

## CDRH105RNP-150MT

Wire Wound SMD Power Inductor

### FEATURES

- High saturation current, low DCR
- Suitable for surface mounting equipment
- Close magnetic circuit design reduce leakage
- Operate temperature range ....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$  (Including self temp. rise)
- RoHS compliant

### APPLICATIONS

- Power supply choke for small electrical equipments such as DVC, LCD display, notebook, communication equipment, OA equipment and so on.

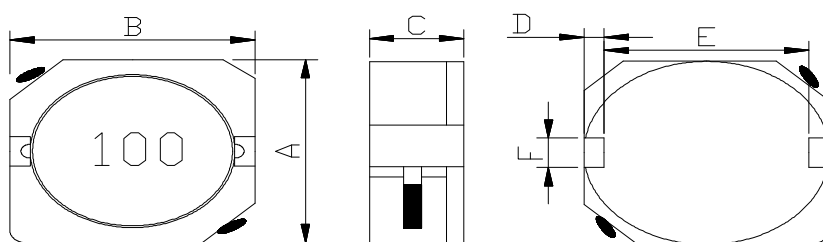
### Explanation of Part Number

CDRH105RNP -150 M T

1 2 3 4 5 6

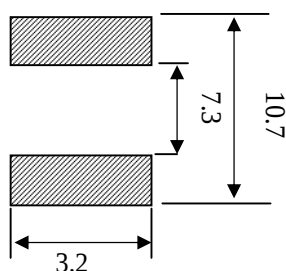
- ◆ 1:Product Series:Wire Wound SMD Power Inductor
- ◆ 2:Dimensions:
- ◆ 3: Material Code:
- ◆ 4: Initial inductance value: 150 = 15uH
- ◆ 5:Tolerance of Inductance:M: $\pm 20\%$
- ◆ 6:Packing:Tape Carrier Package

### Dimensions: [mm]



|    |           |    |
|----|-----------|----|
| A: | 10.0±0.5  | mm |
| B: | 10.1±0.5  | mm |
| C: | 5.10 Max. | mm |
| D: | 1.20 Typ. | mm |
| E: | 7.70 Typ. | mm |
| F: | 3.00 Typ. | mm |

### LAND PATTERN DIMENSIONS: [mm]



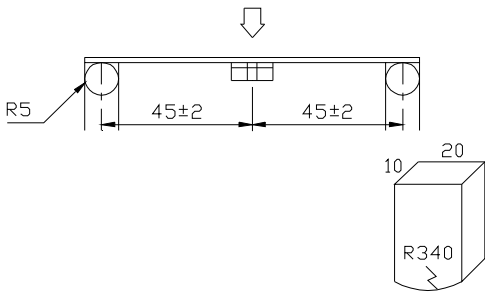
## Electrical Properties:

| MetalLions PT/NO. | Inductance<br>L( $\mu$ H) | Test Frequency | Resistance<br>RDC(m $\Omega$ ) Max. | Isat (A)Max | Marking |
|-------------------|---------------------------|----------------|-------------------------------------|-------------|---------|
| CDRH105RNP-150MT  | 15 $\pm$ 20%              | 100kHz/0.25V   | 41                                  | 3.4         | 150     |

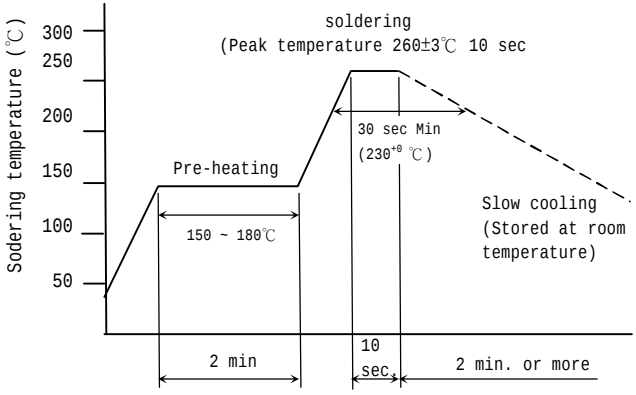
※ Isat : Based on inductance change ( $\Delta$ L/Lo : drop 35% Max)

## Reliability and Test Condition

### MECHANICAL

| TEST ITEM         | SPECIFICATION                                                                                | TEST DETAILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Substrate bending | $\Delta L/L_0 \leq \pm 5\%$<br><br>There shall be no mechanical damage or electrical damage. | <p>The sample shall be soldered onto the printed circuit board in figure 1 and a load applied until the figure in the arrow direction is made approximately 3mm.(keep time 30 seconds)</p> <p>PCB dimension shall the page 7/9</p> <p>F(Pressurization)</p>  <p>PRESSURE ROD<br/>figure-1</p>                                                                                              |
| Vibration         | $\Delta L/L_0 \leq \pm 5\%$<br><br>There shall be no mechanical damage.                      | <p>The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated should be applied to the 3 directions (X,Y,Z) for 2 hours each. (A total of 6 hours)</p>                                                                                                                                                                                                              |
| Solderability     | New solder<br>More than 90%                                                                  | <p>Flux (rosin, isopropyl alcohol{JIS-K-1522}) shall be coated over the whole of the sample before hard, the sample shall then be preheated for about 2 minutes in a temperature of 130~150℃ and after it has been immersed to a depth 0.5mm below for 3±0.2 seconds fully in molten solder M705 with a temperature of 245±5℃.</p> <p>More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath.</p> |

## MECHANICAL

| TEST ITEM                                       | SPECIFICATION                         |                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resistance to Soldering heat (reflow soldering) | There shall be no damage or problems. | <p><b>Temperature profile of reflow soldering</b></p>  <p>The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time.</p> <p>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</p> |

## ELECTRICAL

| TEST ITEM                    | SPECIFICATION                                                                          | TEST DETAILS                                                                                                                                                                                                                                                                                                           |
|------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulation resistance        | There shall be no other damage or problems.                                            | <p>DC 100V voltage shall be applied across this sample of top surface and the terminal.</p> <p>The insulation resistance shall be more than <math>1 \times 10^8 \Omega</math>.</p>                                                                                                                                     |
| Dielectric withstand voltage | There shall be no other damage or problems.                                            | <p>AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample</p>                                                                                                                                                                                                            |
| Temperature characteristics  | $\Delta L/L20^\circ\text{C} \leq \pm 10\%$<br>$0 \sim 2000 \text{ ppm}/^\circ\text{C}$ | <p>The test shall be performed after the sample has stabilized in an ambient temperature of <math>-20</math> to <math>+85^\circ\text{C}</math>, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be <math>\Delta L/L20^\circ\text{C} \leq \pm 10\%</math>.</p> |

## ENVIROMENT CHARACTERISTICS

| TEST ITEM                                                                                                  | SPECIFICATION                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|----------|---|------------------------------------------------|---------|---|----------------------|-----------|---|-----------------------------------------------|---------|---|----------------------|-----------|
| High temperature storage                                                                                   | $\Delta L/L_o \leq \pm 5\%$<br><br>There shall be no mechanical damage.       | The sample shall be left for $96 \pm 4$ hours in an atmosphere with a temperature of $85 \pm 2^\circ\text{C}$ and a normal humidity.<br><br>Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| Low temperature storage                                                                                    | $\Delta L/L_o \leq \pm 5\%$<br><br>There shall be no mechanical damage.       | The sample shall be left for $96 \pm 4$ hours in an atmosphere with a temperature of $-25 \pm 3^\circ\text{C}$ .<br><br>Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| Change of temperature                                                                                      | $\Delta L/L_o \leq \pm 5\%$<br><br>There shall be no other damage of problems | The sample shall be subject to 5 continuous cycles, such as shown in the table 2 below and then it shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. <div> <table border="1"> <caption>table 2</caption> <thead> <tr> <th></th><th>Temperature</th><th>Duration</th></tr> </thead> <tbody> <tr> <td>1</td><td><math>-25 \pm 3^\circ\text{C}</math><br/>(Thermostat No.1)</td><td>30 min.</td></tr> <tr> <td>2</td><td>Standard atmospheric</td><td>No.1→No.2</td></tr> <tr> <td>3</td><td><math>85 \pm 2^\circ\text{C}</math><br/>(Thermostat No.2)</td><td>30 min.</td></tr> <tr> <td>4</td><td>Standard atmospheric</td><td>No.2→No.1</td></tr> </tbody> </table> </div> |  | Temperature | Duration | 1 | $-25 \pm 3^\circ\text{C}$<br>(Thermostat No.1) | 30 min. | 2 | Standard atmospheric | No.1→No.2 | 3 | $85 \pm 2^\circ\text{C}$<br>(Thermostat No.2) | 30 min. | 4 | Standard atmospheric | No.2→No.1 |
|                                                                                                            | Temperature                                                                   | Duration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| 1                                                                                                          | $-25 \pm 3^\circ\text{C}$<br>(Thermostat No.1)                                | 30 min.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| 2                                                                                                          | Standard atmospheric                                                          | No.1→No.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| 3                                                                                                          | $85 \pm 2^\circ\text{C}$<br>(Thermostat No.2)                                 | 30 min.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| 4                                                                                                          | Standard atmospheric                                                          | No.2→No.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| Moisture storage                                                                                           | $\Delta L/L_o \leq \pm 5\%$<br><br>There shall be no mechanical damage.       | The sample shall be left for $96 \pm 4$ hours in a temperature of $40 \pm 2^\circ\text{C}$ and a humidity(RH) of 90~95%.<br><br>Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour.                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |
| Test conditions :<br><br>The sample shall be reflow soldered onto the printed circuit board in every test. |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |             |          |   |                                                |         |   |                      |           |   |                                               |         |   |                      |           |

