VI TELEFILTER   Filter specification   TFS 150P   1/5

Measurement condition

Ambient temperature: 23 °C
Input power level: 0. dBm
Terminating impedance: *
  Input: 50 Ω || -13,4 pF
  Output: 51 Ω || -9,6 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 150P 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. The temperature coefficient of frequency Tc_f is valid for both the reference frequency f_C and the frequency response of the filter in the operating temperature range. The frequency shift of the filter in the operating temperature range is not included in the production tolerance scheme.

D a t a		typ. value		tolerance / limit	
Insertion loss (reference level)	$a_e = a_{min}$	23,5	dB	max. 24	dB
Centre frequency (at ambient temperature T_A)	f_C	150,0	MHz	150,0 ± 0,1	MHz
Pass band	PB	-		f_C ± 7,05	MHz
Pass band ripple	(p – p)	1,2	dB	max. 1,5	dB
Bandwidth					
3 dB		14,73	MHz	min. 14,6	MHz
25 dB		15,26	MHz	max. 15,36	MHz
Relative attenuation	a_{rel}				
f_C ... f_C ± 7,05 MHz		1,1	dB	max. 1,5	dB
f_C ± 7,05 MHz ... f_C ± 7,30 MHz		2,8	dB	max. 3	dB
f_C ± 7,68 MHz ... f_C ± 8 MHz		28	dB	min. 25	dB
f_C ± 8 MHz ... f_C ± 8,20 MHz		47	dB	min. 45	dB
f_C ± 8,20 MHz ... f_C ± 9,70 MHz		43	dB	min. 40	dB
f_C ± 9,70 MHz ... f_C ± 100 MHz		48	dB	min. 45	dB
Group delay (mean value in PB)		3,2	µs	max. 3,3	µs
Group delay ripple in PB:		125	ns	max. 150	ns
Temperature coefficient of frequency TC_f **		-72	ppm/K	-	
Operating temperature range (OTR)		-		- 33 °C ... + 85 °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.
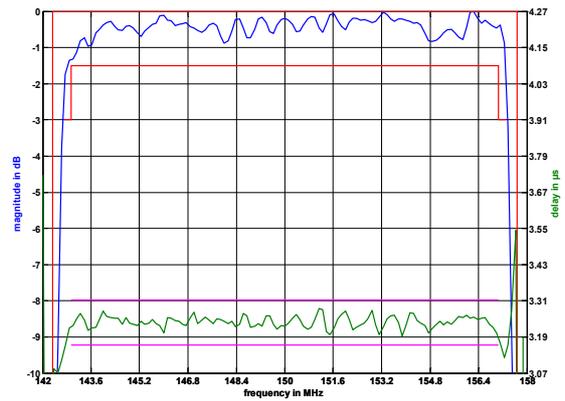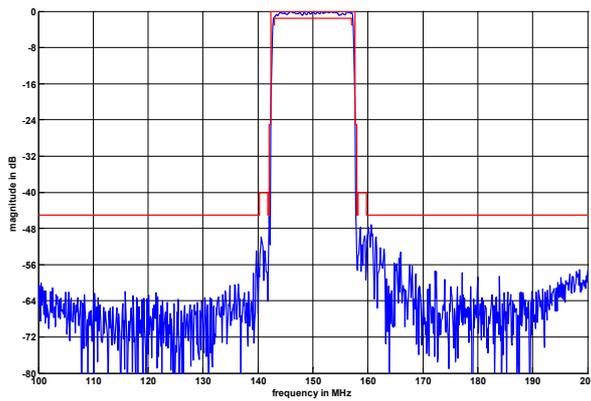**) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_o) \times f_{CAT} (MHz)$.

generated:

checked / approved:

VI TELEFILTER | **Filter specification** | **TFS 150P** |

Filter characteristic

Construction and pin connection

(All dimensions in mm)
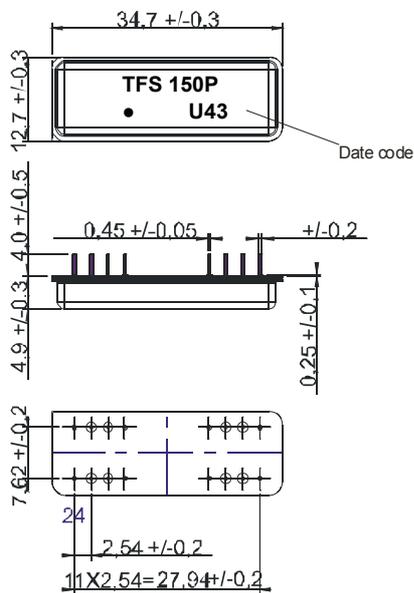
1	Ground
2	Input
3	Input RF Return
4	Ground
9,10,11,12	Ground
13	Ground
14	Output
15	Output RF Return
16	Ground
21,22,23,24	Ground

Date code:	Year + week
U	2006
V	2007
W	2008
...	

50 Ω Test circuit
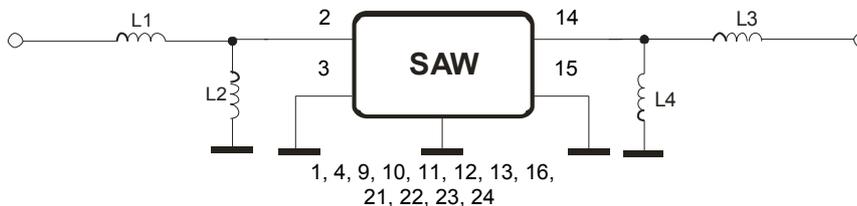
L1, L2, L3, L4, SAW
2, 3, 14, 15
1, 4, 9, 10, 11, 12, 13, 16, 21, 22, 23, 24
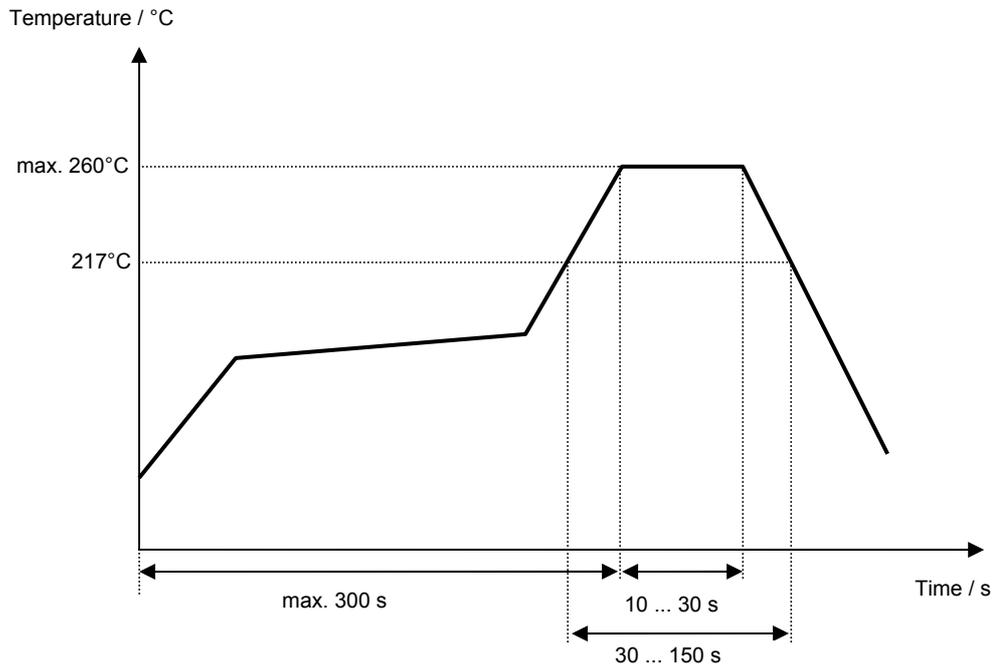
Stability characteristics

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

Conditions	Exposure
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50°C)	less than 6°C/second
Time from 30°C to Peak temperature	no greater than 300 seconds

Chip-mount air reflow profile

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History

Version	Reason of changes	Name	Date
1.0	- generate development specification according to customer requirements	Pfeiffer	02.08.2002
1.1	- Incorporate the 25 dB bandwidth spec. Change package to DIL Metal 35 * 13mm	M. Senior	14.10.2002
1.2	- terminating impedance (preliminary value) and typical values added - limits of group delay, pass band ripple and stop band attenuation changed (preliminary values) - pin connection corrected	Pfeiffer	12.02.2004
1.3	- terminating impedances fixed - filter characteristic added - air reflow temperature conditions modified	Pfeiffer	26.10.2006