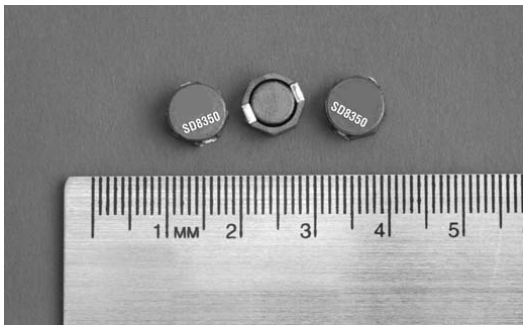
SD8350

Low profile shielded drum core power inductors



Product features

- Low-profile surface mount inductor
- 9.5 mm x 8.3 mm x 4.5 mm shielded drum core
- Ferrite core material
- Inductance range from 1.5 µH to 100 µH
- Current range from 0.8 A to 9.1 A
- Frequency range up to 1 MHz

Applications

- Server power
- Notebook and laptop 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 (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

Pb HALOGEN HF FREE RoHS

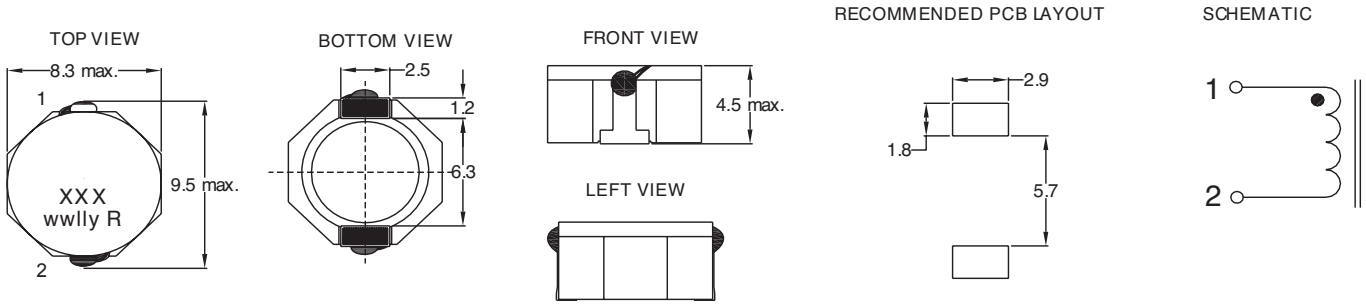
Powering Business Worldwide

Product specifications

Part Number	Rated Inductance (µH)	OCL[1] µH±30%	I_{rms}[2] (A)	I_{sat}[3] (A)	DCR mΩ @ +20 °C Typ	DCR mΩ @ +20 °C Max	K-factor[4]
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: 100 kHz, 0.1 Vrms, 0.0 Adc.
2. I_{rms}: 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_{sat} Amps peak for approximately 35% rolloff (@ +25 °C)
4. K-factor: Used to determine B_{p-p} for core loss (see graph).
   $B_{p-p} = K*L*\Delta I$, B_{p-p} (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 equals number of zeros.
   -R suffix = RoHS compliant

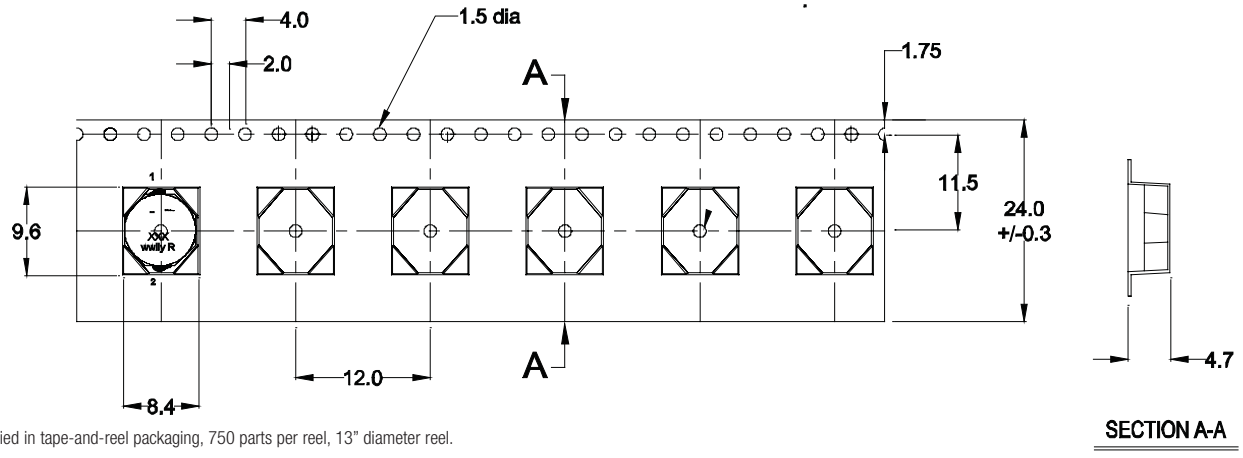
Dimensions-mm



Part Marking: xxx = Inductance value in µH. (R = Decimal point). If no R is present, third character = number of zeros wwlly - or - wwllyy = Date codeR= Revision level

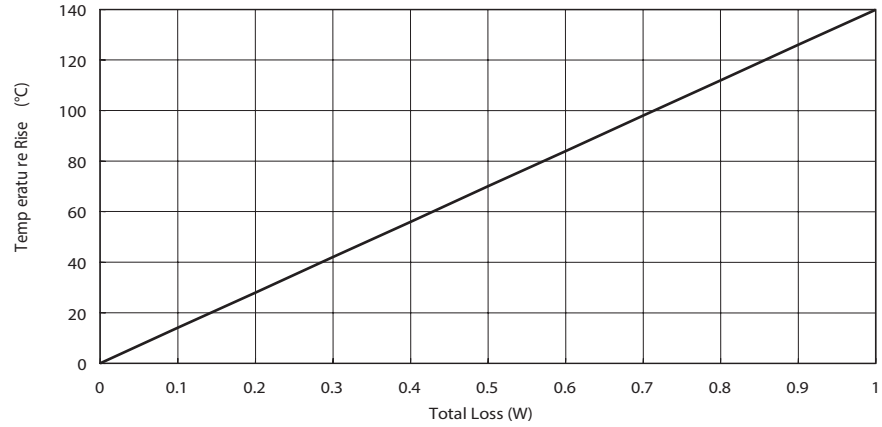
Do not route traces or vias underneath the inductor

Packaging information-mm

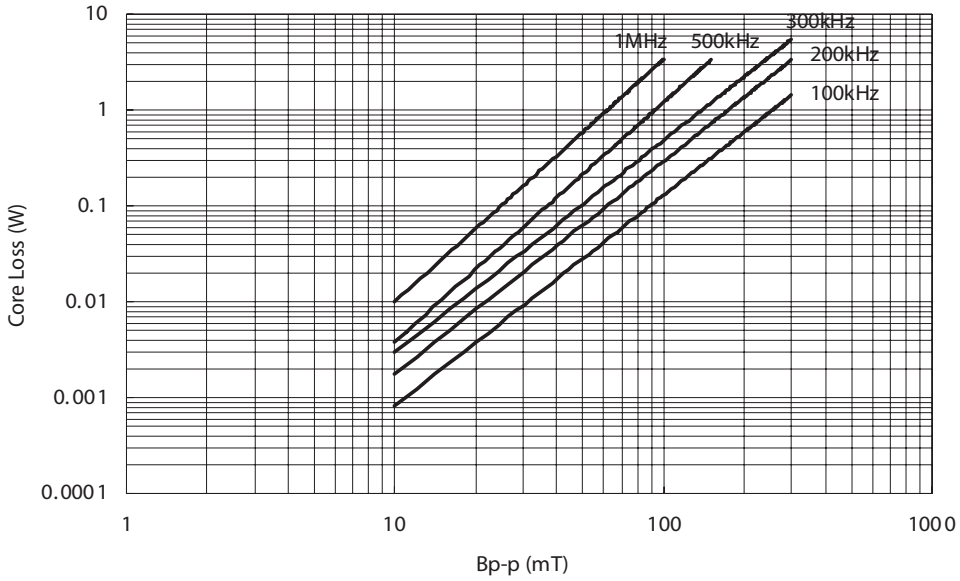


Supplied in tape-and-reel packaging, 750 parts per reel, 13" diameter reel.

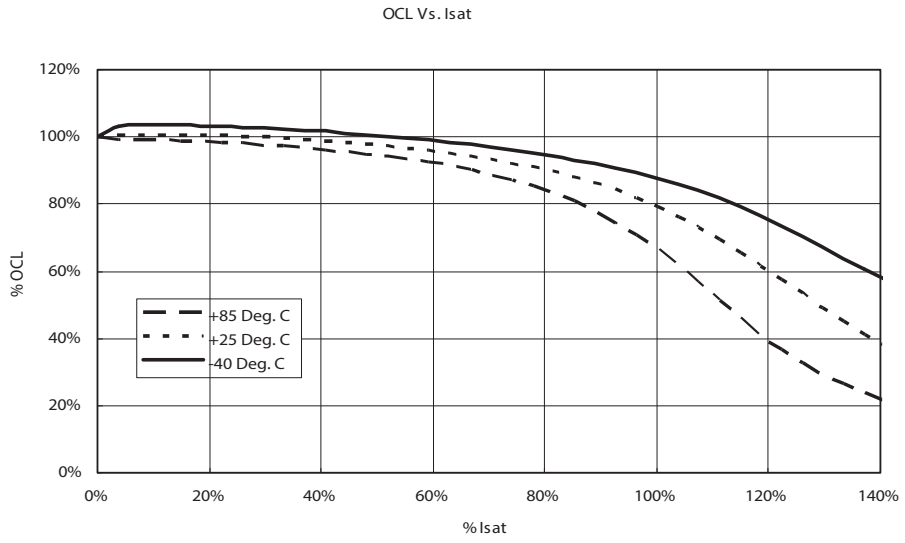
Temperature rise vs total loss



Core loss vs Bp-p



Inductance characteristics



Solder Reflow Profile

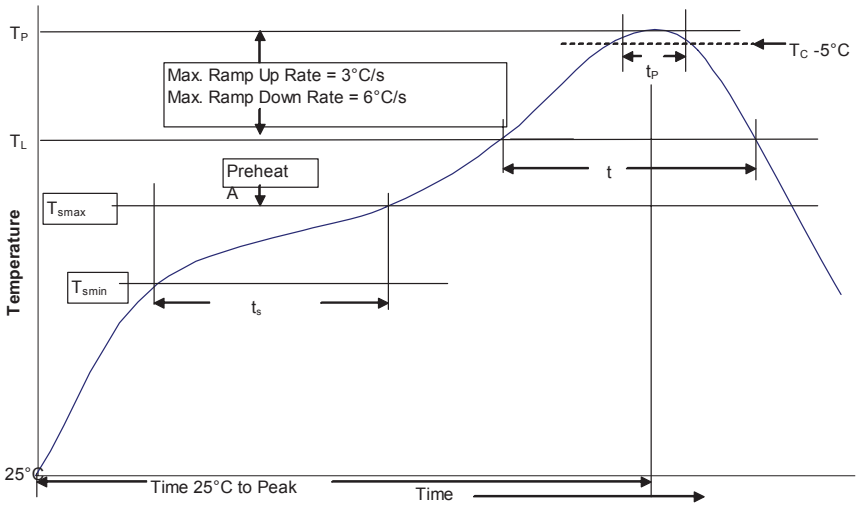


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >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	150°C
	• Temperature max. (T_{smax})	150°C	200°C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_p		3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		183°C 60-150 Seconds	217°C 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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