

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 Ω | 0 pF.
 for output: 50 Ω | 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.

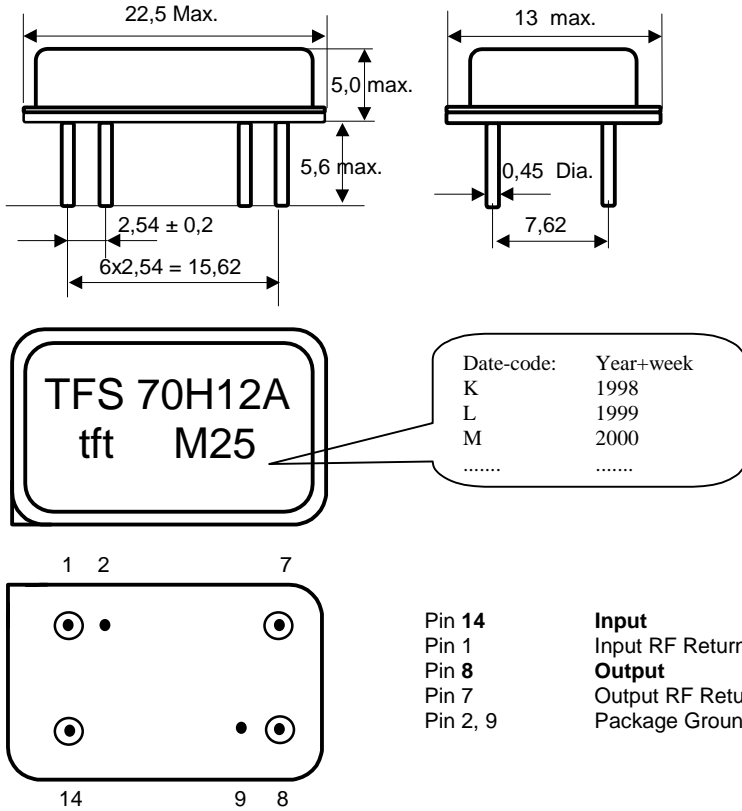
| Data | typ. value | tolerance / limit |
|--|--|-------------------|
| Insertion loss (Reference level) a_e | 21 dB | max. 23 dB |
| Centre frequency f_C at ambient temperature (f_{CTA}) | 70,0 MHz | 70 ± 0,08 MHz |
| Pass band (PB) : | $f_C - 4,0$ MHz ... $f_C + 4,0$ MHz | |
| Amplitude ripple in : $f_C - 3,6$ 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 |
| 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 | |
| Relative attenuation a_{rel} | | |
| f_C ± 3,6 MHz f_C ± 3,6 MHz | - | max. 0,8 dB |
| f_C ± 5,0 MHz f_C ± 4,0 MHz | - | max. 3 dB |
| f_C ± 5,05 MHz f_C ± 5,05 MHz | 45 dB | min. 40 dB |
| f_C ± 5,05 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 | 25 dB | |
| f_C + 155 MHz f_C + 210 MHz | 55...60 dB | |
| Group delay (mean value in PB): | 2,43 µs | max. 2,5 µs |
| Group delay ripple in PB (p-p): | 70...80 ns | max. 100 ns |
| Deviation from linear phase in PB : | 3,3 ° (r.m.s. 0,8 °) | max. 4 ° |
| Triple transit attenuation compared to main signal Crosstalk | 50...52 dB | |
| | 70...75 dB | |
| Temperature coefficient of frequency (T_{Cf}) : | -87 ppm/K ² | |
| Frequency deviation of f_C over temperature : | $\Delta f_C(\text{Hz}) = T_{Cf}(\text{ppm/K}) \times (T - T_o) \times f_{CTA}(\text{MHz})$ | |
| Operating temperature range | - 25 °C ... + 80 °C | |
| Storage temperature range | - 40 °C ... + 85 °C | |

Generated: Wadim Dunzow

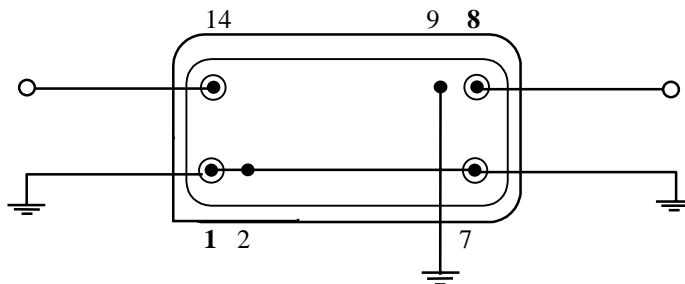
Checked/Approved: Dr. Bert Wall



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

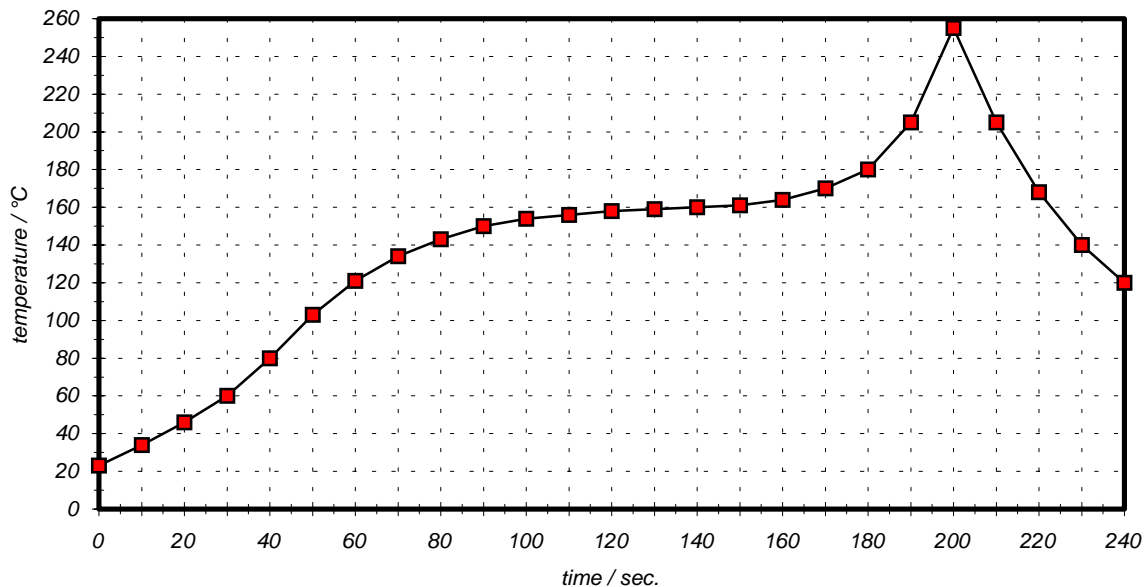


Table for temperature vs. time during the air reflow process

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 |

VI TELEFILTER**Filter Specification****TFS 70H12A - 4/4**

History

| Version | Reason of changes | Name | Date |
|----------------|--|-------------|-------------|
| 1.0 | Generate Filter Specification . | Dunzow W. | 25.07.2000. |