

# 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	MI	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

<b>MFR</b>	<b>-12</b>	<b>F</b>	<b>T</b>	<b>F</b>	<b>52-</b>	<b>100R</b>
Code 1 - 3 <b>Series Name</b> See Index	Code 4 - 6 <b>Power Rating</b> -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 <b>Tolerance</b> P = $\pm 0.02$ % A = $\pm 0.05$ % B = $\pm 0.1$ % C = $\pm 0.25$ % D = $\pm 0.5$ % F = $\pm 1$ % G = $\pm 2$ % J = $\pm 5$ % K = $\pm 10$ % - = Base on Spec.	Code 8 <b>Packing Style</b> T = Tape/Box R = Tape/Reel B = Bulk	Code 9 <b>Temperature Coefficient of Resistance</b> - = Base on Spec. A = $\pm 5$ ppm/ $^{\circ}$ C B = $\pm 10$ ppm/ $^{\circ}$ C C = $\pm 15$ ppm/ $^{\circ}$ C S = $\pm 20$ ppm/ $^{\circ}$ C D = $\pm 25$ ppm/ $^{\circ}$ C E = $\pm 50$ ppm/ $^{\circ}$ C F = $\pm 100$ ppm/ $^{\circ}$ C G = $\pm 200$ ppm/ $^{\circ}$ C H = $\pm 250$ ppm/ $^{\circ}$ C I = $\pm 300$ ppm/ $^{\circ}$ C J = $\pm 350$ ppm/ $^{\circ}$ C	Code 10 - 12 <b>Forming Type</b> 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 <b>Resistance Value</b> 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-**