

NR4020 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

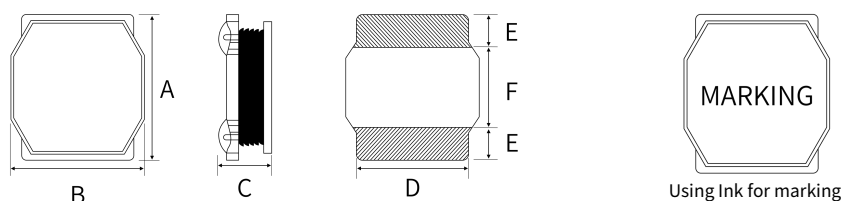
- Smart phone.
- Smart TV
- LED lighting
- Flat-screen TVs, blue-ray disc recorders, set top boxes.
- Notebooks, desktop computers, servers, graphic cards.

PRODUCT IDENTIFICATION

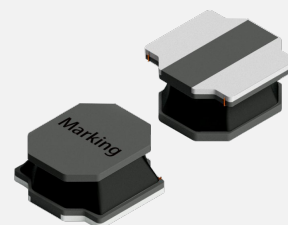
NR	4020	1R0	M
1	2	3	4

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
NR4020	4.00±0.20	4.00±0.20	2.10	3.50	1.20	1.60



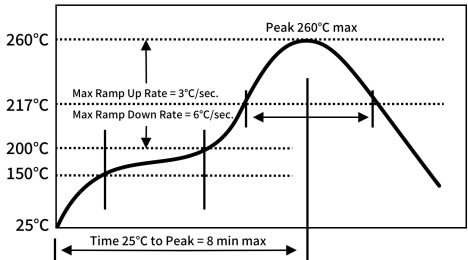
APPLICATIONS

Part NO.	Inductance L0 (μH)	Test Condition	Tolerance (%)	DCR (mΩ) Max.	Isat (A) $\Delta L/L0 \leq 30\%$
▪ NR4020 Series					
NR4020-1R0N	1.00	100kHz/0.25V	±30	41.8	4.78
NR4020-1R5M	1.50	100kHz/0.25V	±20	50.6	4.45
NR4020-2R2M	2.20	100kHz/0.25V	±20	54.6	3.40
NR4020-3R3M	3.30	100kHz/0.25V	±20	95.8	3.20
NR4020-4R7M	4.70	100kHz/0.25V	±20	102.9	2.35
NR4020-6R8M	6.80	100kHz/0.25V	±20	171.2	2.15
NR4020-100M	10.0	100kHz/0.25V	±20	225	1.60
NR4020-150M	15.0	100kHz/0.25V	±20	314	1.35
NR4020-220M	22.0	100kHz/0.25V	±20	477	1.05
NR4020-330M	33.0	100kHz/0.25V	±20	750	0.85
NR4020-470M	47.0	100kHz/0.25V	±20	969	0.74
NR4020-680M	68.0	100kHz/0.25V	±20	1449	0.61
NR4020-820M	82.0	100kHz/0.25V	±20	1596	0.50
NR4020-101M	100	100kHz/0.25V	±20	2210	0.46

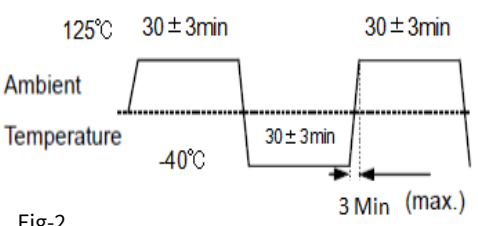
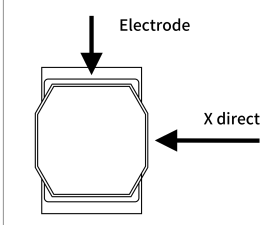
Notes

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

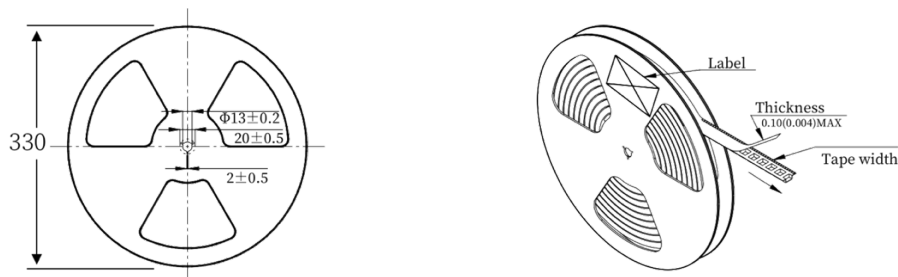
TEST ITEM	REQUIREMENTS	TEST METHODS AND REMARKS
Resistance to Soldering Heat	- No visible mechanical damage - Inductance change: Within $\pm 5\%$	- Solder on PCB to Reflow test Peak Temp. $260 \pm 5^\circ\text{C}$ 5 ~ 10 secs ,Cycles :2 times..Re-flowing Profile: Please refer to Fig-1 - Test board thickness: 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)  Fig-1
High Temperature	- No visible mechanical damage - Inductance change: Within $\pm 10\%$	- 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	- No visible mechanical damage - Inductance change: Within $\pm 10\%$	- 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	- No visible mechanical damage - Inductance change: Within $\pm 10\%$	- 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

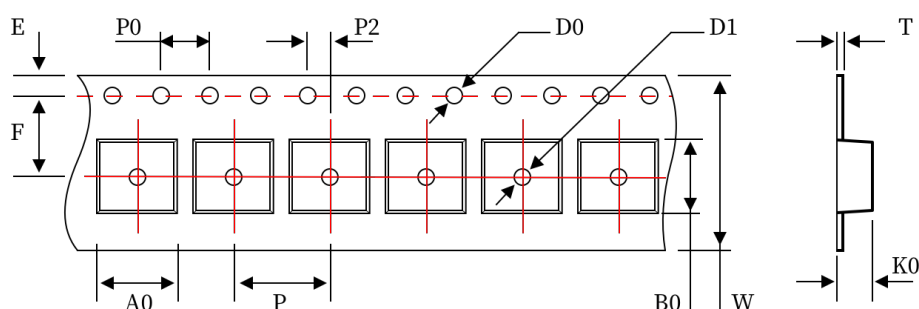
TEST ITEM	REQUIREMENTS	TEST METHODS AND REMARKS
Thermal Shock	- No visible mechanical damage - Inductance change: Within $\pm 10\%$	- Temperature and time: -40°C for 30 ± 3 min → 125°C for 30 ± 3 min, please refer to Fig-2 - Transforming interval: Max. 3 Min - Tested cycle: 1000 cycles - The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.  Fig-2
Salt Spray	- No visible mechanical damage - Inductance change: Within $\pm 10\%$	- 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	The peak thrust is greater than 10N	- 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.  Fig-3

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
NR4020	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	4.30 ± 0.1	4.30 ± 0.1	2.25 ± 0.1	1.75 ± 0.1	5.50 ± 0.1

PACKAGING QUANTITY (Standard)

Type	Reel	Inner Box	Carton Box
NR4020	3,000 pcs / Reel	4 Reel / Box (12,000 pcs)	4 Middle boxes (48,000 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

