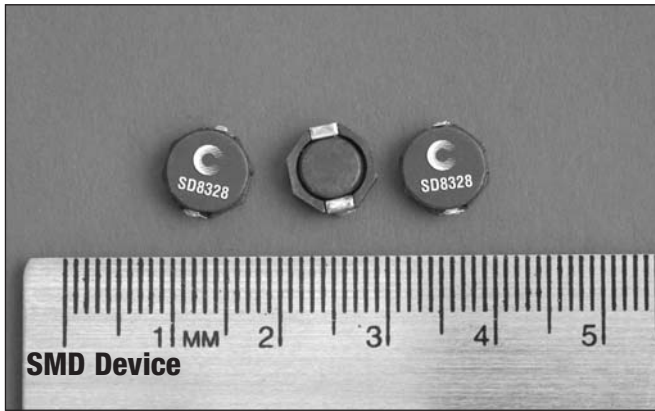


# Low-Profile Power Inductors

## SD8328 Series



### Description

- Halogen free, lead free
- 125°C maximum temperature operation
- Low profile shielded drum core
- 9.5 x 8.3 x 3.0mm surface mount inductor
- Ferrite core material
- Inductance range from 2.7µH to 100µH
- Current range from 0.8 Amps to 6.6 Amps
- Frequency range up to 1MHz
- RoHS Compliant

### Applications

- Buck or boost inductor
- Noise filtering output filter chokes
- Notebook power/display
- LCD Monitors/displays/televisions
- Battery chargers, LCD bias supplies
- Battery and Industrial power systems
- Computer, DVD players
- Portable power devices, DC-DC 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, 1280 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>
SD8328-2R5-R	2.5	2.7	6.6	4.5	12	15.6	43
SD8328-3R3-R	3.3	3.4	6.1	4.0	14	18.0	33
SD8328-4R7-R	4.7	5.0	4.5	3.6	19	24.7	23
SD8328-7R3-R	7.3	7.6	3.4	2.9	30	39	15
SD8328-100-R	10	9.1	3.3	2.6	36	45	11
SD8328-150-R	15	14.5	2.35	2.0	53	69	7.2
SD8328-220-R	22	21.1	1.85	1.7	76	99	4.9
SD8328-330-R	33	31.9	1.45	1.4	120	156	3.3
SD8328-470-R	47	44.9	1.30	1.2	150	194	2.3
SD8328-680-R	68	64.2	0.98	1.0	220	286	1.6
SD8328-101-R	100	97.0	0.80	0.8	330	430	1.1

1. Open Circuit Inductance Test Parameters: 100kHz, 0.1V, 0.0A<sub>dc</sub>.

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\*L\*ΔI, B<sub>p-p</sub> (mT), K: (K factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).

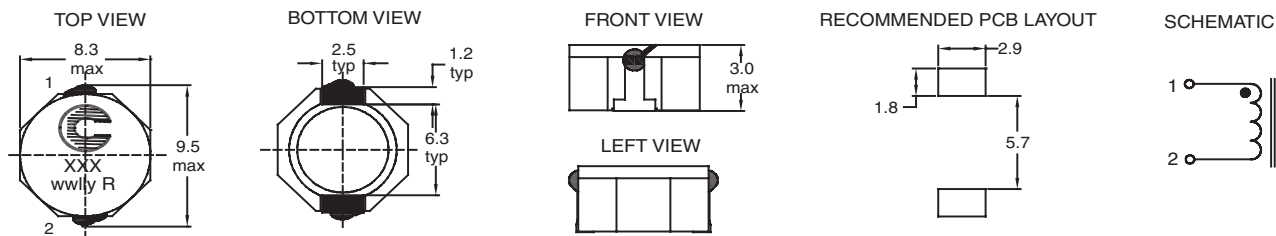
5. Part Number Definition: SD8328-xxx-R

SD8328 = Product code and size; -xxx = Inductance value in µH;

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

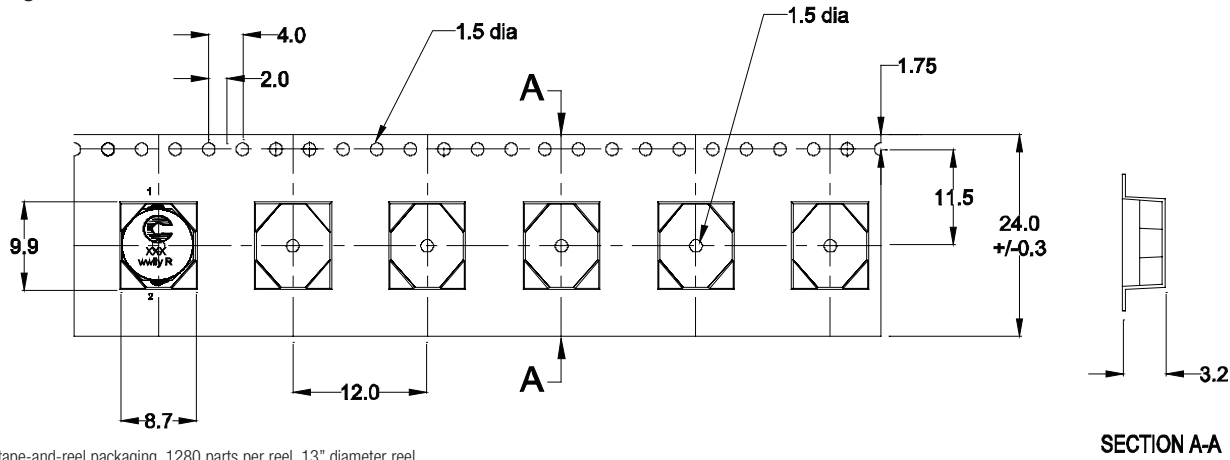
-R suffix = RoHS compliant

### Dimensions - mm



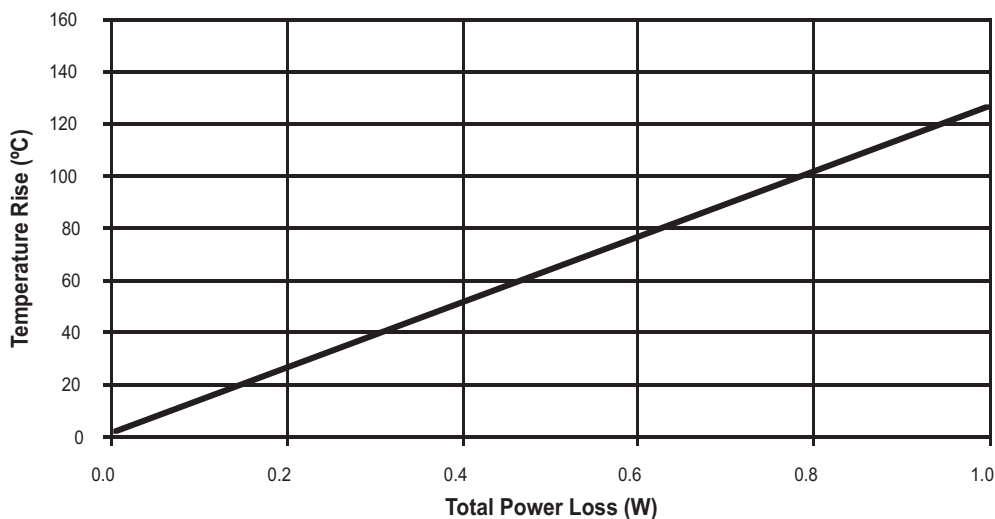
Part Marking: Coiltronics logo    xxx = Inductance value in  $\mu\text{H}$ . (R = Decimal point). If no R is present, third character = number of zeros    wwly - or - wwlyy = Date code    R = Revision level

### Packaging Information - mm

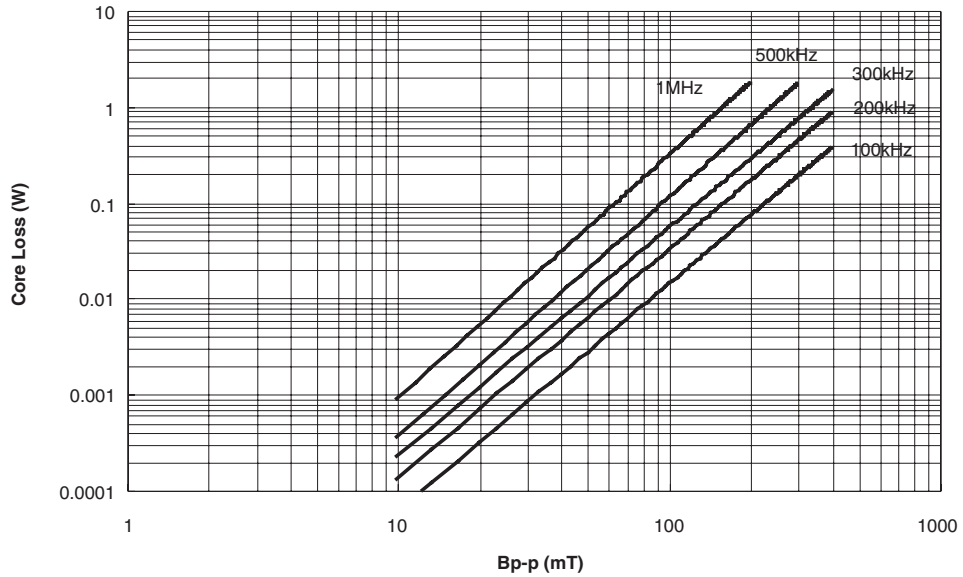


Supplied in tape-and-reel packaging, 1280 parts per reel, 13" diameter reel.

### Temperature Rise vs. Total Loss

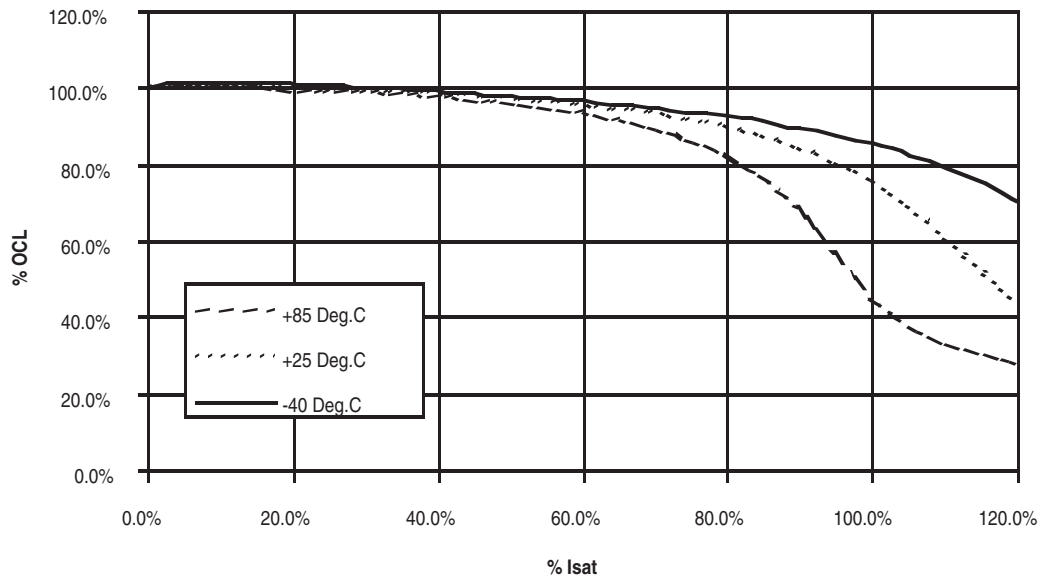


## Core Loss



## Inductance Characteristics

OCL Vs. Isat



## Solder Reflow Profile

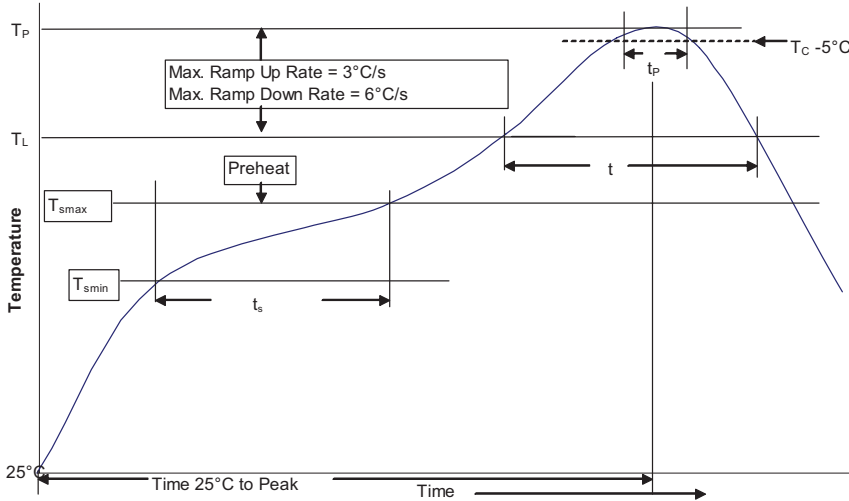


Table 1 - Standard SnPb Solder ( $T_c$ )

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.

### North America

Cooper Electronic Technologies  
1225 Broken Sound Parkway NW  
Suite F  
Boca Raton, FL 33487-3533  
Tel: 1-561-998-4100  
Fax: 1-561-241-6640  
Toll Free: 1-888-414-2645

Cooper Bussmann  
P.O. Box 14460  
St. Louis, MO 63178-4460  
Tel: 1-636-394-2877  
Fax: 1-636-527-1607

### Europe

Cooper Electronic Technologies  
Cooper (UK) Limited  
Burton-on-the-Wolds  
Leicestershire • LE12 5TH UK  
Tel: +44 (0) 1509 882 737  
Fax: +44 (0) 1509 882 786

Cooper Electronic Technologies  
Avda. Santa Eulalia, 290  
08223  
Terrassa, (Barcelona), Spain  
Tel: +34 937 362 812  
+34 937 362 813  
Fax: +34 937 362 719

### Asia Pacific

Cooper Electronic Technologies  
1 Jalan Kilang Timor  
#06-01 Pacific Tech Centre  
Singapore 159303  
Tel: +65 278 6151  
Fax: +65 270 4160

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