

VI TELEFILTER**Filter Specification****TFS 248F****1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedance:
 input: 50 Ω; unbalanced; no matching network
 output: 200 Ω; balanced, no matching network

Characteristics**Remark:**

Reference level for the relative attenuation a_{rel} of the TFS 248 F 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 nominal frequency f_N is fixed at 248,6 MHz. The given values for the relative attenuation a_{rel} and for 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	Limit	
Insertion Loss (Reference Level)	$a_e = a_{min}$	2,95 dB	3,5 dB	
Nominal Frequency	f_N	-	248,6 MHz	
Centre Frequency	f_C	-	-	
3 dB Band width		6,44 MHz	min	5,0 MHz
Pass Band Ripple	$f_N \pm 120$ KHz	4,30 MHz	max	0,5 dB
Relative Attenuation				
$f_N - 238,6$ MHz ... $f_N - 29,2$ MHz	a_{rel}	50 dB	min.	45 dB
@ $f_N + 22,8$ MHz		55 dB	min.	45 dB
@ $f_N + 52,0$ MHz		58 dB	min.	45 dB
@ $f_N + 74,8$ MHz		56 dB	min.	45 dB
@ $f_N + 104,0$ MHz		55 dB	min.	45 dB
@ $f_N + 126,8$ MHz		55 dB	min.	45 dB
Group Delay ^{GD}				
Group Delay Ripple	$f_N \pm 120$ kHz	55 ns	max.	300,0 ns
Input Power Level		-	max.	20,0 dBm
Operating Temperature Range			- 20 °C ... + 80 °C	
Storage Temperature Range			- 40 °C ... + 85 °C	
Temperature Coefficient of Frequency	TC_f	-33,5 ppm/K	-	

generated: _____

checked / approved: _____

Construction and Pin Connection

(All dimensions in mm)

VI TELEFILTER

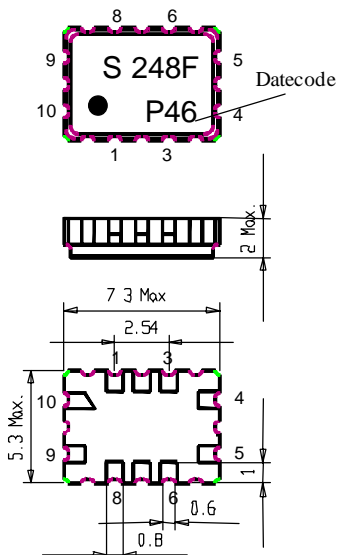
Potsdamer Straße 18

D 14 513 TELTOW / Germany

Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30

E-Mail: tft@telefilter.com

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VI TELEFILTER**Filter Specification****TFS 248F****2/5**

1	Ground
2	Ground
3	Ground
4	Output
5	Output
6	Ground
7	Ground
8	Ground
9	Input RF Return
10	Input

Datecode: Year+week

M	2000
N	2001
P	2002
...	

No Matching Network**VI TELEFILTER****Potsdamer Straße 18****D 14 513 TELTOW / Germany****Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30****E-Mail: tft@telefilter.com**

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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, 1,5 mm or 20g 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): max. 2 times reflow process;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;

Packing

Tape & Reel:

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;

max. pieces of filters per reel:

3000

reel of empty components at start:

min 300 mm

reel of empty components at start including leader:

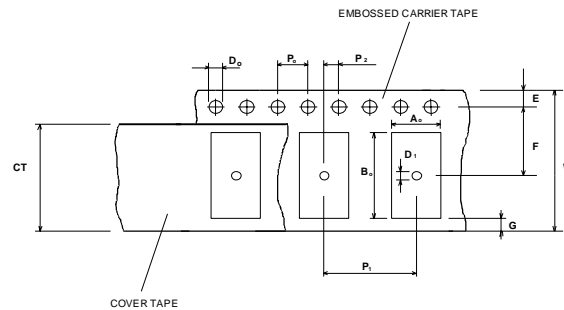
min 500 mm

trailer

min 300 mm

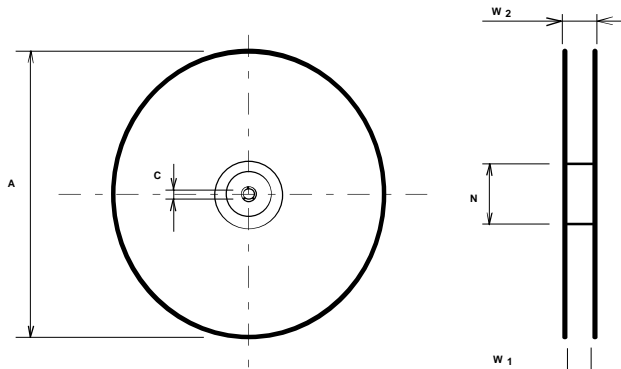
Tape (all dimensions in mm)

W	: 16 ± 0,3
Po	: 4 ± 0,1
Do	: 1,5 + 0,1
E	: 1,75 ± 0,1
F	: 7,5 ± 0,1
G (min)	: 0,6
P2	: 2 ± 0,1
P1	: 8 ± 0,1
D1(min)	: 1,5
Ao	: 5,5 ± 0,1
Bo	: 7,5 ± 0,1
CT	: 13,5 ± 0,1



Reel (all dimensions in mm):

A	: 330
W1	: 16,4 +2
W2 (max)	: 22,4
N (min)	: 50
C	: 13 +0,5 / -0,2



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. Markings on the filters can be read if the upper side of the carrier tape is regarded with the sprocket holes on its right.

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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.	

Chip-mount air reflow profile

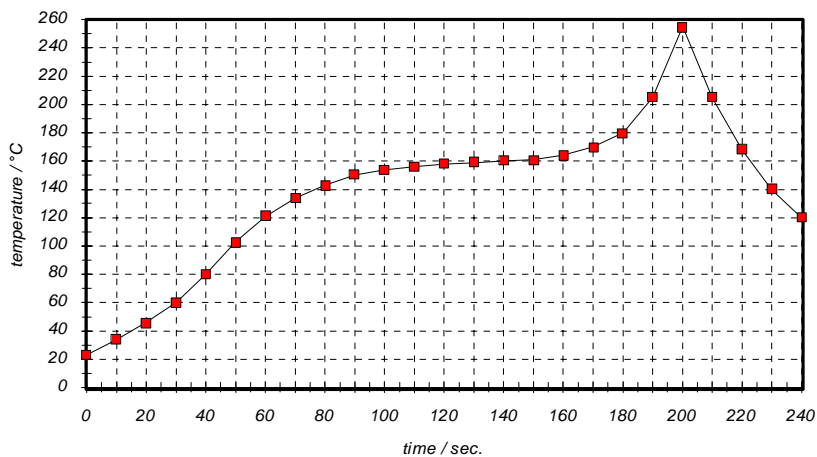


Table for temperature vs. time during the air reflow process

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

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History

Version	Reason of Changes	Name	Date
1.0	- generate according to customer specification	Dr. Sabah	25.09.01
2.0	- change of package and stop band rejection	Dr. Sabah	13.09.02
3.0	- Filter Specification; add of terminating impedance and typ. values	Dr. Sabah	15.11.02

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