

VI TELEFILTER**Filter Specification****TFS 170 F****1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedance:
 source: 400 Ω || -7,0 pF
 load: 302 Ω || -7,1 pF

Characteristics**Remark:**

Reference level for the relative attenuation a_{rel} of the TFS 170 F 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 nominal frequency f_N is fixed to 170,2 MHz. The given values for the relative attenuation a_{rel} and for the group delay ripple have to be reached at the frequencies given below also if the centre frequency f_0 is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_0 .

| D a t a | | typ. Value | Limit |
|--|-----------------|----------------------------|---------------|
| Insertion Loss (Reference Level) | $a_e = a_{min}$ | 6,5 dB | ± 1 dB |
| Nominal Frequency | f_N | - | 170,2 MHz |
| Relative Attenuation | a_{rel} | | |
| $f_N \pm 100$ kHz | | - | max. 0,7 dB |
| $f_N \pm 350$ kHz ... $f_N \pm 600$ kHz | | - | min. 10 dB |
| $f_N \pm 600$ kHz ... $f_N \pm 800$ kHz | | - | min 27 dB |
| $f_N \pm 800$ kHz... $f_N \pm 2,3$ MHz | | - | min 31 dB |
| $f_N - 2,3$ MHz... $f_N - 2,5$ MHz | | - | min 53 dB |
| $f_N - 2,5$ MHz... $f_N - 35$ MHz | | - | min 51 dB |
| $f_N + 2,3$ MHz... $f_N + 3,0$ MHz | | - | min 48 dB |
| $f_N + 3,0$ MHz... $f_N + 35$ MHz | | - | min 50 dB |
| $f_N \pm 35$ MHz... $f_N \pm 75$ MHz | | - | min 45 dB |
| $f_N \pm 75$ MHz... $f_N \pm 85$ MHz | | - | min 43 dB |
| $f_N - 85$ MHz... $f_N - 130$ MHz | | - | min 40 dB |
| $f_N - 130$ MHz... $f_N - 169,2$ MHz | | - | min 29 dB |
| $f_N + 85$ MHz... $f_N + 170,2$ MHz | | - | min 29 dB |
| Group Delay | GD | | |
| Group Delay Ripple $f_N \pm 100$ kHz | | - | max 0,5 µs |
| Operating Temperature Range | | | -10 ... 85° C |
| Temperature Coefficient | TC | - 0,036 ppm/K ² | - |

generated: _____

checked / approved: _____

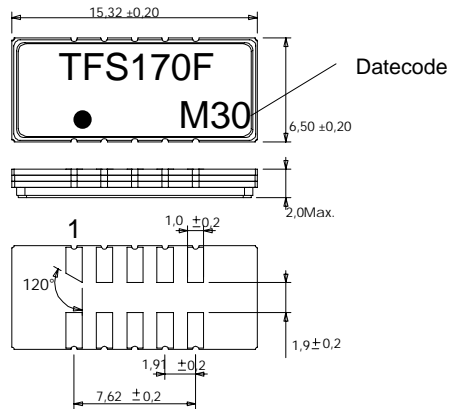
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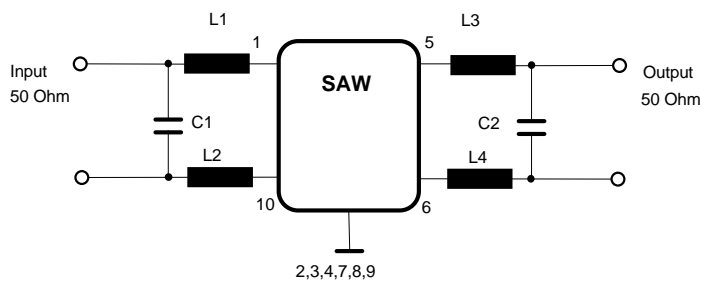
Construction and Pin Connection

(All dimensions in mm)



| | |
|----|-----------------|
| 1 | Balanced input |
| 2 | Ground |
| 3 | Ground |
| 4 | Ground |
| 5 | Balanced output |
| 6 | Balanced output |
| 7 | Ground |
| 8 | Ground |
| 9 | Ground |
| 10 | Balanced input |

| | |
|-----------|-----------|
| Datecode: | Year+week |
| K | 1998 |
| L | 1999 |
| M | 2000 |
| ... | |

50 Ohm matching circuit

Stability Characteristics

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

1. Shock: 500g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
DIN IEC 68 T2 - 6
3. Damp heat: 25 °C to 55°C / 95% r.H. / 10 cycles
(cycle) DIN IEC 68 - 2 – 30 Db
4. Resistance to solder heat (reflow): max. 2 times reflow process;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

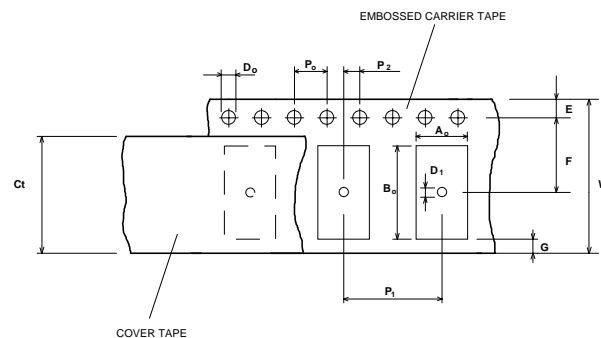
Packing

Tape & Reel: DIN 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;

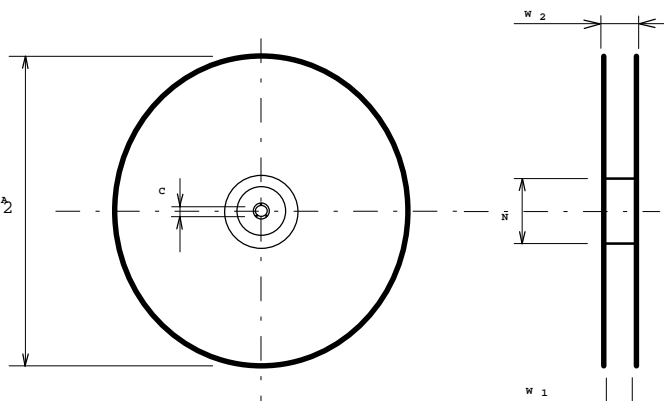
| | |
|---|------------|
| max. pieces of filters per reel: | 2000 |
| Reel of empty components at start: | min 300 mm |
| Reel of empty components at start including leader: | min 500 mm |
| Trailer | min 300 mm |

Tape (all dimensions in mm)

| | | |
|---------|--------|-------|
| W | : 24 | ± 0,3 |
| Po | : 4 | ± 0,1 |
| Do | : 1,5 | + 0,1 |
| E | : 1,75 | ± 0,1 |
| F | : 11,5 | ± 0,1 |
| G (min) | : 0,60 | |
| P2 | : 2 | ± 0,1 |
| P1 | : 12 | ± 0,1 |
| D1(min) | : 1,5 | |
| Ao | : 7,1 | ± 0,2 |
| Bo | : 15,9 | ± 0,2 |
| Ct | : 21,5 | ± 0,1 |

**Reel (all dimensions in mm):**

| | | |
|----------|---|-------------|
| A | : | 330 |
| W1 | : | 24,40 +2,0 |
| W2 (max) | : | 30,4 |
| N (min) | : | 60 |
| C | : | 13 0,5/-0,2 |



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. The marking of the filters is able to read if the view is directed on the upper side of the carrier tape with the sprocket holes on the right side of the tape.

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Air reflow temperature conditions

1st and 2nd air reflow profile

| | | | |
|---------------------|---------------------|----------------------|------------------|
| Name: | pre-heating periods | main-heating periods | peak temperature |
| Temperature: | 150 °C - 170 °C | over 200 °C | 255 °C ± 5 °C |
| Time: | 60 sec. - 90 sec. | 20 sec. - 25 sec. | |

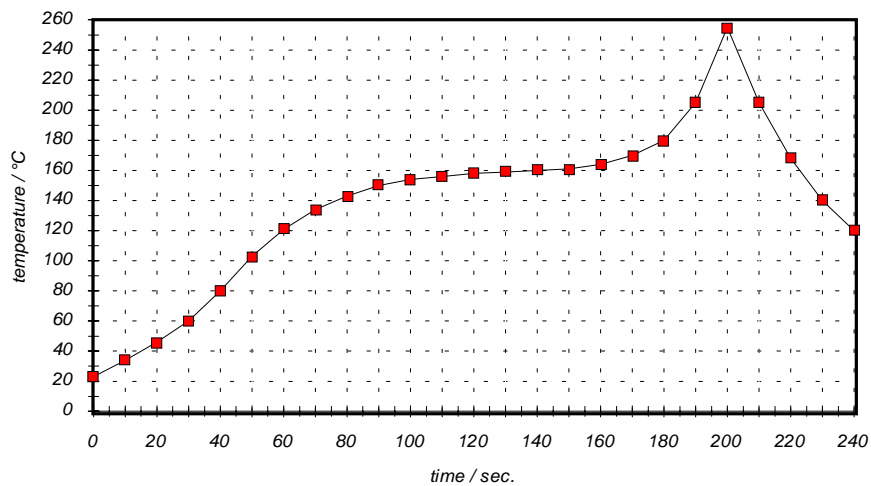
Chip-mount air reflow profile

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

| time / sec. | temperature / °C | time / sec. | temperature / °C |
|-------------|------------------|-------------|------------------|
| 0 | 23 | 140 | 160 |
| 10 | 34 | 150 | 161 |
| 20 | 46 | 160 | 164 |
| 30 | 60 | 170 | 170 |
| 40 | 80 | 180 | 180 |
| 50 | 103 | 190 | 205 |
| 60 | 121 | 195 | 230 |
| 70 | 134 | 200 | 255 |
| 80 | 143 | 205 | 230 |
| 90 | 150 | 210 | 205 |
| 100 | 154 | 215 | 180 |
| 110 | 156 | 220 | 165 |
| 120 | 158 | 230 | 140 |
| 130 | 159 | 240 | 120 |

VI TELEFILTER**Filter Specification****TFS 170 F****5/5**

History

| Version | Reason of Changes | Name | Date |
|----------------|--------------------------------|-------------|-------------|
| 3.2 | - package dimensions corrected | Steiner | 28.07.2000 |

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