Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *

Input: 88,6 Ω || -36,2 pF
Output: 50,0 Ω || 0 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 140D 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 centre 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.

D a t a		typ. value		tolerance / limit		
Insertion Loss (reference level)	a_e	22,5	dB	max.	25	dB
Centre frequency	f_c at ambient temperature	140	MHz		140 ± 0,1	MHz
Passband					f_c ± 3,5	MHz
Bandwidth	BW					
0,7 dB		6,8	MHz			
1 dB		6,97	MHz			
3 dB		7,37	MHz			
20 dB		8,30	MHz			
40 dB		8,65	MHz			
45 dB		8,72	MHz			
Amplitude ripple (p-p)	f_c ... f_c ± 3,25 MHz	0,5	dB	max.	0,7	dB
Relative Attenuation	a_{rel}					
f_c ... f_c ± 3,25 MHz		-		max.	0,7	dB
f_c ± 3,25 MHz ... f_c ± 3,5 MHz		-		max.	3	dB
f_c ± 4,6 MHz ... f_c ± 10 MHz		48	dB	min.	40	dB
f_c ± 10 MHz ... f_c ± 34 MHz		55	dB	min.	45	dB
f_c - 139 MHz ... f_c - 89 MHz		25	dB	min.	22	dB
f_c - 89 MHz ... f_c - 65 MHz		35	dB	min.	33	dB
f_c - 65 MHz ... f_c - 50 MHz		25	dB	min.	22	dB
f_c - 50 MHz ... f_c - 34 MHz		35	dB	min.	33	dB
f_c + 34 MHz ... f_c + 55 MHz		55	dB	min.	45	dB
f_c + 55 MHz ... f_c + 60 MHz		45	dB	min.	40	dB
f_c + 60 MHz ... f_c + 260 MHz		50...70	dB	min.	45	dB
Group delay ripple within PB		120	ns	max.	160	ns
Average group delay within PB		2,12	us	max.	2,5	us
Deviation from linear phase	f_c ... f_c ± 3,25 MHz(± 3,5 MHz)	4(5,8)	deg		-	
Triple transit response suppression		44	dB		-	
Input power level		-		max.	10	dBm
Temperature Coefficient of Frequency	TC_f **	-18	ppm/K		-	
Operating Temperature Range	OTR	-			-40 °C ... + 85 °C	
Storage Temperature Range		-			-55 °C ... + 85 °C	

*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.
**) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_o) \times f_{CAT}$ (MHz)

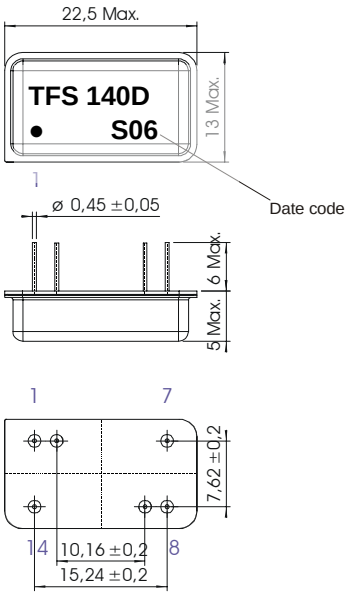
generated:

checked / approved:

Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

Construction and pin connection

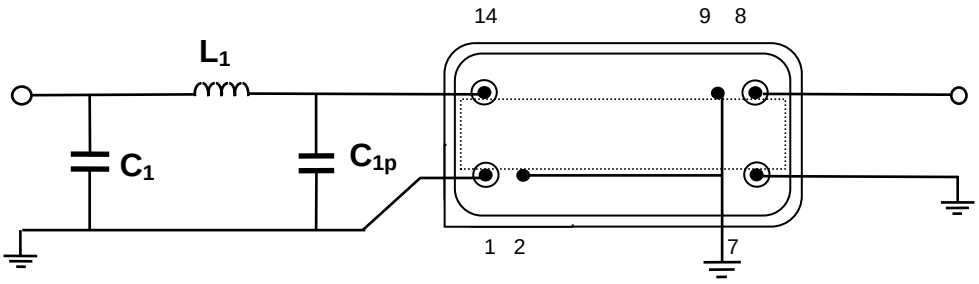
(All dimensions in mm)



1	Input RF Return
2	Ground
3	Ground
4	Ground
5	Ground
6	Ground
7	Output RF Return
8	Output
9	Ground
10	Ground
11	Ground
12	Ground
13	Ground
14	Input

Date code:	Year + week
S	2004
T	2005
U	2006
...	

50 Ohm Test circuit



Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

Stability characteristics

After the following tests the filter shall meet the whole specification:

1. Shock:	500g, 18 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or g respectively, 1 octave per min, 10 cycles per plan, 3 plans; DIN IEC 68 T2 - 6
3. Change of temperature:	-55 °C to 125°C / 30 min. each / 10 cycles DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow):	reflow possible: twice max.; for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

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

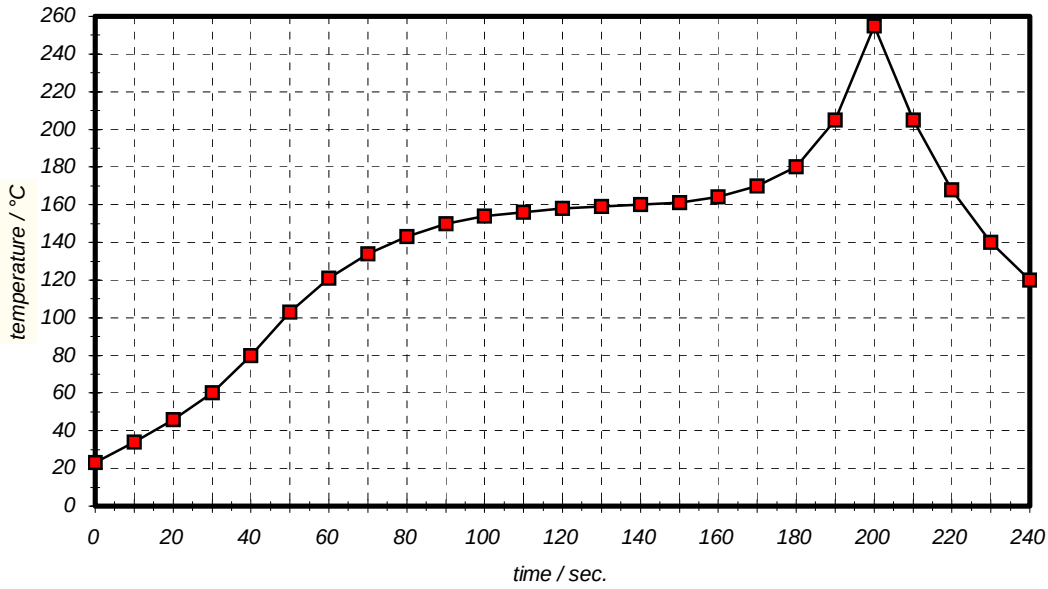


Table for temperature vs. time during the air reflow process

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

Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

History

Version	Reason of Changes	Name	Date
3.5	remove typical value for crosstalk	Roizengaft	3.02.2004

Vectron International GmbH & Co. KG
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com