



**THE DATASHEET OF  
HC1-1R0-R**



# 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



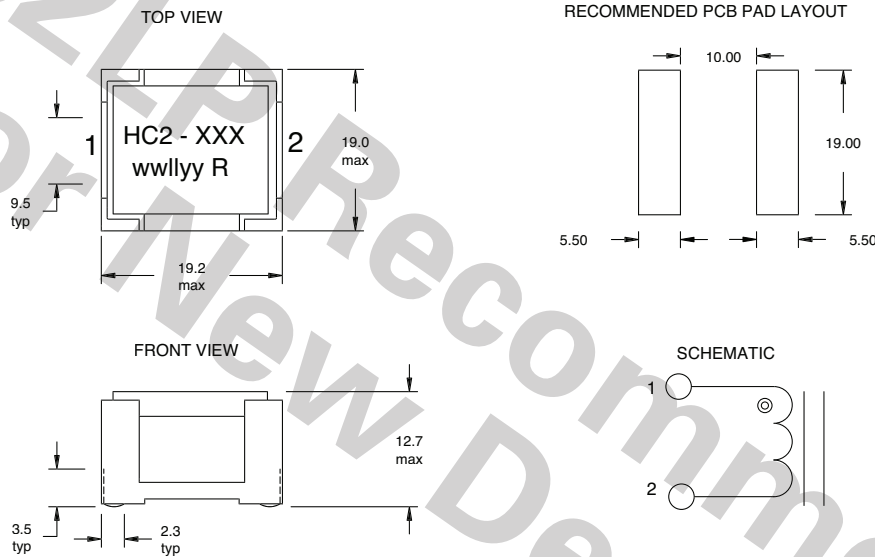
**Product specifications**

Part number	Part number (Tape and reel)	OCL <sup>1</sup> (µH) ±20%	I <sub>rms</sub> <sup>2</sup> amps	I <sub>sat</sub> <sup>3</sup> amps	DCR (Ω) <sup>4</sup> maximum @ 20°C	Volt-µsec <sup>5</sup> (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.

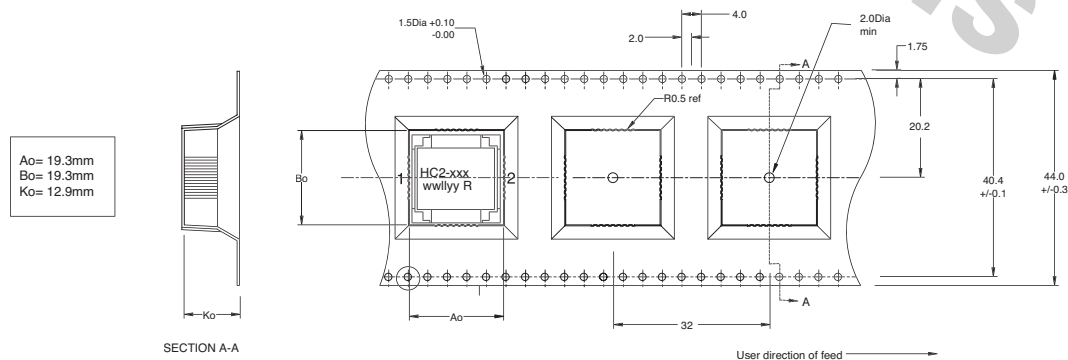
**Dimensions—mm**



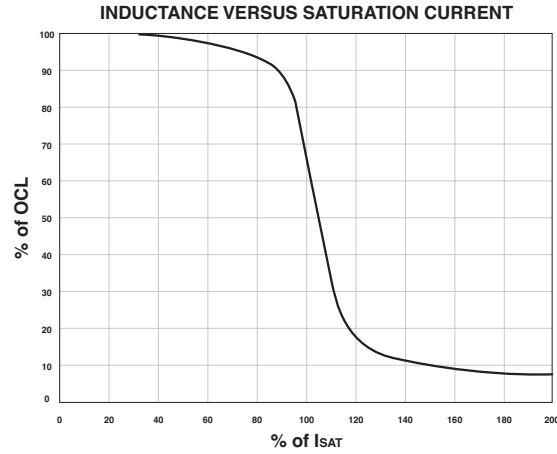
**Packaging information (mm)**

Bulk packaging: 45 parts per tray

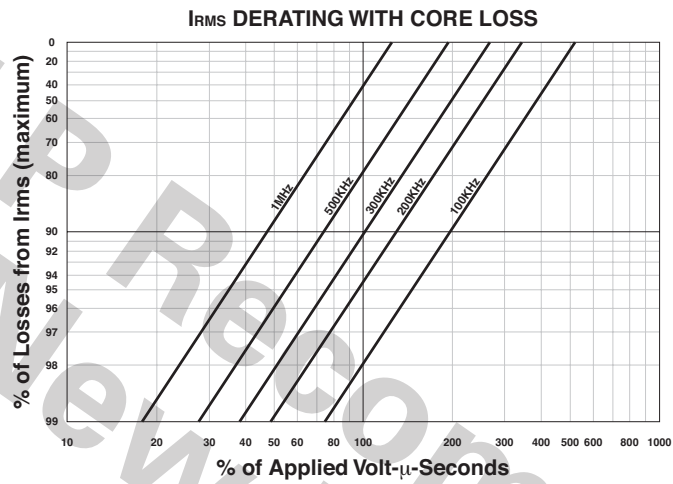
Tape and reel packaging: 110 parts per 13" diameter reel



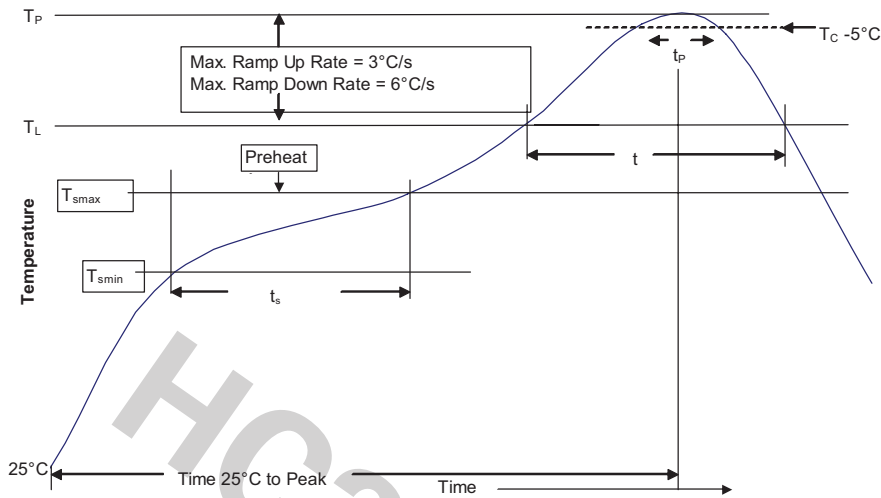
Rolloff



Core loss



**Solder reflow profile**



**Table 1 - Standard SnPb Solder (T<sub>C</sub>)**

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

**Table 2 - Lead (Pb) Free Solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100°C	150°C
• Temperature max. (T <sub>smax</sub> )	150°C	200°C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 Seconds	60-120 Seconds
Average ramp up rate T <sub>smax</sub> to T <sub>p</sub>	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T <sub>L</sub> )	183°C	217°C
Time at liquidous (t <sub>L</sub> )	60-150 Seconds	60-150 Seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )** within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 Seconds**	30 Seconds**
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

\*\* Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.

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Printed in USA  
Publication No. 4109  
October 2015

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