

### Description

- 125°C maximum total temperature operation
- Low profile surface mount inductor
- 10.3mm x 10.5mm x 5.0mm shielded drum core
- Ferrite core material
- Inductance range from 0.7µH to 1000µH
- Current range from 13.5 Amps to 0.43 Amps
- Frequency range up to 1MHz

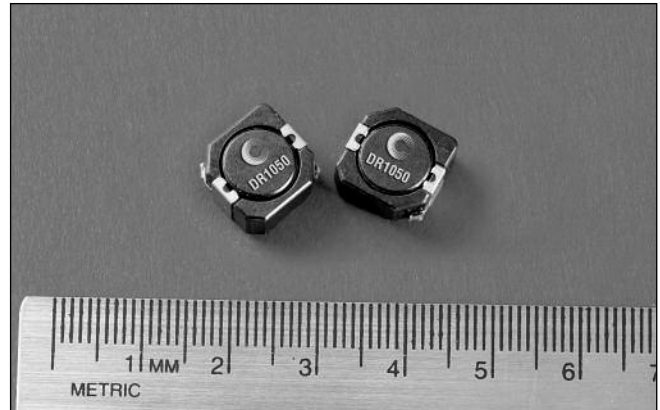


### Applications

- Computer, DVD players, and portable power devices
- Notebook power, LCD panels
- DC-DC converters
- Buck, boost, forward, and resonant converters
- Noise filtering and filter chokes

### 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, 500 per reel

| Part Number  | Rated Inductance (µH) | OCL (1) µH±30% | I <sub>rms</sub> (2) Amperes | I <sub>sat</sub> (3) Amperes | DCR (Ω) mΩ @20°C (Typical) | DCR (Ω) mΩ @20°C (Maximum) | K-factor (4) |
|--------------|-----------------------|----------------|------------------------------|------------------------------|----------------------------|----------------------------|--------------|
| DR1050-R80-R | 0.8                   | 0.70           | 9.70                         | 13.50                        | 3.2                        | 4.0                        | 20.47        |
| DR1050-1R5-R | 1.5                   | 1.37           | 8.60                         | 10.50                        | 4.0                        | 5.0                        | 14.62        |
| DR1050-2R2-R | 2.2                   | 2.27           | 7.52                         | 9.25                         | 5.6                        | 6.8                        | 11.37        |
| DR1050-3R3-R | 3.3                   | 3.21           | 6.50                         | 8.20                         | 8.0                        | 10.0                       | 9.30         |
| DR1050-4R7-R | 4.7                   | 4.43           | 6.13                         | 6.70                         | 9.5                        | 11.9                       | 7.87         |
| DR1050-6R8-R | 6.8                   | 6.30           | 5.45                         | 5.80                         | 13.0                       | 16.5                       | 6.82         |
| DR1050-8R2-R | 8.2                   | 8.09           | 5.24                         | 5.00                         | 15.1                       | 19.0                       | 6.02         |
| DR1050-100-R | 10                    | 10.1           | 4.80                         | 4.58                         | 18.0                       | 22.5                       | 5.39         |
| DR1050-120-R | 12                    | 11.6           | 3.94                         | 4.10                         | 24.3                       | 30.4                       | 4.87         |
| DR1050-150-R | 15                    | 14.8           | 3.80                         | 3.70                         | 26.0                       | 32.5                       | 4.45         |
| DR1050-180-R | 18                    | 17.5           | 3.39                         | 3.30                         | 32.8                       | 41.0                       | 4.09         |
| DR1050-220-R | 22                    | 23.5           | 3.12                         | 3.00                         | 38.7                       | 48.4                       | 3.53         |
| DR1050-270-R | 27                    | 26.9           | 2.82                         | 2.80                         | 42.6                       | 53.3                       | 3.30         |
| DR1050-330-R | 33                    | 34.3           | 2.56                         | 2.50                         | 57.5                       | 71.9                       | 2.92         |
| DR1050-390-R | 39                    | 38.3           | 2.35                         | 2.35                         | 60.7                       | 75.9                       | 2.77         |
| DR1050-470-R | 47                    | 47.1           | 2.06                         | 2.10                         | 89.0                       | 111                        | 2.50         |
| DR1050-560-R | 56                    | 56.7           | 1.96                         | 1.94                         | 98.0                       | 123                        | 2.27         |
| DR1050-680-R | 68                    | 67.2           | 1.84                         | 1.70                         | 111                        | 139                        | 2.09         |
| DR1050-820-R | 82                    | 84.4           | 1.60                         | 1.58                         | 147                        | 184                        | 1.86         |
| DR1050-101-R | 100                   | 97.5           | 1.52                         | 1.45                         | 164                        | 205                        | 1.73         |
| DR1050-121-R | 120                   | 118.3          | 1.30                         | 1.30                         | 223                        | 279                        | 1.57         |
| DR1050-151-R | 150                   | 149.2          | 1.26                         | 1.15                         | 238                        | 298                        | 1.40         |
| DR1050-181-R | 180                   | 183.7          | 1.18                         | 1.08                         | 273                        | 341                        | 1.26         |
| DR1050-221-R | 220                   | 221.8          | 1.00                         | 0.98                         | 377                        | 472                        | 1.15         |
| DR1050-271-R | 270                   | 263.5          | 0.96                         | 0.90                         | 410                        | 513                        | 1.06         |
| DR1050-331-R | 330                   | 320.6          | 0.83                         | 0.80                         | 554                        | 693                        | 0.96         |
| DR1050-391-R | 390                   | 396.5          | 0.76                         | 0.72                         | 648                        | 810                        | 0.86         |
| DR1050-471-R | 470                   | 480.5          | 0.64                         | 0.62                         | 855                        | 1069                       | 0.78         |
| DR1050-561-R | 560                   | 572.6          | 0.62                         | 0.60                         | 970                        | 1213                       | 0.72         |
| DR1050-681-R | 680                   | 707.9          | 0.56                         | 0.55                         | 1095                       | 1369                       | 0.64         |
| DR1050-821-R | 820                   | 818.7          | 0.54                         | 0.50                         | 1185                       | 1481                       | 0.60         |
| DR1050-102-R | 1000                  | 1000.2         | 0.43                         | 0.48                         | 1528                       | 1950                       | 0.54         |

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

(2) I<sub>rms</sub>: 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<sub>sat</sub> Amperes peak for approximately 35% rolloff (@25°C)

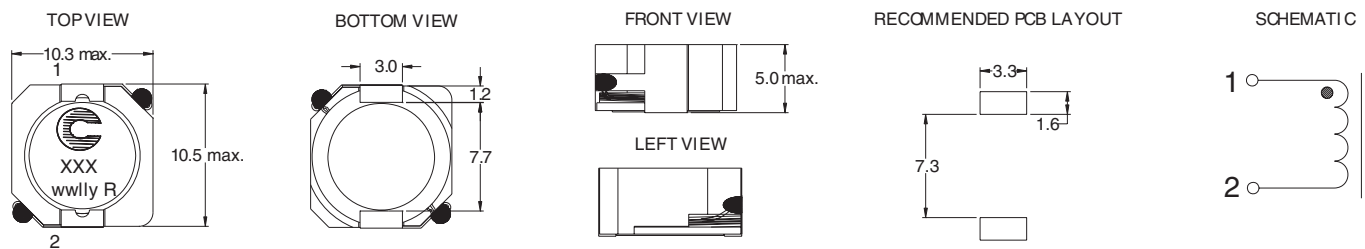
(4) K-factor: Used to determine B p-p for core loss (see graph).

B p-p = K<sup>2</sup>L<sup>2</sup>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: DR1050-xxx-R  
 DR1050 = Product code and size; -xxx = Inductance value in uH;  
 R = decimal point; If no R is present, third character = # of zeros.  
 -R suffix = RoHS compliant

SHIELDED DRUM (DR1050)

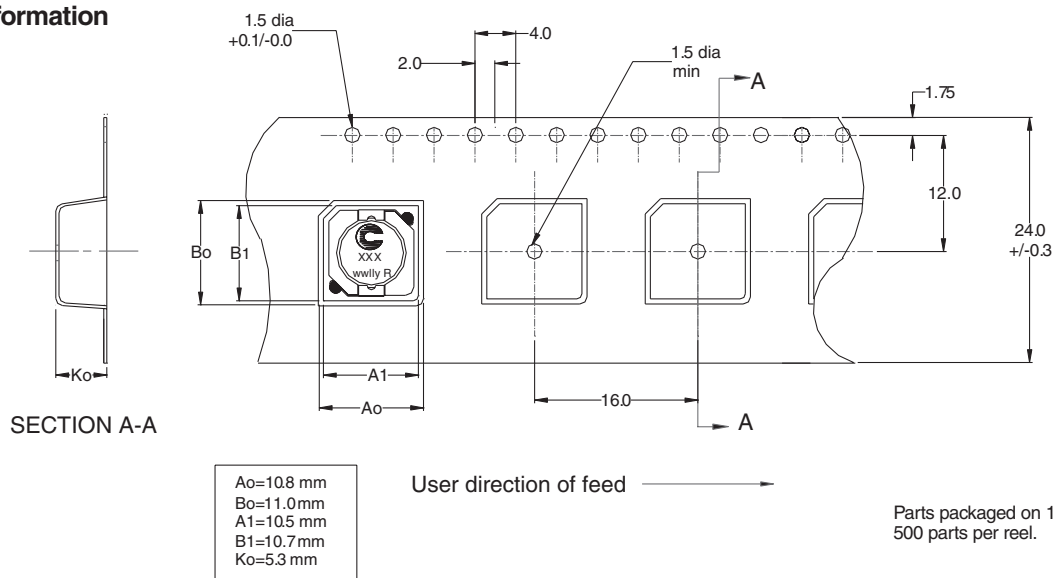
### Mechanical Diagrams



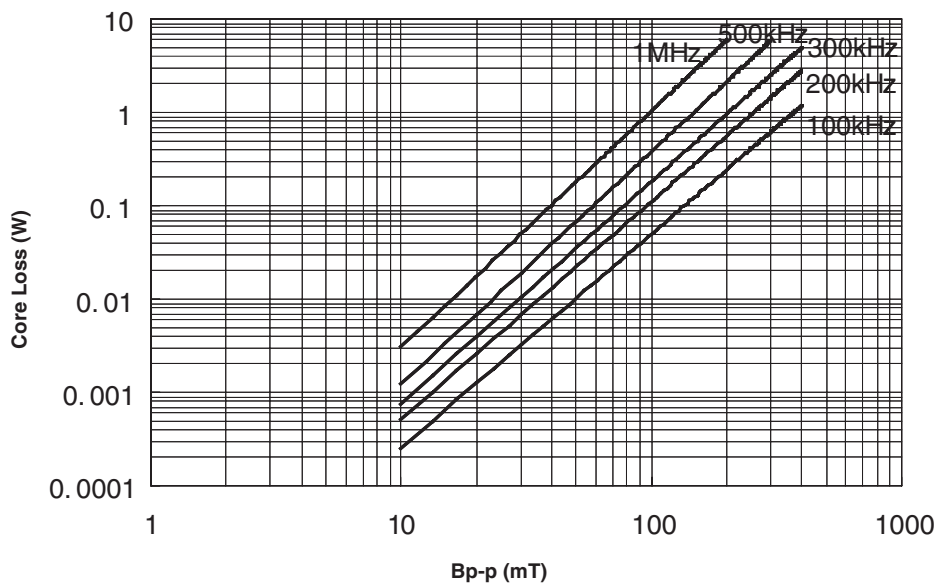
Dimensions are in millimeters.

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

### Packaging Information

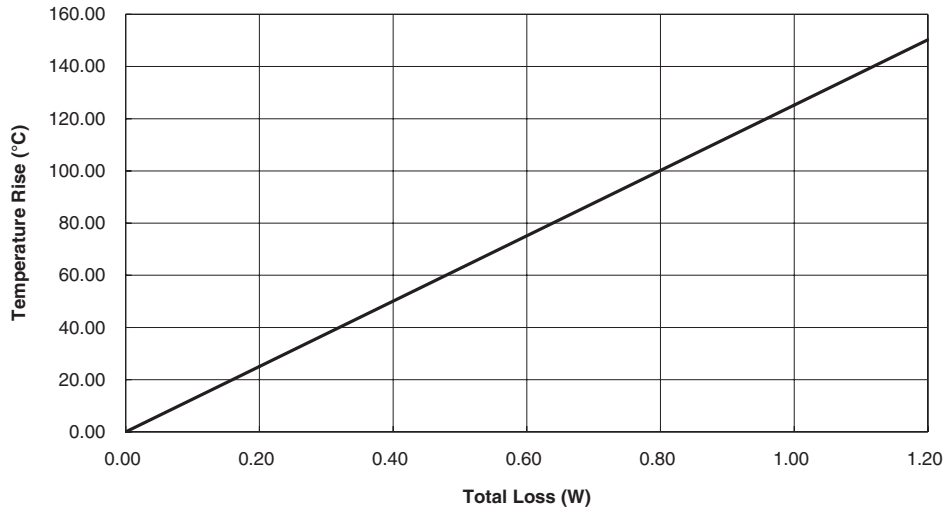


### Core Loss



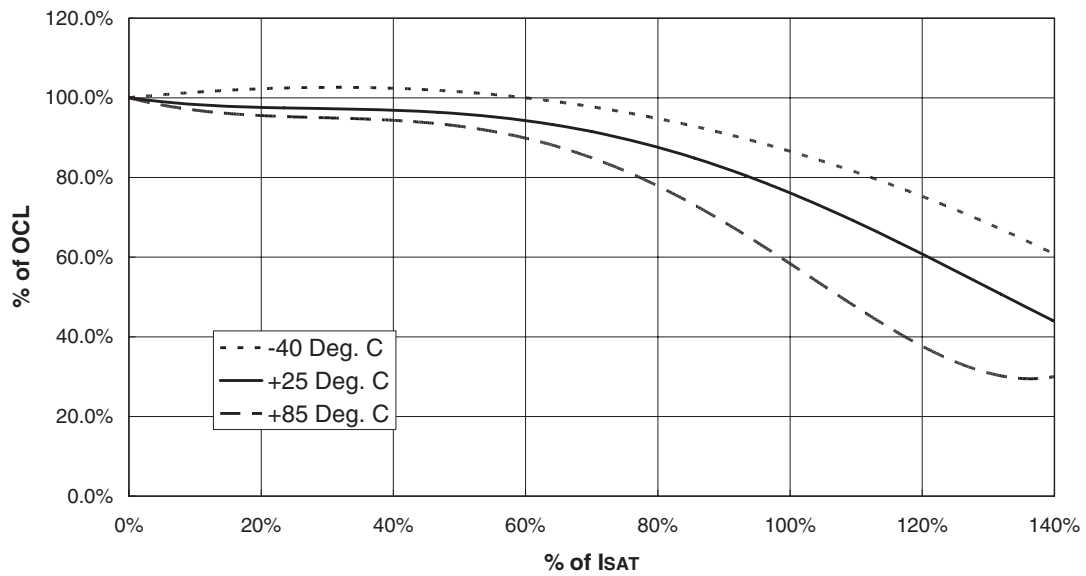
**Temperature Rise vs. Loss**

**Temperature Rise vs. Total Loss**



**Inductance Characteristics**

**OCL vs. ISAT**



SHIELDED DRUM (DR1050)