



# SD3114 Series **Low Profile Power Inductors**

# **Description**

- 125°C maximum total temperature operation
- 3.1mm x 3.1mm x 1.4mm shielded drum core
- Ferrite core material
- Inductance range from 1.0uH to 330uH
- Current range from 2.59 Amps to 0.106 Amps
- Frequency range up to 4MHz

#### **Applications**

- Cellular phones, Digital cameras, CD players, PDA's
- Small LCD displays
- LED driver and LED flash circuits
- Hard disk drives
- Backlighting
- EL panel

#### **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, 4100 per reel

| Part Number  | Rated<br>Inductance<br>(µH) | OCL (1)<br>(μH) | Part<br>Marking<br>Designator | Irms (2)<br>Amperes | Isat (3)<br>Amperes | DCR (Ω)<br>typ. @<br>20°C | K-factor<br>(4) |
|--------------|-----------------------------|-----------------|-------------------------------|---------------------|---------------------|---------------------------|-----------------|
| SD3114-1R0-R | 1.0                         | 1.16+/-30%      | Α                             | 1.60                | 2.35                | 0.058                     | 98              |
| SD3114-1R5-R | 1.5                         | 1.44+/-30%      | В                             | 1.39                | 2.11                | 0.077                     | 79              |
| SD3114-2R2-R | 2.2                         | 2.12+/-30%      | С                             | 1.17                | 1.74                | 0.110                     | 67              |
| SD3114-3R3-R | 3.3                         | 3.36+/-30%      | D                             | 0.95                | 1.38                | 0.167                     | 54              |
| SD3114-4R7-R | 4.7                         | 4.90+/-30%      | E                             | 0.77                | 1.14                | 0.251                     | 45              |
| SD3114-6R8-R | 6.8                         | 6.72+/-30%      | F                             | 0.71                | 0.98                | 0.296                     | 37              |
| SD3114-8R2-R | 8.2                         | 8.10+/-30%      | G                             | 0.68                | 0.89                | 0.329                     | 34              |
| SD3114-100-R | 10.0                        | 10.4+/-30%      | Н                             | 0.57                | 0.78                | 0.458                     | 30              |
| SD3114-150-R | 15.0                        | 14.9+/-20%      | I                             | 0.48                | 0.66                | 0.650                     | 25              |
| SD3114-220-R | 22.0                        | 22.5+/-20%      | J                             | 0.43                | 0.53                | 0.821                     | 21              |
| SD3114-330-R | 33.0                        | 33.1+/-20%      | K                             | 0.35                | 0.44                | 1.23                      | 17              |
| SD3114-470-R | 47.0                        | 47.5+/-20%      | L                             | 0.280               | 0.37                | 1.86                      | 14              |
| SD3114-680-R | 68.0                        | 68.6+/-20%      | M                             | 0.239               | 0.305               | 2.62                      | 12              |
| SD3114-820-R | 82.0                        | 81.8+/-20%      | N                             | 0.227               | 0.280               | 2.91                      | 11              |
| SD3114-101-R | 100.0                       | 101.1+/-20%     | 0                             | 0.213               | 0.252               | 3.30                      | 10              |
| SD3114-151-R | 150.0                       | 149.0+/-20%     | Р                             | 0.172               | 0.207               | 5.07                      | 8               |
| SD3114-221-R | 220.0                       | 220.9+/-20%     | Q                             | 0.140               | 0.170               | 7.67                      | 6               |
| SD3114-331-R | 330.0                       | 329.5+/-20%     | R                             | 0.113               | 0.139               | 11.78                     | 5               |

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

<sup>(1)</sup> Open Circuit inductance lest Farantelers. Tookhaz, 0.1V, 0.0Adc.
(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.

<sup>(3)</sup> Isat Amperes peak for approximately 30% rolloff (@20°C)

<sup>(4)</sup> K-factor: Used to determine B p-p for core loss (see graph).

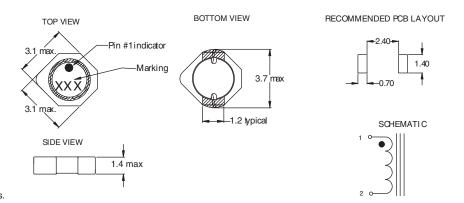
B p-p = K\*L\*ΔI, B p-p(mT), K: (K factor from table), L: (Inductance in uH),

ΔI (Peak to peak ripple current in Amps).



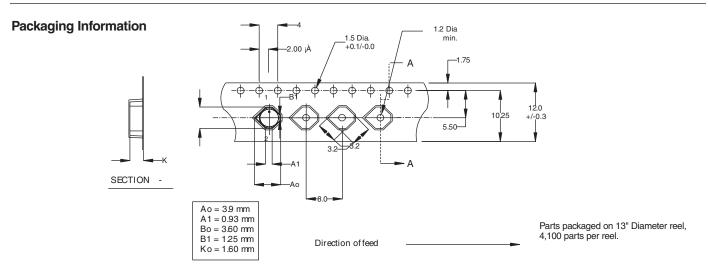


### **Mechanical Diagrams**

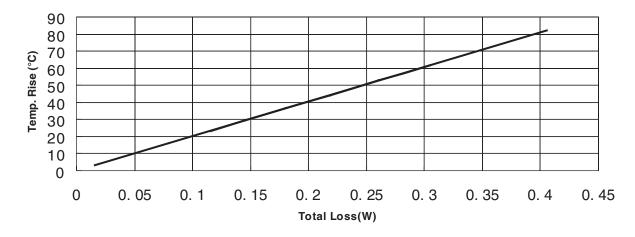


Dimensions are in millimeters.

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).



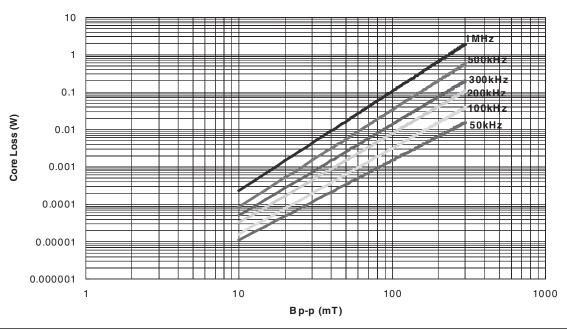
### DC Current vs. Temperature



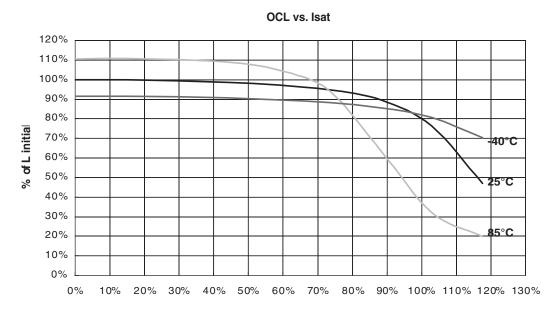




#### **Core Loss**



### **Inductance Characteristics**





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