

VI TELEFILTER**Filter Specification****TFS 100A - 1/3****1. Measurement condition**

Ambient temperature T_A :	25 °C		
Input power level:	0 dBm (typ.)		
Terminating impedances in f_C :	for input:	62 Ω | -32 pF.	(see Application Note)
[average values]	for output:	62 Ω | -32 pF.	(see Application Note)

2. Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS 100 A 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 33 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	22,0 dB	max 25 dB
Centre frequency f_C at ambient temperature (f_{CTA})	100 MHz	100 \pm 0,1 MHz
Pass band at ambient temperature T_A:	$f_C - 7,4$ MHz..... $f_C + 7,4$ MHz	MHz
Bandwidth at ambient temperature:		
1 dB - band width	14,95 MHz	
1,5 dB - band width	15,01 MHz	
3 dB - band width	15,14 MHz	min 15,0 MHz
20 dB - band width	15,64 MHz	
33 dB - band width	15,785 MHz	max 15,8 MHz
40 dB - band width	15,93 MHz	max 16,2 MHz
45 dB - band width	16,00 MHz	max 17,0 MHz
Amplitude ripple in pass band (p-p):	0,7 dB	max 1,3 dB
Relative attenuation a_{rel}		
f_C	$f_C \pm 7,4$ MHz	- max 1,3 dB
$f_C \pm 7,4$ MHz	..... $f_C \pm 7,5$ MHz	- max 3 dB
$f_C \pm 7,9$ MHz	..... $f_C \pm 8,1$ MHz	- min 33 dB
$f_C \pm 8,1$ MHz	..... $f_C \pm 8,5$ MHz	45 dB min 43 dB
$f_C \pm 8,5$ MHz	..... $f_C \pm 22,9$ MHz	55...60 dB min 48 dB
$f_C \pm 22,9$ MHz	..... $f_C \pm 95$ MHz	65...70 dB min 50 dB
Group delay (mean value in pass band) :	3,26 μ s	max 3,4 μ s
Group delay ripple in pass band (p-p) :	110 ns	max. 150 ns
Deviation from linear phase in pass band :	6 ° (p-p) (1,2° r.m.s.)	
Input/Output return loss with matching network (S11/S22):	4 / 4 dB	
Triple transit attenuation compared to main signal	50 dB	
Crosstalk attenuation compared to main signal	65...70 dB	
Reflection attenuation compared to main signal	60 dB	
Substrate material	LiNbO ₃	
Temperature coefficient of frequency (T_{Cf})	-86 ppm/K	-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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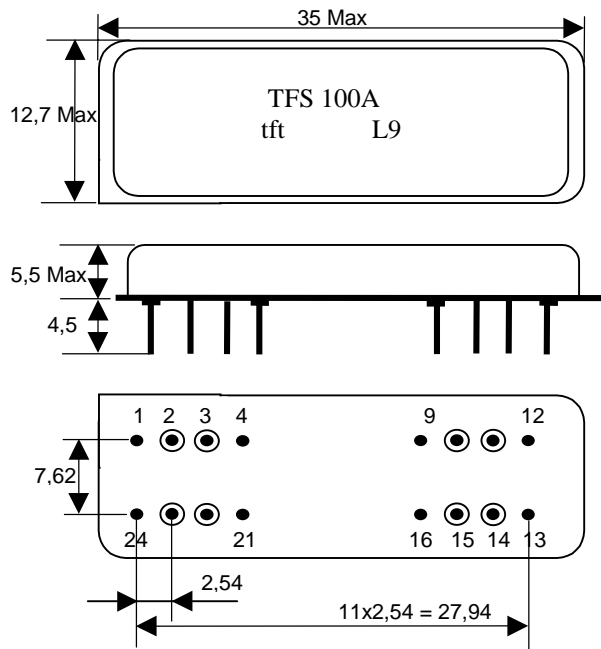
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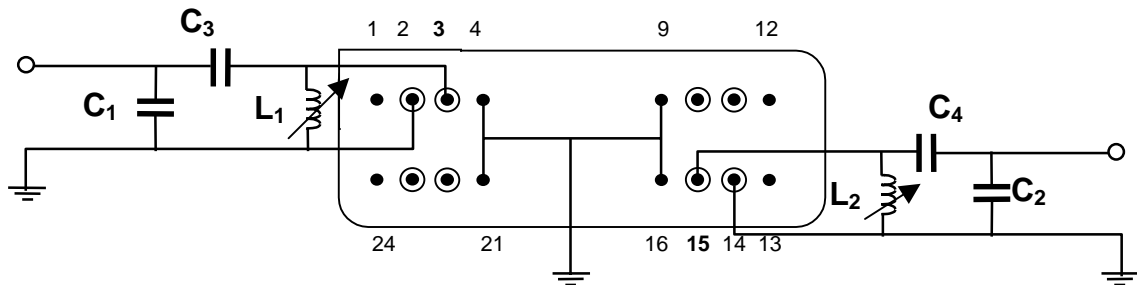
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3. Package, pin grid 2,54 mm (All dimensions in mm)



Pin 3 - Input.
 Pin 2 - Input RF Return.
 Pin 15 - Output.
 Pin 14 - Output RF Return.
 Pin 1,4,9,12,13,16,21,24 Package Ground.
 Pin 10, 11, 22, 23, Not connected.

50 Ω - Matching network (see Application Note):



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

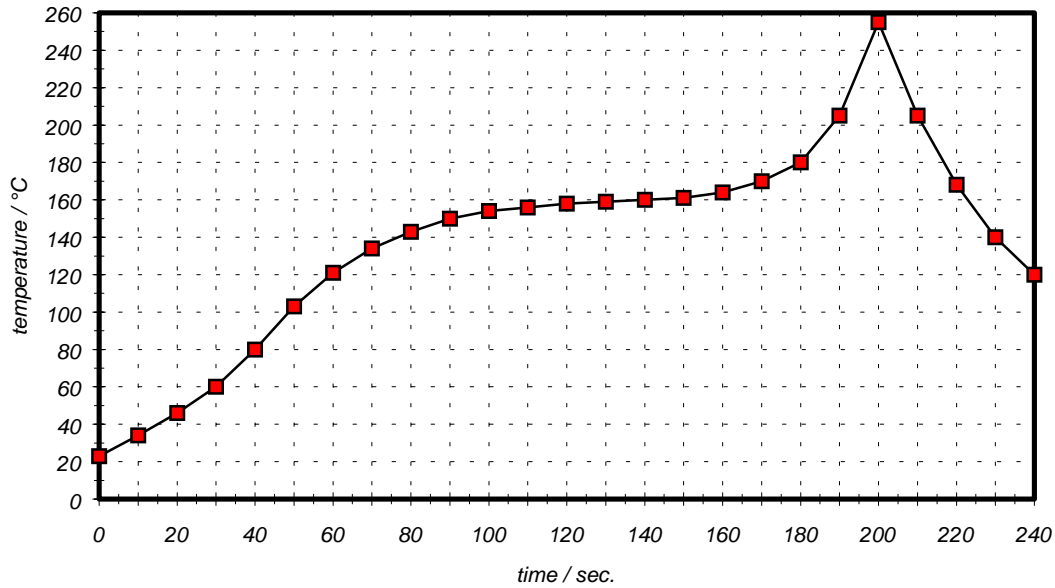


Table for temperature vs. time during the air reflow process

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