

VI TELEFILTER**Filter Specification****TFS 140C - 1/4****1. Measurement condition**

Ambient temperature T_A : 25 °C.
 Input power level: 0 dBm.
 Terminating impedances in f_C : for input: 833,5 Ω | - 7,879 pF. (typical value)
 for output: 941,3 Ω | - 8,379 pF. (typical value)
 Q-value of matching elements: 30

2. Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the **TFS 140C** 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 3 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 dB	max. 23 dB
Centre frequency f_C at ambient temperature (f_{CTA})	140,01 MHz	140 $\pm$ 0,1MHz
Pass band (PB) :	$f_C - 2,35 \text{ MHz} \dots f_C + 2,35 \text{ MHz}$	
Amplitude ripple in PB (p-p):	0,3..0,4 dB	max. 0,7 dB
Bandwidth :	at ambient temperature T_A	
0,7 dB - band width	4,73 MHz	min. 4,7 MHz
3 dB - band width	5,23 MHz	min. 5,0 MHz
20 dB - band width	6,29 MHz	
40 dB - band width	6,80 MHz	max. 7,0 MHz
45 dB - band width	6,88 MHz	max. 9,0 MHz
Relative attenuation a_{rel}		
$f_C \pm 2,35 \text{ MHz} \dots f_C \pm 2,50 \text{ MHz}$	-	max. 0,7 dB
$f_C \pm 2,50 \text{ MHz} \dots f_C \pm 2,50 \text{ MHz}$	-	max. 3 dB
$f_C \pm 3,50 \text{ MHz} \dots f_C \pm 4,50 \text{ MHz}$	48 dB	min. 40 dB
$f_C - 135 \text{ MHz} \dots f_C - 4,50 \text{ MHz}$	70...55 dB	min. 45 dB
$f_C + 4,50 \text{ MHz} \dots f_C + 400 \text{ MHz}$	55...70 dB	min. 45 dB
Group delay (mean value in PB):	2,14 μ s	max. 2,2 μ s
Group delay ripple in PB (p-p):	60...80 ns	max. 120 ns
Deviation from linear phase in $f_C \dots f_C \pm 2,5 \text{ MHz}$	5 ° (r.m.s. 1,3 °)	
Triple transit attenuation compared to main signal Crosstalk	44..47 dB	
	60...65 dB	
Substrate material	Quartz	
Frequency inversion temperature (T_o) :	20 °C.	
Temperature coefficient of frequency (Tc_f) :	-0.036 ppm/K ²	
Frequency deviation of f_C over temperature :	$\Delta f_C(\text{Hz}) = Tc_f(\text{ppm/K}) \times (T - T_o)^2 \times f_{CTA} (\text{MHz})$	
Operating temperature range	- 25 °C ... + 80 °C	
Storage temperature range	- 40 °C ... + 85 °C	

*) $f_o = f_{r0}$ is reference frequency f_C at frequency inversion temperature (T_o)

Generated:

Wadim Dunzow

Checked/Approved:

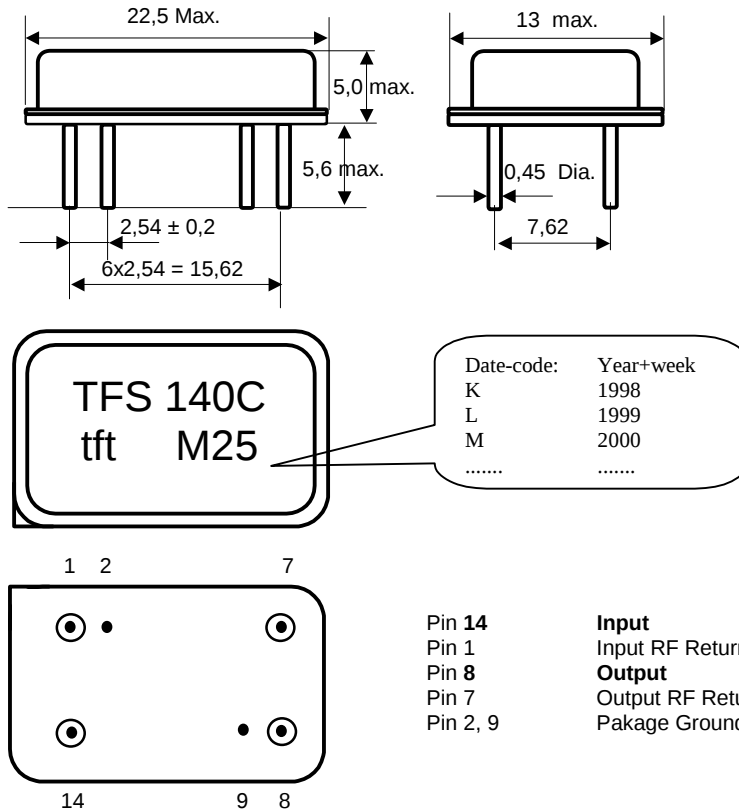
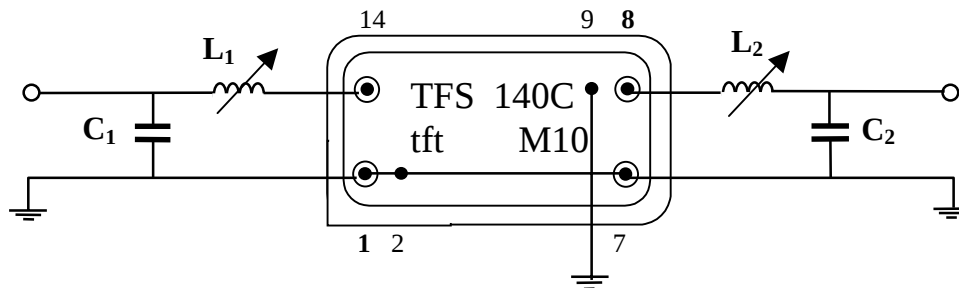
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3. Package :

4. 50 Ω matching network:

Remark: L_1 , L_2 have to be adjusted (refer to Application Note TFS 140C).

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

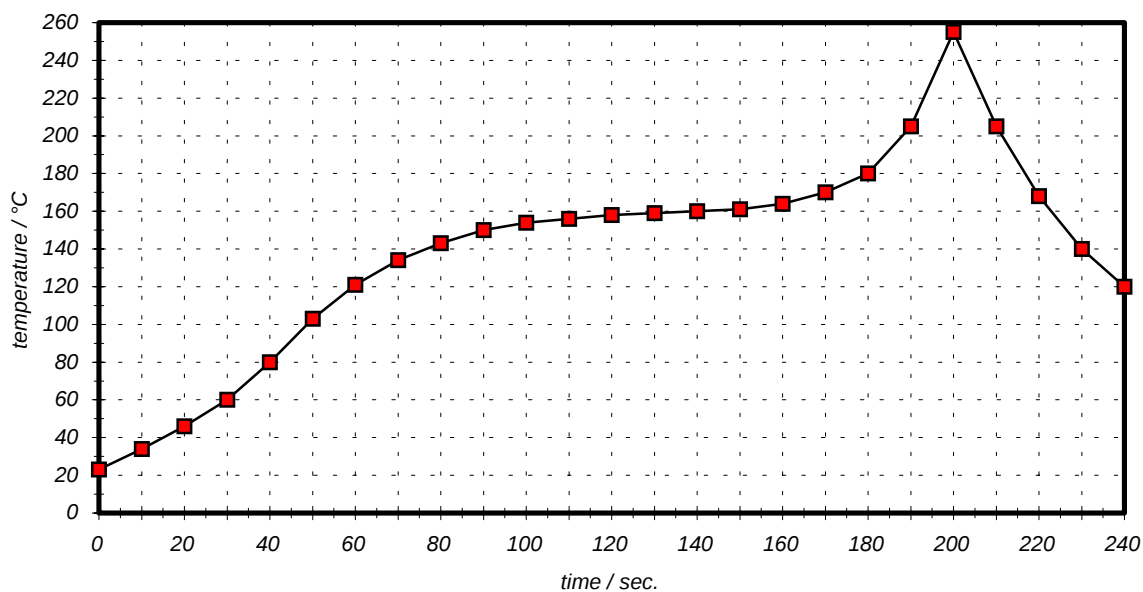


Table for temperature vs. time during the air reflow process

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 140C - 4/4****History**

Version	Reason of changes	Name	Date
3.1	Correct Amplitude ripple information.	Dunzow W.	04.07.2000.

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