

VI TELEFILTER

Filter specification

TFS 75E

1/5

Measurement condition

| | | |
|--------------------------|-------------------|-----|
| Ambient temperature: | 23 | °C |
| Input power level: | 0 | dBm |
| Terminating impedance: * | | |
| Input: | 1100 Ω -3,9 pF | |
| Output: | 1100 Ω -3,9 pF | |
| External Coil: | 390 nH | |

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of TFS 75E is the minimum of the pass band attenuation a_{min} . The maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 75 MHz without any tolerance or limit. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range.

| D a t a | typ. value | | tolerance / limit | | |
|---|-------------------|---------------------------|--------------------------|---------------------|-----|
| Insertion loss (reference level) | a_e | 7,9 dB | max. | 12 | dB |
| Nominal frequency | f_N | - | | 75 | MHz |
| Passband | | - | f_N | ±7,5 | kHz |
| Pass band ripple | | 0,6 dB | max. | 1 | dB |
| Relative attenuation | a_{rel} | | | | |
| $f_N - 74$ MHz ... $f_N - 1,6$ MHz | | 60 dB | min. | 50 | dB |
| $f_N - 1,6$ MHz ... $f_N - 0,4$ MHz | | 66 dB | min. | 53 | dB |
| $f_N - 0,4$ MHz ... $f_N - 0,2$ MHz | | 57 dB | min. | 40 | dB |
| $f_N - 0,2$ MHz ... $f_N - 0,15$ MHz | | 40 dB | min. | 30 | dB |
| $f_N + 0,15$ MHz ... $f_N + 0,2$ MHz | | 40 dB | min. | 30 | dB |
| $f_N + 0,2$ MHz ... $f_N + 0,4$ MHz | | 52 dB | min. | 42 | dB |
| $f_N + 0,4$ MHz ... $f_N + 1,6$ MHz | | 62 dB | min. | 50 | dB |
| $f_N + 1,6$ MHz ... $f_N + 10$ MHz | | 50 dB | min. | 45 | dB |
| Group delay ripple within PB | | 0,7 μs | max. | 3 | μs |
| Permissible DC voltage | | | max. | 5 | V |
| Operating temperature range | OTR | - | | - 40 °C ... + 85 °C | |
| Storage temperature range | | - | | - 40 °C ... + 85 °C | |
| Turn over temperature | T_0 ** | 20 °C | | - | |
| Temperature coefficient of frequency | TC_f ** | -0,036 ppm/K ² | | - | |

*) 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.

**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0)^2 \times f_{T0}(\text{MHz})$.

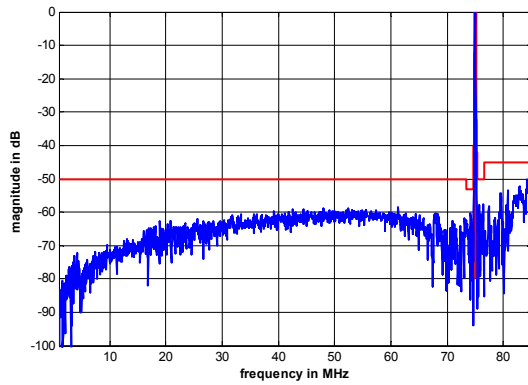
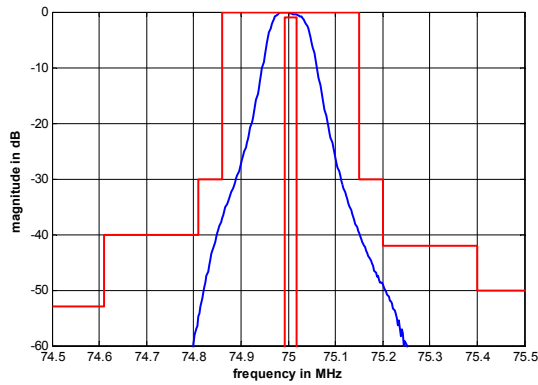
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Checked / Approved:

Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

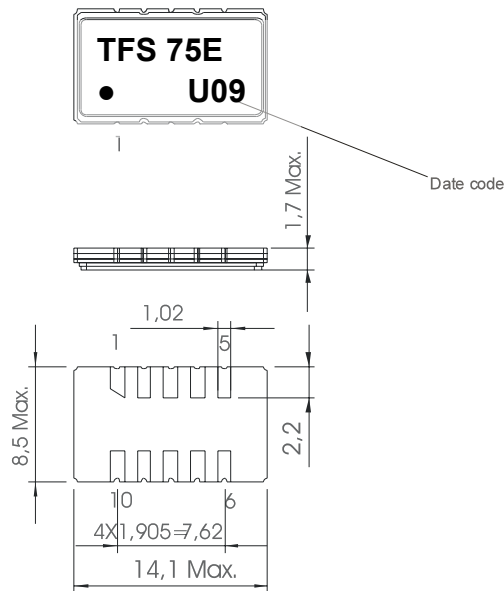
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Filter characteristic



Construction and pin connection

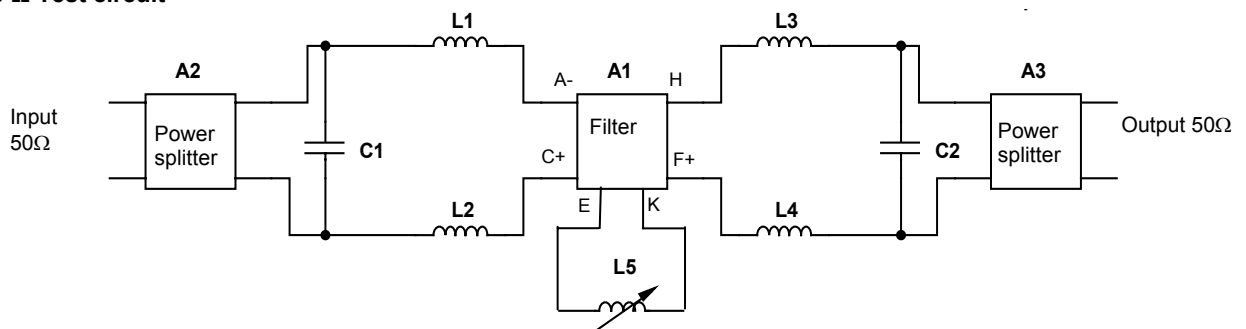
(All dimensions in mm)



- 1 Output
- 2 Ground
- 3 Output
- 4 Ground
- 5 External Coil
- 6 Input
- 7 Ground
- 8 Input
- 9 Ground
- 10 External Coil

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

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: twice 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)

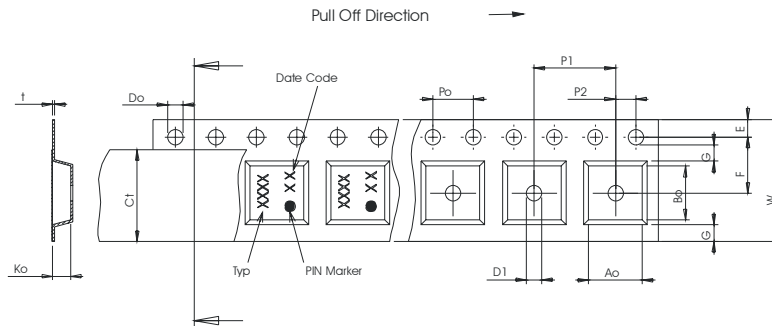
Packing

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: | 1500 |
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

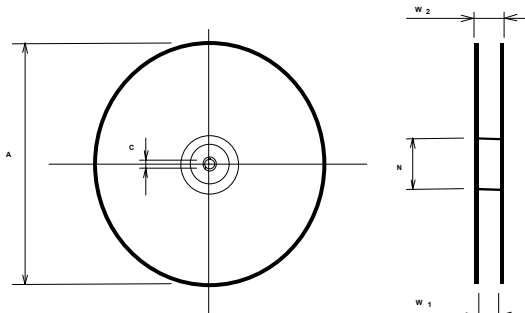
Tape (all dimensions in mm)

- W : 24,00
- Po : 4,00
- Do : 1,50
- E : 1,75
- F : 11,50
- G(min) : 0,60
- P2 : 2,00
- P1 : 12,00
- D1(min) : 1,50
- Ao : 8,80
- Bo : 14,60
- Ct : 21,5



Reel (all dimensions in mm)

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



The minimum bending radius is 45 mm.

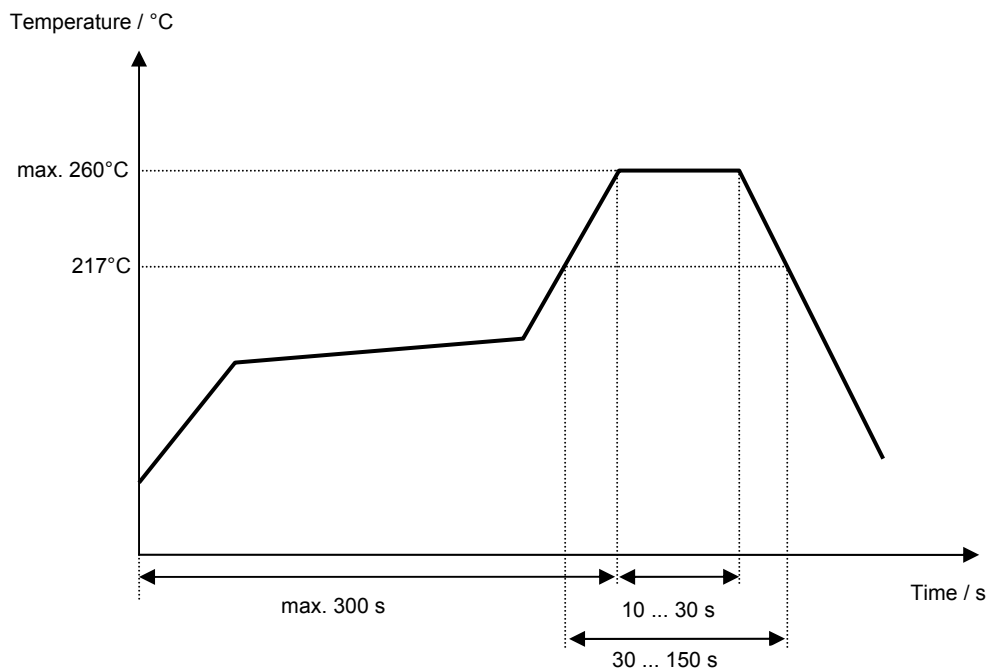
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E-Mail: tft@telefilter.com

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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 75E****5/5****History**

| Version | Reason of Changes | Name | Date |
|----------------|---|-------------|-------------|
| 1.0 | Generation of development specification | Roizengaft | 08.03.2004 |
| 1.1 | Generation of filter specification | Martens | 22.11.2004 |
| 1.2 | Change stability characteristics | Strehl | 27.02.2006 |

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