## Description

- High Density, high current/low voltage applications
- Foil technology that adds higher reliability factor over the traditional magnet wire used for higher frequency circuit designs
- Current range from 78.0 to 33.8 Amps
- Inductance range from 0.50 uH to 6.52 uH
- Ferrite core material


## Applications

- Next generation microprocessors
- Energy storage applications
- DC-DC converters
- Computers


## Environmental Data

- Storage temperature range: $-40^{\circ} \mathrm{C}$ to $+125^{\circ} \mathrm{C}$
- Operating ambient temperature range: $-40^{\circ} \mathrm{C}$ to $+85^{\circ} \mathrm{C}$
- Solder reflow temperature: $+260^{\circ} \mathrm{C}$ max. for 10 seconds max.

| Part Number | $\qquad$ | $\begin{gathered} \text { OCL (1) } \\ \text { nominal } \\ +/-20 \% \mu \mathrm{H} \end{gathered}$ | $\begin{gathered} \text { Irms (2) } \\ \text { Amperes } \\ \text { (Typ.) } \end{gathered}$ | Isat (3) Amperes (Typ.) | $\begin{gathered} \text { DCR }(\mathrm{m} \Omega) \\ \operatorname{max.} @ \\ 20^{\circ} \mathrm{C} \\ \hline \end{gathered}$ | $\begin{gathered} \text { Volts (4) } \\ \mu \text { Sec (V } \mu \mathrm{S} \text { ) } \\ \text { (ref.) } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| HC3-R50-R | 0.50 | 0.50 | 78.00 | 120 | 0.42 | 17.33 |
| HC3-1R0-R | 1.0 | 1.05 | 78.00 | 78 | 0.42 | 17.33 |
| HC3-2R2-R | 2.2 | 2.05 | 55.50 | 60 | 0.70 | 26.01 |
| HC3-3R3-R | 3.3 | 3.63 | 42.45 | 46 | 1.20 | 34.65 |
| HC3-4R7-R | 4.7 | 4.98 | 33.80 | 38 | 2.17 | 43.30 |
| HC3-5R6-R | 5.6 | 5.68 | 33.80 | 34.5 | 2.17 | 43.30 |
| HC3-6R0-R | 6.0 | 6.52 | 33.80 | 30.0 | 2.17 | 43.30 |

1) Test Parameters: $300 \mathrm{kHz}, 0.25 \mathrm{Vrms}$
2) DC current for approximately $\Delta \mathrm{T}$ of $40^{\circ} \mathrm{C}$ without core loss De-rating is necessary for AC currents. PCB layout, trace thickness and width, air flow and proximity of other heat generating components will affect temperature rise. It is recommended that the temperature of the part not exceed $125^{\circ} \mathrm{C}$ under worst case conditions verified in the end application.
3) Peak current for approximately $30 \%$ rolloff ( $@ 20^{\circ} \mathrm{C}$ )
4) Applied Volt-Time product ( $\mathrm{V}-\mu \mathrm{S}$ ) across the inductor. This value represents the applied $\mathrm{V}-\mu \mathrm{S}$ at 300 kHz necessary to generate a core loss equal to $10 \%$ of the total losses for a $40^{\circ} \mathrm{C}$ temperature rise.

Part number definition:
HC3-XXX-R
HC3 = Product code and size
$X X X=$ Inductance value in $u H$.
$R=$ Decimal point. If no $R$ is present, third character $=$ \#of zeros
-R suffix indicates RoHS compliant

Mechanical Diagrams


| Part Number | Height max |
| :--- | :---: |
| HC3-R50-R | 18.0 |
| HC3-1R0-R | 17.5 |
| HC3-2R2-R | 17.5 |
| HC3-3R3-R | 17.5 |
| HC3-4R7-R | 17.5 |
| HC3-5R6-R | 17.5 |
| HC3-6R0-R | 17.5 |

Inductance Characteristics


## Core Loss

## Irms DERATING WITH CORE LOSS for HC3 \% Applied Volt-u Seconds



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