

Vectron International**Filter specification****TFS 1089****1/5****Measurement condition**

| | | |
|------------------------|----|-----|
| Ambient temperature: | 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} of the TFS 1560 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 1560,5 MHz without any tolerance or limit. The values of relative attenuation a_{rel} 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.

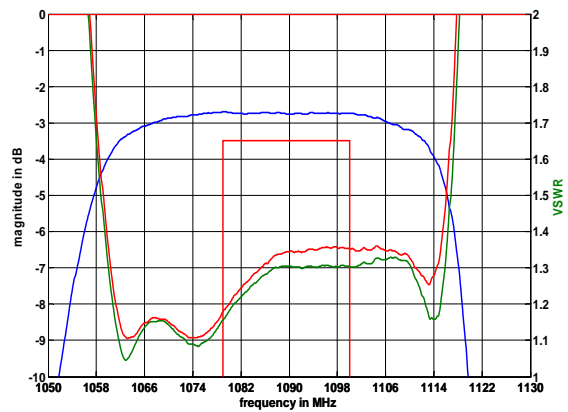
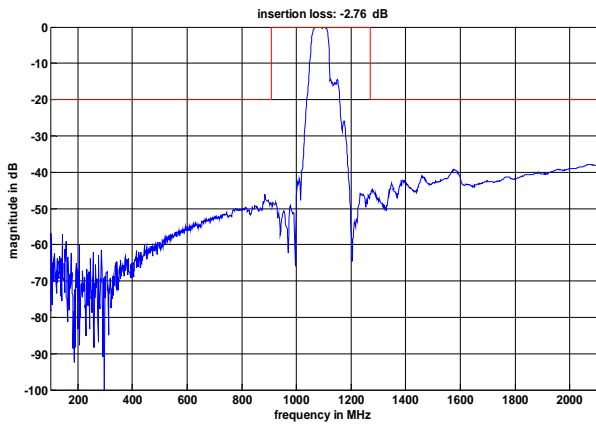
| D a t a | | typ. value | | tolerance / limit | | |
|---|-----------|-------------------|-------|--------------------------|---------------------|-----|
| Insertion loss | a_e | 2,9 | dB | max. | 3,5 | dB |
| Nominal frequency | f_N | - | | | 1089,5 | MHz |
| Passband | PB | - | | $f_N \pm$ | 10,5 | MHz |
| Passband variation | | 0,3 | dB | max. | 1 | dB |
| Relative attenuation | a_{rel} | | | | | |
| 0,3 MHz ... 908 MHz | | 46 | dB | min. | 20 | dB |
| 1271 MHz ... 2500 MHz | | 32 | dB | min. | 20 | dB |
| VSWR within PB | | 1,4 : 1 | | min. | 2 : 1 | dB |
| Input power level | | - | | max. | 10 | dBm |
| Operating temperature range | OTR | - | | | - 40 °C ... + 85 °C | |
| Storage temperature range | | - | | | - 40 °C ... + 85 °C | |
| Temperature coefficient of frequency | TC_f ** | -73 | ppm/K | | - | |

** $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{CAT}(\text{MHz})$.

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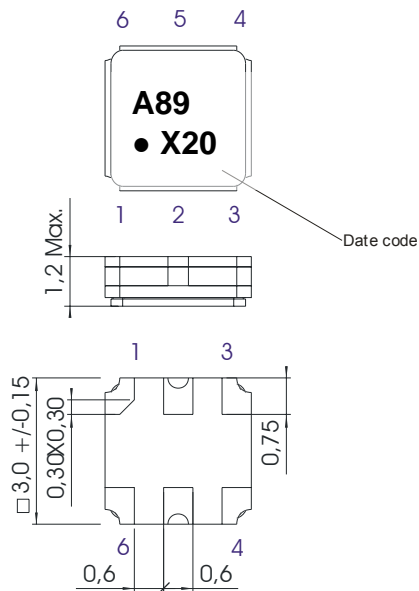
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Filter characteristic



Construction and pin connection

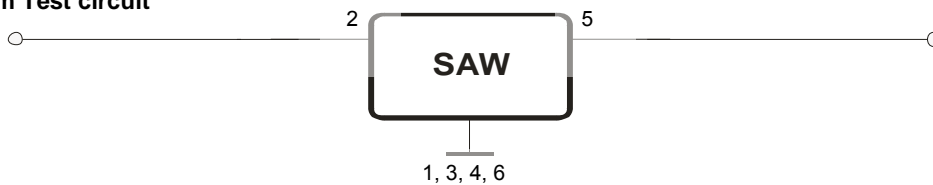
(All dimensions in mm)



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

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

50 Ohm 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;
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: three times max.;
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)

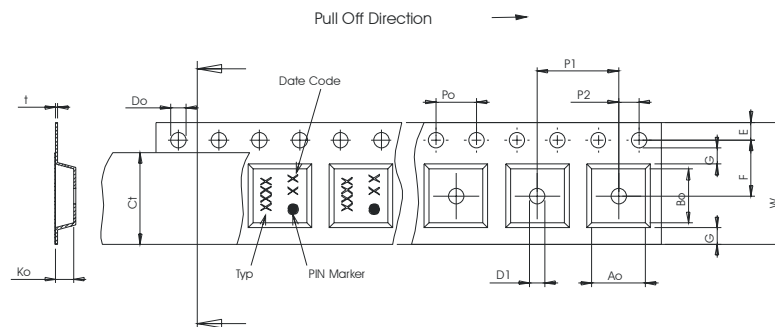
Packing

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: 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

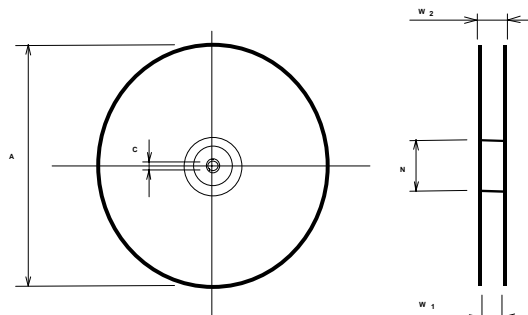
Tape (all dimensions in mm)

- 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



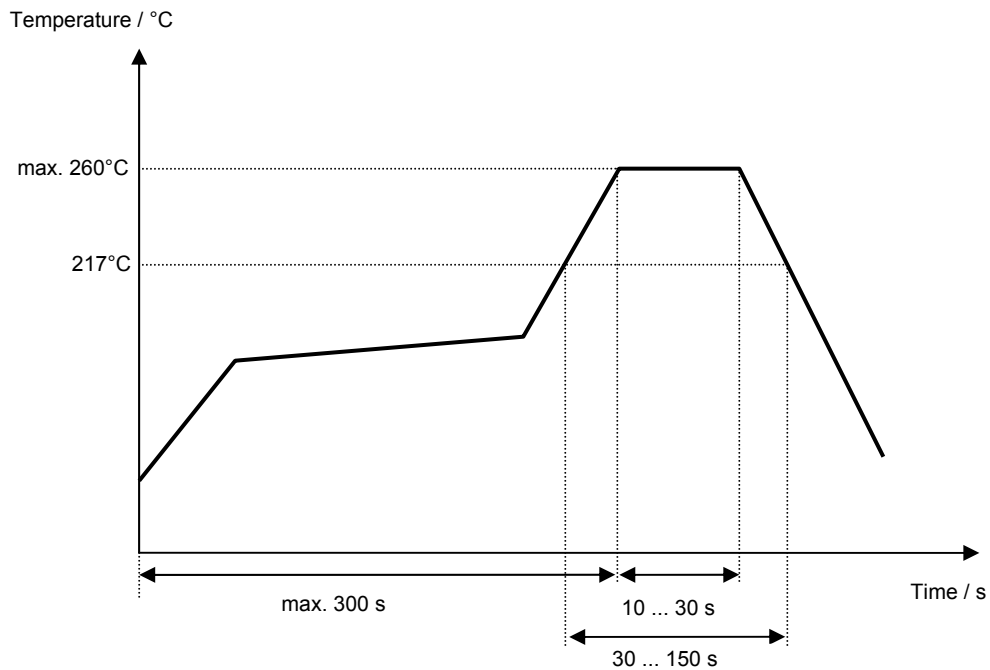
The minimum bending radius is 45 mm.

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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 | Noack | 08.04.2009 |
| 1.1 | - Generation of filter specification - Added typical values und filter characteristic | Noack | 12.05.2009 |