

VI TELEFILTER

Filter specification

TFS 70H312

1/5

Measurement condition

Ambient temperature: 25. °C
 Input power level: 0 dBm
 Terminating impedance: *
 Input: 50 Ω || 0 pF
 Output: 50 Ω || 0 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 70H312 is the minimum of the pass band attenuation a_{min} . The minimum of the pass band attenuation a_{min} is defined as the insertion loss a_e . The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 20 dB filter attenuation level relative to the insertion loss a_e . The temperature coefficient of frequency TC_f is valid for both the reference frequency f_c and the frequency response of the filter in the operating temperature range. The frequency shift of the filter in the operating temperature range is not included in the production tolerance scheme.

| D a t a | | typ. value | | tolerance / limit | | |
|--|-----------------------|-------------------|-------|--------------------------|---------------------|-----|
| Insertion loss (reference level) | a_e | 24,6 | dB | max. | 26 | dB |
| Centre frequency | f_c | 70,0 | MHz | | $70,0 \pm 0,1$ | MHz |
| Passband | | - | | fc | $\pm 7,5$ | MHz |
| Bandwidth 3 dB | BW | 16,8 | MHz | min. | 16 | MHz |
| Relative attenuation | a_{rel} | | | | | |
| f_c | ... $f_c \pm 7,5$ MHz | 0,7 | dB | max. | 1 | dB |
| $f_c \pm 7,5$ MHz | ... $f_c \pm 8$ MHz | 1,8 | dB | max. | 3 | dB |
| $f_c \pm 10,45$ MHz | ... $f_c \pm 15$ MHz | 47 | dB | min. | 40 | dB |
| $f_c + 15$ MHz | ... $f_c + 60$ MHz | 53 | dB | min. | 50 | dB |
| Group delay ripple within PB (p-p) | | 20 | ns | max. | 50 | ns |
| Deviation from linear phase within PB | | 1,1 | ° | max. | 4 | ° |
| Operating temperature range | OTR | - | | | - 25 °C ... + 80 °C | |
| Storage temperature range | | - | | | - 40 °C ... + 85 °C | |
| Temperature coefficient of frequency | TC_f ** | -75 | ppm/K | | - | |

*) The terminating impedances depend on parasitics 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.

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

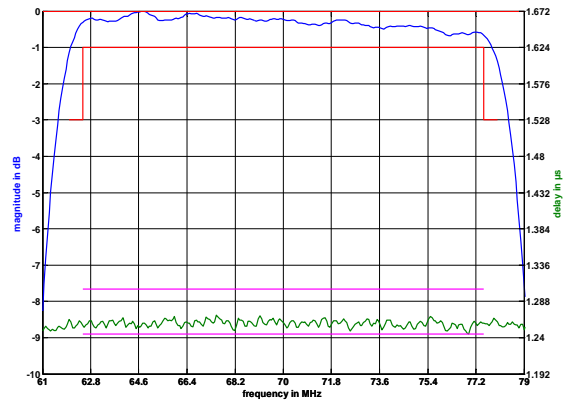
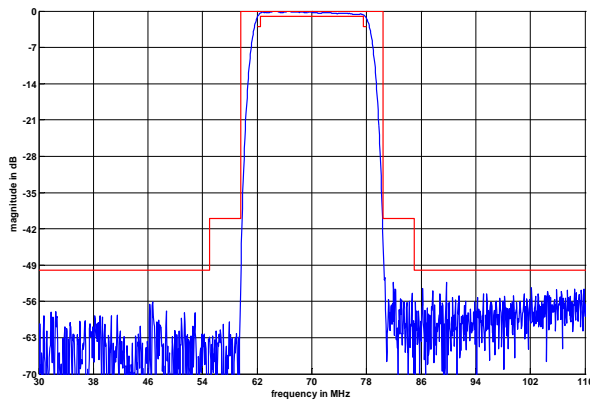
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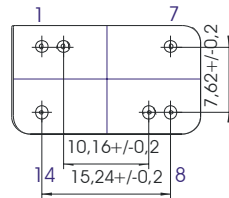
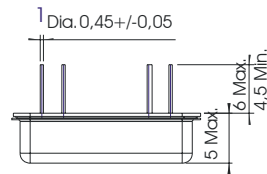
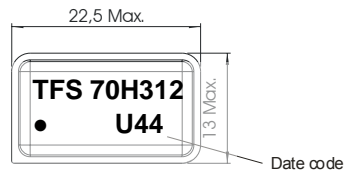
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Filter characteristic



Construction and pin connection

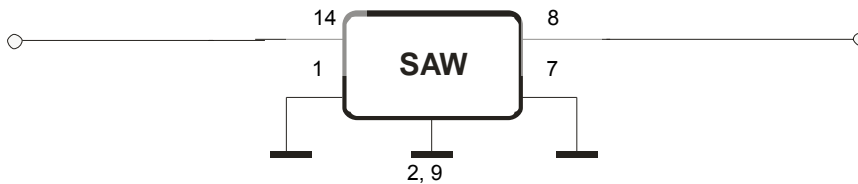
(All dimensions in mm)



- 1 Input RF Return
- 2 Ground
- 7 Output RF Return
- 8 Output
- 9 Ground
- 14 Input

Date code: Year + week
 U 2006
 V 2007
 W 2008
 ...

50 Ohm Test circuit



Stability characteristics, reliability

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VI TELEFILTER**Filter specification****TFS 70H312****3/5**

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)

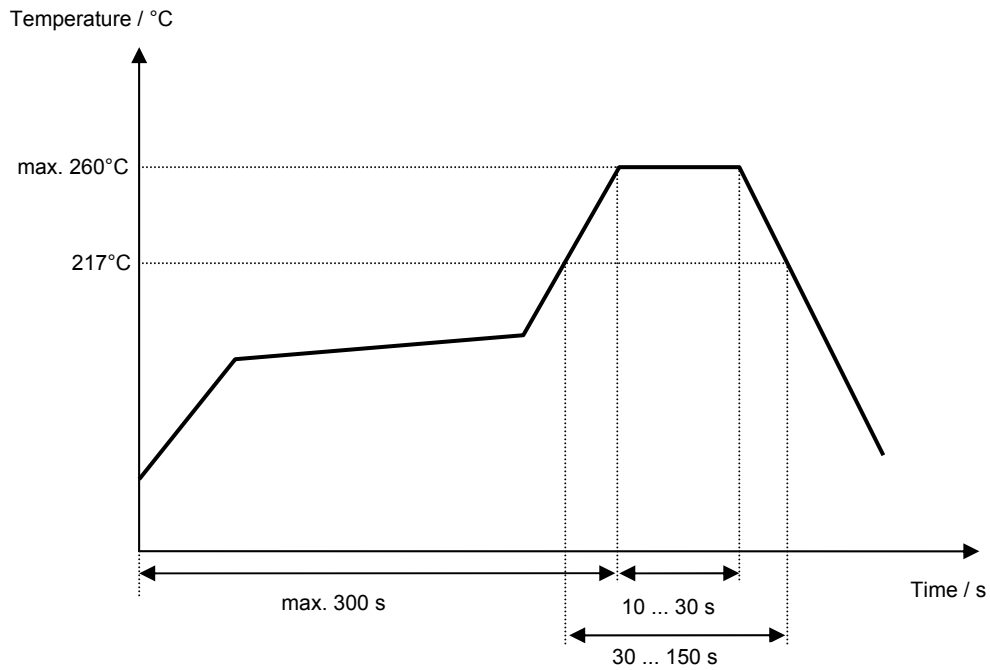
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Air reflow temperature conditions

| 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 70H312****5/5****History**

| Version | Reason of changes | Name | Date |
|----------------|--|-------------|-------------|
| 1.0 | - Generate development specification . | Tino Braun | 23.04.2003 |
| 1.1 | - add of typical values and filter characteristics - stability characteristics and air reflow temperaturte conditionsmodified | Pfeiffer | 30.10.2006 |

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