

**VI TELEFILTER****Resonator specification****TFR 315C****1/5****Measurement condition**

Ambient temperature:	25	°C
Input power level:	0	dBm
Terminating impedance: *		
Input:	50	Ω
Output:	50	Ω

**Characteristics**

## Remark:

The minimum of the pass band attenuation  $a_{\min}$  is defined as the insertion loss  $a_e$ . The centre frequency  $f_C$  is the frequency of the minimum of the passband attenuation  $a_{\min}$ . The tolerance for the centre frequency also includes a frequency shift due to the temperature coefficient of frequency  $TC_f$  in the operating temperature range and a production tolerance for the centre frequency  $f_C$ .

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Insertion loss</b> (reference level)	$a_e = a_{\min}$	-	max. 2,5 dB
<b>Centre frequency</b>	$f_C$	315,0 MHz	$\pm 100$ kHz
<b>Ageing of centre frequency</b> (Absolute value during the first year)		-	max. -40/+10 ppm/yr
<b>Quality factor</b>	Q		
Unloaded Q		8400	-
Loaded 50Ω		2000	-
<b>Parallel capacitance</b>	$C_0$	3,8 pF	-
<b>Motional resistance</b>	$R_1$	27 Ω	-
<b>Motional inductance</b>	$L_1$	117 μH	-
<b>Motional capacitance</b>	$C_1$	2,1 fF	-
<b>DC insulation resistance</b>		-	min. 1 MΩ
<b>Permissible DC voltage</b>	$V_{DC}$	-	max. 12 V
<b>Input power level</b>		-	max. 0 dBm
<b>Operating temperature range</b>	OTR	-	-40 °C ... + 85°C
<b>Storage temperature range</b>		-	-40 °C ... + 85°C
<b>Turnover temperature</b>	$T_0$	25 °C	max. $\pm 15$ °C
<b>Temperature coefficient of frequency</b>	$TC_f$ **	- 0,032 ppm/K <sup>2</sup>	

\*) The equivalent circuit model is for reference only.

\*\*)  $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T_0 - T)^2 \times f_{CAT}(\text{MHz})$ .

**Generated:**

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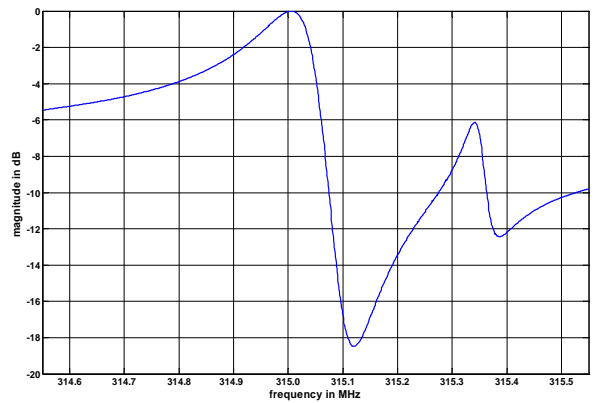
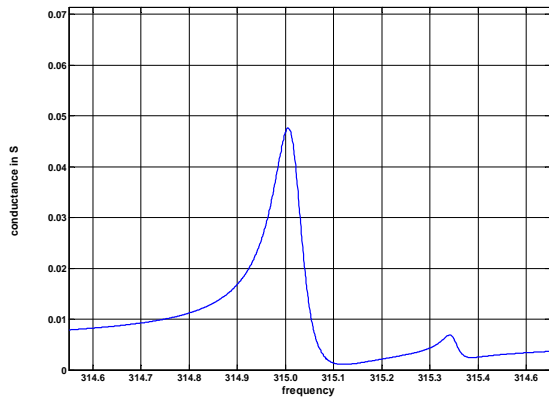
**Checked / Approved:**

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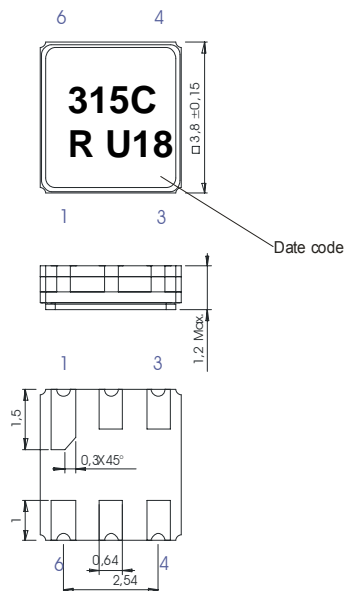
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**Filter characteristic**



**Construction and pin connection**

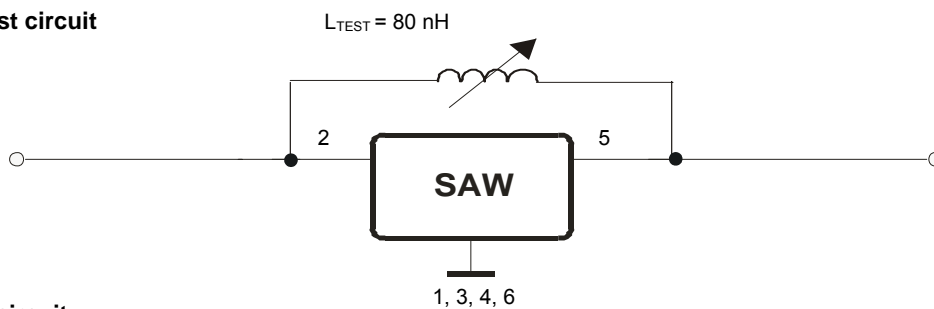
(All dimensions in mm)



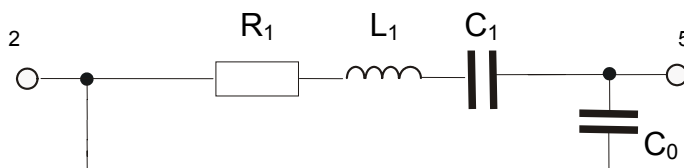
- 1 Ground
- 2 Input
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground

Date code: Year + week  
 U 2006  
 V 2007  
 W 2008  
 ...

**50 Ohm Test circuit**



**Equivalent 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 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 refer to the attached "Air reflow temperature conditions" on page 4;

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

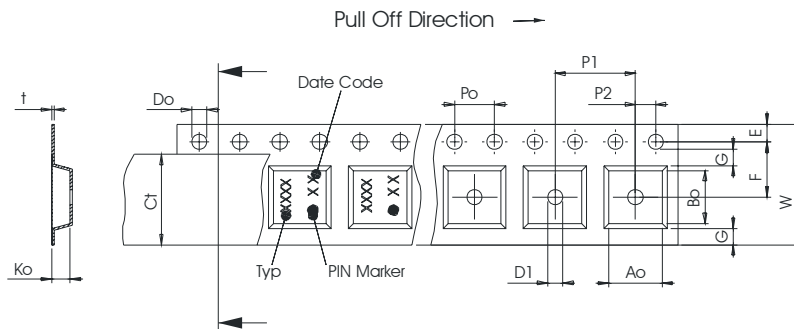
**Packing**

Tape & Reel: IEC 286 – 3, with exeption 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

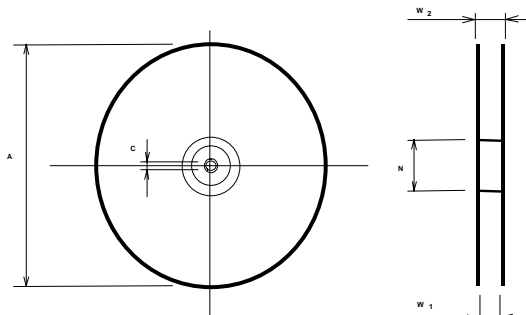
**Tape (all dimensions in mm)**

- W : 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 : 4,30 ± 0,1
- Bo : 4,30 ± 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.

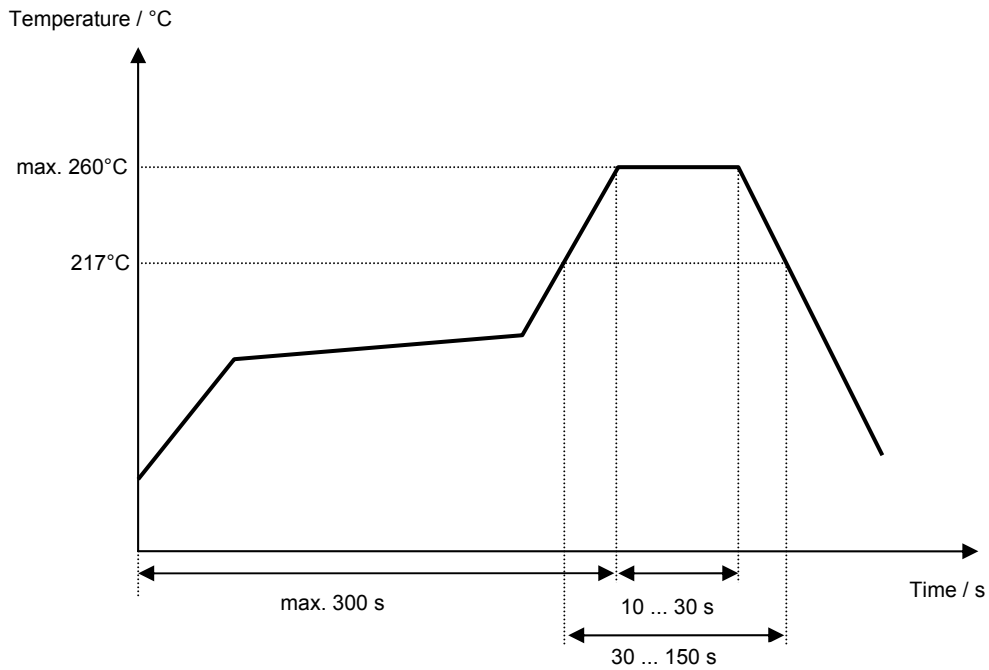
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**Air reflow temperature conditions**

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**



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**VI TELEFILTER****Resonator specification****TFR 315C****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- generation of resonator specification	Alawneh	03.05.2006

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