

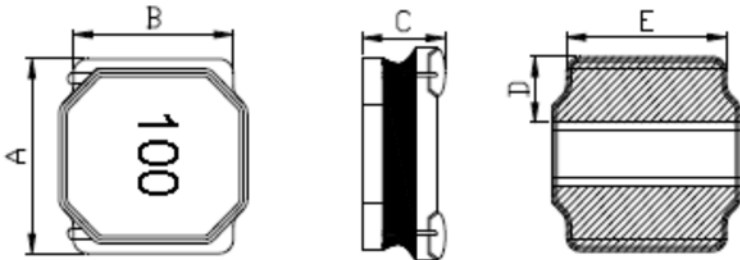
FEATRLRES

- Magnetic-resin shielded construction reduces buzz noise to ultra-low levels
- Metallization on ferrite core results in excellent shock resistance and damage-free durability
- Closed magnetic circuit design reduces leakage flux and Electro Magnetic Interference (EMI)
- 30% higher current rating than conventional nductors of equal size
- Takes up less PCB real estate and save more power

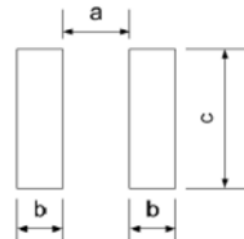
APPLICATIONS

- LED Lighting
- Next-generation mobile devices with multifunction such as mobile TV and digital movie cameras
- Flat-screen TVs, blue-ray disc recorders, set top box
- Notebooks, desktop computers, servers, graphic cards cards
- Portable gaming devices, personal navigation systems, personal multimedia devices
- Automotive systems
- Telecomm base stations

CONFIGLRATIONS & DIMENSIONS (unit in mm)



Recommended Land pattern



Type	A	B	C	D	E
HNR4030NF	4.0±0.2	4.0±0.2	3.0Max.	1.35±0.3	3.4±0.2

a	b	c
1.3Typ	1.5Typ	3.7Typ

*Dimensions are not including the termination. For maximum overall dimensions with termination , add 0.1mm

Note:

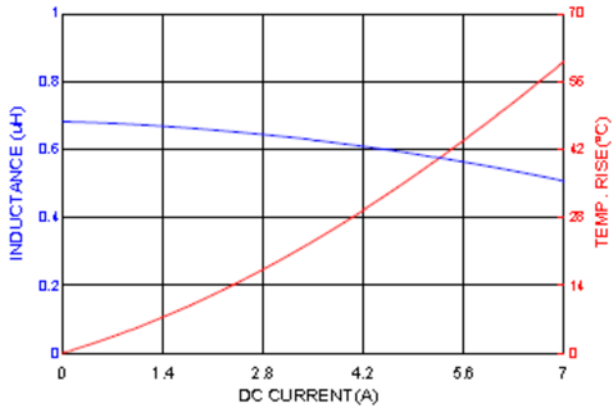
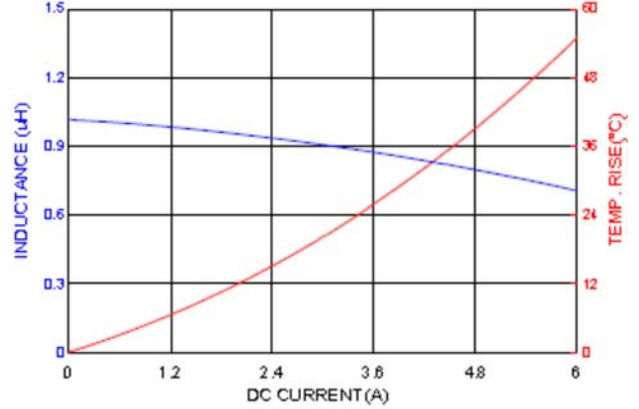
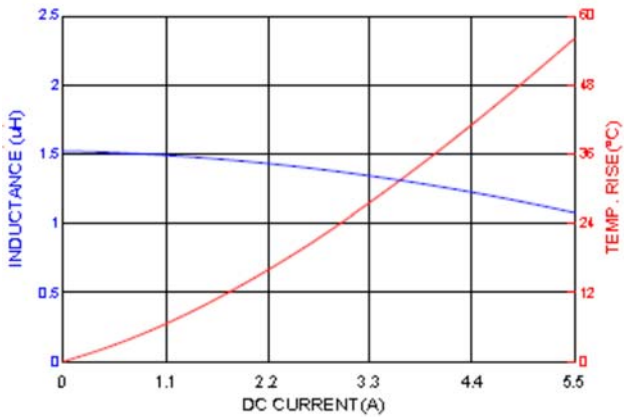
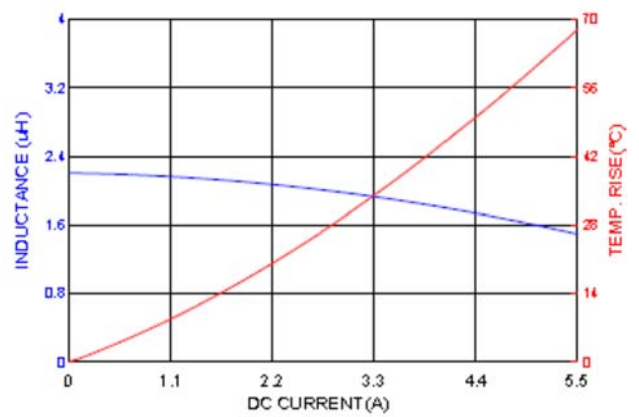
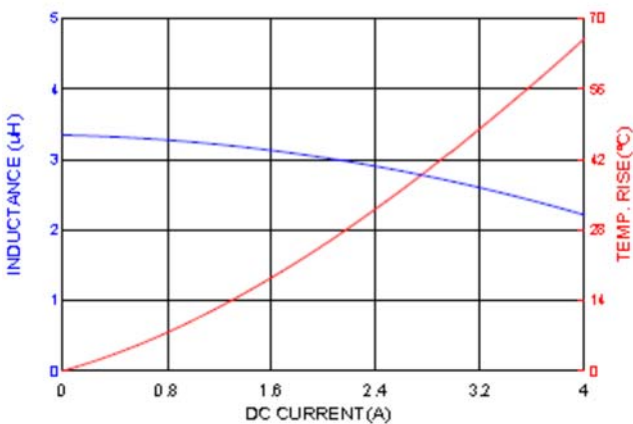
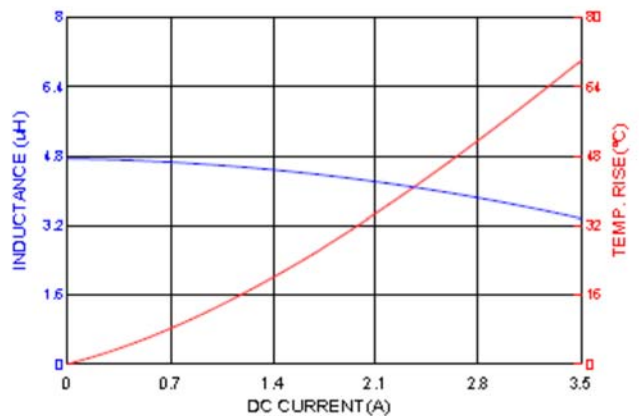
1. The above PCB layout reference only.
2. Recommend solder paste thickness at 0.12mm and above.

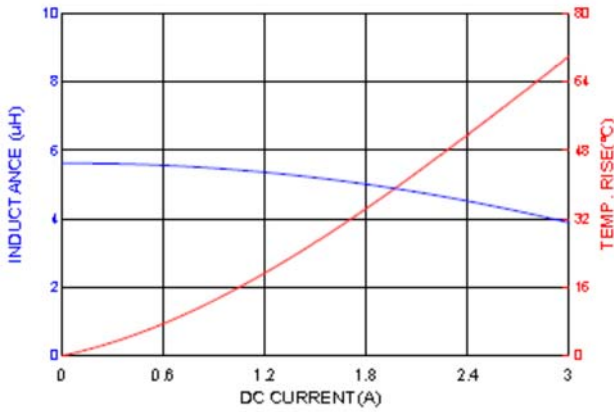
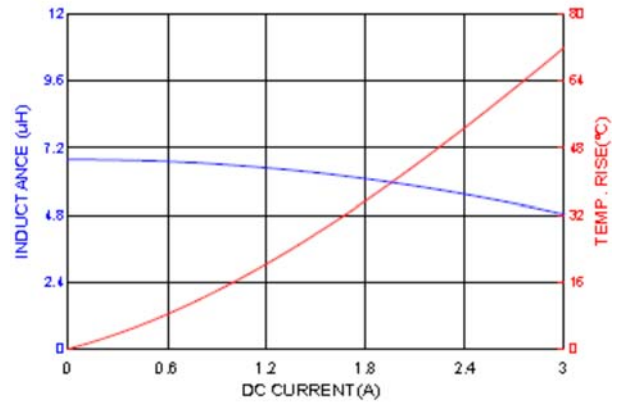
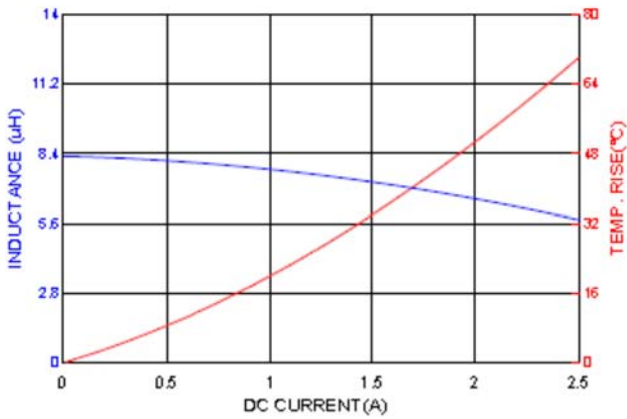
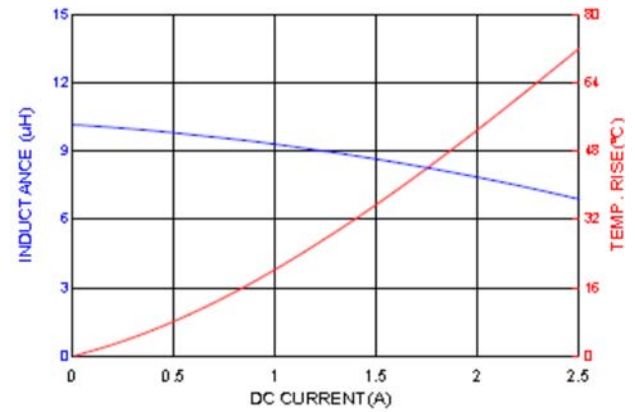
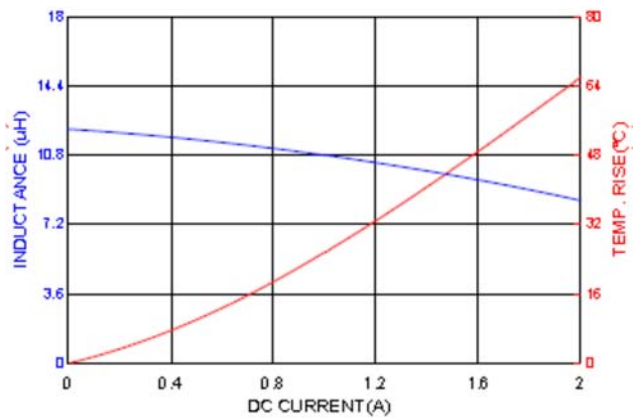
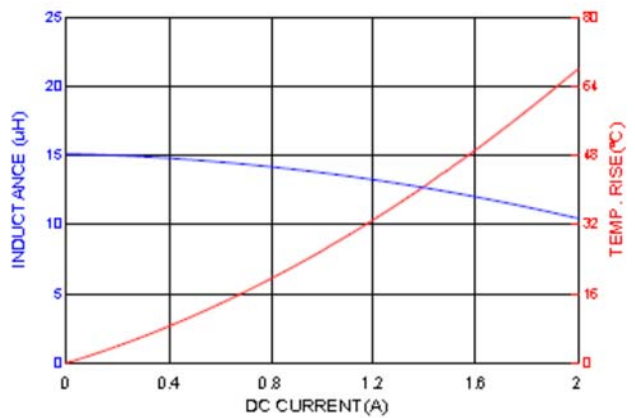
ELECTRICAL CHARACTERISTICS

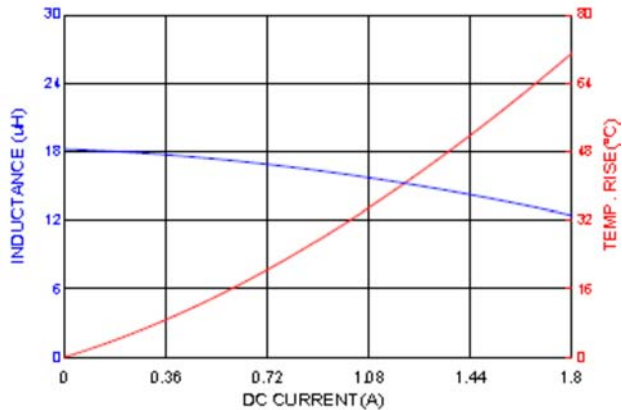
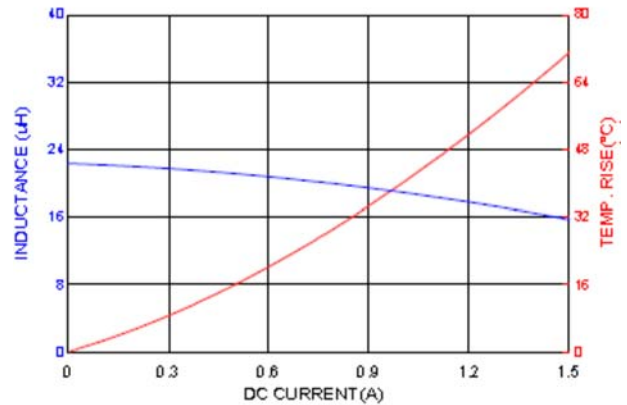
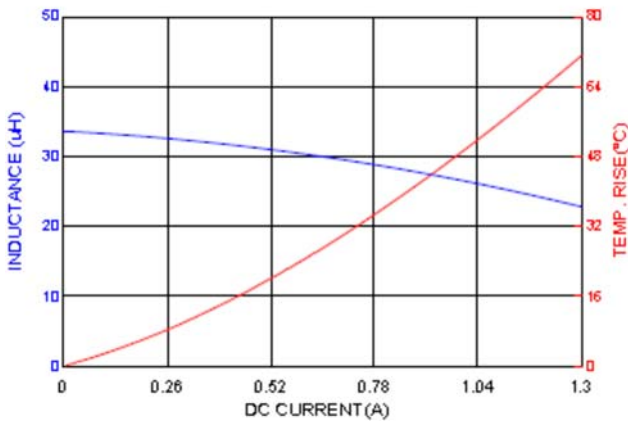
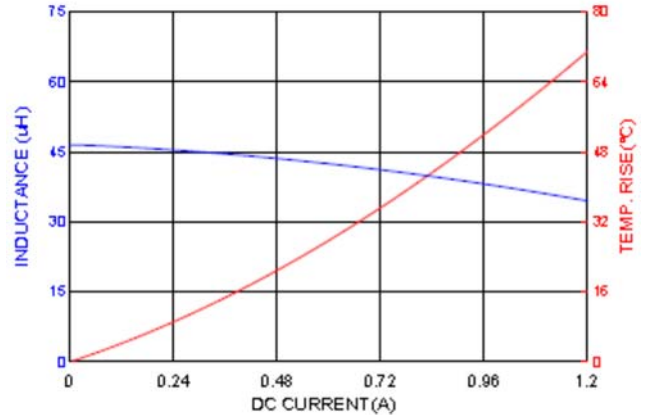
Part Number	Inductance	Rated current		DCR (mΩ)
	L0 (μH)±20% @ 0 A	Temperature current I rms (A)	Saturation current I sat (A)	@25°C ±20%.
HNR4030NF-R68M	0.68	4.60	6.80	10
HNR4030NF-1R0M	1.00	4.20	5.30	14
HNR4030NF-1R5M	1.50	3.40	4.90	20
HNR4030NF-2R2M	2.20	3.00	4.90	30
HNR4030NF-3R3M	3.30	2.40	3.30	40
HNR4030NF-4R7M	4.70	2.05	2.90	60
HNR4030NF-5R6M	5.60	1.95	2.60	65
HNR4030NF-6R8M	6.80	1.80	2.75	90
HNR4030NF-8R2M	8.20	1.60	2.10	90
HNR4030NF-100M	10.0	1.50	2.00	100
HNR4030NF-120M	12.0	1.30	1.80	135
HNR4030NF-150M	15.0	1.20	1.70	190
HNR4030NF-180M	18.0	1.10	1.50	200
HNR4030NF-220M	22.0	1.00	1.30	225
HNR4030NF-330M	33.0	0.85	1.10	330
HNR4030NF-470M	47.0	0.72	0.95	445

Note:

- All test data referenced to 25°C ambient , Ls:100KHz/1V.
- Testing Instrument : HP4284A,CH11025,CH3302,CH1320 ,CH1320S LCR METER / Rdc:CH502BC MICRO OHMMETER.
- Heat Rated Current (I_{rms}) will cause the coil temperature rise approximately Δt of 40°C.
- Saturation Current (I_{sat}) will cause L0 to drop approximately 30%.
- The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions.Circuit design,component,PCB trace size and thickness,airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.
- Special inquiries besides the above common used types can be met on your requirement.

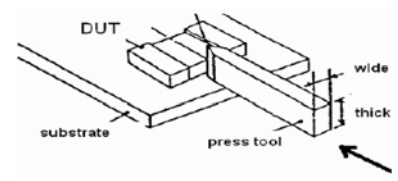
TYPICALELECTRICALCHARACTERISTICS:
HNR4030NF-R68M

HNR4030NF-1R0M

HNR4030NF-1R5M

HNR4030NF-2R2M

HNR4030NF-3R3M

HNR4030NF-4R7M


HNR4030NF-5R6M

HNR4030NF-6R8M

HNR4030NF-8R2M

HNR4030NF-100M

HNR4030NF-120M

HNR4030NF-150M


HNR4030NF-180M

HNR4030NF-220M

HNR4030NF-330M

HNR4030NF-470M


Reliability and Test Condition

Item	Performance	Test Condition
Operating temperature	-40~+125°C (Including self - temperature rise)	
Storage temperature	1. -10~+40°C ,50~60%RH (Product with taping) 2. -40~+125°C (on board)	
Electrical Performance Test		
Inductance	Refer to standard electrical characteristics list.	HP4284A,CH11025,CH3302,CH1320,CH1320S LCR Meter.
DCR		CH16502,Agilent33420A Micro-Ohm Meter.
Saturation Current (Isat)	Approximately Δ L30%	Saturation DC Current (Isat) will cause L0 to drop Δ L(%)
Heat Rated Current (Irms)	Approximately Δ T40°C	Heat Rated Current (Irms) will cause the coil temperature rise Δ T(°C). 1.Applied the allowed DC current 2.Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage.	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles) Temperature : 125 \pm 2°C (Inductor) Applied current : rated current Duration : 1000 \pm 12hrs Measured at room temperature after placing for 24 \pm 2 hrs

Load Humidity	Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Humidity : 85±2 * R.H, Temperature : 85°C±2°C Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24±2 hrs															
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Profiles 1. Baked at50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to 65±2°C 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs,keep at 25°C for 2 hrs then keep at -10°C for 3 hrs 4. Keep at 25°C 80-100%RH for 15min and vibrate at the frequency of 10 to 55 Hz to 10 Hz, measure at room temperature after placing for 1~2 hrs.															
Thermal shock		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles Condition for 1 cycle Step1 : -40±2°C 30±5min Step2 : 25±2°C ≤0.5min Step3 : 125±2°C 30±5min Number of cycles : 500 Measured at room temperature after placing for 24±2 hrs															
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).															
Bending		Shall be mounted on a FR4 substrate of the following dimensions: >=0805 inch(2012mm):40x100x1.2mm <0805 inch(2012mm):40x100x0.8mm Bending depth: >=0805 inch(2012mm):1.2mm <0805 inch(2012mm):0.8mm duration of 10 sec.															
Shock	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi)/ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi)/ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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Lead	50	11	Half-sine	11.3													
Solder ability	More than 95% of the terminal electrode should be covered with solder.	Preheat: 150°C,60sec.. Solder: Sn96.5% Ag3% Cu0.5% Temperature: 245±5°C ◦ Flux for lead free: Rosin. 9.5% ◦ Dip time: 4±1sec ◦ Depth: completely cover the termination															
Resistance to Soldering Heat		Depth: completely cover the termination <table border="1"> <thead> <tr> <th>Temperature(°C)</th> <th>Time(s)</th> <th>Temperature ramp/immersion and emersion rate</th> <th>Number of heat cycles</th> </tr> </thead> <tbody> <tr> <td>260 ±5 (solder temp)</td> <td>10 ±1</td> <td>25mm/s ±6 mm/s</td> <td>1</td> </tr> </tbody> </table>	Temperature(°C)	Time(s)	Temperature ramp/immersion and emersion rate	Number of heat cycles	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1							
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260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s	1														
Terminal Strength	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value e	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020DClassification Reflow Profiles With the component mounted on a PCB with the device to be tested, apply a force(>0805:1kg , <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to apply a shock to the component being tested. 															

Note : When there are questions concerning measurement result : measurement shall be made after 48 ± 2 hours of recovery under the standard condition.