Measurement condition

Ambient temperature: 25 °C
Input power level: 02 dBm
Terminating impedance: *
Input: 330 Ω || -13,6 pF
Output: 300 Ω || -14,6 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 150S is the minimum of the pass band attenuation a_{min}. The minimum of the pass band attenuation a_{min} 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 3 dB filter attenuation level relative to the insertion loss a_e. The temperature coefficient of frequency Tc_f is valid for both the reference frequency f_c and the frequency response of the filter in the operating temperature range. The frequency shift of the filter in the operating temperature range is not included in the production tolerance scheme.

D a t a		typ. value		tolerance / limit		
Insertion loss (reference level)	a_e	21,6	dB	max.	25	dB
Nominal frequency	f_N	-			150,0	MHz
Centre frequency	f_C	150	MHz		150,0±0,1	MHz
Passband	PB	-		f_C	±2,5015	MHz
Pass band ripple (p-p)		0,25		max.	0,7	dB
Bandwidth	BW					
0,7 dB		5,20	MHz	min.	5,03	MHz
3 dB		5,53	MHz	min.	5,35	MHz
40 dB		6,49	MHz	max.	7,50	MHz
45 dB		6,54	MHz	max.	9,70	MHz
Relative attenuation	a_{rel}					
f_C … f_C ± 2,5015 MHz		0,25	dB	max.	0,7	dB
f_C ± 2,5015 MHz … f_C ± 2,675 MHz		1,5	dB	max.	3,0	dB
f_C - 144,500 MHz … f_C - 4,825 MHz		65	dB	min.	45	dB
f_C ± 3,150 MHz … f_C ± 3,350 MHz		20	dB	min.	15	dB
f_C ± 3,350 MHz … f_C ± 3,750 MHz		45	dB	min.	25	dB
f_C ± 3,750 MHz … f_C ± 4,825 MHz		55	dB	min.	40	dB
f_C + 4,825 MHz … f_C + 428,500 MHz		60	dB	min.	45	dB
Absolute group delay within PB		2,58	µs	max.	2,7	µs
Group delay ripple within PB (p-p)		44	ns	max.	120	ns
Operating temperature range	OTR	-		- 25 °C ... + 80°C		
Storage temperature range		-		- 40 °C ... + 85°C		
Frequency inversion temperature		20	°C		-	
Temperature coefficient of frequency	TC_f **	-0,036	ppm/K²		-	

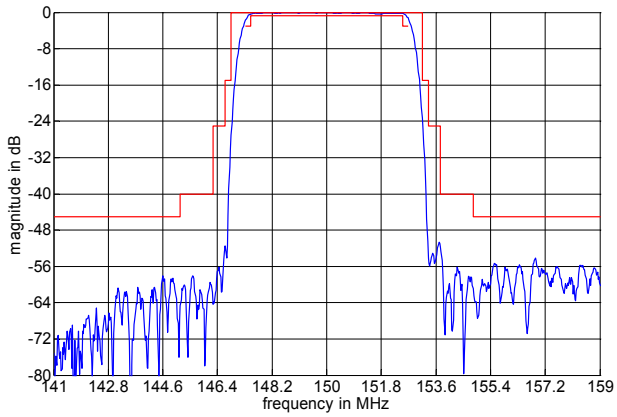
*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.
**) $\Delta f_C(Hz) = Tc_f(ppm/K^2) \times (T - T_A)^2 \times f_{CAT}$ (MHz)

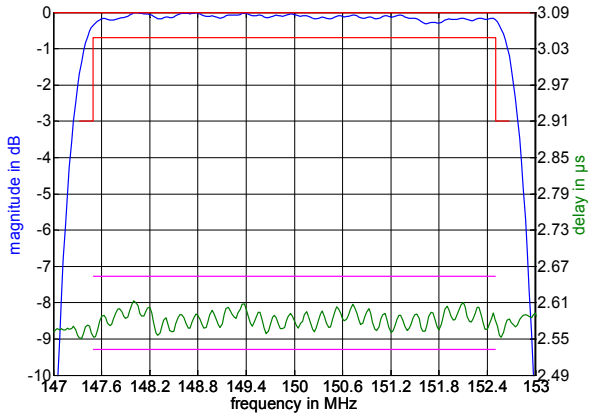
Generated:

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

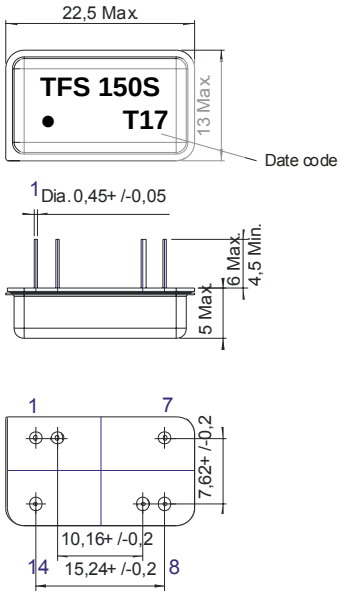
Filter characteristic





Construction and pin connection

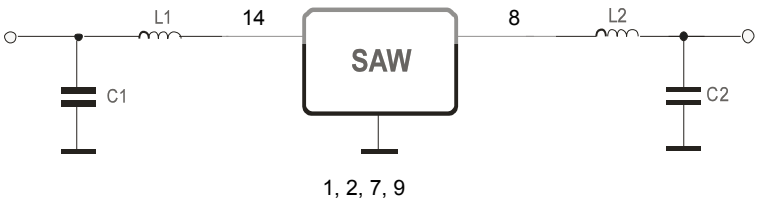
(All dimensions in mm)



1	Input RF Return
2	Ground
7	Output RF Return
8	Output
9	Ground
14	Input

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

50 Ω Test circuit



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Stability characteristics

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

1. Shock:	500g, 1 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, please refer to the attached "Air reflow temperature conditions" on page 4;

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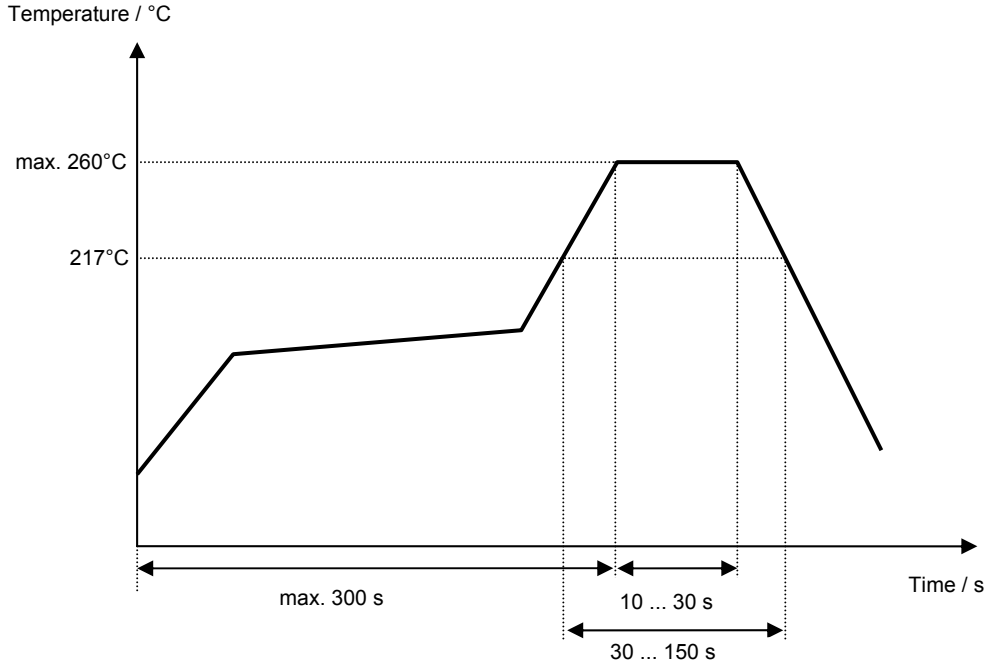
Air reflow temperature conditions

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



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History

Version	Reason of changes	Name	Date
1.0	- generation of development specification	Strehl	20.01.2005
1.1	- change passband add typ. 3dB bandwidth	Strehl	04.02.2005
1.2	- change relative attenuation	Strehl	14.02.2005
1.3	- 'remarks' corrected	Pfeiffer	15.02.2005
1.4	- change insertion loss - change absolute group delay	Strehl	07.04.2005
1.5	- terminating impedance, typical values and filter characteristic added - matching configuration modified	Pfeiffer	22.04.2005

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