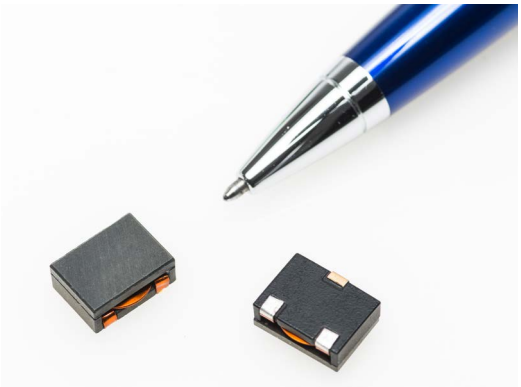
HCV1206

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

Product Specifications

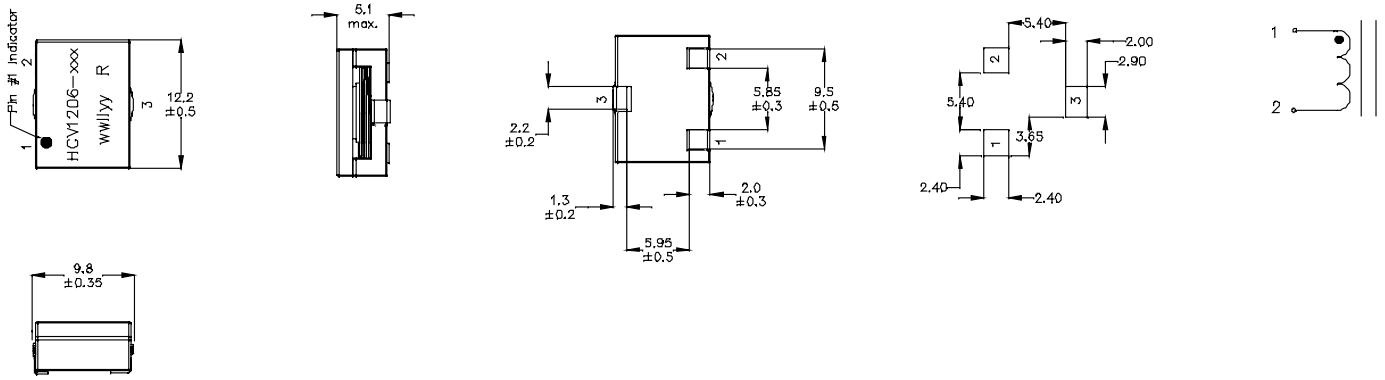
Part Number[4]	OCL[1] (µH) ±10%	I_{rms}[2] (A)	I_{sat}[3] (A)	DCR (mΩ) @ +20 °C ±10%
HCV1206-R42-R	0.42	16	42	3.15
HCV1206-R48-R	0.48	16	37	3.15
HCV1206-R90-R	0.90	14	28	4.6
HCV1206-1R0-R	1.0	14	24.5	4.6
HCV1206-1R5-R	1.5	12	21	6.0
HCV1206-2R0-R	2.0	12	16	6.0
HCV1206-3R0-R	3.0	11	13	7.4

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

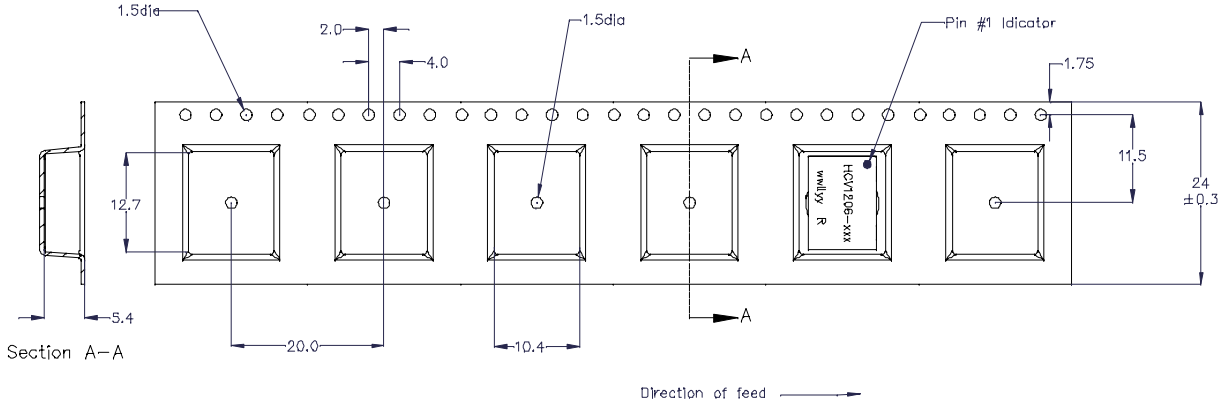
Schematic



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.

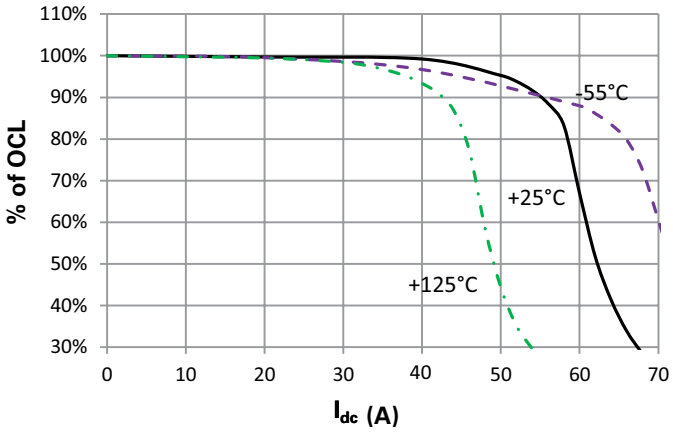
Packaging information- mm

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

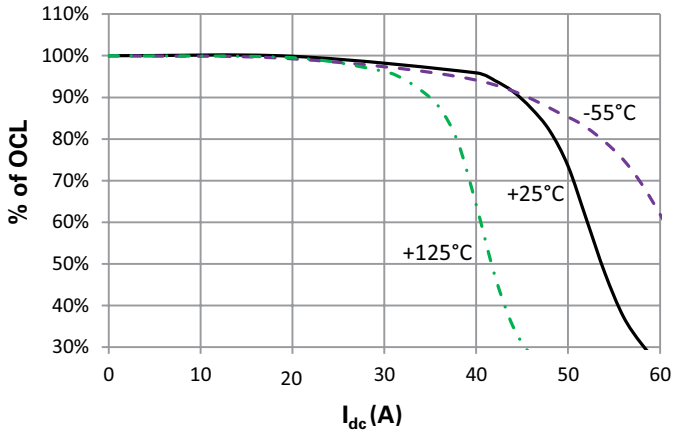


Inductance characteristics

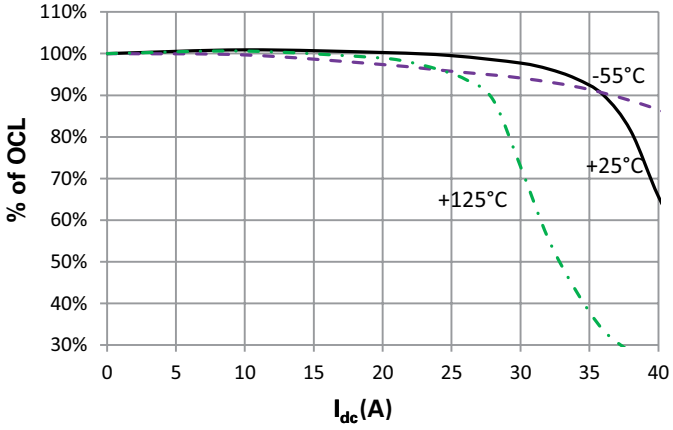
HCV1206-R42-R



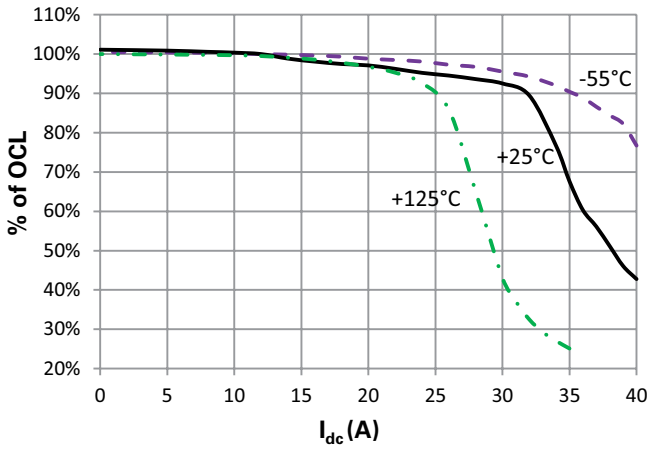
HCV1206-R48-R



HCV1206-R90-R

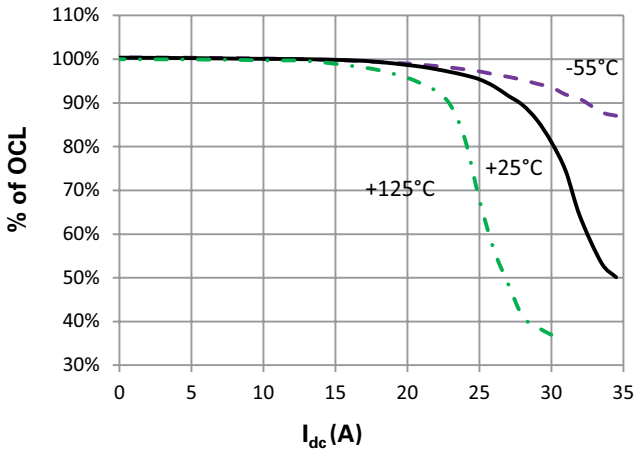


HCV1206-1R0-R

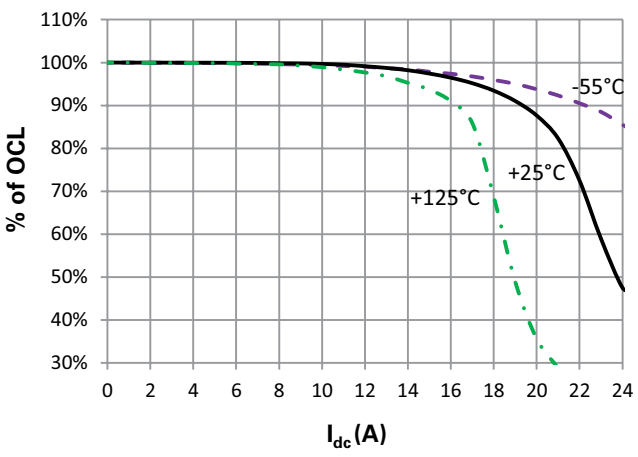


Inductance characteristics

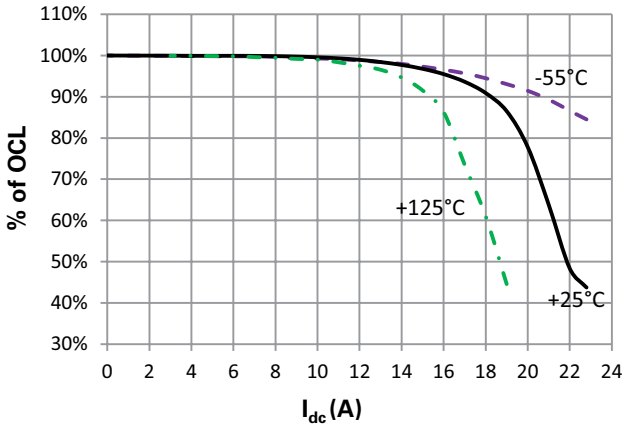
HCV1206-1R5-R



HCV1206-2R0-R



HCV1206-3R0-R



Solder reflow profile

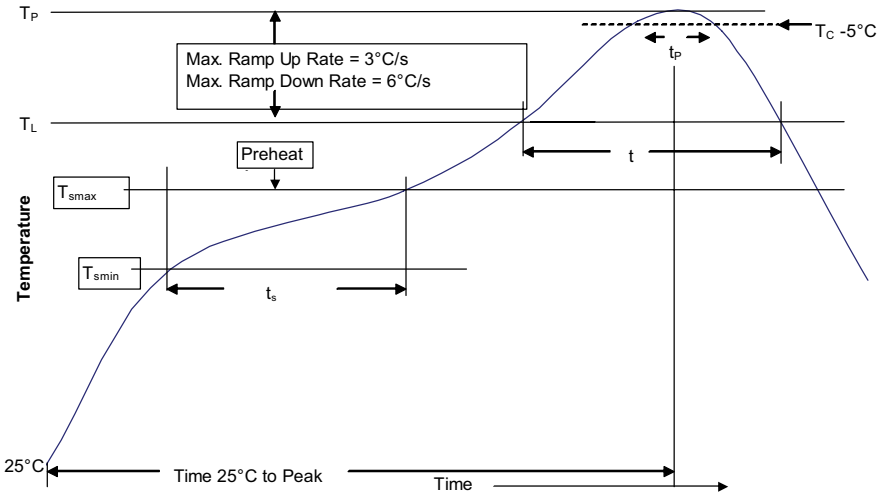


Table 1 - Standard SnPb Solder (T_C)

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) Time at liquidous (t_L)		183°C 60-150 Seconds	217°C 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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