VI TELEFILTER — Filter specification — TFS 125K — 1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	Ω

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 125K is the maximum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 125 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	1,88	dB	2,5 ± 1,0	dB
Nominal frequency	f_N	-		125	MHz
Bandwidth	BW				
1 dB		2,80	MHz	300	kHz
Pass band ripple within ± 100 kHz		0,10	dB	max. 0,20	dB
Relative attenuation	a_{rel}				
f_N ± 150 kHz		-		max. 1	dB
f_N - 14 MHz … f_N - 28 MHz		50	dB	min. 5	dB
f_N - 28 MHz … f_N - 124 MHz		65	dB	min. 12	dB
f_N + 14 MHz … f_N + 23 MHz		40	dB	min. 30	dB
f_N + 23 MHz … f_N + 33 MHz		55	dB	min. 44	dB
f_N + 33 MHz … f_N + 325 MHz		42	dB	min. 38	dB
Absolute group delay GD *)		245	ns	max. 300	ns
f_N - 150 kHz … f_N + 150 kHz					
Group delay ripple GDR *)		15	ns	max. 100	ns
f_N - 150 kHz … f_N + 150 kHz					
VSWR		1.3:1		2 : 1	
f_N - 150 kHz … f_N + 150 kHz					
Intermodulation **)		54	dB	min. 45	dB
IP_3					
Input power level				max. 10	dBm
Operating temperature range	OTR	-		- 40 °C ... + 85°C	
Storage temperature range		-		- 55 °C ... + 90°C	
Temperature coefficient of frequency	TC_f ***)	-72	ppm/k		

*) measured with smoothing: smoothing aperture ≤ 50 kHz
**) modulation signals: f_N and f_N + 14 MHz, each of 10 dBm; measured signal: f_N - 14 MHz
***) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0) \times f_{TO}(MHz)$

Generated:

Checked / Approved:

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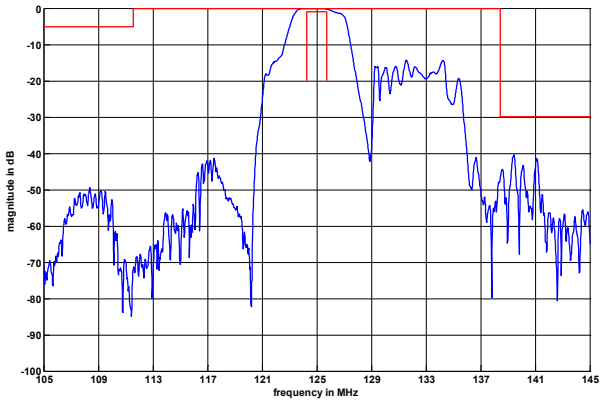
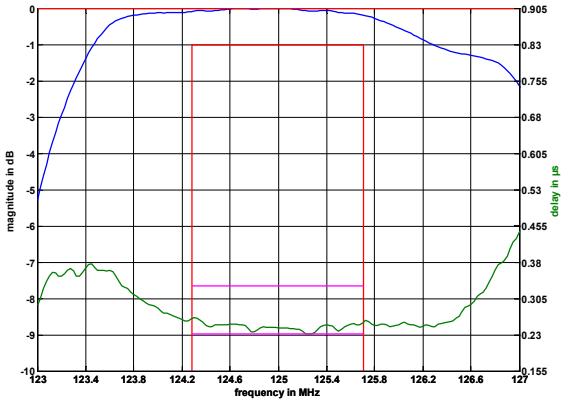
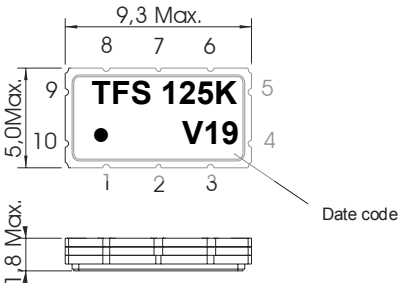
Filter characteristic

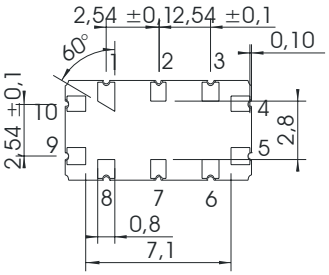




Construction and pin connection

(All dimensions in mm)

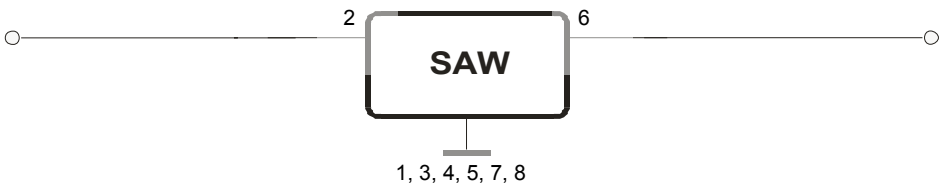




1	Ground
2	Ground
3	Ground
4	Ground
5	Output
6	Ground
7	Ground
8	Ground
9	Ground
10	Input

Date code:	Year + week
V	2007
W	2008
X	2009
...	

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 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: three times 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)

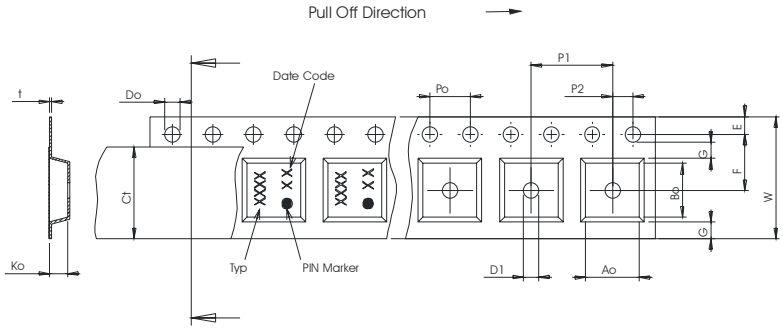
Packing

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

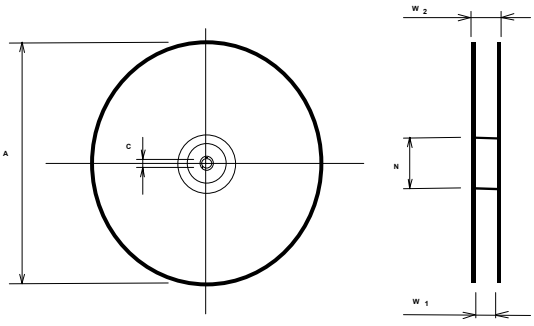
Tape (all dimensions in mm)

W	: 16,00	± 0,3
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	: 13,5	± 0,1



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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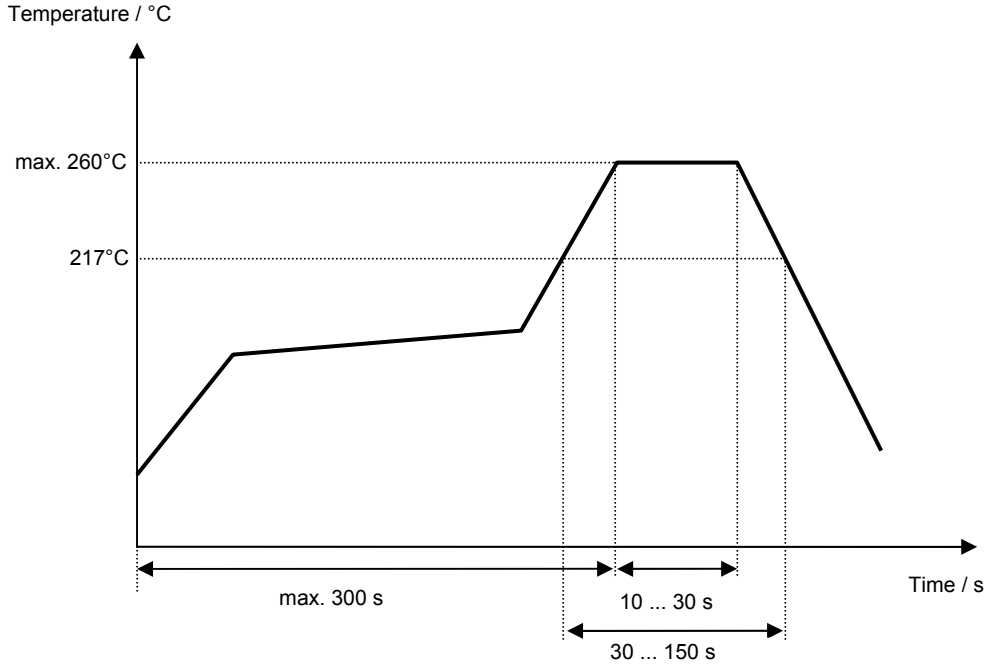
Air reflow temperature conditions

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 according to the customer specification (V-1.0.0; 15 Jan 03)	Dr. Sabah	07.03.03
1.1	- add of typical values and generation of filter specification	Dr. Sabah	03.06.03
1.2	- updated of filter specification according to customer specification, version 2.0.0	Dr. Sabah	17.06.03
1.3	- change of temperature range, add filter characteristic and reliability	S. Channaa	04.05.07
1.4	- change storage temperature range	Strehl	09.05.2007

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