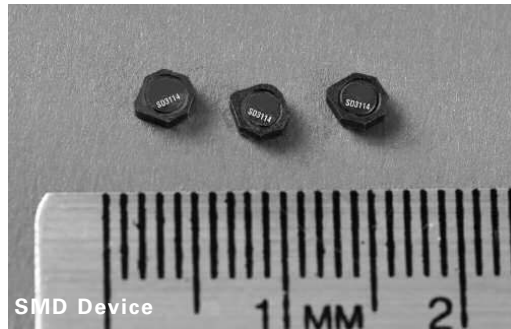


SD3114

Low profile metalized shielded drum core power inductors



Product features

- 3.1 mm x 3.1 mm x 1.4 mm shielded drum core
- Ferrite core material
- Inductance range from 1.0 uH to 330 uH
- Current range from 2.59 A to 0.106 A
- Frequency range up to 4 MHz

Applications

- Mobile phones,
- Digital cameras
- Media players
- Small LCD displays
- LED driver and LED flash circuits
- Hard disk drives
- LCD Backlighting

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



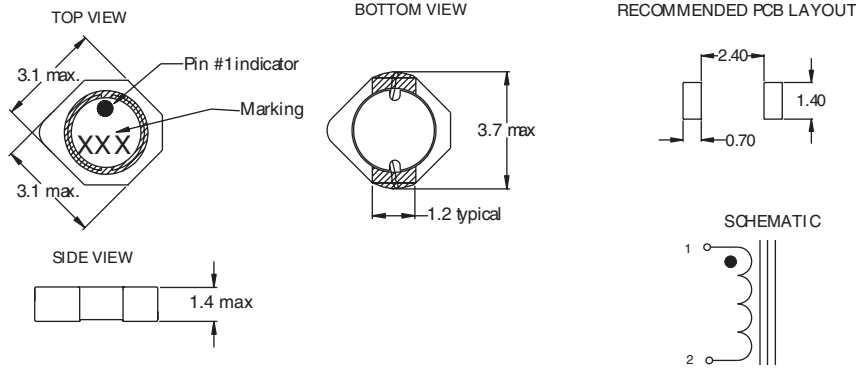
Product specifications

Part Number	Rated Inductance (μH)	OCL (1) (μH)	Part Marking Designator	I _{rms} (2) (A)	I _{sat} (3) (A)	DCR (Ω) typ. @ +20 °C	K-factor (4)
SD3114-1R0-R	1.0	1.16+/-30%	A	1.60	2.35	0.058	98
SD3114-1R5-R	1.5	1.44+/-30%	B	1.39	2.11	0.077	79
SD3114-2R2-R	2.2	2.12+/-30%	C	1.17	1.74	0.110	67
SD3114-3R3-R	3.3	3.36+/-30%	D	0.95	1.38	0.167	54
SD3114-4R7-R	4.7	4.90+/-30%	E	0.77	1.14	0.251	45
SD3114-6R8-R	6.8	6.72+/-30%	F	0.71	0.98	0.296	37
SD3114-8R2-R	8.2	8.10+/-30%	G	0.68	0.89	0.329	34
SD3114-100-R	10.0	10.4+/-30%	H	0.57	0.78	0.458	30
SD3114-150-R	15.0	14.9+/-20%	I	0.48	0.66	0.650	25
SD3114-220-R	22.0	22.5+/-20%	J	0.43	0.53	0.821	21
SD3114-330-R	33.0	33.1+/-20%	K	0.35	0.44	1.23	17
SD3114-470-R	47.0	47.5+/-20%	L	0.280	0.37	1.86	14
SD3114-680-R	68.0	68.6+/-20%	M	0.239	0.305	2.62	12
SD3114-820-R	82.0	81.8+/-20%	N	0.227	0.280	2.91	11
SD3114-101-R	100.0	101.1+/-20%	O	0.213	0.252	3.30	10
SD3114-151-R	150.0	149.0+/-20%	P	0.172	0.207	5.07	8
SD3114-221-R	220.0	220.9+/-20%	Q	0.140	0.170	7.67	6
SD3114-331-R	330.0	329.5+/-20%	R	0.113	0.139	11.78	5

(1) Open Circuit Inductance Test Parameters: 100 kHz, 0.1V_{rms}, 0.0 Adc.
 (2) I_{rms}: DC current for an approximate DT 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} Amperes peak for approximately 30% rolloff (@ +20 °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 uH), Δ(Peak to peak ripple current in Amps).

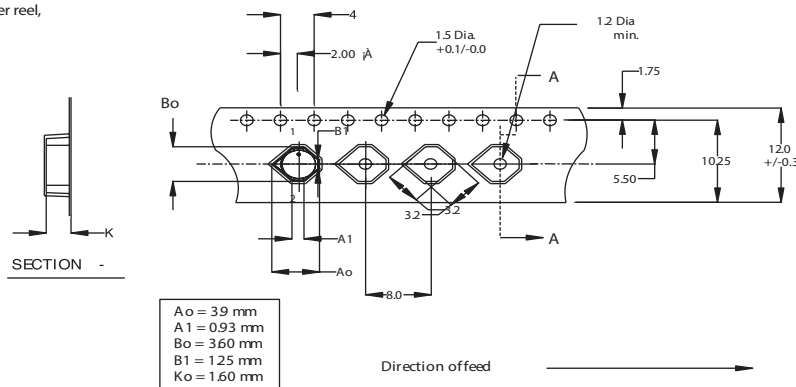
Dimensions- mm



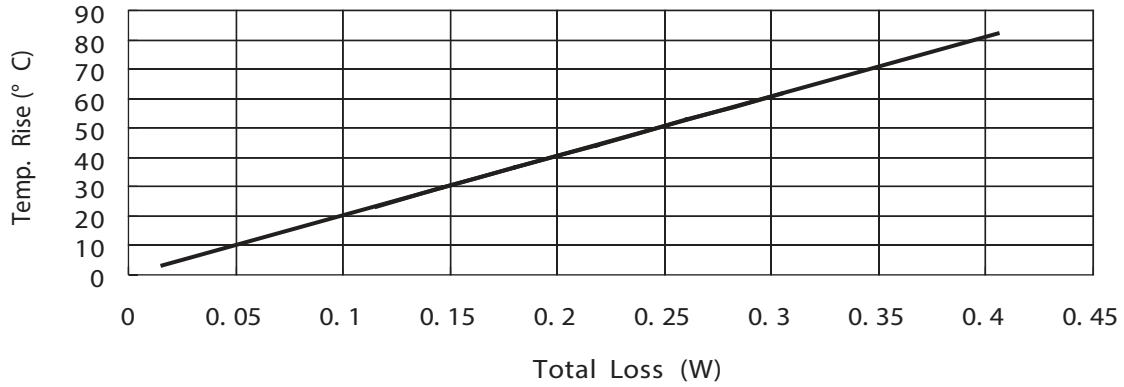
Part Marking:
 3 Digit Marking: (1st digit: Indicates inductance value per letter in Part Marking Designator); (2nd digit: Bi-weekly production date code); (3rd digit: Last digit of the year produced).
 Do not route traces or vias underneath the inductor

Packaging information- mm

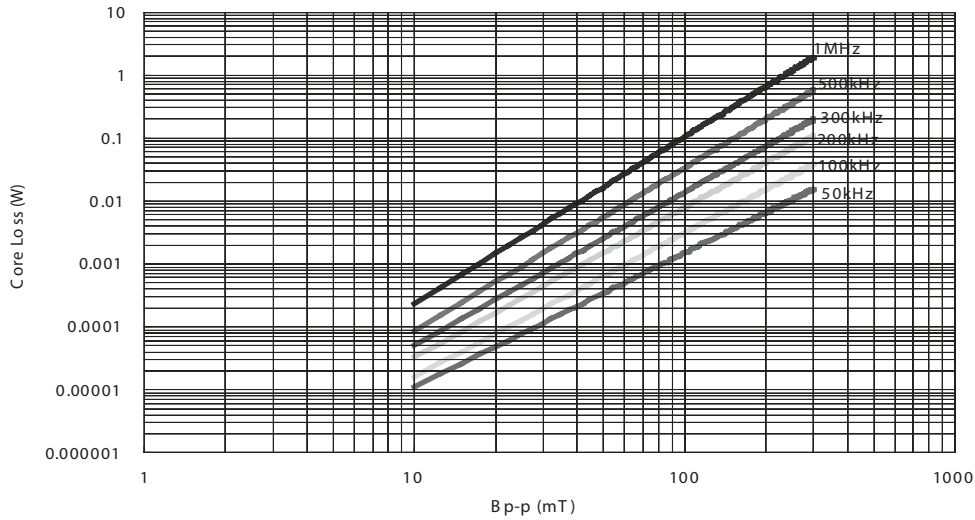
Parts packaged on 13" Diameter reel,
 4,100 parts per reel.



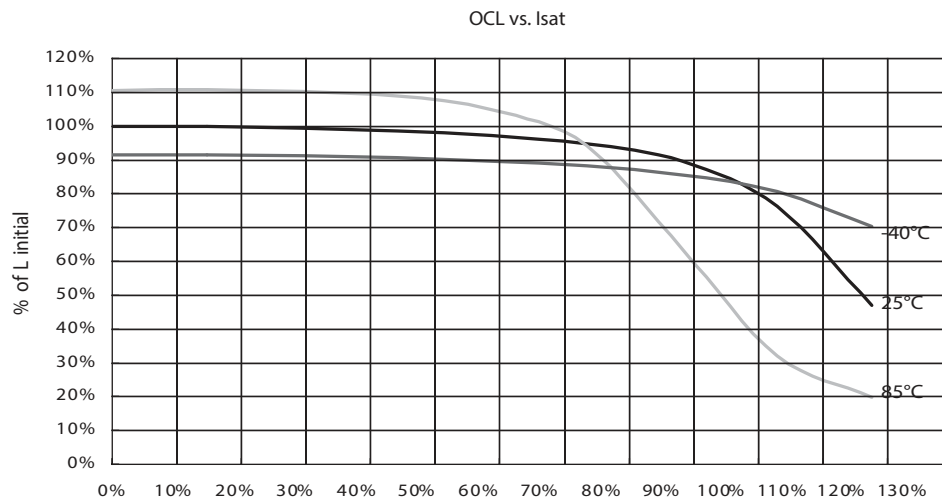
Temperature rise vs total loss loss



Core loss vs Bp-p



Inductance characteristics



Solder Reflow Profile

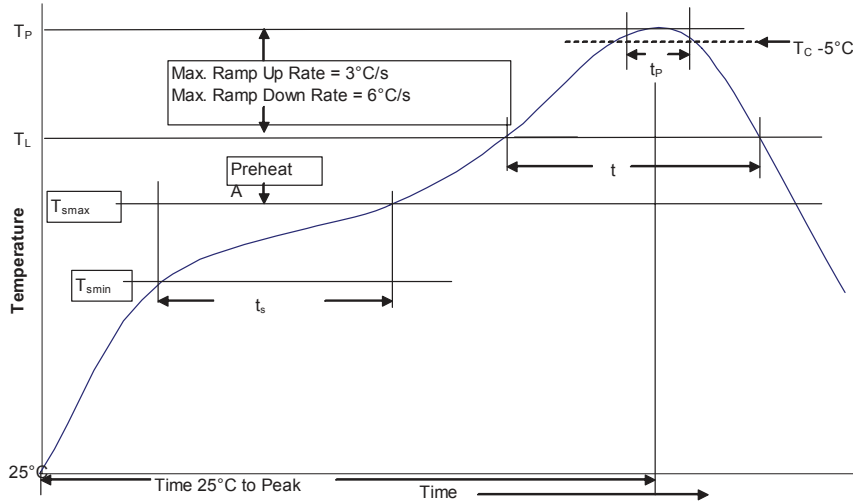


Table 1 - Standard SnPb Solder (T_c)

Package Thickness	Volume mm^3 <350	Volume mm^3 ≥ 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 mm^3 <350	Volume mm^3 350 - 2000	Volume 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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