

# LPS4012-683MRC Datasheet

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|                              |   |
|------------------------------|---|
| DiGi Electronics Part Number | LPS4012-683MRC-DG   |
| Manufacturer                 | <a href="#">Coilcraft</a>   |
| Manufacturer Product Number  | LPS4012-683MRC  |
| Description                  | FIXED IND 68UH 460MA 1.7OHM SM  |
| Detailed Description         | 68 $\mu$ H Shielded Drum Core Inductor 460 mA 1.7Ohm<br>Max Nonstandard |

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## Purchase and inquiry

Manufacturer Product Number:

LPS4012-683MRC

Series:

LPS4012

Type:

Drum Core

Inductance:

68  $\mu$ H

Current Rating (Amps):

460 mA

Shielding:

Shielded

Q @ Freq:

-

Ratings:

AEC-Q200

Inductance Frequency - Test:

100 kHz

Mounting Type:

Surface Mount

Supplier Device Package:

-

Height - Seated (Max):

0.047" (1.20mm)

Manufacturer:

Coilcraft

Product Status:

Active

Material - Core:

Ferrite

Tolerance:

$\pm$ 20%

Current - Saturation (Isat):

330mA

DC Resistance (DCR):

1.70 $\Omega$  Max

Frequency - Self Resonant:

15MHz

Operating Temperature:

-40°C ~ 85°C

Features:

-

Package / Case:

Nonstandard

Size / Dimension:

0.154" L x 0.154" W (3.90mm x 3.90mm)

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

HTSUS:

8504.50.8000

ECCN:

EAR99



# Shielded Power Inductors - LPS4012



- Very low DCR; excellent current handling
- 4.0 × 4.0 mm footprint; less than 1.2 mm tall
- AEC-Q200 Grade 1 (−40°C to +125°C)

**Core material** Ferrite

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

**Environmental** RoHS compliant, halogen free

**Terminations** RoHS compliant matte tin over nickel over silver. Other terminations available at additional cost.

**Weight** 54 – 64 mg

**Ambient temperature** −40°C to +85°C with (40°C rise) Irms current.

**Maximum part temperature** +125°C (ambient + temp rise). [Derating](#).

**Storage temperature** Component: −40°C to +125°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)

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

**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>(µH)      | DCR max <sup>3</sup><br>(Ohms) | SRF typ <sup>4</sup><br>(MHz) | Isat (A) <sup>5</sup> |          |          | Irms (A) <sup>6</sup> |           |
|--------------------------|--------------------------------------|--------------------------------|-------------------------------|-----------------------|----------|----------|-----------------------|-----------|
|                          |                                      |                                |                               | 10% drop              | 20% drop | 30% drop | 20°C rise             | 40°C rise |
| LPS4012-331MR_           | 0.33±20%                             | 0.025                          | 375                           | 5.2                   | 5.4      | 5.5      | 2.2                   | 3.0       |
| LPS4012-681MR_           | has been changed to LPS4012-681NR_.  |                                |                               |                       |          |          |                       |           |
|                          | The LPS4012-681MR_ is not available. |                                |                               |                       |          |          |                       |           |
| LPS4012-681NR_           | 0.68±30%                             | 0.055                          | 220                           | 3.5                   | 3.6      | 3.7      | 1.8                   | 2.4       |
| LPS4012-102NR_           | 1.0±30%                              | 0.060                          | 180                           | 2.8                   | 2.9      | 3.0      | 1.7                   | 2.4       |
| LPS4012-152MR_           | 1.5±20%                              | 0.070                          | 140                           | 2.6                   | 2.7      | 2.8      | 1.6                   | 2.2       |
| LPS4012-222MR_           | 2.2±20%                              | 0.100                          | 115                           | 2.3                   | 2.4      | 2.5      | 1.2                   | 1.75      |
| LPS4012-332MR_           | 3.3±20%                              | 0.100                          | 100                           | 1.3                   | 1.4      | 1.4      | 1.45                  | 2.00      |
| LPS4012-472MR_           | 4.7±20%                              | 0.175                          | 70                            | 1.6                   | 1.7      | 1.8      | 1.10                  | 1.45      |
| LPS4012-562MR_           | 5.6±20%                              | 0.260                          | 60                            | 1.5                   | 1.6      | 1.6      | 0.85                  | 1.10      |
| LPS4012-682MR_           | 6.8±20%                              | 0.340                          | 55                            | 1.3                   | 1.3      | 1.4      | 0.80                  | 0.98      |
| LPS4012-103MR_           | 10±20%                               | 0.350                          | 40                            | 0.98                  | 1.0      | 1.1      | 0.55                  | 0.75      |
| LPS4012-153MR_           | 15±20%                               | 0.550                          | 30                            | 0.79                  | 0.82     | 0.84     | 0.53                  | 0.73      |
| LPS4012-223MR_           | 22±20%                               | 0.600                          | 25                            | 0.74                  | 0.78     | 0.79     | 0.52                  | 0.70      |
| LPS4012-333MR_           | 33±20%                               | 0.825                          | 22                            | 0.45                  | 0.47     | 0.48     | 0.46                  | 0.61      |
| LPS4012-473MR_           | 47±20%                               | 1.40                           | 19                            | 0.35                  | 0.37     | 0.38     | 0.40                  | 0.52      |
| LPS4012-683MR_           | 68±20%                               | 1.70                           | 15                            | 0.30                  | 0.32     | 0.33     | 0.35                  | 0.46      |
| LPS4012-104MR_           | 100±20%                              | 2.40                           | 12                            | 0.24                  | 0.26     | 0.27     | 0.30                  | 0.40      |
| LPS4012-124MR_           | 120±20%                              | 3.30                           | 11.5                          | 0.23                  | 0.24     | 0.25     | 0.27                  | 0.36      |
| LPS4012-154MR_           | 150±20%                              | 3.50                           | 10.0                          | 0.21                  | 0.22     | 0.23     | 0.25                  | 0.32      |
| LPS4012-184MR_           | 180±20%                              | 5.00                           | 8.0                           | 0.18                  | 0.19     | 0.20     | 0.23                  | 0.29      |
| LPS4012-224MR_           | 220±20%                              | 5.20                           | 7.0                           | 0.15                  | 0.16     | 0.17     | 0.21                  | 0.27      |
| LPS4012-334MR_           | 330±20%                              | 7.20                           | 7.0                           | 0.14                  | 0.14     | 0.15     | 0.17                  | 0.225     |
| LPS4012-474MR_           | 470±20%                              | 10.0                           | 4.0                           | 0.10                  | 0.11     | 0.12     | 0.13                  | 0.175     |
| LPS4012-564MR_           | 560±20%                              | 12.5                           | 3.5                           | 0.10                  | 0.105    | 0.115    | 0.11                  | 0.140     |
| LPS4012-684MR_           | 680±20%                              | 13.5                           | 3.0                           | 0.10                  | 0.105    | 0.110    | 0.11                  | 0.135     |
| LPS4012-824MR_           | 820±20%                              | 20.0                           | 3.0                           | 0.090                 | 0.095    | 0.095    | 0.105                 | 0.132     |
| LPS4012-105MR_           | 1000±20%                             | 21.5                           | 3.0                           | 0.080                 | 0.090    | 0.095    | 0.100                 | 0.130     |
| LPS4012-155MR_           | 1500±20%                             | 30.0                           | 2.5                           | 0.080                 | 0.090    | 0.090    | 0.087                 | 0.115     |
| LPS4012-185MR_           | 1800±20%                             | 35.0                           | 2.0                           | 0.079                 | 0.085    | 0.087    | 0.075                 | 0.100     |
| LPS4012-225MR_           | 2200±20%                             | 42.0                           | 1.0                           | 0.079                 | 0.083    | 0.085    | 0.070                 | 0.090     |

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

### LPS4012-225MRC

**Termination:** R= RoHS compliant matte tin over nickel over silver.

Special order, added cost:

Q = RoHS tin-silver-copper (95.5/4/0.5) or P = non-RoHS tin-lead (63/37).

**Packaging:** C= 7" machine-ready reel. EIA-481 embossed plastic tape (1000 parts per full reel). Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

D= 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked (3500 parts per full reel).

B= Less than full reel. In an effort to simplify our part numbering system, Coilcraft is eliminating the need for multiple packaging codes. When ordering, simply change the last letter of your part number from B to C.

2. Inductance tested at 100 kHz, 0.1 Vrms 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 at 25°C that causes the specified inductance drop 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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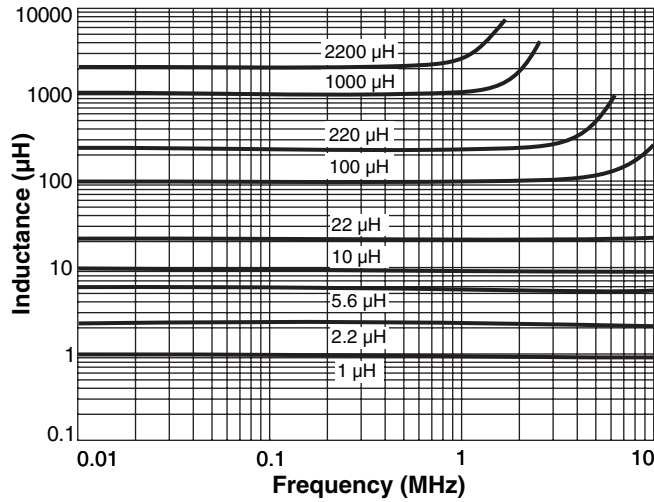
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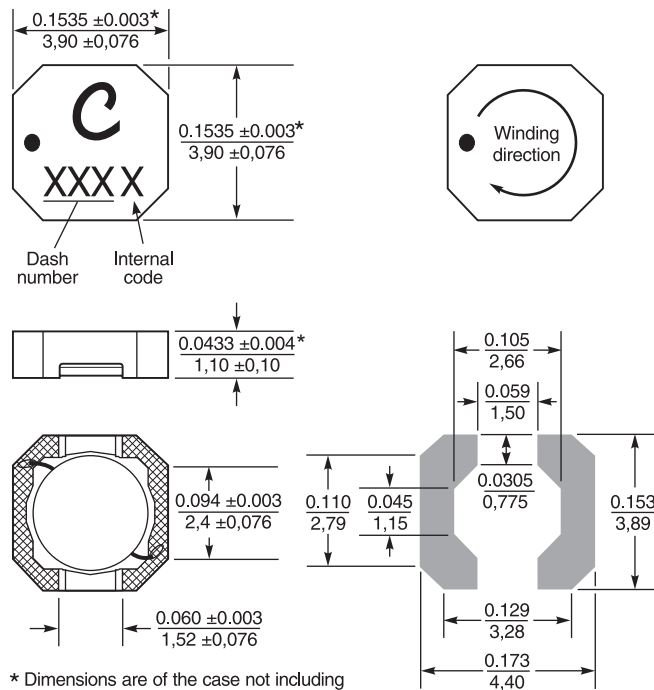
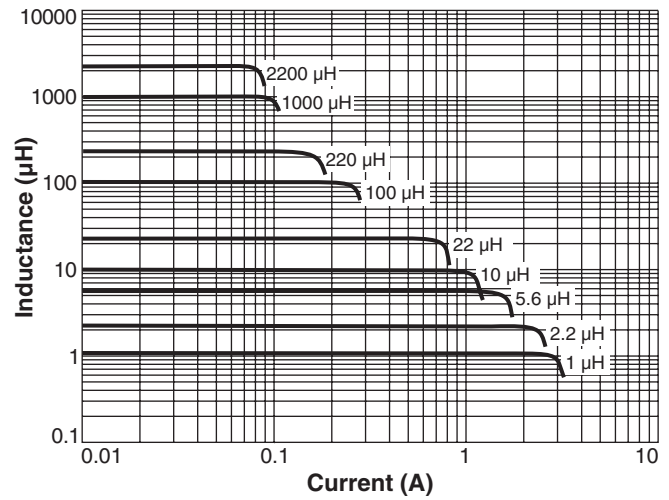


# Shielded SMT Power Inductors – LPS4012 Series

## Typical L vs Frequency



## Typical L vs Current



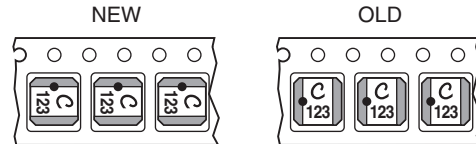
\* Dimensions are of the case not including the termination. For maximum overall dimensions including the termination, add 0.005 in / 0.13 mm.  
For optional tin-lead and tin-silver-copper terminations, dimensions are for the mounted part. Dimensions before mounting can be an additional 0.005 inch / 0.13 mm).

### Recommended Land Pattern

Dimensions are in inches mm

**Packaging** 1000/7" reel; 3500/13" reel Plastic tape: 12 mm wide, 0.25 mm thick, 8 mm pocket spacing, 1.45 mm pocket depth

**NOTE NEW PART ORIENTATION** Parts are rotated 90° in the packaging tape compared to previous versions of this product.



Coilcraft **Designer's Kit C392** contains samples of 0.56 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 2200 µH parts (3 each) from four series. For details of kit contents and to order, contact Coilcraft or visit <https://www.coilcraft.com/en-us/kits/>.



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