



## **SAW Components**

### **SAW RF low loss filter**

Satellite CSS

|                       |                          |
|-----------------------|--------------------------|
| <b>Series/type:</b>   | <b>B1654</b>             |
| <b>Ordering code:</b> | <b>B39132-B1654-B510</b> |
| <b>Date:</b>          | <b>January 11, 2011</b>  |
| <b>Version:</b>       | <b>2.1</b>               |



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B1654

### SAW RF low loss filter

1280.18 MHz

#### Data sheet



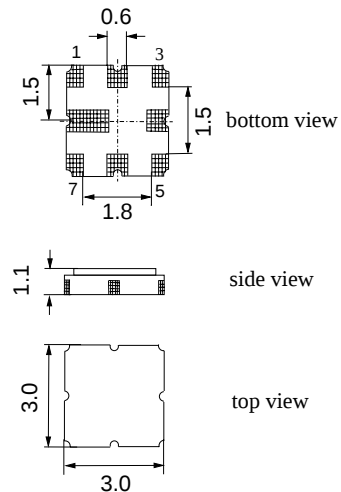
#### Application

- Low loss RF filter for satellite CSS
- Usable passband 40.0 MHz
- Balanced to balanced operation



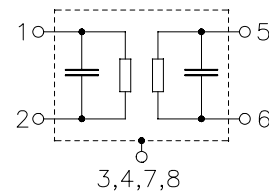
#### Features

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Maximum height of 1.225 mm
- Package code QCC8F
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**



#### Pin configuration

- 1 Input
- 2 Input
- 5 Output
- 6 Output
- 3,7 To be grounded
- 4,8 Case ground





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#### Characteristics

Temperature range for specification:

$T = -40\text{ °C to }+85\text{ °C}$

Terminating source impedance:

$Z_S = 150\ \Omega$  (balanced) and matching network

Terminating load impedance:

$Z_L = 150\ \Omega$  (balanced) and matching network

|                                          |                     | min. | typ.<br>@ 25 °C | max. |     |
|------------------------------------------|---------------------|------|-----------------|------|-----|
| <b>Nominal frequency</b>                 | $f_N$               | —    | 1280.18         | —    | MHz |
| <b>Maximum insertion attenuation</b>     | $\alpha_{\max}$     | —    | 3.3             | 4.5  | dB  |
| 1260.18 ... 1300.18 MHz                  |                     |      |                 |      |     |
| <b>Pass bandwidth</b>                    |                     | —    | 54.0            | —    | MHz |
| $\alpha_{\text{rel}} \leq 1.5\text{ dB}$ | $B_{1.5\text{ dB}}$ |      |                 |      |     |
| <b>Amplitude ripple (p-p)</b>            | $\Delta\alpha$      | —    | 1.2             | 2.0  | dB  |
| 1260.18 ... 1300.18 MHz                  |                     |      |                 |      |     |
| <b>Input return loss</b>                 |                     | 8.0  | 12.5            | —    | dB  |
| <b>Output return loss</b>                |                     | 8.0  | 12.5            | —    | dB  |
| <b>Group delay ripple (p-p)</b>          | $\Delta\tau$        | —    | 15.0            | 40.0 | ns  |
| 1260.18 ... 1300.18 MHz                  |                     |      |                 |      |     |
| <b>Differential to common mode ratio</b> |                     | 25.0 | 31.0            | —    | dB  |
| $( S_{dd21}/S_{cd21} )$                  |                     |      |                 |      |     |
| 1260.18 ... 1300.18 MHz                  |                     |      |                 |      |     |
| <b>Deviation from linear phase (rms)</b> |                     | —    | 5.0             | 8.0  | °   |
| in any 30 MHz band                       |                     |      |                 |      |     |
| 1260.18 ... 1300.18 MHz                  |                     |      |                 |      |     |
| <b>Relative attenuation</b>              | $\alpha$            | 46.0 | 53.0            | —    | dB  |
| 50.00 ... 1198.12 MHz                    |                     |      |                 |      |     |
| 1362.24 ... 2000.00 MHz                  |                     | 40.0 | 45.0            | —    | dB  |
| 2000.00 ... 6000.00 MHz                  |                     | 25.0 | 45.0            | —    | dB  |

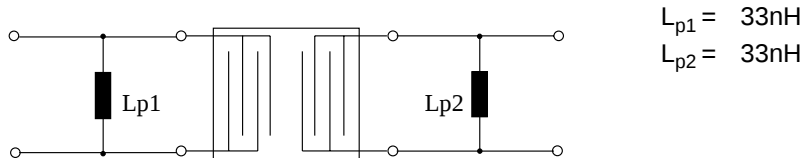


|                        |             |
|------------------------|-------------|
| SAW Components         | B1654       |
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Data sheet



**Matching network** (element values depend on PCB 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   |                        |
| ESD voltage                             | V <sub>ESD</sub> | 50 <sup>1)</sup> | V   | machine model, 1 pulse |
| Input power at<br>1260.18...1300.18 MHz | P <sub>IN</sub>  | 0                | dBm | source impedance 150 Ω |

<sup>1)</sup> acc. to JESD22-A115A (machine model), 1 negative & 1 positive pulse.



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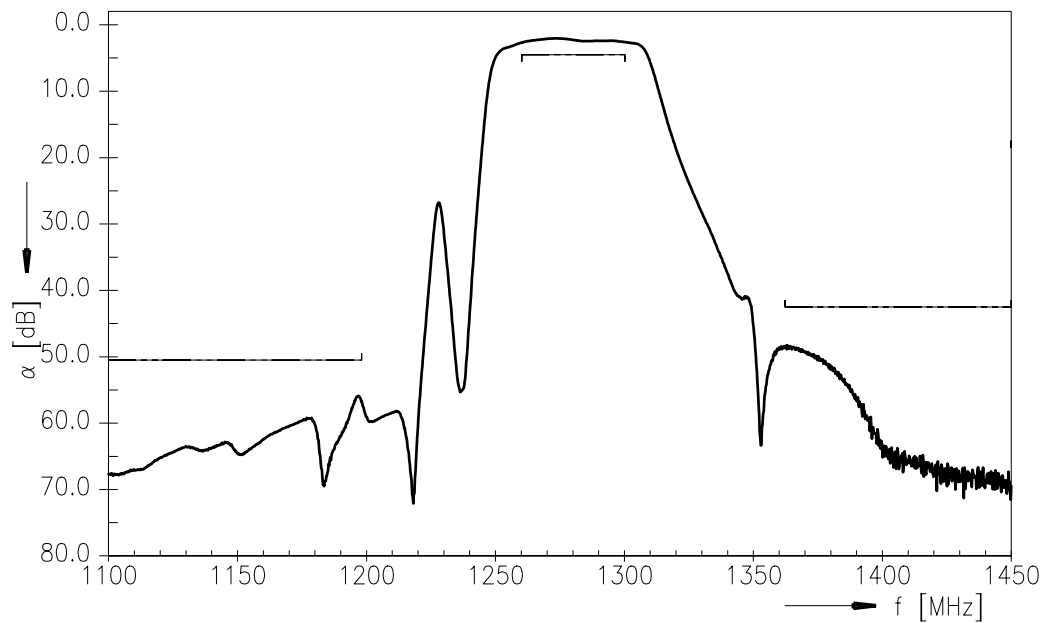
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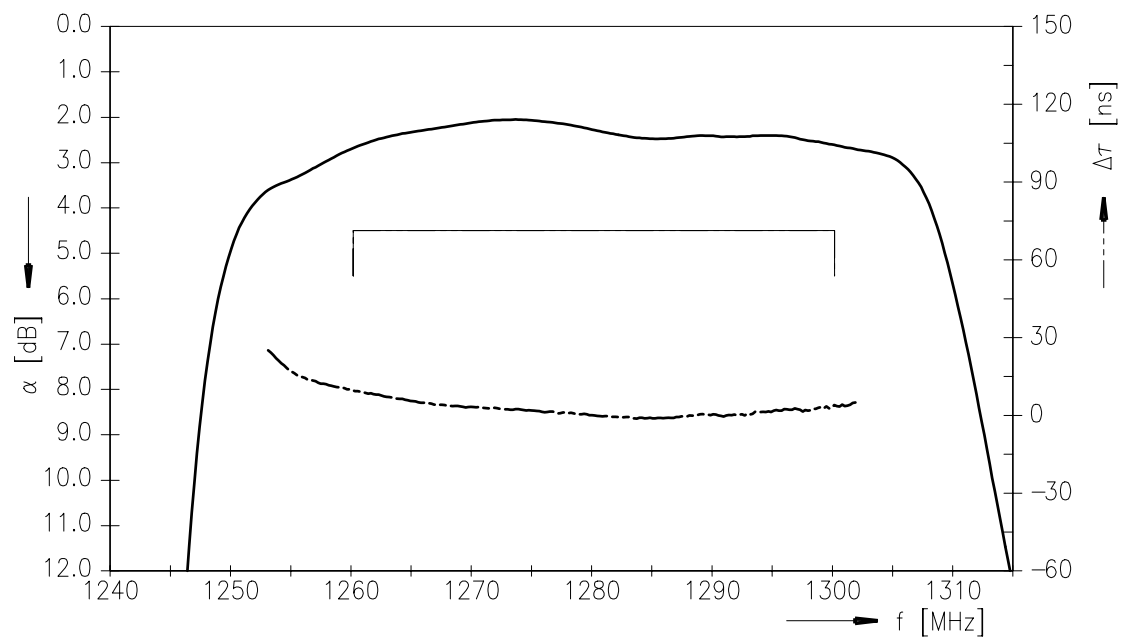
Data sheet



### Transfer function



### Transfer function (passband)



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

**SAW Components****B1654****SAW RF low loss filter****1280.18 MHz**

Data sheet

**References**

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                | B1654                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ordering code       | B39132-B1654-B510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Marking and package | C61157-A7-A72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Packaging           | F61074-V8168-Z000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Date codes          | L_1126                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| S-parameters        | B1654_NB.s4p<br>B1654_WB.s4p<br>See file header for port/pin assignment table.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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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