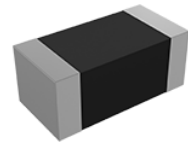


# Multilayer Chip Inductor for Choke– MCL-N Series

Operating Temp. : -40°C~+85°C



## FEATURES

- Monolithic structure for high reliability
- Excellent solderability and high heat resistance
- No cross coupling due to magnetic shield
- High DC bias current due to developed material
- Low AC resistance, low power loss.

## APPLICATIONS

- NFC output filtering and matching circuit, Power line, etc.

## PRODUCT IDENTIFICATION

**MCL**

①

**1608**

②

**N**

③

**R16**

④

**J**

⑤

**T**

⑥

①

| Type |                     |
|------|---------------------|
| MCL  | Chip Power Inductor |

②

| External Dimensions (LxW) (mm) |         |
|--------------------------------|---------|
| 1005 [0402]                    | 1.0x0.5 |
| 1608 [0603]                    | 1.6x0.8 |

③

| Feature Type |     |
|--------------|-----|
| N            | NFC |

④

| Nominal Inductance |               |
|--------------------|---------------|
| Example            | Nominal Value |
| R16                | 0.16μH        |
| ※R= decimal point  |               |

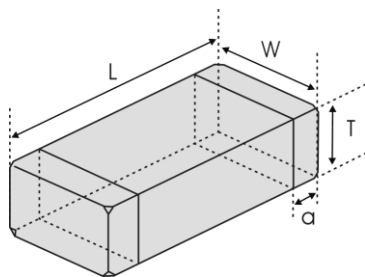
⑤

| Inductance Tolerance |      |
|----------------------|------|
| J                    | ±5%  |
| K                    | ±10% |
| M                    | ±20% |

⑥

| Packing |             |
|---------|-------------|
| T       | Tape & Reel |

## SHAPE AND DIMENSIONS



Unit: mm [inch]

| Type               | L                          | W                         | T                         | a                         |
|--------------------|----------------------------|---------------------------|---------------------------|---------------------------|
| MCL1005N<br>[0402] | 1.0±0.15<br>[0.039±0.006]  | 0.5±0.15<br>[0.020±0.006] | 0.5±0.15<br>[0.020±0.006] | 0.25±0.1<br>[0.010±0.004] |
| MCL1608N<br>[0603] | 1.60±0.15<br>[0.063±0.006] | 0.8±0.15<br>[0.031±0.006] | 0.8±0.15<br>[0.031±0.006] | 0.3±0.2<br>[0.012±0.008]  |

## SPECIFICATIONS

### MCL1005N TYPE

| Part Number   | Inductance | L Test Freq. | DC Resistance Max. | Min. Self-resonant Frequency | Saturation Current Typ. | Heat Rating Current Max. |
|---------------|------------|--------------|--------------------|------------------------------|-------------------------|--------------------------|
| Units         | nH         | MHz          | $\Omega$           | MHz                          | mA                      | mA                       |
| Symbol        | L          | Freq.        | DCR                | S.R.F                        | Isat                    | Irms                     |
| MCL1005N77N□T | 77         | 25           | 0.27               | 200                          | 550                     | 550                      |
| MCL1005N96N□T | 96         | 25           | 0.35               | 200                          | 500                     | 500                      |
| MCL1005NR10□T | 100        | 25           | 0.35               | 200                          | 500                     | 500                      |
| MCL1005NR11□T | 110        | 25           | 0.39               | 200                          | 450                     | 450                      |
| MCL1005NR12□T | 120        | 25           | 0.39               | 200                          | 450                     | 450                      |
| MCL1005NR13□T | 130        | 25           | 0.39               | 200                          | 450                     | 450                      |
| MCL1005NR14□T | 140        | 25           | 0.45               | 200                          | 450                     | 450                      |
| MCL1005NR15□T | 150        | 25           | 0.45               | 200                          | 450                     | 450                      |
| MCL1005NR16□T | 160        | 25           | 0.52               | 200                          | 550                     | 400                      |
| MCL1005NR18□T | 180        | 25           | 0.58               | 200                          | 370                     | 400                      |
| MCL1005NR20□T | 200        | 25           | 0.58               | 200                          | 370                     | 400                      |
| MCL1005NR22□T | 220        | 25           | 0.58               | 180                          | 370                     | 400                      |
| MCL1005NR27□T | 270        | 25           | 0.65               | 180                          | 350                     | 350                      |
| MCL1005NR33□T | 330        | 25           | 0.65               | 120                          | 300                     | 350                      |
| MCL1005NR39□T | 390        | 25           | 0.97               | 120                          | 300                     | 300                      |
| MCL1005NR47□T | 470        | 25           | 0.97               | 120                          | 250                     | 300                      |
| MCL1005NR56□T | 560        | 25           | 1.40               | 120                          | 250                     | 250                      |

### MCL1608N TYPE

| Part Number   | Inductance | L Test Freq. | DC Resistance Max. | Min. Self-resonant Frequency | Saturation Current Typ. | Heat Rating Current Max. |
|---------------|------------|--------------|--------------------|------------------------------|-------------------------|--------------------------|
| Units         | nH         | MHz          | $\Omega$           | MHz                          | mA                      | mA                       |
| Symbol        | L          | Freq.        | DCR                | S.R.F                        | Isat                    | Irms                     |
| MCL1608N77N□T | 77         | 25           | 0.11               | 200                          | 1100                    | 1100                     |
| MCL1608N85N□T | 85         | 25           | 0.11               | 200                          | 1100                    | 1100                     |
| MCL1608NR10□T | 100        | 25           | 0.12               | 200                          | 1000                    | 1000                     |
| MCL1608NR12□T | 120        | 25           | 0.14               | 200                          | 1000                    | 800                      |
| MCL1608NR16□T | 160        | 25           | 0.156              | 200                          | 1100                    | 700                      |
| MCL1608NR20□T | 200        | 25           | 0.22               | 200                          | 700                     | 650                      |
| MCL1608NR21□T | 210        | 25           | 0.26               | 200                          | 700                     | 600                      |
| MCL1608NR22□T | 220        | 25           | 0.26               | 200                          | 700                     | 600                      |
| MCL1608NR27□T | 270        | 25           | 0.286              | 200                          | 650                     | 550                      |
| MCL1608NR33□T | 330        | 25           | 0.312              | 180                          | 650                     | 500                      |
| MCL1608NR39□T | 390        | 25           | 0.36               | 180                          | 600                     | 450                      |
| MCL1608NR47□T | 470        | 25           | 0.494              | 120                          | 600                     | 400                      |
| MCL1608NR56□T | 560        | 25           | 0.52               | 120                          | 550                     | 400                      |
| MCL1608NR65□T | 650        | 25           | 0.65               | 100                          | 450                     | 350                      |
| MCL1608NR82□T | 820        | 25           | 0.75               | 80                           | 400                     | 300                      |

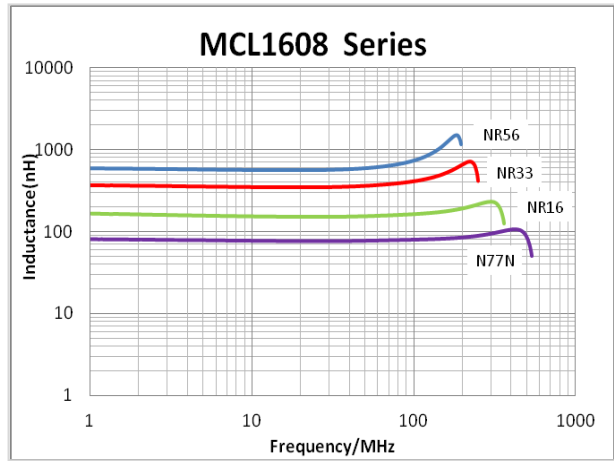
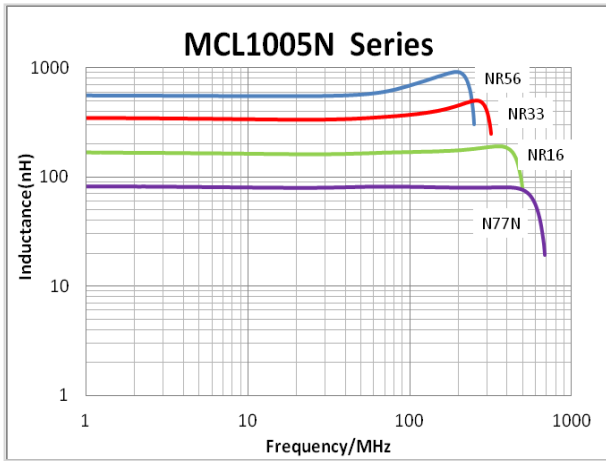
※Isat: DC current at which the inductance drops approximate 10% from its value without current;

※Irms : DC current that causes the temperature rise ( $\Delta T = 25^{\circ}\text{C}$ ) from  $20^{\circ}\text{C}$  ambient.

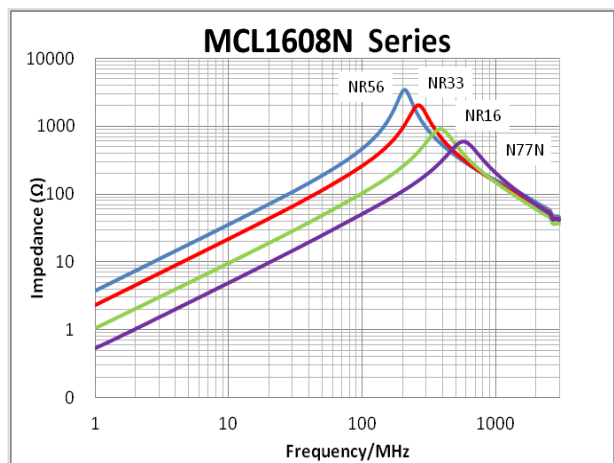
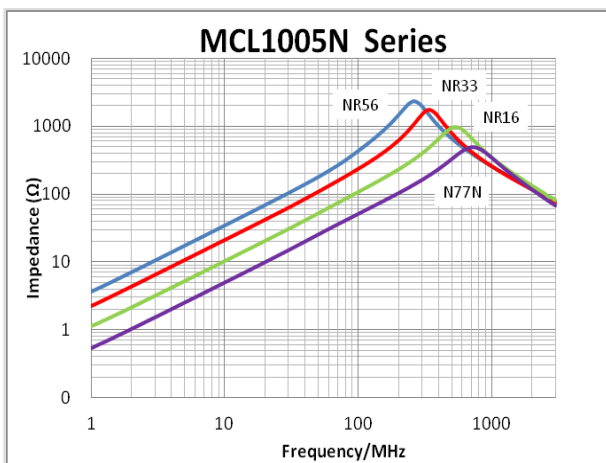
※□: Please specify the inductance tolerance code (J= $\pm 5\%$ ,K= $\pm 10\%$ ,M= $\pm 20\%$ ).

# TYPICAL ELECTRICAL CHARACTERISTICS

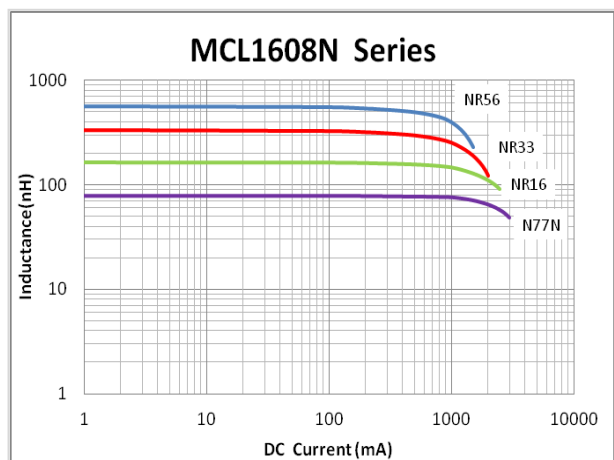
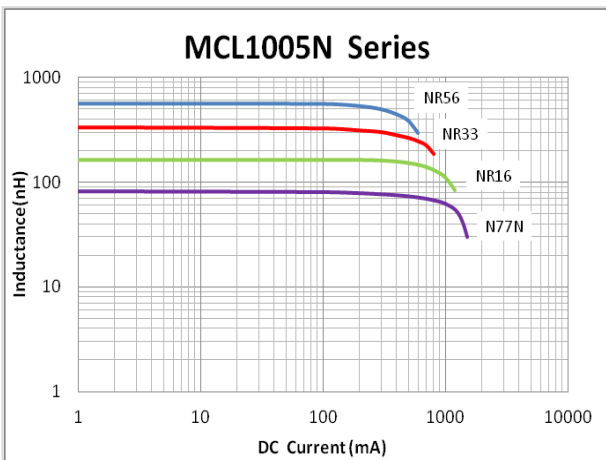
## Inductance vs. Frequency Characteristics



## Impedance vs. Frequency Characteristics



## Inductance vs. DC Current Characteristics



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