

VI TELEFILTER**Filter Specification****TFS 210 D****1/4****Measurement Condition**

| | |
|-------------------------|--|
| Ambient Temperature: | 23 °C |
| Input Power Level: | 0 dBm |
| Source impedance: | 50 Ω |
| Load impedance: | 500 Ω (generated by transformer, see page 2) |
| Terminating impedances: | |
| input: | 1000 Ω -7,97 pF |
| output: | 500 Ω -9,40 pF |

Construction, pin connection and 50 Ω test circuit

See page 2

Characteristics**Remark:**

Reference level for the relative attenuation a_{rel} 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 210,38 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 .

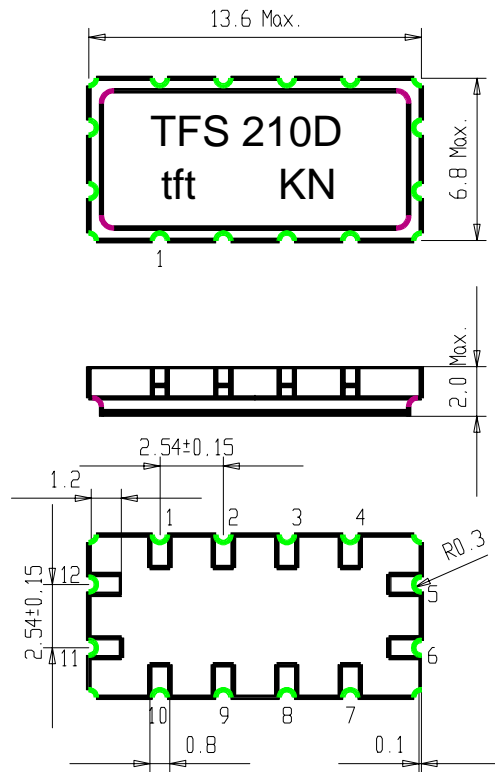
| D a t a | | typ. Value | Limit | |
|--|-----------------|-------------------|---------------------|------------|
| Insertion Loss (Reference level) | $a_e = a_{min}$ | - | max. | 9,5 dB |
| Nominal Frequency | f_N | - | | 210,38 MHz |
| 5 dB - Bandwidth | BW | - | min. | 1260 kHz |
| Relative Attenuation | a_{rel} | | | |
| $f_N \pm 0,630$ MHz | | - | max. | 5 dB |
| $f_N \pm 1,250$ MHz ... $f_N \pm 20,000$ MHz | | - | min. | 33 dB |
| $f_N \pm 1,250$ MHz | | 45 | min. | 40 dB |
| Triple Transit Suppression | TTS | - | min. | 30 dB |
| Pass Band Ripple | | | | |
| $f_N \pm 0,300$ MHz | - | max. | 1 | dB |
| Phase | φ | | | |
| Phase ripple $f_N \pm 0,630$ MHz | - | max. | 3 | °rms |
| Operating Temperature Range | | | - 30 °C ... + 80 °C | |

Generated: _____**Checked / approved:** _____

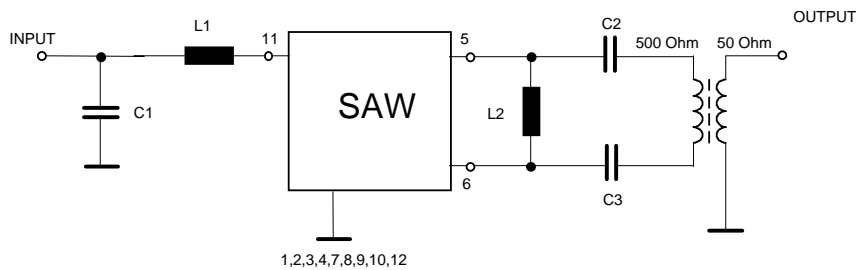
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Construction and pin connection

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

50 Ω test circuit

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VI TELEFILTER**Filter Specification****TFS 210 D****3/4****Stability characteristics**

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

1. Shock: 30g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 150 Hz, 0.35 mm amplitude, 5g; 2 hours for 3 planes;
DIN IEC 68 T2 - 6
3. Damp heat:
(steady state) 90 % to 95 % rel. humidity, 40 °C, 10 days;
DIN IEC 68 - 2 - 3
4. Resistance to
solder heat (reflow): max. 2 times reflow process;
for temperature conditions refer to the attached "Air reflow temperature conditions" on sheet 4;

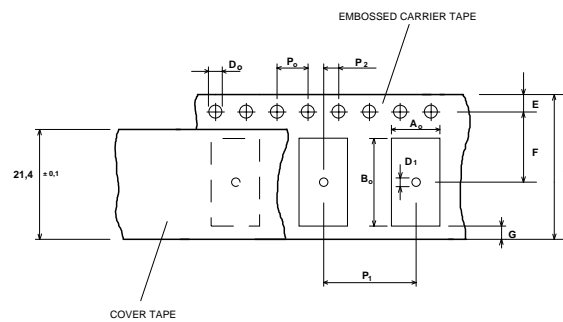
Packing

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;

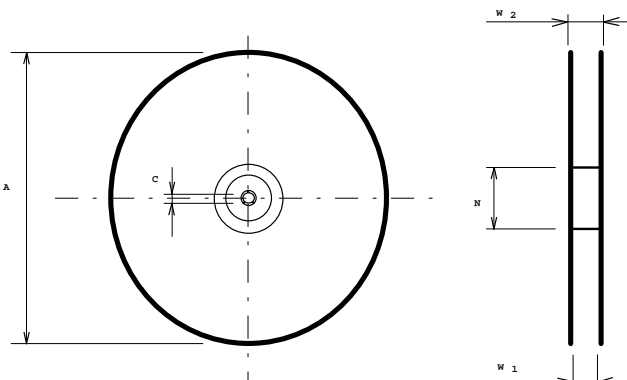
max. pieces of filters per reel: 1700

Tape (all dimensions in mm)

| | |
|---------|--------------|
| W | : 24 ± 0,3 |
| Po | : 4 ± 0,1 |
| Do | : 1,5 + 0,5 |
| D1 | : 1,5 + 0,5 |
| E | : 1,75 ± 0,1 |
| F | : 11,5 ± 0,1 |
| G (min) | : 0,75 |
| P2 | : 2 ± 0,1 |
| P1 | : 12 ± 0,1 |
| D1(min) | : 1,5 |
| Ao | : 7,1 ± 0,2 |
| Bo | : 13,9 ± 0,2 |

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

| | | |
|----------|---|-----------|
| A | : | 330 |
| W1 | : | 24,4 +2 |
| W2 (max) | : | 30,4 |
| N (min) | : | >= 90 |
| C | : | 13 ± 0,25 |



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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. | |

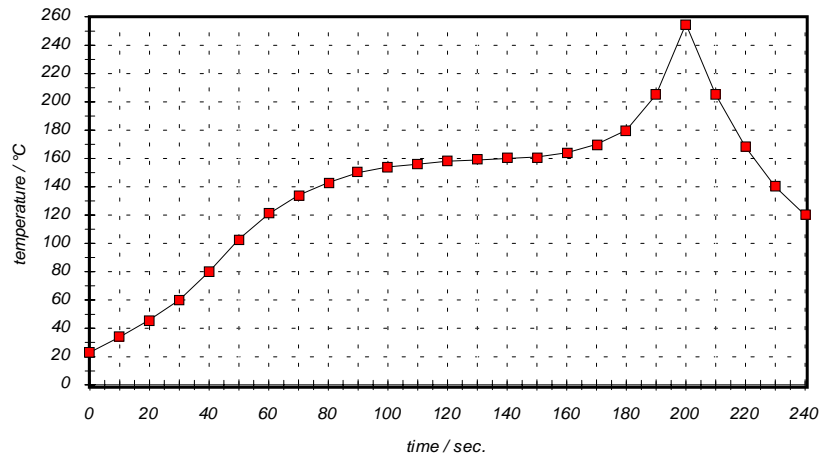
Chip-mount air reflow profile

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 |

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