### Measurement condition

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

### Characteristics

Remark:
The minimum attenuation in the pass band is defined as the insertion loss $a_e$. The nominal frequency $f_N$ is fixed at 1227,0 MHz without any tolerance or limit. The values of absolute attenuation $a_{abs}$ are guaranteed for the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

| D a t a | | typ. value | | tolerance / limit | | |
|---|---|---|---|---|---|---|
| **Insertion loss** (reference level) | $a_e$ | 1,0 | dB | max. | 3,0 | dB |
| **Nominal frequency** | $f_N$ | - | | | 1227,0 | MHz |
| **Passband** | PB | - | | $f_N$ ± | 15,0 | MHz |
| **Pass band ripple** | | 0,4 | dB | max. | 2,0 | dB |
| **Pass band variation** | | 1,2 | dB | max. | 3,0 | dB |
| **Absolute attenuation** | $a_{abs}$ | | | | | |
| 0,3 MHz … 1172 MHz | | 42 | dB | min. | 40 | dB |
| 1172 MHz … 1197 MHz | | 18 | dB | min. | 10 | dB |
| 1257 MHz … 1282 MHz | | 18 | dB | min. | 10 | dB |
| 1282 MHz … 2000 MHz | | 49 | dB | min. | 40 | dB |
| **Group delay ripple within PB** | p-p | 70 | ns | max. | 100 | ns |
| **Phase ripple within PB** | p-p | 75 | ° | max. | 100 | ° |
| **Return loss** | | 10 | dB | min. | 6 | dB |
| **Input power level** | | - | | max. | 20 * | dBm |
| **Operating temperature range** | OTR | - | | - 54 °C ... + 85 °C | | |
| **Storage temperature range** | | - | | - 54 °C ... + 85 °C | | |
| **Temperature coefficient of frequency** | $TC_f$ ** | -41 | ppm/K | | - | |

*) This power level is only allowed for short term operation (cycle time 1:1000), the max. input power for continuous operation is max.10dBm only
**) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0) \times f_{To}(MHz)$, $f_{To}$: frequency at room temperature

**Generated:**

**Checked / Approved:**

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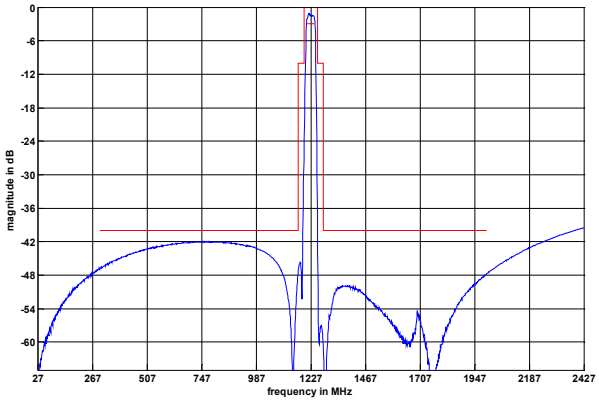
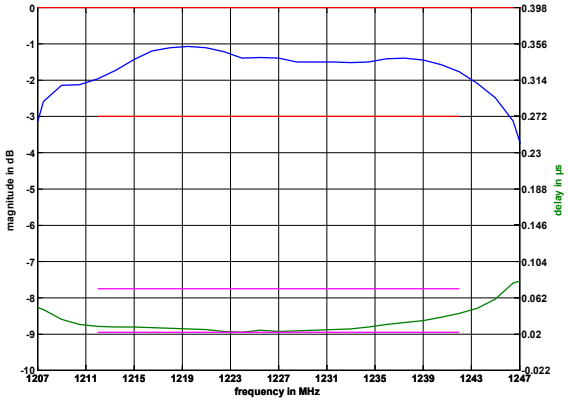
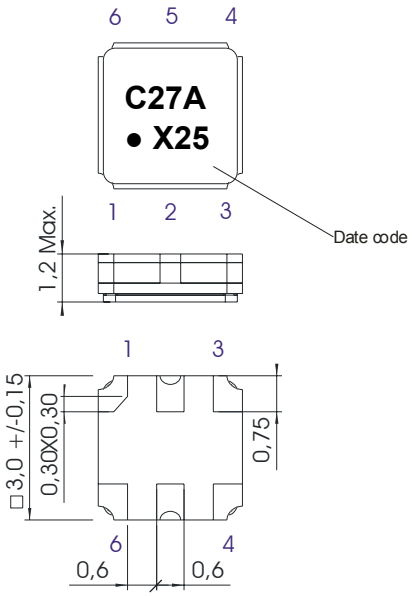



## Construction and pin connection

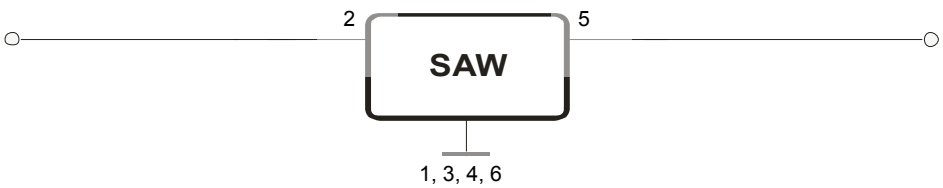
(All dimensions in mm)




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

| Date code: | Year + week |
|---|---|
| X | 2009 |
| A | 2010 |
| B | 2011 |
| ... | |

**50 Ω Test circuit**

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### Stability characteristics, reliability

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

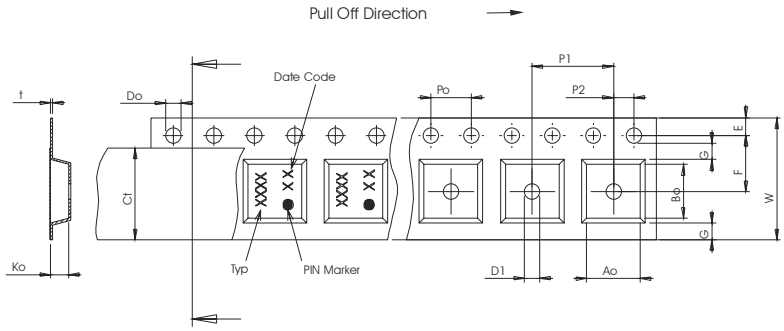
| | |
|---|---|
| 1. Shock: | 500g, 1 ms, half sine wave, 3 shocks each plane;<br>DIN IEC 68 T2 - 27 |
| 2. Vibration: | 10 Hz to 500 Hz, 0,35 mm or g respectively, 1 octave per min, 10 cycles per plan, 3 plans;<br>DIN IEC 68 T2 - 6 |
| 3. Change of temperature: | -55 °C to 125°C / 30 min. each / 10 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; |
| 5. ESD | ANSI/ESD S20.20-1999**,** class 1A for HBM |

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

### Packing

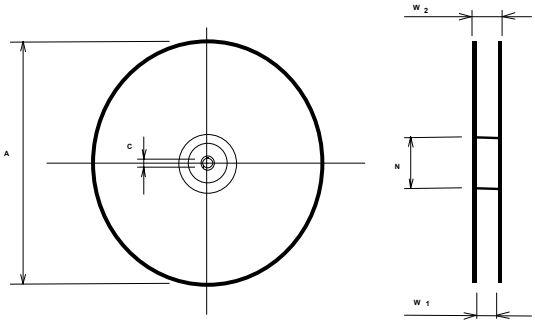
Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

| | |
|---|---|
| max. pieces of filters per reel: | 9000 |
| 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 | : | 5,5 ± 0,1 |




**Reel (all dimensions in mm)**

| | | |
|---|---|---|
| A | :330 | |
| W1 | : 8,4 | +1,5/-0 |
| W2(max) | : 14,4 | |
| N(min) | : 50 | |
| C | : 13,0 | +0,5/-0,2 |

The minimum bending radius is 45 mm.

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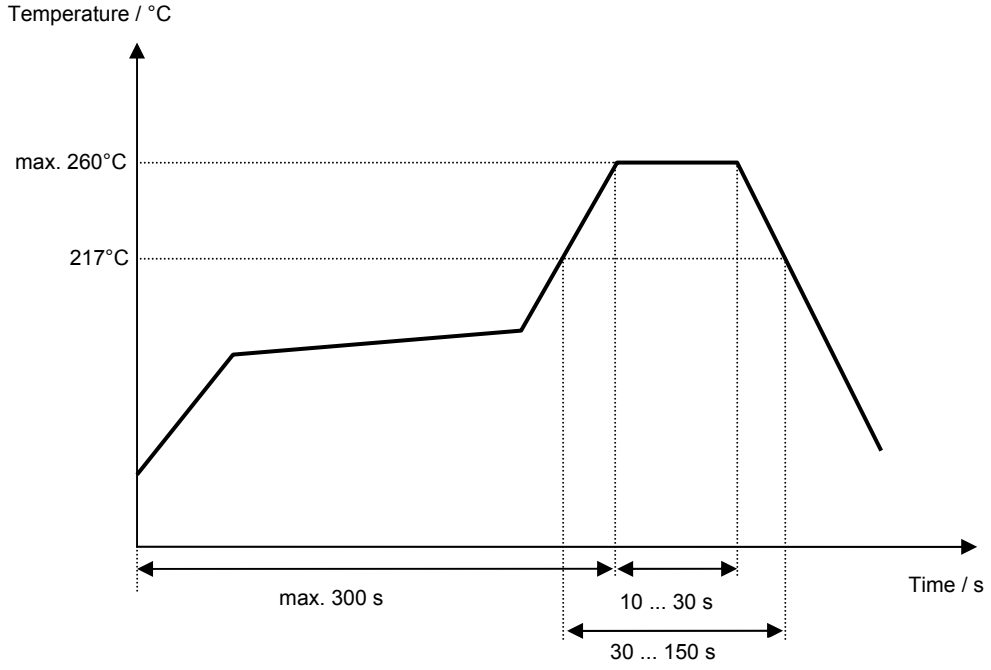
### Air reflow temperature conditions

| 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 | Strehl | 07.02.2008 |
| 1.1 | - typing error of absolute attenuation corrected, matching configuration added | Pfeiffer | 18.07.2008 |
| 1.2 | - add of typical values and filter characteristics | Pfeiffer | 05.12.2008 |
| 2.0 | - $f_{T0}$ defined<br>- group delay ripple and phase ripple added | Pfeiffer | 15.06.2009 |

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