

Aluminum Housed
Resistors

Power Wirewound Type

Lug / Threaded Style [AHA Series]
Straight Leadwire Style [AHP Series]



FEATURES

| | |
|----------------------|------------------------------------|
| Power Rating | 5W, 10W, 25W, 50W, 80W, 100W, 250W |
| Resistance Tolerance | ±0.25%, ±0.5%, ±1%, ±5%, ±10% |
| T.C.R. | ±50ppm/°C, ±100ppm/°C, ±200ppm/°C |

DIMENSIONS

Unit: mm



| STYLE | DIMENSION | | | | | | | | | | | | | |
|---------------|-----------|----------|----------|-----------|----------|----------|----------|----------|---------|----------|----------|----------|----------|----------|
| | Normal | L11 | L12 | L2 | L3 | A | B | C | øE | S | H | P | M1 | M2 |
| AHA500/AHP500 | | 28.6±1.5 | 71.2±1.5 | 15.2±0.5 | 11.5±0.5 | 16.4±0.5 | 12.5±0.5 | 8.5±0.5 | 2.4±0.3 | 8.1±1.0 | 3.8±1.0 | 6.7±1.0 | 1.5±0.05 | 0.8±0.05 |
| AHA10A/AHP10A | | 34.9±1.5 | 75.0±1.5 | 19.0±0.5 | 14.2±0.5 | 20.3±0.5 | 15.9±0.5 | 10.7±0.5 | 2.4±0.3 | 9.9±1.0 | 4.2±1.0 | 7.95±1.0 | 2.0±0.05 | 0.8±0.05 |
| AHA25A/AHP25A | | 49.2±1.5 | 80.0±1.5 | 27.0±0.5 | 18.2±0.5 | 27.4±0.5 | 19.8±0.5 | 14.0±0.5 | 3.2±0.3 | 13.9±1.0 | 5.9±1.0 | 11.1±1.0 | 2.0±0.05 | 0.8±0.05 |
| AHA50A/AHP50A | | 70.6±1.5 | 106±1.5 | 50.0±0.5 | 40.0±0.5 | 29.0±0.5 | 21.4±0.5 | 16.0±0.5 | 3.2±0.3 | 15.5±1.0 | 6.6±1.0 | 10.3±1.0 | 2.0±0.05 | 0.8±0.05 |
| AHA80A | | 102±2.0 | - | 66.0±1.0 | 35.0±0.5 | 47.0±0.5 | 37.0±0.5 | 28.0±0.5 | 4.5±0.3 | 25.0±1.0 | 12.0±1.0 | - | 2.0±0.05 | - |
| AHA10B | | 139±2.0 | - | 89.0±1.0 | 70.0±0.5 | 71.2±0.5 | 57.2±0.5 | 46.0±0.8 | 4.8±0.3 | 44.6±1.0 | 19.6±1.0 | - | 5.0±0.05 | - |
| AHA25B | | 177±2.0 | - | 144.4±1.0 | 76.2±0.5 | 76.0±0.5 | 64.0±0.5 | 54.0±0.8 | 4.8±0.3 | 55.6±1.0 | 24.4±1.0 | - | 6.0±0.05 | - |

TEMPERATURE RISE



ELECTRICAL CHARACTERISTICS

| STYLE | AHA500 AHP500 | AHA10A AHP10A | AHA25A AHP25A | AHA50A AHP50A | AHA80A | AHA10B | AHA25B |
|---------------------------------------|-----------------------------------|------------------|------------------|------------------|-------------|-------------|--------|
| Power Rating on std. heatsink at 25°C | 5W | 10W | 25W | 50W | 80W | 100W | 250W |
| Voltage Proof on Insulation | 1,000V | | | 2,000V | | 4,500V | |
| Resistance Range | 0.1Ω - 1KΩ | 0.1Ω - 1.5KΩ | 0.1Ω - 10KΩ | 0.1Ω - 33KΩ | 0.1Ω - 39KΩ | 0.1Ω - 51KΩ | |
| Operating Temp. Range | -55°C to +250°C | | | | | | |
| Temperature Coefficient | ±50ppm/°C, ±100ppm/°C, ±200ppm/°C | | | | | | |

Note: Special value is available on request.

ENVIRONMENTAL CHARACTERISTICS

| PERFORMANCE TEST | TEST METHOD | | APPRAISE |
|-------------------------------|------------------|--|---|
| Short Time Overload | IEC 60115-1 4.13 | 5 times of rated power for 5 sec. | ±1.0%+0.05Ω |
| Voltage Proof on Insulation | IEC 60115-1 4.7 | in V-block for 60 Sec., test voltage by type | By type |
| Temperature Coefficient | IEC 60115-1 4.8 | -55°C to +250°C | By type |
| Insulation Resistance | IEC 60115-1 4.6 | in V-block for 60 Sec. | >100MΩ |
| Solderability | IEC 60115-1 4.17 | 235±5°C for 3±0.5 Sec. | 95% Min. coverage |
| Solvent Resistance of Marking | IEC 60115-1 4.30 | IPA for 5±0.5 Min. with ultrasonic | No deterioration of coatings and markings |
| Robustness of Terminations | IEC 60115-1 4.16 | Pull test (30 Sec. Min): 5W: 1kg, 10W: 2.3kg, 25 - 50W: 4.5kg Torque test (5 - 15 Sec): 80W: 2N, 100W: 2.7N, 250W: 3.7N | ±0.2%+0.05Ω |
| Damp Heat Steady State | IEC 60115-1 4.24 | 40±2°C, 90-95% RH for 56 days, loaded with 0.1 times RCWV | ±5.0%+0.05Ω |
| Endurance at 70°C | IEC 60115-1 4.25 | 70±2°C at RCWV for 1,000 Hr. (1.5 Hr. on, 0.5 Hr. off) | ±5.0%+0.05Ω |
| Temperature Cycling | IEC 60115-1 4.19 | -55°C ⇌ Room Temp. ⇌ +155°C ⇌ Room Temp. (5 cycles) | ±1.0%+0.05Ω |
| Resistance to Soldering Heat | IEC 60115-1 4.18 | 260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body | ±1.0%+0.05Ω |

Note: Rated Continuous Working Voltage (RCWV) = $\sqrt{\text{Power Rating} \times \text{Resistance Value}}$ or Max. working voltage listed above, whichever less.

Revision: 201304



EXPLANATIONS OF ORDERING CODE

| MFR | -12 | F | T | F | 52- | 100R |
|---|--|--|---|---|---|--|
| Code 1 - 3 Series Name See Index | Code 4 - 6 Power Rating -05 = \varnothing d0.5mm -06 = \varnothing d0.6mm -07 = \varnothing d0.7mm -08 = \varnothing d0.8mm -10 = \varnothing d1.0mm -14 = \varnothing d1.4mm -12 = 1/6W -25 = 1/4W 25S = 1/4WS -50 = 1/2W 50S = 1/2WS 100 = 1W 1WS = 1WS 200 = 2W 2WS = 2WS 204 = 0.4W 207 = 0.6W 300 = 3W 3WS = 3WS 3WM = 3WM 400 = 4W 500 = 5W 5WS = 5WS 5SS = 5WSS 700 = 7W 7WS = 7WS 10A = 10W 20A = 20W 30A = 30W 40A = 40W 50A = 50W 10S = 10WS 15A = 15W 25A = 25W 10B = 100W 25B = 250W | Code 7 Tolerance P = ± 0.02 % A = ± 0.05 % B = ± 0.1 % C = ± 0.25 % D = ± 0.5 % F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % - = Base on Spec. | Code 8 Packing Style T = Tape/Box R = Tape/Reel B = Bulk | Code 9 Temperature Coefficient of Resistance - = Base on Spec. A = ± 5 ppm/ $^{\circ}$ C B = ± 10 ppm/ $^{\circ}$ C C = ± 15 ppm/ $^{\circ}$ C S = ± 20 ppm/ $^{\circ}$ C D = ± 25 ppm/ $^{\circ}$ C E = ± 50 ppm/ $^{\circ}$ C F = ± 100 ppm/ $^{\circ}$ C G = ± 200 ppm/ $^{\circ}$ C H = ± 250 ppm/ $^{\circ}$ C I = ± 300 ppm/ $^{\circ}$ C J = ± 350 ppm/ $^{\circ}$ C | Code 10 - 12 Forming Type 26- = 26mm 52- = 52.4mm 73- = 73mm 81- = 81mm 91- = 91mm F = F Type FK = FK Type FKK = FKK Type FFK = F-form Kink M = M-Type Forming MB = M-form W/flat MT = MT Type Forming MR = MR Type AV = AVIsert PN = PANAsert | Code 13 - 17 Resistance Value 0R1 = 0.1 100R = 100 10K = 10,000 10M = 10,000,000 |

EXCEPTION:

• Cement series:

<Code 8>: Special packing style code

B: Bulk with wirewound or metal oxide sub-assembly for resistance value

W: Bulk with ceramic based wirewound sub-assembly for resistance value

M: Bulk with metal oxide sub-assembly for resistance value

F: Bulk with Fiberglass based wirewound sub-assembly for resistance value

<Code 10-12>: Without forming code

Example: **SQP500JB-10R**

• JPW series:

<Code 13-17>: without resistance value code

Example: **JPW-06-T-52-**