

Aluminum Encase Resistors

Reach Unreachable Points and Simplify Your PCB Design (AHL)

► Preview

Token Electronics extended lead wire aluminum housed power AHL series provides design engineers a flexible connection in distance between connections

AHL is a high-performance axial-terminal type resistor with flexible connections. These molded-construction aluminum-chassis resistors are available in higher power ratings than standard axial-terminal resistors and are better suited to withstanding vibration, shock and harsh environmental conditions.

AHL resistors are aluminum housed to maintain high stability during operation and to permit secure mounting to chassis surfaces. The metal housing also provides heat-sinking capabilities, allowing the units to exceed the power ratings.

The AHL Series is RoHS compliant and lead free. For non-standard technical requirements and custom special applications, please contact us for details with your specific needs.

Non-Inductive :

Ayrton Perry type non-inductive winding is available. When required add "N" to the part number.

Features :

- High stability, strong construction.
- Standard winding & non-inductive winding types.
- High power rating, small size and ultra precision.
- Aluminum housing allows chassis mounting and provides heatsink capability.

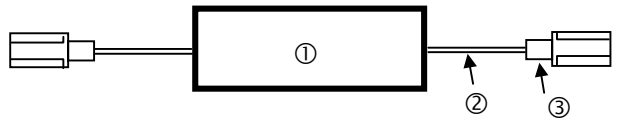
General Specification :

- Resistance Tolerance: $\pm 10\%$, $\pm 5\%$.
- Operating Temperature Range: -55°C to $+275^{\circ}\text{C}$.
- Wattage Range: 4 styles to choose ranging from 25 to 150 watts.
- Dielectric Strength: AHL-25 1000V, AHL-50 1500V, AHL-150 2500V.



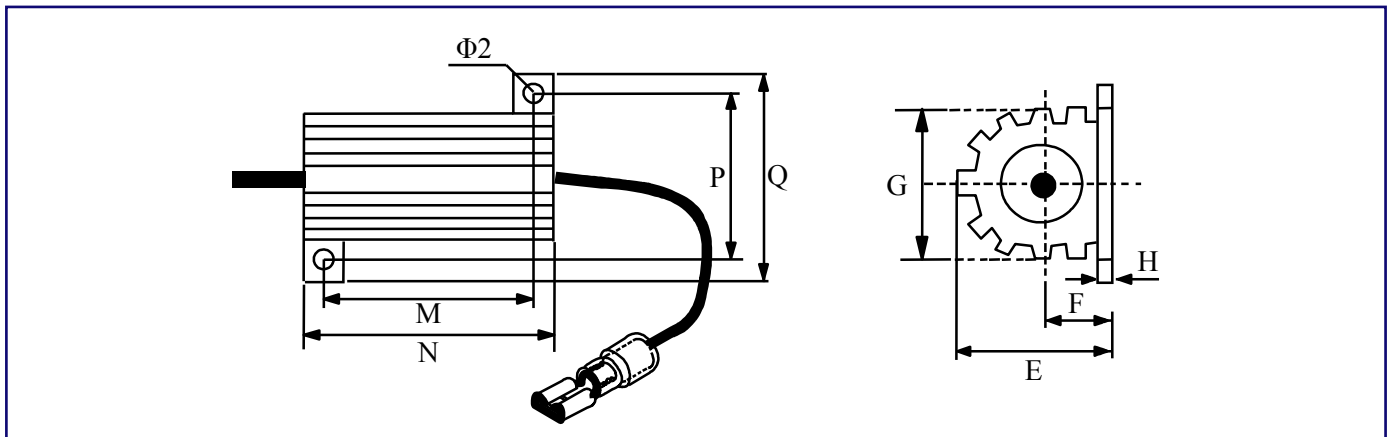
Extended Lead Wire (AHL) Materials

①	Encapsulant	Silicone			
	End caps	Stainless steel			
	Core	Ceramic steatite or aluminum			
	Housing	Aluminum with hard anodic coating			
	Element	Copper-nickel alloy, nickel-chrome alloy or manganese copper			
②	Wire (14AWG)	AHL-25, AHL-25N	AHL-50, AHL-50N	AHL-150, AHL-150N	AHL-150A, AHL-150AN
		Length=160mm	Length=340mm	Length=500mm	Length=300mm
③	Terminals	LVA2-250, Cu (Nickel-plate), W7.5 × L10mm			



Note: All values might be changed or modified, please consult factory for details.

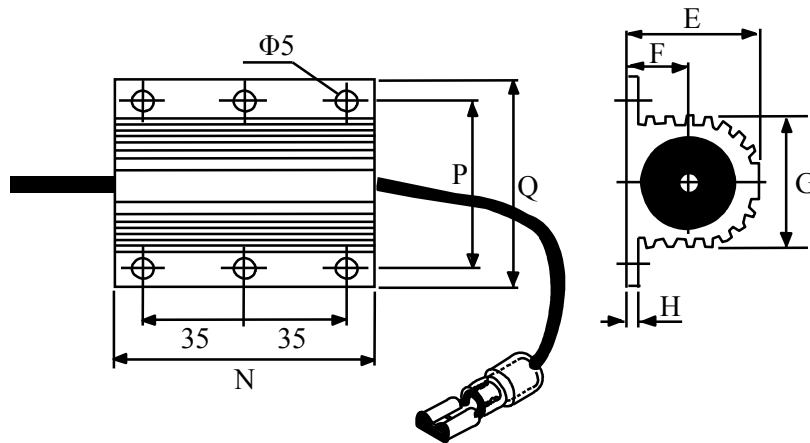
Extended Lead Wire (AHL-25, AHL-50) Dimensions



Type	Dimensions (Unit: mm)							
	E	F	G	H	M	N	P	Q
AHL-25 AHL-25N	13	7	14.3	2	18.3	27	20	27
AHL-50 AHL-50N	15.5	7.3	16	2	40	50	22	29

Note: All values might be changed or modified, please consult factory for details.

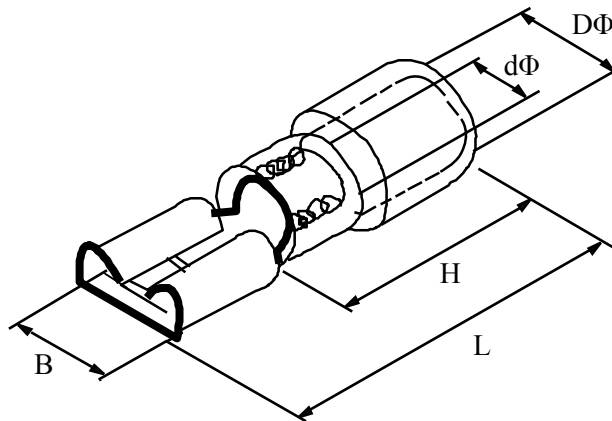
▶ Extended Lead Wire (AHL-150, AHL-150A) Dimensions



Type	Dimensions (Unit: mm)						
	E	F	G	H	N	P	Q
AHL-150 AHL-150N	45	9.6	46	5	92	57	72
AHL-150A AHL-150AN	26	11.5	27	3.5	97	37	48

Notice: All dimensions might be changed or modified, please refer to last updating specification.

▶ LVA250 Terminals Dimensions



Suitable for 14~16AWG		$I_{max}=15A$		Unit: mm		Tol.: $\pm 0.2mm$	
ITEM	NEMA-TAB	Thickness	B	$d\Phi$	$D\Phi$	L	H
LVA 2-250	0.8×6.35	0.4	7.4	2.3	4.3	21.0	10.0

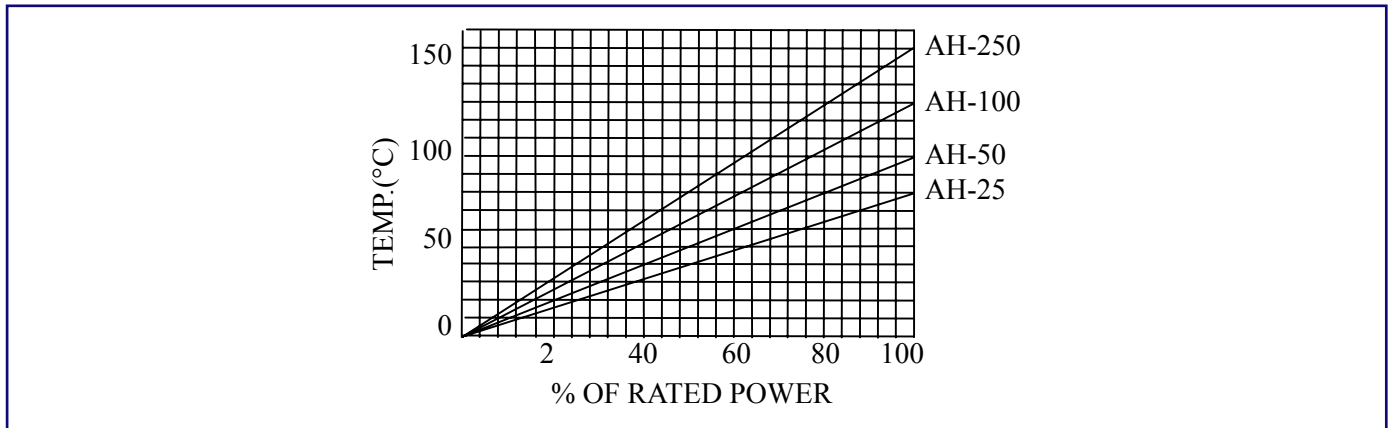
Notice: All dimensions might be changed or modified, please refer to last updating specification.

▶ Extended Lead Wire (AHL) Electrical Specification

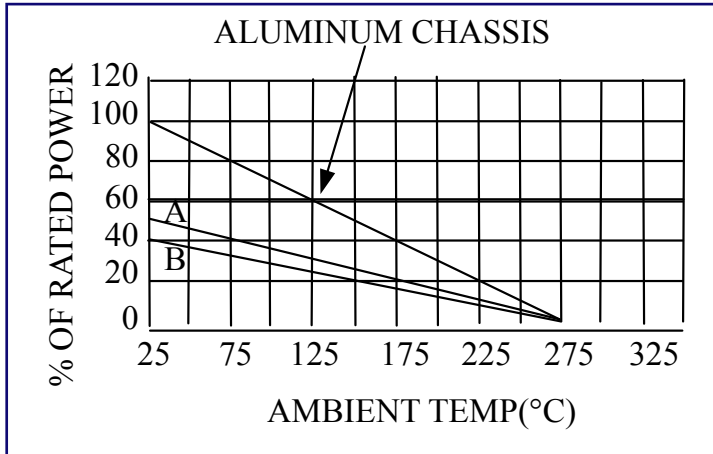
Type	Wattage Rating (W)	Resistance Range (Ω)		Max. Working (V)		Proper heat sink (Aluminum chassis)
		Inductive	Non-inductive	Inductive	Non-inductive	
AHL-25	25	0.012~15K	-	500	-	1077 cm ² × 1.0 mm thick or equiv
AHL-25N	25	-	0.02~5.5K	-	300	1077 cm ² × 1.0 mm thick or equiv
AHL-50	50	0.01~40K	-	1300	-	1877 cm ² × 1.5 mm thick or equiv
AHL-50N	50	-	0.02~12K	-	600	1877 cm ² × 1.5 mm thick or equiv
AHL-150	150	0.4~50K	-	1900	-	1896 cm ² × 3.2 mm thick or equiv
AHL-150N	150	-	0.12~25K	-	1340	1896 cm ² × 3.2 mm thick or equiv
AHL-150A	150	0.4~50K	-	1900	-	1896 cm ² × 3.2 mm thick or equiv
AHL-150AN	150	-	0.12~25K	-	1340	1896 cm ² × 3.2 mm thick or equiv

Note: All values might be changed or modified, please consult factory for details.

▶ Surface Temperature Versus Power Load (Mounted on heat-sink chassis)



Ambient Temperature Derating



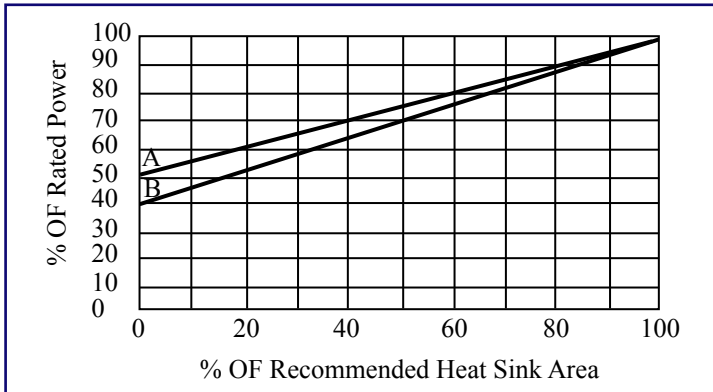
Derating is required for ambient temperatures above 25°C, see the graph.

Curve Aluminum Chassis applies to all types when mounted to specified heat sink.

Curves A, B, C apply to operation of unmounted resistors.

- Curves A:
AHL 25 watt units, unmounted.
- Curves B:
AHL 50, 100 and 250 watt units, unmounted.

Reduced Heat Sink Derating



Derating is also required when recommended heat sink area is reduced.

- Curves A:
AHL-25 size resistor.
- Curves B:
AHL-50, AHL-100 and AHL-250 size resistor.

Reduced Heat Sink Derating

Parameters	Test Conditions	Specifications
Vibration	10c/s~50c/s~10c/s (1Min) - 2Hours each of paralleled and right angle	$\Delta R \pm (1\% + 0.05\Omega)$ Max.
Load Life	Load Rating (chassis mounted) (1.5Hour on 0.5Hour OFF) Repeat 1000Hours	$\Delta R \pm (5\% + 0.1\Omega)$ Max.
Heat Resistance	260±5°C, 10±1Sec.	$\Delta R \pm (1\% + 0.05\Omega)$ Max.
Terminal Strength	Pull Test (30 sec Min) 4.5kg	$\Delta R \pm (0.2\% + 0.05\Omega)$ Max.
Dielectric Strength	AHL-25 1000V AHL-50 1500V AHL-100, AHL-150 2000V	$\Delta R \pm (0.5\% + 0.05\Omega)$ Max.
Moisture Load Life	Temp 40°C moisture 95% 1/10 × wattage rating (1.5Hr on-0.5Hr OFF) - Repeat 200Hr	$\Delta R \pm (1\% + 0.1\Omega)$ Max.
Moisture Resistance	Temp 40°C moisture 95% DC 100V 500Hr	$\Delta R \pm (1\% + 0.1\Omega)$ Max.
Insulation Resistance	Under the same test condition of Dielectric Strength, Load DC500V and measure the Insulation R.	10MΩ Min.
Short Time Over Load	5 × wattage rating-5sec.	$\Delta R \pm (2\% + 0.1\Omega)$ Max.

How to Order

AHL-50

①

50W

②

L340

③

14AWG

④

510R

⑤

K

⑥

- ① Part Number: AHL-25 / AHL-25N
 AHL-50 / AHL-50N
 AHL-150 / AHL-150N
 AHL-150A / AHL-150AN

- ② Rated Power (W): 25W
 50W
 150W
 150W

- ③ Wire Length (min.): L160
 L340
 L500
 L300

- ④ Wire Type: 14AWG

- ⑤ Resistance Value (Ω)

Code	Resistance Value
R51	0.51 Ω
5R1	5.1 Ω
51R	51 Ω
510R	510 Ω
5K1	5.1K Ω

- ⑤ Resistance Tolerance (%)

Code	Resistance Tolerance
A5	$\pm 0.05\%$
J	$\pm 5\%$
K	$\pm 10\%$

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