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

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

1. When ordering, please specify termination and packaging coded:

   - **XAL4020-222ME**
     - **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 Vac.
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.

I rms Testing

I rms 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.
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L vs Current

- 0.22 µH
- 0.40 µH
- 0.60 µH
- 1.0 µH
- 1.5 µH
- 2.2 µH

- 3.3 µH
- 4.7 µH
- 6.8 µH
- 8.2 µH
- 10 µH
- 15 µH

Specifications subject to change without notice. Please check out the website for the latest information.
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Typical L vs Frequency

Typical ESR vs Frequency

Irms Derating

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

Dimensions are in inches

Recommended Land Pattern

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