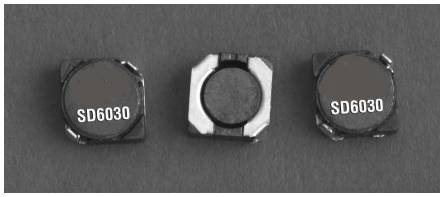
SD6030

Low profile shielded drum core power inductors



Product features

- 6.0 mm x 6.0 mm x 3.0 mm surface mount package
- Ferrite core material
- Shielded drum core reduces EMI
- Inductance range from 2.7 µH to 660 µH
- Current range from 0.16 A to 4.08 A
- Frequency range up to 1 MHz

Applications

- Notebook, laptop computers
- Digital cameras
- LED Drivers
- TFT LCD Bias supplies
- Wireless handsets
- Handheld instruments
- Gaming consoles
- GPS devices
- Battery backup/power

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[5]	OCL[1] µH ± 30%	I_{rms}[2] (A)	I_{sat}[3].(A)	Typ. DCR mΩ@ +20 °C	Max DCR mΩ @ +20 °C	K-factor[4]
SD6030-2R7-R	2.7	4.08	2.60	13	18	34
SD6030-3R3-R	3.3	3.54	2.40	18	24	30
SD6030-4R2-R	4.1	3.11	2.20	23	31	27
SD6030-5R0-R	4.9	2.81	1.90	28	38	24
SD6030-5R8-R	5.8	2.58	1.80	33	45	22
SD6030-7R8-R	7.8	2.38	1.60	39	53	19
SD6030-100-R	9.3	2.15	1.30	48	65	17
SD6030-120-R	11.3	1.99	1.20	56	76	16
SD6030-150-R	14.1	1.71	1.10	76	103	14
SD6030-180-R	17.1	1.65	1.00	82	110	13
SD6030-220-R	20.4	1.57	0.90	90	122	12
SD6030-270-R	26.0	1.31	0.85	130	175	11
SD6030-330-R	32.4	1.26	0.75	140	189	9.3
SD6030-360-R	34.4	1.19	0.70	157	212	8.7
SD6030-440-R	44.0	1.10	0.62	185	250	7.9
SD6030-520-R	52.0	0.99	0.58	226	305	7.2
SD6030-680-R	65.6	0.92	0.52	263	355	6.5
SD6030-820-R	81.6	0.80	0.46	343	463	5.9
SD6030-101-R	94.4	0.76	0.42	385	520	5.6
SD6030-121-R	110.1	0.70	0.40	517	620	5.6
SD6030-151-R	144.5	0.64	0.35	608	730	5.0
SD6030-181-R	175.7	0.55	0.32	817	980	4.5
SD6030-221-R	210.9	0.50	0.30	1000	1200	4.0
SD6030-271-R	264.2	0.44	0.27	1300	1560	3.6
SD6030-331-R	313.5	0.38	0.25	1733	2080	3.3
SD6030-391-R	373.7	0.35	0.22	2083	2500	3.0
SD6030-471-R	460.0	0.33	0.20	2250	2700	2.8
SD6030-561-R	546.2	0.30	0.18	2767	3320	2.5
SD6030-681-R	659.4	0.27	0.16	3458	4150	2.3

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

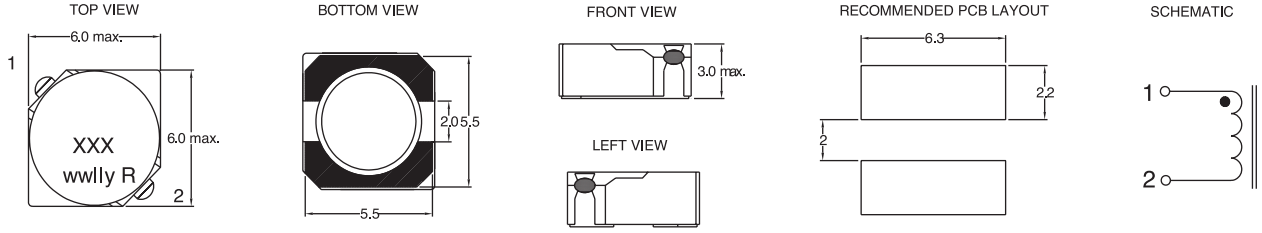
2 I_{rms}: DC current for an approximate ΔT of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

3 I_{sat} Amps peak for 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: SD6030-xxx-R
SD6030 = 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

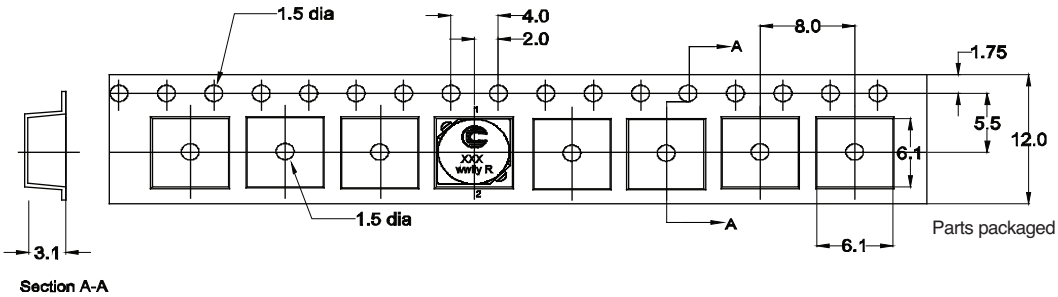
Dimensions-mm



Part Marking: xxx = Inductance value in uH. R = decimal point. If no R is present third character = # of zeros, wwlly or wwllyy = Date code, R = Revision level.

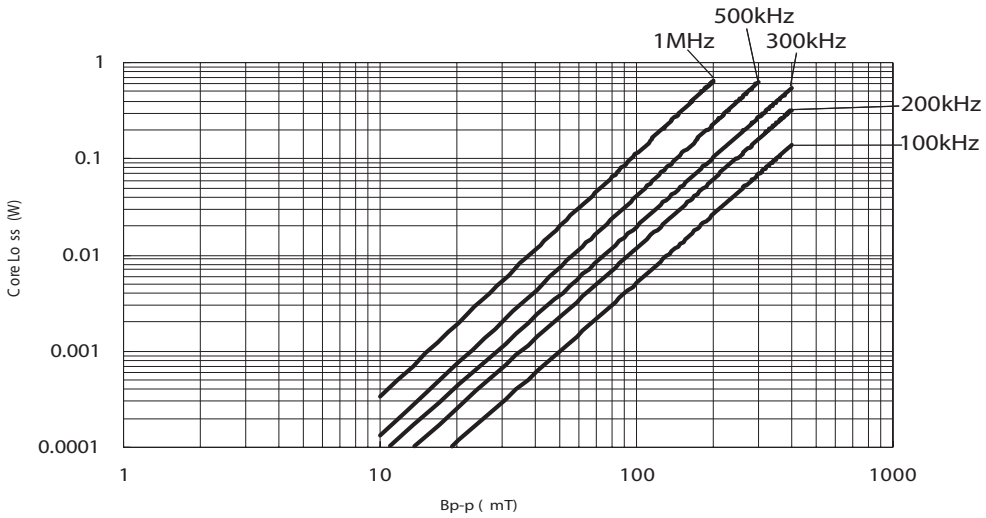
Do not route traces or vias underneath the inductor

Packaging information-mm

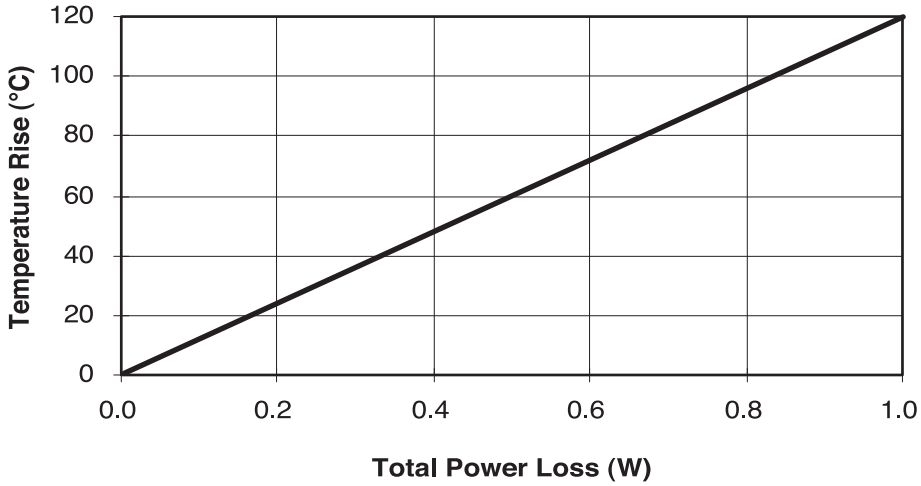


Parts packaged on 13" diameter reel, 2000 parts per reel.

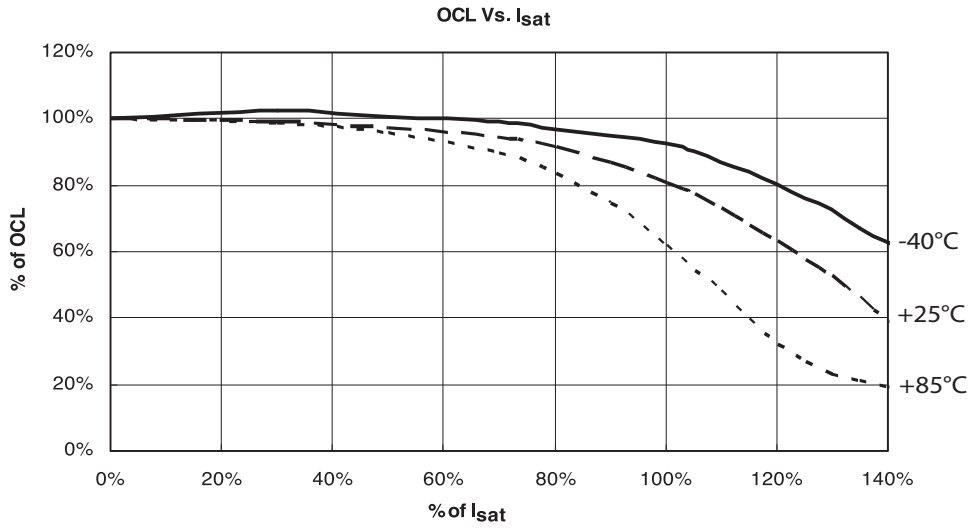
Core loss vs Bp-p



Temperature rise vs total loss



Inductance characteristics



Solder Reflow Profile

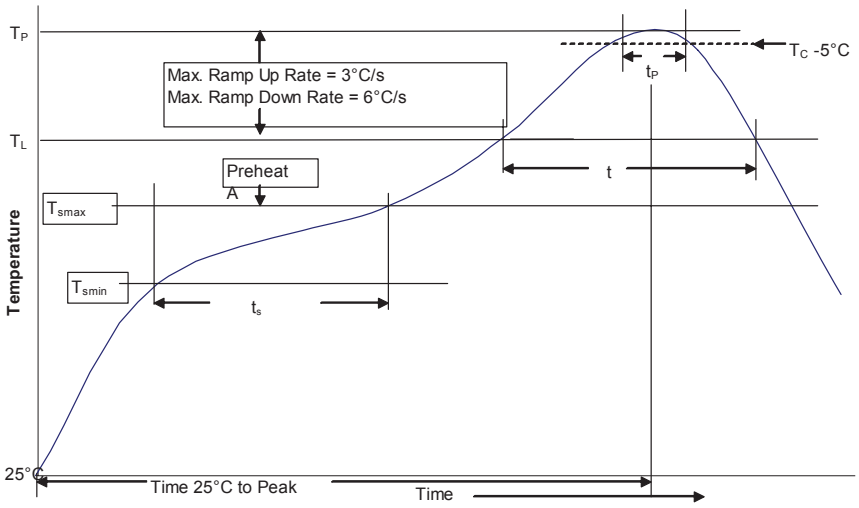


Table 1 - Standard SnPb Solder (T_C)

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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