Measurement condition

Ambient temperature: 25 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 88 Ω || -30 pF
Output: 88 Ω || -32 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 70AT is the minimum of the pass band attenuation a_{min}. The minimum of the pass band attenuation a_{min} is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 70 MHz. The values for relative attenuation are guaranteed at ambient temperature. The frequency shift of the filter over temperature defined by the temperature coefficient of frequency Tc_f is not included in the production tolerance scheme.

D a t a		**typ. value**		**tolerance / limit**	
Insertion loss : (reference level)	**a_e**	14,9	dB	16	dB
Nominal frequency :	**f_N**	-		70	MHz
Centre frequency :	**f_C** at ambient temperature **(f_{CTA})**	70,1	MHz		
Pass band :	**PB**			f_N ± 11	MHz
Relative attenuation :	**a_{rel}**				
f_N ... f_N ± 10,15 MHz		0,4	dB	max. 1	dB
f_N ± 10,15 MHz ... f_N ± 11 MHz		2	dB	max. 3	dB
f_N ± 14 MHz ... f_N ± 19 MHz		38	dB	min. 35	dB
f_N ± 19 MHz ... f_N ± 40 MHz		45	dB	min. 38	dB
Group delay (mean value in PB)		0,88	µm	max. 1,12	µs
Group delay ripple (p-p) in 90%of PB		35	ns	max. 100	ns
Phase linearity (p-p) in 90%of PB		3,3	deg	max. 11	deg
Temperature coefficient of frequency (Tc_f)		- 94	ppm/K	-	
Frequency deviation of f_C over temperature	Δf_C(Hz) = Tc_f(ppm/K) x (T - T_{CTA}) x **f_{CTA}** (MHz)				
Operating temperature range	**OTR**			- 40 °C ... + 80 °C	
Storage temperature range				- 40 °C ... + 85 °C	

*) 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.

Generated:

Checked / Approved:

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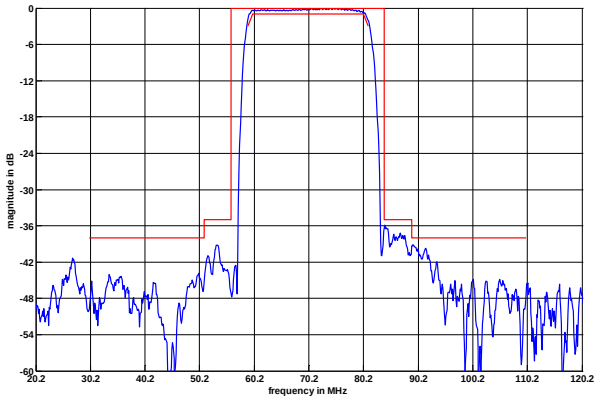
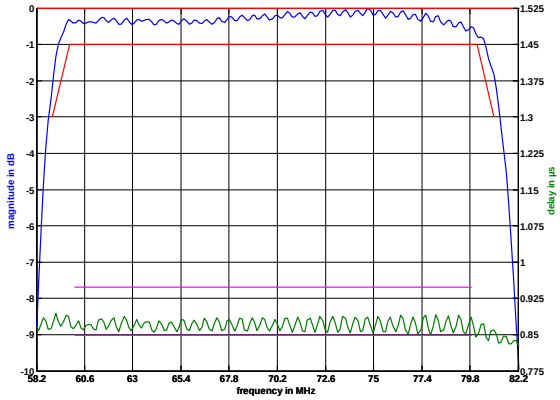
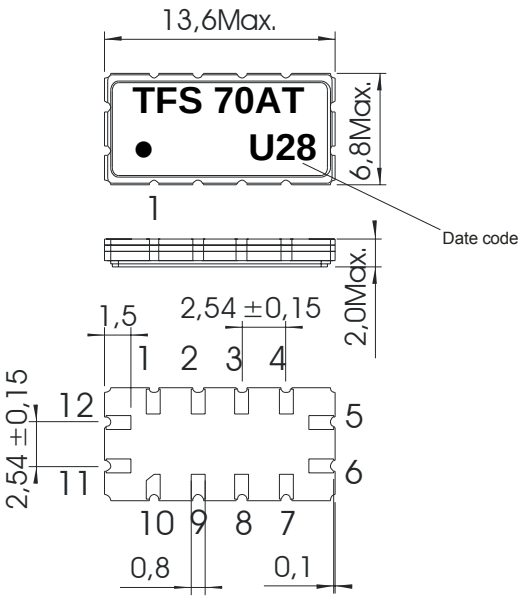
Filter characteristic





Construction and pin connection

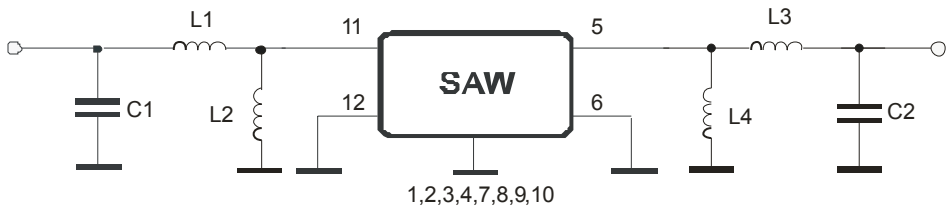
(All dimensions in mm)



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
T	2005
U	2006
V	2007
...	

50 Ohm Test circuit



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Stability characteristics

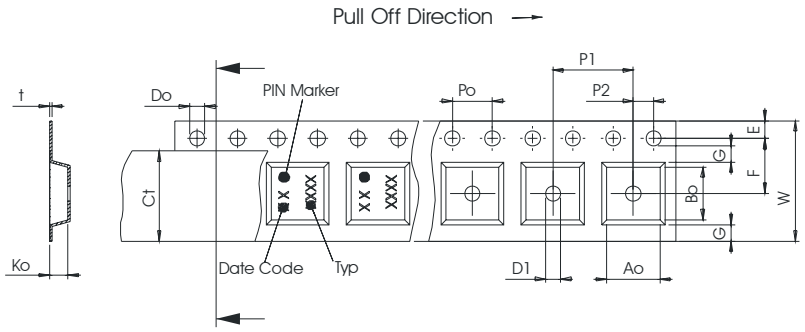
After the following tests the filter shall meet the whole specification:

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

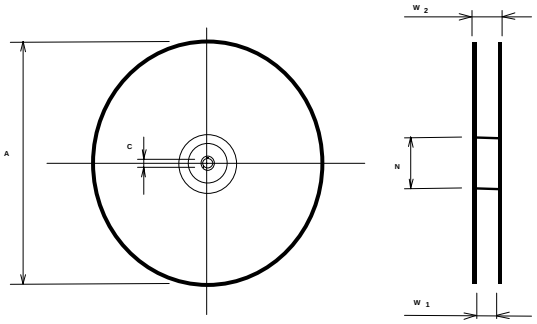
Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

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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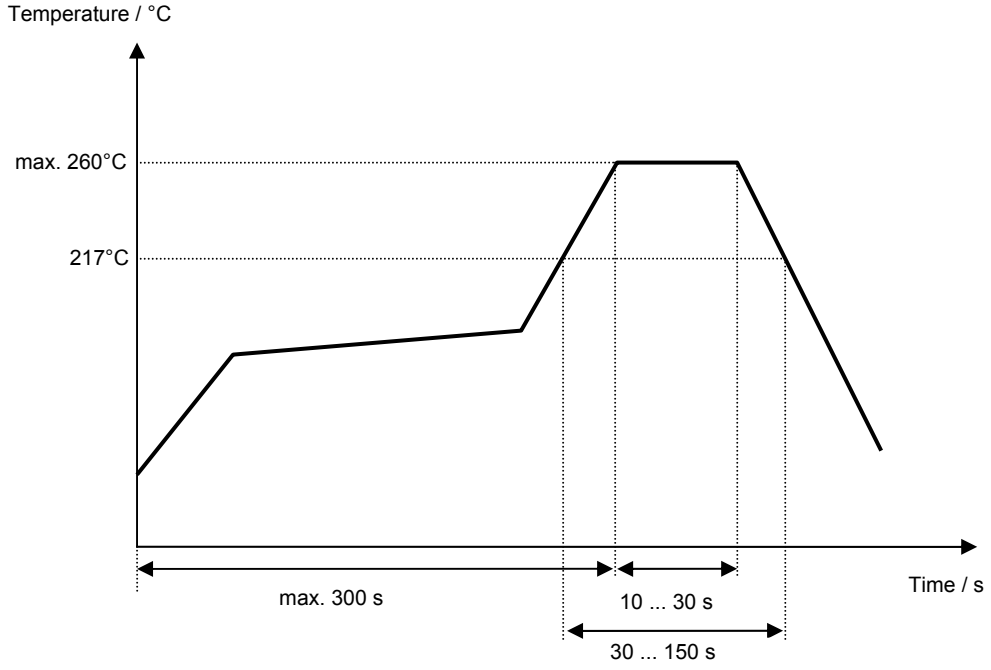
Air reflow temperature conditions

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 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	generating specification according to customer requirements	Chilla	10.12.2004
1.1	generating filter specification added terminating impedance changed relative attenuation added typical values added filter characteristic added test circuit changed chip-mount air reflow profile	Chilla	28.06.2005
1.2	changed relative attenuation	Chilla	13.07.2006

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