1. Measurement condition :

Ambient temperature T_A:	25 °C.		
Input power level:	0 dBm.		
Terminating impedances in f_C:	for input:	50 Ω	0 pF.
	for output:	50 Ω	0 pF.

2. Characteristics :

Remark:
Reference level for the relative attenuation a_{rel} of the **TFS 70H12** 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 reference frequency f_C is the arithmetic mean value of the upper and lower frequencies at the **20 dB** filter attenuation level relative to the insertion loss a_e. The temperature coefficient of frequency Tc_f is valid both for 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.

Data	**typ. value**		**tolerance / limit**	
Insertion loss (Reference level) a_e	21,5	dB	max. 23	dB
Centre frequency f_C at ambient temperature (f_{CTA})	70,0	MHz	70,0 ± 0,08	MHz
Pass band (PB) :			f_C ... f_C ± 4,0	MHz
Amplitude ripple in : f_C - 3,6 MHz ... f_C + 3,6 MHz	0,4	dB	max. 0,8	dB
Bandwidth (BW) : at ambient temperature T_A				
0,8 dB - band width	7,45	MHz	min. 7,2	MHz
1,5 dB - band width	7,75	MHz	min. 7,6	MHz
3 dB - band width	8,05	MHz	min. 8,0	MHz
20 dB - band width	9,28	MHz		
25 dB - band width	9,47	MHz	max. 9,5	MHz
30 dB - band width	9,62	MHz		
40 dB - band width	9,88	MHz	max. 10	MHz
50 dB - band width	10,11	MHz	max. 10,5	MHz
Relative attenuation a_{rel}				
f_C ..... f_C ± 3,6 MHz		-	max. 0,8	dB
f_C ± 3,6 MHz ..... f_C ± 3,8 MHz		-	max. 1,5	dB
f_C ± 3,8 MHz ..... f_C ± 4,0 MHz		-	max. 3	dB
f_C ± 4,75 MHz ..... f_C ± 5,0 MHz	27	dB	min. 25	dB
f_C ± 5,0 MHz ..... f_C ± 5,25 MHz	45	dB	min. 40	dB
f_C ± 5,25 MHz ..... f_C ± 9 MHz	54	dB	min. 50	dB
f_C - 50 MHz ..... f_C - 12 MHz	55...60	dB	min. 45	dB
f_C - 12 MHz ..... f_C - 9 MHz	45...50	dB	min. 40	dB
f_C + 9 MHz ..... f_C + 50 MHz	55...60	dB	min. 45	dB
f_C - 68 MHz ..... f_C - 50 MHz	45...50	dB		
f_C + 50 MHz ..... f_C + 90 MHz	45...55	dB		
f_C + 90 MHz ..... f_C + 145 MHz	55...58	dB		
f_C + 145 MHz ..... f_C + 155 MHz	0	dB		
f_C + 155 MHz ..... f_C + 210 MHz	55...60	dB		
Group delay (mean value in PB):	2,09	µs	max. 2,5	µs
Group delay ripple in PB (p-p):	55...65	ns	max. 90	ns
Deviation from linear phase in PB :	3 ° (r.m.s. 0,8 °)		max. 4 °	
Triple transit attenuation compared to main signal	50...52	dB		
Crosstalk	70...75	dB		
Temperature coefficient of frequency (Tc_f) :	-87	ppm/K²		
Frequency deviation of f_C over temperature :	Δf_C(Hz) = Tc_f(ppm/K) x (T - T_o) x f_{CTA} (MHz)			
Operating temperature range			- 25 °C ... + 80 °C	
Storage temperature range			- 40 °C ... + 85 °C	

Generated: **Wadim Dunzow**

Checked/Approved: **Dr. Bert Wall**

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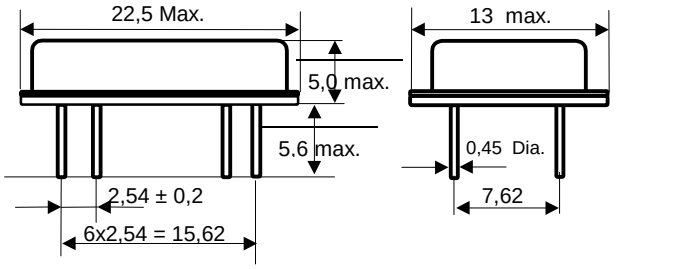
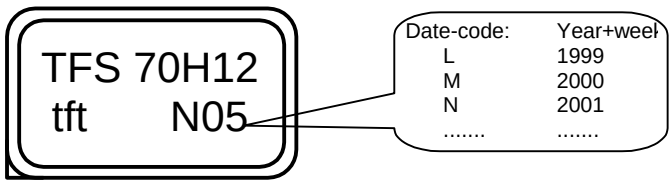
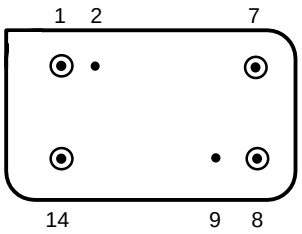
3. Package and pin connection : (All dimensions in mm)

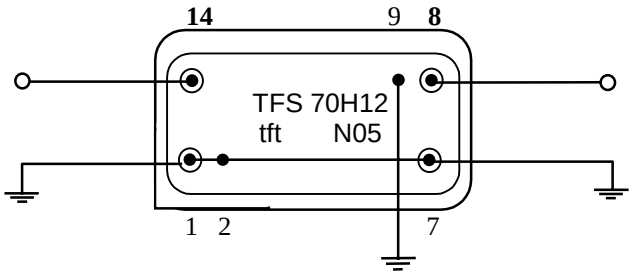






Pin	**14**	**Input**
Pin	1	Input RF Return
Pin	**8**	**Output**
Pin	7	Output RF Return
Pin	2, 9	Pakage Ground

4. 50 Ω matching network :



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5. 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

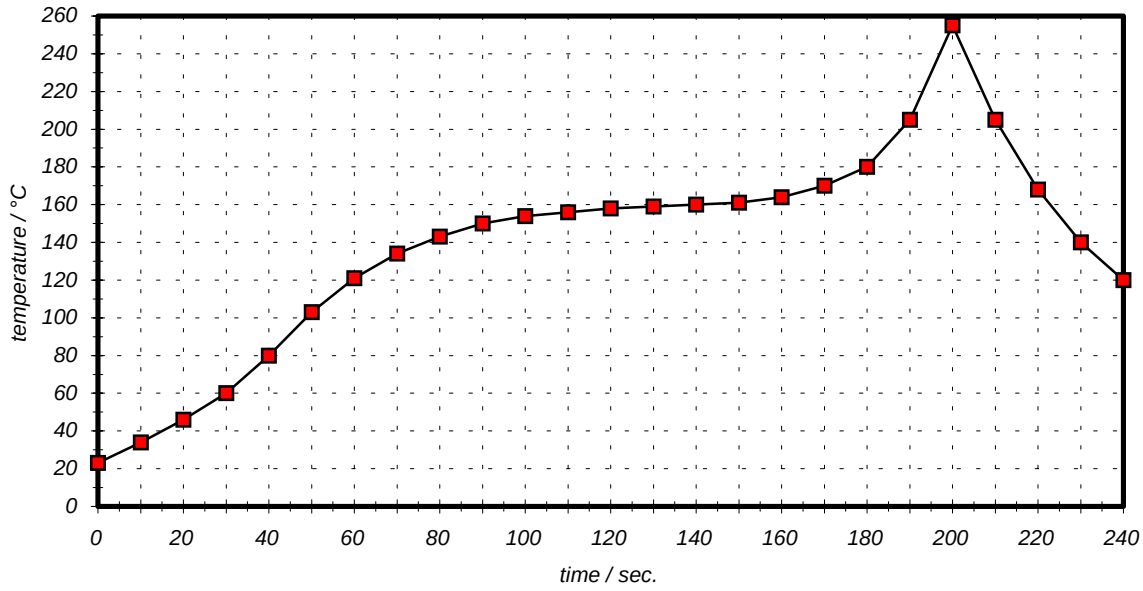

Table for temperature vs. time during the air reflow process

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

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History

Version	Reason of changes	Name	Date
1.0	Generate **Filter Specification** .	Dunzow W.	25.07.2000.
1.1	Change the following parameters according to customer requirements - add band width 1,5 dB : min. 7,6 MHz;	Dunzow W.	19.02.2001

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