

VI TELEFILTER

Filter specification

TFS 107A

1/5

Measurement condition

Ambient temperature: 25 °C
 Input power level: 0 dBm
 Terminating impedance: *
 Input: 105 Ω || -30,7 pF
 Output: 84 Ω || -37,2 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS107A is the insertion loss. The attenuation at the nominal frequency is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 107,52 MHz without any tolerance or limit. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

Data		typ. value		tolerance / limit		
Insertion loss (reference level)	a_e	17,2	dB	max.	18	dB
Nominal frequency	f_N				107,52	MHz
Passband	PB	-			$f_N \pm 1,89$	MHz
Pass band ripple **;****		0,6	dB	max.	1,5	dB
Relative attenuation	a_{rel}					
$f_N - 85$ MHz ... $f_N - 30$ MHz		60	dB	min.	50	dB
$f_N - 30$ MHz ... $f_N - 4$ MHz		52	dB	min.	40	dB
$f_N + 4$ MHz ... $f_N + 28,82$ MHz		52	dB	min.	40	dB
$f_N + 28,82$ MHz ... $f_N + 32,62$ MHz		75	dB	min.	45	dB
$f_N + 32,62$ MHz ... $f_N + 205,04$ MHz		70	dB	min.	40	dB
$f_N + 205,04$ MHz ... $f_N + 225,04$ MHz		75	dB	min.	35	dB
$f_N + 225,04$ MHz ... $f_N + 792,48$ MHz		65	dB	min.	40	dB
$f_N + 792,48$ MHz ... $f_N + 1000$ MHz		62	dB	min.	30	dB
Group delay ripple within PB ***		50	ns	max.	90	ns
Phase ripple within PB	***	1,5	°rms	max.	2	°rms
Intermodulation	Output-IP3 *****	43	dBm	min.	30	dBm
Return loss within PB		20	dB	min.	10	dB
Input power level				max.	15	dBm
Operating temperature range	OTR	-			0 °C ... + 80°C	
Storage temperature range		-			- 40 °C ... + 85°C	
Temperature coefficient of frequency	TC_f **	20	ppm/K			

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

***) For a cascade of TFS 107 and TFS 107A;

****) In addition 1dB ripple should be fulfilled in any 1,26 MHz band for the cascade

*****) $f_{in1} = 106,52 \text{ MHz}$; $f_{in2} = 107,02 \text{ MHz}$; $P_{in} = 10 \text{ dBm}$ $f_{measurement} = 107,52 \text{ MHz}$

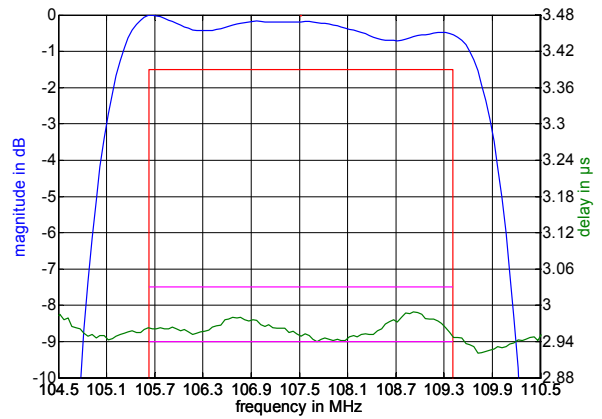
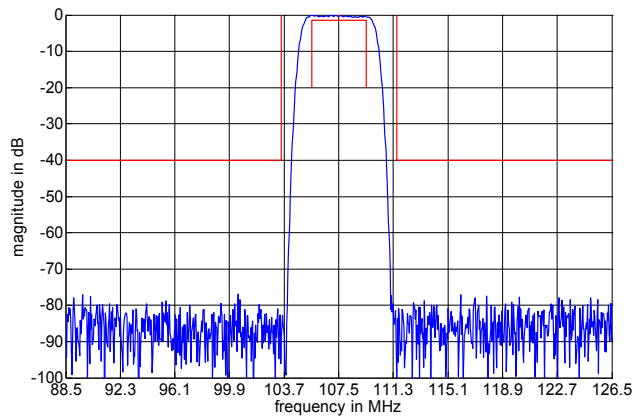
Generated:

Checked / Approved:

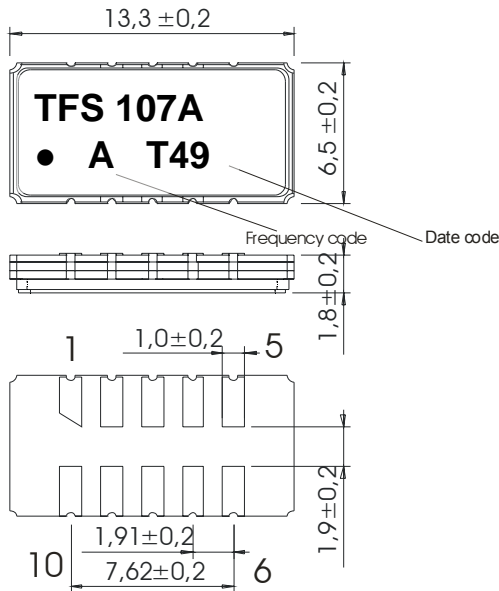
Tele Filter GmbH
 Potsdamer Straße 18
 D 14 513 TELTOW / Germany
 Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
 E-Mail: tft@telefilter.com

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)

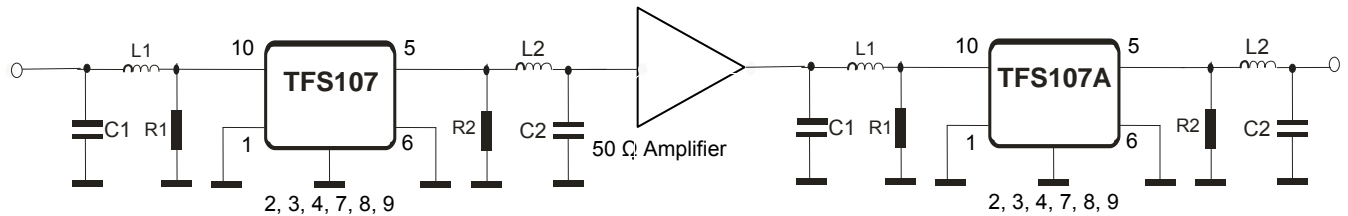


- 1 Input RF Return
- 2 Ground
- 3 Ground
- 4 Ground
- 5 Output
- 6 Output RF Return
- 7 Ground
- 8 Ground
- 9 Ground
- 10 Input

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

Frequency code: A, B, C, D, E

50 Ω matching network :



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.

Stability characteristics, reliability

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 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;

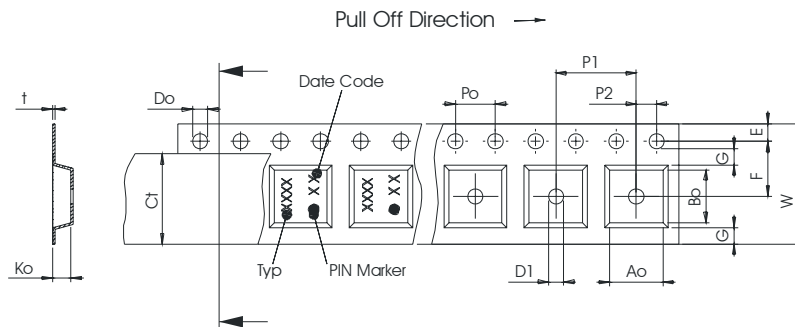
This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

Packing

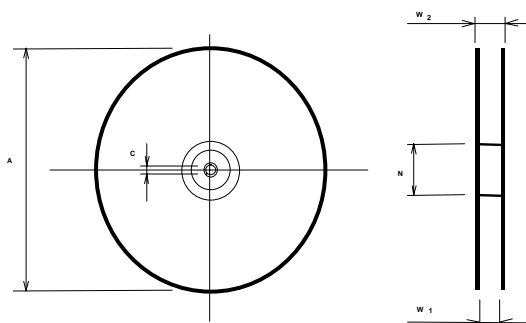
Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

max. pieces of filters peer reel:	1700
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

- Tape (all dimensions in mm)**
- W : 24,00 +0,30/-0,10
 - Po : 4,00 ± 0,1
 - Do : 1,50 +0,1/-0
 - E : 1,75 ± 0,10
 - F : 11,50 ± 0,10
 - G(min) : 0,60
 - P2 : 2,00 ± 0,1
 - P1 : 12,00 ± 0,1
 - D1(min) : 1,50
 - Ao : 7,10 ± 0,10
 - Bo : 13,90 ± 0,10
 - Ct : 21,5 ± 0,1



- Reel (all dimensions in mm)**
- A : 330
 - W1 : 24,4 +2/-0
 - W2(max) : 30,4
 - N(min) : 60
 - C : 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

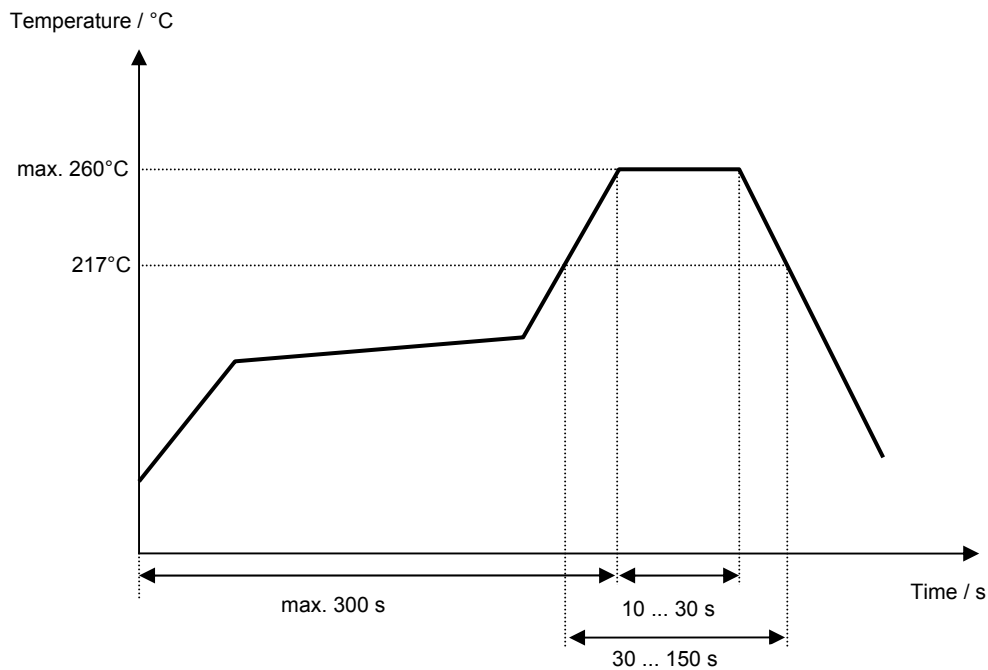
Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

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



History

Version	Reason of Changes	Name	Date
1.0	- generate development specification	Strehl	12.10.2004
1.1	- adding phase ripple and IP3 - added new reflow profile - changed pinning	Martens	27.10.2004
1.2	- intermodulation defined more precisely	Steiner	29.10.2004
1.3	- typical values, terminating impedances (preliminary values) and filter characteristic added - matching configuration changed - lower frequency range for relative attenuation changed	Pfeiffer	20.12.2004
1.4	- terminating impedance, matching configuration and filter characteristic changed - typical values modified	Pfeiffer	08.02.2005
1.5	- labelling changed - stability characteristics modified	Pfeiffer	05.12.2005