

# Power Inductors – XPL2010 Series



- Ultra-miniature, magnetically shielded power inductors
- AEC-Q200 Grade 1 qualified (–40°C to +125°C ambient)
- Very low DCR, excellent current handling, soft saturation

**Designer's Kit C428** contains 5 each of all values

**Core material** Composite

**Core and winding loss** See [www.coilcraft.com/coreloss](http://www.coilcraft.com/coreloss)

**Weight** 20 mg

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant tin-silver-copper (96.5/3/0.5) over tin over nickel over silver-platinum. 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

**Packaging** 2000/7" reel; 7500/13" reel Plastic tape: 8 mm wide, 0.23 mm thick, 4 mm pocket spacing, 1.19 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 (Ohms) <sup>3</sup> |       | SRF typ <sup>4</sup><br>(MHz) | Isat (A) <sup>5</sup> |          |          | Irms (A) <sup>6</sup> |           |
|--------------------------|--------------------------------------|-------------------------|-------|-------------------------------|-----------------------|----------|----------|-----------------------|-----------|
|                          |                                      | nom                     | max   |                               | 10% drop              | 20% drop | 30% drop | 20°C rise             | 40°C rise |
| XPL2010-201ML            | 0.20                                 | 0.024                   | 0.027 | 408                           | 2.80                  | 3.45     | 3.75     | 2.2                   | 2.8       |
| XPL2010-331ML            | 0.33                                 | 0.031                   | 0.035 | 309                           | 1.90                  | 2.75     | 3.05     | 1.9                   | 2.6       |
| XPL2010-501ML            | 0.50                                 | 0.040                   | 0.045 | 218                           | 1.80                  | 2.35     | 2.64     | 1.7                   | 2.3       |
| XPL2010-681ML            | 0.68                                 | 0.057                   | 0.063 | 152                           | 1.55                  | 1.95     | 2.19     | 1.5                   | 2.1       |
| XPL2010-821ML            | 0.82                                 | 0.068                   | 0.075 | 132                           | 1.25                  | 1.65     | 1.90     | 1.3                   | 1.7       |
| XPL2010-102ML            | 1.0                                  | 0.081                   | 0.089 | 117                           | 1.20                  | 1.60     | 1.80     | 1.1                   | 1.6       |
| XPL2010-152ML            | 1.5                                  | 0.105                   | 0.116 | 80                            | 0.950                 | 1.30     | 1.50     | 1.0                   | 1.4       |
| XPL2010-222ML            | 2.2                                  | 0.156                   | 0.173 | 75                            | 0.940                 | 1.20     | 1.35     | 0.96                  | 1.3       |
| XPL2010-332ML            | 3.3                                  | 0.207                   | 0.228 | 55                            | 0.700                 | 0.925    | 1.05     | 0.79                  | 1.1       |
| XPL2010-472ML            | 4.7                                  | 0.336                   | 0.370 | 40                            | 0.580                 | 0.750    | 0.845    | 0.74                  | 1.0       |
| XPL2010-682ML            | 6.8                                  | 0.421                   | 0.463 | 33                            | 0.450                 | 0.620    | 0.725    | 0.64                  | 0.87      |
| XPL2010-822ML            | 8.2                                  | 0.457                   | 0.503 | 30                            | 0.440                 | 0.600    | 0.670    | 0.55                  | 0.75      |
| XPL2010-103ML            | 10                                   | 0.555                   | 0.611 | 28                            | 0.390                 | 0.525    | 0.610    | 0.49                  | 0.66      |
| XPL2010-183ML            | 18                                   | 1.47                    | 1.60  | 31                            | 0.500                 | 0.560    | 0.590    | 0.32                  | 0.43      |
| XPL2010-223ML            | 22                                   | 1.89                    | 2.00  | 25                            | 0.410                 | 0.470    | 0.510    | 0.28                  | 0.39      |
| XPL2010-333ML            | 33                                   | 2.59                    | 2.85  | 20                            | 0.330                 | 0.380    | 0.410    | 0.23                  | 0.31      |
| XPL2010-473ML            | 47                                   | 3.96                    | 4.25  | 17                            | 0.270                 | 0.300    | 0.320    | 0.18                  | 0.25      |
| XPL2010-563ML            | 56                                   | 4.48                    | 4.82  | 15                            | 0.240                 | 0.280    | 0.300    | 0.17                  | 0.24      |
| XPL2010-683ML            | 68                                   | 6.14                    | 6.56  | 13                            | 0.210                 | 0.250    | 0.280    | 0.15                  | 0.20      |
| XPL2010-823ML            | 82                                   | 6.45                    | 6.90  | 12                            | 0.200                 | 0.240    | 0.260    | 0.15                  | 0.20      |
| XPL2010-104ML            | 100                                  | 8.48                    | 9.27  | 11                            | 0.180                 | 0.214    | 0.232    | 0.13                  | 0.17      |
| XPL2010-224ML            | 220                                  | 19.2                    | 21.1  | 7.1                           | 0.122                 | 0.143    | 0.161    | 0.086                 | 0.116     |

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

#### XPL2010-103MLC

**Termination: L** = RoHS compliant tin-silver-copper (96.5/3/0.5) over tin over nickel over silver.

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

**Packaging: C** = 7" machine-ready reel. EIA-481 embossed plastic tape (2000 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 C instead.

**D** = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (7500 parts per full reel).

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 the specified amount 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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# SMT Power Inductors – XPL2010 Series

## Typical L vs Current



## Typical L vs Frequency



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

## Typical Irms Derating



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