



# 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](http://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<sub>rms</sub> 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 <sup>1</sup>	Inductance <sup>2</sup> (μH)	DCR max <sup>3</sup> (Ohms)	SRF typ <sup>4</sup> (MHz)	Isat (A) <sup>5</sup>			Irms (A) <sup>6</sup>	
				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
<b>LPS4012-103ML_</b>	<b>10 ±20%</b>	<b>0.350</b>	<b>40</b>	<b>0.98</b>	<b>1.0</b>	<b>1.1</b>	<b>0.55</b>	<b>0.75</b>
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:

**LPS4012-682ML C**

**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<sub>rms</sub> 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.

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

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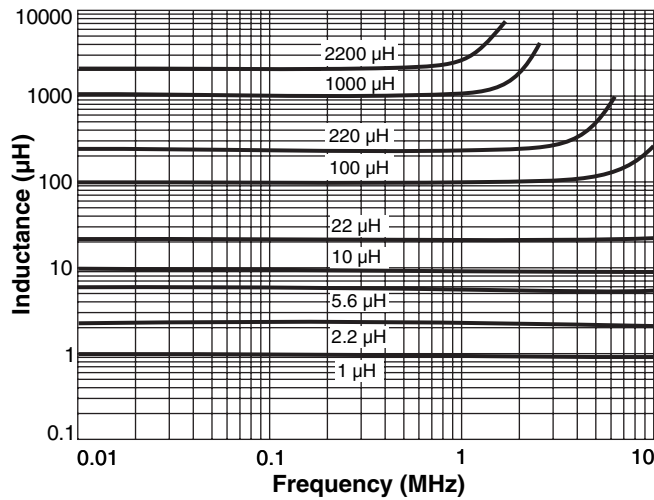
E-mail [info@coilcraft.com](mailto:info@coilcraft.com) Web <http://www.coilcraft.com>



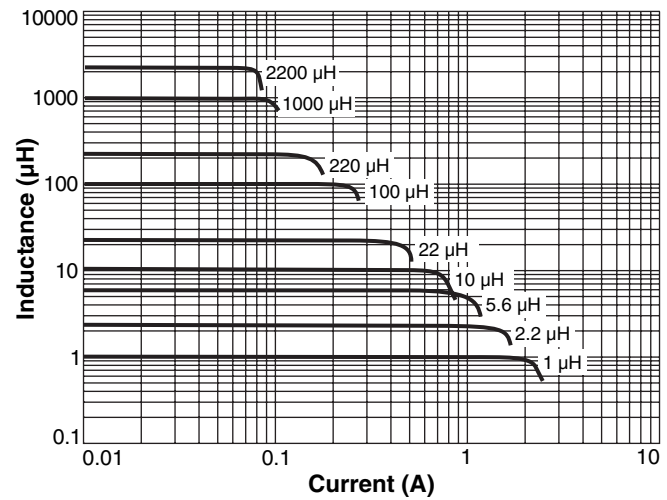
# Shielded SMT Power Inductors – LPS4012 Series

**SPICE models**  
ON OUR WEB SITE OR CD

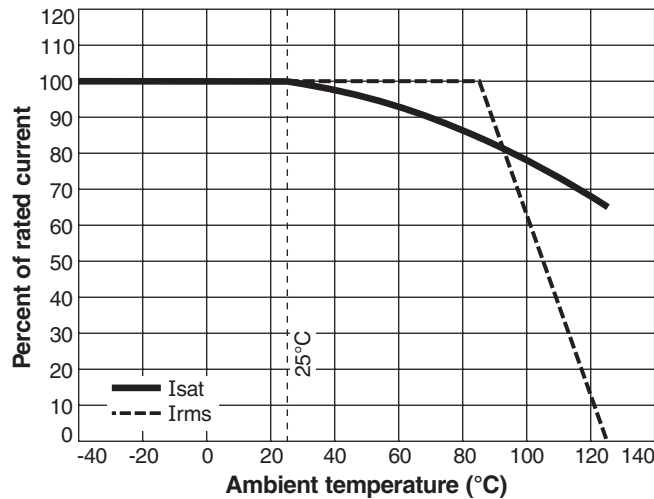
## Typical L vs Frequency



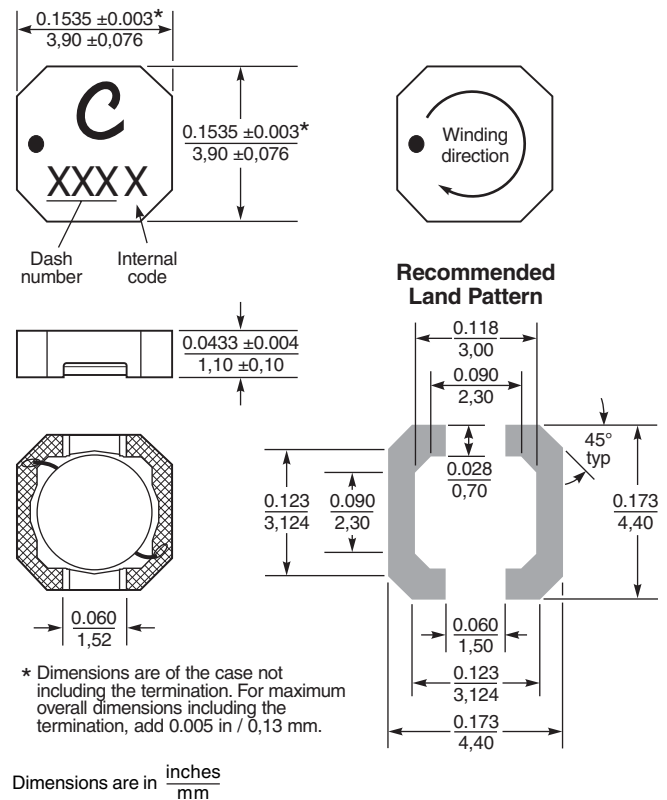
## Typical L vs Current



## 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>.



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