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# PHPM 2016 SERIES

HF Halogen Free RoHS COMPLIANT

HIGH POWER INDUCTOR

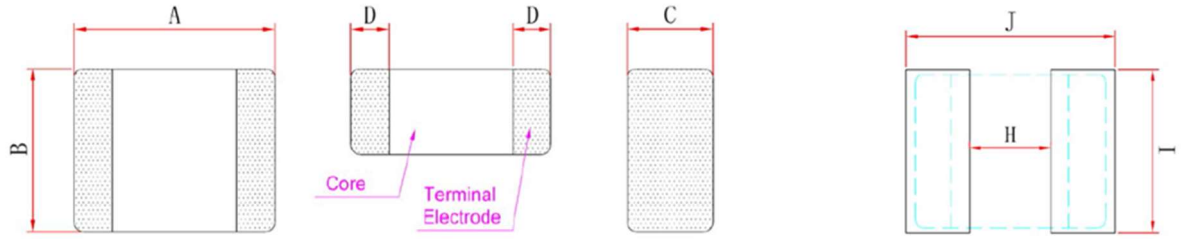
Enable 3D View

## Applications:

- Infotainment System
- LED Headlight & DRL
- Autonomous driving, Instrument Cluster
- Other DC-DC conversion circuit

This is the product 3D document.
Please click "Trust the document" to preview.

## Shape and Dimensions(Dimensions are in mm) :




| Item | A | B | C | D | H | I | J |
|---|---|---|---|---|---|---|---|
| PHPM201610 | 2.0±0.3 | 1.6±0.3 | 0.8±0.2 | 0.5±0.3 | 0.7 | 1.8 | 2.3 |
| PHPM201612 | 2.0±0.3 | 1.6±0.3 | 1.0±0.2 | 0.5±0.3 | 0.7 | 1.8 | 2.3 |

## Features :

- High performance (Isat) realized by metal dust core.
- Low profile: 2.0mm x 1.6mm x 1.0mm.
  2.0mm x 1.6mm x 1.2mm.
- Low loss realized with low DCR.
- Magnetically Shielded.
- Compliance with RoHS and Halogen Free
- Automotive Grade.

## Product Identification:

**PHPM 201610 – 1R0 M**

(1) (2) (3) (4)

(1) Product Symbol
(2) Dimensions Code
(3) Inductance（**1R0**：1.0uH）
(4) Inductance tolerance（**M**：± 20%）

## Characteristics:

- Saturation Current (Isat) : The current will cause $L_0$ to drop approximately 30% typical.
- Temperature Rise Current ( Irms) : The current will cause the coil temperature rise approximately △T=40℃.
- Operating Temperature : -55℃ to 125℃.

## Measurement equipment :

- L: Agilent E4980 Precision LCR Meter (Upgraded version of Agilent HP4284A) with HP42841A Current Source.
- DCR: Chroma16502 Milliohm Meter

## ● PHPM201610 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM201610-R47M | 0.47 | 20 | 27 | 35 | 4.7 | 4.2 | 4.0 | 3.6 |
| PHPM201610-R68M | 0.68 | 20 | 34 | 42 | 3.8 | 3.4 | 2.8 | 2.5 |
| PHPM201610-1R0M | 1.0 | 20 | 52 | 65 | 3.4 | 3.0 | 2.6 | 2.3 |
| PHPM201610-1R5M | 1.5 | 20 | 115 | 128 | 2.6 | 2.3 | 2.0 | 1.7 |
| PHPM201610-2R2M | 2.2 | 20 | 159 | 185 | 2.3 | 2.0 | 1.6 | 1.4 |
| PHPM201610-3R3M | 3.3 | 20 | 193 | 230 | 1.6 | 1.4 | 1.2 | 1.0 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

I rms ( Typ ): DC current ( A ) that will cause an approximate △T of 40℃.

I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

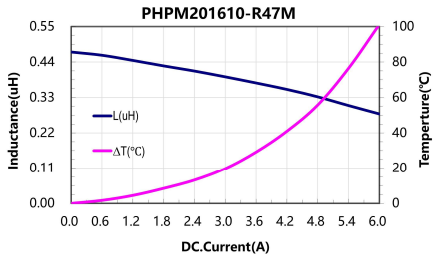
Note 4: Operating Temperature range includes self-temperature rise.

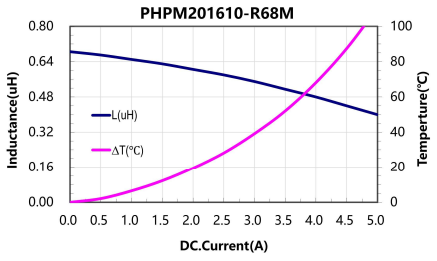
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

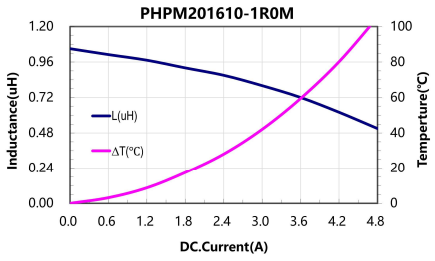
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

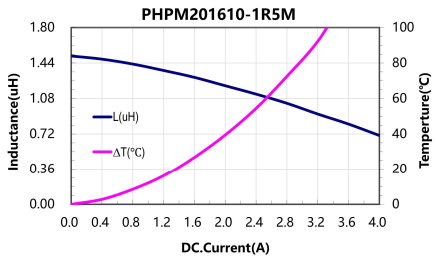
Note 7: Rated Voltage : 20V Max.

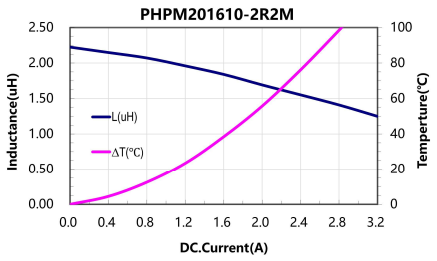
## Typical performance curves :

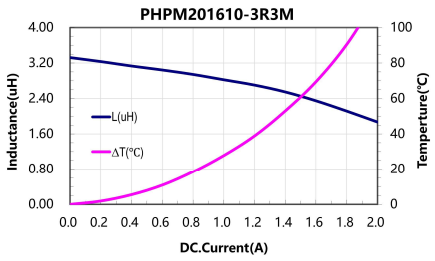


## ● PHPM201612 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM201612-R47M | 0.47 | 20 | 19 | 24 | 5.8 | 5.0 | 4.5 | 4.2 |
| PHPM201612-1R0M | 1.0 | 20 | 53 | 65 | 3.3 | 2.9 | 2.8 | 2.5 |
| PHPM201612-1R5M | 1.5 | 20 | 86 | 100 | 2.8 | 2.5 | 2.2 | 1.9 |
| PHPM201612-2R2M | 2.2 | 20 | 101 | 125 | 2.4 | 2.1 | 1.8 | 1.6 |
| PHPM201612-3R3M | 3.3 | 20 | 185 | 225 | 1.8 | 1.6 | 1.3 | 1.1 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

I rms ( Typ ): DC current ( A ) that will cause an approximate △T of 40℃.

I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

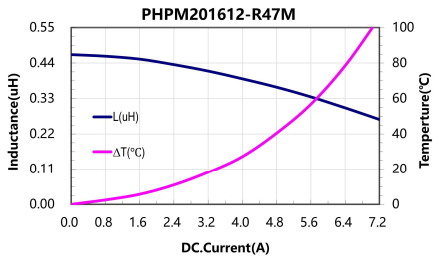
Note 4: Operating Temperature range includes self-temperature rise.

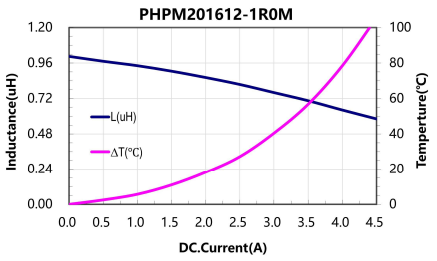
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

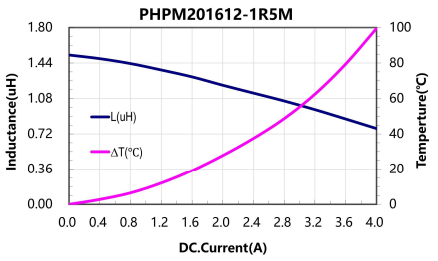
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

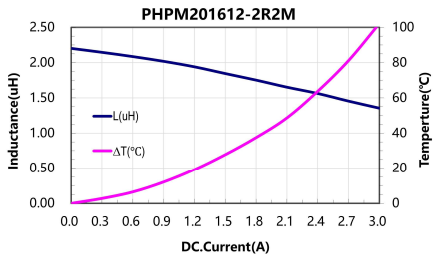
Note 7: Rated Voltage : 20V Max.

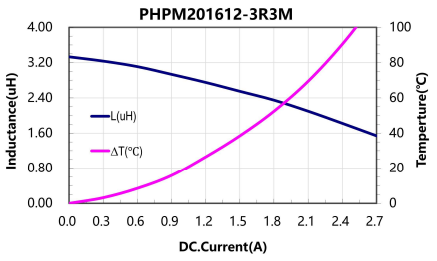
## Typical performance curves :




* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website www.3lcoil.com for better known.

# PHPM 2520 SERIES

HF Halogen Free RoHS COMPLIANT

HIGH POWER INDUCTOR

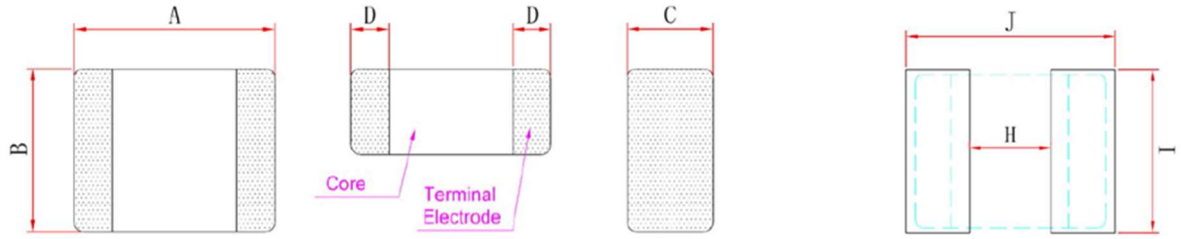
Enable 3D View

## Applications:

- Infotainment System
- LED Headlight & DRL
- Autonomous driving, Instrument Cluster
- Other DC-DC conversion circuit

This is the product 3D document.
Please click "Trust the document" to preview.

## Shape and Dimensions(Dimensions are in mm) :




| Item | A | B | C | D | H | I | J |
|---|---|---|---|---|---|---|---|
| PHPM252010 | 2.5±0.3 | 2.0±0.3 | 0.8±0.2 | 0.6±0.3 | 1.2 | 2.3 | 2.8 |
| PHPM252012 | 2.5±0.3 | 2.0±0.3 | 1.0±0.2 | 0.6±0.3 | 1.2 | 2.3 | 2.8 |

## Features :

- High performance (Isat) realized by metal dust core.
- Low profile: 2.5mm x 2.0mm x 1.0mm.
  2.5mm x 2.0mm x 1.2mm.
- Low loss realized with low DCR.
- Magnetically Shielded.
- Compliance with RoHS and Halogen Free
- Automotive Grade.

## Product Identification:

**PHPM 252010 – 1R0 M**

(1) (2) (3) (4)

(1) Product Symbol
(2) Dimensions Code
(3) Inductance（**1R0**：1.0uH）
(4) Inductance tolerance（**M**：± 20%）

## Characteristics:

- Saturation Current (Isat) : The current will cause $L_0$ to drop approximately 30% typical.
- Temperature Rise Current ( Irms) : The current will cause the coil temperature rise approximately △T=40℃.
- Operating Temperature : -55℃ to 125℃.

## Measurement equipment :

- L: Agilent E4980 Precision LCR Meter (Upgraded version of Agilent HP4284A) with HP42841A Current Source.
- DCR: Chroma16502 Milliohm Meter

## ● PHPM252010 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM252010-R47M | 0.47 | 20 | 19 | 23 | 6.0 | 5.0 | 4.7 | 4.0 |
| PHPM252010-1R0M | 1.0 | 20 | 42 | 56 | 4.5 | 3.9 | 3.7 | 3.3 |
| PHPM252010-1R5M | 1.5 | 20 | 53 | 65 | 2.9 | 2.5 | 2.5 | 2.2 |
| PHPM252010-2R2M | 2.2 | 20 | 100 | 115 | 2.7 | 2.4 | 2.4 | 2.1 |
| PHPM252010-3R3M | 3.3 | 20 | 142 | 168 | 2.1 | 1.8 | 1.8 | 1.6 |
| PHPM252010-4R7M | 4.7 | 20 | 230 | 275 | 1.8 | 1.6 | 1.3 | 1.1 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

I rms ( Typ ): DC current ( A ) that will cause an approximate △T of 40℃.

I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

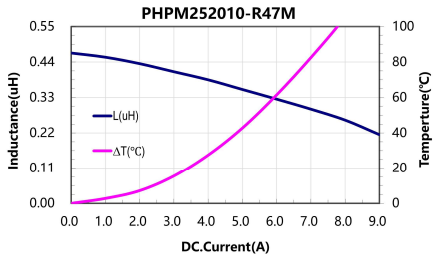
Note 4: Operating Temperature range includes self-temperature rise.

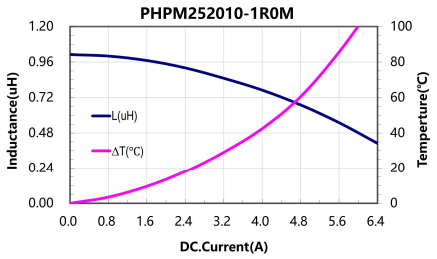
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

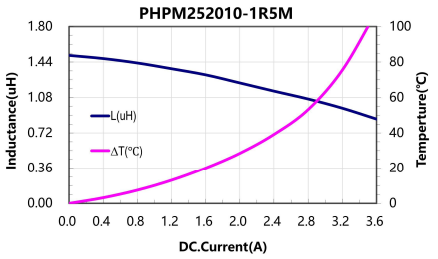
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

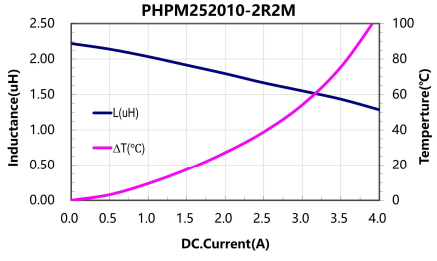
Note 7: Rated Voltage : 20V Max.

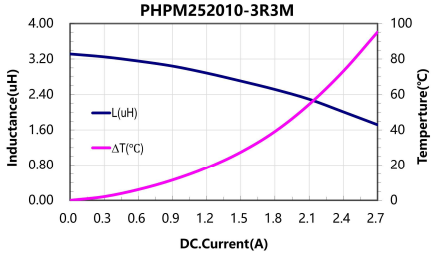
## Typical performance curves :

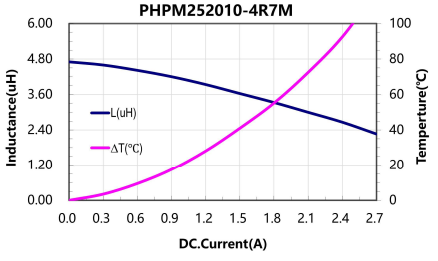


## ● PHPM252012 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM252012-R24M | 0.24 | 20 | 11 | 15 | 9.0 | 8.0 | 7.6 | 6.7 |
| PHPM252012-R33M | 0.33 | 20 | 16 | 21 | 8.2 | 7.0 | 6.5 | 5.6 |
| PHPM252012-R47M | 0.47 | 20 | 17 | 21 | 6.5 | 6.0 | 5.2 | 4.5 |
| PHPM252012-R68M | 0.68 | 20 | 25 | 32 | 5.2 | 4.6 | 4.5 | 4.0 |
| PHPM252012-1R0M | 1.0 | 20 | 37 | 45 | 4.7 | 4.2 | 3.9 | 3.4 |
| PHPM252012-1R5M | 1.5 | 20 | 55 | 65 | 3.9 | 3.5 | 3.3 | 2.9 |
| PHPM252012-2R2M | 2.2 | 20 | 84 | 95 | 3.2 | 3.0 | 2.8 | 2.5 |
| PHPM252012-3R3M | 3.3 | 20 | 130 | 140 | 2.6 | 2.3 | 2.2 | 2.0 |
| PHPM252012-4R7M | 4.7 | 20 | 201 | 230 | 1.8 | 1.6 | 1.4 | 1.2 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

I rms ( Typ ): DC current ( A ) that will cause an approximate △T of 40℃.

I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

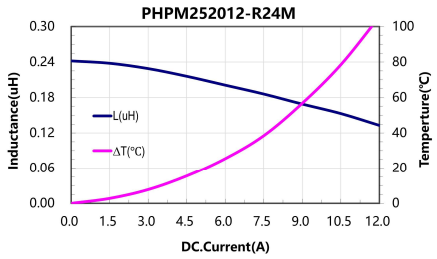
Note 4: Operating Temperature range includes self-temperature rise.

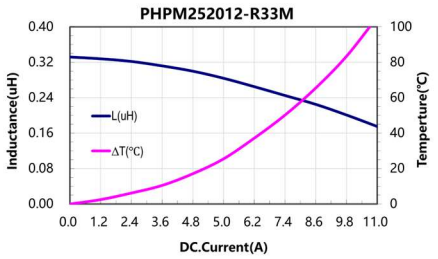
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

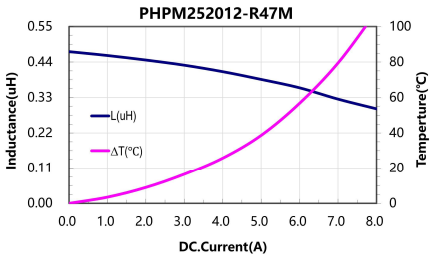
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

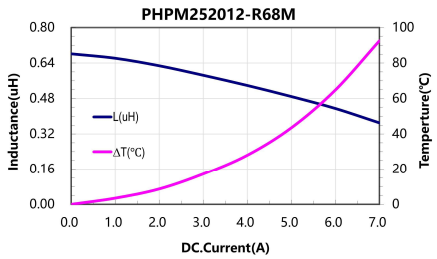
Note 7: Rated Voltage : 20V Max.

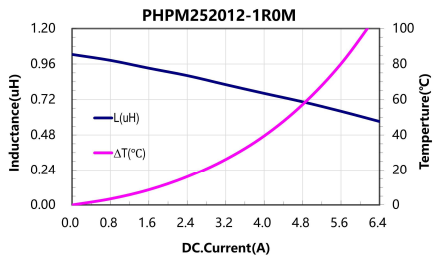
## Typical performance curves :

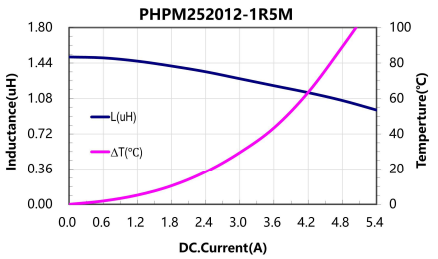


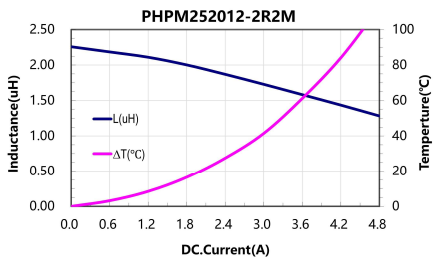



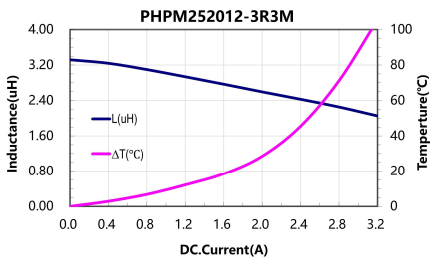



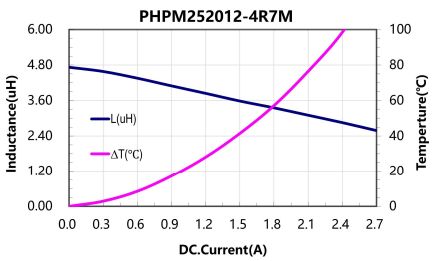




* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website www.3lcoil.com for better known.

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# PHPM 3225 SERIES

HF Halogen Free RoHS COMPLIANT

HIGH POWER INDUCTOR

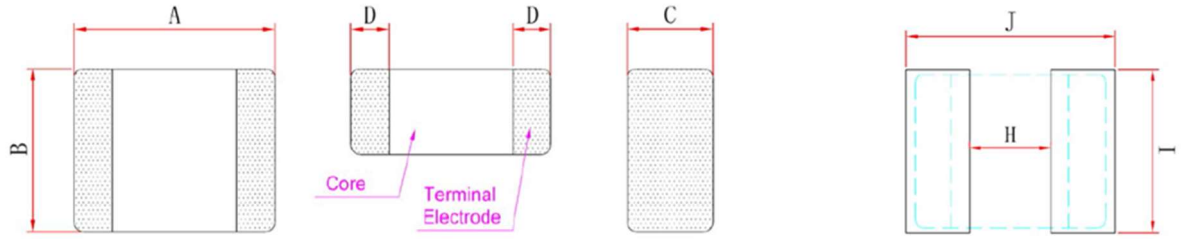
Enable 3D View

## Applications:

- Infotainment System
- LED Headlight & DRL
- Autonomous driving, Instrument Cluster
- Other DC-DC conversion circuit

This is the product 3D document.
Please click "Trust the document" to preview.

## Shape and Dimensions(Dimensions are in mm) :




| Item | A | B | C | D | H | I | J |
|---|---|---|---|---|---|---|---|
| PHPM322512 | 3.2±0.3 | 2.5±0.3 | 1.0±0.2 | 0.6±0.3 | 1.7 | 2.8 | 3.5 |
| PHPM322520 | 3.2±0.3 | 2.5±0.3 | 1.8±0.2 | 0.6±0.3 | 1.7 | 2.8 | 3.5 |

## Features :

- High performance (Isat) realized by metal dust core.
- Low profile: 3.2mm x 2.5mm x 1.2mm.
  3.2mm x 2.5mm x 2.0mm.
- Low loss realized with low DCR.
- Magnetically Shielded.
- Compliance with RoHS and Halogen Free
- Automotive Grade.

## Product Identification:

**PHPM 322512 – 1R0 M**

(1) (2) (3) (4)

(1) Product Symbol
(2) Dimensions Code
(3) Inductance（**1R0**：1.0uH）
(4) Inductance tolerance（**M**：± 20%）

## Characteristics:

- Saturation Current (Isat) : The current will cause $L_0$ to drop approximately 30% typical.
- Temperature Rise Current ( Irms) : The current will cause the coil temperature rise approximately △T=40℃.
- Operating Temperature : -55℃ to 125℃.

## Measurement equipment :

- L: Agilent E4980 Precision LCR Meter (Upgraded version of Agilent HP4284A) with HP42841A Current Source.
- DCR: Chroma16502 Milliohm Meter

## ● PHPM322512 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM322512-R22M | 0.22 | 20 | 9.5 | 13 | 9.6 | 8.5 | 6.8 | 6.2 |
| PHPM322512-R47M | 0.47 | 20 | 17 | 22 | 9.0 | 8.0 | 5.8 | 5.2 |
| PHPM322512-R68M | 0.68 | 20 | 18 | 26 | 6.5 | 6.1 | 5.0 | 4.4 |
| PHPM322512-1R0M | 1.0 | 20 | 34 | 40 | 6.0 | 5.5 | 4.5 | 4.1 |
| PHPM322512-1R5M | 1.5 | 20 | 40 | 48 | 4.8 | 4.2 | 3.9 | 3.5 |
| PHPM322512-2R2M | 2.2 | 20 | 58 | 66 | 4.0 | 3.6 | 3.1 | 2.8 |
| PHPM322512-3R3M | 3.3 | 20 | 96 | 108 | 3.0 | 2.6 | 2.2 | 2.0 |
| PHPM322512-4R7M | 4.7 | 20 | 140 | 157 | 2.8 | 2.4 | 2.1 | 1.7 |
| PHPM322512-6R8M | 6.8 | 20 | 220 | 276 | 2.2 | 1.9 | 1.5 | 1.2 |
| PHPM322512-100M | 10.0 | 20 | 340 | 370 | 1.8 | 1.5 | 1.2 | 0.9 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

I rms ( Typ ): DC current ( A ) that will cause an approximate △T of 40℃.

I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

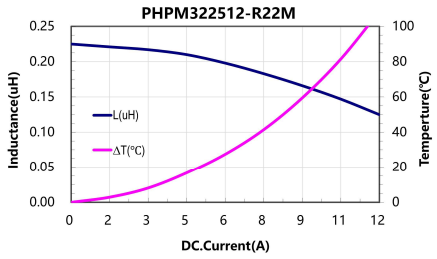
Note 4: Operating Temperature range includes self-temperature rise.

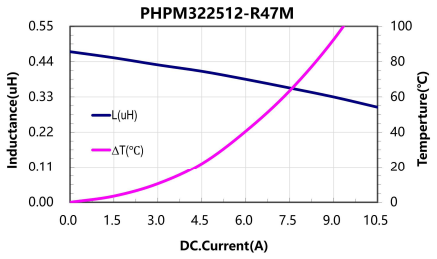
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

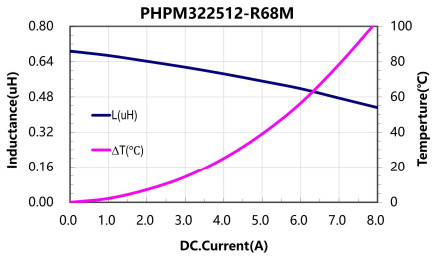
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

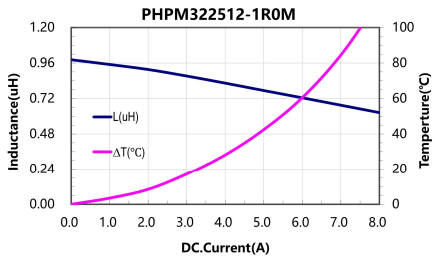
Note 7: Rated Voltage : 20V Max.

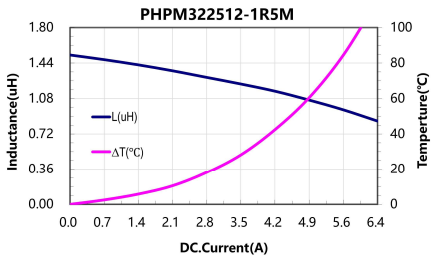
## Typical performance curves :

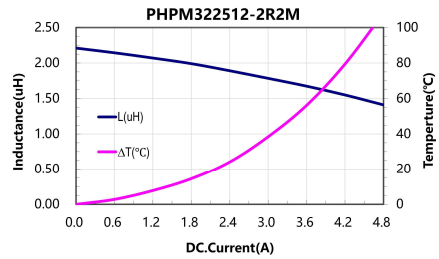


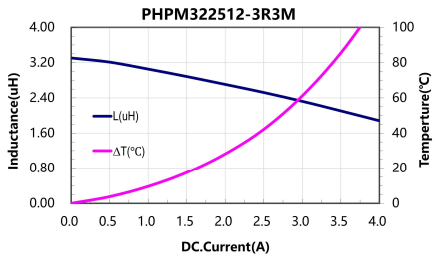



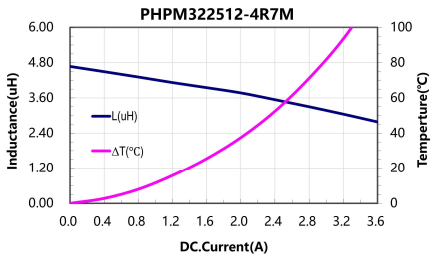



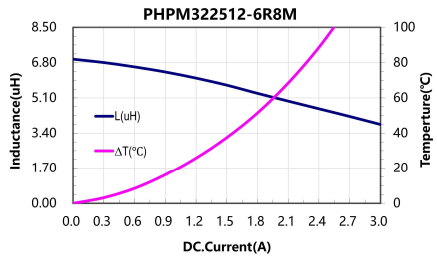



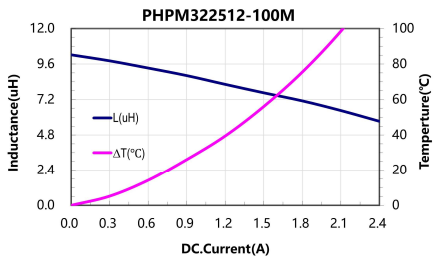



## ● PHPM322520 SERIES

| Part No. | Inductance L(uH) | Tolerance (±%) | DCR(mΩ) | | Isat(A) | | Irms(A) | |
|---|---|---|---|---|---|---|---|---|
| | | | Typ. | Max. | Typ. | Max. | Typ. | Max. |
| PHPM322520-1R0M | 1.0 | 20 | 22 | 25 | 7.6 | 6.5 | 4.8 | 4.2 |
| PHPM322520-1R5M | 1.5 | 20 | 30 | 35 | 6.0 | 5.2 | 4.2 | 3.5 |
| PHPM322520-2R2M | 2.2 | 20 | 33 | 40 | 4.6 | 4.0 | 3.3 | 2.9 |
| PHPM322520-3R3M | 3.3 | 20 | 50 | 65 | 4.2 | 3.6 | 2.6 | 2.3 |
| PHPM322520-4R7M | 4.7 | 20 | 86 | 98 | 3.4 | 2.9 | 2.4 | 2.0 |

**If you require another part number, please contact us.**

Note 1: Referenced ambient temperature 25℃.

Note 2: L Test Condition：1MHz,1.0V

Note 3: I sat ( Typ ): DC current ( A ) that will cause L0 to drop approximately 30%.

I sat ( Max ): DC current ( A ) that will cause L0 to drop 30% Max.

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I rms ( Max ): DC current ( A ) that will cause △T of 40℃ Max.

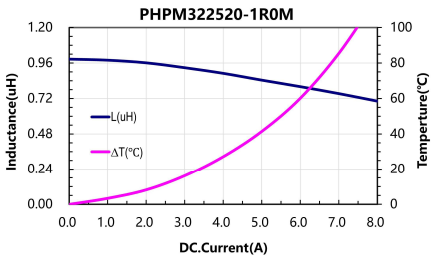
Note 4: Operating Temperature range includes self-temperature rise.

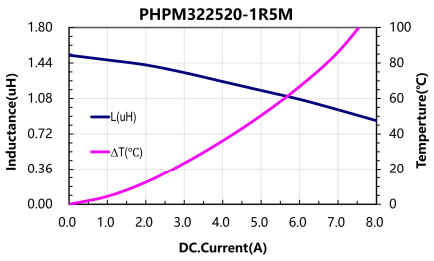
Note 5: The part temperature (ambient + temp rise) should not exceed 125℃ under the worst case operating conditions. Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provision all affect the part temperature. Part temperature should be verified in the end application.

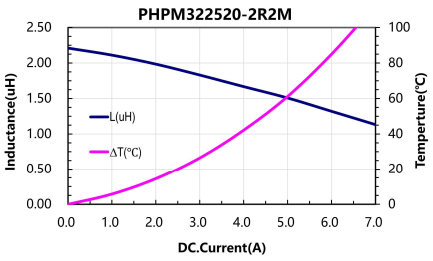
Note 6: The rated current as listed is either the saturation current or the heating current depending on which value is lower.

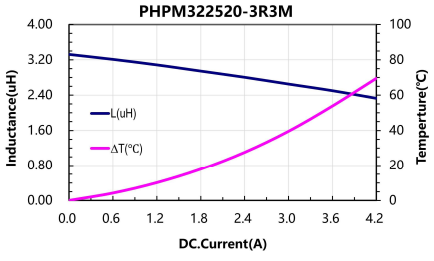
Note 7: Rated Voltage : 20V Max.

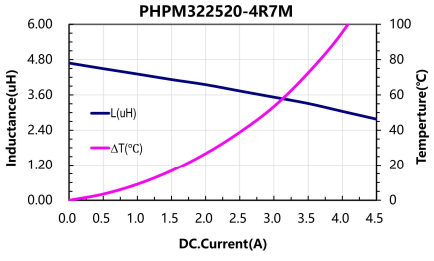
## Typical performance curves :




* Due to the limited space, the catalogue shows the typical specifications only. For more specific details ( characteristics graph, reliability, and others), kindly invite you to access 3L official website www.3lcoil.com for better known.