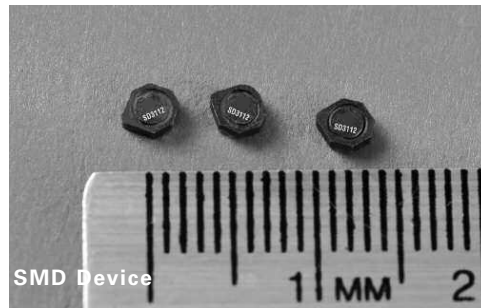


SD3112

Low profile metalized shielded drum core power inductors



SMD Device

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 features

- 3.1 mm x 3.1 mm x 1.2 mm shielded drum core
- Ferrite core material
- Inductance range from 1.0 nH to 220 uH
- Current range from 1.65 A to 0.113 A
- Frequency range up to 4 MHz

RoHS

Discontinued, Effective July 31, 2016 or until inventory is depleted. Please review SD3114 data sheet (4128) as an alternate replacement.

Product specifications

Part Number	Rated Inductance (µH)	OCL (1) (µH)	Part Marking Designator	Irms (2) (A)	Isat (3) (A)	DCR (Ω) typ. @ +20 °C	K-factor (4)
SD3112-1R0-R	1.0	1.11+/-30%	A	1.39	1.65	0.069	135
SD3112-1R5-R	1.5	1.70+/-30%	B	1.16	1.33	0.099	110
SD3112-2R2-R	2.2	2.41+/-30%	C	0.97	1.12	0.140	92
SD3112-3R3-R	3.3	3.24+/-30%	D	0.90	0.97	0.165	79
SD3112-4R7-R	4.7	4.72+/-30%	E	0.74	0.80	0.246	66
SD3112-6R8-R	6.8	6.47+/-30%	F	0.68	0.68	0.291	56
SD3112-8R2-R	8.2	8.50+/-30%	G	0.57	0.60	0.408	49
SD3112-100-R	10.0	10.01+/-30%	H	0.55	0.55	0.446	45
SD3112-150-R	15.0	15.28+/-20%	I	0.45	0.44	0.654	37
SD3112-220-R	22.0	21.66+/-20%	J	0.37	0.37	0.953	31
SD3112-330-R	33.0	33.30+/-20%	K	0.30	0.30	1.48	25
SD3112-470-R	47.0	47.44+/-20%	L	0.270	0.25	1.85	21
SD3112-680-R	68.0	68.10+/-20%	M	0.228	0.211	2.56	17
SD3112-820-R	82.0	83.19+/-20%	N	0.213	0.190	2.93	16
SD3112-101-R	100.0	99.8+/-20%	O	0.184	0.174	3.95	14
SD3112-151-R	150.0	149.4+/-20%	P	0.149	0.142	6.01	12
SD3112-221-R	220.0	219.9+/-20%	Q	0.121	0.117	9.12	10

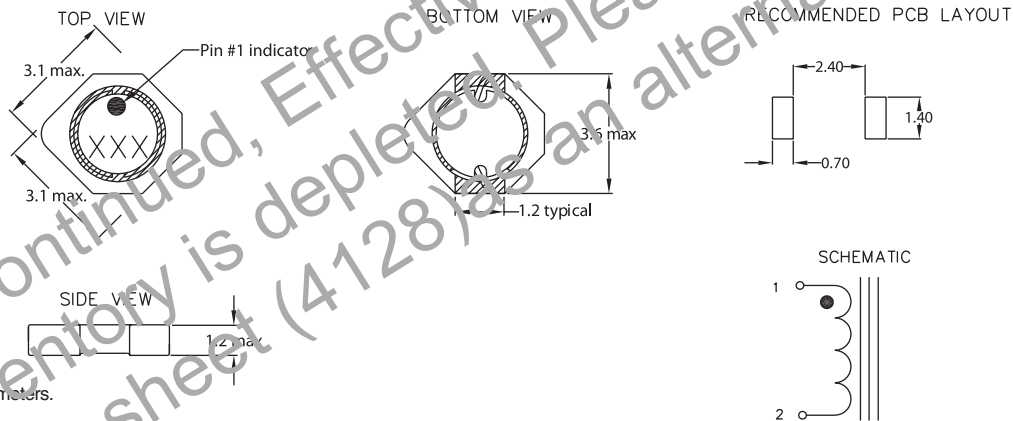
(1) Open Circuit Inductance Test Parameters: 100 kHz, 0.1 V, 0.0 Adc.

(2) Irms: 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) Isat 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 = $K \cdot L \cdot \Delta I$, B p-p (mT), K: (K factor from table), L: (Inductance in µH),
 ΔI (Peak to peak ripple current in Arms)

Dimensions- mm

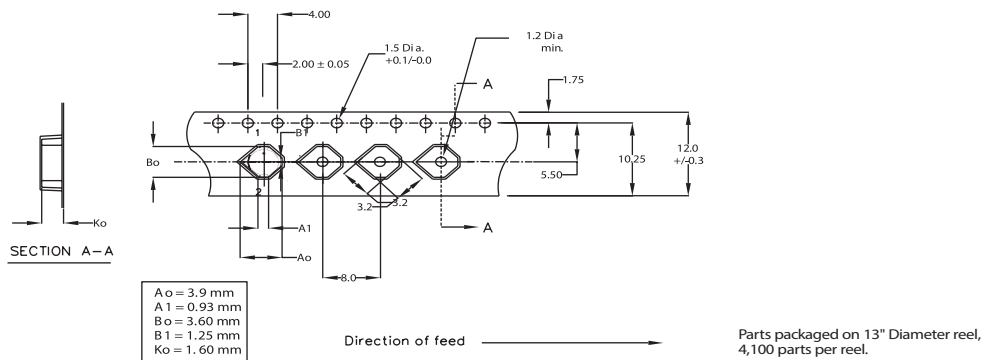


Dimensions are in millimeters.

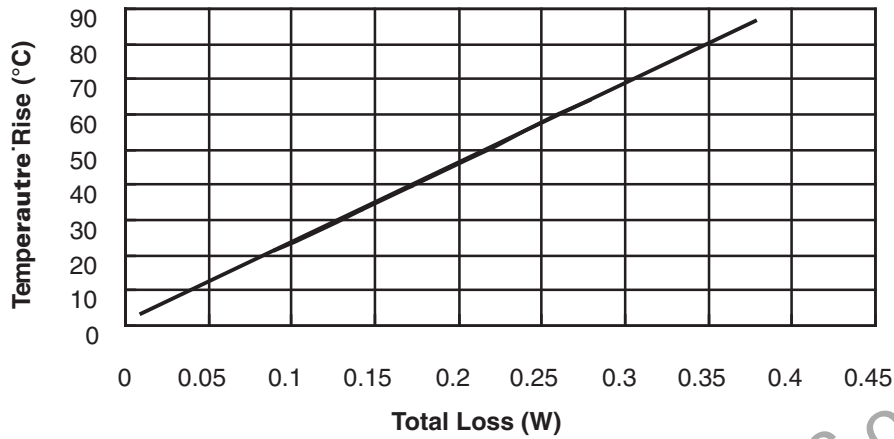
Part Marking:

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

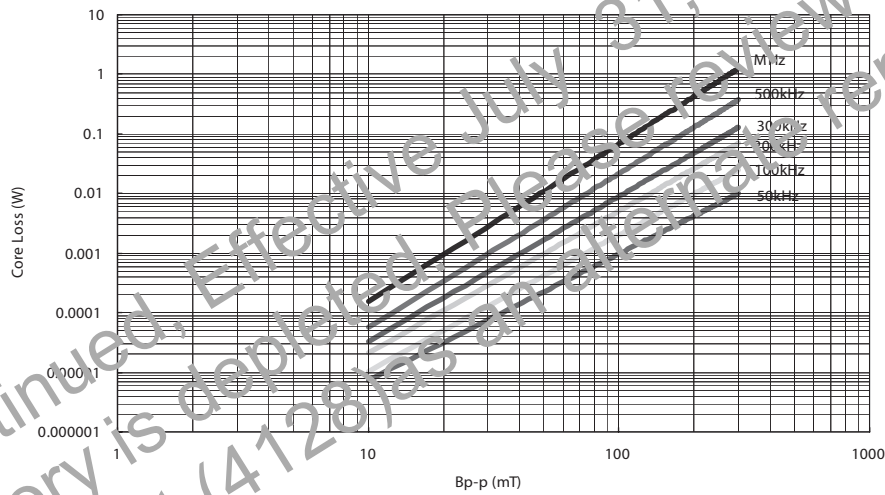
Packaging information- mm



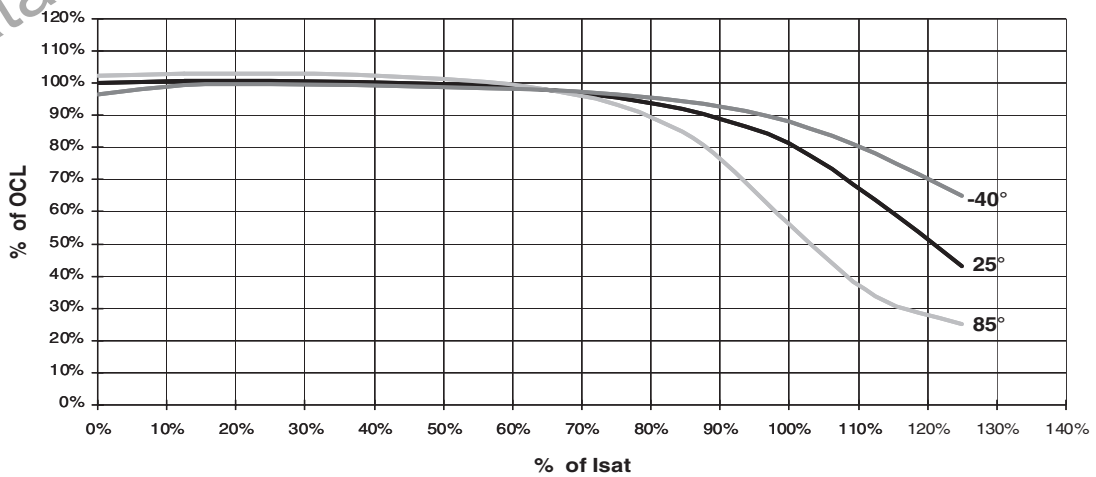
Temperature rise vs total loss



Core loss vs Bp-p



Inductance characteristics



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Solder Reflow Profile

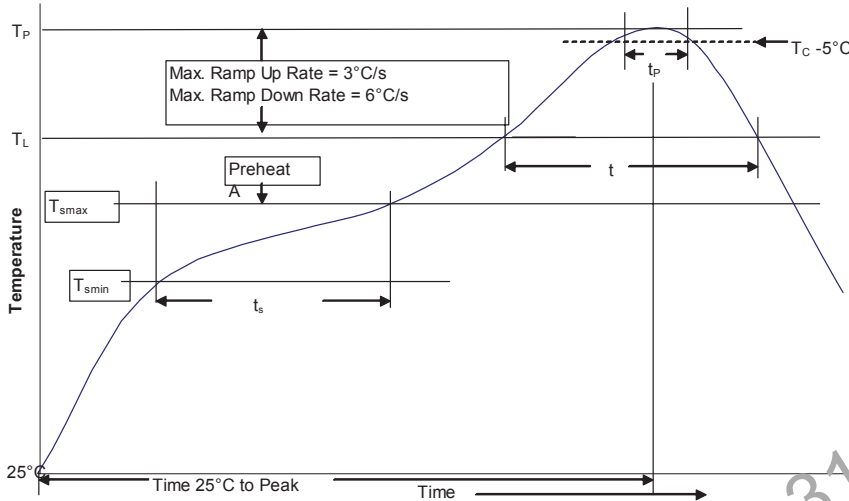


Table 1 - Standard SnPb Solder (T_C)

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
$\geq 2.5\text{mm}$	250°C	245°C	245°C

Reference JDEC J-STD-020

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	<ul style="list-style-type: none"> Temperature min. (T_{smin}) 100°C Temperature max. (T_{smax}) 150°C Time (T_{smin} to T_{smax}) (t_s) 60-120 Seconds 	<ul style="list-style-type: none"> 150°C 200°C 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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 Printed in USA
 Publication No. 4127
 October 2017

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