



# VRM/VRD Power Inductors – MVR



The MVR series provides greater current handling capability than any other power inductor its size. While requiring only one square centimeter of board space, this inductor can handle up to 36 Amps of current.

These shielded inductors were developed for multi-phase voltage regulators and are ideal for use in DC-DC converters, battery-powered devices and high current power supplies. Their flat wire construction ensures very low DC resistance and offers an excellent performance-to-height ratio. The materials used in these parts eliminate all thermal aging issues.

The MVR12xxT is a high efficiency part that features very low core loss. The MVR12xxC provides soft saturation and is unaffected by part temperature up to 125°C.

Refer to the comparison curves for L vs Current and ESR vs Frequency for performance differences.

For free evaluation samples, contact Coilcraft or order them online at [www.coilcraft.com](http://www.coilcraft.com).

| Part number <sup>1</sup> | L <sup>2</sup><br>±20%<br>(µH) | DCR<br>±8%<br>(mOhm) | SRF <sup>3</sup><br>typ<br>(MHz) | Isat <sup>4</sup><br>(A) | Irms <sup>5</sup><br>(A) | Height<br>max<br>(mm) |
|--------------------------|--------------------------------|----------------------|----------------------------------|--------------------------|--------------------------|-----------------------|
| <b>Low core loss</b>     |                                |                      |                                  |                          |                          |                       |
| MVR1251T-251ML_          | 0.25                           | 0.925                | 160                              | 35                       | 25                       | 5.1                   |
| MVR1251T-361ML_          | 0.36                           | 0.925                | 140                              | 24                       | 24                       | 5.1                   |
| MVR1251T-561ML_          | 0.56                           | 0.925                | 110                              | 13                       | 25                       | 5.1                   |
| <b>Soft saturation</b>   |                                |                      |                                  |                          |                          |                       |
| MVR1247C-361ML_          | 0.36                           | 0.925                | 120                              | 36                       | 24                       | 4.7                   |
| MVR1255C-651ML_          | 0.65                           | 1.50                 | 115                              | 24                       | 19                       | 5.5                   |
| MVR1261C-112ML_          | 1.10                           | 1.95                 | 95                               | 20                       | 20                       | 6.1                   |
| MVR1271C-162ML_          | 1.65                           | 2.53                 | 55                               | 17                       | 20                       | 7.1                   |
| MVR1278C-232ML_          | 2.30                           | 3.08                 | 50                               | 16                       | 17                       | 7.8                   |

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

**MVR1278C-232MLC**

**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. Quantities less than full reel available: in tape (not machine ready) or with leader and trailer (\$25 charge).

**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.

**D** = 13" machine-ready reel. EIA-481 embossed plastic tape. Factory order only, not stocked.

2. Inductance measured at 500 kHz, 0.1 Vrms, 0 Adc using a Coilcraft SMD-A fixture in an Agilent/HP 4284A LCR meter or equivalent.

3. SRF measured on an Agilent/HP 8753ES.

4. DC current at which the inductance drops 30% (typ) for MVR12xxC and 20% (typ) for MVR12xxT from its value without current.

5. Current that causes a 40°C temperature rise from 25°C ambient.

6. Electrical specifications at 25°C.

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

**Core material** MVRxxxT: Ferrite; MVRxxxxC: Powdered iron

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

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

**Weight** MVRT: 2.1 g; MVRC: 2.45 – 3.86 g

**Ambient temperature** –40°C to +85°C with Irms current, +85°C to +125°C with derated current

**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)

**Failures in Time (FIT) / Mean Time Between Failures (MTBF)**

38 per billion hours / 26,315,789 hours, calculated per Telcordia SR-332

## Packaging

**MVR1247** 200/7" reel; 900/13" reel

**MVR1251** 175/7" reel; 700/13" reel

**MVR1255** 175/7" reel; 700/13" reel

**MVR1261** 175/7" reel; 700/13" reel

**MVR1271** 100/7" reel; 500/13" reel

**MVR1278** 100/7" reel; 500/13" reel

**Plastic tape:** 24 mm wide, 16 mm pocket spacing

**MVR1247** 0.35 mm thick, 4.5 mm pocket depth

**MVR1251** 0.4 mm thick, 6.1 mm pocket depth

**MVR1255** 0.4 mm thick, 6.1 mm pocket depth

**MVR1261** 0.4 mm thick, 6.1 mm pocket depth

**MVR1271** 0.4 mm thick, 7.5 mm pocket depth

**MVR1278** 0.4 mm thick, 7.5 mm pocket depth

**PCB washing** Tested to MIL-STD-202 Method 215 plus an additional aqueous wash. See [Doc787\\_PCB\\_Washing.pdf](#).



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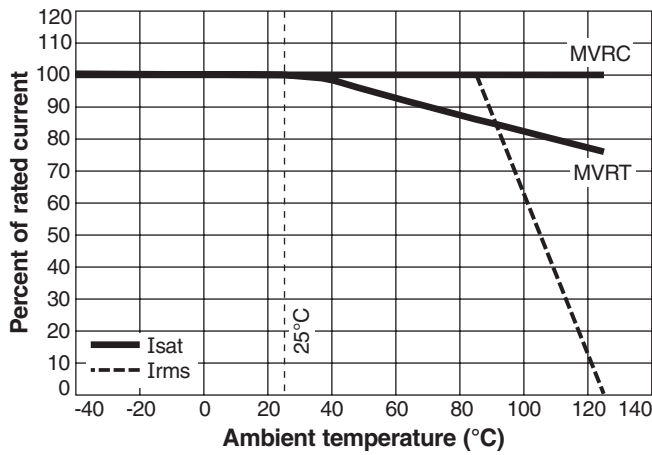
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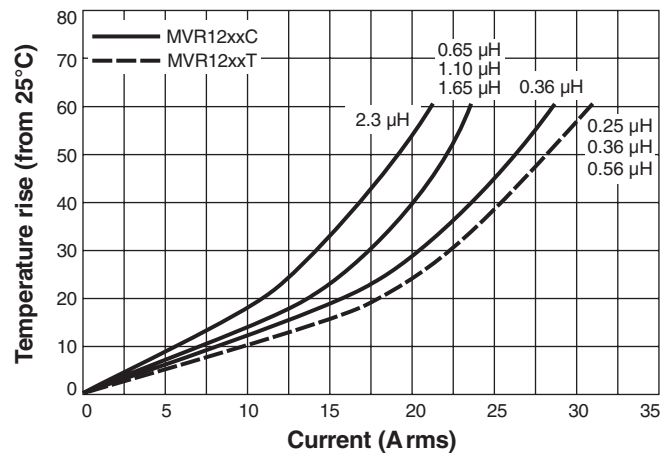


# MVR Series – VRM/VRD Power Inductors

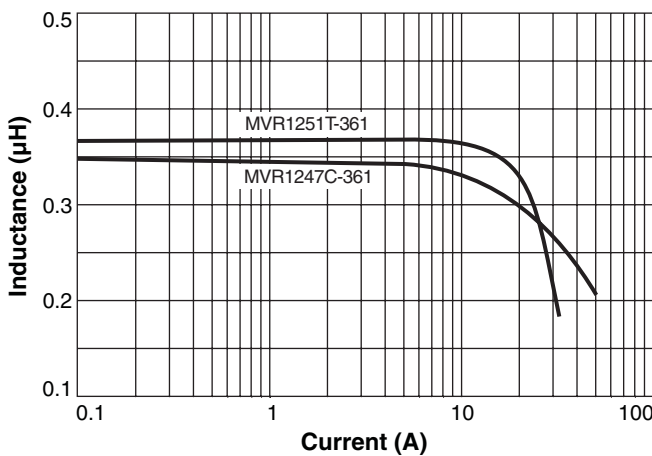
## Current Derating



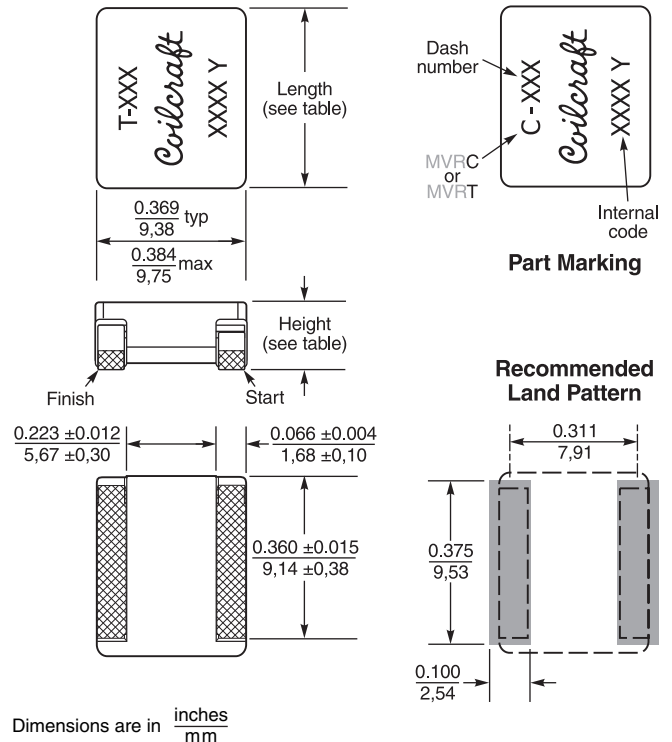
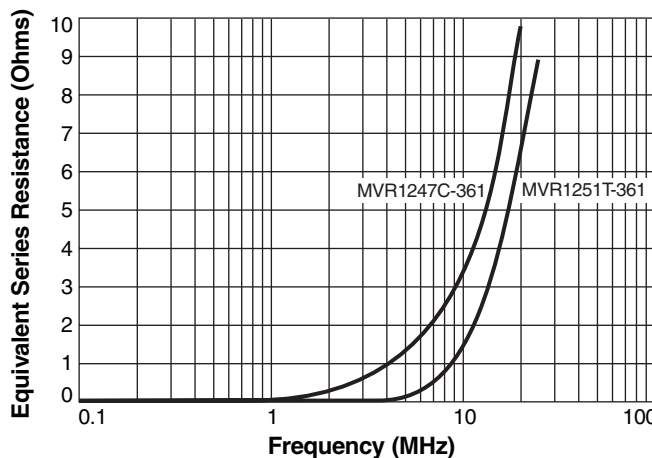
## Temperature Rise vs Current



## L vs Current Comparison – 0.36 μH



## ESR vs Frequency Comparison – 0.36 μH



| Body size | Height (in. / mm) |              | Length (in. / mm) |               |
|-----------|-------------------|--------------|-------------------|---------------|
|           | typ               | max          | typ               | max           |
| MVR1247   | 0.171 / 4,35      | 0.185 / 4,70 | 0.448 / 11,37     | 0.453 / 11,50 |
| MVR1251   | 0.181 / 4,61      | 0.200 / 5,10 | 0.439 / 11,14     | 0.453 / 11,50 |
| MVR1255   | 0.207 / 5,25      | 0.217 / 5,50 | 0.448 / 11,37     | 0.453 / 11,50 |
| MVR1261   | 0.232 / 5,90      | 0.240 / 6,10 | 0.448 / 11,37     | 0.453 / 11,50 |
| MVR1271   | 0.262 / 6,65      | 0.280 / 7,10 | 0.448 / 11,37     | 0.453 / 11,50 |
| MVR1278   | 0.287 / 7,29      | 0.307 / 7,80 | 0.448 / 11,37     | 0.453 / 11,50 |



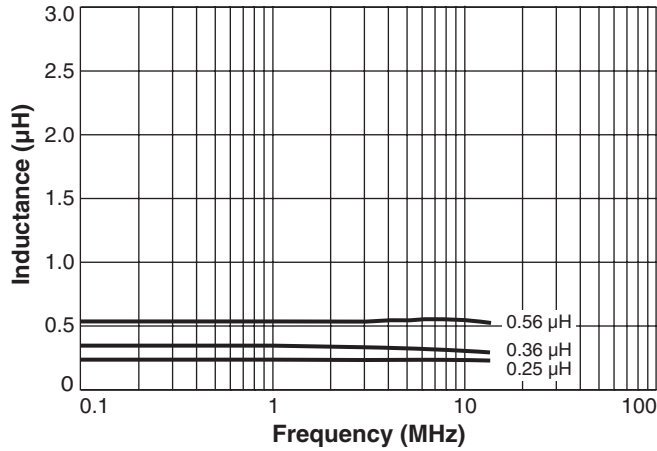
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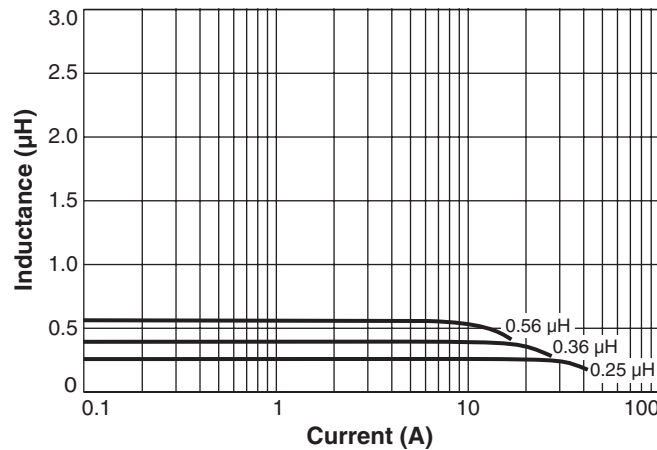
# MVR Series – VRM/VRD Power Inductors

## MVR12xxT

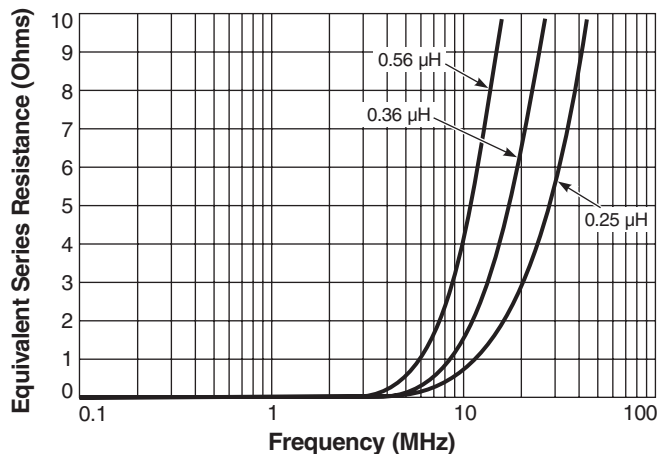
### L vs Frequency



### L vs Current

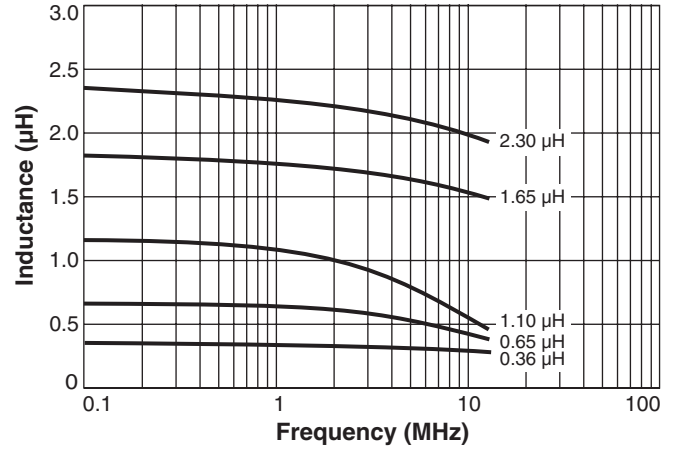


### ESR vs Frequency

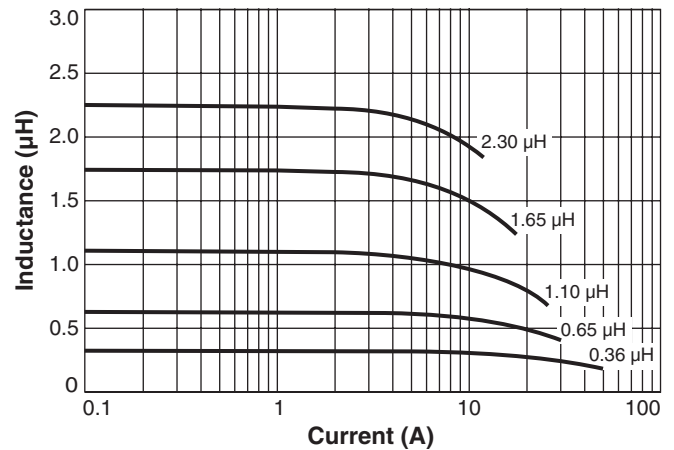


## MVR12xxC

### L vs Frequency

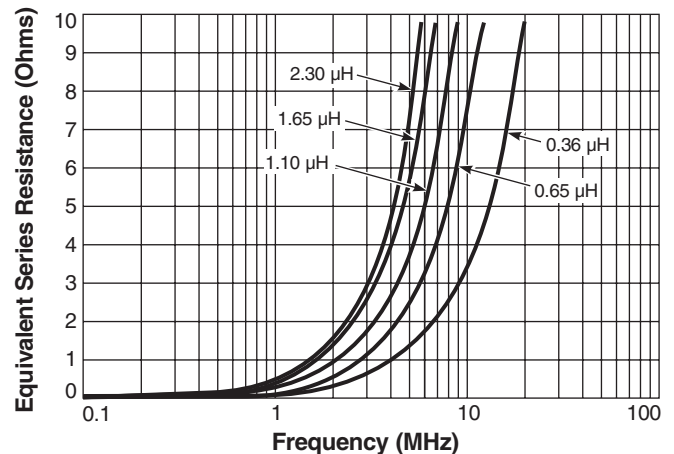


### L vs Current



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

### ESR vs Frequency



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