

**Vectron International****Filter specification****TFS 881D****1/5****Measurement condition**

|                        |                        |     |
|------------------------|------------------------|-----|
| Ambient temperature:   | 23                     | °C  |
| Input power level:     | 0                      | dBm |
| Terminating impedance: |                        |     |
| Input:                 | 50 $\Omega$            |     |
| Output:                | 48 $\Omega$    -2,5 pF |     |

**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 881,5 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 <sub>e</sub>    | 2,8 | dB    | max.                | 3,5   | dB       |
| Insertion loss in PB2                |     |     |      |     |                   | 1,9 | dB    | max.                | 2,8   | dB       |
| Nominal frequency                    |     |     |      |     | f <sub>N</sub>    | -   |       |                     | 881,5 | MHz      |
| Passband                             |     |     |      |     | PB                | -   |       | f <sub>N</sub>      | ±     | 12,5 MHz |
| Pass band ripple                     |     |     |      |     |                   | 0,9 | dB    | max.                | 1,5   | dB       |
| Passband 2                           |     |     |      |     | PB2               | -   |       | f <sub>N</sub>      | ±     | 7,5 MHz  |
| Pass band ripple in PB2              |     |     |      |     |                   | 0,4 | dB    | max.                | 1,2   | dB       |
| Absolute attenuation                 |     |     |      |     | a <sub>abs</sub>  |     |       |                     |       |          |
| 0,3                                  | MHz | ... | 824  | MHz |                   | 48  | dB    | min.                | 35    | dB       |
| 824                                  | MHz | ... | 849  | MHz |                   | 40  | dB    | min.                | 35    | dB       |
| 1050                                 | MHz | ... | 1080 | MHz |                   | 48  | dB    | min.                | 45    | dB       |
| 1080                                 | MHz | ... | 2600 | MHz |                   | 37  | dB    | min.                | 35    | dB       |
| Input return loss                    |     |     |      |     |                   | 15  | dB    | min.                | 10    | dB       |
| Input power level                    |     |     |      |     |                   | -   |       | max.                | 0     | dBm      |
| Operating temperature range          |     |     |      |     | OTR               | -   |       | - 20 °C ... + 70 °C |       |          |
| Storage temperature range            |     |     |      |     |                   | -   |       | - 40 °C ... + 85 °C |       |          |
| Temperature coefficient of frequency |     |     |      |     | TC <sub>f</sub> * | -42 | ppm/K | -                   |       |          |

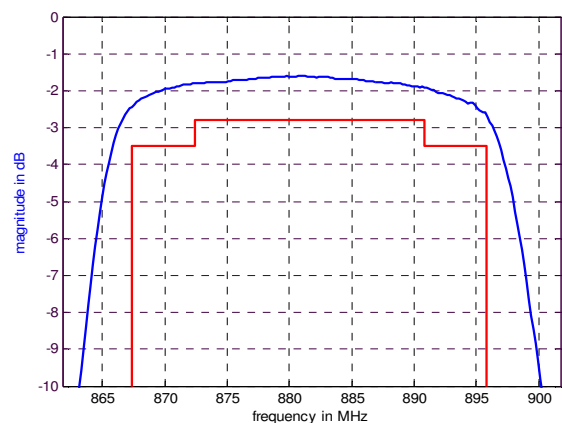
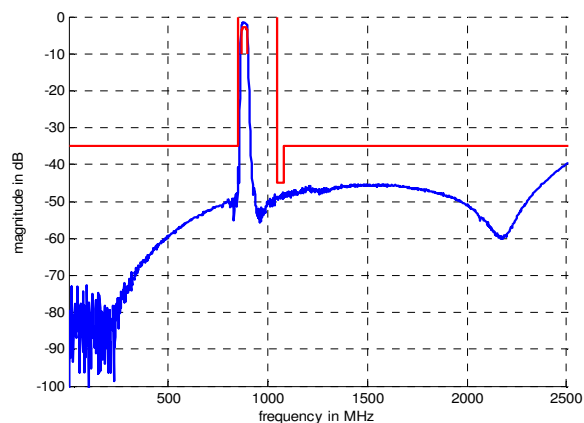
\*)  $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{CTA}(\text{MHz})$

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

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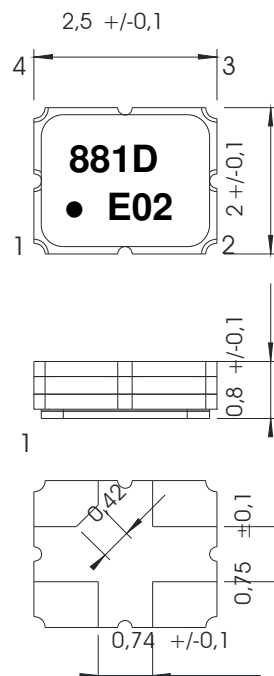
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## Filter characteristic



## Construction and pin connection

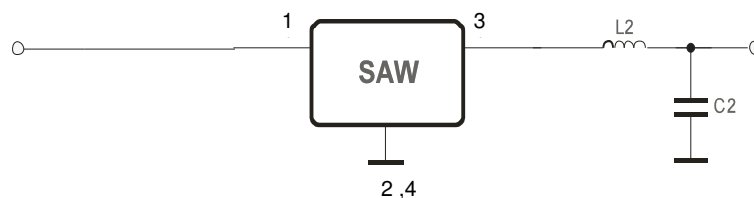
(All dimensions in mm)



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

Date code: Year + week  
 E 2014  
 F 2015  
 G 2016  
 ...

## 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;  
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 plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125°C / 15 min. each / 100 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"

This filter is RoHS compliant (2011/65/EU)

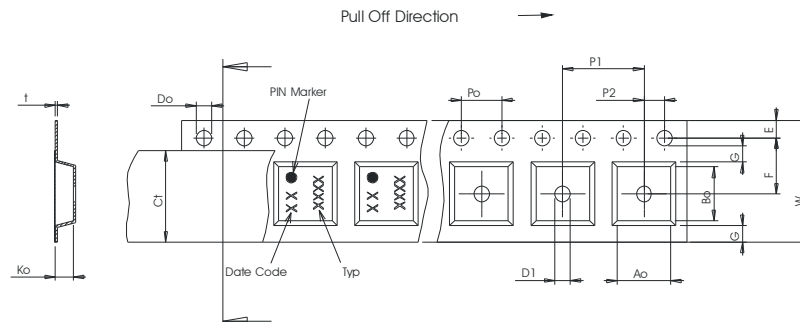
**Packing**

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;

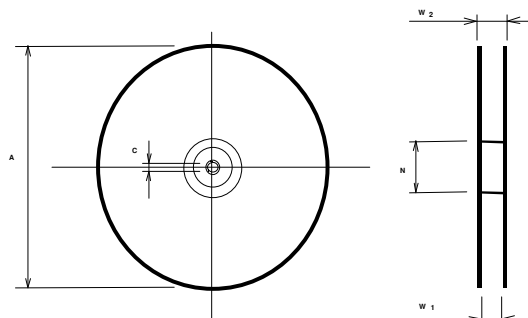
|                                                     |             |
|-----------------------------------------------------|-------------|
| max. pieces of filters per reel:                    | 9000        |
| reel of empty components at start:                  | min. 300 mm |
| reel of empty components 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) | : 1,00         |
| Ao      | : 2,25 ± 0,1   |
| Bo      | : 2,80 ± 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 |



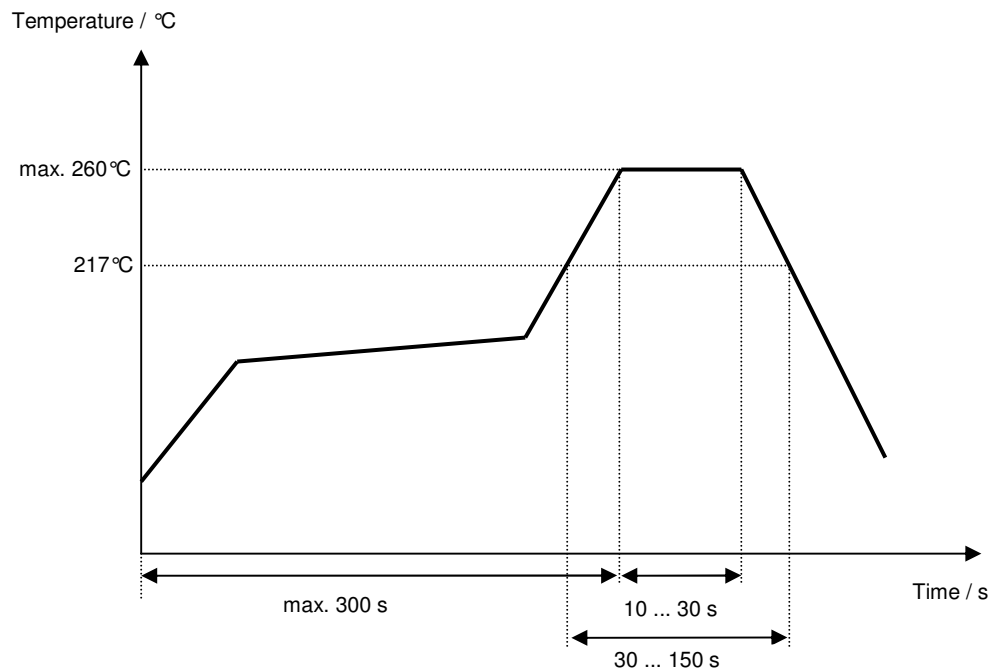
The minimum bending radius is 45 mm.

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**Air reflow temperature conditions**

| <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**

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**Vectron International****Filter specification****TFS 881D****5/5****History**

| <b>Version</b> | <b>Reason of Changes</b>                                                           | <b>Name</b>  | <b>Date</b> |
|----------------|------------------------------------------------------------------------------------|--------------|-------------|
| 1.0            | - Generation of development specification                                          | Strehl       | 26.01.2006  |
| 1.1            | - Add pass band ripple, PB2 and insertion loss in PB2                              | Strehl       | 17.07.2006  |
| 1.2            | - Add typ. value and filter characteristic<br>- Generation of filter specification | Strehl       | 20.11.2006  |
| 1.3            | - change power limit to 15 dBm over life time without any restrictions             | Steiner      | 21.12.2006  |
| 1.4            | - package drawing updated                                                          | Steiner      | 22.12.2006  |
| 1.5            | - Change construction                                                              | Strehl       | 10.04.2007  |
| 1.6            | - Change terminating impedance and test circuit                                    | Noack        | 03.05.2007  |
| 1.7            | - Change packing                                                                   | Strehl       | 27.08.2007  |
| 1.8            | - maximum input power updated                                                      | Kortenbeutel | 07.01.2014  |

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