**Measurement condition**

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

**Characteristics**

Remark:
The nominal frequency $f_N$ is fixed at 1200.1 MHz. The insertion loss $a_e$ is defined as loss value determined at $f_N$. Reference level for the relative attenuation $a_{rel}$ of the TFS 1200A is the insertion loss $a_e$. All specified data are met within the operating temperature range.

| **D a t a** | | **typ. value** | | **tolerance / limit** | | |
|---|---|---|---|---|---|---|
| **Insertion loss** | $a_e$ | 2.3 | dB | max. | 5 | dB |
| **Nominal frequency** | $f_N$ | - | | | 1200.1 | MHz |
| **Bandwidth** | BW | | | | | |
| 3 dB | | 42.35 | MHz | | - | MHz |
| **Relative attenuation** | $a_{rel}$ | | | | | |
| @ 200.02 MHz | | 70 | | min. | 50 | dB |
| @ 400.03 MHz | | 80 | | min. | 50 | dB |
| @ 600.05 MHz | | 64 | | min. | 47 | dB |
| @ 800.07 MHz | | 54 | | min. | 42 | dB |
| **Operating temperature range** | OTR | - | | -40 °C ... +90 °C | | |
| **Storage temperature range** | | - | | -45 °C ... +95 °C | | |
| **Temperature coefficient of frequency** | $TC_f$ * | -73 | ppm/K | | - | |

*) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0) \times f_{To}(MHz)$. Material: LiNbO3_64° black, so in principle pyrofree.

**Generated:**

**Checked / Approved:**

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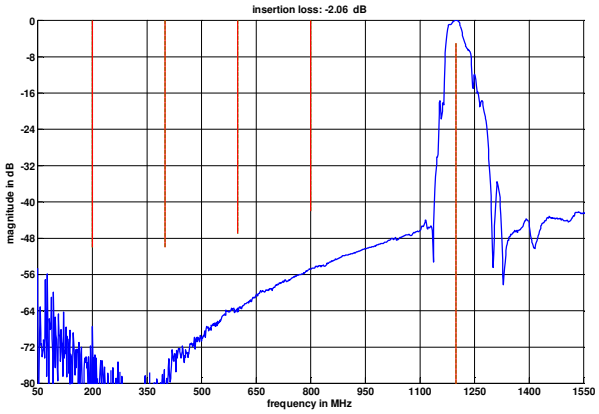
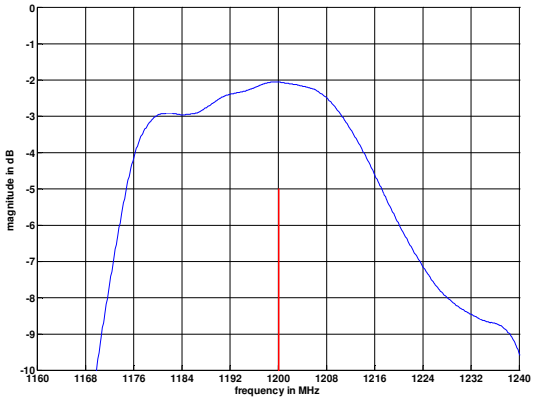
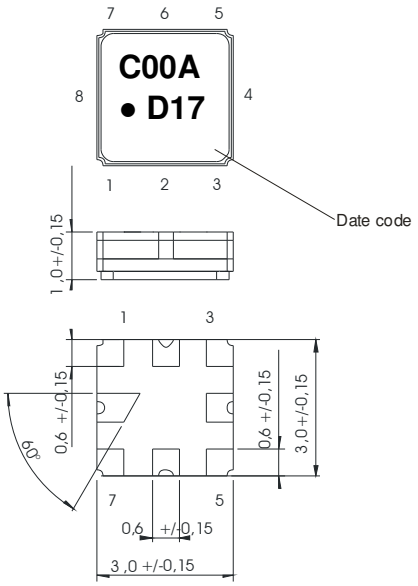
## Filter characteristic




## Construction and pin connection

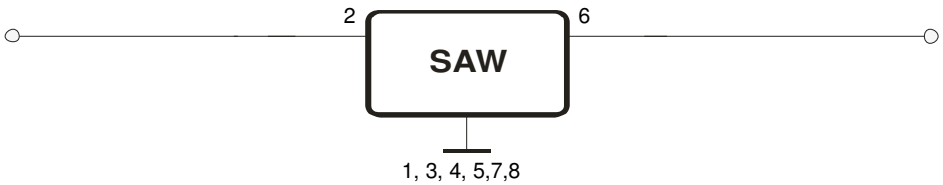
(All dimensions in mm)




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

| Date code: | Year + week |
|---|---|
| D | 2013 |
| E | 2014 |
| F | 2015 |
| ... | |

## 50 Ω Test circuit

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### Stability characteristics, reliability

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

| | |
|---|---|
| 1. Shock: | 500g, 1 ms, half sine wave, 3 shocks each plane;<br>DIN IEC 68 T2 - 27 |
| 2. Vibration: | 10 Hz to 500 Hz, 0,35 mm or 5 g respectively, 1 octave per min, 10 cycles per plan, 3 plans;<br>DIN IEC 68 T2 - 6 |
| 3. Change of temperature: | -55 °C to 125°C / 30 min. each / 10 cycles<br>DIN IEC 68 part 2 – 14 Test N |
| 4. Resistance to solder heat (reflow): | reflow possible: three times max.;<br>for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4; |

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

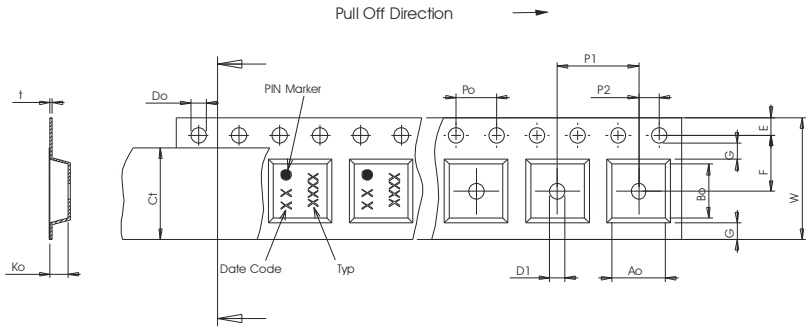
### Packing

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 |

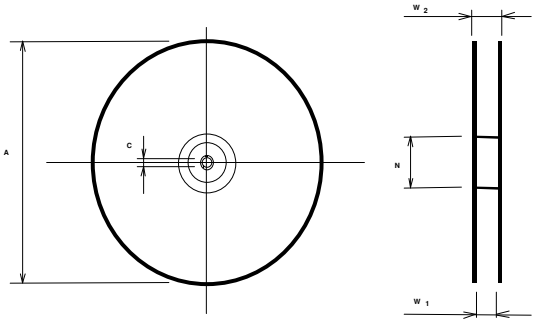
**Tape (all dimensions in mm)**

| | | |
|---|---|---|
| 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 | : | 5,3 ± 0,1 |




**Reel (all dimensions in mm)**

| | | |
|---|---|---|
| A | : | 180 |
| W1 | : | 8,4 +1,5/-0 |
| W2(max) | : | 14,4 |
| N(min) | : | 60 |
| C | : | 13,0 ± 0,2 |




The minimum bending radius is 45 mm.

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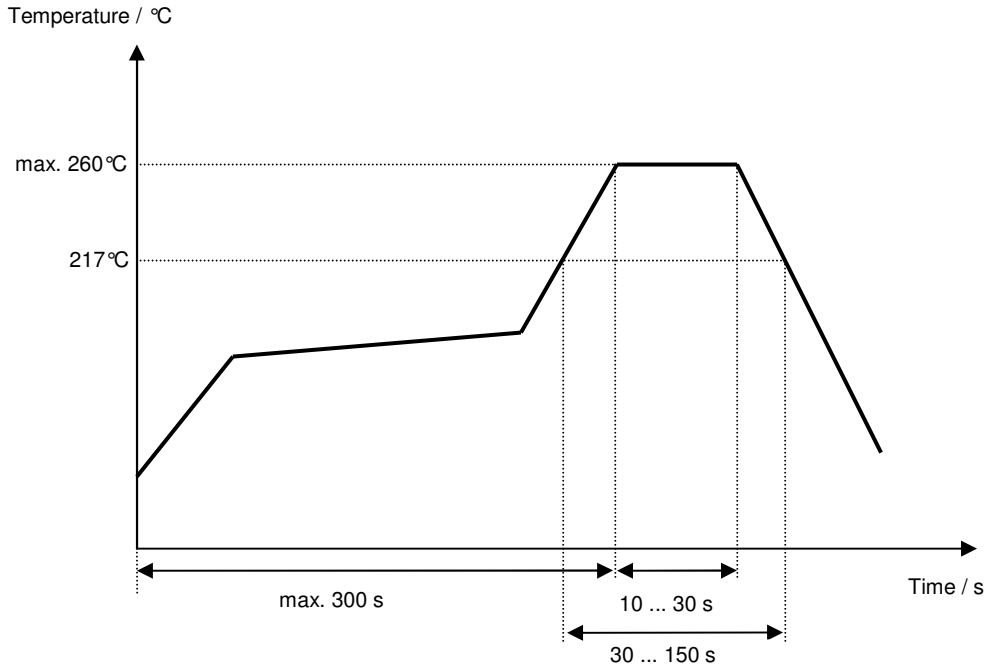
**Air reflow temperature conditions**

| **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**

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## History

| Version | Reason of Changes | Name | Date |
|---|---|---|---|
| 1.0 | Generation of development specification. | Schönbein | 30.05.12 |
| 2.0 | Generation of filter specification. | Schönbein | 19.09.12 |
| 2.1 | Remark on pyrofree material added to data table | Schönbein | 25.04.2013 |

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