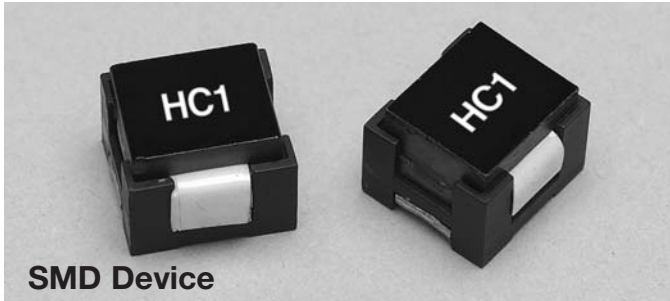


High Current Inductor

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.

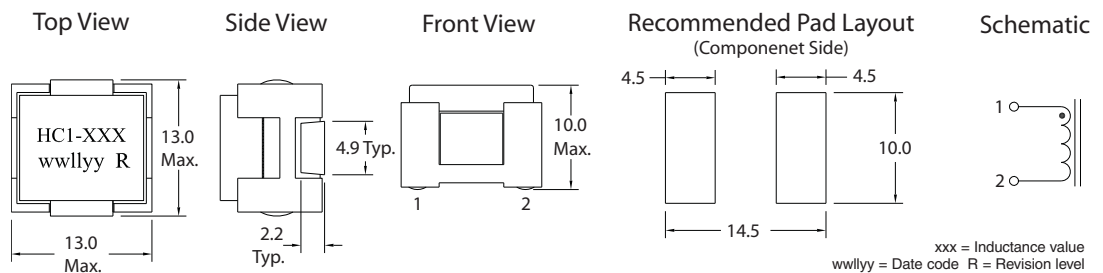
3) I_{sat} Amps Peak for approximately 30% rolloff @ 20°C

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.

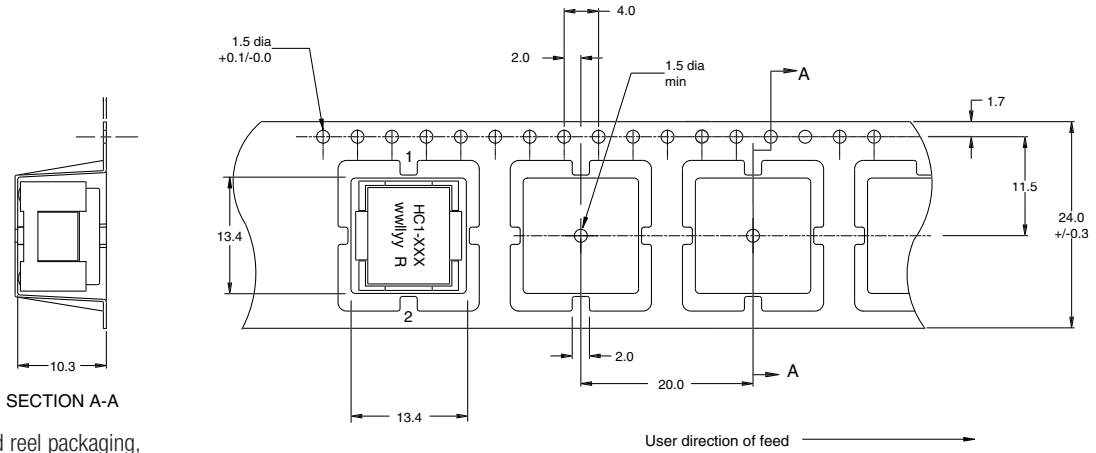
5) Part number definition - HC1-xxx-R:

- 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



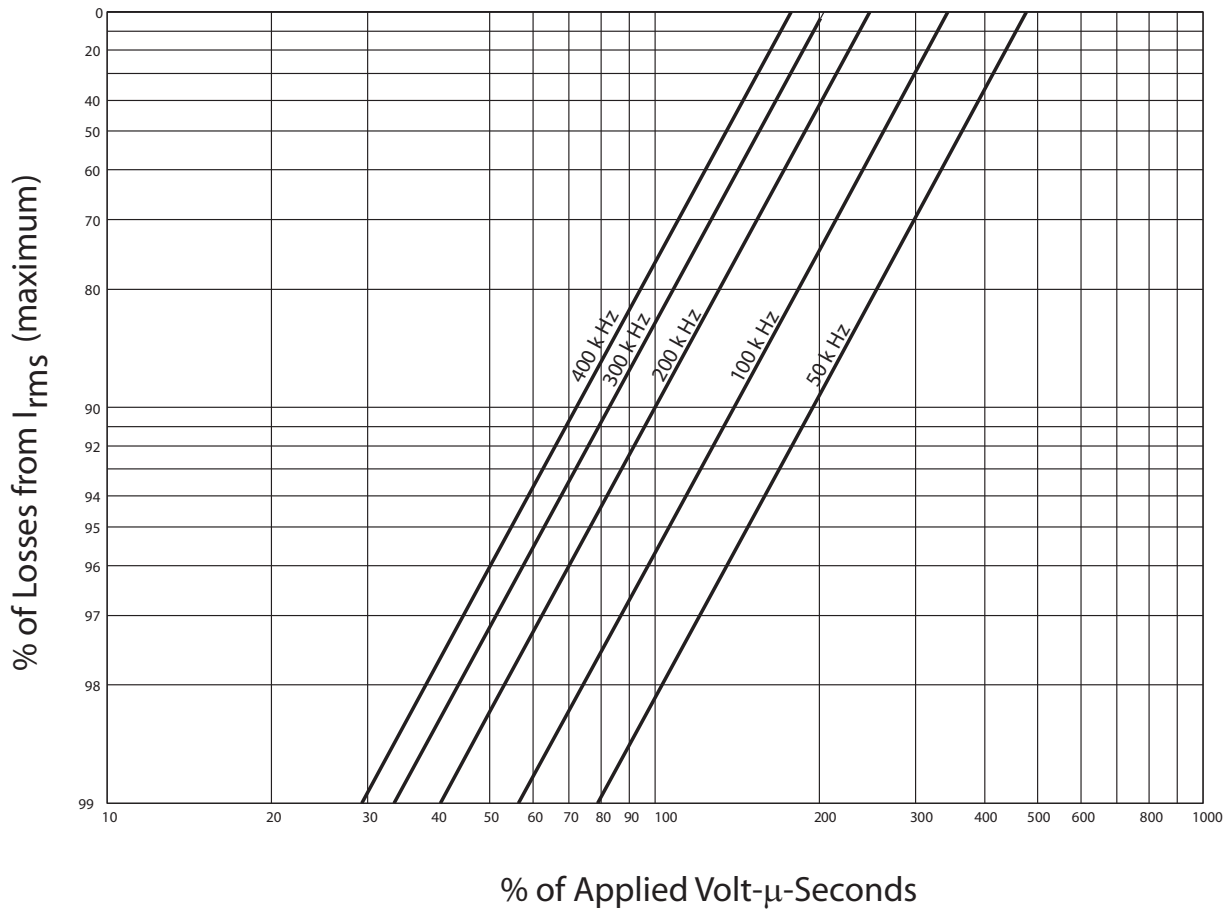
Packaging Information - mm



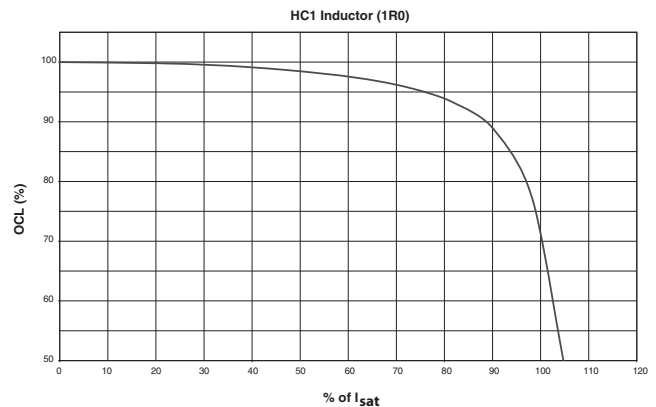
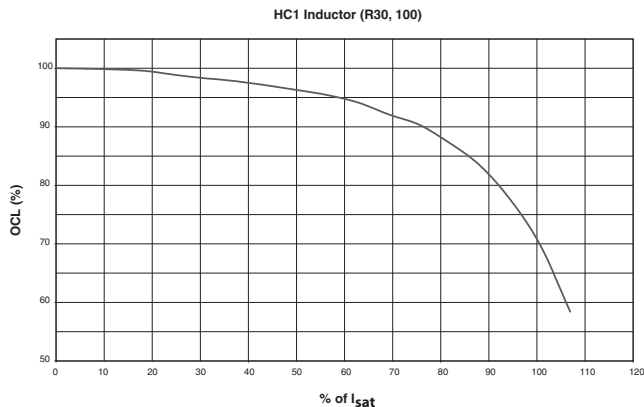
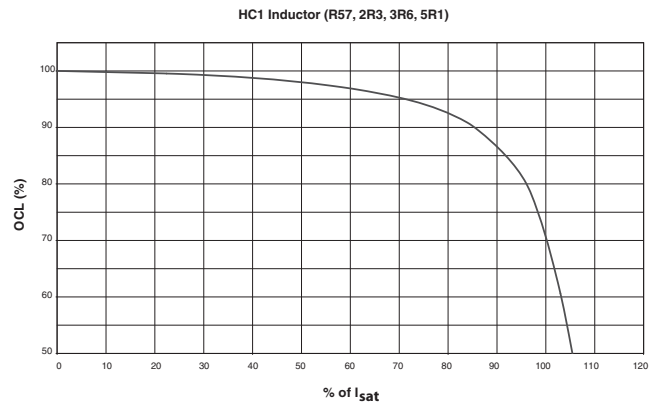
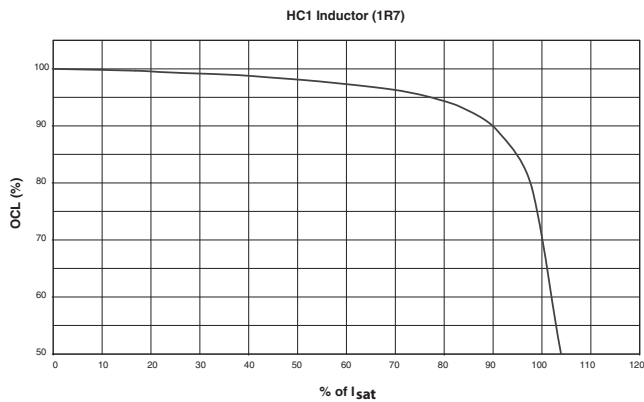
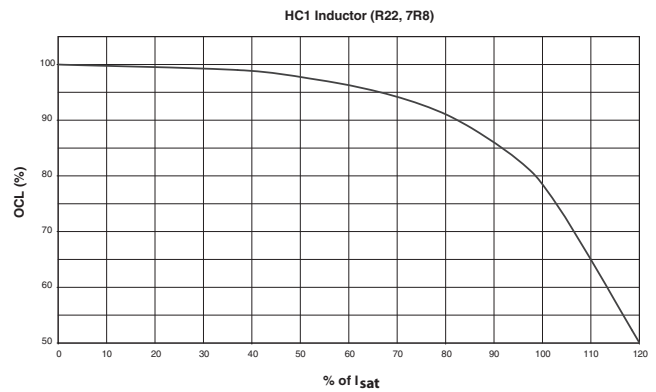
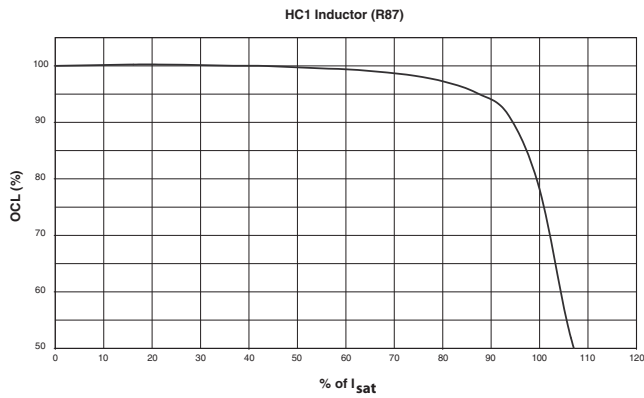
Supplied in tape and reel packaging,
250 parts per reel, 13" diameter reel.

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

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