

VI TELEFILTER**Resonator specification****TFR 315B****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 .

D a t a		typ. value	tolerance / limit
Insertion loss (reference level)	$a_e = a_{\min}$	-	max. 2,5 dB
Centre frequency	f_C	315,15 MHz	±100 kHz
Ageing of centre frequency (Absolute value during the first year)		-	max. -40/+10 ppm/yr
Quality factor	Unloaded Q	8400	-
	Loaded Q 50Ω	2000	-
Parallel capacitance	C_0	3,8 pF	-
Motional resistance	R_1	27 Ω	-
Motional inductance	L_1	117 μH	-
Motional capacitance	C_1	2,1 fF	-
DC insulation resistance		-	min. 1 MΩ
Permissible DC voltage	V_{DC}	-	max. 12 V
Input power level		-	max. 0 dBm
Operating temperature range	OTR	-	-10 °C ... + 60°C
Storage temperature range		-	-40 °C ... + 85°C
Turnover temperature	T_0	25 °C	max. ± 15 °C
Temperature coefficient of frequency	TC_f **	0,035 ppm/K ²	

*) The equivalent circuit model is for reference only.

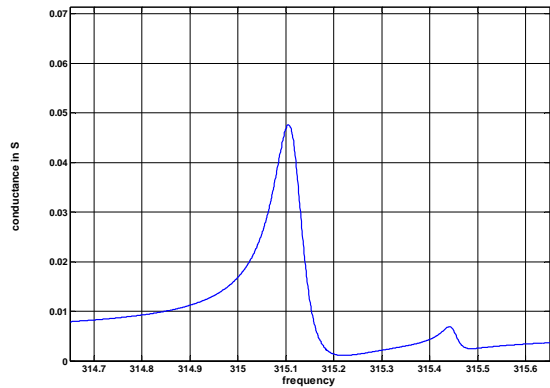
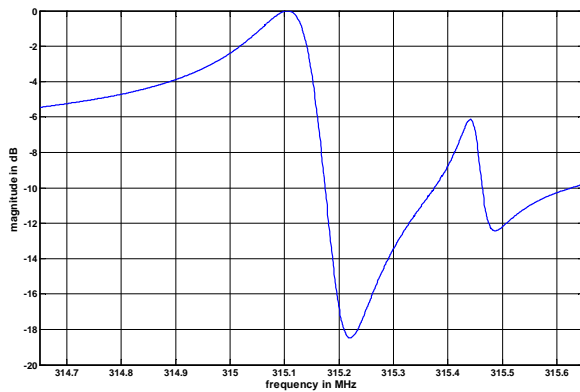
***) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T_0 - T)^2 \times f_{CAT}(\text{MHz})$.

Generated:**Checked / Approved:**

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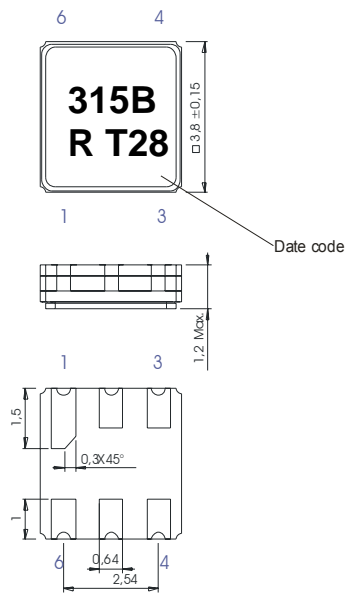
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Resonator characteristic



Construction and pin connection

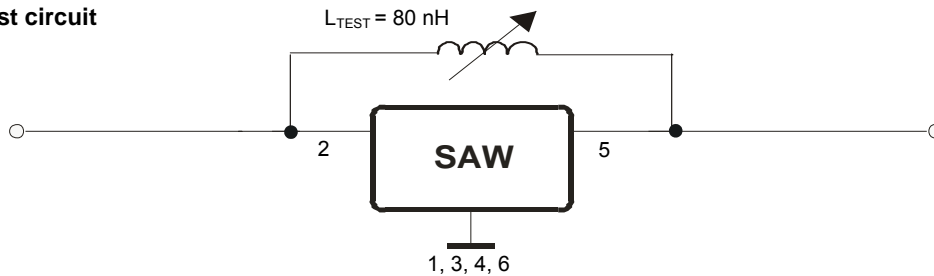
(All dimensions in mm)



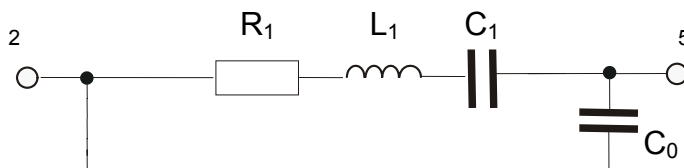
- 1 Ground
- 2 Input
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground

Date code: Year + week
 T 2005
 U 2006
 V 2007
 ...

50 Ohm Test circuit



Equivalent Circuit



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Stability characteristics

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;

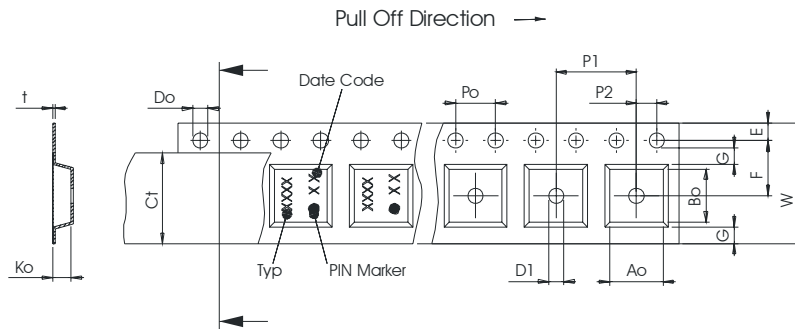
Packing

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

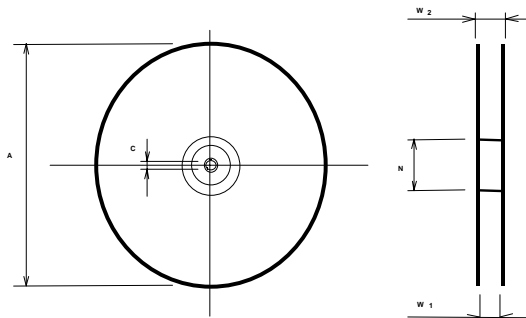
Tape (all dimensions in mm)

- W : 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.

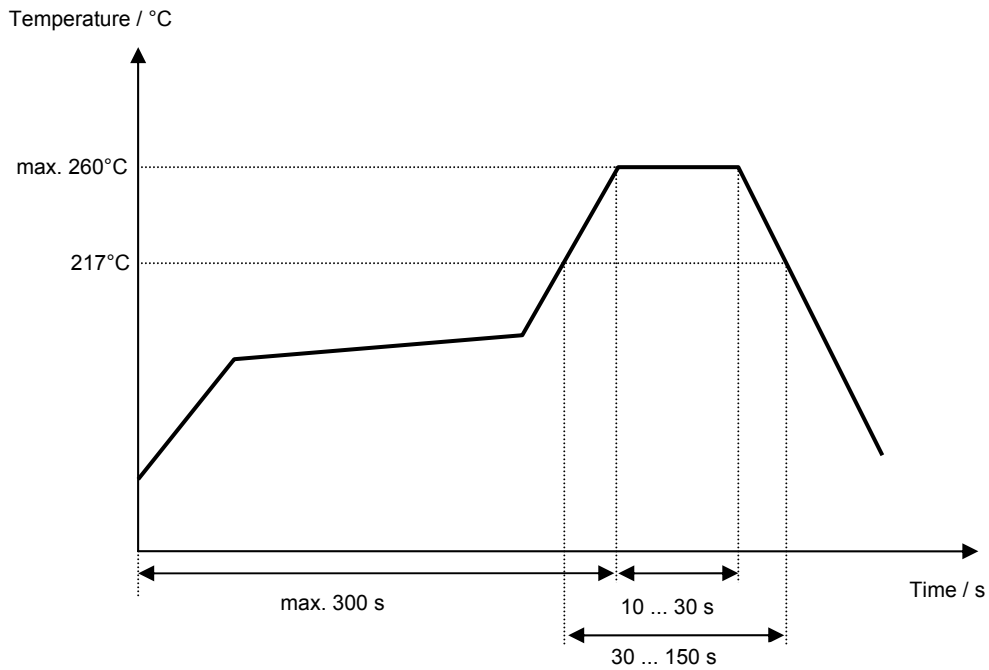
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Air reflow temperature conditions

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 315B****5/5**

History

Version	Reason of Changes	Name	Date
1.0	- generation of development specification	Steiner	05.09.2005
1.1	- added resonator characteristic; generation of resonator specification	Martens	23.09.2005

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