

Vectron International**Filter specification****TFS 434K****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	257 Ω	- 6.7 pF
Output:	313 Ω	- 5.5 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS434K is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 434.0MHz without any tolerance. 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.

Data		typ. value	tolerance / limit
Insertion loss (reference level)	a_e	10.8 dB	max. 13.0 dB
Nominal frequency	f_N		434.0 MHz
Passband	PB	-	$f_N \pm 5.0$ MHz
Pass band ripple $f_N \dots f_N \pm 5.0$ MHz	p-p	0.27 dB	max. 0.6 dB
Relative attenuation	a_{rel}		
$f_N \dots f_N \pm 5.0$ MHz		0.27 dB	max. 0.6 dB
$f_N \pm 20.0$ MHz ... $f_N \pm 40$ MHz		53 dB	min. 40 dB
$f_N - 40$ MHz ... $f_N - 433$ MHz ****		47 dB	min. 45 dB
$f_N + 40$ MHz ... $f_N + 536$ MHz		58 dB	min. 45 dB
Group delay ripple within PB	p-p	14 ns	max. 30 ns
Return loss within PB		23 dB	min. 10 dB
Input Power		-	max. 7 *** dBm
Operating temperature range	OTR	-	- 40 °C ... + 85 °C
Storage temperature range		-	- 40 °C ... + 85 °C
Temperature coefficient of frequency	TC_f **	-18 ppm/K	-

*) 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.

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

***) Aim to update to the required +15dBm in December 2013, once we have our new metallisation.

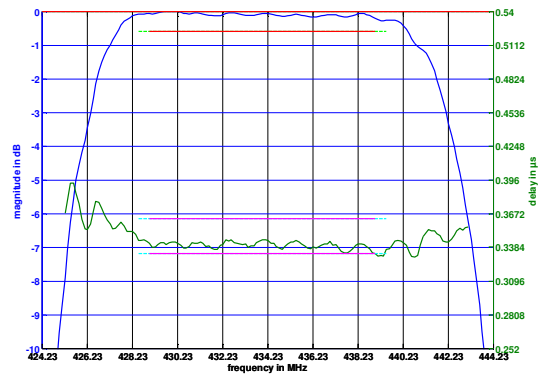
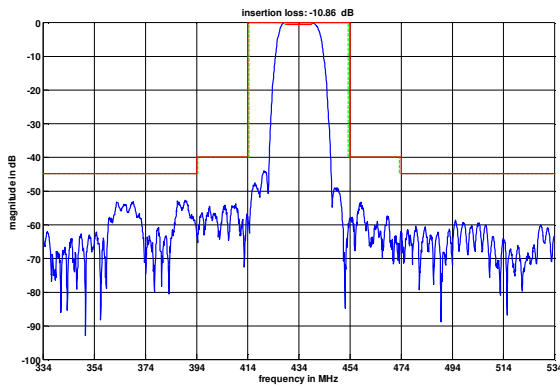
****) Alternative matching (option 2 in our application note) gives better rejection in 1MHz...100MHz frequency range compared to our default matching stated herein.

Generated:**Checked / Approved:**

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

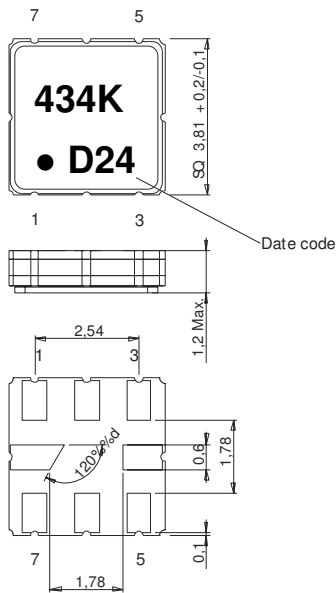
Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Filter characteristic



Construction and pin connection

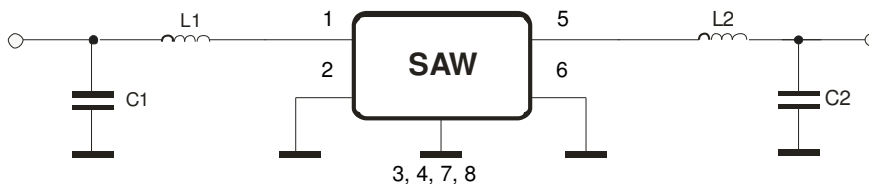
(All dimensions in mm)



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

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

50 Ω Test circuit



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

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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;
5. ESD MIL-STD-883E using coupling network of ISO 10605 and EN 6100-4-2
HBM:250V;

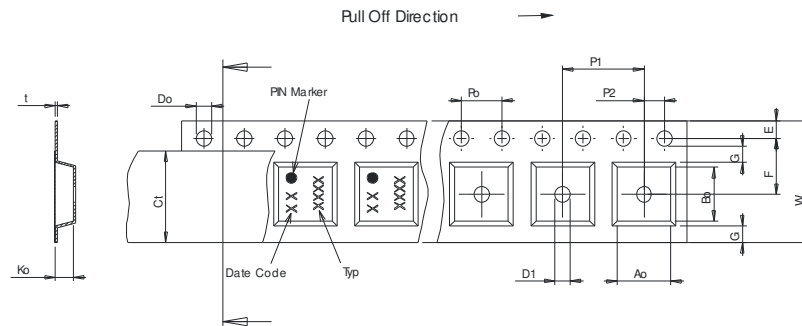
This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

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

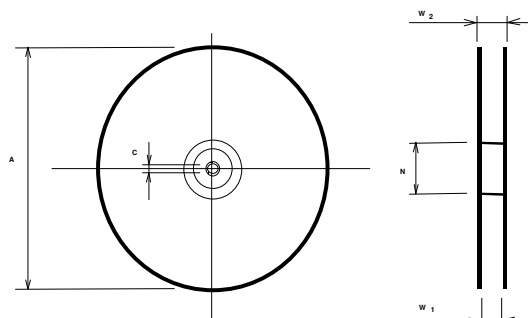
Tape (all dimensions in mm)

W	:12,00 ± 0,3
Po	:4,00 ± 0,1
Do	:1,50 +0,1/-0
E	:1,75 ± 0,1
F	:5,50 ± 0,05
G(min)	:0,75
P2	:2,00 ± 0,05
P1	:8,00 ± 0,1
D1(min)	:1,50
Ao	:4,30 ± 0,1
Bo	:4,30 ± 0,1
Ct	: 9,5 ± 0,1



Reel (all dimensions in mm)

A	:330
W1	:12,4 +2/-0
W2(max)	:18,4
N(min)	: 50
C	:13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

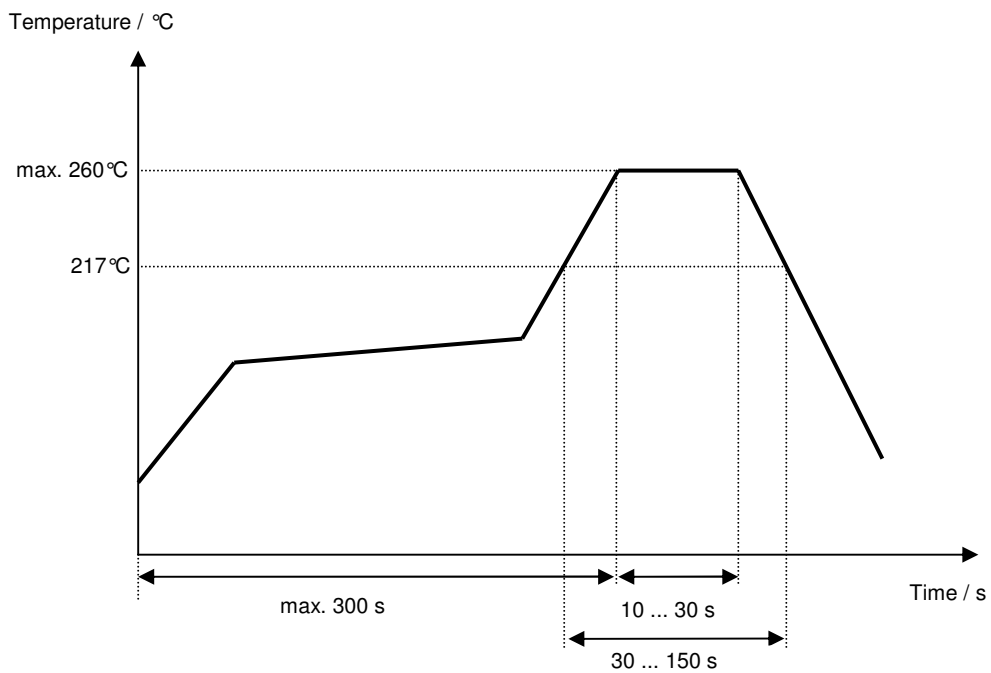
Vectron International GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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

Vectron International GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	TCUK	07.05.2013
1.1	- Add typical values and move from development to filter specification	TCUK	06.08.2013