

Vectron International**Filter specification****TFS345A****1/5****Measurement condition**

Ambient temperature T_A :	23	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	202 Ω	-4.5 pF
Output:	202 Ω	-4.5 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 345A is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 345.0 MHz without any tolerance. 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.

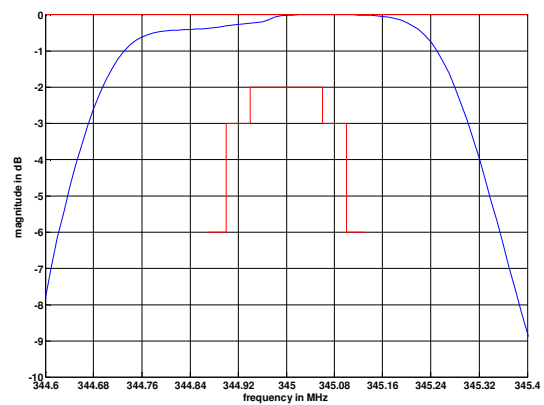
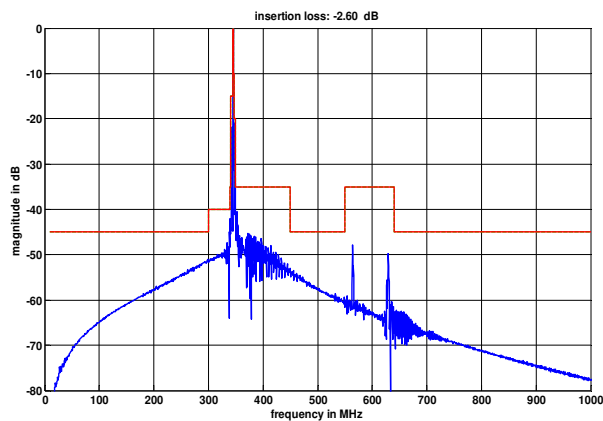
D a t a		typ. value		tolerance / limit	
Insertion loss (reference level)		$a_e = a_{min}$	1.7	max.	3.5 dB
Nominal frequency		f_N	-	345.0	MHz
Centre frequency 3dB		f_C	345.0	-	
Passband		PB	-	$f_N \pm 0.1$	MHz
Relative attenuation		a_{rel}			
f_N -	0.06 MHz ...	f_N +	0.06 MHz	0.25 dB	max. 2 dB
f_N -	0.10 MHz ...	f_N +	0.10 MHz	0.30 dB	max. 3 dB
f_N -	0.13 MHz ...	f_N +	0.13 MHz	0.38 dB	max. 6 dB
f_N -	335.0 MHz ...	f_N -	45.0 MHz	52 dB	min. 45 dB
f_N -	45.0 MHz ...	f_N -	6.0 MHz	48 dB	min. 40 dB
f_N -	6.0 MHz ...	f_N -	4.0 MHz	43 dB	min. 35 dB
f_N -	4.0 MHz ...	f_N -	1.07 MHz	20 dB	min. 15 dB
f_N +	1.1 MHz ...	f_N +	2.0 MHz	18 dB	min. 10 dB
f_N +	2.0 MHz ...	f_N +	5.0 MHz	25 dB	min. 20 dB
f_N +	5.0 MHz ...	f_N +	105.0 MHz	41 dB	min. 35 dB
f_N +	105.0 MHz ...	f_N +	205.0 MHz	52 dB	min. 45 dB
f_N +	205.0 MHz ...	f_N +	295.0 MHz	48 dB	min. 35 dB
f_N +	295.0 MHz ...	f_N +	655.0 MHz	62 dB	min. 45 dB
Operating temperature range		OTR	-	-45 °C ...	+90 °C
Storage temperature range			-	-45 °C ...	+120 °C
Temperature coefficient of frequency		TC_f^*	-0.033 ppm/K ²	-	
Frequency inversion temperature		T_0	25 °C	-	

*) $\Delta f = TC_f(T - T_0)^2 f_N$ **Generated:****Checked / Approved:**

Vectron International GmbH
Potsdamer Straße 18
D 14 513 TELTOW / Germany
Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30
E-Mail: tft@vectron.com

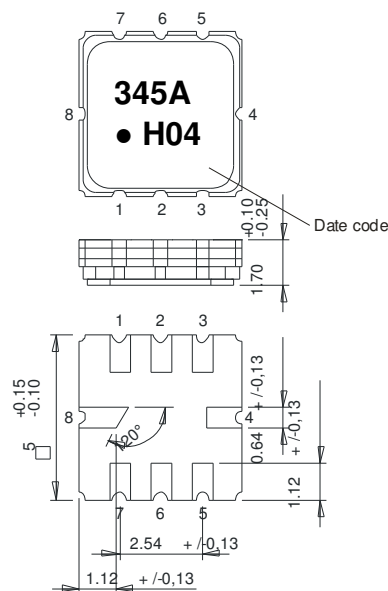
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Filter characteristic



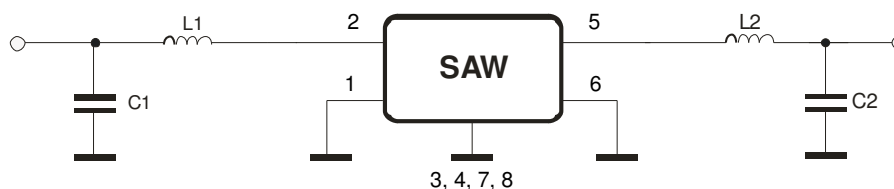
Construction and pin connection

(All dimensions in mm)



1	Input RF Return
2	Input
3	Ground
4	Ground
5	Output
6	Output RF Return
7	Ground
8	Ground

Date code: Year + week
 H 2016
 J 2017
 K 2018
 ...

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 68 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 68 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles
DIN IEC 68 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)

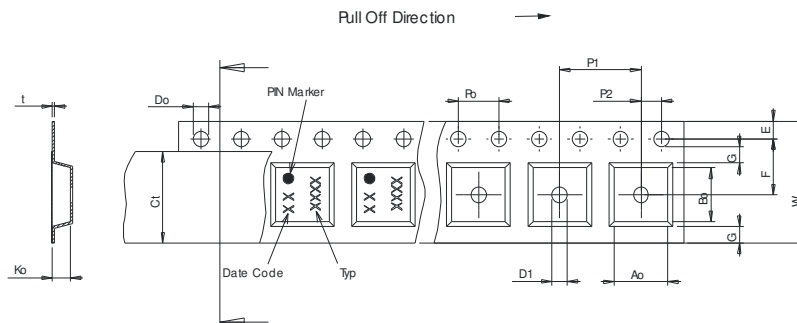
Packing

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;

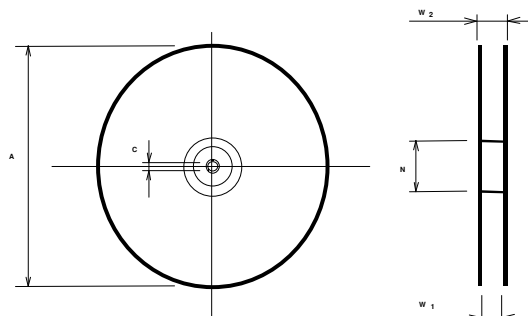
max. pieces of filters per reel:	3000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 12.00 ± 0.3
Po	: 4.00 ± 0.1
Do	: 1.50 +0.1/-0
E	: 1.75 ± 0.1
F	: 5.50 ± 0.05
G(min)	: 0.75
P2	: 2.00 ± 0.05
P1	: 8.00 ± 0.1
D1(min)	: 1.50
Ao	: 5.30 ± 0.1
Bo	: 5.30 ± 0.1
Ct	: 9.5 ± 0.1

**Reel (all dimensions in mm)**

A	: 330
W1	: 12.4 +2/-0
W2(max)	: 18.4
N(min)	: 50
C	: 13.0 +0.5/-0.2



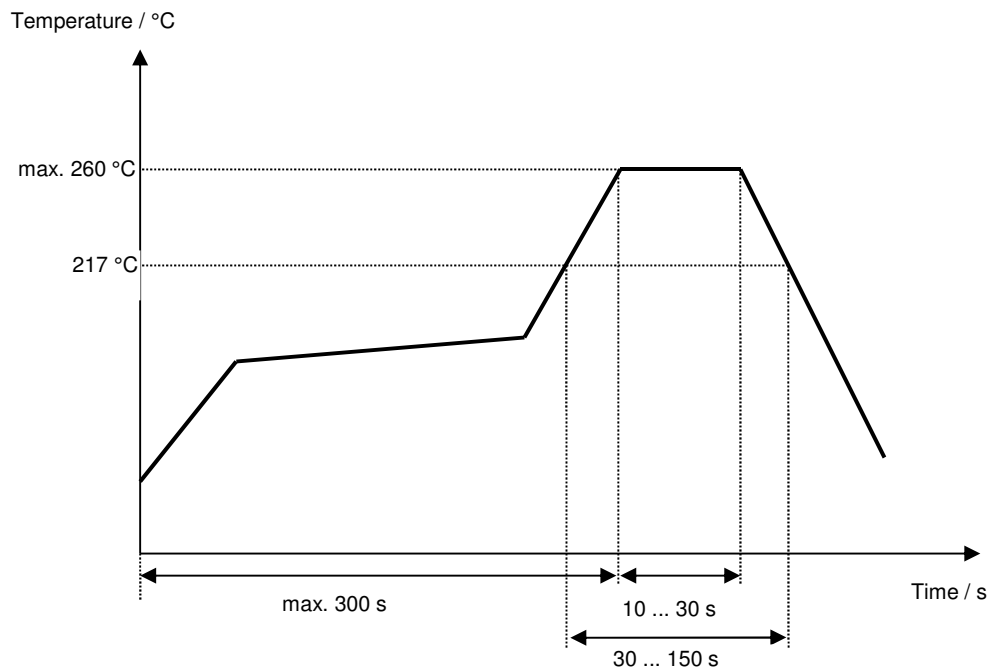
The minimum bending radius is 45 mm.

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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

History

Version	Reason of Changes	Name	Date
1.0	Generation of development specification.	Noack	23.11.2004
1.1	Generation of Filter specification, add of typical values	Dr. Sabah	03.03.2005
2.0	Generation of new development specification.	Schönbein	18.10.2013
2.1	Generation of filter specification.	Schönbein	28.10.2015
2.2	Update temperature formular Update date code	Abutaimah	18.01.2016