

SAW-Resonatorfilter**Filter Specification****TFS 443 1/4****Measurement condition**

Ambient temperature: 23 °C
 Input power level: 0 dBm
 Terminating impedance:
 input: 320Ω || -1,15 pf
 output: 320Ω || -1,15 pf

Construction and pin connection

see page 2

50 Ω test circuit

see page 2

Characteristics**Remark:**

The maximum of the pass band attenuation a_{\max} within the usable signal band width is defined as the insertion loss a_e . The insertion loss a_e is the reference value for relative attenuation. The nominal frequency f_N is fixed on 443.400 MHz. The centre frequency f_0 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 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	Variation/ Limitation
Insertion loss (Reference level)	$a_e = a_{\min}$	3 dB	max. 5 dB
Nominal frequency	f_N	-	443,400 MHz
Centre frequency	f_0	443,410 MHz	
3 dB - bandwidth	BW	TBD	-
Usable signal bandwidth		-	min. $f_N \pm 10$ kHz
Relative attenuation $f_N + 910$ kHz	a_{rel}		min. 52 dB
Temperature coefficient of frequency	TC_f	-0,036 ppm/K ²	-
Frequency inversion temperature		+ 25 °C	
Operating temperature range			- 10°C ... + 50°C

generated: Weinberg**checked / approved:** Wall

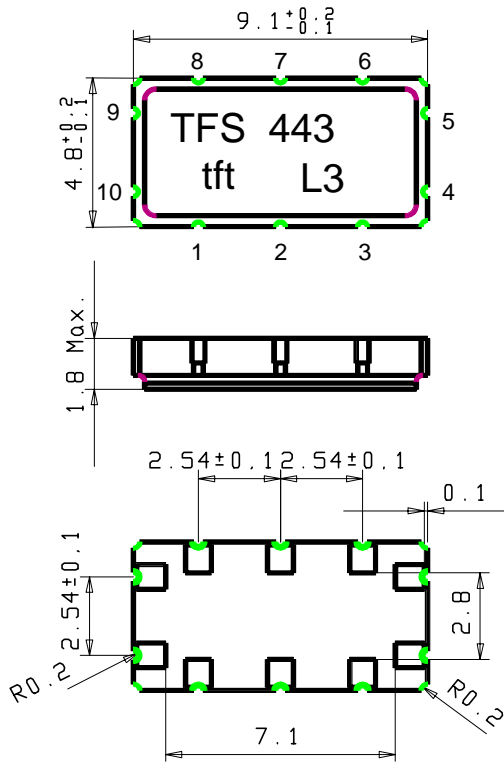
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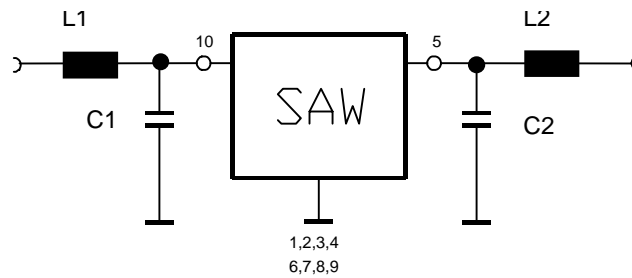
Construction and pin connection

(All dimensions in mm)

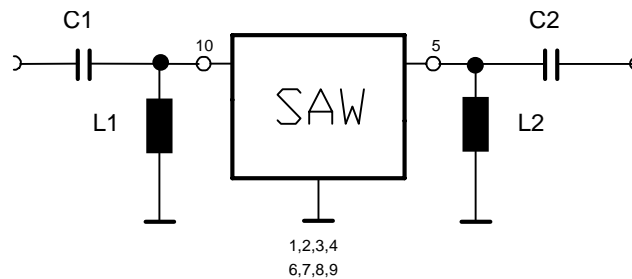


- 1 Ground
- 2 Ground
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground
- 7 Ground
- 8 Ground
- 9 Ground
- 10 Input

50 Ω test circuit 1



50 Ω test circuit 2



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Stability Characteristics

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

1. Shock: 100g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,075 mm or 1g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
DIN IEC 68 T2 - 6
3. Damp heat: 90 % to 95 % rel. humidity, 40 °C, 10 days;
(steady state) 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;

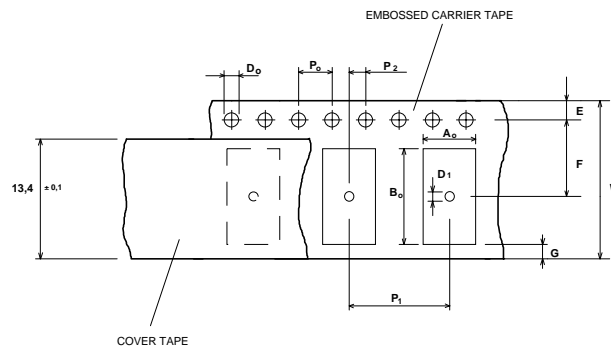
Packing

Tape & Reel: 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

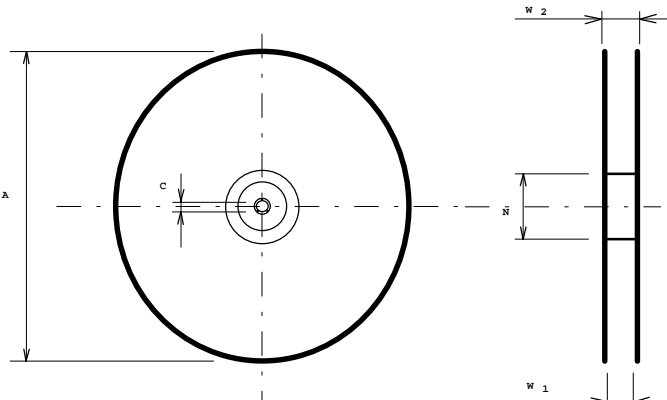
Tape (all dimensions in mm)

W	: 16 ± 0,3
Po	: 4 ± 0,1
Do	: 1,5 + 0,5
D1	: 1,5 + 0,5
E	: 1,75 ± 0,1
F	: 7,5 ± 0,1
G (min)	: 0,75
P2	: 2 ± 0,05
P1	: 8 ± 0,1
D1(min)	: 1,5
Ao	: 5,3 ± 0,1
Bo	: 9,7 ± 0,1



Reel (all dimensions in mm):

A	: 330
W1	: 16,4 +2
W2 (max)	: 22,4
N (min)	: >= 90
C	: 13 ± 0,25



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. The marking of the filters is able to read if the view is directed on the upper side of the carrier tape with the sprocket holes on the right side of the tape.

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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

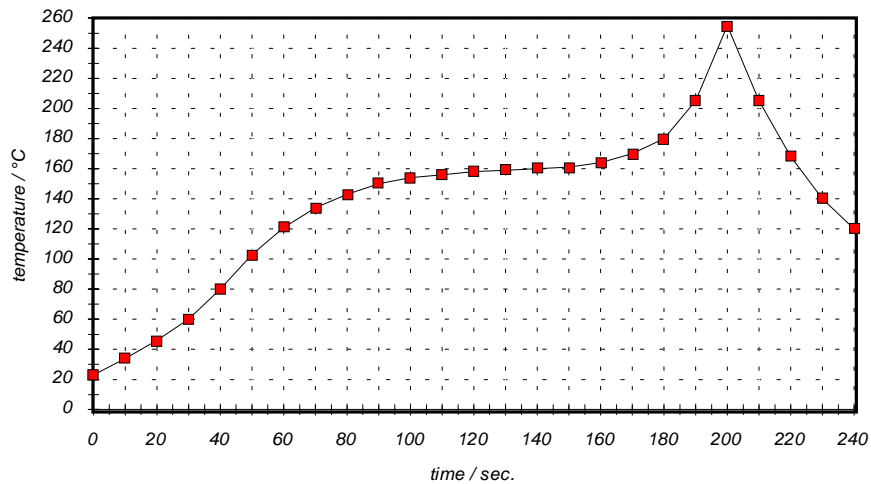


Table for temperature vs. time during the air reflow process

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