

Vectron International

Filter specification

TFS121B

1/5

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} is the minimum attenuation in the passband. The minimum attenuation in the passband is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 121.5 MHz without any tolerance or limit. The values of relative attenuation a_{rel} are guaranteed over the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

D a t a		typ. value		tolerance / limit	
Insertion loss		a_e	1.25 dB	max.	2.5 dB
Nominal frequency		f_N	-		121.5 MHz
Passband		PB	-	$f_N \pm$	25.0 kHz
Passband variation			-	max.	1.0 dB
Bandwidth		BW			
1	dB		-	min.	50 kHz
3	dB		2.8 MHz		-
Relative attenuation		a_{rel}			
101.5	MHz ... 113.5 MHz		51 dB	min.	40 dB
113.5	MHz ... 116.5 MHz		40 dB	min.	20 dB
116.5	MHz ... 118.5 MHz		35 dB	min.	15 dB
118.5	MHz ... 119.3 MHz		19 dB	min.	5 dB
123.7	MHz ... 124.5 MHz		17 dB	min.	5 dB
124.5	MHz ... 126.5 MHz		27 dB	min.	15 dB
126.5	MHz ... 129.5 MHz		27 dB	min.	20 dB
129.5	MHz ... 141.5 MHz		48 dB	min.	40 dB
Input power level			-	max.	15 dBm
Operating temperature range		OTR	-		- 40 °C ... + 85 °C
Storage temperature range			-		- 55 °C ... + 125 °C
Temperature coefficient of frequency		TC_f *)	-32 ppm/K		

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

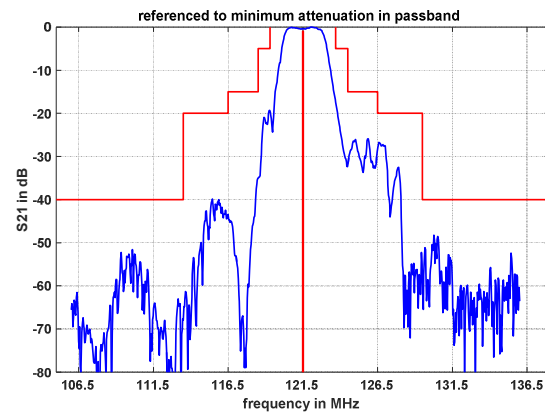
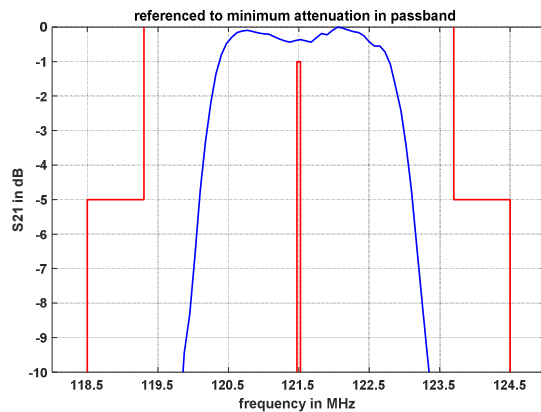
Generated:

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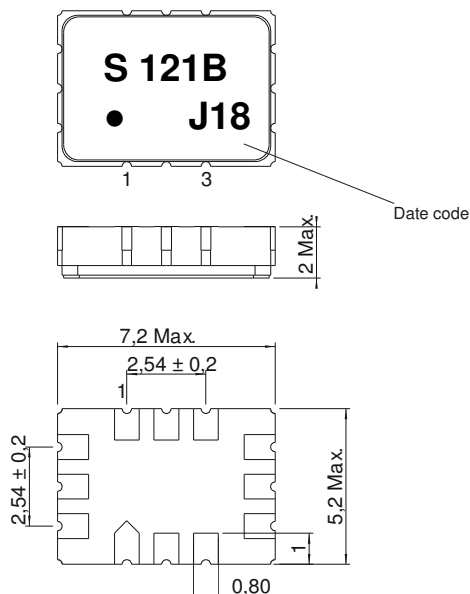
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Filter characteristic



Construction and pin connection

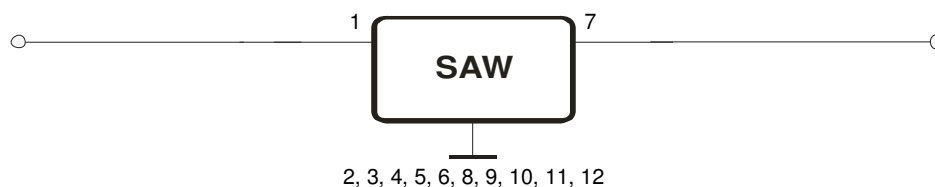
(All dimensions in mm)



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

Date code: Year + week
 J 2017
 K 2018
 L 2019
 ...

50 Ω Test circuit



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Stability characteristics, reliability

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

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

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

Packing

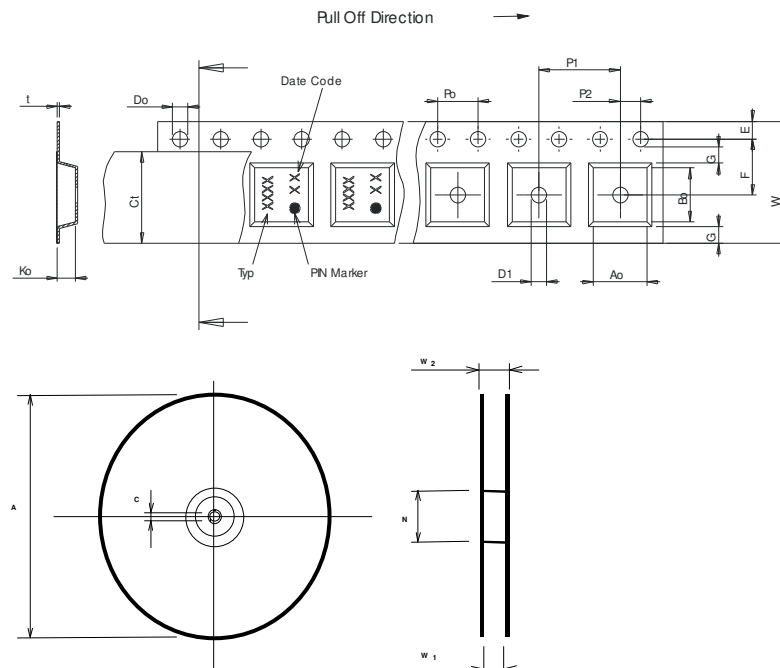
Tape & Reel:	IEC 286 – 3, with exception of value for N and minimum bending radius; tape type II, embossed carrier tape with top cover tape on the upper side;	
	max. pieces of filters per reel:	3000
	reel of empty components at start:	min. 300 mm
	reel of empty components at start including leader:	min. 500 mm
	trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 16.00 +0.3/-0.1
Po	: 4.00 ±0.1
Do	: 1.50 +0.1/-0
E	: 1.75 ±0.1
F	: 7.50 ±0.1
G(min)	: 0.75
P2	: 2.00 ±0.1
P1	: 8.00 ±0.1
D1(min)	: 1.50
Ao	: 5.40 ±0.1
Bo	: 7.60 ±0.1
Ct	: 13.30 ±0.1
Ko	: 2.00 ±0.1
t	: 0.30 ±0.05

Reel (all dimensions in mm)

A	: 330 or 180
W1	: 16.4 +2/-0
W2(max)	: 22.40
N(min)	: 50.00
C	: 13.0 +0.5/-0.2



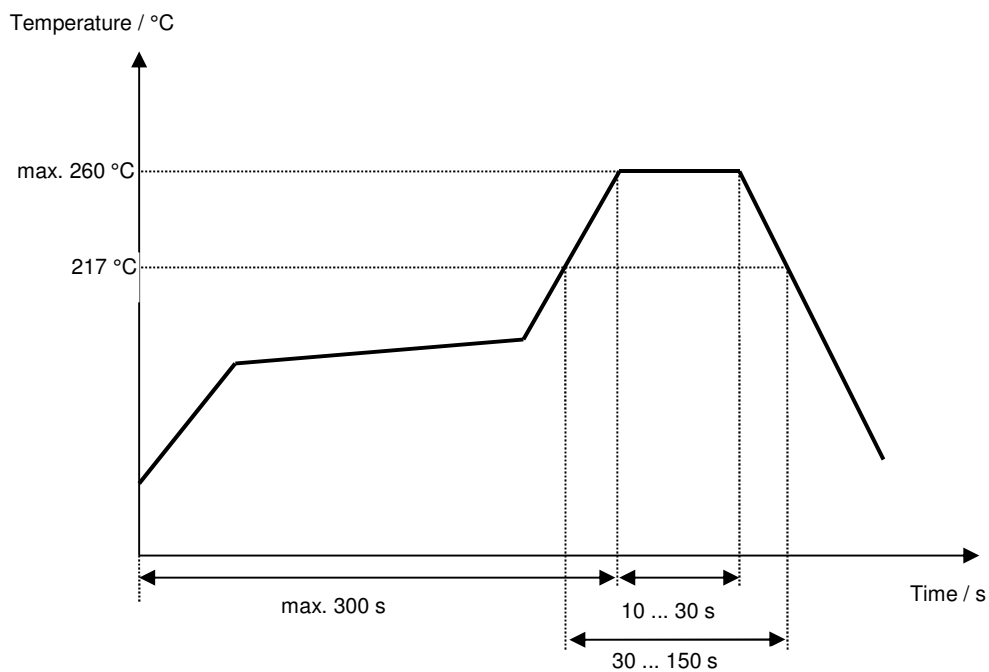
The minimum bending radius is 45 mm.

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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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Vectron International**Filter specification****TFS121B****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Strehl	28.07.2005
1.1	- Add bandwidth at 1dB	Strehl	30.08.2005
1.2	- Change terminating impedance	Sabah	26.09.2005
1.3	- Generation of filter specification and add of typical values	Sabah	27.10.2005
1.4	- Change insertion loss and relative attenuation - Change stability characteristics	Strehl	08.02.2006
1.5	- Correct filter characteristic	Strehl	21.02.2006
1.6	- Storage temperature range extended - Definition of passband ripple clarified - Update of typical values and filter characteristic	Molke	02.05.2017

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