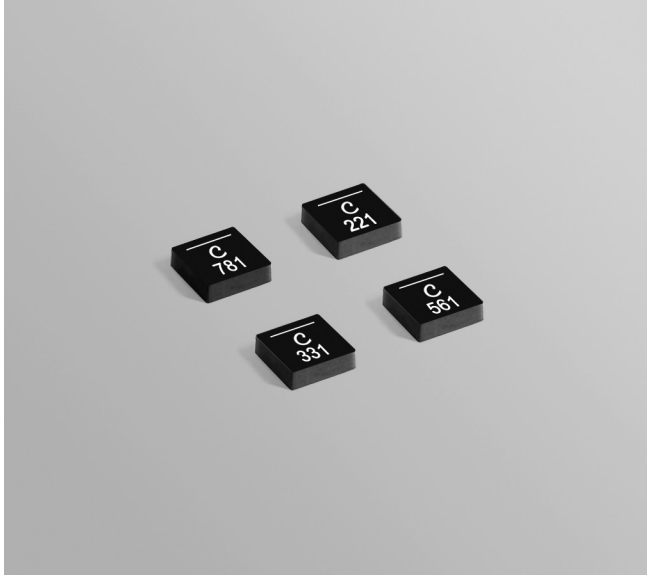


# Shielded Power Inductors XEL4012, 4014



- Extremely low DCR and ultra low AC losses for high switching frequencies (2 to 5 MHz)
- Superior current handling with soft saturation characteristics
- Can withstand high current spikes
- AEC-200 Grade 1 qualified (-40°C to +125°C ambient)

**Core material** Composite

**Environment** RoHS compliant, halogen free

**Terminations** RoHS compliant, tin-silver over copper. Other terminations available at additional cost.

**Weight** 0.11 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). [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)

**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 <sup>1</sup> | Inductance <sup>2</sup><br>(nH) | DCR (mOhms) <sup>3</sup> |      | SRF typ <sup>4</sup><br>(MHz) | Isat <sup>5</sup><br>(A) | Irms (A) <sup>6</sup> |           |
|--------------------------|---------------------------------|--------------------------|------|-------------------------------|--------------------------|-----------------------|-----------|
|                          |                                 | typ                      | max  |                               |                          | 20°C rise             | 40°C rise |
| XEL4012-920NE_           | 92 ±30%                         | 5.2                      | 5.7  | 279                           | 24.0                     | 11.5                  | 16.5      |
| XEL4012-221NE_           | 220 ±30%                        | 9.7                      | 10.6 | 146                           | 16.0                     | 6.5                   | 9.0       |
| XEL4014-221ME_           | 220 ±20%                        | 7.5                      | 9.5  | 150                           | 18.2                     | 9.0                   | 12.0      |
| XEL4014-331ME_           | 330 ±20%                        | 9.9                      | 12.0 | 110                           | 14.6                     | 6.5                   | 9.0       |
| XEL4014-561ME_           | 560 ±20%                        | 16.5                     | 18.4 | 80                            | 11.6                     | 5.5                   | 7.5       |
| XEL4014-781ME_           | 780 ±20%                        | 20.3                     | 22.8 | 70                            | 9.8                      | 5.0                   | 6.5       |

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

**XEL4014-781MEC**

**Termination:** E = RoHS compliant tin-silver over copper.

**Special order:** S = non-RoHS tin-lead (63/37).

**Packaging:** C = 7" machine-ready reel. EIA-481 embossed plastic tape. 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.

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 which the inductance drops 30% (typ) 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

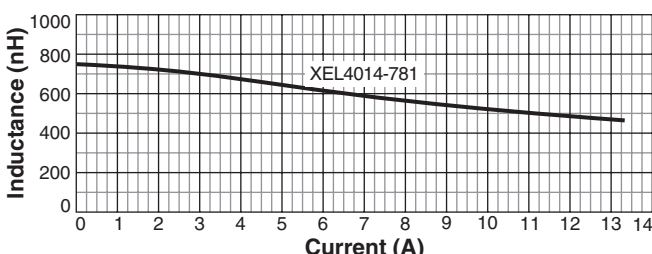
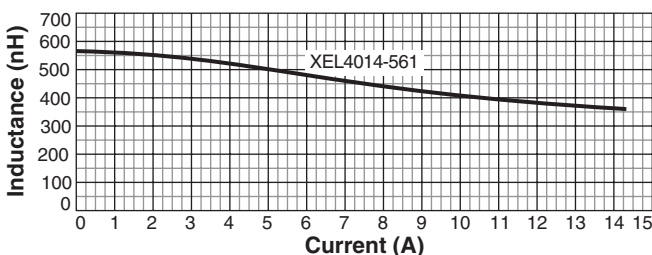
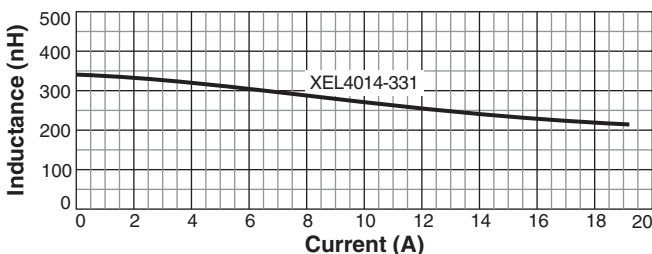
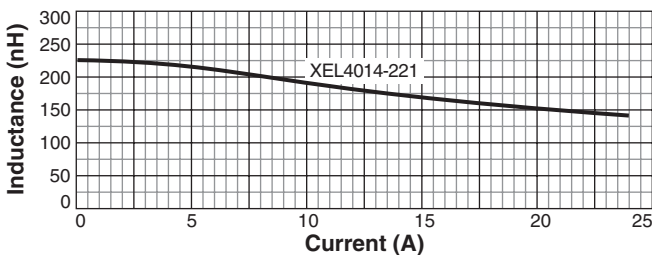
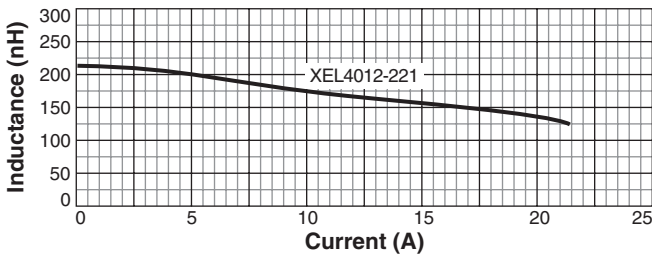
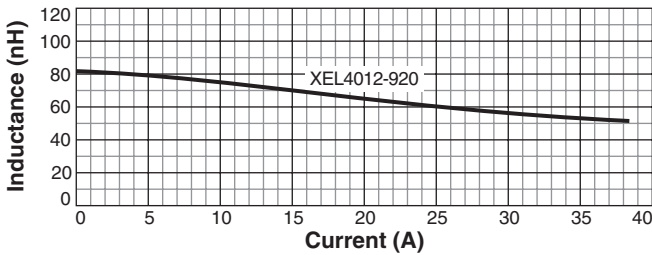
Irms testing was performed on 0.75 inch wide x 0.25 inch thick copper traces in still air.

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.

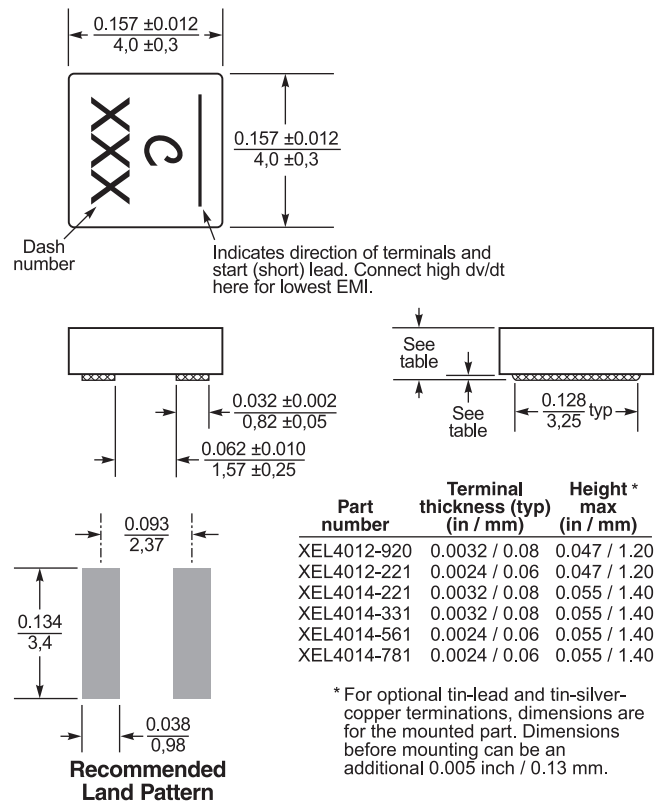
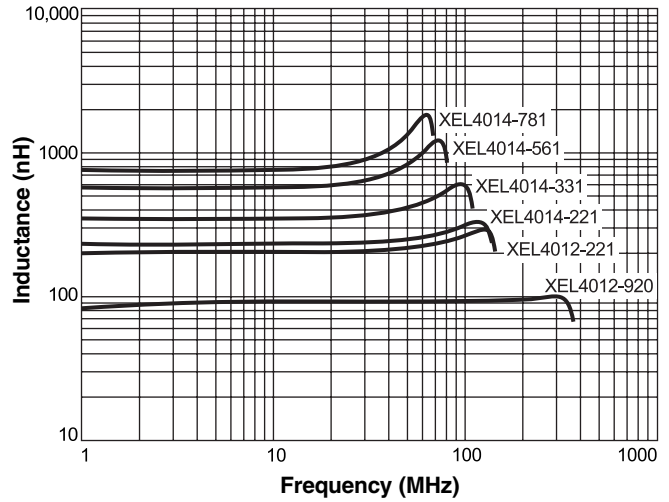
**VERY LOW AC AND DC LOSSES**

# Shielded Power Inductors – XEL4012, XEL4014

## L vs Current



## L vs Frequency



### Packaging

**XEL4012** 1500/7" reel; 5000/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 1.40 mm pocket depth

**XEL4014** 1000/7" reel; 4000/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 1.78 mm pocket depth

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



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Document 1105-2 Revised 05/14/20

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