

VI TELEFILTER**Filter specification****TFS 421 1/5****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedances: input: 50 Ω
 output: 50 Ω

Characteristics**Remark:**

The maximum of the pass band attenuation $a_{\max}$ is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 421,0 MHz without tolerance. The given values for the absolute attenuation a_e 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	Variation/ Limitation
Insertion loss (within PB)	$a_e = a_{\min}$	2,36 dB	max. 4,8 dB
Nominal frequency	f_N	-	421 MHz
Passband	PB	9,11 MHz	$f_N \pm 2,5$ MHz
Absolute attenuation in OTR			
$f_N - 464,7$ MHz $f_N - 12,5$ MHz		55 dB	min. 43 dB
$f_N - 12,5$ MHz $f_N - 7,5$ MHz		47 dB	min. 33 dB
$f_N + 20$ MHz $f_N + 735$ MHz		62 dB	min. 40 dB
$f_N + 735$ MHz $f_N + 1235$ MHz		40 dB	min. 30 dB
$f_N + 1235$ MHz $f_N + 1535$ MHz		35 dB	min. 15 dB
Temperature coefficient of frequency TC_f^*		- 32 ppm/K	-
Operating temperature range OTR			-10 °C ... + 85 °C
Storage temperature range			-30 °C ... + 85 °C

*) $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_C(\text{MHz})$

generated : _____

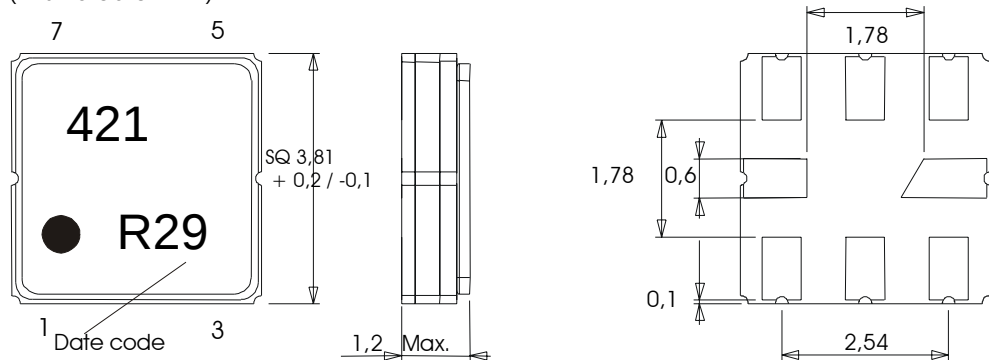
checked / approved : _____

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Construction, pin configuration and 50 Ω - matching network

(All dimensions in mm)



Pin 1	Ground	Pin 5	Ground
Pin 2	Input	Pin 6	Output
Pin 3	Ground	Pin 7	Ground
Pin 4	Package Ground	Pin 8	Package ground

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

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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;

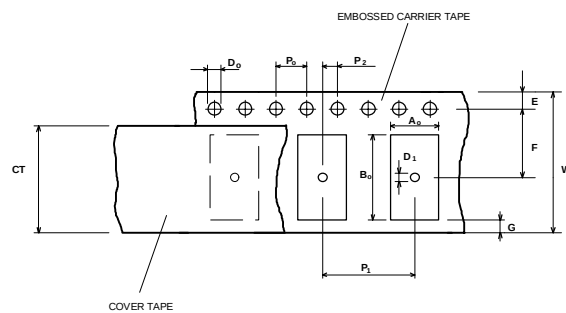
Packing

Tape & Reel: 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:
reel of empty components at start:
reel of empty components at start including leader:
trailer

3000
min 300 mm
min 500 mm
min 300 mm

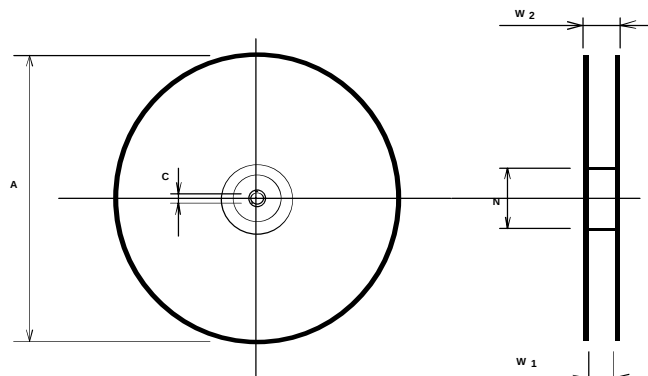
Tape (all dimensions in mm)

W : 12 ± 0,3
Po : 4 ± 0,1
Do : 1,5 ± 0,1
E : 1,75 ± 0,1
F : 5,5 ± 0,05
G (min) : 0,75
P2 : 2 ± 0,05
P1 : 8 ± 0,1
D1(min) : 1,5
Ao : 4,3 ± 0,1
Bo : 4,3 ± 0,1
CT : 9,5 ± 0,1



Reel (all dimensions in mm):

A : 330
W1 : 12,4 ± 2,0
W2 (max) : 18,4
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.

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

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

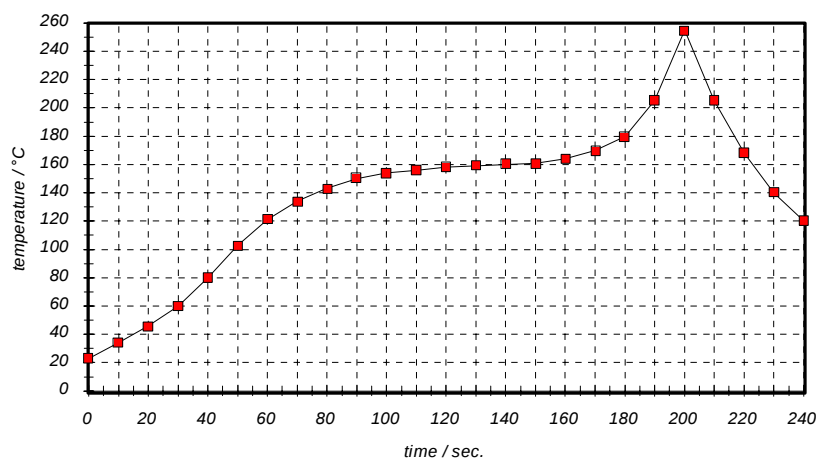


Table for temperature vs. time during the air reflow process

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

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Dr. Sabah	17.07.2003

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

VI TELEFILTER reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.