

DATA SHEET

ALUMINUM HOUSED RESISTORS

High Power, Wirewound
Chassis Mount

AHA series

AHP series

$\pm 1\%$, $\pm 2\%$, $\pm 5\%$, $\pm 10\%$

5W to 50W

RoHS compliant & Halogen Free





APPLICATIONS

- Power, pulse application
- Industry electronic
- BMS
- Large-sized machinery

FEATURES

- Reduced size
- Heatsink mounted
- Excellent surge performance
- Corrosion-resistant aluminum are corrugated for added strength and power dissipation
- RoHS compliant & halogen-free

ORDERING INFORMATION

Part number of the aluminum housed power wirewound resistor resistors are identified by the series, power rating, tolerance, packing, temperature coefficient, type and resistance value.

PART NUMBER

AHA	500	F	B	=	U	100R
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) SERIES

AHA Series = Lug / Threaded terminal

AHP Series = Axial lead

(2) POWER RATING

500= 5W

25A = 25W

10A = 10W

50A = 50W

(3) TOLERANCE

F = $\pm 1\%$

J = $\pm 5\%$

G = $\pm 2\%$

K = $\pm 10\%$

(4) PACKAGING

B = Bulk

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

E= $\pm 50\text{ppm}/^\circ\text{C}$,

G= $\pm 200\text{ppm}/^\circ\text{C}$

F= $\pm 100\text{ppm}/^\circ\text{C}$,

- = Based on spec.

(6) TYPE

Optional code, represents specific requirement,

Example:

U = Resin glue filling

W = Silicone sealant filling

GW = Silicone sealant filling, terminal diameter in 2 mm

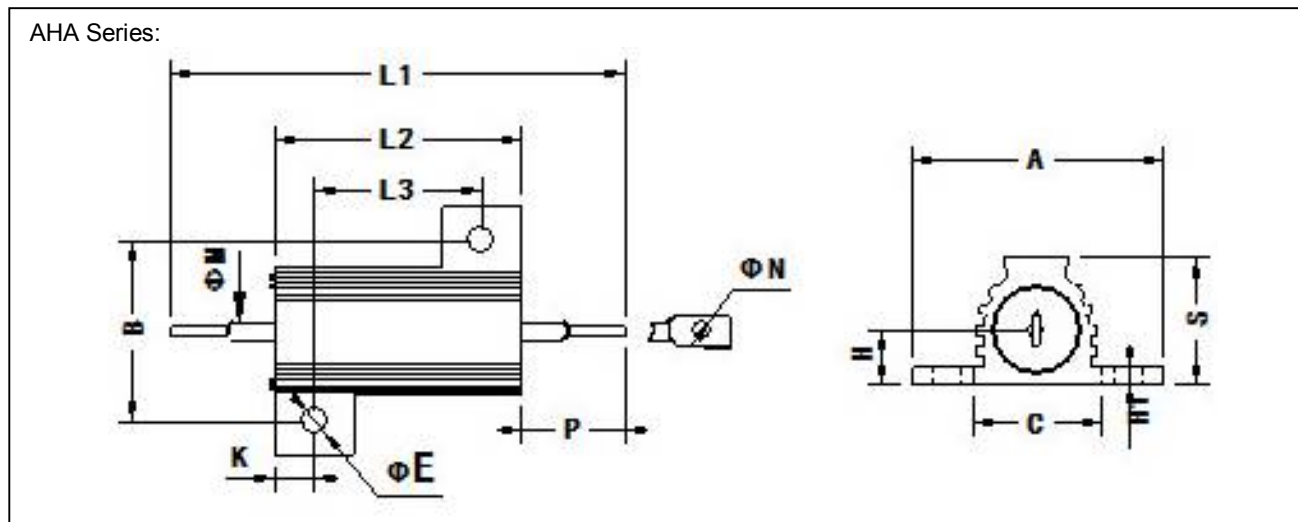
Null = Quartz filling, resin glue sealing

(7) RESISTANCE VALUE

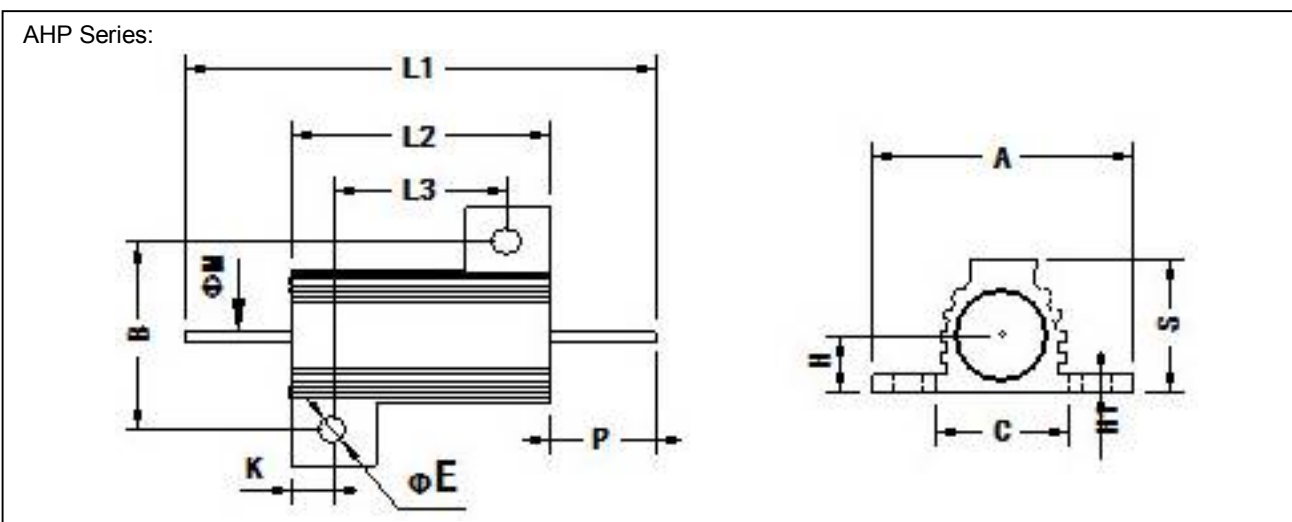
E24 & E96 Series

Example:

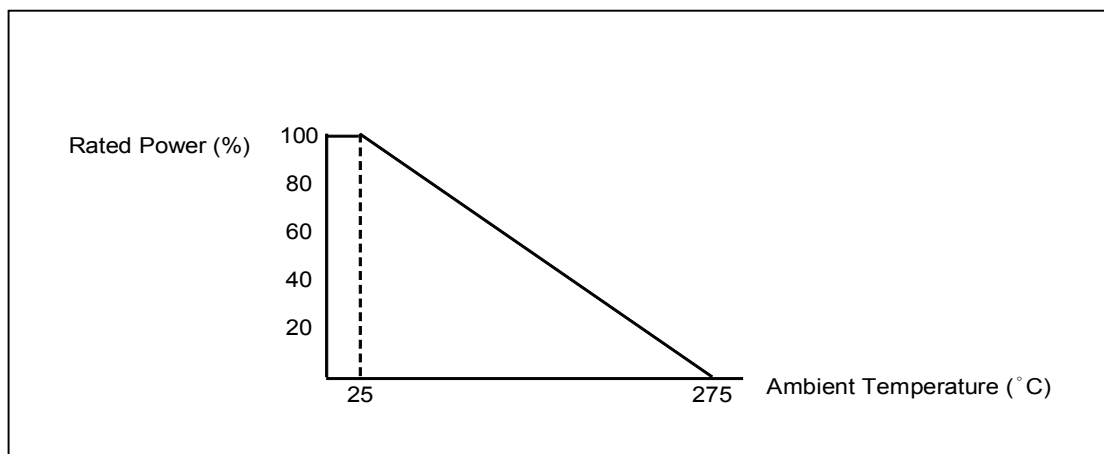
1R = 1 Ω , 10R = 10 Ω , 100R= 100 Ω

DIMENSIONS

TYPE	DIMENSIONS														Unit: mm
Normal	$L1 \pm 1.5$	$L2 \pm 0.5$	$L3 \pm 0.5$	$A \pm 0.5$	$B \pm 0.5$	$C \pm 0.5$	$\varnothing E \pm 0.3$	$S \pm 1.0$	$H \pm 1.0$	$P \pm 1.0$	$H1 \pm 1.0$	$K \pm 0.3$	$M \pm 0.05$	$N \pm 0.3$	
AHA500	28.6	15.2	11.5	16.4	12.5	8.5	2.4	8.1	3.8	6.7	1.7	2	1.5	1.3	
AHA10A	34.9	19	14.2	20.3	15.9	10.7	2.4	9.9	4.2	7.95	1.9	2.4	2	2.2	
AHA25A	49.2	27	18.2	27.4	19.8	14	3.2	13.9	5.9	11.1	1.9	4.4	2	2.2	
AHA50A	70.6	50	40	29	21.4	16	3.2	15.5	6.6	10.3	2.2	5	2	2.2	



TYPE	DIMENSIONS														Unit: mm
Normal	$L1 \pm 3.0$	$L2 \pm 0.5$	$L3 \pm 0.5$	$A \pm 0.5$	$B \pm 0.5$	$C \pm 0.5$	$\varnothing E \pm 0.3$	$S \pm 1.0$	$H \pm 1.0$	$P \pm 3.0$	$H1 \pm 1.0$	$K \pm 0.3$	$M \pm 0.05$		
AHP500	71.2	15.2	11.5	16.4	12.5	8.5	2.4	8.1	3.8	28	1.7	2	0.8		
AHP10A	75	19	14.2	20.3	15.9	10.7	2.4	9.9	4.2	28	1.9	2.4	0.8		
AHP25A	83	27	18.2	27.4	19.8	14	3.2	13.9	5.9	28	1.9	4.4	0.8		
AHP50A	106	50	40	29	21.4	16	3.2	15.5	6.6	28	2.2	5	0.8		

DERATING CURVE**ELECTRICAL CHARACTERISTICS**

CHARACTERISTICS	AHA500 AHP500	AHA10A AHP10A	AHA25A AHP25A	AHA50A AHP50A
Power Rating on std. heatsink at at 25°C	5W	10W	25W	50W
Power Rating without heatsink at 25°C	3W	8W	12.5W	20W
Standard Heatsink Surface area (cm ²)	415	415	535	995
Standard Heatsink Thickness (mm)	1	1	1	1
Voltage Proof on Insulation (Vrms)	1000	1000	1000	1000
Voltage Proof on Insulation (Vrms) (Resin glue filling)	1000	1000	2000	2000
Voltage Proof on Insulation (Vrms) (Silicone sealant filling)	1000	1000	1000	2000
Resistance Range	0.1Ω~1KΩ	0.1Ω~1.5KΩ	0.1Ω~5.1KΩ	0.1Ω~15KΩ
Maximum Working Voltage	$\sqrt{(P \times R)}$			
Insulation Resistance	>100MΩ			
Climatic Category	55/200/56			
Operating Temp. Range	- 55°C to +275°C			
Temperature Coefficient	±50ppm/°C , ±100ppm/°C, ±200ppm/°C			

Note: For resistance value out of above range is by request.

TEST AND REQUIREMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	5 times of rated power for 5 sec.	$\pm 1.0\% + 0.05\Omega$
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec. test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to $+275^{\circ}\text{C}$	By Type
Insulation Resistance	IEC 60115-1 4.6	In V-Block for 60 sec.	$>100\text{M}\Omega$
Solderability	IEC 60115-1 4.17	$245\pm 5^{\circ}\text{C}$ 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	$\pm 0.2\% + 0.05\Omega$
Damp Heat Steady State	IEC 60115-1 4.24	$40\pm 2^{\circ}\text{C}$, 90-95% RH for 56 days, loaded with 0.1 times RCWV(or U_{max} , whichever less)	$\pm 5.0\% + 0.05\Omega$
Endurance at 70°C	IEC 60115-1 4.25	$70\pm 2^{\circ}\text{C}$ at RCWV(or U_{max} , whichever less) for 1,000 Hr.(1.5 Hr.on, 0.5 Hr. off)	$\pm 5.0\% + 0.05\Omega$
Temperature Cycling	IEC 60115-1 4.19	$-55^{\circ}\text{C} \rightarrow \text{Room Temp.} \rightarrow +155^{\circ}\text{C} \rightarrow \text{Room Temp.}$ (5 cycles)	$\pm 1.0\% + 0.05\Omega$
Resistance to Soldering Heat	IEC 60115-1 4.18	$260\pm 3^{\circ}\text{C}$ for 10 ± 1 Sec., immersed to a point $3\pm 0.5\text{mm}$ from the body	$\pm 1.0\% + 0.05\Omega$

Note:.

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$V = \sqrt{P \times R}$$

or max. working voltage whichever is less

Where

V=Continuous rated DC or
AC (rms) working voltage (V)

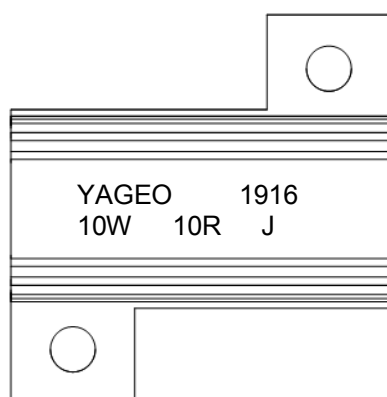
P=Rated power (W)

R=Resistance value (Ω)

BULK PACKING

Unit: Piece

Normal	PACKAGE	Quantity
AHA500 AHP500	Bulk	540
AHA10A AHP10A	Bulk	360
AHA25A AHP25A	Bulk	200
AHA50A AHP50A	Bulk	126

MARKING**Example:**

YAGEO	= Brand
1916	= Date code
10W	= Power rating
10R	= Resistance
J	= Tolerance

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	Aug.2 , 2021	-	- First issue of this specification

“ Yageo reserves all the rights for revising the content of this datasheet without further notification, as long as the products itse lf are unchanged. Any product change will be announced by PCN.”

LEGAL DISCLAIMER

Yageo, its distributors and agents (collectively, "Yageo"), hereby disclaims any and all liabilities for any errors, inaccuracies or incompleteness contained in any product related information, including but not limited to product specifications, datasheets, pictures and/or graphics. Yageo may make changes, modifications and/or improvements to product related information at any time and without notice.

Yageo makes no representation, warranty, and/or guarantee about the fitness of its products for any particular purpose or the continuing production of any of its products. To the maximum extent permitted by law, Yageo disclaims (i) any and all liability arising out of the application or use of any Yageo product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for a particular purpose, non-infringement and merchantability.

Yageo statements regarding the suitability of products for certain types of applications are based on Yageo's knowledge of typical operating conditions for such types of applications in a generic nature. Such statements are neither binding statements of Yageo nor intended to constitute any warranty concerning the suitability for a specific customer application or use. They are intended for use only by customers with requisite knowledge and experience for determining whether Yageo products are the correct products for their application or use. In addition, unpredictable and isolated cases of product failure may still occur, therefore, customer application or use of Yageo products which requires higher degree of reliability or safety, shall employ additional protective safeguard measures to ensure that product failure would not result in personal injury or property damage.

Yageo products are not designed for application or use in medical, life-saving, or life-sustaining devices or for any other application or use in which the failure of Yageo products could result in personal injury or death. Customers using or selling Yageo products not expressly indicated for above-mentioned purposes shall do so at their own risk and agree to fully indemnify Yageo and hold Yageo harmless.

Information provided here is intended to indicate product specifications only. Yageo reserves all the rights for revising this content without further notification, as long as products are unchanged. Any product change will be announced by PCN.