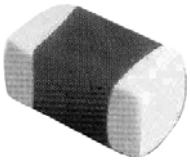
# Multilayer Chip Power Inductor – MPL Series

**Operating Temp. : -40℃~+85℃**



## FEATURES

- High DC bias current due to developed material
- Low DC resistance
- Low profile and thin thickness
- Monolithic structure for high reliability
- Excellent solderability and high heat resistance
- No cross coupling due to magnetic shield

## APPLICATIONS

- DC-DC converter circuits for mobile phones, DSCs, DVCs, HDDs, PDAs, etc.

## PRODUCT IDENTIFICATION

| MPL | 2012 | S | 2R2 | M | H | T |
|---|---|---|---|---|---|---|
| ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |

①

| Type | |
|---|---|
| MPL | Chip Power Inductor |

②

| External Dimensions (L×W) (mm) | |
|---|---|
| 1608 [0603] | 1.6×0.8 |
| 2012 [0805] | 2.0×1.25 |
| 2016 [0806] | 2.0×1.6 |
| 2520 [1008] | 2.5×2.0 |

④

| Nominal Inductance | |
|---|---|
| Example | Nominal Value |
| R47 | 0.47μH |
| 4R7 | 4.7μH |

③

| Feature Type | |
|---|---|
| S | (Internal Code) |
| L | |
| C | |

⑤

| Inductance Tolerance | |
|---|---|
| M | ±20% |
| N | ±30% |

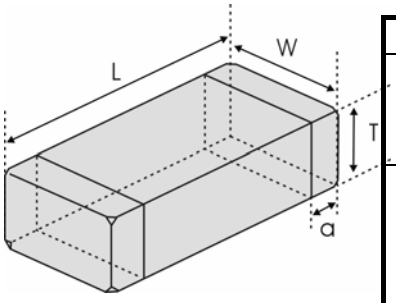
⑥

| Thickness | |
|---|---|
| D | 0.5mm |
| H | 0.9mm |
| W | 1.1mm |
| Y | 1.25mm |

⑦

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

## SHAPE AND DIMENSIONS




Unit: mm [inch]

| Type | L | W | T | a |
|---|---|---|---|---|
| 1608 [0603] | 1.6±0.15 [.063±.006] | 0.8±0.15 [.031±.006] | 0.5±0.1 [.020±.004] | 0.3±0.2 [.012±.008] |
| | | | 0.8±0.15 [.031±.006] | |
| 2012 [0805] | 2.0 (+0.3, -0.1) [.079 (+.012, -.004)] | 1.25±0.2 [.049±.008] | 0.5±0.1 [.020±.004] | 0.5±0.3 [.020±.012] |
| | | | 0.9±0.1 [.035±.004] | |
| | | | 1.25±0.2 [.049±.008] | |
| 2016 [0806] | 2.0 (+0.3, -0.1) [.079 (+.012, -.004)] | 1.6±0.2 [.063±.008] | 0.9±0.1 [.035±.004] | 0.5±0.3 [.020±.012] |
| 2520 [1008] | 2.5±0.2 [.098±.008] | 2.0 (+0.3, -0.1) [.079 (+.012, -.004)] | 0.9±0.1 [.035±.004] | 0.5±0.3 [.020±.012] |
| | | | 1.1±0.1 [.043±.004] | |



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## SPECIFICATIONS

MPL1608 TYPE

| Part Number | Inductance | L Test Freq. | Min. Self-resonant Frequency | DC Resistance | Max. Rated Current | Thickness |
|---|---|---|---|---|---|---|
| Units | μH | MHz | MHz | Ω | mA | mm [inch] |
| Symbol | L | Freq. | S.R.F | DCR | Ir* | T |
| MPL1608SR47□DT | 0.47 | 5 | 105 | 0.19±25% | 900 | 0.5±0.1 [.020±.004] |
| MPL1608LR47□HT | 0.47 | 5 | 105 | 0.12±25% | 1200 | 0.8±0.15 [.031±.006] |
| MPL1608SR47□HT | 0.47 | 5 | 105 | 0.25±25% | 800 | |
| MPL1608SR68□HT | 0.68 | 5 | 90 | 0.16±25% | 1000 | |
| MPL1608S1R0□HT | 1.0 | 1 | 75 | 0.20±25% | 950 | |
| MPL1608S1R5□HT | 1.5 | 1 | 50 | 0.25±25% | 800 | |
| MPL1608S2R2□HT | 2.2 | 1 | 40 | 0.30±25% | 750 | |

MPL2012 TYPE

| Part Number | Inductance | L Test Freq. | Min. Self-resonant Frequency | DC Resistance | Max. Rated Current | Thickness |
|---|---|---|---|---|---|---|
| Units | μH | MHz | MHz | Ω | mA | mm [inch] |
| Symbol | L | Freq. | S.R.F | DCR | Ir* | T |
| MPL2012SR47□DT | 0.47 | 1 | 100 | 0.12±25% | 1100 | 0.5±0.1 [.020±.004] |
| MPL2012S1R0□DT | 1.0 | 1 | 60 | 0.19±25% | 800 | |
| MPL2012S1R5□DT | 1.5 | 1 | 50 | 0.26±25% | 700 | |
| MPL2012S2R2□DT | 2.2 | 1 | 40 | 0.34±25% | 600 | |
| MPL2012SR47□HT | 0.47 | 1 | 100 | 0.09±25% | 1200 | 0.9±0.1 [.035±.004] |
| MPL2012S1R0□HT | 1.0 | 1 | 60 | 0.11±25% | 1000 | |
| MPL2012S1R5□HT | 1.5 | 1 | 50 | 0.16±25% | 900 | |
| MPL2012S2R2□HT | 2.2 | 1 | 40 | 0.25±25% | 800 | |
| MPL2012S3R3□HT | 3.3 | 1 | 30 | 0.19±25% | 900 | |
| MPL2012S4R7□HT | 4.7 | 1 | 30 | 0.25±25% | 800 | |
| MPL2012C2R2□HT | 2.2 | 1 | 40 | 0.45±25% | 500 | |
| MPL2012S2R2□YT | 2.2 | 1 | 40 | 0.33±30% | 640 | 1.25±0.2 [.049±.008] |
| MPL2012S4R7□YT | 4.7 | 1 | 25 | 0.50±30% | 600 | |

MPL2016 TYPE

| Part Number | Inductance | L Test Freq. | Min. Self-resonant Frequency | DC Resistance | Max. Rated Current | Thickness |
|---|---|---|---|---|---|---|
| Units | μH | MHz | MHz | Ω | mA | mm [inch] |
| Symbol | L | Freq. | S.R.F | DCR | Ir* | T |
| MPL2016SR47□HT | 0.47 | 1 | 100 | 0.06±25% | 1600 | 0.9±0.1 [.035±.004] |
| MPL2016S1R0□HT | 1.0 | 1 | 70 | 0.09±25% | 1400 | |
| MPL2016S1R5□HT | 1.5 | 1 | 60 | 0.11±25% | 1200 | |
| MPL2016S2R2□HT | 2.2 | 1 | 50 | 0.11±25% | 1200 | |
| MPL2016S3R3□HT | 3.3 | 1 | 40 | 0.12±25% | 1200 | |
| MPL2016S4R7□HT | 4.7 | 1 | 30 | 0.14±25% | 1100 | |


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## SPECIFICATIONS

MPL2520 TYPE

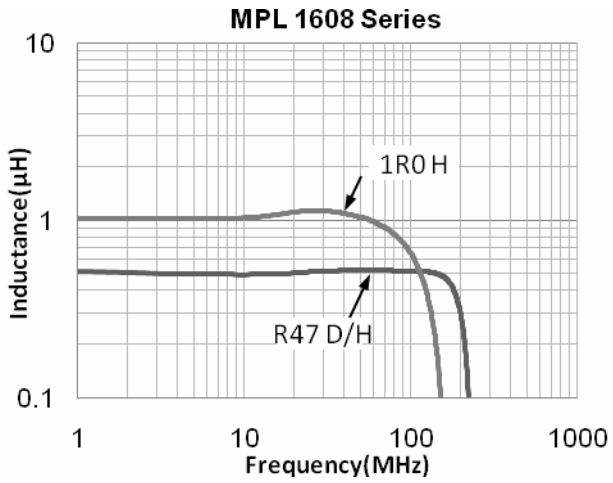
| Part Number | Inductance | L Test Freq. | Min. Self-resonant Frequency | DC Resistance | Max. Rated Current | Thickness |
|---|---|---|---|---|---|---|
| Units | μH | MHz | MHz | Ω | mA | mm [inch] |
| Symbol | L | Freq. | S.R.F | DCR | Ir* | T |
| MPL2520SR47□HT | 0.47 | 1 | 100 | 0.04±25% | 1800 | 0.9±0.1 [.035±.004] |
| MPL2520S1R0□HT | 1.0 | 1 | 60 | 0.06±25% | 1600 | |
| MPL2520S1R5□HT | 1.5 | 1 | 50 | 0.07±25% | 1500 | |
| MPL2520S2R2□HT | 2.2 | 1 | 40 | 0.08±25% | 1300 | |
| MPL2520S3R3□HT | 3.3 | 1 | 30 | 0.10±25% | 1200 | |
| MPL2520S4R7□HT | 4.7 | 1 | 25 | 0.11±25% | 1100 | |
| MPL2520S1R0□WT | 1.0 | 1 | 70 | 0.09±25% | 1500 | 1.1±0.1 [.043±.004] |
| MPL2520S2R2□WT | 2.2 | 1 | 40 | 0.12±25% | 1000 | |
| MPL2520S3R3□WT | 3.3 | 1 | 30 | 0.12±25% | 1000 | |
| MPL2520S4R7□WT | 4.7 | 1 | 25 | 0.14±25% | 900 | |
| MPL2520S100□WT | 10 | 1 | 15 | 0.30±30% | 800 | |

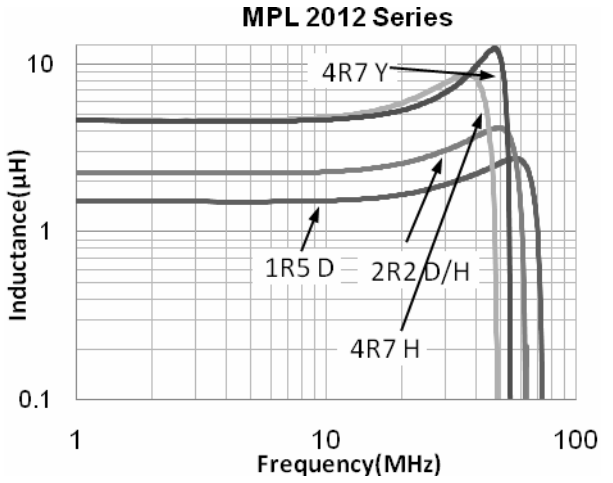
※□: Please specify the inductance tolerance code (M=±20%, N=±30%).

※Ir* : DC current causes temperature rise of 40℃ from 20℃ ambient

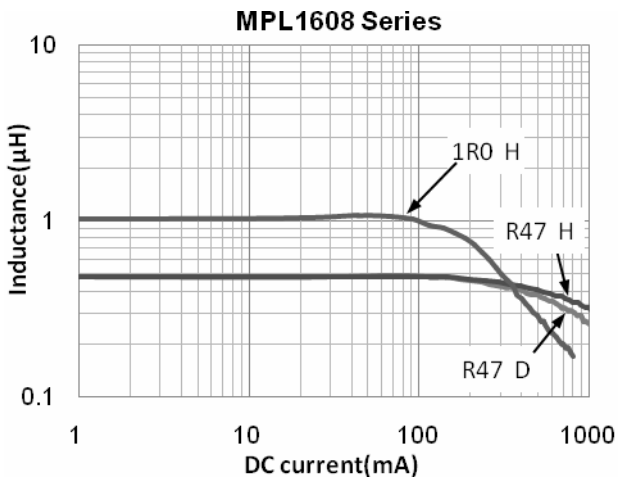
## TYPICAL ELECTRICAL CHARACTERISTICS

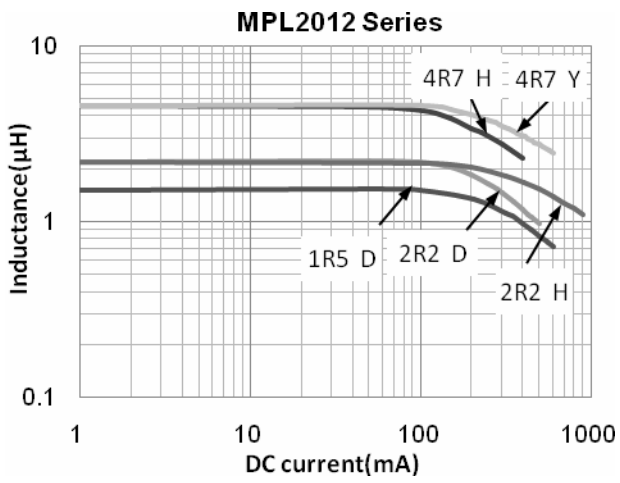
Inductance vs. Frequency Characteristics




Inductance vs. DC Current Characteristics



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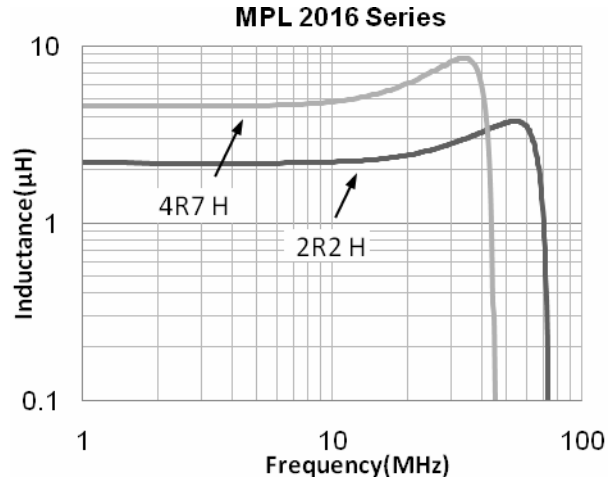
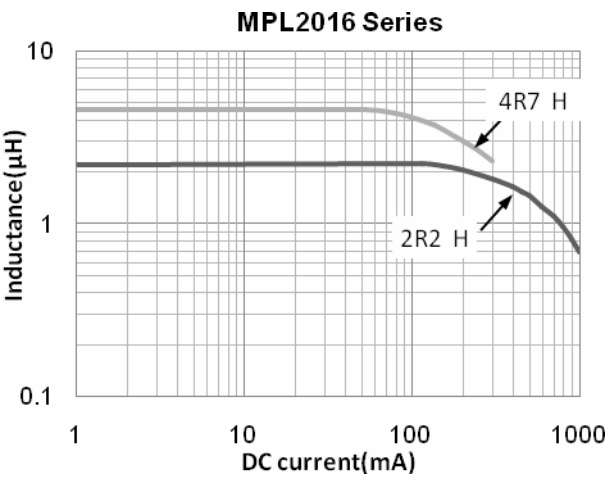
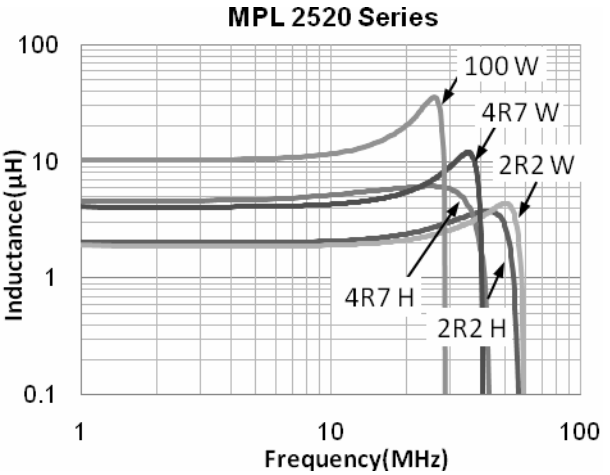
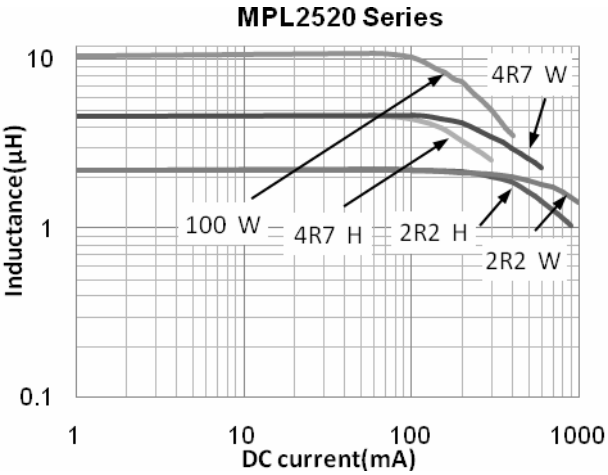
Inductance vs. Frequency Characteristics




Inductance vs. DC Current Characteristics



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