



## Features

- Shielded construction
- Low profile
- Metal alloy powder core
- High saturation current
- Low DCR
- Low buzz noise
- RoHS compliant\* and halogen free\*\*

## Applications

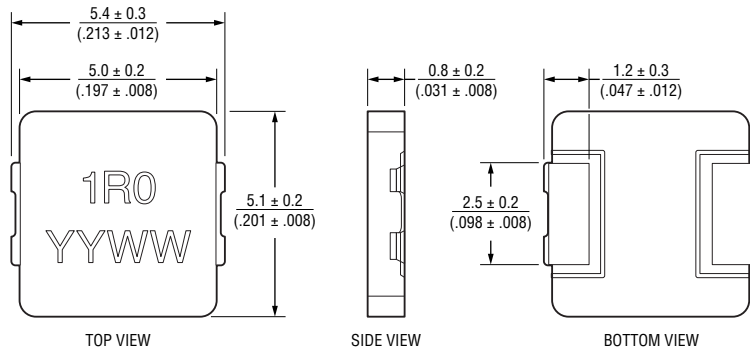
- DC-DC converters
- Power supplies in consumer, industrial and telecom electronics

## SRP0510F Series - Shielded Power Inductors

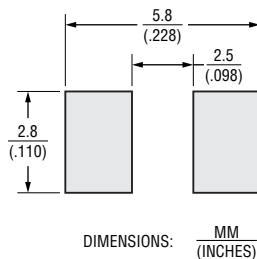
### Electrical Specifications

| Bourns Part No. | Inductance<br>@ 100 kHz / 1.0 V |        | Q @<br>100 kHz<br>Min. | SRF<br>(MHz)<br>Typ. | DCR<br>(mΩ) |      | Irms<br>(A)<br>Typ. | Isat<br>(A)<br>Typ. |
|-----------------|---------------------------------|--------|------------------------|----------------------|-------------|------|---------------------|---------------------|
|                 | L (μH)                          | Tol. % |                        |                      | Typ.        | Max. |                     |                     |
| SRP0510F-R47M   | 0.47                            | ±20    | 10                     | 90                   | 18          | 21.6 | 7.7                 | 9.0                 |
| SRP0510F-R68M   | 0.68                            |        |                        | 70                   | 22          | 26.4 | 6.5                 | 8.5                 |
| SRP0510F-1R0M   | 1.0                             |        |                        | 50                   | 28          | 33.6 | 6.0                 | 7.0                 |
| SRP0510F-1R2M   | 1.2                             |        |                        | 42                   | 33          | 39.6 | 5.7                 | 6.5                 |
| SRP0510F-1R5M   | 1.5                             |        |                        | 38                   | 37          | 44.4 | 5.5                 | 6.2                 |
| SRP0510F-2R2M   | 2.2                             |        |                        | 30                   | 48          | 57.6 | 4.5                 | 5.5                 |
| SRP0510F-3R3M   | 3.3                             |        |                        | 26                   | 75          | 90   | 4.0                 | 4.8                 |
| SRP0510F-4R7M   | 4.7                             |        |                        | 20                   | 100         | 120  | 3.2                 | 3.9                 |
| SRP0510F-5R6M   | 5.6                             |        |                        | 19                   | 135         | 162  | 2.7                 | 3.3                 |
| SRP0510F-6R8M   | 6.8                             |        |                        | 18                   | 168         | 201  | 2.5                 | 3.1                 |
| SRP0510F-8R2M   | 8.2                             |        |                        | 17                   | 200         | 240  | 2.2                 | 2.8                 |
| SRP0510F-100M   | 10.0                            |        |                        | 16                   | 260         | 312  | 2.0                 | 2.5                 |

### Product Dimensions



### Recommended Layout



**WARNING**  
Cancer and Reproductive Harm  
[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

\*\* Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

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### Additional Information

Click these links for more information:



### General Specifications

Operating Temperature

..... -40 °C to +125 °C  
(Temperature rise included)

Storage Temperature (Component)

..... -40 °C to +125 °C

Temperature Rise

..... 40 °C typ. at rated Irms<sup>1</sup> (25 °C)

Rated Current

..... Inductance drops 30 % at Isat

Moisture Sensitivity Level..... 1

ESD Classification (HBM)..... N/A

<sup>1</sup>Circuit design, component, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

### Materials

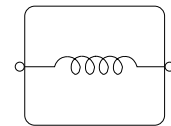
Core Material..... Metal alloy powder

Wire..... Enameled copper

Terminal..... Cu/Ni/Sn

Packaging..... 4000 pcs. per 13-inch reel

### Electrical Schematic



### How to Order

**SRP0510F - R47 M**

Model \_\_\_\_\_

Inductance Value Code \_\_\_\_\_

R47 = 0.47 μH

R68 = 0.68 μH

1R0 = 1.0 μH

1R2 = 1.2 μH

1R5 = 1.5 μH

2R2 = 2.2 μH

3R3 = 3.3 μH

4R7 = 4.7 μH

5R6 = 5.6 μH

6R8 = 6.8 μH

8R2 = 8.2 μH

100 = 10.0 μH

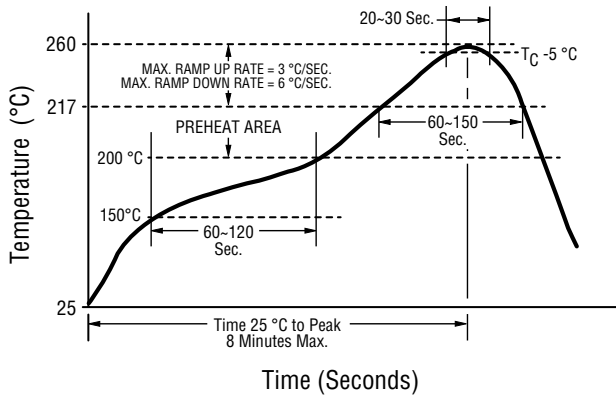
Tolerance Code \_\_\_\_\_

M = ±20 %

# SRP0510F Series – Shielded Power Inductors

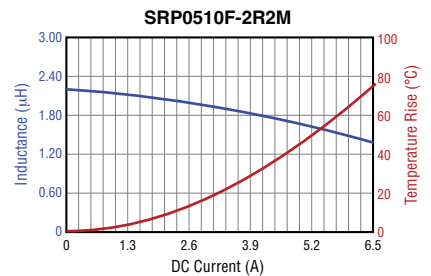
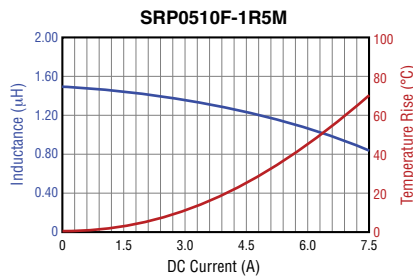
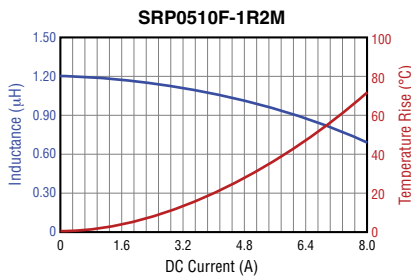
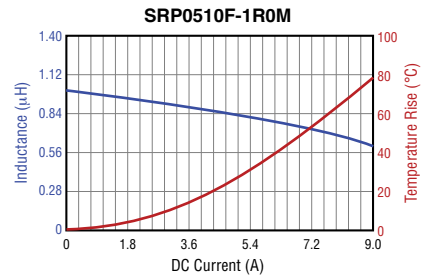
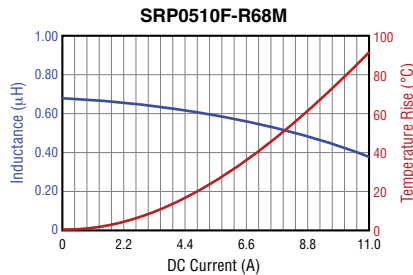
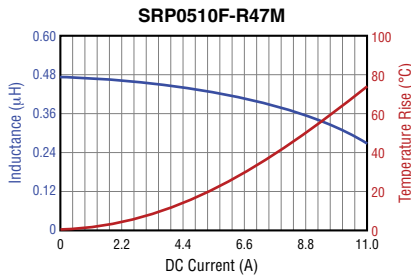
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## Soldering Profile



| Profile Feature                                                                                                                                                                                                                                 | Pb Free Assembly                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| Preheat <ul style="list-style-type: none"> <li>- Temperature Min. (<math>T_{smin}</math>)</li> <li>- Temperature Max. (<math>T_{smax}</math>)</li> <li>- Time (<math>t_s</math>) from <math>T_{smin}</math> to <math>T_{smax}</math></li> </ul> | 150 °C<br>200 °C<br>60-120 seconds |
| Ramp-up Rate ( $T_L$ to $T_P$ )                                                                                                                                                                                                                 | 3 °C/second max.                   |
| Liquidous temperature ( $T_L$ )                                                                                                                                                                                                                 | 217 °C                             |
| Time ( $t_L$ ) maintained above $T_L$                                                                                                                                                                                                           | 60-150 seconds                     |
| Peak package body temperature ( $T_P$ )                                                                                                                                                                                                         | 260 °C                             |
| Time within 5 °C of Actual Peak Temperature ( $t_p$ )                                                                                                                                                                                           | <30 seconds                        |
| Ramp-Down Rate ( $T_P$ to $T_L$ )                                                                                                                                                                                                               | 6 °C/second max.                   |
| Time 25 °C to Peak Temperature                                                                                                                                                                                                                  | 8 minutes max.                     |

## Inductance vs. IDC



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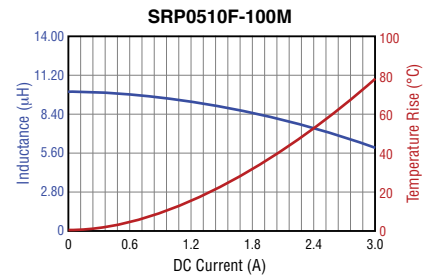
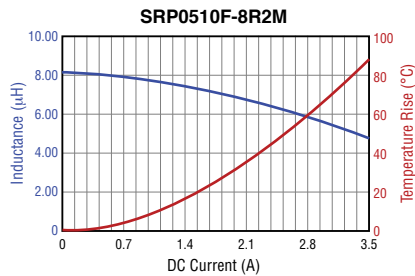
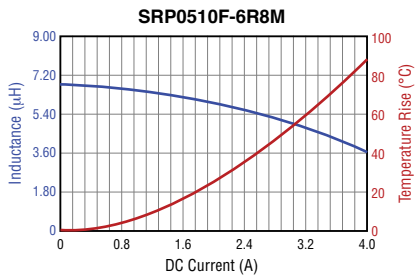
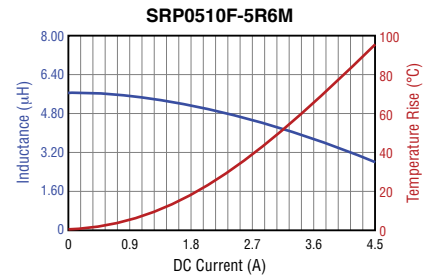
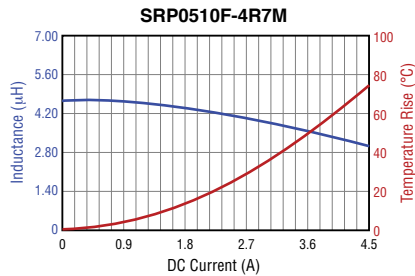
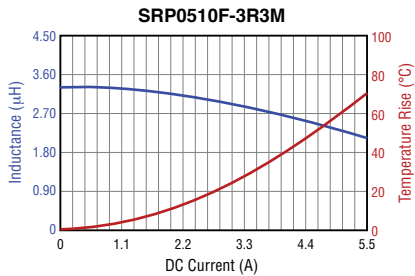
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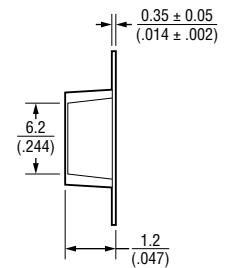
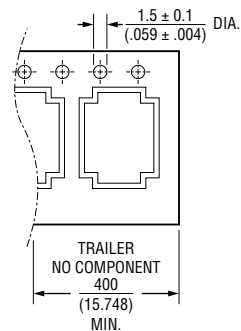
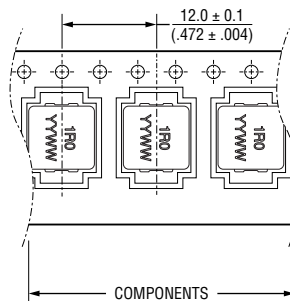
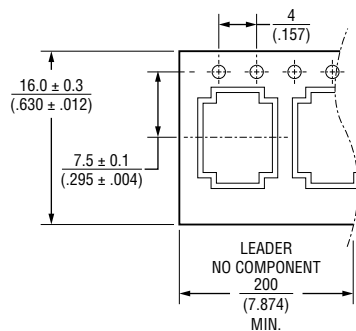
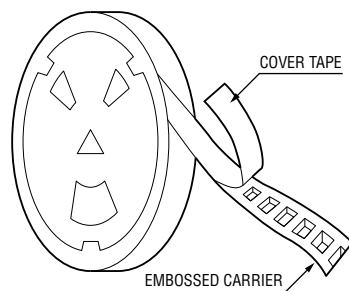
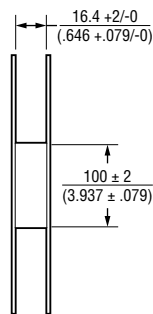
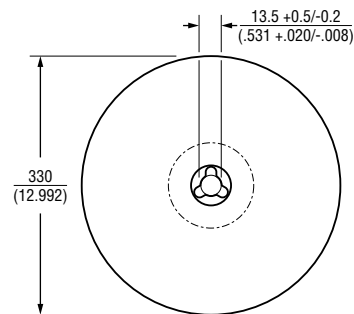
# SRP0510F Series – Shielded Power Inductors

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## Inductance vs. IDC (continued)



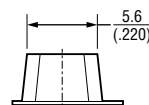
## Packaging Specifications



DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$

USER DIRECTION OF FEED →

QTY: 4,000 PCS. PER REEL



REV. 10/24

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