### Measurement condition

Ambient temperature $T_A$: 23 °C
Input power level: 0 dBm
Terminating impedance:
Input: 590 Ω || -1.1 pF
Output: 590 Ω || -1.1 pF
Source impedance: 50 Ω
Load impedance: 50 Ω

### Characteristics

Remark:
The minimum of the 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 3 dB filter attenuation level relative to the insertion loss $a_e$. The temperature coefficient of frequency $TC_f$ is valid for both the centre frequency $f_C$ and the frequency response of the filter within the operating temperature range.

| **D a t a** | | **typ. value** | | **tolerance / limit** | | |
|---|---|---|---|---|---|---|
| **Insertion loss** | $a_e$ | 2.9 | dB | max. | 6 | dB |
| **Centre frequency** at *Ta* | $f_C$ | 100.000 | MHz | | -5<br>+3 | kHz<br>kHz |
| **Bandwidth** | BW | | | | | |
| 3 dB | | 39 | kHz | min. | 33 | kHz |
| | | | | max. | 42 | kHz |
| 20 dB | | 66 | kHz | max. | 78 | kHz |
| **Group delay at $f_c$** | | 22.6 µs | | min. | 20 | µs |
| **Input power level **)** | | - | | max. | 20 | dBm |
| **Temperature coefficient of frequency** | $TC_f$ *) | -0.038 | ppm/K² | | - | |
| **Frequency inversion temperature** | $T_o$ | 39.5 | °C | | - | |
| **Operating temperature range** | OTR | - | | -40 °C … +91 °C | | |
| **Storage temperature range** | | - | | -55 °C … +125 °C | | |

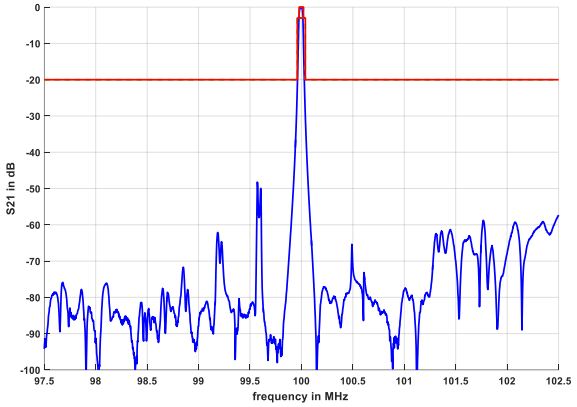
*) $\Delta f = TC_f(T - T_O)^2 f_N$
**) TFS100N can be operated continuously at the specified power level with a 100 MHz signal for a period of at least 10 years as long as operating temperatures are below or equal to the specified maximum.

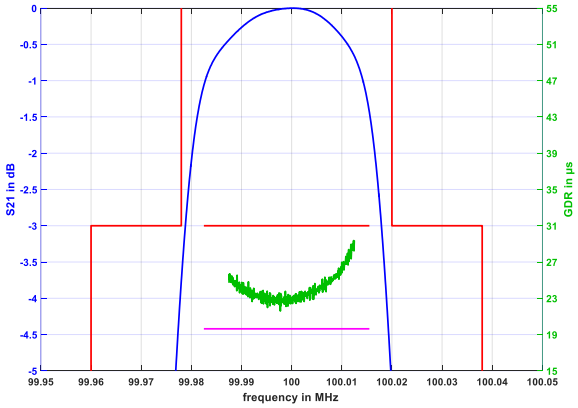
**Generated:**

**Checked / Approved:**

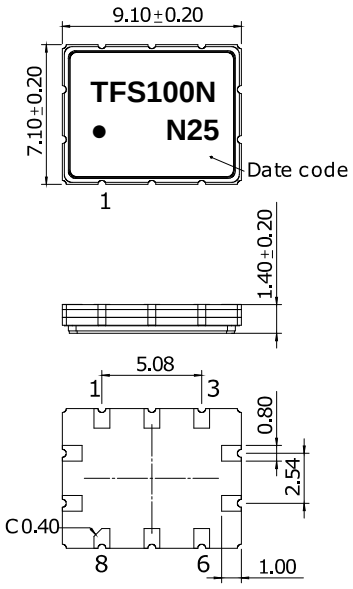
**Microchip Frequency Technology GmbH**
**Potsdamer Straße 18**
**D 14 513 TELTOW / Germany**
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

## Filter characteristic



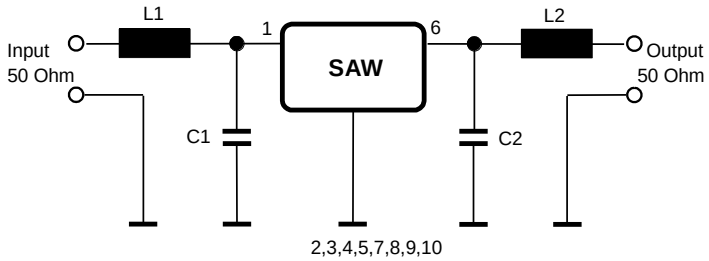

(All dimensions in mm)




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

| Date code: | Year + week |
|---|---|
| N | 2021 |
| P | 2022 |
| R | 2023 |
| ... | |

## 50 Ω Test circuit

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### Stability characteristics, reliability

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

1. Shock: 500 g, 1 ms, half sine wave, 3 shocks each plane;
   DIN IEC 60068 T2 - 27

2. Vibration: 10 Hz to 2000 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 60068 T2 - 6

3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
   DIN IEC 60068 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;

5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

This filter is RoHS compliant (2011/65/EU+2015/863/EU)

### 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;

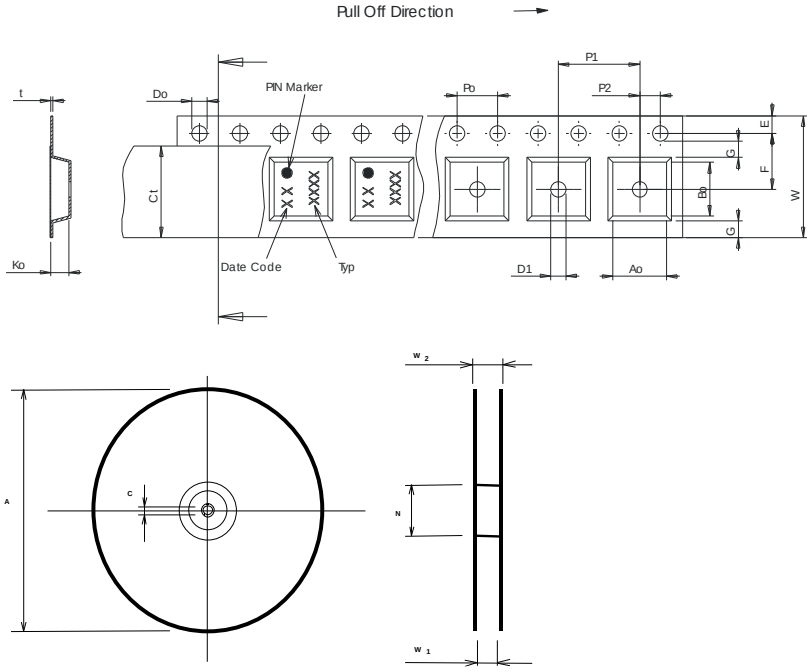
| | |
|---|---|
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

**Tape (all dimensions in mm)**

| | | | |
|---|---|---|---|
| W | : | 16.00 | ±0.3 |
| Po | : | 4.00 | ±0.1 |
| Do | : | 1.50 | +0.1/-0 |
| E | : | 1.75 | ±0.10 |
| F | : | 7.50 | ±0.10 |
| G(min) | : | 0.60 | |
| P2 | : | 2.00 | ±0.1 |
| P1 | : | 12.00 | ±0.1 |
| D1(min) | : | 1.50 | |
| Ao | : | 7.60 | ±0.10 |
| Bo | : | 9.60 | ±0.10 |
| Ct | : | 13.30 | |
| Ko | : | 2.50 | ±0.10 |
| t | : | 0.30 | ±0.05 |

**Reel (all dimensions in mm)**

| | | | |
|---|---|---|---|
| A | : | 330 | or 180 |
| W1 | : | 16.4 | |
| W2(max) | : | 22.40 | |
| N(min) | : | 50.00 | |
| C | : | 13.0 | |




The minimum bending radius is 45 mm.

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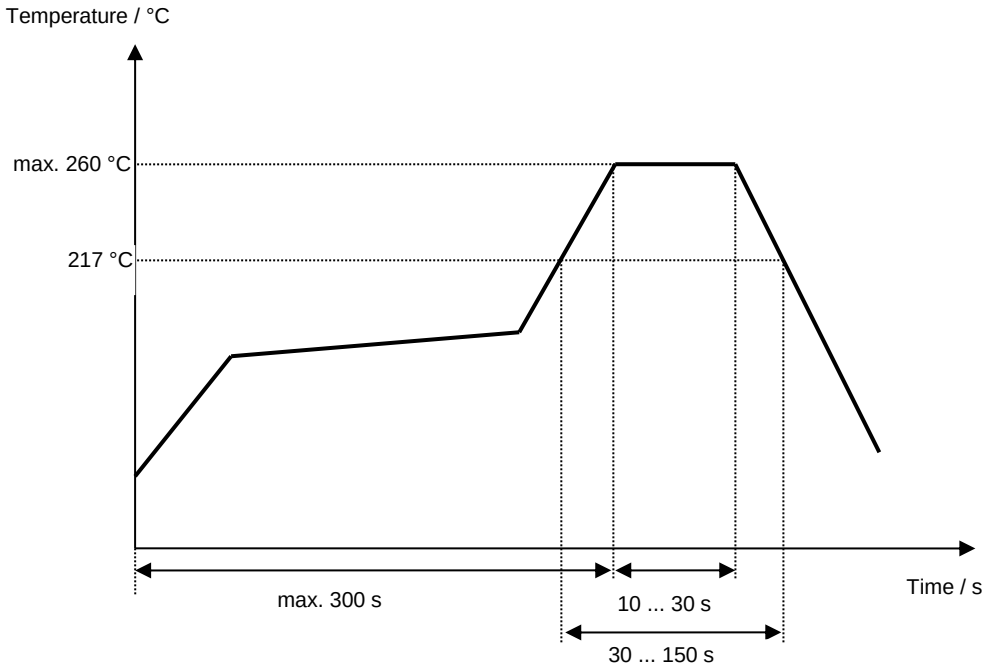
**Air reflow temperature conditions**

| **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**




**Microchip Frequency Technology GmbH**
**Potsdamer Straße 18**
**D 14 513 TELTOW / Germany**
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

## History

| Version | Reason of Changes | Name | Date |
|---|---|---|---|
| 1.0 | - Generation of filter specification | P. Jaster | 25.05.2021 |
| 1.1 | - Correct typo in data section | Bonnen | 21.06.2021 |

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