

Vectron International**Filter specification****TFS 110Y****1/5****Measurement condition**

Ambient temperature:	25	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	390 Ω	-19,3 pF
Output:	480 Ω	-16,3 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 110Y 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 110,592 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 (reference level)	a_e	3,7 dB	max. 4,5 dB
Nominal frequency	f_N	-	110,592 MHz
Centre frequency	f_C	110,592 MHz	-
Passband	PB		$f_N \pm 280$ kHz
Pass band ripple		-	max. 3 dB
Relative attenuation	a_{rel}		
f_N	... $f_N \pm 0,280$ MHz	1,5 dB	max. 3 dB
$f_N \pm 1,150$ MHz	... $f_N \pm 1,728$ MHz	14 dB	min. 10 dB
$f_N \pm 1,728$ MHz	... $f_N \pm 1,828$ MHz	35 dB	min. 30 dB
$f_N \pm 1,828$ MHz	... $f_N \pm 3,456$ MHz	40 dB	min. 35 dB
$f_N + 3,456$ MHz	... $f_N + 5,184$ MHz	45 dB	min. 40 dB
$f_N - 3,456$ MHz	... $f_N - 5,184$ MHz	50 dB	min. 45 dB
$f_N - 5,184$ MHz	... $f_N - 15,000$ MHz	65 dB	min. 50 dB
$f_N - 5,184$ MHz	... $f_N - 15,000$ MHz	50 dB	min. 40 dB
Group delay ripple within PB	p-p	70 ns	max. 700 ns
Input power level			max. 0 dBm
Permissible DC voltage			max. 3 V
Operating temperature range	OTR	-	- 20 °C ... + 70 °C
Storage temperature range		-	- 40 °C ... + 85 °C
Temperature coefficient of frequency	TC_f **	-19 ppm/K	

*) The terminating impedances depend on parasites and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

**) $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_A) \times f_{cat}(\text{MHz})$

Generated:**Checked / Approved:**

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Potsdamer Straße 18

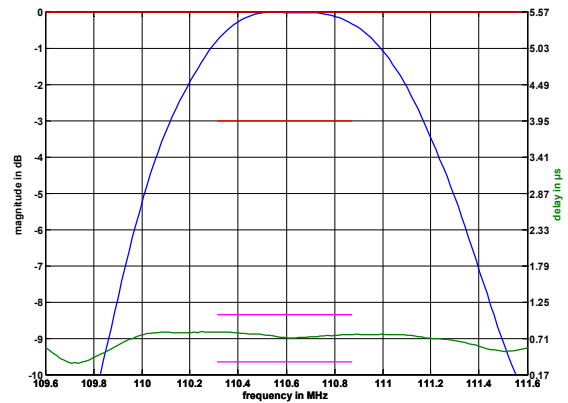
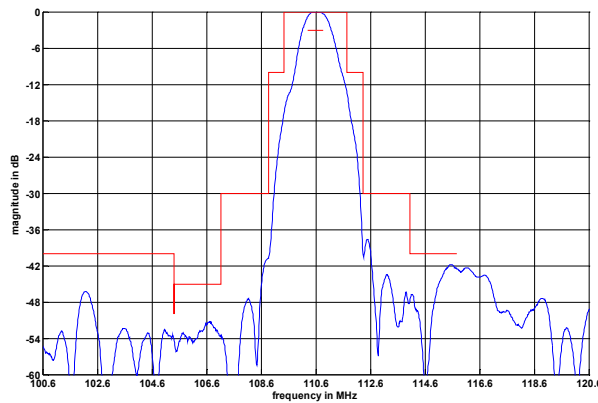
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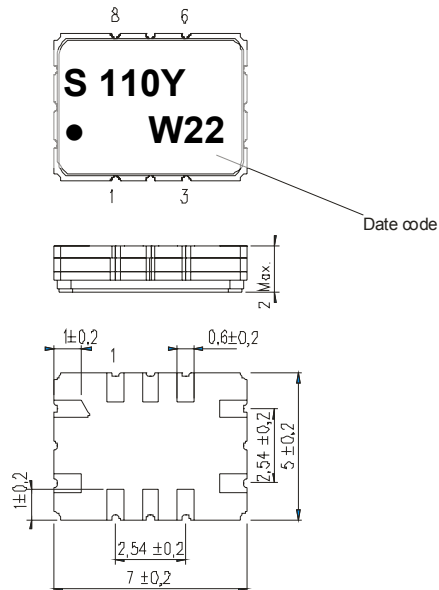
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Filter characteristic



Construction and pin connection

(All dimensions in mm)



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

Date code: Year + week

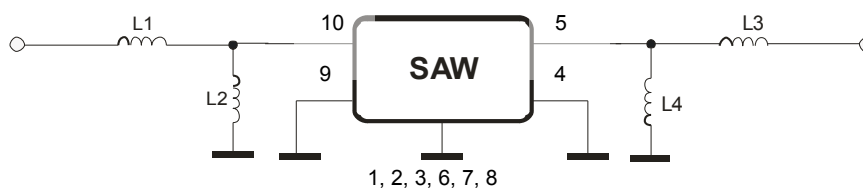
W 2008

X 2009

A 2010

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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: 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 g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
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 refer to the attached "Air reflow temperature conditions" on page 4;
5. ESD ANSI/ESD S20.20-1999, class 1A for HBM

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

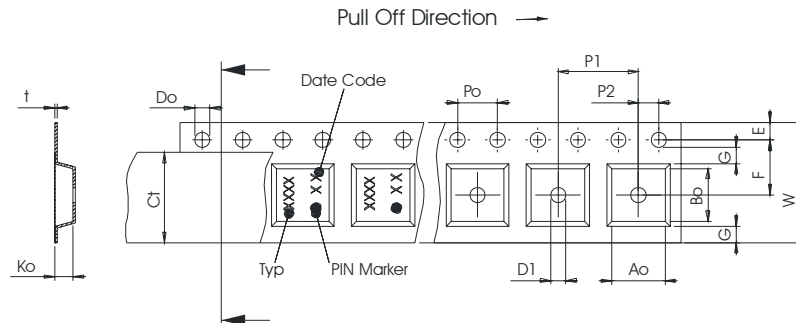
Packing

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;

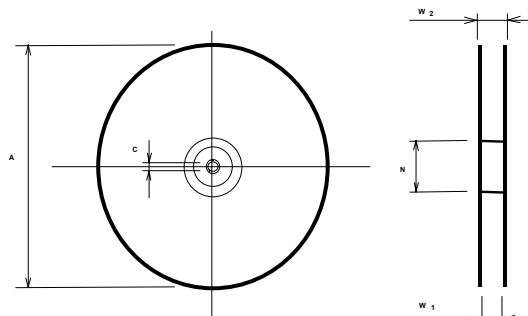
max. pieces of filters peer reel:	3000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	: 16,00 ± 0,3
Po	: 4,00 ± 0,1
Do	: 1,50 +0,1/-0
E	: 1,75 ± 0,1
F	: 7,50 ± 0,1
G(min)	: 0,60
P2	: 2,00 ± 0,1
P1	: 8,00 ± 0,1
D1(min)	: 1,50
Ao	: 5,50 ± 0,1
Bo	: 7,50 ± 0,1
Ct	: 13,5 ± 0,1

**Reel (all dimensions in mm)**

A	: 330
W1	: 16,4 +2/-0
W2(max)	: 22,4
N(min)	: 50
C	: 13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

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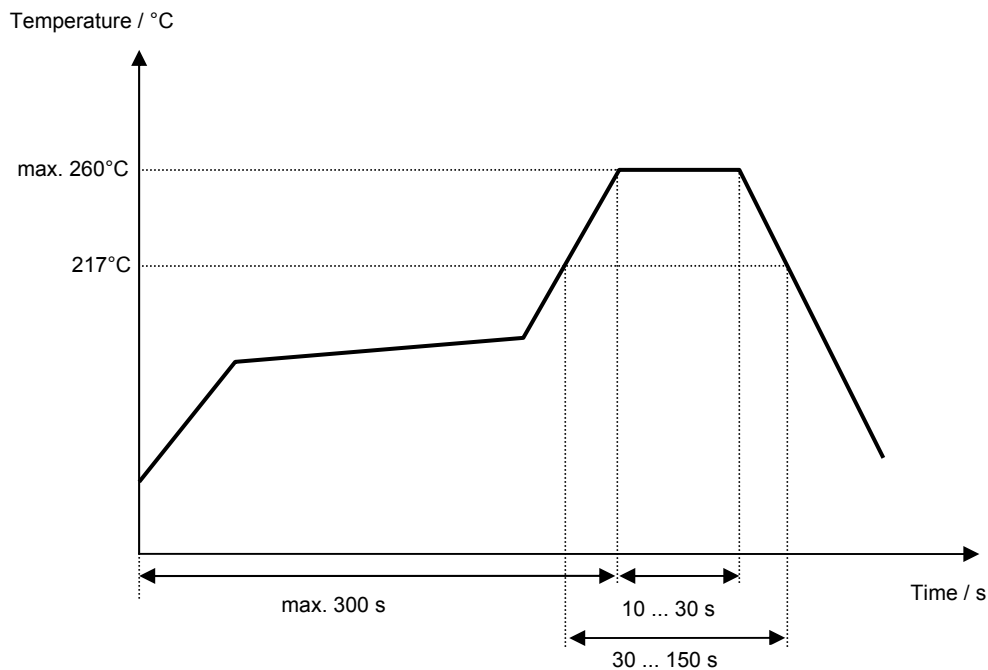
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Air reflow temperature conditions

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 GmbH & Co. KG****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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Vectron International**Filter specification****TFS 110Y****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- development specification	Pfeiffer	11.01.2008
1.1	- add of terminating impedances (preliminary values), typical values and filter characteristics - change of matching configuration	Pfeiffer	05.03.2008
1.2	- change of matching configuration according customer requirements - change of terminating impedances, typical values and filter characteristics	Pfeiffer	29.05.2008

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