

Measurement condition

Ambient temperature T_A :	23	°C
Input power level:	0	dBm.
Terminating impedances at f_C *) :	for input:	24 Ω // -13,2 pF
	for output:	41 Ω // - 0,8 pF

Characteristics

Remark: Reference level for the relative attenuation a_{rel} of the TFS 149B 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 TC_f is valid both for the reference frequency f_C and the frequency response of the filter in the operating temperature range. The bandwidth shift of the filter in the operating temperature range is included in the production tolerance scheme.

D a t a		typ. value	tolerance / limit
Insertion loss (reference level)	$a_e = a_{min}$	25,5 dB	max. 26 dB
Centre frequency at ambient temperature T_A	f_C	149,9 MHz	$149,9 \pm 0,1$ MHz
Pass band	PB	-	$f_C \pm 7,1$ MHz
Pass band ripple (p-p) :		1,1 dB	max. 1,5 dB
Bandwidth within operating temperature range			
1,5 dB		-	min. 14,1 MHz
3 dB		-	min. 14,4 MHz
33 dB		15,186 MHz	max. 15,2 MHz
43 dB		-	max. 15,3 MHz
48 dB		-	max. 17 MHz
Relative attenuation	a_{rel}		
f_C	... $f_C \pm 7,05$ MHz	-	max. 1,5 dB
$f_C \pm 7,05$ MHz	... $f_C \pm 7,2$ MHz	-	max. 3 dB
$f_C + 7,6$ MHz	... $f_C + 7,9$ MHz	-	min. 33 dB
$f_C + 7,9$ MHz	... $f_C + 8,5$ MHz	-	min. 43 dB
$f_C + 8,5$ MHz	... $f_C + 11$ MHz	-	min. 42 dB
$f_C + 11$ MHz	... $f_C + 22,9$ MHz	-	min. 48 dB
$f_C - 22,9$ MHz	... $f_C - 14$ MHz	-	min. 48 dB
$f_C - 14$ MHz	... $f_C - 13$ MHz	-	min. 46 dB
$f_C - 13$ MHz	... $f_C - 8,5$ MHz	-	min. 48 dB
$f_C - 8,5$ MHz	... $f_C - 7,8$ MHz	-	min. 43 dB
$f_C - 7,8$ MHz	... $f_C - 7,6$ MHz	-	min. 33 dB
$f_C \pm 22,9$ MHz	... $f_C \pm 95$ MHz	-	min. 50 dB
Group delay (mean value in PB)		2,9 μ s	max. 4 μ s
Group delay ripple in PB:		150 ns	max. 200 ns
Temperature coefficient of frequency	TC_f	- 87 ppm/K	-
Frequency deviation of f_C over temperature		$\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{CTA}(\text{MHz})$	
Operating temperature range		-	- 25 °C ... + 80 °C
Storage temperature range		-	- 40 °C ... + 85 °C

*) 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.

generated: _____

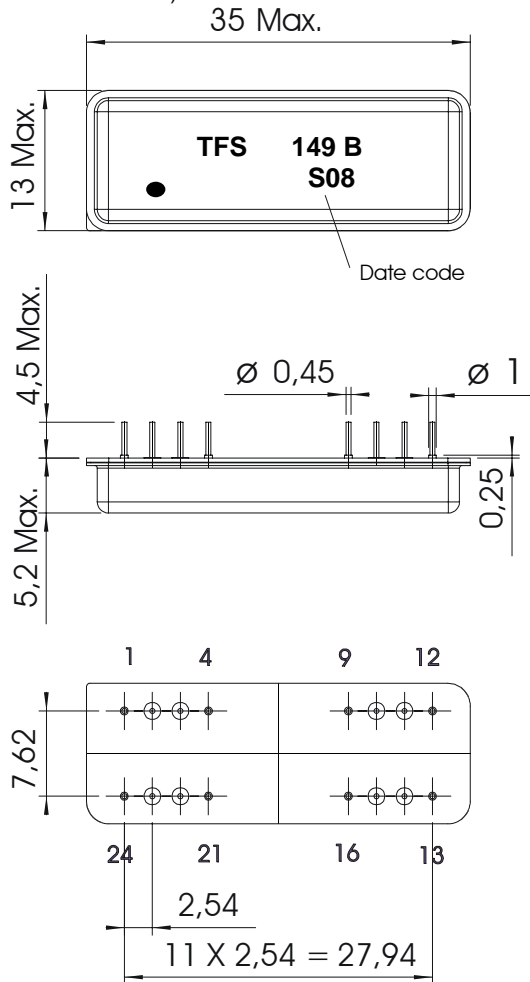
checked / approved: _____

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Construction and pin connection:

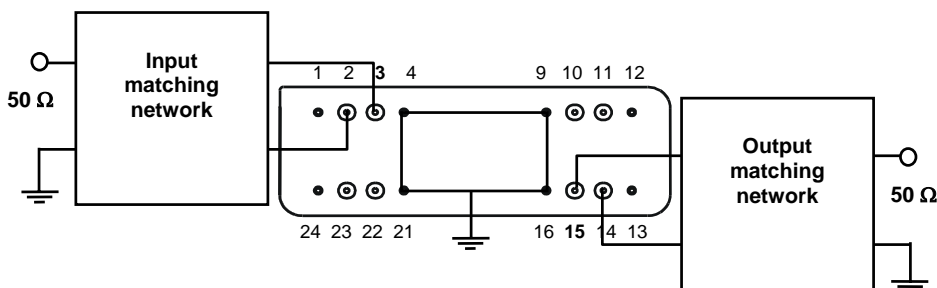
(All dimensions in mm)



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

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 (for details refer to application note) :



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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 5g 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;

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.	

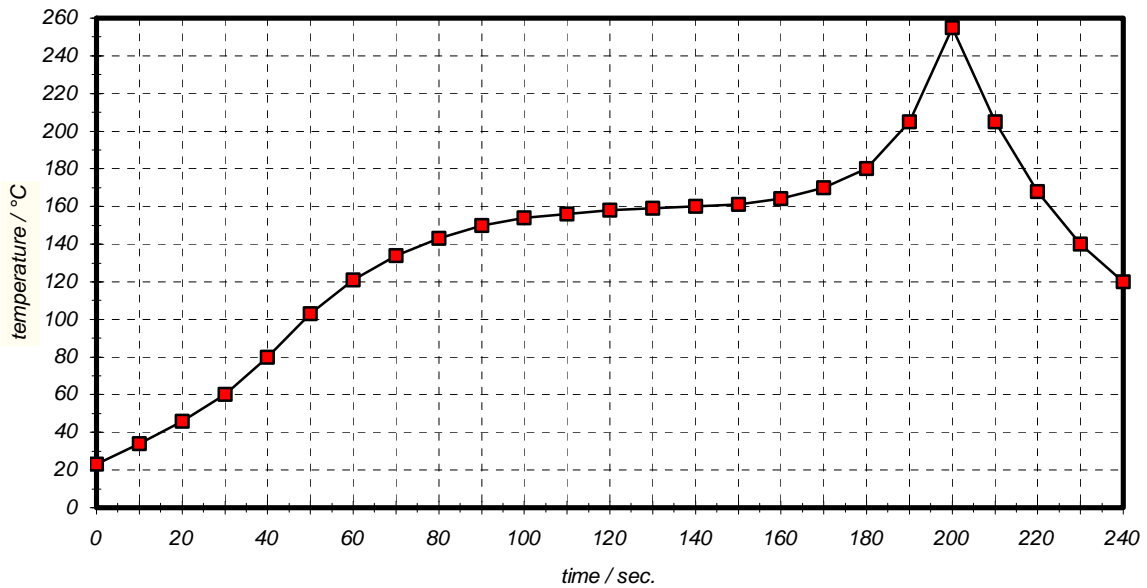
Air reflow profile

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

History :

Version	Reason of changes	Name	Date
1.0	- Generate filter specification	Dunzow W.	27.05.2004