

UALH Series

Aluminum Housed High Power Wirewound Resistors



*RoHS COMPLIANT &
**HALOGEN FREE

Features

- Power rating of 100 W with heat sink
- Resistance of 0.5 Ω to 22 k Ω
- Operating temperature range: -55 °C to +275 °C
- RoHS compliant* and halogen free**

Applications

- Industrial motor controls
- Industrial power supplies
- High power machinery

Sustainability

- High pallet density for lower CO₂
- Corrosion-resistant for longevity
- High efficiency, low power loss
- ISO 14001, low-impact energy

Product Overview

The Bourns® UALH Series is a family of high power aluminum housed fixed resistors engineered to deliver exceptional stability and reliability under demanding electrical and thermal conditions. Utilizing advanced wirewound construction protected by a silicone molding compound, this series is enclosed in a rugged aluminum shell to optimize heat dissipation, making it an ideal choice for power supply adapters and industrial machinery applications. Offering a standard

resistance of 0.5 Ω to 22 k Ω with a tolerance option of $\pm 5\%$, these power resistors ensure reliability across a wide range of operational parameters. The UALH Series operates across a robust temperature range of -55 °C to +275 °C, featuring a thin, lightweight body profile that delivers a high 100 W power rating on a standard heatsink, halogen free construction, and RoHS compliance to guarantee long-term performance in certain harsh environments.

Electrical Characteristics (T_A = 25 °C Unless Otherwise Noted)

Characteristic	UALH
Power Rating with Heatsink @ 25 °C	100 W
Power Rating without Heatsink @ 25 °C	30 W
Maximum Working Voltage	1483 V
Dielectric Withstanding Voltage	4500 V
Resistance Range	0.5 Ω to 22 k Ω
Max. Rated Current ¹	14.14 A
Tolerance	$\pm 5\%$
Temperature Coefficient of Resistance (TCR)	± 350 ppm/°C

1. Rated Current (A) is calculated as $\sqrt{P/R}$, and must not exceed the maximum working current

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Environmental Characteristics

Operating Temperature -55 °C to +275 °C
Storage Conditions
Temperature..... +15 °C to +35 °C
Humidity..... 25 % to 75 % RH
Moisture Sensitivity Level..... 1

How to Order

UALH 100 - 100R - J 1

Model _____
UALH (High Power)
Power Code _____
100 = 100 W
Resistance Value Code _____
• For values ≤ 10 k Ω :
"R" represents decimal point
(Example: 10R = 10 Ω)
• For values > 10 k Ω :
"K" represents decimal point
(Example 1K5 = 1.5 k Ω)
Resistance Tolerance _____
J = $\pm 5\%$
Internal Use _____

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

**Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice. Users should verify actual device performance in their specific applications.

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Performance Characteristics

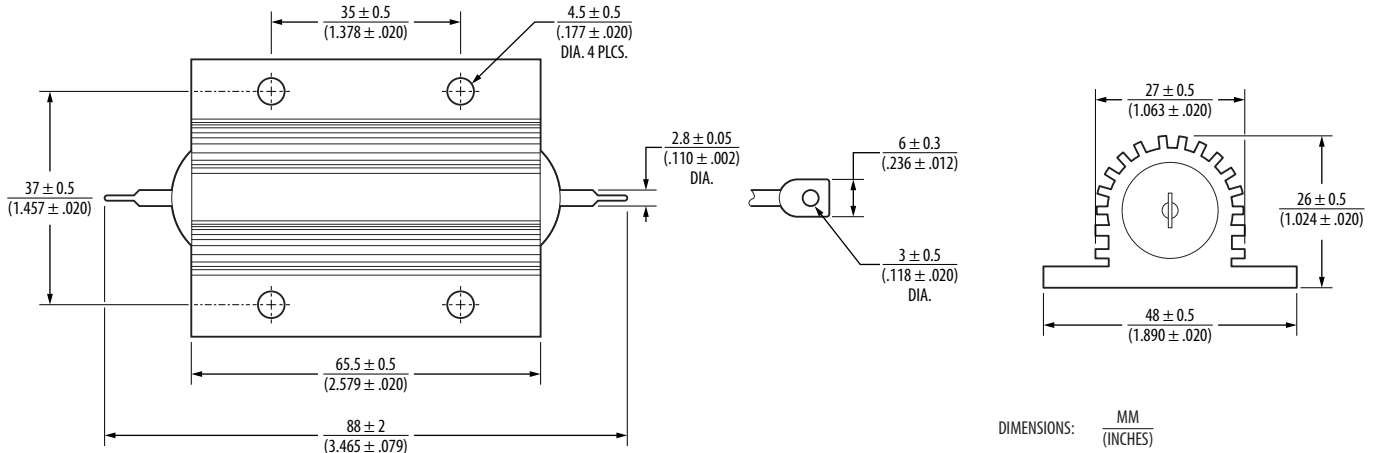
Specification	Condition of Test	Reference Standard	Test Limits
Temperature Coefficient of Resistance (TCR)	-55 °C to +125 °C; +25 °C is the reference temperature	GB/T5729-4.8, JIS C-5201-4.8 & IEC 60115-1-4.8	±350 ppm/°C
Short Time Overload	Permanent resistance changes after the application of a potential of 2.5 times RCWV or max. overload voltage, whichever is less, for 5 seconds	GB/T5729-4.13, JIS C-5201-4.13 & IEC 60115-1-4.13	Resistance change rate must be within ±(5 % + 0.05 Ω), and no mechanical damage
Dielectric Withstanding Voltage	Applied voltage 1000 VAC for 60 seconds	GB/T5729-4.7, JIS C-5201-4.7 & IEC 60115-1-4.7	No evidence of flashover, mechanical damage, arcing, or insulation breakdown
Resistance to Soldering Heat	Permanent resistance change when leads are immersed to a point 2.0-2.5 mm from the body in 260 °C ±5 °C solder for 10±1 seconds	GB/T5729-4.18, JIS C-5201-4.18 & IEC 60115-1-4.18	Resistance change rate must be within ±(1 % + 0.05 Ω), and no mechanical damage
Terminal Strength	Direct load: Resistance to a 2.5 kg direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads	GB/T5729-4.16, JIS C-5201-4.16 & IEC 60115-1-4.16	No evidence of mechanical damage
Solderability	The area is covered with a new, smooth, clean, shiny, and continuous surface free from concentrated pinholes Test temp. of solder: 245 °C ±3 °C Dwell time in solder: 2~3 seconds	GB/T5729-4.17, JIS C-5201-4.17 & IEC 60115-1-4.17	Min. 95 % coverage
Humidity (Steady State)	Temporary resistance changes after 240 hours of exposure in a humidity test chamber controlled at 40 °C ±2 °C and 90~95 % relative humidity	GB/T5729-4.24, JIS C-5201-4.24 & IEC 60115-1-4.24	Resistance change rate must be within ±(5 % + 0.05 Ω), and no mechanical damage
Load Life	Permanent resistance change after 1000 hours of operating at RCWV or max. working voltage, whichever is less, with duty cycle of 1.5 hours "ON", 0.5 hours "OFF" at 25 °C ±2 °C ambient	GB/T5729-4.25, JIS C-5201-4.25 & IEC 60115-1-4.25	Resistance change rate must be within ±(5 % + 0.05 Ω), and no mechanical damage
Low Temperature Storage	Lower temperature limit for 2 hours	IEC 60068-2-1 (Aa)	Resistance change rate must be within ±(5 % + 0.05 Ω), and no mechanical damage
High Temperature Exposure	Upper limit temperature for 16 hours	MIL-STD-202 108A	Resistance change rate must be within ±(5 % + 0.05 Ω), and no mechanical damage

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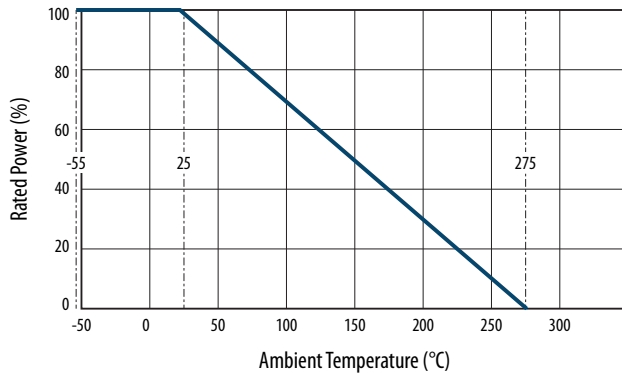
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Product Dimensions



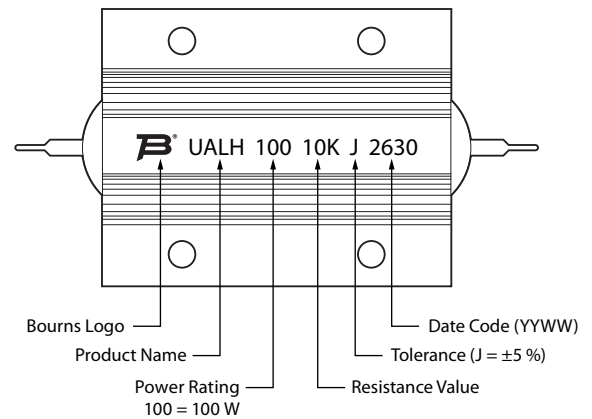
Derating Curve



Package Specifications

Bulk.....6 pcs. per box; 60 pcs. per carton

Typical Part Marking



REV. 09/26

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