

Vectron International**Filter specification****TFS 75E****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	1100 Ω	-3,9 pF
Output:	1100 Ω	-3,9 pF
External Coil:		390 nH

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of TFS 75E is the minimum of the pass band attenuation a_{min} . The maximum attenuation in the pass band is defined as the insertion loss a_e . The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the minimum insertion loss. The nominal frequency f_N is fixed at 75 MHz without any tolerance or limit. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range.

D a t a		typ. value		tolerance / limit		
Insertion loss (reference level)	a_e	7.9	dB	max.	12	dB
Nominal frequency	f_N	-			75.00	MHz
Centre frequency		75.000	MHz	max.	± 10	kHz
Passband		-		f_N	± 7.5	kHz
Pass band ripple		0.6	dB	max.	1	dB
Relative attenuation	a_{rel}					
$f_N - 74$ MHz ... $f_N - 1.6$ MHz		60	dB	min.	50	dB
$f_N - 1.6$ MHz ... $f_N - 0.4$ MHz		66	dB	min.	53	dB
$f_N - 0.4$ MHz ... $f_N - 0.2$ MHz		57	dB	min.	40	dB
$f_N - 0.2$ MHz ... $f_N - 0.15$ MHz		40	dB	min.	30	dB
$f_N + 0.15$ MHz ... $f_N + 0.2$ MHz		40	dB	min.	30	dB
$f_N + 0.2$ MHz ... $f_N + 0.4$ MHz		52	dB	min.	42	dB
$f_N + 0.4$ MHz ... $f_N + 1.6$ MHz		62	dB	min.	50	dB
$f_N + 1.6$ MHz ... $f_N + 10$ MHz		50	dB	min.	45	dB
Group delay ripple within PB		0.7	μs	max.	3	μs
Permissible DC voltage				max.	5	V
Operating temperature range	OTR	-		- 40 °C ... + 85 °C		
Storage temperature range		-		- 40 °C ... + 85 °C		
Turn over temperature	T_0 **	20	°C	-		
Temperature coefficient of frequency	TC_f **	-0.036	ppm/K ²	-		

*) The terminating impedances depend on parasitics and q-values of matching elements and the board used. and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

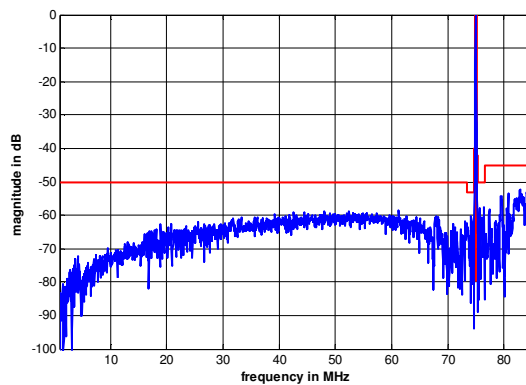
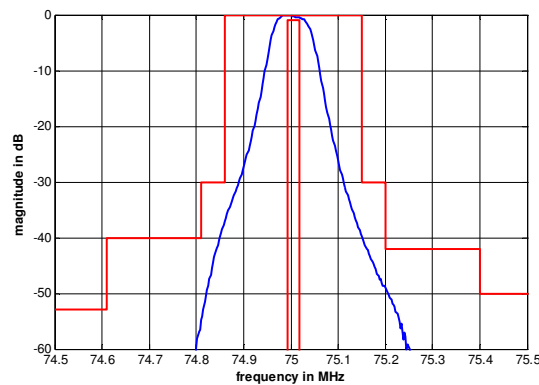
**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T - T_0)^2 \times f_{T0}(\text{MHz})$.

Generated:**Checked / Approved:**

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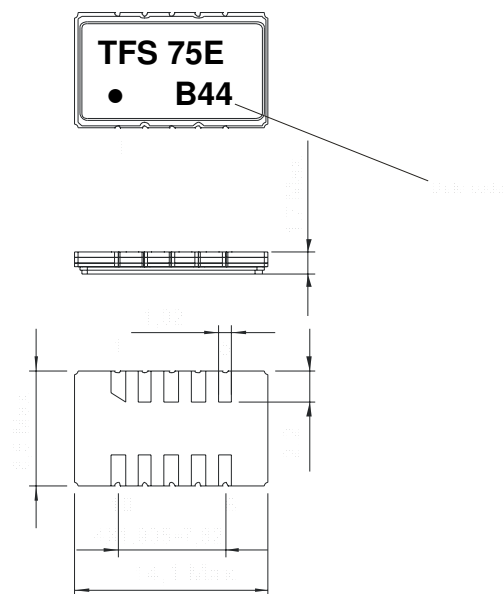
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Filter characteristic



Construction and pin connection

(All dimensions in mm)



1	Output
2	Ground
3	Output
4	Ground
5	External Coil
6	Input
7	Ground
8	Input
9	Ground
10	External Coil

Date code: Year + week

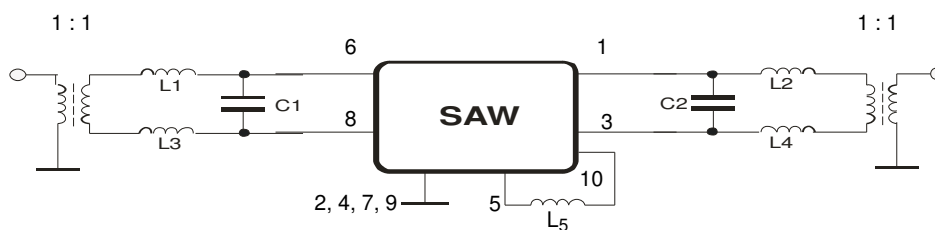
A 2010

A	2010
B	2011

C 2012

...

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 plan. 3 plans;
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: twice 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)

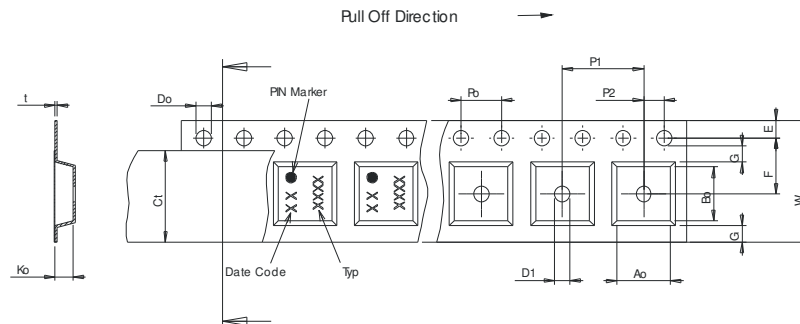
Packing

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;

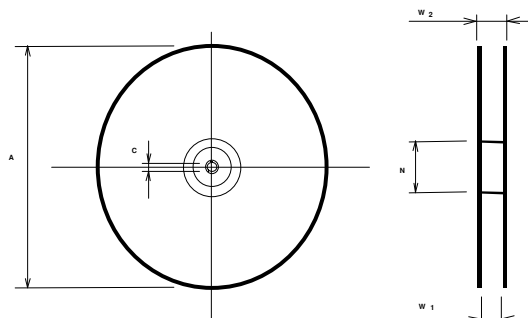
max. pieces of filters per reel:	1500
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	:24.00
Po	:4.00
Do	:1.50
E	:1.75
F	:11.50
G(min)	:0.60
P2	:2.00
P1	:12.00
D1(min)	:1.50
Ao	:8.80
Bo	:14.60
Ct	:21.5

**Reel (all dimensions in mm)**

A	:330
W1	:24.4
W2(max)	:30.4
N(min)	: 60
C	:13.0



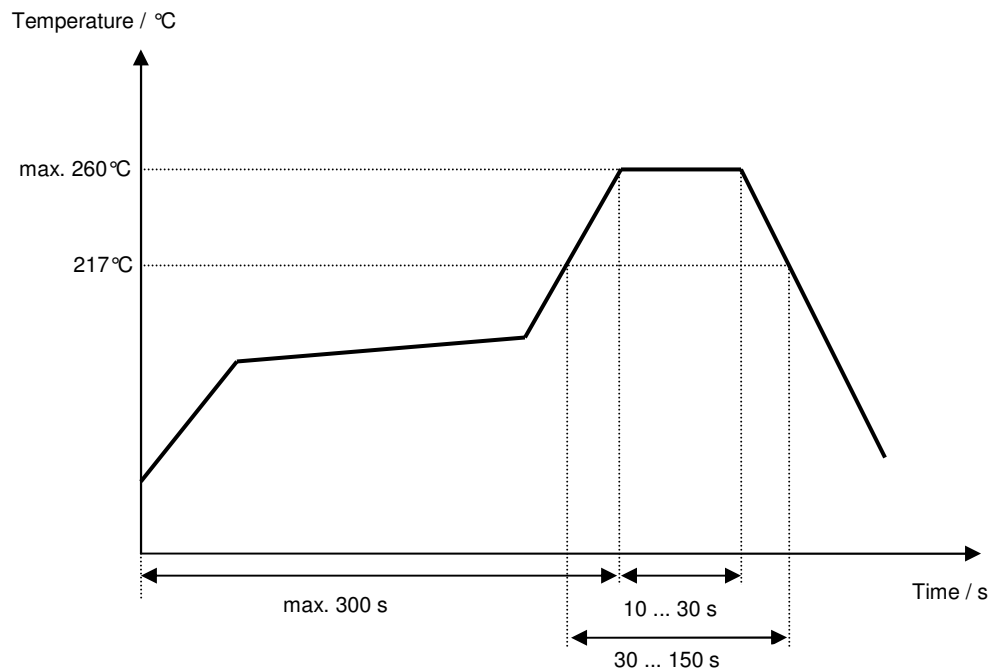
The minimum bending radius is 45 mm.

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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

Vectron International**Filter specification****TFS 75E****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of development specification	Roizengaft	08.03.2004
1.1	Generation of filter specification	Martens	22.11.2004
1.2	Change stability characteristics	Strehl	27.02.2006
1.3	Change 50 Ω Test circuit	Strehl	20.02.2008
2.0	change centre frequency by customer request tape&reel direction updated	Noack	13.10.2011
3.0	change centre frequency back to previous value by customer request	Noack	03.11.2011
4.0	centre frequency tolerance introduced	Noack	11.11.2011

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