NEW!

# Shielded Power Inductors – ST433PGA


- Industry's lowest DCR and ultra low AC losses
- Superior current handling with soft saturation characteristics
- Wide inductance range from 0.042 to 8.2 µH

**Core material** Composite
**Terminations** Tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.
**Weight:** 0.193 – 0.195 g
**Operating voltage:** 0 – 80 V
**Ambient temperature** –40°C to +125°C with (40°C rise) Irms current.
**Maximum part temperature** +165°C (ambient + temp rise). Derating.
**Storage temperature** Component: –55°C to +165°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** 1000/7″ reel; 3500/13″ reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 2.3 mm pocket depth
**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See Doc787_PCB_Washing.pdf.

| Part number[1] | Inductance[2] ±20% (µH) | DCR (mOhms)[3] typ | DCR (mOhms)[3] max | SRF typ[4] (MHz) | Isat (A)[5] 10% drop | Isat (A)[5] 20% drop | Isat (A)[5] 30% drop | Irms (A)[6] 20°C rise | Irms (A)[6] 40°C rise |
|---|---|---|---|---|---|---|---|---|---|
| ST433PGA420MLZ | 0.042 | 0.85 | 1.0 | 700 | 15.6 | 26.0 | 36.0 | 17.1 | 24.9 |
| ST433PGA111MLZ | 0.11 | 1.4 | 1.7 | 250 | 14.0 | 21.0 | 29.0 | 15.4 | 21.8 |
| ST433PGA251MLZ | 0.25 | 2.5 | 3.0 | 130 | 7.5 | 12.0 | 16.5 | 13.5 | 18.0 |
| ST433PGA331MLZ | 0.33 | 3.0 | 3.6 | 110 | 6.4 | 10.6 | 15.2 | 12.4 | 17.3 |
| ST433PGA471MLZ | 0.47 | 4.2 | 5.1 | 95 | 6.1 | 9.7 | 13.4 | 10.7 | 14.8 |
| ST433PGA601MLZ | 0.60 | 5.1 | 5.9 | 80 | 4.9 | 8.2 | 11.7 | 10.1 | 13.8 |
| ST433PGA821MLZ | 0.82 | 7.7 | 8.6 | 65 | 3.9 | 6.8 | 9.4 | 8.4 | 10.5 |
| ST433PGA102MLZ | 1.0 | 8.2 | 9.0 | 60 | 3.8 | 6.3 | 8.8 | 6.6 | 9.0 |
| ST433PGA152MLZ | 1.5 | 13.0 | 14.3 | 45 | 3.2 | 5.3 | 7.5 | 6.0 | 8.3 |
| ST433PGA222MLZ | 2.2 | 19.5 | 21.5 | 40 | 2.7 | 4.4 | 6.2 | 5.0 | 6.7 |
| ST433PGA332MLZ | 3.3 | 30.8 | 34.0 | 30 | 2.2 | 3.5 | 4.8 | 3.7 | 5.0 |
| ST433PGA472MLZ | 4.7 | 43.0 | 47.3 | 23 | 1.9 | 3.0 | 4.1 | 3.1 | 4.2 |
| ST433PGA562MLZ | 5.6 | 48.7 | 53.6 | 22 | 1.7 | 2.7 | 3.7 | 2.9 | 3.9 |
| ST433PGA682MLZ | 6.8 | 63.6 | 70.0 | 21 | 1.6 | 2.5 | 3.4 | 2.3 | 3.2 |
| ST433PGA822MLZ | 8.2 | 71.0 | 78.1 | 20 | 1.4 | 2.3 | 3.2 | 2.2 | 3.1 |

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

**ST433PGA822MLZ**

**Termination:** **L** = Tin-silver (96.5/3.5) 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** = Coilcraft CP-SA-10001 Group A
**G** = Coilcraft CP-SA-10001 Group A (SLDC Option A)
**D** = Coilcraft CP-SA-10001 Group A (SLDC Option B)
- Screening performed to the document's latest revision.
- Custom testing also available.

2. Inductance tested at 1 MHz, 0.1 Vrms, 0 Adc.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using Agilent/HP 4395A or equivalent.
5. DC current at 25°C that causes the specified inductance drop from its value without current.
Click for temperature derating information.
6. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings. Click for temperature derating information.
7. Electrical specifications at 25°C.

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

## Irms Testing

Irms testing was performed on 0.060 inch 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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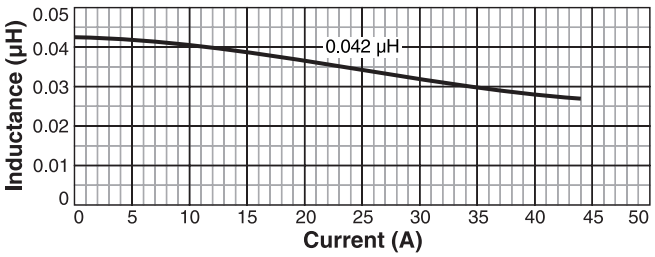
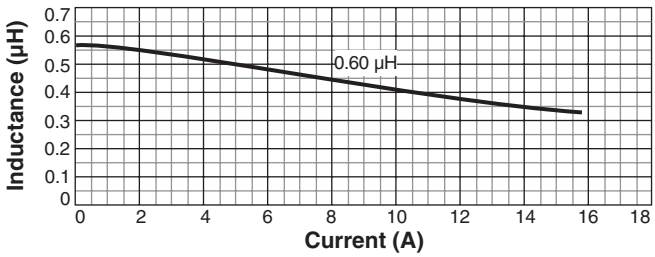
1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363
Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

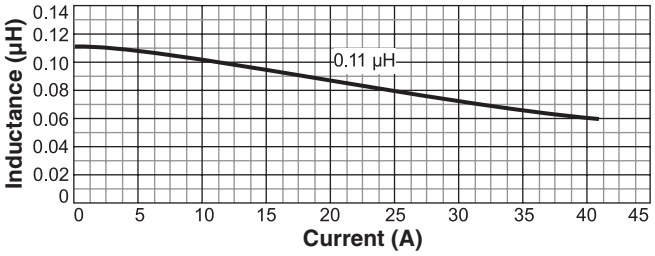
Document ST1529-1 Revised 08/10/23

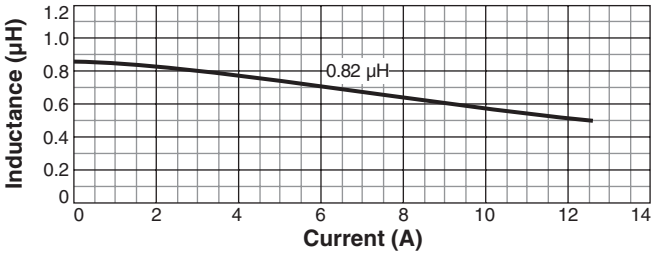
# ST433PGA Power Inductors

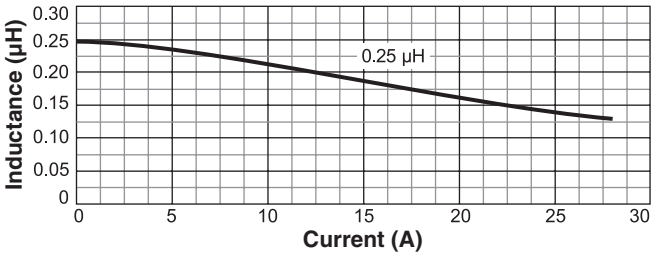
## L vs Current

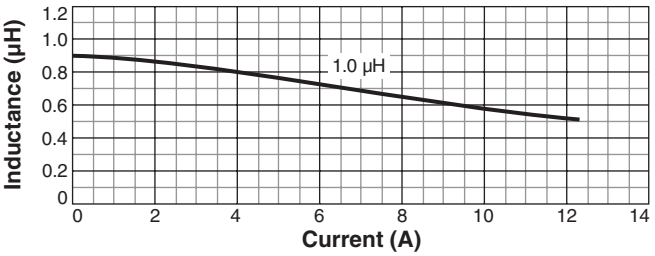


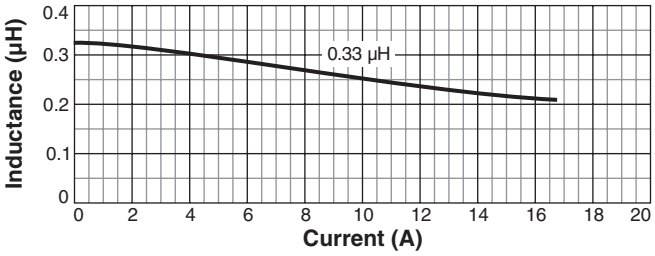



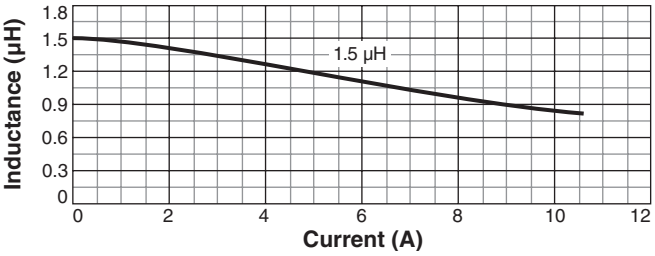



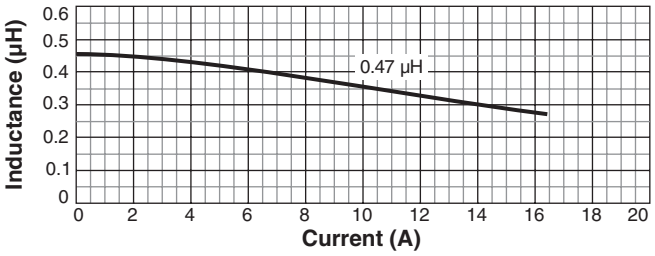



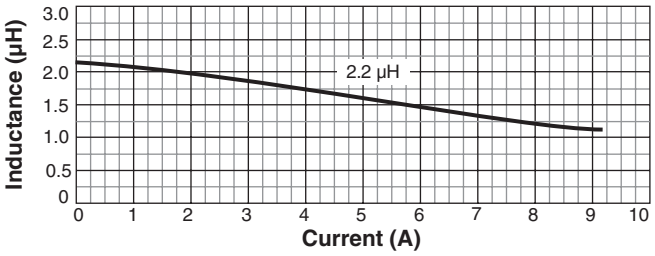

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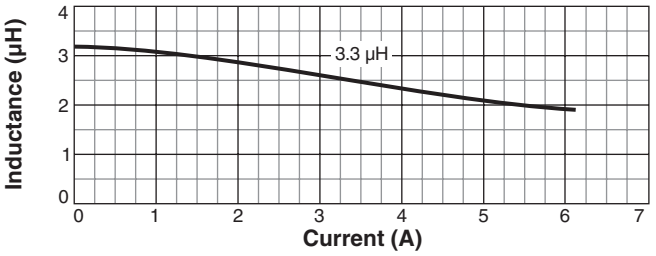
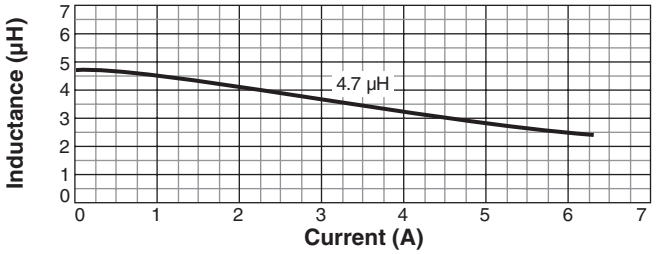
1102 Silver Lake Road
Cary, IL 60013
Phone 800-981-0363
Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com

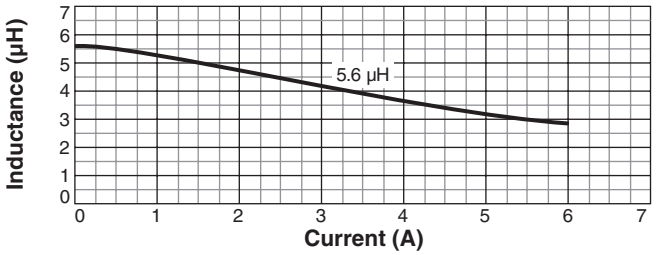
Document ST1529-2 Revised 08/10/23

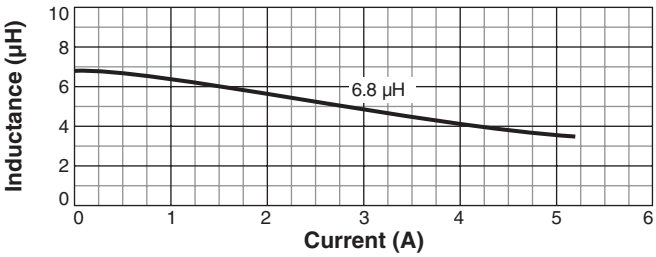
# ST433PGA Power Inductors

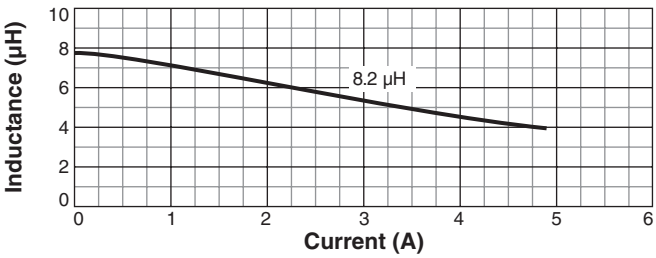
## L vs Current



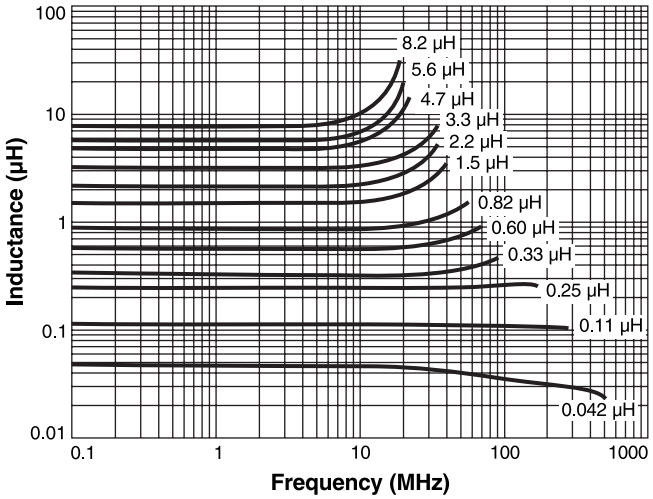



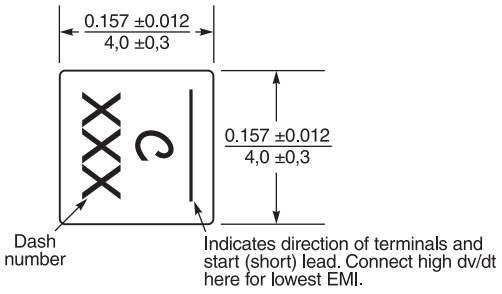



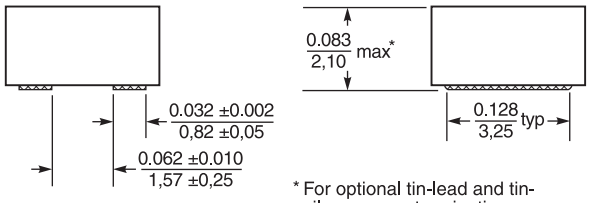



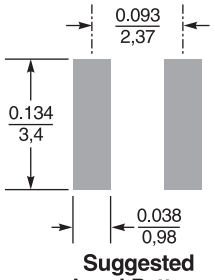

## Typical L vs Frequency




* For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.008 inch / 0.2 mm.




**Suggested Land Pattern**

Dimensions are in inches / mm

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Cary, IL 60013
Phone 800-981-0363
Fax 847-639-1508
Email cps@coilcraft.com
www.coilcraft-cps.com