



# Shielded Power Inductors MLC12xx/15xx



- Soft saturation makes them ideal for VRD/VRM applications
- Special materials eliminate all thermal aging issues.

**Designer's Kit C387** contains samples of all values

**Core material** Iron

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

**Terminations** RoHS tin-silver over copper. Other terminations available at additional cost.

**Weight** MLC12xx 1.91 – 3.04 g; MLC15xx 2.73 – 5.12 g

**Ambient temperature** –40°C to +85°C with Irms current

**Maximum part temperature:** The part may be operated without damage as long its temperature (ambient + self-heating) does not exceed +125°C.

**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

**PCB washing** Tested with pure water or alcohol only. For other solvents, see Doc787\_PCB\_Washing.pdf.

| Part number <sup>1</sup>                                                    | Inductance <sup>2</sup><br>±20% (µH) | DCR (mOhm) |      | SRF typ <sup>3</sup><br>(MHz) | Isat (A) <sup>4</sup> |          | Irms (A) <sup>5</sup> |           | Height<br>max (mm) |
|-----------------------------------------------------------------------------|--------------------------------------|------------|------|-------------------------------|-----------------------|----------|-----------------------|-----------|--------------------|
|                                                                             |                                      | typ        | max  |                               | 10% drop              | 20% drop | 20°C rise             | 40°C rise |                    |
| 10.5 mm × 11.x mm body size (see next page for 13.2 mm × 14.x mm body size) |                                      |            |      |                               |                       |          |                       |           |                    |
| MLC1265-361ML_                                                              | 0.36                                 | 0.93       | 1.03 | 234                           | 26.9                  | 42.6     | 16.5                  | 22.7      | 6.5                |
| MLC1260-401ML_                                                              | 0.40                                 | 0.93       | 1.03 | 228                           | 21.0                  | 35.2     | 16.3                  | 21.9      | 6.1                |
| MLC1255-421ML_                                                              | 0.42                                 | 0.93       | 1.03 | 219                           | 21.1                  | 34.5     | 16.8                  | 24.1      | 5.6                |
| MLC1240-451ML_                                                              | 0.45                                 | 1.73       | 1.91 | 198                           | 16.5                  | 24.9     | 12.8                  | 19.8      | 4.1                |
| MLC1265-701ML_                                                              | 0.70                                 | 1.24       | 1.37 | 134                           | 16.4                  | 27.5     | 15.2                  | 21.0      | 6.5                |
| MLC1250-801ML_                                                              | 0.80                                 | 2.35       | 2.59 | 151                           | 13.3                  | 21.7     | 12.4                  | 17.3      | 5.1                |
| MLC1240-901ML_                                                              | 0.90                                 | 2.57       | 2.83 | 108                           | 13.9                  | 22.8     | 11.9                  | 16.3      | 4.1                |
| MLC1260-122ML_                                                              | 1.20                                 | 2.38       | 2.62 | 93                            | 14.0                  | 23.3     | 12.3                  | 17.6      | 6.1                |
| MLC1255-122ML_                                                              | 1.20                                 | 2.38       | 2.62 | 85                            | 14.1                  | 22.4     | 12.4                  | 17.5      | 5.6                |
| MLC1250-132ML_                                                              | 1.30                                 | 2.38       | 2.62 | 76                            | 10.8                  | 17.7     | 11.7                  | 16.5      | 5.3                |
| MLC1245-152ML_                                                              | 1.50                                 | 4.08       | 4.49 | 79                            | 10.7                  | 17.3     | 10.3                  | 14.2      | 4.6                |
| MLC1260-172ML_                                                              | 1.75                                 | 2.84       | 3.13 | 72                            | 12.1                  | 19.2     | 10.9                  | 15.3      | 6.1                |
| MLC1245-402ML_                                                              | 4.00                                 | 8.18       | 9.00 | 46                            | 7.42                  | 11.8     | 6.9                   | 9.8       | 4.8                |

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

**MLC1245-402MLC**

**Termination:** L = 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:** C = 7" machine-ready reel. EIA-481 embossed plastic tape.

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.

2. Inductance measured at 100 kHz, 0.1 Vrms, 0 Adc using a Coilcraft SMD-A fixture in an Agilent/HP 4284A LCR meter.

3. SRF measured using an Agilent/HP4291A impedance analyzer and a Coilcraft 16193 fixture.

4. DC current at which the inductance drops the specified amount from its value without current.

5. Current that causes the specified temperature rise from 25°C ambient.

6. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



[www.coilcraft.com](http://www.coilcraft.com)

**US** +1-847-639-6400 [sales@coilcraft.com](mailto:sales@coilcraft.com)

**UK** +44-1236-730595 [sales@coilcraft-europe.com](mailto:sales@coilcraft-europe.com)

**Taiwan** +886-2-2264 3646 [sales@coilcraft.com.tw](mailto:sales@coilcraft.com.tw)

**China** +86-21-6218 8074 [sales@coilcraft.com.cn](mailto:sales@coilcraft.com.cn)

**Singapore** + 65-6484 8412 [sales@coilcraft.com.sg](mailto:sales@coilcraft.com.sg)

Document 327-1 Revised 04/19/12

© Coilcraft Inc. 2013

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.



# Shielded Power Inductors – MLC12xx/15xx Series

| Part number <sup>1</sup>                                                        | Inductance <sup>2</sup><br>±20% (μH) | DCR (mOhm) |       | SRF typ <sup>3</sup><br>(MHz) | Isat (A) <sup>4</sup> |          | Irms (A) <sup>5</sup> |           | Height<br>max (mm) |
|---------------------------------------------------------------------------------|--------------------------------------|------------|-------|-------------------------------|-----------------------|----------|-----------------------|-----------|--------------------|
|                                                                                 |                                      | typ        | max   |                               | 10% drop              | 20% drop | 20°C rise             | 40°C rise |                    |
| 13.2 mm × 14.x mm body size (see previous page for 10.5 mm × 11.x mm body size) |                                      |            |       |                               |                       |          |                       |           |                    |
| MLC1565-451ML_                                                                  | 0.45                                 | 0.864      | 0.951 | 158                           | 32.8                  | 54.0     | 18.0                  | 25.6      | 6.5                |
| MLC1565-501ML_                                                                  | 0.50                                 | 0.864      | 0.951 | 132                           | 21.3                  | 38.1     | 18.6                  | 26.9      | 6.5                |
| MLC1555-551ML_                                                                  | 0.55                                 | 1.34       | 1.48  | 165                           | 20.8                  | 35.7     | 16.1                  | 22.3      | 5.6                |
| MLC1565-801ML_                                                                  | 0.80                                 | 1.20       | 1.32  | 93                            | 27.4                  | 47.4     | 17.4                  | 24.6      | 6.5                |
| MLC1560-901ML_                                                                  | 0.90                                 | 1.72       | 1.90  | 101                           | 17.8                  | 28.7     | 14.6                  | 20.6      | 6.0                |
| MLC1538-102ML_                                                                  | 1.0                                  | 3.46       | 3.81  | 81                            | 13.6                  | 21.2     | 11.5                  | 16.7      | 3.9                |
| MLC1550-102ML_                                                                  | 1.0                                  | 1.72       | 1.90  | 76                            | 16.1                  | 27.3     | 13.9                  | 19.7      | 5.2                |
| MLC1565-142ML_                                                                  | 1.4                                  | 2.20       | 2.42  | 77                            | 18.9                  | 30.1     | 13.7                  | 19.9      | 6.5                |
| MLC1538-152ML_                                                                  | 1.5                                  | 4.36       | 4.80  | 50                            | 13.4                  | 21.0     | 10.6                  | 14.6      | 3.9                |
| MLC1565-202ML_                                                                  | 2.0                                  | 3.47       | 3.82  | 64                            | 15.2                  | 24.2     | 11.6                  | 16.3      | 6.5                |
| MLC1550-252ML_                                                                  | 2.5                                  | 3.43       | 3.74  | 45                            | 10.9                  | 17.7     | 11.5                  | 15.8      | 5.2                |
| MLC1565-282ML_                                                                  | 2.8                                  | 4.10       | 4.51  | 44                            | 13.7                  | 22.3     | 10.7                  | 15.2      | 6.5                |
| MLC1555-302ML_                                                                  | 3.0                                  | 4.06       | 4.47  | 42                            | 11.1                  | 18.1     | 10.9                  | 15.6      | 5.6                |
| MLC1565-372ML_                                                                  | 3.7                                  | 3.10       | 3.40  | 47                            | 8.13                  | 13.63    | 12.17                 | 16.58     | 6.5                |
| MLC1550-452ML_                                                                  | 4.5                                  | 7.13       | 7.85  | 36                            | 7.12                  | 11.8     | 8.43                  | 11.7      | 5.2                |
| MLC1565-472ML_                                                                  | 4.7                                  | 4.00       | 4.40  | 39                            | 6.23                  | 10.57    | 10.98                 | 15.57     | 6.5                |
| MLC1565-602ML_                                                                  | 6.0                                  | 5.50       | 6.05  | 34                            | 5.60                  | 9.57     | 9.27                  | 13.62     | 6.5                |
| MLC1565-732ML_                                                                  | 7.3                                  | 7.20       | 7.92  | 29                            | 5.10                  | 8.60     | 8.60                  | 12.01     | 6.5                |
| MLC1565-922ML_                                                                  | 9.2                                  | 9.70       | 10.60 | 25                            | 4.57                  | 7.80     | 7.19                  | 10.18     | 6.5                |
| MLC1565-113ML_                                                                  | 11.3                                 | 10.60      | 11.60 | 21                            | 4.07                  | 7.03     | 6.87                  | 9.46      | 6.5                |
| MLC1565-133ML_                                                                  | 13.0                                 | 12.57      | 13.75 | 19                            | 3.93                  | 6.70     | 6.12                  | 8.65      | 6.5                |
| MLC1565-153ML_                                                                  | 15.4                                 | 16.40      | 18.00 | 17                            | 3.43                  | 5.77     | 5.63                  | 7.75      | 6.5                |

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

**MLC1565-153MLC**

**Termination:** L = 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:** C = 7" machine-ready reel. EIA-481 embossed plastic tape.

**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.

2. Inductance measured at 100 kHz, 0.1 Vrms, 0 A dc using a Coilcraft SMD-A fixture in an Agilent/HP 4284A LCR meter.

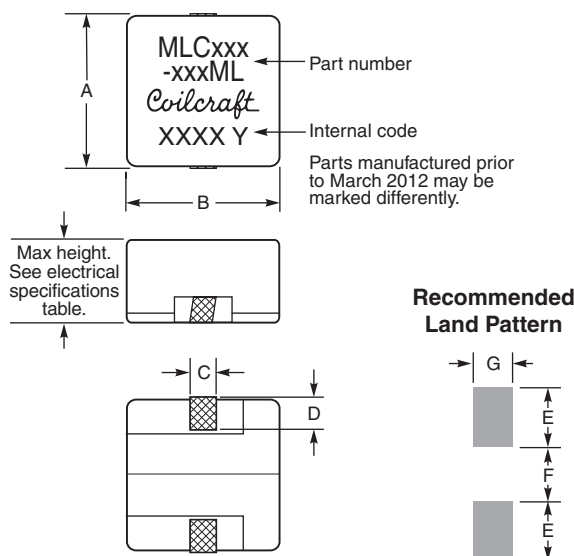
3. SRF measured using an Agilent/HP4291A impedance analyzer and a Coilcraft 16193 fixture.

4. DC current at which the inductance drops the specified amount from its value without current.

5. Current that causes the specified temperature rise from 25°C ambient.

6. Electrical specifications at 25°C.

Refer to Doc 362 "Soldering Surface Mount Components" before soldering.



## Tape and Reel (24 mm wide plastic tape)

|         | Quantity |          | Tape thickness<br>(mm) | Pocket<br>spacing (mm) | Pocket<br>depth (mm) |
|---------|----------|----------|------------------------|------------------------|----------------------|
|         | 7" reel  | 13" reel |                        |                        |                      |
| MLC1240 | 250      | 900      | 0.35                   | 16                     | 4.45                 |
| MLC1245 | 200      | 800      | 0.35                   | 16                     | 4.95                 |
| MLC1250 | 200      | 700      | 0.40                   | 16                     | 5.45                 |
| MLC1255 | 200      | 700      | 0.40                   | 16                     | 5.95                 |
| MLC1260 | 175      | 600      | 0.40                   | 16                     | 6.50                 |
| MLC1265 | 150      | 600      | 0.40                   | 16                     | 6.70                 |
| MLC1538 | 200      | 800      | 0.35                   | 20                     | 4.00                 |
| MLC1550 | 150      | 600      | 0.40                   | 20                     | 5.45                 |
| MLC1555 | 150      | 500      | 0.40                   | 20                     | 5.95                 |
| MLC1560 | 150      | 500      | 0.40                   | 20                     | 6.20                 |
| MLC1565 | 125      | 500      | 0.40                   | 20                     | 6.50                 |

| Body Size | A max | B max | C   | D   | E   | F   | G   |
|-----------|-------|-------|-----|-----|-----|-----|-----|
| 1240      | 11.2  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1245      | 11.2  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1250      | 11.2  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1255      | 11.4  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1260      | 11.4  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1265      | 11.4  | 10.5  | 1.8 | 2.3 | 4.0 | 4.0 | 2.7 |
| 1538      | 13.8  | 13.2  | 2.4 | 3.0 | 5.0 | 5.4 | 3.4 |
| 1550      | 13.8  | 13.2  | 2.4 | 3.0 | 5.0 | 5.4 | 3.4 |
| 1555      | 13.8  | 13.2  | 2.4 | 3.0 | 5.0 | 5.4 | 3.4 |
| 1560      | 13.8  | 13.2  | 2.4 | 3.0 | 5.0 | 5.4 | 3.4 |
| 1565      | 14.0  | 13.2  | 2.4 | 3.0 | 5.0 | 5.4 | 3.4 |

All dimensions are in mm.



www.coilcraft.com

**US** +1-847-639-6400 sales@coilcraft.com

**UK** +44-1236-730595 sales@coilcraft-europe.com

**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw

**China** +86-21-6218 8074 sales@coilcraft.com.cn

**Singapore** +65-6484 8412 sales@coilcraft.com.sg

Document 327-2 Revised 04/19/12

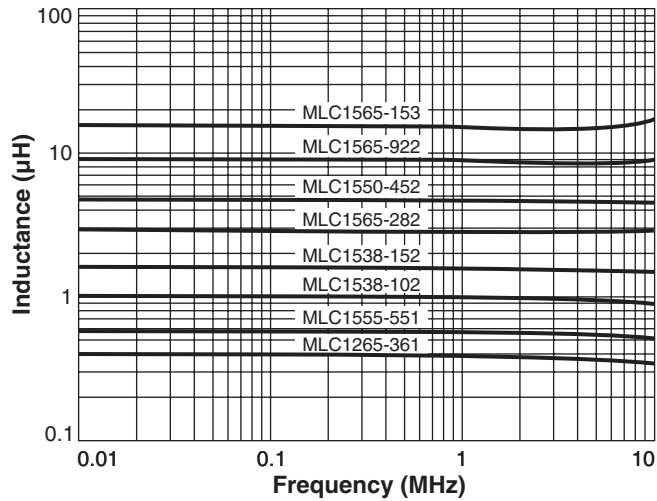
© Coilcraft Inc. 2013

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.

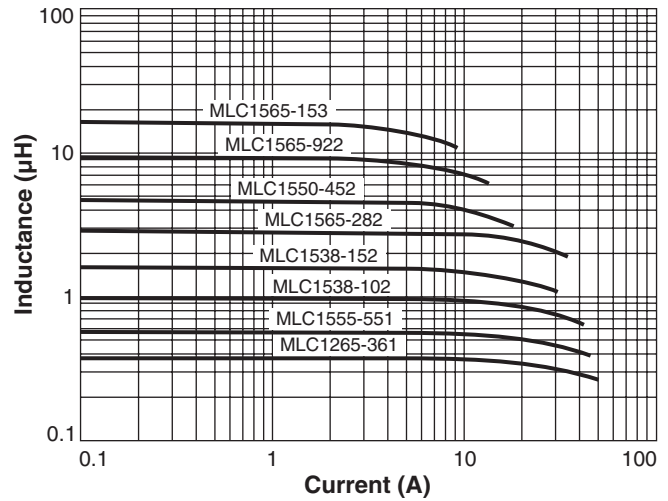


# Shielded Power Inductors – MLC12xx/15xx Series

## Typical L vs Frequency

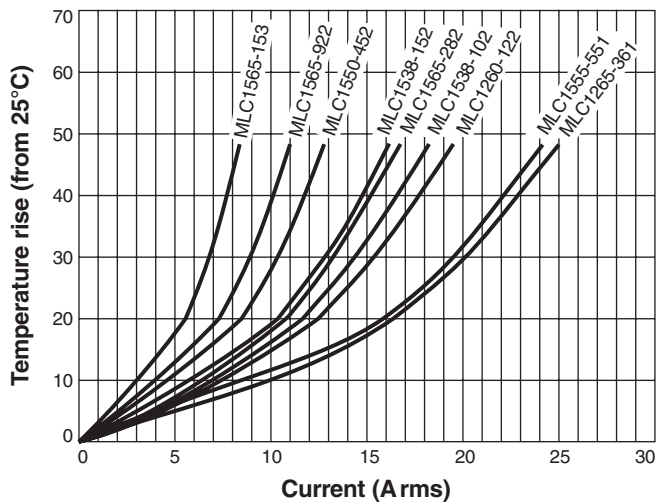


## Typical L vs Current



Inductance vs current is unaffected by part temperature up to 125°C.

## Temperature Rise vs Current



www.coilcraft.com

**US** +1-847-639-6400 sales@coilcraft.com  
**UK** +44-1236-730595 sales@coilcraft-europe.com  
**Taiwan** +886-2-2264 3646 sales@coilcraft.com.tw  
**China** +86-21-6218 8074 sales@coilcraft.com.cn  
**Singapore** + 65-6484 8412 sales@coilcraft.com.sg

Document 327-3 Revised 04/19/12

© Coilcraft Inc. 2013

This product may not be used in medical or high risk applications without prior Coilcraft approval. Specification subject to change without notice. Please check web site for latest information.