



Shielded Power Inductors—LPS4012 Series



- Very low DCR; excellent current handling
- 4.0 × 4.0 mm footprint; less than 1.2 mm tall

Core material Ferrite

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

Terminations RoHS compliant silver-palladium-platinum-glass frit. Other terminations available at additional cost.

Weight 54 – 64 mg

Ambient temperature –40°C to +85°C with I_{rms} current, +85°C to +125°C with derated current

Storage temperature Component: –40°C to +125°C. 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 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.25 mm thick, 8 mm pocket spacing, 1.32 mm pocket depth

Recommended pick and place nozzle OD: 4 mm; ID: ≤ 2 mm

PCB washing Only pure water or alcohol recommended

| Part number ¹ | Inductance ² (µH) | DCR max ³ (Ohms) | SRF typ ⁴ (MHz) | Isat (A) ⁵ | | | Irms (A) ⁶ | |
|--------------------------|---------------------------------|-----------------------------------|----------------------------------|-----------------------|-------------|-------------|-----------------------|--------------|
| | | | | 10% drop | 20% drop | 30% drop | 20°C rise | 40°C rise |
| LPS4012-331ML_ | 0.33 ±20% | 0.025 | 375 | 5.2 | 5.4 | 5.5 | 2.2 | 3.0 |
| LPS4012-681ML_ | 0.68 ±20% | 0.055 | 220 | 3.5 | 3.6 | 3.7 | 1.8 | 2.4 |
| LPS4012-102NL_ | 1.0 ±30% | 0.060 | 180 | 2.8 | 2.9 | 3.0 | 1.7 | 2.4 |
| LPS4012-152ML_ | 1.5 ±20% | 0.070 | 140 | 2.6 | 2.7 | 2.8 | 1.6 | 2.2 |
| LPS4012-222ML_ | 2.2 ±20% | 0.100 | 115 | 2.3 | 2.4 | 2.5 | 1.2 | 1.75 |
| LPS4012-332ML_ | 3.3 ±20% | 0.100 | 100 | 1.3 | 1.4 | 1.4 | 1.45 | 2.00 |
| LPS4012-472ML_ | 4.7 ±20% | 0.175 | 70 | 1.6 | 1.7 | 1.8 | 1.10 | 1.45 |
| LPS4012-562ML_ | 5.6 ±20% | 0.260 | 60 | 1.5 | 1.6 | 1.6 | 0.85 | 1.10 |
| LPS4012-682ML_ | 6.8 ±20% | 0.340 | 55 | 1.3 | 1.3 | 1.4 | 0.80 | 0.98 |
| LPS4012-103ML_ | 10 ±20% | 0.350 | 40 | 0.98 | 1.0 | 1.1 | 0.55 | 0.75 |
| LPS4012-153ML_ | 15 ±20% | 0.550 | 30 | 0.79 | 0.82 | 0.84 | 0.53 | 0.73 |
| LPS4012-223ML_ | 22 ±20% | 0.600 | 25 | 0.74 | 0.78 | 0.79 | 0.52 | 0.70 |
| LPS4012-333ML_ | 33 ±20% | 0.825 | 22 | 0.45 | 0.47 | 0.48 | 0.46 | 0.61 |
| LPS4012-473ML_ | 47 ±20% | 1.40 | 19 | 0.35 | 0.37 | 0.38 | 0.40 | 0.52 |
| LPS4012-683ML_ | 68 ±20% | 1.70 | 15 | 0.30 | 0.32 | 0.33 | 0.35 | 0.46 |
| LPS4012-104ML_ | 100 ±20% | 2.40 | 12 | 0.24 | 0.26 | 0.27 | 0.30 | 0.40 |
| LPS4012-124ML_ | 120 ±20% | 3.30 | 11.5 | 0.23 | 0.24 | 0.25 | 0.27 | 0.36 |
| LPS4012-154ML_ | 150 ±20% | 3.50 | 10.0 | 0.21 | 0.22 | 0.23 | 0.25 | 0.32 |
| LPS4012-184ML_ | 180 ±20% | 5.00 | 8.0 | 0.18 | 0.19 | 0.20 | 0.23 | 0.29 |
| LPS4012-224ML_ | 220 ±20% | 5.20 | 7.0 | 0.15 | 0.16 | 0.17 | 0.21 | 0.27 |
| LPS4012-334ML_ | 330 ±20% | 7.20 | 7.0 | 0.14 | 0.14 | 0.15 | 0.17 | 0.225 |
| LPS4012-474ML_ | 470 ±20% | 10.0 | 4.0 | 0.10 | 0.11 | 0.12 | 0.13 | 0.175 |
| LPS4012-564ML_ | 560 ±20% | 12.5 | 3.5 | 0.10 | 0.105 | 0.115 | 0.11 | 0.140 |
| LPS4012-684ML_ | 680 ±20% | 13.5 | 3.0 | 0.10 | 0.105 | 0.110 | 0.11 | 0.135 |
| LPS4012-824ML_ | 820 ±20% | 20.0 | 3.0 | 0.090 | 0.095 | 0.095 | 0.105 | 0.132 |
| LPS4012-105ML_ | 1000 ±20% | 21.5 | 3.0 | 0.080 | 0.090 | 0.095 | 0.100 | 0.130 |
| LPS4012-155ML_ | 1500 ±20% | 30.0 | 2.5 | 0.080 | 0.090 | 0.090 | 0.087 | 0.115 |
| LPS4012-185ML_ | 1800 ±20% | 35.0 | 2.0 | 0.079 | 0.085 | 0.087 | 0.075 | 0.100 |
| LPS4012-225ML_ | 2200 ±20% | 42.0 | 1.0 | 0.079 | 0.083 | 0.085 | 0.070 | 0.090 |
| LPS4012-335ML_ | 3300 ±20% | 65.0 | 0.95 | 0.074 | 0.078 | 0.080 | 0.050 | 0.065 |

1. Please specify **termination** and **packaging** codes:

LPS4012-682MLC

- Termination:** L = RoHS compliant silver-palladium-platinum-glass frit. 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 (1000 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 (3500 parts per full reel).

2. Inductance tested at 100 kHz, 0.1 V_{rms} using an Agilent/HP 4192A. Inductance at 1 MHz is the same for parts with SRF ≥ 10 MHz.
3. DCR measured on a micro-ohmmeter.
4. SRF measured using Agilent/HP 8753ES or equivalent.
5. DC current that causes the specified inductance drop 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.

Coilcraft®

Specifications subject to change without notice.
Please check our website for latest information.

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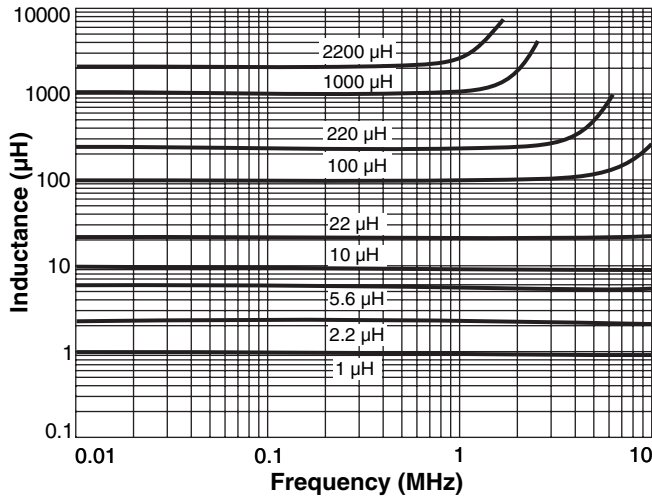
1102 Silver Lake Road Cary, Illinois 60013 Phone 847/639-6400 Fax 847/639-1469

E-mail info@coilcraft.com Web <http://www.coilcraft.com>

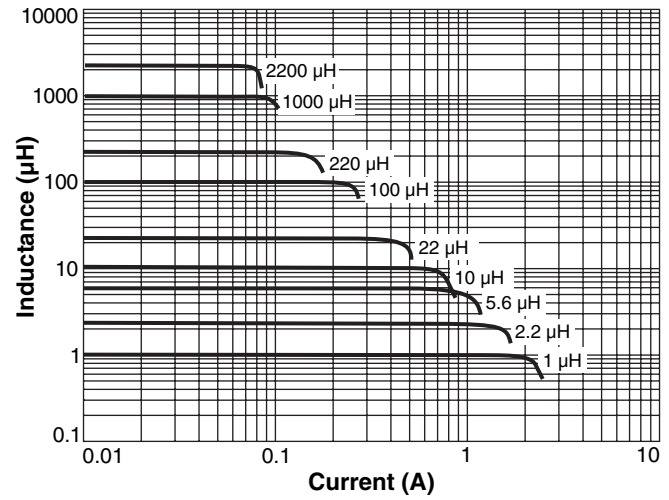


Shielded SMT Power Inductors – LPS4012 Series

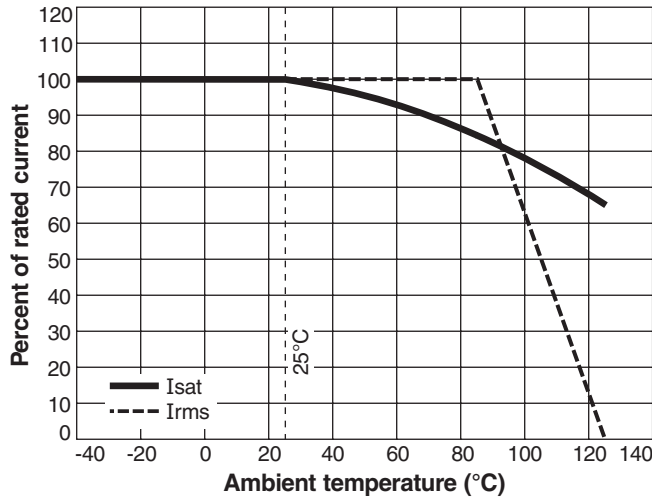
Typical L vs Frequency



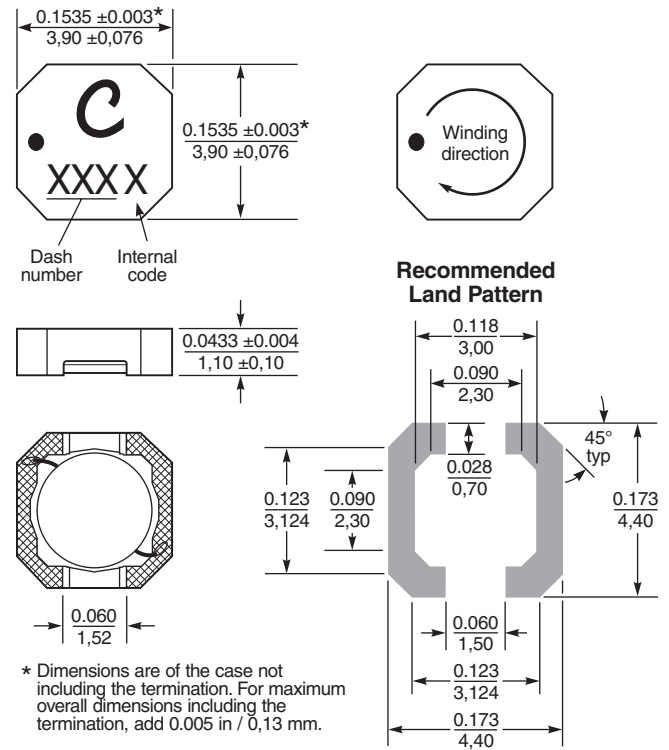
Typical L vs Current



Current Derating



Coilcraft **Designer's Kit C392** contains samples of 0.80 µH to 33 µH parts (3 each) from LPS3008, LPS3010 and LPS3015. **Kit C401** contains samples of 0.56 µH to 33 µH parts (3 each) from LPS4012 and LPS4018. **Kit C402** contains samples of 220 µH to 3300 µH parts (3 each) from all five series. For details of kit contents and to order, contact Coilcraft or visit <http://order.coilcraft.com>.



* Dimensions are of the case not including the termination. For maximum overall dimensions including the termination, add 0.005 in / 0,13 mm.

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



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Please check our website for latest information.

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1102 Silver Lake Road Cary, Illinois 60013 Phone 847/639-6400 Fax 847/639-1469

E-mail info@coilcraft.com Web <http://www.coilcraft.com>