

# Shielded Power Inductors XAL1580



- High current – up to 111 A; Very low DCR – 0.50 mOhms
- AEC-Q200 Grade 1 qualified (–40°C to +125°C ambient)
- Soft saturation makes them ideal for VRM/VRD applications.

**Core material** Composite

**Core and winding loss** [Go to online calculator](#)

**Environmental** RoHS compliant, halogen free

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

**Weight** 10.6 g

**Operating voltage:** 0 – 55 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)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

**Packaging** 300/13" reel Plastic tape: 32 mm wide, 0.3 mm thick, 24 mm pocket spacing, 8.5 mm pocket depth

**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>±20% (µH) | 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 |
| XAL1580-401ME_           | 0.40                                 | 0.50                     | 0.70 | 53.0                          | 111                      | 47.0                  | 60.0      |
| XAL1580-741ME_           | 0.74                                 | 0.72                     | 0.86 | 35.1                          | 86.0                     | 43.2                  | 59.7      |
| XAL1580-102ME_           | 1.0                                  | 0.93                     | 1.12 | 30.0                          | 73.5                     | 40.6                  | 57.5      |
| XAL1580-132ME_           | 1.3                                  | 1.15                     | 1.38 | 26.2                          | 65.0                     | 34.6                  | 46.7      |
| XAL1580-182ME_           | 1.8                                  | 1.61                     | 1.93 | 21.3                          | 57.0                     | 33.2                  | 43.8      |
| XAL1580-202ME_           | 2.0                                  | 1.91                     | 2.29 | 20.1                          | 51.0                     | 29.5                  | 39.9      |
| XAL1580-302ME_           | 3.0                                  | 2.62                     | 3.10 | 16.0                          | 43.0                     | 25.6                  | 34.4      |
| XAL1580-452ME_           | 4.5                                  | 3.82                     | 4.58 | 12.5                          | 34.2                     | 20.4                  | 27.0      |
| XAL1580-532ME_           | 5.3                                  | 4.35                     | 5.22 | 11.8                          | 33.0                     | 19.5                  | 26.5      |
| XAL1580-612ME_           | 6.1                                  | 5.66                     | 6.79 | 11.7                          | 31.0                     | 16.9                  | 22.6      |

## 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:

**XAL1580-612MED**

**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:** D = 13" machine-ready reel. EIA-481 embossed plastic tape (300 parts per full reel).

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

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.

[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.



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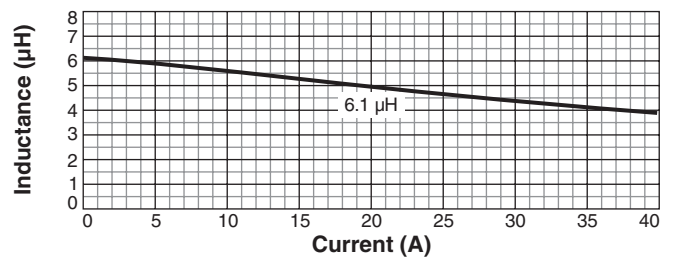
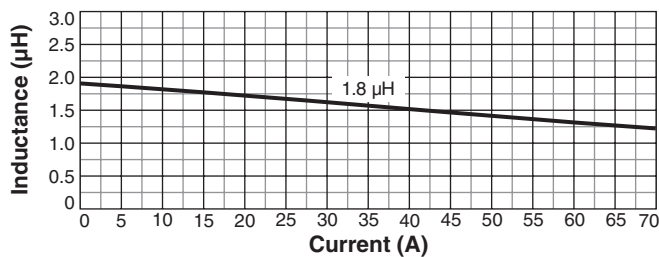
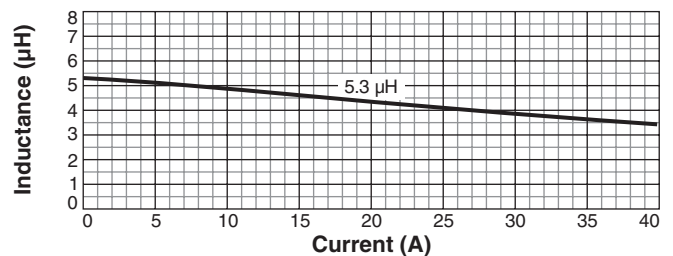
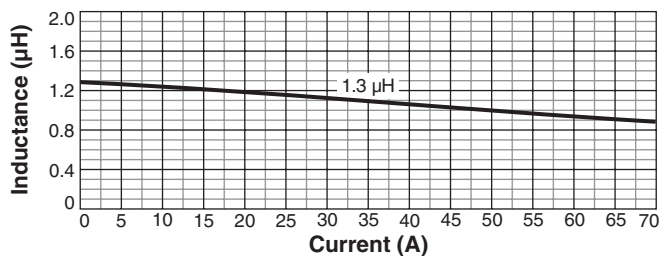
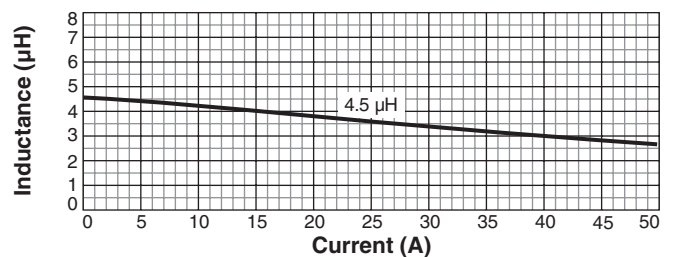
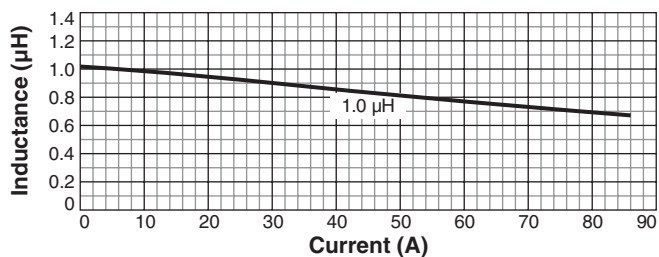
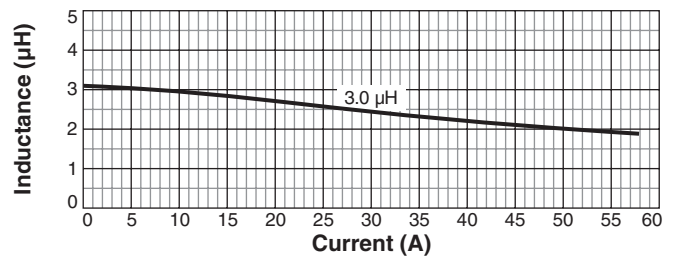
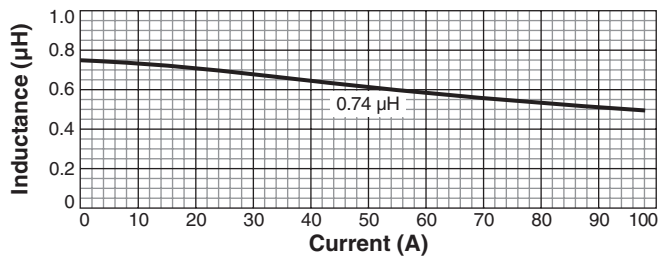
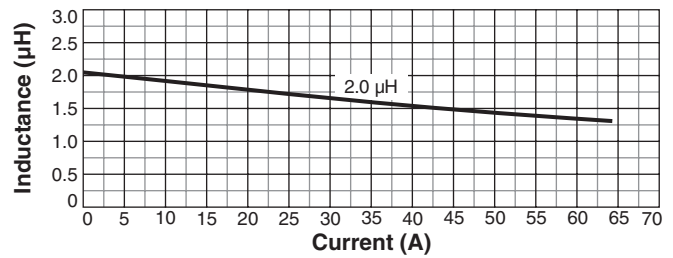
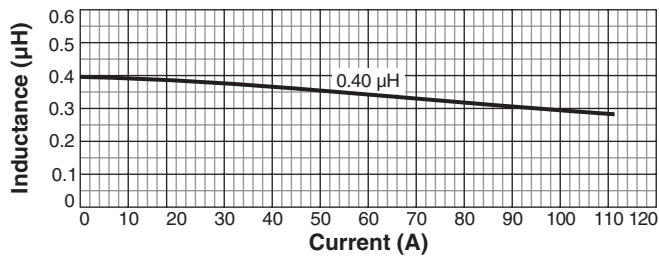
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# Shielded Power Inductors – XAL1580

## Typical L vs Current



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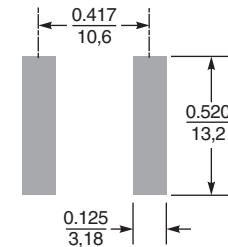
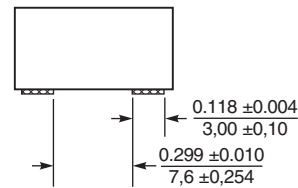
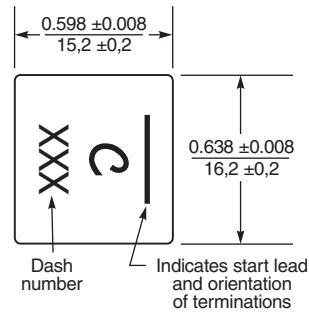
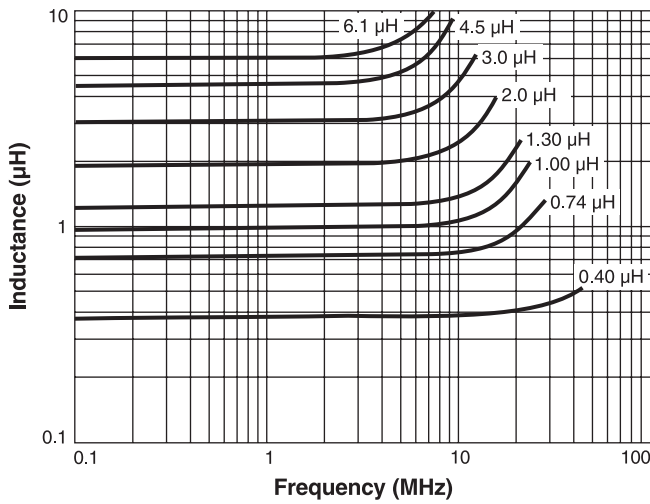
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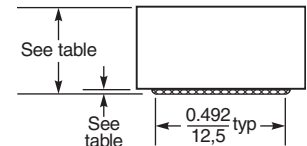
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## Typical L vs Frequency



### Recommended Land Pattern

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



| Dash number | Height* max (in / mm) | Terminal thickness typ (in / mm) |
|-------------|-----------------------|----------------------------------|
| -401        | 0.323 / 8.2           | 0.0394 / 1.0                     |
| -741        | 0.323 / 8.2           | 0.0394 / 1.0                     |
| -102        | 0.323 / 8.2           | 0.0394 / 1.0                     |
| -132        | 0.315 / 8.0           | 0.0315 / 0.80                    |
| -182        | 0.315 / 8.0           | 0.0276 / 0.70                    |
| -202        | 0.315 / 8.0           | 0.0276 / 0.70                    |
| -302        | 0.315 / 8.0           | 0.0197 / 0.50                    |
| -452        | 0.315 / 8.0           | 0.0157 / 0.40                    |
| -532        | 0.315 / 8.0           | 0.0157 / 0.40                    |
| -612        | 0.315 / 8.0           | 0.0138 / 0.35                    |

\* 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.



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