



## **SAW Components**

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

Satellite CSS

|                       |                          |
|-----------------------|--------------------------|
| <b>Series/type:</b>   | <b>B1666</b>             |
| <b>Ordering code:</b> | <b>B39142-B1666-U510</b> |
| <b>Date:</b>          | <b>October 01, 2010</b>  |
| <b>Version:</b>       | <b>2.0</b>               |



## SAW Components

B1666

## SAW RF low loss filter

1420.00 MHz

## Data sheet



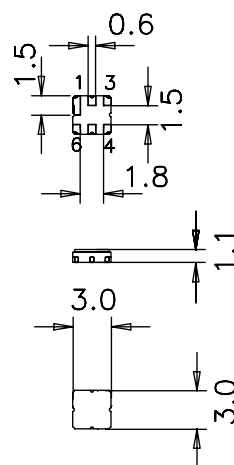
## Application

- Low-loss RF filter for digital video
- Impedance transformation from 200  $\Omega$  to 50  $\Omega$
- Balanced to unbalanced operation
- Usable passband 60.0 MHz



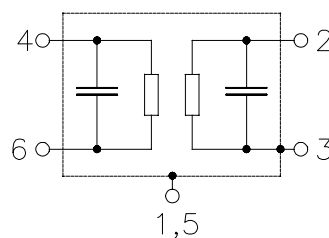
## Features

- Package size 3.0 x 3.0 x 1.1 mm<sup>3</sup>
- Maximum height of 1.225 mm
- Package code DCC6D
- RoHS compatible
- Approximate weight 0.037 g
- Package for **Surface Mount Technology (SMT)**
- Ni, gold-plated terminals
- **Electrostatic Sensitive Device (ESD)**
- AEC-Q200 qualified component family



## Pin configuration

- 4,6 Input balanced
- 2 Output unbalanced
- 1,3,5 To be grounded





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### Characteristics

Temperature range for specification:  $T = -40\text{ °C to }+85\text{ °C}$   
Terminating source impedance:  $Z_S = 200\Omega$  (balanced) and matching network  
Terminating load impedance:  $Z_L = 50\Omega$

|                                          |                 | min. | typ.<br>@ 25 °C | max. |     |
|------------------------------------------|-----------------|------|-----------------|------|-----|
| <b>Nominal frequency</b>                 | $f_N$           | —    | 1420.00         | —    | MHz |
| <b>Maximum insertion attenuation</b>     | $\alpha_{\max}$ | —    | 2.6             | 3.6  | dB  |
| 1390.0 ... 1450.0 MHz                    |                 |      |                 |      |     |
| <b>Amplitude ripple</b>                  | $\Delta\alpha$  | —    | 1.2             | 2.0  | dB  |
| <b>in any 30MHz band (p-p)</b>           |                 |      |                 |      |     |
| 1390.0 ... 1450.0 MHz                    |                 |      |                 |      |     |
| <b>Amplitude ripple (p-p)</b>            | $\Delta\alpha$  | —    | 1.2             | 2.0  | dB  |
| 1390.0 ... 1450.0 MHz                    |                 |      |                 |      |     |
| <b>Differential to common mode ratio</b> |                 |      |                 |      |     |
| $( S_{dd21}/S_{cd21} )$                  |                 |      |                 |      |     |
| 1390.0 ... 1450.0 MHz                    |                 | 18.0 | 21.0            | —    | dB  |
| <b>Input return loss</b>                 |                 | 6.0  | 8.0             | —    | dB  |
| <b>Output return loss</b>                |                 | 6.0  | 8.0             | —    | dB  |
| <b>Attenuation</b>                       | $\alpha$        |      |                 |      |     |
| 50.0 ... 900.0 MHz                       |                 | 45   | 48              | —    | dB  |
| 1180.0 ... 1240.0 MHz                    |                 | 32   | 35              | —    | dB  |
| 1650.0 ... 1710.0 MHz                    |                 | 29   | 32              | —    | dB  |
| 1710.0 ... 2070.0 MHz                    |                 | 31   | 34              | —    | dB  |
| 2070.0 ... 5000.0 MHz                    |                 | 20   | 25              | —    | dB  |
| <b>Group delay ripple (p-p)</b>          |                 | —    | 15              | 30   | ns  |
| 1390.0 ... 1450.0 MHz                    |                 |      |                 |      |     |



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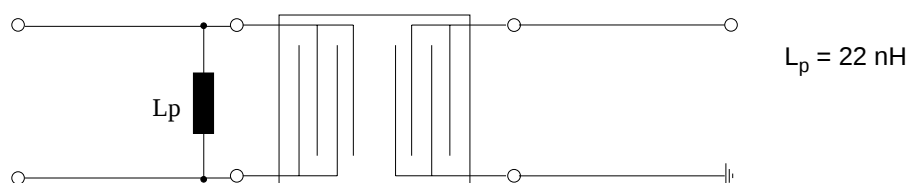
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### Data sheet



Matching Network (element values depend on PCB layout)

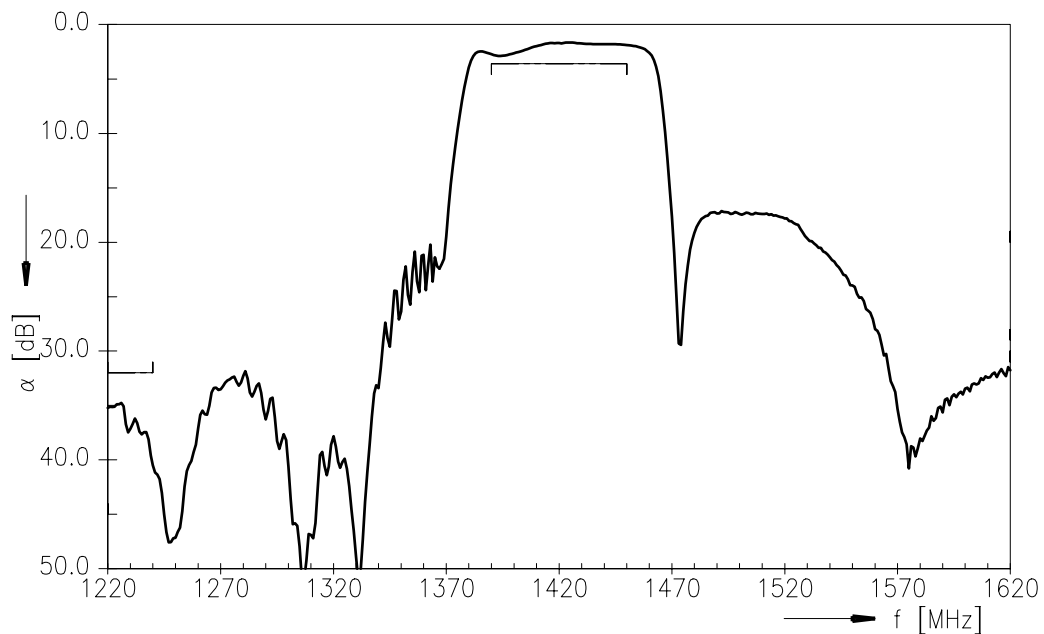


### Maximum ratings

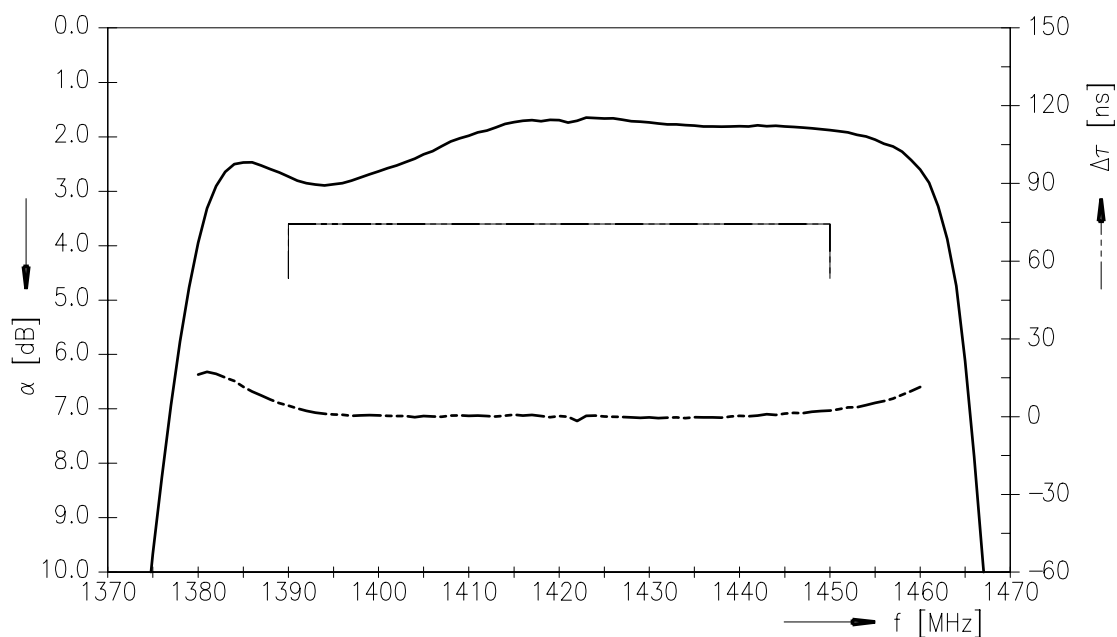
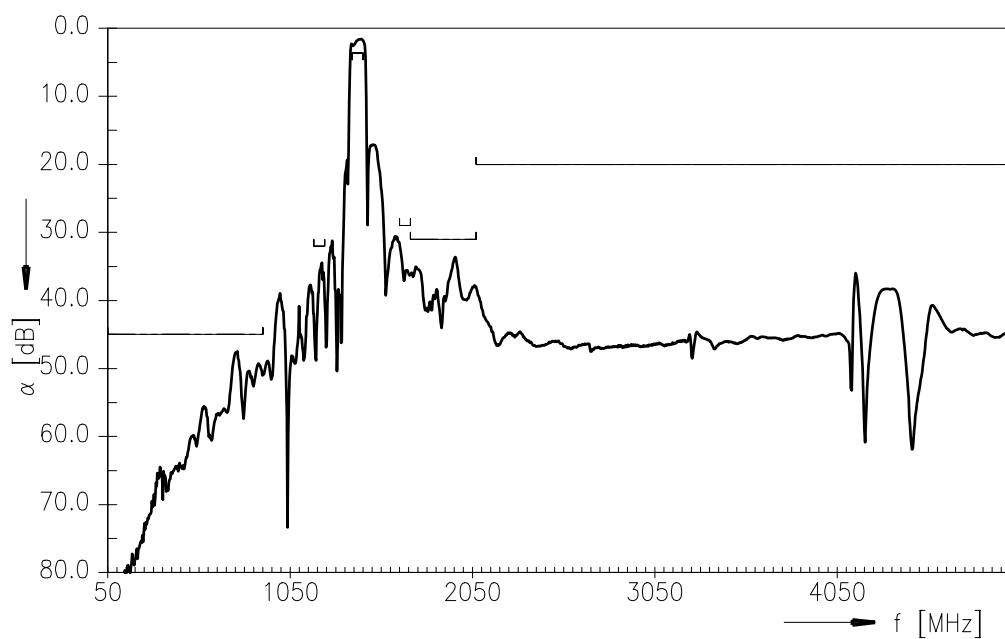
|                                           |                  |                  |     |                        |
|-------------------------------------------|------------------|------------------|-----|------------------------|
| Operable temperature range                | T                | -40/+85          | °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>1390.0 MHz...1450.0 MHz | P <sub>IN</sub>  | 0                | dBm | source impedance 200 Ω |

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

### Transfer function



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

**Transfer function (passband)**

**Transfer function (wideband)**




|                               |                    |
|-------------------------------|--------------------|
| <b>SAW Components</b>         | <b>B1666</b>       |
| <b>SAW RF low loss filter</b> | <b>1420.00 MHz</b> |
| <b>Data sheet</b>             | <b>SMD</b>         |

## References

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                | B1666                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Ordering code</b>       | B39142-B1666-U510                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Marking and package</b> | C61157-A7-A68                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Packaging</b>           | F61074-V8168-Z000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Date codes</b>          | L_1126                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>S-parameters</b>        | B1666_NB.s3p<br>B1666_WB.s3p<br>see file header for port/pin assignment table.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Soldering profile</b>   | S_6001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>RoHS compatible</b>     | 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." |
| <b>Matching coils</b>      | 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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