

VI TELEFILTER

Filter specification

TFS 70E

1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	50 Ω	matching network
Output:	50 Ω	matching network

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 70E 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 70,2 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	5,0	dB	max.	7,0	dB
Nominal frequency	f_N	-			70,2	MHz
Centre frequency	f_c	70,2	MHz	70,2	± 0,1	MHz
Passband	PB	-		f_N	± 350	kHz
Bandwidth						
3 dB		900	kHz	min.	700	kHz
Relative attenuation	a_{rel}					
$f_c \pm 350,0$ kHz		2	dB	max.	3	dB
$f_c + 1,15$ MHz ... $f_c + 1,65$ MHz		26	dB	min.	20	dB
$f_c - 1,20$ MHz ... $f_c - 1,65$ MHz		26	dB	min.	20	dB
$f_c + 1,65$ MHz ... $f_c + 2,00$ MHz		38	dB	min.	35	dB
$f_c - 1,65$ MHz ... $f_c - 3,00$ MHz		38	dB	min.	35	dB
Group delay at f_N		1,35	µs		-	
Group delay ripple in PB	p-p	250	ns	max.	350	ns
Input power level		-		max.	0	dBm
Permissible DC voltage		-		max.	12	V
Operating temperature range	OTR	-			0 °C ... + 70 °C	
Storage temperature range		-			-40 °C ... + 85 °C	
Temperature coefficient of frequency	TC_f^{**}	-72	ppm/K		-	

*) Please refer to the application another more details. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

**) $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T_0}(\text{MHz})$.

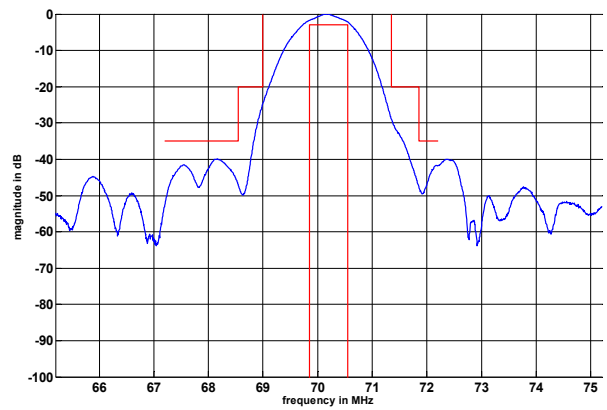
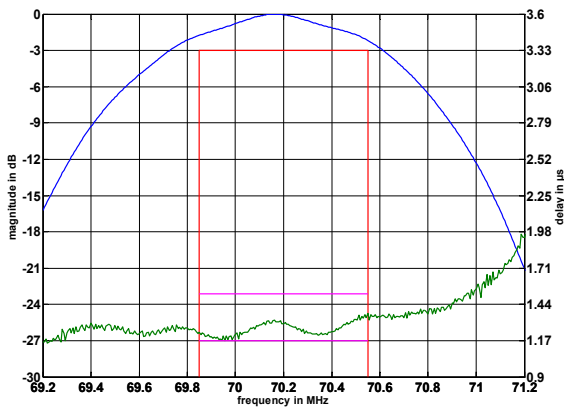
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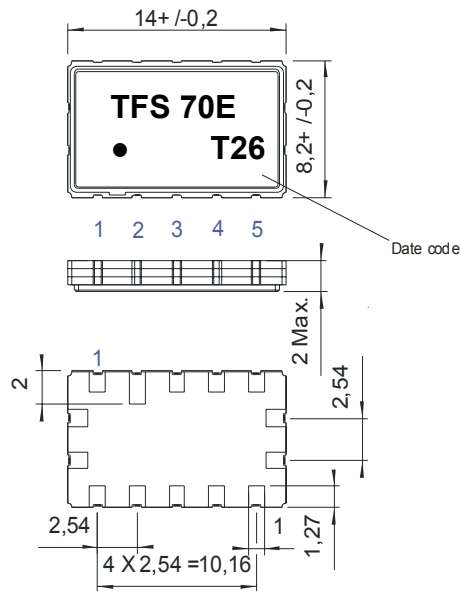
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Filter characteristic



Construction and pin connection

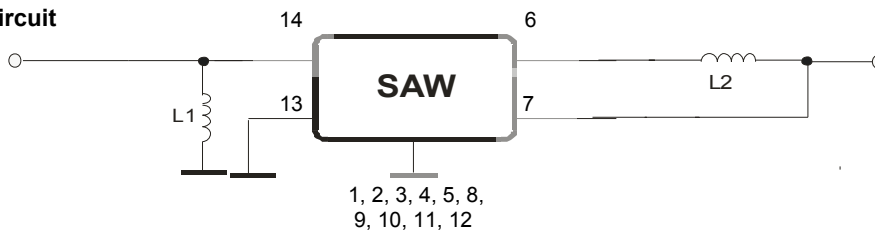
(All dimensions in mm)



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

Date code: Year + week
 T 2005
 U 2006
 V 2007
 ...

50 Ω Test circuit



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Stability characteristics

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

1. Shock: 500g, 1 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;

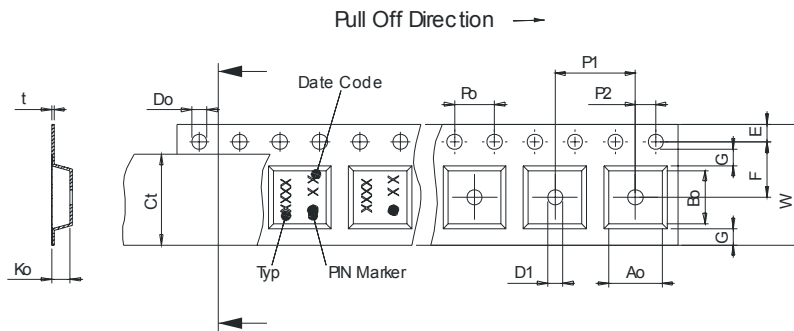
Packing

Tape & Reel: IEC 286 – 3, with 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 peer reel:	1500
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

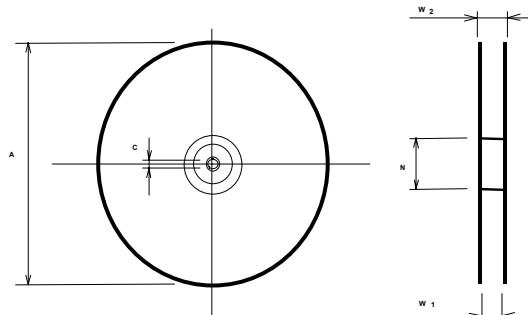
Tape (all dimensions in mm)

- W : 24,00
- Po : 4,00
- Do : 1,50
- E : 1,75
- F : 11,50
- G(min) : 0,60
- P2 : 2,00
- P1 : 12,00
- D1(min) : 1,50
- Ao : 8,80
- Bo : 14,60
- Ct : 21,5



Reel (all dimensions in mm)

- A : 330
- W1 : 24,4
- W2(max) : 30,4
- N(min) : 60
- C : 13,0



The minimum bending radius is 45 mm.

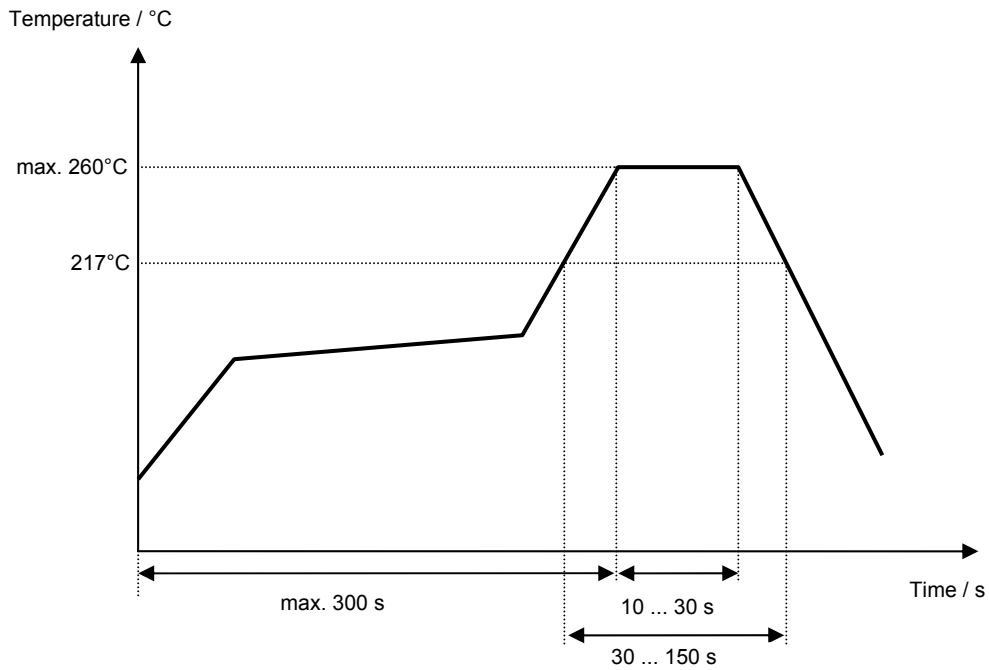
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Air reflow temperature conditions

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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VI TELEFILTER**Filter specification****TFS 70E****5/5****History**

Version	Reason of Changes	Name	Date
2.1	- change date code - add terminating impedance	Strehl	29.06.2005

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