

**VI TELEFILTER****Filter Specification****TFS 70H12A - 1/4****1. Measurement condition**

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

**2. Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the **TFS 70H12A** 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  $T_{Cf}$  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
<b>Insertion loss</b> (Reference level) $a_e$	21 dB	max. 23 dB
<b>Centre frequency</b> $f_C$ at ambient temperature ( $f_{CTA}$ )	70,0 MHz	$70 \pm 0,08$ MHz
<b>Pass band (PB) :</b>	$f_C - 4,0$ MHz ... $f_C + 4,0$ MHz	
<b>Amplitude ripple in :</b> $f_C - 3,6$ MHz ... $f_C + 3,6$ MHz	0,4 dB	max. 0,8 dB
<b>Bandwidth (BW) :</b>	at ambient temperature $T_A$	
0,8 dB - band width	7,45 MHz	min. 7,2 MHz
3 dB - band width	8,05 MHz	min. 8,0 MHz
20 dB - band width	9,26 MHz	
40 dB - band width	9,88 MHz	max. 10,0 MHz
50 dB - band width	10,11 MHz	
<b>Relative attenuation</b> $a_{rel}$		
$f_C \pm 3,6$ MHz	$f_C \pm 3,6$ MHz	-
$f_C \pm 5,0$ MHz	$f_C \pm 4,0$ MHz	-
$f_C \pm 5,05$ MHz	$f_C \pm 5,05$ MHz	45 dB
$f_C - 68$ MHz	$f_C \pm 50$ MHz	55...60 dB
$f_C + 50$ MHz	$f_C - 50$ MHz	45...50 dB
$f_C + 90$ MHz	$f_C + 90$ MHz	45...55 dB
$f_C + 145$ MHz	$f_C + 145$ MHz	55...58 dB
$f_C + 155$ MHz	$f_C + 155$ MHz	25 dB
$f_C + 210$ MHz	$f_C + 210$ MHz	55...60 dB
<b>Group delay ( mean value in PB ):</b>	2,43 $\mu$ s	max. 2,5 $\mu$ s
<b>Group delay ripple in PB (p-p):</b>	70...80 ns	max. 100 ns
<b>Deviation from linear phase in PB :</b>	3,3 ° (r.m.s. 0,8 °)	max. 4 °
<b>Triple transit attenuation compared to main signal</b>	50...52 dB	
<b>Crosstalk</b>	70...75 dB	
<b>Temperature coefficient of frequency ( <math>T_{Cf}</math> ):</b>	-87 ppm/K <sup>2</sup>	
<b>Frequency deviation of <math>f_C</math> over temperature :</b>	$\Delta f_C(\text{Hz}) = T_{Cf}(\text{ppm/K}) \times (T - T_0) \times f_{CTA}(\text{MHz})$	
<b>Operating temperature range</b>	- 25 °C ... + 80 °C	
<b>Storage temperature range</b>	- 40 °C ... + 85 °C	

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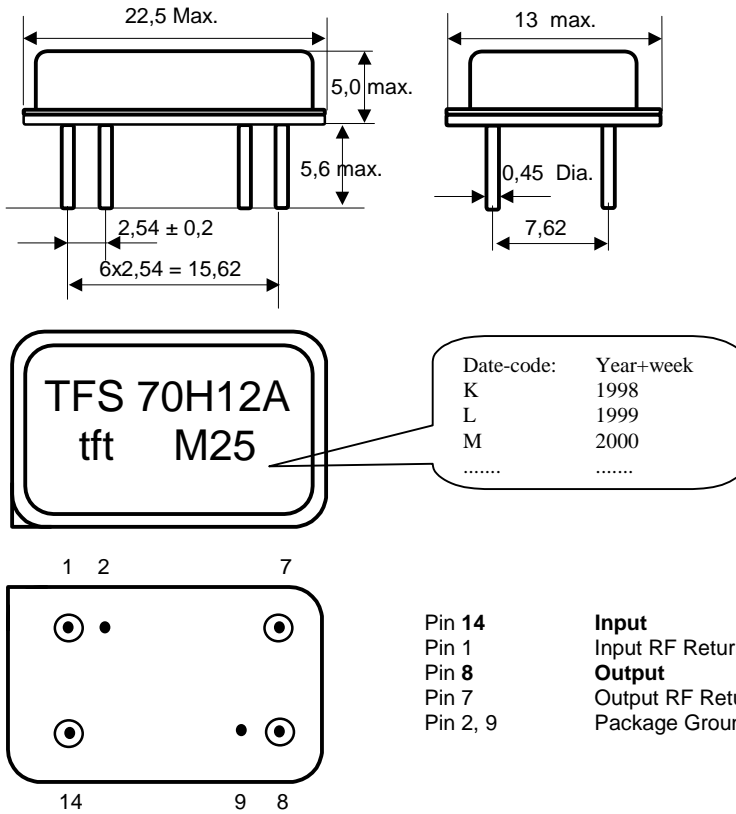
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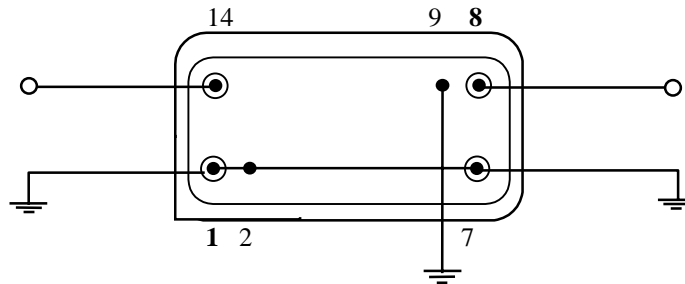
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3. Package :



4. 50 Ω matching network:



## 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

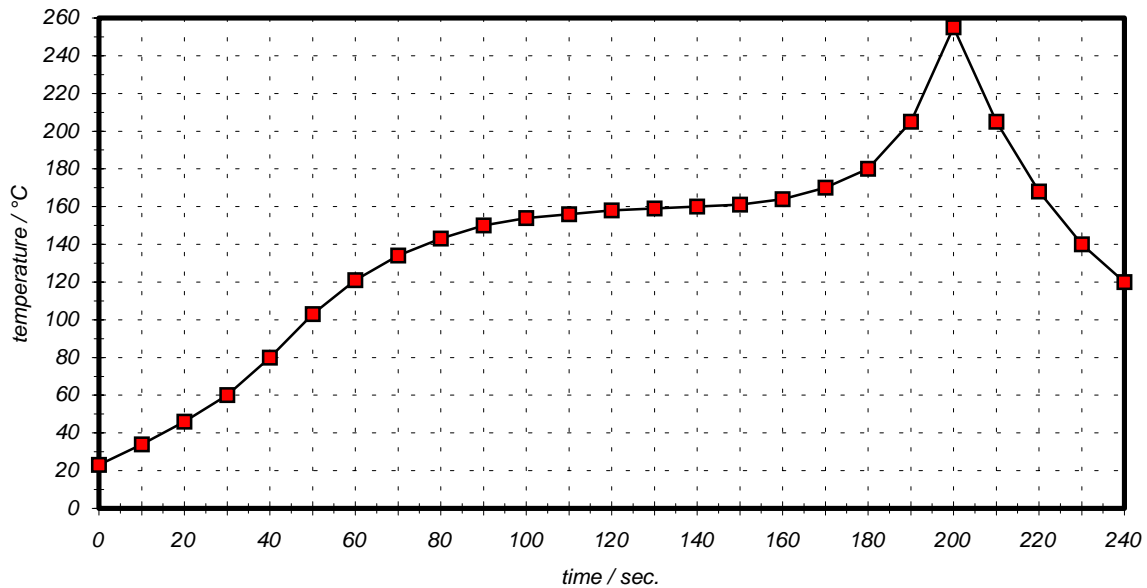


Table for temperature vs. time during the air reflow process

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**

<b>Version</b>	<b>Reason of changes</b>	<b>Name</b>	<b>Date</b>
1.0	Generate <b>Filter Specification</b> .	Dunzow W.	25.07.2000.

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