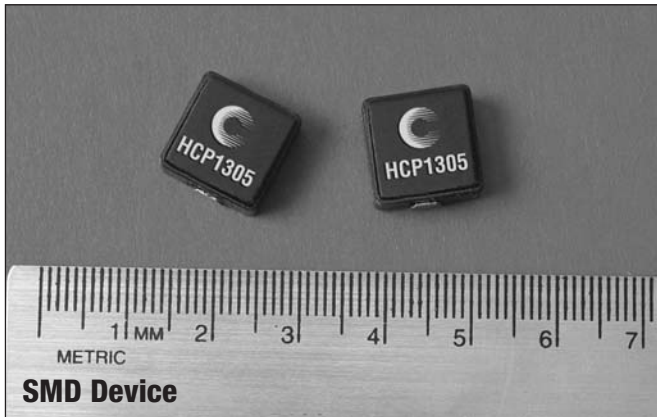


# High Current, Pressed, Power Inductors

## HCP1305 Series



### Description

- 125°C maximum temperature operation
- 12.9 x 13.8 x 5.0mm surface mount package
- Pressed powder iron core material
- Enhanced core coating eliminates rusting and provides high insulation impedance
- Inductance range from 0.47µH to 2.2µH
- Current range from 65.0 Amps to 20 Amps
- Frequency range up to 1MHz
- Black or gray aesthetic color

### Applications

- Notebook power
- VRM, multi-phase buck regulator
- DC-DC converters
- PC workstations/Servers/Desktop
- Routers



### Environmental Data

- Storage temperature range: -55°C to +125°C
- Operating temperature range: -55°C to +125°C (range is application specific)
- Solder reflow temperature: +260°C max. for 10 seconds maximum

### Packaging

- Supplied in tape and reel packaging, 400 parts per reel, 13" diameter reel

### Product Specifications

| Part Number <sup>5</sup> | Rated Inductance (µH) | OCL <sup>1</sup> µH ± 20% | I <sub>rms</sub> <sup>2</sup> Amps | I <sub>sat</sub> <sup>3</sup> Amps | DCR mΩ@20°C (Typical) | DCR mΩ@20°C (Maximum) | K-factor <sup>4</sup> |
|--------------------------|-----------------------|---------------------------|------------------------------------|------------------------------------|-----------------------|-----------------------|-----------------------|
| HCP1305-R47-R            | 0.47                  | 0.47                      | 38                                 | 65                                 | 1.1                   | 1.3                   | 181                   |
| HCP1305-R56-R            | 0.56                  | 0.56                      | 36                                 | 55                                 | 1.3                   | 1.5                   | 130                   |
| HCP1305-1R0-R            | 1.0                   | 1.0                       | 29                                 | 50                                 | 2.1                   | 2.5                   | 134                   |
| HCP1305-1R5-R            | 1.5                   | 1.5                       | 23                                 | 48                                 | 3.4                   | 4.1                   | 105                   |
| HCP1305-2R2-R            | 2.2                   | 2.2                       | 20                                 | 32                                 | 4.6                   | 5.5                   | 77                    |

1 Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.25V, 0.0Adc

2 I<sub>rms</sub>: DC current for an approximate ΔT 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 the part temperature not exceed 125°C under worst case operating conditions verified in the end application.

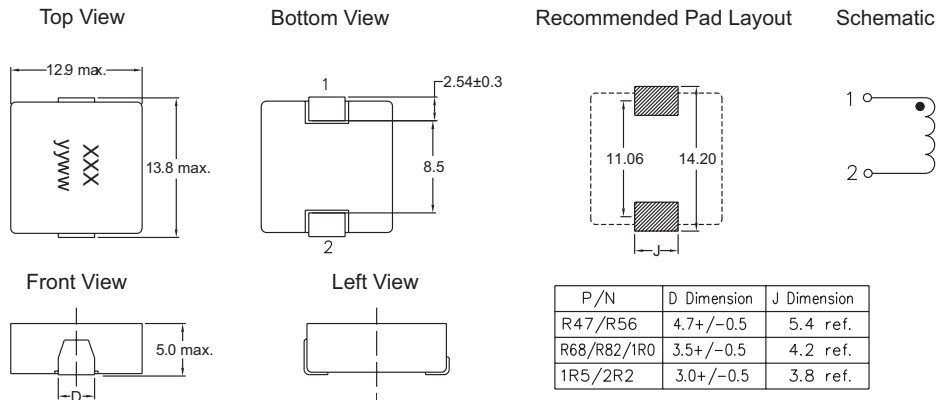
3 I<sub>sat</sub>: Amps for approximately 20% rolloff (@25°C).

4 K-factor: Used to determine B<sub>p-p</sub> for core loss (see graph). B<sub>p-p</sub> = K \* L \* ΔI, B<sub>p-p</sub>: (Gauss), K: (K-factor from table), L: (inductance in µH), ΔI (peak-to-peak ripple current in amps).

5 Part Number Definition: HCP1305-xxx-R

- HCP1305 = Product code and size
- xxx= Inductance value in µH, R = decimal point. If no "R" is present, then third character = # of zeros
- "-R" suffix = RoHS compliant

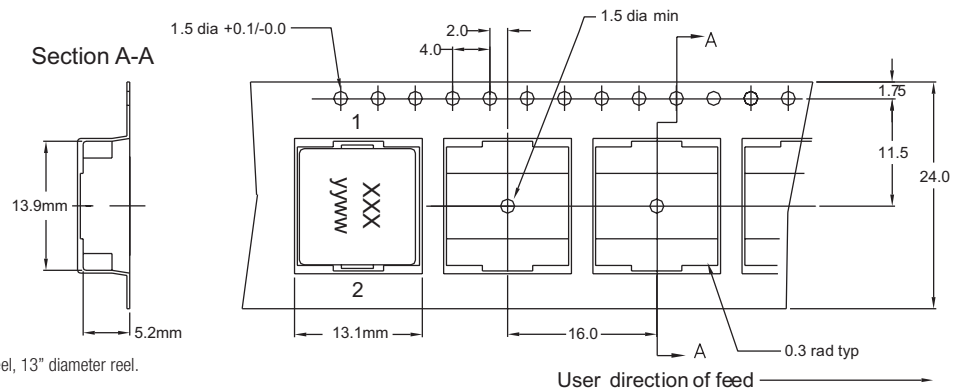
### Dimensions - mm



Part Marking: HCP1305

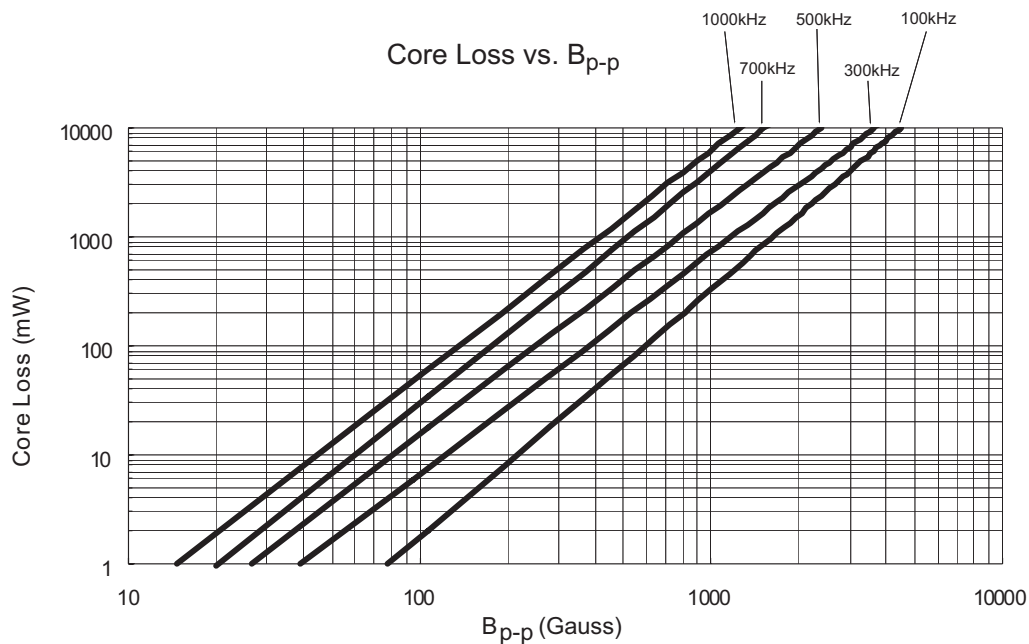
xx = Inductance value in  $\mu\text{H}$ . (R = Decimal point). If no "R" is present, then last character is # of zeros yyww = Date code

### Packaging Information - mm

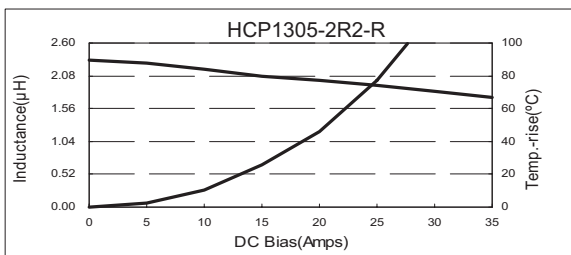
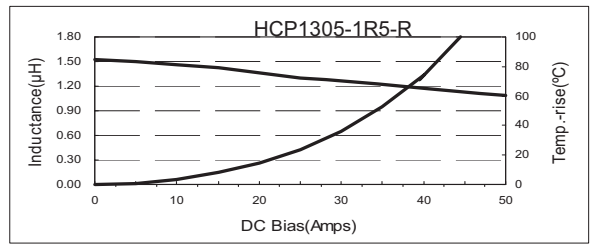
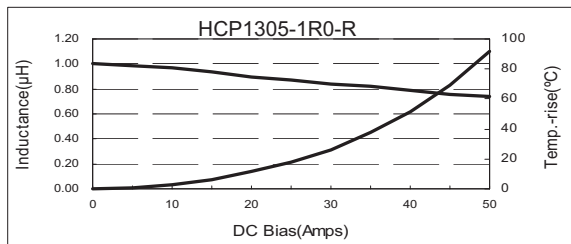
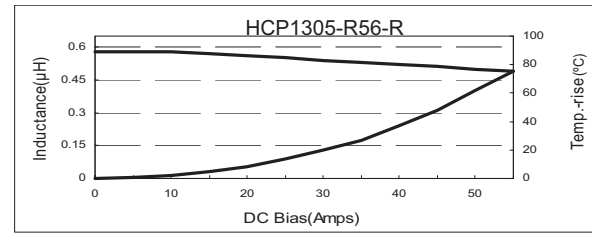
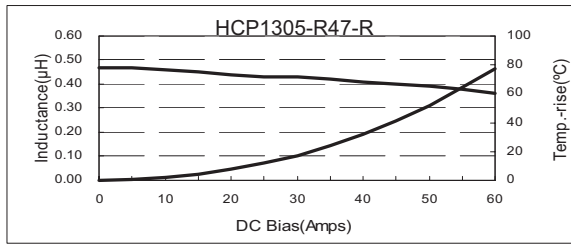


Supplied in tape-and-reel packaging, 400 parts per reel, 13" diameter reel.

### Core Loss



## Performance Graphs



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