

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 (reference level)	a_e	22,8	dB	max.	26,0	dB	
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 st (TFS65 at 23°C)	65,9 ± 0,1 MHz	9,4	MHz	max.	± 20	kHz	
2 nd (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	2,8	MHz	0,7	dB	max.	1
$f_c \pm 2,8$ MHz	$f_c \pm 3,0$ MHz	3,0	MHz	1,5	dB	max.	3
$f_c \pm 3,3$ MHz				48	dB	min.	40
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
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
$f_c \pm 25$ MHz	$f_c \pm 50$ MHz	50	MHz	60	dB	min.	50
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.

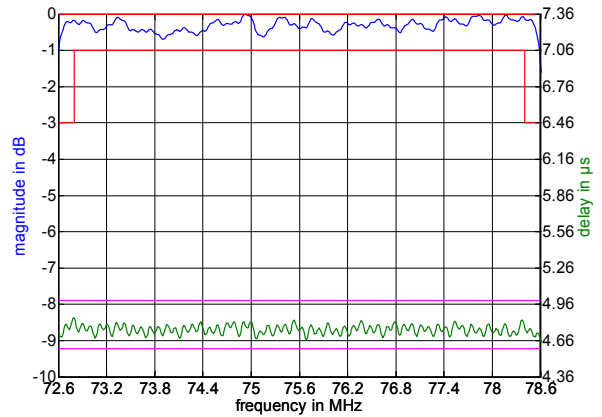
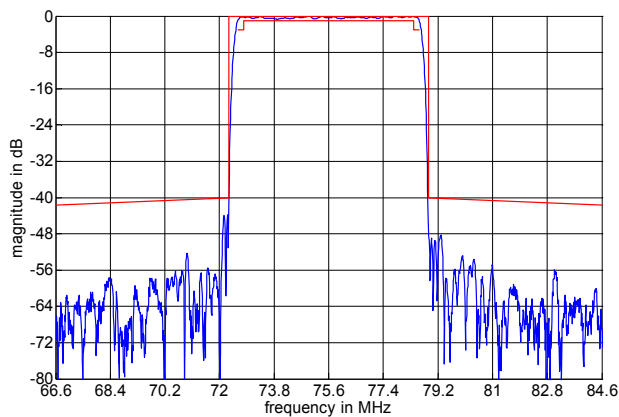
**) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$

Generated:**Checked / Approved:**

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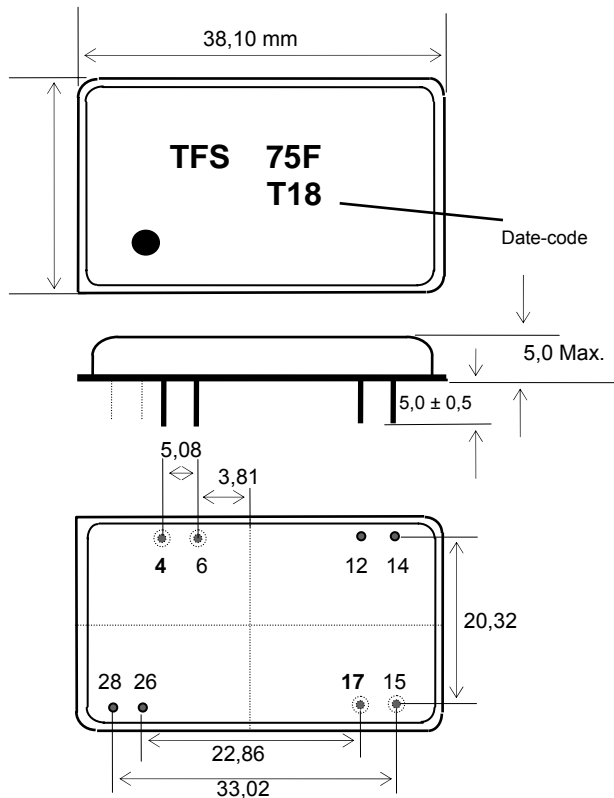
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Filter characteristic



Construction and pin connection

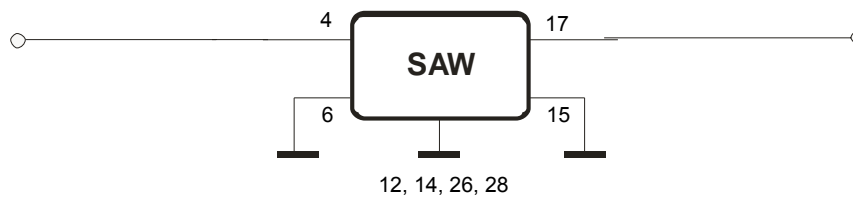
(All dimensions in mm)



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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VI TELEFILTER**Filter specification****TFS 75F****3/5****Stability characteristics**

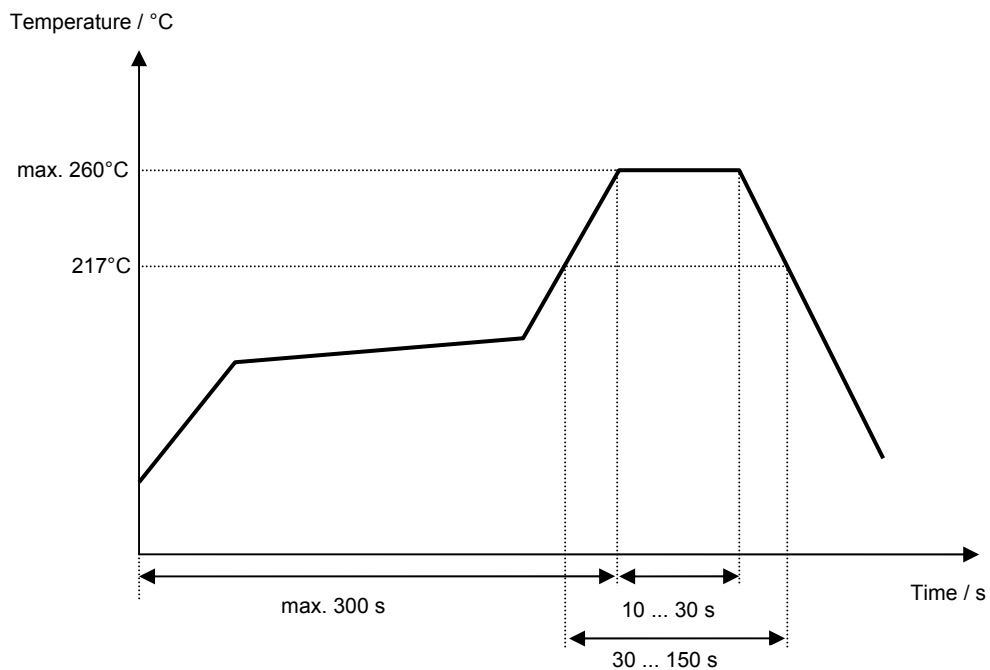
After the following tests the filter shall meet the whole specification:

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

Conditions	Exposure
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



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

Version	Reason of changes	Name	Date
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