1. Measurement condition **Package, pin connection and 50 Ω matching network** (see page 2.)

Ambient temperature T_A: 23 °C

Input power level: 0 dBm.

Terminating impedances in f_C: for input: : 88,6 Ω | -36,16 pF

for output: 50 Ω | 0 pF,

2. Characteristics

Remark:

Reference level for the relative attenuation $\mathbf{a_{rel}}$ of the **TFS 140 D** is the minimum of the pass band attenuation $\mathbf{a_{min}}$. The minimum of the pass band attenuation a_{min} is defined as the insertion loss $\mathbf{a_e}$. The reference frequency $\mathbf{f_C}$ is the arithmetic mean value of the upper and lower frequencies at the **3 dB** filter attenuation level relative to the insertion loss $\mathbf{a_e}$.

Data			**typ. value**		**tolerance / limit**	
Insertion loss (Reference level) $\mathbf{a_e}$			22,5	dB	max. 25	dB
Centre frequency $\mathbf{f_C}$ at ambient temperature **($\mathbf{f_{CAT}}$)**			140	MHz	140 ± 0,1	MHz
Pass band (-3 dB)					f_C - 3,5 MHz ... f_C + 3,5 MHz	
Bandwidth at ambient temperature**:**						
0,7 dB - band width			6,80	MHz		
1 dB - band width			6,97	MHz		
3 dB - band width			7,37	MHz		
20 dB - band width			8,30	MHz		
40 dB - band width			8,65	MHz		
45 dB - band width			8,72	MHz		
Amplitude ripple (p-p):	f_C ... f_C ± 3,25 MHz		0,5	dB	max 0,7	dB
Relative attenuation	$\mathbf{a_{rel}}$					
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
Average group delay in pass band**:**			2,12	µs	max. 2,5	µs
Group delay ripple in pass band **(p-p):**			120	ns	max. 160	ns
Deviation from linear phase (p-p)	f_C ... f_C ± 3,25 (±3,5) MHz		4° (5,8°)			
Crosstalk attenuation compared to main signal			65	dB		
Triple transit attenuation compared to main signal			44	dB		
Temperature coefficient of frequency ($\mathbf{Tc_f}$)			-18	ppm/K		
Frequency deviation of $\mathbf{f_C}$ over temperature			$\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_A) \times f_{CAT}$ (MHz)			
Operating temperature range			- 40 °C ... + 85 °C			
Storage temperature range			- 55 °C ... + 85 °C			
Input power level	-				max. + 10	dBm

Generated: **Wadim P. Dunzow**

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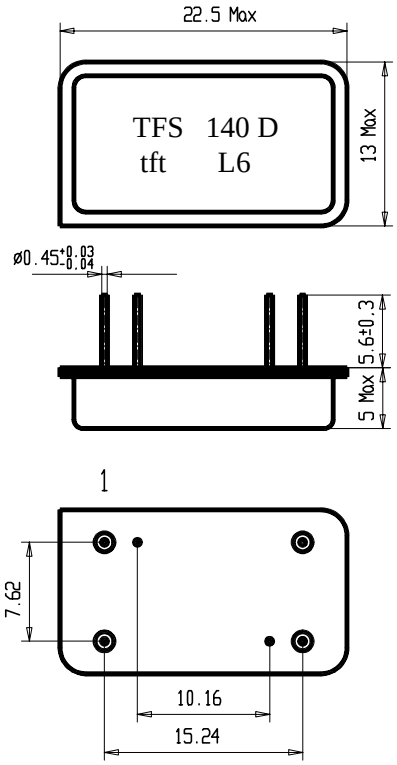
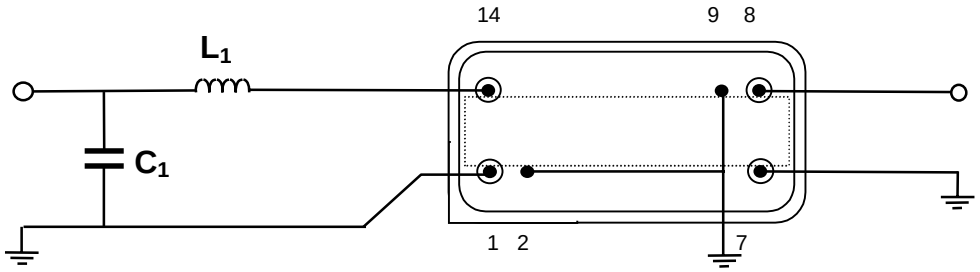
3. Package



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

4. 50 Ω matching network:



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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.	

Chip-mount air reflow profile

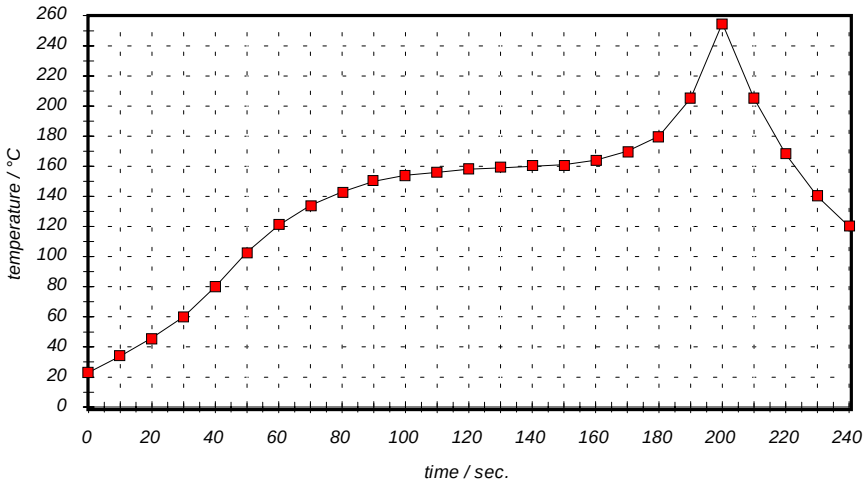

Table for temperature vs. time during the air reflow process

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

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