

TELE FILTER tft GmbH**SAW filter specification****TFS 276 1/4****Measurement condition**

Ambient temperature: 23 °C
 Input power level: -10 dBm

Construction

see page 2

Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS 276 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 on 276,000 MHz without tolerance.

Data**typ. value****tolerance / limit**

Insertion loss (Reference level)	$a_e = a_{min}$	3,5	dB	max 5	dB
Nominal frequency	f_N	-		276,000	MHz
Pass band ripple $f_N - 85$ kHz ... $f_N + 93$ kHz		-		max 1,5	dB
Relative attenuation	a_{rel}				
276,0 MHz $\pm$ 120	kHz	1,5	dB	max 3	dB
276,0 MHz $\pm$ 330	kHz ... 276,0 MHz $\pm$ 400	22	dB	min 18	dB
276,0 MHz $\pm$ 400	kHz ... 276,0 MHz $\pm$ 600	33	dB	min 25	dB
276,0 MHz $\pm$ 600	kHz ... 276,0 MHz $\pm$ 800	50	dB	min 40	dB
276,0 MHz $\pm$ 800	kHz ... 276,0 MHz $\pm$ 1,6	55	dB	min 45	dB
276,0 MHz $\pm$ 1,6	MHz ... 276,0 MHz $\pm$ 3,0	55	dB	min 45	dB
276,0 MHz $\pm$ 3,0	MHz ... 276,0 MHz $\pm$ 20	55	dB	min 46	dB
276,0 MHz $\pm$ 20	MHz ... 276,0 MHz $\pm$ 100	55	dB	min 45	dB
Group delay distortion	GDD				
276,0 MHz $\pm$ 50	kHz	0,5	μ s	max 1,2	μ s
276,0 MHz $\pm$ 70	kHz	0,8	μ s	max 1,5	μ s
276,0 MHz $\pm$ 100	kHz	1,2	μ s	max 2,5	μ s
Operating temperature range		- 20 °C ... + 70 °C			
Storage temperature range		- 30 °C ... + 85 °C			
Temperature coefficient of frequency	TC_f	- 0,036	ppm/K ²	-	
Frequency inversion temperature		+ 25	°C		

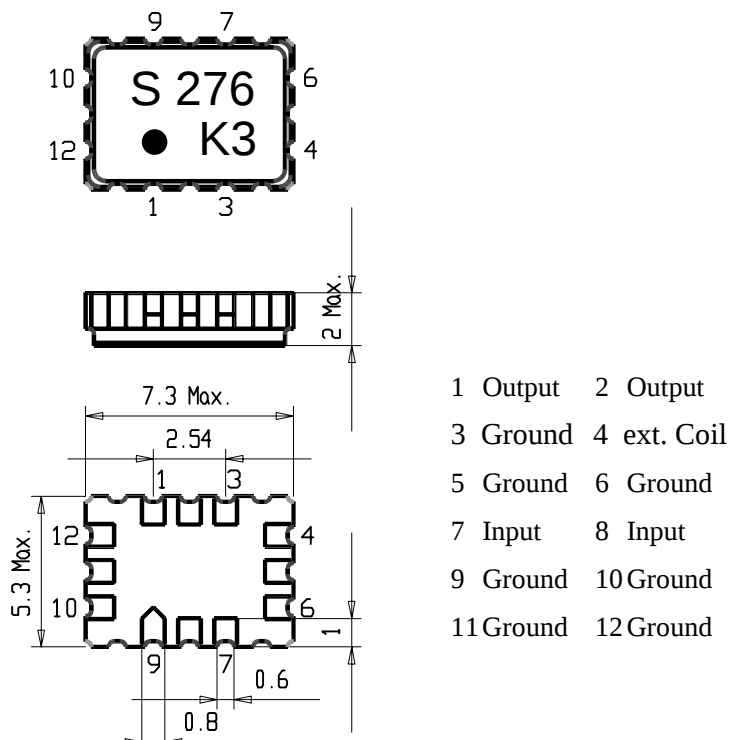
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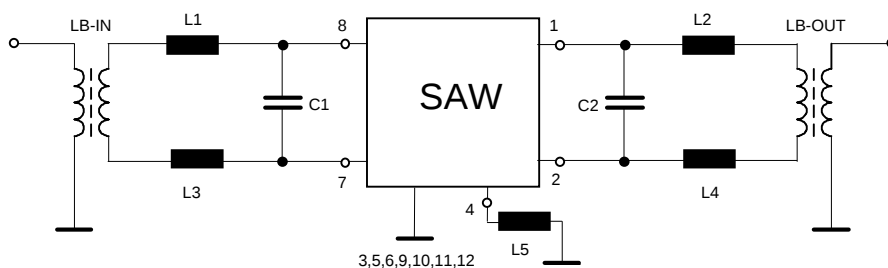
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Construction and pin configuration

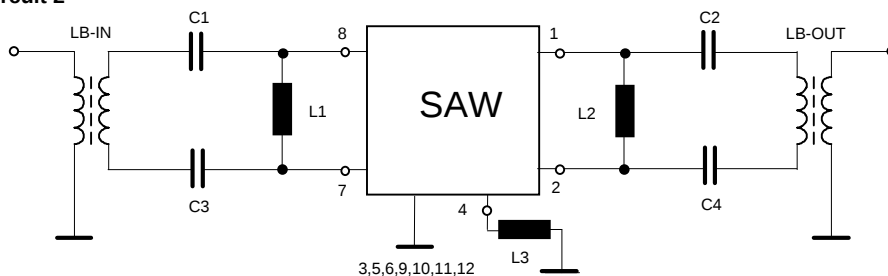
(All dimensions in mm)



50 Ohm Test circuit 1



50 Ohm Test circuit 2



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;
IEC 68 - 2 - 27
2. Vibration: 10 Hz to 500 Hz, 0.35 mm amplitude, 5g; 2 hours for 3 planes;
IEC 68 - 2 - 6
3. Damp heat: 90 % to 95 % rel. humidity, 40 °C, 10 days;
IEC 68 - 2 - 3
4. Resistance to solder heat (Reflow): 260 °C for 10 sec;

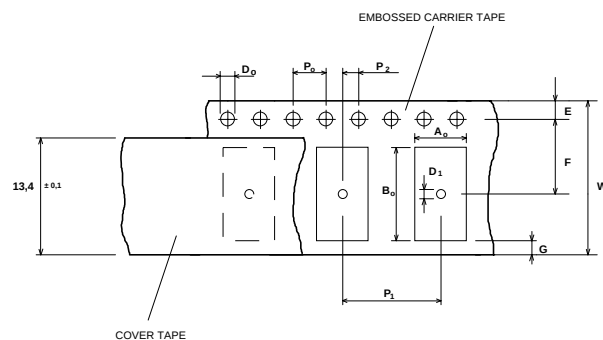
Packing

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;

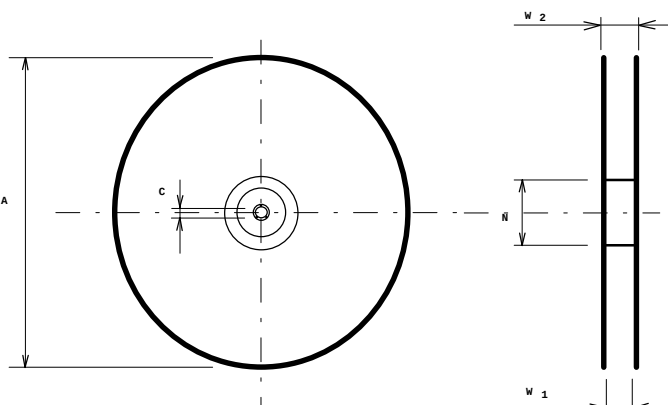
max. pieces of filters per reel: 3400

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	: 5,4 ± 0,1
Bo	: 7,4 ± 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

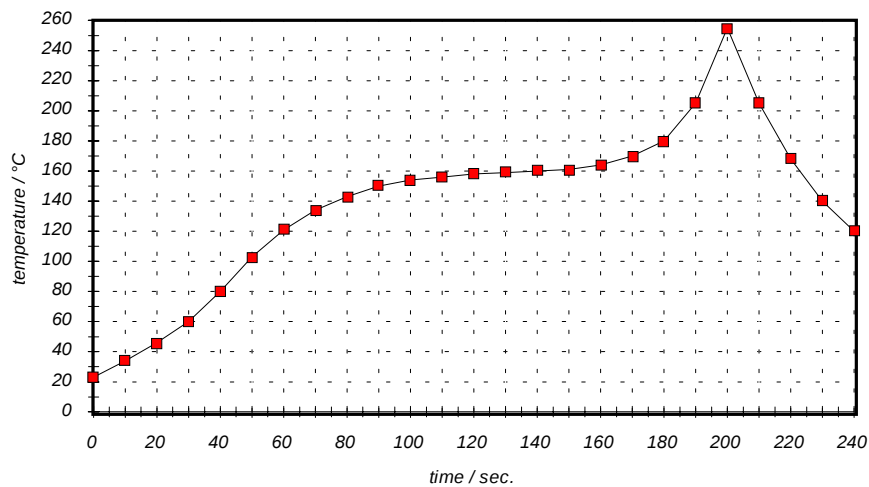


Table for temperature vs. time during the air reflow process

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