

VI TELEFILTER

Filter specification

TFS 70H13A

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Measurement condition

Ambient temperature:	25	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50 Ω 0 pF	
Output:	50 Ω 0 pF	

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 70H13A 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 40 dB filter attenuation level relative to the insertion loss a_e . The temperature coefficient of frequency TC_f is valid for both the reference frequency f_c and the frequency response of the filter in the operating temperature range. The frequency shift of the filter in the operating temperature range is not included in the production tolerance scheme.

D a t a		typ. value		tolerance / limit	
Insertion loss (reference level)		a_e	22,7 dB	max.	24 dB
Centre frequency		f_c	70,0 MHz	$70,0 \pm 0,1$ MHz	
Passband				$f_c \pm 4,0$ MHz	
Bandwidth		BW			
1 dB			7,83 MHz	min.	7,6 MHz
3 dB			8,39 MHz	min.	8,0 MHz
40 dB			10,62 MHz	max.	10,6 MHz
Relative attenuation		a_{rel}			
f_c		$f_c \pm 3,6$ MHz	0,45 dB	max.	0,8 dB
$f_c \pm 3,6$ MHz		$f_c \pm 3,8$ MHz	0,6 dB	max.	1 dB
$f_c \pm 3,8$ MHz		$f_c \pm 4,0$ MHz	1,5 dB	max.	3 dB
$f_c \pm 5,3$ MHz		$f_c \pm 6,0$ MHz	45 dB	min.	40 dB
$f_c \pm 6,0$ MHz		$f_c \pm 15,0$ MHz	50 dB	min.	45 dB
$f_c \pm 15,0$ MHz		$f_c \pm 50,0$ MHz	60 dB	min.	50 dB
Group delay		mean value in PB	1,83 μ s	max.	2,5 μ s
				min.	1,5 μ s
Group delay ripple within PB			40 ns	max.	60 ns
Deviation from linear phase within PB			2,4 °	max.	4 °
Triple transit response suppression			54 dB	-	
Crosstalk attenuation compared to main signal			60 dB	-	
Operating temperature range		OTR	-	- 40 °C ... + 85 °C	
Storage temperature range			-	- 55 °C ... + 85 °C	
Temperature coefficient of frequency		TC_f *	- 87 ppm/K	-	

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

Generated:

Checked / Approved:

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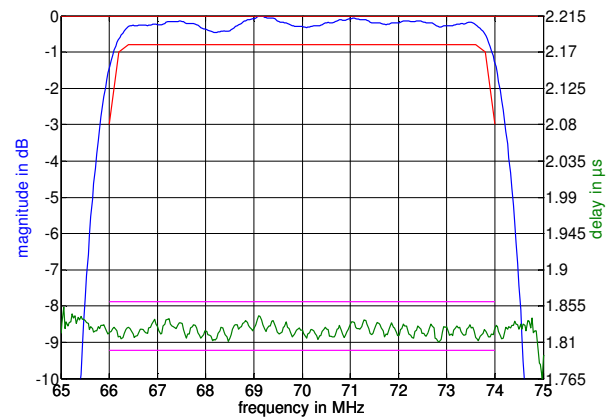
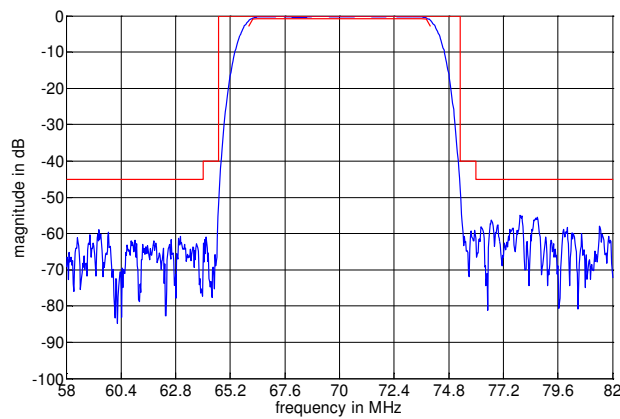
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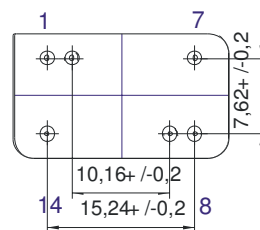
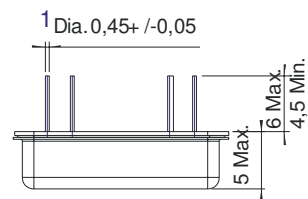
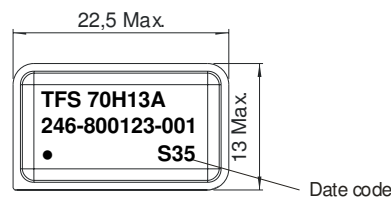
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Filter characteristic



Construction and pin connection

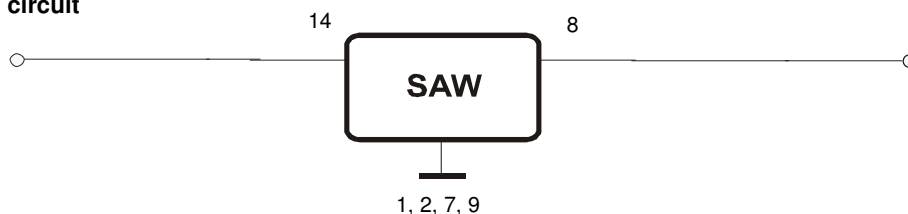
(All dimensions in mm)



- | | |
|----|------------------|
| 1 | Input RF Return |
| 2 | Ground |
| 7 | Output RF Return |
| 8 | Output |
| 9 | Ground |
| 14 | Input |

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

50 Ohm Test circuit



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VI TELEFILTER**Filter specification****TFS 70H13A****3/5**

Stability characteristics :

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

1. Shock: 30g, 11 ms, sawtooth, 3 shocks each plane;
MIL-STD-202, Method 213 test condition K
2. Vibration: 10 Hz to 2000 Hz, 15g, 20min per cycle, 12 cycles per plan, 3 plans;
MIL-STD 202, Method 204, test condition B
3. Thermal shock: -40 °C to 85 °C, 5 cycles
MIL-STD 202, Method 107, test condition A

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Air reflow temperature conditions :

1st and 2nd air reflow profile

Name:	pre-heating periods	main-heating periods	peak temperature
Temperature:	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
Time:	60 sec. - 90 sec.	20 sec. - 25 sec.	

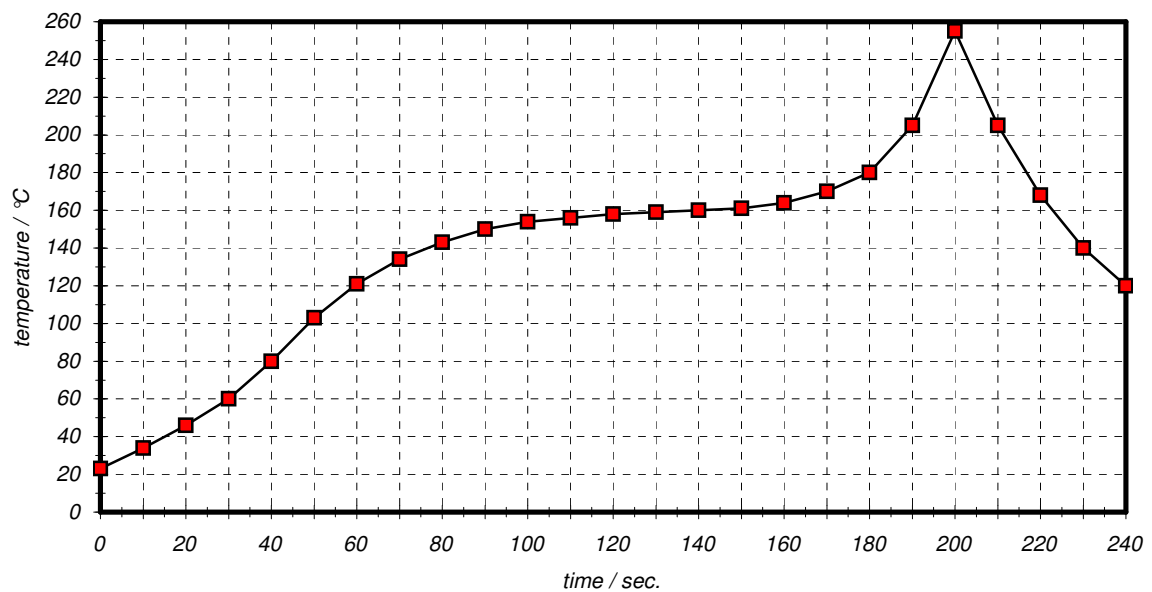
Air reflow profile

Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	140	160
10	34	150	161
20	46	160	164
30	60	170	170
40	80	180	180
50	103	190	205
60	121	195	230
70	134	200	255
80	143	205	230
90	150	210	205
100	154	215	180
110	156	220	165
120	158	230	140
130	159	240	120

VI TELEFILTER**Filter specification****TFS 70H13A****5/5****History**

Version	Reason of changes	Name	Date
1.0	filter specification created	Pfeiffer	17.06.2004
1.1	operating and storage temperature range extended	Pfeiffer	26.08.2004

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