



# **HC8LP Series Power Inductors**

#### Description

- 155°C maximum temperature operation
- · Low profile surface mount inductors designed for higher speed switch mode applications requiring low voltage, and high current
- Design utilizes high temperature powder iron material with a non-organic binder to eliminate thermal aging
- Inductance range from 0.17 uH to 47.9 uH
- Current range from 29 Amps to 1.8 Amps
- Frequency range 1kHz to 500kHz

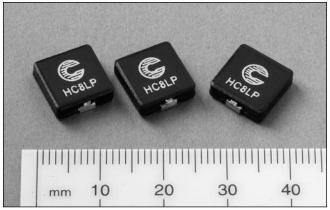
## **Applications**

- Next generation processors
- High current DC-DC converters
- VRM, multi-phase buck regulator
- PC Workstations, Routers, Servers
- Telecom soft switches, Base stations

#### **Environmental Data**

- Storage temperature range: -40°C to +155°C
- Operating temperature range: -40°C to +155°C (Range is application specific)
- Solder reflow temperature: +260°C max. for 10 seconds max.





## **Packaging**

• Supplied in tape and reel packaging, 800 parts per reel

Part	Rated	OCL (1)	Irms (2)	Isat (3)	Isat (4)	DCR (m $\Omega$ )	Volts (5)
Number	Inductance	nominal	Amperes	Amperes	Amperes	max. @	μSec (VμS)
	μΗ	+/-20% μH	(Typ.)	15% rolloff	30% rolloff	20°C	(ref.)
HC8LP-R15-R	0.15	0.170	29.0	31	56	1.40	7.8
HC8LP-R39-R	0.39	0.430	20.2	19	34	2.80	4.7
HC8LP-R75-R	0.75	0.830	15.6	13.5	24	4.70	3.4
HC8LP-1R2-R	1.2	1.35	12.4	10.1	18.7	7.50	2.6
HC8LP-1R9-R	1.9	1.92	10.1	8.7	15.5	11.5	4.1
HC8LP-2R6-R	2.6	2.67	8.3	7.4	13.1	17.1	4.8
HC8LP-3R5-R	3.5	3.56	6.9	6.4	11.4	24.5	5.6
HC8LP-4R5-R	4.5	4.57	6.5	5.6	10.0	27.6	6.3
HC8LP-5R6-R	5.6	5.71	5.5	5.1	9.0	38.9	7.1
HC8LP-6R9-R	6.9	6.98	5.2	4.6	8.1	42.8	7.8
HC8LP-8R2-R	8.2	8.37	4.5	4.2	7.4	58.0	8.6
HC8LP-100-R	10.0	9.90	4.3	6.8	3.8	62.9	9.3
HC8LP-150-R	15.0	15.20	3.4	3.1	5.5	99.4	11.6
HC8LP-220-R	22.0	21.70	2.8	2.6	4.6	149	13.7
HC8LP-330-R	33.0	32.10	2.3	2.1	3.8	224	16.8
HC8LP-470-R	47.0	47.90	1.8	1.7	3.1	344	20.3

1) Open Circuit Inductance test parameters: 100KHz, 1.0V, 0.0Adc

5) Applied Volt-Time product (V-µS) across the inductor. This value represents the applied V-µS at operating frequency necessary to generate additional core loss which contributes to the 40°C temperature rise. De-rating of the Irms is required to prevent excessive temperature rise. The 100% V-uS rating is equivalent to a ripple current lp-p of 20% of lsat (30% rolloff option).

Part number definition: HC8LP-xxx-R HC8LP = Product code and size  $xxx = Inductance in \mu H. R = decimal point.$ If no R is present third character = # of zeros. -R suffix indicates RoHS compliant

<sup>2)</sup> Irms: DC current for an approximate DT of 40°C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 155°C under worst case operating conditions verified in the end application.

3) Isat Amperes Peak for approximately 15% rolloff (@20°C)

4) Isat Amperes Peak for approximately 30% rolloff (@20°C)

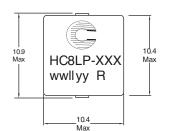




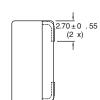
COILTRONICS®

# **Mechanical Diagrams**

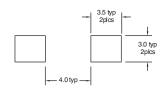


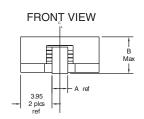


### SIDE VIEW



# RECOMMENDED PCB PAD LAYOUT





FRONT VIEW Dimesional Table

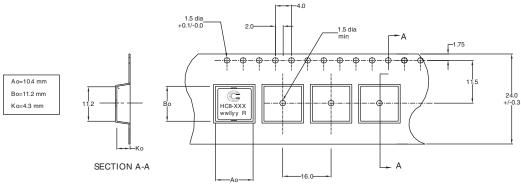
ax m
5
5
5
3
5

SCHEMATIC



Dimensions in Millimeters wwllyy = Date Code, R = Revision Level

# **Packaging Information**



User direction of feed -

Packaging Information: Parts packaged on a 13" Dia. EIA-481 compliant reel. 800 parts per reel.

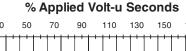


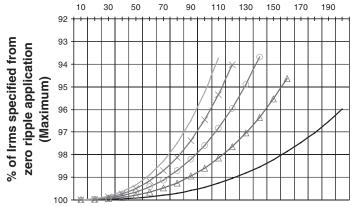
COILTRONICS

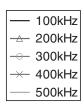


**Core Loss** 

#### Irms DERATING WITH CORE LOSS

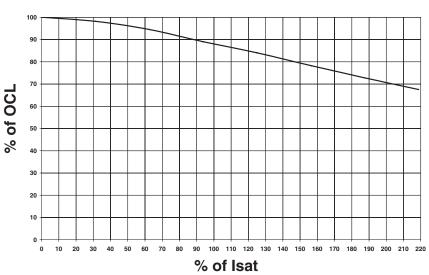






#### **Rolloff**

# **OCL** vs Isat





PM-4126 3/07

Visit us on the Web at www.cooperbussmann.com

© Cooper Electronic Technologies 2007 1225 Broken Sound Pkwy. Suite F Boca Raton, FL 33487 Tel: +1-561-998-4100 Toll Free: +1-888-414-2645 Fax: +1-561-241-6640

This bulletin is intended to present product design solutions and technical information that will help the end user with design applications. Cooper Electronic Technologies reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Cooper Electronic Technologies also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

Life Support Policy: Cooper Electronic Technologies does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.