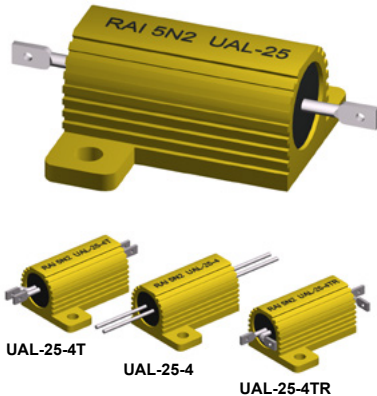


# UAL Series

Aluminum Housed Wirewound Resistors



- Power Rating 5 to 300Watts
- High Temperature: -55°C to +275°C
- Excellent Pulse Handling
- Resistances from 0.005 to 250kOhms
- Tolerance to  $\pm 0.01\%$
- Low TCR:  $\pm 20\text{ppm/K}$  Standard
- Four Terminal Versions Available
- All Welded Construction

## SPECIFICATIONS

Type	MIL-R-39009 MIL-R-18546 Style	Power Rating ( W @ 25°C )			Resistance Range <sup>1</sup>
		Commercial	MIL	Free Air	
UAL-5	RER-60 / RE-60	7.5 <sup>a</sup>	5 <sup>a</sup>	4.5	0.01 to 22K
UAL-10	RER-65 / RE-65	12.5 <sup>a</sup>	10 <sup>a</sup>	7.5	0.01 to 47K
UAL-25	RER-70 / RE-70	25 <sup>b</sup>	20 <sup>b</sup>	12	0.01 to 90K
UAL-50	RER-75 / RE-75	50 <sup>c</sup>	30 <sup>c</sup>	20	0.01 to 250K
UAL-100	RER-77 / RE-77	100 <sup>d</sup>	75 <sup>d</sup>	40	0.01 to 50K
UAL-180	-	180 <sup>d</sup>	-	-	0.01 to 50K
UAL-250	RER-80 / RE-80	250 <sup>d</sup>	120 <sup>d</sup>	100	0.01 to 50K
UAL-300	-	300 <sup>e</sup>	-	75	0.005 to 100K

<sup>1</sup> For non-inductive windings, divide maximum resistance by 2

<sup>a</sup> Heatsink Required : 0.040 [1.0] Alum. Plate, 129 in<sup>2</sup> [832 cm<sup>2</sup>] or equiv.

<sup>b</sup> Heatsink Required : 0.040 [1.0] Alum. Plate, 167 in<sup>2</sup> [1077 cm<sup>2</sup>] or equiv.

<sup>c</sup> Heatsink Required : 0.059 [1.5] Alum. Plate, 291 in<sup>2</sup> [1877 cm<sup>2</sup>] or equiv.

<sup>d</sup> Heatsink Required : 0.125 [3.2] Alum. Plate, 294 in<sup>2</sup> [1896 cm<sup>2</sup>] or equiv.

<sup>e</sup> Heatsink Required : 0.125 [3.2] Alum. Plate, 895 in<sup>2</sup> [5780 cm<sup>2</sup>] or equiv.

## Ordering Information

For Non-Inductive Windings / insert the letter "N" ( i.e. UALN-25 )

Part Description: Part Type - Resistance - Tolerance - TCR ( If not standard )

Example: UAL-25 10 Ohm 1%

# UAL Series

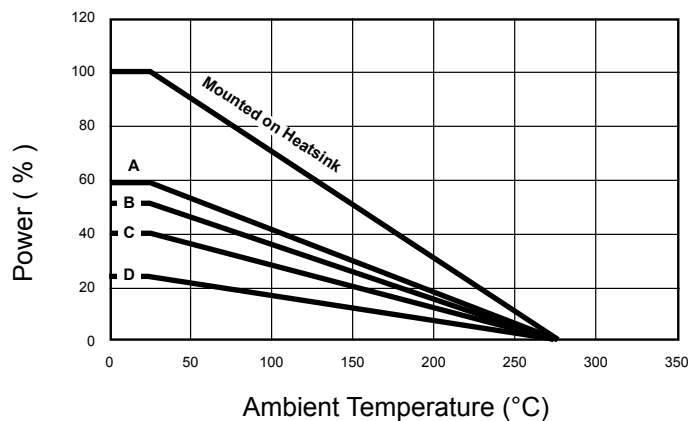
Aluminum Housed Wirewound Resistors



## SPECIFICATIONS (continued)

Specification	Value
Tolerances	±0.01% to ±10% ( 1% Standard )
Temperature Coefficient	>10Ω : ±20ppm/K 1Ω to10Ω : ±50ppm/K <1Ω : Call Factory
Temperature Range	-55°C to +275°C
Dielectric Strength	UAL-5,10: 1500 VAC ; UAL-25: 2500 VAC ; UAL-50: 3500VAC ; Others: 5500VAC
Constuction	Centerless ground ceramic core Tinned copper or copperweld leads High-temperature epoxy molding Compound Anodized aluminum housing All welded terminations
Environmental Performance (MIL-STD 202)	ΔR
Dielectric	±0.2% + 0.05Ω
Load Life	±1% + 0.05Ω
Storage	±0.2% + 0.05Ω
Moisture Resistance	±0.2% + 0.05Ω
Thermal Shock	±0.2% + 0.05Ω
5X Overload ( 5s )	±0.2% + 0.05Ω
Shock	±0.1% + 0.05Ω
Vibration	±0.1% + 0.05Ω

Power Derating Curve



**Free-air Derating**

A : UAL-5, UAL-10

B : UAL-25

C : UAL-50, UAL-100, UAL-250

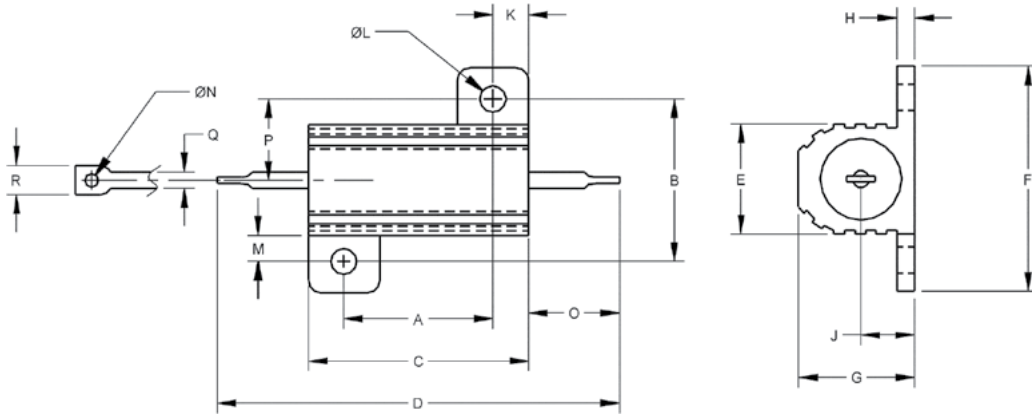
D : UAL-300

# UAL Series

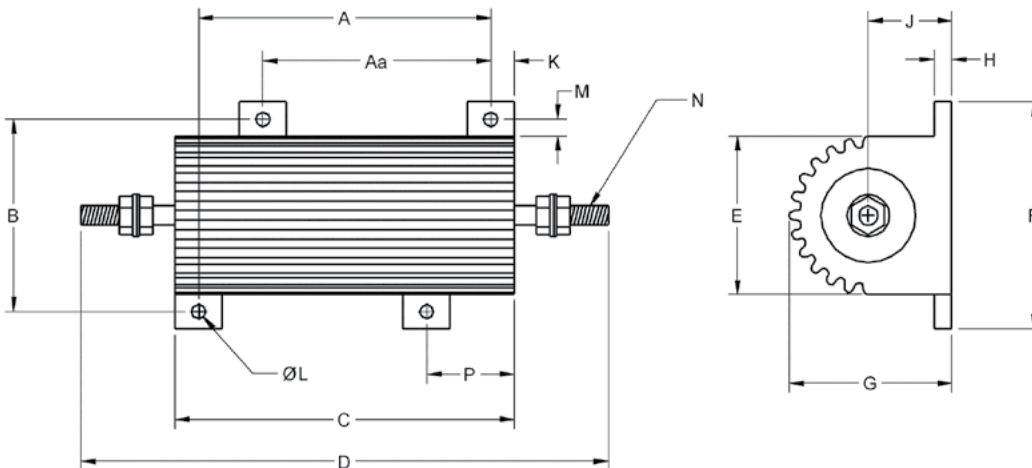
Aluminum Housed Wirewound Resistors



## Dimensions



Type	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R
	±0.005 [±0.13]	±0.005 [±0.13]	±0.031 [±0.8]	±0.062 [±1.6]	±0.015 [±0.4]	±0.015 [±0.4]	±0.015 [±0.4]	±0.010 [±0.25]	±0.010 [±0.25]	±0.010 [±0.25]	±0.005 [±0.13]	±0.015 [±0.4]	±0.006 [±0.15]	±0.062 [±1.6]	±0.031 [±0.8]	±0.002 [±0.05]	±0.031 [±0.8]
UAL-5	0.444 [11.3]	0.490 [12.4]	0.600 [15.2]	1.125 [28.5]	0.334 [8.5]	0.646 [16.4]	0.320 [8.1]	0.065 [1.7]	0.140 [3.6]	0.078 [2.0]	0.093 [2.4]	0.078 [2.0]	0.050 [1.3]	0.266 [6.8]	0.245 [6.2]	0.051 [1.30]	0.085 [2.2]
UAL-10	0.562 [14.3]	0.625 [15.9]	0.750 [19.1]	1.320 [33.5]	0.430 [10.9]	0.800 [20.3]	0.400 [10.2]	0.075 [1.9]	0.190 [4.8]	0.093 [2.4]	0.093 [2.4]	0.102 [2.6]	0.080 [2.0]	0.312 [7.9]	0.312 [7.9]	0.098 [2.49]	0.160 [4.0]
UAL-25	0.719 [18.3]	0.781 [19.8]	1.062 [27.0]	1.870 [47.5]	0.530 [13.5]	1.080 [27.4]	0.560 [14.2]	0.085 [2.2]	0.260 [6.6]	0.172 [4.4]	0.125 [3.2]	0.125 [3.2]	0.080 [2.0]	0.438 [11.1]	0.391 [9.9]	0.098 [2.49]	0.185 [4.7]
UAL-50	1.563 [39.7]	0.844 [21.4]	1.968 [50.0]	2.760 [70.0]	0.615 [15.6]	1.140 [29.0]	0.615 [15.6]	0.085 [2.2]	0.300 [7.6]	0.196 [5.0]	0.125 [3.2]	0.125 [3.2]	0.080 [2.0]	0.438 [11.1]	0.422 [10.7]	0.098 [2.49]	0.185 [4.7]



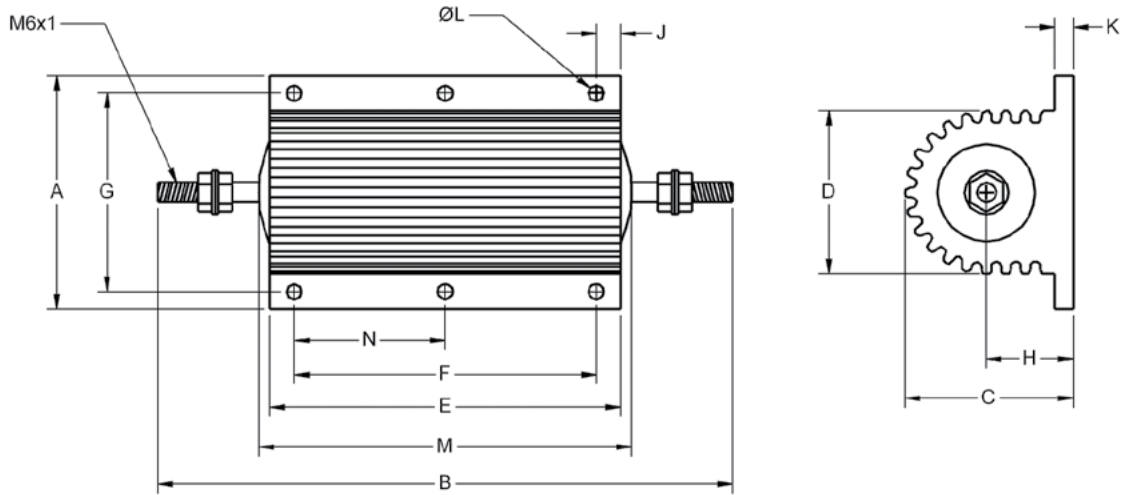
Type	A	Aa	B	C	D	E	F	G	H	J	K	L	M	N	P	Mtg. Screw
	±0.005 [±0.13]	±0.005 [±0.13]	±0.005 [±0.13]	±0.031 [±0.8]	±0.062 [±1.6]	±0.015 [±0.4]	±0.015 [±0.4]	±0.015 [±0.4]	±0.010 [±0.25]	±0.015 [±0.4]	±0.015 [±0.4]	±0.005 [±0.13]	±0.015 [±0.4]	N	±0.015 [±0.4]	
UAL-100	2.750 [69.9]	-	2.250 [57.2]	3.500 [88.9]	5.480 [139]	1.800 [45.7]	2.810 [71.4]	1.750 [44.5]	0.188 [4.8]	0.800 [20.3]	0.375 [9.5]	0.188 [4.8]	0.225 [5.7]	12-24	-	(2) #8
UAL-180	2.750 [69.9]	-	2.500 [63.5]	3.500 [88.9]	5.480 [139]	2.125 [54]	3.000 [76.2]	2.190 [55.6]	0.250 [6.4]	0.950 [24.1]	0.375 [9.5]	0.188 [4.8]	0.200 [5.1]	12-24	-	(2) #8
UAL-250	3.875 [98.4]	3.000 [76.2]	2.500 [63.5]	4.500 [114]	7.000 [178]	2.125 [54]	3.00 [76.2]	2.190 [55.6]	0.250 [6.4]	1.000 [25.4]	0.312 [7.9]	0.188 [4.8]	0.200 [5.1]	1/4-20	1.188 [30.7]	(4) #8

# UAL Series

Aluminum Housed Wirewound Resistors



## Dimensions (continued)



Type	A MAX	B MAX	C MAX	D MAX	E MAX	F ±0.010 [±0.3]	G ±0.010 [±0.3]	H MAX	J MAX	K MAX	L ±0.010 [±0.3]	M MAX	N ±0.010 [±0.3]
<b>UAL-300</b>	2.854 [72.5]	7.260 [184.4]	1.646 [41.8]	1.791 [45.5]	5.028 [127.7]	4.094 [104.0]	2.323 [59.0]	0.807 [20.5]	0.488 [12.4]	0.217 [5.5]	0.260 [6.6]	5.567 [141.4]	2.047 [52.0]