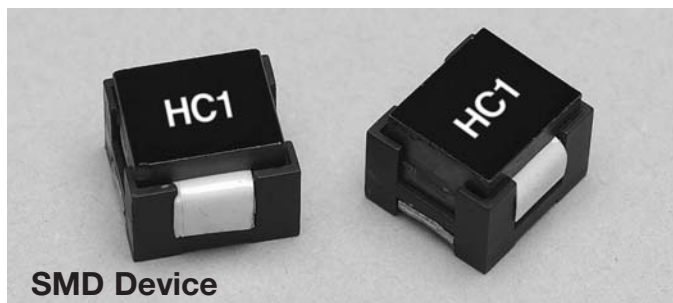


High Current Inductor

Single Winding, HC1



SMD Device

Description:

- 125°C Maximum total operating temperature
- Designed for high current, low voltage applications
- Low DCR, high efficiency
- Foil construction for higher frequency circuit designs
- Suited for IR and vapor reflow solder
- Frequency range 1kHz to 1MHz
- Ferrite core material

Applications

- Next generation microprocessors
- High current DC-DC converters
- Computers



Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (range is application specific).
- Solder reflow temperature: +260°C maximum for 10 seconds maximum.

Packaging

- Units supplied in tape and reel packaging, 250 parts on 13" diameter reel.

Product Specifications

Part Number	Rated Inductance μH	OCL ¹⁾ $\pm 15\% \mu\text{H}$	I_{rms} ²⁾ Amps (Approx.)	I_{sat} ³⁾ Amps (Approx.)	DCR (Ω) Max. @ 20°C	Volt- μSec ⁴⁾ (V μS) (ref.)
HC1-R22-R	0.22	0.218	51.42	40.5	0.00036	1.83
HC1-R30-R	0.30	0.291	51.42	31.8	0.00036	1.83
HC1-R57-R	0.57	0.572	37.83	33.4	0.00068	3.66
HC1-R87-R	0.87	0.866	28.01	31.0	0.00123	5.49
HC1-1R0-R	1.0	1.12	28.01	25.4	0.00123	5.49
HC1-1R7-R	1.7	1.66	22.30	22.2	0.0020	7.33
HC1-2R3-R	2.3	2.29	22.30	16.7	0.0020	7.33
HC1-3R6-R	3.6	3.59	16.76	13.4	0.0035	9.16
HC1-5R1-R	5.1	5.15	12.79	11.2	0.0057	10.99
HC1-7R8-R	7.8	7.85	12.79	6.7	0.0057	10.99
HC1-100-R	10	10.5	12.79	5.3	0.0057	10.99

1) OCL (Open Circuit Inductance) Test parameters: 300kHz, .25V_{rms}, 0.0Adc & I_{sat} .

2) I_{rms} Amps for approximately ΔT of 40°C. DC current for an approximate ΔT of 40°C without core loss. Derating is necessary for AC currents. It is recommended that the temperature of the part not exceed 125°C under worst case operating conditions verified in the end application.

3) I_{sat} Amps Peak for approximately 30% rolloff @ 20°C

4) Applied Volt-Time product (V- μS) across the inductor. This value represents the applied V- μS at 200kHz necessary to generate a core loss equal to 10% of the total losses for 40°C temperature rise. See Core Loss Graph.

5) Part number definition - HC1-xxx-R:

- HC1 = Product code and size
- -xxx = Inductance value
- R = Decimal point (if no "R" is present, third character = number of zeros)
- -R Suffix = RoHS compliant

Dimensions - mm

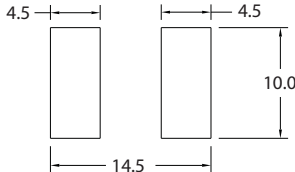
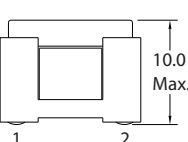
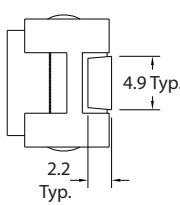
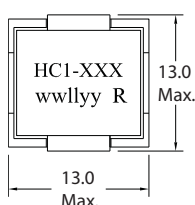
Top View

Side View

Front View

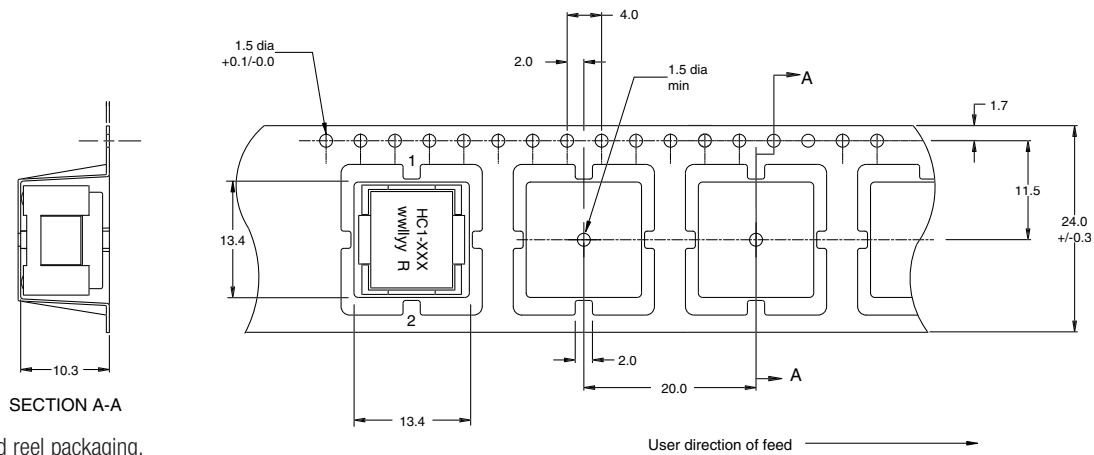
Recommended Pad Layout
(Component Side)

Schematic



xxx = Inductance value
wwlllyy = Date code R = Revision level

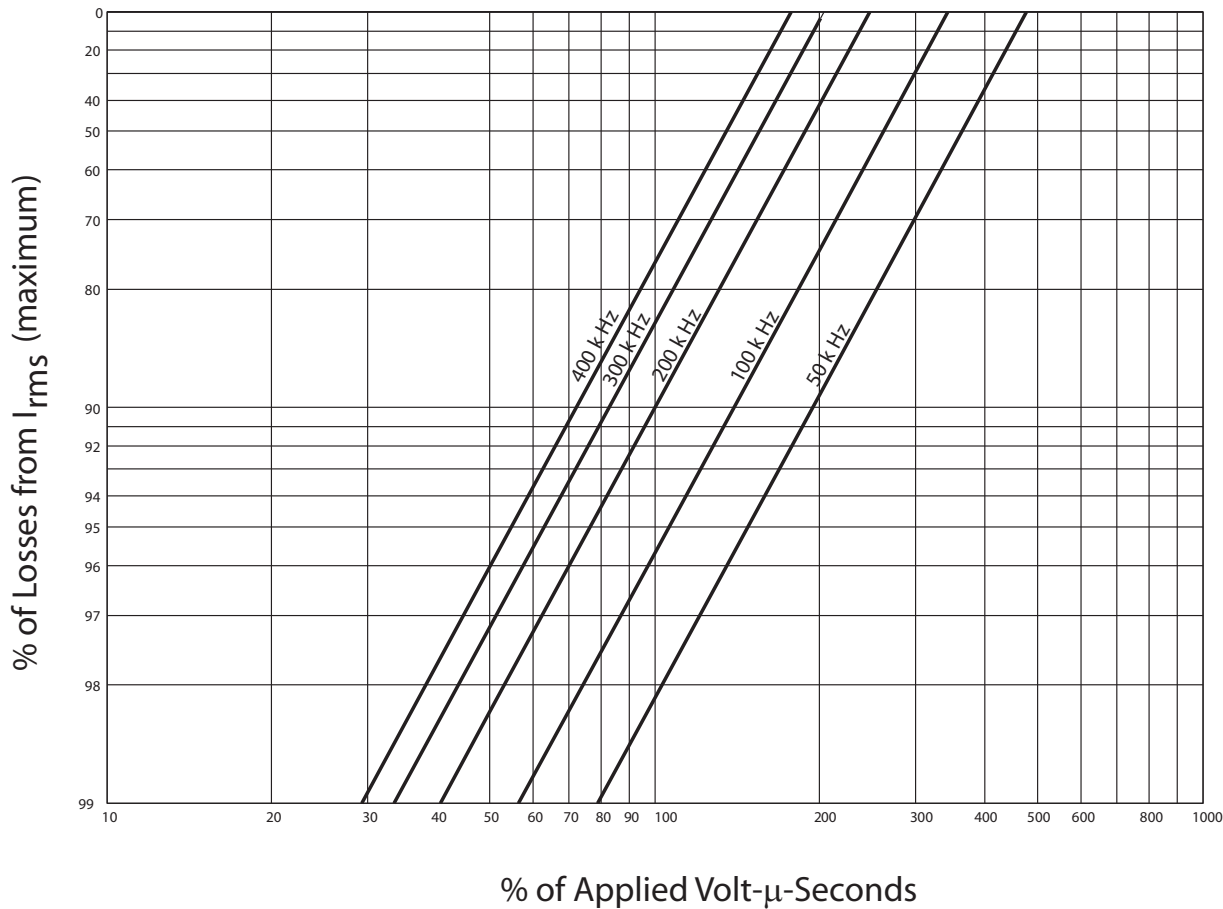
Packaging Information - mm



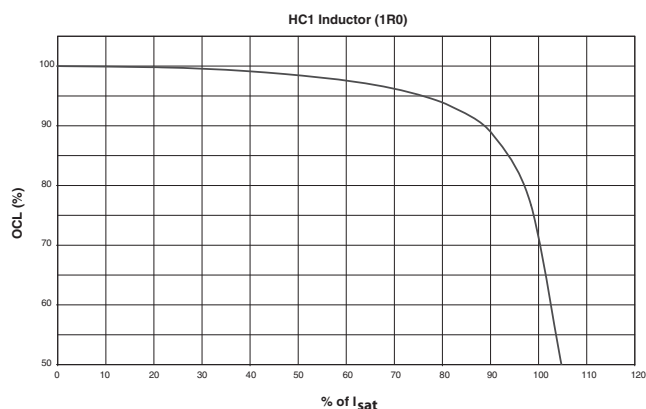
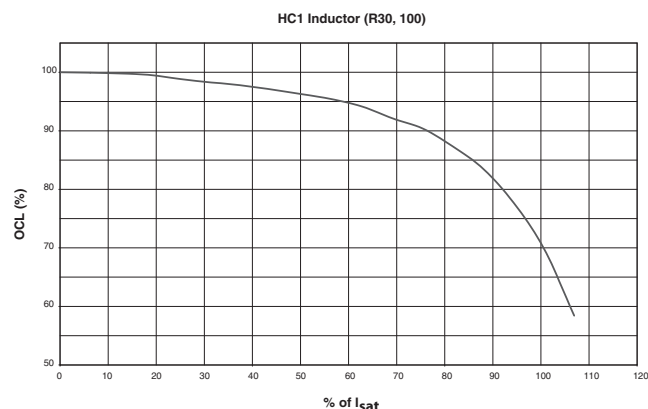
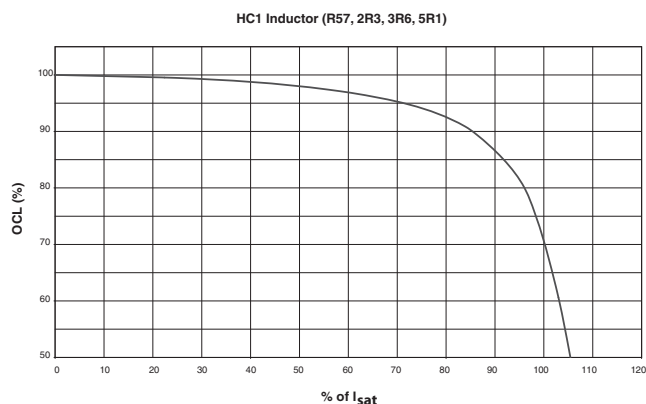
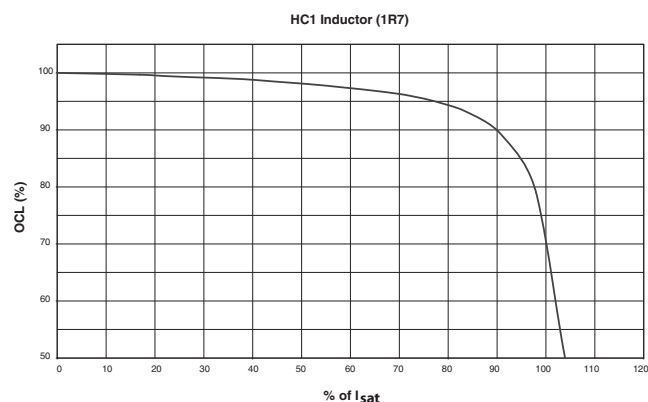
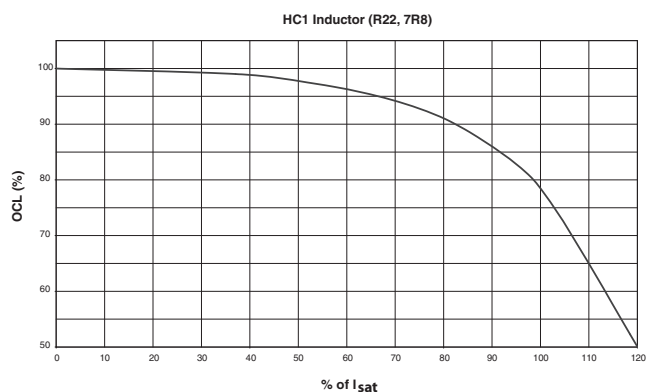
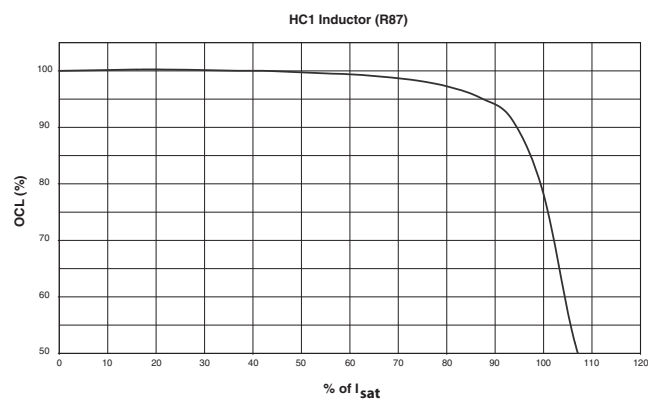
Supplied in tape and reel packaging,
250 parts per reel, 13" diameter reel.

Core Loss

I_{rms} Derating With Core Loss



Inductance Characteristics



North America

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

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

The only controlled copy of this Data Sheet is the electronic read-only version located on the Cooper Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Cooper Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Cooper Bussmann 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 Bussmann 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.

© 2008 Cooper Bussmann
St. Louis, MO 63178
www.cooperbussmann.com

