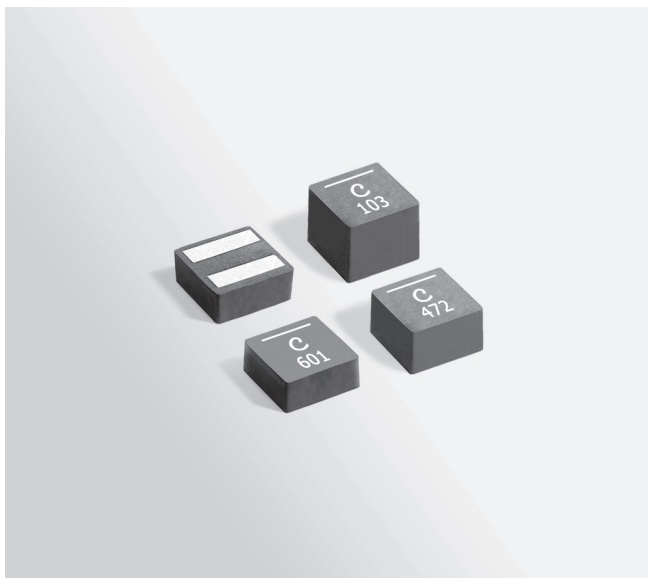




HIGH TEMPERATURE

Shielded Power Inductors – XAL40xx



- High current and very low DCR
- AEC-200 Grade 1 qualified (–40°C to +125°C ambient)
- Soft saturation makes them ideal for VRM/VRD applications.

Designer's Kit C429 contains 5 of each value

Core material Composite

Core and winding loss See www.coilcraft.com/coreloss

Environmental RoHS compliant, halogen free

Terminations RoHS compliant tin-silver (96.5/3.5) over copper. Other terminations available at additional cost.

Ambient temperature –40°C to +125°C with Irms current, +125°C to +165°C with derated current.

Storage temperature Component: –40°C to +165°C. Tape and reel packaging: –40°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 Only pure water or alcohol recommended

| Part number ¹ | Inductance ² ±20% (µH) | DCR (mOhms) ³ | | SRF typ ⁴ (MHz) | Isat ⁵ (A) | Irms (A) ⁶ | |
|--------------------------|--------------------------------------|--------------------------|-------|-------------------------------|--------------------------|-----------------------|-----------|
| | | typ | max | | | 20°C rise | 40°C rise |
| XAL4020-221ME_ | 0.22 | 5.81 | 6.40 | 191 | 18.7 | 12.0 | 16.8 |
| XAL4020-401ME_ | 0.40 | 7.55 | 8.30 | 145 | 12.5 | 10.0 | 14.0 |
| XAL4020-601ME_ | 0.60 | 9.50 | 10.45 | 106 | 10.4 | 7.9 | 11.7 |
| XAL4020-102ME_ | 1.0 | 13.25 | 14.60 | 79 | 8.7 | 6.7 | 9.6 |
| XAL4020-152ME_ | 1.5 | 21.45 | 23.60 | 64 | 7.1 | 5.2 | 7.5 |
| XAL4020-222ME_ | 2.2 | 35.20 | 38.70 | 52 | 5.6 | 4.0 | 5.5 |
| XAL4030-332ME_ | 3.3 | 26.0 | 28.6 | 43 | 5.5 | 5.0 | 6.6 |
| XAL4030-472ME_ | 4.7 | 40.1 | 44.1 | 36 | 4.5 | 3.9 | 5.1 |
| XAL4030-682ME_ | 6.8 | 67.4 | 74.1 | 29 | 3.6 | 3.0 | 3.9 |
| XAL4040-822ME_ | 8.2 | 60.8 | 66.9 | 27 | 4.0 | 2.4 | 3.4 |
| XAL4040-103ME_ | 10 | 84.0 | 92.4 | 24 | 3.0 | 2.2 | 3.1 |
| XAL4040-153ME_ | 15 | 109 | 120 | 20 | 2.8 | 2.0 | 2.8 |

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** coded:

XAL4020-222ME_C

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.

B = Less than full reel. In tape, but not machine ready. To have a leader and trailer added (\$25 charge), use code letter C instead.

D = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked.

2. Inductance tested at 100 kHz, 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.

6. 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.



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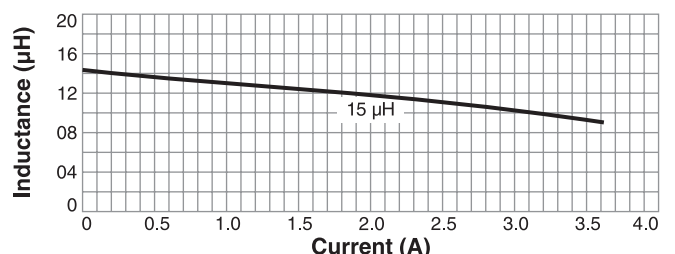
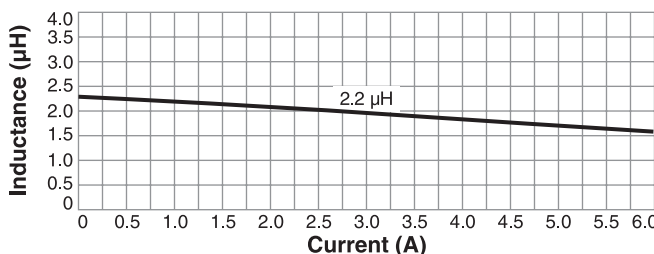
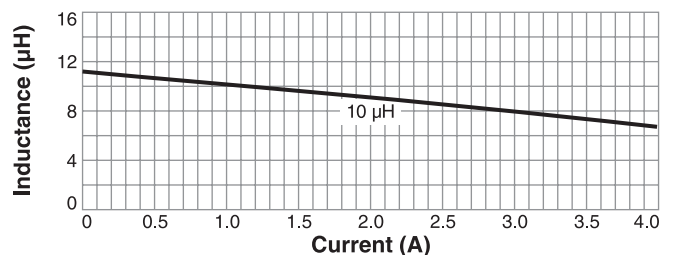
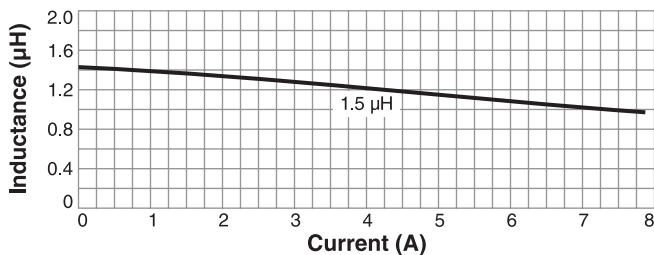
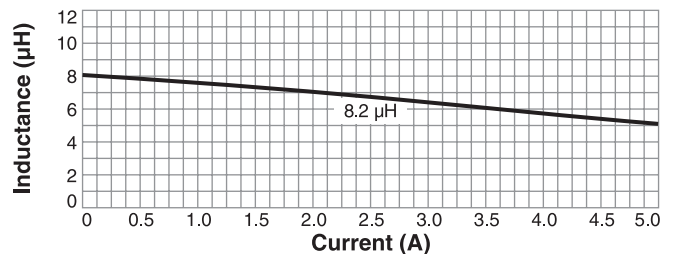
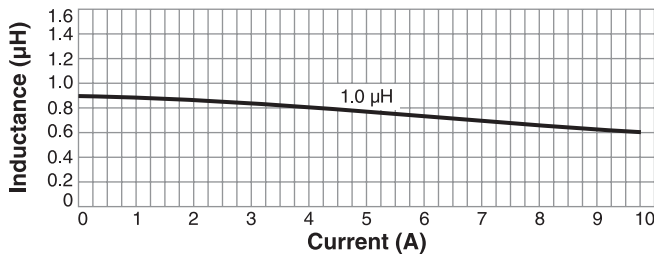
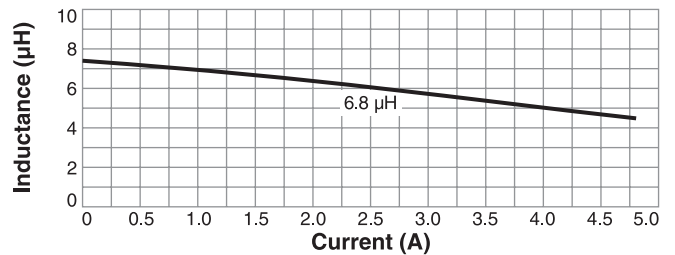
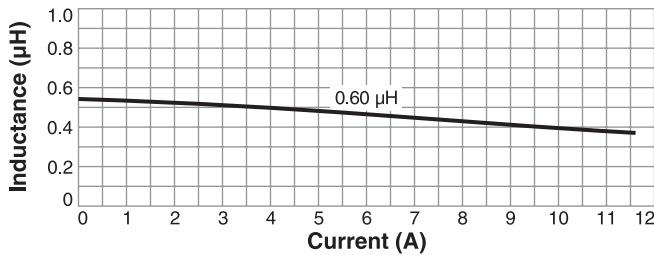
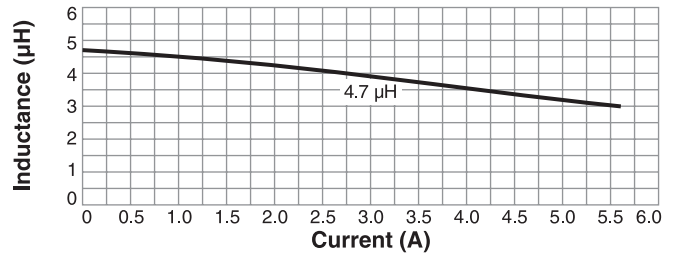
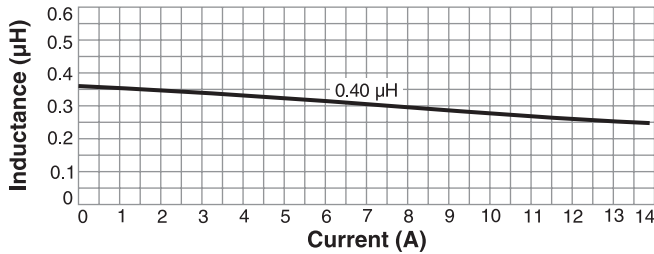
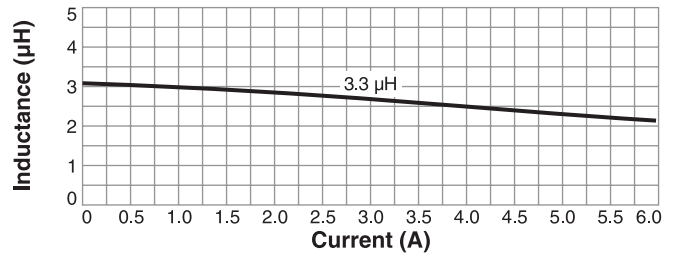
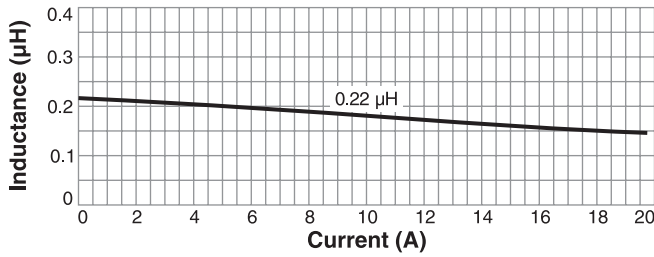
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HIGH TEMPERATURE



Shielded Power Inductors - XAL40XX

L vs Current



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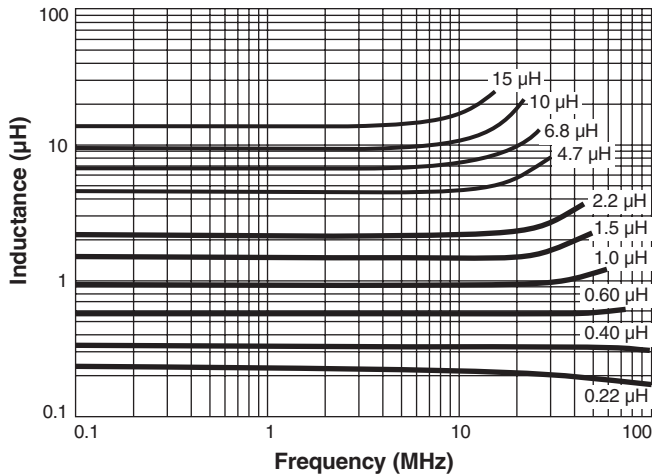
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HIGH TEMPERATURE

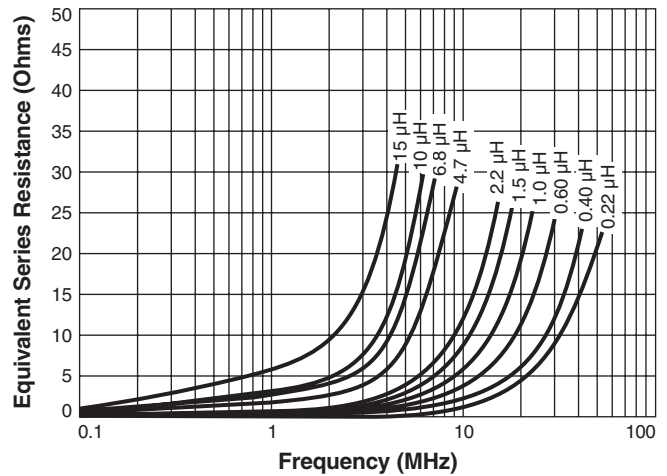


Shielded Power Inductors - XAL40xx

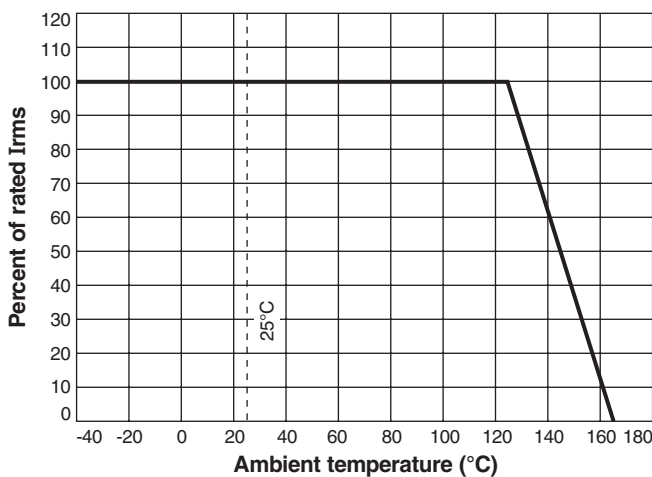
Typical L vs Frequency



Typical ESR vs Frequency



Irms Derating



Note: Parts manufactured prior to 2011 may not have orientation mark

| | Maximum height | Weight |
|---------|----------------|---------------|
| XAL4020 | 0.083 / 2,1 | 0.17 – 0.18 g |
| XAL4030 | 0.122 / 3,1 | 0.26 – 0.28 g |
| XAL4040 | 0.161 / 4,1 | 0.35 – 0.37 g |

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

Packaging

- XAL4020:** 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 2.1 mm pocket depth
- XAL4030:** 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.23 mm thick, 8 mm pocket spacing, 3.25 mm pocket depth
- XAL4040:** 500/7" reel; 2000/13" reel Plastic tape: 12 mm wide, 0.3 mm thick, 8 mm pocket spacing, 4.27 mm pocket depth



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