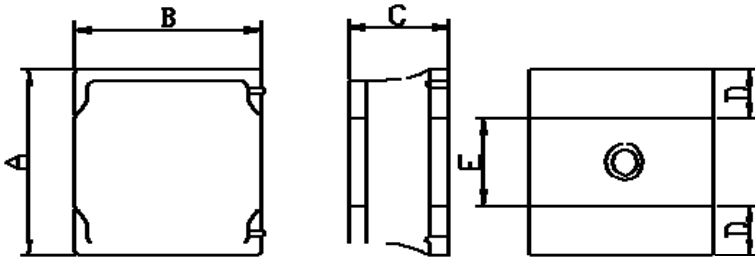


FEATRLRES

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

CONFIGLRATIONS & DIMENSIONS (unit in mm)



Type	A	B	C	D	E	G	H	I
HNR3015TF	3.0±0.2	3.0±0.2	1.5max.	1.0 ref.	1.0 ref.	-	-	-

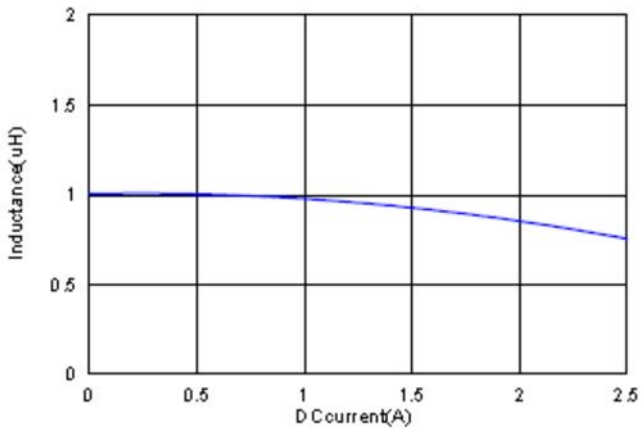
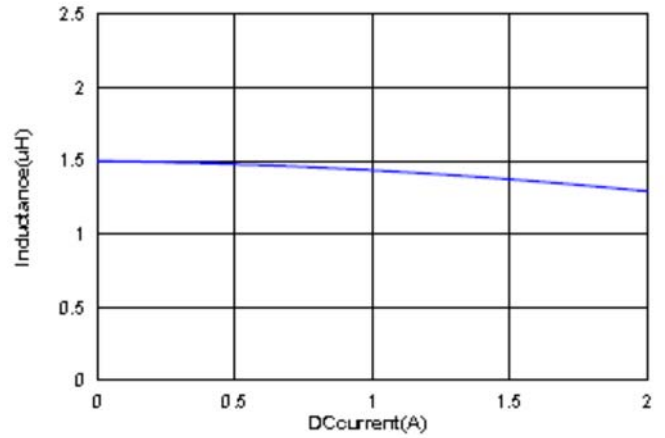
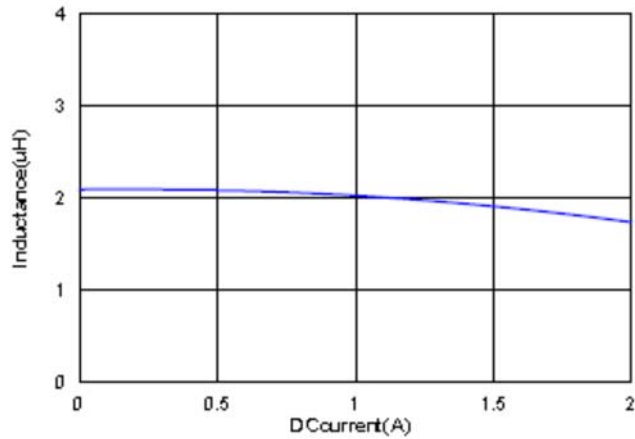
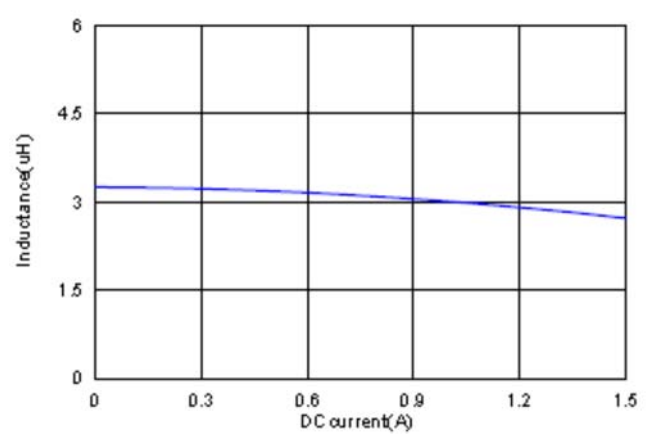
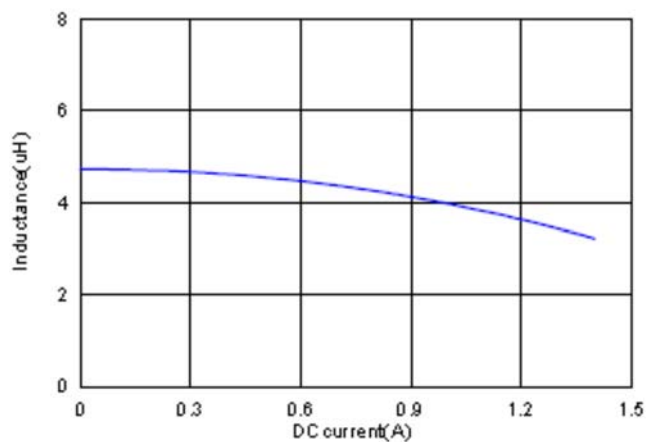
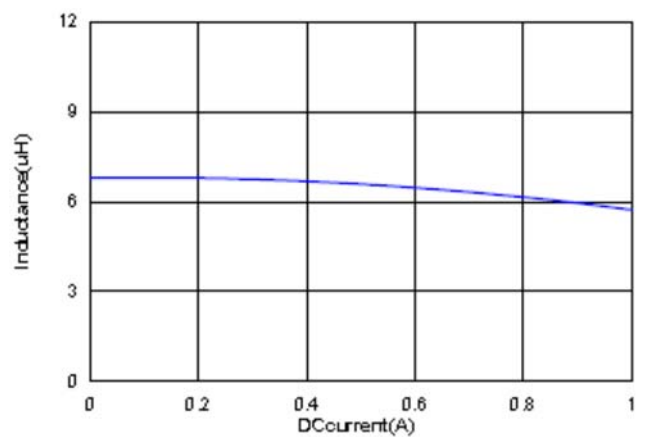
ELECTRICAL CHARACTERISTICS

Part Number	Inductance (uH)	Tolerance (%)	Test Frequency (Hz)	DCR (Ω) ±20%	I sat (A)		I rms (A) typ.	I rms (A) max.	SRF (MHz) typ.
					typ.	max.			
HNR3015TF-1R0Y	1.0	±30%	1V100K	0.030	2.20	2.00	2.20	2.00	100
HNR3015TF-1R5Y	1.5	±30%	1V100K	0.040	2.00	1.80	2.00	1.80	87
HNR3015TF-2R2M	2.2	±20%	1V100K	0.060	1.70	1.50	1.70	1.50	64
HNR3015TF-3R3M	3.3	±20%	1V100K	0.080	1.40	1.20	1.40	1.20	49
HNR3015TF-4R7M	4.7	±20%	1V100K	0.120	1.20	1.00	1.20	1.00	40
HNR3015TF-6R8M	6.8	±20%	1V100K	0.160	1.00	0.90	1.00	0.90	36
HNR3015TF-100M	10	±20%	1V100K	0.220	0.75	0.65	0.80	0.70	28
HNR3015TF-150M	15	±20%	1V100K	0.320	0.65	0.55	0.70	0.60	23
HNR3015TF-220M	22	±20%	1V100K	0.460	0.55	0.45	0.60	0.50	20
HNR3015TF-330M	33	±20%	1V100K	0.800	0.40	0.35	0.45	0.40	18
HNR3015TF-470M	47	±20%	1V100K	1.200	0.35	0.30	0.40	0.35	17

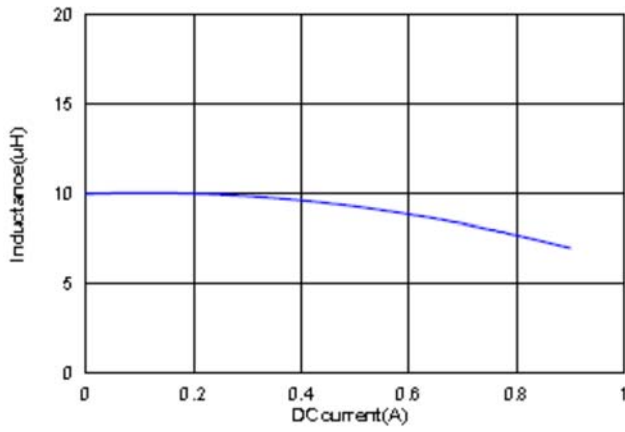
Note:

I_{sat} : Based on inductance change (ΔL/L0 : ≤-30%) @ ambient temp. 25°C

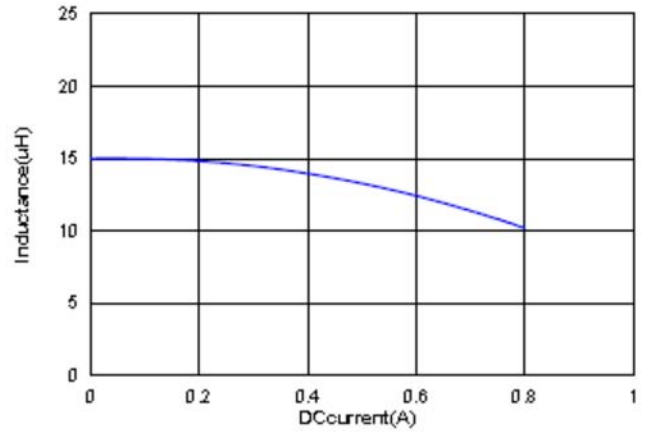
I_{rms} : Based on temperature rise (ΔT : 40°C typ.)

TYPICALELECTRICALCHARACTERISTICS:
HNR3015TF-1R0Y

HNR3015TF-1R5Y

HNR3015T -2R2M

HNR3015TF-3R3M

HNR3015TF-4R7M

HNR3015TF-6R8M


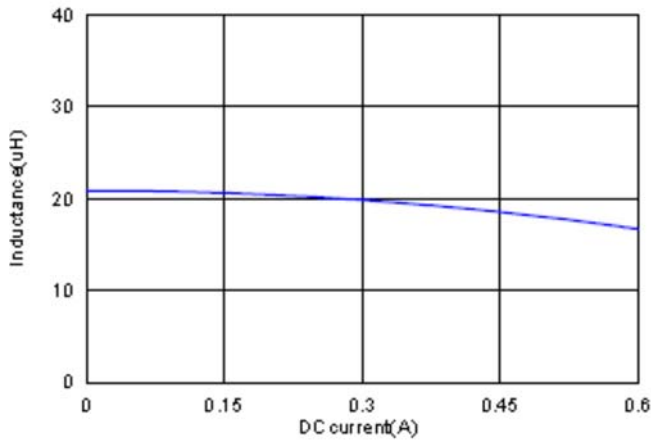
HNR3015TF-100M



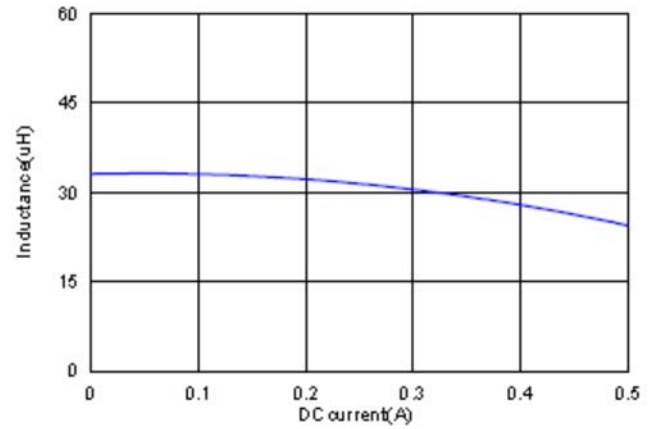
HNR3015TF-150M



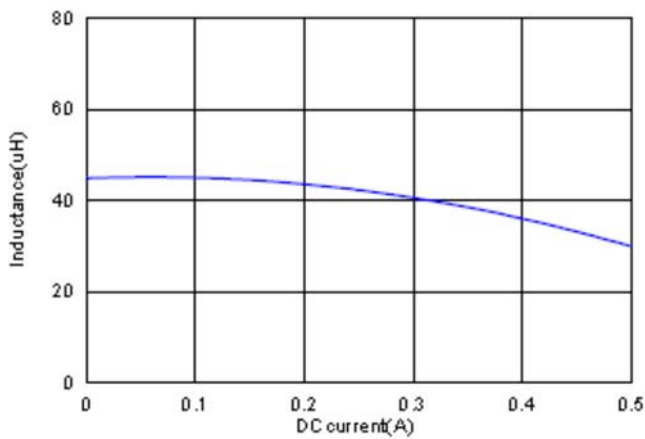
HNR3015TF-220M



HNR3015TF-330M



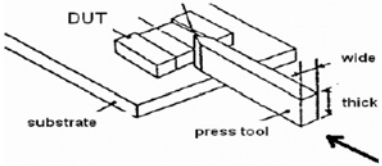
HNR3015TF-470M



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 $\Delta L30\%$	Saturation DC Current (Isat) will cause L0 to drop $\Delta L(\%)$
Heat Rated Current (Irms)	Approximately $\Delta T40^\circ\text{C}$	Heat Rated Current (Irms) will cause the coil temperature rise $\Delta T(^\circ\text{C})$. 1. Applied the allowed DC current 2. Temperature measured by digital surface thermometer
Reliability Test		
Life Test	Appearance : No damage. Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature : $125 \pm 2^\circ\text{C}$ (Inductor) Applied current : rated current Duration : 1000 \pm 12hrs Measured at room temperature after placing for 24 \pm 2 hrs
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Humidity : $85 \pm 2 \times \text{R.H.}$ Temperature : $85^\circ\text{C} \pm 2^\circ\text{C}$ Duration : 1000hrs Min. with 100% rated current Measured at room temperature after placing for 24 \pm 2 hrs
Moisture Resistance		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) 1. Baked at 50°C for 25hrs, measured at room temperature after placing for 4 hrs. 2. Raise temperature to $65 \pm 2^\circ\text{C}$ 90-100%RH in 2.5hrs, and keep 3 hours, cool down to 25°C in 2.5hrs. 3. Raise temperature to $65 \pm 2^\circ\text{C}$ 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-020D Classification Reflow Profiles) Condition for 1 cycle Step1 : $-40 \pm 2^\circ\text{C}$ 30 \pm 5min Step2 : $25 \pm 2^\circ\text{C}$ ≤ 0.5 min Step3 : $125 \pm 2^\circ\text{C}$ 30 \pm 5min Number of cycles : 500 Measured at room temperature after placing for 24 \pm 2 hrs
Vibration		Oscillation Frequency: 10 ~ 2K ~ 10Hz for 20 minutes Equipment : Vibration checker Total Amplitude: $1.52\text{mm} \pm 10\%$ Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations).
Bending		Shall be mounted on a FR4 substrate of the following dimensions: ≥ 0.805 inch(2012mm):40x100x1.2mm < 0.805 inch(2012mm):40x100x0.8mm Bending depth: ≥ 0.805 inch(2012mm):1.2mm < 0.805 inch(2012mm):0.8mm duration of 10 sec.
Shock		Appearance : No damage. Impedance : within $\pm 15\%$ of initial value Inductance : within $\pm 10\%$ of initial value Q : Shall not exceed the specification value. RDC : within $\pm 15\%$ of initial value and shall not exceed the specification value
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: $245 \pm 5^\circ\text{C}$ Flux for lead free: Rosin. 9.5% Dip time: 4 ± 1 sec.

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

		Depth: completely cover the termination								
Resistance to Soldering Heat		Depth: completely cover the termination <table border="1" data-bbox="1023 277 1453 394"> <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
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							
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-020Classification 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.