

**VI TELEFILTER****Filter Specification****TFS 210 D****1/4****Measurement Condition**

Ambient Temperature:	23 °C
Input Power Level:	0 dBm
Source impedance:	50 Ω
Load impedance:	500 Ω (generated by transformer, see page 2)
Terminating impedances:	
input:	1000 Ω    -7,97 pF
output:	500 Ω    -9,40 pF

**Construction, pin connection and 50 Ω test circuit**

See page 2

**Characteristics****Remark:**

Reference level for the relative attenuation  $a_{rel}$  is the minimum of the pass band attenuation  $a_{min}$ . The minimum of the pass band attenuation  $a_{min}$  is defined as the insertion loss  $a_e$ . The nominal frequency  $f_N$  is fixed to 210,38 MHz. 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  $f_0$  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  $f_0$ .

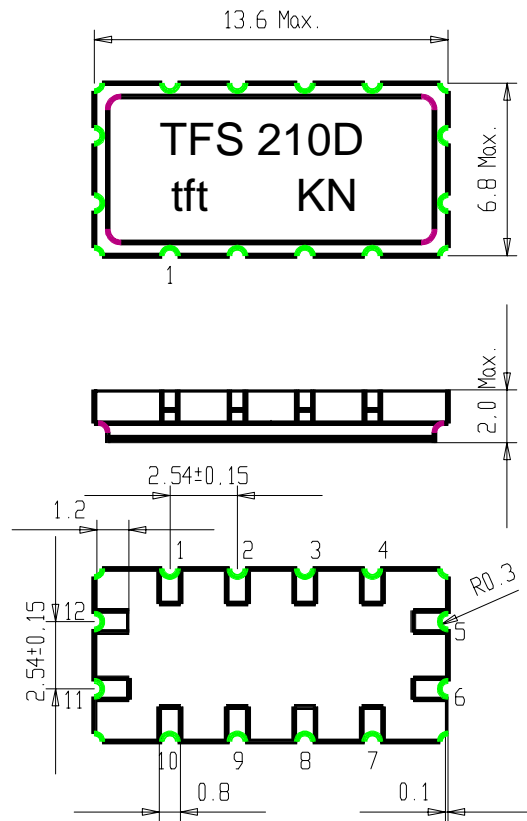
<b>D a t a</b>		<b>typ. Value</b>	<b>Limit</b>	
<b>Insertion Loss</b> (Reference level)	$a_e = a_{min}$	-	max.	9,5 dB
<b>Nominal Frequency</b>	$f_N$	-		210,38 MHz
<b>5 dB - Bandwidth</b>	BW	-	min.	1260 kHz
<b>Relative Attenuation</b>	$a_{rel}$			
$f_N \pm 0,630$ MHz		-	max.	5 dB
$f_N \pm 1,250$ MHz ... $f_N \pm 20,000$ MHz		-	min.	33 dB
$f_N \pm 1,250$ MHz		45	min.	40 dB
<b>Triple Transit Suppression</b>	TTS	-	min.	30 dB
<b>Pass Band Ripple</b>				
$f_N \pm 0,300$ MHz	-	max.	1	dB
<b>Phase</b>	$\varphi$			
Phase ripple $f_N \pm 0,630$ MHz	-	max.	3	°rms
<b>Operating Temperature Range</b>				- 30 °C ... + 80 °C

**Generated:** \_\_\_\_\_**Checked / approved:** \_\_\_\_\_

**VI TELEFILTER**  
 Potsdamer Straße 18  
 D 14 513 TELTOW / Germany  
 Tel: (+49) 3328 4784-52 / Fax: (+49) 3328 4784-30  
 E-Mail: tft@telefilter.com

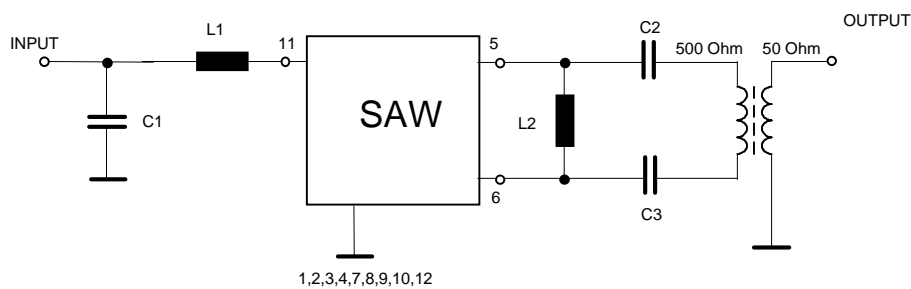
**Vectron International, Inc.**  
 267 Lowell Road  
 Hudson, NH 03051 / USA  
 Tel: (603) 598-0070 Fax: (603) 598-0075  
 E-Mail: vti@vtinh.com

**Construction and pin connection**



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

**50 Ω test circuit**



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**Stability characteristics**

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

1. Shock: 30g, 18 ms, half sine wave, 3 shocks each plane;  
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 150 Hz, 0.35 mm amplitude, 5g; 2 hours for 3 planes;  
DIN IEC 68 T2 - 6
3. Damp heat:  
(steady state) 90 % to 95 % rel. humidity, 40 °C, 10 days;  
DIN IEC 68 - 2 - 3
4. Resistance to  
solder heat (reflow): max. 2 times reflow process;  
for temperature conditions refer to the attached "Air reflow temperature conditions" on sheet 4;

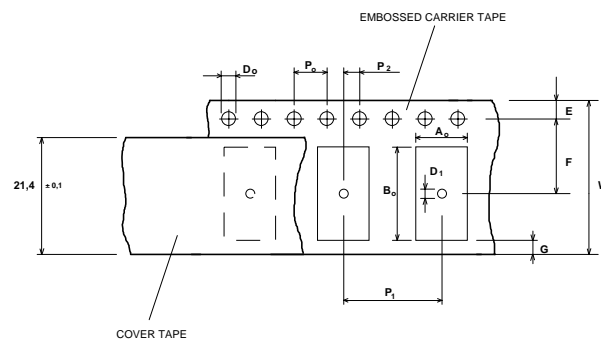
**Packing**

Tape & Reel: DIN 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;

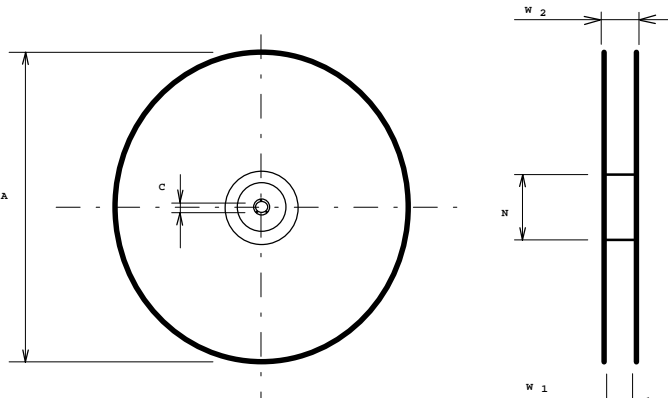
max. pieces of filters per reel: 1700

**Tape (all dimensions in mm)**

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

**Reel (all dimensions in mm):**

A	:	330
W1	:	24,4 +2
W2 (max)	:	30,4
N (min)	:	>= 90
C	:	13 ± 0,25



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**Air reflow temperature conditions**

## 1st and 2nd air reflow profile

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

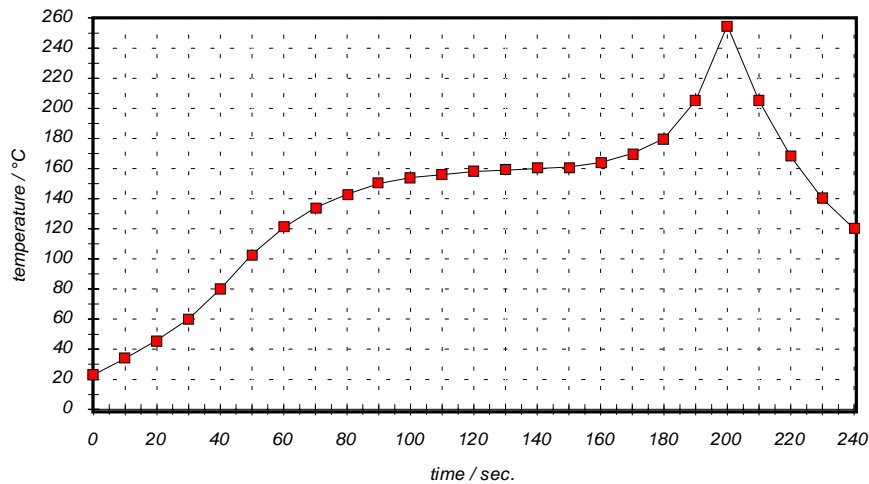
**Chip-mount air reflow profile**

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

<u>time / sec.</u>	<u>temperature / °C</u>	<u>time / sec.</u>	<u>temperature / °C</u>
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