

**VI TELEFILTER****Filter specification****TFS 75F****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	50 Ω    0 pF	
Output:	50 Ω    0 pF	

**Characteristics****Remark:**

The reference level for the relative attenuation  $a_{rel}$  of TFS 75F is the minimum of the pass band attenuation  $a_{min}$ . This value is defined as the insertion loss  $a_e$ . The centre frequency  $f_c$  is the arithmetic mean value of the upper and lower frequencies at the 20 dB filter attenuation level relative to the insertion loss  $a_e$ . The given values for the relative attenuation  $a_{rel}$  and the group delay ripple have to be reached at the frequencies given below, even if the centre frequency  $f_c$  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  $f_c$ .

**Data****typ. value**

Insertion loss		$a_e$	22,8	dB	max.	26,0	dB
(reference level)							
Centre frequency at temperature 70°C		$f_{COT}$	75,3	MHz	75,3	± 0,10	MHz
Centre frequency at ambient temperature		$f_c$	75,6	MHz			
Relative frequency distance of $f_c$ within one set of 3 filters at 70 °C							
1 <sup>st</sup> (TFS65 at 23°C )		65,9 ± 0,1 MHz	9,4	MHz	max.	± 20	kHz
2 <sup>nd</sup> (TFS87E at 23°C )		87,1 ± 0,1 MHz	11,8	MHz	max.	± 20	kHz
Passband		PB	-		$f_c \dots f_c \pm 2,8$		MHz
Pass band ripple (p-p)			0,7	dB	max.	1	dB
Bandwidth							
1	dB		5,98	MHz	min.	5,6	MHz
3	dB		6,11	MHz	min.	6,0	MHz
40	dB		6,55	MHz	max.	6,6	MHz
Relative attenuation		$a_{rel}$					
$f_c$		$f_c \pm 2,8$ MHz	0,7	dB	max.	1	dB
$f_c \pm 2,8$	MHz	$f_c \pm 3,0$ MHz	1,5	dB	max.	3	dB
$f_c \pm 3,3$	MHz		48	dB	min.	40	dB
in the frequency range $f_c \pm 3,3$ MHz ... $f_c \pm 20$ MHz the limit line is of type SLOPING LINE							
$f_c \pm 20$	MHz		55	dB	min.	45	dB
in the frequency range $f_c \pm 20$ MHz ... $f_c \pm 25$ MHz the limit line is of type SLOPING LINE							
$f_c \pm 25$	MHz		60	dB	min.	50	dB
$f_c \pm 25$	MHz	$f_c \pm 50$ MHz	60	dB	min.	50	dB
Group delay		mean value in PB	4,75	µs	max.	5	µs
Group delay ripple (p-p) in $f_c \dots f_c + 3$ MHz			160	ns	max.	300	ns
Operating temperature range		OTR	-		- 25 °C ... + 80		°C
Storage temperature range			-		- 40 °C ... + 85		°C
Temperature coefficient of frequency		$TC_f$ (**)	-84	ppm/K			

\*) The terminating impedances depend on parasites 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.

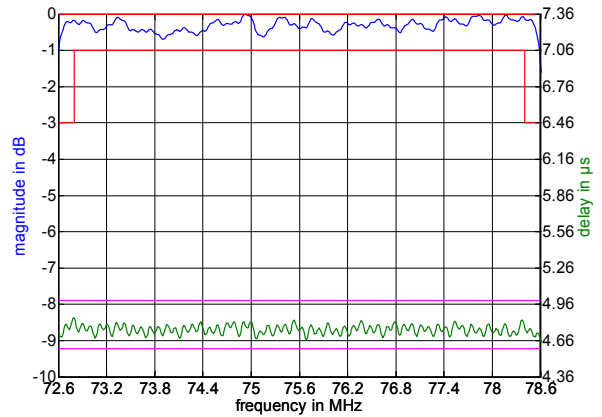
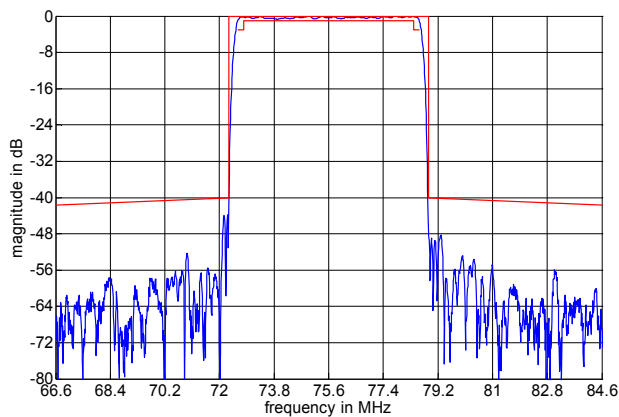
\*\*)  $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

**Generated:****Checked / Approved:**

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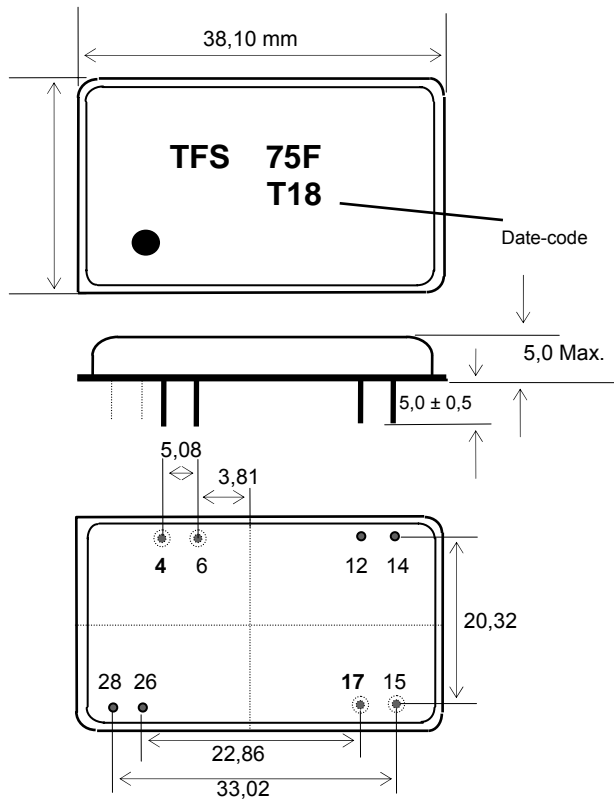
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**Filter characteristic**



**Construction and pin connection**

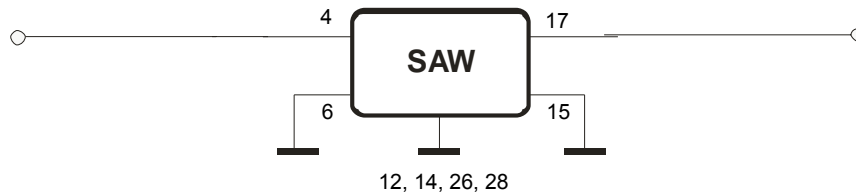
(All dimensions in mm)



4	Input
6	Input RF Return
17	Output
15	Output RF Return
12	Ground
14	Ground
26	Ground
28	Ground

Date code: Year + week  
 T 2005  
 U 2006  
 V 2007  
 ...

**50 Ohm Test circuit**



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**Stability characteristics**

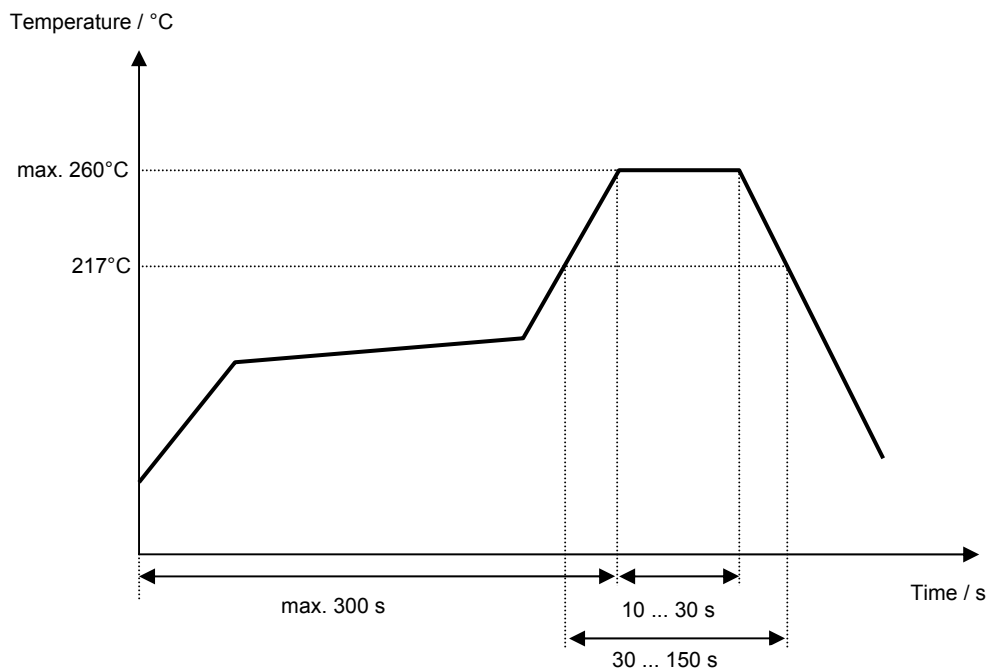
After the following tests the filter shall meet the whole specification:

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;

**Air reflow temperature conditions**

<b>Conditions</b>	<b>Exposure</b>
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50°C)	less than 6°C/second
Time from 30°C to Peak temperature	no greater than 300 seconds

**Chip-mount air reflow profile**



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**VI TELEFILTER****Filter specification****TFS 75F****5/5****History**

<b>Version</b>	<b>Reason of changes</b>	<b>Name</b>	<b>Date</b>
1.0.	Generation of development specification	Strehl	27.01.2005
1.1	- terminating impedance, typical values and filter characteristic added - matching configuration changed	Pfeiffer	26.04.2005