Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 605 Ω || -11 pF
Output: 620 Ω || -11 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 125C 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 125,0 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	a_e	6,5	dB	max.	8	dB
(reference level)		-		min.	5	dB
Nominal frequency	f_N	-			125,0	MHz
Passband	PB	-		f_N ±	150	kHz
Pass band ripple		0,80	dB	max.	1,25	dB
Relative attenuation	a_{rel}					
f_N ± 0,4 MHz ... f_N ± 0,6 MHz		3,0	dB	min.	2	dB
f_N ± 0,6 MHz ... f_N ± 1,2 MHz		9,5	dB	min.	8	dB
f_N ± 1,2 MHz ... f_N ± 1,8 MHz		22,5	dB	min.	20	dB
f_N ± 1,8 MHz ... f_N ± 3,4 MHz		30,0	dB	min.	25	dB
f_N ± 3,4 MHz ... f_N ± 9,5 MHz		37,0	dB	min.	30	dB
f_N ± 9,5 MHz ... f_N ± 13,0 MHz		53,0	dB	min.	43	dB
f_N + 13,0 MHz ... f_N + 450,0 MHz		60,0	dB	min.	55	dB
Absolute group delay within PB		1,3	µs	max.	1,7	µs
Group delay ripple within PB		60,0	ns	max.	150,0	ns
VSWR		1,4:1		max.	2,3:1	
Intermodulation	**	80	dB	min.	60	dB
Input power level		-		max.	10	dBm
Operating temperature range	OTR	-		- 10 °C ... + 85 °C		
Storage temperature range		-		- 40 °C ... + 85 °C		
Frequency inversion temperature	T_0	50	°C		-	
Temperature coefficient of frequency	TC_f ***	-0,032	ppm/K²		-	

*) 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.
**) f_{in1}= 111 MHz; f_{in2}= 97 MHz; P_{in}= 10 dBm $f_{measurement}$ = 125 MHz
***) $\Delta f_C(Hz) = Tc_f(ppm/K^2) \times (To - T_A)^2 \times f_{CAT}$ (MHz)

Generated:

Checked / Approved:

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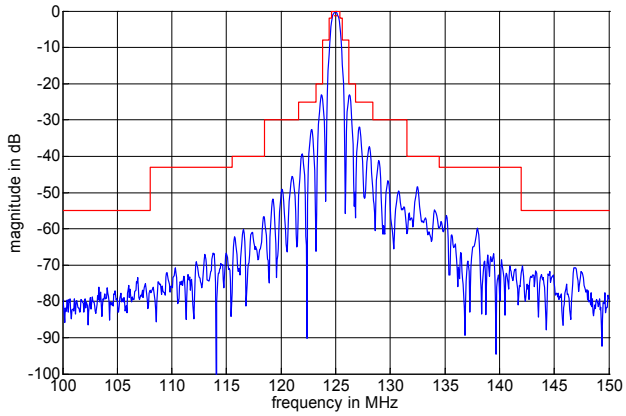
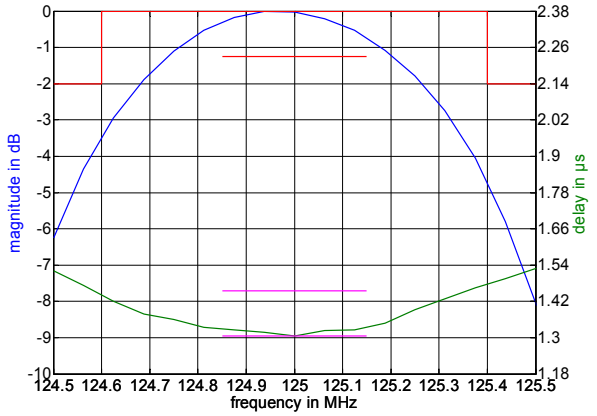
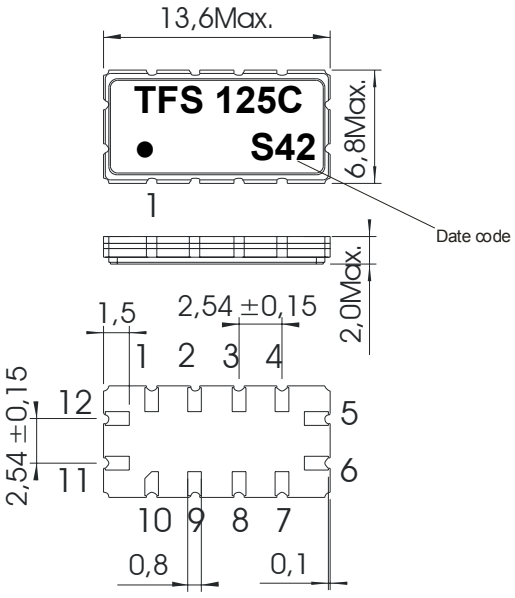
Filter characteristic





Construction and pin connection

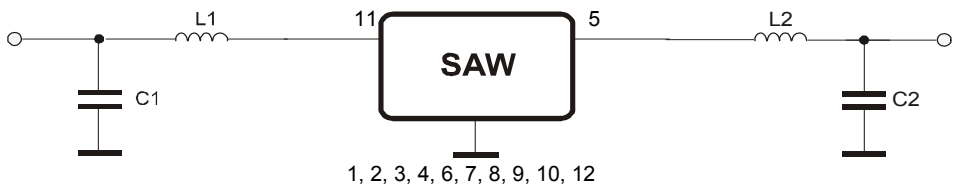
(All dimensions in mm)



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

Date code:	Year + week
S	2004
T	2005
U	2006
...	

50 Ω Test circuit



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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;

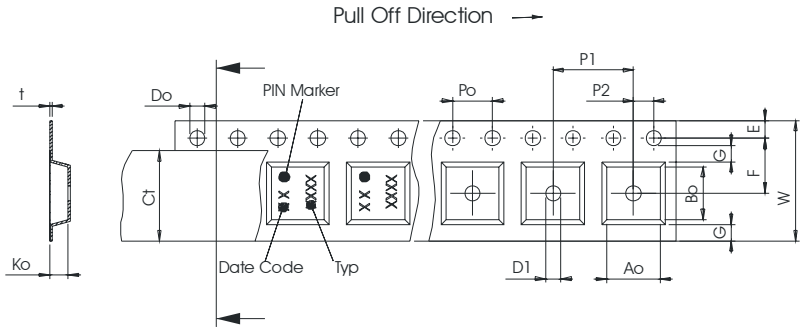
Packing

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

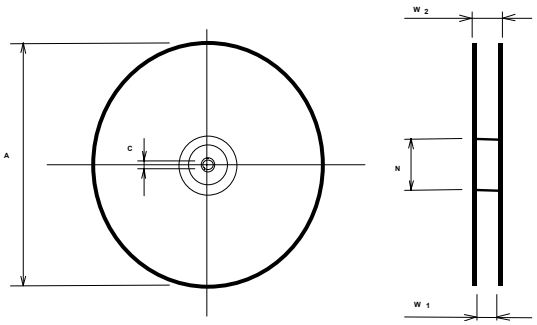
Tape (all dimensions in mm)

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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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 90 and 150 seconds
Peak temperature	255°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 255°C	no greater than 300 seconds

All temperatures shown are +5/-0°C.

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History

Version	Reason of Changes	Name	Date
1.0	- identical with specification from hudson	Dunzow	25.08.1998
1.1	- generation of specification according to customer specification - IP3: instead of 'No statement' is ≥ 60 dBm - VSWR (max): instead of ≤ 2.0:1 is ≤ 2.3:1 - Rejection on (f ≥ f_N ± 13000 KHz): instead of min. 60 dB is min. 55 dB - Operational temperature range changed from -10 .... 80 °C to -10 ..... 85 °C - Max. input power: instead of 10 dBm is 20 dBm - Rejection (± 200 KHz): instead of ≥ 0.50 dB is 0 dB	Sabah	06.03.2000
1.2	- The sprocket holes: instead of the right side of the tape is on the left side of the tape (according to customer requirement, e mail from: 7. Juli.00)	Sabah	12.07.2000
1.3	- typical values and filter characteristic added, air reflow temperature conditions modified	Pfeiffer	15.10.2004

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