



# **HCPT1309 Series Power Inductors**

## Description

- 105°C maximum total temperature operation
- 13.2mm x 13.2mm x 9.0mm through hole package
- Core material: Powder Iron
- Inductance range from 0.20μH to 3.3μH
- Current range from 90.0 Amps to 11.4 Amps
- Frequency range up to 1MHz

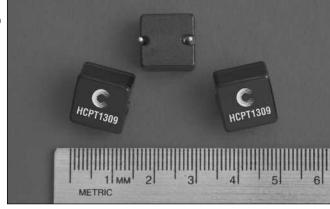
## **Applications**

- Next generation processors
- High current DC-DC converters
- VRM, multi-phase buck regulator
- Desktop computers
- Video game power

#### **Environmental Data**

- Storage temperature range: -40°C to +105°C
- Operating temperature range: -40°C to +105°C (range is application specific)
- Solder reflow temperature: +260°C max. for 10 seconds maximum





## **Packaging**

Supplied in bulk packaging, 100 parts per tray

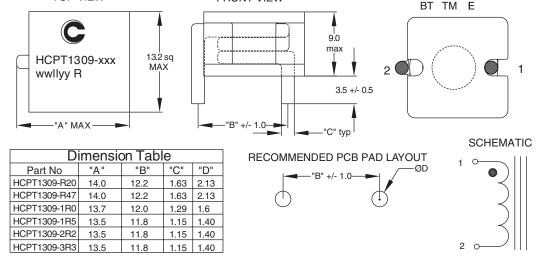
Part Number	OCL (1) nominal +/-	Irms (2) Amperes	Isat Amperes (3) Peak 20%	Isat Amperes (4) Peak 30%	DCR (mΩ) nom @20°C	K-factor (5)
	20% (µH)		rolloff @20°C	rolloff @20°C		(4)
HCPT1309-R20-R	0.20	43.1	72.2	90.0	0.426	154.1
HCPT1309-R47-R	0.49	34.0	43.3	55.0	0.624	92.4
HCPT1309-1R0-R	0.96	19.4	30.9	40.0	1.90	66.0
HCPT1309-1R5-R	1.59	13.7	24.1	30.6	3.82	51.4
HCPT1309-2R2-R	2.27	12.5	19.7	25.0	4.10	42.0
HCPT1309-3R3-R	3.31	11.4	16.7	21.0	4.80	35.6

(1) OCL: Open Circuit Inductance test parameters: 100kHz, 0.1Vrms, 0.0Adc.
(2) Irms: DC current for an approximate ΔT 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 105°C under worst case operating conditions verified in the end application.

TOP VIEW

- (3) Isat Amperes peak for approximately 20% rolloff (@20°C)
- (a) Isat Amperes peak for approximately 20% rolloff (@20°C)
   (b) K-factor: Used to determine B p-p for core loss (see graph).
   B p-p = K\*L\*∆I, B p-p: (Gauss), K: (K factor from table), L: (Inductance in uH), ∆I (Peak to peak ripple current in Amps).

#### **Mechanical Diagrams**

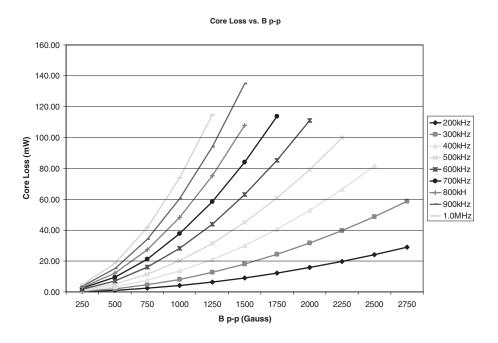


FRONT VIEW



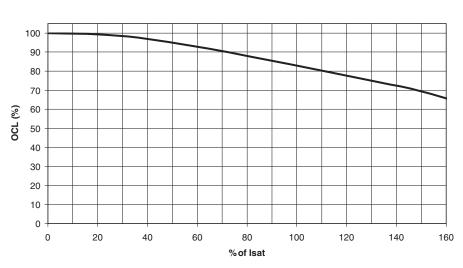


#### **Core Loss**



#### **Inductance Characteristics**







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PM-4138 8/06

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