

**Microchip****Filter specification****TFS1575BF****1/5****Measurement condition**

|                             |    |          |
|-----------------------------|----|----------|
| Ambient temperature $T_A$ : | 23 | °C       |
| Input power level:          | 0  | dBm      |
| Terminating impedance:      |    |          |
| Input:                      | 50 | $\Omega$ |
| Output:                     | 50 | $\Omega$ |

**Characteristics**

Remark:

The maximum attenuation in the pass band is defined as the insertion loss  $a_e$ . The nominal frequency  $f_N$  is fixed at 1575.42 MHz without any tolerance or limit. The values of absolute attenuation  $a_{abs}$  are guaranteed over the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

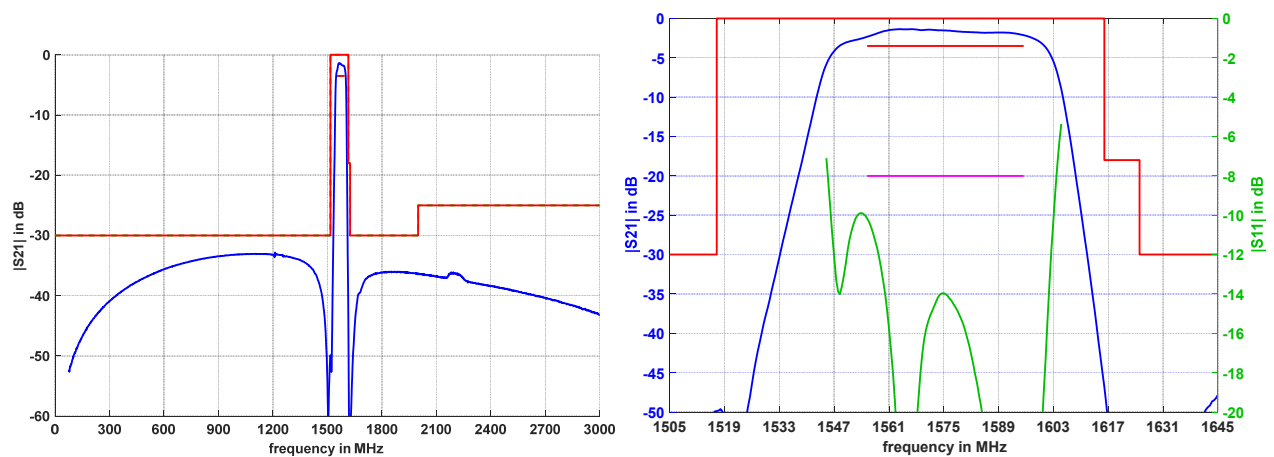
| <b>D a t a</b>                              |              | <b>typ. value</b> |     | <b>tolerance / limit</b> |                      |             |
|---------------------------------------------|--------------|-------------------|-----|--------------------------|----------------------|-------------|
| <b>Insertion loss</b>                       |              | $a_e$             | 1.4 | dB                       | max.                 | 3.5 dB      |
| <b>Nominal frequency</b>                    |              | $f_N$             |     |                          |                      | 1575.42 MHz |
| <b>Passband</b>                             |              | PB                |     |                          | $f_N \pm$            | 20.0 MHz    |
| <b>Passband variation</b>                   |              |                   | 1.0 | dB                       | max.                 | 2.5 dB      |
| <b>Absolute attenuation</b>                 |              | $a_{abs}$         |     |                          |                      |             |
| 10                                          | MHz ... 1517 | MHz               | 33  | dB                       | min.                 | 30 dB       |
| 1616                                        | MHz ... 1625 | MHz               | 47  | dB                       | min.                 | 18 dB       |
| 1625                                        | MHz ... 2000 | MHz               | 36  | dB                       | min.                 | 30 dB       |
| 2000                                        | MHz ... 3000 | MHz               | 36  | dB                       | min.                 | 25 dB       |
| <b>Group delay ripple within PB</b>         |              | GDR               | 16  | ns                       | max.                 | 40 ns       |
| <b>Return loss within PB</b>                |              | RL                | 10  | dB                       | min.                 | 8 dB        |
| <b>Input power level</b>                    |              |                   |     |                          |                      |             |
| Continuous wave over life time within PB    |              |                   |     |                          | max.                 | 10 dBm      |
| <b>Operating temperature range</b>          |              | OTR               |     |                          | - 40 °C ... + 85 °C  |             |
| <b>Storage temperature range</b>            |              |                   |     |                          | - 55 °C ... + 125 °C |             |
| <b>Temperature coefficient of frequency</b> |              | $TC_f^*$          | -38 | ppm/K                    |                      |             |

\*)  $\Delta f = TC_f (T - T_A) f_N$ **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**

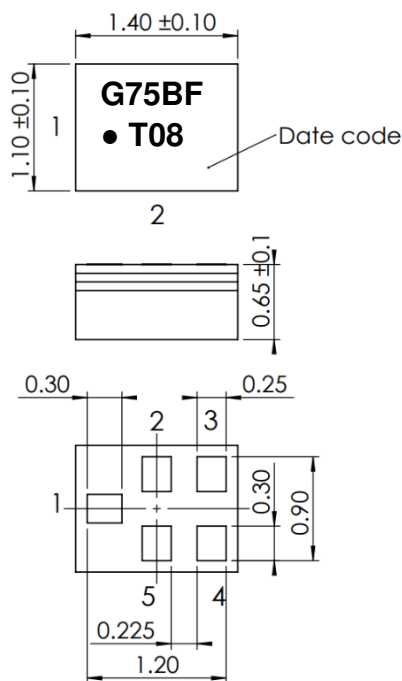
Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

## Filter characteristic



## Construction and pin connection

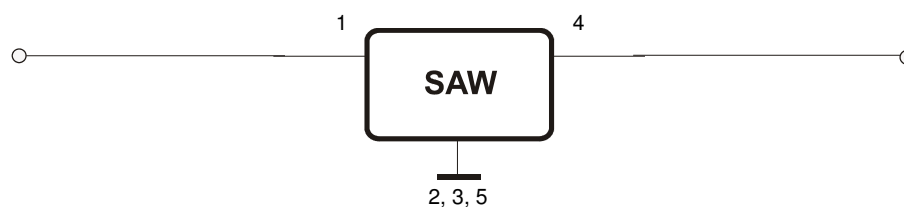
(All dimensions in mm)



|   |        |
|---|--------|
| 1 | Input  |
| 2 | Ground |
| 3 | Ground |
| 4 | Output |
| 5 | Ground |

|            |             |
|------------|-------------|
| Date code: | Year + week |
| T          | 2025        |
| U          | 2026        |
| V          | 2027        |
| ...        |             |

## 50 Ω Test circuit



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

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**Stability characteristics, reliability**

1. Shock: 1500 g, 0.5 ms, half sine wave, 5 Shocks each of the orientations acc. to MIL-STD-883, Method 2002, Cond. B
2. Vibration: 10 Hz to 2000 Hz, 20 g acc. to MIL-STD-883, Method 2007, Cond. A
3. Temperature cycling: 100 cycles, -55 °C to 125 °C / 15 min. dwell time acc. to MIL-STD-883, Method 1010, Cond. B
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.
6. Moisture Sensitivity Level: Level 2a (MSL2a) acc. to IPC/JEDEC J-STD-020

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

**Packing**

Tape & Reel: IEC 60286 – 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;

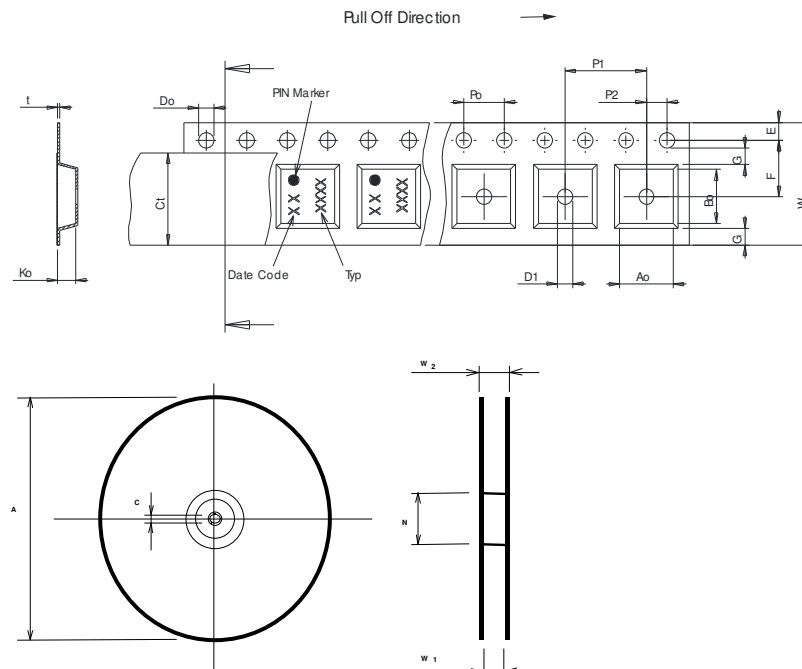
|                                                     |             |
|-----------------------------------------------------|-------------|
| reel of empty components at start:                  | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer:          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

**Tape (all dimensions in mm)**

|         |                  |
|---------|------------------|
| W       | : 8.00 +0.3/-0.1 |
| Po      | : 4.00 ±0.1      |
| Do      | : 1.50 +0.1/-0   |
| E       | : 1.75 ±0.1      |
| F       | : 3.50 ±0.05     |
| G(min)  | : 1.95           |
| P2      | : 2.00 ±0.05     |
| P1      | : 4.00 ±0.1      |
| D1(min) | : 0.60 +0.1/-0   |
| Ao      | : 1.30 ±0.05     |
| Bo      | : 1.60 ±0.05     |
| Ct      | : 5.30 ±0.1      |
| Ko      | : 0.70 ±0.05     |
| t       | : 0.25 ±0.03     |

**Reel (all dimensions in mm)**

|         |                |
|---------|----------------|
| A       | : 330 or 180   |
| W1      | : 8.40 +1.5/-0 |
| W2(max) | : 14.40        |
| N(min)  | : 60.00        |
| C       | : 13.00 ±0.2   |



The minimum bending radius is 45 mm.

**Microchip Frequency Technology GmbH**

**Potsdamer Straße 18**

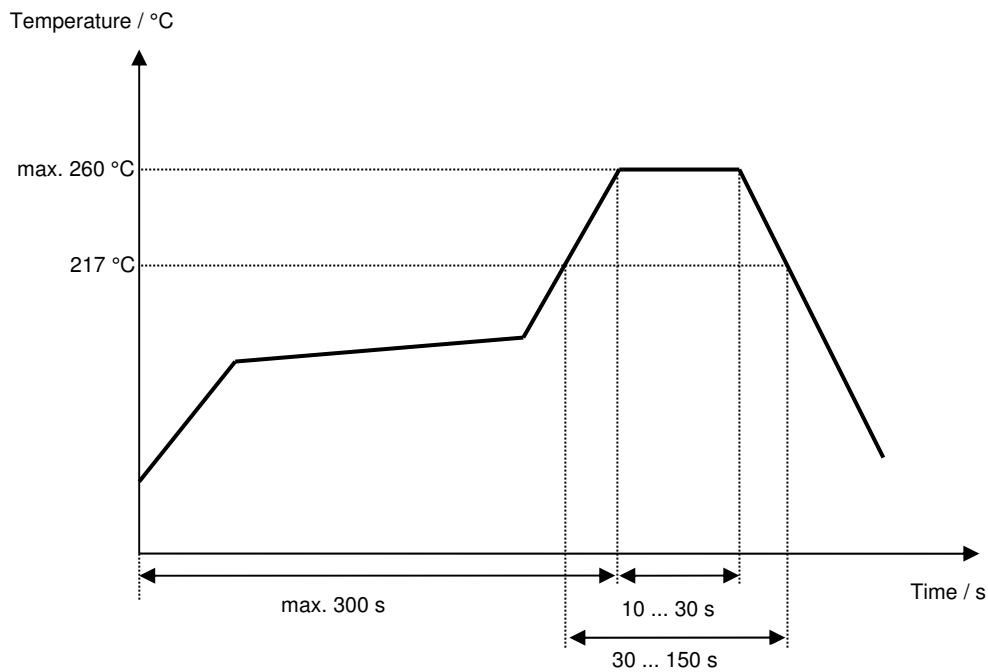
**D 14 513 TELTOW / Germany**

**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**Air reflow temperature conditions**

| <b>Conditions</b>                           | <b>Exposure</b>             |
|---------------------------------------------|-----------------------------|
| 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****Filter specification****TFS1575BF****5/5****History**

| <b>Version</b> | <b>Reason of Changes</b>                                                                | <b>Name</b>     | <b>Date</b> |
|----------------|-----------------------------------------------------------------------------------------|-----------------|-------------|
| 1.0            | - Generation of development specification                                               | S. Springfieldt | 08.09.2022  |
| 2.0            | - Generation of filter specification<br>- Update package drawing<br>- Update data table | S. Springfieldt | 05.05.2023  |
| 3.0            | -Update plots and typical values                                                        | S.Springfeldt   | 18.02.2025  |