Measurement condition

Ambient temperature: 25 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 323 Ω || -10,5 pF
Output: 162 Ω || -17,9 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 107C 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 nominal frequency f_N is fixed at 107,2 MHz without any tolerance. The given values for both the relative attenuation a_{rel} and the group delay ripple have to be achieved 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.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss (reference level)	a_e	16,2	dB	max.	20,0	dB
Nominal frequency	f_N	-			107,25	MHz
Centre frequency	f_C **	107,25	MHz	max.	± 100	kHz
Passband	PB	-			f_C ± 23,5	MHz
Pass band variation **		0,7	dB	max.	1,5	dB
Pass band variation				max	2	dB
Bandwidth	BW					
1,5 dB		49	MHz	min.	47,0	MHz
Relative attenuation	a_{rel}					
f_C … f_C ± 23,5 MHz		0,7	dB	max.	2	dB
f_C - 100 MHz … f_C - 30,9 MHz		43	dB	min.	40	dB
f_C + 30,9 MHz … f_C + 400 MHz		43	dB	min.	40	dB
Group delay ripple within PB (p-p)		65	ns	max.	200	ns
Operating temperature range	OTR	-		- 25 °C ... + 80 °C		
Storage temperature range		-		- 40 °C ... + 85 °C		
Temperature coefficient of frequency	TC_f ***	-83	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.
**) at room temperature
***) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_A) \times f_{CAT}$ (MHz)

Generated:

Checked / Approved:

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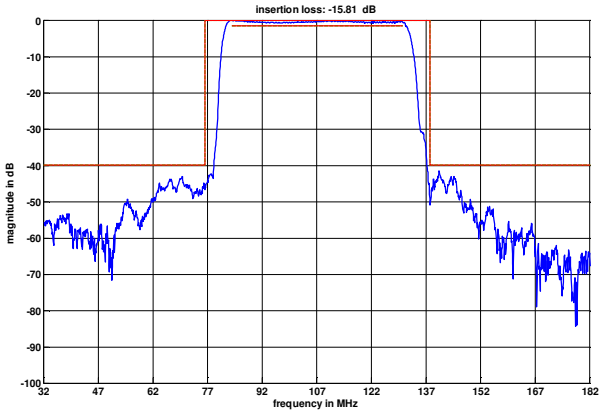
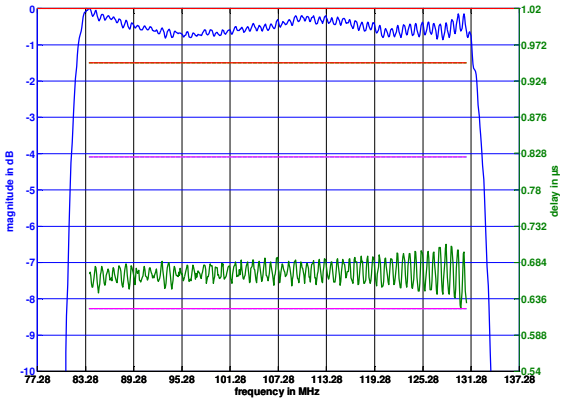
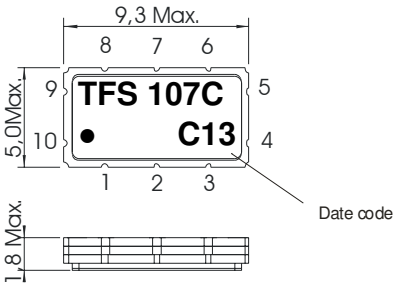
Filter characteristic

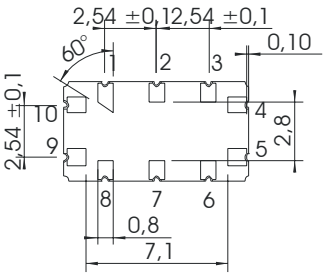




Construction and pin connection

(All dimensions in mm)

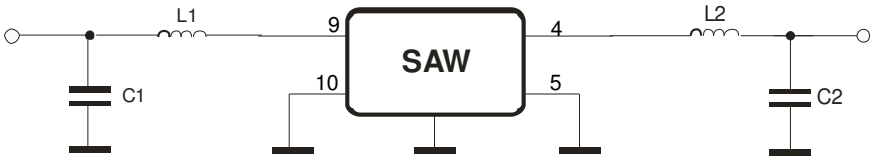




1	Ground
2	Ground
3	Ground
4	Output
5	Output RF Return
6	Ground
7	Ground
8	Ground
9	Input
10	Input RF Return

Date code:	Year + week
C	2012
D	2013
E	2014
...	

50 Ohm Test circuit



1, 2, 3, 6, 7, 8

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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)

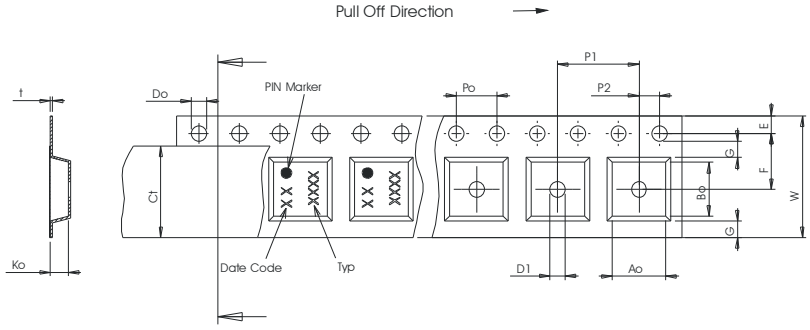
Packing

Tape & Reel: IEC 286 – 3, with exception 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 per reel:	3000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

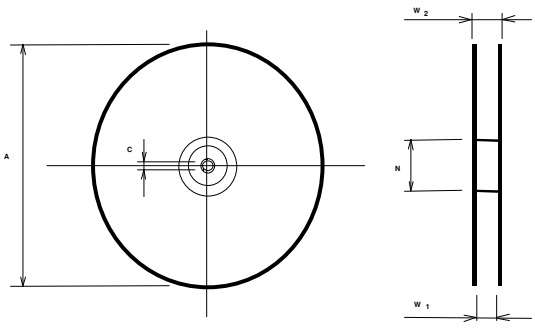
Tape (all dimensions in mm)

W	: 16,00	+0,3/-0,1
Po	: 4,00	± 0,1
Do	: 1,50	+0,1/-0
E	: 1,75	± 0,1
F	: 7,50	± 0,1
G(min)	: 0,60	
P2	: 2,00	± 0,1
P1	: 8,00	± 0,1
D1(min)	: 1,50	
Ao	: 5,30	± 0,1
Bo	: 9,70	± 0,1
Ct	: 13,3	



Reel (all dimensions in mm)

A	:330	
W1	: 16,4	+2/-0
W2(max)	: 22,4	
N(min)	: 50	
C	: 13,0	+0,5/-0,2



The minimum bending radius is 45 mm.

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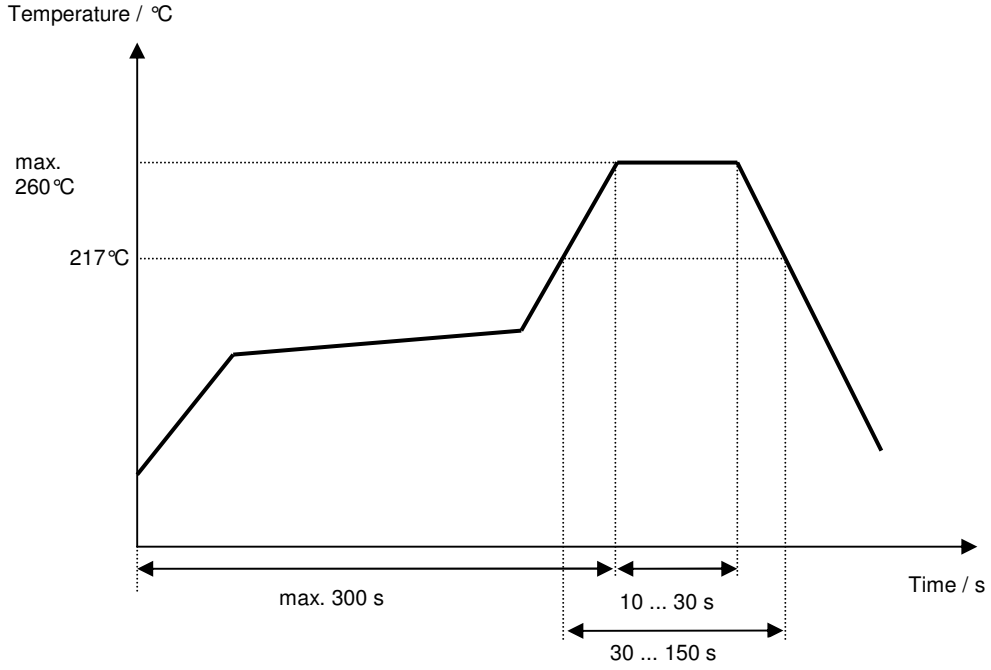
Air reflow temperature conditions

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	- Generation of development specification	Strehl	06.03.2006
1.1	- Terminating impedance, typical values and filter characteristic added ➔ (preliminary values) - Matching configuration added - Relative attenuation in upper stop band mofified	Pfeiffer	11.04.2006
1.2	- Centre frequency changed according customer requirements - Terminating impedance changed (preliminary value)	Pfeiffer	24.04.2006
1.3	- Change from development specification to filter specification - Relative attenuation in upper stop band corrected	Pfeiffer	02.05.2006
1.4	- change of terminating impedance, typical values and filter characteristic	Pfeiffer	02.06.2006
1.5	- template of relative attenuation corrected	Pfeiffer	07.07.2006
2.0	- changed passband ripple - added variation in passband over operating temperature range - changed 1,5dB bandwidth - temperature coefficient of frequency corrected	Chilla	29.03.2012

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