Measurement condition

Ambient temperature T_A: 25 °C
Input power level: 0 dBm
Terminating impedance: source: 50 Ω
load: 2 kΩ II 3 pF

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the TFS 60A is the insertion loss. 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 both for the reference frequency f_c and the frequency response of the filter in the operating temperature range.

D a t a	**typ. Value**		**Limit**	
Insertion loss a_e (reference level)	27,9	dB	27,1 ± 1,5	dB
Nominal frequency f_N	-		60	MHz
Centre frequency f_c	60	MHz	60 ± 0,12	MHz
Pass band PB	-		f_N ± 8	MHz
Pass band ripple (p-p)	0,4	dB	max. 0,7	dB
Relative attenuation a_{rel}				
f_c ..... f_c ± 8 MHz	0,4	dB	max. 0,7	dB
f_c ± 8 MHz ..... f_c ± 9,825 MHz	2,7	dB	max. 3	dB
f_c ± 9,825 MHz ..... f_c ± 11,825 MHz	35	dB	max. 30	dB
f_c ± 10,325 MHz ..... f_c ± 12,325 MHz	4	dB	min. 3	dB
f_c ± 12,325 MHz ..... f_c ± 12,5 MHz	32	dB	min. 30	dB
f_c - 12,5 MHz ..... f_c - 20 MHz	36	dB	min. 34	dB
f_c + 12,5 MHz ..... f_c + 20 MHz	39	dB	min. 33	dB
Reflected wave signal suppression	55	dB	min. 44	dB
Feedthrough signal suppression	45	dB	min. 44	dB
Absolute group delay in f_N ± 8,5 MHz	700	ns	max. 800	ns
Group delay ripple in f_N ± 8,5 MHz smoothing aperture 3,6 MHz	3,8	ns	max. 4	ns
Operable temperature range	-		-25 °C ... 65	°C
Storage temperature range	-		-40 °C ... 85	°C
Temperature coefficient of frequency TC_f*	-72	ppm / K	-	
DC voltage V_{DC}	-		max. 12	V
AC voltage V_{pp}	-		max. 10	V

*) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_A) \times f_{CAT}$ (MHz)

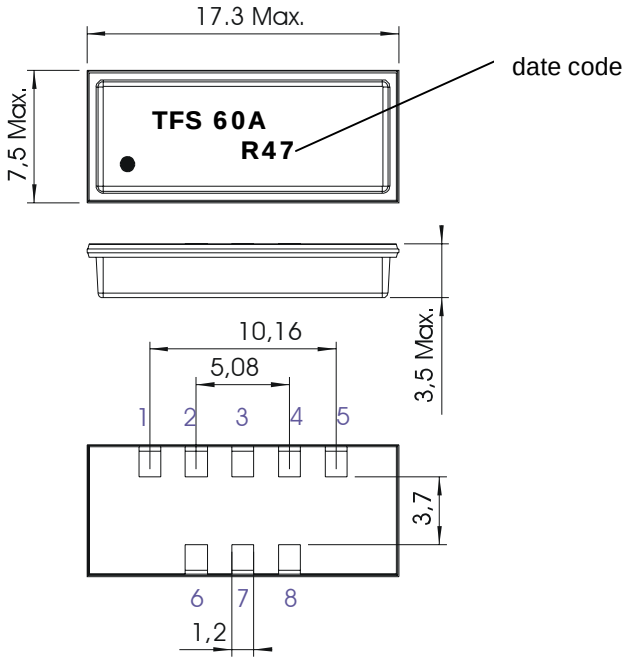
generated: _____

checked / approved: _____

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

Construction and Pin Connection

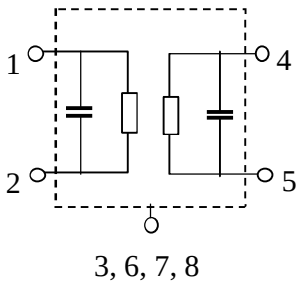
(All dimensions in mm)



1	input
2	input - ground
3	chip carrier - ground
4	output
5	output
6,7,8	internally connected to pin 3

date code:	year + week
N	2001
P	2002
R	2003
...	

Equivalent circuit for ports



TELEFILTER 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, please refer to the attached "Air reflow temperature conditions" on page 4;

Packing

Tape & Reel: DIN IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

TELEFILTER 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

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.	

Chip-mount air reflow profile

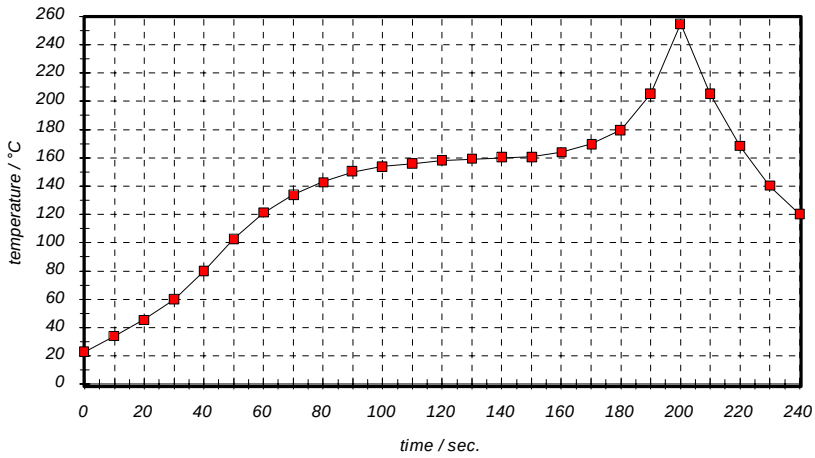


Table for temperature vs. time during the air reflow process

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

TELEFILTER 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
1.0	- generate specification	Pfeiffer	10.04.2003
1.1	- package changed, terminating impedance added - typical values added	Pfeiffer	14.10.2003
1.2	- limit of absolute group delay added - typical values of reflected wave signal and feedthrough signal suppression, and group delay ripple changed	Pfeiffer	20.11.2003

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