

Microchip	Filter specification	TFS624	1/5
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Measurement condition

Ambient temperature T_A :	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	Ω

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS624 is the attenuation at nominal frequency. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 624.0 MHz without any tolerance. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

D a t a	typ. value		tolerance / limit		
Insertion Loss	a_e	2.5	dB	4.0	dB
Nominal Frequency	f_N	-		624.0	MHz
Centre frequency @ T_A	f_C	624.0	MHz	623.1 ... 624.9	MHz
Bandwidth	BW				
3 dB		12	MHz	-	
Relative Attenuation	a_{rel}				
$f_N - 104.0$ MHz ... $f_N - 104.0$ MHz		66	dB	min. 50	dB
$f_N + 104.0$ MHz ... $f_N + 104.0$ MHz		56	dB	min. 50	dB
Input power level		-		max. 10	dBm
Error vector magnitude	EVM	2.0	%	max. 4.0	%
Operating Temperature Range	OTR	-		-40 ... 90	°C
Storage Temperature Range		-		-55 ... 125	°C
Temperature Coefficient of Frequency	TC_f *)	-36	ppm/K	-	

*) $\Delta f = TC_f(T - T_A)f_N$

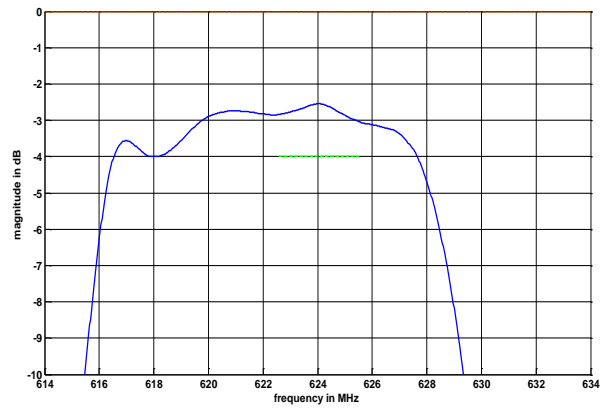
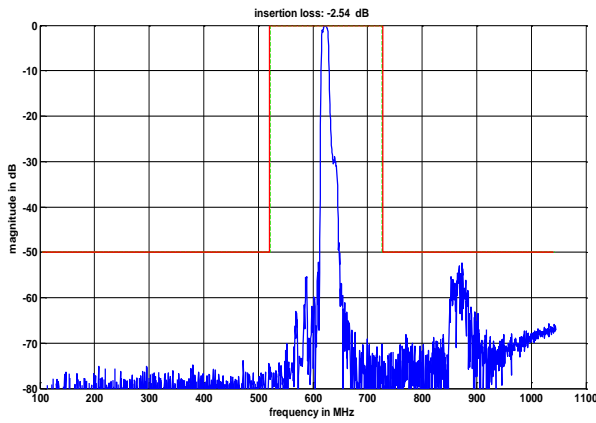
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Microchip Frequency Technology GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30

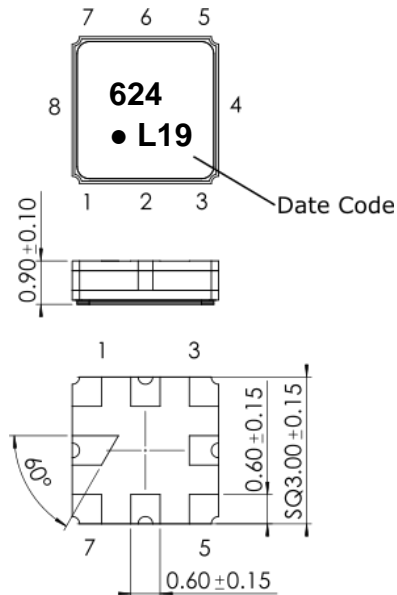
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Filter characteristic



Construction and pin connection

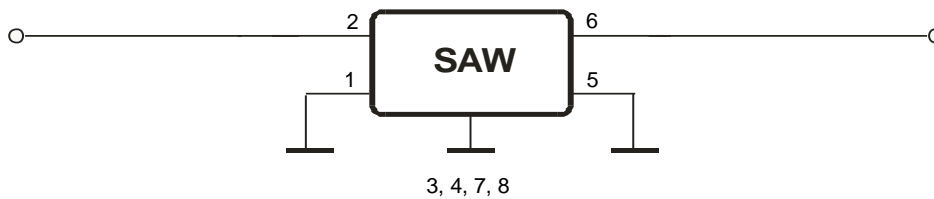
(All dimensions in mm)



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

Date code: Year + week
 L 2019
 M 2020
 N 2021
 ...

50 Ω Test circuit



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Stability characteristics, reliability

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

1. Shock: 500 g, 1 ms, half sine wave, 3 shocks each plane;
DIN IEC 60068 T2 - 27
2. Vibration: 10 Hz to 2000 Hz, 0.35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 60068 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
DIN IEC 60068 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: three times max.;
for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

This filter is RoHS compliant (2011/65/EU)

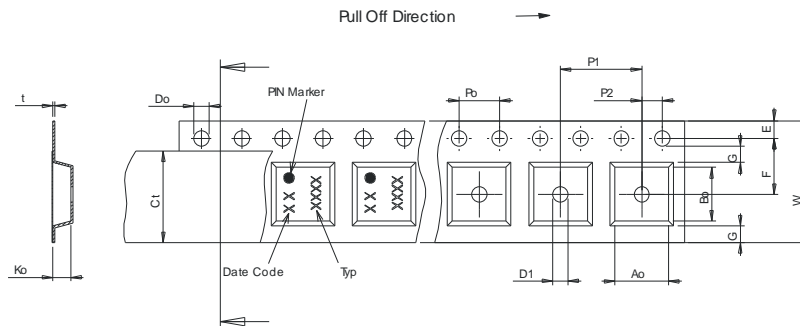
Packing

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;

reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

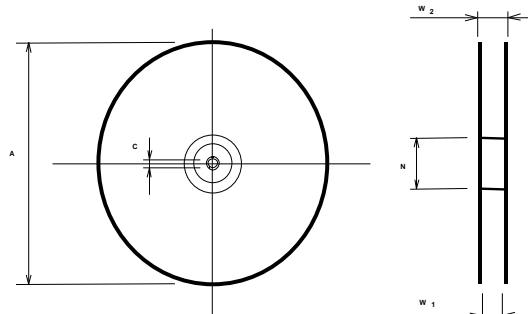
Tape (all dimensions in mm)

- W : 8.00 ±0.3
- Po : 4.00 ±0.1
- Do : 1.50 +0.1/-0
- E : 1.75 ±0.1
- F : 3.50 ±0.05
- G(min) : 0.75
- P2 : 2.00 ±0.05
- P1 : 4.00 ±0.1
- D1(min) : 1.50
- Ao : 3.25 ±0.1
- Bo : 3.25 ±0.1
- Ct : 5.30 ±0.1
- Ko : 1.50 ±0.1
- t : 0.25 ±0.05



Reel (all dimensions in mm)

- A : 330 or 180
- W1 : 8.40 +1.5/-0
- W2(max) : 14.40
- N(min) : 60.00
- C : 13.0 ±0.2



The minimum bending radius is 45 mm.

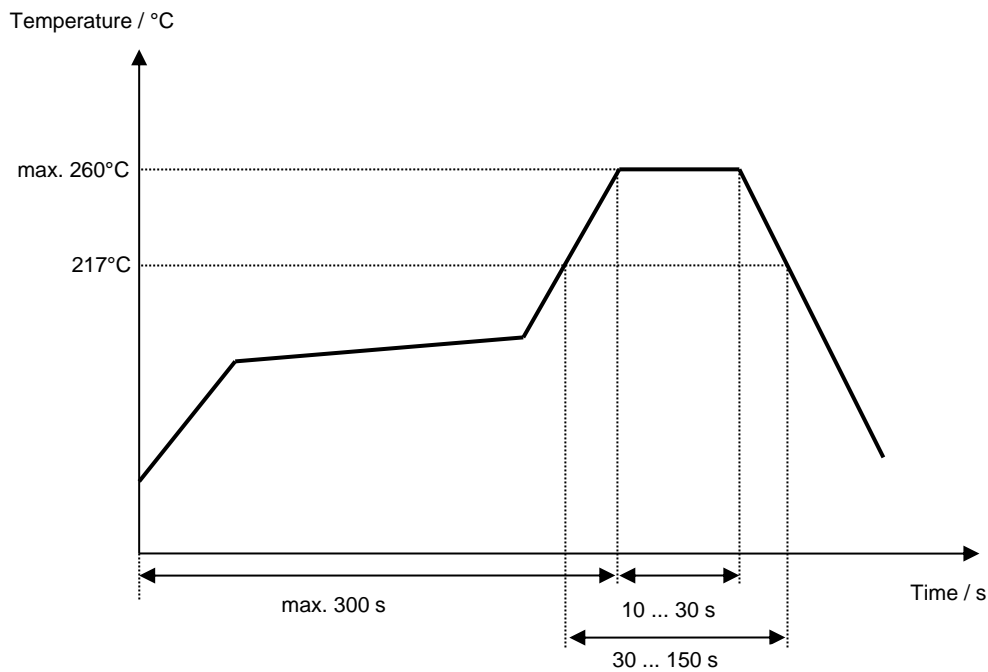
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Potsdamer Straße 18
D 14 513 TELTOW / Germany
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Air reflow temperature conditions

Conditions	Exposure
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50°C)	less than 6°C/second
Time from 30°C to Peak temperature	no greater than 300 seconds

Chip-mount air reflow profile



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Microchip**Filter specification****TFS624****5/5**

History

Version	Reason of Changes	Name	Date
1.0	Generation of filter specification.	Schönbein	01.10.2013
2.0	Centre frequency at ambient temperature and EVM added to data table.	Schönbein	23.04.2014
2.1	Increased storage temperature range from -45 ... 95 °C to -55 ... 125 °C.	Schönbein	13.05.2019

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D 14 513 TELTOW / Germany
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