

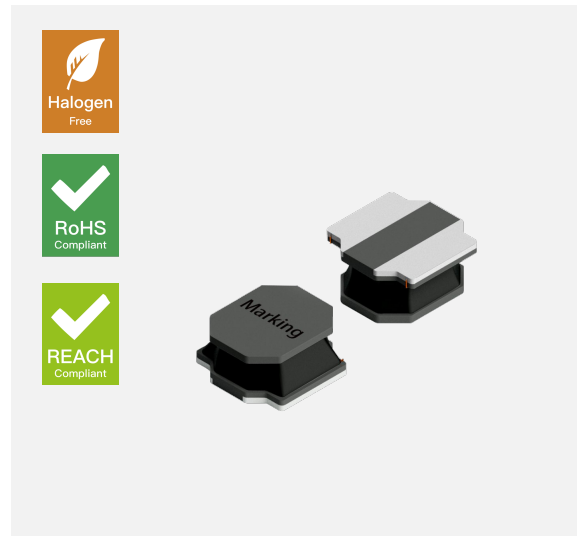
NR4012 Series

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.

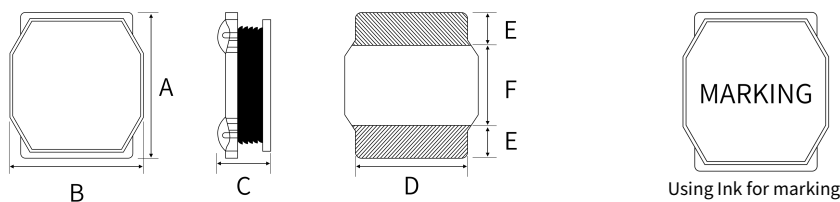


PRODUCT IDENTIFICATION

NR	4012	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



Series	A	B	C(MAX)	D	E	F
NR4012	4.00±0.20	4.00±0.20	1.35	3.50	1.25	1.50

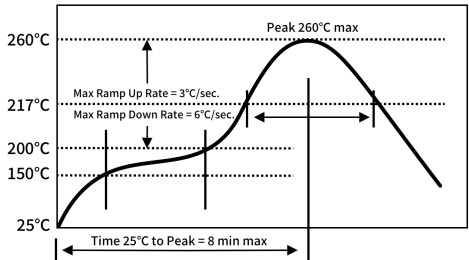
APPLICATIONS

Part NO.	Inductance L0 (μH)	Test Condition	Tolerance (%)	DCR (mΩ) Max.	Isat (A)
▪ NR4012 Series					
NR4012-1R0N	1.00	100kHz/0.25V	±30	65.0	2.61
NR4012-1R5N	1.50	100kHz/0.25V	±30	85.0	2.20
NR4012-2R2N	2.20	100kHz/0.25V	±30	104	1.76
NR4012-3R3M	3.30	100kHz/0.25V	±20	147	1.25
NR4012-4R7M	4.70	100kHz/0.25V	±20	163	1.50
NR4012-6R8M	6.80	100kHz/0.25V	±20	260	0.95
NR4012-100M	10.0	100kHz/0.25V	±20	345	0.80
NR4012-150M	15.0	100kHz/0.25V	±20	442	0.56
NR4012-220M	22.0	100kHz/0.25V	±20	611	0.54
NR4012-330M	33.0	100kHz/0.25V	±20	1053	0.42
NR4012-470M	47.0	100kHz/0.25V	±20	1430	0.35
NR4012-680M	68.0	100kHz/0.25V	±20	1950	0.30

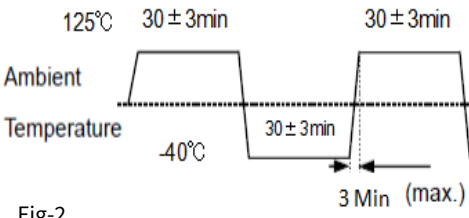
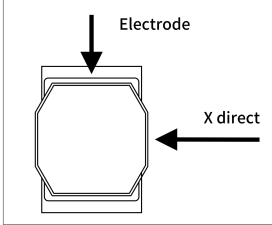
Notes

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

RELIABILITY TEST

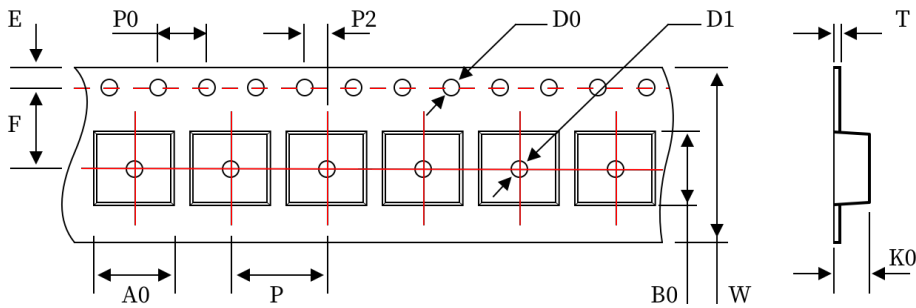
TEST ITEM	REQUIREMENTS	TEST METHODS AND REMARKS
Thermal Shock	<ol style="list-style-type: none"> No visible mechanical damage Inductance change: Within $\pm 10\%$ 	<ol style="list-style-type: none"> Temperature and time: -40°C for 30 ± 3 min → 125°C for 30 ± 3 min, please refer to Fig-2 Transforming interval: Max. 3 Min Tested cycle: 1000 cycles The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.  <p>Fig-2</p>
Salt Spray	<ol style="list-style-type: none"> No visible mechanical damage Inductance change: Within $\pm 10\%$ 	<ol style="list-style-type: none"> Salt concentration: $(5 \pm 1)\%$ (mass percent) pH value: 6.5 - 7.2 Temperature: 35 ± 2 °C humidity: 85% time: 24 hours in normal temperature and humidity for 1 ~ 2 hours, testing inductance, the inductance value change can not be more than before test $\pm 10\%$.
Terminal Strength	<ol style="list-style-type: none"> The peak thrust is greater than 10N 	<ol style="list-style-type: none"> The electrode of the inductor is soldered to the PCB, to Fig-3 Then apply a force in the X direction of the arrow. 10N force. Keep time: $10(\pm 1)$s 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.  <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
NR4012	12 ±0.3	8.0 ±0.1	4.0 ±0.1	2.0 ±0.1	1.5 ±0.1	1.5 ±0.1	0.30 ±0.05	4.25 ±0.1	4.25 ±0.1	1.40 ±0.1	1.75 ±0.1	5.50 ±0.1

PACKAGING QUANTITY (Standard)

Type	Reel	Inner Box	Carton Box
NR4012	4,500 pcs / Reel	4 Reel / Box (18,000 pcs)	4 Middle boxes (72,000 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

