

## Multilayer Power Inductors



The MPx Series is a miniature type of multilayer power inductor constructed using low-loss ferrite material to support high-speed switching frequencies. The compact size and high efficiency is ideal for DC-DC converter applications in space-limited boards.

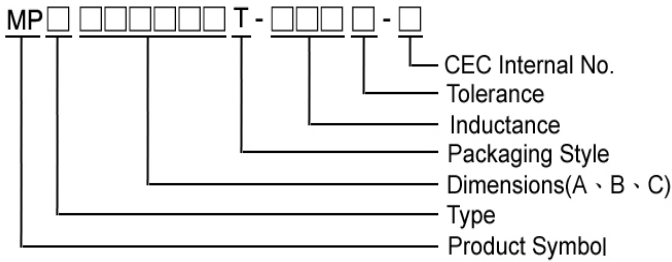
### Features

- RoHS compliant
- Small size
- Low profile
- High current
- Magnetically shielded configuration allowing for high density mounting

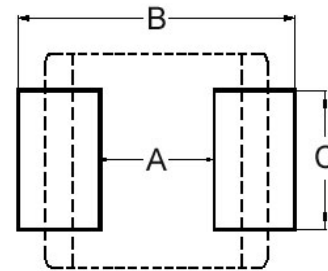
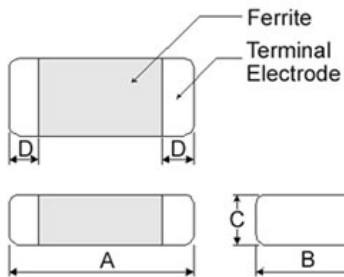
### Applications

- DC-DC converters
- Power modules
- Cellular phones
- DSC, PND, DVD
- Wireless card and other electronic devices

### Product Identification



- Product Symbol : MPA, MPB
- Type : A : General , B : Low RDC
- Packaging : T : Tape and Reel , B : Bulk
- Tolerance : M =  $\pm 20\%$  , T =  $\pm 30\%$



Dimensions in mm

| TYPE   | A              | B               | C               | D             |
|--------|----------------|-----------------|-----------------|---------------|
| 160808 | 1.6 $\pm$ 0.15 | 0.8 $\pm$ 0.15  | 0.8 $\pm$ 0.15  | 0.3 $\pm$ 0.2 |
| 201205 | 2.0 $\pm$ 0.20 | 1.25 $\pm$ 0.20 | 0.55 Max        | 0.5 $\pm$ 0.3 |
| 201210 | 2.0 $\pm$ 0.20 | 1.25 $\pm$ 0.20 | 1.0 Max         | 0.5 $\pm$ 0.3 |
| 201212 | 2.0 $\pm$ 0.20 | 1.25 $\pm$ 0.20 | 1.25 $\pm$ 0.20 | 0.5 $\pm$ 0.3 |
| 201610 | 2.0 $\pm$ 0.20 | 1.6 $\pm$ 0.20  | 1.0 Max         | 0.5 $\pm$ 0.3 |
| 252010 | 2.5 $\pm$ 0.20 | 2.0 $\pm$ 0.20  | 1.0 Max         | 0.6 $\pm$ 0.2 |
| 252012 | 2.5 $\pm$ 0.20 | 2.0 $\pm$ 0.20  | 1.2 Max         | 0.6 $\pm$ 0.2 |

Dimensions in mm

| TYPE   | A         | B         | C         |
|--------|-----------|-----------|-----------|
| 160808 | 0.7 ~ 0.8 | 1.8 ~ 2.0 | 0.6 ~ 0.8 |
| 201205 | 0.8 ~ 1.2 | 2.3 ~ 2.9 | 1.0 ~ 1.4 |
| 201210 | 0.8 ~ 1.2 | 2.3 ~ 2.9 | 1.0 ~ 1.4 |
| 201212 | 0.8 ~ 1.2 | 2.3 ~ 2.9 | 1.0 ~ 1.4 |
| 201610 | 0.8 ~ 1.2 | 2.1 ~ 2.7 | 1.6 ~ 2.0 |
| 252010 | 1.3 ~ 1.9 | 2.7 ~ 3.5 | 2.0 ~ 2.6 |
| 252012 | 1.3 ~ 1.9 | 2.7 ~ 3.5 | 2.0 ~ 2.6 |

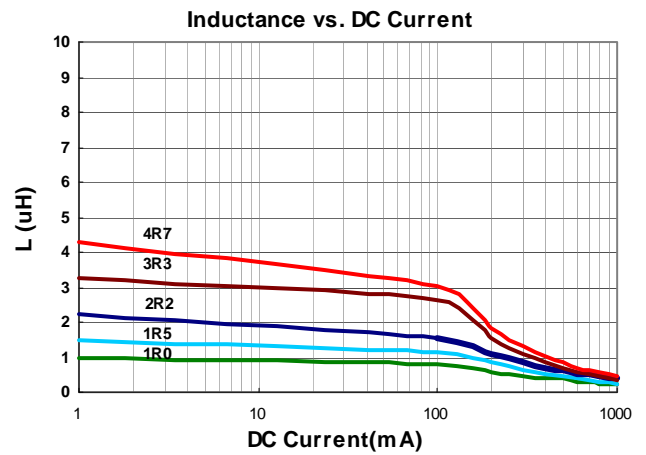
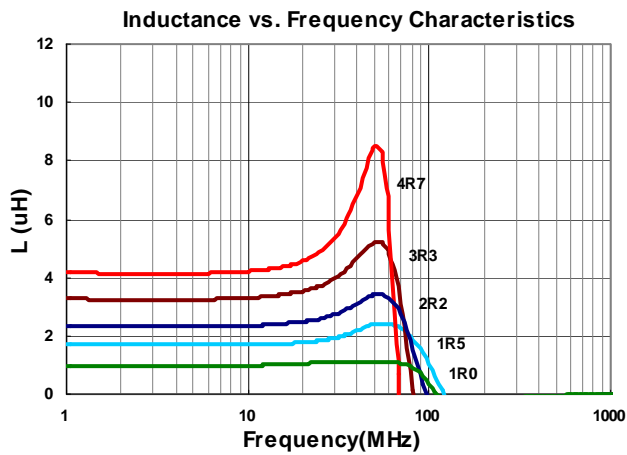
## Electrical Characteristics

### MPA : General Series

| Part Number       | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|-------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPA201210T-1R0□-N | 1.0             | 1                    | 20, 30         | 0.18         | 1100                   |
| MPA201210T-1R5□-N | 1.5             | 1                    | 20, 30         | 0.19         | 1000                   |
| MPA201210T-2R2□-N | 2.2             | 1                    | 20, 30         | 0.22         | 900                    |
| MPA201210T-3R3□-N | 3.3             | 1                    | 20, 30         | 0.25         | 700                    |
| MPA201210T-4R7□-N | 4.7             | 1                    | 20, 30         | 0.35         | 600                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 1MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C. (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer



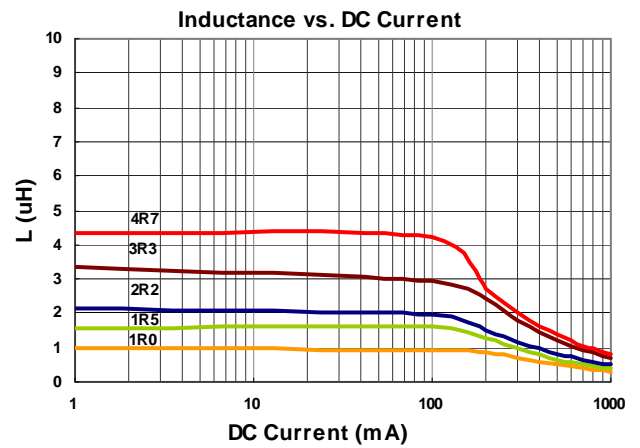
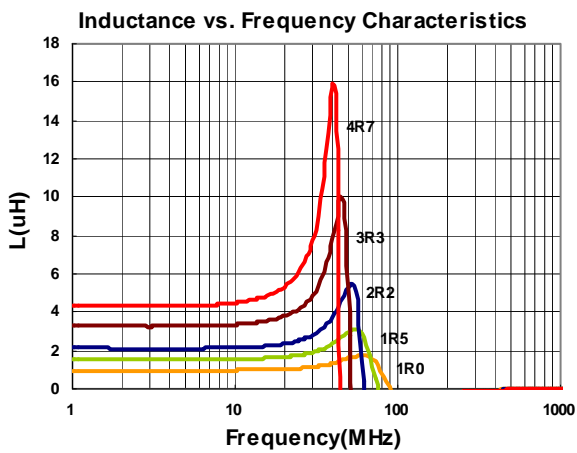
## Electrical Characteristics

### MPA : General Series

| Part Number       | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|-------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPA252010T-1R0□-N | 1.0             | 1                    | 20, 30         | 0.11         | 1200                   |
| MPA252010T-1R5□-N | 1.5             | 1                    | 20, 30         | 0.13         | 1100                   |
| MPA252010T-2R2□-N | 2.2             | 1                    | 20, 30         | 0.15         | 1000                   |
| MPA252010T-3R3□-N | 3.3             | 1                    | 20, 30         | 0.18         | 1000                   |
| MPA252010T-4R7□-N | 4.7             | 1                    | 20, 30         | 0.25         | 900                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 1MHz 200mV
- RDC : HP 4118B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C. (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer



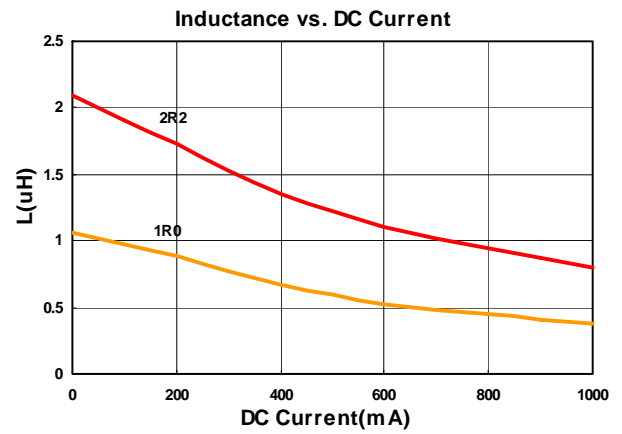
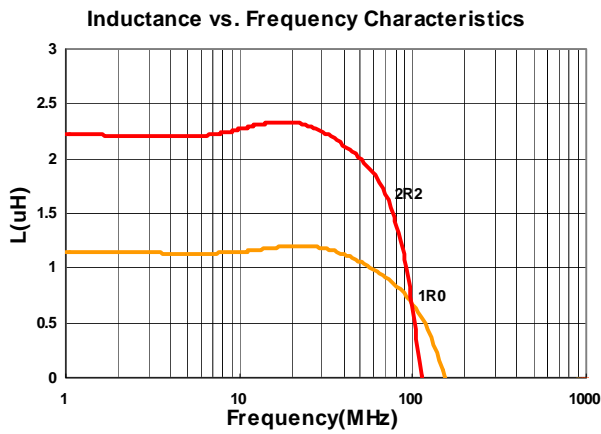
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB160808T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.28         | 800                    |
| MPB160808T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.40         | 600                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C. (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer



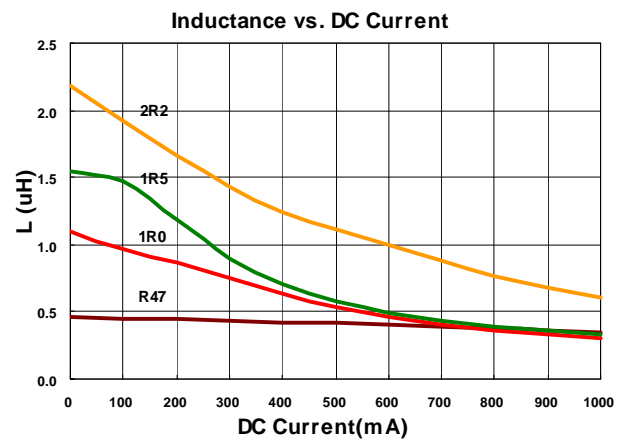
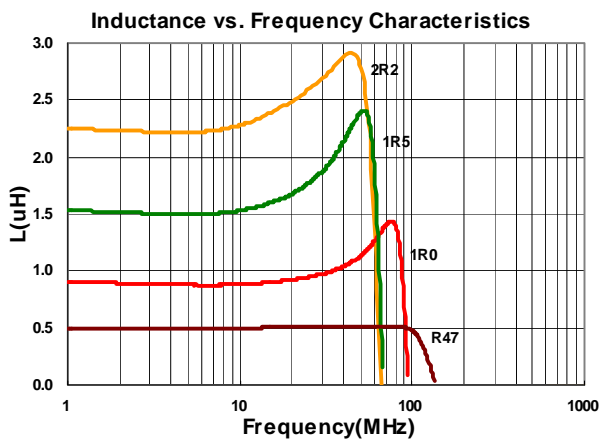
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB201205T-R47□-NA2 | 0.47            | 3                    | 20, 30         | 0.11         | 1200                   |
| MPB201205T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.16         | 900                    |
| MPB201205T-1R5□-NA2 | 1.5             | 3                    | 20, 30         | 0.18         | 800                    |
| MPB201206T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.29         | 600                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C . (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer



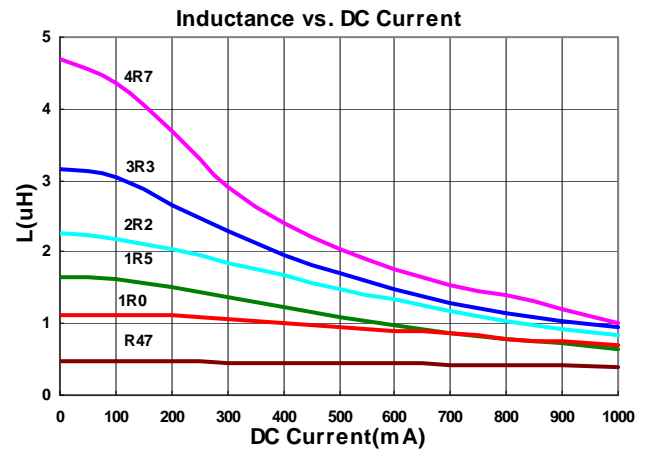
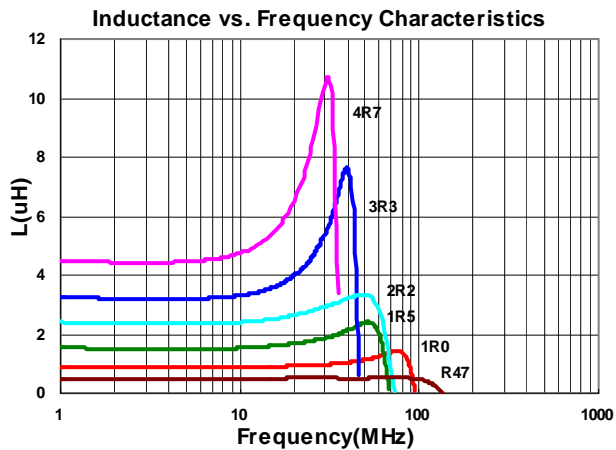
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB201210T-R47□-NA2 | 0.47            | 3                    | 20, 30         | 0.09         | 1300                   |
| MPB201210T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.12         | 1200                   |
| MPB201210T-1R5□-NA2 | 1.5             | 3                    | 20, 30         | 0.15         | 1100                   |
| MPB201210T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.19         | 1100                   |
| MPB201210T-3R3□-NA2 | 3.3             | 3                    | 20, 30         | 0.24         | 800                    |
| MPB201210T-4R7□-NA2 | 4.7             | 3                    | 20, 30         | 0.26         | 700                    |

- Tolerance : M = ±20% ,T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C . (Including self - temperature rise)

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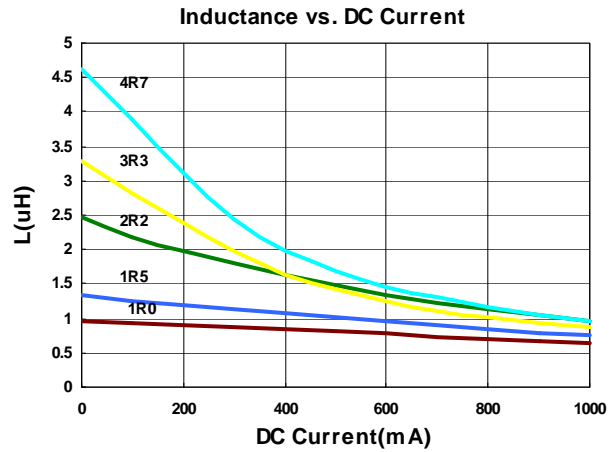
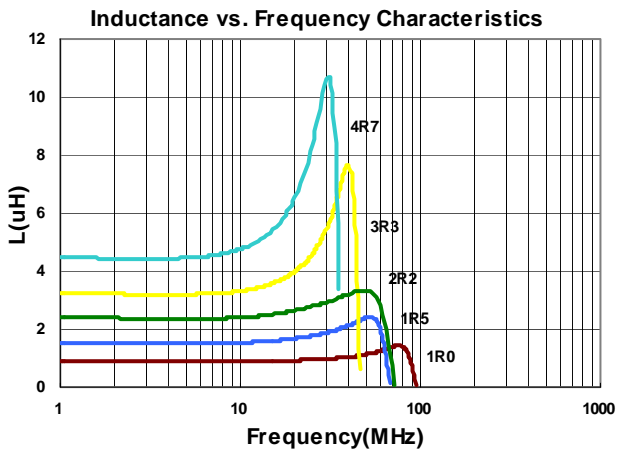
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB201212T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.13         | 1200                   |
| MPB201212T-1R5□-NA2 | 1.5             | 3                    | 20, 30         | 0.16         | 1100                   |
| MPB201212T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.23         | 900                    |
| MPB201212T-3R3□-NA2 | 3.3             | 3                    | 20, 30         | 0.23         | 900                    |
| MPB201212T-4R7□-NA2 | 4.7             | 3                    | 20, 30         | 0.27         | 700                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C. (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer



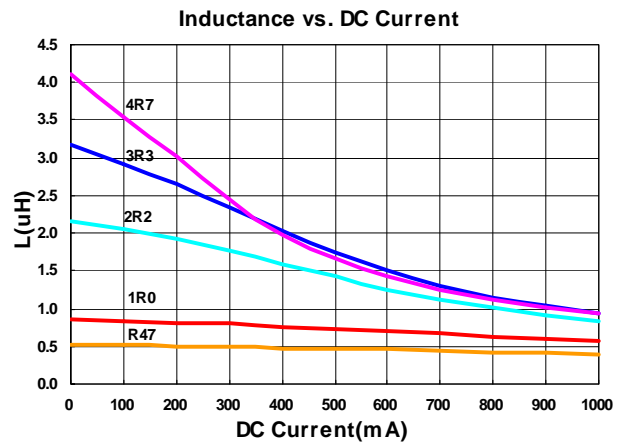
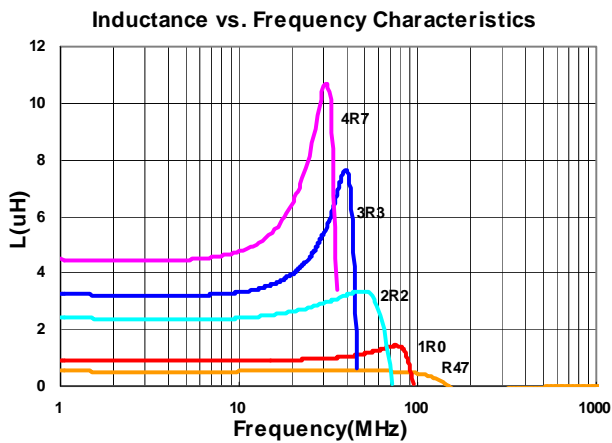
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB201610T-R47□-NA2 | 0.47            | 3                    | 20, 30         | 0.06         | 1600                   |
| MPB201610T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.09         | 1300                   |
| MPB201610T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.13         | 1000                   |
| MPB201610T-3R3□-NA2 | 3.3             | 3                    | 20, 30         | 0.17         | 850                    |
| MPB201610T-4R7□-NA2 | 4.7             | 3                    | 20, 30         | 0.21         | 800                    |

- Tolerance : M = ±20% , T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
- Operating temperature range from -55°C to 125°C. (Including self - temperature rise)

### Test Instruments : HP4287A Inductance / Material Analyzer





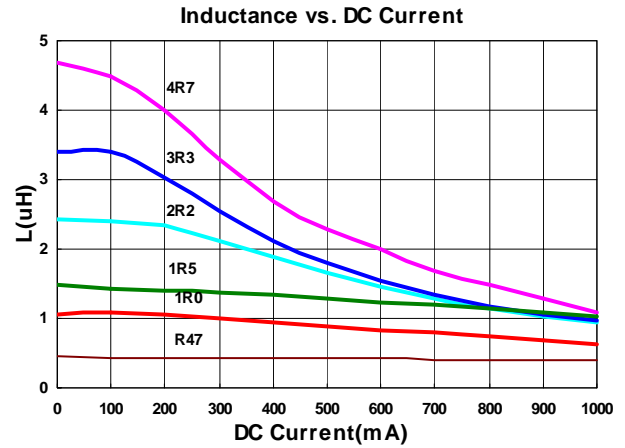
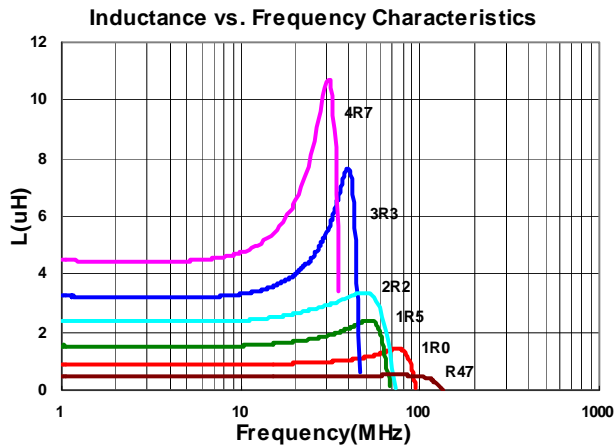
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB252010T-R47□-NA2 | 0.47            | 3                    | 20, 30         | 0.04         | 1800                   |
| MPB252010T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.06         | 1500                   |
| MPB252010T-1R5□-NA2 | 1.5             | 3                    | 20, 30         | 0.07         | 1400                   |
| MPB252010T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.10         | 1200                   |
| MPB252010T-3R3□-NA2 | 3.3             | 3                    | 20, 30         | 0.12         | 1100                   |
| MPB252010T-4R7□-NA2 | 4.7             | 3                    | 20, 30         | 0.14         | 1000                   |

- Tolerance : M = ±20% ,T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
- Rated Current : Applied the current to coils, the temperature rise shall not be more than 40°C
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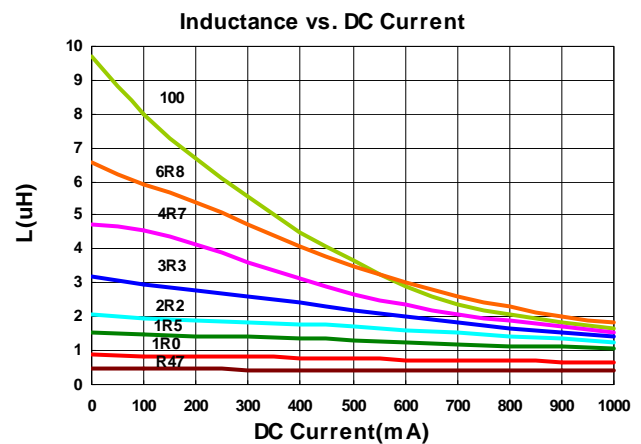
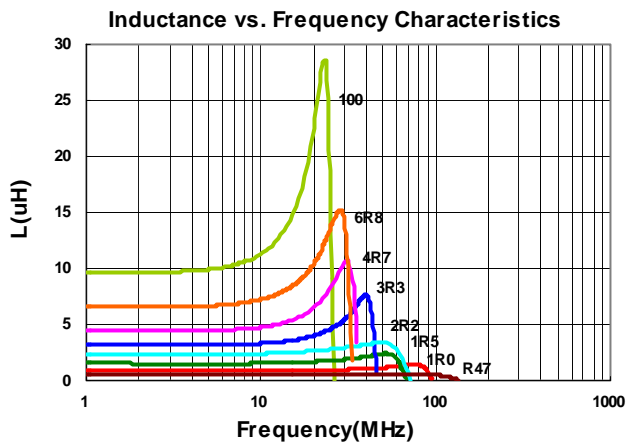
## Electrical Characteristics

### MPB : Low RDC Series

| Part Number         | Inductance (uH) | Test Frequency (MHz) | Tolerance (±%) | RDC (Ω) ±30% | Rated current (mA) Max |
|---------------------|-----------------|----------------------|----------------|--------------|------------------------|
| MPB252012T-R47□-NA2 | 0.47            | 3                    | 20, 30         | 0.04         | 1800                   |
| MPB252012T-1R0□-NA2 | 1.0             | 3                    | 20, 30         | 0.05         | 1600                   |
| MPB252012T-1R5□-NA2 | 1.5             | 3                    | 20, 30         | 0.07         | 1400                   |
| MPB252012T-2R2□-NA2 | 2.2             | 3                    | 20, 30         | 0.10         | 1200                   |
| MPB252012T-3R3□-NA2 | 3.3             | 3                    | 20, 30         | 0.12         | 1100                   |
| MPB252012T-4R7□-NA2 | 4.7             | 3                    | 20, 30         | 0.14         | 1000                   |
| MPB252012T-6R8□-NA2 | 6.8             | 3                    | 20, 30         | 0.16         | 900                    |
| MPB252012T-100□-NA2 | 10              | 3                    | 20, 30         | 0.20         | 500                    |

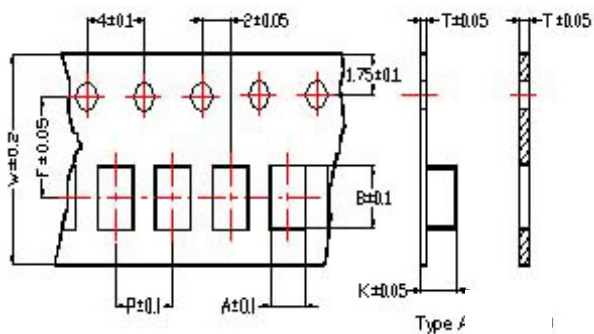
- Tolerance : M = ±20% ,T = ±30%
- Packaging: Clear tape and reel {standard}.
- L : Agilent/HP4287A+16197A, 3MHz 200mV
- RDC : HP 4338B, or equivalent
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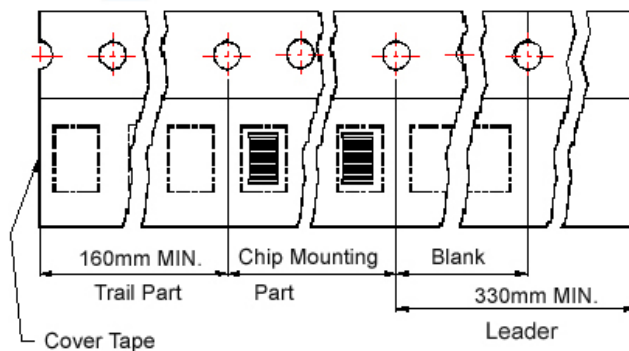
Packaging Specifications

Tape Dimensions

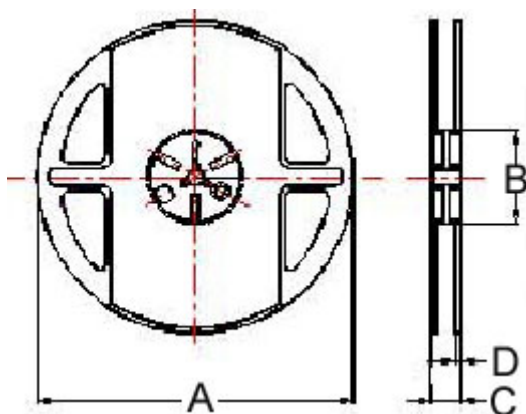


Tape Material

Carrier Tape: Polycarbonate (Tape A)  
 Carrier Tape: Paper (Tape B)  
 Cover Tape: Polystyrene



Reel Dimensions



Dimensions in mm

| TYPE   | Tape Dimensions |      |      |     |     |     |      |           | Reel Dimensions |    |    |     | Quantity<br>PCS / REEL |
|--------|-----------------|------|------|-----|-----|-----|------|-----------|-----------------|----|----|-----|------------------------|
|        | A               | B    | T    | W   | P   | F   | K    | Tape Type | A               | B  | C  | D   |                        |
| 160808 | 1.05            | 1.85 | 0.95 | 8.0 | 4.0 | 3.5 | 0.80 | B         | 178             | 60 | 12 | 1.5 | 4000                   |
| 201205 | 1.42            | 2.25 | 0.22 | 8.0 | 4.0 | 3.5 | 0.80 | A         | 178             | 60 | 12 | 1.5 | 4000                   |
| 201210 | 1.45            | 2.25 | 0.22 | 8.0 | 4.0 | 3.5 | 1.04 | A         | 178             | 60 | 12 | 1.5 | 3000                   |
| 201212 | 1.35            | 2.25 | 0.22 | 8.0 | 4.0 | 3.5 | 1.35 | A         | 178             | 60 | 12 | 1.5 | 3000                   |
| 201610 | 1.80            | 2.20 | 0.22 | 8.0 | 4.0 | 3.5 | 1.15 | A         | 178             | 60 | 12 | 1.5 | 3000                   |
| 252010 | 2.25            | 2.8  | 0.25 | 8.0 | 4.0 | 3.5 | 1.35 | A         | 178             | 60 | 12 | 1.5 | 3000                   |
| 252012 | 2.25            | 2.8  | 0.25 | 8.0 | 4.0 | 3.5 | 1.35 | A         | 178             | 60 | 12 | 1.5 | 3000                   |