

**VI TELEFILTER****Filter Specification TFS 125K****1 / 5****Measurement condition**

Ambient temperature: 23 °C  
 Input power level: 0 dBm  
 Terminating impedance's : 50 Ω

**Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the TFS 125K is the maximum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss  $a_e$ . The nominal frequency  $f_N$  is fixed at 125 MHz without tolerance or limit. The values of relative attenuation  $a_{rel}$  are guaranteed in the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Insertion loss</b>	$a_e$	1,88 dB	$2,5 \pm 1,0$ dB
(Reference level)			
<b>Nominal frequency</b>	$f_N$	-	125 MHz
<b>1 dB band width</b>	BW	2,80 MHz	300 kHz
<b>Pass band ripple</b> within	$\pm 100$ KHz	0,10 dB	max. 0,20 dB
<b>Relative attenuation</b>	$a_{rel}$		
$f_N$	$\pm 150$ kHz	-	max. 1 dB
$f_N - 14$ MHz... $f_N - 28$ MHz		50 dB	min. 5 dB
$f_N - 28$ MHz... $f_N - 124$ MHz		65 dB	min. 12 dB
$f_N + 14$ MHz... $f_N + 23$ MHz		40 dB	min. 30 dB
$f_N + 23$ MHz... $f_N + 33$ MHz		55 dB	min. 44 dB
$f_N + 33$ MHz... $f_N + 325$ MHz		42 dB	min. 38 dB
<b>VSWR</b>			
$f_N - 150$ kHz ... $f_N + 150$ kHz		1.3:1	max 2 : 1
<b>Absolute group delay</b>	GD*)		
$f_N - 150$ kHz ... $f_N + 150$ kHz		245 ns	max. 300 ns
<b>Group delay ripple</b>	GDR *)		
$f_N - 150$ kHz ... $f_N + 150$ kHz		15 ns	max. 100 ns
<b>Intermodulation</b>	**)		
$IP_3$		54 dB	min. 45 dB
<b>Input power level</b>			max 10 dBm
<b>Temperature coefficient of frequency</b>	$TC_f$ ***)	- 72 ppm/K	-
<b>Operating temperature range</b>		-	- 10 °C ... + 85 °C
<b>Storage temperature range</b>			- 30°C ... + 85 °C

\*) measured with smoothing; smoothing aperture  $\leq 50$  kHz\*\*) modulation signals:  $f_N$  and  $f_N + 14$  MHz, each of 10 dBm; measured signal:  $f_N - 14$  MHz\*\*\*)  $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (\Delta T) \times f_{T0}(\text{MHz})$ 

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

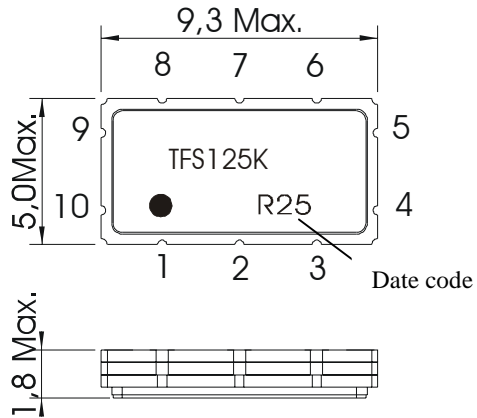
checked / approved: \_\_\_\_\_

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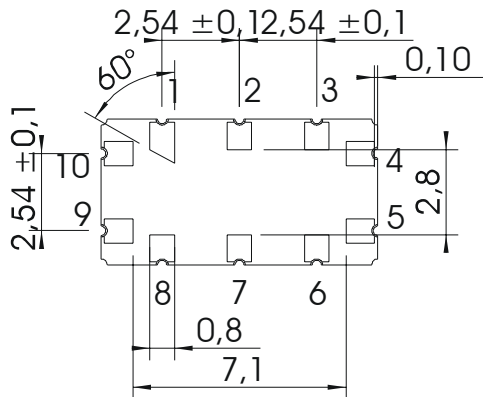
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**Construction and pin connection**

(All dimensions in mm)



1	Ground
2	Ground
3	Ground
4	Ground
5	Output
6	Ground
7	Ground
8	Ground
9	Ground
10	Input



Date code: Year+week

N	2001
P	2002
R	2003
...	

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**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. Change of temperature: -55 °C to 125°C / 30 min. each / 10 cycles  
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: twice max.;;  
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

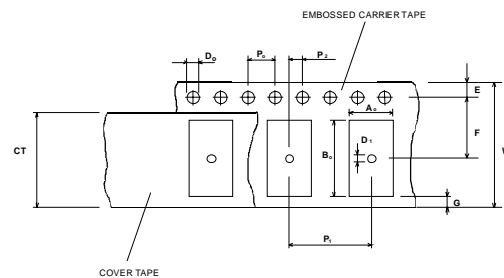
**Packing**

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;

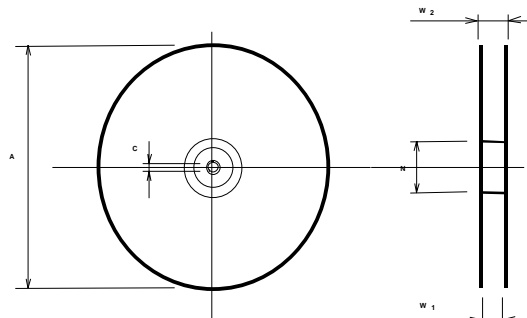
max. pieces of filters per reel:	3000
Reel of empty components at start:	min 300 mm
Reel of empty components at start including leader:	min 500 mm
Trailer	min 300 mm

**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 : 8 ± 0,1  
 D1(min): 1,5  
 Ao : 5,3 ± 0,1  
 Bo : 9,7 ± 0,1  
 CT : 13,5 ± 0,1

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

A : 330  
 W1 : 16,4 +2  
 W2 (max) : 22,4  
 N (min) : 50  
 C : 13 + 0,5 / - 0,2



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. Markings on the filters can be read if the upper side of the carrier tape is regarded with the sprocket holes on its right.

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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.	

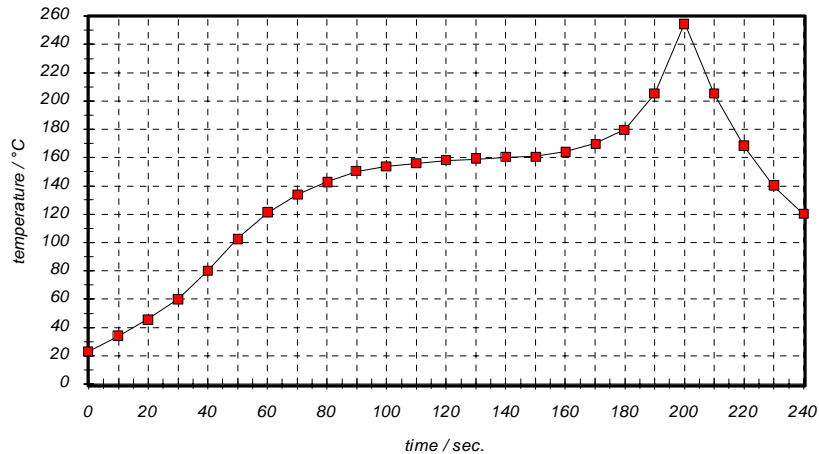
**Chip-mount air reflow profile**

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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**History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- generation of development specification according to the customer specification (V-1.0.0; 15 Jan 03)	Dr. Sabah	07.03.03
1.1	- add of typical values and generation of filter specification	Dr. Sabah	03.06.03
1.2	- updated of filter specification according to customer specification, version 2.0.0	Dr. Sabah	17.06.03

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