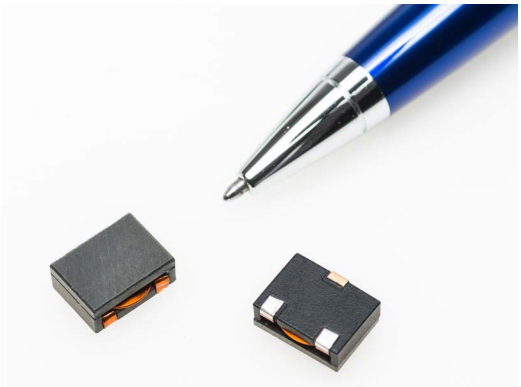
# HCV1206

## 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 Buckand 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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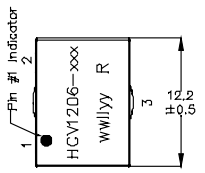
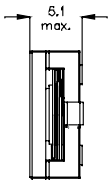
## Product Specifications

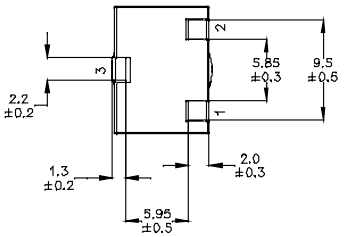
| Part Number[4] | OCL[1] (µH) ±10% | $I_{rms}$[2] (A) | $I_{sat}$[3] (A) | DCR (mΩ) @ +20 °C ±10% |
|---|---|---|---|---|
| HCV1206-R42-R | 0.42 | 16 | 42 | 3.15 |
| HCV1206-R48-R | 0.48 | 16 | 37 | 3.15 |
| HCV1206-R90-R | 0.90 | 14 | 28 | 4.6 |
| HCV1206-1R0-R | 1.0 | 14 | 24.5 | 4.6 |
| HCV1206-1R5-R | 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 µH,
   -R suffix = RoHS compliant

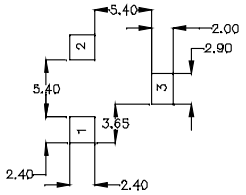
## Dimensions- mm



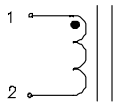



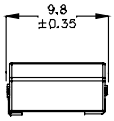




Recommended Pad Layout




Schematic

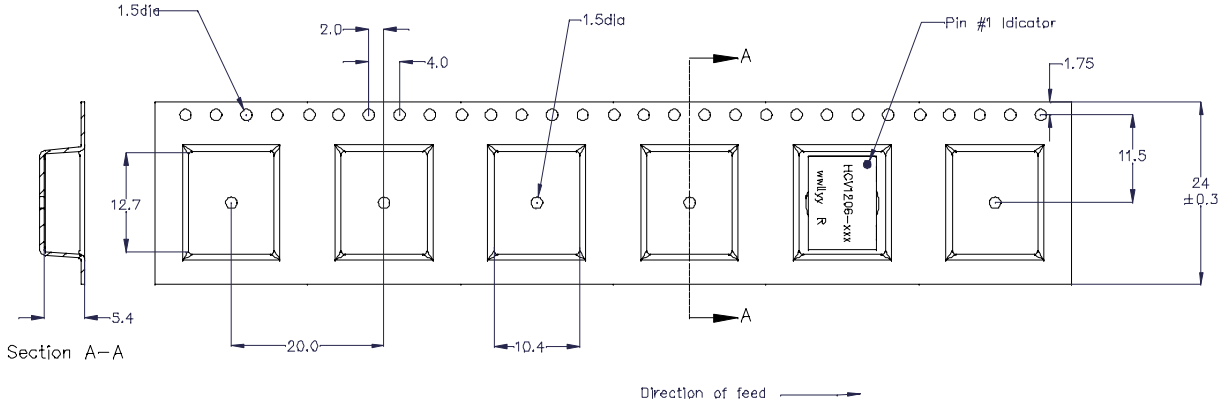



Part marking: HCV1206–xxx, xxx=inductance value in µH, R=decimal point, wwllyy= date code, R=revision level
Soldering surfaces to be coplanar within 0.1 millimeters
Pin 3 is for mounting stability. No connection.
Do not route traces or vias underneath the inductor.

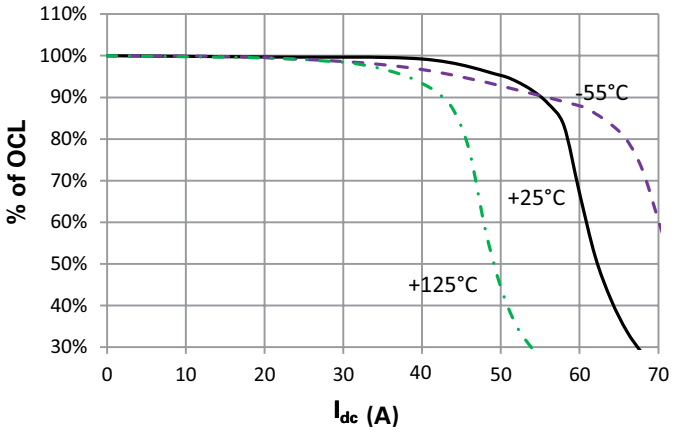
## Packaging information- mm

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

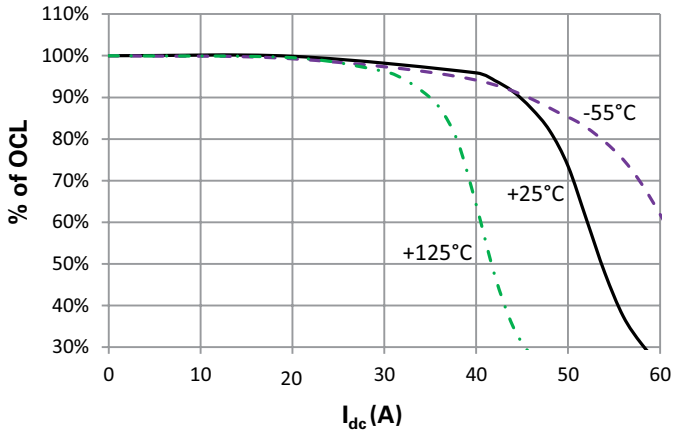


**Inductance characteristics**

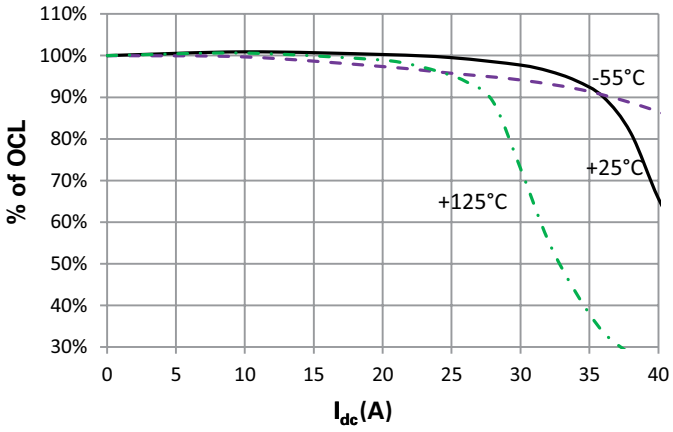
**HCV1206-R42-R**



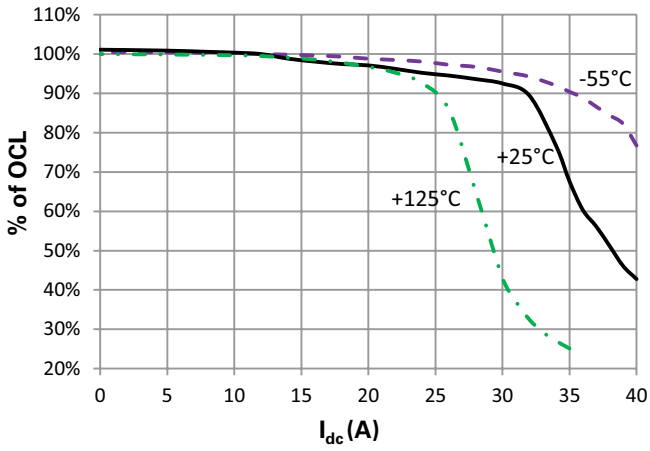

**HCV1206-R48-R**




**HCV1206-R90-R**

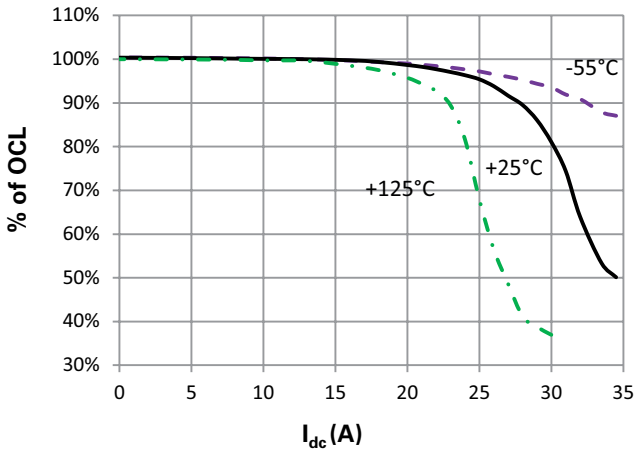



**HCV1206-1R0-R**

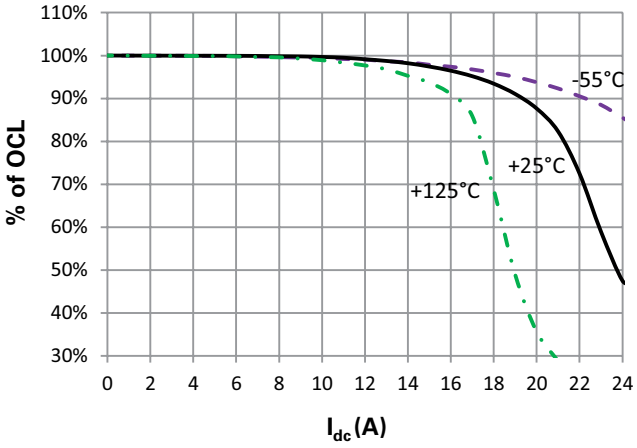


**Inductance characteristics**

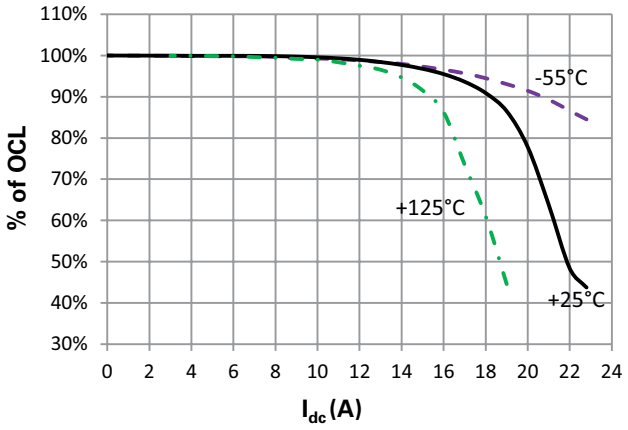
**HCV1206-1R5-R**




**HCV1206-2R0-R**




**HCV1206-3R0-R**



## Solder reflow profile

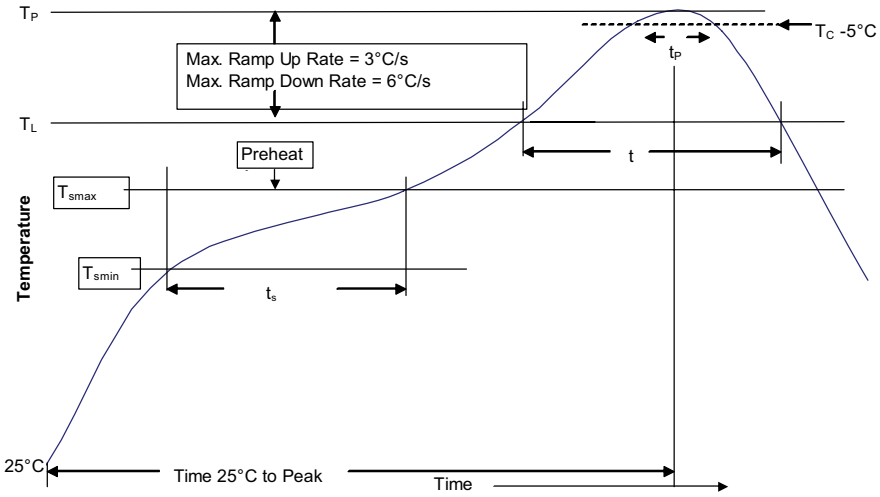



**Table 1 - Standard SnPb Solder ($T_C$)**

| Package Thickness | Volume mm³ <350 | Volume mm³ ≥350 |
|---|---|---|
| <2.5mm) | 235°C | 220°C |
| ≥2.5mm | 220°C | 220°C |

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

| Package Thickness | Volume mm³ <350 | Volume mm³ 350 - 2000 | Volume mm³ >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 ($T_L$)<br>Time at liquidous ($t_L$) | | 183°C<br>60-150 Seconds | 217°C<br>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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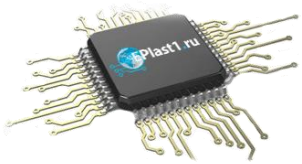


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