

Vectron International**Filter specification****TFS1227C****1/5****Measurement condition**

| | | |
|-----------------------------|-----|----------|
| Ambient temperature T_A : | 23 | °C |
| Input power level: | 0 | dBm |
| Terminating impedance: | | |
| Input: | 200 | Ω |
| Output: | 200 | 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 1227.6 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} are guaranteed over the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

| D a t a | | typ. value | | tolerance / limit | | |
|---|------------|-------------------|-------|--------------------------|--------------------|-----|
| Insertion loss in PB | a_e | 1.5 | dB | max. | 3.5 | dB |
| Nominal frequency | f_N | - | | | 1227.6 | MHz |
| Passband | PB | - | | $f_N \pm$ | 10.0 | MHz |
| Passband variation | PBV | 0.4 | dB | max. | 2.0 | dB |
| Absolute attenuation | a_{abs} | | | | | |
| 0.3 MHz ... 1177.0 MHz | | 30 | dB | min. | 28 | dB |
| 1277.0 MHz ... 2500.0 MHz | | 33 | dB | min. | 30 | dB |
| Group delay ripple within PB | GDR | 7 | ns | max. | 12 | ns |
| Group delay variation (unit to unit) | *) | +/-2 | ns | max. | +/-5 | ns |
| VSWR within PB | | 1.9 : 1 | | max. | 2.3 : 1 | |
| Input power level in PB | | - | | max. | 20 | dBm |
| Operating temperature range | OTR | - | | | -40 °C ... +85 °C | |
| Storage temperature range | | - | | | -55 °C ... +125 °C | |
| Temperature coefficient of frequency | TC_f **) | -49 | ppm/K | | | |

*) measured at: f_N , $f_N + 10$ MHz, $f_N - 10$ MHz

**) $\Delta f = TC_f(T - T_A)f_N$

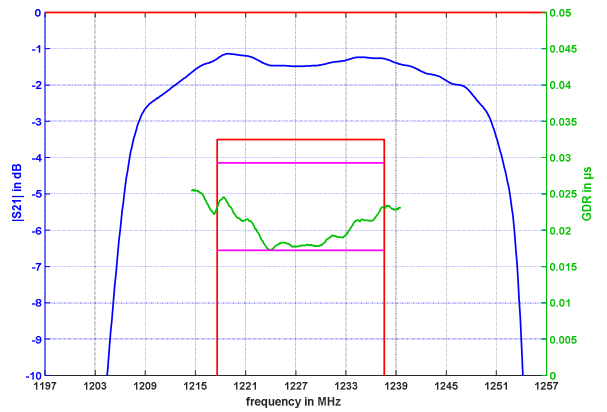
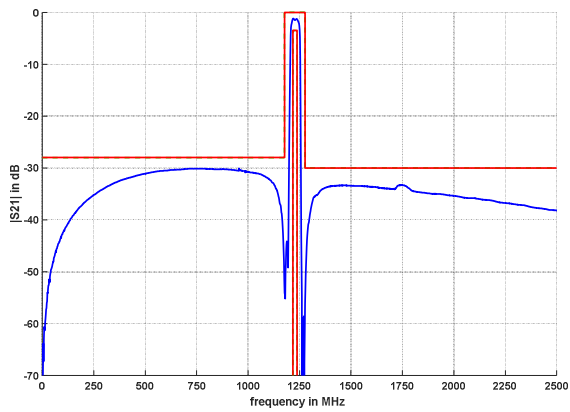
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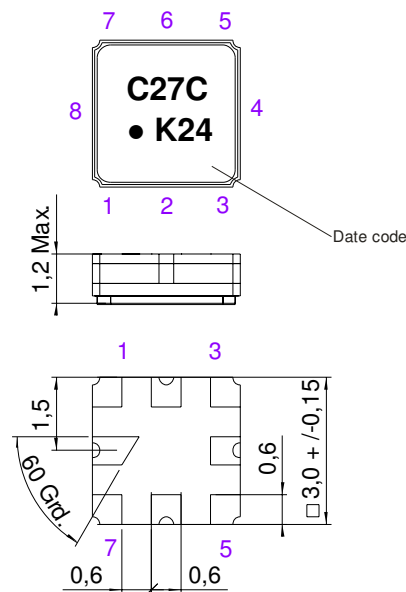
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Filter characteristic



Construction and pin connection

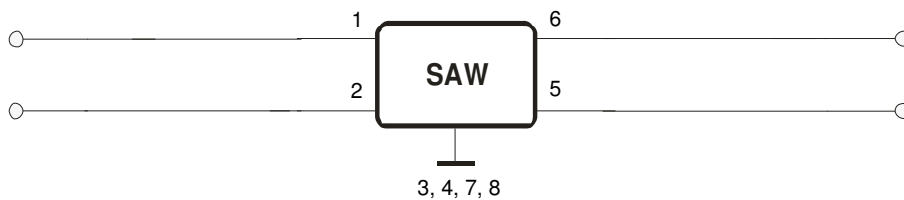
(All dimensions in mm)



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

Date code: Year + week
 K 2018
 L 2019
 M 2020
 ...

200 Ω Test circuit



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Stability characteristics, reliability

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

1. Shock: 500 g, 1 ms, half sine wave, 3 shocks each plane;
DIN IEC 60068 T2 - 27
2. Vibration: 10 Hz to 2000 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 60068 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
DIN IEC 60068 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;
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

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

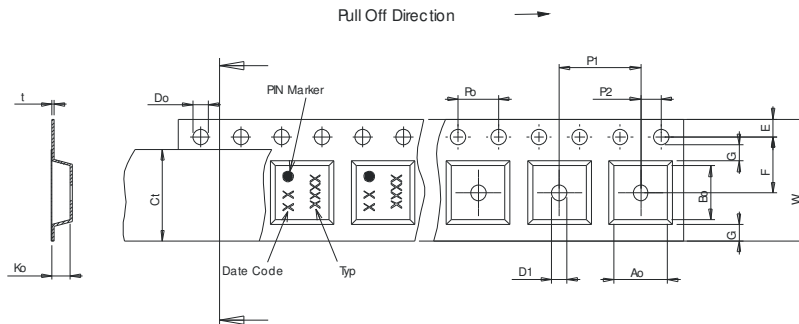
Packing

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;

| | |
|---|-------------|
| reel of empty components at start: | min. 300 mm |
| reel of empty components at start including leader: | min. 500 mm |
| trailer: | min. 300 mm |

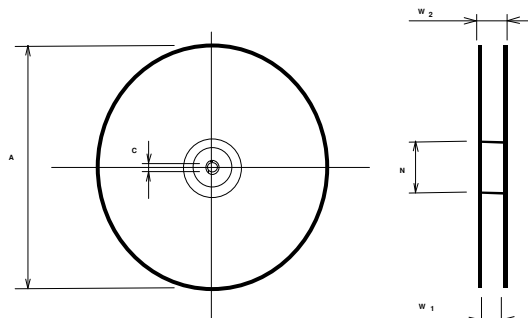
Tape (all dimensions in mm)

| | | |
|---------|-------|---------|
| 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 | :5.30 | ±0.1 |
| Ko | :1.50 | ±0.1 |
| t | :0.25 | ±0.05 |



Reel (all dimensions in mm)

| | | |
|---------|--------|---------|
| A | :330 | or 180 |
| W1 | :8.40 | +1.5/-0 |
| W2(max) | :14.40 | |
| N(min) | :60.00 | |
| C | :13.0 | ±0.2 |



The minimum bending radius is 45 mm.

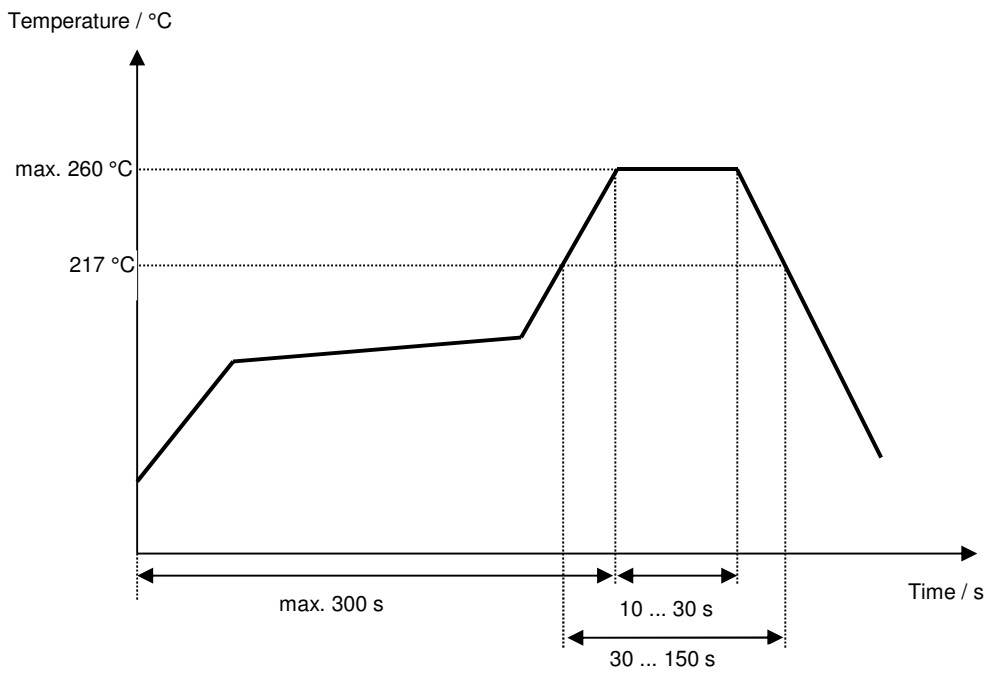
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Air reflow temperature conditions

| 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 | 20.06.2011 |
| 2.0 | - Absolute attenuation updated (0.3 MHz ... 1177 MHz) - Group delay variation from unit to unit corrected ($f_c \rightarrow f_w$) | Molke | 25.10.2012 |
| 2.1 | - Change from development spec to filter spec - Typical values added - Filter characteristic added | Molke | 21.03.2013 |
| 2.2 | - updated data table - updated stability characteristics - updated Tape & Reel | P. Jaster | 05.04.2018 |
| 3.0 | - changed filter characteristic - updated package | P. Jaster | 11.06.2018 |