

VI TELEFILTER**Filter Specification****TFS 220 A****1/4****Measurement Condition**

Ambient Temperature: 23 °C
 Input Power Level: 0 dBm
 Source impedance: 1000 Ω (generated by transformers, see page 2)
 Load impedance: 500 Ω (generated by transformers, see page 2)
 Terminating impedances:
 input: 670 Ω || -9,0 pF
 output: 390 Ω || -10,1 pF

Construction, pin connection and 50 Ω test circuit

See page 2

Characteristics**Remark:**

Reference level for the relative attenuation a_{rel} 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 to 220,38 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 also if the centre frequency f_0 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_0 .

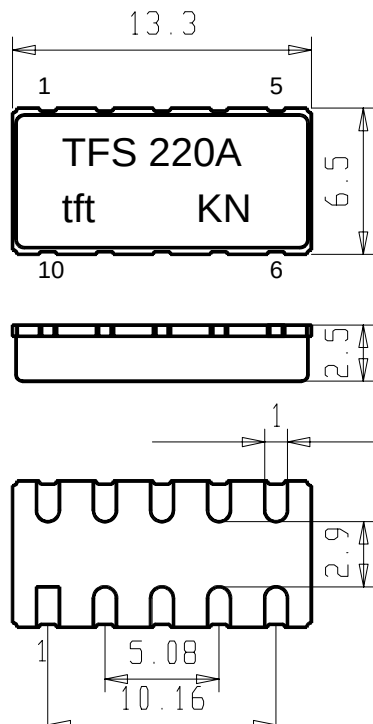
D a t a		typ. Value	Limit	
Insertion Loss (Reference level)	$a_e = a_{min}$	-	max.	9,5 dB
Nominal Frequency	f_N	-		220,38 MHz
5 dB - Bandwidth	BW	-	min.	1260 kHz
Relative Attenuation	a_{rel}			
f_N ... $f_N \pm 0,630$ MHz		-	max.	5 dB
$f_N \pm 1,250$ MHz ... $f_N \pm 20,000$ MHz		-	min.	33 dB
$f_N \pm 1,250$ MHz		45	min.	40 dB
Triple Transit Suppression	TTS	-	min.	30 dB
Pass Band Ripple				
f_N ... $f_N \pm 0,300$ MHz		-	max.	1 dB
Phase	ϕ			
Phase ripple f_N ... $f_N \pm 0,630$ MHz		-	max.	3 °rms
Operating Temperature Range		- 30 °C ... + 80 °C		

Generated: _____**Checked / approved:** _____

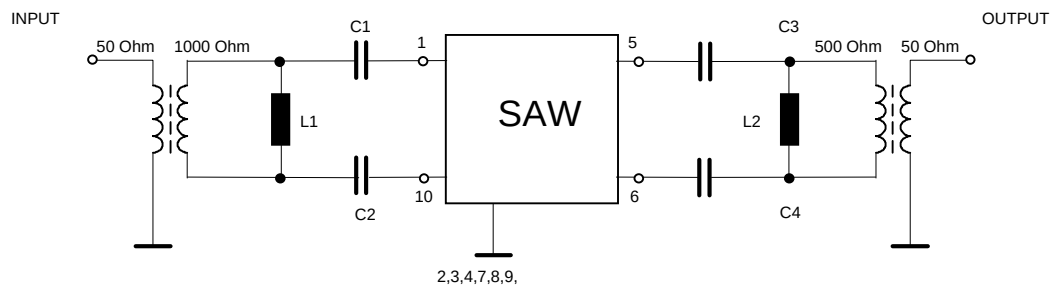
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Construction and Pin Connection

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

50 Ω test circuit

VI TELEFILTER**Filter Specification****TFS 220 A****3/4****Stability characteristics**

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

1. Shock: 30g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 150 Hz, 0.35 mm amplitude, 5g; 2 hours for 3 planes;
DIN IEC 68 T2 - 6
3. Damp heat:
(steady state) 90 % to 95 % rel. humidity, 40 °C, 10 days;
DIN IEC 68 - 2 - 3
4. Resistance to
solder heat (reflow): max. 2 times reflow process;
for temperature conditions refer to the attached "Air reflow temperature conditions" on sheet 4;

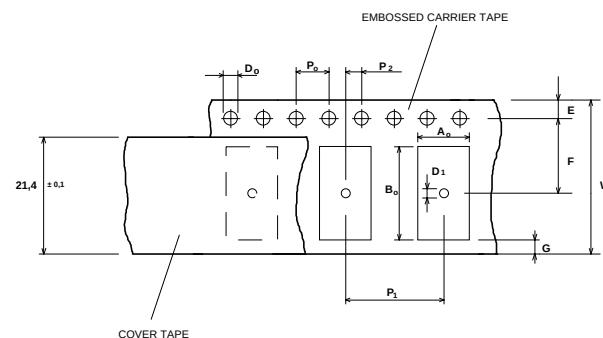
Packing

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;

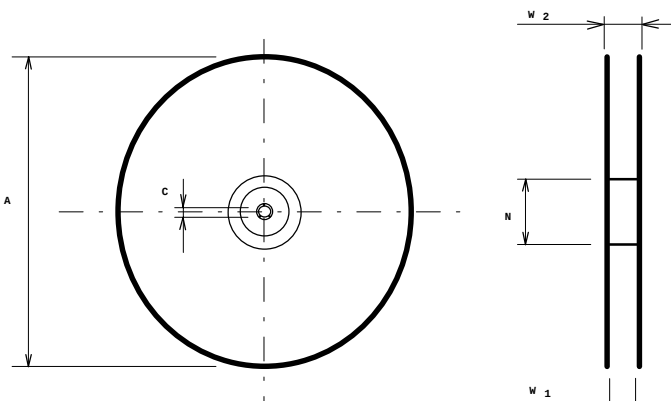
max. pieces of filters per reel: 1700

Tape (all dimensions in mm)

W	:	24	± 0,3
Po	:	4	± 0,1
Do	:	1,5	+ 0,5
D1	:	1,5	+ 0,5
E	:	1,75	± 0,1
F	:	11,5	± 0,1
G (min)	:	0,75	
P2	:	2	± 0,1
P1	:	12	± 0,1
D1(min)	:	1,5	
Ao	:	7,1	± 0,2
Bo	:	13,9	± 0,2

**Reel (all dimensions in mm):**

A	:	330
W1	:	24,4 +2
W2 (max)	:	30,4
N (min)	:	>= 90
C	:	13 ± 0,25



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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

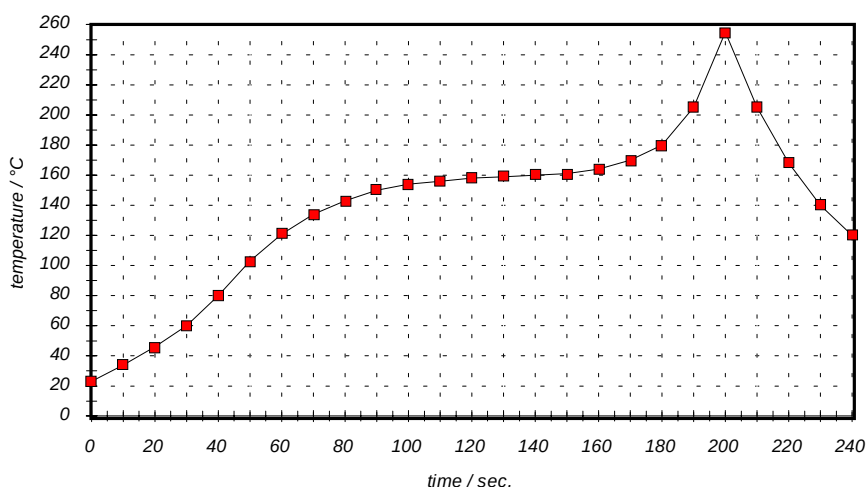


Table for temperature vs. time during the air reflow process

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