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 TFS107 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.

D a t a		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			

**) Δf_C(Hz) = Tc_f(ppm/K) x (T - T_A) x f_N (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 MHz; f_{in2}= 107,02 MHz; P_{in}=10 dBm $f_{measurement}$ = 107,52 MHz

Generated:

Checked / Approved:

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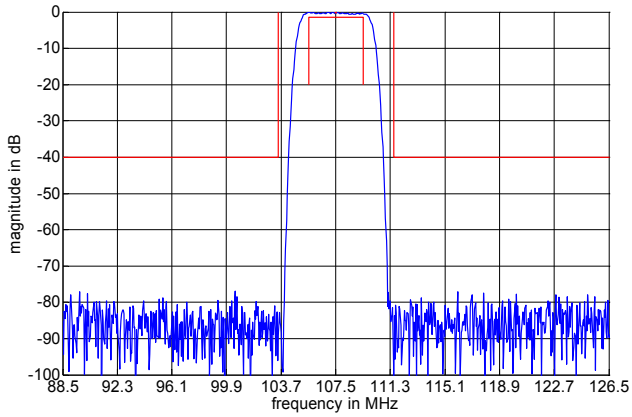
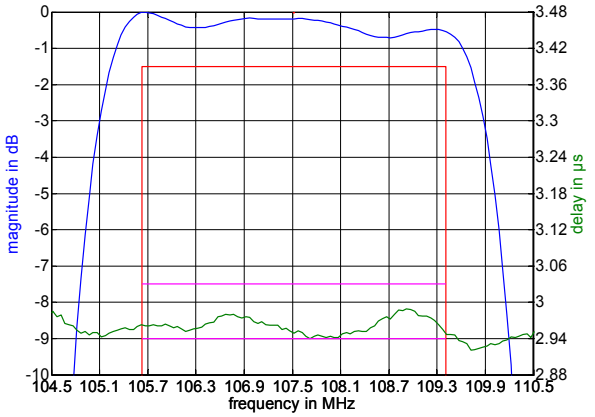
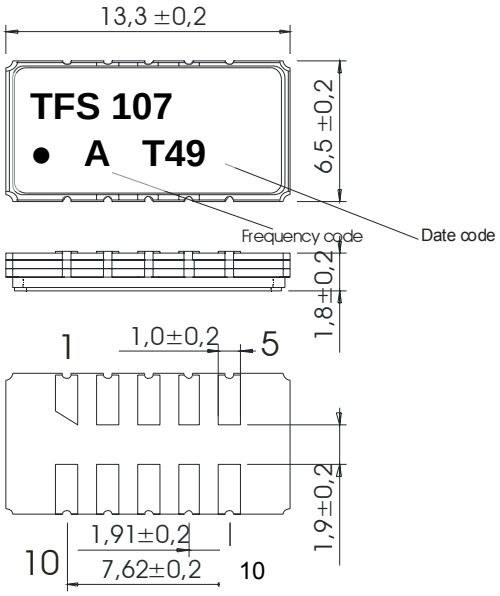
Filter characteristic





Construction and pin connection

(All dimensions in mm)

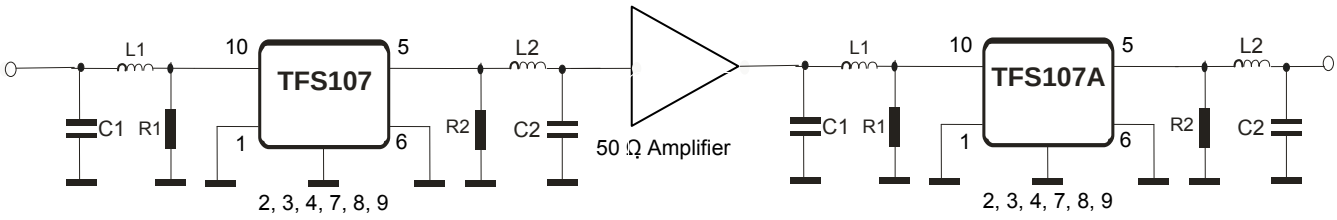


1	Input RF Return
2	Ground
3	Ground
4	Ground
5	Output
6	Output RF Return
7	Ground
8	Ground
9	Ground
10	Input

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

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

50 Ω matching network :



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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

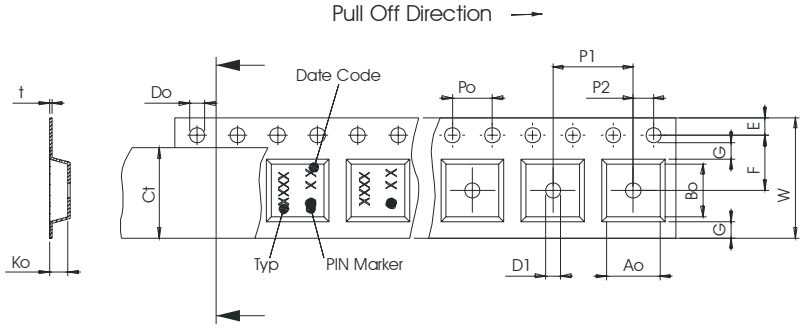
4. Resistance to solder heat (reflow): reflow possible: twice max.;
   for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

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

Packing

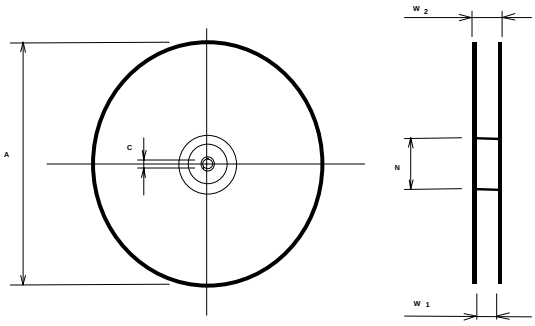
Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

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.

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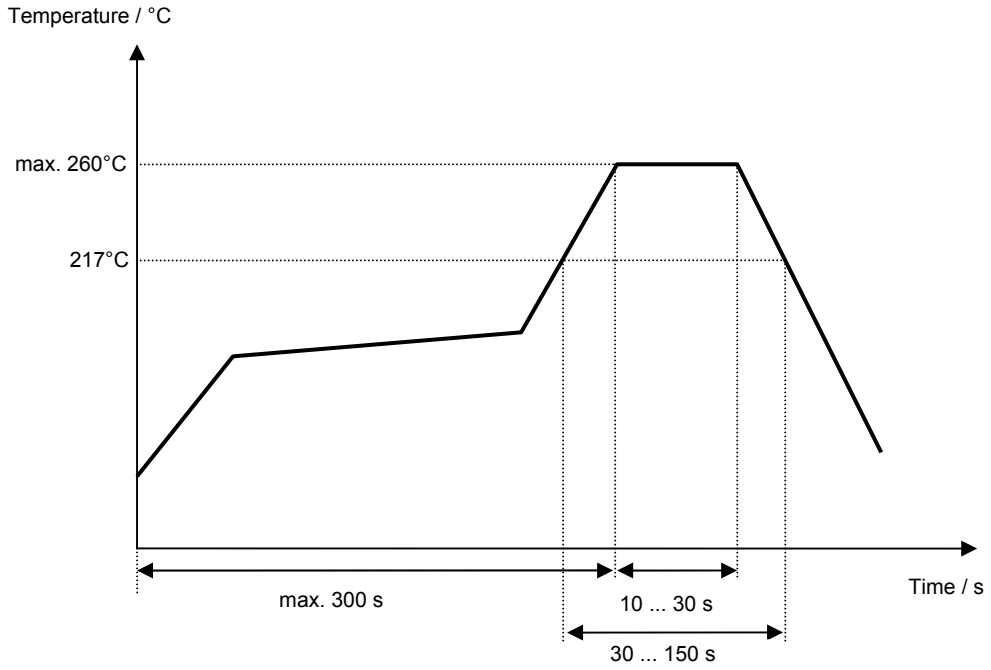
Air reflow temperature conditions

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

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