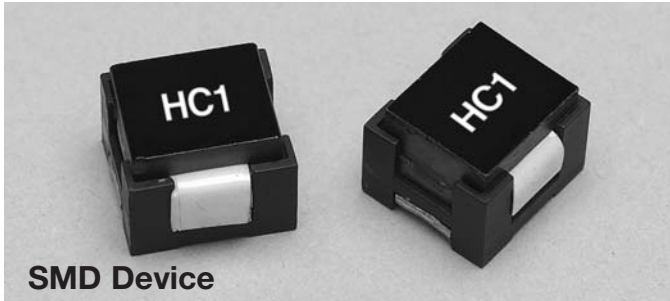


# High Current Inductor

## 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 $\mu\text{H}$	OCL <sup>(1)</sup> $\pm 15\% \mu\text{H}$	$I_{\text{rms}}$ <sup>(2)</sup> Amps (Approx.)	$I_{\text{sat}}$ <sup>(3)</sup> Amps (Approx.)	DCR ( $\Omega$ ) Max. @ 20°C	Volt- $\mu\text{Sec}$ <sup>(4)</sup> (V $\mu\text{S}$ ) (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<sub>rms</sub>, 0.0Adc & I<sub>sat</sub>.

2) I<sub>rms</sub> Amps for approximately  $\Delta T$  of 40°C. DC current for an approximate  $\Delta T$  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.

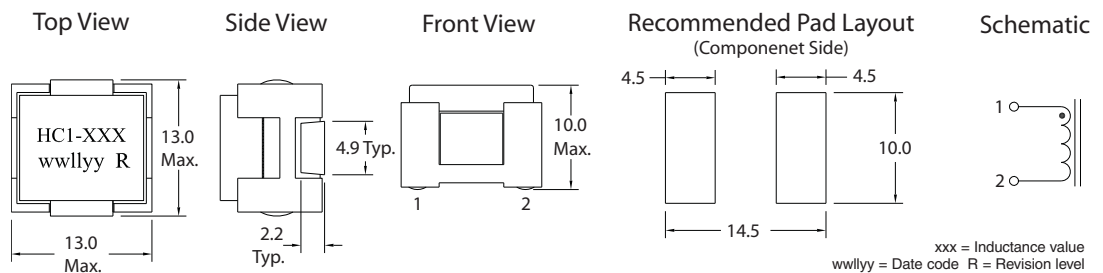
3) I<sub>sat</sub> Amps Peak for approximately 30% rolloff @ 20°C

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

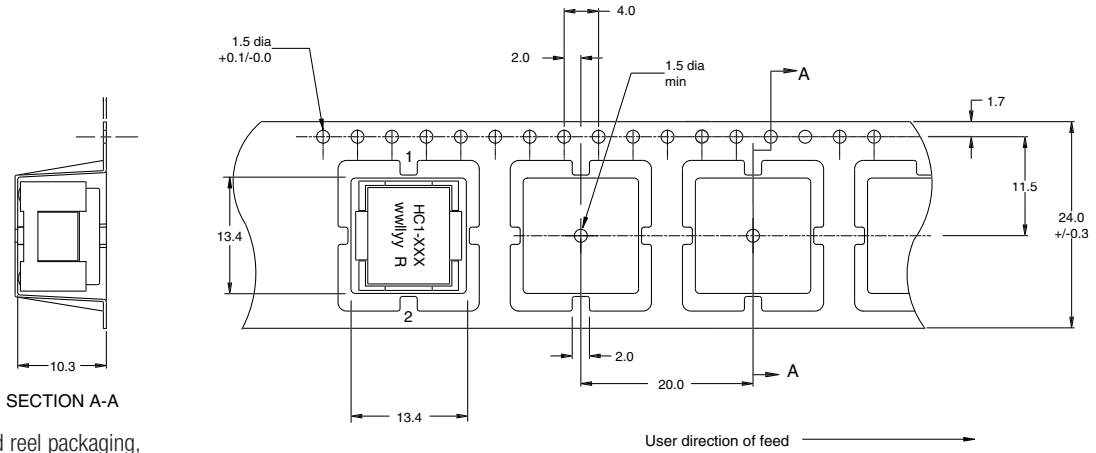
5) Part number definition - HC1-xxx-R:

- 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



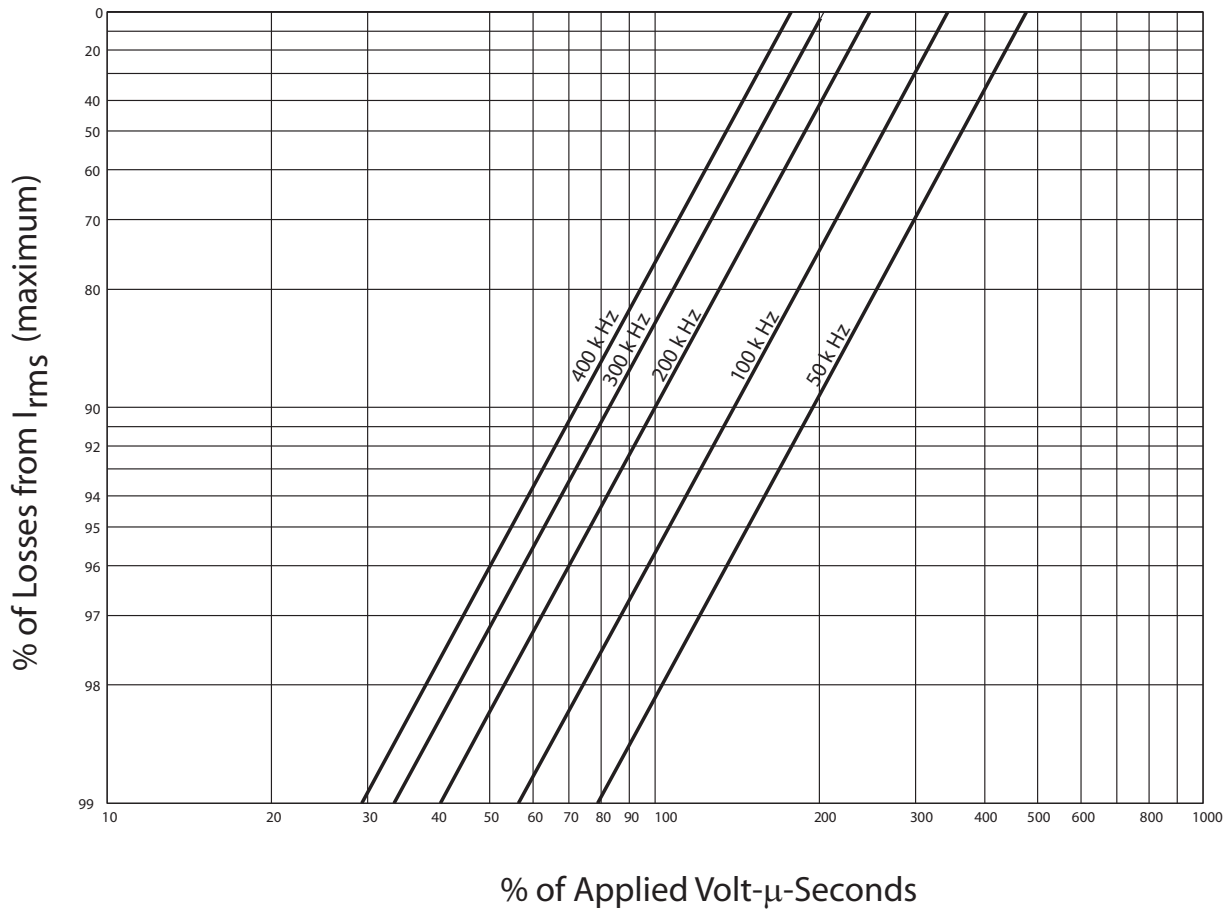
## Packaging Information - mm



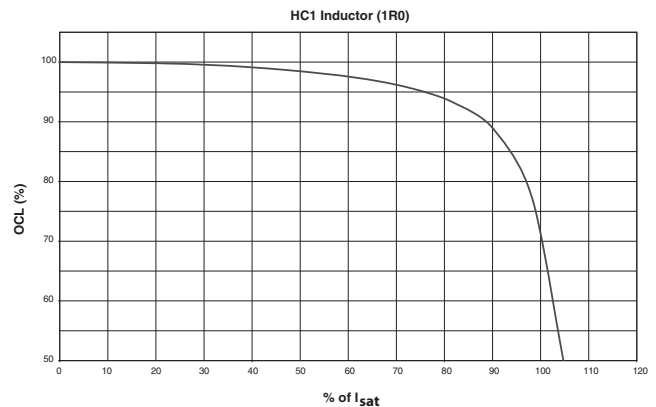
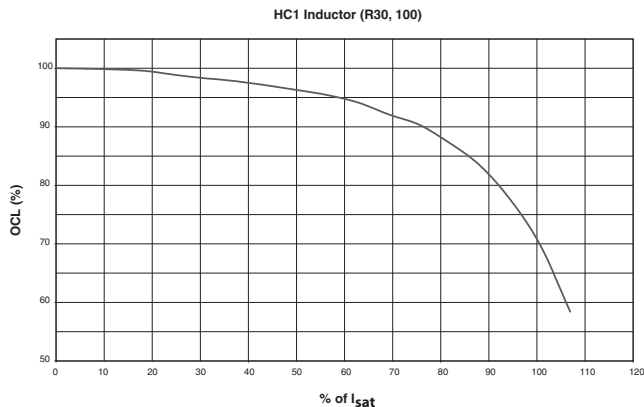
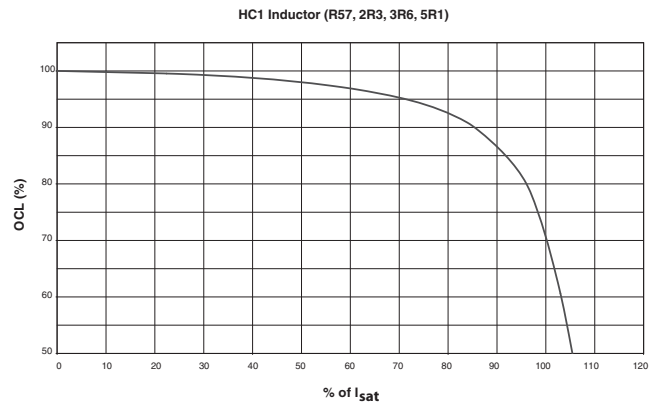
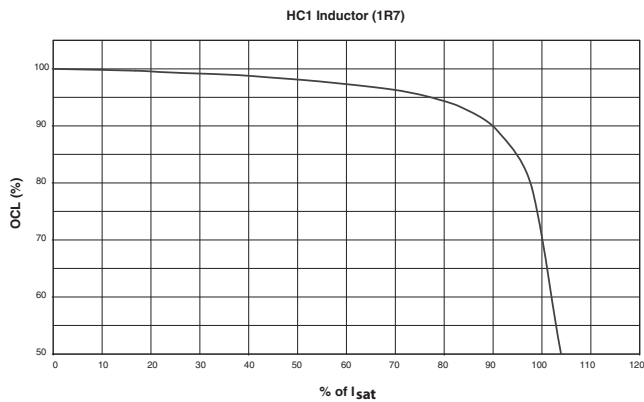
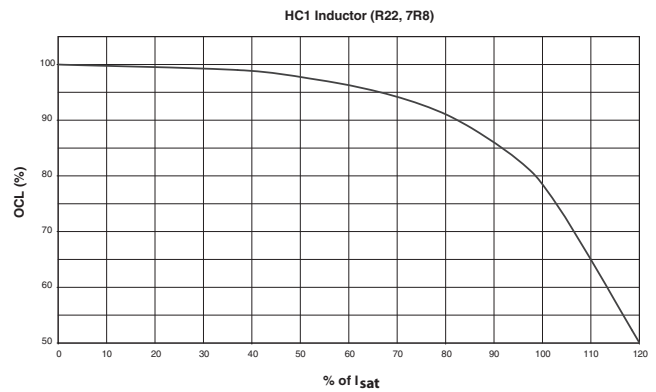
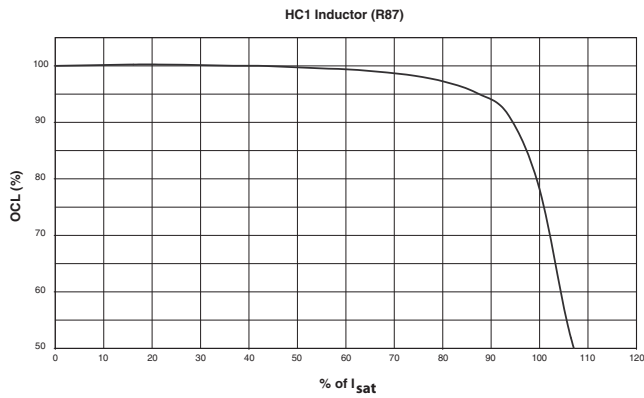
Supplied in tape and reel packaging,  
250 parts per reel, 13" diameter reel.

## Core Loss

### $I_{rms}$ Derating With Core Loss



# Inductance Characteristics



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