



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Low-Profile Power Inductors

SD6030 Series



SMD Device



Description

- 125°C maximum total temperature operation
- Low profile surface mount inductors
- 6.0 x 6.0 x 3.0mm maximum surface mount package
- Ferrite core material
- Shielded drum core reduces EMI
- Inductance range from 2.7µH to 660µH
- Current range from 0.16 to 4.08 Amps
- Frequency range up to 1MHz

Applications

- Notebook computers, digital cameras
- High Power LED driver
- Battery power, TFT-LCD Bias supplies
- Gaming consoles, GPS receivers
- Wireless notebook adapters
- Wireless handsets, handheld instruments

Environmental Data

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

Packaging

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

Product Specifications

| Part Number ⁵ | OCL ¹ µH ± 30% | I _{rms} ² (Amps) | I _{sat} ³ (Amps) | 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: 100kHz, 0.1V, 0.0Adc.

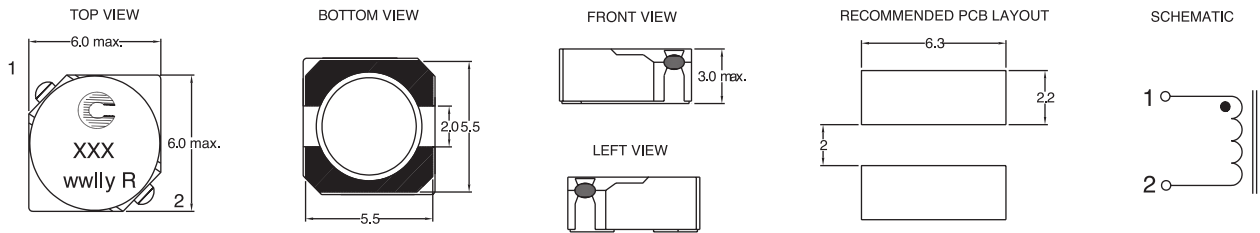
2) I_{rms}: DC current for an approximate ΔT of 40°C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed 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*ΔI, B_{p-p} (mT), K: (K factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).

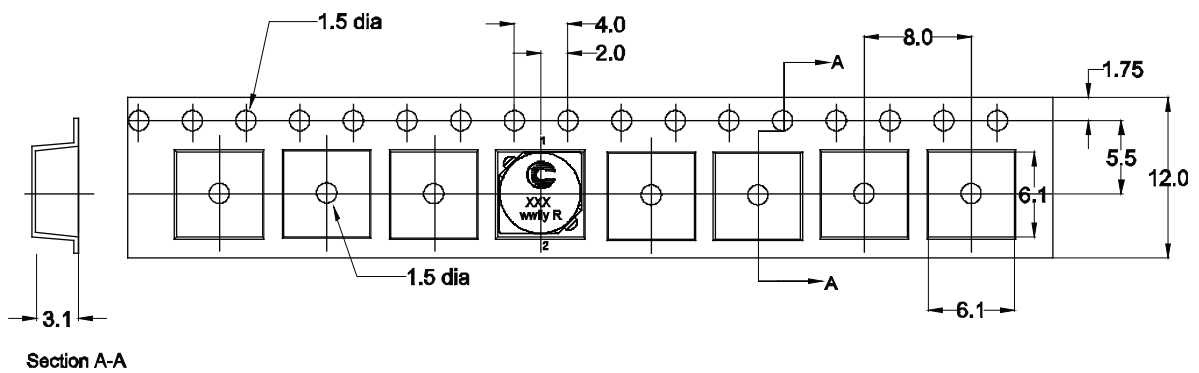
5) Part Number Definition: SD6030-xxx-R
 SD6030 = Product code and size; -xxx = inductance value in µH;
 R = decimal point; If no R is present, third character = # of zeros.
 -R suffix = RoHS compliant

Dimensions - mm



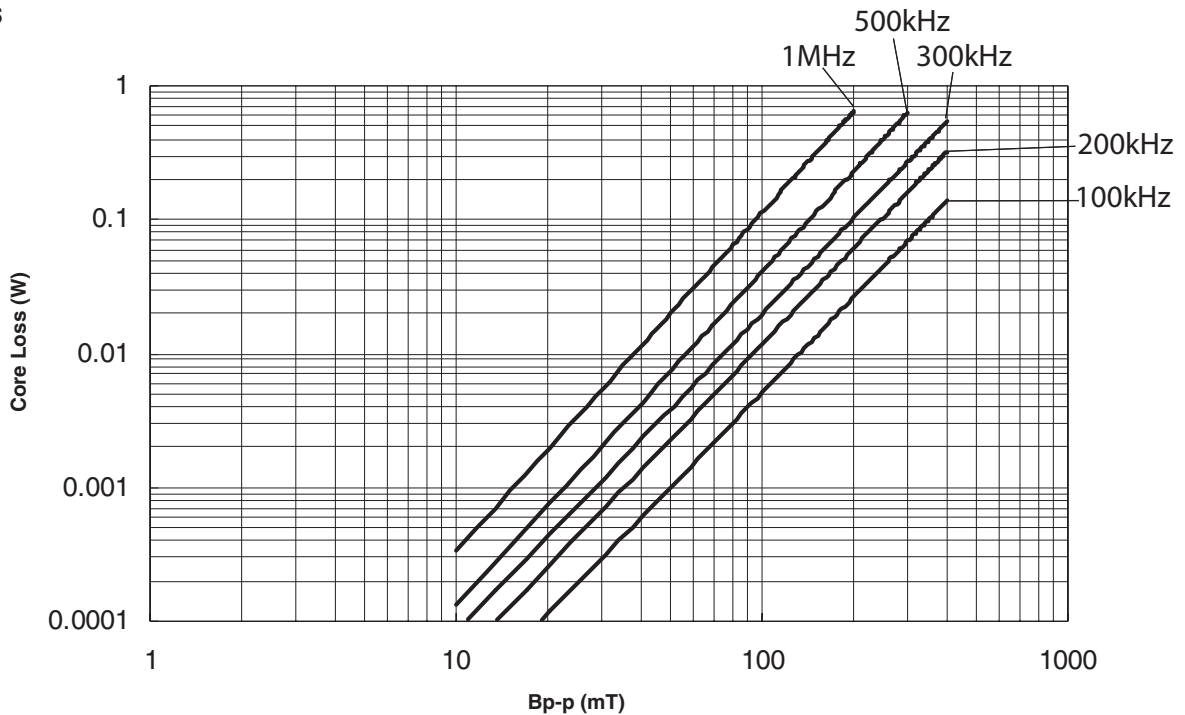
Part Marking: Coiltronics logo, xxx = Inductance value in uH. R = decimal point. If no R is present third character = # of zeros, wwly or wwlly = Date code, R = Revision level.

Packaging Information - mm

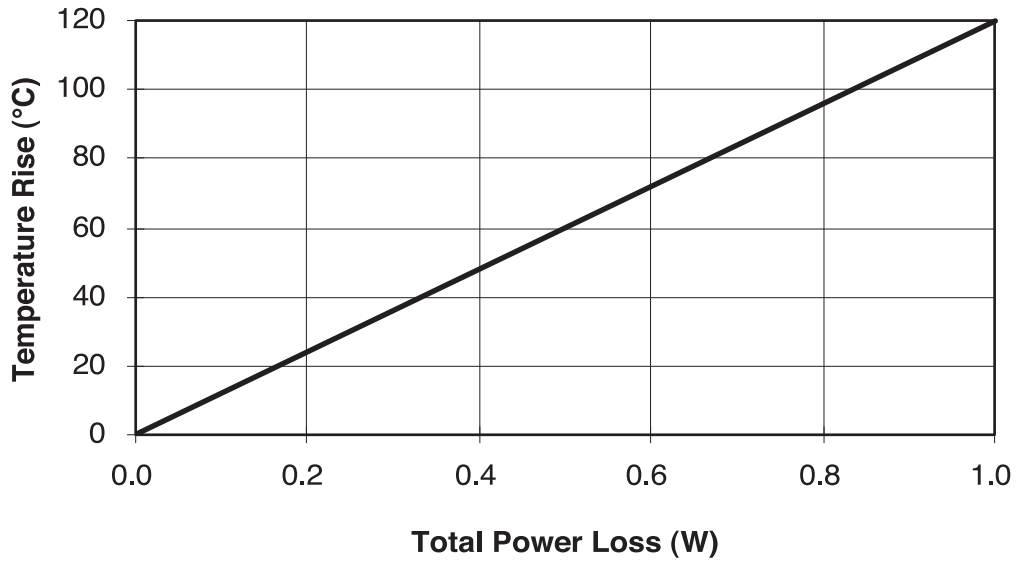


Parts packaged on 13" diameter reel, 2000 parts per reel.

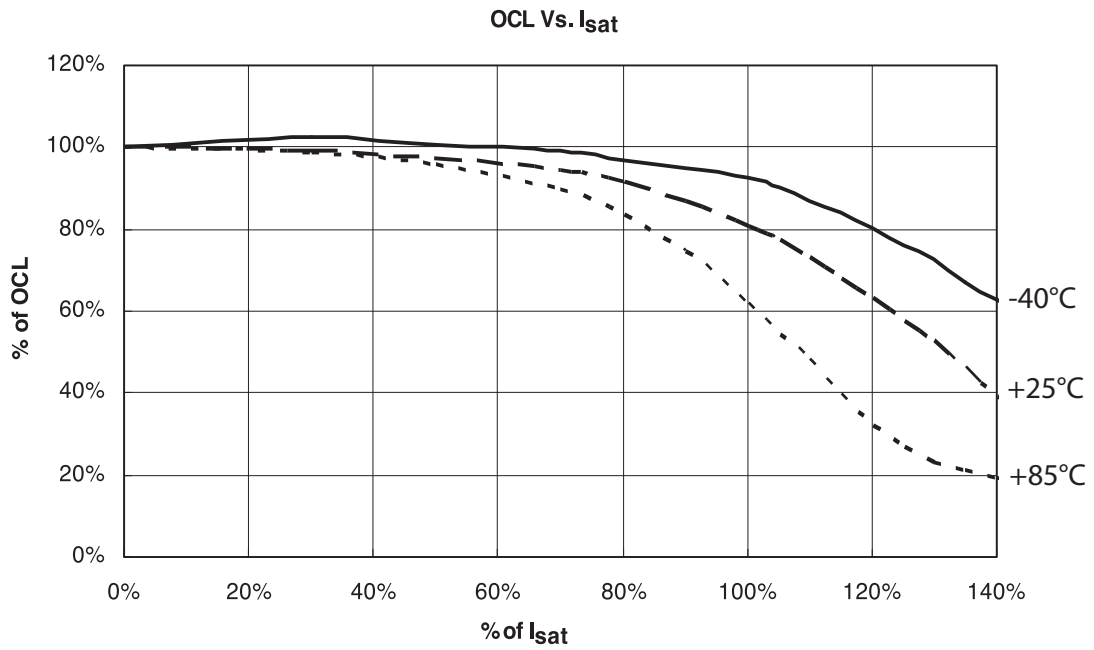
Core Loss



Temperature Rise vs. Loss



Inductance Characteristics



Solder Reflow Profile

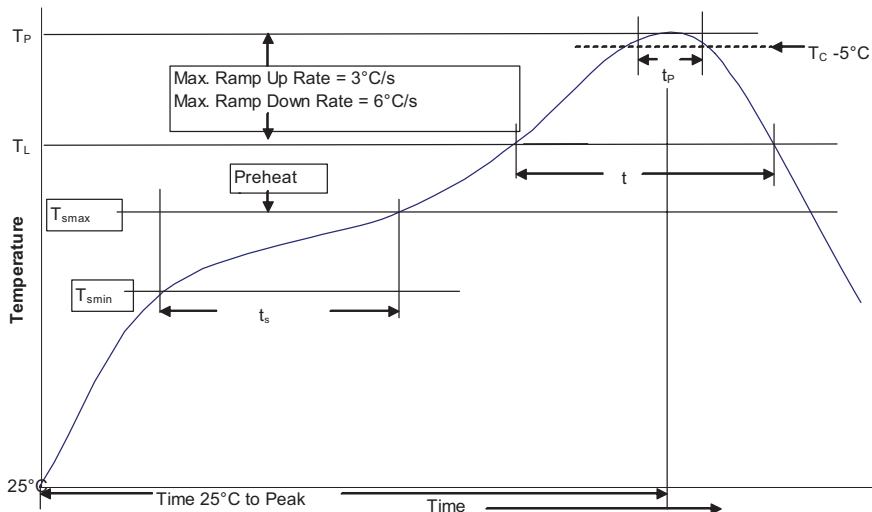


Table 1 - Standard SnPb Solder (T_C)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5mm | 235°C | 220°C |
| ≥2.5mm | 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-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) | 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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