Measurement condition
Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance:
   Input: 150 Ω
   Output: 150 Ω

Characteristics

Remark:
The nominal frequency \( f_N \) is fixed at 320.0 MHz. The insertion loss \( a_e \) is defined as loss value determined at \( f_N \). All specified data are met within the operating temperature range.

\[
\begin{array}{llll}
\text{Data} & \text{typ. value} & \text{tolerance / limit} \\
\hline
\text{Insertion loss} (\text{reference level}) & a_e & 2.2 \text{ dB} & \text{max. 3.5 dB} \\
\text{Nominal frequency} & f_N & - & 320.0 \text{ MHz} \\
\text{Centre frequency} & f_C & 320.0 \text{ MHz} \\
\text{Bandwidth} & BW & 11.6 \text{ MHz} & - \\
\text{Absolute attenuation} & a_{abs} & \begin{array}{l}
\begin{array}{llll}
\text{(reference level)} & & & \\
80 \text{ MHz} & 62 \text{ dB} & \text{min. 52 dB} \\
160 \text{ MHz} & 64 \text{ dB} & \text{min. 50 dB} \\
240 \text{ MHz} & 68 \text{ dB} & \text{min. 50 dB} \\
400 \text{ MHz} & 62 \text{ dB} & \text{min. 48 dB} \\
480 \text{ MHz} & 56 \text{ dB} & \text{min. 48 dB} \\
560 \text{ MHz} & 65 \text{ dB} & \text{min. 50 dB} \\
\end{array}
\end{array} \\
\text{Operating temperature range} & \text{OTR} & - & -25 ^\circ \text{C} \ldots +85 ^\circ \text{C} \\
\text{Storage temperature range} & - & -45 ^\circ \text{C} \ldots +95 ^\circ \text{C} \\
\text{Temperature coefficient of frequency} & TC_f & -73 \text{ ppm/K} & *
\end{array}
\]

*) \( \Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T-T_0) \times f_{f0}(\text{MHz}) \). Material: LiNbO\(_3\)-41° black, so in principle pyrofree.

Generated:

Checked / Approved:
**Filter characteristic**

![Graphs showing filter characteristic](image)

**Construction and pin connection**

(All dimensions in mm)

1. Ground
2. Input
3. Ground
4. Ground
5. Ground
6. Output
7. Ground
8. Ground

Date code: Year + week
- E: 2014
- F: 2015
- G: 2016
- ...

**150 Ω Test circuit**

![Test circuit diagram](image)
Stability characteristics, reliability

After the following tests the filter shall meet the whole specification:

1. Shock: 500g, 1 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27

2. Vibration: 10 Hz to 500 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 68 T2 - 6

3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles DIN IEC 68 part 2 – 14 Test N

4. Resistance to solder heat (reflow): reflow possible: three times max.; for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

This filter is RoHS compliant (2011/65/EU)

Packing

Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius; tape type II, embossed carrier tape with top cover tape on the upper side;

max. pieces of filters per reel: 3000
reel of empty components at start: min. 300 mm
reel of empty components at start including leader: min. 500 mm
trailer: min. 300 mm

The minimum bending radius is 45 mm.
Air reflow temperature conditions

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average ramp-up rate (30 °C to 217 °C)</td>
<td>less than 3 °C/second</td>
</tr>
<tr>
<td>&gt; 100 °C</td>
<td>between 300 and 600 seconds</td>
</tr>
<tr>
<td>&gt; 150 °C</td>
<td>between 240 and 500 seconds</td>
</tr>
<tr>
<td>&gt; 217 °C</td>
<td>between 30 and 150 seconds</td>
</tr>
<tr>
<td>Peak temperature</td>
<td>max. 260 °C</td>
</tr>
<tr>
<td>Time within 5 °C of actual peak temperature</td>
<td>between 10 and 30 seconds</td>
</tr>
<tr>
<td>Cool-down rate (Peak to 50 °C)</td>
<td>less than 6 °C/second</td>
</tr>
<tr>
<td>Time from 30 °C to Peak temperature</td>
<td>no greater than 300 seconds</td>
</tr>
</tbody>
</table>

Chip-mount air reflow profile

Temperature / °C

max. 260 °C

217 °C

max. 300 s

10 ... 30 s

30 ... 150 s

Time / s
## History

<table>
<thead>
<tr>
<th>Version</th>
<th>Reason of Changes</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Generation of filter specification.</td>
<td>Schönbein</td>
<td>02.04.2014</td>
</tr>
</tbody>
</table>