

Vectron International**Filter specification****TFS 737B****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	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 737MHz 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.

Data		typ. value		tolerance / limit	
Insertion loss	a_e	2.5	dB	max.	3.5 dB
Nominal frequency	f_N	-			737.0 MHz
Passband	PB	-		$f_N \pm$	10.0 MHz
Pass band variation		0.83	dB	max.	2.0 dB
Absolute attenuation	a_{abs}				
0.3 MHz ... 697 MHz		39	dB	min.	35 dB
697 MHz ... 714 MHz		32	dB	min.	22 dB
714 MHz ... 717 MHz		21	dB	min.	10 dB
757 MHz ... 762 MHz		15	dB	min.	10 dB
762 MHz ... 866 MHz		27	dB	min.	22 dB
866 MHz ... 967 MHz		39	dB	min.	30 dB
967 MHz ... 1934 MHz		34	dB	min.	25 dB
1934 MHz ... 3000 MHz		11	dB	min.	8 dB
Return loss within PB		13	dB	min.	10 dB
IIP3				min.	45* dBm
Input power level				max.	15** dBm
Operating temperature range	OTR	-			- 35 °C ... + 85 °C
Storage temperature range		-			- 50 °C ... +125 °C
Temperature coefficient of frequency	TC_f ***	-45	ppm/K		-

*) $f_{in1} = 727\text{MHz}$; $f_{in2} = 747\text{MHz}$; $P_{in} = 5\text{dBm}$; $f_{\text{measurement1}} = 707\text{MHz}$

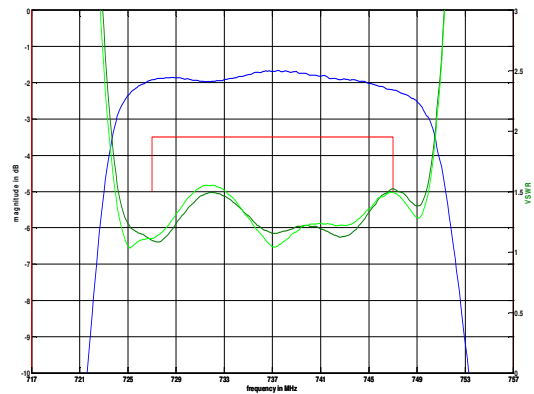
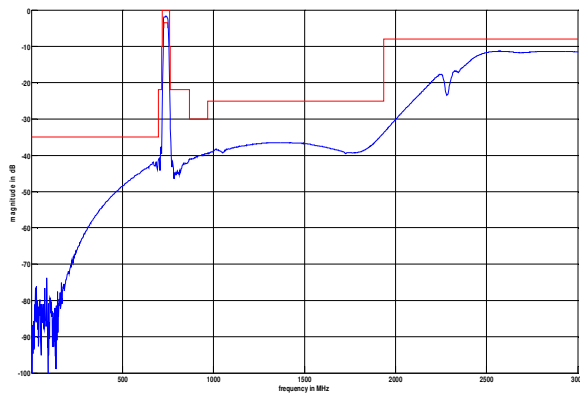
***) max. 20dBm for duty cycle 1 : 50

****) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

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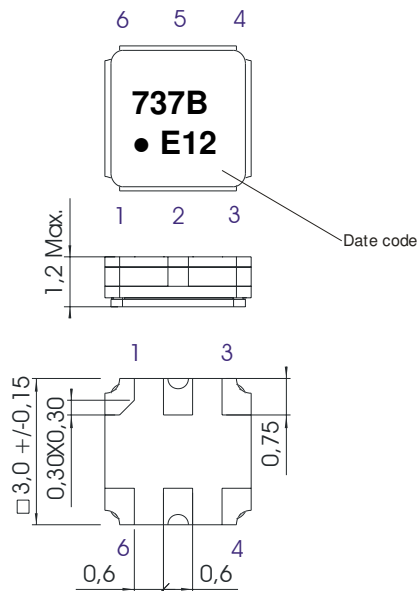
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Filter characteristic



Construction and pin connection

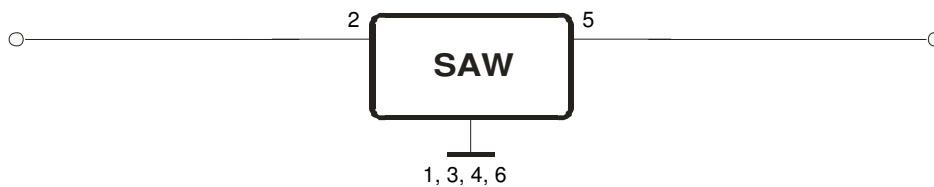
(All dimensions in mm)



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

Date code: Year + week
 C 2012
 D 2013
 E 2014
 ...

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 plan, 3 plans;
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 refer to the attached "Air reflow temperature conditions" on page 4;

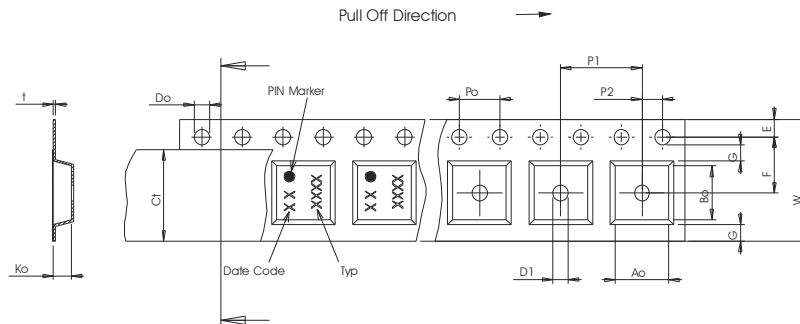
This filter is RoHS compliant (20011/65/EU)

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: | 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 |

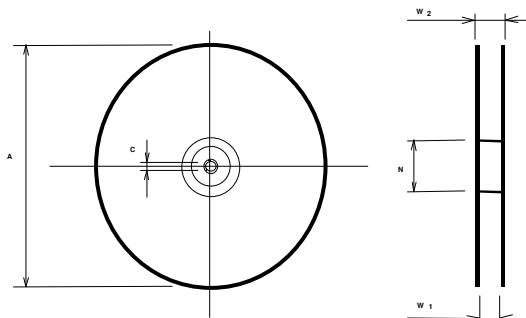
Tape (all dimensions in mm)

- 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.

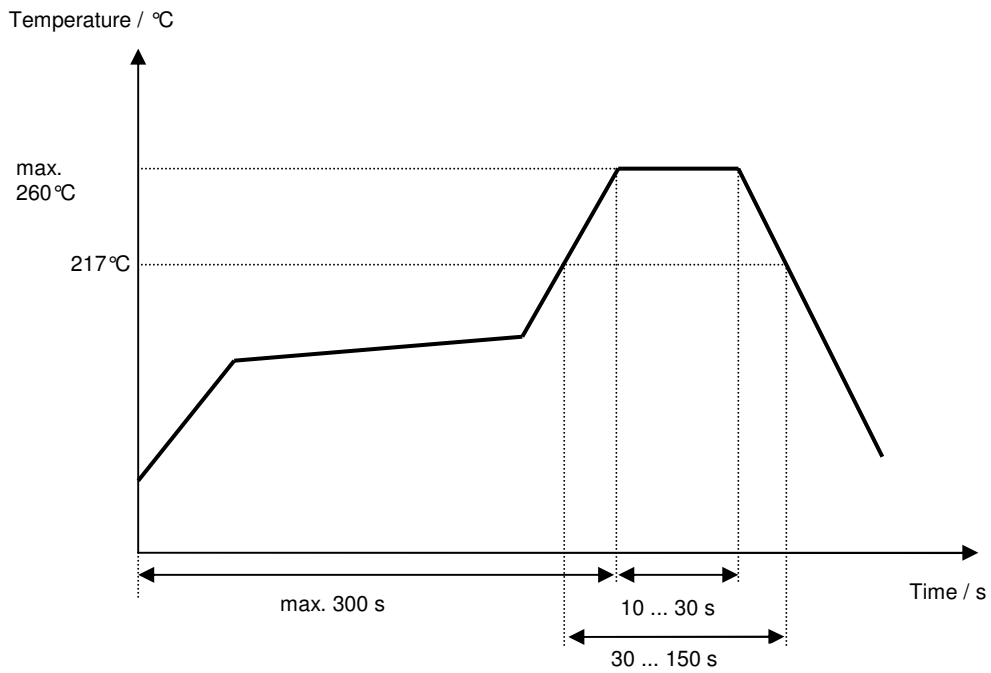
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Air reflow temperature conditions

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 filter specification	S.Springfeldt	21.03.2014