### Measurement Condition

| | |
|---|---|
| Ambient Temperature: | 23 °C |
| Input Power Level: | 0 dBm |
| Source impedance: | 50 Ω |
| Load impedance: | 50 Ω |
| Terminating impedances: | |
| input: | 720 Ω \|\| -4.7pF |
| output: | 1000 Ω \|\| -4.1pF |

### Characteristics

Remark:
Reference level for the relative attenuation $a_{rel}$ is the minimum pass band attenuation $a_{min}$. It is defined as the insertion loss $a_e$. The nominal frequency $f_N$ is fixed to 380,0 MHz. The center frequency $f_c$ is the arithmetic mean value of the upper and lower frequencies at the 1 dB filter attenuation level relative to the insertion loss $a_e$ The given values for the insertion loss, the relative attenuation $a_{rel}$ and the group delay ripple have to be reached at the frequencies given below also if the centre frequency $f_c$ is shifted due to the temperature coefficient of frequency $TC_f$ in the operating temperature range and due to a production tolerance for the centre frequency $f_c$.

| **D a t a** | | **typ. Value** | | **Limit** | | |
|---|---|---|---|---|---|---|
| **Insertion Loss** (Reference level) | $a_e = a_{min}$ | 14,0 | dB | max. | 17 | dB |
| **Nominal Frequency** | $f_N$ | - | | | 380,0 | MHz |
| **1 dB - Bandwidth** | BW | 4,2 | MHz | min. | 4,05 | MHz |
| **Relative Attenuation** | $a_{rel}$ | | | | | |
| $f_N$ ± 2,5 MHz ... $f_N$ ± 3,0 MHz | | 5 | dB | min. | 3 | dB |
| $f_N$ ± 3,0 MHz ... $f_N$ ± 3,25 MHz | | 20 | dB | min. | 10 | dB |
| $f_N$ ± 3,25 MHz ... $f_N$ ± 3,5 MHz | | 35 | dB | min. | 20 | dB |
| $f_N$ ± 3,5 MHz ... $f_N$ ± 5,0 MHz | | 38 | dB | min. | 30 | dB |
| $f_N$ ± 5,0 MHz ... $f_N$ ± 100,0 MHz | | 50 | dB | min. | 40 | dB |
| **Pass Band Ripple** $f_N$ ± 2,025 MHz | | 0,4 | dB | max. | 1 | dB |
| **Group delay ripple** $f_N$ ± 2,025 MHz | φ | 65 | ns | max. | 100 | ns |
| **Operating Temperature Range** | | | | - 0 °C ... + 70 °C | | |

**Generated:**

**Checked / approved:**

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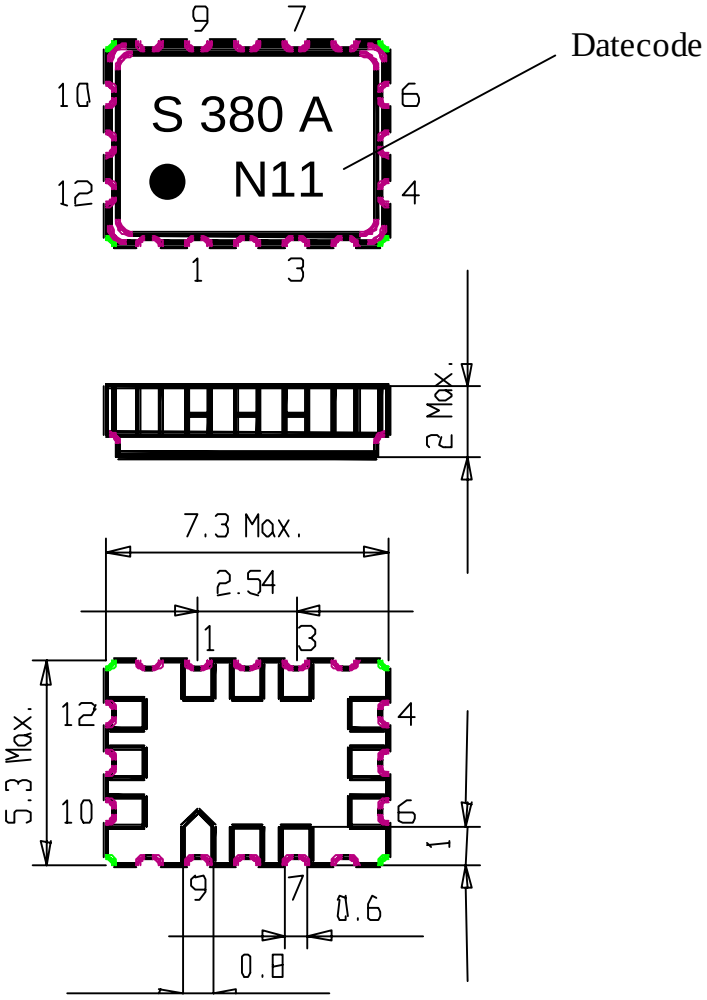
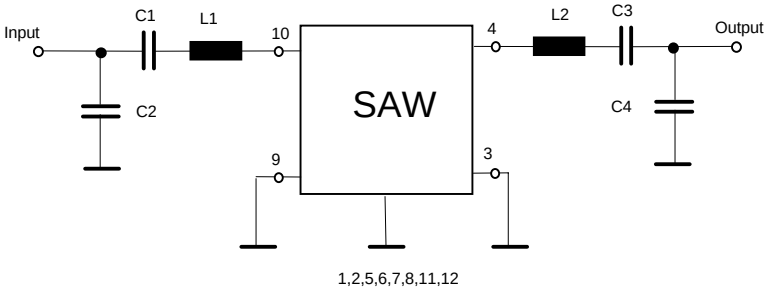
### Construction and pin connection




| | |
|---|---|
| 1 | Ground |
| 2 | Ground |
| 3 | Output RF Return |
| 4 | Output |
| 5 | Ground |
| 6 | Ground |
| 7 | Ground |
| 8 | Ground |
| 9 | Input RF Return |
| 10 | Input |
| 11 | Ground |
| 12 | Ground |

| | |
|---|---|
| Datecode: | Year+week |
| L | 1999 |
| M | 2000 |
| N | 2001 |
| ... | |

### 50 Ω test circuit

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### Stability Characteristics:

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

| | |
|---|---|
| 1. Shock: | 500g, 18 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 5g respectively, 1 octave per min, 10 cycles per plan, 3 plans;<br>DIN IEC 68 T2 - 6 |
| 3. Damp heat:<br>(cycle) | 25 °C to 55°C / 95% r.H. / 10 cycles<br>DIN IEC 68 - 2 – 30 Db |
| 4. Resistance to<br>solder heat (reflow): | max. 2 times reflow process;<br>for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4; |

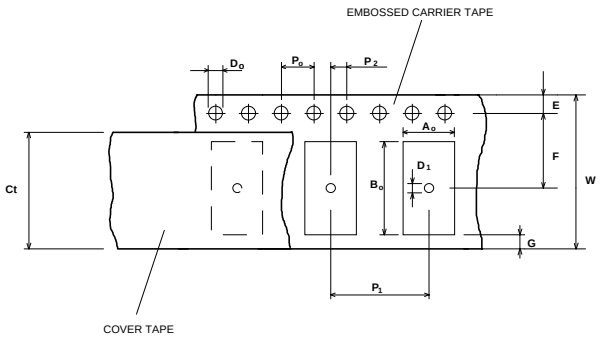
### Packing:

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 |

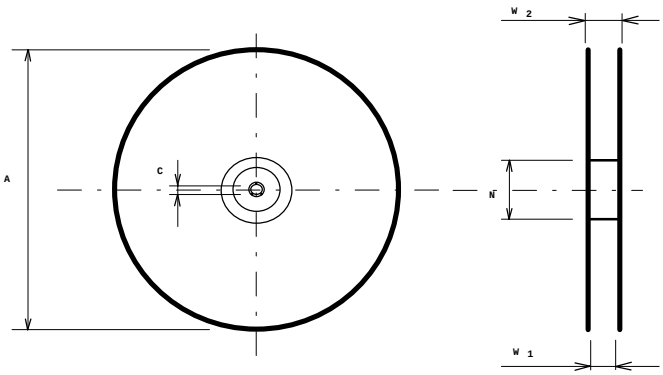
**Tape (all dimensions in mm)**

| | | |
|---|---|---|
| W | : 16 | ± 0,3 |
| Po | : 4 | ± 0,1 |
| Do | : 1,5 | + 0,5 |
| E | : 1,75 | ± 0,1 |
| F | : 7,5 | ± 0,1 |
| G (min) | : 0,6 | |
| P2 | : 2 | ± 0,1 |
| P1 | : 8 | ± 0,1 |
| D1(min) | : 1,5 | |
| Ao | : 5,5 | ± 0,1 |
| Bo | : 7,5 | ± 0,1 |
| Ct | : 13,5 | +/-0,1 |




**Reel (all dimensions in mm):**

| | | |
|---|---|---|
| A | : 330 | |
| W1 | : 16,4 | +2 |
| W2 (max) | : 22,4 | |
| N (min) | : 50 | |
| C | : 13 | + 0,5<br>- 0,2 |




The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. The marking of the filters is readable if the sprocket holes are on the left side of the tape, i.e. pin 1 identifier is close to the sprocket holes.

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## Air reflow temperature conditions

1st and 2nd air reflow profile

| **Name:** | pre-heating periods | main-heating periods | peak temperature |
|---|---|---|---|
| **Temperature:** | 150 °C - 170 °C | over 200 °C | 255 °C ± 5 °C |
| **Time:** | 60 sec. - 90 sec. | 20 sec. - 25 sec. | |

**Air reflow profile**

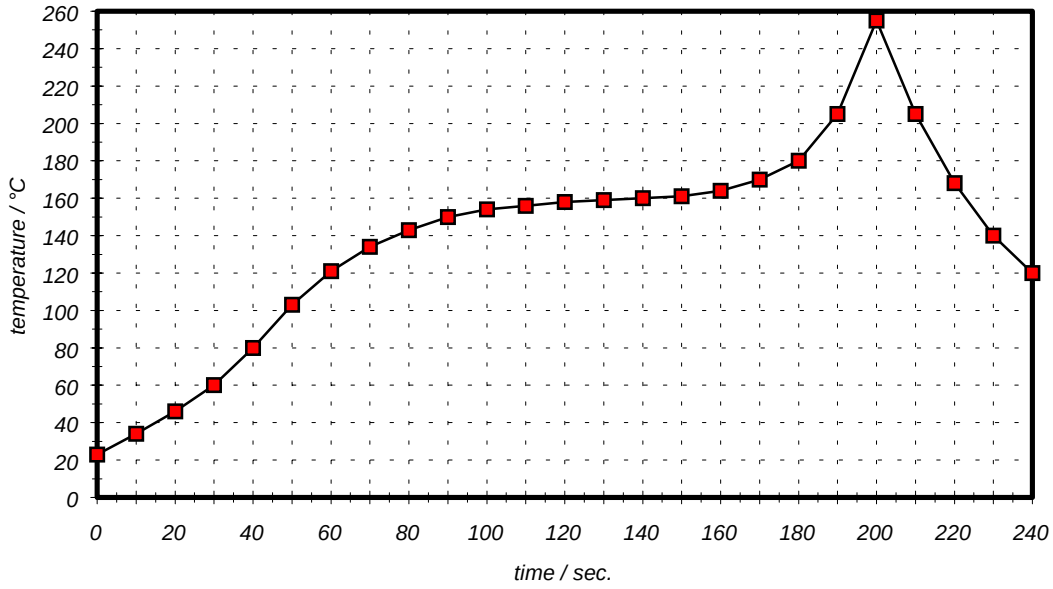


Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

| time / sec. | temperature / °C | time / sec. | temperature / °C |
|---|---|---|---|
| 0 | 23 | 140 | 160 |
| 10 | 34 | 150 | 161 |
| 20 | 46 | 160 | 164 |
| 30 | 60 | 170 | 170 |
| 40 | 80 | 180 | 180 |
| 50 | 103 | 190 | 205 |
| 60 | 121 | 195 | 230 |
| 70 | 134 | 200 | 255 |
| 80 | 143 | 205 | 230 |
| 90 | 150 | 210 | 205 |
| 100 | 154 | 215 | 180 |
| 110 | 156 | 220 | 165 |
| 120 | 158 | 230 | 140 |
| 130 | 159 | 240 | 120 |

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## History

| Version | Reason of Changes | Name | Date |
|---|---|---|---|
| **Development specification** | | | |
| 1.0 | new generation | Steiner | 11.04.2000 |
| 2.0 | - correction of attenuation specification according to customer needs<br>- stability characteristics, tape and reel dimensions, air reflow profile added | Steiner | 04.08.2000 |
| **Filter specification** | | | |
| 3.0 | - terminating impedances added<br>- loss definition corrected<br>- typical values added | Steiner | 13.03.2001 |

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