

**VI TELEFILTER****Filter Specification****TFS 70 AP****1/5****Measurement condition**

Ambient temperature: 23 °C  
 Input power level: 0 dBm  
 Terminating impedance: \*  
     Input: 142 Ω || -56 pF  
     Output: 105 Ω || -64 pF

**Characteristics****Remark:**

The nominal frequency  $f_N$  is fixed at 70,00 MHz. The insertion loss  $a_e$  is defined as loss value determined at  $f_N$ . Reference level for the relative attenuation  $a_{rel}$  of the TFS 70AP is the insertion loss  $a_e$ . The centre frequency  $f_c$  is the arithmetic mean value of the upper and lower frequencies at the 1,5 dB filter attenuation level relative to the insertion loss  $a_e$ . All specified data are met within the operating temperature range.

<b>D a t a</b>		<b>typ. value</b>		<b>tolerance/limit</b>	
<b>Insertion loss</b>	$a_e$	19,5	dB	max. 22	dB
<b>Nominal frequency</b>	$f_N$	-		70,00	MHz
<b>Pass band</b>	PB	-		$f_N \pm 0,61$	MHz
<b>Amplitude ripple</b>	PB	0,5	dB	max. 0,7	dB
<b>Deviation from linear phase</b>		1	deg	max. 5	deg
<b>Triple transit suppression</b>		50	dB	min. 30	dB
<b>Relative attenuation</b>	$a_{rel}$				
	$f_N \pm 0,630$ MHz	0,7	dB	max. 1,5	dB
	$f_N \pm 0,750$ MHz	40	dB	min. 35	dB
	$f_N \pm 0,900$ MHz	60	dB	min. 50	dB
<b>Operating temperature range</b>		-		- 5 °C ... + 65 °C	
<b>Storage temperature range</b>		-		- 40 °C ... + 85 °C	
<b>Temperature coefficient of frequency (**)</b>	TCf	-0,04	ppm/K <sup>2</sup>	-	

\*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

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

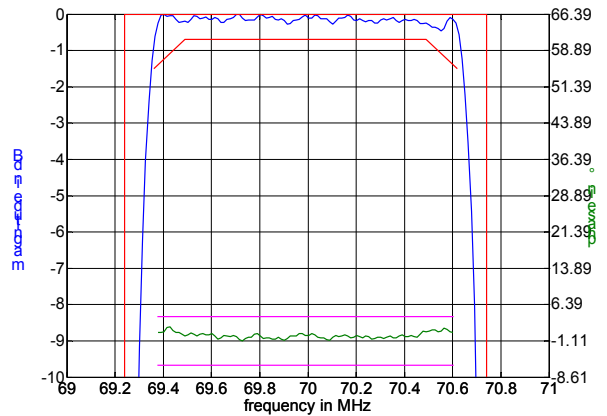
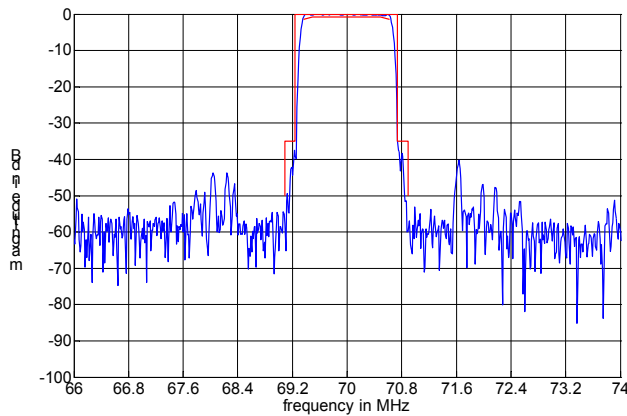
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**checked / approved:** \_\_\_\_\_

**Tele Filter GmbH**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**  
**E-Mail: [tft@telefilter.com](mailto:tft@telefilter.com)**

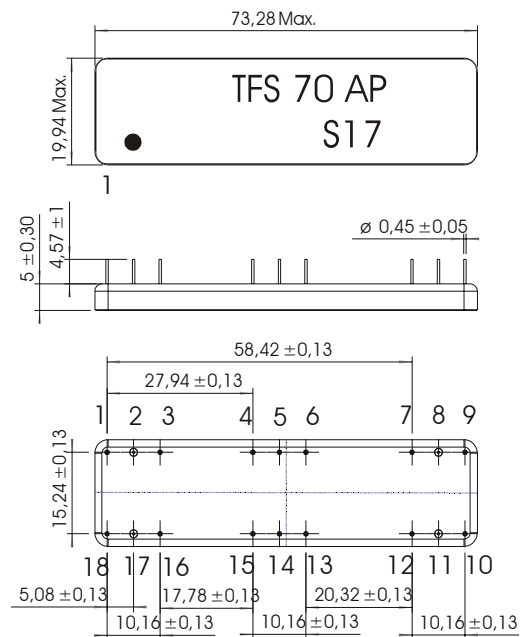
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**Filter characteristic**



**Construction and pin connection**

(All dimensions in mm)

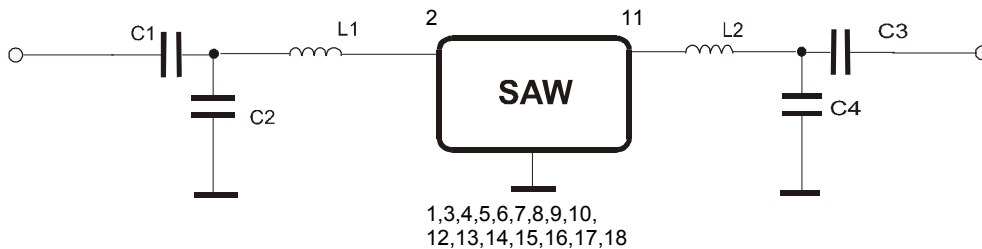


Date code: Year+week

S	2004
T	2005
U	2006
...	

Pin 1	Ground
Pin 2	Input
Pin 3	Ground
Pin 4	Ground
Pin 5	Ground
Pin 6	Ground
Pin 7	Ground
Pin 8	Ground
Pin 9	Ground
Pin 10	Ground
Pin 11	Output
Pin 12	Ground
Pin 13	Ground
Pin 14	Ground
Pin 15	Ground
Pin 16	Ground
Pin 17	Ground
Pin 18	Ground

**50 Ohm Test circuit**



**Tele Filter GmbH**  
 Potsdamer Straße 18  
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 E-Mail: [tft@telefilter.com](mailto:tft@telefilter.com)

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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 5 g 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;

## 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

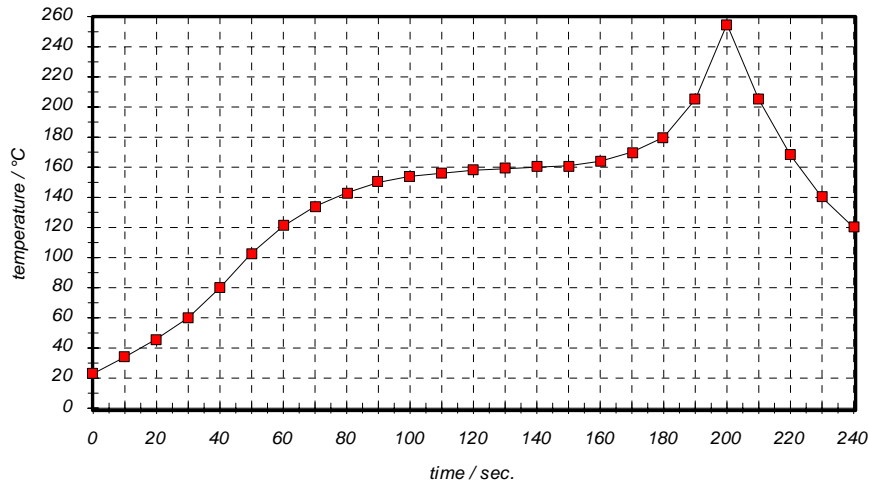


Table for temperature vs. time during the air reflow process

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****Filter Specification****TFS 70 AP****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	Generation of specification	Steiner	23.04.2004

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**Tele Filter GmbH**  
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