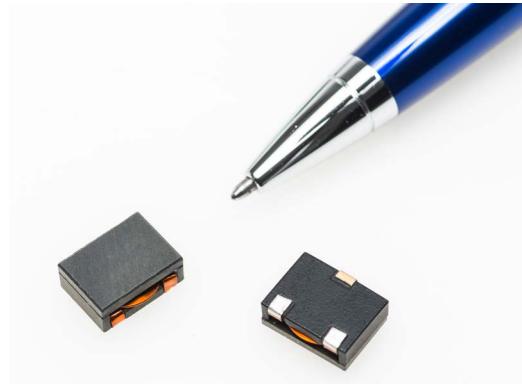


# HCV1206

## 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



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## Product Specifications

| Part Number <sup>4</sup> | OCL <sup>1</sup><br>( $\mu$ H) $\pm 10\%$ | I <sub>rms</sub> <sup>2</sup><br>(A) | I <sub>sat</sub> <sup>3</sup><br>(A) | DCR (m $\Omega$ )<br>@ +20 °C<br>$\pm 10\%$ |
|--------------------------|---|--------------------------------------|--------------------------------------|---|
| 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<sub>rms</sub>: 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<sub>sat</sub> : Peak current for approximately 5% rolloff @ +25 °C

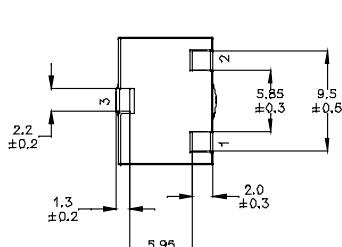
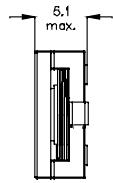
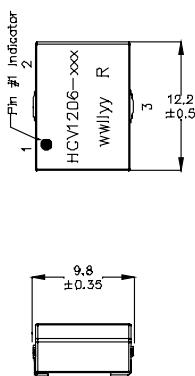
4. Part Number Definition: HCV1206-xxx-R

HCV1206 = Product code and size

xxx=Inductance value in  $\mu$ H,

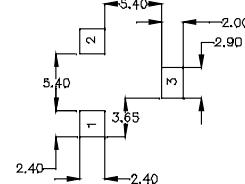
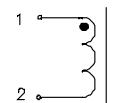
-R suffix = RoHS compliant

## Dimensions- mm



Recommended Pad Layout

Schematic



Part marking: HCV1206-xxx, xxx=inductance value in  $\mu$ H, R=decimal point, wwllyy= date code, R=revision level

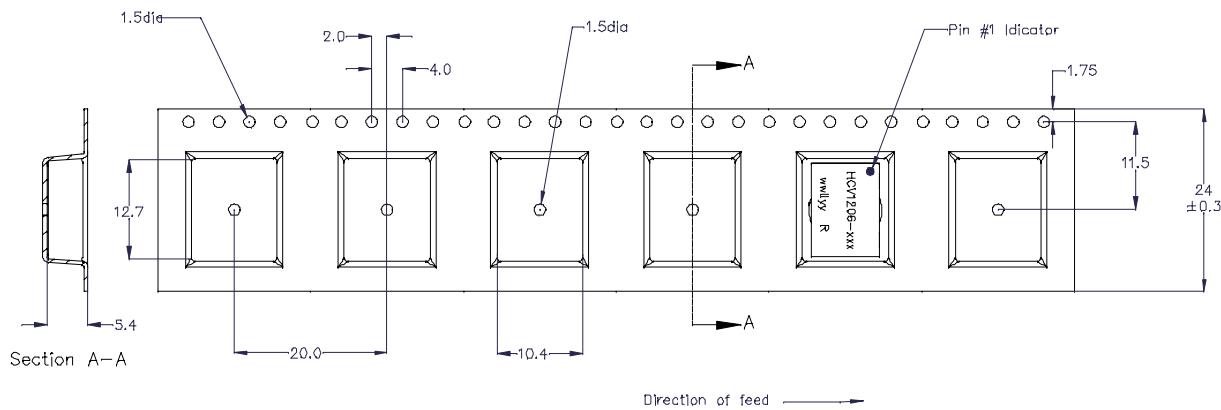
Soldering surfaces to be coplanar within 0.1 millimeters

Pin 3 is for mounting stability. No connection.

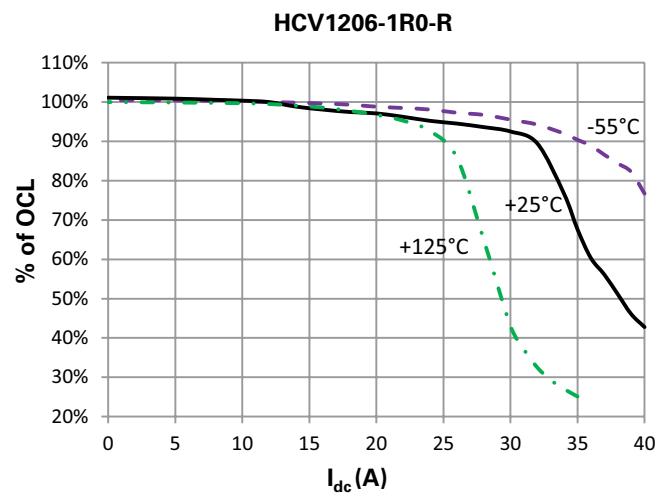
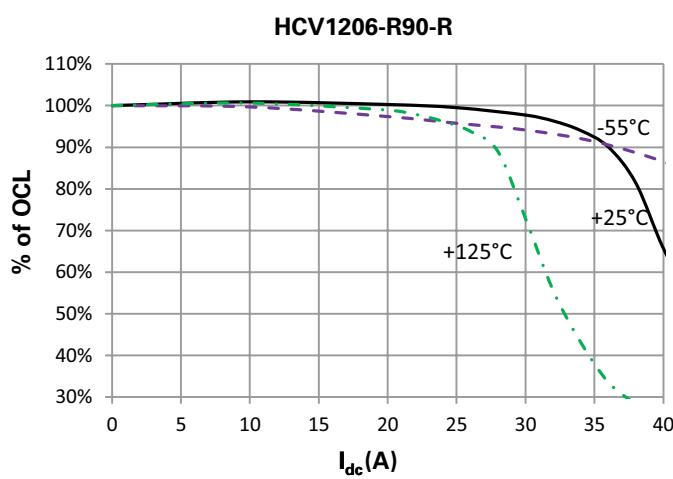
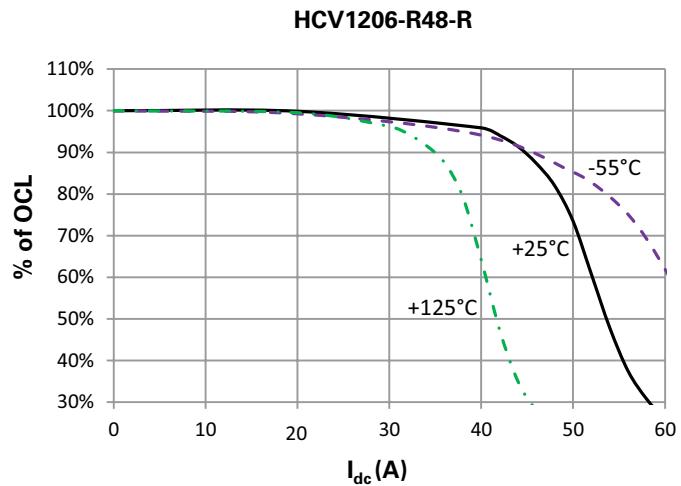
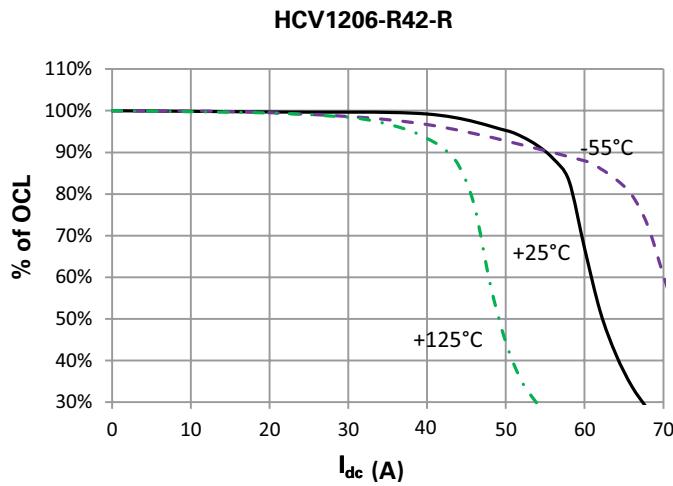
Do not route traces or vias underneath the inductor.

## Packaging information- mm

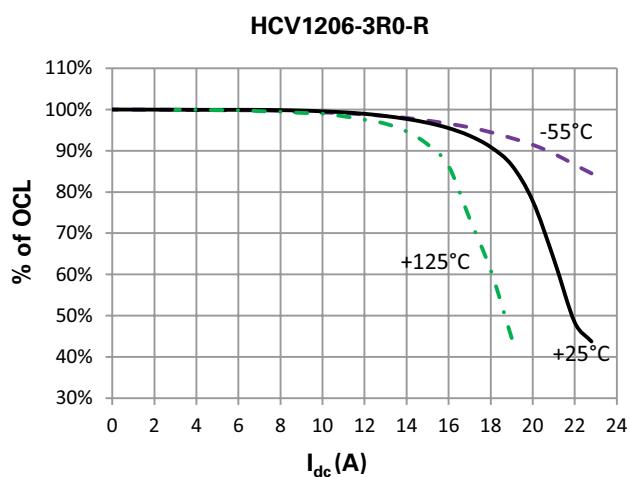
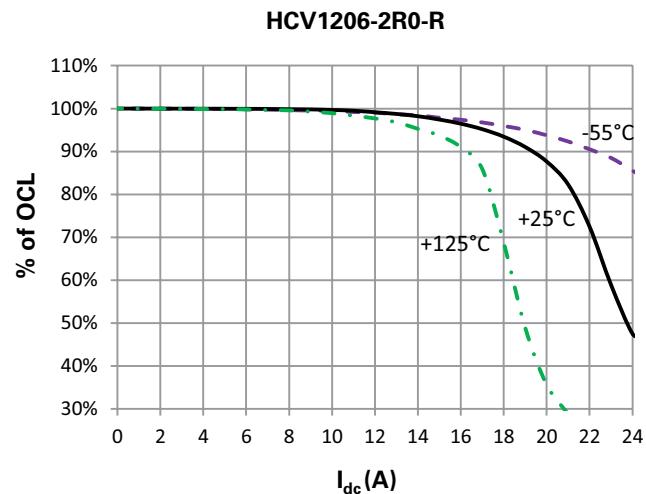
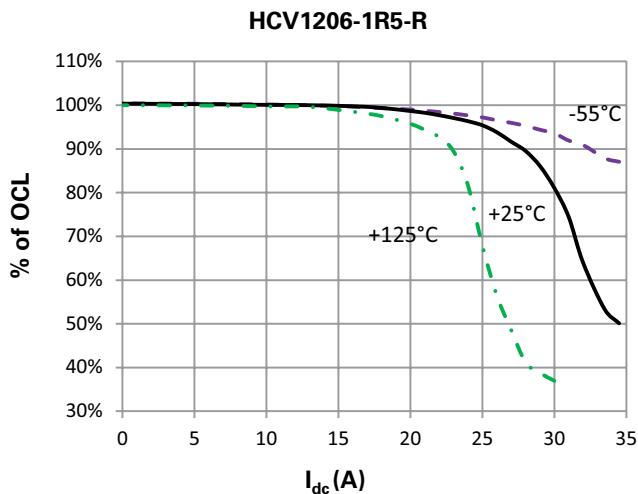
Supplied in tape and reel packaging, 550 parts per 13" diameter reel



**Inductance characteristics**



## Inductance characteristics



### Solder reflow profile

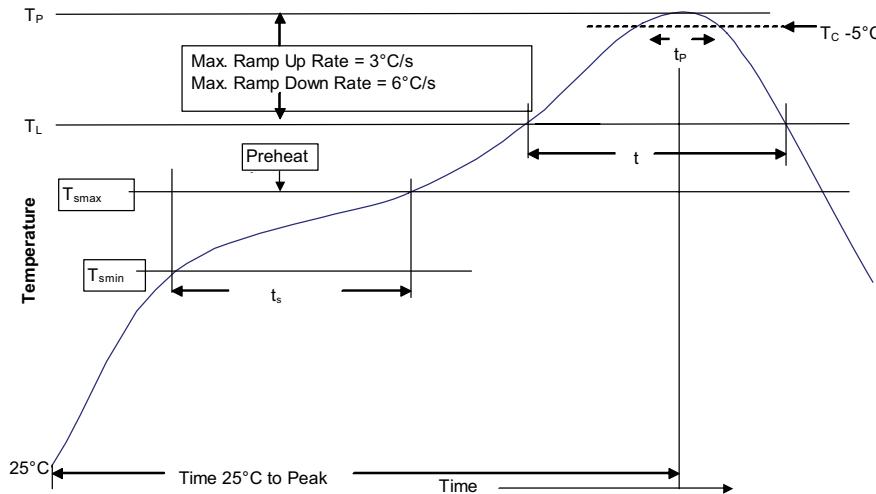


Table 1 - Standard SnPb Solder ( $T_c$ )

| 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 ( $T_c$ )

| 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-020

| Profile Feature  | Standard SnPb Solder   | Lead (Pb) Free Solder                              |
|--|--|--|
| Preheat and Soak   | <ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) / (<math>t_s</math>)</li> </ul> | 100°C<br>150°C<br>60-120 Seconds<br>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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