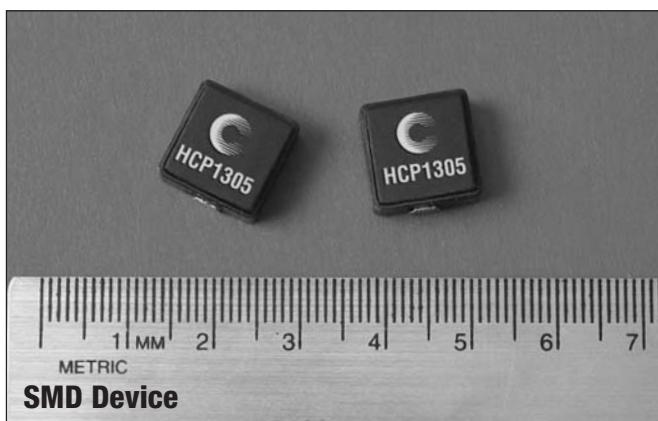


High Current, Pressed, Power Inductors

HCP1305 Series



Description

- 125°C maximum temperature operation
- 12.9 x 13.8 x 5.0mm surface mount package
- Magnetically shielded, low EMI
- 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 ⁵ | Rated Inductance (µH) | OCL ¹ µH ± 20% | I _{rms} ² Amps | I _{sat} ³ Amps | DCR mΩ@20°C (Typical) | DCR mΩ@20°C (Maximum) | K-factor ⁴ |
| 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 OCL: Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.25V, 0.0A_{dc}

2 I_{rms}: 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.

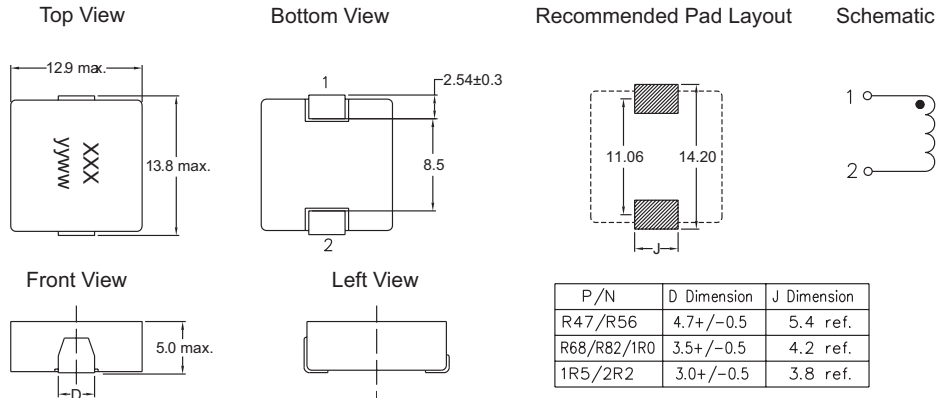
3 I_{sat}: Amps for approximately 20% rolloff (@25°C).

4 K-factor: Used to determine B_{p-p} for core loss (see graph). B_{p-p} = K * L * ΔI, B_{p-p}: (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

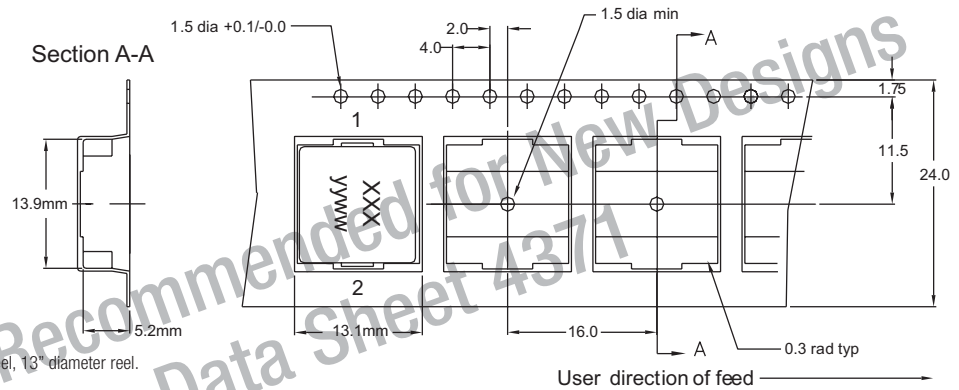
Dimensions - mm



Part Marking: HCP1305

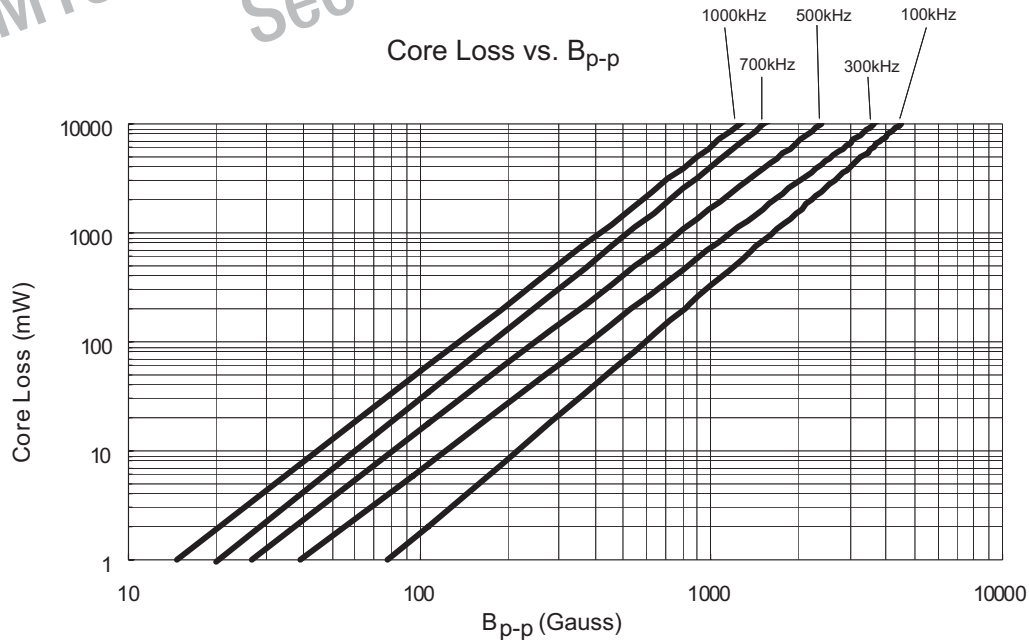
xx = Inductance value in μH . (R = Decimal point). If no "R" is present, then last character is # of zeros yyww = Date code

Packaging Information - mm

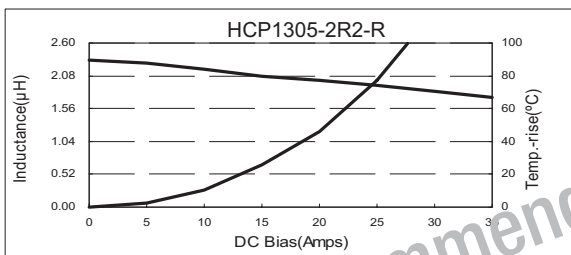
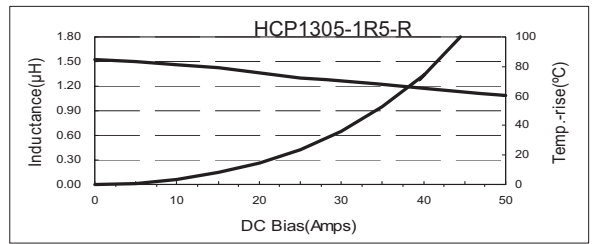
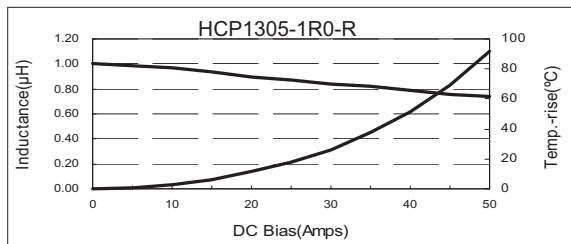
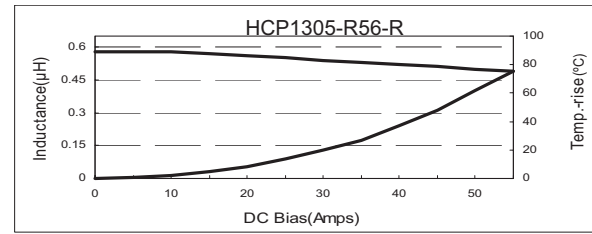
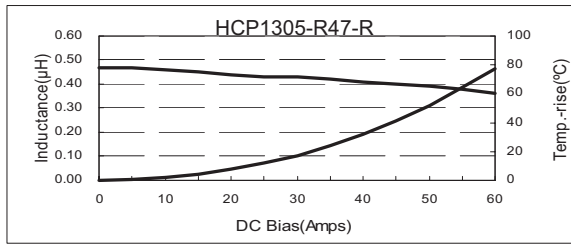


Supplied in tape-and-reel packaging, 400 parts per reel, 13" diameter reel.

Core Loss



Performance Graphs



HCM1305 Recommended for New Designs
See Data Sheet 4371

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