

**VI TELEFILTER****Filter Specification****TFS 80 D2 - 1/4****1. Measurement condition :**

Ambient temperature  $T_A$ : 23 °C  
 Input power level: 0 dBm.  
 Terminating impedances in  $f_C$ : for input: 50  $\Omega$  | - 56 pF  
 for output: 50  $\Omega$  | 0 pF,

**2. Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the **TFS 80 D2** 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</b> (Reference level) $a_e$	14,0 dB	max. 14,5 dB
<b>Centre frequency</b> $f_C$ at ambient temperature ( $f_{CAT}$ )	80,07 MHz	80,07 $\pm$ 0,01 MHz
<b>Pass band (-3 dB)</b>	$f_C$ - 100 kHz ... $f_C$ + 100 kHz	
<b>Bandwidth</b> at ambient temperature:		
3 dB - band width	212 kHz	min. 200 kHz
10 dB - band width	350 kHz	
20 dB - band width	450 kHz	
36 dB - band width	770 kHz	max. 800 kHz
45 dB - band width	990 kHz	max.1000 kHz
<b>Relative attenuation</b> $a_{rel}$		
$f_C$ ... $f_C \pm 100$ kHz	- -	max. 3 dB
$f_C$ - 400 kHz ... $f_C$ - 200 kHz	- -	min. 11 dB
$f_C$ + 200 kHz ... $f_C$ + 400 kHz	- -	min. 19 dB
$f_C \pm 400$ kHz ... $f_C \pm 500$ kHz	40 dB	min. 36 dB
$f_C \pm 500$ kHz ... $f_C \pm 1,0$ MHz	50...60 dB	min. 45 dB
$f_C \pm 1,0$ kHz ... $f_C \pm 35$ MHz	60...70 dB	min. 50 dB
<b>Group delay ( mean value in PB ):</b>	4,12 $\mu$ s	
<b>Group delay ripple :</b> $f_C - 100$ kHz ..... $f_C$	500 ns	max. 600 ns
$f_C$ ... $f_C + 100$ kHz	700 ns	max. 750 ns
<b>Deviation from linear phase in PB (p-p):</b>	5,2°	
<b>Triple transit attenuation compared to main signal</b>	33...34 dB	
<b>Crosstalk</b>	55...60 dB	
<b>Frequency inversion temperature (<math>T_o</math>)</b>	10°	
<b>Temperature coefficient of frequency (<math>Tc_f</math>)</b>	-0,045 ppm/K <sup>2</sup>	
<b>Frequency deviation of <math>f_C</math> over temperature: *</b>	$\Delta f_C(\text{Hz}) = Tc_f(\text{ppm/K}) \times (T - T_o)^2 \times f_{T_o}$ (MHz)	
<b>Operating temperature range</b>	- 25 °C ... + 75 °C	
<b>Storage temperature range</b>	- 30 °C ... + 85 °C	

\*)  $f_{T_o}$  is reference frequency  $f_C$  at frequency inversion temperature ( $T_o$ )

**Generated:** \_\_\_\_\_ **Dunzow W.**

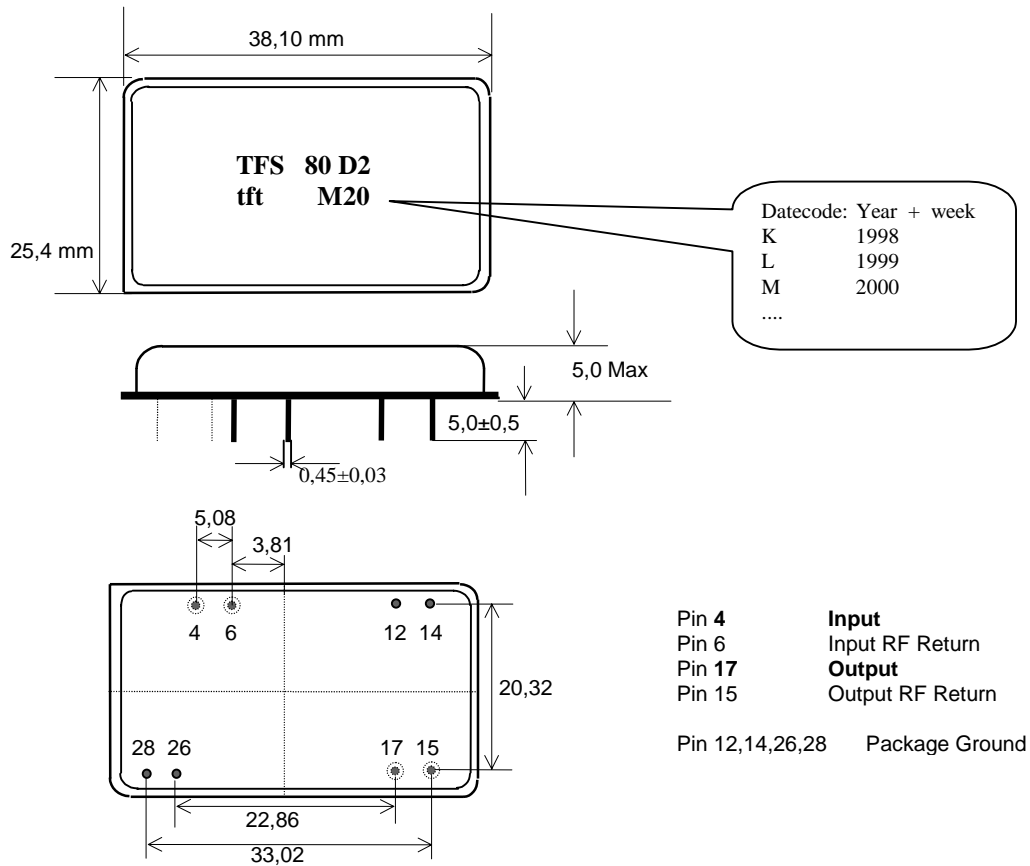
**Checked/Approved:** \_\_\_\_\_ **Dr. Bert Wall**

**VI TELEFILTER**  
 Potsdamer Straße 18  
 D 14 513 TELTOW / Germany  
 Tel: (+49) 3328 4784-52 / Fax: (+49) 3328 4784-30  
 E-Mail: tft@telefilter.com

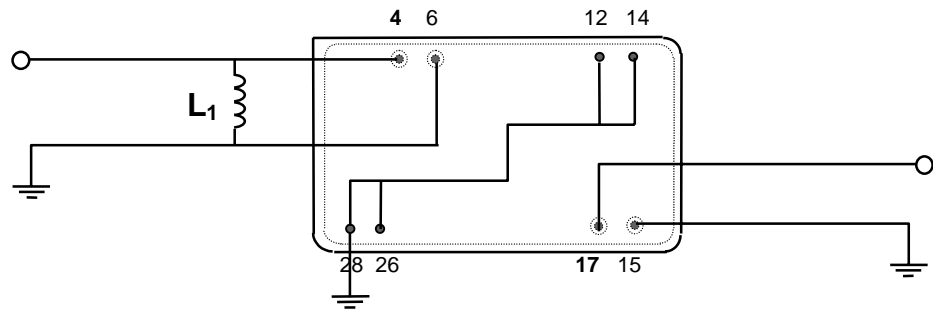
**Vectron International, Inc.**  
 267 Lowell Road  
 Hudson, NH 03051 / USA  
 Tel: (603) 598-0070 Fax: (603) 598-0075  
 E-Mail: vti@vtinh.com

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**3. Package:**



**4. 50 Ω matching network (to see Application Note Of TFS 80D2):**



## 5 Soldering temperature conditions

### Soldering temperature profile

<b>Name:</b>	pre-heating periods	main-heating periods	peak temperature
<b>Temperature:</b>	150 °C - 170 °C	over 200 °C	255 °C ± 5 °C
<b>Time:</b>	60 sec. - 90 sec.	20 sec. - 25 sec.	

### Soldering temperature profile

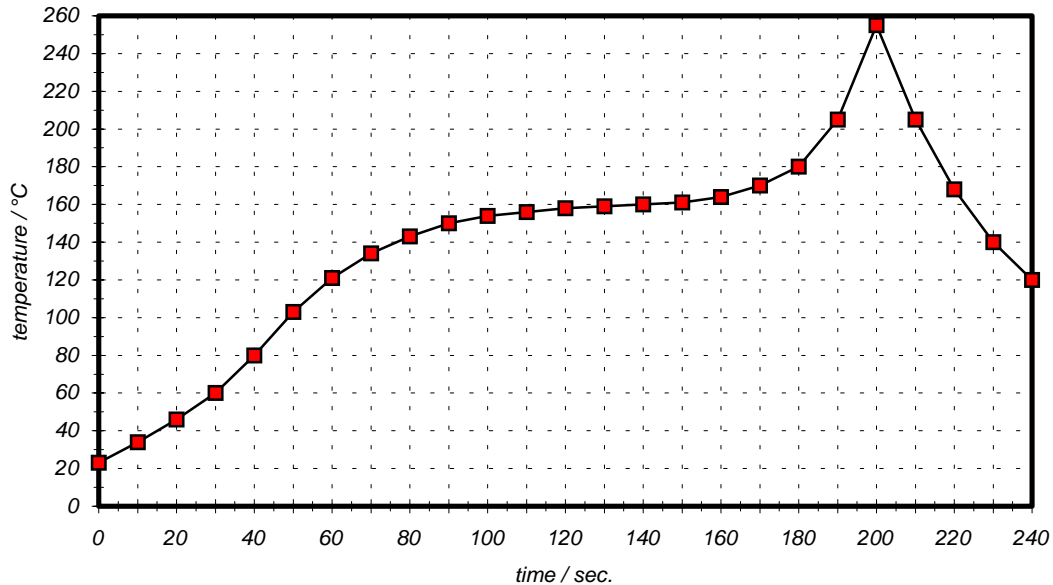


Table for temperature vs. time during the soldering process

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 80 D2 - 4/4****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	Change filter specifications TFS 80D and TFS 80D1 according to customer requirements: 1. Change of insertion loss limit : from $I_{Lo} = \text{max. } 16,0 \text{ dB}$ without matching to $I_{Lo} = \text{max. } 14,5 \text{ dB}$ with matching . 2. Change of centre frequency tolerance from $f_C = 80,07 \pm 0,02 \text{ kHz}$ to $f_C = 80,07 \pm 0,01 \text{ kHz}$ . 3. Change of band width limit : from $BW(-3\text{dB}) = \text{min. } 180 \text{ kHz}$ without matching to $BW(-3\text{dB}) = \text{min. } 200 \text{ kHz}$ with matching; 4. Change of selection from $-34 \text{ dB}$ up to $-36 \text{ dB}$ in $f_C \pm 400 \text{ kHz} \dots f_C \pm 500 \text{ kHz}$ .	Dunzow W.	10.05.2000
1.1	1. Change of selection limit line ( $-45 \text{ dB}$ ) from $f_C \pm 500 \text{ kHz} \dots f_C \pm 850 \text{ kHz}$ to $f_C \pm 500 \text{ kHz} \dots f_C \pm 1000 \text{ kHz}$ 2. Correction of frequency inversion temperature : from $T_o = 20^\circ$ to $T_o = 10^\circ$ (after measure ) and temperature coefficient of frequency : from $T_{Cf} = -0,055 \text{ ppm/K}^2$ to $T_{Cf} = -0,045 \text{ ppm/K}^2$ .	Dunzow W.	16.05.2000

**VI TELEFILTER**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-52 / Fax: (+49) 3328 4784-30**  
**E-Mail: tft@telefilter.com**

**Vectron International, Inc.**  
**267 Lowell Road**  
**Hudson, NH 03051 / USA**  
**Tel: (603) 598-0070 Fax: (603) 598-0075**  
**E-Mail: vti@vtinh.com**

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.