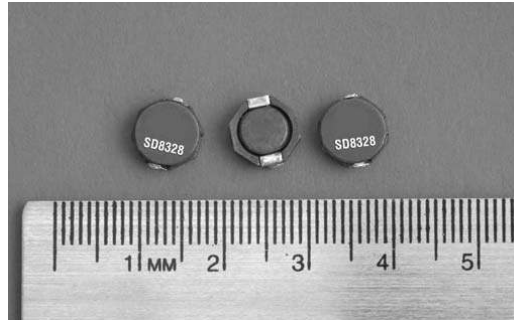


# SD8328

## Low profile shielded drum core power inductors



### Product features

- Low profile shielded drum core
- 9.5 mm x 8.3 mm x 3.0 mm surface mount inductor
- Ferrite core material
- Inductance range from 2.7  $\mu$ H to 100  $\mu$ H
- Current range from 0.8 A to 6.6 A
- Frequency range up to 1 MHz

### Applications

- Buck or boost inductor
- Noise filtering output filter chokes
- Notebook and laptop power/display
- LCD Monitors/displays/televisions
- Battery chargers, LCD bias supplies
- Battery and Industrial power systems
- Computer, DVD and media players
- Portable power devices
- DC-DC converters

### Environmental data

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

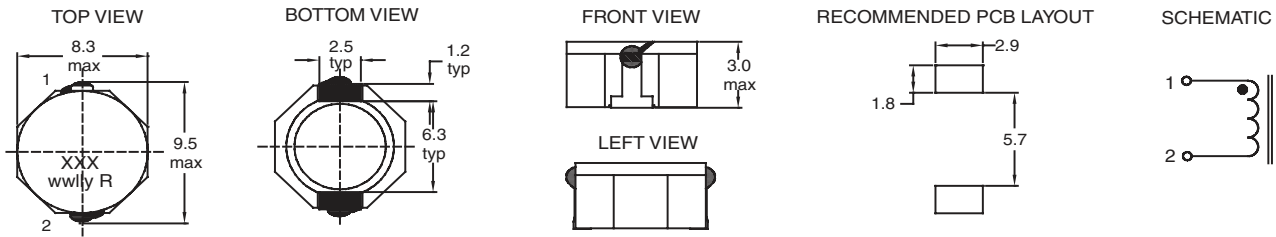


**Product specifications**

Part Number	Rated Inductance ( $\mu\text{H}$ )	OCL <sup>1</sup> $\mu\text{H} \pm 30\%$	$I_{\text{rms}}^2$ (A)	$I_{\text{sat}}^3$ (A)	DCR $\text{m}\Omega$ @ +20 °C Typ	DCR $\text{m}\Omega$ @ +20 °C Max	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: 100 kHz, 0.1 Vrms, 0.0 Adc.
2.  $I_{\text{rms}}$ : DC current for an approximate  $\Delta T$  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.  $I_{\text{sat}}$  Amps peak for approximately 35% rolloff (@ +25 °C)
4. K-factor: Used to determine  $B_{\text{p-p}}$  for core loss (see graph).  
 $B_{\text{p-p}} = K \cdot L \cdot \Delta I$ ,  $B_{\text{p-p}}$  (mT), K: (K factor from table), L: (Inductance in  $\mu\text{H}$ ),  $\Delta I$  (Peak to peak ripple current in Amps).
5. Part Number Definition: SD8328-xxx-R  
 SD8328 = Product code and size; -xxx = Inductance value in  $\mu\text{H}$ ;  
 R = decimal point; If no R is present, third character equals number of zeros.  
 -R suffix = RoHS compliant

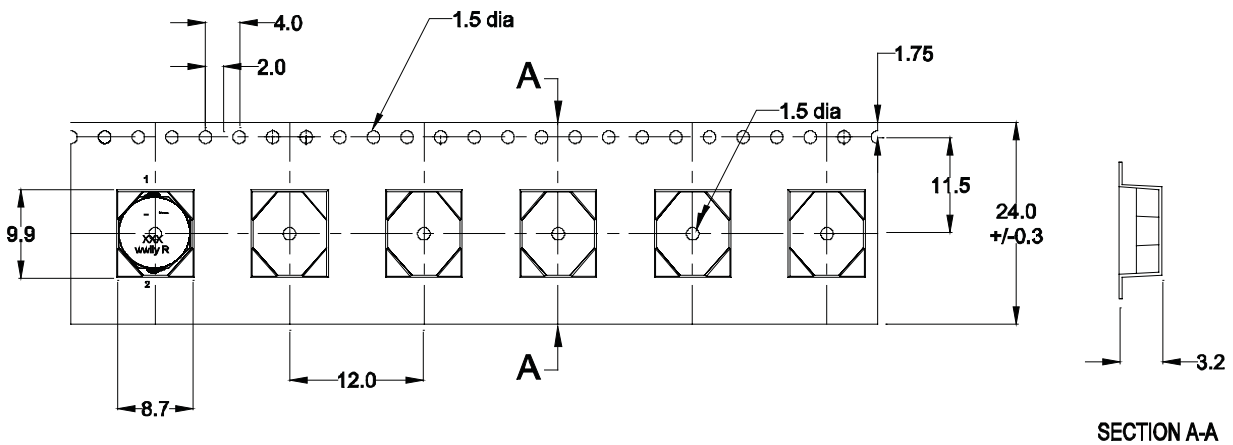
**Dimensions-mm**



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

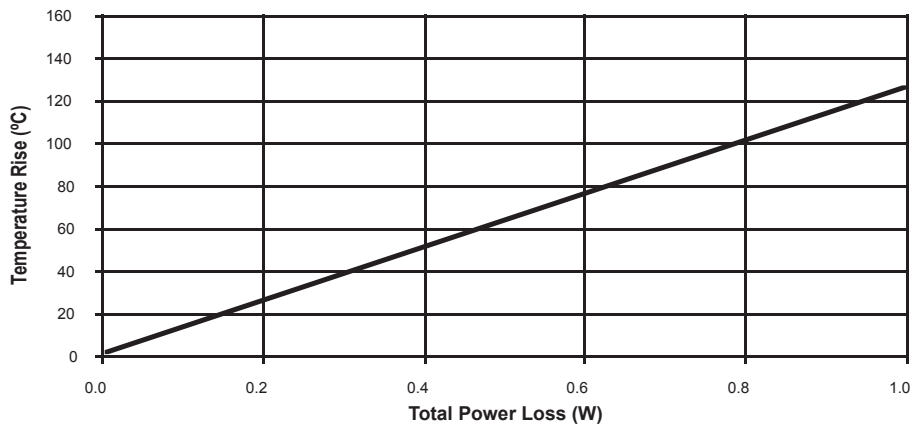
Do not route traces or vias underneath the inductor

**Packaging information-mm**

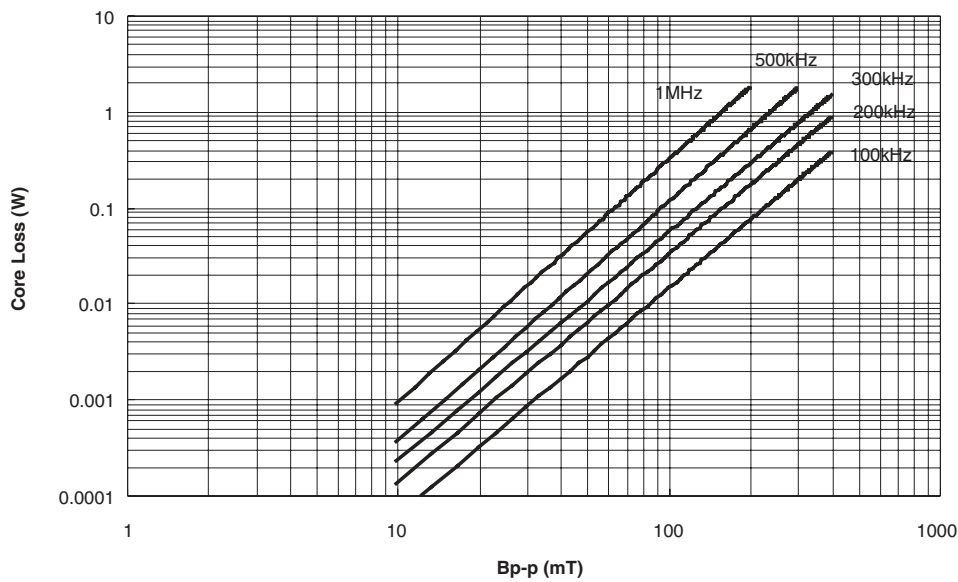


Supplied in tape-and-reel packaging, 1280 parts per reel, 13" diameter reel.

**Temperature rise vs total loss**

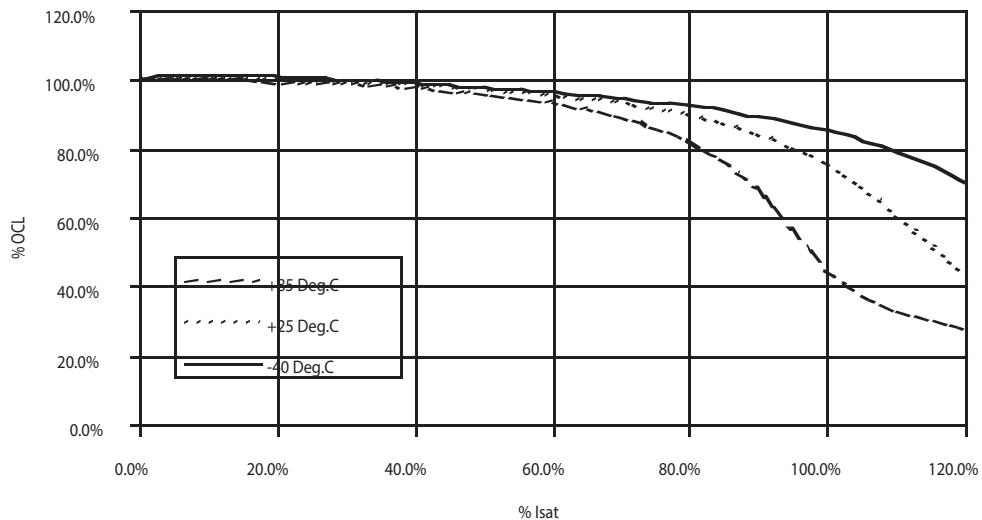


**Core loss vs Bp-p**

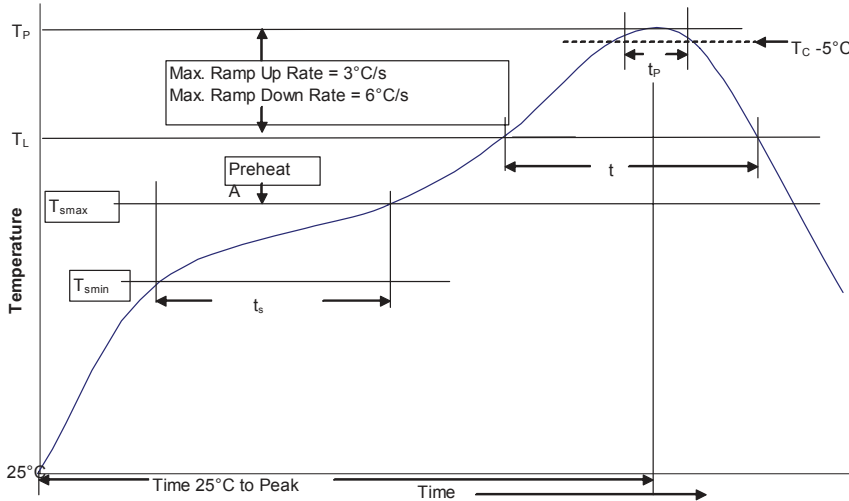


**Inductance characteristics**

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
>2.5mm	250°C	245°C	245°C

**Reference JDEC J-STD-020**

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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