

Vectron International**Filter specification****TFS869R****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 maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 869.0 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} 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	3.0	dB	max.	4.0	dB
Insertion loss within OTR1					a_e	2.7	dB	max.	3.5	dB
Nominal frequency					f_N	-			869.0	MHz
Passband					PB	-		$f_N \pm$	1.0	MHz
Pass band variation						1.0	dB	max.	1.7	dB
Pass band variation within OTR1						0.7	dB	max.	1.3	dB
Absolute attenuation					a_{abs}					
10	MHz	...	300	MHz		49	dB	min.	45	dB
300	MHz	...	845	MHz		44	dB	min.	40	dB
845	MHz	...	853	MHz		43	dB	min.	38	dB
879	MHz	...	883	MHz		25	dB	min.	15	dB
879	MHz	...	883	MHz	within OTR1	30	dB	min.	20	dB
883	MHz	...	915	MHz		55	dB	min.	45	dB
915	MHz	...	945	MHz		52	dB	min.	40	dB
945	MHz	...	1200	MHz		52	dB	min.	45	dB
1200	MHz	...	2000	MHz		39	dB	min.	35	dB
Return loss in PB						19	dB	min.	10	dB
Input power level in PB					**)	-		max.	13	dBm
Operating temperature range					OTR	-		- 40 °C ... + 85 °C		
Reduced Operating temperature range					OTR1	-		- 20 °C ... + 70 °C		
Storage temperature range						-		- 55 °C ... + 125 °C		
Temperature coefficient of frequency					TC_f *)	-35	ppm/K			

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

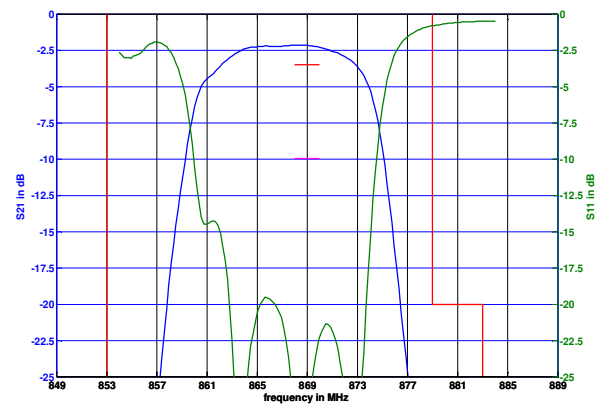
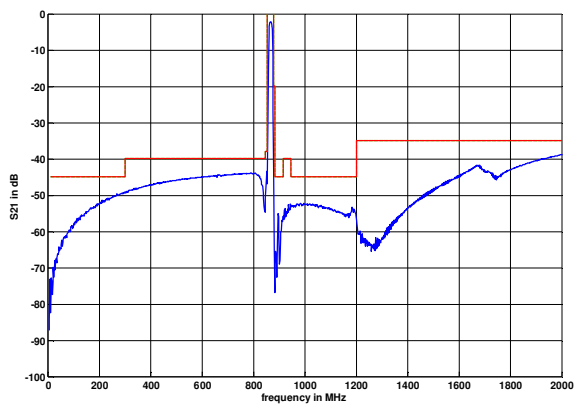
**) 18dBm input power for short term operation for cycle time 1:10

Generated:**Checked / Approved:**

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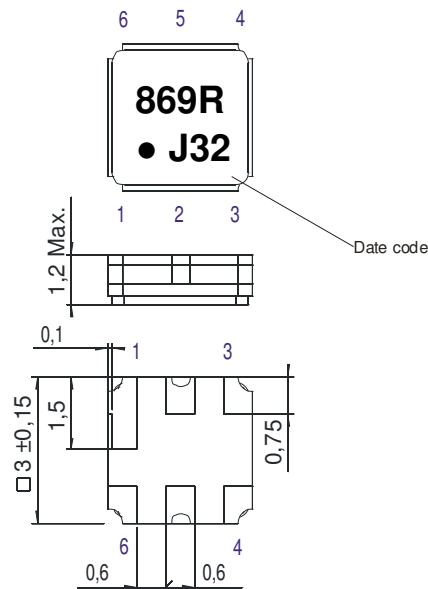
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Filter characteristic



Construction and pin connection

(All dimensions in mm)



1	Ground
2	Input
3	Ground
4	Ground
5	Output
6	Ground

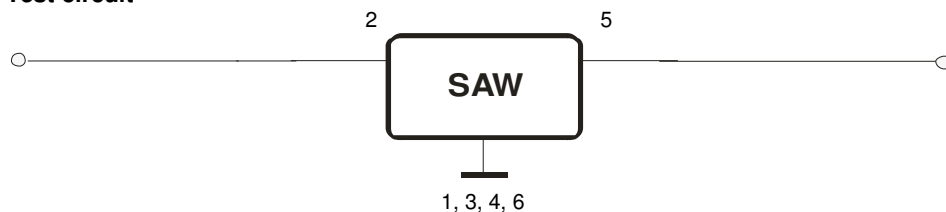
Date code: Year + week

J 2017

K 2018

L 2019

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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;

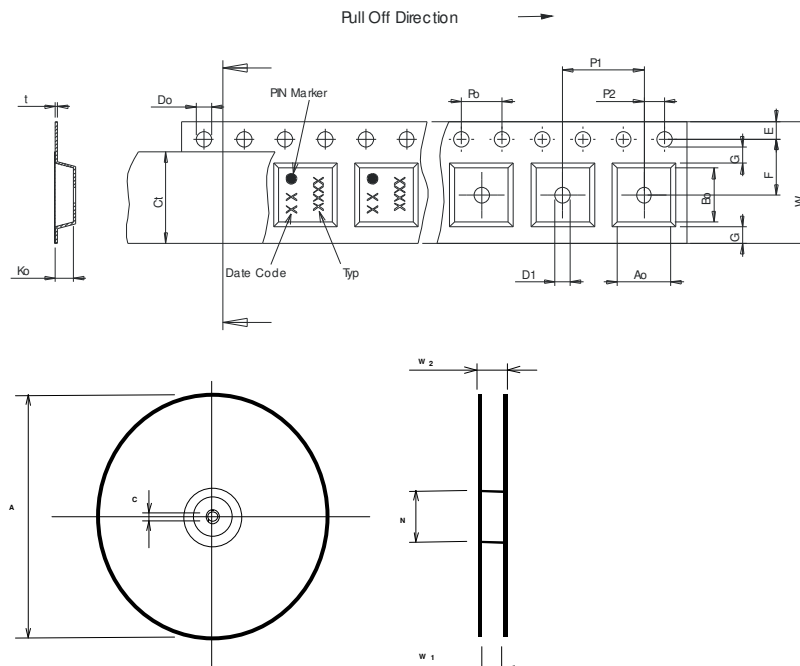
reel of empty components at start: min. 300 mm
reel of empty components at start including leader: min. 500 mm
trailer: min. 300 mm

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



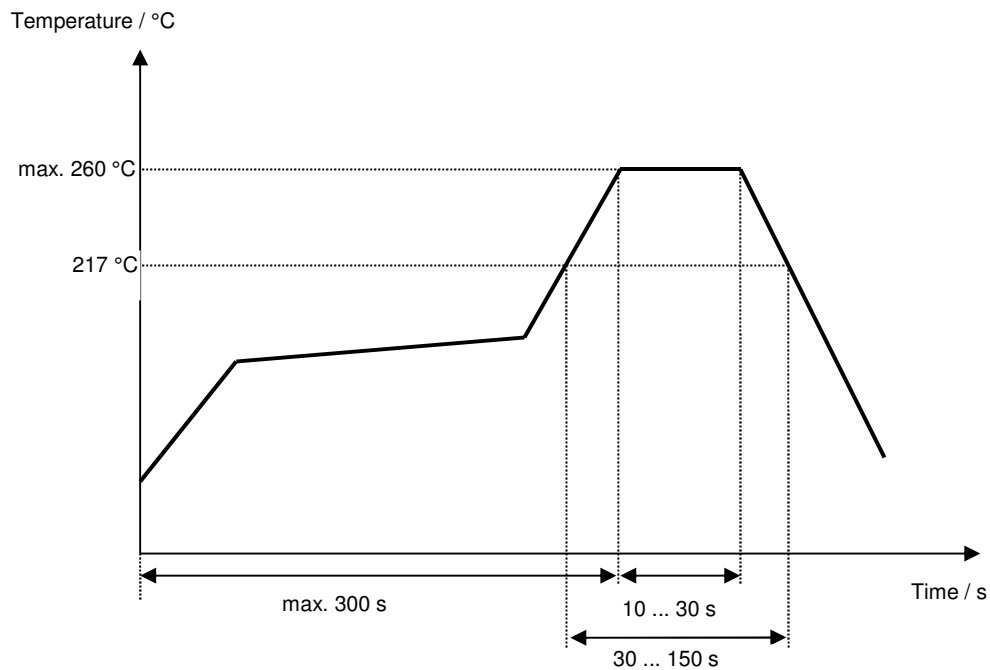
The minimum bending radius is 45 mm.

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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

Vectron International**Filter specification****TFS869R****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generation of filter specification	Abutaimah	09.03.2017
1.1	Update typos Update storage temperature range Update formula for Δf Update Tape & Reel	P. Jaster	11.08.2017

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