

HC2

High current power inductors



Product description

- Compact footprint
- Designed for high density, high current/low voltage applications
- Foil technology that adds higher reliability factor over the traditional magnet wire used for higher frequency circuit designs
- Frequency Range up to 1MHz

Applications

- Distributed power systems DC-DC converters
- General-purpose low voltage supplies
- Computer systems
- Servers
- Point of Load (POL) converters
- Industrial Equipment
- Networking/Telecom power supplies

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 compliant



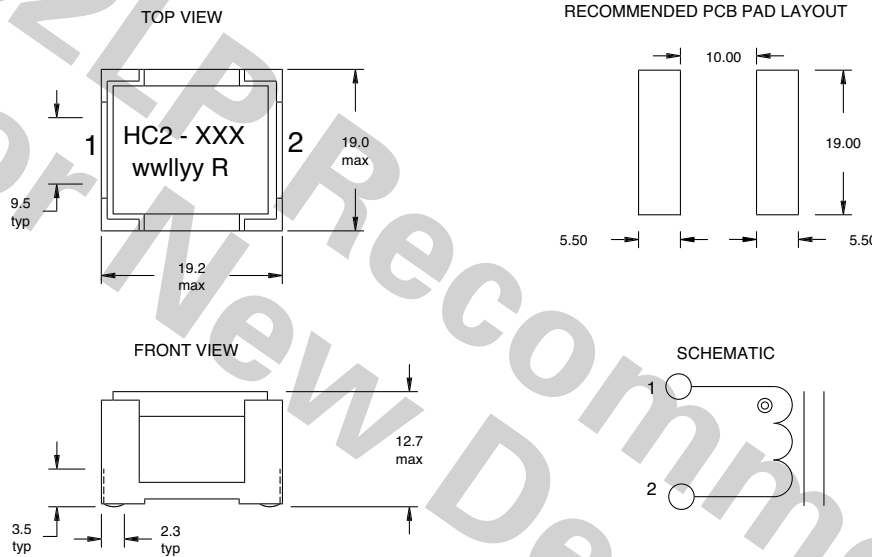
Product specifications

Part number	Part number (Tape and reel)	OCL ¹ (μH) ±20%	I _{rms} ² amps	I _{sat} ³ amps	DCR (Ω) ⁴ maximum @ 20°C	Volt-μsec ⁵ (V-μs)
HC2-R47-R	HC2-R47TR-R	.52	52.9	63.75	.0006	6.87
HC2-R68-R	HC2-R68TR-R	.63	52.9	50.00	.0006	6.87
HC2-1R0-R	HC2-1R0TR-R	1.15	33.0	42.50	.0013	10.31
HC2-2R2-R	HC2-2R2TR-R	2.00	24.3	31.90	.0023	13.75
HC2-4R7-R	HC2-4R7TR-R	4.55	17.0	21.25	.0046	20.62
HC2-6R0-R	HC2-6R0TR-R	6.00	17.0	16.50	.0046	20.62

1. Open Circuit Inductance Test Parameters: 300kHz, 0.250 Vrms, 0.0 Adc
2. DC current for an approximate temperature change of 40°C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 125°C under worst case operating conditions verified in the end application.

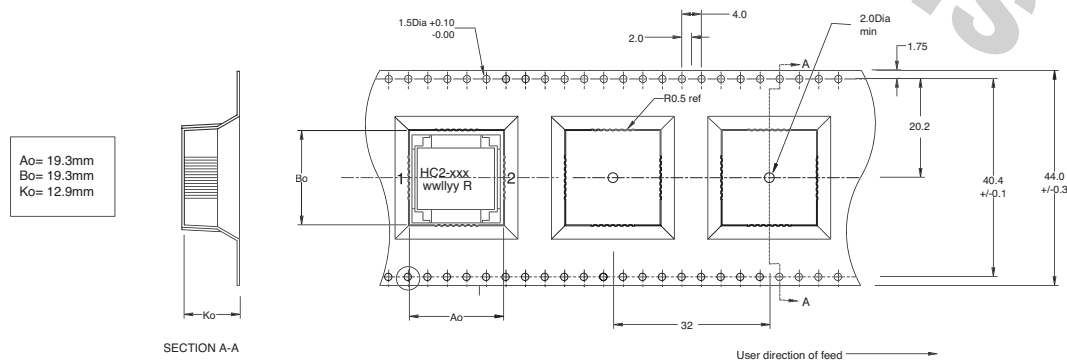
3. Peak current for approximately 30% rolloff.
4. Values @ 20°C
5. Applied Volt-Time product (V-μs) across the inductor. This value represents the applied V-μs at 300kHz necessary to generate a core loss equal to 10% of the total losses for 40°C temperature rise.

Dimensions—mm

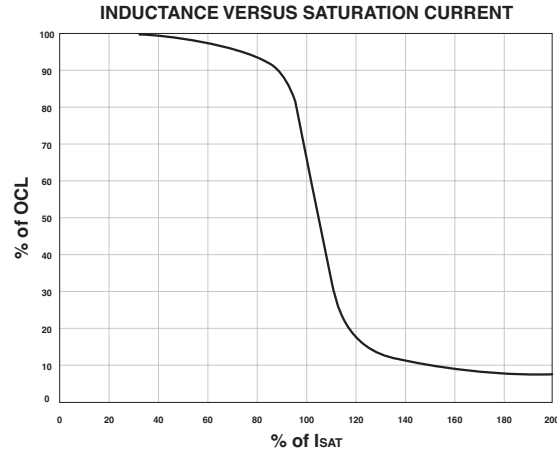


Packaging information (mm)

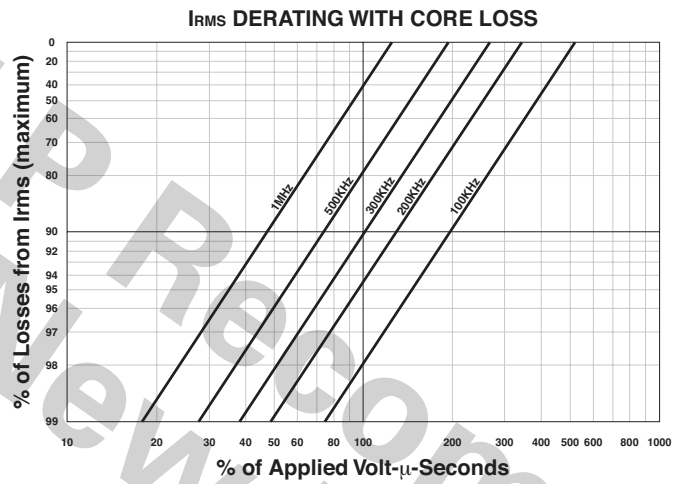
Bulk packaging: 45 parts per tray
Tape and reel packaging: 110 parts per 13" diameter reel



Rolloff



Core loss



HC2L For New Designs

Solder reflow profile

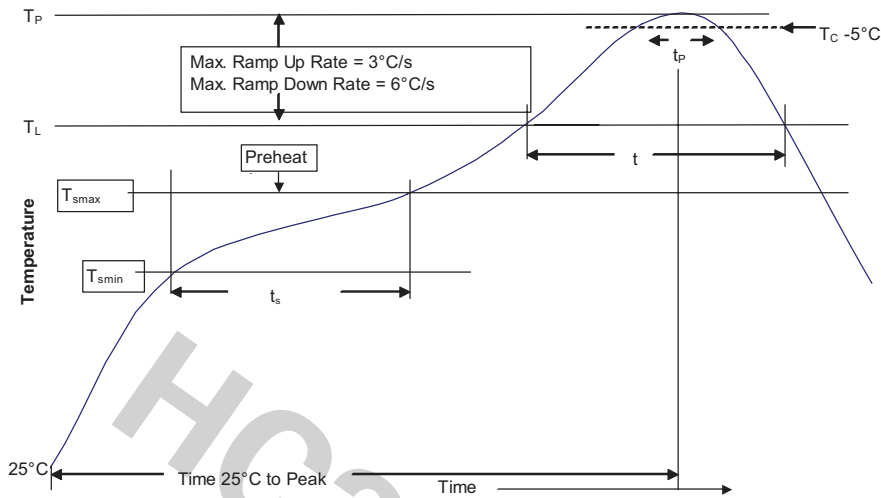


Table 1 - Standard SnPb Solder (T_c)

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 JDEC 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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Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
www.eaton.com/elx

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