

VI TELEFILTER**Resonator Specification****TFR 433 G1****1/5****Measurement condition**

Ambient temperature: 25 °C
 Input power level: 0 dBm
 Terminating impedance
 for input: 50Ω || 0pF
 for output: 50Ω || 0pF

Characteristics**Remark:**

The minimum of the pass band attenuation a_{\min} is defined as the insertion loss a_e . The centre frequency f_C is the frequency of the minimum of the passband attenuation a_{\min} . The tolerance for the centre frequency also includes a frequency shift due to the temperature coefficient of frequency TC_f in the operating temperature range and a production tolerance for the centre frequency f_C .

| D a t a | | typ. value | tolerance/limit |
|---|------------------|------------------------------|------------------------|
| Insertion loss (Reference level) | $a_e = a_{\min}$ | 1,2 dB | max. 1,8 dB |
| Centre frequency | f_C | 433,870 MHz | ± 75 kHz |
| Ageing of centre frequency | f_C | | max. ± 50 ppm |
| Parallel capacitance | C_0 | 2,5 pF | - |
| Motional resistance | R_1 | 14,5 Ω | - |
| Motional inductance | L_1 | 94,8 μH | - |
| Motional capacitance | C_1 | 1,4 fF | - |
| Operating temperature range | | - | - 10..... + 70 °C |
| Storage temperature range | | - | - 30..... + 85 °C |
| Turnover temperature | T_o | 30 °C | - |
| Temperature Coefficient of frequency | TC_f^{**} | - 0,036 ppm / K ² | - |
| Phase | φ | - | -20 + 20 ° |

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

generated:

checked / approved:

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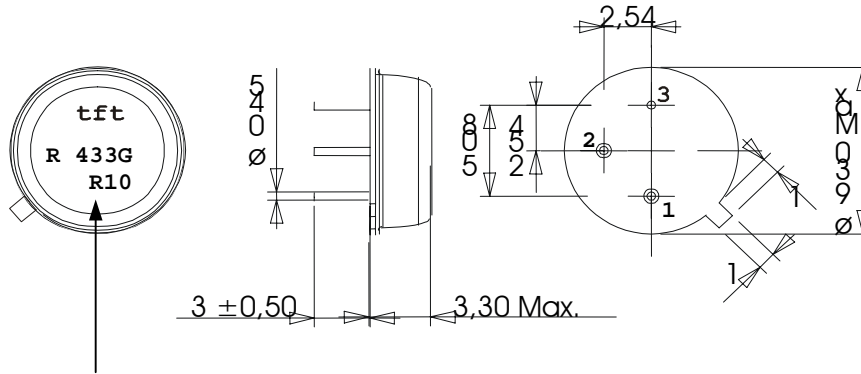
VI TELEFILTER

Resonator Specification

TFR 433 G1

Construction, pin configuration and 50 Ω - matching network

(All dimensions in mm)

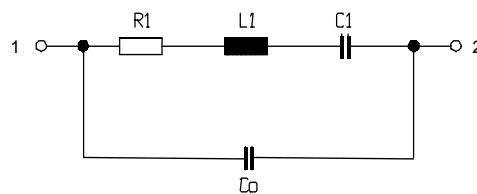
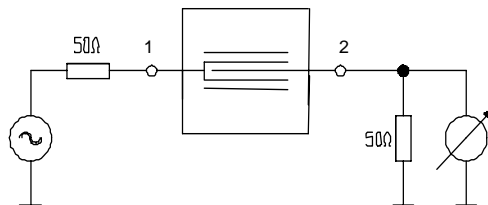


date code: year + week

| | |
|-------|------|
| N | 2001 |
| P | 2002 |
| R | 2003 |
| | |

| | |
|-------|----------------|
| Pin 1 | Input |
| Pin 2 | Output |
| Pin 3 | Package Ground |

50 Ohm Test circuit



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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. 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, please refer to the attached "Air reflow temperature conditions" on page 4;

VI TELEFILTER**Resonator Specification****TFR 433 G1****4/5****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. | |

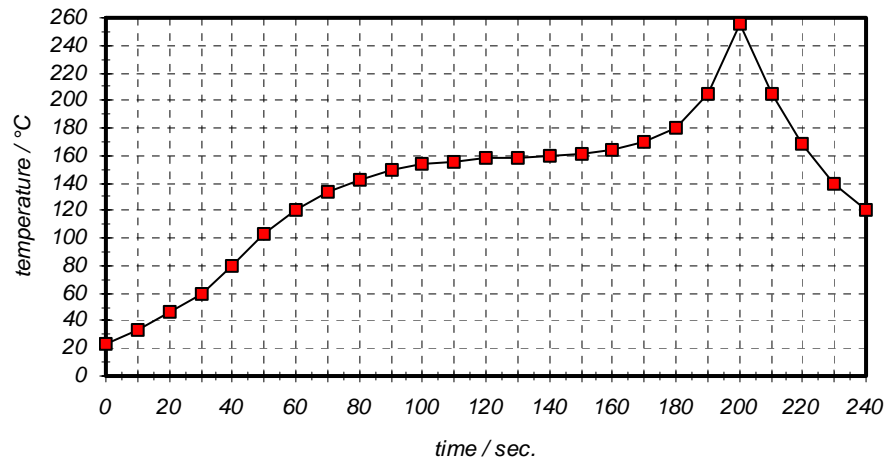
Chip-mount air reflow profile

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 |

History

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| Version | Reason of Changes | Name | Date |
|----------------|--------------------------|-------------|-------------|
| 1.0 | generate specification | Pfeiffer | 20.03.2003 |

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