

Vectron International**Filter specification****TFS 1643****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ohm
Output:	50	Ohm

Characteristics

Remark:

The maximum attenuation in the passband is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 1643.5 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_e	2,0 dB	max.	3,5 dB
Nominal frequency		f_N	-		1643,5 MHz
Passband		PB	-	$f_N \pm$	17,0 MHz
Passband variation			1,0 dB	max.	2,0 dB
Absolute attenuation		a_{abs}			
1	MHz ... 1525 MHz		30 dB	min.	25 dB
1525	MHz ... 1559 MHz		39 dB	min.	30 dB
1559	MHz ... 1606,5 MHz		16 dB	min.	10 dB
1680,5	MHz ... 1850 MHz		19 dB	min.	10 dB
1850	MHz ... 2110 MHz		38 dB	min.	30 dB
2110	MHz ... 2700 MHz		40 dB	min.	20 dB
Return loss within PB			14 dB	min.	10 dB
Operating temperature range		OTR	-		- 40 °C ... + 85°C
Storage temperature range			-		- 40 °C ... + 85°C
Temperature coefficient of frequency		TC_f^*	-42 ppm/K		

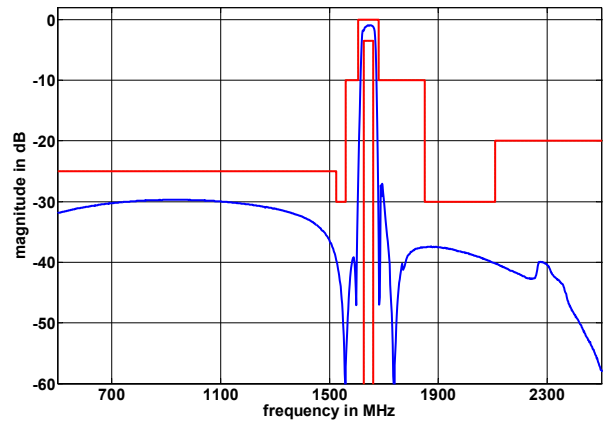
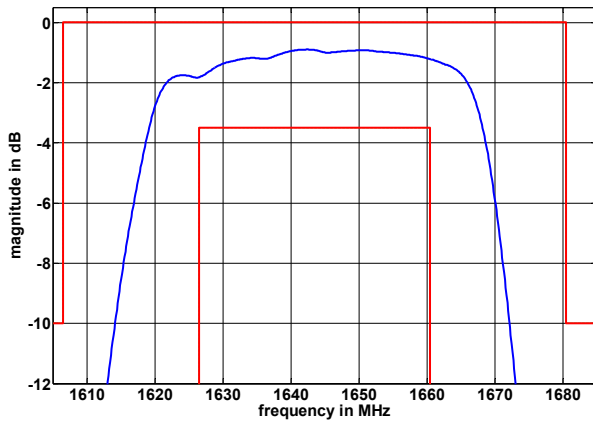
*) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{CAT}(\text{MHz})$.

Generated:**Checked / Approved:**

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

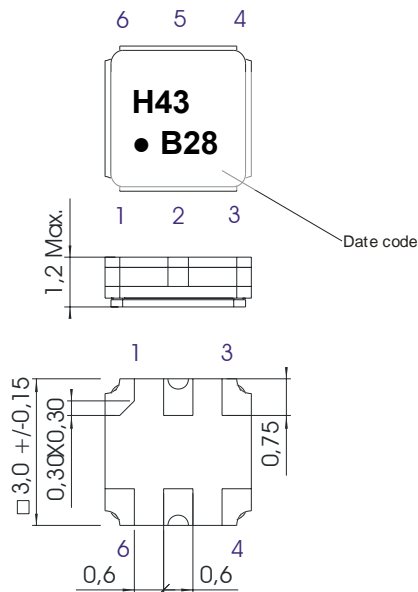
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Filter characteristic



Construction and pin connection

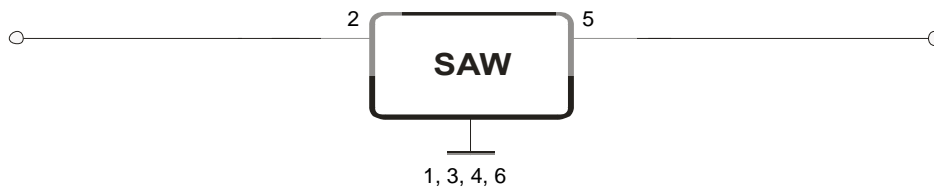
(All dimensions in mm)



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

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

50 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, 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)

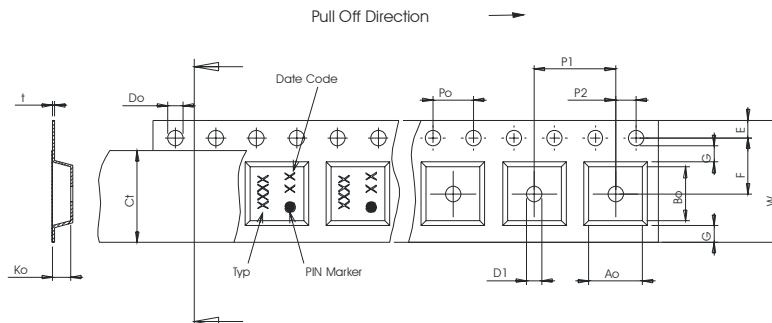
Packing

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:	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

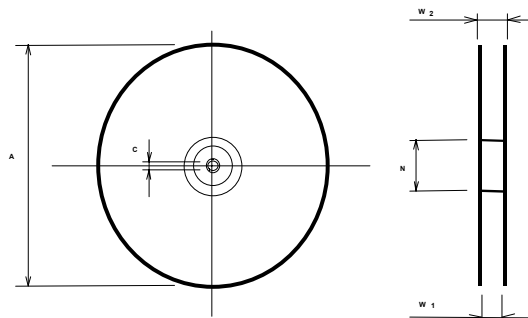
Tape (all dimensions in mm)

- 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) : 1,50
- Ao : 3,25 ± 0,1
- Bo : 3,25 ± 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.

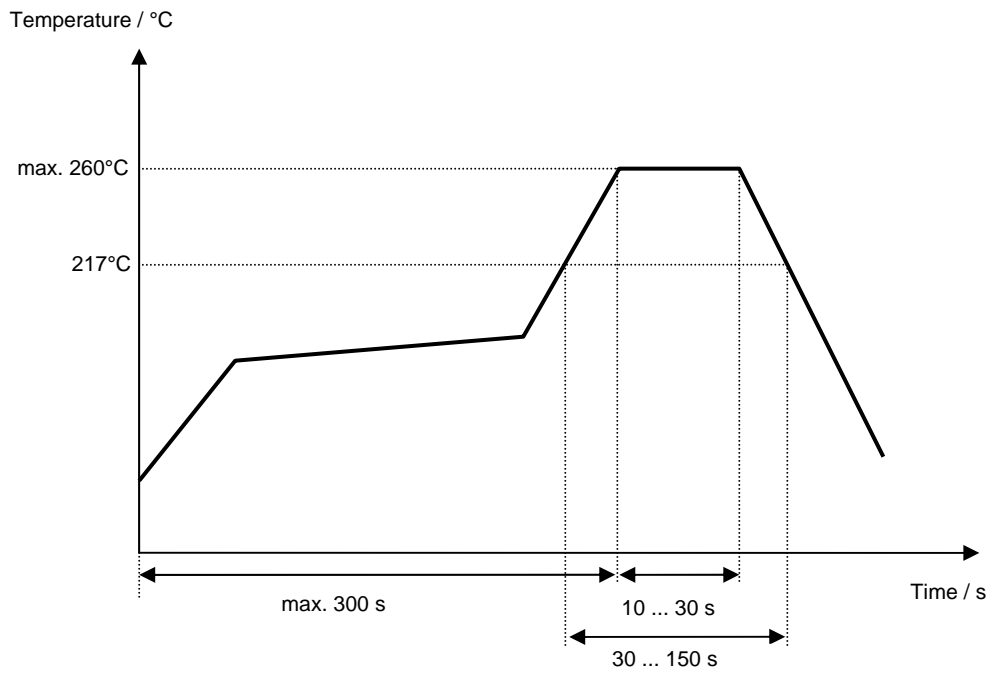
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Air reflow temperature conditions

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	18.11.2010
2.0	- Change stop band rejection - Add typical values and filter characteristic - Generation of filter specification	Noack	19.01.2011
3.0	- Limits for absolute attenuation changed (1559 – 1606,5 MHz and 1680,5 – 1850 MHz) - Typical values and filter characteristic updated	Molke	08.07.2011

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