

Vectron International**Filter specification****TFS 1227C****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	200	Ω
Output:	200	Ω

Characteristics

Remark:

The maximum attenuation in the passband 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 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 in PB	a_e	1.5	dB	max.	3.5	dB
Nominal frequency	f_N	-			1227.6	MHz
Passband	PB	-		f_N	± 10.0	MHz
Passband variation		0.4	dB	max.	2.0	dB
Absolute attenuation	a_{abs}					
0.3 MHz ... 1177 MHz		30	dB	min.	28	dB
1277 MHz ... 2500 MHz		33	dB	min.	30	dB
Group delay ripple within PB		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		-			- 45 °C ... + 85 °C	
Temperature coefficient of frequency	TC_f **	-49	ppm/K			

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

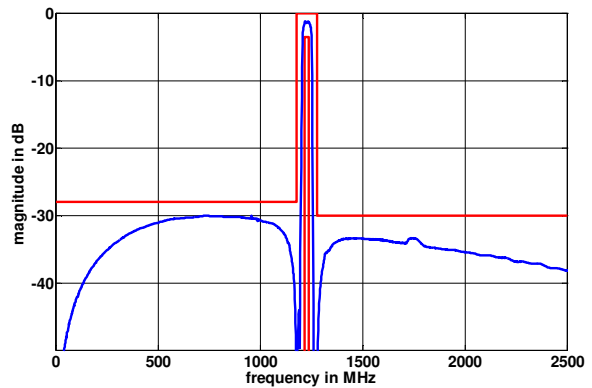
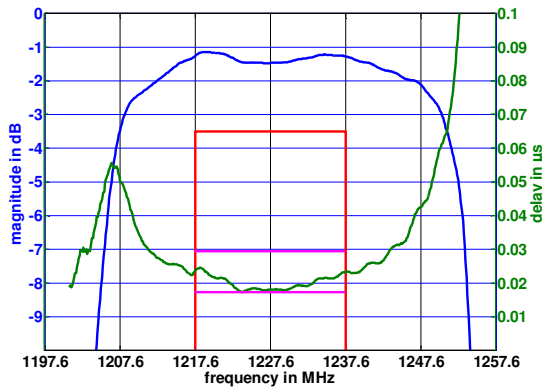
**) $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_o) \times f_{CAT}(\text{MHz})$

Generated:**Checked / Approved:**

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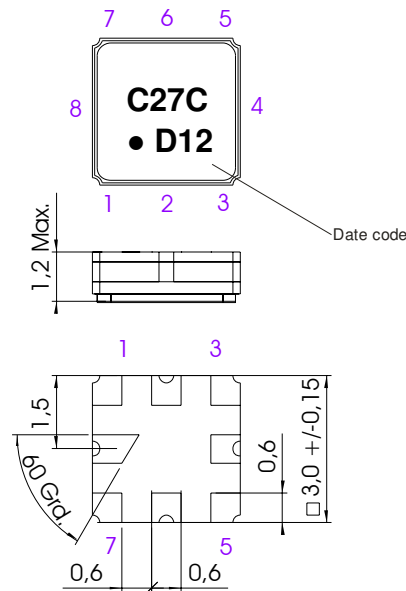
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Filter characteristic



Construction and pin connection

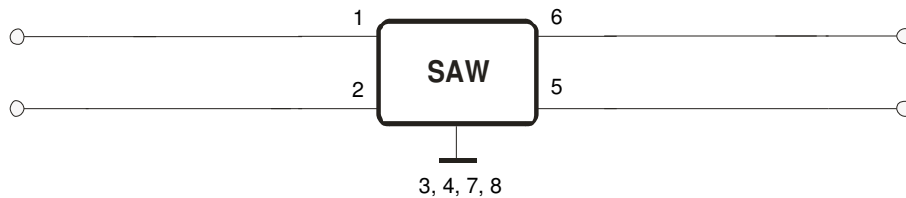
(All dimensions in mm)



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

Date code: Year + week
 D 2013
 E 2014
 F 2015
 ...

200 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 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 refer to the attached "Air reflow temperature conditions" on page 4;

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

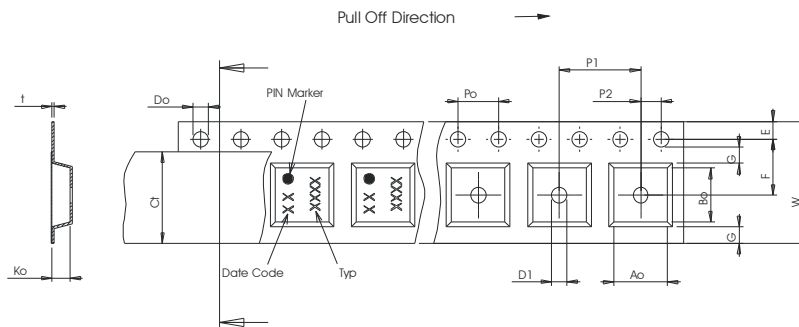
Packing

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:	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

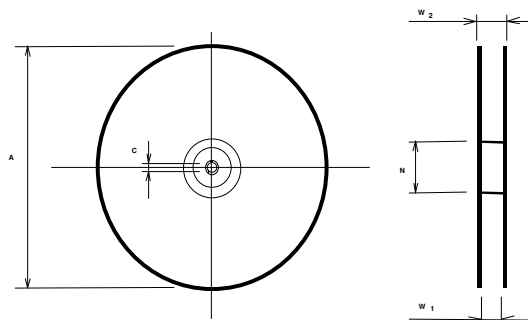
Tape (all dimensions in mm)

- W : 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 : 5,3 ± 0,1



Reel (all dimensions in mm)

- A : 180
- W1 : 8,4 +1,5/-0
- W2(max) : 14,4
- N(min) : 60
- C : 13,0 ± 0,2



The minimum bending radius is 45 mm.

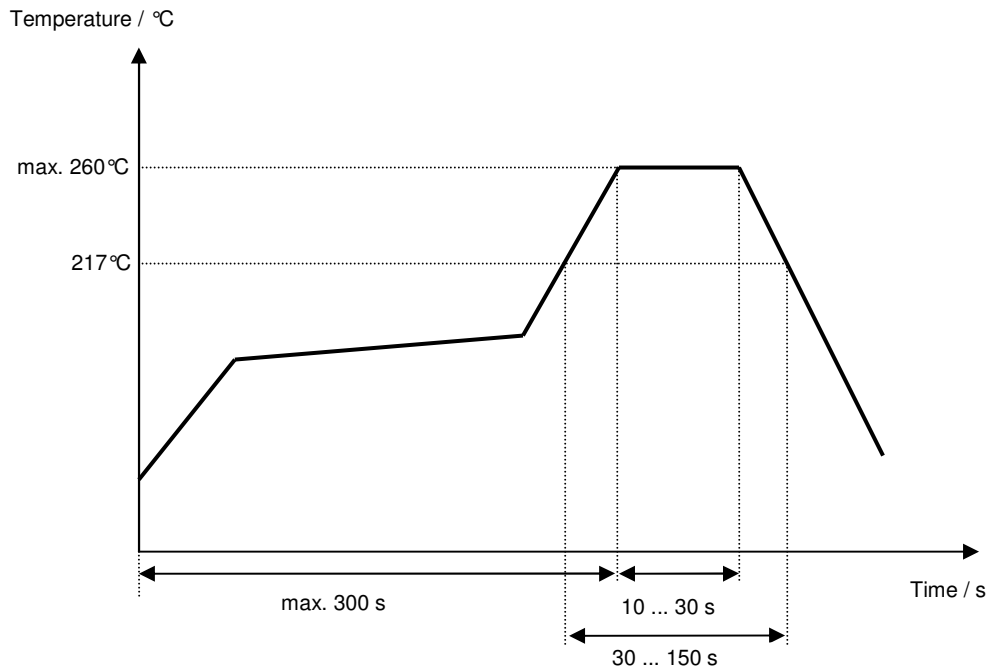
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Air reflow temperature conditions

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 ($f_c \rightarrow f_N$)	Molke	25.10.2012
2.1	- Change from development spec to filter spec - Typical values added - Filter characteristic added	Molke	21.03.2013