

Vectron International**Filter specification****TFS 864****1/5****Measurement condition**

Ambient temperature:	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 864 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} 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.

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

Insertion Loss	a_e	2,2		4,5	dB
Nominal Frequency	f_N	-		864	MHz
Passband	PB	-		f_N	± 1 MHz
Absolute Attenuation	a_{abs}				
$f_N - 1$ MHz ... $f_N + 1$ MHz		2,2	dB	max.	4,5 dB
$f_N \pm 20$ MHz ... $f_N \pm 22$ MHz		48	dB	min.	35 dB
$f_N \pm 40$ MHz ... $f_N \pm 42$ MHz		46	dB	min.	40 dB
Operating Temperature Range	OTR	-		- 30 °C ... + 80 °C	
Storage Temperature Range		-		- 40 °C ... + 85 °C	
Temperature Coefficient of Frequency	TC_f^{**}	- 36	ppm/K	-	
Input Power Level		-		max.	17 dBm

** $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$.

Generated: _____

Checked / Approved: _____

Vectron International GmbH & Co. KG

Potsdamer Straße 18

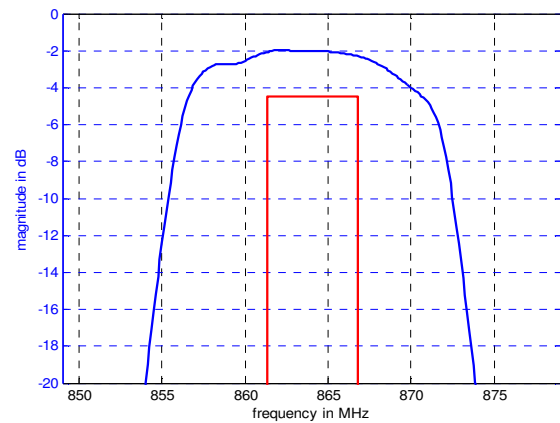
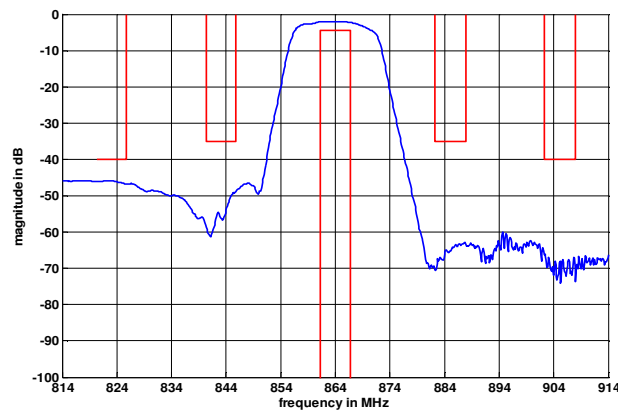
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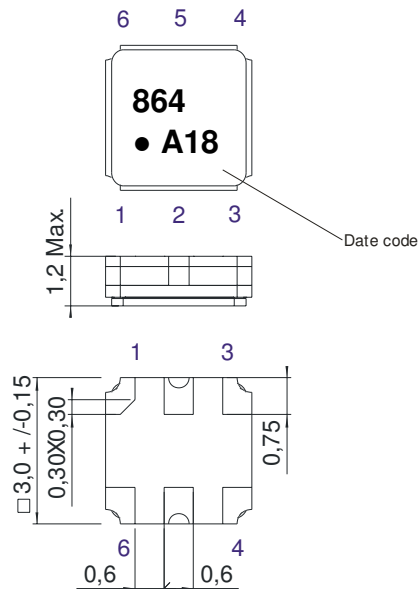
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Filter characteristic



Construction and pin connection

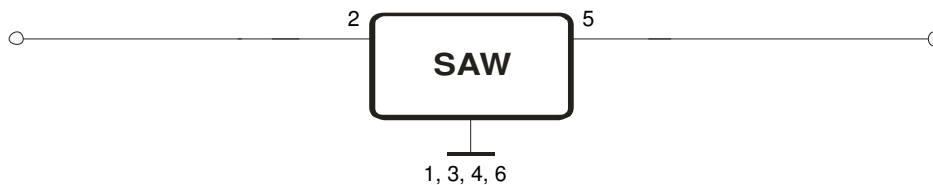
(All dimensions in mm)



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

Date code: Year + week
 A 2010
 B 2011
 C 2012
 ...

50 Ω Test circuit



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Stability characteristics, reliability

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

1. Shock: 500g, 1 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes;
DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 30 min. each / 10 cycles
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: three times max.;
for temperature conditions, see page 4: "Air reflow temperature conditions"
5. ESD ANSI/ESD S20.20-1999, class 1A for HBM

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

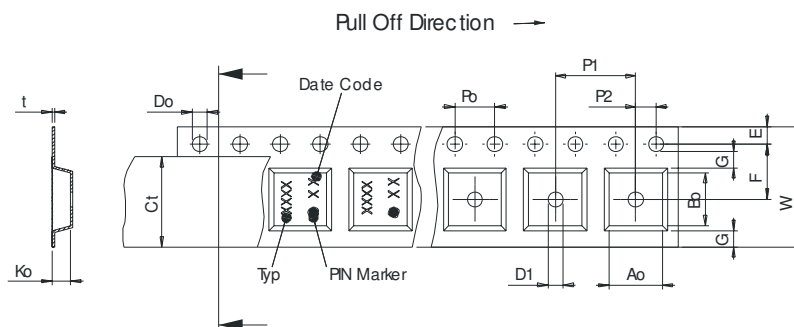
Packing

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;

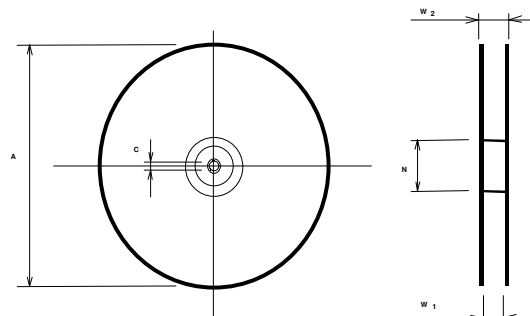
max. pieces of filters per reel:	9000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

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	: 5,5 ± 0,1

**Reel (all dimensions in mm)**

A	: 330
W1	: 8,4 +1,5/-0
W2(max)	: 14,4
N(min)	: 50
C	: 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

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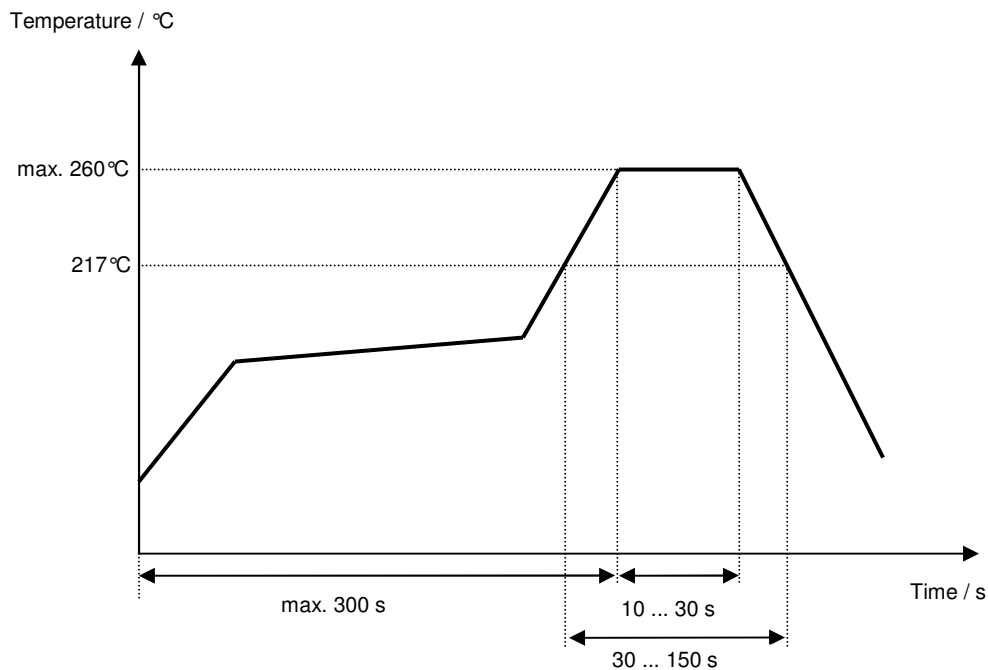
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Air reflow temperature conditions

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****TFS 864****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Martens	23.11.2004
1.1	- Add of typical values and typical filter performances - Generation of filter specification	Noack	06.07.2005
1.2	-Reworked packing	Martens	09.11.2005
2.0	- Changed package from long to short pin1 pin	Noack	27.04.2010

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