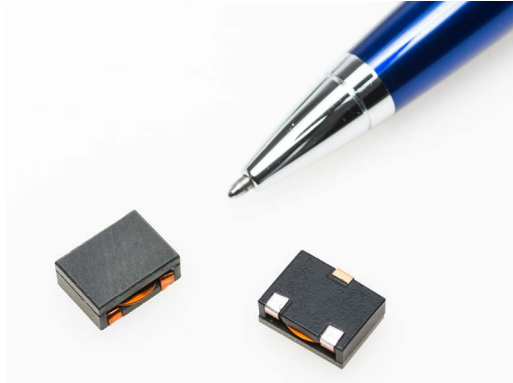


# HCV1206

## High current power inductors



### Product features

- Flat-wire construction
- Low DCR, high efficiency
- Secure 3 terminal mounting
- 12.7 mm x 10.15 mm footprint surface mount package in a 5.1 mm height
- Ferrite core material

### Applications

- Compatible with Picor® Cool-Power® ZVS Buck and Buck-Boost Regulator Families (Picor part number series PI37xx and PI35xx)

### Environmental data

- Storage temperature range (component): -55 °C to +125 °C
- Operating temperature range: -55 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant



Picor® and Cool-Power® are trademarks of Vicor Corporation.

**Product Specifications**

Part Number <sup>4</sup>	OCL <sup>1</sup> ( $\mu$ H) $\pm 10\%$	$I_{rms}^2$ (A)	$I_{sat}^3$ (A)	DCR (m $\Omega$ ) @ +20 °C $\pm 10\%$
HCV1206-R42-R	0.42	16	42	3.15
HCV1206-R48-R	0.48	16	37	3.15
HCV1206-R90-R	0.90	14	28	4.6
HCV1206-1R0-R	1.0	14	24.5	4.6
HCV1206-1R5-R	1.5	12	21	6.0
HCV1206-2R0-R	2.0	12	16	6.0
HCV1206-3R0-R	3.0	11	13	7.4

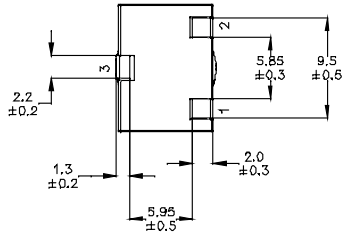
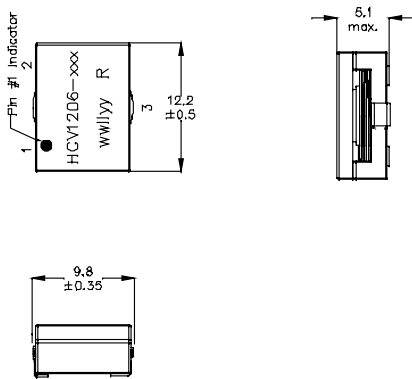
1. Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.1 Vrms, 0.0 Adc, +25 °C

2.  $I_{rms}$ : DC current for an approximate temperature rise 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.

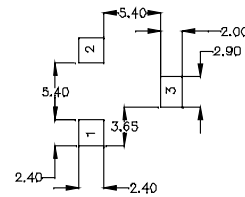
3.  $I_{sat}$ : Peak current for approximately 5% rolloff @ +25 °C

4. Part Number Definition: HCV1206-xxx-R  
HCV1206 = Product code and size  
xxx=Inductance value in  $\mu$ H,  
-R suffix = RoHS compliant

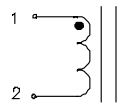
**Dimensions- mm**



**Recommended Pad Layout**



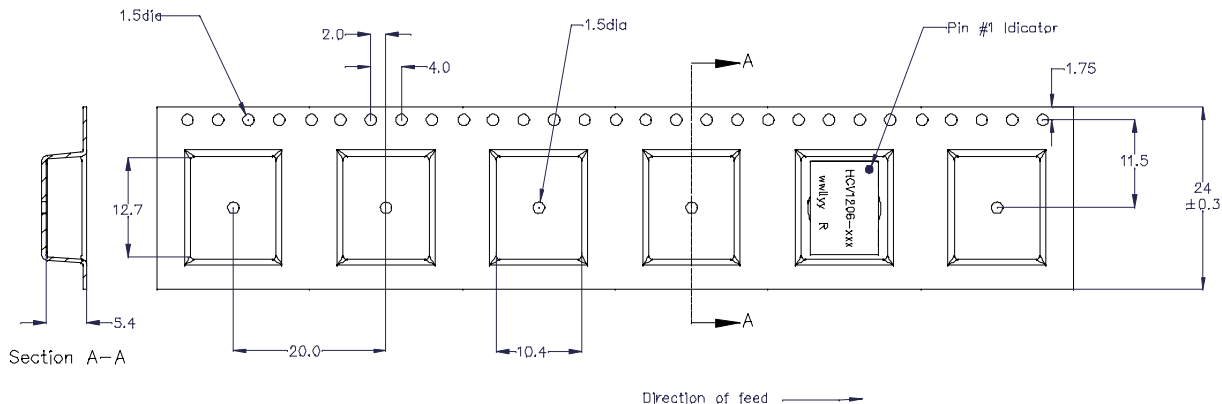
**Schematic**



Part marking: HCV1206-xxx, xxx=inductance value in  $\mu$ H, R=decimal point, wwlllyy= date code, R=revision level  
Soldering surfaces to be coplanar within 0.1 millimeters  
Pin 3 is for mounting stability. No connection.  
Do not route traces or vias underneath the inductor.

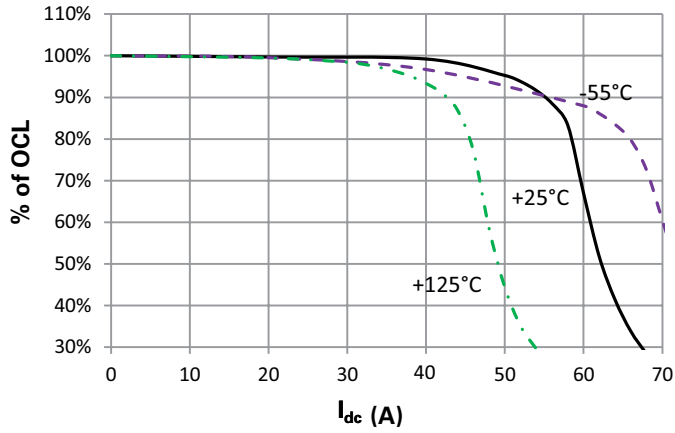
**Packaging information- mm**

Supplied in tape and reel packaging, 550 parts per 13" diameter reel

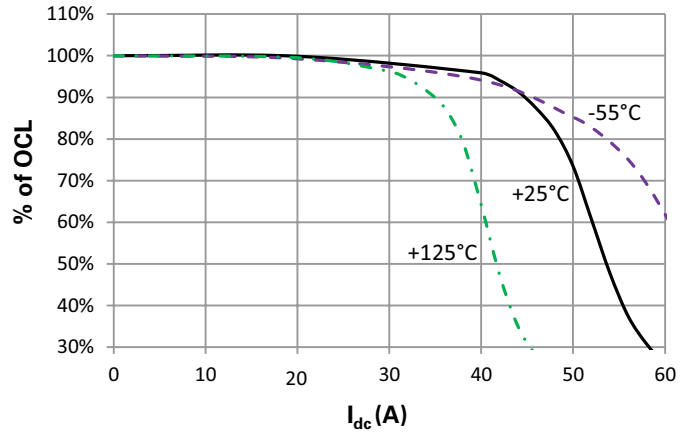


Inductance characteristics

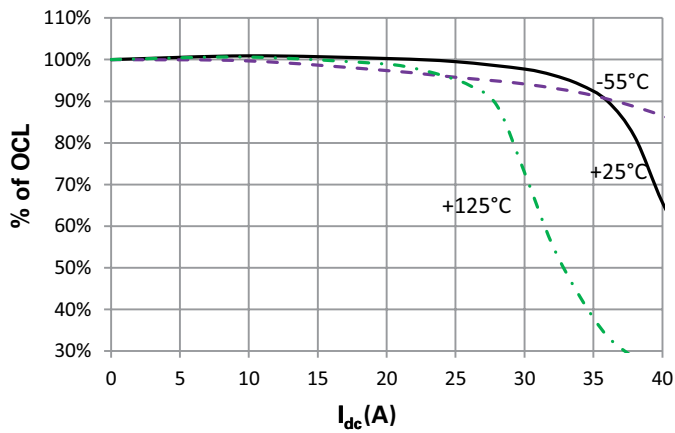
HCV1206-R42-R



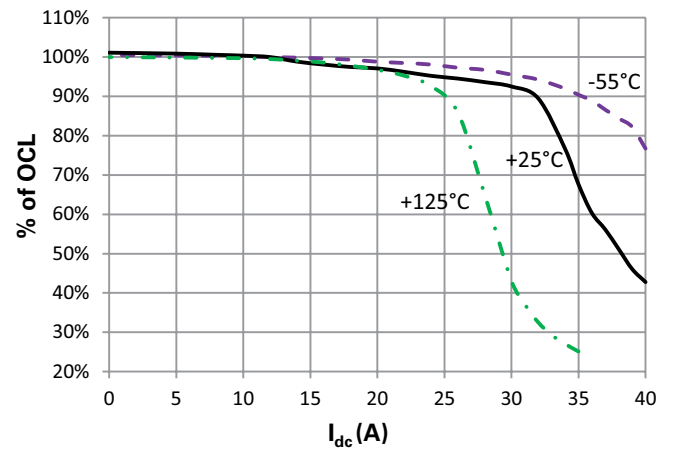
HCV1206-R48-R



HCV1206-R90-R

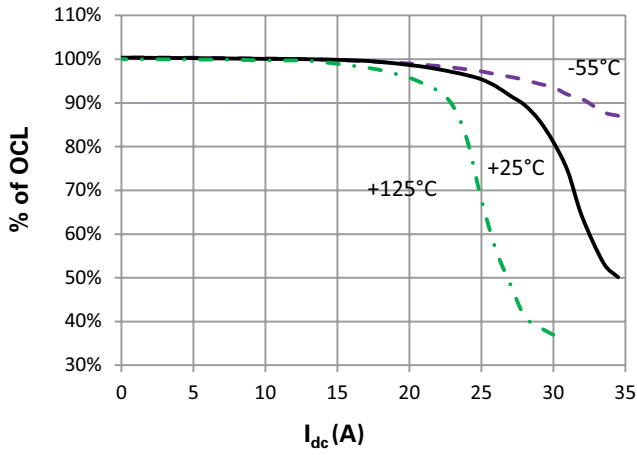


HCV1206-1R0-R

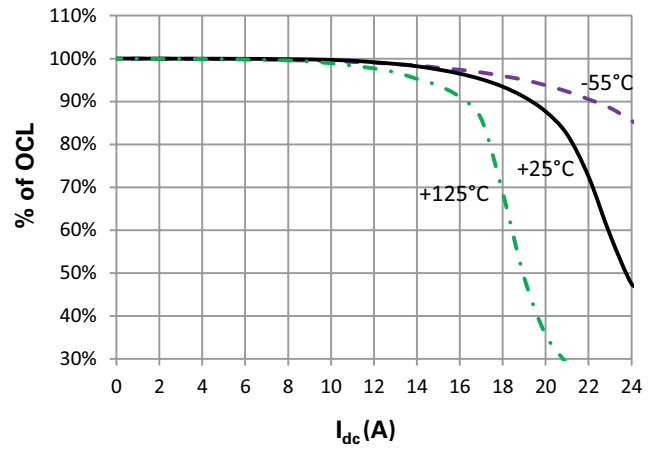


Inductance characteristics

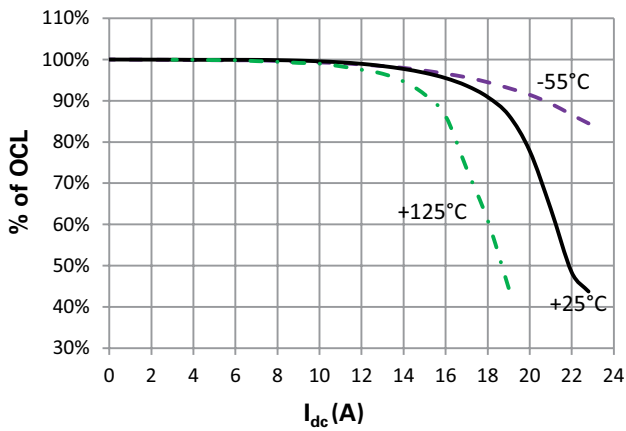
HCV1206-1R5-R



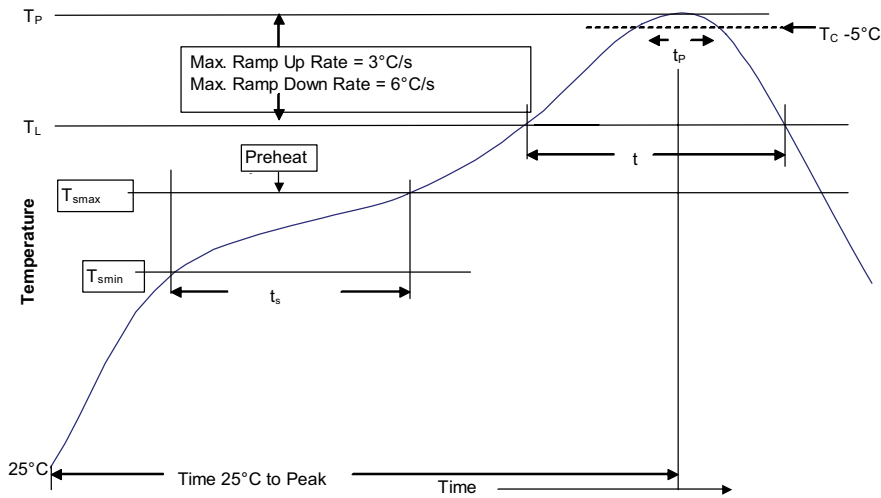
HCV1206-2R0-R



HCV1206-3R0-R



**Solder reflow profile**



**Table 1 - Standard SnPb Solder ( $T_c$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq$ 350
<2.5mm)	235°C	220°C
$\geq$ 2.5mm	220°C	220°C

**Table 2 - Lead (Pb) Free Solder ( $T_c$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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-020**

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. 10354-BU-SB15161  
October 2017

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