

WIREWOUND TYPE COMMON MODE FILTER

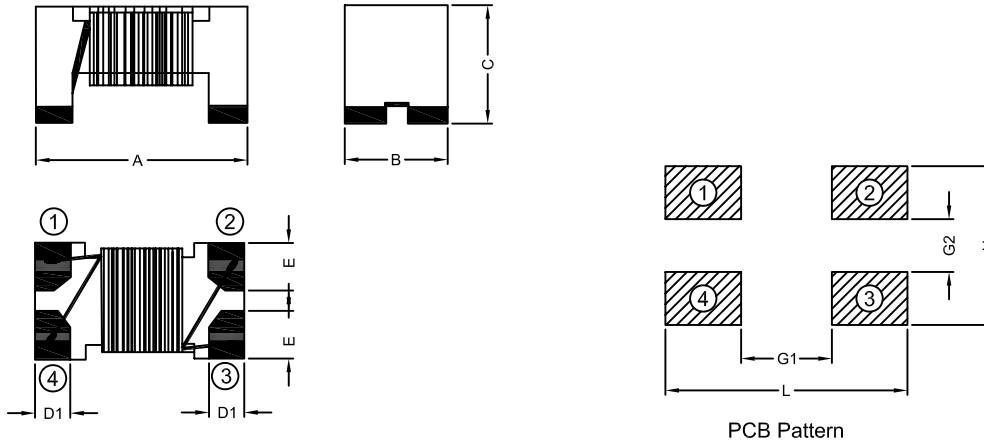
W3NL SERIES

1. PART NO. EXPRESSION :

W 3 N L 6 7 0 - R D - 1 0
 (a)(b) (c) (d) (e)(f) (g)

- (a) Series code
- (b) Dimension code
- (c) Material code
- (d) Impedance code : $670 = 67\Omega$
- (e) R : Tape & Reel
- (f) Current code : $D = 400\text{mA}$
- (g) 10 : RoHS Compliant

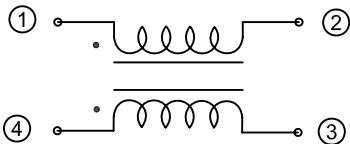
2. CONFIGURATION & DIMENSIONS :



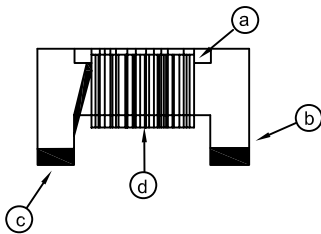
Unit:m/m

A	B	C	D1	E	G1	G2	H	L
2.0±0.2	1.2±0.2	1.0±0.1	0.47±0.05	0.48±0.05	1.10 Ref.	0.45 Ref.	1.25 Ref.	2.60 Ref.

3. SCHEMATIC :



4. MATERIALS :



- (a) Upper Plate
- (b) Core
- (c) Termination
- (d) Wire



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5. GENERAL SPECIFICATION :

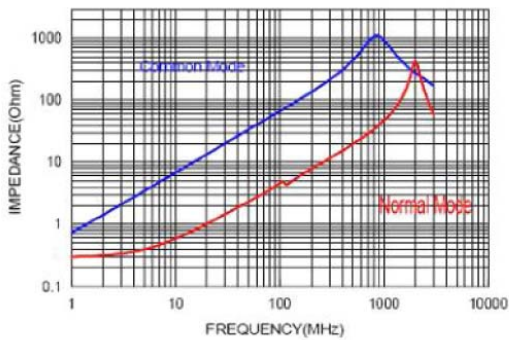
- a) Operating temp. : -40°C to +105°C
- b) Storage temp. : -40°C to +105°C

6. ELECTRICAL CHARACTERISTICS :

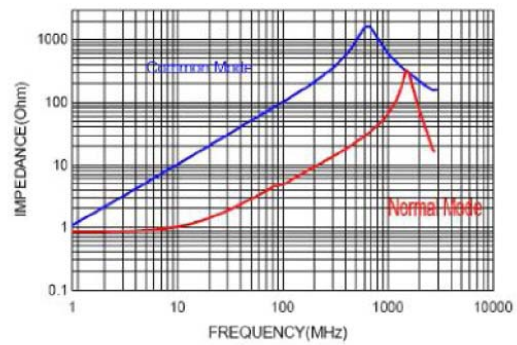
Part No.	Common mode Impedance (Ω)	Test Frequency (MHz)	DCR (Ω) Max.	Rated Current (mA) Max.	Rated Volt. (Vdc) Max.	Withstand Volt. (Vdc) Max.	IR (Ω) Min.
W3NL670-RD-10	67±25%	100	0.35	400	50	125	10M
W3NL900-RD-10	90±25%	100	0.35	400	50	125	10M
W3NL121-RC-10	120±25%	100	0.45	300	50	125	10M
W3NL181-RC-10	180±25%	100	0.50	300	50	125	10M

7. CHARACTERISTICS CURVES :

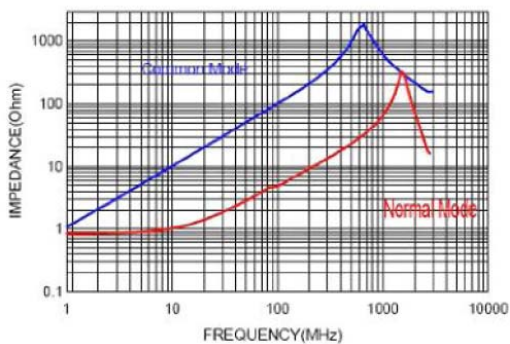
W3NL670-RD-10



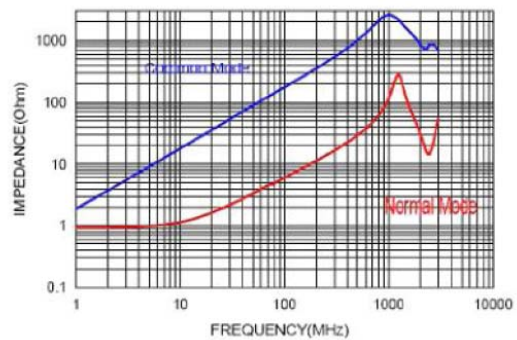
W3NL900-RD-10



W3NL121-RC-10



W3NL181-RC-10



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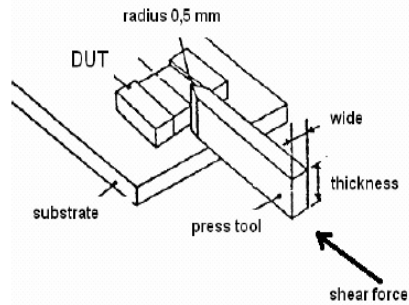


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8. RELIABILITY & TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION								
Electrical Characteristics Test										
Z (common mode)	Refer to standard electrical characteristics list	Agilent-4291A+ Agilent -16197A								
DCR		Agilent-4338B								
I.R.		Agilent4339								
Temperature Rise Test	Rated Current < 1A ΔT 20°CMax Rated Current \geq 1A ΔT 40°CMax	1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer.								
Mechanical Performance Test										
Solderability Test	More than 95% of terminal electrode should be covered with solder.	Preheat: 150°C,60sec. Solder: Sn99.5%-Cu0.5% Temperature: 245 \pm 5°C Flux for lead free: Rosin. 9.5% Dip time: 4 \pm 1sec Depth: completely cover the termination								
Solder Heat Resistance	Appearance: No damage. Impedance: within \pm 15% of initial value	<table border="1"> <thead> <tr> <th>Temperature (°C)</th> <th>Time (s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 \pm5 (solder temp)</td> <td>10 \pm1</td> <td>25mm/s\pm6 mm/s</td> <td>1</td> </tr> </tbody> </table> <p>Depth: completely cover the termination.</p>	Temperature (°C)	Time (s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 \pm 5 (solder temp)	10 \pm 1	25mm/s \pm 6 mm/s	1
Temperature (°C)	Time (s)	Temperature ramp/immersion and emersion rate	Number of heat cycles							
260 \pm 5 (solder temp)	10 \pm 1	25mm/s \pm 6 mm/s	1							
Terminal Strength	RDC: within \pm 15% of initial value and shall not exceed the specification value	<p>Preconditioning : Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) With the component mounted on a PCB with the device to be tested, apply a force (>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested.</p> 								



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8. RELIABILITY & TEST CONDITION :

ITEM	PERFORMANCE	TEST CONDITION												
Reliability Test														
Life Test	Appearance: No damage. Impedance: within±15% of initial value RDC: within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : 85±2°C Applied Current : rated current Duration : 1000±12hrs Measured at room temperature after placing for 24±2 hrs.												
Thermal Shock		Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) <table border="1" style="margin-top: 10px;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Times (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±2</td> <td>30±5</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>≅0.5</td> </tr> <tr> <td>3</td> <td>105±2</td> <td>30±5</td> </tr> </tbody> </table> Number of cycles: 500 Measured at room fempraturc after placing for 24±2 hrs	Step	Temperature (°C)	Times (min.)	1	-40±2	30±5	2	25±2	≅0.5	3	105±2	30±5
Step		Temperature (°C)	Times (min.)											
1		-40±2	30±5											
2		25±2	≅0.5											
3	105±2	30±5												
Humidity Resistance Test	Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : 85±2°C Humidity : 85±2% R.H Duration: 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs													
Vibration Test	Preconditioning: Run through IR reflow for 2 times. (IPC/JEDEC J-STD-020D Classification Reflow Profiles) Oscillation Frequency : 10~2K~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude : 1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).													



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9. SOLDERING AND MOUNTING :

9-1. Soldering

Mildly activated rosin fluxes are preferred. Our terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

9-1.1 Solder Re-flow :

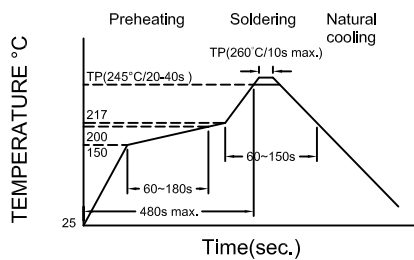
Recommended temperature profiles for re-flow soldering in Figure 1.

9-1.2 Soldering Iron (Figure 2) :

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

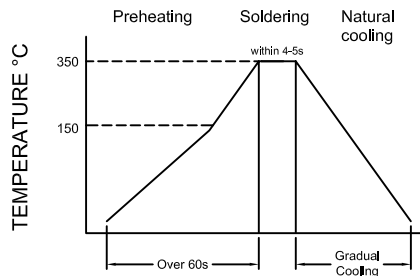
Note :

- a) Preheat circuit and products to 150°C
- b) 355°C tip temperature (max)
- c) Never contact the ceramic with the iron tip
- d) 1.0mm tip diameter (max)
- e) Use a 20 watt soldering iron with tip diameter of 1.0mm
- f) Limit soldering time to 4~5 sec.



Reflow times: 3 times Max.

Fig.1



Iron Soldering times: 1 times max.

Fig.2



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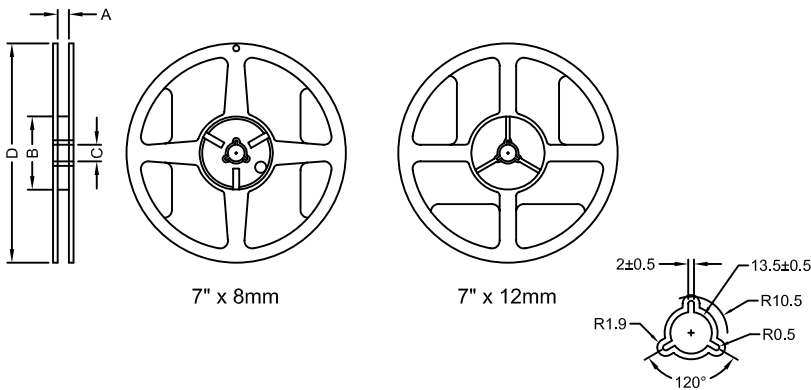
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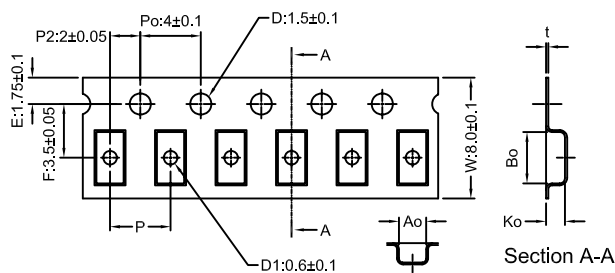
10. PACKAGING INFORMATION :

10-1. Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7" x 8mm	9.0±0.5	60.0±2.0	13.5±0.5	178.0±2.0

10-2 Tape Dimension / 8mm



Series	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
W3N	2.25±0.10	1.42±0.10	1.04±0.10	4.0±0.1	0.22±0.05

10-3. Packaing Quantity

Chip Size	W3N
Chip / Reel	4000
Inner Box	20000
Middle Box	100000
Carton	200000



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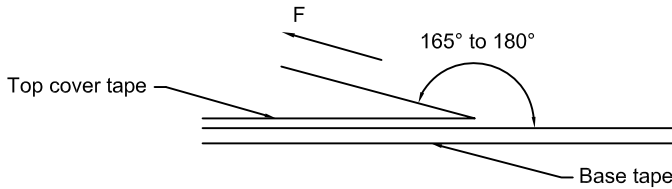
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10. PACKAGING INFORMATION :

10-4. Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

Room Temp. (°C)	Room Humidity (%)	Room atm (hPa)	Tearing Speed (mm/min)
5~35	45~85	860~1060	300

Application Notice

1. Storage Conditions :

To maintain the solderability of terminal electrodes :

- a) Temperature and humidity conditions: Less than 40°C and 60% RH.
- b) Recommended products should be used within 12 months from the time of delivery.
- c) The packaging material should be kept where no chlorine or sulfur exists in the air.

2. Transportation :

- a) Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
- b) The use of tweezers or vacuum pick up is strongly recommended for individual components.
- c) Bulk handling should ensure that abrasion and mechanical shock are minimized.



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