

VI TELEFILTER**Filter Specification****TFS 282 - 1/4****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedances
 for input: 245 Ohms || -1.6 pF
 for output: 245 Ohms || -1.6 pF
 ext. Coil: 68nH

Construction and pin configuration

see page 2

Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS 282 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 centre frequency f_0 is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the insertion loss a_e . The nominal frequency f_N is fixed on 282 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_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 .

Development Data**typ. value****tolerance/limit**

	typ. value	tolerance/limit
Insertion loss $a_e = a_{min}$ (Reference level)	4,5 dB	max 5,5 dB

Nominal frequency f_N	-	282,000 MHz
--------------------------------	---	-------------

Pass band ripple 282,0 MHz $\pm$ 65 kHz		max 1,5 dB
---	--	------------

Relative attenuation a_{rel} 282,0 MHz $\pm$ 90 kHz	1,5 dB	max 3 dB
282,0 MHz $\pm$ 400 kHz ... 282,0 MHz $\pm$ 600 kHz	30 dB	min 25 dB
282,0 MHz $\pm$ 600 kHz ... 282,0 MHz $\pm$ 800 MHz	45 dB	min 40 dB
282,0 MHz $\pm$ 800 kHz ... 282,0 MHz $\pm$ 1,4 MHz	50 dB	min 45 dB
282,0 MHz $\pm$ 1,4 MHz ... 282,0 MHz $\pm$ 78,0 MHz	60 dB	min 50 dB

suppression of spurious resonances within 282,0 MHz -10,0MHz ...282,0 MHz -35,0MHz		min 45 dB
--	--	-----------

Group delay distortion GDD 282,0 MHz $\pm$ 100 kHz	0,7 μ s	max 2,0 μ s
--	-------------	-----------------

Operating temperature range	- 20 °C ... + 70 °C
Storage temperature range	- 30 °C ... + 85 °C

Temperature coefficient of frequency TC_f	- 0,036 ppm/K ²	-
--	----------------------------	---

Frequency inversion temperature	+ 25 °C
--	---------

Generated:**Checked / approved:**

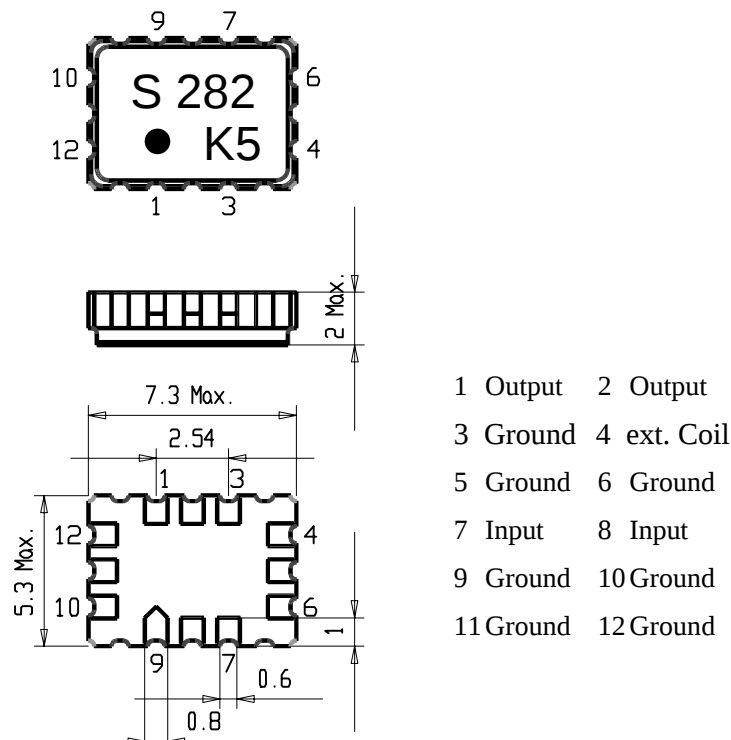
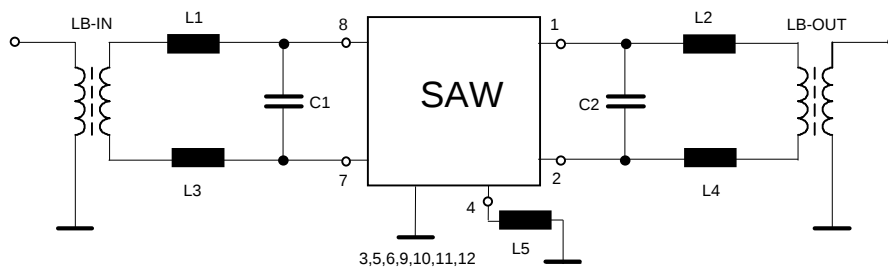
VI TELEFILTER
 Potsdamer Straße 18
 D 14 513 TELTOW / Germany
 Tel: (+49) 3328 4784-52 / Fax: (+49) 3328 4784-30
 E-Mail: tft@telefilter.com

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

VI TELEFILTER 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.

VI TELEFILTER**Filter Specification****TFS 282 - 1/4****Construction and pin configuration**

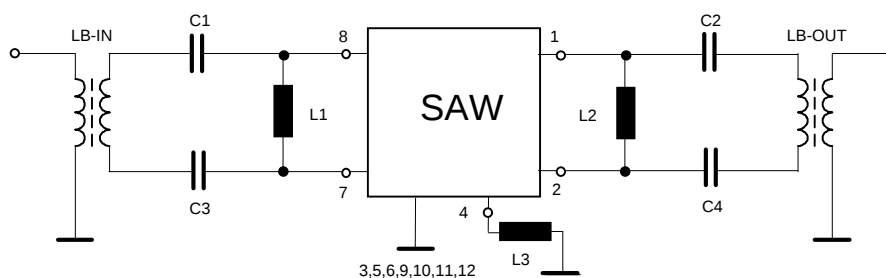
(All dimensions in mm)

**50 Ohm Test circuit 1****50 Ohm Test circuit 2**

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

VI TELEFILTER 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.

VI TELEFILTER**Filter Specification****TFS 282 - 1/4****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 amplitude, 5g; 2 hours for 3 planes;
IEC 68 - 2 - 6
3. Damp heat: 90 % to 95 % rel. humidity, 40 °C, 10 days;
(steady state) 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;

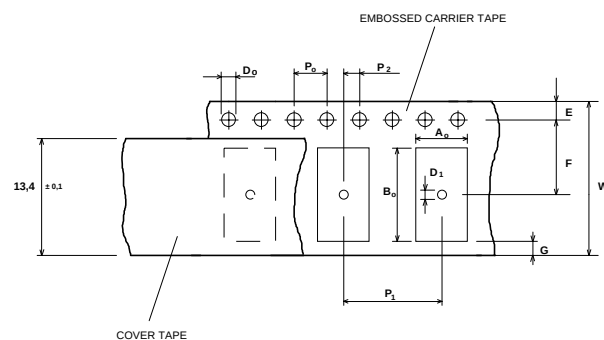
Packing

Tape & Reel: 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: 3400

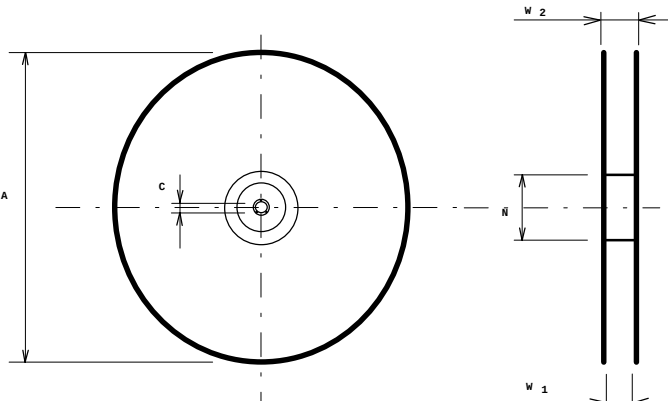
Tape (all dimensions in mm)

W	: 16	± 0,3
Po	: 4	± 0,1
Do	: 1,5	+ 0,5
D1	: 1,5	+ 0,5
E	: 1,75	± 0,1
F	: 7,5	± 0,1
G (min)	: 0,75	
P2	: 2	± 0,05
P1	: 8	± 0,1
D1(min)	: 1,5	
Ao	: 5,4	± 0,1
Bo	: 7,4	± 0,1



VI TELEFILTER**Filter Specification****TFS 282 - 1/4****Reel (all dimensions in mm):**

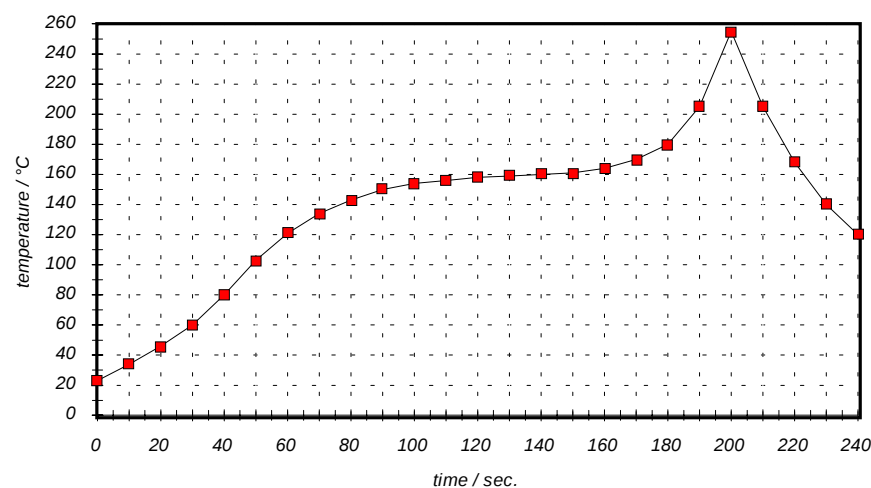
A	:	330
W1	:	16,4 +2
W2 (max)	:	22,4
N (min)	:	>= 90
C	:	13 ± 0,25



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.

Air reflow temperature conditions**1st and 2nd air reflow profile**

Name:	<u>pre-heating periods</u>	<u>main-heating periods</u>	<u>peak temperature</u>
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

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

VI TELEFILTER 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.

VI TELEFILTER**Filter Specification****TFS 282 - 1/4**

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: $\pm 5\text{ }^{\circ}\text{C}$

<u>time / sec.</u>	<u>temperature / $^{\circ}\text{C}$</u>	<u>time / sec.</u>	<u>temperature / $^{\circ}\text{C}$</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