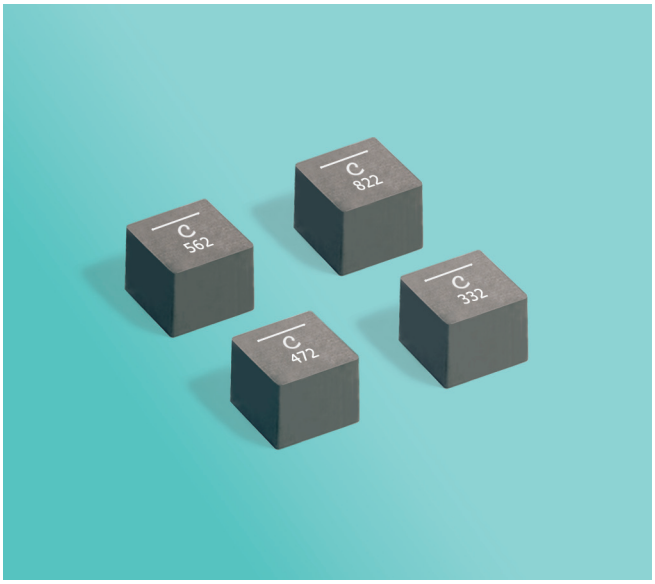
# High-Reliability Power Inductors MS515PYA




- High temperature materials allow operation in ambient temperatures up to 155°C
- Passes vibration testing to 80 G and shock testing to 1000 G
- Tin-lead (Sn-Pb) termination for the best possible board adhesion
- High current and very low DCR
- Soft saturation makes them ideal for VRM/VRD applications.

**Core material** Composite

**Terminations** Tin-lead (63/37) over copper.

**Weight** 102 – 107 mg

**Ambient temperature** –55°C to +105°C with Irms current, +105°C to +155°C with derated current

**Storage temperature** Component: –55°C to +155°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)

**Enhanced crush-resistant packaging** 250 per 7″ reel
Plastic tape: 16 mm wide, 0.3 mm thick, 8 mm pocket spacing, 5.21 mm pocket depth

| Part number[1] | Inductance[2] ±20% (µH) | DCR (mOhms)[3] typ | DCR (mOhms)[3] max | SRF (MHz)[4] min | SRF (MHz)[4] typ | Isat (A)[5] | Irms (A)[6] 20°C rise | Irms (A)[6] 40°C rise |
|---|---|---|---|---|---|---|---|---|
| MS515PYA561MSZ | 0.56 | 4.15 | 4.56 | 77 | 96 | 18.1 | 10.7 | 14.3 |
| MS515PYA821MSZ | 0.82 | 5.15 | 5.66 | 50 | 63 | 14.8 | 8.9 | 12.4 |
| MS515PYA122MSZ | 1.2 | 6.16 | 6.76 | 43 | 54 | 12.9 | 8.7 | 11.9 |
| MS515PYA152MSZ | 1.5 | 7.10 | 7.80 | 38 | 48 | 11.5 | 8.4 | 11.6 |
| MS515PYA222MSZ | 2.2 | 9.05 | 9.95 | 33 | 41 | 9.5 | 6.8 | 9.5 |
| MS515PYA332MSZ | 3.3 | 16.90 | 18.60 | 27 | 34 | 7.4 | 5.3 | 7.0 |
| MS515PYA472MSZ | 4.7 | 21.95 | 24.15 | 23 | 29 | 6.3 | 4.6 | 6.2 |
| MS515PYA562MSZ | 5.6 | 23.45 | 25.80 | 20 | 25 | 5.7 | 4.0 | 5.4 |
| MS515PYA682MSZ | 6.8 | 26.75 | 29.45 | 17 | 21 | 5.4 | 3.5 | 4.8 |
| MS515PYA822MSZ | 8.2 | 31.75 | 34.95 | 14 | 18 | 5.1 | 3.4 | 4.6 |
| MS515PYA103MSZ | 10 | 40.90 | 45.00 | 12 | 15 | 4.6 | 2.7 | 3.7 |
| MS515PYA153MSZ | 15 | 69.70 | 76.70 | 10 | 13 | 3.5 | 2.2 | 2.9 |
| MS515PYA223MSZ | 22 | 90.60 | 99.65 | 9 | 11 | 2.8 | 1.9 | 2.6 |

1. When ordering, please specify **testing** code:
   **MS515PYA223MSZ**
   **Testing: Z** = COTS
   **H** = Screening per Coilcraft CP-SA-10001
   **N** = Screening per Coilcraft CP-SA-10004
2. Inductance tested at 100 kHz, 0.1 Vrms using an Agilent/HP 4192A.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using Agilent/HP 4395A or equivalent.
5. Typical dc current at which the inductance drops 30% from its value without current.
6. Typical current that causes the specified temperature rise from 25°C ambient.
7. Electrical specifications at 25°C.

Refer to Doc 362 “Soldering Surface Mount Components” before soldering.

## Irms Testing

Irms testing was performed on a 0.060″ thick pcb with 4 oz. copper traces optimized to minimize additional temperature rise.

Temperature rise is highly dependent on many factors including pcb land pattern, trace size, and proximity to other components. Therefore temperature rise should be verified in application conditions.

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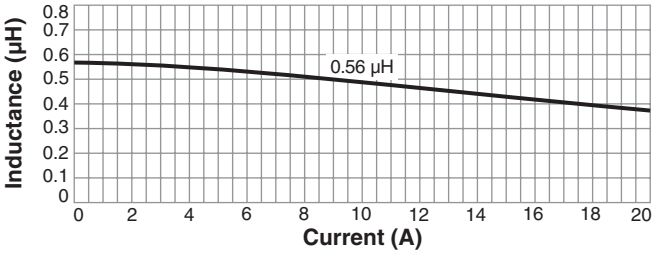
Document MS793-1 Revised 07/20/12

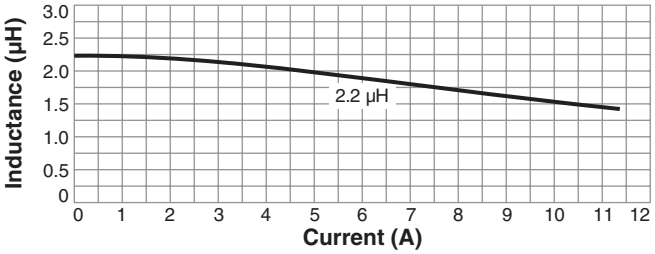
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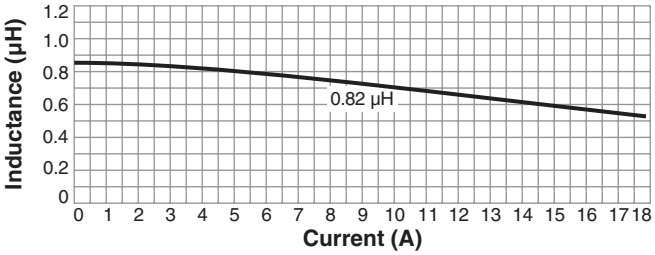
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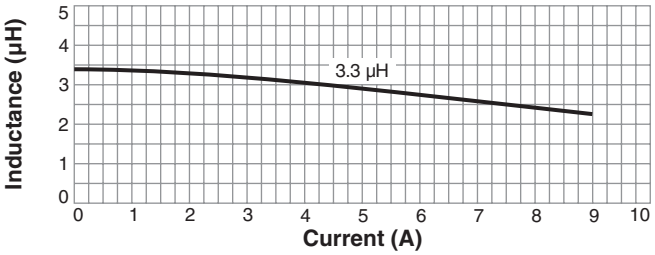
# MS515PYA Series (5050)

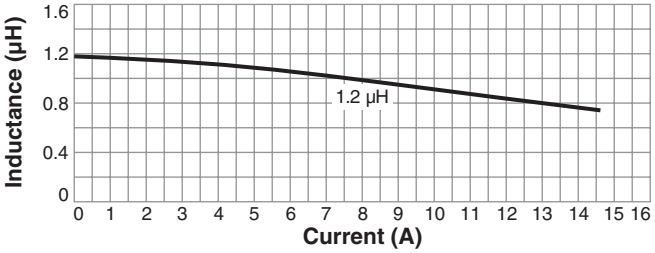
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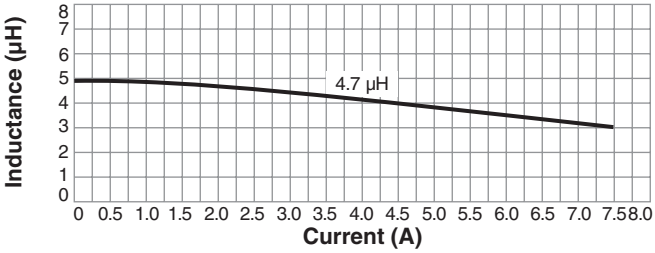


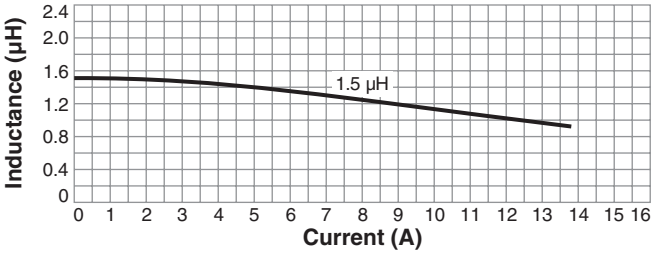



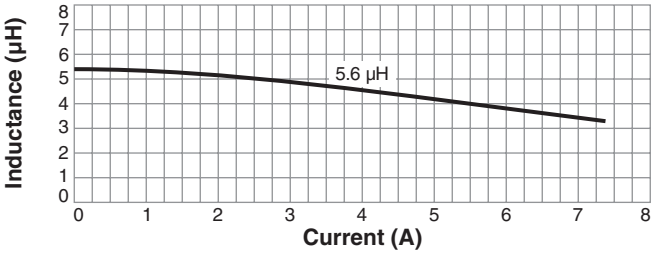




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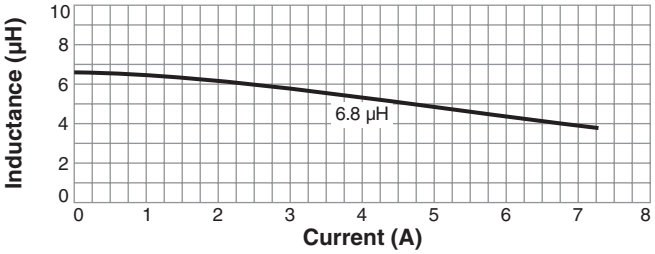
Document MS793-2 Revised 07/20/12

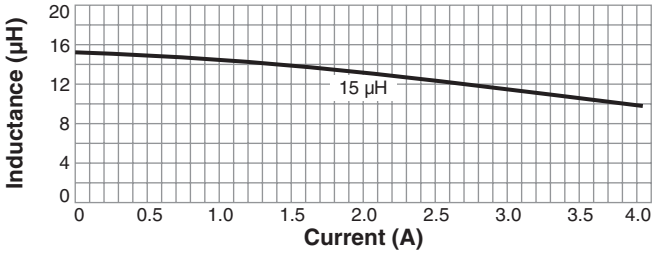
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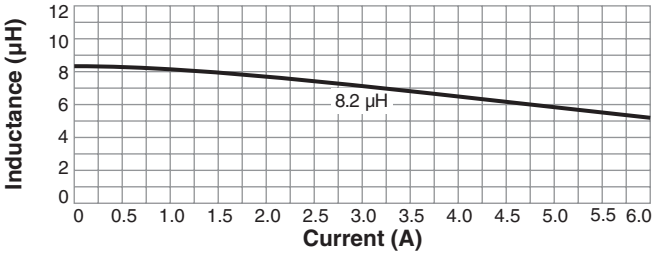
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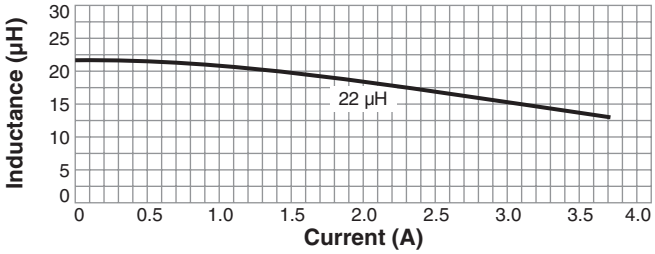
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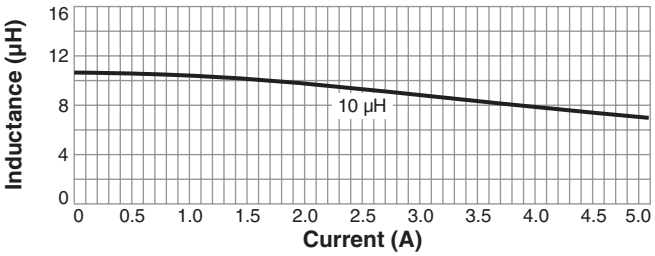
## Typical L vs Current




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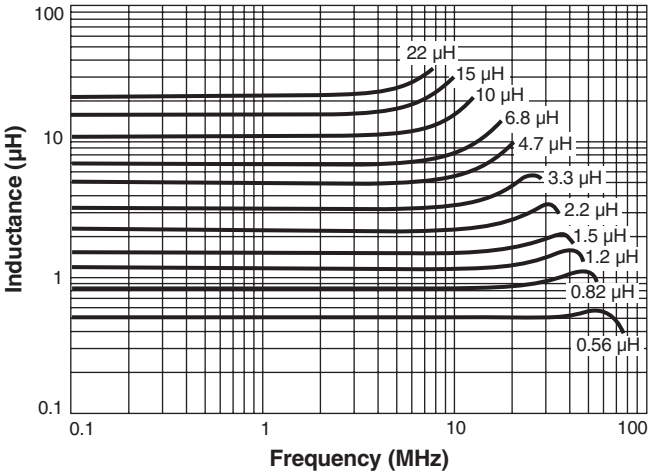
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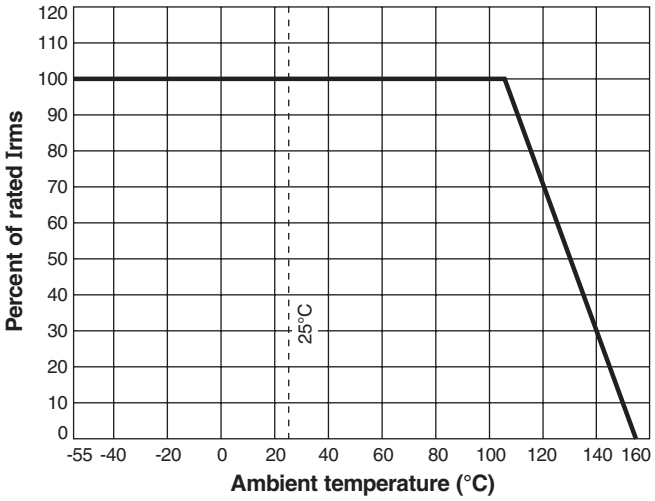
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# MS515PYA Series (5050)

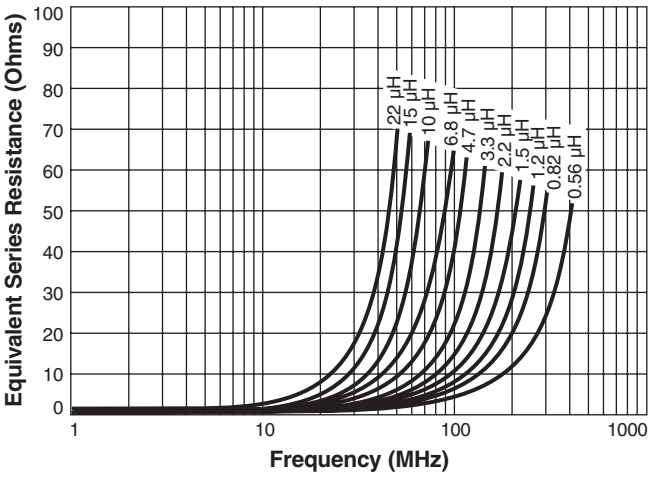
## Typical L vs Frequency

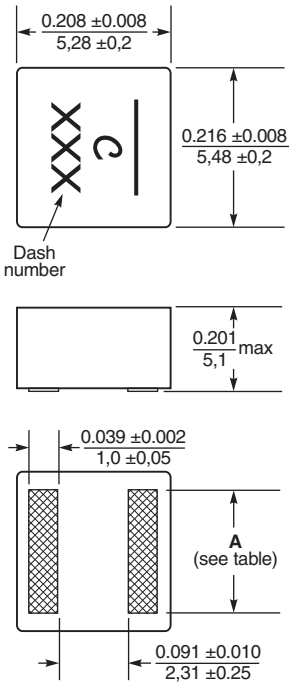



## Irms Derating

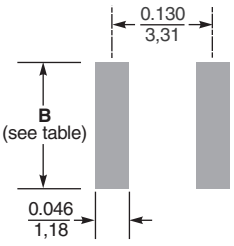



## Typical ESR vs Frequency




| Dash number | A ±0.008 in ±0,20 mm (in / mm) | B (in / mm) |
|---|---|---|
| -561 | 0.175 / 4.44 | 0.183 / 4.64 |
| -821 | 0.175 / 4.44 | 0.183 / 4.64 |
| -122 | 0.175 / 4.44 | 0.183 / 4.64 |
| -152 | 0.175 / 4.44 | 0.183 / 4.64 |
| -222 | 0.175 / 4.44 | 0.183 / 4.64 |
| -332 | 0.168 / 4.28 | 0.173 / 4.40 |
| -472 | 0.168 / 4.28 | 0.173 / 4.40 |
| -562 | 0.168 / 4.28 | 0.173 / 4.40 |
| -682 | 0.168 / 4.28 | 0.173 / 4.40 |
| -822 | 0.168 / 4.28 | 0.173 / 4.40 |
| -103 | 0.167 / 4.24 | 0.171 / 4.34 |
| -153 | 0.165 / 4.18 | 0.167 / 4.25 |
| -223 | 0.165 / 4.18 | 0.167 / 4.25 |




**Suggested Land Pattern**

Dimensions are in inches / mm



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