

Vectron International**Filter specification****TFS 1220K****1/5****Measurement condition**

| | | |
|------------------------|----|-----|
| Ambient temperature: | 22 | °C |
| Input power level: | 0 | dBm |
| Terminating impedance: | | |
| Input: | 50 | Ω |
| Output: | 50 | Ω |

Characteristics

Remark:

The maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 1220,0 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.

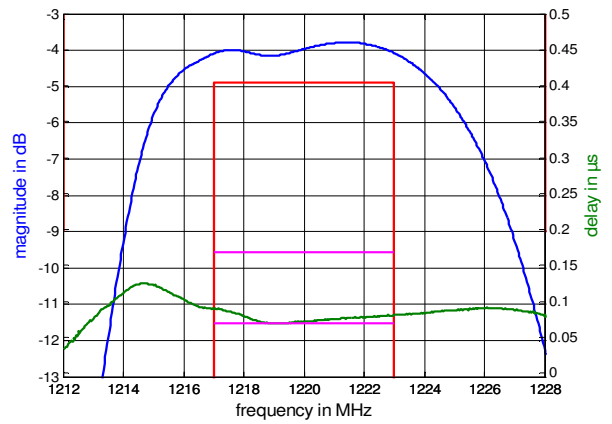
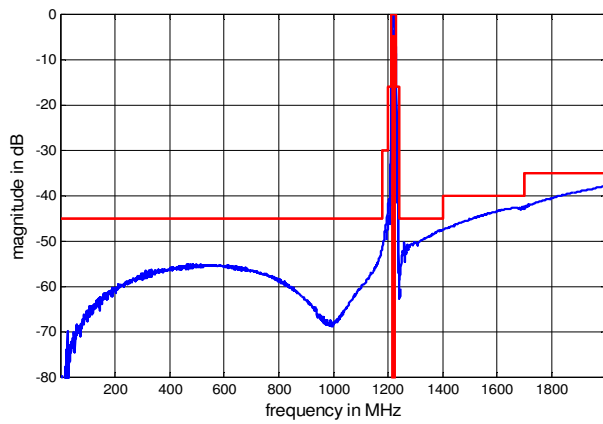
| D a t a | typ. value | | tolerance / limit | | |
|---------------------------------------------|-------------------|-----------|--------------------------|---------------------|-----|
| Insertion loss | a_e | 3,8 dB | max. | 4,9 | dB |
| Nominal frequency | f_N | | | 1220 | MHz |
| Passband | | | $f_N \pm$ | 3 | MHz |
| Pass band ripple | | 0,4 dB | max. | 1,5 | dB |
| Absolute attenuation | a_{abs} | | | | |
| 0,3 MHz ... 1180 MHz | | 53 dB | min. | 45 | dB |
| 1180 MHz ... 1200 MHz | | 43 dB | min. | 30 | dB |
| 1200 MHz ... 1210 MHz | | 33 dB | min. | 16 | dB |
| 1210 MHz ... 1212 MHz | | 21 dB | min. | 9 | dB |
| 1228 MHz ... 1230 MHz | | 13 dB | min. | 9 | dB |
| 1230 MHz ... 1240 MHz | | 22 dB | min. | 16 | dB |
| 1240 MHz ... 1400 MHz | | 48 dB | min. | 45 | dB |
| 1400 MHz ... 1700 MHz | | 43 dB | min. | 40 | dB |
| 1700 MHz ... 2000 MHz | | 39 dB | min. | 35 | dB |
| Group delay ripple within PB | | 25 ns | max. | 100 | ns |
| Return loss within PB | | 16 dB | min. | 15 | dB |
| Input power level | | - | max. | 10 | dBm |
| Operating temperature range | OTR | | | 22 °C | |
| Storage temperature range | | | | - 45 °C ... + 90 °C | |
| Temperature coefficient of frequency | TC_f * | -40 ppm/K | | - | |

*) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{\text{cat}}(\text{MHz})$ **Generated:****Checked / Approved:**

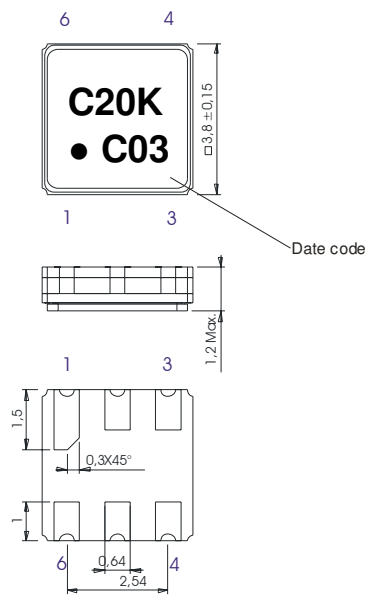
Vectron International GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Filter characteristic



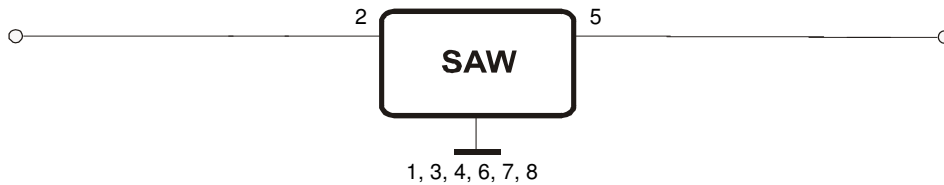
(All dimensions in mm)



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

Date code: Year + week
 C 2012
 D 2013
 E 2014
 ...

50 Ω Test circuit



Vectron International GmbH
 Potsdamer Straße 18
 D 14 513 TELTOW / Germany
 Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
 E-Mail: tft@vectron.com

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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 plane, 3 planes; 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, see page 4: "Air reflow temperature conditions"
5. ESD ANSI/ESD S20.20-1999, class 1A for HBM

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

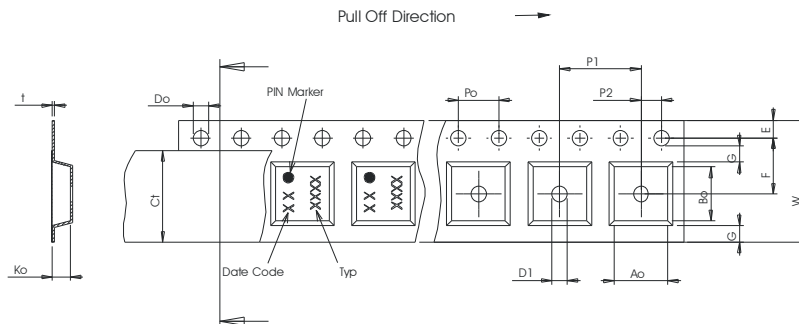
Packing

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: | 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 |

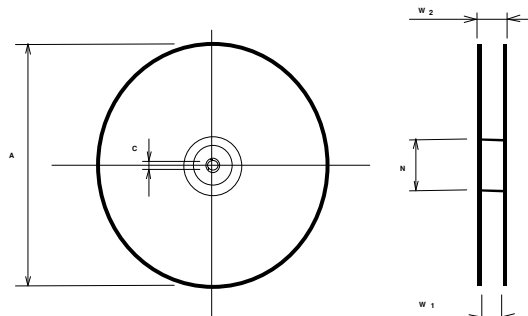
Tape (all dimensions in mm)

- W : 12,00 ± 0,3
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,1
- F : 5,50 ± 0,05
- G(min) : 0,75
- P2 : 2,00 ± 0,05
- P1 : 8,00 ± 0,1
- D1(min) : 1,50
- Ao : 4,30 ± 0,1
- Bo : 4,30 ± 0,1
- Ct : 9,2 ± 0,1



Reel (all dimensions in mm)

- A : 330
- W1 : 12,4 +2/-0
- W2(max) : 18,4
- N(min) : 50
- C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

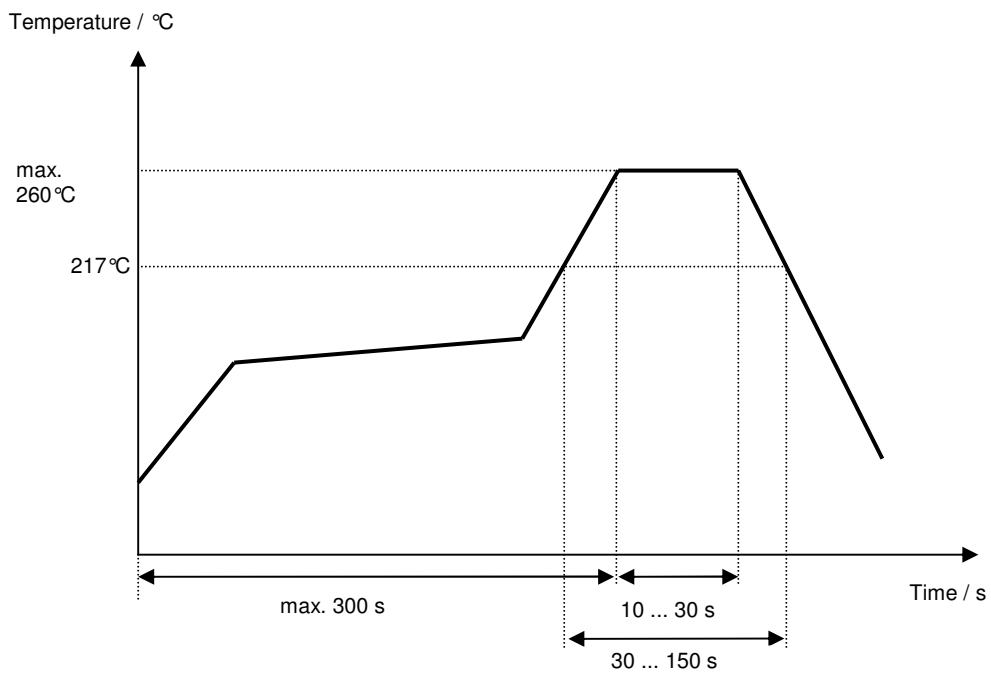
Vectron International GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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



Vectron International GmbH
 Potsdamer Straße 18
 D 14 513 TELTOW / Germany
 Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
 E-Mail: tft@vectron.com

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

History

| Version | Reason of Changes | Name | Date |
|----------------|--------------------------------------|-------------|-------------|
| 1.0 | - generation of filter specification | S. Channaa | 19.01.2012 |