SD3118

Low profile power inductors

Description

- Low profile shielded drum core
- Compact footprint utilizes less board space
- Inductance Range from 1.0µH to 1,000µH
- Current range from 0.083 to 2.94 amps
- 3.2 x 3.2mm footprint surface mount package in a 1.8mm height
- Ferrite core material
- Halogen free, lead free, RoHS compliant

Applications

- Mobile/smart phones
- Tablets/e-readers
- Media players
- Digital cameras
- Small LED driver and LCD displays
- Handheld/mobile equipment

Environmental Data

- Storage temperature range (Component): -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient + self-temperature rise)
- Solder reflow temperature: J-STD-020D compliant

Pb HALOGEN HF FREE RoHS

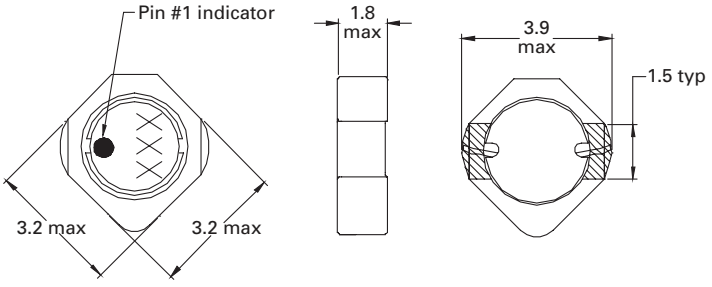
Powering Business Worldwide

Product Specifications

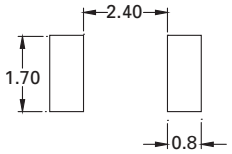
Part Number[6]	OCL[1] (µH)	Part marking designator	I_{rms}[2] (amps)	I_{sat}[3] (amps)	DCR (Ω) typical @ +20°C	K-factor[4]
SD3118-1R0-R	1.04±30%	A	2.01	3.07	0.041	84
SD3118-1R5-R	1.44±30%	B	1.81	2.42	0.051	68
SD3118-2R2-R	2.12±30%	C	1.50	2.00	0.074	57
SD3118-3R3-R	3.36±30%	D	1.22	1.59	0.11	56
SD3118-4R7-R	4.90±30%	E	1.02	1.31	0.16	39
SD3118-6R8-R	6.72±30%	F	0.85	1.12	0.23	32
SD3118- 8R2-R	8.10±30%	G	0.81	1.02	0.26	29
SD3118- 100-R	10.4±30%	H	0.75	0.90	0.30	26
SD3118-150-R	14.9±30%	I	0.62	0.75	0.44	21
SD3118-220-R	22.5±30%	J	0.50	0.61	0.68	18
SD3118-330-R	33.1±30%	K	0.41	0.51	0.99	14
SD3118-470-R	47.5±30%	L	0.37	0.42	1.2	12
SD3118-221-R	222±20%	M	0.182	0.177	4.8	6
SD3118-331-R	330±20%	N	0.146	0.145	7.4	5
SD3118-471-R	470±20%	O	0.130	0.122	9.2	4
SD3118-681-R	680±20%	P	0.107	0.101	14	3
SD3118-102-R	999±20%	Q	0.087	0.083	21	3

1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.1Vrms, 0.0Adc, @ +25°C
2. I_{rms}: DC current for an approximate temperature rise 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}: Peak current for approximately 30% rolloff @ +20°C
4. K-factor: Used to determine B_{p-p} for core loss (see graph). Bp-p = K * L * ΔI. B_{p-p}: (mTesla), K: (K-factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).
5. Part Number Definition: SD3118-xxx-R
   SD3118 = Product code and size
   xxx= Inductance value in uH, R= decimal point, if no R is present then last character equals number of zeros
   -R suffix = RoHS compliant

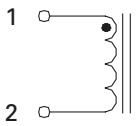
Dimensions (mm)



Recommended Pad Layout



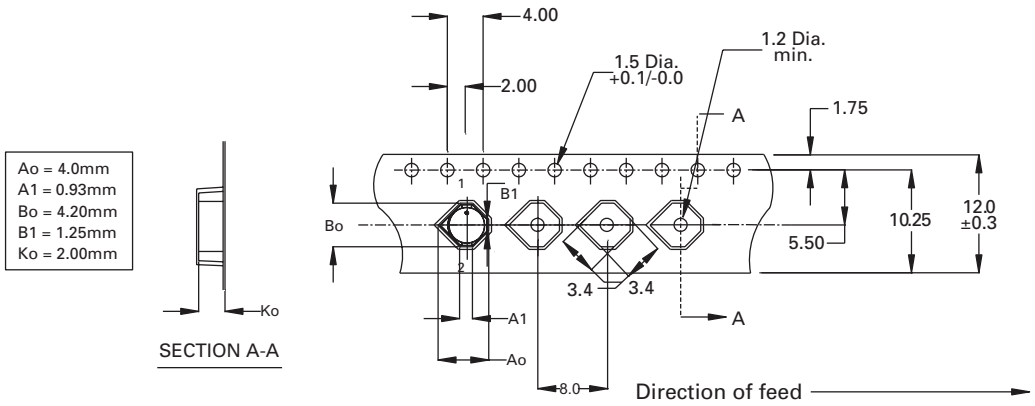
Schematic



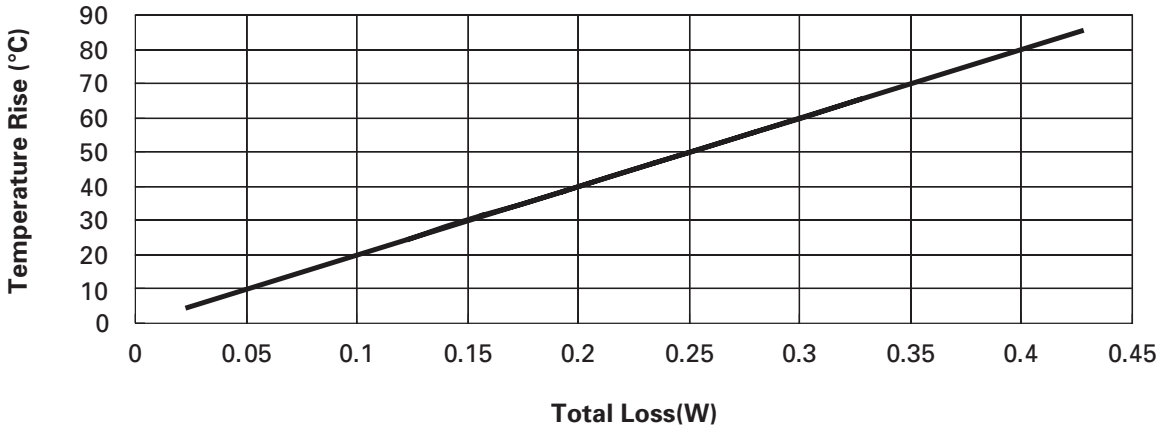
Part marking: dot for pin 1 indicator (orientation purposes only)
xxx = 3 digit marking (first digit indicates inductance value per letter in Part marking designator, second digit is bi-weekly date code, third digit is last digit of year produced)
All soldering surfaces to be coplanar within 0.10 millimeters
PCB tolerances are ±0.1 millimeters unless stated otherwise
Do not route traces or vias underneath the inductor

Packaging information (mm)

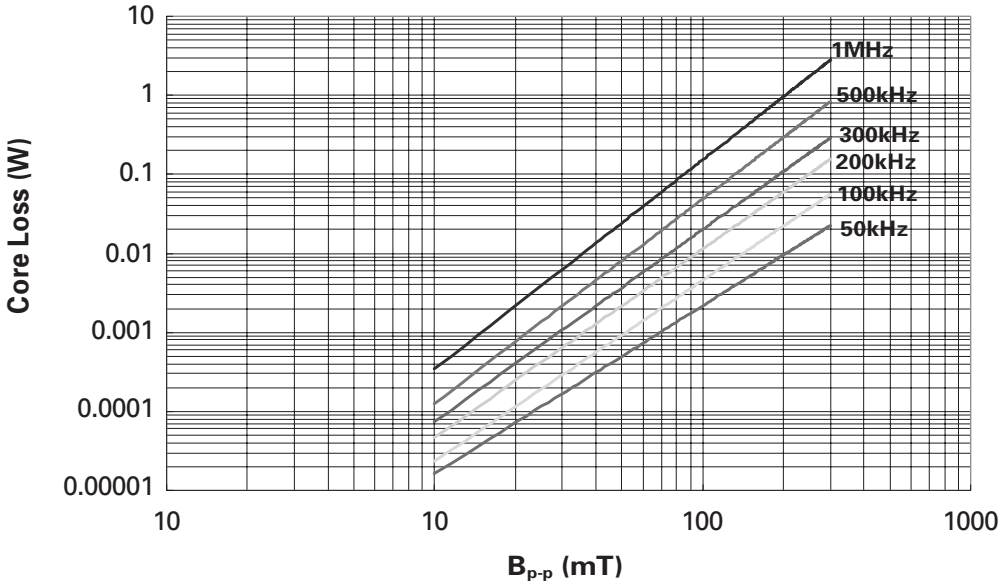
Supplied in tape and reel packaging, 4,100 parts per 13" diameter reel



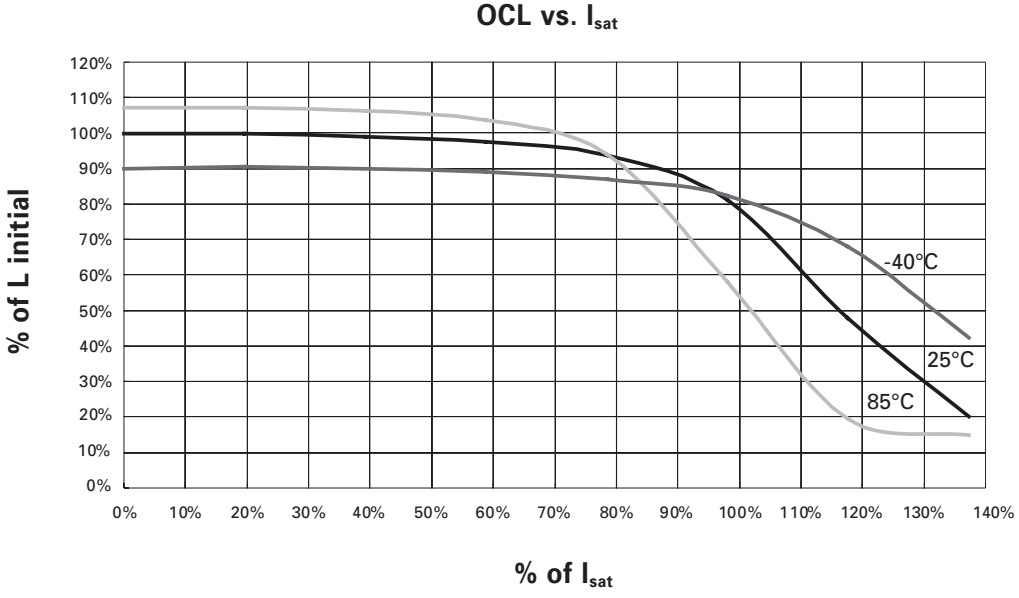
Temperature rise vs. total loss



Core loss vs. B_{p-p}



Inductance characteristics



Solder reflow profile

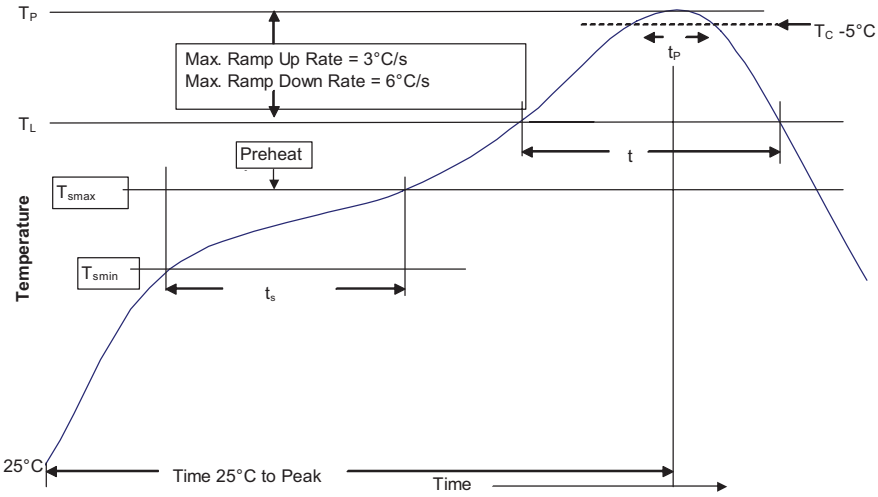


Table 1 - Standard SnPb Solder (T_C)

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-020D

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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