



Wire Wound SMD Power Inductors – AMWPH Series

Operating Temp. : -40°C~+125°C (Including self-heating)

FEATURES

- High saturation current, low DC resistance
- Excellent temperature stability
- High reliability,
- AEC-Q200 verified

APPLICATIONS

- Infotainment system
- LED lighting
- Airbag
- Power supply system except for power engineer chassis and safety system

PRODUCT IDENTIFICATION

AMWPH

①

6045

②

S

③

2R2

④

M

⑤

T

⑥

| | | |
|-------|-------------------------------|--|
| ① | Type | |
| AMWPH | Wire Wound SMD Power Inductor | |

| | | |
|------|----------------------------------|--|
| ② | External Dimensions (LxWxH) [mm] | |
| 3015 | 3.0x3.0x1.5 | |
| 4018 | 4.0x4.0x1.8 | |
| 5030 | 5.0x5.0x2.9 | |
| 6045 | 6.0x6.0x4.4 | |

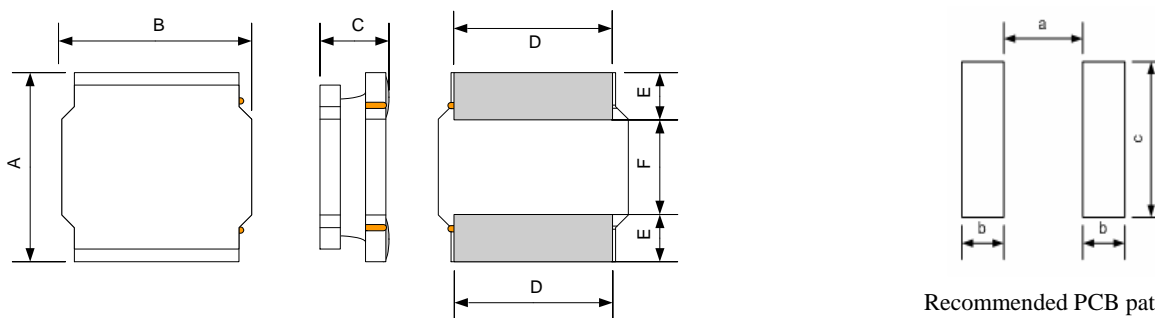
| | | |
|---|-------------|--|
| ⑥ | Packing | |
| T | Tape & Reel | |

| | | |
|---|--------------|--|
| ③ | Feature Type | |
| S | S Type | |

| | | |
|---------|--------------------|--|
| ④ | Nominal Inductance | |
| Example | Nominal Value | |
| 2R2 | 2.2μH | |
| 100 | 10μH | |

| | | |
|---|----------------------|--|
| ⑤ | Inductance Tolerance | |
| N | ±30% | |
| M | ±20% | |

SHAPE AND DIMENSIONS



Recommended PCB pattern

Unit: mm

| Series | A | B | C | D | E | F | a | b | c |
|------------|---------|---------|----------|---------|----------|----------|----------|---------|---------|
| AMWPH3015S | 3.0±0.2 | 3.0±0.2 | 1.5±0.15 | 2.5±0.2 | 0.9±0.2 | / | 1.0Typ. | 1.4Typ. | 2.7Typ. |
| AMWPH4018S | 4.0±0.2 | 4.0±0.2 | 1.8±0.2 | 3.3±0.2 | 1.1±0.2 | / | 1.2Typ. | 1.8Typ. | 3.7Typ. |
| AMWPH5030S | 5.0±0.2 | 5.0±0.2 | 2.9±0.2 | 4.0±0.2 | 1.25±0.2 | 2.3 Typ. | 1.8Typ. | 2.0Typ. | 4.2Typ |
| AMWPH6045S | 6.0±0.3 | 6.0±0.3 | 4.4±0.2 | 4.9±0.3 | 1.55±0.3 | 2.8 Typ. | 2.5 Typ. | 2.2Typ. | 5.7Typ. |

SPECIFICATIONS

AMWPH3015S Series

| Parameters | Inductance | DC Resistance | | Saturation Current | Heat Rating Current |
|-----------------|------------|---------------|-------|--------------------|---------------------|
| | 0.1MHz,1V | Max. | Typ. | Typ. | Typ. |
| Unit | uH | Ω | | A | A |
| Symbol | L | DCR | | Isat | Irms |
| AMWPH3015S1R0NT | 1.0±30% | 0.043 | 0.036 | 2.75 | 2.40 |
| AMWPH3015S1R5NT | 1.5±30% | 0.052 | 0.043 | 2.20 | 2.22 |
| AMWPH3015S2R2MT | 2.2±20% | 0.068 | 0.057 | 1.70 | 1.92 |
| AMWPH3015S3R3MT | 3.3±20% | 0.098 | 0.082 | 1.50 | 1.55 |
| AMWPH3015S4R7MT | 4.7±20% | 0.120 | 0.100 | 1.15 | 1.47 |
| AMWPH3015S6R8MT | 6.8±20% | 0.180 | 0.150 | 1.00 | 1.20 |
| AMWPH3015S100MT | 10±20% | 0.288 | 0.240 | 0.80 | 0.95 |
| AMWPH3015S150MT | 15±20% | 0.360 | 0.300 | 0.70 | 0.84 |
| AMWPH3015S220MT | 22±20% | 0.552 | 0.460 | 0.56 | 0.70 |
| AMWPH3015S330MT | 33±20% | 1.092 | 0.910 | 0.48 | 0.50 |
| AMWPH3015S470MT | 47±20% | 1.248 | 1.040 | 0.35 | 0.48 |
| AMWPH3015S101MT | 100±20% | 2.880 | 2.400 | 0.25 | 0.30 |

AMWPH4018S Series

| Parameters | Inductance | DC Resistance | | Saturation Current | Heat Rating Current |
|-----------------|------------|---------------|-------|--------------------|---------------------|
| | 0.1MHz,1V | Max. | Typ. | Typ. | Typ. |
| Unit | uH | Ω | | A | A |
| Symbol | L | DCR | | Isat | Irms |
| AMWPH4018S1R0NT | 1.0±30% | 0.036 | 0.030 | 5.50 | 3.00 |
| AMWPH4018S1R5NT | 1.5±30% | 0.043 | 0.036 | 4.60 | 2.85 |
| AMWPH4018S2R2MT | 2.2±20% | 0.060 | 0.050 | 4.00 | 2.55 |
| AMWPH4018S3R3MT | 3.3±20% | 0.066 | 0.055 | 2.90 | 2.50 |
| AMWPH4018S4R7MT | 4.7±20% | 0.094 | 0.078 | 2.20 | 2.00 |
| AMWPH4018S6R8MT | 6.8±20% | 0.127 | 0.106 | 1.90 | 1.75 |
| AMWPH4018S8R2MT | 8.2±20% | 0.172 | 0.143 | 1.85 | 1.50 |
| AMWPH4018S100MT | 10±20% | 0.187 | 0.156 | 1.50 | 1.48 |
| AMWPH4018S120MT | 12±20% | 0.278 | 0.232 | 1.75 | 1.10 |
| AMWPH4018S150MT | 15±20% | 0.354 | 0.295 | 1.50 | 1.00 |
| AMWPH4018S220MT | 22±20% | 0.408 | 0.340 | 1.20 | 0.95 |
| AMWPH4018S330MT | 33±20% | 0.582 | 0.485 | 1.00 | 0.70 |
| AMWPH4018S470MT | 47±20% | 0.774 | 0.645 | 0.70 | 0.65 |

SPECIFICATIONS

AMWPH5030S Series

| Parameters | Inductance | DC Resistance | | Saturation Current | Heat Rating Current |
|-----------------|------------|---------------|-------|--------------------|---------------------|
| | 0.1MHz,1V | Max. | Typ. | Typ. | Typ. |
| Unit | uH | Ω | | A | A |
| Symbol | L | DCR | | Isat | Irms |
| AMWPH5030SR47NT | 0.47±30% | 0.013 | 0.011 | 13.00 | 5.15 |
| AMWPH5030S1R0NT | 1.0±30% | 0.017 | 0.014 | 9.50 | 4.55 |
| AMWPH5030S1R5NT | 1.5±30% | 0.022 | 0.018 | 7.50 | 4.00 |
| AMWPH5030S2R2MT | 2.2±20% | 0.038 | 0.032 | 7.10 | 3.20 |
| AMWPH5030S3R3MT | 3.3±20% | 0.043 | 0.036 | 5.10 | 2.75 |
| AMWPH5030S4R7MT | 4.7±20% | 0.068 | 0.057 | 4.50 | 2.40 |
| AMWPH5030S100MT | 10±20% | 0.115 | 0.096 | 3.15 | 1.60 |
| AMWPH5030S220MT | 22±20% | 0.254 | 0.212 | 1.95 | 0.88 |
| AMWPH5030S330MT | 33±20% | 0.367 | 0.306 | 1.55 | 0.75 |

AMWPH6045S Series

| Parameters | Inductance | DC Resistance | | Saturation Current | Heat Rating Current |
|-----------------|------------|---------------|-------|--------------------|---------------------|
| | 0.1MHz,1V | Max. | Typ. | Typ. | Typ. |
| Unit | uH | Ω | | A | A |
| Symbol | L | DCR | | Isat | Irms |
| AMWPH6045SR55MT | 0.55±20% | 0.009 | 0.007 | 15.50 | 6.50 |
| AMWPH6045S1R0MT | 1.0±20% | 0.013 | 0.010 | 10.50 | 5.90 |
| AMWPH6045S1R5MT | 1.5±20% | 0.016 | 0.012 | 8.70 | 5.40 |
| AMWPH6045S2R2MT | 2.2±20% | 0.020 | 0.016 | 6.90 | 4.70 |
| AMWPH6045S4R7MT | 4.7±20% | 0.040 | 0.030 | 5.15 | 3.40 |
| AMWPH6045S100MT | 10±20% | 0.060 | 0.049 | 3.45 | 2.70 |
| AMWPH6045S150MT | 15±20% | 0.085 | 0.071 | 2.70 | 2.05 |
| AMWPH6045S220MT | 22±20% | 0.140 | 0.116 | 2.25 | 1.75 |
| AMWPH6045S470MT | 47±20% | 0.300 | 0.225 | 1.50 | 1.20 |
| AMWPH6045S680MT | 68±20% | 0.395 | 0.328 | 1.30 | 1.00 |
| AMWPH6045S101MT | 100±20% | 0.560 | 0.460 | 1.05 | 0.85 |

Note:

- ※1 : Rated current: Isat or Irms, whichever is smaller.
- ※2 : Saturation Current : DC current at which the inductance drops approximate 30% from its value without current.
- ※3 : Heat Rating Current: DC current that causes the temperature rise ($\Delta T=40^{\circ}\text{C}$) from 20°C ambient;
The part temperature (ambient + temp. rise) should not exceed 125°C under worst case operating conditions.
Circuit design, component placement, PCB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application

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