

1. Measurement condition :

Ambient temperature T_A :	25 °C	
Input power level:	0 dBm	
Terminating impedances in f_C *):	for input:	50 Ω 0 pF.
	for output:	50 Ω 0 pF.

2. Characteristics :

Remark: Reference level for the relative attenuation a_{rel} of the **TFH 36B** 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 . The nominal frequency f_N is fixed at **36,125 MHz** without tolerance. All specified values are guaranteed at operating temperature.

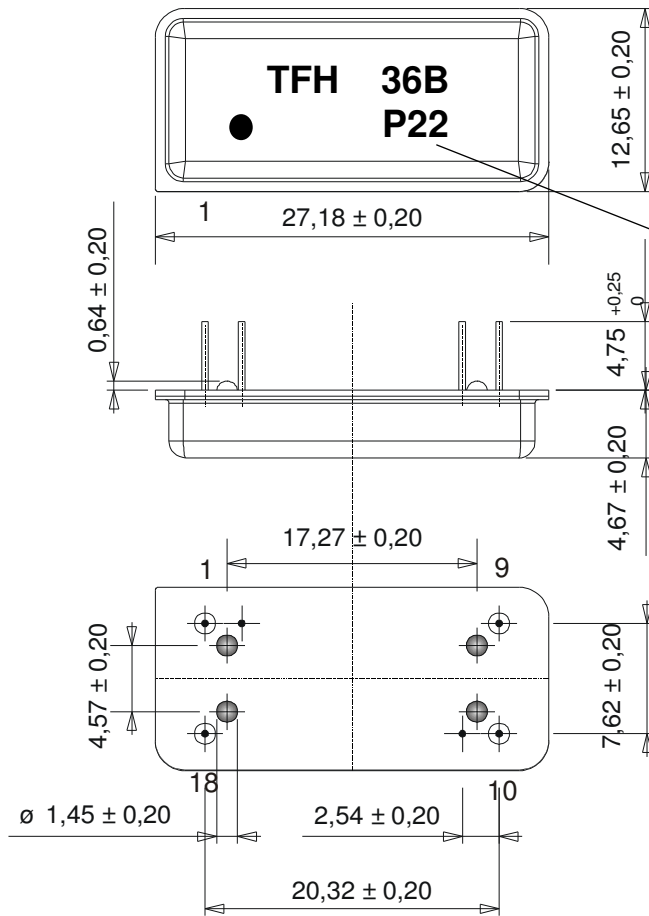
D a t a		typical values	tolerance / limit
Insertion loss (Reference level)	a_e	26,7 dB	max. 27,5 dB
Nominal frequency	f_N	-	36,125 MHz
Centre frequency at ambient temperature	f_C	36,125 MHz	-
Pass band :	PB	-	$f_C \pm 2,8$ MHz
Amplitude ripple in PB (p-p) :		0,25 dB	max. 0,55 dB
Bandwidth at ambient temperature :			
0,55 dB		7,45 MHz	min. 5,6 MHz
1 dB		7,63 MHz	
3 dB		8,08 MHz	min. 8,0 MHz
20 dB		9,35 MHz	
35 dB		9,80 MHz	max. 10,0 MHz
Relative attenuation in O.T.R. :	a_{rel}		
f_N ... $f_N \pm 2,80$ MHz		0,25 dB	max. 0,55 dB
$f_N \pm 2,80$ MHz ... $f_N \pm 4,0$ MHz		< 2,6 dB	max. 3 dB
$f_N \pm 5,0$ MHz ... $f_N \pm 30$ MHz		40...45 dB	min. 35 dB
Group delay (mean value in PB)		1,45 μ s	max. 2 μ s
Group delay ripple (p-p) in f_N ... $f_N \pm 2,8$ MHz (p-p) *		26 ns	max. 70 ns
Deviation from linear phase (p-p) in f_N ... $f_N \pm 2,8$ MHz		$\pm 0,8$ ° (r.m.s. 0,3°)	\pm max. 1,5 ° (p-p)
Triple transit attenuation compared to main signal		60 dB	-
Crosstalk		65 dB	-
Temperature coefficient of frequency (T_{c_f})		- 75 ppm/K	-
Frequency deviation of f_N over temperature :		$\Delta f_C(\text{Hz}) = T_{c_f}(\text{ppm/K}) \times (T - T_A) \times f_N(\text{MHz})$	-
Operating temperature		-	25 °C
Storage temperature range		-	- 25 °C ... + 85 °C

*) measured with smoothing aperture of 120 kHz. (Typical value without smoothing : 32...40 ns)

Generated: _____ **Dunzow W.**

Checked / approved: _____ **Dr. Wall**

3. Package and pin connection : (All dimensions in mm)

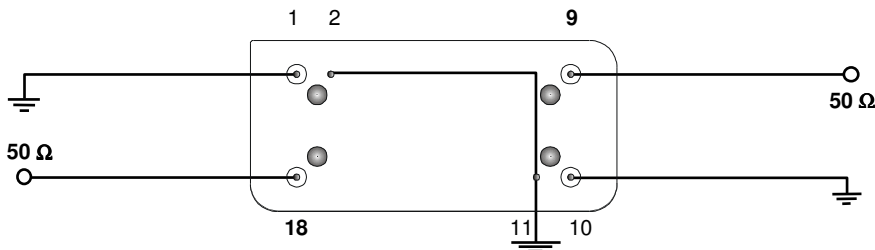


Date-code:	Year+week
M	2000
N	2001
P	2002
...	...

Date-code

Pin 18	Input
Pin 1	Input RF Return
Pin 9	Output
Pin 10	Output RF Return
Pin 2, 11	Package Ground

4. 50 Ω matching network (for details about other schemes refer to application note):



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5. 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;

6. 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.	

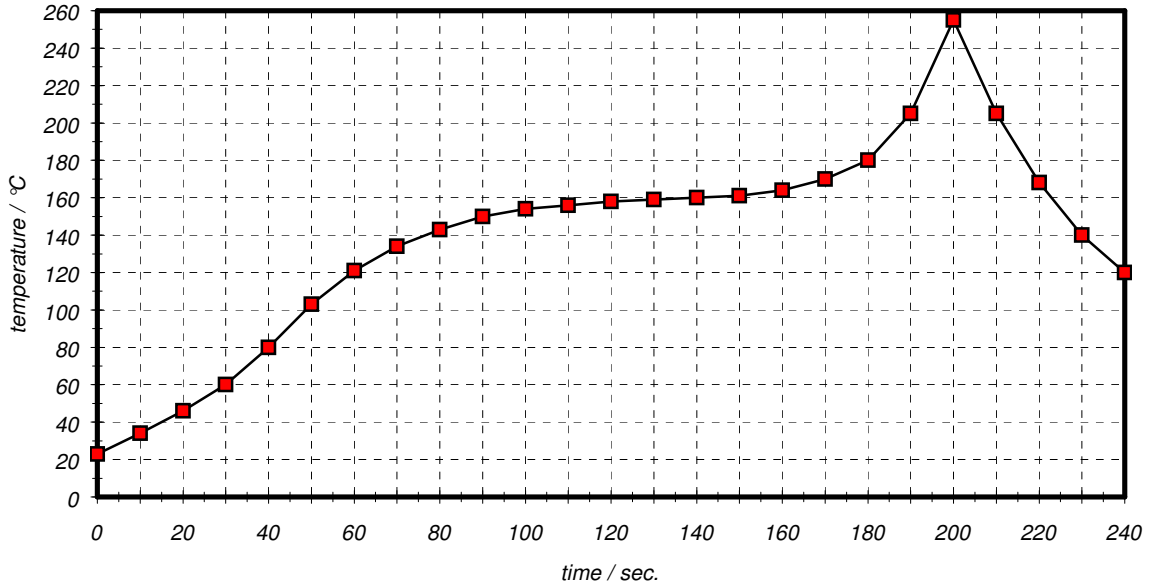
Air reflow profile

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 extended filter specification.	Dunzow W.	09.03.2001
1.1	Correct definition of insertion loss. Correct typical filter data. Reduce max. pass band ripple from 0,6 dB to 0,55 dB.	Dunzow / Wall	13.03.2001
1.2	Change maximal package length.	Pfeiffer	02.04.2002
1.3	Change package drawing.	Dunzow W.	29.11.2002