

**VI TELEFILTER****Filter specification****TFS 380N****1/5****Measurement condition**

|                          |              |         |
|--------------------------|--------------|---------|
| Ambient temperature:     | 23           | °C      |
| Input power level:       | 0            | dBm     |
| Terminating impedance: * |              |         |
| Input:                   | 499 $\Omega$ | -6,3 pF |
| Output:                  | 480 $\Omega$ | -6,2 pF |

**Characteristics****Remark:**

The nominal frequency  $f_N$  is fixed at 380 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 380N is the insertion loss  $a_e$ . The centre frequency  $f_C$  is the arithmetic mean value of the upper and lower frequencies at the 30 dB filter attenuation level relative to the insertion loss  $a_e$ . All specified data are met within the operating temperature range.

| <b>D a t a</b>                                                 |             | <b>typ. value</b> |       | <b>tolerance / limit</b> |           |     |
|----------------------------------------------------------------|-------------|-------------------|-------|--------------------------|-----------|-----|
| <b>Insertion loss at <math>f_N</math></b><br>(reference level) | $a_e$       | 8,5               | dB    | max.                     | 11        | dB  |
| <b>Nominal frequency</b>                                       | $f_N$       | -                 |       |                          | 380,0     | MHz |
| <b>Centre frequency at ambient temperature</b>                 | $f_C$       | 380,0             | MHz   |                          | $\pm 0,4$ | MHz |
| <b>Passband</b>                                                | PB          | -                 |       | $f_N$                    | $\pm 2,0$ | MHz |
| <b>Pass band ripple</b>                                        |             | 0,8               | dB    | max.                     | 1,5       | dB  |
| <b>Relative attenuation</b>                                    | $a_{rel}$   |                   |       |                          |           |     |
| $f_C \pm 3,0$ MHz ... $f_C \pm 3,0$ MHz                        |             | 0,5               | dB    | max.                     | 1         | dB  |
| $f_C \pm 3,0$ MHz ... $f_C \pm 3,75$ MHz                       |             | 1                 | dB    | max.                     | 3         | dB  |
| $f_C \pm 7,5$ MHz ... $f_C \pm 50,0$ MHz                       |             | 34                | dB    | min.                     | 30        | dB  |
| <b>Group delay ripple in <math>f_N \pm 2,5</math> MHz</b>      |             | 46                | ns    | max.                     | 75        | ns  |
| <b>Operating temperature range</b>                             | OTR         | -                 |       | - 40 °C ... +85 °C       |           |     |
| <b>Storage temperature range</b>                               |             | -                 |       | - 40 °C ... + 85 °C      |           |     |
| <b>Temperature coefficient of frequency</b>                    | $TC_f^{**}$ | -18               | ppm/K |                          |           |     |

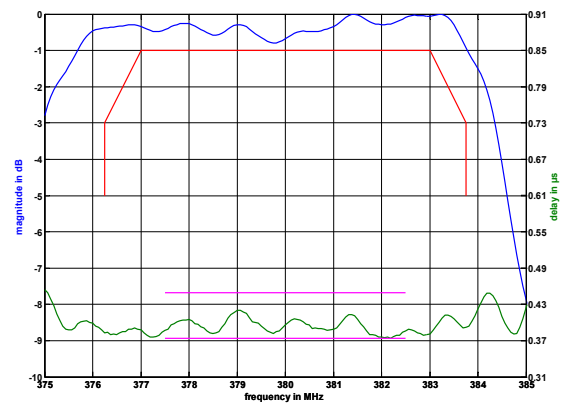
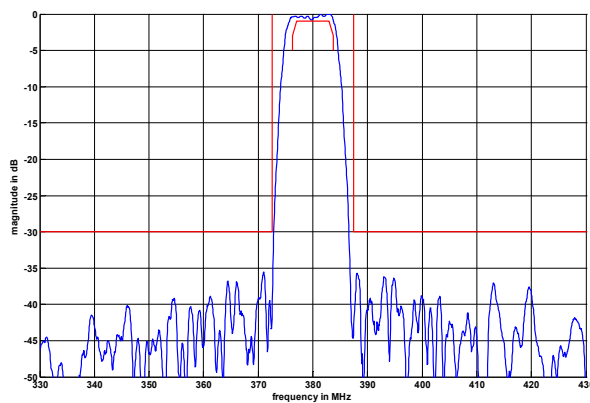
\*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

\*\*)  $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{CAT}(\text{MHz})$

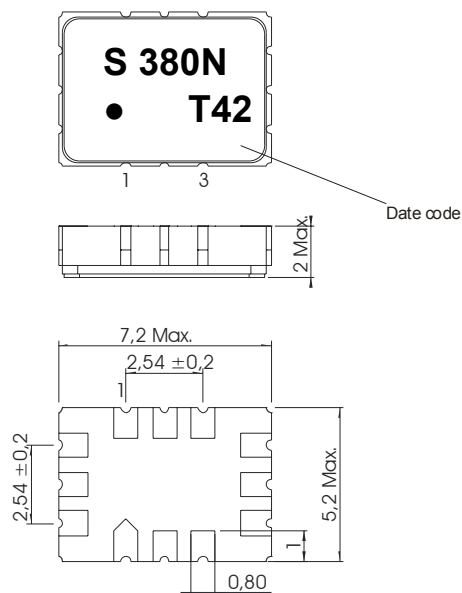
**Generated:****Checked / Approved:**

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**VI TELEFILTER****Filter specification****TFS 380N****2/5****Filter characteristic****Construction and pin connection**

(All dimensions in mm)



|    |                  |
|----|------------------|
| 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           |

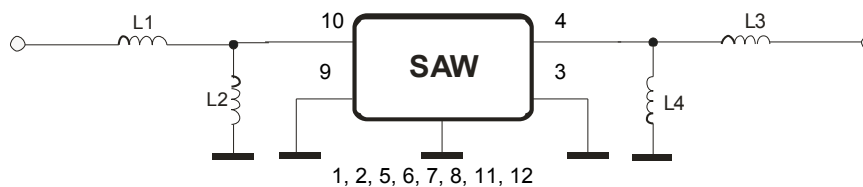
Date code: Year + week

T 2005

U 2006

V 2007

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**50 Ω Test circuit**

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**VI TELEFILTER****Filter specification****TFS 380N****3/5****Stability characteristics**

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

1. Shock: 500g, 1 ms, half sine wave, 3 shocks each plane;  
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;  
DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125°C / 30 min. each / 10 cycles  
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: twice max.;  
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

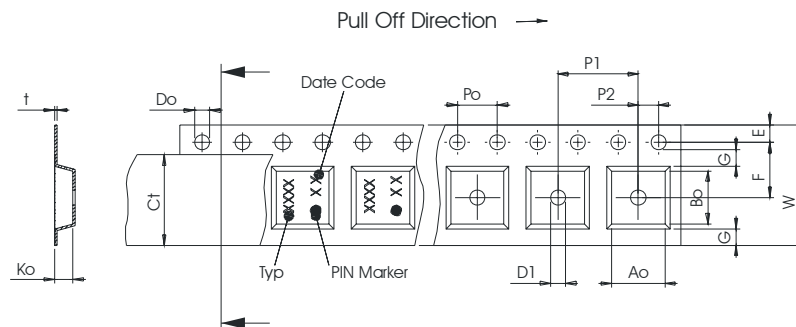
**Packing**

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

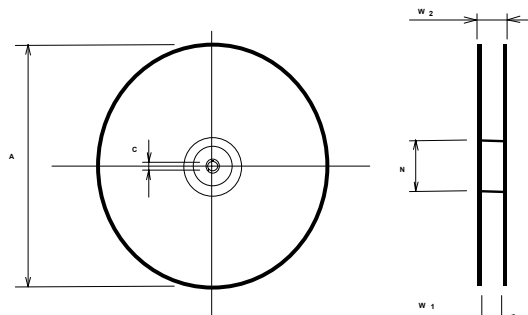
|                                                     |             |
|-----------------------------------------------------|-------------|
| max. pieces of filters peer reel:                   | 3000        |
| reel of empty components at start:                  | min. 300 mm |
| reel of empty components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

**Tape (all dimensions in mm)**

|         |                |
|---------|----------------|
| W       | : 16,00 ± 0,3  |
| Po      | : 4,00 ± 0,1   |
| Do      | : 1,50 +0,1/-0 |
| E       | : 1,75 ± 0,1   |
| F       | : 7,50 ± 0,1   |
| G(min)  | : 0,60         |
| P2      | : 2,00 ± 0,1   |
| P1      | : 8,00 ± 0,1   |
| D1(min) | : 1,50         |
| Ao      | : 5,50 ± 0,1   |
| Bo      | : 7,50 ± 0,1   |
| Ct      | : 13,5 ± 0,1   |

**Reel (all dimensions in mm)**

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



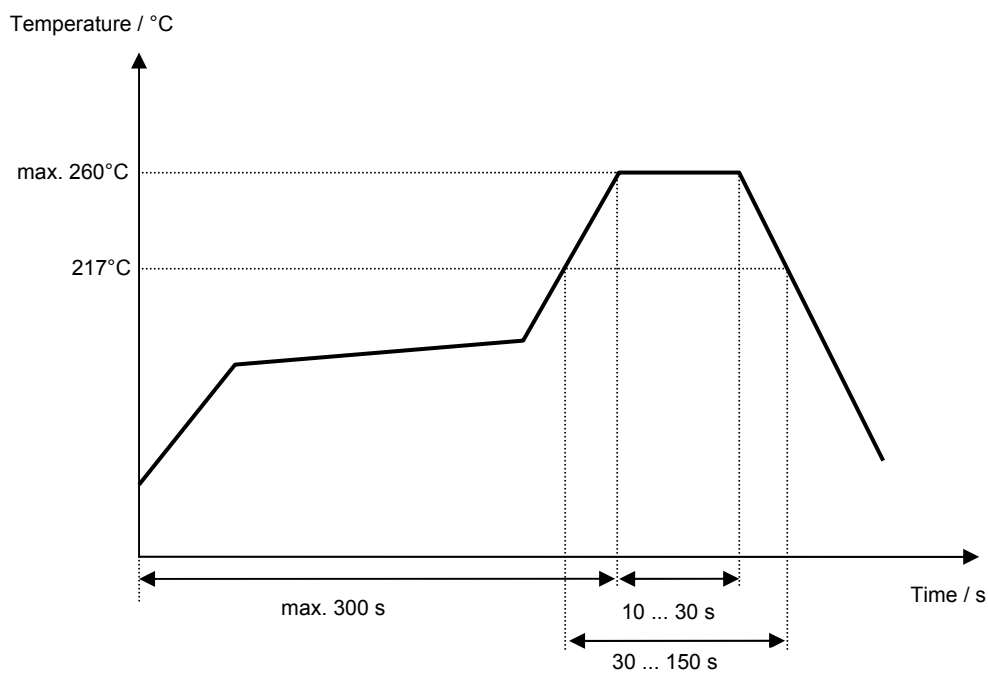
The minimum bending radius is 45 mm.

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**Air reflow temperature conditions**

| <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**

**VI TELEFILTER****Filter specification****TFS 380N****5/5****History**

| <b>Version</b> | <b>Reason of Changes</b>                                              | <b>Name</b> | <b>Date</b> |
|----------------|-----------------------------------------------------------------------|-------------|-------------|
| 1.0            | Generation of development specification                               | Strehl      | 22.09.2005  |
| 1.1            | terminating impedance, typical values and filter characteristic added | Pfeiffer    | 10.10.2005  |