Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 1850 Ω || -14,5 pF
Output: 1490 Ω || -14,1 pF

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the TFS 70Z 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 centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 2 dB filter attenuation level relative to the insertion loss a_e. The nominal frequency f_N is fixed at 70 MHz without tolerance. The given values for the relative attenuation a_{rel} and for the group delay ripple have to be reached at the frequencies given below even if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_c.

D a t a		**typ. Value**		**Limit**		
Insertion loss (reference level)	a_e	5,2	dB	max.	8	dB
Nominal frequency	f_N	-			70	MHz
Pass band	PB	-		f_N ±	0,15	MHz
Amplitude ripple in PB	p-p	-		max.	2	dB
Relative attenuation	a_{rel}					
f_N	f_N ± 0,15 MHz	1	dB	max.	2	dB
f_N ± 0,5 MHz	f_N ± 1 MHz	40	dB	min.	35	dB
f_N ± 1 MHz	f_N ± 2 MHz	43	dB	min.	40	dB
Group delay ripple in PB	p-p	0,45	µs	max.	2	µs
Temperature coefficient of frequency	**Tc_f**	-0,036	ppm/K²		-	
Operating temperature range		-		- 40 °C.. + 80		°C
Storage temperature range		-		- 40 °C.. + 85		°C
Turnover temperature	T_o	25	°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.
**) $\Delta f(Hz) = TC_f(ppm/K^2) \times (T-T_0)^2 \times f_{To}(MHz)$

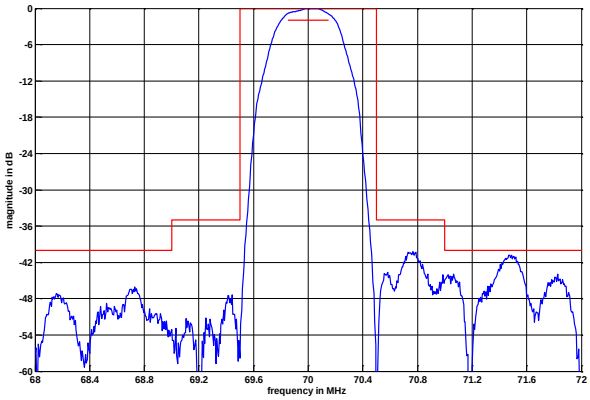
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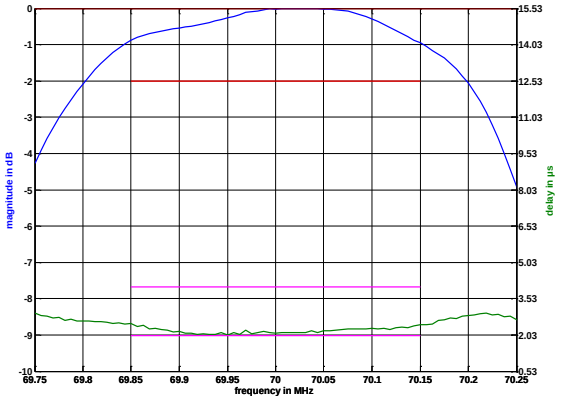
checked / approved: _____

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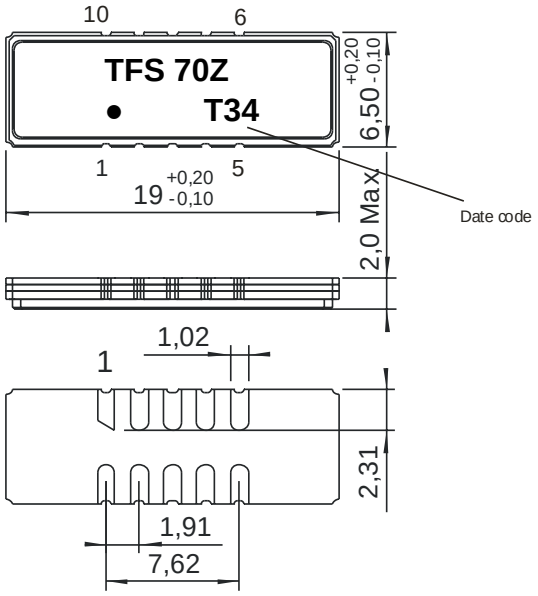
Filter characteristic





Construction and pin connection

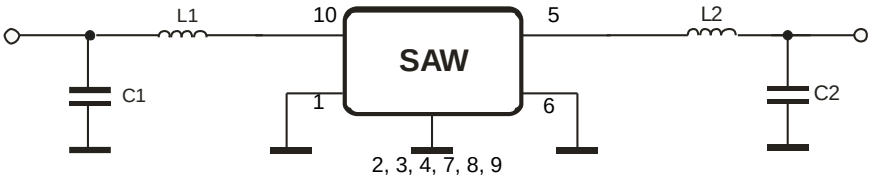
(All dimensions in mm)



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
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 5g 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;

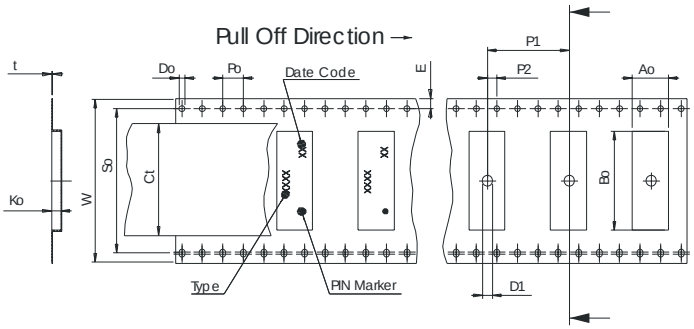
Packing

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:	2000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

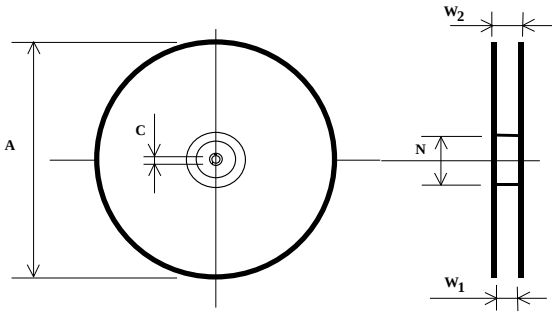
Tape (all dimensions in mm)

W	: 32,00	± 0,3
Po	: 4,00	± 0,1
Do	: 1,50	+0,1/-0
E	: 1,75	± 0,1
F	: 14,20	± 0,1
P2	: 2,00	± 0,1
P1	: 12,00	± 0,1
D1(min)	: 2,00	
Ao	: 7,10	± 0,1
Bo	: 19,60	± 0,1
So	: 28,40	± 0,1
Ct	: 25,5	± 0,1



Reel (all dimensions in mm)

A	:330	
W1	: 32,4	+2/-0
W2(max)	: 38,4	
N(min)	:100	
C	: 13,0	+0,5/-0,2



The minimum bending radius is 45 mm.

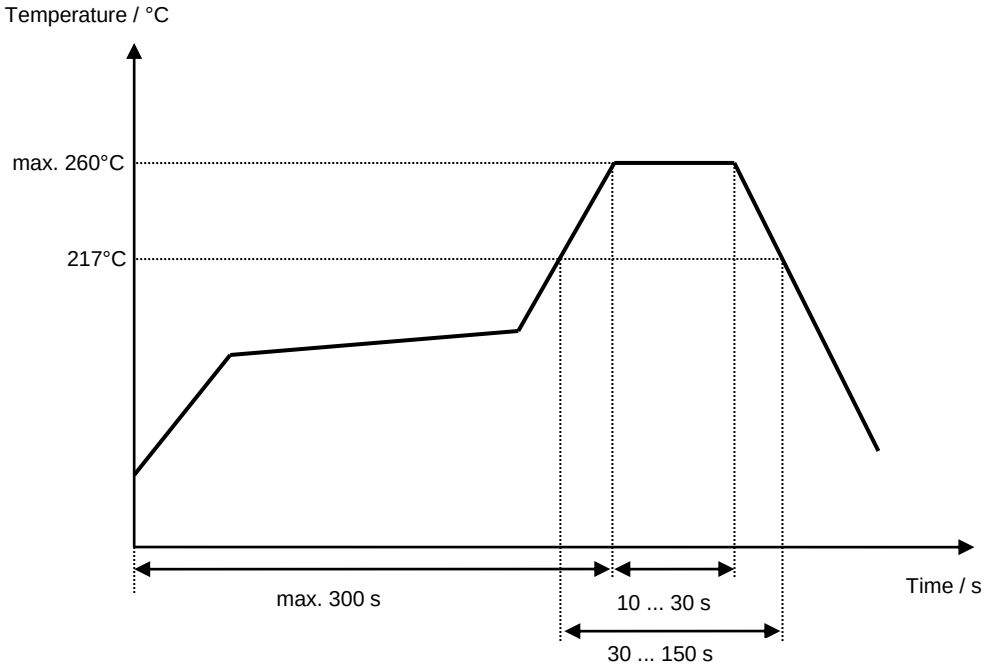
Air reflow temperature conditions

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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



History

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Version	Reason of Changes	Name	Date
1.0	generation of specification	Pfeiffer	11.09.2002
1.1	remove mean value of group delay add maximum group delay ripple in PB	Pfeiffer	16.09.2002
1.2	typical values and terminating impedance added	Pfeiffer	19.02.2003
1.3	terminating impedance fixed	Pfeiffer	27.03.2003
1.4	- operating temperature range extended - filter characteristic added - air reflow temperature conditions modified	Pfeiffer	19.08.2005

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