Measurement condition

Ambient temperature T_A: 23 °C
Input power level: 0 dBm
Terminating impedances at f_C *
input: 1,07 kΩ || -13,2 pF
output: 1,10 kΩ || -12,4 pF

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the TFS 141 is the minimum of the pass band attenuation a_{min}. It is defined as the insertion loss a_e. The centre frequence f_c is the arithmetic mean value of the upper and lower frequencies at the 1,5 dB filter attenuation level relative to the insertion loss a_e. The nominal frequency f_N is fixed on 141,700 MHz without tolerance. The given values for the relative attenuation a_{rel} and for the group delay ripple have to be reached at the frequencies given below also if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_c.

Data		typ. value		tolerance / limit		
Insertion loss (Reference level) a_e		12,5	dB	max.	15,0	dB
Nominal frequency	f_N	-			141,7	MHz
Centre frequency	f_c	141,700	MHz			
1,5 dB Passband		2,6	MHz	min.	2,2	MHz
Relative attenuation a_{rel}						
$f_N \pm$ 1,1 MHz		1,0	dB	max.	1,5	dB
$f_N \pm$ 2,0 MHz... $f_N \pm$ 10,0 MHz		47	dB	min.	40,0	dB
$f_N \pm$ 10,0 MHz... $f_N \pm$ 100 MHz		60	dB	min.	35,0	dB
VSWR:		13	dB			
Input power level:				min	10	dBm
Operating temperature range				0 °C ... + 70		°C
Temperature coefficient of frequency	Tc_f **	-0,036	ppm/ K²			
Frequency inversion temperature	T_o	25	°C			

*) 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.

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

Generated: _____

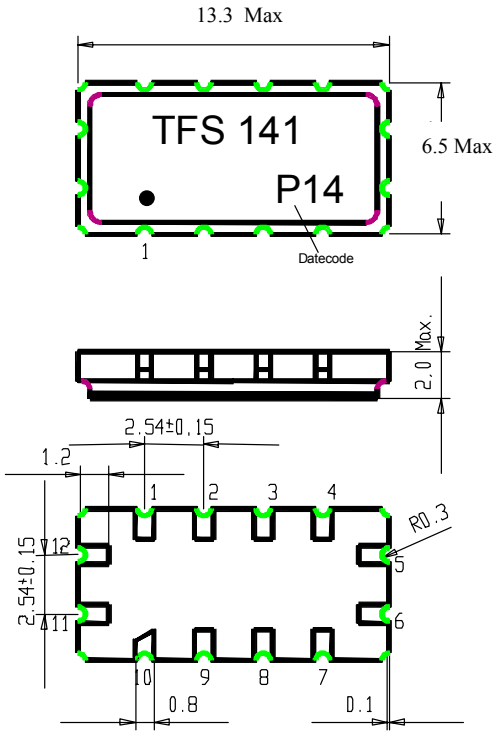
Checked/Approved: _____

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

Vectron International, Inc.
267 Lowell Road
Hudson, NH 03051 / USA
Tel: (603) 598-0070 Fax: (603) 598-0075
E-Mail: vti@vtinh.com

Construction and pin connection

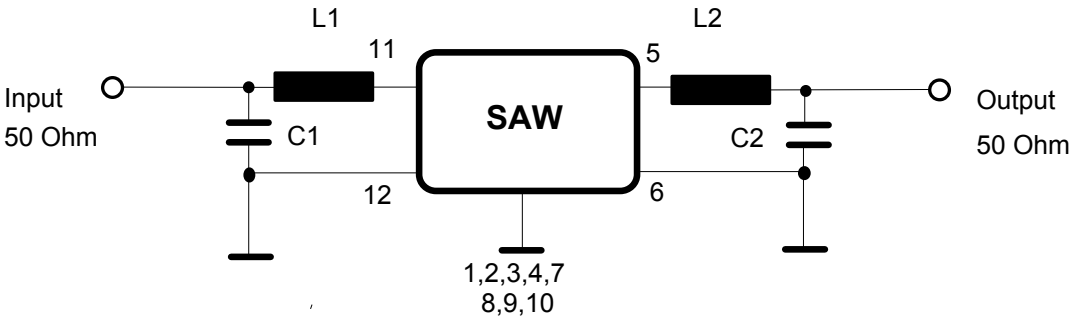
(All dimensions in mm)



1	Ground
2	Ground
3	Ground
4	Ground
5	Output
6	Output RF Return
7	Ground
8	Ground
9	Ground
10	Ground
11	Input
12	Input RF Return

Date code:	Year+week
M	2000
N	2001
P	2002
.....	

50 Ω matching network



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Stability characteristics

After the following tests the filter shall meet the whole specification:

1. Shock:	500g, 18 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or 5g 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, please refer to the attached "Air reflow temperature conditions" on page

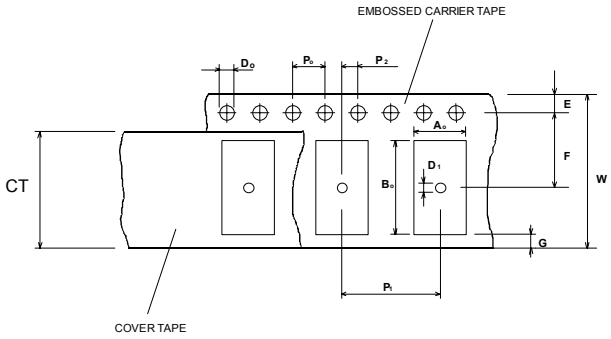
Packing

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:	1700
Reel of empty components at start:	min 300 mm
Reel of empty components at start including leader:	min 500 mm
Trailer	min 300 mm

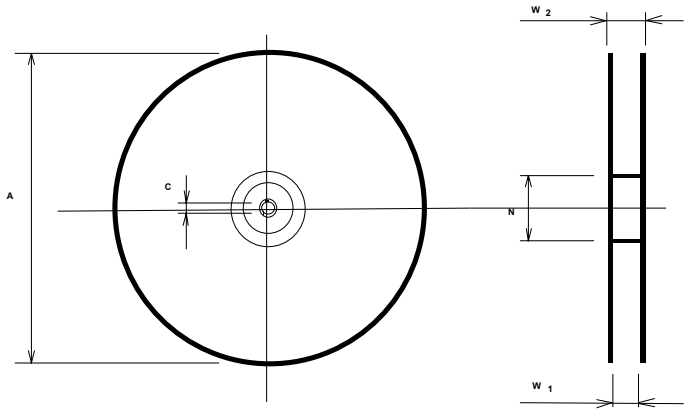
Tape (all dimensions in mm)

W	:	24 ± 0,3
Po	:	4 ± 0,1
Do	:	1,5 + 0,1
E	:	1,75 ± 0,1
F	:	11,5 ± 0,1
G (min)	:	0,60
P2	:	2 ± 0,1
P1	:	12 ± 0,1
D1(min)	:	1,5
Ao	:	7,1 ± 0,2
Bo	:	13,9 ± 0,2
CT	:	21,5 ± 0,1



Reel (all dimensions in mm):

A	:	330
W1	:	24,40 +2,0
W2 (max)	:	30,4
N (min)	:	60
C	:	13 ± 0,5/-0.2



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. Markings on the filters can be read if the upper side of the carrier tape is regarded with the sprocket holes on its right.

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Air reflow temperature conditions

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

Chip-mount air reflow profile

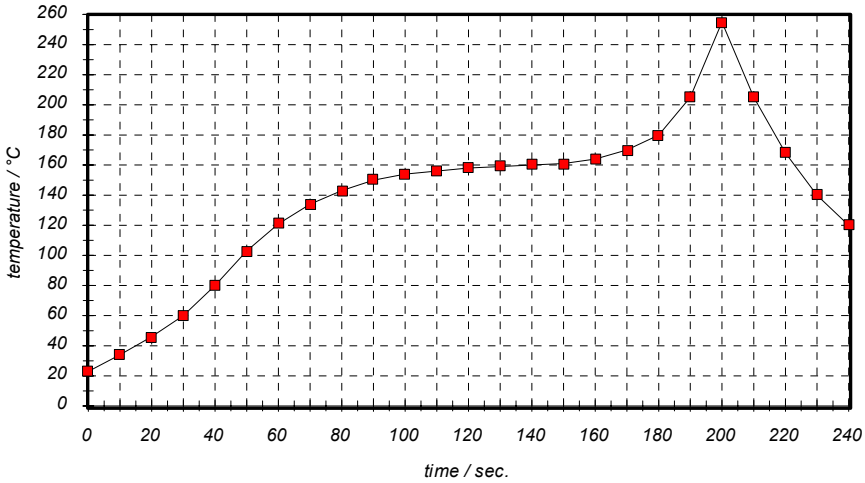

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160
10	34	150	161
20	46	160	164
30	60	170	170
40	80	180	180
50	103	190	205
60	121	195	230
70	134	200	255
80	143	205	230
90	150	210	205
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120

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History

Version	Reason of Changes	Name	Date
1.0	Generation of specification according to customer requirements.	Pfeiffer	20.06.2001
1.1	Changed “VSWR” from 11 dBm to 10 dBm Changed “relative attenuation”	Herrler	30.07.2001
Filter specification			
2.0	- terminamting impedance and typical values added - VSWR definition changed to typical value	Steiner	21.12.01
3.0	- modifications according to customer requirement - passband width definition changed to 1,5 dB - change vibration test conditions to our standard	Steiner	09.04.2002

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