

**Description**

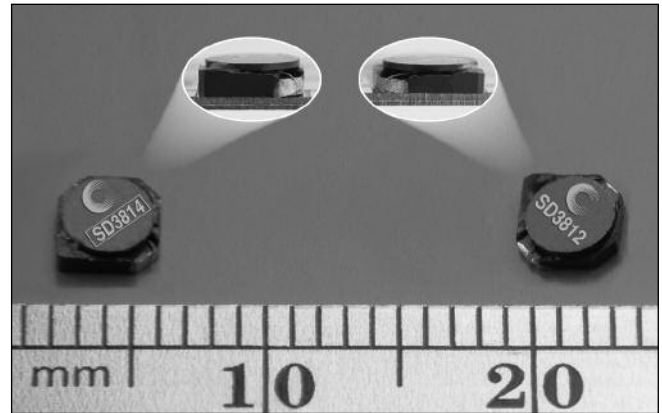
- 3.8mm x 3.8mm shielded drum cores available in two heights: 1.2mm and 1.4mm
- Current range from 4.44 to 0.100 Amps
- Inductance range from 0.47 uH to 680 uH
- Ferrite shielded, low EMI
- Ferrite core material


**Applications**

- Digital cameras, cellular phones, CD players, and PDAs
- PCMCIA cards
- GPS systems

**Environmental Data**

- Storage temperature range: -40°C to +125°C
- Operating ambient temperature range: -40°C to +85°C (range is application specific). Temperature rise is approximately 40°C at rated rms current
- Solder reflow temperature: +260°C max for 10 seconds max.


**Packaging**

- Supplied in tape and reel packaging, 4,150 parts per 13" reel

| Part Number  | Rated Inductance (µH) | OCL (1) +/-15% (µH) | Part Marking Designator | I <sub>rms</sub> (2) Amperes | I <sub>sat</sub> (3) Amperes | DCR (4) (Ω) Typ. | Volt (5) u-sec Typ. |
|--------------|-----------------------|---------------------|-------------------------|------------------------------|------------------------------|------------------|---------------------|
| SD3812-R47-R | 0.47                  | 0.405               | A                       | 2.53                         | 3.89                         | 0.030            | 2.52                |
| SD3812-1R0-R | 1.0                   | 0.845               | B                       | 2.00                         | 2.69                         | 0.048            | 3.64                |
| SD3812-1R2-R | 1.2                   | 1.125               | C                       | 1.71                         | 2.33                         | 0.066            | 4.20                |
| SD3812-1R5-R | 1.5                   | 1.445               | D                       | 1.58                         | 2.06                         | 0.078            | 4.76                |
| SD3812-2R2-R | 2.2                   | 2.205               | E                       | 1.32                         | 1.67                         | 0.111            | 5.88                |
| SD3812-3R3-R | 3.3                   | 3.125               | F                       | 1.10                         | 1.40                         | 0.159            | 7.0                 |
| SD3812-4R7-R | 4.7                   | 4.805               | G                       | 0.87                         | 1.13                         | 0.256            | 8.7                 |
| SD3812-6R8-R | 6.8                   | 6.845               | H                       | 0.80                         | 0.95                         | 0.299            | 10.4                |
| SD3812-8R2-R | 8.2                   | 8.405               | I                       | 0.690                        | 0.854                        | 0.406            | 11.5                |
| SD3812-100-R | 10.0                  | 10.125              | J                       | 0.662                        | 0.778                        | 0.441            | 12.6                |
| SD3812-150-R | 15.0                  | 15.125              | K                       | 0.539                        | 0.636                        | 0.665            | 15.4                |
| SD3812-220-R | 22.0                  | 21.125              | L                       | 0.499                        | 0.538                        | 0.776            | 18.2                |
| SD3812-330-R | 33.0                  | 32.805              | M                       | 0.399                        | 0.432                        | 1.212            | 22.7                |
| SD3812-470-R | 47.0                  | 47.045              | N                       | 0.327                        | 0.361                        | 1.809            | 27.2                |
| SD3812-680-R | 68.0                  | 68.445              | O                       | 0.269                        | 0.299                        | 2.666            | 32.8                |
| SD3812-820-R | 82.0                  | 80.645              | P                       | 0.259                        | 0.276                        | 2.885            | 36                  |
| SD3812-101-R | 100.0                 | 99.405              | Q                       | 0.217                        | 0.248                        | 4.099            | 39                  |
| SD3812-151-R | 150.0                 | 149.645             | R                       | 0.178                        | 0.202                        | 6.130            | 48                  |
| SD3812-221-R | 220.0                 | 218.405             | S                       | 0.160                        | 0.167                        | 7.585            | 59                  |
| SD3814-R47-R | 0.47                  | 0.360               | A                       | 2.81                         | 4.44                         | 0.020            | 2.16                |
| SD3814-R82-R | 0.82                  | 0.752               | B                       | 2.18                         | 3.08                         | 0.033            | 3.12                |
| SD3814-1R2-R | 1.2                   | 1.001               | C                       | 1.85                         | 2.67                         | 0.046            | 3.60                |
| SD3814-1R5-R | 1.5                   | 1.286               | D                       | 1.76                         | 2.35                         | 0.051            | 4.08                |
| SD3814-2R2-R | 2.2                   | 1.962               | E                       | 1.43                         | 1.90                         | 0.077            | 5.04                |
| SD3814-3R3-R | 3.3                   | 2.781               | F                       | 1.31                         | 1.60                         | 0.093            | 6.0                 |
| SD3814-4R7-R | 4.7                   | 4.276               | G                       | 1.06                         | 1.29                         | 0.141            | 7.4                 |
| SD3814-6R8-R | 6.8                   | 6.768               | H                       | 0.87                         | 1.03                         | 0.207            | 9.4                 |
| SD3814-8R2-R | 8.2                   | 8.228               | I                       | 0.753                        | 0.930                        | 0.279            | 10.3                |
| SD3814-100-R | 10.0                  | 9.830               | J                       | 0.713                        | 0.851                        | 0.311            | 11.3                |
| SD3814-150-R | 15.0                  | 14.458              | K                       | 0.574                        | 0.702                        | 0.481            | 13.7                |
| SD3814-220-R | 22.0                  | 21.186              | L                       | 0.519                        | 0.580                        | 0.589            | 16.6                |
| SD3814-330-R | 33.0                  | 32.151              | M                       | 0.418                        | 0.471                        | 0.908            | 20.4                |
| SD3814-470-R | 47.0                  | 47.210              | N                       | 0.346                        | 0.388                        | 1.322            | 24.7                |
| SD3814-680-R | 68.0                  | 67.324              | O                       | 0.285                        | 0.325                        | 1.951            | 29.5                |

(1) Test Parameters: 100KHz, 0.100Vrms, 0.0Adc.

(2) RMS current for an approximate ΔT of 40°C without core loss. It is recommended that the temperature of the part not exceed 125°C. De-rating is necessary for AC currents.

(3) Peak current for approximately 30% rolloff at 20°C.

(4) DCR limits @ 20°C.

(5) Applied Volt-Time product (V-uS) across the inductor at 100KHz necessary to generate a core loss equal to 10% of the total losses for 40°C temperature rise. De-rating of the I<sub>rms</sub> is required to prevent excessive temperature rise.

| Part Number  | Rated Inductance ( $\mu\text{H}$ ) | OCL (1) $\pm 15\%$ ( $\mu\text{H}$ ) | Part Marking Designator | I <sub>rms</sub> (2) Amperes | I <sub>sat</sub> (3) Amperes | DCR (4) ( $\Omega$ ) Typ. | Volt (5) u-sec Typ. |
|--------------|------------------------------------|--------------------------------------|-------------------------|------------------------------|------------------------------|---------------------------|---------------------|
| SD3814-820-R | 82.0                               | 81.101                               | P                       | 0.270                        | 0.296                        | 2.174                     | 32                  |
| SD3814-101-R | 100.0                              | 98.794                               | Q                       | 0.228                        | 0.268                        | 3.048                     | 36                  |
| SD3814-151-R | 150.0                              | 149.026                              | R                       | 0.191                        | 0.219                        | 4.359                     | 44                  |
| SD3814-221-R | 220.0                              | 217.342                              | S                       | 0.170                        | 0.181                        | 5.480                     | 53                  |
| SD3814-331-R | 330.0                              | 326.812                              | T                       | 0.136                        | 0.148                        | 8.59                      | 65                  |
| SD3814-471-R | 470.0                              | 470.031                              | U                       | 0.111                        | 0.123                        | 12.85                     | 78                  |
| SD3814-681-R | 680.0                              | 680.320                              | V                       | 0.100                        | 0.102                        | 15.78                     | 94                  |

(1) Test Parameters: 100KHz, 0.100Vrms, 0.0Adc.

(2) RMS current for an approximate  $\Delta T$  of 40°C without core loss. It is recommended that the temperature of the part not exceed 125°C. De-rating is necessary for AC currents.

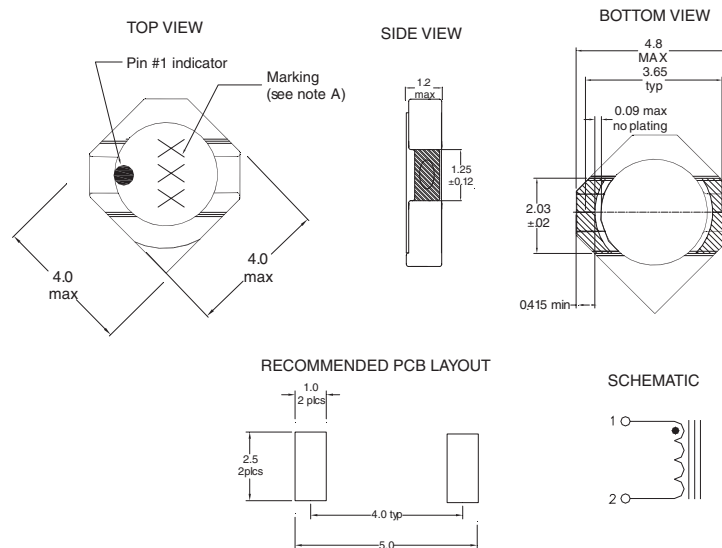
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(5) Applied Volt-Time product (V-uS) across the inductor at 100kHz necessary to generate a core loss equal to 10% of the total losses for 40°C temperature rise. De-rating of the I<sub>rms</sub> is required to prevent excessive temperature rise.

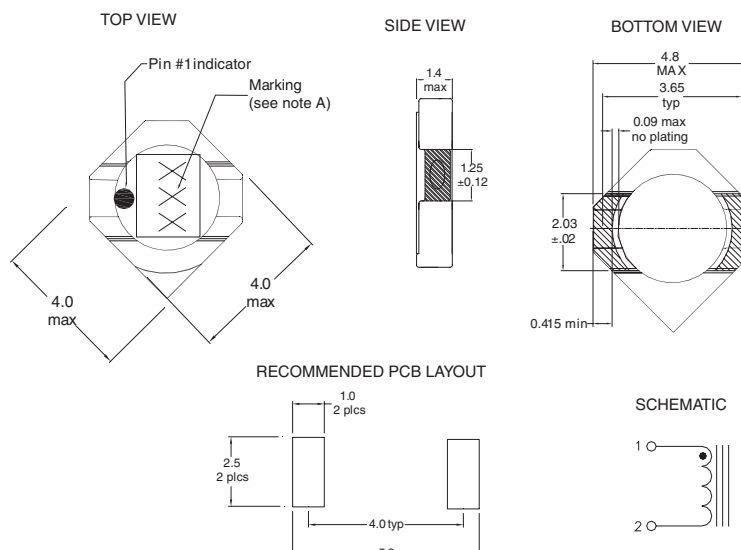
## Mechanical Diagrams

### SD3812 Series



Note A: 3 digit marking. First digit indicates inductance value per chart above.  
Second digit indicates bi-weekly date code.  
Third digit of year produced. Box indicates SD3814 part.

### SD3814 Series

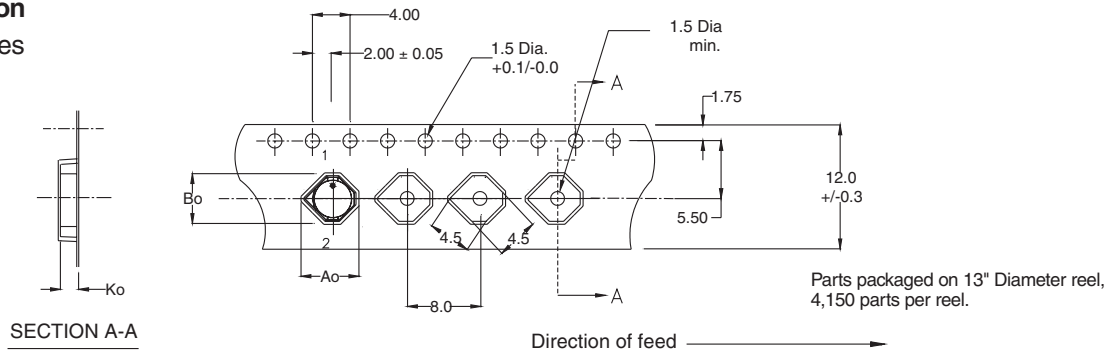


Note A: 3 digit marking. First digit indicates inductance value per chart above.  
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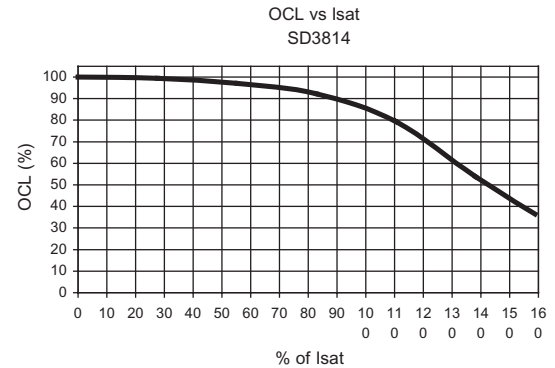
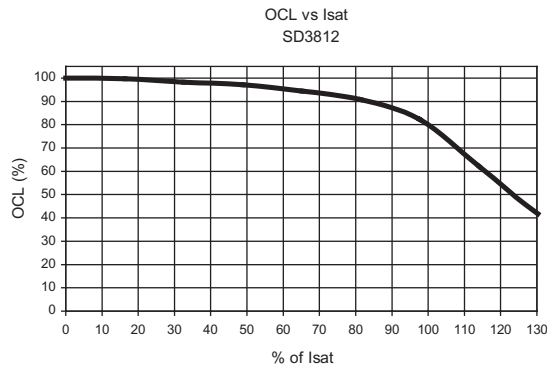
### Packaging Information

#### SD3812/SD3814 Series

$A_0 = 5.1\text{mm}$   
 $B_0 = 4.6\text{mm}$   
 $K_0 = 1.6\text{mm}$



### Inductance Characteristics



### Core Loss

