

VI TELEFILTER**Filter Specification****TFS 150G3 1/3****1. Measurement condition**

Ambient temperature T_A : 23 °C
 Input power level: 0 dBm
 Terminating impedances at f_C : for input: 67 Ω || - 3,07 pF. (typical)
 for output: 56 Ω || - 22,1 pF. (typical)
 Q-value of matching elements: 30

2. Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the **TFS150G3** 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 **22,5 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	28 dB	max 30 dB
Reference frequency f_C at ambient temperature (f_{CTA})	150,25 MHz	150,25 \pm 0,075 MHz
Pass band (PB) at ambient temperature T_A :	$f_C - 14,80$ MHz..... $f_C + 14,80$ MHz	
Amplitude ripple in PB (p-p):	0,9 dB	max. 1,0 dB
Bandwidth at ambient temperature:		
1,5 dB - band width	30,05 MHz	min. 30,00 MHz
3 dB - band width	30,16 MHz	
22,5 dB - band width	30,77 MHz	max. 30,80 MHz
30 dB - band width	31,20 MHz	max. 32,00 MHz
Relative attenuation a_{rel}		
f_C	$f_C \pm 14,8$ MHz	- max. 1,0 dB
$f_C \pm 14,8$ MHz	$f_C \pm 14,99$ MHz	- max. 1,5 dB
$f_C \pm 15,4$ MHz	$f_C \pm 16,0$ MHz	24 dB min. 22,5 dB
$f_C + 16$ MHz	$f_C + 150$ MHz	50...55 dB min. 30 dB
$f_C - 16$ MHz	$f_C - 120$ MHz	45...50 dB min. 30 dB
$f_C - 120$ MHz	$f_C - 145$ MHz	55...70 dB min. 30 dB
Group delay (mean value in PB): 2,5	μ s max 3	μ s
Group delay ripple in PB (p-p):	80 ns	max. 180 ns
Deviation from linear phase in PB :	8° p-p...(1,5° r.m.s.)	
Triple transit attenuation compared to main signal Crosstalk	62 dB	57 dB
Substrate material	LiNbO ₃	
Temperature coefficient of frequency (T_{CF})	-87	-94 ppm/K
Frequency deviation of f_C over temperature	$\Delta f_C(\text{Hz}) = T_{CF}(\text{ppm/K}) \times (T - T_A) \times f_{CTA}(\text{MHz})$	
Operating temperature range	- 25 °C ... + 80 °C	
Storage temperature range	- 40 °C ... + 85 °C	

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Checked/Approved: _____ Dr. Bert Wall

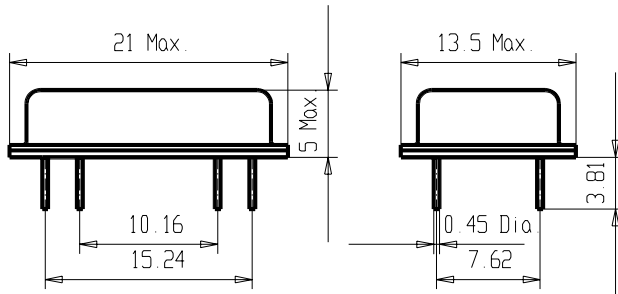
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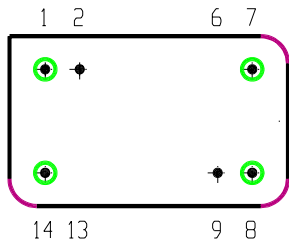
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Construction and pin connection

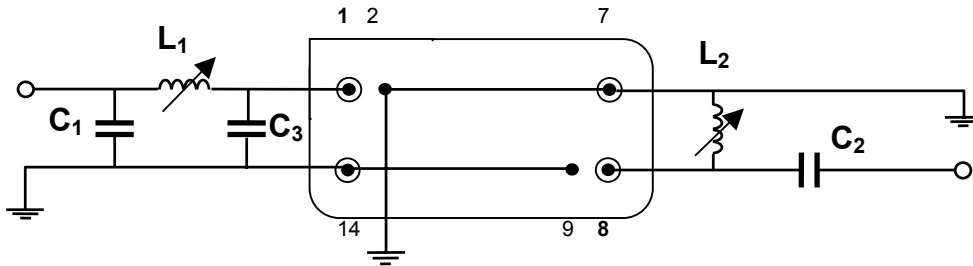
(All dimensions in mm)



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



50 Ω - Matching network:



C_1, L_1, C_3 ; C_2, L_2 - to see Application Note.

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

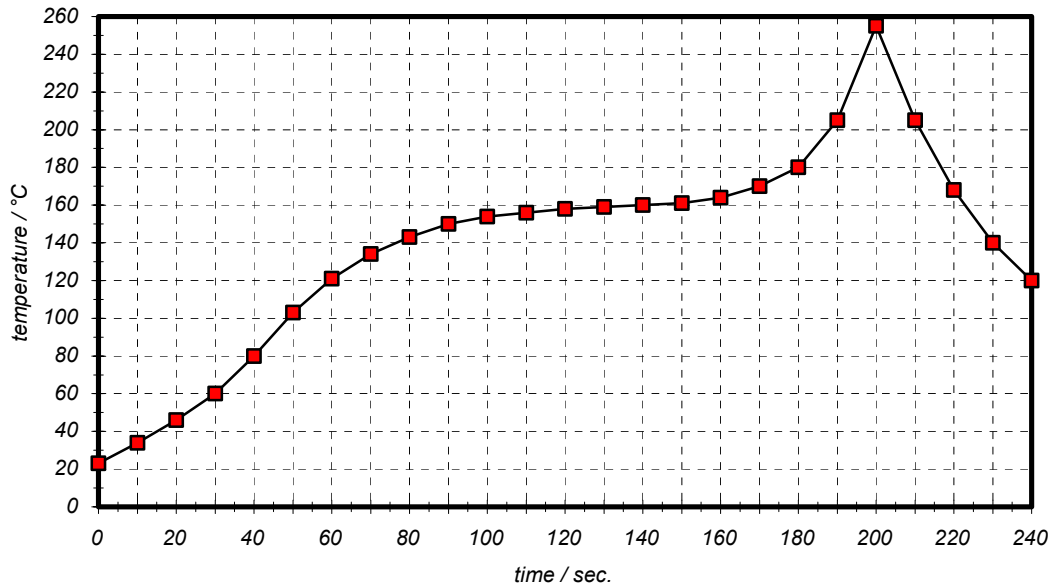


Table for temperature vs. time during the air reflow process

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