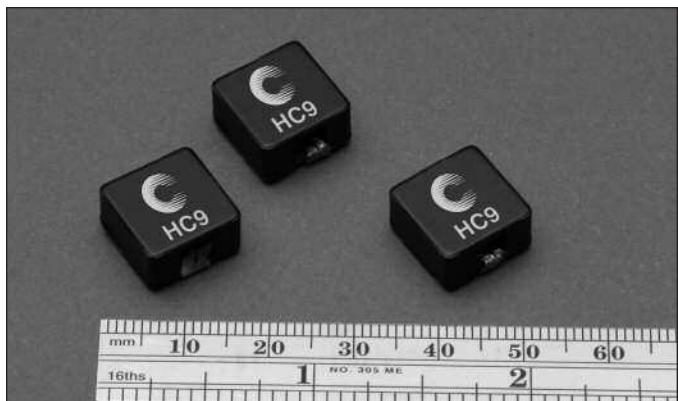


HC9 Series

High Current 9 Power Inductors



Description

- 155°C maximum total operating temperature
- Surface mount inductors designed for higher speed switch mode applications requiring lower inductance, low voltage and high current

- Design utilizes high temperature powder iron material with a non-organic binder to eliminate thermal aging
- Inductance Range from 0.2 μ H to 47.0 μ H
- Current Range from 3.65 amps to 95.0 amps
- Frequency Range 1kHz to 500kHz

Applications

- Next generation processors
- High current DC-DC converters
- VRM, multi-phase buck regulator
- PC, workstations, routers, servers

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 maximum

Packaging

- Supplied in tape and reel packaging, 450 parts per reel

Part Number	Rated Inductance μ H	OCL ⁽¹⁾ Nominal +/-15% μ H	$I_{rms}^{(2)}$ Amps (Typ.)	$I_{sat}^{(3)}$ Amps 20% rolloff	$I_{sat}^{(4)}$ Amps 30% rolloff	DCR (m Ω) max. @ 20°C	Volts ⁽⁵⁾ μ Sec (V μ S)
HC9-R20-R	0.20	0.218	46.7	65	95	0.50	2.87
HC9-R47-R	0.47	0.544	33.7	40	57	0.88	4.78
HC9-1R0-R	1.0	1.04	23.7	28	41	1.87	6.70
HC9-1R5-R	1.5	1.70	21.0	22	32	2.27	8.46
HC9-2R2-R	2.2	2.53	17.2	18	26	3.37	10.4
HC9-3R3-R	3.3	3.52	14.3	15	22	4.87	12.4
HC9-4R3-R	4.3	4.67	13.0	13.2	19.1	5.90	14.4
HC9-6R8-R	6.8	7.45	10.3	11.4	15.1	9.40	18.1
HC9-100-R	10.0	10.9	8.50	8.6	12.5	14.0	22.0
HC9-220-R	22.0	22.4	6.30	6.0	8.7	25.7	31.5
HC9-330-R	33.0	34.5	4.42	4.8	7.0	48.8	37.3
HC9-470-R	47.0	49.2	3.65	3.9	5.7	72.3	44.8

1) Test Parameters: 100kHz, 1.0V_{rms}

2) I_{rms} amps for approximately ΔT of 40°C without core loss.

Derating is necessary for AC currents. Pad layout, trace thickness and width, airflow, 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 conditions verified in the end application.

3) Peak current for approximately 20% rolloff @20°C

4) Peak current for approximately 30% rolloff @20°C

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

Part number definition:

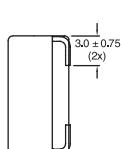
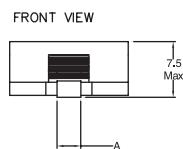
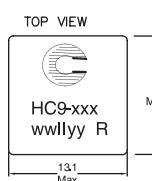
First 3 characters = Product code and size.

Last 3 characters = Inductance in μ H. R = decimal point.

If no R is present third character = # of zeros.

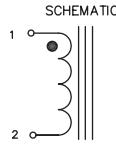
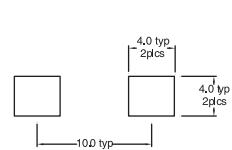
-R suffix = RoHS compliant

Dimensions - mm



PN	A mm	B mm
R20	3.4 ±0.30	13.4 max
R47	3.4 ±0.30	13.4 max
1R0	3.4 ±0.30	13.4 max
1R5	3.4 ±0.30	13.4 max
2R2 thru 470	3.7 ±0.30	14.1 max

RECOMMENDED PAD LAYOUT

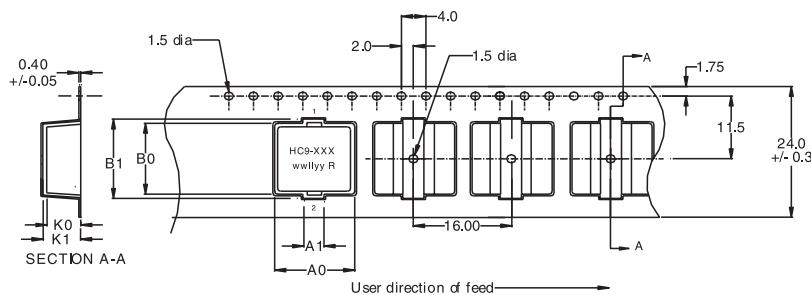


All dimensions $+\text{-}0.2$ mm unless otherwise specified.
wwllyy = Date Code, R = Revision Level

Packaging Information

Supplied in tape and reel packaging,
450 parts per reel, 13" diameter reel.

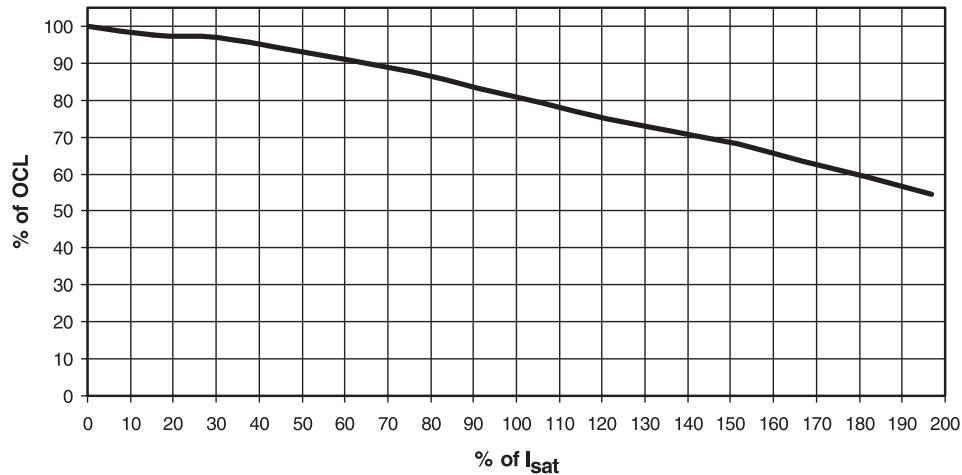
$A_0 = 13.50$ mm
 $A_1 = 4.00$ mm
 $B_0 = 13.50$ mm
 $B_1 = 14.50$ mm
 $K_0 = 7.5$ mm
 $K_1 = 8.1$ mm



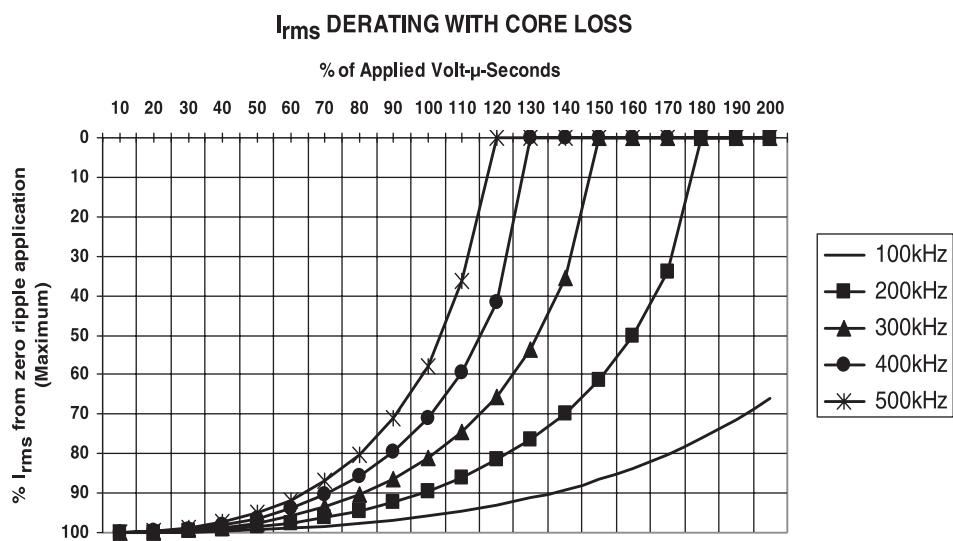
Dimensions in Millimeters

Rolloff

OCL vs I_{sat}



Core Loss



North America
 Cooper Bussmann
 1225 Broken Sound Parkway NW
 Suite F
 Boca Raton, FL 33487-3533
 Tel: 1-561-998-4100
 Fax: 1-561-241-6640
 Toll Free: 1-888-414-2645

Cooper Bussmann
 P.O. Box 14460
 St. Louis, MO 63178-4460
 Tel: 1-636-394-2877
 Fax: 1-636-527-1607

Europe
 Cooper Bussmann
 Cooper (UK) Limited
 Burton-on-the-Wolds
 Leicestershire • LE12 5TH UK
 Tel: +44 (0) 1509 882 737
 Fax: +44 (0) 1509 882 786

Cooper Bussmann
 Avda. Santa Eulalia, 290
 08223
 Terrassa, (Barcelona), Spain
 Tel: +34 937 362 812
 +34 937 362 813
 Fax: +34 937 362 719

Asia Pacific
 Cooper Bussmann
 1 Jalan Kilang Timor
 #06-01 Pacific Tech Centre
 Singapore 159303
 Tel: +65 278 6151
 Fax: +65 270 4160

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