

Features

- Formerly a Riedon™ product
- Resistance range from 0.01 to 250K Ω
- Resistance tolerances as low as $\pm 0.01\%$
- Power rating: 5 to 50 watts
- Excellent pulse handling
- Low TCR: ± 20 PPM/ $^{\circ}\text{C}$ standard

- Various terminal options available
- All-welded construction
- Operating Temperature Range: -55°C to $+275^{\circ}\text{C}$
- Designed to MIL-R-39009 / MIL-R-18546 power ratings
- RoHS compliant*

UAL Series – Aluminum Housed Power Wirewound Resistors

Electrical Characteristics

Bourns Model Number	MIL-R-39009 MIL-R-18546 Style	Power Rating @ 25 °C (W)			Resistance Range (Ω) ^{1 2}
		Commercial	MIL	Free Air	
UAL5	RER-60 / RE-60	7.5 ^a	5 ^a	4.5	0.01 to 22 K
UAL10	RER-65 / RE-65	10 ^a	10 ^a	7.5	0.01 to 47 K
UAL25	RER-70 / RE-70	25 ^b	20 ^b	12	0.01 to 90 K
UAL50	RER-75 / RE-75	50 ^c	30 ^c	20	0.01 to 250 K

¹ For non-inductive windings, divide maximum resistance by 2

² E-24 / E-96, [contact Bourns](#) for availability of other values

^a Heat Sink Required: 1.0 mm (0.040 in.) Alum. Plate, 832 cm² (129 in.²) or equiv.

^b Heat Sink Required: 1.0 mm (0.040 in.) Alum. Plate, 1077 cm² (167 in.²) or equiv.

^c Heat Sink Required: 1.5 mm (0.059 in.) Alum. Plate, 1877 cm² (291 in.²) or equiv.

Specifications

Specification	Value
Tolerances	$\pm 0.01\%$ to $\pm 10\%$ (1% Standard)
Temperature Coefficient	>10 Ω : ± 20 PPM/ $^{\circ}\text{C}$ 1 Ω to 10 Ω : ± 50 PPM/ $^{\circ}\text{C}$ <1 Ω : Other TCR values available. Contact Bourns .
Temperature Range	-55°C to $+275^{\circ}\text{C}$
Dielectric Strength	UAL5,10: 1500 VAC; UAL25: 2500 VAC; UAL50: 3500 VAC
Construction	Centerless ground ceramic core Matte tin over copper High-temperature epoxy molding compound, Flame resistant per UL 94V-0 Anodized aluminum housing All welded terminations

Environmental Performance

Specification (MIL-STD 202)	ΔR
Dielectric	$\pm 0.2\% + 0.05 \Omega$
Load Life	$\pm 1\% + 0.05 \Omega$
Storage	$\pm 0.2\% + 0.05 \Omega$
Moisture Resistance	$\pm 0.2\% + 0.05 \Omega$
Thermal Shock	$\pm 0.2\% + 0.05 \Omega$
5X Overload (5 s)	$\pm 0.2\% + 0.05 \Omega$
Shock	$\pm 0.1\% + 0.05 \Omega$
Vibration	$\pm 0.1\% + 0.05 \Omega$
Optional Lead Configuration	Wire, Flexible, Teflon, Quick Disconnect, Flying Leads, Formed

Additional Information

Click these links for more information:



How To Order

UAL 25 - 10R F 1 -

Model _____
 UAL (standard)
 UALN (non-inductive)

Power Code _____
 (See Electrical Characteristics table)

Resistance Code _____
 For values $\leq 10\text{K } \Omega$,
 "R" represents decimal point
 (Example: 10R = 10 Ω)
 For values $> 10\text{K } \Omega$,
 "K" represents decimal point
 (Example 1K5 = 1.5K Ω)

Tolerance _____
 X** = $\pm 0.01\%$ D = $\pm 0.5\%$
 W** = $\pm 0.02\%$ F = $\pm 1\%$
 V** = $\pm 0.025\%$ G = $\pm 2\%$
 U** = $\pm 0.05\%$ H = $\pm 3\%$
 B** = $\pm 0.1\%$ J = $\pm 5\%$
 T** = $\pm 0.2\%$ K = $\pm 10\%$
 C** = $\pm 0.25\%$

Internal Use _____

Terminal _____
 (Blank) - 2 terminal solder lug
 4T = 4 terminal solder lug
 4TR = 4 terminal solder lug
 (2 terminal at right angle)
 4 = 4 terminal axial lead

(Specific TCR value available upon request.)

**[Contact Bourns](#) for tolerances $< \pm 0.25\%$.



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

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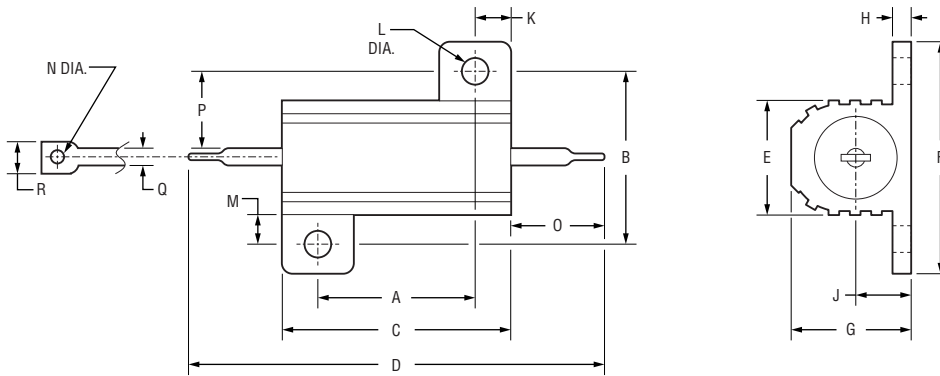
"Riedon Logo" is a registered trademark of BE Services Company, Inc., in the United States.

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Product Dimensions



Bourns Model Number	A	B	C	D	E	F	G	H	J
UAL5	$\frac{11.3 \pm 0.13}{(.444 \pm .005)}$	$\frac{12.4 \pm 0.13}{(.490 \pm .005)}$	$\frac{15.2 \pm 0.8}{(.600 \pm .031)}$	$\frac{28.5 \pm 3.10}{(1.125 \pm .120)}$	$\frac{8.5 \pm 0.4}{(.334 \pm .015)}$	$\frac{16.4 \pm 0.4}{(.646 \pm .015)}$	$\frac{8.1 \pm 0.4}{(.320 \pm .015)}$	$\frac{1.7 \pm 0.25}{(.065 \pm .010)}$	$\frac{3.6 \pm 0.25}{(.140 \pm .010)}$
UAL10	$\frac{14.3 \pm 0.13}{(.562 \pm .005)}$	$\frac{15.9 \pm 0.13}{(.625 \pm .005)}$	$\frac{19.1 \pm 0.8}{(.750 \pm .031)}$	$\frac{33.5 \pm 3.10}{(1.320 \pm .120)}$	$\frac{10.9 \pm 0.4}{(.430 \pm .015)}$	$\frac{20.3 \pm 0.4}{(.800 \pm .015)}$	$\frac{10.2 \pm 0.4}{(.400 \pm .015)}$	$\frac{1.9 \pm 0.25}{(.075 \pm .010)}$	$\frac{4.8 \pm 0.25}{(.190 \pm .010)}$
UAL25	$\frac{18.3 \pm 0.13}{(.719 \pm .005)}$	$\frac{19.8 \pm 0.13}{(.781 \pm .005)}$	$\frac{27.0 \pm 0.8}{(1.062 \pm .031)}$	$\frac{47.5 \pm 3.10}{(1.870 \pm .120)}$	$\frac{13.5 \pm 0.4}{(.530 \pm .015)}$	$\frac{27.4 \pm 0.4}{(1.080 \pm .015)}$	$\frac{14.2 \pm 0.4}{(.560 \pm .015)}$	$\frac{2.2 \pm 0.25}{(.085 \pm .010)}$	$\frac{6.6 \pm 0.25}{(.260 \pm .010)}$
UAL50	$\frac{39.7 \pm 0.13}{(1.563 \pm .005)}$	$\frac{21.4 \pm 0.13}{(.844 \pm .005)}$	$\frac{50.0 \pm 0.8}{(1.968 \pm .031)}$	$\frac{70.0 \pm 3.10}{(2.720 \pm .120)}$	$\frac{15.6 \pm 0.4}{(.615 \pm .015)}$	$\frac{29.0 \pm 0.4}{(1.140 \pm .015)}$	$\frac{15.6 \pm 0.4}{(.615 \pm .015)}$	$\frac{2.2 \pm 0.25}{(.085 \pm .010)}$	$\frac{7.6 \pm 0.25}{(.300 \pm .010)}$

Bourns Model Number	K	L	M	N	O	P	Q	R
UAL5	$\frac{2.0 \pm 0.25}{(.078 \pm .010)}$	$\frac{2.4 \pm 0.13}{(.093 \pm .005)}$	$\frac{2.0 \pm 0.4}{(.078 \pm .015)}$	$\frac{1.3 \pm 0.15}{(.050 \pm .006)}$	$\frac{6.8 \pm 3.10}{(.266 \pm .120)}$	$\frac{6.2 \pm 0.8}{(.245 \pm .031)}$	$\frac{1.30 \pm 0.05}{(.051 \pm .002)}$	$\frac{2.2 \pm 0.8}{(.085 \pm .031)}$
UAL10	$\frac{2.4 \pm 0.25}{(.093 \pm .010)}$	$\frac{2.4 \pm 0.13}{(.093 \pm .005)}$	$\frac{2.6 \pm 0.4}{(.102 \pm .015)}$	$\frac{2.0 \pm 0.15}{(.080 \pm .006)}$	$\frac{7.9 \pm 3.10}{(.312 \pm .120)}$	$\frac{7.9 \pm 0.8}{(.312 \pm .031)}$	$\frac{2.49 \pm 0.05}{(.098 \pm .002)}$	$\frac{4.0 \pm 0.8}{(.160 \pm .031)}$
UAL25	$\frac{4.4 \pm 0.25}{(.172 \pm .010)}$	$\frac{3.2 \pm 0.13}{(.125 \pm .005)}$	$\frac{3.2 \pm 0.4}{(.125 \pm .015)}$	$\frac{2.0 \pm 0.15}{(.080 \pm .006)}$	$\frac{11.1 \pm 3.10}{(.438 \pm .120)}$	$\frac{9.9 \pm 0.8}{(.391 \pm .031)}$	$\frac{2.49 \pm 0.05}{(.098 \pm .002)}$	$\frac{4.7 \pm 0.8}{(.185 \pm .031)}$
UAL50	$\frac{5.0 \pm 0.25}{(.196 \pm .010)}$	$\frac{3.2 \pm 0.13}{(.125 \pm .005)}$	$\frac{3.2 \pm 0.4}{(.125 \pm .015)}$	$\frac{2.0 \pm 0.15}{(.080 \pm .006)}$	$\frac{11.1 \pm 3.10}{(.438 \pm .120)}$	$\frac{10.7 \pm 0.8}{(.422 \pm .031)}$	$\frac{2.49 \pm 0.05}{(.098 \pm .002)}$	$\frac{4.7 \pm 0.8}{(.185 \pm .031)}$

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

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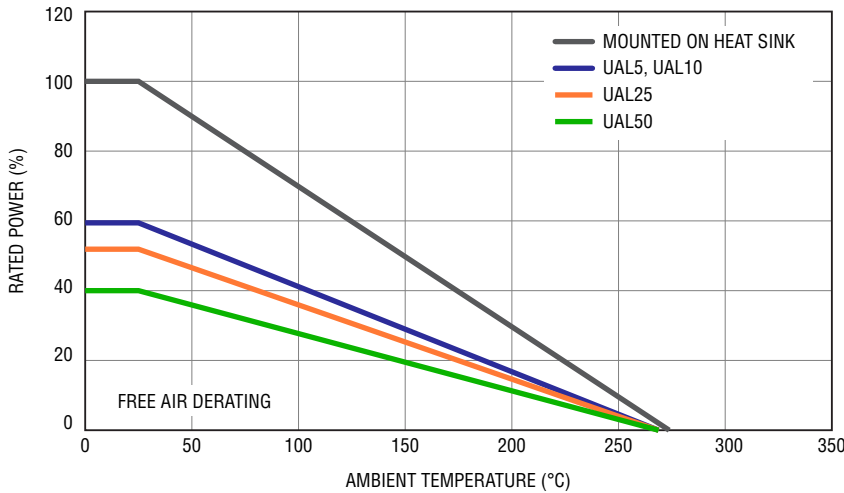
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Power Derating Curves



Packaging Specifications¹

UAL5 / UAL10 / UAL25
 Bulk 250 pcs. max.
 UAL50
 Bulk 100 pcs. max.
 Note:
¹ All UAL models are max. 40 lbs. / shipping box



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