TO：	文 件 编 号	HXA-L26-29(01)
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承 认 规 格 书

种　　类：功　率　电　感

系 列 号：HXNR6020N-Series

客户料号：

客 户 承 认 栏	
承 认 日 期	年　　月　　日

（贵司承认后请签署一份返回华信安电子,谢谢!）

厦门华信安电子科技有限公司技术质量部

承　认	确　认	作　成
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Power Inductor

HXNR6020N-SERIES

ECN HISTORY LIST

REV	DATE	DESCRIPTION	APPROVED	CHECKED	DRAWN
1.0	16/07/05	新 發 行	龙梅	梁峰	王亮
備註					

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Power Inductor

HXNR6020N-SERIES

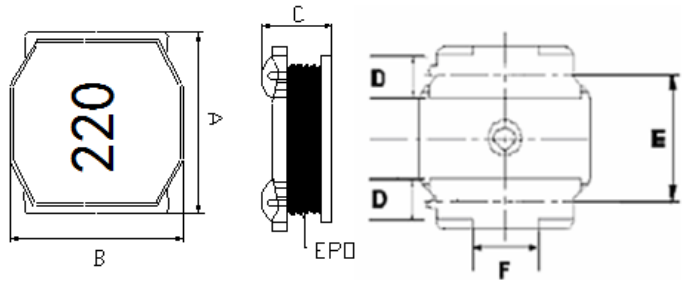
1. Features

1. This specification applies Low Profile Power Inductors.
2. 100% Lead(Pb) & Halogen-Free and RoHS compliant.

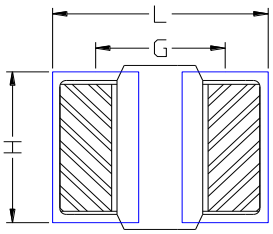
Halogen-free

Pb-free

2. Dimension



Recommendend Land pattern



Series	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)
HXNR6020N	6.0±0.2	6.0±0.2	2.0 max	1.35±0.2	4.6±0.3	4.0±0.2

L(mm)	G(mm)	H(mm)
6.3	4.7	5.7

3. Part Numbering

HXNR	6020	N	-	1R0	Y
A	B	C		D	E

A: Series
B: Dimension
C: Control S/N
D: Inductance 1R0=1.0uH
E: Inductance Tolerance M=±20%；Y=±30%

4. Specification

ISND Part Number	Inductance (uH)	Tolerance (%)	Test Frequency (Hz)	SRF (MHz) min.	DCR (Ω) ±20%	I sat (A)	I rms (A)
HXNR6020N-1R0Y	1.0	±30%	1V100K	110	0.020	5.20	3.80
HXNR6020N-1R5Y	1.5	±30%	1V100K	93	0.026	4.30	3.60
HXNR6020N-2R2Y	2.2	±30%	1V100K	73	0.034	3.20	2.90
HXNR6020N-3R3Y	3.3	±30%	1V100K	55	0.040	2.80	2.75
HXNR6020N-4R7M	4.7	±20%	1V100K	43	0.058	2.40	2.15
HXNR6020N-6R8M	6.8	±20%	1V100K	30	0.085	2.00	1.80
HXNR6020N-100M	10	±20%	1V100K	18	0.125	1.90	1.60
HXNR6020N-150M	15	±20%	1V100K	16	0.160	1.60	1.30
HXNR6020N-220M	22	±20%	1V100K	11	0.290	1.25	0.95
HXNR6020N-330M	33	±20%	1V100K	10	0.340	1.00	0.80
HXNR6020N-470M	47	±20%	1V100K	9	0.400	0.85	0.72

Note:

Isat：Based on inductance change （△L/L0：≦-30%）@ ambient temp. 25℃

Irms：Based on temperature rise （△T：40℃ typ.）

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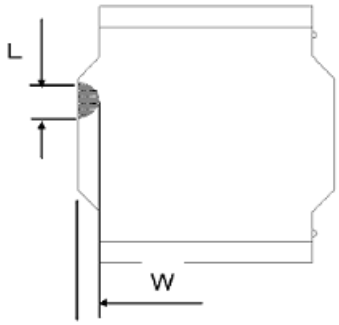
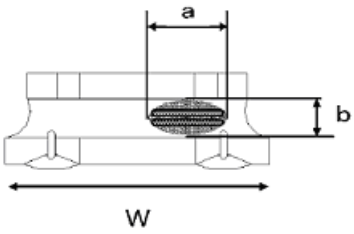
Core chipping



Type	L	W
HXNR6020N	1.5mm Max.	1.5mm Max.

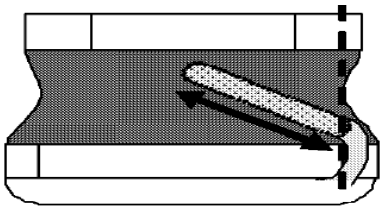
Void appearance tolerance Limit

The appearance standard of the chipping size in top side, of bottom side ferrite core is following dimension. Size of voids occurring to coating resin is specified below.



External appearance criterion for exposed wire

Exposed end of the winding wire at the secondary side should be 3mm and below.

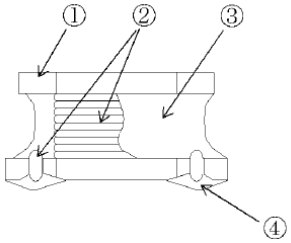


Exposed wire tolerance limit of coating resin part on product side.

Size of exposed wire occurring to coating resin is specified below.

1. Width direction（dimension a）: Acceptable when a≦w/2
   Nonconforming when a＞w/2
2. Length direction（dimension b）: Dimension b is not specified.
3. When total area of exposed wire occurring to each sides is not greater than 50% of coating resin area, that is acceptable.

5. Material List



No.	Item	Material
1	Core	Ni-Zn ferrite
2	Wire	Copper Wire
3	Coating	Epoxy
4	Solder	Lead free

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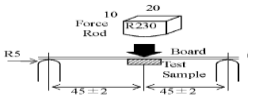
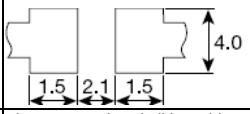
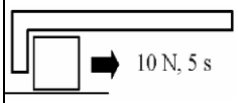
6. Reliability and Test Condition

Item	Performance	Test Method and Remarks
Operating Temperature	- 25 ~ +125℃.	Including self-generated heat
Storage Temperature	-40 ~ +85℃. - 5 to 40℃ for the product with taping.	
Rated current	Within the specified tolerance	
Inductance (L)		LCR Meter: HP 4285A or equivalent, 100kHz, 1V
DC Resistance		DC Ohmmeter: HIOKI3227 or equivalent
Temperature characteristics	Inductance change：Within±20%	Measurement of inductance shall be taken at temperature rang within–25℃ to +85℃. With reference to inductance value at+20 ℃,change rate shall be calculated. Measurement of inductance shall be taken at temperature rang within–40℃ to +125℃. With reference to inductance value at+20 ℃,change rate shall be calculated.
Resistance to flexure substrate	No damage.	The test samples shall be soldered to the testing board by the reflow. As illustrated below, apply force in the direction of the arrow indicating until deflection of the test board reaches to 2mm.  Substrate size：100x40x1.0 Substrate material：glass epoxy-resin Solder cream thickness：0.15 
Adhesion of Terminal electrode	Shall not come off PC board.	The test samples shall be soldered to the testing board and by the reflow.  Applied force：10 N to X and Y directions. Duration：5s Solder cream thickness：0.15
Resistance to Vibration	Inductance change：Within±10% No abnormality observed in appearance.	The test samples shall be soldered to the test board by the reflow. Then it shall be submitted to below test conditions. Frequency: 10-55Hz Total Amplitude: 1.5mm (May not exceed acceleration 196m/S2) Sweeping Method:10Hz to 55Hz to 10Hz for 1min. Time：2 hours each in X,Y, and Z Direction. Recovery: At least 2hrs of recovery under the standard condition after the test, followed by the measurement within 48hrs.
Solderability	At least 90% of surface of terminal electrode is covered by new solder.	The test samples shall be dipped in flux, and then immersed in molten solder as shown in below. Flux：methanol solution containing rosin 25% Solder temperature: 245±5℃ Time: 5±1.0 sec. Immersion depth: All sides of mounting terminal shall be immersed.

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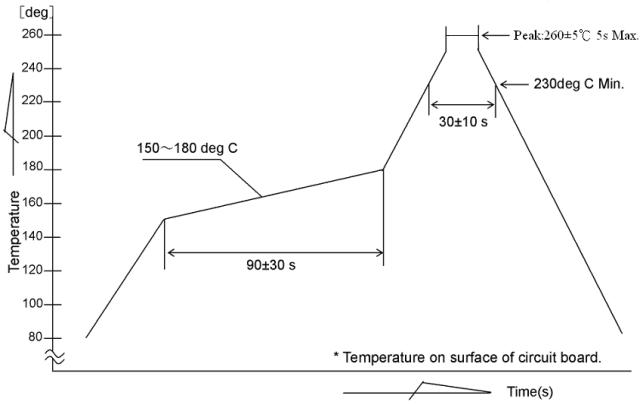
<table>
<tr><th>Item</th><th>Performance</th><th>Test Method and Remarks</th></tr>
<tr><td>Resistance to soldering</td><td rowspan="6">Inductance change：Within±10%
No abnormality observed in appearance.</td><td>The test sample shall be exposed to reflow oven at 230±5℃ for 40 seconds, with peak temperature at 260±5℃ for 5 seconds,2 times.
Test board thickness: 1.0mm
Test board material: glass epoxy-resin</td></tr>
<tr><td>Thermal shock</td><td>The test samples shall be soldered to the test board by the reflow.
The test samples shall be placed at specified temperature for specified time by step 1 to step 4 as shown below in sequence.
The temperature cycles shall be repeated 100 cycles .
<table>
<tr><th>Phase</th><th>Temperature(℃)</th><th>Time(min.)</th></tr>
<tr><td>1</td><td>-40±3℃</td><td>30±3</td></tr>
<tr><td>2</td><td>Room Temp</td><td>Within 3</td></tr>
<tr><td>3</td><td>85±2℃</td><td>30±3</td></tr>
<tr><td>4</td><td>Room Temp</td><td>Within 3</td></tr>
</table></td></tr>
<tr><td>Damp heat life test</td><td>Test Method and Remarks The test samples shall be soldered to the test board by the reflow.
The test samples shall be placed in thermostatic oven set at specified temperature and humidity as shown in below.
Temperature: 60±2℃
Humidity: 90~95%RH
Time: 500+24/-0 hrs</td></tr>
<tr><td>Loading under damp heat life test</td><td>The test samples shall be soldered to the test board by the reflow.
The test samples shall be placed in thermostatic oven set at specified temperature and humidity and applied the rated current continuously as shown in below.
Temperature: 60±2℃
Humidity: 90~95%RH
Applied current: Rated current
Time: 500+24/-0 hrs</td></tr>
<tr><td>Low temperature life test</td><td>The test samples shall be soldered to the test board by the reflow.
After that, the test samples shall be placed at test conditions as shown in below.
Temperature:-40±2℃
Time:500+24/-0 hrs</td></tr>
<tr><td>Loading at high temperature life test</td><td>The test samples shall be soldered to the test board by the reflow.
Temperature: 85±2℃.
Applied current: Rated current
Time: 500+24/-0 hrs.</td></tr>
</table>

7. Soldering



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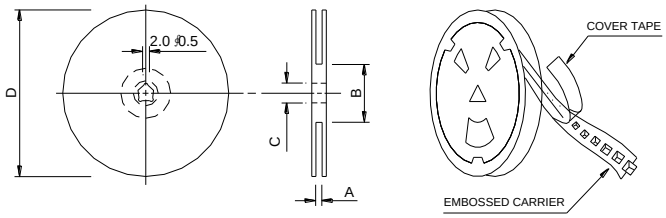
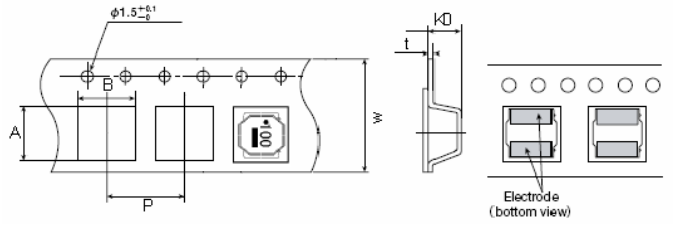
8. Packaging Information

(1) Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
HXNR6020N	13.5±1.0	80±2.0	13±0.5	330±3.0

(2) Tape Dimension



Type	A(mm)	B(mm)	Ko(mm)	P(mm)	W(mm)	t(mm)
HXNR6020N	6.3±0.1	6.3±0.1	3.1±0.1	8.0±0.1	12±0.3	0.4±0.1

(3) Packaging Quantity

Type	Chip / Reel
HXNR6020N	2000

Application Notice

- Storage Conditions
  To maintain the solderability of terminal electrodes:
  1. ISND products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
  2. Temperature and humidity conditions: Less than 40℃ and 60% RH.
  3. Recommended products should be used within 12 months form the time of delivery.
  4. The packaging material should be kept where no chlorine or sulfur exists in the air.
- Transportation
  1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
  2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
  3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

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