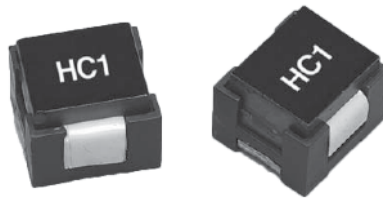


HC1

High current inductor



Product description

- Designed for high current, low voltage applications
- Low DCR, high efficiency
- Foil construction for higher frequency circuit designs
- Frequency range 1kHz to 1MHz
- Ferrite core material

Applications

- Distributed power systems DC-DC converters
- General-purpose low voltage supplies
- Computer systems
- Servers
- Industrial Equipment
- Data networking and storage systems

Environmental data

- Storage temperature range (component): -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient + self-temperature rise).
- Solder reflow temperature: J-STD-020D

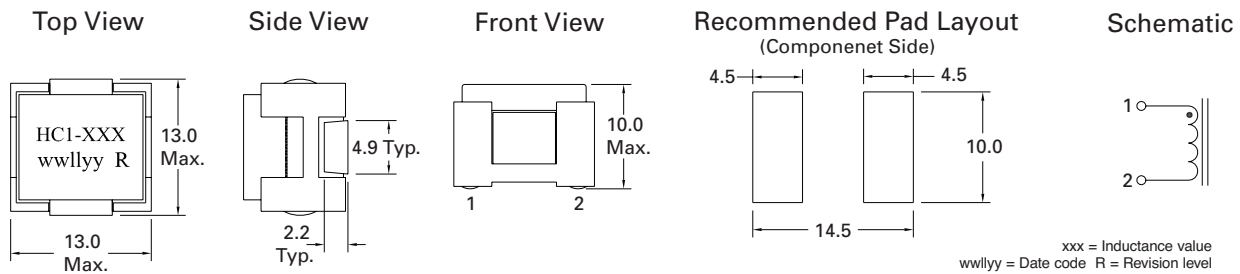


Product specifications

Part number	OCL ¹ (μH) ±15%	I _{rms} ² amps (approx.)	I _{sat} ³ amps (approx.)	DCR (Ω) maximum @ 20°C	Volt-μsec ⁴ (V μs) ref.
HC1-R22-R	0.218	51.42	40.5	0.00036	1.83
HC1-R30-R	0.291	51.42	31.8	0.00036	1.83
HC1-R57-R	0.572	37.83	33.4	0.00068	3.66
HC1-R87-R	0.866	28.01	31.0	0.00123	5.49
HC1-1R0-R	1.12	28.01	25.4	0.00123	5.49
HC1-1R7-R	1.66	22.30	22.2	0.0020	7.33
HC1-2R3-R	2.29	22.30	16.7	0.0020	7.33
HC1-3R6-R	3.59	16.76	13.4	0.0035	9.16
HC1-5R1-R	5.15	12.79	11.2	0.0057	10.99
HC1-7R8-R	7.85	12.79	6.7	0.0057	10.99
HC1-100-R	10.5	12.79	5.3	0.0057	10.99

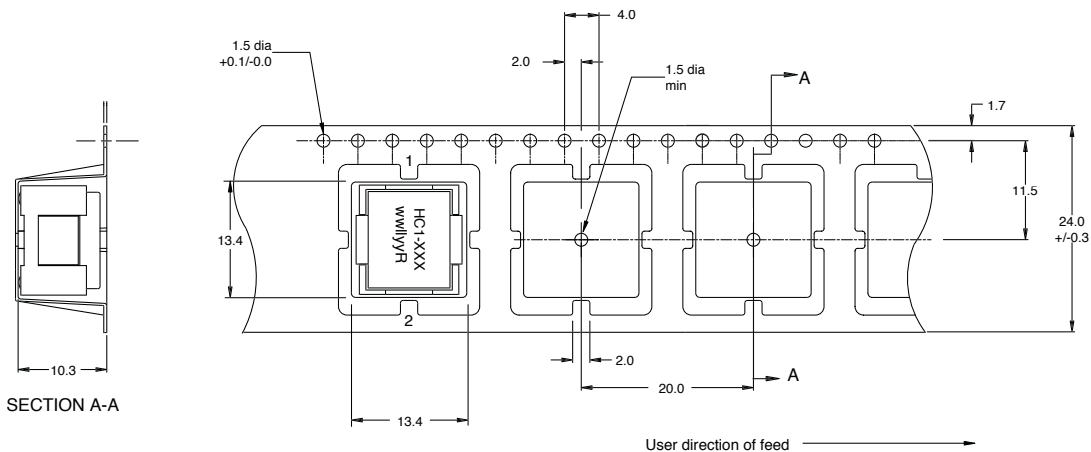
- OCL (Open Circuit Inductance) Test parameters: 300kHz, .25V_{rms}, 0.0Adc & I_{sat}
- I_{rms} Amps for approximately ΔT of 40°C. DC current for an approximate ΔT of 40°C without core loss. Derating is necessary for AC currents. It is recommended that the temperature of the part not exceed 125°C under worst case operating conditions verified in the end application.
- I_{sat} Amps Peak for approximately 30% rolloff @ 20°C.
- 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.
- Part number definition - HC1-xxx-R:
 HC1 = Product code and size
 -xxx = Inductance value
 R = Decimal point (if no "R" is present, last character equals number of zeros)
 -R Suffix = RoHS compliant

Dimensions—mm



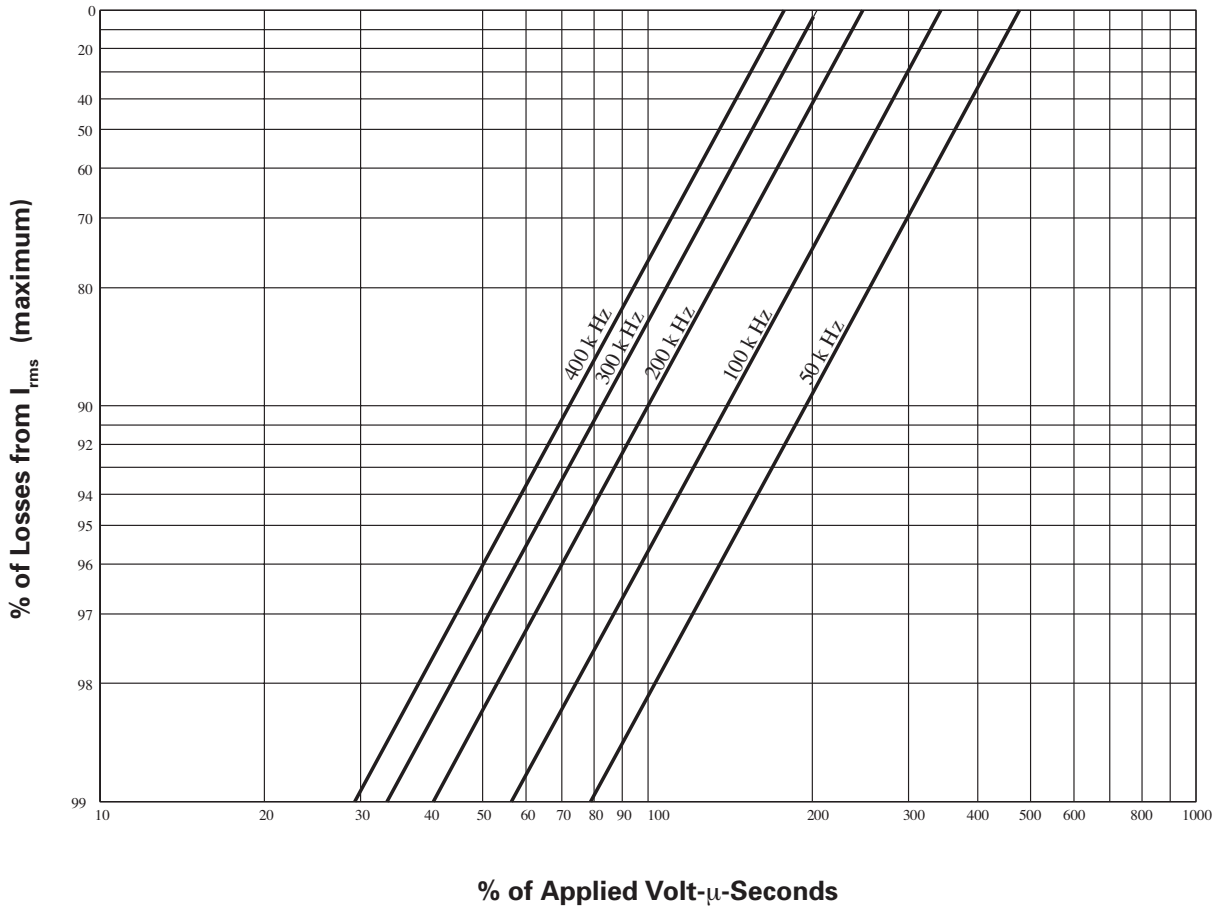
Packaging information (mm)

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

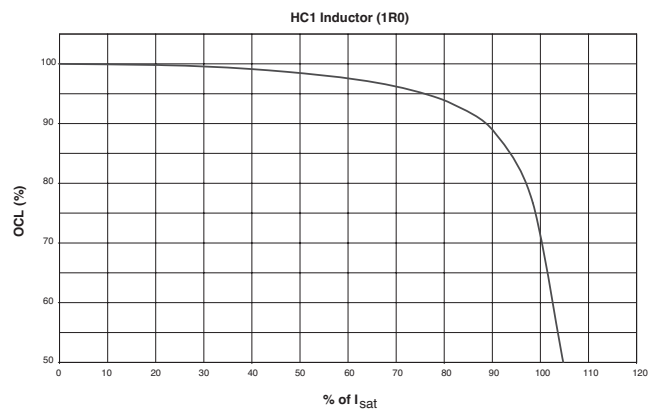
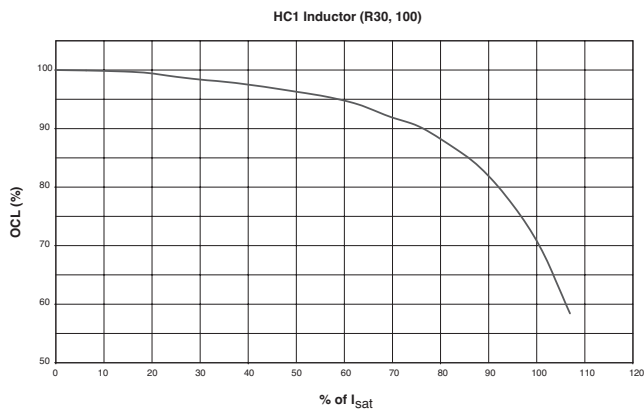
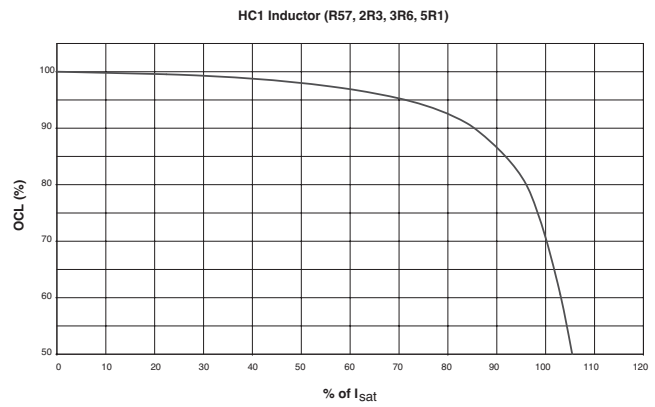
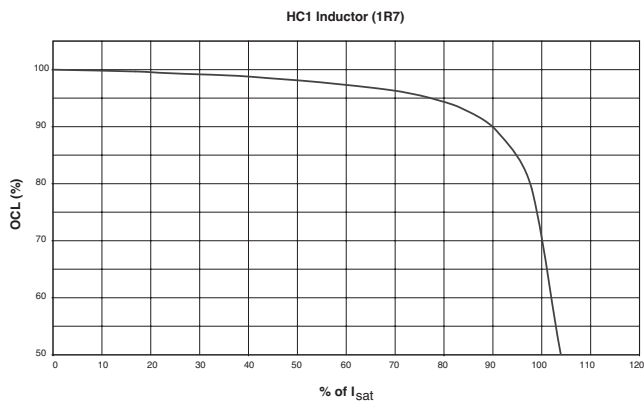
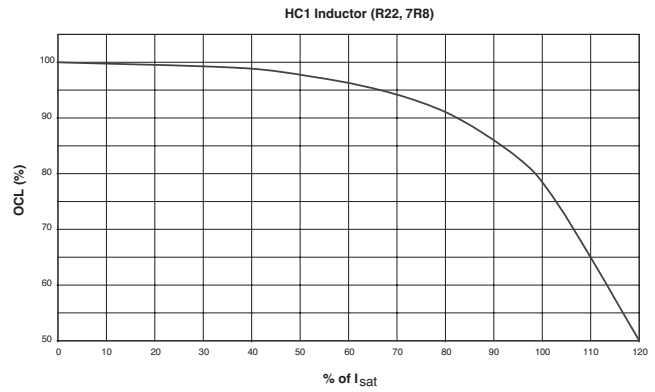
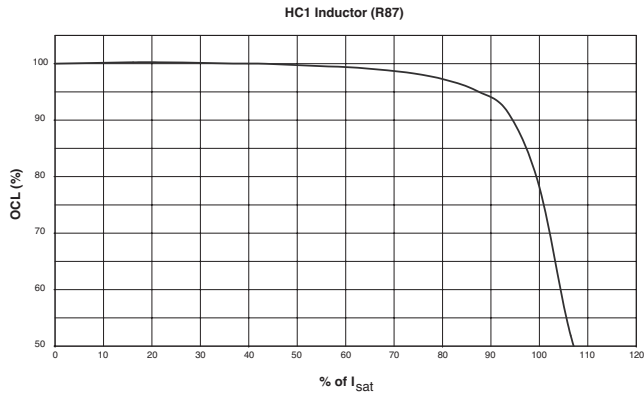


Core loss

I_{rms} Derating With Core Loss



Inductance characteristics



Solder reflow profile

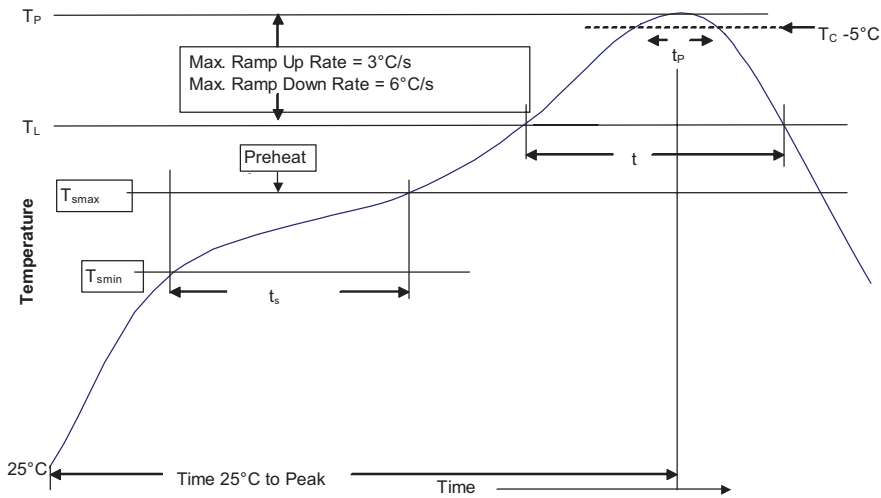


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm)	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >2000
<1.6mm	260°C	260°C	260°C
1.6 - 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference JEDEC J-STD-020D

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak		
• Temperature min. (T _{smin})	100°C	150°C
• Temperature max. (T _{smax})	150°C	200°C
• Time (T _{smin} to T _{smax}) (t _s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T _{smax} to T _p	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T _L)	183°C	217°C
Time at liquidous (t _L)	60-150 Seconds	60-150 Seconds
Peak package body temperature (T _p)*	Table 1	Table 2
Time (t _p)** within 5 °C of the specified classification temperature (T _C)	20 Seconds**	30 Seconds**
Average ramp-down rate (T _p to T _{smax})	6°C/ Second Max.	6°C/ Second Max.
Time 25°C to Peak Temperature	6 Minutes Max.	8 Minutes Max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

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Printed in USA
Publication No. 4328 BU-SB08064
October 2015

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