Measurement condition

Ambient temperature: 25 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 151 Ω || 21,3 pF
Output: 147 Ω || 21,5 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 70H33 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 20 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	24,5	dB	max. 26	dB
Centre frequency at ambient temperature	f_c	70,0	MHz	± 0,09	MHz
Passband	PB			f_c ± 2,5	MHz
Amplitude ripple at f_c ± 2 MHz		0,3	dB	max. 0,8	dB
Bandwidth	BW				
1 dB		4,82	MHz	min. 4,5	MHz
3 dB		5,28	MHz	min. 5,0	MHz
20 dB		6,55	MHz	-	
40 dB		7,19	MHz	max. 7,5	MHz
55 dB		7,44	MHz	-	
Relative attenuation	a_{rel}				
f_c … f_c ± 2 MHz		-		max. 0,8	dB
f_c ± 2 MHz … f_c ± 2,25 MHz		-		max. 1	dB
f_c ± 2,25 MHz … f_c ± 2,5 MHz		-		max. 3	dB
f_c ± 3,75 MHz … f_c ± 5 MHz		50 … 57	dB	min. 40	dB
f_c ± 5 MHz … f_c ± 30 MHz		65	dB	min. 50	dB
Group delay	mean value in PB	2,9	µs	-	
Group delay ripple within PB p-p		35	ns	max. 90	ns
Deviation from linear phase within PB		2° p-p (r.m.s. 0,5°)		max. 5° p-p	
Triple transit response suppression		54	dB	-	
Crosstalk		60	dB	-	
Operating temperature range	OTR	-		- 40 °C ... + 85°C	
Storage temperature range		-		- 55 °C ... + 85°C	
Temperature coefficient of frequency	TC_f **	- 19	ppm/K	-	

*) 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.
**) $\Delta f_C(Hz) = TC_f(ppm/K) \times (T-TA) \times f_{CTA}(MHz)$

Generated:

Checked / Approved:

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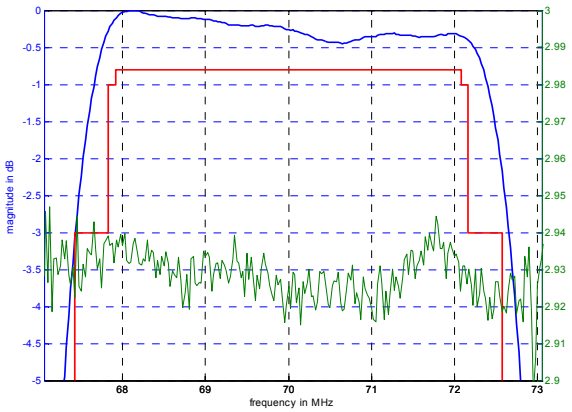
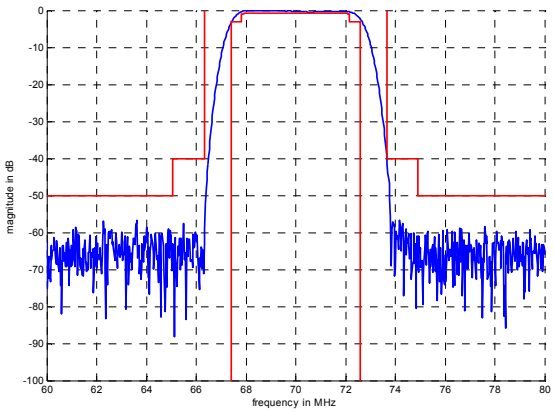
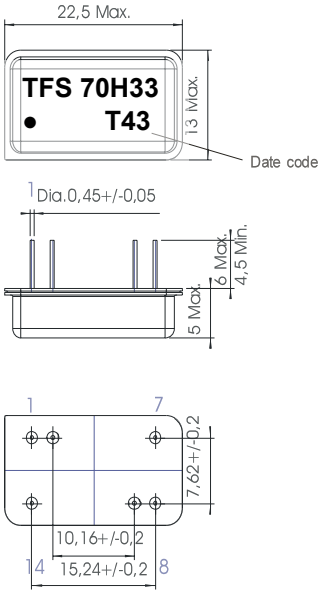
Filter characteristic





Construction and pin connection

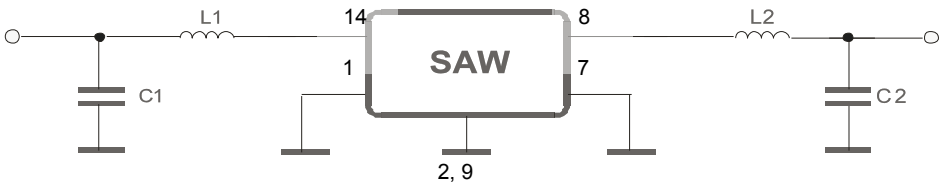
(All dimensions in mm)



1	Input RF Return
2	Ground
7	Output RF Return
8	Output
9	Ground
14	Input

Date code:	Year + week
T	2005
U	2006
V	2007
...	

50 Ω Test circuit



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Stability characteristics

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

1. Shock:	500g, 1 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or 5 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;

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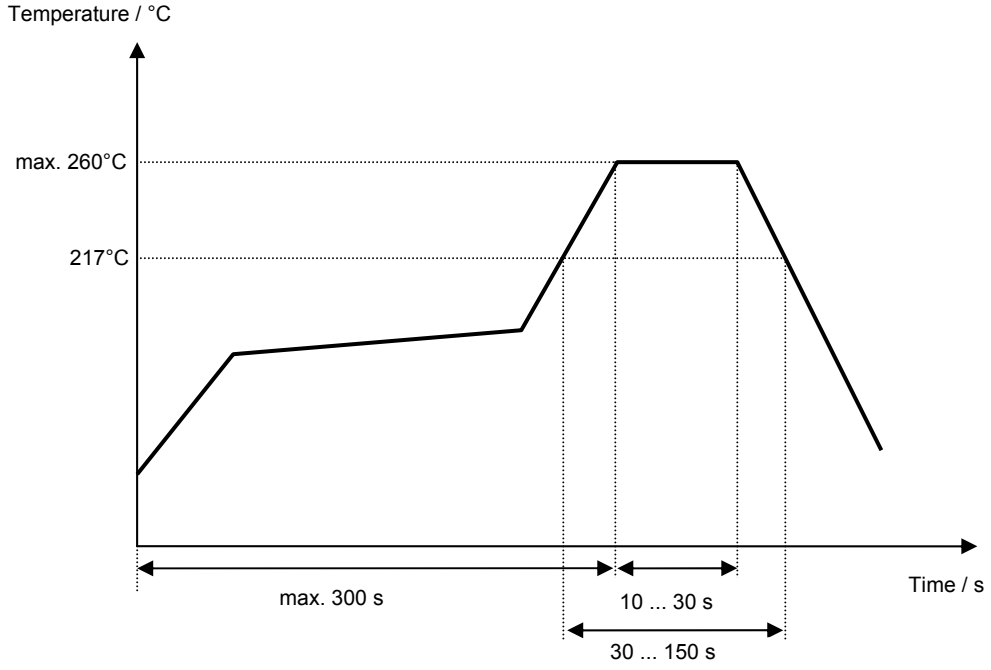
Air reflow temperature conditions

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 filter specification	Dunzow W.	26.04.2002
1.1	change temperature range	Channaa	24.10.2005

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