

VI TELEFILTER

Filter specification

TFS 315E

Measurement condition

Ambient temperature: 25 °C
 Input power level: 0 dBm
 Terminating impedance: *
 for input: 315 Ω || - 5,2 pF
 for output: 220 Ω || - 6,7 pF

Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS315E is the minimum of the pass band attenuation a_{min} . The minimum of the pass band attenuation a_{min} is defined as the insertion loss a_e . The centre frequency f_c is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the insertion loss a_e . The nominal frequency f_N is fixed at 315 MHz without tolerance. The given values for the relative attenuation a_{rel} have to be reached at the frequencies given below even if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_c .

D a t a		typ. value	tolerance / limit
Insertion loss (attenuation at nominal frequency)	a_e	15,0 dB	max. 17 dB
Nominal frequency	f_N	-	315 MHz
Passband ripple (p-p)	in $f_N \pm 6,35$ MHz	0,8 dB	max. 1,0 dB
Relative attenuation	a_{rel}		
f_N $f_N \pm 6,35$ MHz	0,8 dB	max. 1,0 dB
$f_N \pm 10,3$ MHz $f_N \pm 100$ MHz	48 dB	min. 40 dB
Group delay ripple	in $f_N \pm 6,35$ MHz	85 ns	max. 200 ns
Input power Level		-	max. 10 dBm
Operating temperature range		-	- 40 °C.... + 85 °C
Storage temperature range		-	- 40 °C.... + 85 °C
Temperature coefficient of frequency	TC_f **	-20 ppm/K	-

*) The terminating impedances depend on parasitics 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.

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

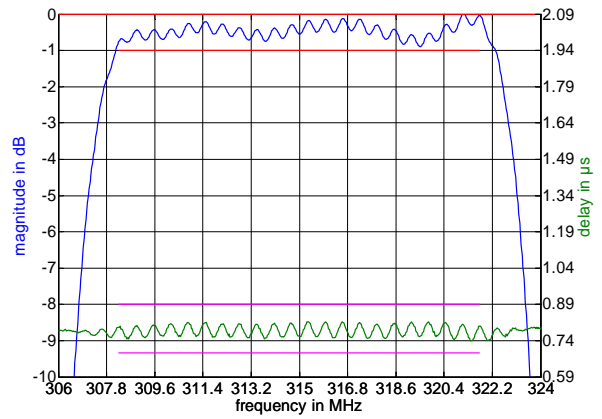
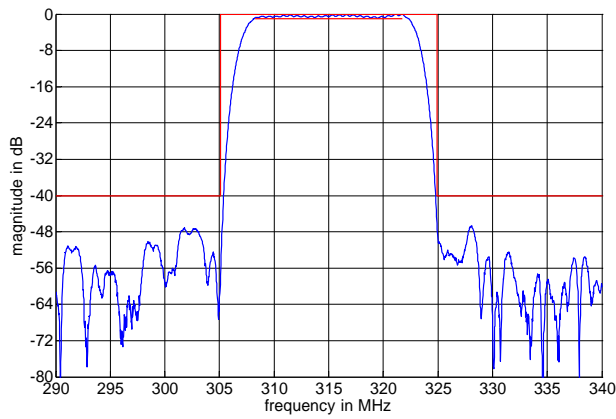
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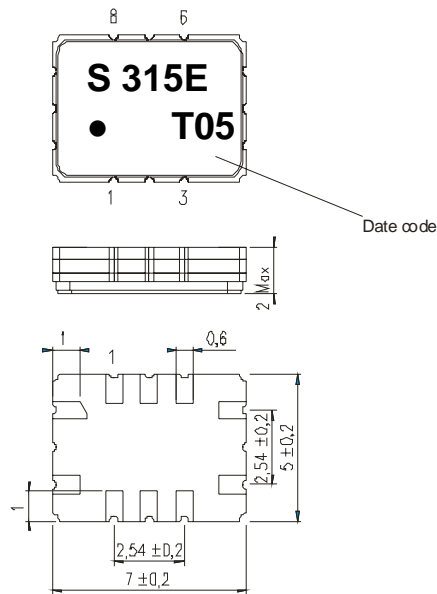
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Filter characteristic



Construction and pin connection

(All dimensions in mm)

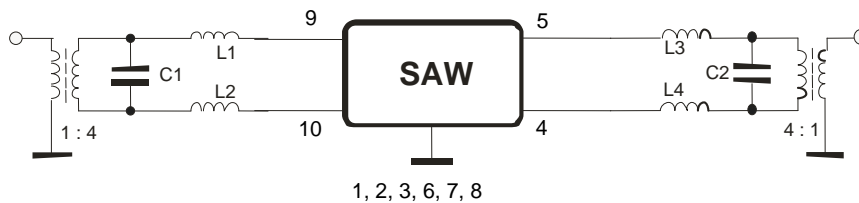


- 1 Ground
- 2 Ground
- 3 Ground
- 4 Output
- 5 Output
- 6 Ground
- 7 Ground
- 8 Ground
- 9 Input
- 10 Input

Date code: Year + week

- T 2005
- U 2006
- V 2007
- ...

200 Ohm Test circuit



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Stability characteristics

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

1. Shock: 500g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5g 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: twice max.;
for temperature conditions, please refer to the attached "Air reflow temperature conditions" on page 4;

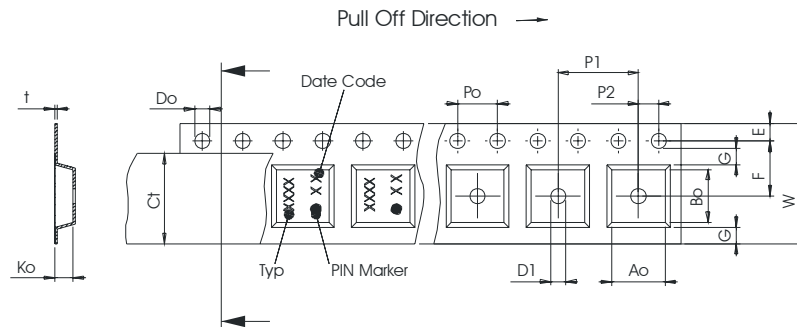
Packing

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

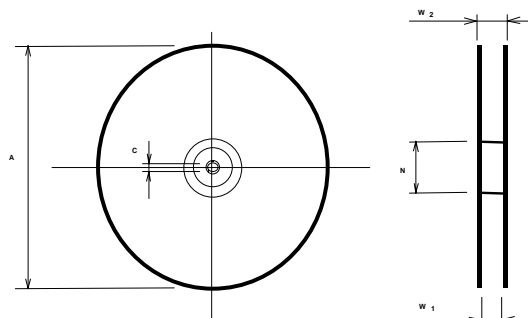
Tape (all dimensions in mm)

- 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.

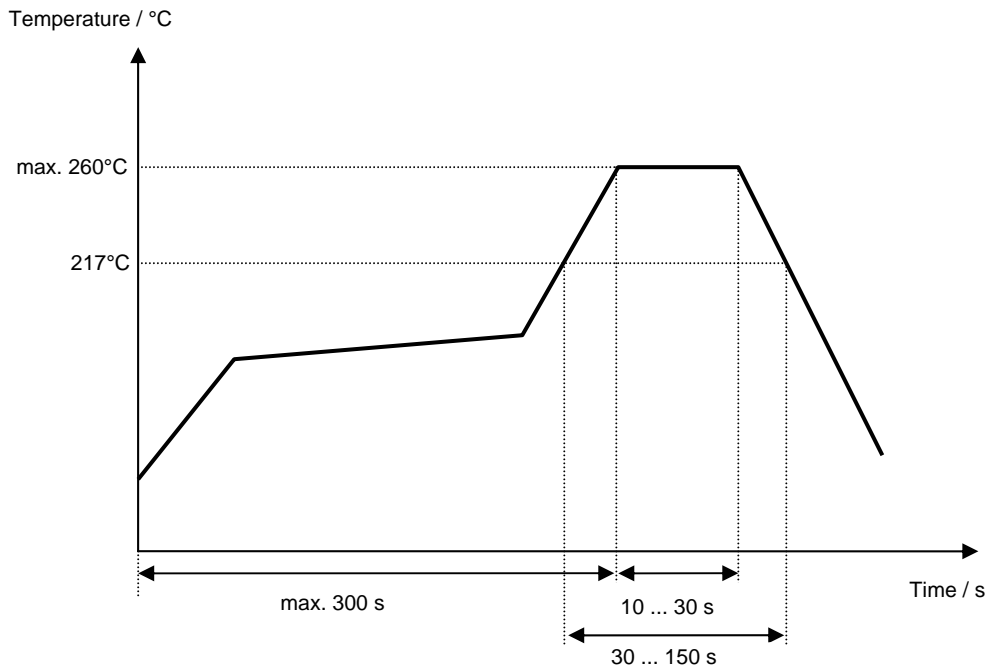
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Air reflow temperature conditions

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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VI TELEFILTER**Filter specification****TFS 315E****5/5****History**

Version	Reason of Changes	Name	Date
1.0	generation of specification	Pfeiffer	11.03.2003
1.1	- terminating impedance (preliminary value), typical values and matching configuration added - air reflow temperature conditions modified - pinning corrected - limit of pass band ripple changed to 1,5 dB		Pfeiffer10.11.2004
1.2	- terminating impedance and typical values corrected - limit of pass band ripple changed to 1,0 dB	Pfeiffer	24.01.2005

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