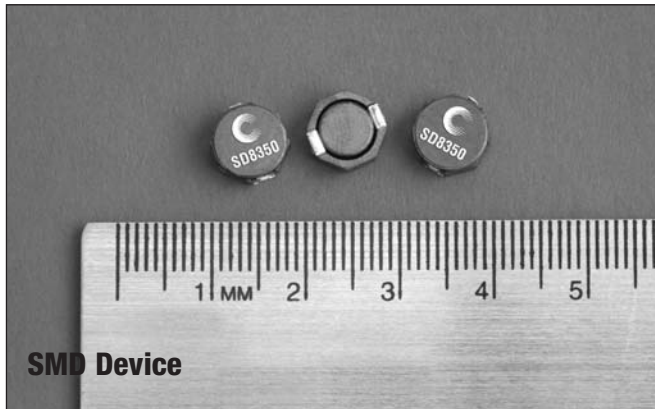


# Shielded Power Inductors

## SD8350 Series



### Description

- Halogen free, lead free
- 125°C maximum total temperature operation
- Low-profile surface mount inductor
- 9.5 x 8.3 x 4.5mm shielded drum core
- Ferrite core material
- Inductance range from 1.5µH to 100µH
- Current range from 0.8 Amps to 9.1 Amps
- Frequency range up to 1MHz
- RoHS Compliant

### Applications

- Server/notebook power
- High power LED driver, portable devices
- Base station, telecom, and networking
- Battery chargers, RAM power supply
- Industrial and automotive power systems
- Noise filtering output filter chokes
- Buck/boost converters, output converters

### Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient plus self temperature rise)
- Solder reflow temperature: J-STD-020D compliant

### Packaging

- Supplied in tape and reel packaging, 750 parts per 13 inch dia. reel

Product Specifications							
Part Number	Rated Inductance (µH)	OCL <sup>1</sup> µH±30%	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>
SD8350-1R8-R	1.8	1.5	5.50	9.1	11.8	14.0	16.0
SD8350-3R9-R	3.9	3.2	4.50	6.3	16.2	19.0	9.6
SD8350-4R7-R	4.7	4.2	4.10	5.5	18.5	22.0	8.5
SD8350-6R8-R	6.8	6.8	3.90	4.4	20.8	25.0	7.6
SD8350-100-R	10	9.9	3.20	4.0	31.4	36.0	6.3
SD8350-150-R	15	13.6	2.30	2.9	45.0	53.0	5.3
SD8350-220-R	22	20.4	1.80	2.6	63.5	75.0	4.4
SD8350-330-R	33	31.4	1.40	2.2	111.4	125.0	3.5
SD8350-470-R	47	44.9	1.30	1.8	130.0	150.0	2.9
SD8350-680-R	68	65.1	1.00	1.5	200.8	240.0	2.4
SD8350-101-R	100	99.7	0.80	1.3	308.0	360.0	2.0

1. Open Circuit Inductance Test Parameters: 100kHz, 0.1V, 0.0Adc.

2. I<sub>rms</sub>: 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 125°C under worst case operating conditions verified in the end application.

3. I<sub>sat</sub> Amps peak for approximately 35% 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<sup>2</sup>L<sup>2</sup>ΔI, B<sub>p-p</sub> (mT), K: (K factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).

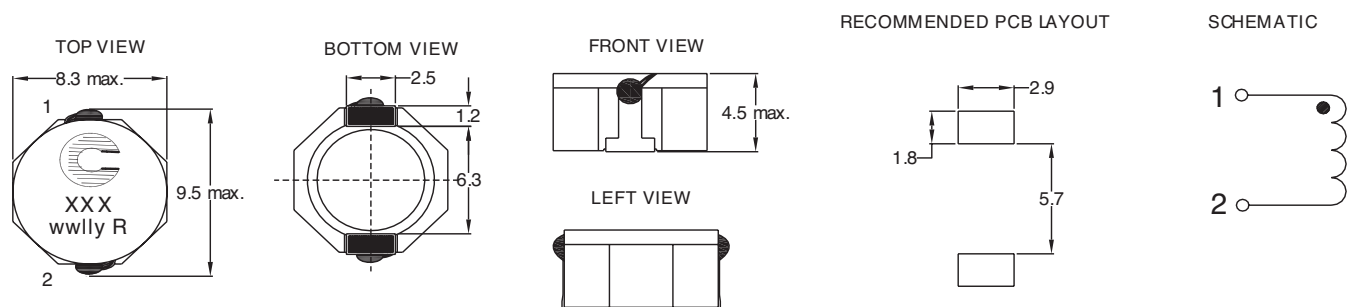
5. Part Number Definition: SD8350-xxx-R

SD8350 = Product code and size; -xxx = Inductance value in µH;

R = decimal point; If no R is present, third character = # of zeros.

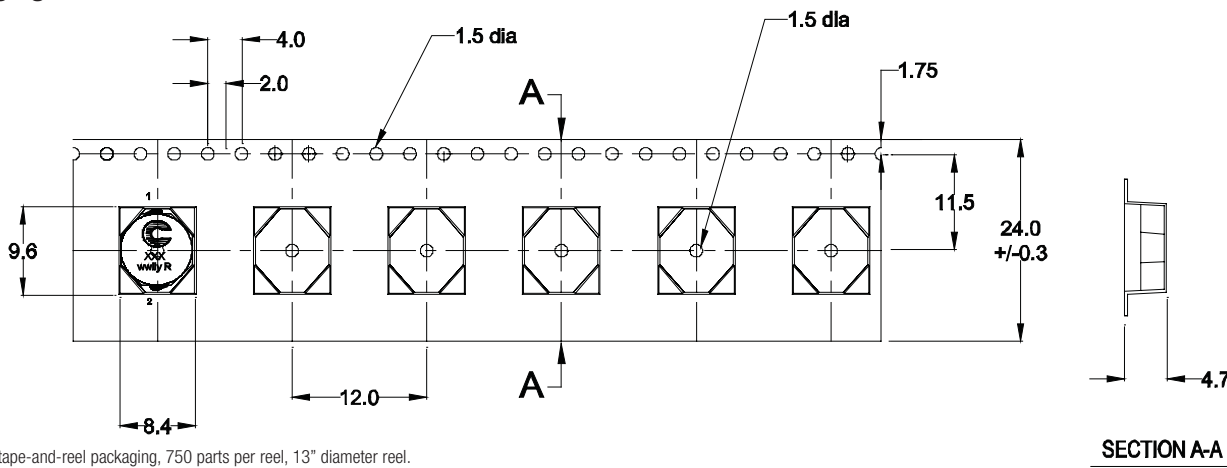
-R suffix = RoHS compliant

### Dimensions - mm



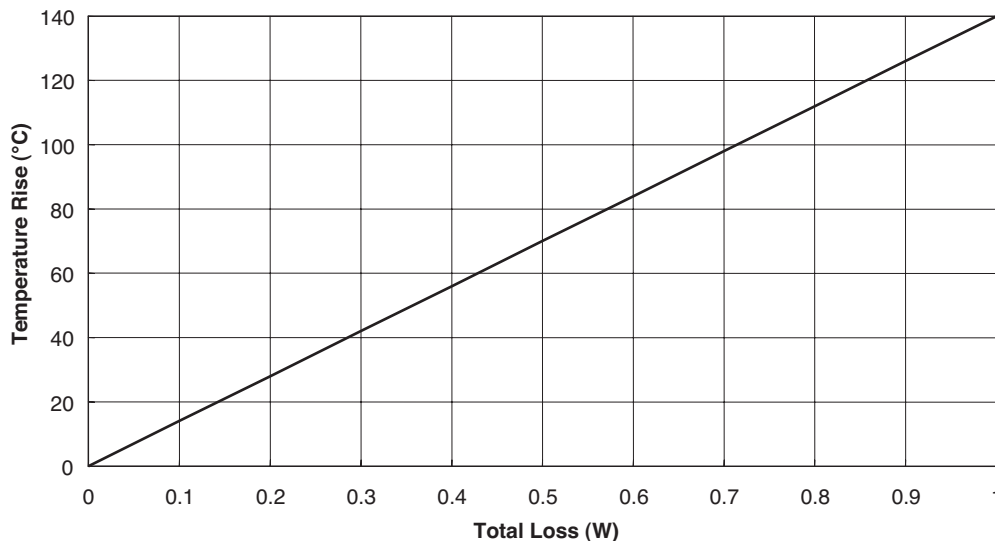
Part Marking: Coiltronics logo    xxx = Inductance value in  $\mu\text{H}$ . (R = Decimal point). If no R is present, third character = number of zeros    wwly - or - wwlyy = Date code    R = Revision level

### Packaging Information - mm

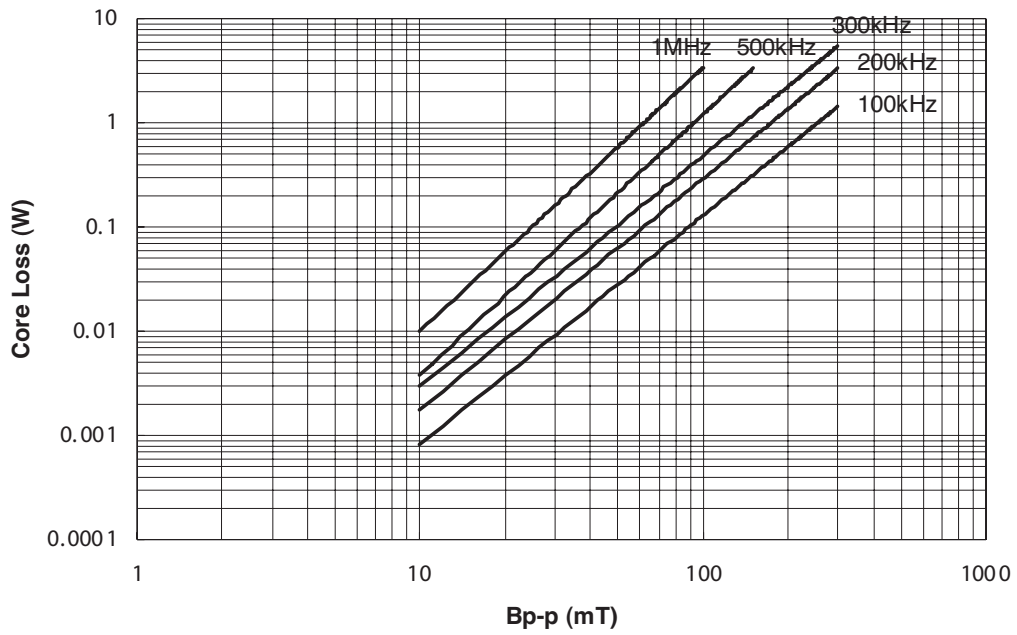


Supplied in tape-and-reel packaging, 750 parts per reel, 13" diameter reel.

### Temperature Rise vs. Total Loss

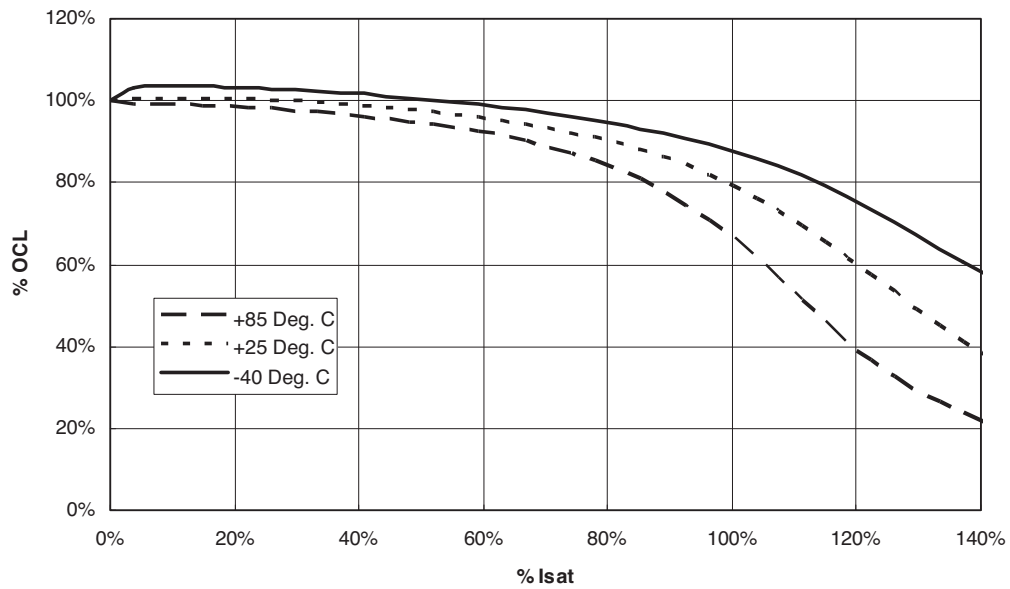


## Core Loss



## Inductance Characteristics

OCL Vs. Isat



## Solder Reflow Profile

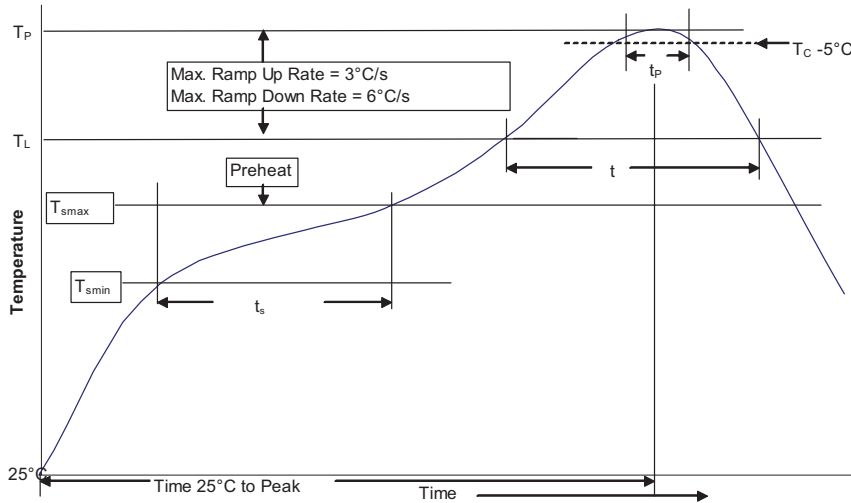


Table 1 - Standard SnPb Solder ( $T_c$ )

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	220°C	220°C

Table 2 - Lead (Pb) Free Solder ( $T_c$ )

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >2000
<1.6mm	260°C	260°C	260°C
1.6 - 2.5mm	260°C	250°C	245°C
$>2.5\text{mm}$	250°C	245°C	245°C

## Reference JDEC J-STD-020D

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. ( $T_{smin}$ )	100°C
	• Temperature max. ( $T_{smax}$ )	150°C
	• Time ( $T_{smin}$ to $T_{smax}$ ) ( $t_s$ )	60-120 Seconds
Average ramp up rate $T_{smax}$ to $T_p$	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature ( $T_L$ )	183°C	217°C
Time at liquidous ( $t_L$ )	60-150 Seconds	60-150 Seconds
Peak package body temperature ( $T_p$ )*	Table 1	Table 2
Time ( $t_p$ )** within 5 °C of the specified classification temperature ( $T_c$ )	20 Seconds**	30 Seconds**
Average ramp-down rate ( $T_p$ to $T_{smax}$ )	6°C/ Second Max.	6°C/ Second Max.
Time 25°C to Peak Temperature	6 Minutes Max.	8 Minutes Max.

\* Tolerance for peak profile temperature ( $T_p$ ) is defined as a supplier minimum and a user maximum.

\*\* Tolerance for time at peak profile temperature ( $t_p$ ) is defined as a supplier minimum and a user maximum.

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