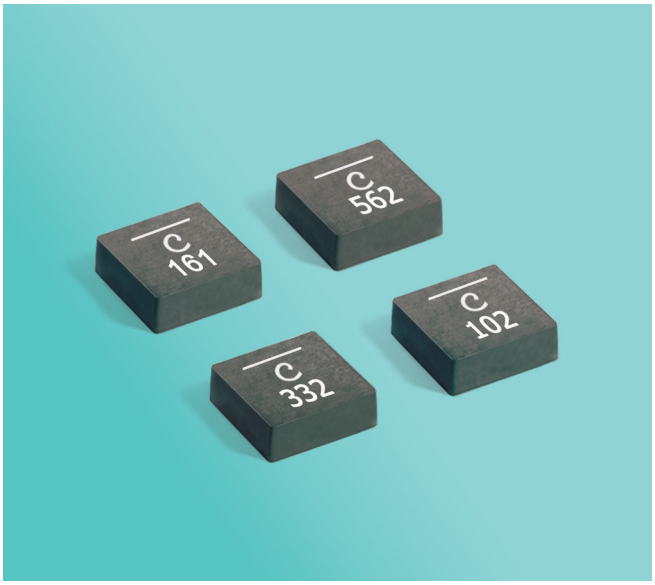
# High-Reliability Power Inductors ML514PYA




- High temperature materials allow operation in ambient temperatures up to 155°C
- Passes vibration testing to 80 G and shock testing to 1000 G
- High current and very low DCR
- Soft saturation makes them ideal for VRM/VRD applications.

**Core material** Composite

**Terminations** Tin-silver (96.5/3.5) over copper.

**Weight** 0.78 – 1.02 g

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

**Maximum part temperature** +155°C (ambient + temp rise).

**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** 400 per 7″ reel
Plastic tape: 16 mm wide, 0.33 mm thick, 12 mm pocket spacing, 3.0 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[5] (A) | Irms (A)[6] 20°C rise | Irms (A)[6] 40°C rise |
|---|---|---|---|---|---|---|---|---|
| ML514PYA161MLZ | 0.16 | 1.15 | 1.26 | 126 | 158 | 60.0 | 18.7 | 24.4 |
| ML514PYA301MLZ | 0.30 | 1.75 | 1.92 | 81 | 101 | 41.0 | 15.8 | 20.7 |
| ML514PYA601MLZ | 0.60 | 3.00 | 3.30 | 58 | 72 | 36.0 | 13.5 | 17.3 |
| ML514PYA102MLZ | 1.0 | 4.55 | 5.00 | 41 | 52 | 28.0 | 12.1 | 16.4 |
| ML514PYA152MLZ | 1.5 | 7.60 | 8.36 | 31 | 39 | 23.5 | 8.9 | 11.3 |
| ML514PYA222MLZ | 2.2 | 13.70 | 15.07 | 23 | 29 | 18.0 | 7.5 | 9.7 |
| ML514PYA272MLZ | 2.7 | 15.70 | 17.30 | 25 | 32 | 12.8 | 6.7 | 8.6 |
| ML514PYA332MLZ | 3.3 | 19.50 | 21.45 | 20 | 25 | 12.3 | 6.0 | 7.5 |
| ML514PYA472MLZ | 4.7 | 25.20 | 27.72 | 17 | 21 | 12.0 | 5.2 | 6.8 |
| ML514PYA562MLZ | 5.6 | 30.25 | 33.30 | 14 | 17 | 11.5 | 4.0 | 5.5 |
| ML514PYA682MLZ | 6.8 | 38.70 | 42.57 | 12 | 15 | 10.7 | 3.3 | 5.1 |
| ML514PYA822MLZ | 8.2 | 44.30 | 48.73 | 10 | 13 | 10.2 | 2.2 | 4.4 |

## 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.

1. When ordering, please specify **testing** code:

   **ML514PYA822MLZ**

   **Testing: Z** = Unscreened
   **H** = Group A screening per Coilcraft CP-SA-10001
   All screening performed to the document's latest revision

2. Inductance tested at 100 kHz, 0.1 Vrms using an Agilent/HP 4192A.
3. DCR measured using a micro-ohmmeter.
4. SRF measured using an Agilent/HP 4395A or equivalent.
5. DC current at 25°C that causes an inductance drop of 30% (typ) from its value without current..
6. Current that causes a 30°C temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings
7. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

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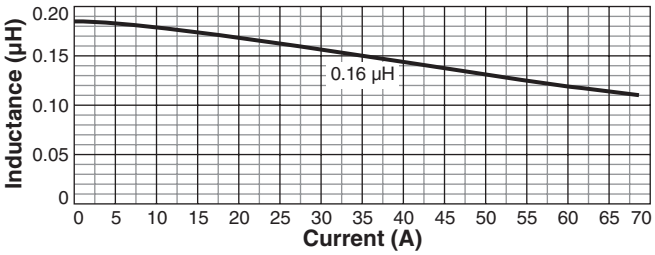
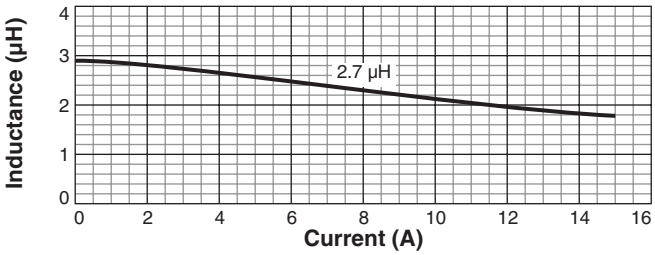
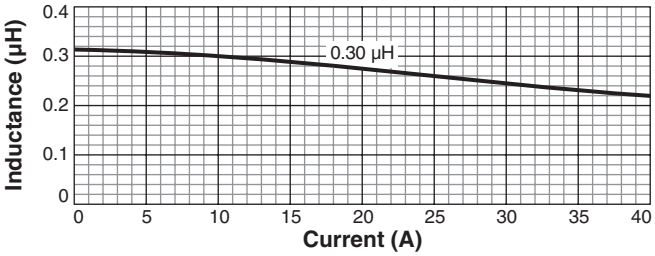
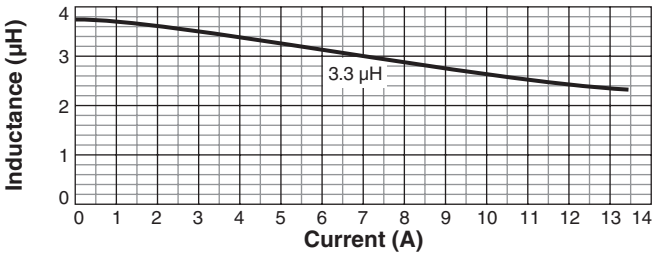
# ML514PYA Series (7030)

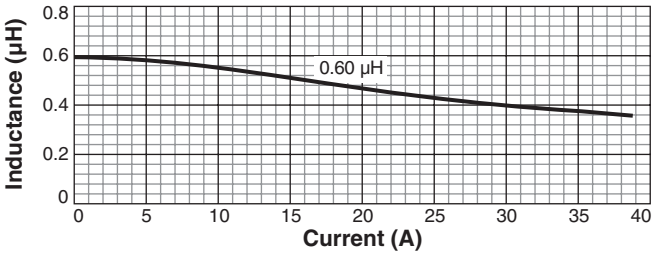
## L vs Current

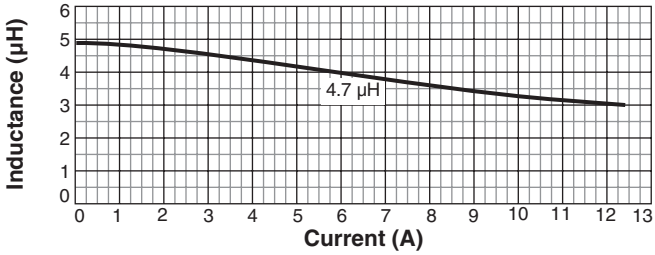


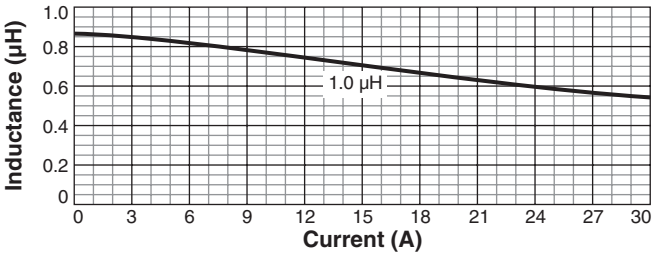



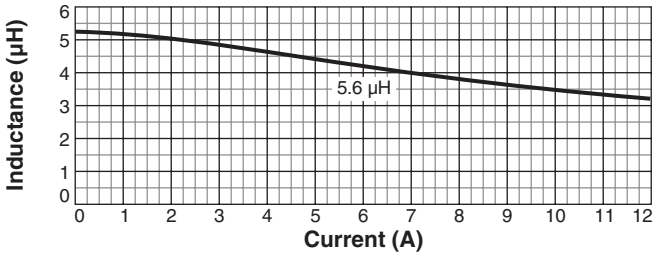



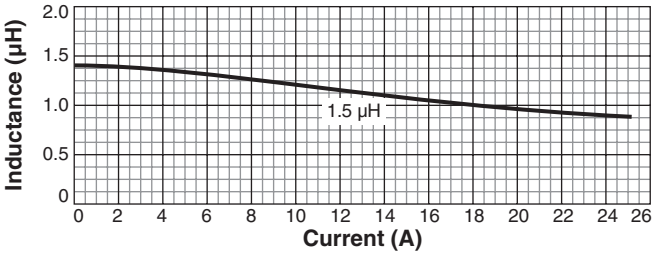



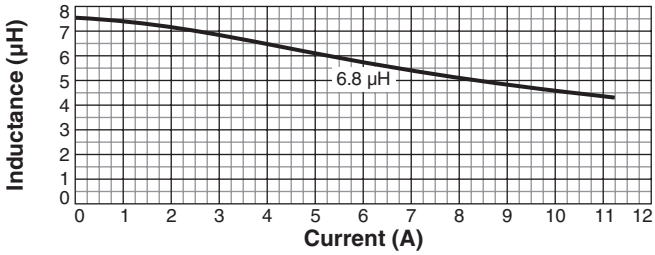



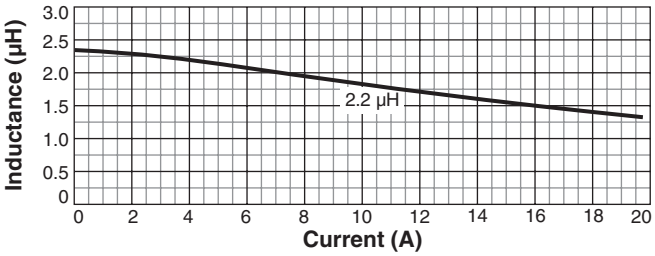



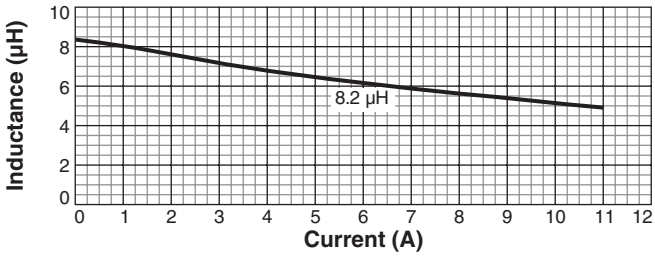

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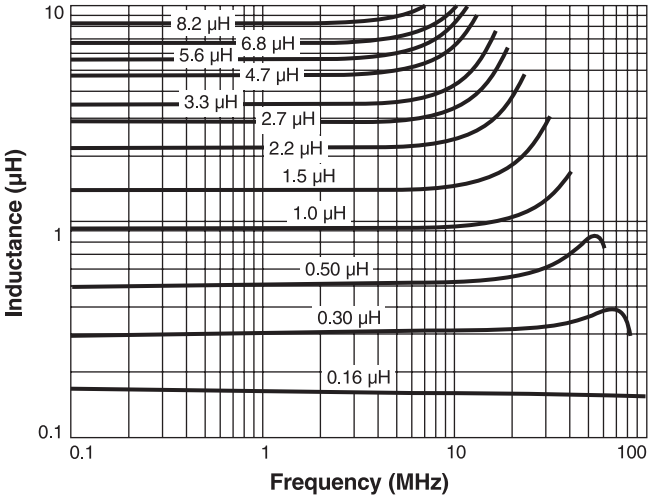
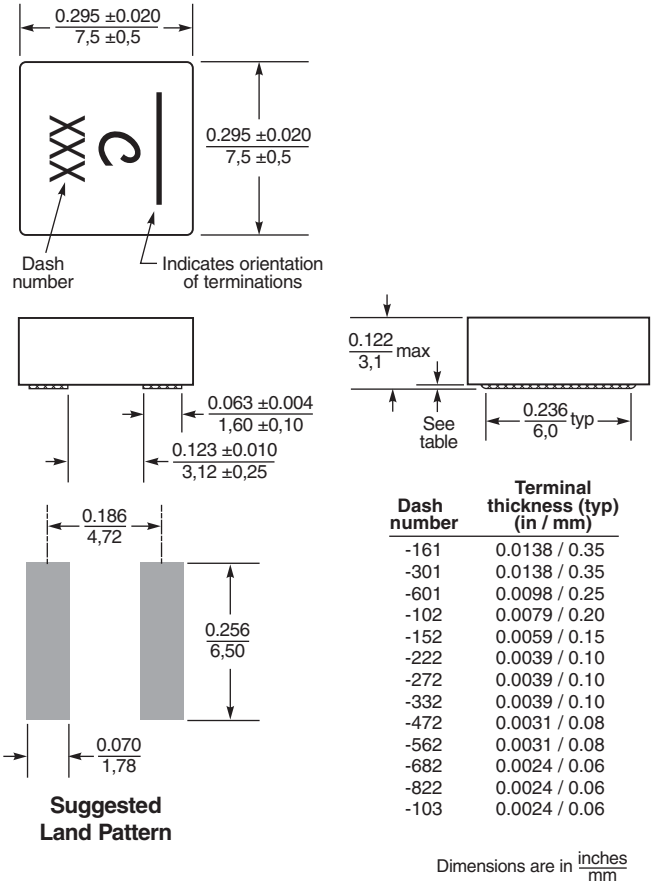
# ML514PYA Series (7030)

## Typical L vs Frequency




| Dash number | Terminal thickness (typ) (in / mm) |
|---|---|
| -161 | 0.0138 / 0.35 |
| -301 | 0.0138 / 0.35 |
| -601 | 0.0098 / 0.25 |
| -102 | 0.0079 / 0.20 |
| -152 | 0.0059 / 0.15 |
| -222 | 0.0039 / 0.10 |
| -272 | 0.0039 / 0.10 |
| -332 | 0.0039 / 0.10 |
| -472 | 0.0031 / 0.08 |
| -562 | 0.0031 / 0.08 |
| -682 | 0.0024 / 0.06 |
| -822 | 0.0024 / 0.06 |
| -103 | 0.0024 / 0.06 |

Dimensions are in inches / mm

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