

**VI TELEFILTER****Specification****TFS 170 - 1/4****Measurement condition**

Ambient temperature: 23 °C  
 Input power level: 0 dBm

**Construction and pin configuration**

see page 2

**Packing**

see page 3

**Characteristics**

Agreement:

Reference level for the relative attenuation  $a_{rel}$  of the TFS 170 is the minimum of the attenuation  $a_{min}$ . The minimum of the attenuation  $a_{min}$  is defined as insertion loss  $a_e$ . Reference frequency  $f_C$  is the mean value of the frequencies with a relative attenuation of 3 dB.

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Insertion loss</b> (Reference level)	$a_e = a_{min}$	5,5 dB	max 8 dB
<b>Reference frequency</b>	$f_C$	170,0 MHz	$\pm 10$ kHz
<b>3 dB - band width</b>	BW	185,0 kHz	
3 dB-BW for $f_C$	169,992 MHz ... 170,010 MHz	185,0 kHz	max $\pm 5$ kHz
3 dB-BW for $f_C$	<169,992 MHz	185,0 kHz	max $\pm 3$ kHz
3 dB-BW for $f_C$	<169,991 MHz	185,0 kHz	max $\pm 1$ kHz
<b>Relative attenuation</b>	$a_{rel}$		
$f_C \pm 200$ kHz ... $f_C \pm 400$ kHz		-	min 19 dB
$f_C \pm 400$ kHz ... $f_C \pm 600$ kHz		-	min 40 dB
$f_C + 600$ kHz ... $f_C + 1060$ kHz		-	min 45 dB
$f_C + 1060$ kHz ... $f_C + 1360$ kHz		-	min 40 dB
$f_C + 1360$ kHz ... $f_C + 20$ MHz		-	min 45 dB
$f_C - 600$ kHz ... $f_C - 20$ MHz		-	min 45 dB
<b>Group delay</b>	GD	4,5 $\mu$ s	-
<b>Group delay distortion</b>	GDD		
$f_C \pm 65$ kHz		-	max 1,0 $\mu$ s
$f_C \pm 70$ kHz		-	max 1,1 $\mu$ s
<b>Termination impedance at input</b>		393 $\Omega$ // - 6,6 pF	-
<b>Termination impedance at output</b>		467 $\Omega$ // - 5,5 pF	-
<b>Coupling coil</b>		94 nH	-
<b>Temperature coefficient of frequency</b>	$TC_f$ *)	- 0,032 ppm/K <sup>2</sup> *)	-
<b>Frequency inversion temperature</b>	$T_o$	+ 40 °C	-
<b>Operating temperature range</b>			- 20 °C ... + 85 °C
<b>Storage temperature range</b>			- 45 °C ... + 85 °C

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

**generated:** \_\_\_\_\_

**checked / approved:** \_\_\_\_\_

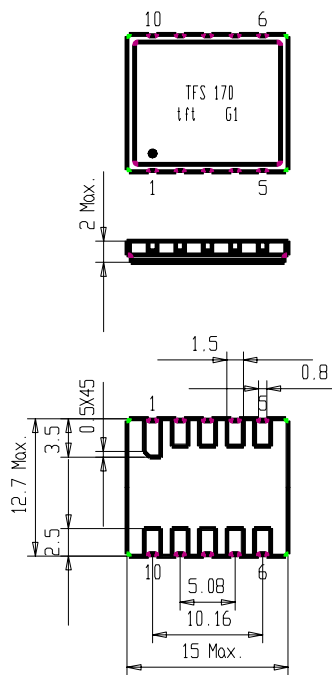
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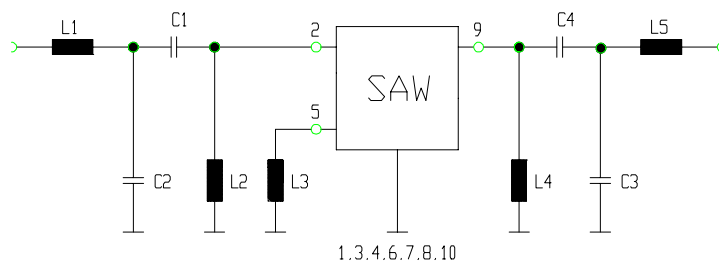
**Construction and pin configuration**

(All dimensions in mm)



- 1 Input RF Return
- 2 Input
- 3 Ground
- 4 Input RF Return
- 5 External Coil
- 6 Output RF Return
- 7 Ground
- 8 Ground
- 9 Output
- 10 Output RF Return

**50 Ω matching network**



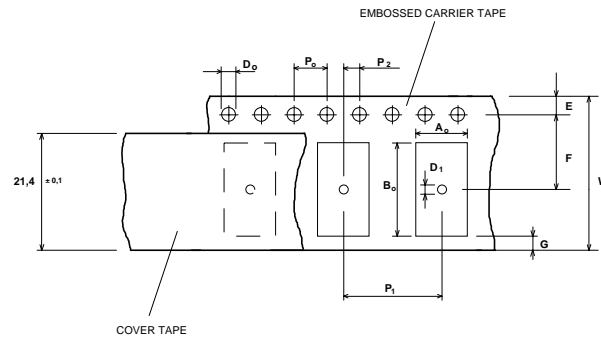
**Packing****Tape & Reel:**

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;

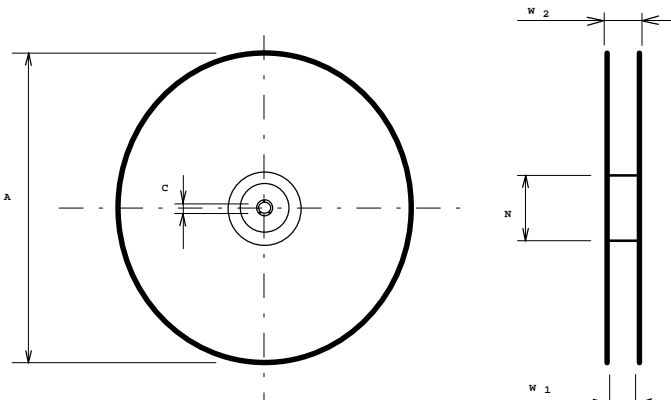
max. pieces of filters per reel: 1000

**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	:	16	± 0,1
D1(min)	:	1,5	
Ao	:	13,0	± 0,2
Bo	:	16,4	± 0,2

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

A	:	330
W1	:	24,4 +2
W2 (max)	:	30,4
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 left side of the tape.

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**Air reflow temperature conditions**

1st and 2nd air reflow profile (preliminary)

<b>Name:</b>	pre-heating periods	main-heating periods	peak temperature
<b>Temperature:</b>	150 °C - 170 °C	over 200 °C	230 °C ± 5 °C
<b>Time:</b>	60 sec. - 90 sec.	20 sec. - 25 sec.	

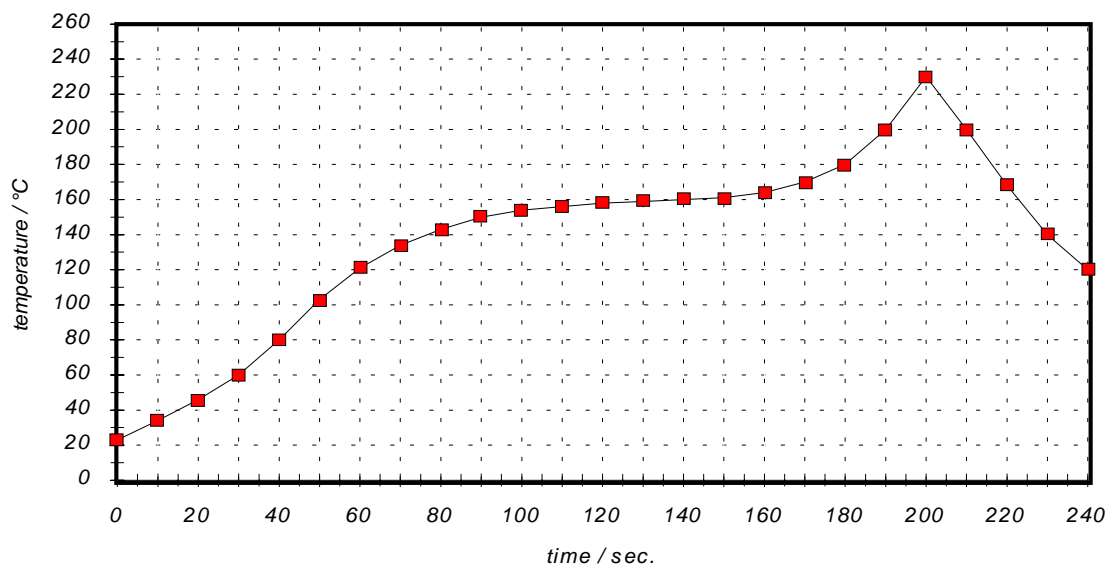
**Chip-mount air reflow profile**

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

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	200
60	121	195	220
70	134	200	230
80	143	205	220
90	150	210	200
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120