Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 440 Ω || -13,8 pF
Output: 380 Ω || -14,2 pF
Q-value of matching elements: >50

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of TFS 71C is the minimum of the pass band attenuation a_{min}. This value 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 given values for the relative attenuation a_{rel} and the group delay ripple have to be reached at the frequencies given below, even if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_c.

D a t a		typ. value		tolerance / limit		
Insertion loss (reference level)	a_e	6,6	dB	max.	7,6	dB
Nominal frequency	f_N				71,0	MHz
Centre frequency	f_C	71,0	MHz		71±0,015	MHz
Passband	PB				f_C ± 80	kHz
Bandwidth	BW					
1 dB		170	kHz	min.	130	kHz
1,5 dB		215	kHz	min.	165	kHz
3 dB		300	kHz		-	
4 dB		350	kHz	max.	400	kHz
20 dB		700	kHz	max.	800	kHz
25 dB		740	kHz	max.	1200	kHz
35 dB		2000	kHz	max.	3200	kHz
Relative attenuation	a_{rel}					
… f_C ± 65	kHz	0,7	dB	max.	1,0	dB
f_C ± 65 kHz … f_C ± 82,5	kHz	1	dB	max.	1,5	dB
f_C ± 200 kHz … f_C ± 400	kHz	5	dB	min.	4	dB
f_C ± 400 kHz … f_C ± 800	kHz	25	dB	min.	20	dB
f_C ± 800 kHz … f_C ± 1200	kHz	28…35	dB	min.	25	dB
f_C ± 1200 kHz … f_C ± 10	MHz	40…50	dB	min.	35	dB
Group delay	mean value in PB	2,05	µs	max.	2,5	µs
Group delay ripple in PB		150	ns	max.	300	ns
Deviation from linear phase in PB		2° p-p ..	(0,5°r.m.s.)		-	
Triple transit response suppression		35…40	dB		-	
Crosstalk		>40	dB			
Input power level		-		max.	10	dB
Operating temperature range	OTR	-		- 25 °C ... + 80°C		
Storage temperature range		-		- 40 °C ... + 85°C		
Frequency inversion temperature		22	°C			
Temperature coefficient of frequency	TC_f **	-0,045ppm/K^2				

*) 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.
**) $\Delta f(Hz) = TC_f(ppm/K^2) \times (T-T_0)^2 \times f_{To}(MHz)$

Generated:

Checked / Approved:

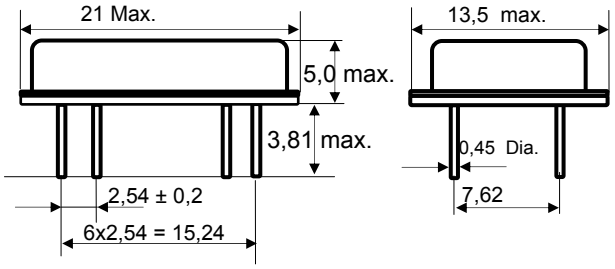
Tele Filter GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@telefilter.com

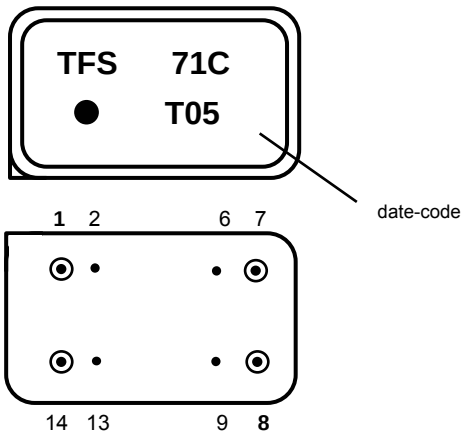
Filter characteristic

t.b.d.

Construction and pin connection

(All dimensions in mm)

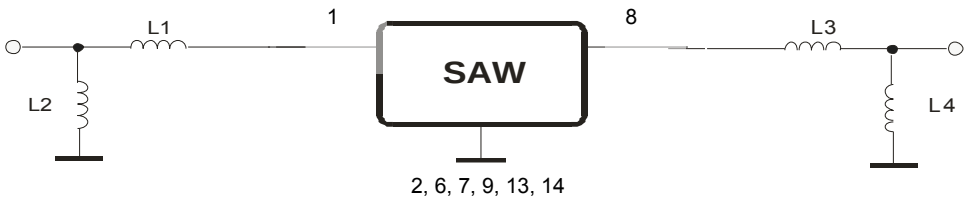




date -code:	year + week
S	2004
T	2005
U	2006
...	

Pin **1**	**Input**
Pin 14	Input RF Return
Pin **8**	**Output**
Pin 7	Output RF Return
Pin 2, 6, 9, 13	Pakage Ground

50 Ohm Test circuit



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

Stability characteristics

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

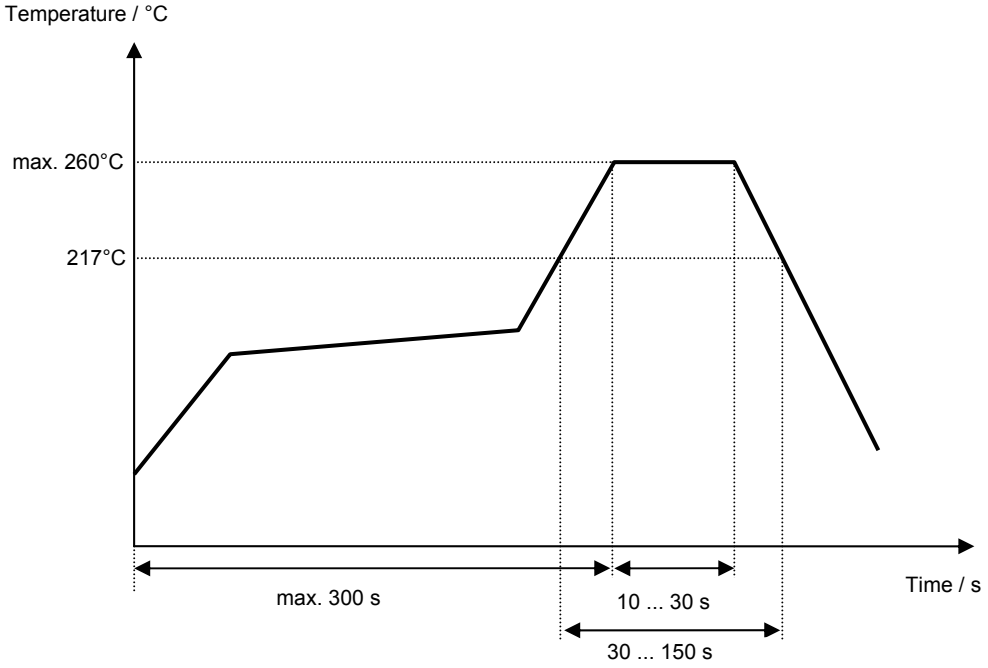
1. Shock:	500g, 18 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or 5g respectively, 1 octave per min, 10 cycles per plan, 3 plans; DIN IEC 68 T2 - 6
3. Change of temperature	-55 °C to 125°C / 30 min. each / 10 cycles DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow):	reflow possible: twice max.; for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

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

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



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

History

Version	Reason of Changes	Name	Date
1.1	Generate filter specification in actual format - add termination impedances	Dunzow	27.02.2001
1.2	Change specification to actual format - correct termination impedances - change package dimension - remove permissible DC voltage and AC voltage	Braun	25.04.2003
1.3	Correct pin connection	Braun/Strehl	02.02.2005

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