Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedances:
for input: 930 Ohm // -1.6 pF (measured between the two source pins)
for output: 930 Ohm // -1.6 pF (measured between the two load pins)

Characteristics

Remark:
Reference level for the relative attenuation $\mathbf{a_{rel}}$ of the **TFS 150C** is the maxiimum in the usable signal bandwidth. The maximum attenuation $\mathbf{a_{max}}$ in the usable signal bandwidth is defined as the insertion loss $\mathbf{a_e}$. The centre frequency $\mathbf{f_c}$ is the arithmetic mean value of the upper and lower frequencies at the **3dB** filter attenuation level relative to the insertion loss $\mathbf{a_e}$. The nominal frequency $\mathbf{f_N}$ is fixed on **150,4 MHz** without tolerance. The given values for the relative attenuation $\mathbf{a_{rel}}$ have to be reached at the frequencies given below also if the centre frequency $\mathbf{f_c}$ is shifted due to the temperature coefficient of frequency $\mathbf{TC_f}$ in the operating temperature range and due to a production tolerance for the centre frequency $\mathbf{f_c}$

D a t a		**typ. value**		**tolerance/limit**	
Insertion loss (Reference level)	a_e	2,8	dB	max. 5	dB
Nominal frequency	f_N	-		150,4	MHz
Centre frequency	f_C	150,41	MHz	-	
3 dB bandwidth	BW	107	kHz	-	
Usable signal band width		-		min.f_N±10	kHz
Relative attenuation @f_N ± 910 kHz	a_{rel}	65	dB	min. 60	dB
Operating temperature range		-		- 20 °C ... + 70 °C	
Storage temperature range		-		- 30 °C ... + 85 °C	
Temperature coefficient of frequency	TC	ca. – 0,036	ppm/K²	-	
Frequency inversion temperature		30	°C	-	

Generated: _____

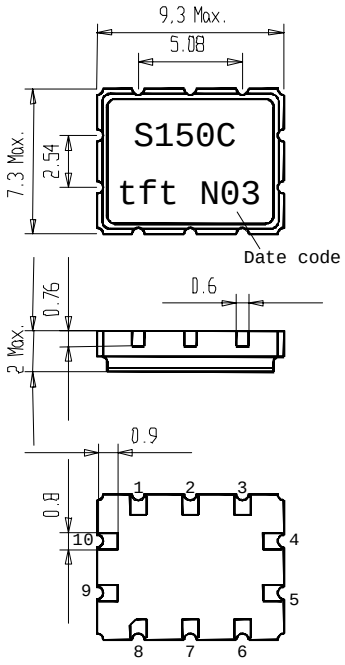
Checked / approved: _____

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, pin configuration and 50 Ω - matching network

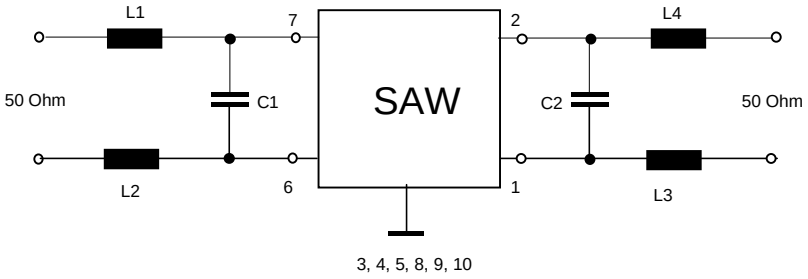
(All dimensions in mm)



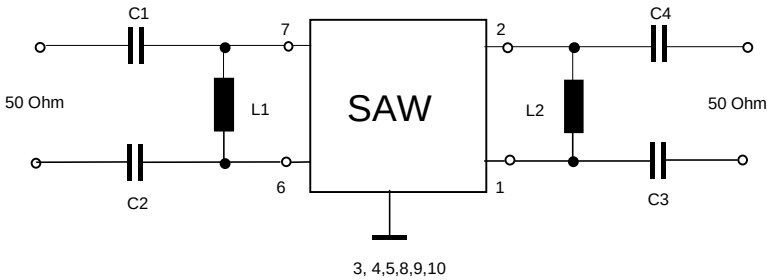
Date code:	Year + week
L	1999
M	2000
N	2001
...	

Pin 1,2:	balanced Output
Pin 6,7:	balanced Input
Pin 3,4,5,8 9,10	Ground

50 Ohm Test circuit 1



50 Ohm Test circuit 2



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

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. Damp heat: (cycle)	25 °C to 55°C / 95% r.H. / 10 cycles DIN IEC 68 - 2 – 30 Db
4. Resistance to solder heat (reflow):	max. 2 times reflow process; for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

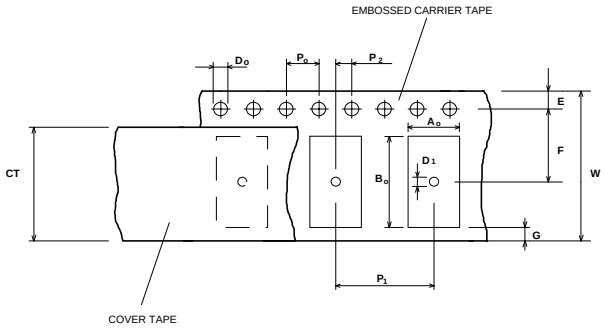
Packing

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:	2000
Real of empty components at start:	min 300 mm
Real of empty components at start including leader:	min 500 mm
Trailer	min 300 mm

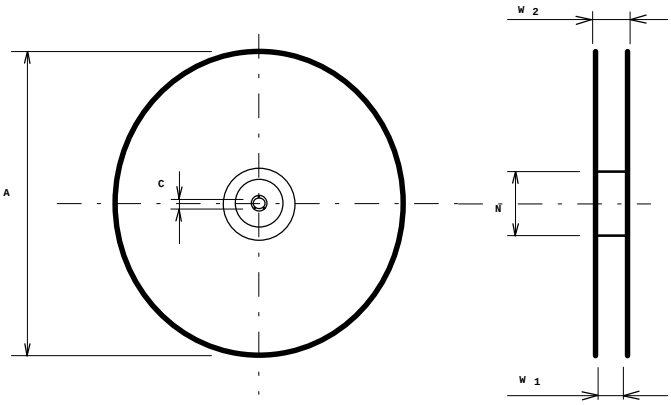
Tape (all dimensions in mm)

W	:	16	± 0,3
Po	:	4	± 0,1
Do	:	1,5	+ 0,1
E	:	1,75	± 0,1
F	:	7,5	± 0,1
G (min)	:	0,6	
P2	:	2	± 0,1
P1	:	12	± 0,1
D1(min)	:	1,5	
Ao	:	7,6	± 0,1
Bo	:	9,6	± 0,1
CT	:	13,5	+ 0,1



Reel (all dimensions in mm):

A	:	330
W1	:	16,4 +2
W2 (max)	:	22,4
N (min)	:	60
C	:	12,8 ± 0,1



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. The marking of the filters is able to read if the view is directed on the upper side of the carrier tape with the sprocket holes on the right side of the tape.

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

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

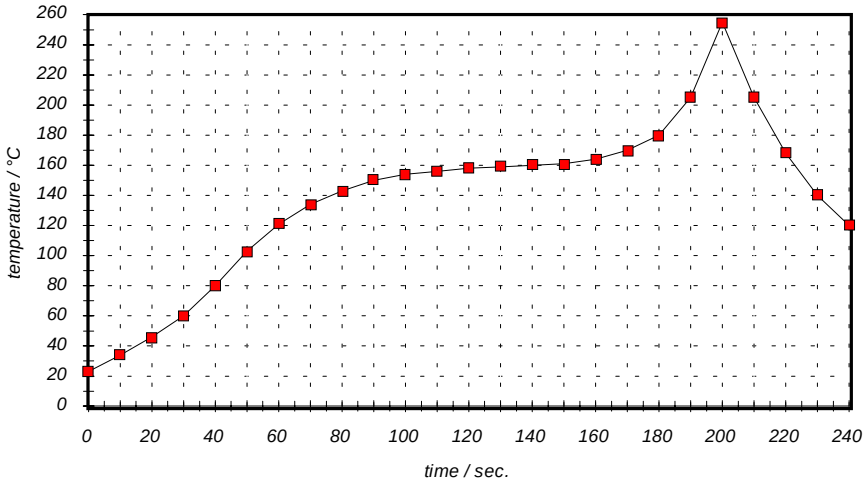


Table for temperature vs. time during the air reflow process

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

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

History

Version	Reason of Changes	Name	Date
1.0	Generation of specification according to customer requirements.	Dr. Wall	06 / 1997
1.1	Correct pinning information Correct tape and reel information Add history	Dr. Wall	23.01.2001
1.2	Change pin 1 marker from • to tft	Dr. Wall	29.01.2001

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