

VI TELEFILTER**Filter specification****TFS 125L****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	650 Ω	-14,5 pF
Output:	750 Ω	-12,8 pF

Characteristics**Remark:**

The reference level for the relative attenuation a_{rel} of the TFS 125L 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	5,7 dB	min.	7	dB
Nominal frequency		f_N	-		125	MHz
Passband				f_N	± 200	kHz
Pass band ripple			-	max.	1	dB
Relative attenuation		a_{rel}				
f_N	... $f_N \pm 200$ kHz	0,6 dB		max.	1	dB
$f_N \pm 0,6$ MHz	... $f_N \pm 1,2$ MHz	11 dB		min.	8	dB
$f_N \pm 1,2$ MHz	... $f_N \pm 1,8$ MHz	30 dB		min.	20	dB
$f_N \pm 1,8$ MHz	... $f_N \pm 3,4$ MHz	35 dB		min.	25	dB
$f_N \pm 3,4$ MHz	... $f_N \pm 6,5$ MHz	45 dB		min.	34	dB
$f_N \pm 6,5$ MHz	... $f_N \pm 9,5$ MHz	55 dB		min.	40	dB
$f_N \pm 9,5$ MHz	... $f_N \pm 17$ MHz	60 dB		min.	43	dB
$f_N - 115$ MHz	... $f_N - 17$ MHz	75 dB		min.	55	dB
$f_N + 17$ MHz	... $f_N + 325$ MHz	75 dB		min.	55	dB
Group delay		at f_N	1,1 μ s	max.	1,7	μ s
				min.	0,7	μ s
Group delay ripple within PB			60 ns	max.	120	ns
VSWR			1,5	max.	2,3	
Input power level			-	max.	10	dBm
Operating temperature range		OTR	-	- 10 °C ... + 85 °C		
Storage temperature range			-	- 40 °C ... + 85 °C		
Frequency inversion temperature			37 °C	-		
Temperature coefficient of frequency		TC_f **	-0,04 ppm/K ²	-		

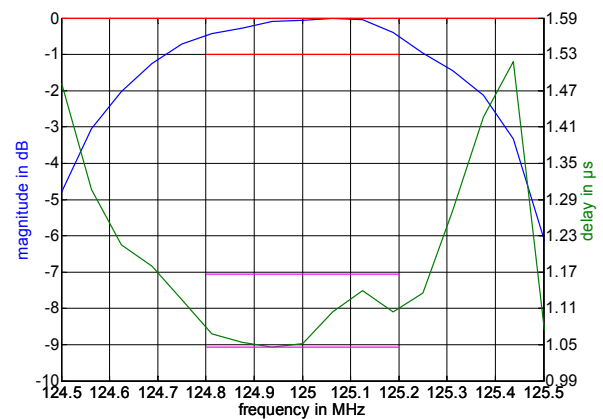
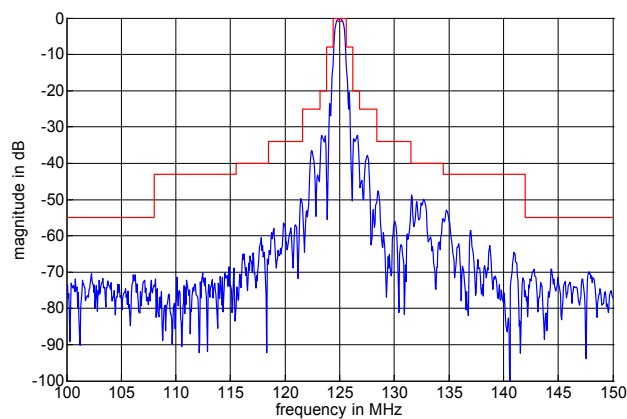
*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

**) $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T_o - T_A)^2 \times f_{CAT}(\text{MHz})$

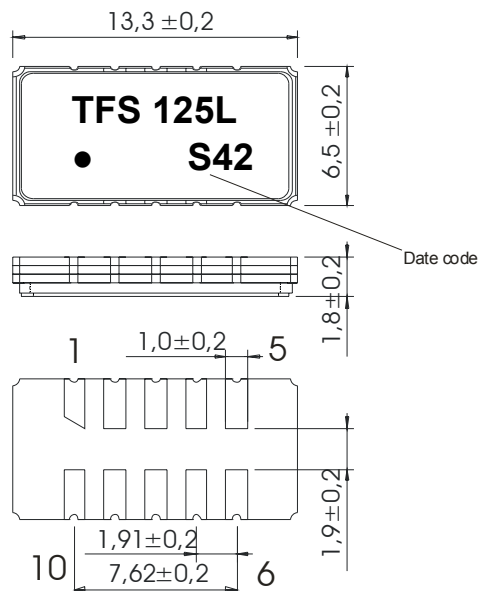
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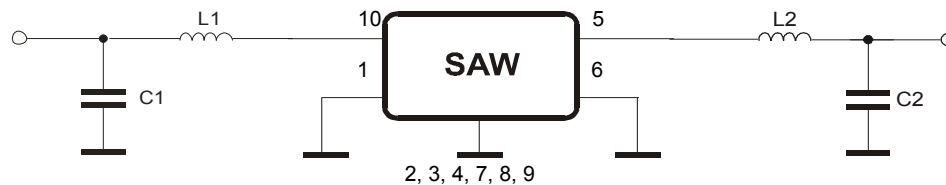
VI TELEFILTER**Filter specification****TFS 125L****2/5****Filter characteristic****Construction and pin connection**

(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
S	2004
T	2005
U	2006
...	

50 Ω Test circuit

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VI TELEFILTER**Filter specification****TFS 125L****3/5****Stability characteristics**

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

1. Shock: 500g, 18 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;

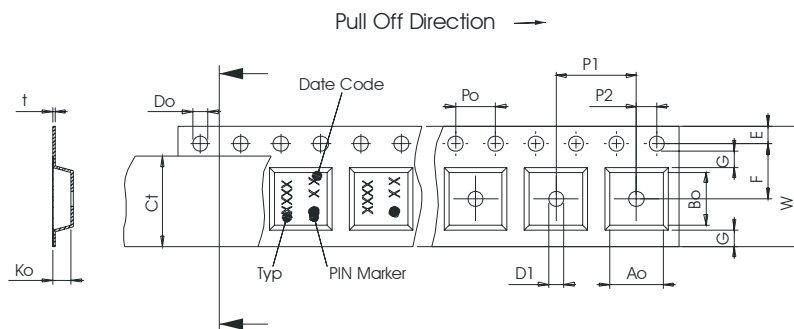
Packing

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;

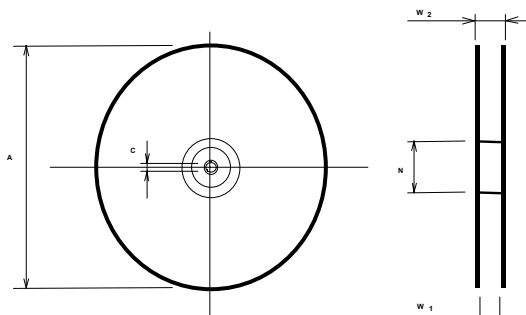
max. pieces of filters peer reel:	1700
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

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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VI TELEFILTER**Filter specification****TFS 125L****4/5****Air reflow temperature conditions**Conditions

Average ramp-up rate (30°C to 217°C)

> 100°C

> 150°C

> 217°C

Peak temperature

Time within 5°C of actual peak temperature

Cool-down rate (Peak to 50°C)

Time from 30°C to 255°C

Exposure

less than 3°C/second

between 300 and 600 seconds

between 240 and 500 seconds

between 90 and 150 seconds

255°C

between 10 and 30 seconds

less than 6°C/second

no greater than 300 seconds

All temperatures shown are +5/-0°C.

VI TELEFILTER**Filter specification****TFS 125L****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- generation of specification	Steiner	12.8.04
1.1	- definition and limit for insertion loss changed - pass band bandwidth extended and limit for pass band ripple changed to 1,0 dB - limit for group delay ripple changed to 120ns - limits for relative relative attenuation modified - requirements for intermodulation removed	Pfeiffer	31.08.2004
1.2	- terminating impedance and typical values added - typical filter characteristic added - air reflow temperature conditions modified	Pfeiffer	15.10.2004

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