

**VI TELEFILTER****Filter Specification****TFS 80 D1 - 1/3****1. Measurement condition :**

Ambient temperature $T_A$ :	23 °C		
Input power level:	0 dBm.		
Terminating impedances in $f_C$ :	for input:	50 $\Omega$   0 pF	
	for output:	50 $\Omega$   0 pF,	

**2. Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the **TFS 80 D** 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  $a_e$ .

Data	typ. value	tolerance / limit
<b>Insertion loss (Reference level) <math>a_e</math></b>	15 dB	max. 16 dB
<b>Centre frequency <math>f_C</math> at ambient temperature (<math>f_{CAT}</math>)</b>	80,07 MHz	80,07 $\pm$ 0,02 MHz
<b>Pass band (-3 dB)</b>		$f_C$ - 90 kHz ... $f_C$ + 90 kHz
<b>Bandwidth at ambient temperature:</b>		
3 dB - band width	184 kHz	min. 180 kHz
<b>Relative attenuation <math>a_{rel}</math></b>		
$f_C$	$f_C \pm 90$ kHz	- - max. 3 dB
$f_C + 200$ kHz	$f_C + 400$ kHz	- - min. 19 dB
$f_C - 400$ kHz	$f_C - 200$ kHz	- - min. 14 dB
$f_C \pm 400$ kHz	$f_C \pm 500$ kHz	40 dB min. 35 dB
$f_C \pm 0,5$ MHz	$f_C \pm 1,0$ MHz	52...65 dB min. 50 dB
$f_C - 1,0$ MHz	$f_C - 35$ MHz	64...70 dB min. 60 dB
$f_C + 1,0$ MHz	$f_C + 35$ MHz	62...70 dB min. 58 dB
<b>Average group delay in pass band:</b>		
	4,12 $\mu$ s	-
<b>Group delay ripple:</b>		
$f_C - 100$ kHz ..... $f_C$	300 ns	max. 600 ns
$f_C$ ... $f_C + 100$ kHz	600 ns	max. 700 ns
<b>Deviation from linear phase (p-p) <math>f_C</math> ... <math>f_C \pm 100</math> kHz</b>	5,2 °	
<b>Crosstalk attenuation compared to main signal</b>	55...60 dB	
<b>Triple transit attenuation compared to main signal</b>	33...34 dB	
<b>Frequency inversion temperature (<math>T_o</math>)</b>	20 °C	
<b>Temperature coefficient of frequency (<math>T_{Cf}</math>)</b>	-0,075 ppm/K <sup>2</sup>	-
<b>Frequency deviation of <math>f_C</math> over temperature T : *)</b>	$\Delta f_C(\text{Hz}) = T_{Cf}(\text{ppm/K}) \times (T - T_o)^2 \times f_{T_o}(\text{MHz})$	
<b>Operating temperature range</b>	- 25 °C ... + 75 °C	
<b>Storage temperature range</b>	- 30 °C ... + 85 °C	
<b>Input power level</b>	-	max. + 10 dBm

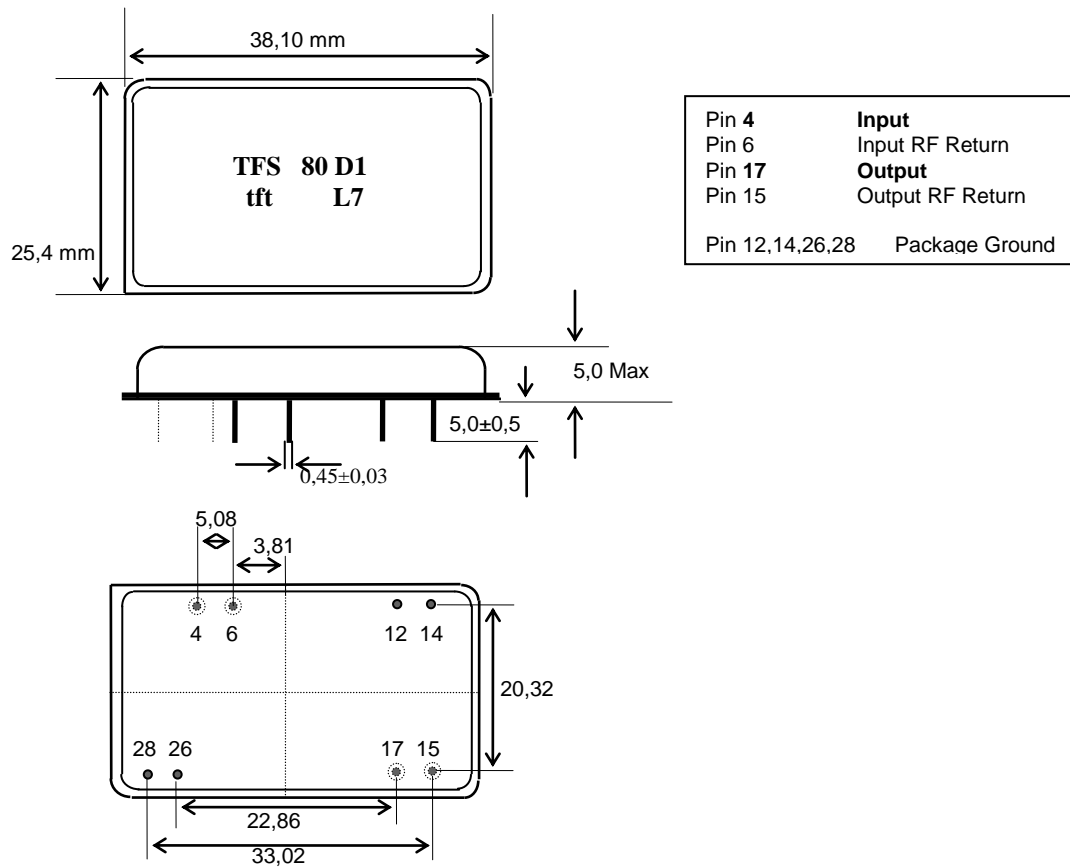
\*)  $f_{T_o}$  is reference frequency  $f_C$  at frequency inversion temperature ( $T_o$ )Generated: Wadim P. DunzowChecked/Approved: Dr. Bert Wall

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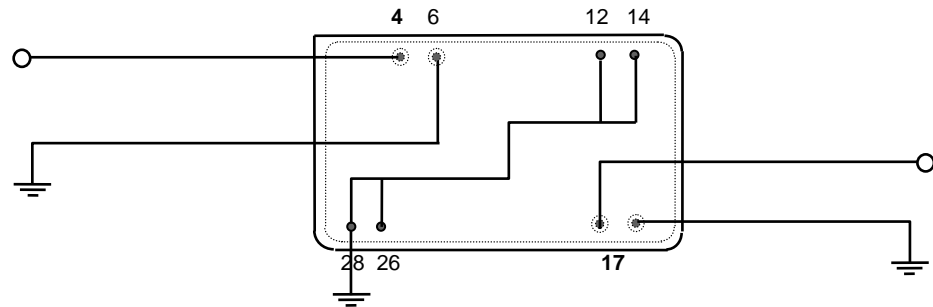
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## 3. Package:



## 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

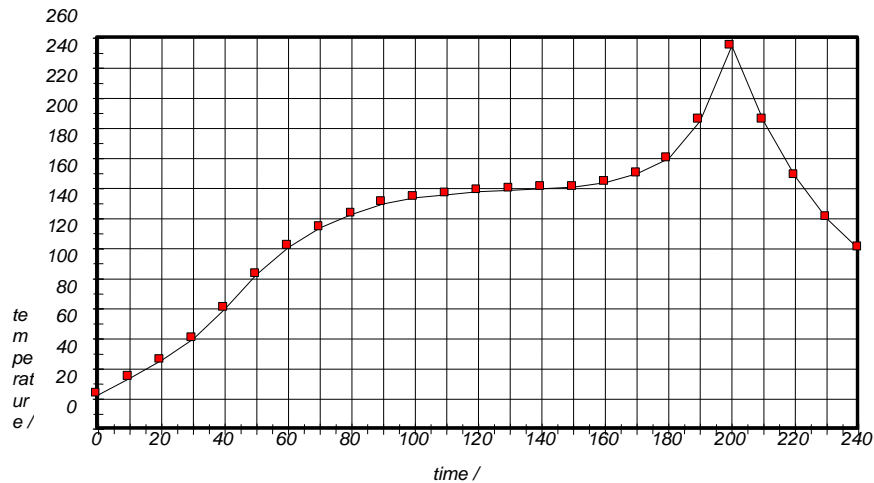


Table for temperature vs. time during the air reflow process

Tolerance of temperatures: ± 5 °C

time / sec.	temperature / °C	time / sec.	temperature / °C
0	23	80	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	80
130	159	240	120