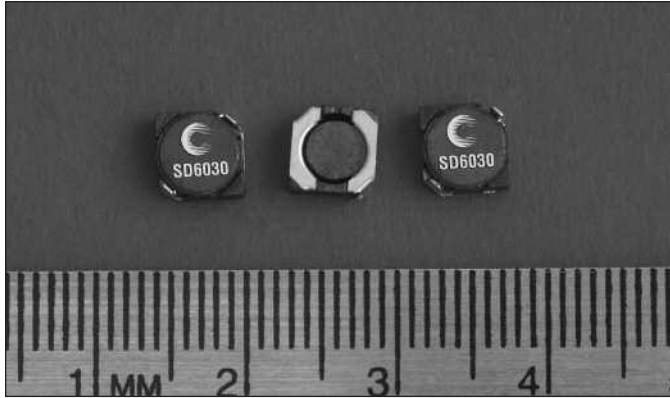


SD6030 Series

Low Profile Power Inductors



Description

- 125°C maximum total operating temperature
- Low profile surface mount inductors
- 6.0 x 6.0 x 3.0mm surface mount package
- Ferrite core material
- Shielded drum core reduces EMI

- Inductance range from 2.7µH to 680µH
- Current range from 0.16 amps to 4.08 amps
- Frequency range up to 1MHz



Applications

- Notebook computers, digital cameras
- DSL modems, PDAs
- High power LED driver
- MP3, CD players, GPS receivers
- Cellular phones, smart phones
- Wireless notebook adapters
- Battery power, TFT-LCD bias supplies
- PCMCIA, Cardbus32, MiniPCI cards

Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (range is application specific)
- Solder reflow temperature: +260°C max. for 10 seconds maximum

Packaging

- Supplied in tape and reel packaging, 2000 per reel

| Part Number | Rated Inductance (µH) | OCL ⁽¹⁾ µH ± 30% | I _{rms} ⁽²⁾ Amps | I _{sat} ⁽³⁾ Amps | DCR mΩ@20°C (Typical) | DCR mΩ@20°C (Maximum) | K-factor ⁽⁴⁾ |
|--------------|-----------------------|--------------------------------|---|---|-----------------------------|-----------------------------|-------------------------|
| SD6030-2R7-R | 2.7 | 2.7 | 4.08 | 2.60 | 13 | 18 | 34 |
| SD6030-3R3-R | 3.3 | 3.3 | 3.54 | 2.40 | 18 | 24 | 30 |
| SD6030-4R2-R | 4.2 | 4.1 | 3.11 | 2.20 | 23 | 31 | 27 |
| SD6030-5R0-R | 5.0 | 4.9 | 2.81 | 1.90 | 28 | 38 | 24 |
| SD6030-5R8-R | 5.8 | 5.8 | 2.58 | 1.80 | 33 | 45 | 22 |
| SD6030-7R8-R | 7.8 | 7.8 | 2.38 | 1.60 | 39 | 53 | 19 |
| SD6030-100-R | 10 | 9.3 | 2.15 | 1.30 | 48 | 65 | 17 |
| SD6030-120-R | 12 | 11.3 | 1.99 | 1.20 | 56 | 76 | 16 |
| SD6030-150-R | 15 | 14.1 | 1.71 | 1.10 | 76 | 103 | 14 |
| SD6030-180-R | 18 | 17.1 | 1.65 | 1.00 | 82 | 110 | 13 |
| SD6030-220-R | 22 | 20.4 | 1.57 | 0.90 | 90 | 122 | 12 |
| SD6030-270-R | 27 | 26.0 | 1.31 | 0.85 | 130 | 175 | 11 |
| SD6030-330-R | 33 | 32.4 | 1.26 | 0.75 | 140 | 189 | 9.3 |
| SD6030-360-R | 36 | 34.4 | 1.19 | 0.70 | 157 | 212 | 8.7 |
| SD6030-440-R | 44 | 44.0 | 1.10 | 0.62 | 185 | 250 | 7.9 |
| SD6030-520-R | 52 | 52.0 | 0.99 | 0.58 | 226 | 305 | 7.2 |
| SD6030-680-R | 68 | 65.6 | 0.92 | 0.52 | 263 | 355 | 6.5 |
| SD6030-820-R | 82 | 81.6 | 0.80 | 0.46 | 343 | 463 | 5.9 |
| SD6030-101-R | 100 | 94.4 | 0.76 | 0.42 | 385 | 520 | 5.6 |
| SD6030-121-R | 120 | 110.1 | 0.70 | 0.40 | 517 | 620 | 5.6 |
| SD6030-151-R | 150 | 144.5 | 0.64 | 0.35 | 608 | 730 | 5.0 |
| SD6030-181-R | 180 | 175.7 | 0.55 | 0.32 | 817 | 980 | 4.5 |
| SD6030-221-R | 220 | 210.9 | 0.50 | 0.30 | 1000 | 1200 | 4.0 |

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

(2) I_{rms}: DC current for an approximate ΔT of 40°C without core loss. Derating is necessary for AC currents. Pad layout, trace thickness and width, airflow, 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 = K²L²ΔI, 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 = # of zeros.

-R suffix = RoHS compliant

| Part Number | Rated Inductance (μH) | OCL ⁽¹⁾ μH ± 30% | I _{rms} ⁽²⁾ Amps | I _{sat} ⁽³⁾ Amps | DCR mΩ@20°C (Typical) | DCR mΩ@20°C (Maximum) | K-factor ⁽⁴⁾ |
|--------------|-----------------------|-----------------------------|--------------------------------------|--------------------------------------|-----------------------|-----------------------|-------------------------|
| SD6030-271-R | 270 | 264.2 | 0.44 | 0.27 | 1300 | 1560 | 3.6 |
| SD6030-331-R | 330 | 313.5 | 0.38 | 0.25 | 1733 | 2080 | 3.3 |
| SD6030-391-R | 390 | 373.7 | 0.35 | 0.22 | 2083 | 2500 | 3.0 |
| SD6030-471-R | 470 | 460.0 | 0.33 | 0.20 | 2250 | 2700 | 2.8 |
| SD6030-561-R | 560 | 546.2 | 0.30 | 0.18 | 2767 | 3320 | 2.5 |
| SD6030-681-R | 680 | 659.4 | 0.27 | 0.16 | 3458 | 4150 | 2.3 |

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

(2) I_{rms}: DC current for an approximate ΔT of 40°C without core loss. Derating is necessary for AC currents. Pad layout, trace thickness and width, airflow, 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*ΔI, B p-p(mT), K: (K factor from table), L: (Inductance in μH), ΔI (Peak to peak ripple current in amps).

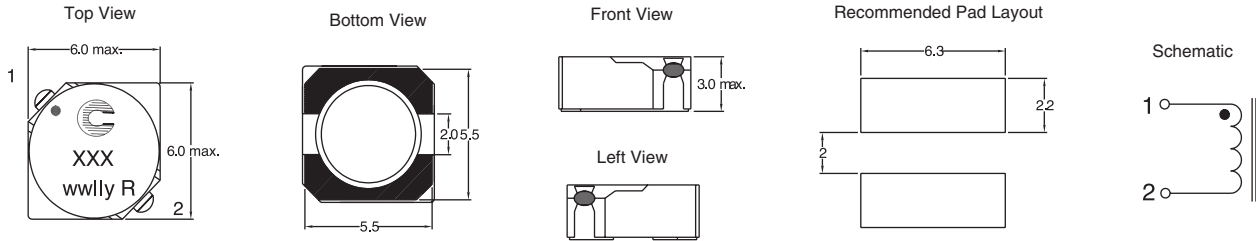
(5) Part Number Definition: SD6030-xxx-R

SD6030 = Product code and size; -xxx = Inductance value in μH;

R = decimal point; If no R is present, third character = # of zeros.

-R suffix = RoHS compliant

Dimensions - mm

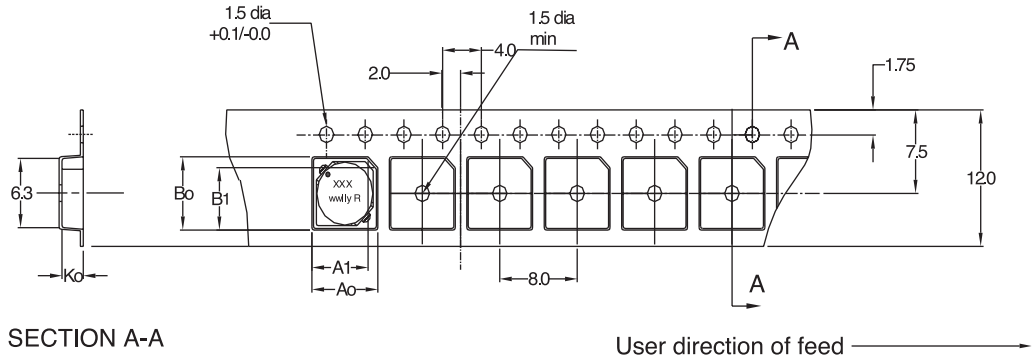


xxx = Inductance value in μH. R = decimal point. If no R is present third character = # of zeros.
wwly = Date code, R = Revision level.

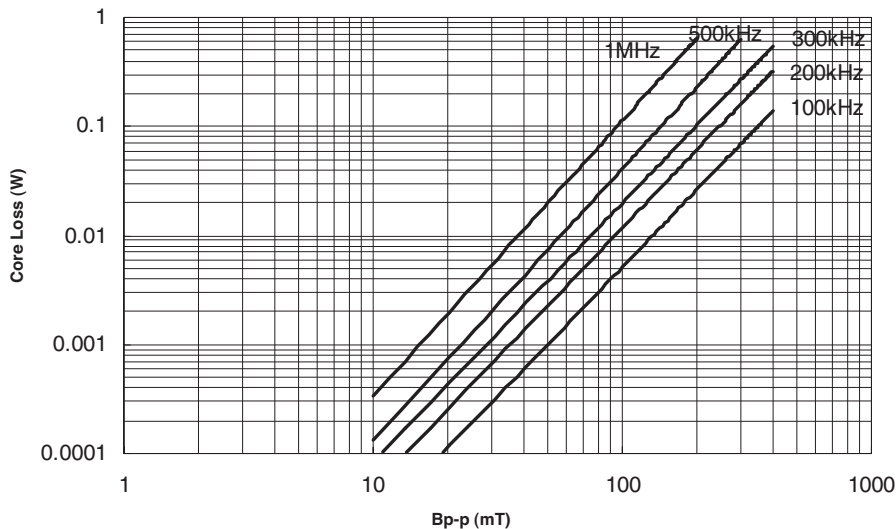
Packaging Information

Supplied in tape and reel packaging, 2000 parts per reel, 13" diameter reel.

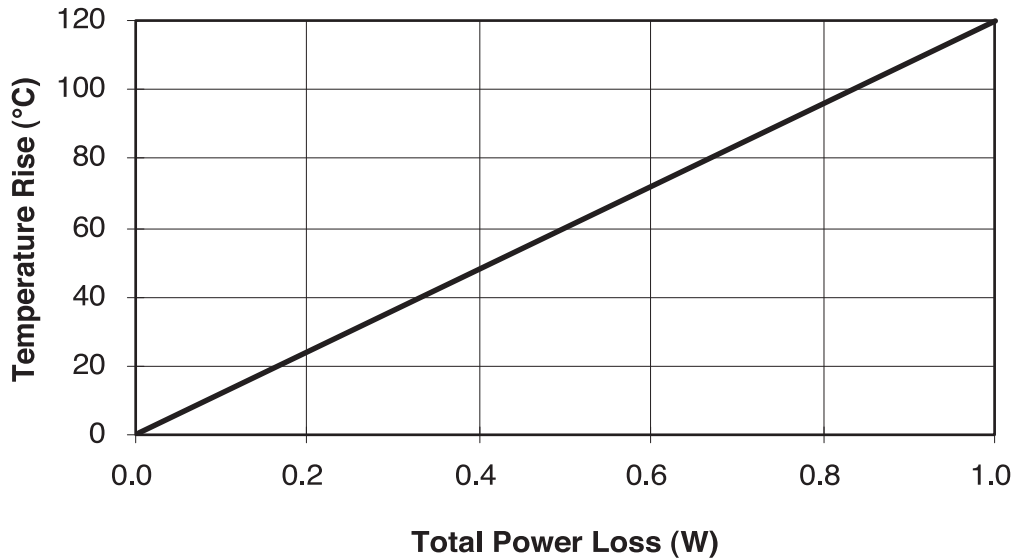
Ao=6.8 mm
Bo=6.8 mm
A1=5.8 mm
B1=5.8 mm
Ko=3.2 mm



Core Loss

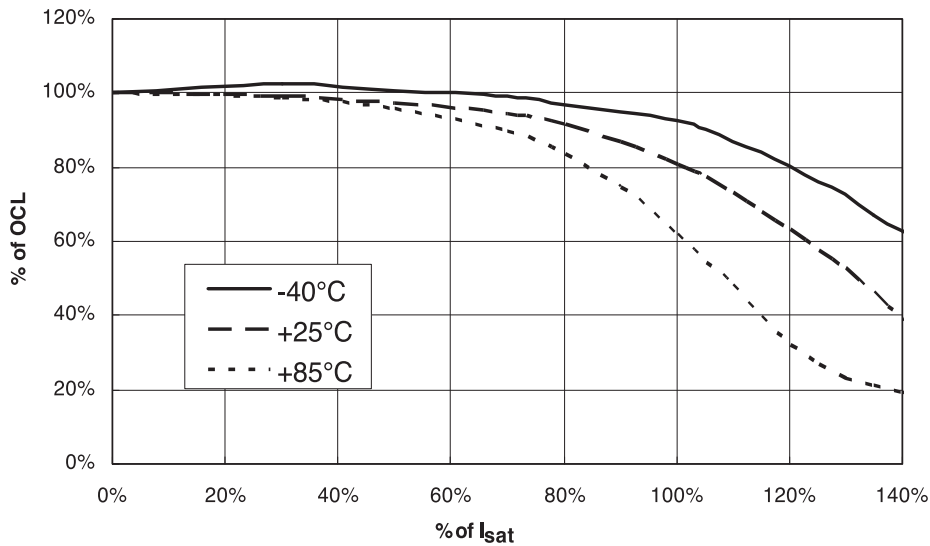


Temperature Rise vs. Loss



Inductance Characteristics

OCL Vs. I_{sat}



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