

**VI TELEFILTER**

**Filter Specification**

**TFS 70 E - 1/3**

**Application**

- Low insertion loss
- Radio communication
- Constant group delay
- SMD multilayer ceramic package, hermetically sealed

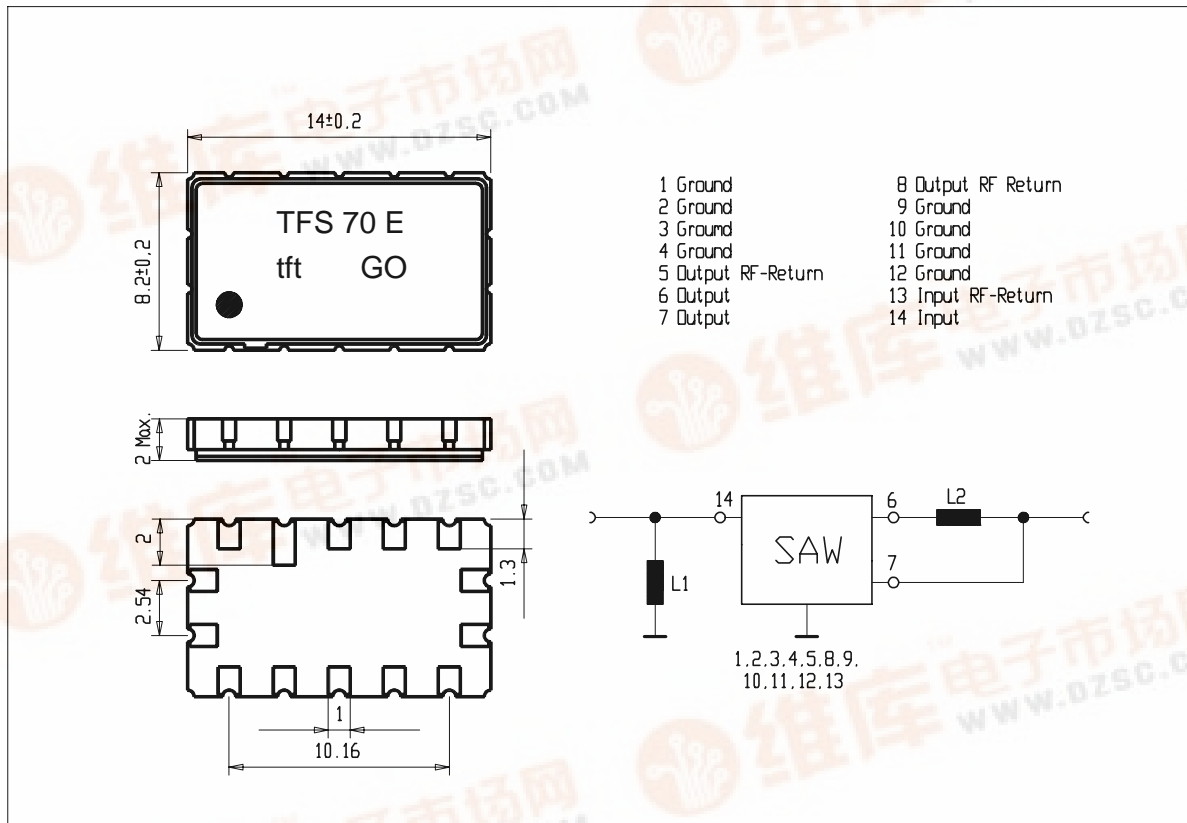
**Characteristics**

- Ambient temperature  $T_A = 23\text{ }^\circ\text{C}$
- Input power level = 0 dBm
- Source impedance = 50  $\Omega$  matching network
- Load impedance = 50  $\Omega$  matching network

**Description**

		typ. value	Variation / Limitation
<b>Insertion loss</b> (Reference level)	$a_e$	5 dB	max 7 dB
<b>Centre frequency</b>	$f_o$	70,2 MHz	-
<b>3 dB - band width</b>		900 kHz	min 700 kHz
<b>Relative attenuation</b>	$a_{rel}$		
$f_o \pm 350$ kHz		2 dB	max 3 dB
$f_o + 1,15$ MHz ... $f_o + 1,65$ MHz		26 dB	min 20 dB
$f_o - 1,2$ MHz ... $f_o - 1,65$ MHz		26 dB	min 20 dB
$f_o + 1,65$ MHz ... $f_o + 2$ MHz		38 dB	min 35 dB
$f_o - 1,65$ MHz ... $f_o - 3$ MHz		38 dB	min 35 dB
<b>Group delay</b>	GD	1,35 $\mu\text{s}$	-
Group delay ripple	$f_o \pm 350$ kHz	$\pm 125$ ns	max $\pm 175$ ns
<b>Temperature coefficient TC</b> 1st order		- 72 ppm/K	-
DC - voltage	$V_{dc}$	-	max 12 V
AC - voltage	$V_{ac}$	-	max 10 V

**Package, pin connection and 50  $\Omega$  matching network**



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

**VI TELEFILTER****Filter Specification****TFS 70 E - 2/3****Stability Characteristics**

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

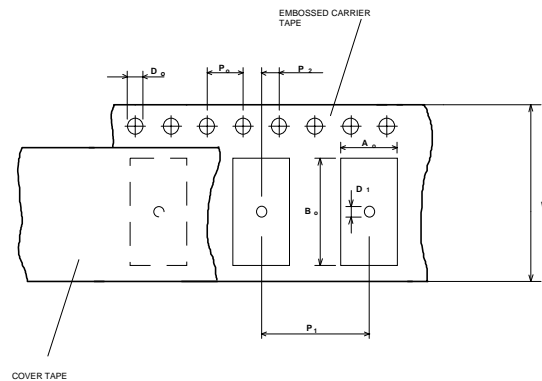
1. Shock: 100g, 18 ms, half sine wave, 3 shocks each plane;  
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,075 mm or 1g respectively, 1 octave per min, 10 cycles per plan, 3 plans;  
DIN IEC 68 T2 - 6
3. Damp heat: 90 % to 95 % rel. humidity, 40 °C, 10 days;  
(steady state) DIN IEC 68 - 2 - 3
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**

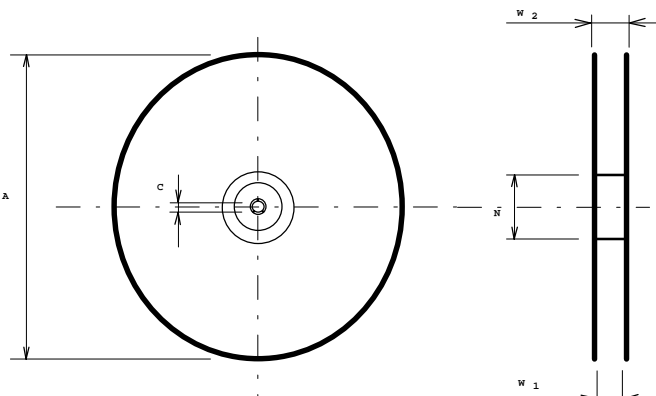
Tape & Reel: IEC 286 - 3, with exception of value for N and minimum bending radius;  
tape type II, embossed carrier tape with top cover tape on the upper side;

**Tape (all dimensions in mm)**

W	: 24	±0,3
Po	: 4	±0,1
P1	: 12	±0,1
P2	: 2	±0,05
Do	: 1,5	+0,5
D1	: 1,5	+0,5
Ao	: 8,8	±0,1
Bo	: 14,6	±0,1

**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.

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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

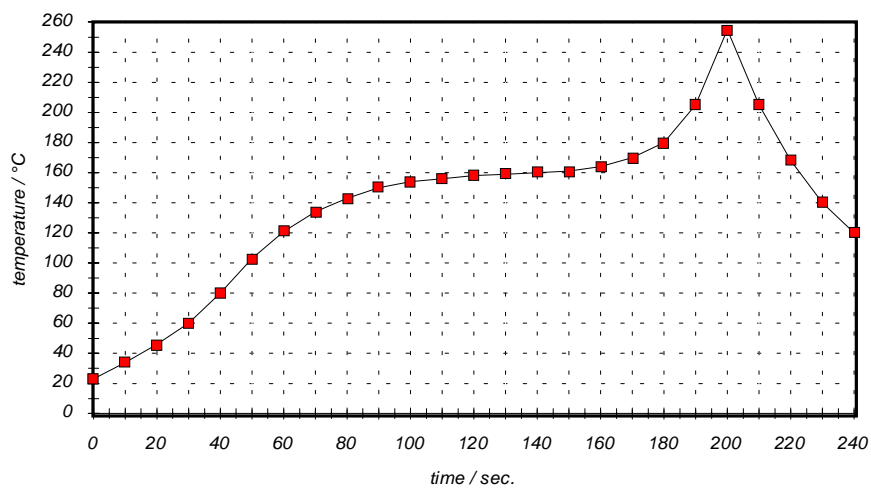


Table for temperature vs. time during the air reflow process

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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