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 307.20 MHz. The insertion loss $a_e$ is defined as the loss value determined at $f_N$. Reference level for the relative attenuation $a_{rel}$ of the TFS 307 is the insertion loss $a_e$. The centre frequency $f_c$ is the arithmetic mean value of the upper and lower frequencies at the dB filter attenuation level relative to the insertion loss $a_e$. All specified data are met within the operating temperature range.

<table>
<thead>
<tr>
<th>Data</th>
<th>typ. value</th>
<th>tolerance / limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insertion loss</td>
<td>$a_e$</td>
<td>2.14 dB</td>
</tr>
<tr>
<td>Nominal frequency</td>
<td>$f_N$</td>
<td>-</td>
</tr>
<tr>
<td>Centre frequency</td>
<td>$f_c$</td>
<td>307.20 MHz</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>$BW$</td>
<td>11.12 MHz</td>
</tr>
<tr>
<td>Relative attenuation</td>
<td>$a_{rel}$</td>
<td>@ 76.80 MHz 54 dB min. 50 dB @ 153.60 MHz 60 dB min. 50 dB @ 230.40 MHz 62 dB min. 48 dB @ 384.00 MHz 59 dB min. 47 dB @ 460.80 MHz 51 dB min. 48 dB</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>OTR</td>
<td>-</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-</td>
<td>-45 °C ... +85 °C</td>
</tr>
<tr>
<td>Temperature coefficient of frequency</td>
<td>$TC_f$</td>
<td>( -72 \text{ ppm/k} )</td>
</tr>
</tbody>
</table>

*) \( \Delta f(\text{Hz}) = TC_f(\text{ppm/k}) \times (T-T_0) \times f_T(\text{MHz}) \). Material: LiNbO$_3$ 64° black, so in principle pyrofree.
Filter characteristic

![Graph of filter characteristic]

Construction and pin connection

(All dimensions in mm)

![Diagram of construction and pin connection]

Date code: Year + week
- D: 2013
- E: 2014
- F: 2015
- ...

150 Ω Test circuit

![Diagram of test circuit]
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 plan, 3 plans;  
   DIN IEC 68 T2 - 6

3. Change of temperature: -55 °C to 125 °C / 30 min. each / 10 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 (2002/95/EG, 2005/618/EG)

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

Tape (all dimensions in mm)

- W : 8.00 ± 0.3
- Po : 4.00 ± 0.1
- Do : 1.50 +0.1/-0
- E : 1.75 ± 0.1
- F : 3.50 ± 0.05
- G(min) : 0.75
- P2 : 2.00 ± 0.05
- P1 : 4.00 ± 0.1
- D1(min) : 1.50
- Ao : 3.25 ± 0.1
- Bo : 3.25 ± 0.1
- Ct : 5.5 ± 0.1

Reel (all dimensions in mm)

- A : 330
- W1 : 8.4 +1.5/-0
- W2(max) : 14.4
- N(min) : 50
- C : 13.0 +0.5/-0.2

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

![Chip-mount air reflow profile graph](image-url)
### 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>S.Springfeldt</td>
<td>04.08.2009</td>
</tr>
<tr>
<td>2.0</td>
<td>Changed pull off direction from reel</td>
<td>Schönbein</td>
<td>29.05.2012</td>
</tr>
<tr>
<td>2.1</td>
<td>Remark on pyrofree material added to data table</td>
<td>Schönbein</td>
<td>25.04.2013</td>
</tr>
</tbody>
</table>