

Microchip**Filter specification****TFS 125S****1/5****Measurement condition**

Ambient temperature T_A :	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	207 Ω	-24 pF
Output:	99 Ω	-25 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS125S is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 125 MHz without any tolerance. 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	11	dB	max.	14	dB
Nominal frequency	f_N				125	MHz
Passband	PB			f_N	$\pm$ 8	MHz
Pass band ripple		0.3	dB	max.	1	dB
Bandwidth						
1 dB		22	MHz	min.	16	MHz
25 dB		29	MHz	max.	40	MHz
Relative attenuation	a_{rel}					
$f_N - 8$ MHz ... $f_N + 8$ MHz		0.3	dB	max.	1	dB
$f_N - 100$ MHz ... $f_N - 33$ MHz		53	dB	min.	40	dB
$f_N - 33$ MHz ... $f_N - 20$ MHz		40	dB	min.	25	dB
$f_N + 20$ MHz ... $f_N + 33$ MHz		36	dB	min.	25	dB
$f_N + 33$ MHz ... $f_N + 100$ MHz		48	dB	min.	40	dB
Group delay ripple in PB	GDR	16	ns	max.	30	ns
Input power level				max.	15	dBm
Return loss within PB		10	dB	min.	6	dB
Operating temperature range	OTR			- 40 °C ... + 85 °C		
Storage temperature range				- 55 °C ... + 125 °C		
Temperature coefficient of frequency	TC_f *	-94	ppm/K			

*) $\Delta f = TC_f(T - T_A)f_N$

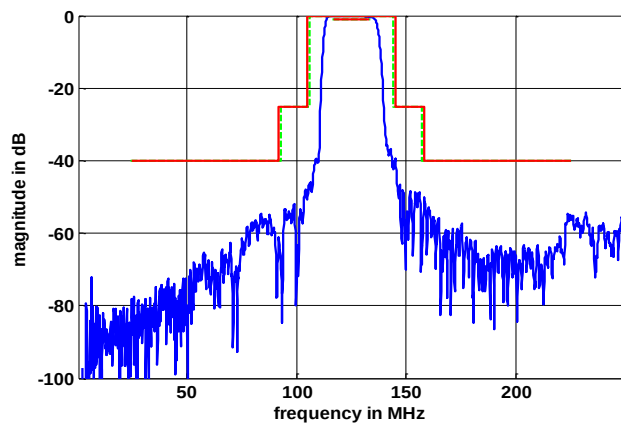
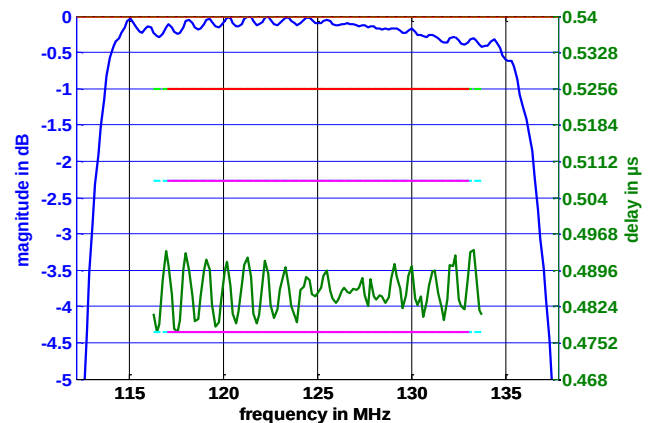
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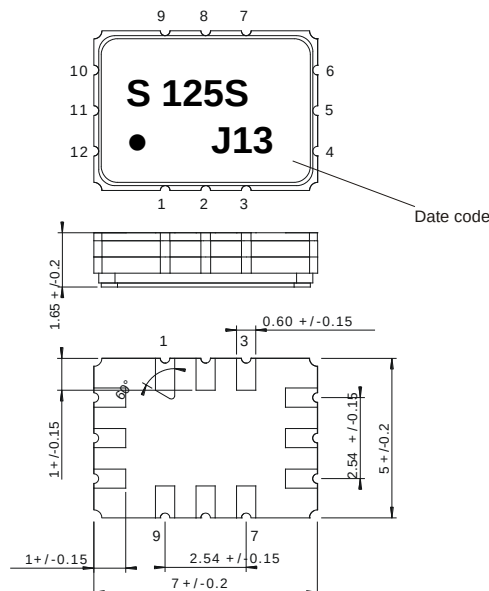
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Filter characteristic



Construction and pin connection

(All dimensions in mm)

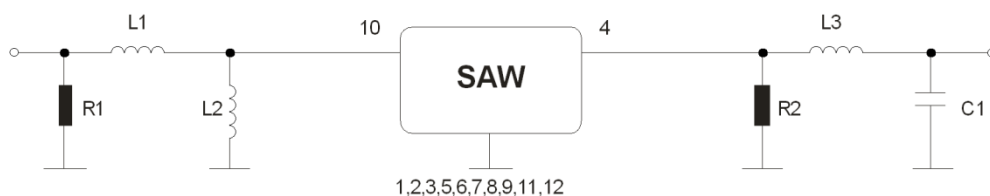


1	Ground
2	Ground
3	Ground
4	Output
5	Ground
6	Ground
7	Ground
8	Ground
9	Ground
10	Input
11	Ground
12	Ground

Date code: Year + week

J	2017
K	2018
L	2019
...	

50 Ω Test circuit



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Stability characteristics, reliability

After the following tests the filter shall meet the whole specification:

1. Shock: 500 g, 1 ms, half sine wave, 3 shocks each plane;
DIN IEC 60068 T2 - 27
2. Vibration: 10 Hz to 2000 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 60068 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
DIN IEC 60068 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;
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

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

Packing

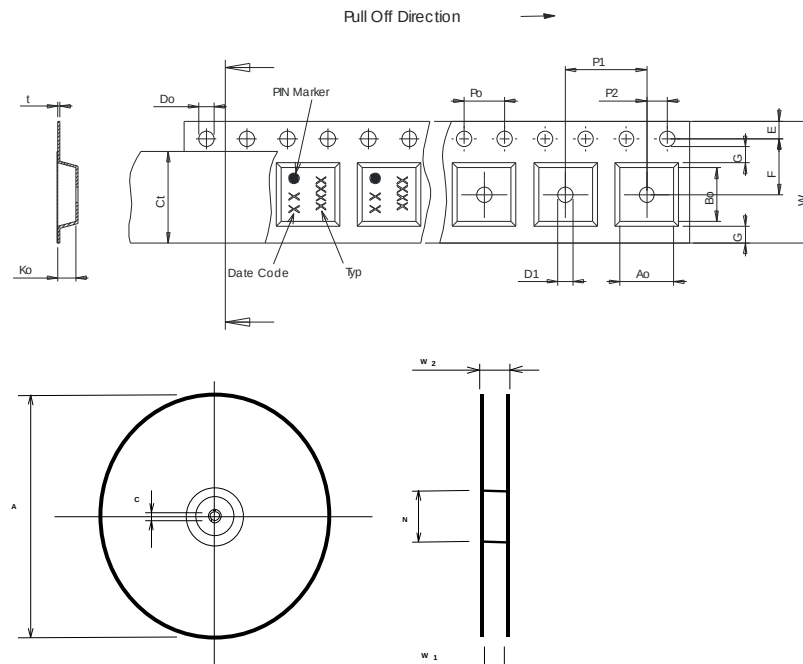
- Tape & Reel:
- IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;
- max. pieces of filters per reel: 3000
reel of empty components at start: min. 300 mm
reel of empty components at start including leader: 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)	: 0.75
P2	: 2.00 ±0.1
P1	: 8.00 ±0.1
D1(min)	: 1.50
Ao	: 5.40 ±0.1
Bo	: 7.60 ±0.1
Ct	: 13.30 ±0.1
Ko	: 2.00 ±0.1
t	: 0.30 ±0.05

Reel (all dimensions in mm)

A	: 330 or 180
W1	: 16.4 +2/-0
W2(max)	: 22.40
N(min)	: 50.00
C	: 13.0 +0.5/-0.2



The minimum bending radius is 45 mm.

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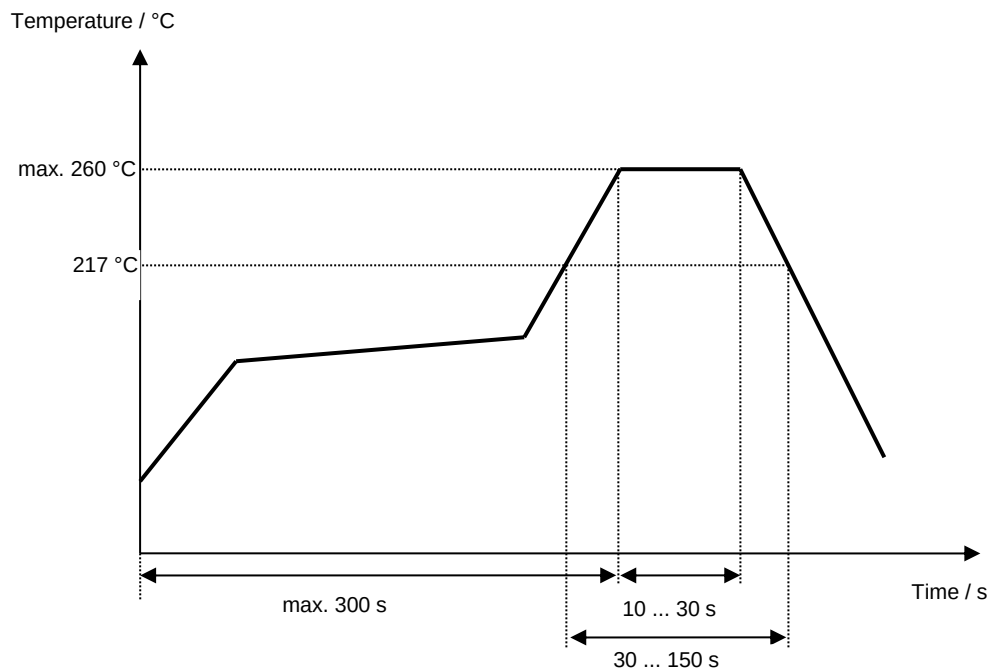
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Air reflow temperature conditions

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**Microchip Frequency Technology GmbH****Potsdamer Straße 18****D 14 513 TELTOW / Germany****Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

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Microchip**Filter specification****TFS 125S****5/5****History**

Version	Reason of changes	Name	Date
1.0	- Generation of development specification	Chilla	22.07.2010
1.1	- Generated filter specification - Added terminating impedances - Added typical values - Added filter characteristics - Added test circuit	Chilla	30.11.2011
1.2	- Change storage temperature range	Bonnen	18.11.2016
1.3	- Add maximum input power level - Update 50Ω test circuit	Bonnen	23.03.2017
1.4	- Update construction and pin connection	Bonnen	27.03.2017