

## LD Series

### Metalized Drum Core Power Inductor



#### Description

- Metalized drum core design utilizes board space
- Current Range from 4.46 amps to 0.52 amps
- Inductance range from 1.0 $\mu$ H to 470 $\mu$ H
- Ferrite core material

#### Applications

- Buck or boost inductor
- Noise filtering and output filter chokes
- Computers
- Power supplies
- Test equipment instrumentation

RoHS  
2002/95/EC

#### Environmental Data

- Storage temperature: -40°C to +125°C
- Operating temperature: -40°C to +125°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, LD1 (2,000), LD2 (1,000) parts per reel

| Part Number | Rated Inductance ( $\mu$ H) | OCL <sup>(1)</sup> Nominal | I <sub>rms</sub> <sup>(2)</sup> Amps | I <sub>sat</sub> <sup>(3)</sup> Amps | DCR <sup>(4)</sup> ( $\Omega$ ) (Max.) |
|-------------|-----------------------------|----------------------------|--------------------------------------|--------------------------------------|----------------------------------------|
| LD1-1R0-R   | 1.0                         | 1.00                       | 2.66                                 | 4.46                                 | 0.0330                                 |
| LD1-1R4-R   | 1.4                         | 1.40                       | 2.47                                 | 3.41                                 | 0.0380                                 |
| LD1-1R8-R   | 1.8                         | 1.80                       | 2.35                                 | 3.05                                 | 0.0420                                 |
| LD1-2R2-R   | 2.2                         | 2.20                       | 2.22                                 | 2.76                                 | 0.0470                                 |
| LD1-2R7-R   | 2.7                         | 2.70                       | 2.11                                 | 2.52                                 | 0.0520                                 |
| LD1-3R3-R   | 3.3                         | 3.30                       | 2.00                                 | 2.32                                 | 0.0580                                 |
| LD1-3R9-R   | 3.9                         | 3.90                       | 1.75                                 | 2.14                                 | 0.0760                                 |
| LD1-4R7-R   | 4.7                         | 4.70                       | 1.57                                 | 2.00                                 | 0.0940                                 |
| LD1-5R6-R   | 5.6                         | 5.60                       | 1.51                                 | 1.75                                 | 0.1010                                 |
| LD1-6R8-R   | 6.8                         | 6.80                       | 1.41                                 | 1.56                                 | 0.1170                                 |
| LD1-8R2-R   | 8.2                         | 8.20                       | 1.32                                 | 1.41                                 | 0.1320                                 |
| LD1-100-R   | 10                          | 10.0                       | 1.13                                 | 1.28                                 | 0.1820                                 |
| LD1-120-R   | 12                          | 12.0                       | 1.05                                 | 1.18                                 | 0.2100                                 |
| LD1-150-R   | 15                          | 15.0                       | 0.99                                 | 1.05                                 | 0.2350                                 |
| LD1-180-R   | 18                          | 18.0                       | 0.83                                 | 0.98                                 | 0.3380                                 |
| LD1-220-R   | 22                          | 22.0                       | 0.78                                 | 0.89                                 | 0.3780                                 |
| LD1-270-R   | 27                          | 27.0                       | 0.67                                 | 0.87                                 | 0.5220                                 |
| LD1-330-R   | 33                          | 33.0                       | 0.66                                 | 0.75                                 | 0.5400                                 |
| LD1-390-R   | 39                          | 39.0                       | 0.63                                 | 0.68                                 | 0.5870                                 |
| LD1-470-R   | 47                          | 47.0                       | 0.52                                 | 0.61                                 | 0.8440                                 |
| LD1-560-R   | 56                          | 56.0                       | 0.50                                 | 0.57                                 | 0.9370                                 |
| LD1-680-R   | 68                          | 68.0                       | 0.46                                 | 0.52                                 | 1.12                                   |

#### Notes:

- 1) Open Circuit Inductance Test Parameters: 100kHz, 0.25V<sub>rms</sub>, 0.0Adc  
+/-20% except for LD1-330-R to LD1-331-R and LD2-470-R to LD2-471-R which is +/-10%
- 2) RMS current for an approximate  $\Delta T$  of 40°C. It is recommended that the temperature of the part not exceed 125°C
- 3) Peak current for an approximate 10% rolloff at 20°C

4) DCR limits @ 20°C

5) Part number definition: LDx-yyy-R  
LDx = product code and size, -yyy = inductance value in  $\mu$ H,  
R = decimal point. If no R is present, third character = # of zeros  
-R suffix = RoHS compliant

| Part Number | Rated Inductance (μH) | OCL <sup>(1)</sup> Nominal | I <sub>rms</sub> <sup>(2)</sup> Amps | I <sub>sat</sub> <sup>(3)</sup> Amps | DCR <sup>(4)</sup> (Ω) (Max.) |
|-------------|-----------------------|----------------------------|--------------------------------------|--------------------------------------|-------------------------------|
| LD1-820-R   | 82                    | 82                         | 0.43                                 | 0.50                                 | 1.28                          |
| LD1-101-R   | 100                   | 100                        | 0.36                                 | 0.45                                 | 1.72                          |
| LD1-151-R   | 150                   | 150                        | 0.29                                 | 0.40                                 | 2.68                          |
| LD1-221-R   | 220                   | 220                        | 0.26                                 | 0.33                                 | 3.42                          |
| LD1-331-R   | 330                   | 330                        | 0.22                                 | 0.30                                 | 4.70                          |
| LD2-100-R   | 10                    | 10.0                       | 3.83                                 | 3.45                                 | 0.0700                        |
| LD2-120-R   | 12                    | 12.0                       | 3.57                                 | 3.20                                 | 0.0800                        |
| LD2-150-R   | 15                    | 15.0                       | 3.38                                 | 2.85                                 | 0.0900                        |
| LD2-180-R   | 18                    | 18.0                       | 3.19                                 | 2.60                                 | 0.1000                        |
| LD2-220-R   | 22                    | 22.0                       | 3.13                                 | 2.45                                 | 0.1100                        |
| LD2-270-R   | 27                    | 27.0                       | 2.81                                 | 2.10                                 | 0.1200                        |
| LD2-330-R   | 33                    | 33.0                       | 2.70                                 | 2.01                                 | 0.1300                        |
| LD2-390-R   | 39                    | 39.0                       | 2.42                                 | 1.85                                 | 0.1600                        |
| LD2-470-R   | 47                    | 47.0                       | 2.25                                 | 1.64                                 | 0.1800                        |
| LD2-560-R   | 56                    | 56.0                       | 1.96                                 | 1.50                                 | 0.2400                        |
| LD2-680-R   | 68                    | 68.0                       | 1.88                                 | 1.35                                 | 0.2800                        |
| LD2-820-R   | 82                    | 82                         | 1.63                                 | 1.28                                 | 0.3700                        |
| LD2-101-R   | 100                   | 100                        | 1.53                                 | 1.15                                 | 0.4300                        |
| LD2-121-R   | 120                   | 120                        | 1.43                                 | 1.09                                 | 0.4700                        |
| LD2-151-R   | 150                   | 150                        | 1.23                                 | 0.95                                 | 0.6400                        |
| LD2-181-R   | 180                   | 180                        | 1.15                                 | 0.87                                 | 0.7100                        |
| LD2-221-R   | 220                   | 220                        | 1.00                                 | 0.79                                 | 0.9600                        |
| LD2-271-R   | 270                   | 270                        | 0.94                                 | 0.73                                 | 1.11                          |
| LD2-331-R   | 330                   | 330                        | 0.83                                 | 0.64                                 | 1.26                          |
| LD2-391-R   | 390                   | 390                        | 0.78                                 | 0.58                                 | 1.77                          |
| LD2-471-R   | 470                   | 470                        | 0.74                                 | 0.55                                 | 1.96                          |

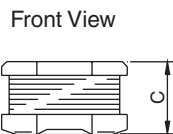
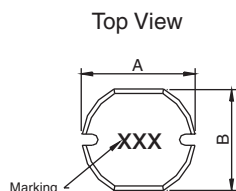
Notes:

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+/-20% except for LD1-330-R to LD1-331-R and LD2-470-R to LD2-471-R which is +/-10%
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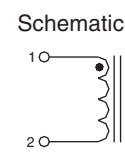
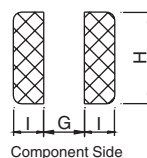
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R = decimal point. If no R is present, third character = # of zeros  
-R suffix = RoHS compliant

## Dimensions - mm



## Recommended Pad Layout



## Marking:

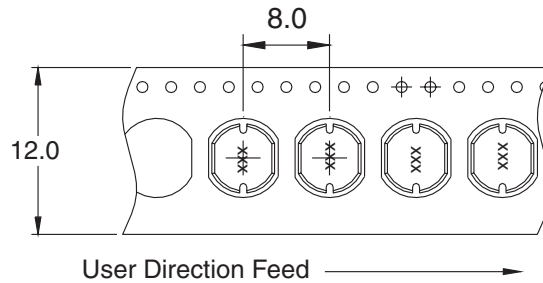
LD1: xxx=inductance value  
per family chart  
LD2: "C" logo  
xxx=inductance value

| Dimensions | A<br>+/-0.3 | B<br>+/-0.3 | C<br>+/-0.3 | G<br>ref | H<br>ref | I<br>ref |
|------------|-------------|-------------|-------------|----------|----------|----------|
| LD1        | 4.5         | 4.0         | 3.2         | 1.5      | 4.5      | 1.75     |
| LD2        | 7.8         | 7.0         | 5.0         | 2.0      | 7.5      | 3.0      |

## Packaging Information

### LD1 Series

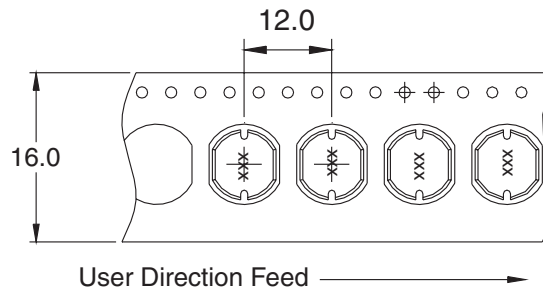
Supplied in tape and reel packaging,  
2000 parts per reel, 13" diameter reel.



  
ACTUAL SIZE  
LD1

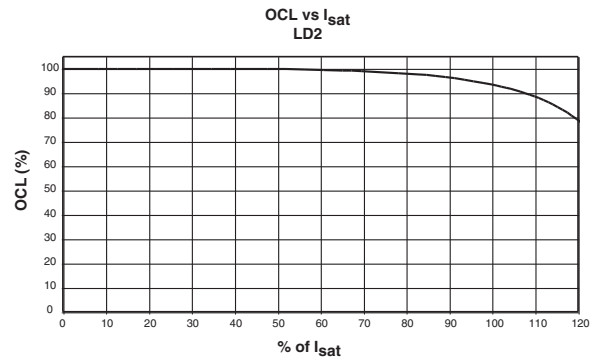
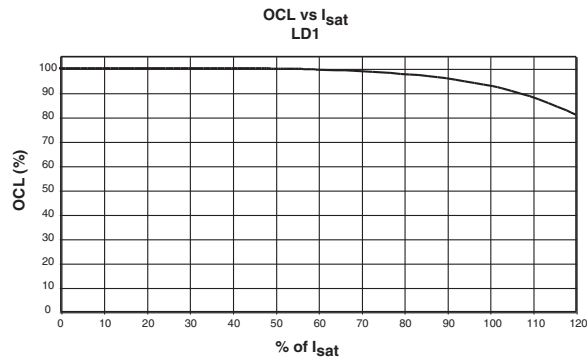
### LD2 Series

Supplied in tape and reel packaging,  
1000 parts per reel, 13" diameter reel.



  
ACTUAL SIZE  
LD2

## Inductance Characteristics



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