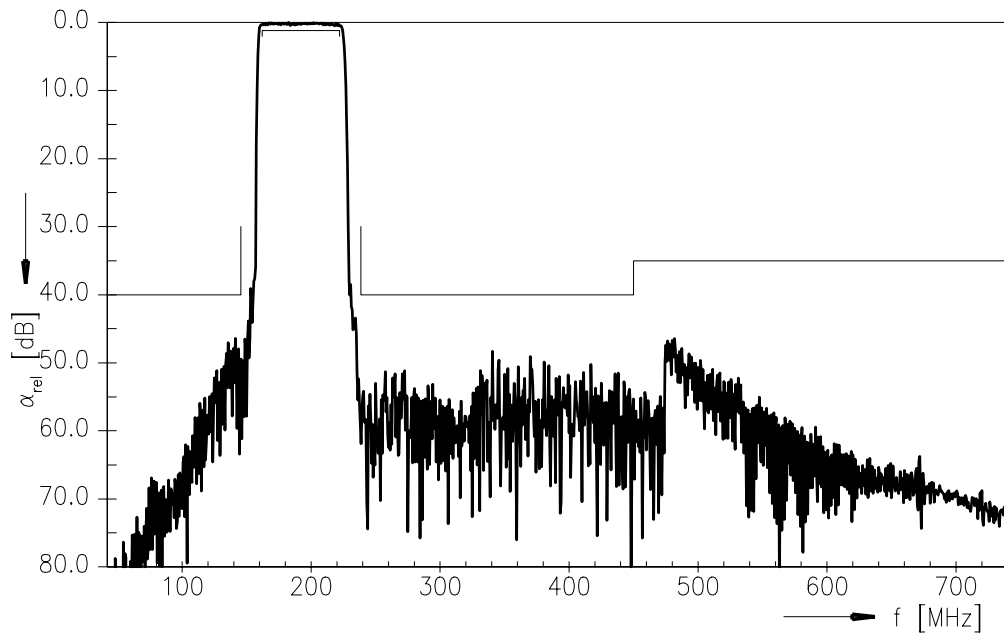
|                            |                  |         |     |  |
|----------------------------|------------------|---------|-----|--|
| Operable temperature range | T                | -40/+85 | °C  |  |
| Storage temperature range  | T <sub>sta</sub> | -40/+85 | °C  |  |
| DC voltage            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



Transfer function



Transfer function (wideband)





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Data sheet



## References

|                     |  |
|---------------------|--|
| Type                | B5087  |
| Ordering code       | B39191B5087H810  |
| 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." |
| Matching coils      | See Inductor pdf-catalog<br><a href="http://www.tdk.co.jp/tefe02/coil.htm#aname1">http://www.tdk.co.jp/tefe02/coil.htm#aname1</a><br>and Data Library for circuit simulation<br><a href="http://www.tdk.co.jp/etvcl/index.htm">http://www.tdk.co.jp/etvcl/index.htm</a>  |

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