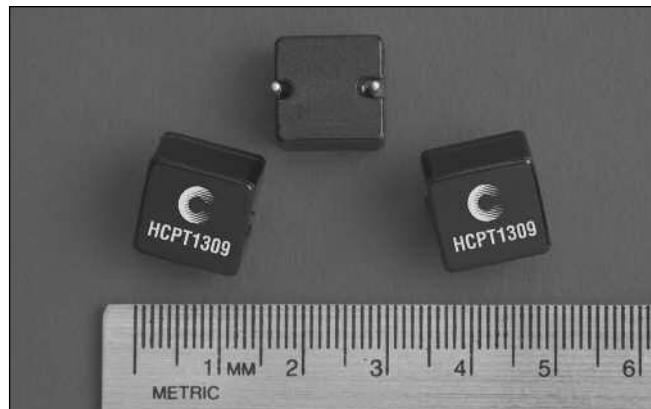


### Description

- 105°C maximum total temperature operation
- 13.2mm x 13.2mm x 9.0mm through hole package
- Core material: Powder Iron
- Inductance range from 0.20 $\mu$ H to 3.3 $\mu$ H
- 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 +/- 20% ( $\mu$ H)	Irms (2) Amperes	Isat Amperes (3) Peak 20% rolloff @20°C	Isat Amperes (4) Peak 30% rolloff @20°C	DCR (m $\Omega$ ) nom @20°C	K-factor (5)
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 AT 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.

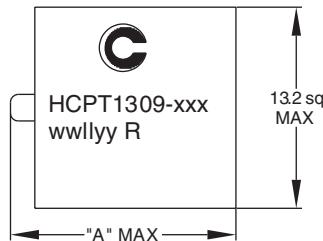
(3) Isat Amperes peak for approximately 20% rolloff (@20°C)

(4) Isat Amperes peak for approximately 30% rolloff (@20°C)

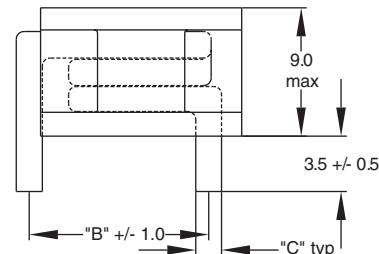
(5) K-factor: Used to determine B p-p for core loss (see graph).  
 $B$  p-p =  $K \cdot L \cdot \Delta I$ ,  $B$  p-p: (Gauss),  $K$ : (K factor from table),  $L$ : (Inductance in  $\mu$ H),  $\Delta I$  (Peak to peak ripple current in Amps).

### Mechanical Diagrams

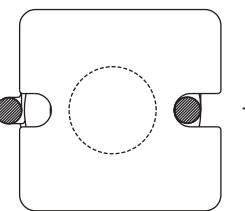
TOP VIEW



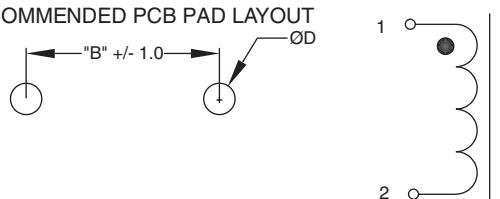
FRONT VIEW



BT TM E



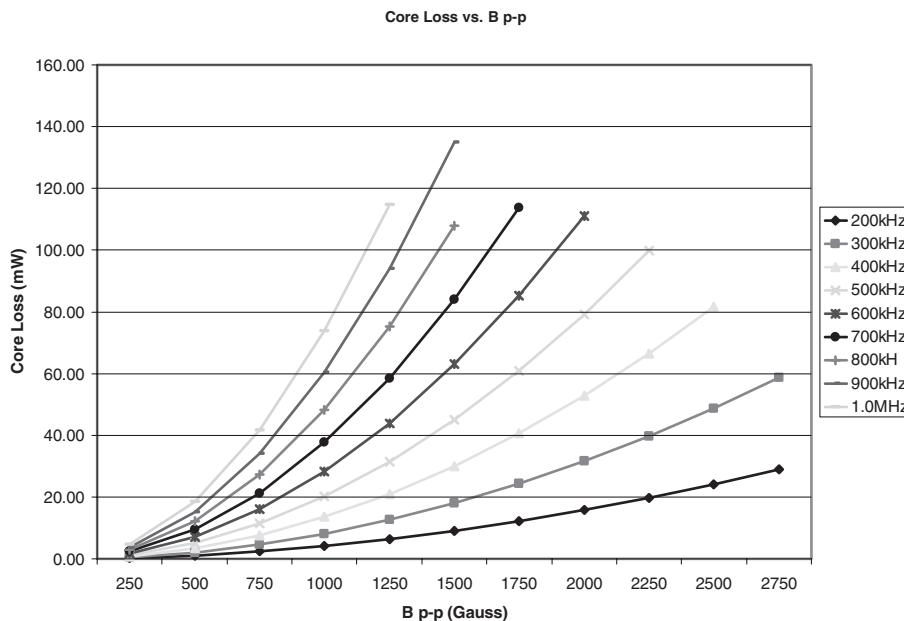
SCHEMATIC



Dimension Table				
Part No	"A"	"B"	"C"	"D"
HCPT1309-R20	14.0	12.2	1.63	2.13
HCPT1309-R47	14.0	12.2	1.63	2.13
HCPT1309-1R0	13.7	12.0	1.29	1.6
HCPT1309-1R5	13.5	11.8	1.15	1.40
HCPT1309-2R2	13.5	11.8	1.15	1.40
HCPT1309-3R3	13.5	11.8	1.15	1.40

RECOMMENDED PCB PAD LAYOUT

Dimensions are in millimeters.  
 wwllyy = Date Code. R = Revision Level.

**Core Loss**

**Inductance Characteristics**
