

VI TELEFILTER**Filter specification****TFS 120 C****1/4**

1. Measurement condition	Package, pin connection and 50 Ω matching network	(see sheet 2.)
Ambient temperature T_A :	23 °C	
Input power level:	0 dBm	
Typical terminating impedances in f_N :	for input: 1270 Ω -11,7 pF. for output: 4330 Ω -2,9 pF.	

2. Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the **TFS 120C** 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 nominal frequency f_N is fixed at **120,0 MHz** without tolerance or limit. The reference 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 T_{cf} is valid both for the reference frequency f_c and the frequency response of the filter in the operating temperature range.

Data	typ. value	tolerance / limit
Insertion loss (Reference level) a_e	27 ± 0,5 dB	max 33 dB
Nominal frequency f_N	-	120,0 MHz
Centre frequency f_c at ambient temperature (f_{CAT})	120,01 MHz	-
Pass band		$f_N - 4,5$ MHz ... $f_N + 4,5$ MHz
Amplitude ripple (p-p): $f_N \dots f_N \pm 4,45$ MHz	0,6 dB	
Amplitude ripple (p-p): $f_N \dots f_N \pm 4,50$ MHz	-	max 3,0 dB
Bandwidth at ambient temperature :		
1,0 dB - band width	8,98 MHz	
1,5 dB - band width	9,07 MHz	
3 dB - band width	9,15 MHz	
40 dB - band width	9,90 MHz	
Relative attenuation a_{rel}		
f_N	$f_N \pm 4,5$ MHz	- max 3 dB
$f_N \pm 5$ MHz	$f_N \pm 25$ MHz	42...70 dB min 40 dB
$f_N - 120$ MHz	$f_N - 25$ MHz	70 dB
$f_N + 25$ MHz	$f_N + 300$ MHz	70 dB
Group delay	3,03 μs	max 6 μs
Group delay ripple in pass band (p-p):	120 ns	max 400 ns
Triple transit attenuation compared to main signal	60 dB	
Crosstalk	55...67 dB	
Frequency inversion temperature (T_o)	-5 °C	
Temperature coefficient of frequency (T_{cf})	-0,036 ppm/K ²	-
Frequency deviation of f_c over temperature T : *)	$\Delta f_c(\text{Hz}) = T_{cf}(\text{ppm/K}) \times (T - T_o)^2 \times f_{T_o}(\text{MHz})$	
Operating temperature range	-20 °C ... + 75 °C	
Storage temperature range	- 40 °C ... + 85 °C	
Input power level	-	max. + 10 dBm
Permissible DC voltage V_{DC}		12 V
Permissible DC voltage V_{pp}		10 V

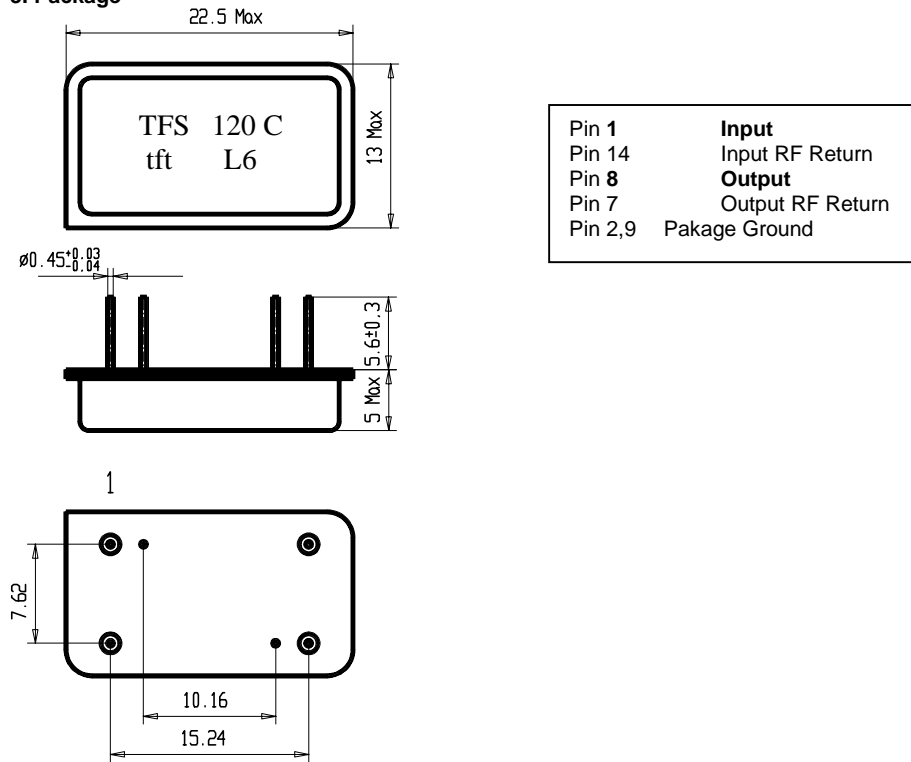
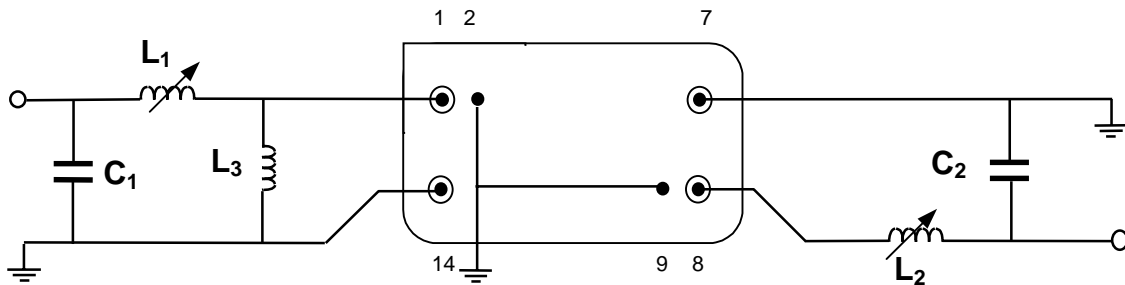
*) f_{T_o} is reference frequency f_c at frequency inversion temperature (T_o)Generated: Wadim P. DunzowChecked/Approved: Dr. Bert Wall

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3. Package

4. 50 Ω matching network:

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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.	

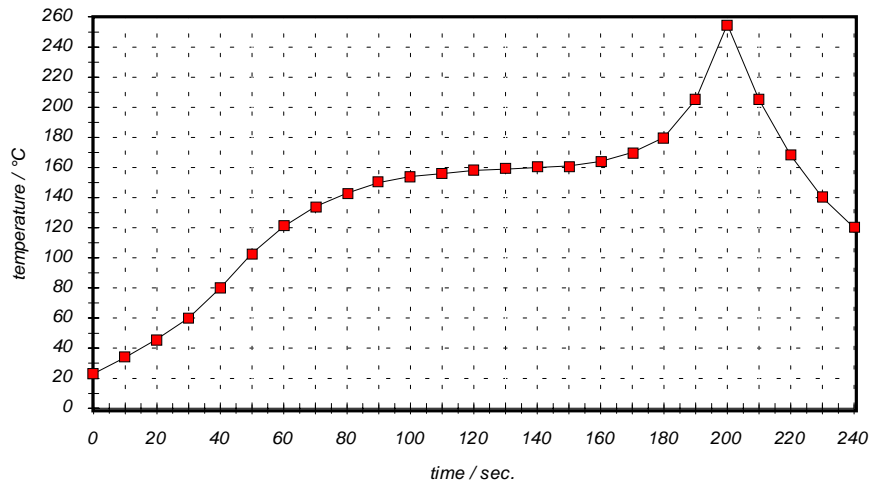
Chip-mount air reflow profile

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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