

VI TELEFILTER**Filter specification****TFS 140AV****1/5****Measurement condition**

| | | |
|--------------------------|----------------|-----|
| Ambient temperature: | 23 | °C |
| Input power level: | 0 | dBm |
| Terminating impedance: * | | |
| Input: | 50 Ω -78 pF | |
| Output: | 95 Ω -52 pF | |

Characteristics

Remark:

The nominal frequency f_N is fixed at 140,0 MHz. The insertion loss a_e is defined as loss value determined at f_N . Reference level for the relative attenuation a_{rel} of the TFS 140AV is the insertion loss a_e . All specified data are met within the operating temperature range.

| Data | typ. value | | tolerance / limit | |
|---|-------------------|-----------|--------------------------|---------------------|
| Insertion loss (reference level) | a_e | 10,8 dB | max. | 13,0 dB |
| Nominal frequency | f_N | - | | 140,0 MHz |
| Passband | PB | - | $f_N \pm$ | 2,5 MHz |
| Pass band ripple | | 0,15 dB | max. | 1,0 dB |
| Relative attenuation | a_{rel} | | | |
| f_N ... $f_N \pm$ 2,5 MHz | | 0,2 dB | max. | 1 dB |
| $f_N \pm$ 7,5 MHz ... $f_N \pm$ 22,2 MHz | | 50 dB | min. | 15 dB |
| $f_N -$ 130,0 MHz ... $f_N -$ 22,2 MHz | | 58 dB | min. | 40 dB |
| $f_N +$ 22,2 MHz ... $f_N +$ 360,0 MHz | | 70 dB | min. | 40 dB |
| Absolute group delay within PB | | 570 ns | max. | 825 ns |
| Group delay ripple within PB p-p | | 22 ns | max. | 100 ns |
| Phase linearity within PB p-p | | 3 deg | max. | 10 deg |
| Input power level | | - | max. | 10 dBm |
| Operating temperature range | OTR | - | | - 40 °C ... + 85 °C |
| Storage temperature range | | - | | - 45 °C ... + 85 °C |
| Temperature coefficient of frequency | TC_f ** | -18 ppm/K | | |

*) The terminating impedances depend on parasites and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

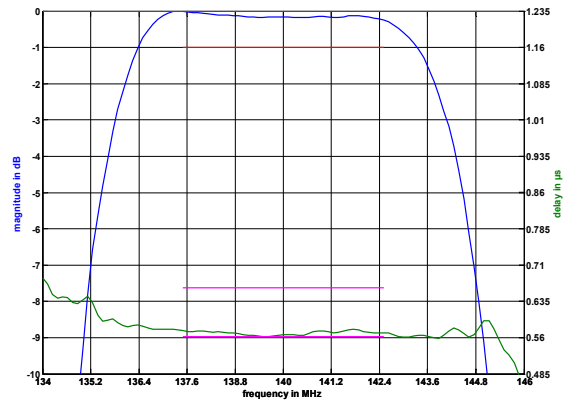
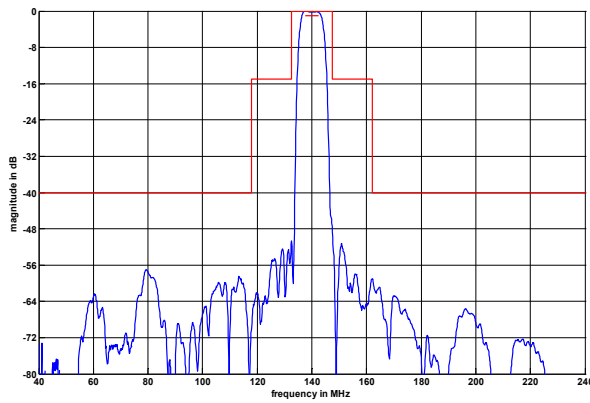
***) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

Generated:**Checked / Approved:**

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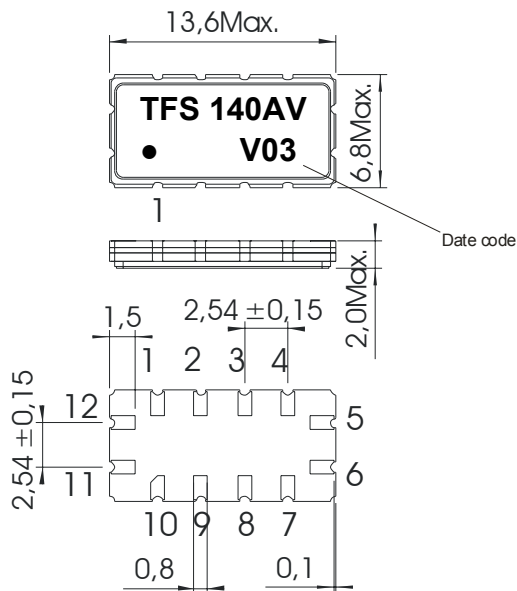
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Filter characteristic



Construction and pin connection

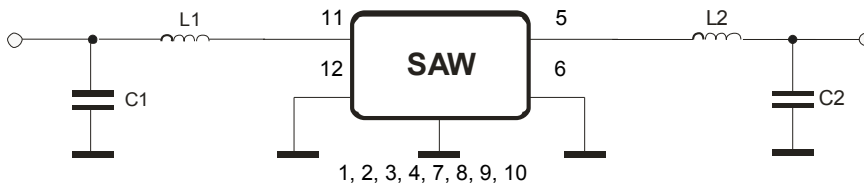
(All dimensions in mm)



- 1 Ground
- 2 Ground
- 3 Ground
- 4 Ground
- 5 Output
- 6 Output RF Return
- 7 Ground
- 8 Ground
- 9 Ground
- 10 Ground
- 11 Input
- 12 Input RF Return

Date code: Year + week
 V 2007
 W 2008
 X 2009
 ...

50 Ω Test circuit



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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)

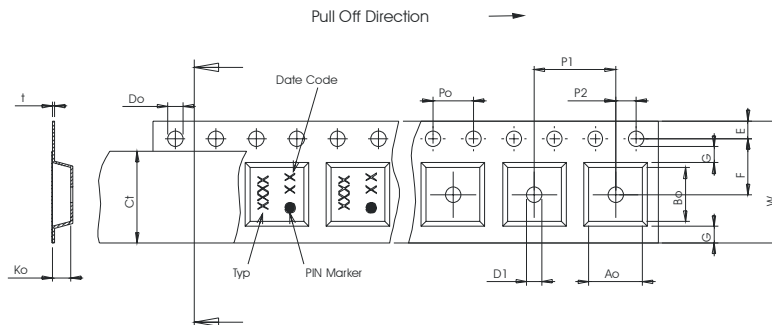
Packing

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: | 1700 |
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

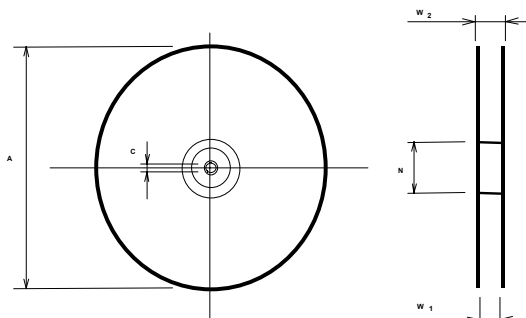
Tape (all dimensions in mm)

- W : 24,00 +0,30/-0,10
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,10
- F : 11,50 ± 0,10
- G(min) : 0,60
- P2 : 2,00 ± 0,1
- P1 : 12,00 ± 0,1
- D1(min) : 1,50
- Ao : 7,10 ± 0,10
- Bo : 13,90 ± 0,10
- Ct : 21,5 ± 0,1



Reel (all dimensions in mm)

- A : 330
- W1 : 24,4 +2/-0
- W2(max) : 30,4
- N(min) : 60
- C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

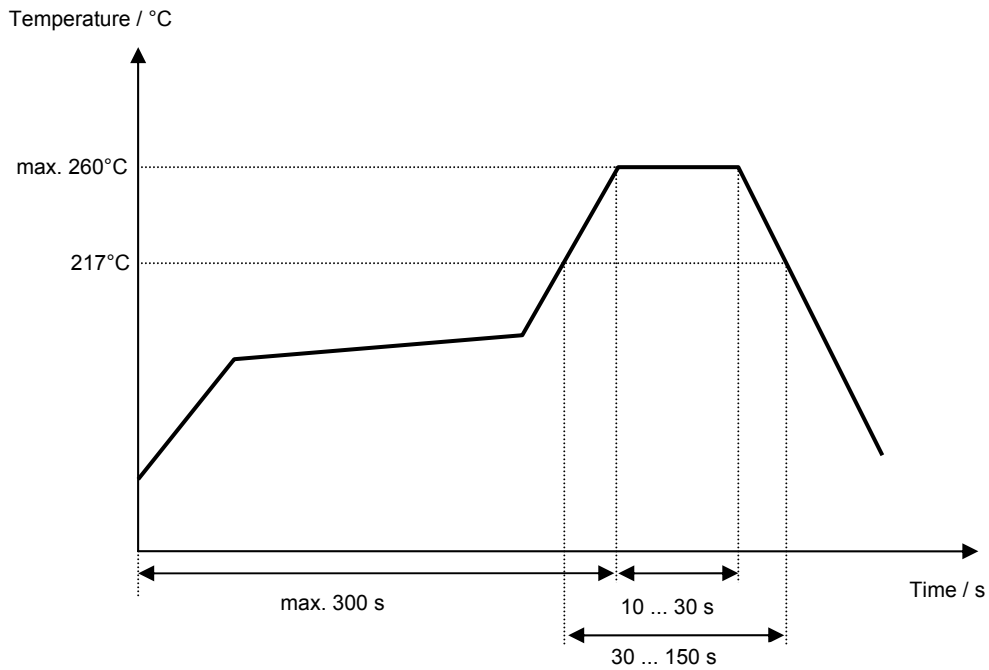
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Air reflow temperature conditions

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

Chip-mount air reflow profile



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VI TELEFILTER**Filter specification****TFS 140AV****5/5****History**

| Version | Reason of Changes | Name | Date |
|----------------|---|-------------|-------------|
| 1.0 | - Generation of development specification | Strehl | 25.07.2006 |
| 1.1 | - package adjusted | Strehl | 25.07.2006 |
| 1.2 | - add of terminating impedances, typical values, filter characteristics and matching configuration - 'remarks' and labelling corrected | Pfeiffer | 17.01.2007 |

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