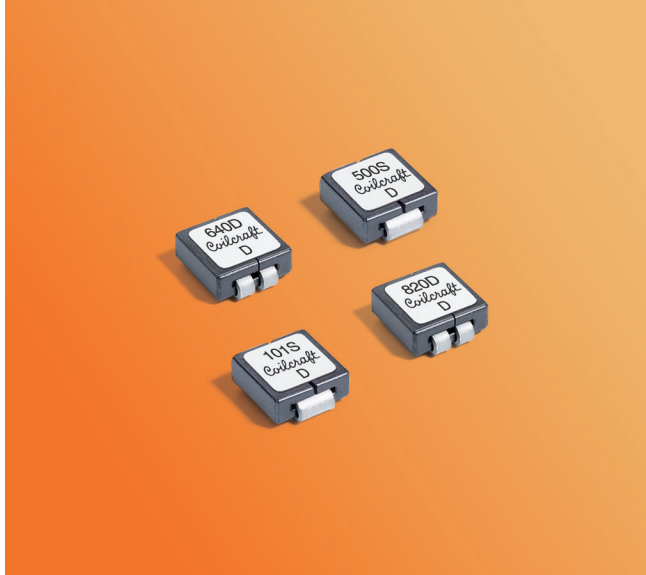


# Power Inductor for Critical Applications

ST515PMM  
ST515PMD



- Designed for high-speed switch mode applications
- Can be used as a 1:1 transformer or in SEPIC applications

**Core material** Ferrite

**Terminations** Matte tin over nickel over copper. Other terminations available at additional cost.

**Weight** 0.44 – 0.47 g

**Ambient temperature** –40°C to +85°C with (40°C rise) Irms current.

**Maximum part temperature** +125°C (ambient + temp rise). [Derating](#).

**Storage temperature** Component: –55°C to +125°C.

Tape and reel packaging: –55°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Packaging** 500/7" reel; Plastic tape: 16 mm wide, 0.33 mm thick, 12 mm pocket spacing, 3.12 mm pocket depth

## Single Conductor

| Part number <sup>1,7</sup> | L±20% <sup>2</sup><br>(µH) | DCR ±5% <sup>3</sup><br>(mOhms) | SRF ref <sup>4</sup><br>(GHz) | Isat <sup>5</sup><br>(A) | Irms <sup>6</sup><br>(A) |
|----------------------------|----------------------------|---------------------------------|-------------------------------|--------------------------|--------------------------|
| ST515PMM500MLZ             | 0.050                      | 0.123                           | 3.80                          | 50                       | 40                       |
| ST515PMM640MLZ             | 0.064                      | 0.123                           | 3.65                          | 32                       | 40                       |
| ST515PMM820MLZ             | 0.082                      | 0.123                           | 3.75                          | 22                       | 40                       |
| ST515PMM101MLZ             | 0.100                      | 0.123                           | 3.75                          | 20                       | 40                       |

## Dual Conductor

Leads connected in parallel

Leads connected in series

| Part number <sup>1</sup> | L±20% <sup>2</sup><br>(µH) | DCR ±5% <sup>3</sup><br>(mOhms) | SRF ref <sup>4</sup><br>(GHz) | Isat <sup>5</sup><br>(A) | Irms <sup>6</sup><br>(A) | L±20% <sup>2</sup><br>(µH) | DCR max <sup>3</sup><br>(mOhms) | SRF ref <sup>4</sup><br>(GHz) | Isat <sup>5</sup><br>(A) | Irms <sup>6</sup><br>(A) |
|--------------------------|----------------------------|---------------------------------|-------------------------------|--------------------------|--------------------------|----------------------------|---------------------------------|-------------------------------|--------------------------|--------------------------|
| ST515PMD500MLZ           | 0.050                      | 0.209                           | 3.75                          | 50                       | 38                       | 0.188                      | 1.00                            | 1.50                          | 21                       | 17                       |
| ST515PMD640MLZ           | 0.064                      | 0.209                           | 3.65                          | 32                       | 38                       | 0.272                      | 1.00                            | 1.30                          | 14                       | 17                       |
| ST515PMD820MLZ           | 0.082                      | 0.209                           | 3.75                          | 22                       | 38                       | 0.350                      | 1.00                            | 1.20                          | 11                       | 17                       |
| ST515PMD101MLZ           | 0.100                      | 0.209                           | 3.75                          | 20                       | 38                       | 0.400                      | 1.00                            | 0.950                         | 8                        | 17                       |

1. When ordering, specify **conductors**, **termination** and **screening** codes:

ST515PMM101MLZ

**Conductors:** M= Single conductor; D = dual conductor

**Termination:** L = Matte tin over nickel over copper  
Special order: T = Tin-silver-copper (95.5/4/0.5) or  
S = Tin-lead (63/37).

**Screening:** Z = Unscreened  
Y = Unscreened (SLDC Option A)  
W = Unscreened (SLDC Option B)  
H = Group A screening per Coilcraft CP-SA-10001  
G = Coilcraft CP-SA-10001 Group A (SLDC Option A)  
D = Coilcraft CP-SA-10001 Group A (SLDC Option B)  
All screening performed to the document's latest revision  
Custom screening also available

2. Inductance tested at 100 kHz, 0.1 Vrms using an Agilent/HP 4263B LCR meter or equivalent.

3. DCR is measured on a micro-ohmmeter at points indicated in the diagram.



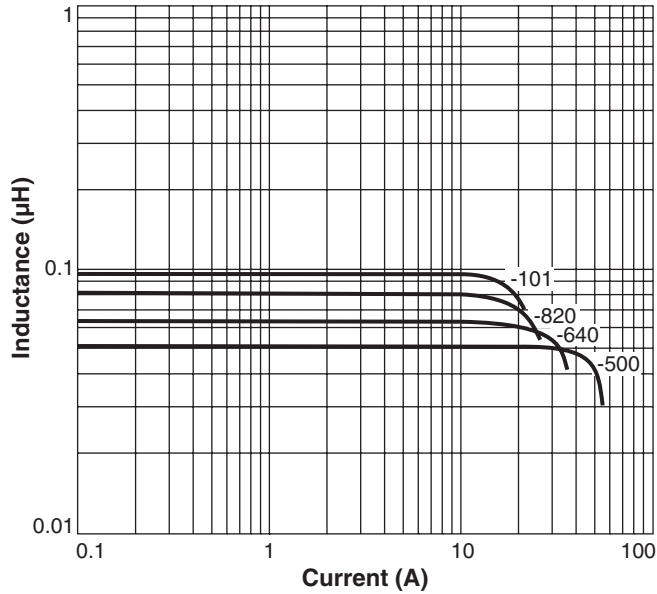
▲ Points used for measuring DCR

- This information is for design purposes only and shall not be tested during screening.
- DC current at 25°C that causes a 20% (typ) inductance drop from its value without current.
- Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
- Due to the design of this component, DWV and IR shall not be specified or tested.
- Electrical specifications at 25°C.  
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

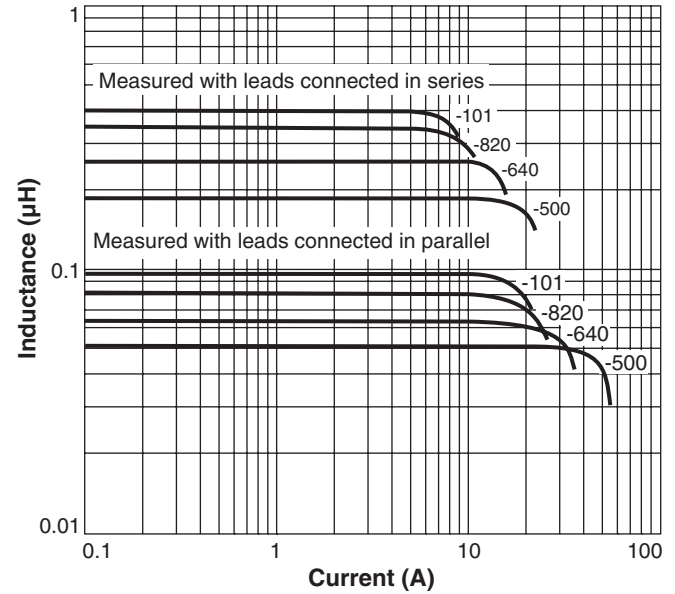
# Power Inductor for Critical Applications – ST515PMM & PMD

## Typical L vs Current

### Single Conductor

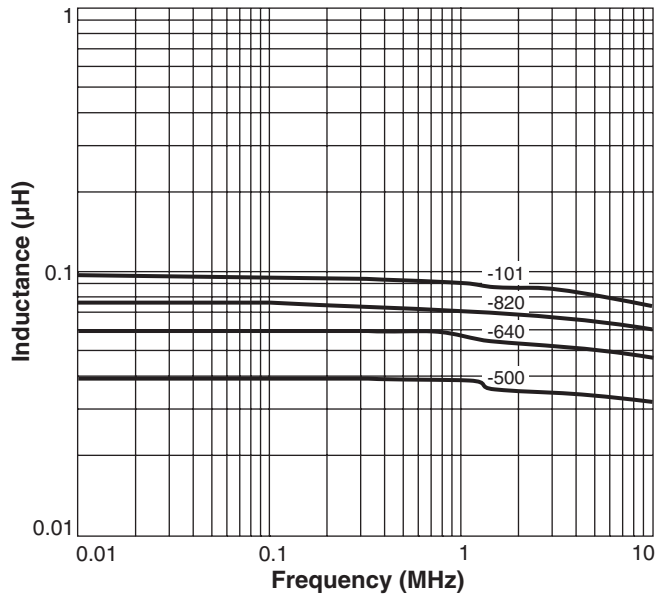


### Dual Conductor

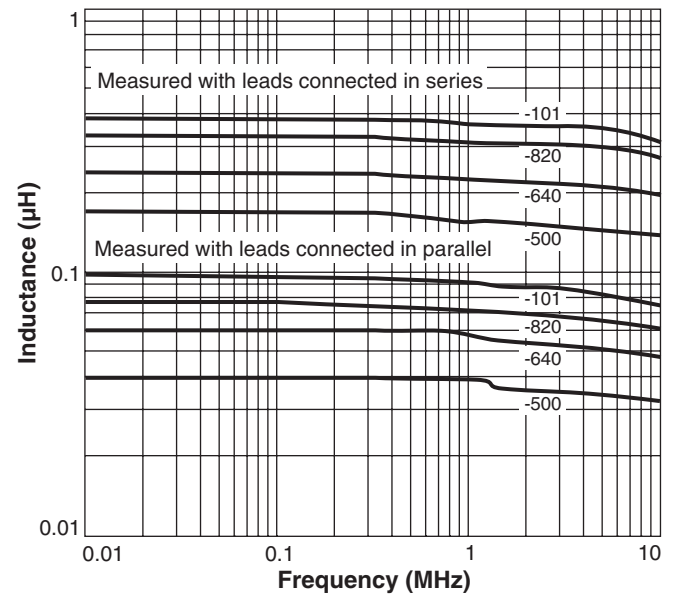


## Typical L vs Frequency

### Single Conductor



### Dual Conductor



**SPICE models**  
ON OUR WEB SITE



1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

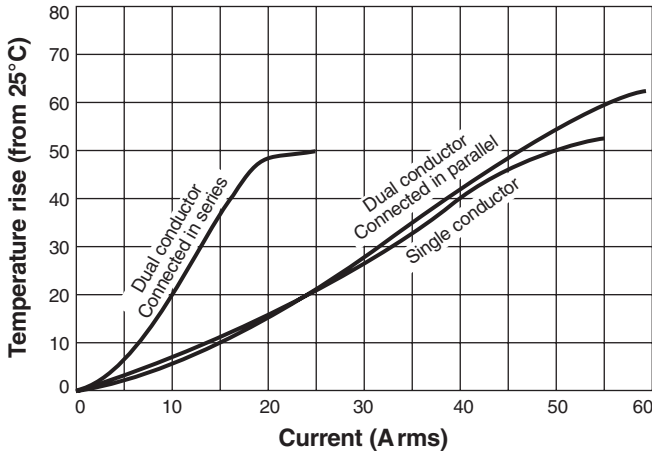
Fax 847-639-1508  
Email [cps@coilcraft.com](mailto:cps@coilcraft.com)  
[www.coilcraft-cps.com](http://www.coilcraft-cps.com)

Document ST366I-2 Revised 08/11/23

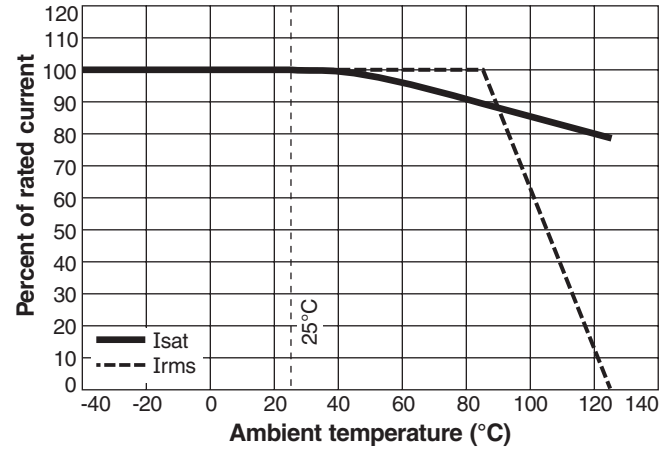
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

# Power Inductor for Critical Applications – ST515PMM & PMD

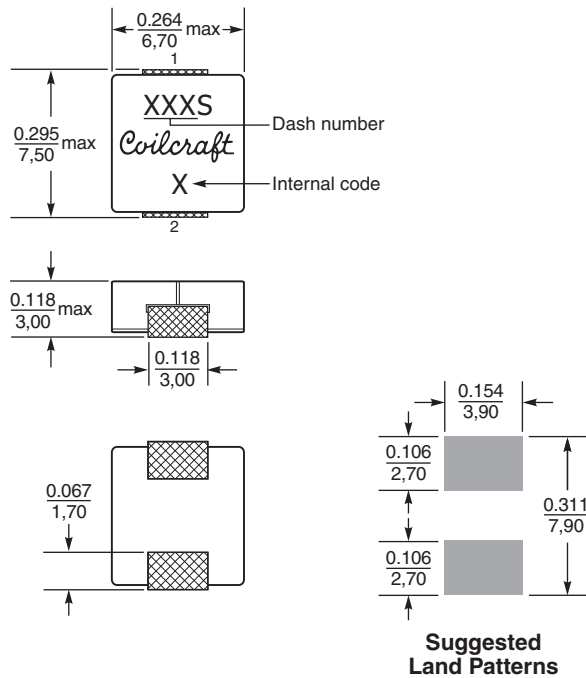
## Typical Temperature Rise vs Current



## Current Derating

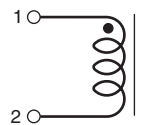


## Dimensions – Single Conductor

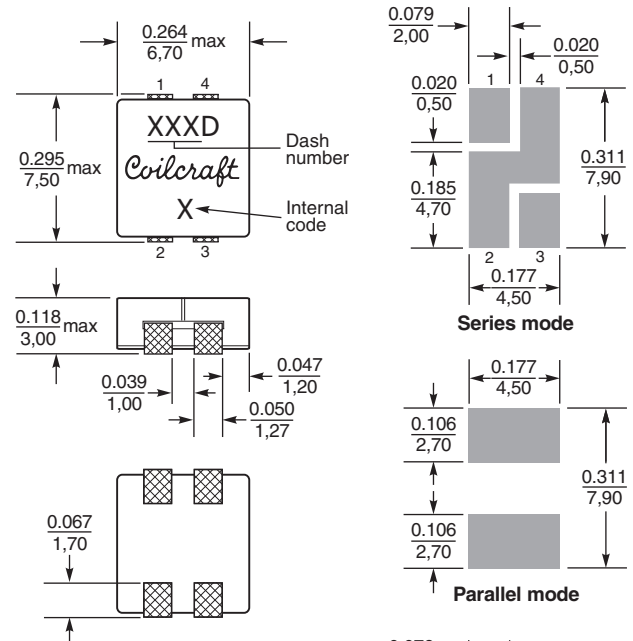


Note: Dimensions are before optional solder application. For maximum overall dimensions including solder, add 0.0025 in / 0,064 mm to the length, and 0.006 in / 0,15 mm to the height.

Dimensions are in  $\frac{\text{inches}}{\text{mm}}$

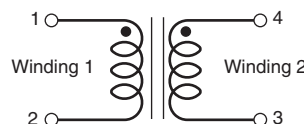


## Dimensions – Dual Conductor

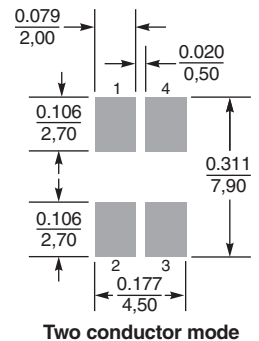


Note: Dimensions are before optional solder application. For maximum overall dimensions including solder, add 0.0025 in / 0,064 mm to the length, and 0.006 in / 0,15 mm to the height.

Dimensions are in  $\frac{\text{inches}}{\text{mm}}$



Winding-to-winding isolation:  
25 V maximum



**Suggested Land Patterns**



CRITICAL PRODUCTS & SERVICES

© Coilcraft, Inc. 2023

1102 Silver Lake Road  
Cary, IL 60013  
Phone 800-981-0363

Fax 847-639-1508  
Email cps@coilcraft.com  
www.coilcraft-cps.com

Document ST366I-3 Revised 08/11/23

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.