Measurement condition

Ambient temperature: 25 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 1500 Ω || -6,7 pF
Output: 1700 Ω || -7,1 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 70H29A 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	24,5	dB	max.	26	dB
Centre frequency	f_c	70,01	MHz		70,0 ± 0,09	MHz
Passband					f_c ± 1,75	MHz
Bandwidth	BW					
1 dB		3,20	MHz	min.	3,0	MHz
3 dB		3,60	MHz	min.	3,5	MHz
40 dB		5,22	MHz	max.	5,6	MHz
Relative attenuation	a_{rel}					
f_c … f_c ± 1,4 MHz		0,4	dB	max.	0,8	dB
f_c ± 1,4 MHz … f_c ± 1,5 MHz		0,6	dB	max.	1	dB
f_c ± 1,5 MHz … f_c ± 1,75 MHz		2,5	dB	max.	3	dB
f_c ± 2,8 MHz … f_c ± 5 MHz		50	dB	min.	40	dB
f_c ± 5 MHz … f_c ± 10 MHz		48	dB	min.	45	dB
f_c ± 10 MHz … f_c ± 30 MHz		56	dB	min	50	dB
Group delay	mean value in PB	2,45	µs	max.	3	µs
				min.	2	µs
Group delay ripple within PB		40	ns	max.	90	ns
Deviation from linear phase within PB		2,2	°	max.	4	°
Triple transit response suppression		54	dB		-	
Crosstalk attenuation compared to main signal		55	dB		-	
Operating temperature range	OTR	-		- 40 °C ... + 85°C		
Storage temperature range		-		- 55 °C ... + 85°C		
Frequency inversion temperature		30	°C		-	
Temperature coefficient of frequency	TC_f **	- 0,04	ppm/K²		-	

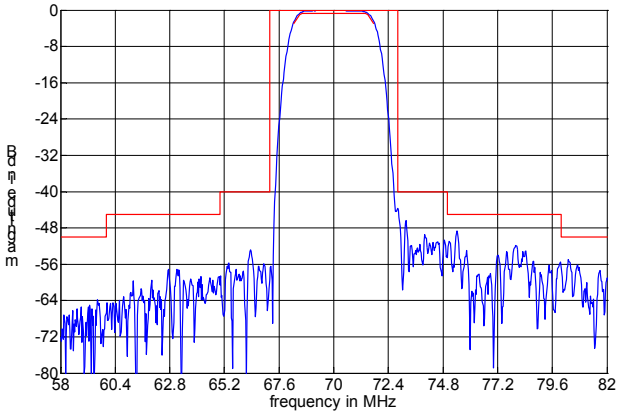
*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.
**) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0)^2 \times f_{T0}(MHz)$.

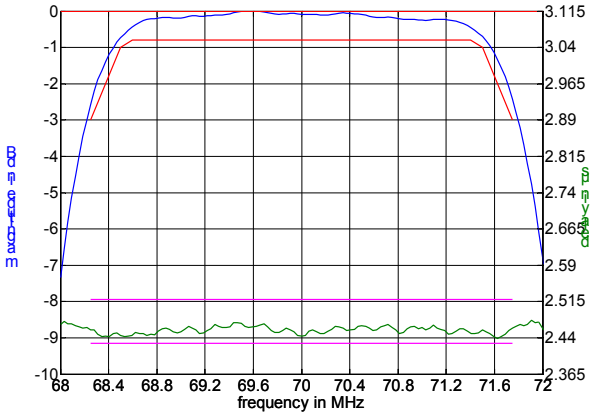
Generated:

Checked / Approved:

Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

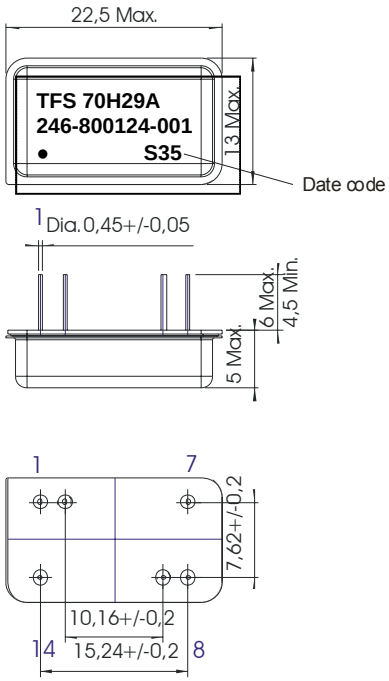
Filter characteristic





Construction and pin connection

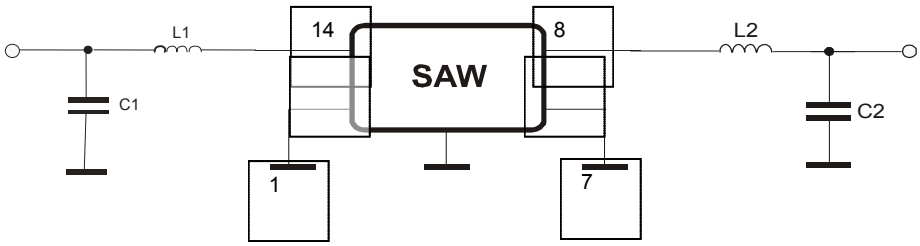
(All dimensions in mm)



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

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

50 Ohm Test circuit



Stability characteristics :

Tele Filter GmbH
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After the following tests the filter shall meet the whole specification:

1. Shock:	30g, 11 ms, sawtooth, 3 shocks each plane; MIL-STD-202, Method 213 test condition K
2. Vibration:	10 Hz to 2000 Hz, 15g, 20min per cycle, 12 cycles per plan, 3 plans; MIL-STD 202, Method 204, test condition B
3. Thermal shock	-40°C to 85°C, 5 cycles MIL-STD 202, Method 107, test condition A

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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.	

Air reflow profile

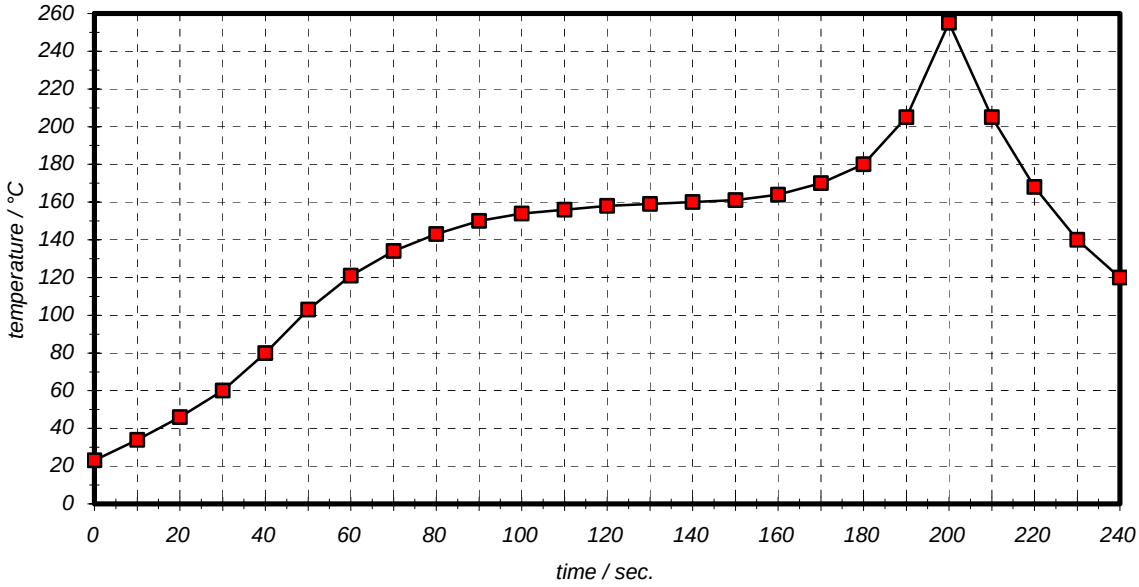

Table for temperature vs. time during the air reflow process

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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History

Version	Reason of changes	Name	Date
1.0	filter specification created	Pfeiffer	17.06.2004
1.1	operating and storage temperature range extended	Pfeiffer	26.08.2004

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