

# 叠层片式功率电感—MPH 系列

## Multilayer Chip Power Inductor – MPH Series



### 工作温度

Operating Temp

- 55°C ~ +125°C (Including self-heating)

### 特征

Features

- 采用沟槽工艺, 提高了偏置电流, 降低了直流电阻
- 小尺寸, 薄型
- 迭层独石结构, 高度可靠性
- 良好的可焊性和耐焊性
- 良好的磁屏蔽, 无交叉耦合
- Higher DC bias current and lower DC resistance due to trench technology
- Low profile and thin thickness
- Monolithic structure for high reliability
- Excellent solderability and high heat resistance
- No cross coupling due to magnetic shield

### 用途

Applications

- 移动电话、移动 PC、可穿戴设备、安防监控等备用 DC-DC 转换器电路
- Mobile phones, mobile PC, wearable devices, security monitoring DC-DC converter for other

### 产品型号

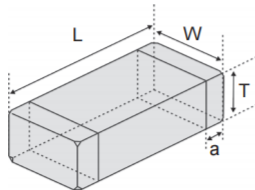
Product Identification

|     |        |   |     |   |   |
|-----|--------|---|-----|---|---|
| 1   | 2      | 3 | 4   | 5 | 6 |
| MPH | 201210 | S | R47 | M | T |

| 1  | 2  | 3   |
|--|--|---|
| 分类 Type  | 外形尺寸 (L×W×H) (mm)<br>External Dimensions (L×W×H) (mm)  | 特性类别 Feature Type   |
| MPH<br>片式功率电感<br>Chip Power Inductor             | 160805 1.6×0.8×0.55<br>160806 1.6×0.8×0.65<br>160809 1.6×0.8×0.95<br>201205 2.0×1.25×0.55<br>201206 2.0×1.25×0.6<br>201209 2.0×1.25×0.9<br>201210 2.0×1.25×1.0<br>201214 2.0×1.2×1.4<br>201610 2.0×1.6×1.0<br>201612 2.0×1.6×1.2<br>252010 2.5×2.0×1.0<br>252012 2.5×2.0×1.2 | S 标准型<br>Standard<br>U 低直流电阻型<br>Ultra Low Rdc<br>H 大饱和电流型<br>High Saturation Current<br>C 内部代码<br>Inner Core |
| 4  | 5  | 6   |
| 公称电感量 Nominal Inductance                         | 电感公差 Inductance Tolerance  | 包装 Packing  |
| Example Nominal Value<br>R47 0.47μH<br>4R7 4.7μH | M ±20%<br>N ±30%   | T 编带 Tape & Reel  |

### 外观尺寸

Shape and Dimensions



| Type   | L                                     | W                                     | T                       | a                       |
|--------|---------------------------------------|---------------------------------------|-------------------------|-------------------------|
| 160805 | 1.60±0.15<br>[.063±.006]              | 0.8±0.15<br>[.031±.006]               | 0.5±0.05<br>[.020±.002] | 0.3±0.2<br>[.012±.008]  |
| 160806 | 1.60±0.15<br>[.063±.006]              | 0.8±0.15<br>[.031±.006]               | 0.55±0.10<br>[.022±.04] | 0.35±0.15<br>[.014±.06] |
| 160809 | 1.60±0.15<br>[.063±.006]              | 0.8±0.15<br>[.031±.006]               | 0.8±0.15<br>[.031±.006] | 0.3±0.2<br>[.012±.008]  |
| 201205 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.25±0.2<br>[.049±.008]               | 0.5±0.05<br>[.020±.004] | 0.5±0.3<br>[.020±.012]  |
| 201206 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.25±0.2<br>[.049±.008]               | 0.5±0.1<br>[.020±.004]  | 0.5±0.3<br>[.020±.012]  |
| 201209 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.25±0.2<br>[.049±.008]               | 0.8±0.1<br>[.031±.004]  | 0.5±0.3<br>[.020±.012]  |
| 201210 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.25±0.2<br>[.049±.008]               | 0.9±0.1<br>[.035±.004]  | 0.5±0.3<br>[.020±.012]  |
| 201214 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.25±0.2<br>[.049±.008]               | 1.2±0.2<br>[.047±.008]  | 0.5±0.3<br>[.020±.012]  |
| 201610 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.6±0.2<br>[.063±.008]                | 0.9±0.1<br>[.035±.004]  | 0.5±0.3<br>[.020±.012]  |
| 201612 | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.6±0.2<br>[.063±.008]                | 1.1±0.1<br>[.043±.004]  | 0.5±0.3<br>[.020±.012]  |
| 252010 | 2.5±0.2<br>[.098±.008]                | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 0.9±0.1<br>[.035±.004]  | 0.5±0.3<br>[.020±.012]  |
| 252012 | 2.5±0.2<br>[.098±.008]                | 2.0(+0.3,-0.1)<br>[.079(+.012,-.004)] | 1.1±0.1<br>[.043±.004]  | 0.5±0.3<br>[.020±.012]  |

Unit:mm[inch]

**规格特性**  
Specifications

MPH1608 TYPE

| 型号<br>Part Number | 电感量<br>Inductance | L 测试频率<br>L Test Freq. | 直流电阻<br>DC Resistance |      | 自谐频率<br>Min. Self-resonant Frequency | 饱和电流<br>Saturation Current |      | 温升电流<br>Heat Rating Current Max. | 厚度<br>Thickness          |
|-------------------|-------------------|------------------------|-----------------------|------|--------------------------------------|----------------------------|------|----------------------------------|--------------------------|
| 单位 Units          | μH                | MHz                    | Ω                     |      | MHz                                  | A                          |      | A                                | mm [inch]                |
| 符号 Symbol         | L                 | Freq.                  | DCR                   |      | S.R.F                                | Isat                       |      | Irms                             | T                        |
|                   |                   |                        | Max.                  | Typ. |                                      | Max.                       | Typ. |                                  |                          |
| MPH160805SR22 □ T | 0.22              | 1                      | 0.15                  | 0.12 | 180                                  | 1.20                       | 1.45 | 1.20                             | 0.5±0.05<br>[.020±.002]  |
| MPH160805SR33 □ T | 0.33              | 1                      | 0.20                  | 0.16 | 140                                  | 1.10                       | 1.35 | 1.10                             |                          |
| MPH160805SR47 □ T | 0.47              | 1                      | 0.225                 | 0.18 | 120                                  | 0.85                       | 1.05 | 1.15                             |                          |
| MPH160805SR68 □ T | 0.68              | 1                      | 0.275                 | 0.22 | 100                                  | 0.65                       | 0.80 | 0.90                             |                          |
| MPH160805S1R0 □ T | 1.0               | 1                      | 0.40                  | 0.32 | 90                                   | 0.58                       | 0.70 | 0.80                             |                          |
| MPH160805S1R5 □ T | 1.5               | 1                      | 0.475                 | 0.38 | 80                                   | 0.30                       | 0.40 | 0.65                             |                          |
| MPH160805S2R2 □ T | 2.2               | 1                      | 0.525                 | 0.42 | 60                                   | 0.18                       | 0.25 | 0.60                             | 0.55±0.10<br>[.022±.004] |
| MPH160806S1R0 □ T | 1.0               | 1                      | 0.275                 | 0.22 | 90                                   | 0.50                       | 0.70 | 1.00                             |                          |
| MPH160806S2R2 □ T | 2.2               | 1                      | 0.50                  | 0.40 | 30                                   | 0.20                       | 0.30 | 0.65                             | 0.8±0.15<br>[.031±.006]  |
| MPH160809SR22 □ T | 0.22              | 1                      | 0.125                 | 0.10 | 200                                  | 1.35                       | 1.60 | 1.25                             |                          |
| MPH160809SR33 □ T | 0.33              | 1                      | 0.1625                | 0.13 | 190                                  | 1.25                       | 1.50 | 1.20                             |                          |
| MPH160809SR47 □ T | 0.47              | 1                      | 0.1875                | 0.15 | 180                                  | 1.00                       | 1.20 | 1.10                             |                          |
| MPH160809SR68 □ T | 0.68              | 1                      | 0.225                 | 0.18 | 160                                  | 0.95                       | 1.10 | 1.15                             |                          |
| MPH160809S1R0 □ T | 1.0               | 1                      | 0.25                  | 0.20 | 125                                  | 0.65                       | 0.80 | 1.00                             |                          |
| MPH160809S1R5 □ T | 1.5               | 1                      | 0.287                 | 0.23 | 100                                  | 0.42                       | 0.50 | 0.90                             |                          |
| MPH160809S1R8 □ T | 1.8               | 1                      | 0.325                 | 0.26 | 100                                  | 0.30                       | 0.50 | 0.80                             |                          |
| MPH160809S2R2 □ T | 2.2               | 1                      | 0.375                 | 0.30 | 80                                   | 0.25                       | 0.30 | 0.85                             |                          |
| MPH160809S2R7 □ T | 2.7               | 1                      | 0.425                 | 0.34 | 90                                   | 0.18                       | 0.22 | 0.75                             |                          |
| MPH160809S3R3 □ T | 3.3               | 1                      | 0.50                  | 0.40 | 100                                  | 0.125                      | 0.15 | 0.70                             |                          |
| MPH160809S4R7 □ T | 4.7               | 1                      | 0.50                  | 0.40 | 65                                   | 0.065                      | 0.08 | 0.70                             |                          |
| MPH160809S6R8 □ T | 6.8               | 1                      | 0.70                  | 0.56 | 45                                   | 0.13                       | 0.15 | 0.50                             |                          |
| MPH160809S100 □ T | 10                | 1                      | 0.468                 | 0.36 | 35                                   | 0.06                       | 0.08 | 0.50                             |                          |

MPH2012 TYPE

| 型号<br>Part Number | 电感量<br>Inductance | L 测试频率<br>L Test Freq. | 直流电阻<br>DC Resistance |      | 自谐频率<br>Min. Self-resonant Frequency | 饱和电流<br>Saturation Current |      | 温升电流<br>Heat Rating Current Max. | 厚度<br>Thickness         |
|-------------------|-------------------|------------------------|-----------------------|------|--------------------------------------|----------------------------|------|----------------------------------|-------------------------|
| 单位 Units          | μH                | MHz                    | Ω                     |      | MHz                                  | A                          |      | A                                | mm [inch]               |
| 符号 Symbol         | L                 | Freq.                  | DCR                   |      | S.R.F                                | Isat                       |      | Irms                             | T                       |
|                   |                   |                        | Max.                  | Typ. |                                      | Max.                       | Typ. |                                  |                         |
| MPH201205SR54 □ T | 0.54              | 1                      | 0.15                  | 0.12 | 120                                  | 0.95                       | 1.10 | 1.20                             | 0.5±0.05<br>[.020±.002] |
| MPH201205S1R0 □ T | 1.0               | 1                      | 0.225                 | 0.18 | 40                                   | 0.70                       | 0.90 | 0.90                             |                         |
| MPH201206SR22 □ T | 0.22              | 1                      | 0.087                 | 0.07 | 100                                  | 1.20                       | 1.45 | 1.60                             | 0.5±0.1<br>[.020±.004]  |
| MPH201206SR33 □ T | 0.33              | 1                      | 0.125                 | 0.10 | 90                                   | 1.20                       | 1.35 | 1.20                             |                         |
| MPH201206SR47 □ T | 0.47              | 1                      | 0.15                  | 0.12 | 80                                   | 1.10                       | 1.30 | 1.10                             |                         |
| MPH201206S1R0 □ T | 1.0               | 1                      | 0.237                 | 0.19 | 40                                   | 0.60                       | 0.70 | 0.80                             |                         |
| MPH201206S1R5 □ T | 1.5               | 1                      | 0.325                 | 0.26 | 35                                   | 0.425                      | 0.50 | 0.70                             |                         |
| MPH201206S2R2 □ T | 2.2               | 1                      | 0.40                  | 0.32 | 30                                   | 0.30                       | 0.35 | 0.60                             |                         |
| MPH201209S1R0 □ T | 1.0               | 1                      | 0.15                  | 0.12 | 60                                   | 0.80                       | 1.05 | 1.30                             | 0.8±0.1<br>[.031±.004]  |
| MPH201209S1R5 □ T | 1.5               | 1                      | 0.20                  | 0.16 | 50                                   | 0.50                       | 0.70 | 1.10                             |                         |
| MPH201209S2R2 □ T | 2.2               | 1                      | 0.225                 | 0.18 | 40                                   | 0.25                       | 0.28 | 1.00                             |                         |
| MPH201209S3R3 □ T | 3.3               | 1                      | 0.25                  | 0.20 | 30                                   | 0.18                       | 0.22 | 0.90                             |                         |
| MPH201209S4R7 □ T | 4.7               | 1                      | 0.312                 | 0.25 | 30                                   | 0.125                      | 0.15 | 0.75                             | 0.9±0.1<br>[.035±.004]  |
| MPH201210SR47 □ T | 0.47              | 1                      | 0.10                  | 0.08 | 100                                  | 1.00                       | 1.20 | 1.50                             |                         |
| MPH201210SR56 □ T | 0.56              | 1                      | 0.135                 | 0.11 | 70                                   | 1.20                       | 1.50 | 1.30                             |                         |
| MPH201210S1R0 □ T | 1.0               | 1                      | 0.1375                | 0.11 | 60                                   | 0.95                       | 1.15 | 1.30                             |                         |
| MPH201210S1R5 □ T | 1.5               | 1                      | 0.20                  | 0.16 | 50                                   | 0.70                       | 0.80 | 1.10                             |                         |
| MPH201210S2R2 □ T | 2.2               | 1                      | 0.25                  | 0.20 | 40                                   | 0.42                       | 0.50 | 0.90                             |                         |
| MPH201210S2R7 □ T | 2.7               | 1                      | 0.25                  | 0.20 | 35                                   | 0.35                       | 0.42 | 0.90                             |                         |
| MPH201210S3R3 □ T | 3.3               | 1                      | 0.25                  | 0.20 | 30                                   | 0.28                       | 0.35 | 0.90                             |                         |
| MPH201210S4R7 □ T | 4.7               | 1                      | 0.3125                | 0.25 | 30                                   | 0.23                       | 0.28 | 0.80                             |                         |
| MPH201214S2R2 □ T | 2.2               | 1                      | 0.437                 | 0.35 | 35                                   | 0.60                       | 0.80 | 0.80                             |                         |
| MPH201214S3R3 □ T | 3.3               | 1                      | 0.50                  | 0.40 | 25                                   | 0.57                       | 0.63 | 0.75                             | 1.2±0.2<br>[.047±.008]  |
| MPH201214S4R7 □ T | 4.7               | 1                      | 0.50                  | 0.40 | 20                                   | 0.54                       | 0.63 | 0.75                             |                         |
| MPH201214S6R8 □ T | 6.8               | 1                      | 0.375                 | 0.30 | 45                                   | 0.21                       | 0.25 | 1.00                             |                         |
| MPH201214S100 □ T | 10                | 1                      | 0.375                 | 0.30 | 35                                   | 0.11                       | 0.13 | 1.00                             |                         |
| MPH201214H100 □ T | 10                | 1                      | 0.70                  | 0.56 | 20                                   | 0.20                       | 0.23 | 0.20                             |                         |

Multilayer Chip Ferrite Inductor  
Multilayer Chip Inductor for Choke  
Multilayer Chip Power Inductor  
Multilayer Ultra High Q Chip Ceramic Inductor  
High Q Chip Ceramic Inductor  
Multilayer Chip Ceramic Inductor  
Multilayer High Frequency Chip Ceramic Inductor  
Wire Wound Chip Ceramic Inductor  
Wire Wound Chip Ferrite Inductor  
SMD Power Inductor

**规格特性**  
Specifications

MPH2016 TYPE

| 型号<br>Part Number | 电感量<br>Inductance | L 测试频率<br>L Test Freq. | 直流电阻<br>DC Resistance |      | 自谐频率<br>Min. Self-resonant Frequency | 饱和电流<br>Saturation Current |      | 温升电流<br>Heat Rating Current Max. | 厚度<br>Thickness        |
|-------------------|-------------------|------------------------|-----------------------|------|--------------------------------------|----------------------------|------|----------------------------------|------------------------|
| 单位 Units          | μH                | MHz                    | Ω                     |      | MHz                                  | A                          |      | A                                | mm [inch]              |
| 符号 Symbol         | L                 | Freq.                  | DCR                   |      | S.R.F                                | Isat                       |      | I <sub>rms</sub>                 | T                      |
|                   |                   |                        | Max.                  | Typ. |                                      | Max.                       | Typ. |                                  |                        |
| MPH201610SR47 □ T | 0.47              | 1                      | 0.10                  | 0.08 | 100                                  | 1.35                       | 1.60 | 1.50                             | 0.9±0.1<br>[.035±.004] |
| MPH201610S1R0 □ T | 1.0               | 1                      | 0.1125                | 0.09 | 70                                   | 1.00                       | 1.20 | 1.40                             |                        |
| MPH201610S1R5 □ T | 1.5               | 1                      | 0.1375                | 0.11 | 60                                   | 0.60                       | 0.70 | 1.20                             |                        |
| MPH201610S2R2 □ T | 2.2               | 1                      | 0.1375                | 0.11 | 50                                   | 0.42                       | 0.50 | 1.20                             |                        |
| MPH201610S3R3 □ T | 3.3               | 1                      | 0.15                  | 0.12 | 40                                   | 0.27                       | 0.33 | 1.20                             |                        |
| MPH201610S4R7 □ T | 4.7               | 1                      | 0.175                 | 0.14 | 30                                   | 0.18                       | 0.22 | 1.10                             |                        |
| MPH201612S6R8 □ T | 6.8               | 1                      | 0.212                 | 0.17 | 40                                   | 0.18                       | 0.22 | 1.20                             | 1.1±0.1<br>[.043±.004] |
| MPH201612S100 □ T | 10                | 1                      | 0.312                 | 0.25 | 35                                   | 0.17                       | 0.20 | 1.10                             |                        |

MPH2520 TYPE

| 型号<br>Part Number | 电感量<br>Inductance | L 测试频率<br>L Test Freq. | 直流电阻<br>DC Resistance |       | 自谐频率<br>Min. Self-resonant Frequency | 饱和电流<br>Saturation Current |      | 温升电流<br>Heat Rating Current Max. | 厚度<br>Thickness        |
|-------------------|-------------------|------------------------|-----------------------|-------|--------------------------------------|----------------------------|------|----------------------------------|------------------------|
| 单位 Units          | μH                | MHz                    | Ω                     |       | MHz                                  | A                          |      | A                                | mm [inch]              |
| 符号 Symbol         | L                 | Freq.                  | DCR                   |       | S.R.F                                | Isat                       |      | I <sub>rms</sub>                 | T                      |
|                   |                   |                        | Max.                  | Typ.  |                                      | Max.                       | Typ. |                                  |                        |
| MPH252010SR47 □ T | 0.47              | 1                      | 0.05                  | 0.04  | 105                                  | 1.30                       | 1.50 | 1.80                             | 0.9±0.1<br>[.035±.004] |
| MPH252010S1R0 □ T | 1.0               | 1                      | 0.075                 | 0.06  | 70                                   | 1.15                       | 1.40 | 1.60                             |                        |
| MPH252010S1R5 □ T | 1.5               | 1                      | 0.0875                | 0.07  | 65                                   | 1.00                       | 1.20 | 1.50                             |                        |
| MPH252010S1R8 □ T | 1.8               | 1                      | 0.10                  | 0.08  | 60                                   | 0.70                       | 0.95 | 1.30                             |                        |
| MPH252010S2R2 □ T | 2.2               | 1                      | 0.10                  | 0.08  | 55                                   | 0.70                       | 0.85 | 1.30                             |                        |
| MPH252010S3R3 □ T | 3.3               | 1                      | 0.125                 | 0.10  | 30                                   | 0.38                       | 0.45 | 1.20                             |                        |
| MPH252010S4R7 □ T | 4.7               | 1                      | 0.1375                | 0.11  | 25                                   | 0.27                       | 0.32 | 1.10                             |                        |
| MPH252010C2R2 □ T | 2.2               | 1                      | 0.25                  | 0.20  | 60                                   | 1.25                       | 1.50 | 1.20                             |                        |
| MPH252010C3R3 □ T | 3.3               | 1                      | 0.312                 | 0.25  | 50                                   | 1.00                       | 1.20 | 1.10                             |                        |
| MPH252010C4R7 □ T | 4.7               | 1                      | 0.475                 | 0.38  | 35                                   | 0.63                       | 0.75 | 0.90                             |                        |
| MPH252010C6R8 □ T | 6.8               | 1                      | 0.562                 | 0.45  | 30                                   | 0.30                       | 0.35 | 0.75                             |                        |
| MPH252010C100 □ T | 10                | 1                      | 0.625                 | 0.50  | 25                                   | 0.21                       | 0.25 | 0.70                             |                        |
| MPH252012S4R7 □ T | 4.7               | 1                      | 0.225                 | 0.18  | 30                                   | 0.64                       | 0.75 | 1.00                             | 1.1±0.1<br>[.043±.004] |
| MPH252012C1R0 □ T | 1.0               | 1                      | 0.106                 | 0.085 | 85                                   | 1.75                       | 2.10 | 2.10                             |                        |
| MPH252012C2R2 □ T | 2.2               | 1                      | 0.312                 | 0.25  | 50                                   | 1.35                       | 1.60 | 1.10                             |                        |
| MPH252012C3R3 □ T | 3.3               | 1                      | 0.312                 | 0.25  | 50                                   | 1.05                       | 1.25 | 1.10                             |                        |
| MPH252012C4R7 □ T | 4.7               | 1                      | 0.50                  | 0.40  | 40                                   | 0.68                       | 0.80 | 0.90                             |                        |
| MPH252012C6R8 □ T | 6.8               | 1                      | 0.625                 | 0.50  | 30                                   | 0.63                       | 0.75 | 0.80                             |                        |
| MPH252012C100 □ T | 10                | 1                      | 0.625                 | 0.50  | 25                                   | 0.42                       | 0.50 | 0.80                             |                        |

※:请注明电感公差代码 (M=±20%, N=±30%);  
※:Please specify the inductance tolerance code (M=±20%, N=±30%);

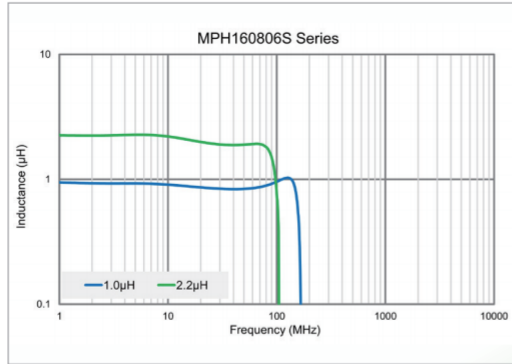
※额定电流:以饱和电流和温升电流中较小者为标准;  
※Rated current: Isat or I<sub>rms</sub>, whichever is smaller;

※饱和电流:使电感值从初始状态下下降约30%的直流电流值;  
※Isat: DC current at which the inductance drops approximate 30% from its value without current;

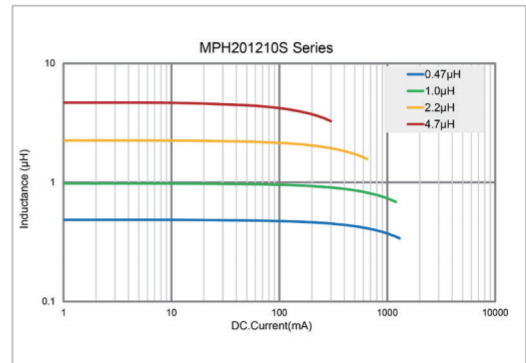
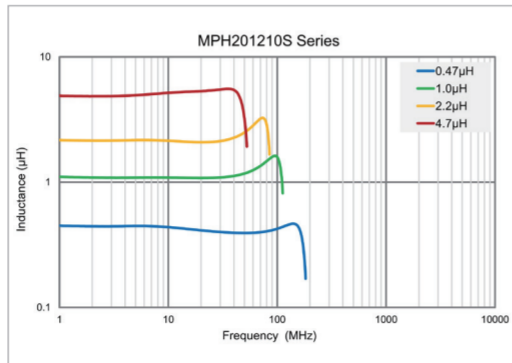
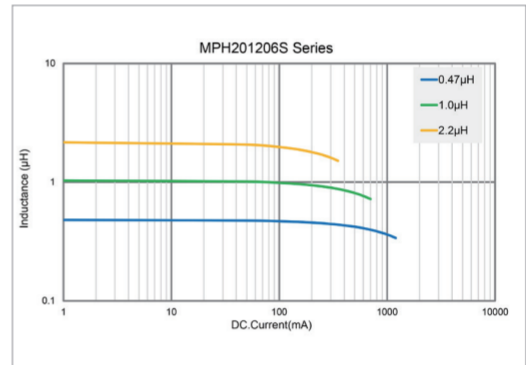
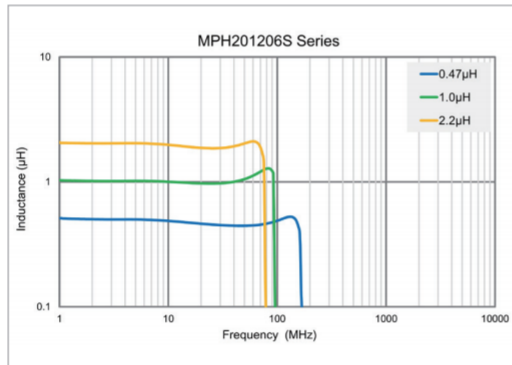
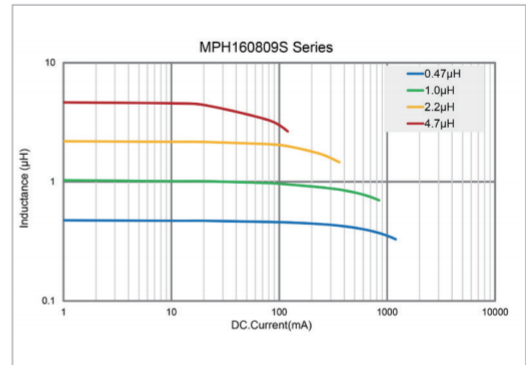
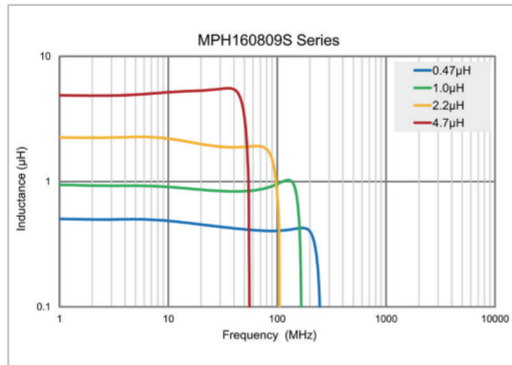
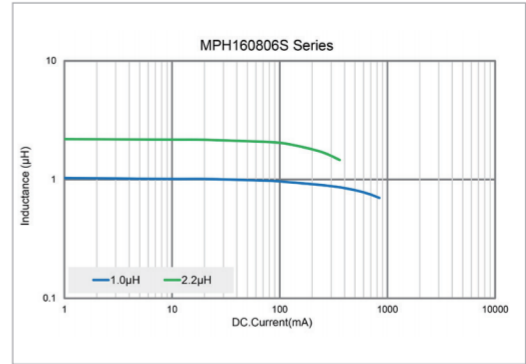
※温升电流:使产品表面温度从20°C升高 (ΔT=40°C) 的直流电流值。  
※I<sub>rms</sub>: DC current that causes the temperature rise (ΔT=40°C) from 20°C ambient.

**电气特性**  
Typical  
Electrical  
Characteristics

Inductance vs. Frequency Characteristics

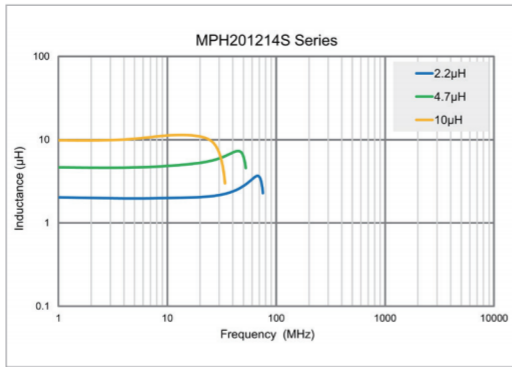


Inductance vs. DC Current Characteristics

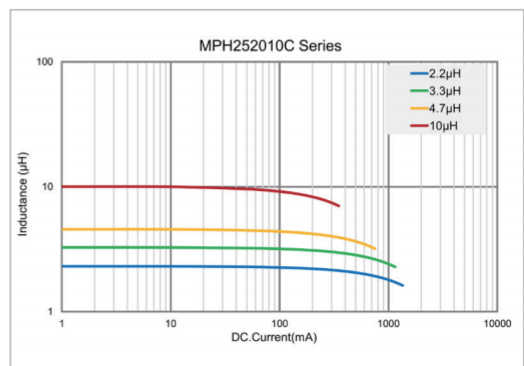
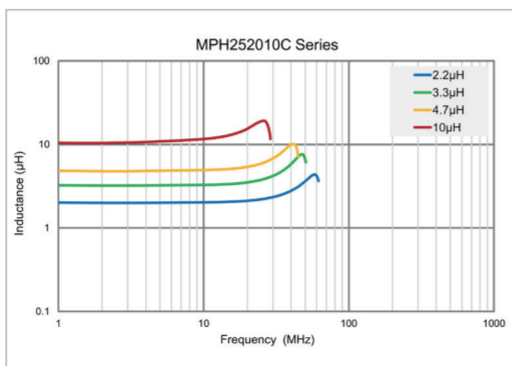
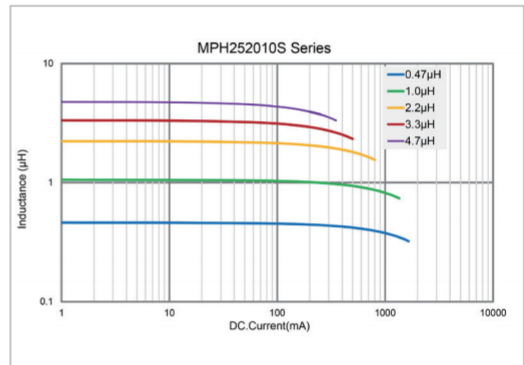
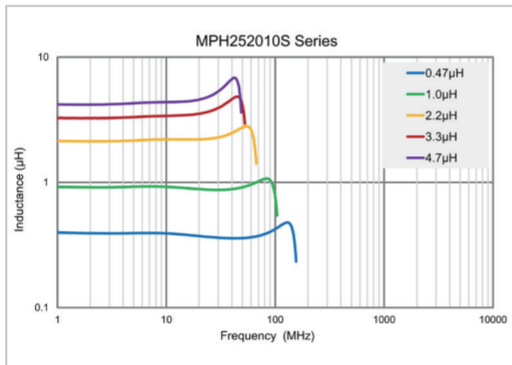
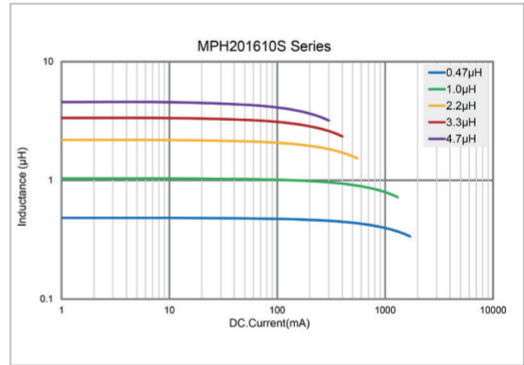
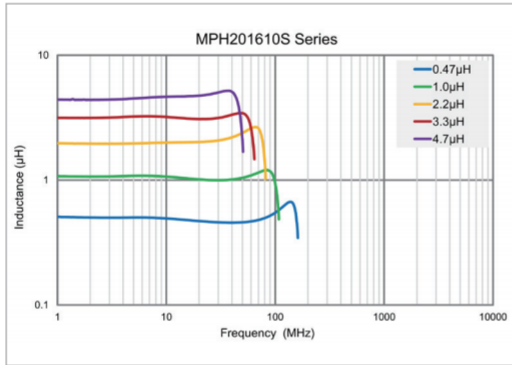
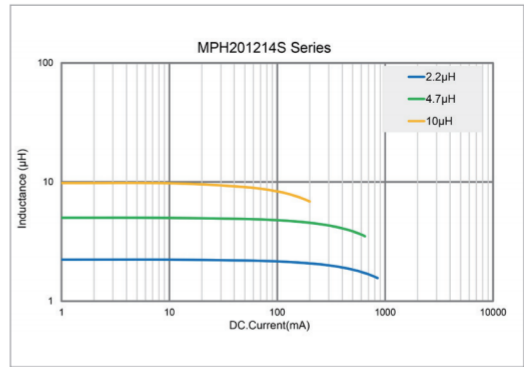


**电气特性**  
Typical  
Electrical  
Characteristics

Inductance vs. Frequency Characteristics

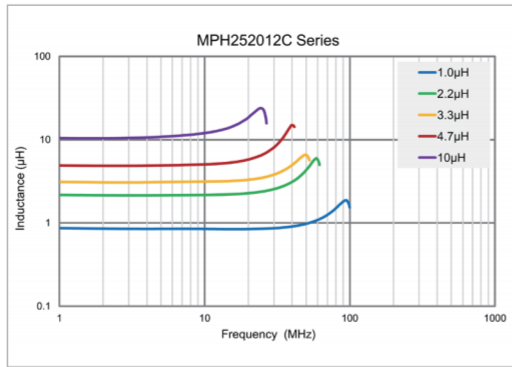


Inductance vs. DC Current Characteristics



**电气特性**  
Typical  
Electrical  
Characteristics

Inductance vs. Frequency Characteristics



Inductance vs. DC Current Characteristics

