

VI TELEFILTER

Filter specification

TFS 150T

1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	55 Ω	-21,9 pF
Output:	55 Ω	-17,7 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS150T 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 reference 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 both for the reference frequency f_c and the frequency response of the filter in the operating temperature range. The bandwidth shift of the filter in the operating temperature range is included in the production tolerance scheme.

D a t a		typ. value		tolerance / limit		
Insertion loss (reference level)		a_e	24,1 dB	max.	25	dB
Nominal frequency		f_N	-		150,0	MHz
Centre frequency		f_c	150,0 MHz	150,0	± 0,1	MHz
Passband		PB	-	f_N ±	8,05	MHz
Pass band ripple (p-p)			0,7 dB	max.	1,0	dB
Bandwidth		BW				
3 dB			16,62 MHz	min.	16,5	MHz
15 dB			17,11 MHz	max.	17,2	MHz
45 dB			17,54 MHz	max.	18,4	MHz
Relative attenuation		a_{rel}				
f_c		f_c ± 8,25 MHz	2,5 dB	max.	3	dB
f_c ± 8,60 MHz		f_c ± 8,80 MHz	20 dB	min.	15	dB
f_c ± 8,80 MHz		f_c ± 9,20 MHz	35 dB	min.	30	dB
f_c ± 9,20 MHz		f_c ± 10 MHz	48 dB	min.	45	dB
f_c + 10 MHz		f_c + 400 MHz	53 dB	min.	50	dB
f_c - 140 MHz		f_c - 10 MHz	55 dB	min.	50	dB
Absolute group delay within PB			2,8 μs	max.	4	μs
Group delay ripple within PB (p-p)			80 ns	max.	150	ns
Operating temperature range		OTR	-		- 25 °C ... + 80 °C	
Storage temperature range			-		- 40 °C ... + 85 °C	
Temperature coefficient of frequency		TC_f **	-87 ppm/K		-	

*) 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.

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

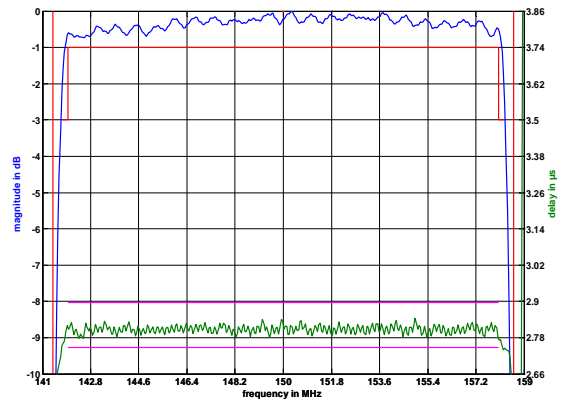
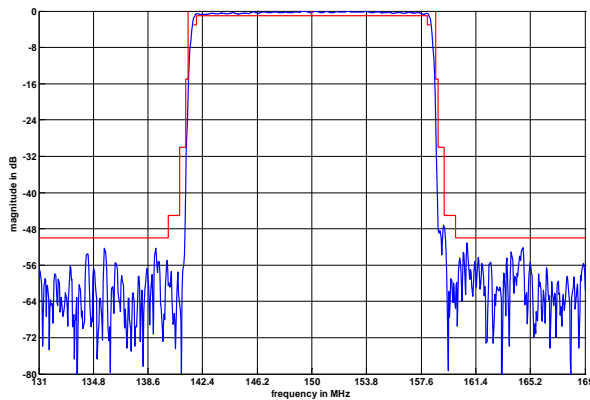
Generated:

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

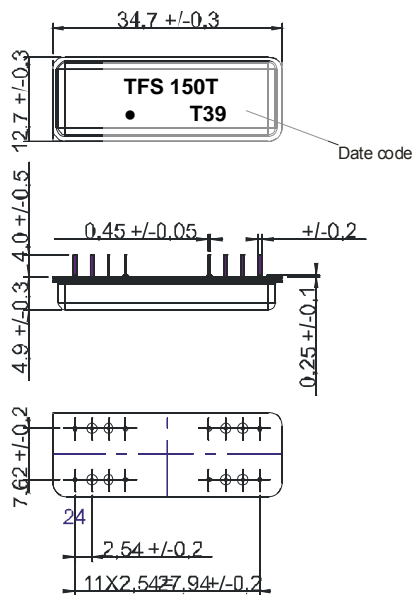
VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Filter characteristic



Construction and pin connection

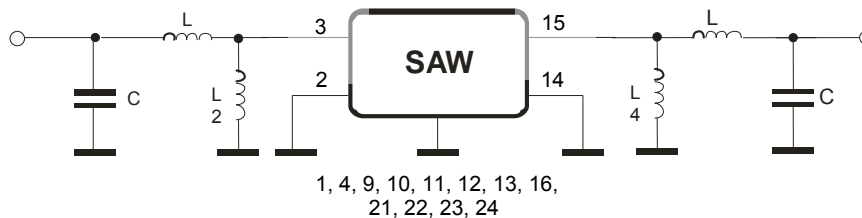
(All dimensions in mm)



- 1 Ground
- 2 Input RF Return
- 3 Input
- 4 Ground
- 9,10,11,12 Ground
- 13 Ground
- 14 Output RF Return
- 15 Output
- 16 Ground
- 21,22,23,24 Ground

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

50 Ohm Test circuit



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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

VI TELEFILTER**Filter specification****TFS 150T****3/5**

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;

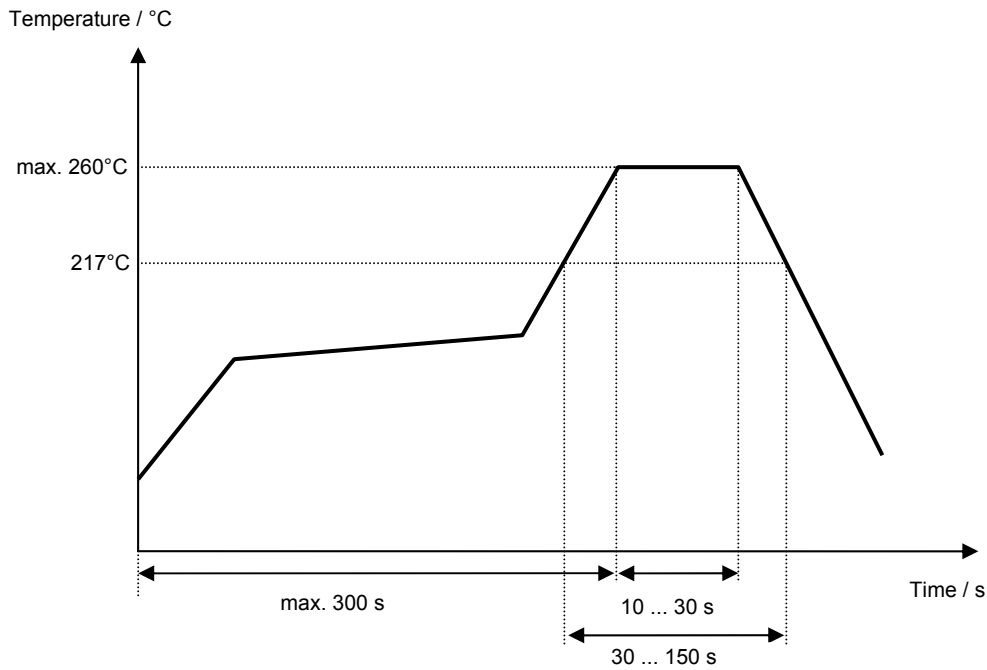
Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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



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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

VI TELEFILTER**Filter specification****TFS 150T****5/5****History**

Version	Reason of changes	Name	Date
1.0	- generation of development specification	Strehl	27.06.2005
1.1	- change remark of characteristics, passband and limit for centre frequency	Strehl	10.08.2005
1.2	- terminating impedance, typical values, filter characteristic and matching configuration added	Pfeiffer	20.09.2005

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.