

### NR4018 Series

#### FEATURES

- Magnetically shielded structure that ensures the high-density mounting configurations.
- Closed magnetic circuit design reduces leakage 4. Small and low profile inductor.tal material for large current and low loss.
- Provided in embossed carrier tape packaging for use with automatic mounting machines.
- 30% higher current rating than conventional inductors of equal size.

#### APPLICATIONS

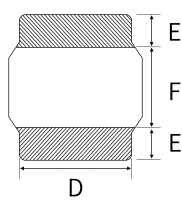
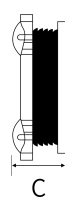
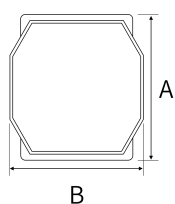
- Smart phone.
- Smart TV
- LED lighting
- Flat-screen TVs, blue-ray disc recorders,set top boxes.
- Notebooks, desktop computers, servers,graphic cards.

#### PRODUCT IDENTIFICATION

|    |      |     |   |
|----|------|-----|---|
| NR | 4018 | 1R0 | M |
| 1  | 2    | 3   | 4 |

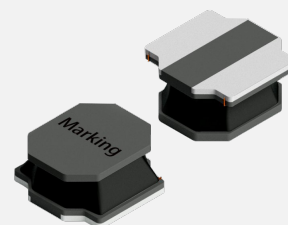
1. Series Name : Wire Wound SMD Power Inductor
2. Size Code : Dimensions (unit:mm)
3. Nominal Inductance Value : R33=0.33μH, 1R0=1.0μH, 100=10μH
4. Inductance Tolerance : N=±30%, M=±20%, K=±10%

#### DIMENSIONS



Using Ink for marking

| Series | A        | B        | C(MAX) | D    | E    | F    |
|--------|----------|----------|--------|------|------|------|
| NR4018 | 4.00±0.2 | 4.00±0.2 | 1.80   | 3.40 | 1.40 | 1.80 |



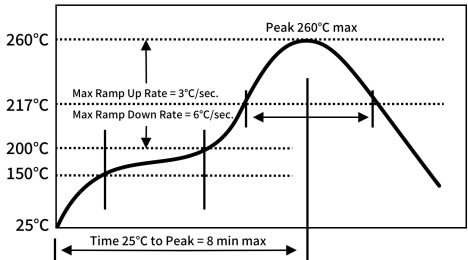
## APPLICATIONS

| Part NO.        | Inductance<br>L0 (μH) | Test Condition | Tolerance<br>(%) | DCR (mΩ)<br>Max. | DCR (mΩ)<br>Typ. | Isat (A)<br>ΔL/L0≤30% | Irms (A)<br>ΔT≤40°C |
|-----------------|-----------------------|----------------|------------------|------------------|------------------|-----------------------|---------------------|
| ▪ NR4018 Series |                       |                |                  |                  |                  |                       |                     |
| NR4018-R56N     | 0.56                  | 100kHz/0.25V   | ±30              | 24.0             | 16.0             | 5.00                  | 4.80                |
| NR4018-1R0M     | 1.00                  | 100kHz/0.25V   | ±20              | 32.0             | 25.0             | 4.50                  | 3.50                |
| NR4018-1R2M     | 1.20                  | 100kHz/0.25V   | ±20              | 45.0             | 35.0             | 4.00                  | 3.00                |
| NR4018-1R5M     | 1.50                  | 100kHz/0.25V   | ±20              | 50.0             | 40.0             | 3.35                  | 3.35                |
| NR4018-2R2M     | 2.20                  | 100kHz/0.25V   | ±20              | 58.0             | 47.0             | 3.00                  | 2.60                |
| NR4018-3R3M     | 3.30                  | 100kHz/0.25V   | ±20              | 84.0             | 70.0             | 2.15                  | 2.00                |
| NR4018-4R7M     | 4.70                  | 100kHz/0.25V   | ±20              | 115.0            | 88.0             | 2.00                  | 1.80                |
| NR4018-5R6M     | 5.60                  | 100kHz/0.25V   | ±20              | 125.0            | 100.0            | 1.70                  | 1.65                |
| NR4018-6R8M     | 6.80                  | 100kHz/0.25V   | ±20              | 135.0            | 110.0            | 1.60                  | 1.50                |
| NR4018-100M     | 10.0                  | 100kHz/0.25V   | ±20              | 220.0            | 170.0            | 1.40                  | 1.30                |
| NR4018-150M     | 15.0                  | 100kHz/0.25V   | ±20              | 325.0            | 270.0            | 0.95                  | 0.90                |
| NR4018-220M     | 22.0                  | 100kHz/0.25V   | ±20              | 450.0            | 365.0            | 0.80                  | 0.75                |
| NR4018-330M     | 33.0                  | 100kHz/0.25V   | ±20              | 680.0            | 550.0            | 0.75                  | 0.70                |
| NR4018-470M     | 47.0                  | 100kHz/0.25V   | ±20              | 845.0            | 780.0            | 0.65                  | 0.55                |
| NR4018-680M     | 68.0                  | 100kHz/0.25V   | ±20              | 1300             | 1000             | 0.52                  | 0.50                |
| NR4018-101M     | 100                   | 100kHz/0.25V   | ±20              | 1900             | 1500             | 0.42                  | 0.40                |
| NR4018-151M     | 150                   | 100kHz/0.25V   | ±20              | 3000             | 2300             | 0.36                  | 0.34                |
| NR4018-221M     | 220                   | 100kHz/0.25V   | ±20              | 4800             | 4200             | 0.30                  | 0.25                |

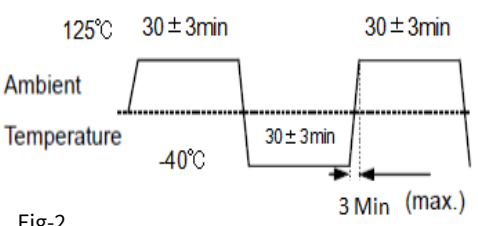
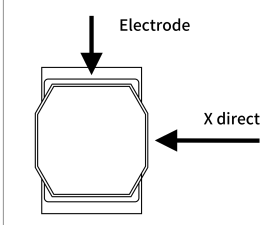
### Notes

1. All test data is referenced to 25 °C ambient .
2. Isat: DC current (A) that will cause L0 to drop approximately 30% TYP .
3. Irms: DC current (A) that will cause an temperature rise ΔT approximate to 40°C .
4. Operating temperature range - 40 °C to + 125 °C(Including self - temperature rise) .
5. Storage temperature and humidity range (product with tapping):-10°C~+40°C,RH70% Max

### RELIABILITY TEST

| TEST ITEM                    | REQUIREMENTS                                                                                                                            | TEST METHODS AND REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resistance to Soldering Heat | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 5\%</math></li> </ol>  | <ol style="list-style-type: none"> <li>Solder on PCB to Reflow test Peak Temp. <math>260 \pm 5^\circ\text{C}</math> 5 ~ 10 secs ,Cycles :2 times..Re-flowing Profile: Please refer to Fig-1</li> <li>Test board thickness: 1.5mm</li> <li>Test board material: glass epoxy resin</li> <li>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.product showed no damage under microscope.(for microscope of Shun Yu SZM-45 20X)</li> </ol>  <p>Fig-1</p> |
| High Temperature             | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 10\%</math></li> </ol> | <ol style="list-style-type: none"> <li>Temperature: <math>125 \pm 2^\circ\text{C}</math></li> <li>Duration: 1000 hours</li> <li>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</li> </ol>                                                                                                                                                                                                                                                                                                                                           |
| Steady damp-heat             | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 10\%</math></li> </ol> | <ol style="list-style-type: none"> <li>Temperature: <math>85^\circ\text{C}</math></li> <li>Humidity: 85% RH</li> <li>Duration: 1000 hours</li> <li>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</li> </ol>                                                                                                                                                                                                                                                                                                                        |
| Mechanical Vibration         | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 10\%</math></li> </ol> | <ol style="list-style-type: none"> <li>Frequency: 10HZ~55HZ~10HZ/Min Cycles</li> <li>Amplitude: 1.5 mm</li> <li>Directions: X,Y,Z</li> <li>Time: 2 hours in each directions (total of 6 hours)</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                   |

### RELIABILITY TEST

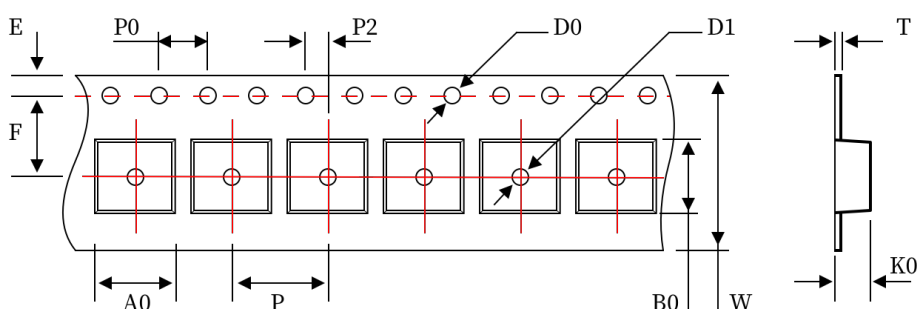
| TEST ITEM         | REQUIREMENTS                                                                                                                            | TEST METHODS AND REMARKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Thermal Shock     | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 10\%</math></li> </ol> | <ol style="list-style-type: none"> <li>Temperature and time: -40°C for <math>30 \pm 3</math> min → 125°C for <math>30 \pm 3</math> min, please refer to Fig-2</li> <li>Transforming interval: Max. 3 Min</li> <li>Tested cycle: 1000 cycles</li> <li>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</li> </ol>  <p>Fig-2</p>                    |
| Salt Spray        | <ol style="list-style-type: none"> <li>No visible mechanical damage</li> <li>Inductance change: Within <math>\pm 10\%</math></li> </ol> | <ol style="list-style-type: none"> <li>Salt concentration: <math>(5 \pm 1)\%</math> (mass percent)</li> <li>pH value: 6.5 - 7.2</li> <li>Temperature: <math>35 \pm 2</math> °C</li> <li>humidity: 85%</li> <li>time: 24 hours</li> <li>in normal temperature and humidity for 1 ~ 2 hours, testing inductance, the inductance value change can not be more than before test <math>\pm 10\%</math>.</li> </ol>                                                                                             |
| Terminal Strength | <ol style="list-style-type: none"> <li>The peak thrust is greater than 10N</li> </ol>                                                   | <ol style="list-style-type: none"> <li>The electrode of the inductor is soldered to the PCB, to Fig-3 Then apply a force in the X direction of the arrow.</li> <li>10N force.</li> <li>Keep time: <math>10(\pm 1)</math>s</li> <li>The first three tests were OK, and the force was applied until the peak value of the product peeling. The test speed was set in the range of 3 ~ 8mm/min.</li> </ol>  <p>Fig-3</p> |

### PACKAGING INFORMATION

#### REEL DIMENSION (mm)



#### TAPING DIMENSIONS (mm)



| Type   | Tape dimensions (mm) |             |             |             |             |             |               |              |              |              |              |              |
|--------|----------------------|-------------|-------------|-------------|-------------|-------------|---------------|--------------|--------------|--------------|--------------|--------------|
| Series | W                    | P           | P0          | P2          | D0          | D1          | T             | A0           | B0           | K0           | E            | F            |
| NR4018 | 12<br>±0.3           | 8.0<br>±0.1 | 4.0<br>±0.1 | 2.0<br>±0.1 | 1.5<br>±0.1 | 1.5<br>±0.1 | 0.30<br>±0.05 | 4.30<br>±0.1 | 4.30<br>±0.1 | 2.25<br>±0.1 | 1.75<br>±0.1 | 5.50<br>±0.1 |

#### PACKAGING QUANTITY (Standard)

| Type   | Reel            | Inner Box                | Carton Box                 |
|--------|-----------------|--------------------------|----------------------------|
| NR4018 | 3000 pcs / Reel | 4 Reel / Box (12000 pcs) | 4 Middle boxes (48000 pcs) |

#### PEEL FORCE OF TOP COVER TAPE

The peel speed shall be about 300mm/minute

The peel force of top cover tape shall be between 0.1 to 1.3 N

