Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	590 Ω || -1.1 pF	
Output:	590 Ω || -1.1 pF	
Source impedance:	50 Ω	
Load impedance:	50 Ω	

Characteristics

Remark:
The minimum of the 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 centre frequency f_c and the frequency response of the filter within the operating temperature range.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss	a_e	3.6	dB	max.	6	dB
Centre frequency	f_C	100.000	MHz		-5 +3	kHz kHz
Bandwidth	BW					
3 dB		39	kHz	min. max.	33 42	kHz kHz
20 dB		66	kHz	max.	78	kHz
Group delay at f_c		22.6 µs		min.	20	µs
Input power level**		-		max.	23	dBm
Temperature coefficient of frequency	TC_f *	-0.035	ppm/K²		-	
Frequency inversion temperature	T_o	45	°C	min. max.	40 50	°C °C
Operating temperature range	OTR	-		0 °C … + 70 °C		
Storage temperature range		-		- 40 °C … + 85 °C		

*) $\Delta f(Hz) = TC_f(ppm/K^2) \times (T-T_0)^2 \times f_{T_O}(MHz)$.
**) TFS100L can be operated continuously at the specified power level with a 100 MHz signal for a period of at least 10 years as long as operating temperatures are below specified maximum.

Generated:

Checked / Approved:

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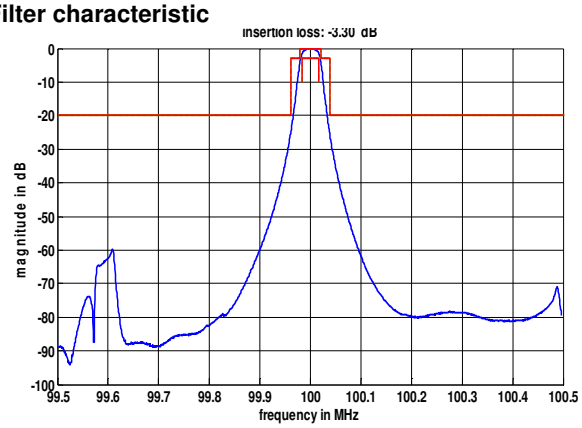
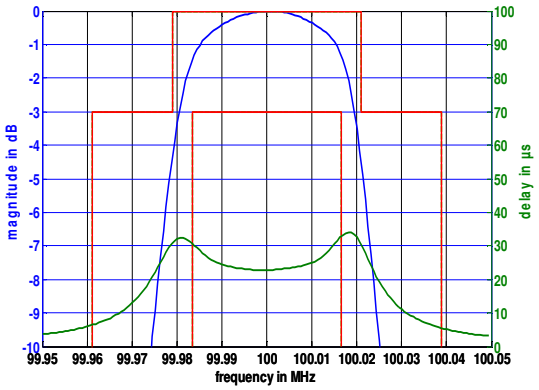
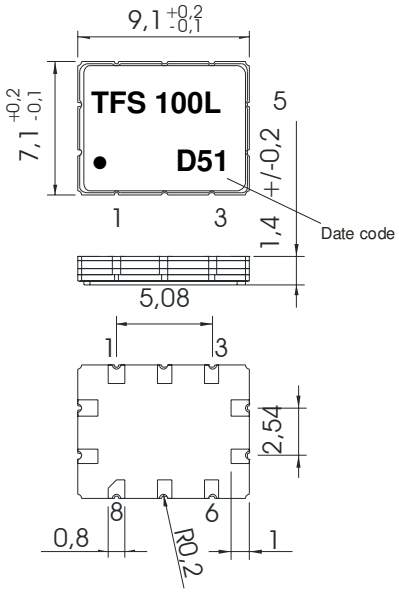
Filter characteristic





Construction and pin connection

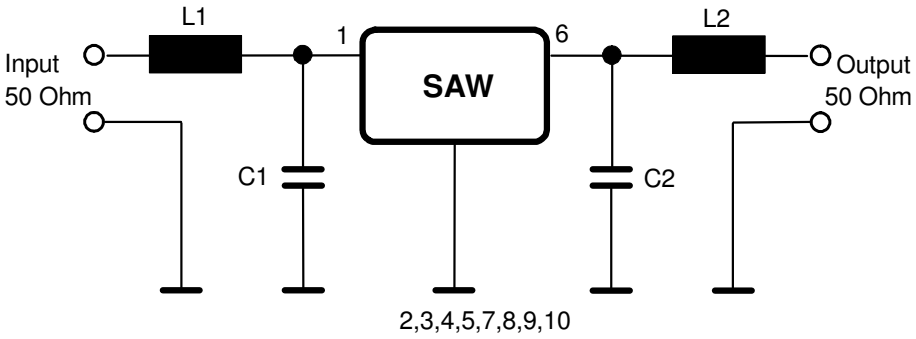
(All dimensions in mm)



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

Date code:	Year + week
D	2013
E	2014
F	2015
...	

50 Ω Test circuit



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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 plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature:	-55 °C to 125°C / 15 min. each / 100 cycles DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow):	reflow possible: three times max.; for temperature conditions, see page 4: "Air reflow temperature conditions"
5. ESD	ANSI/ESD S20.20-1999**,** class 1A for HBM

This filter is RoHS compliant (2011/65/EU)

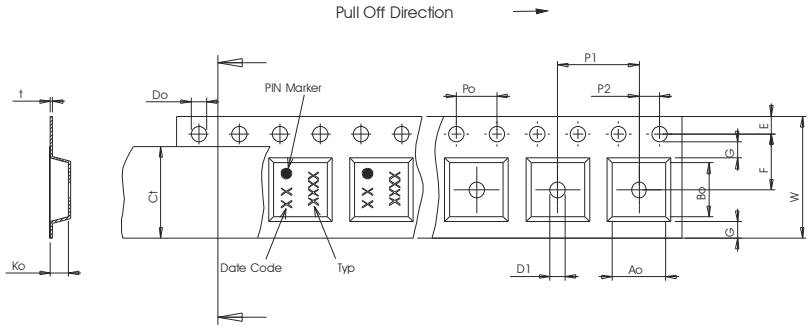
Packing

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:	2000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

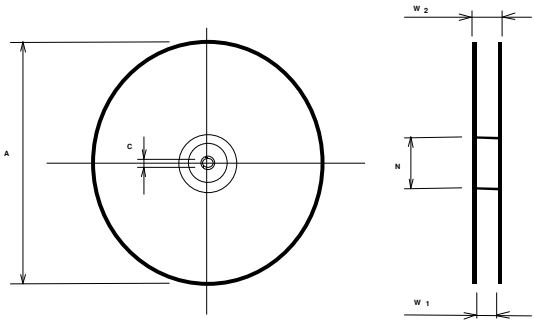
Tape (all dimensions in mm)

W	:	16,00 ± 0,3
Po	:	4,00 ± 0,1
Do	:	1,50 +0,1/-0
E	:	1,75 ± 0,10
F	:	7,50 ± 0,10
G(min)	:	0,60
P2	:	2,00 ± 0,1
P1	:	12,00 ± 0,1
D1(min)	:	1,50
Ao	:	7,60 ± 0,10
Bo	:	9,60 ± 0,10
Ct	:	13,3



Reel (all dimensions in mm)

A	:	330 or 180
W1	:	16,4
W2(max)	:	22,4
N(min)	:	50
C	:	13,0



The minimum bending radius is 45 mm.

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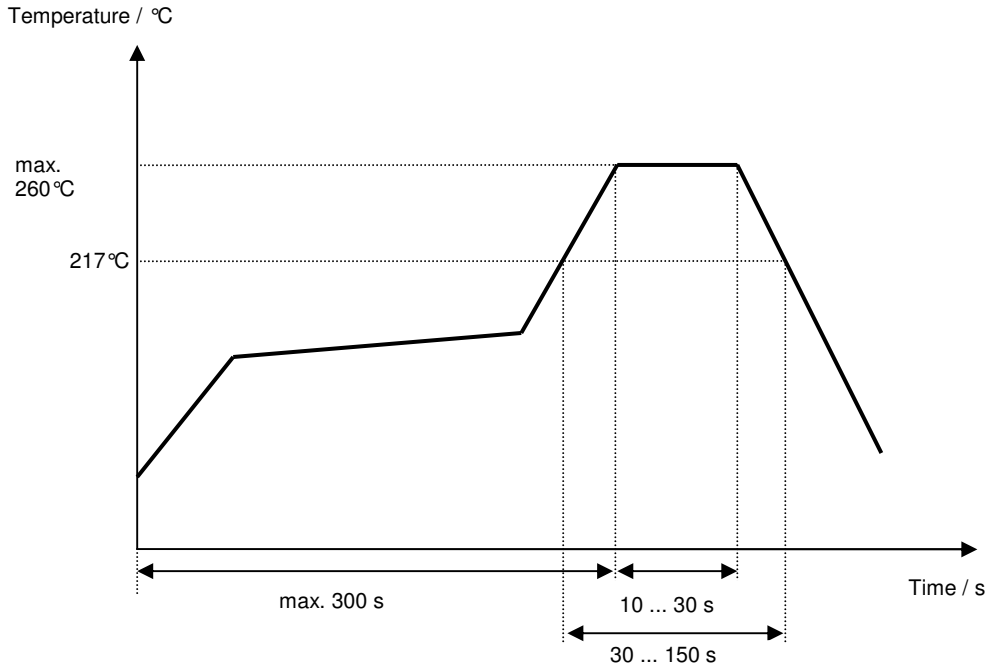
Air reflow temperature conditions

Conditions	**Exposure**
Average ramp-up rate (30℃ to 217℃)	less than 3℃/second
> 100℃	between 300 and 600 seconds
> 150℃	between 240 and 500 seconds
> 217℃	between 30 and 150 seconds
Peak temperature	max. 260℃
Time within 5℃ of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50℃)	less than 6℃/second
Time from 30℃ 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 specification.	Dr. Bert Wall	13.11.2013
2.0	- Replace T.B.D. by preliminary vales - Add source and load impedance - Add comment for input power level - Remove 170 kHz bandwidth and pass band variation	Dr. Bert Wall	15.11.2013
2.1	- Add asterix for remark 2	Dr. Bert Wall	15.11.2013
2.2	- Add limit for group delay	Dr. Bert Wall	13.12.2013
2.3	- Correct description of pin 3 in “Construction and pin connection”	Fredrick Raura	19.12.2013
3.0	- Add typical values - Change terminating impedance - Change from development to filter specification - Clarify comment concerning maximum input power	Silas Bonnen	20.08.2014

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