### Measurement condition

Ambient temperature $T_A$: 23 °C
Input power level: 0 dBm
Terminating impedance:
Input: 50 Ω
Output: 50 Ω

### Characteristics

Remark:
The reference level for the relative attenuation $a_{rel}$ is the maximum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss $a_e$. The nominal frequency $f_N$ is fixed at 1995 MHz without any tolerance or limit. The values of relative attenuation $a_{rel}$ 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.

| **D a t a** | | | typ. value | | tolerance / limit | | |
|---|---|---|---|---|---|---|---|
| **Insertion loss** | $a_e$ | | 2.2 | dB | max. | 3.0 | dB |
| **Nominal frequency** | $f_N$ | | - | - | | 1995.0 | MHz |
| **Passband** | PB | | - | - | $f_N$ ± | 15.0 | MHz |
| **Pass band variation** | | | 0.6 | dB | max. | 1.5 | dB |
| **Relative attenuation** | $a_{rel}$ | | - | - | | | |
| 30 MHz … 1626 MHz | | | 40 | dB | min. | 30 | dB |
| 1626 MHz … 1656 MHz | | | 51 | dB | min. | 40 | dB |
| 1656 MHz … 1920 MHz | | | 32 | dB | min. | 30 | dB |
| 2070 MHz … 3000 MHz | | | 35 | dB | min. | 30 | dB |
| 3000 MHz … 4000 MHz | | | 27 | dB | min. | 20 | dB |
| **VSWR within PB** | | | 1.5 : 1 | | max. | 2 : 1 | |
| **Input power level** | | | - | | max. | 10 | dBm |
| **Operating temperature range** | OTR | | - | | -40 °C ... | +85 °C | |
| **Storage temperature range** | | | - | | -55 °C ... | +125 °C | |
| **Temperature coefficient of frequency** | $TC_f$ | * | -40 | ppm/K | | | |

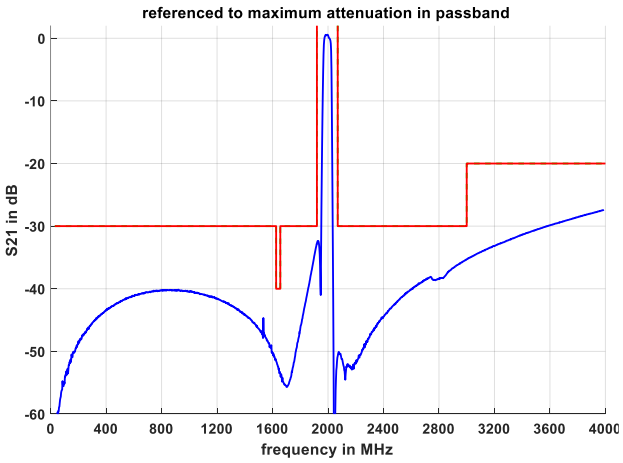
*) $\Delta f = TC_f(T - T_A)f_N$

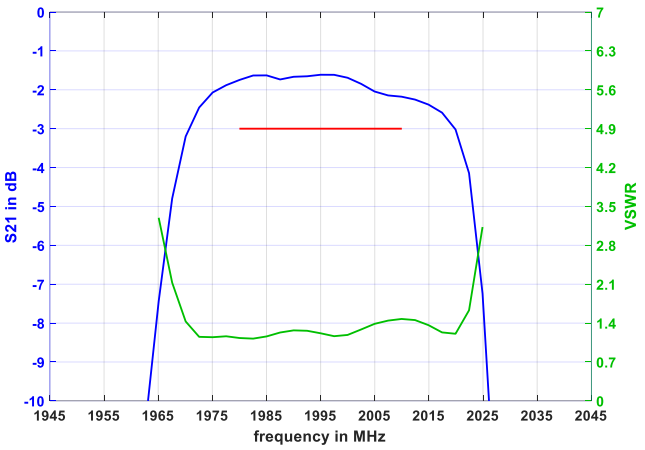
**Generated:**

**Checked / Approved:**

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

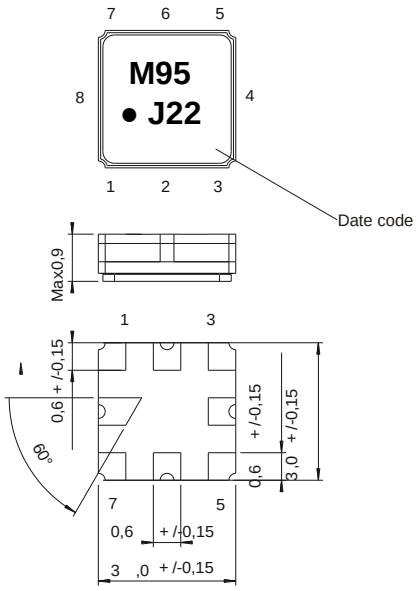
## Filter characteristic




## Construction and pin connection

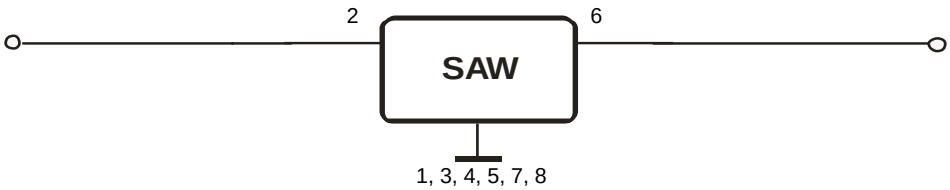
(All dimensions in mm)




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

| Date code: | Year + week |
|---|---|
| J | 2017 |
| K | 2018 |
| L | 2019 |
| ... | |

## 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**

### 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)

### 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;

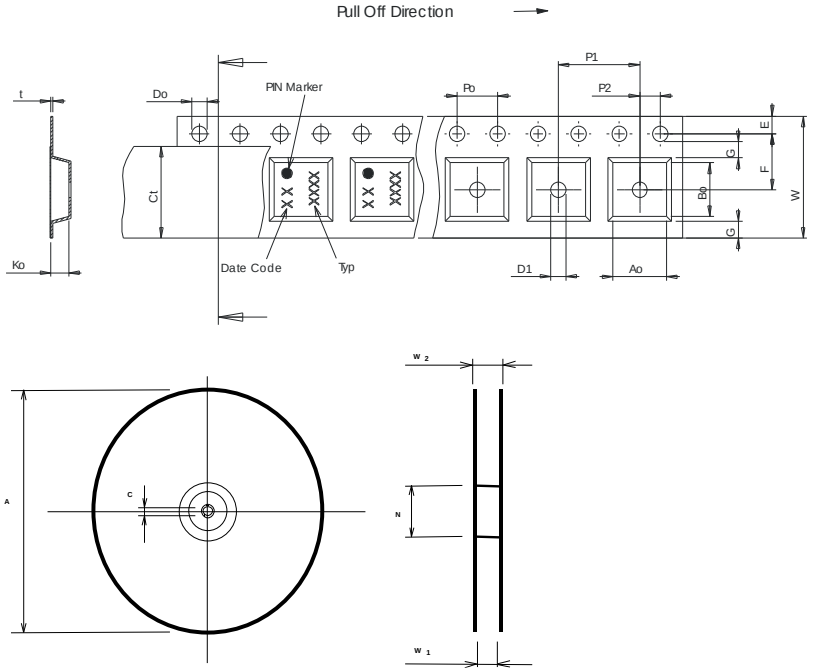
| | |
|---|---|
| max. pieces of filters per reel: | 3000 |
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

**Tape (all dimensions in mm)**

| | | | |
|---|---|---|---|
| W | : | 8.00 | ±0.3 |
| Po | : | 4.00 | ±0.1 |
| Do | : | 1.50 | +0.1/-0 |
| E | : | 1.75 | ±0.1 |
| F | : | 3.50 | ±0.05 |
| G(min) | : | 0.75 | |
| P2 | : | 2.00 | ±0.05 |
| P1 | : | 4.00 | ±0.1 |
| D1(min) | : | 1.50 | |
| Ao | : | 3.25 | ±0.1 |
| Bo | : | 3.25 | ±0.1 |
| Ct | : | 5.30 | ±0.1 |
| Ko | : | 1.50 | ±0.1 |
| t | : | 0.25 | ±0.05 |

**Reel (all dimensions in mm)**

| | | | |
|---|---|---|---|
| A | : | 330 | or 180 |
| W1 | : | 8.40 | +1.5/-0 |
| W2(max) | : | 14.40 | |
| N(min) | : | 60.00 | |
| C | : | 13.0 | ±0.2 |



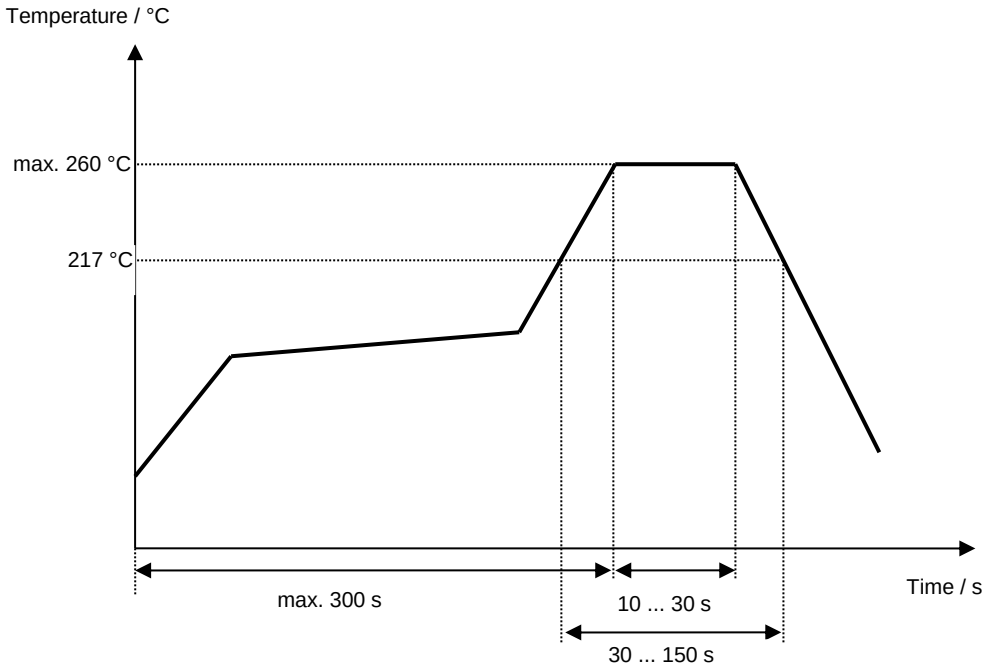

The minimum bending radius is 45 mm.

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

**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 | S.Springfeldt | 01.06.2017 |

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