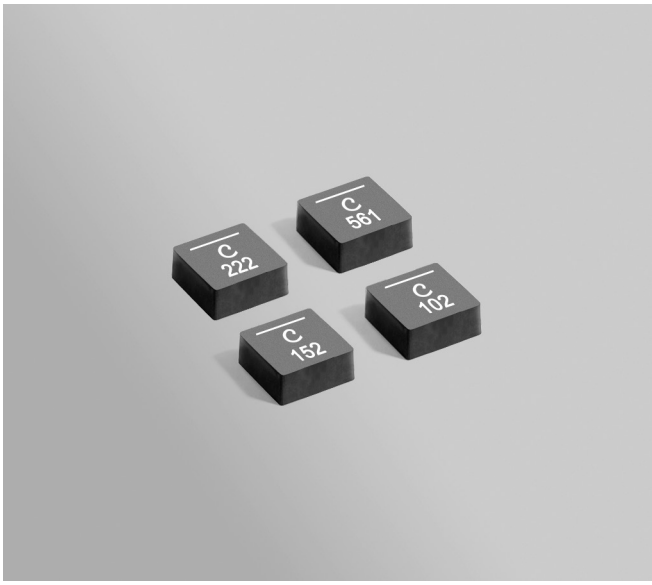
RoHS/ REACH COMPLIANT

Halogen Free

AEC Q200 +125°C

# Shielded Power Inductor XEL4020




- Extremely low DCR and ultra low AC losses for high switching frequencies (2 to 5 MHz)
- AEC-Q200 Grade 1 qualified (–40°C to +125°C ambient)
- Superior current handling with soft saturation characteristics
- Can withstand high current spike

**Core material** Composite
**Environment** RoHS compliant, halogen free
**Terminations** RoHS compliant tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.
**Weight** 0.17 g
**Operating voltage** 0 – 80 V
**Ambient temperature** –40°C to +125°C with (40°C) Irms current.
**Maximum part temperature** +165°C (ambient + temp rise).
**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)
**Failures in Time (FIT) / Mean Time Between Failures (MTBF)** 38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332
**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[5] (A) | Irms (A)[6] 20°C rise | Irms (A)[6] 40°C rise |
|---|---|---|---|---|---|---|---|
| XEL4020-800ME_ | 0.08 | 1.50 | 1.80 | 305 | 33.2 | 15.5 | 21.4 |
| XEL4020-101ME_ | 0.10 | 2.04 | 2.50 | 280 | 28.5 | 14.6 | 19.9 |
| XEL4020-201ME_ | 0.20 | 3.04 | 3.35 | 180 | 19.7 | 14.0 | 17.2 |
| XEL4020-331ME_ | 0.33 | 5.18 | 5.70 | 124 | 15.7 | 11.9 | 15.4 |
| XEL4020-561ME_ | 0.56 | 8.00 | 8.80 | 90 | 11.3 | 9.9 | 13.8 |
| XEL4020-821ME_ | 0.82 | 11.80 | 13.00 | 69 | 10.2 | 8.1 | 11.5 |
| XEL4020-102ME_ | 1.0 | 13.25 | 14.60 | 68 | 9.0 | 6.7 | 9.6 |
| XEL4020-122ME_ | 1.2 | 17.75 | 19.50 | 59 | 8.1 | 6.6 | 9.0 |
| XEL4020-152ME_ | 1.5 | 21.45 | 23.60 | 54 | 7.4 | 5.2 | 7.5 |
| XEL4020-222ME_ | 2.2 | 35.20 | 38.70 | 41 | 5.9 | 4.0 | 5.5 |

## Irms Testing

Irms testing was performed on 0.75 inch wide × 0.25 inch thick copper traces in still air.

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 **termination** and **packaging** codes:

**XEL4020-222MEC**

**Termination:** **E** = RoHS compliant tin-silver over copper.
**Special order: T** = RoHS tin-silver-copper (95.5/4/0.5) or **S** = non-RoHS tin-lead (63/37).

**Packaging:** **C** = 7″ machine-ready reel. EIA-481 embossed plastic tape (1000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer ($25 charge).
**B** = Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.
**D** = 13″ machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

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 an inductance drop of 30% (typ) from its value without current.
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.
7. Electrical specifications at 25°C.

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

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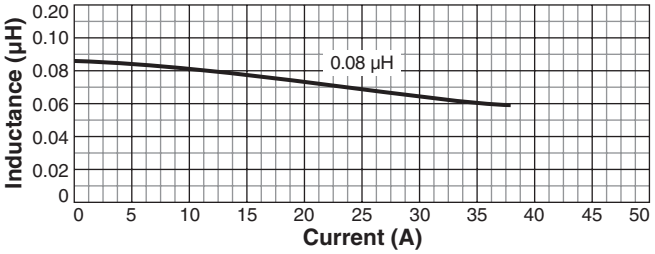
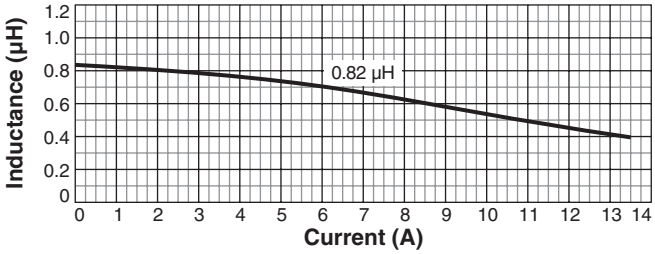
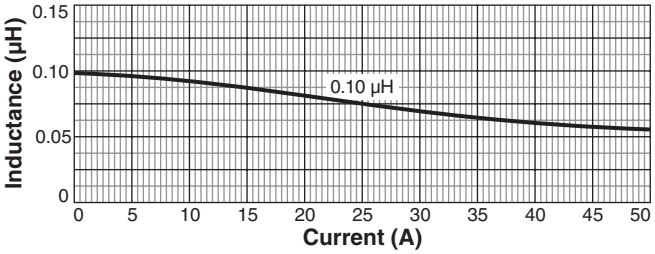
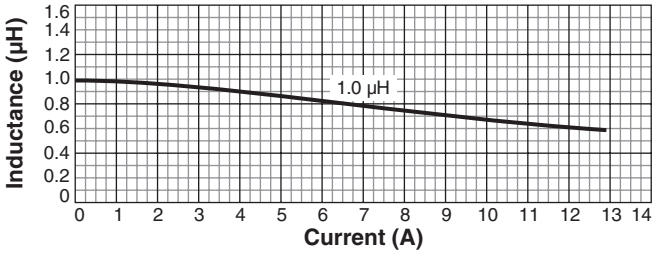
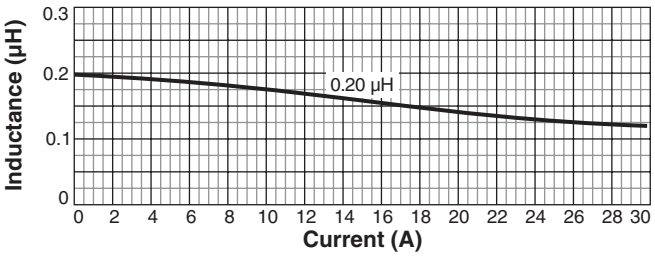
## L vs Current

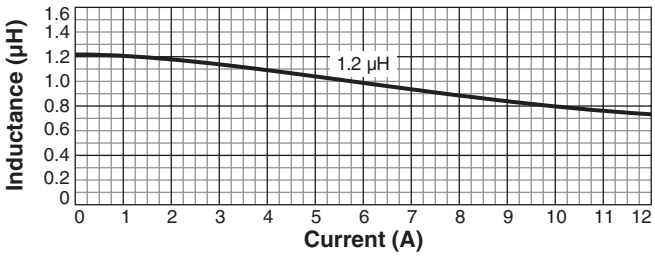


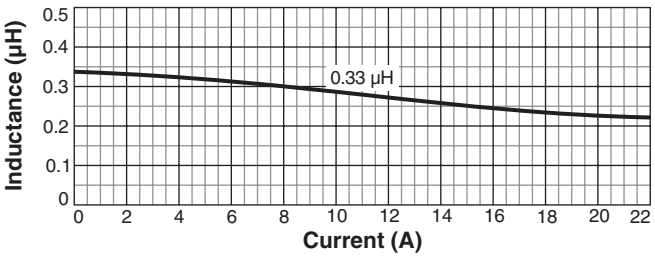



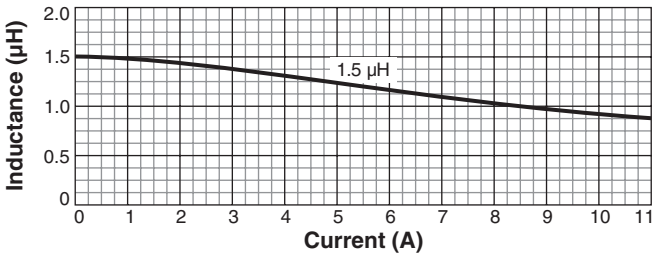



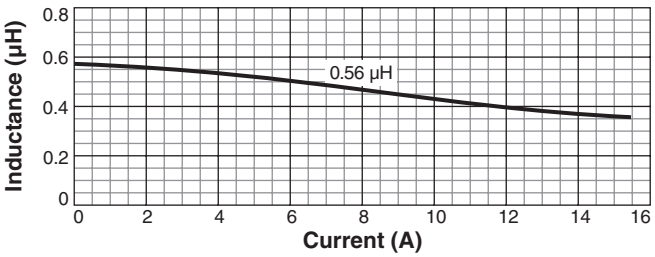



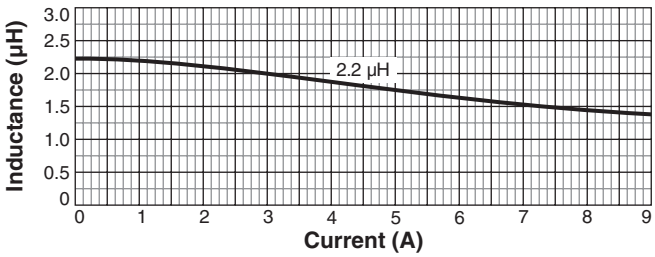

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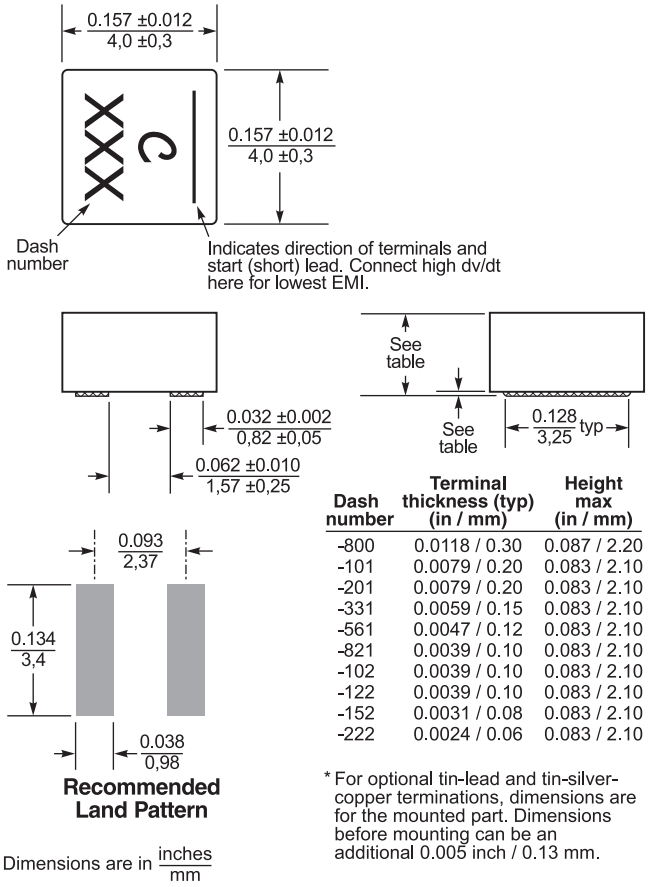
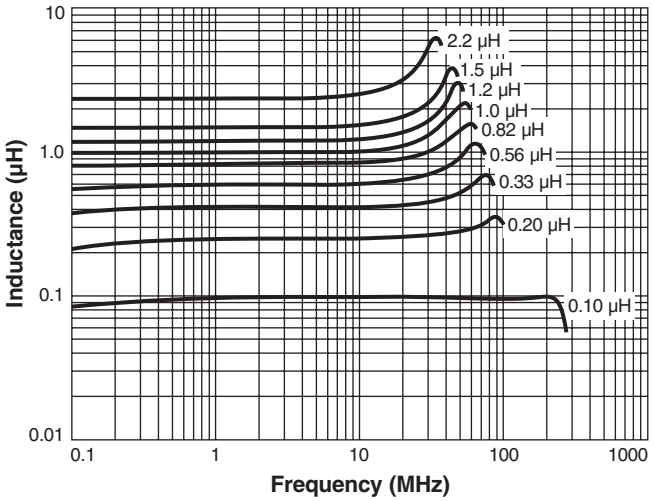



| Dash number | Terminal thickness (typ) (in / mm) | Height max (in / mm) |
|---|---|---|
| -800 | 0.0118 / 0.30 | 0.087 / 2.20 |
| -101 | 0.0079 / 0.20 | 0.083 / 2.10 |
| -201 | 0.0079 / 0.20 | 0.083 / 2.10 |
| -331 | 0.0059 / 0.15 | 0.083 / 2.10 |
| -561 | 0.0047 / 0.12 | 0.083 / 2.10 |
| -821 | 0.0039 / 0.10 | 0.083 / 2.10 |
| -102 | 0.0039 / 0.10 | 0.083 / 2.10 |
| -122 | 0.0039 / 0.10 | 0.083 / 2.10 |
| -152 | 0.0031 / 0.08 | 0.083 / 2.10 |
| -222 | 0.0024 / 0.06 | 0.083 / 2.10 |

* For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.005 inch / 0.13 mm.

## L vs Frequency




**Packaging** 1000/7″ reel; 3500/13″ reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 2.1 mm pocket depth

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