

**Vectron International****Filter specification****TFS 1019A****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 TFS1019A 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 1019,5 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.

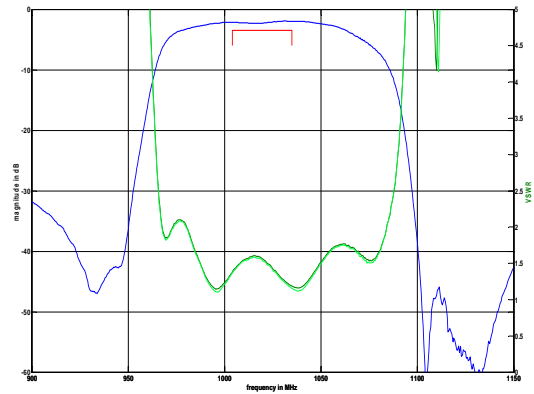
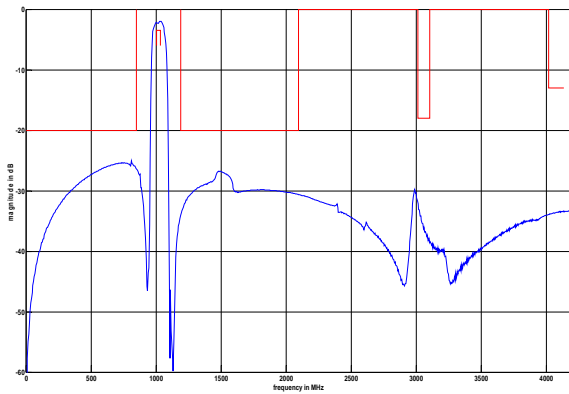
<b>D a t a</b>		<b>typ. value</b>		<b>tolerance / limit</b>	
<b>Insertion loss</b> (reference level)	$a_e$	2,3	dB	max.	3,5 dB
<b>Nominal frequency</b>	$f_N$	-			1019,5 MHz
<b>Passband</b>	PB	-		$f_N \pm$	15,5 MHz
<b>Passband variation</b>		0,3	dB	max.	1 dB
<b>Relative attenuation</b>	$a_{rel}$				
0,3 MHz ... 849 MHz		23	dB	min.	20 dB
1190 MHz ... 2069 MHz		24	dB	min.	20 dB
3014 MHz ... 3103 MHz		29	dB	min.	18 dB
4019 MHz ... 4137 MHz		31	dB	min.	13 dB
<b>VSWR within PB</b>		1,5 : 1		max.	2 : 1
<b>Input power level</b>		-		max.	10 dBm
<b>Operating temperature range</b>	OTR	-			- 40 °C ... + 85 °C
<b>Storage temperature range</b>		-			- 40 °C ... + 85 °C
<b>Temperature coefficient of frequency</b>	$TC_f$ *	-76	ppm/K		-

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

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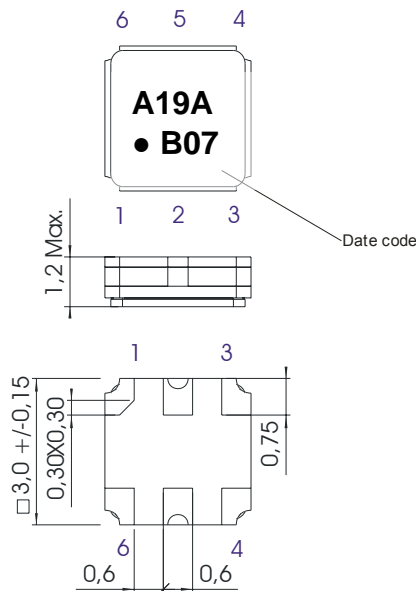
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**Filter characteristic**



**Construction and pin connection**

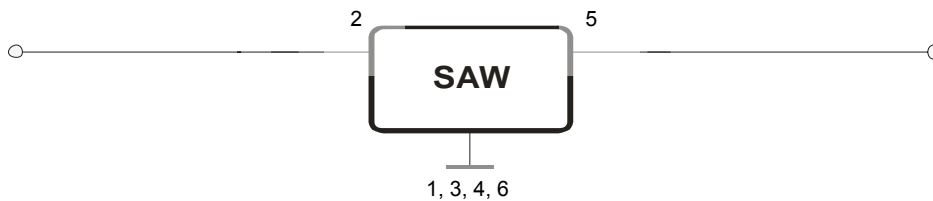
(All dimensions in mm)



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

Date code: Year + week  
 B 2011  
 C 2012  
 D 2013  
 ...

**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 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)

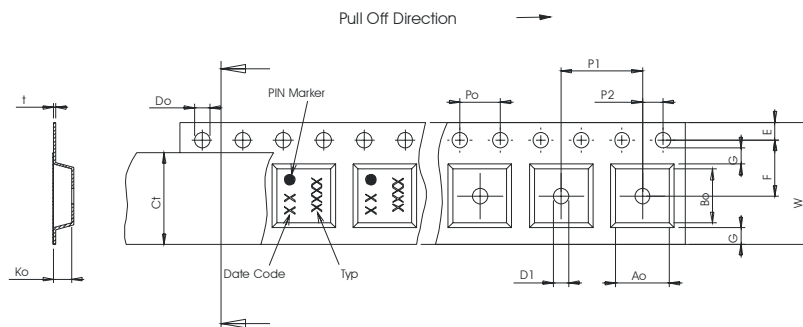
**Packing**

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

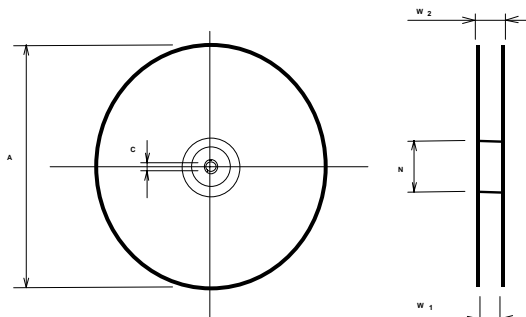
**Tape (all dimensions in mm)**

- 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.

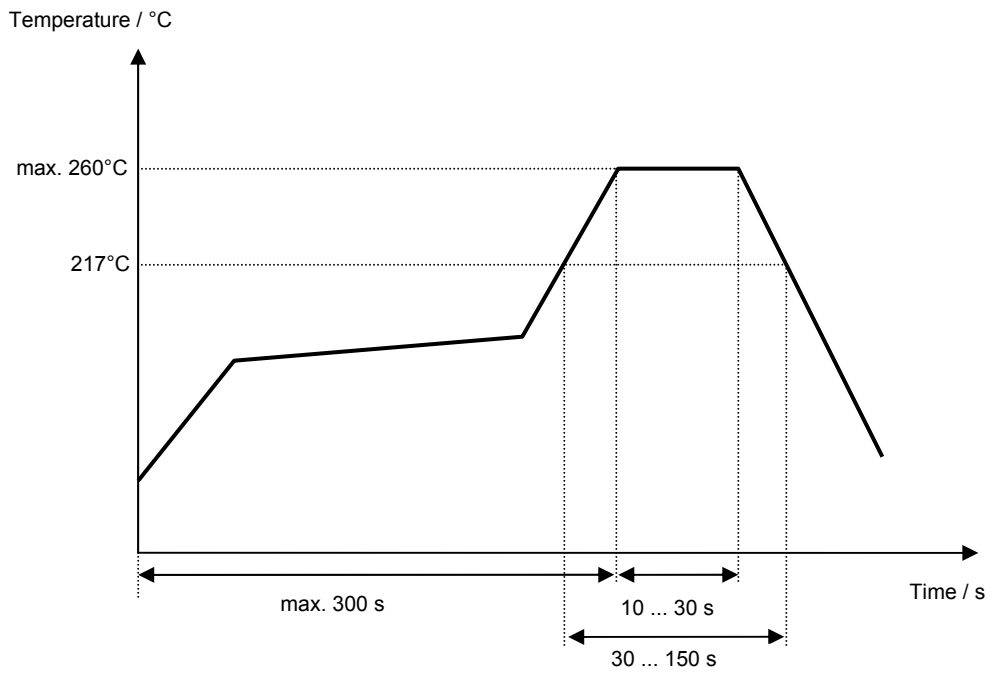
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**Air reflow temperature conditions**

<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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**History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- Generation of filter specification (TFS1019 with new stop band requirements)	S.Springfeldt	07.02.2011
2.0	- Change of tape and reel orientation	S.Springfeldt	02.05.2011