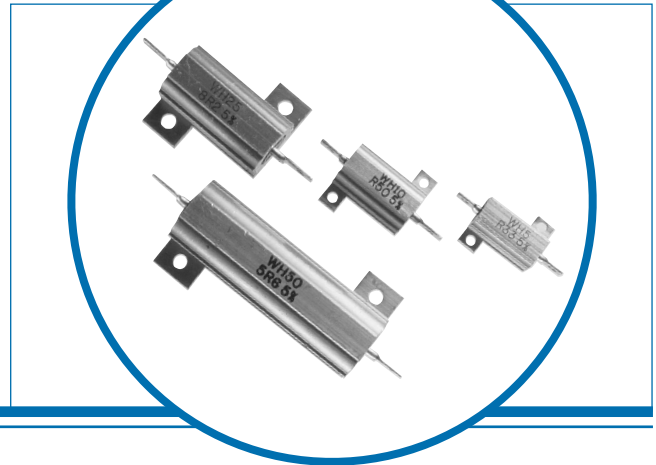


# Aluminium Housed Wirewound Resistors

## WH Series

- High power dissipation for size
- All welded construction
- Suitable for severe environments
- Designed for excellent thermal conductivity to heatsink



## Electrical Data

		WH5	WH10	WH25	WH50	Notes
Power rating at 25°C	watts	10	15	25	50*	Mounted on standard heatsink
Resistance range	ohms	0R01 to 10K	0R01 to 20K	0R01 to 44K	0R015 to 120K	
TCR (-55° to 200°C)	ppm/°C	<math><10\Omega : \pm 75 \geq \text{to } <100 : \pm 50 \geq 100\Omega : \pm 25</math>				
Resistance tolerance	%	1, 2, 5, 10				
Low value limits	ohms	1 at 1%	0.5 at 2%	0.05 at 5%	0.01 at 10%	WH50 0.015 at 10%

Approved CECC 40203 - 006		AA	BA	CA	DA	
Power rating at 25°C	watts	10	15	25	40	Mounted on standard heatsink
Resistance range	ohms	0.05 to 3.4k	0.05 to 15k	0.05 to 33k	0.05 to 82k	
TCR (-55° to 200°C)	ppm/°C	<math>\geq 5\Omega \leq 10\Omega \pm 100 >10\Omega \pm 50</math>				
Resistance tolerance	%	1, 2, 5				
Low value limits	ohms	1 at 1%	0.5 at 2%	0.05 at 5%		WH50 0.015 at 10%

Limiting element voltage	volts	150	250	500	1250	
Standard values		E24 preferred range				Other values to special order
Thermal impedance	°C/watt	16.0	10.0	6.0	3.5	Mounted on standard heatsink
Ambient temperature range	°C	-55 to 200				

\*For load at maximum rating mount on heatsink 30.5 cm x 30.5 cm x 1.5 mm

### Construction

Cap and lead assemblies are fitted to a high purity ceramic substrate. The resistive element is wound onto the substrate and welded to the caps. The wound rod is then moulded and fitted into an aluminium housing to give optimum stability and reliability.

### Terminations

- Material** Solder dipped, copper clad steel wire.
- Strength** The terminations meet the requirements of IEC 68.2.21
- Solderability** The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2

### Marking

The resistors are legend marked with type reference, resistance value and tolerance which will withstand all accepted industrial cleaning fluids. Values are marked in accordance with IEC 62.

### General Note

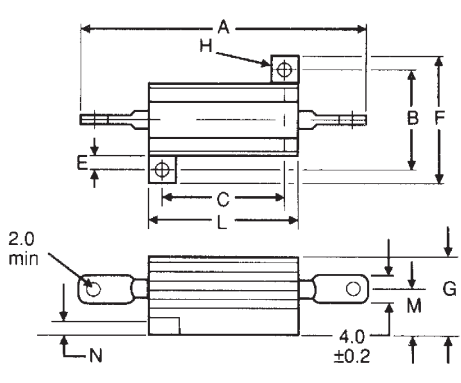
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# Aluminium Housed Wirewound Resistors

WH Series

## Physical Data

Dimensions (mm)					
Type	A	B	C	E	F
	Max	±0.3	±0.3	Min	Max
WH5	30.0	12.4	11.3	1.9	17
WH10	36.5	15.9	14.3	1.9	21
WH25	51.0	19.8	18.3	2.8	28
WH50	72.5	21.4	39.7	2.8	30
Type	G	H	L	M	N
	Max	Dia ±0.2	Max	±0.5	Max
WH5	9	2.4	17.0	4.3	1.8
WH10	11	2.4	21.0	5.2	2.2
WH25	15	3.3	29.0	7.2	2.6
WH50	16	3.3	51.0	7.9	2.6



## Performance Data

		CECC	Actual		Notes
		40203-006	Maximum	Typical	
Load at commercial rating: 1000 hrs at 25°C	ΔR %	1.0	1.0	0.4	
Load at CECC rating: 1000 hours at 25°C	ΔR %	1.0	1.0	0.4	
Dry heat: 1000 hours at 200°C	ΔR %	1.0	1.0	0.4	
Derating from 25°C		Zero at 200°C			
Short term overload	ΔR %	1.0	1.0	0.2	
Climatic sequence	ΔR %	1.0	1.0	0.4	
Climatic category		55/200/56			
Long term damp heat	ΔR %	1.0	0.5	0.2	
Temperature rapid change	ΔR %	0.25	0.25	0.1	
Resistance to solder heat	ΔR %	0.25	0.25	0.05	
Vibration and bump	ΔR %	0.25	0.25	0-.025	
Noise (in decade of frequency)	μV/V	Not specified zero			
Insulation resistance.	ohms	>1Gohm	>20Tohm	>100Gohm	
Isolation voltage: WH5 and 10	volts	AC peak	1000 min	1500 min	See application notes
: WH25 and 50	volts	AC peak	2000 min	3000 min	
Pulse handling		Data available by request			

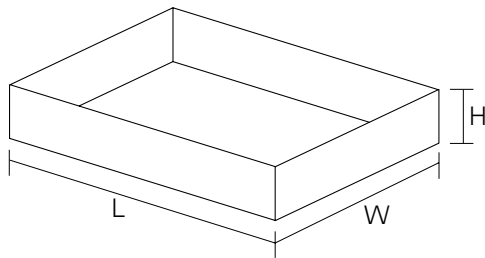
## Application Notes

Reference aluminium heatsink dimension

CECC 40203-006	L cm	W cm	H cm	Reference area sq. cm
AA (WH5)	15.5	10	5	410
BA (WH10)				
CA (WH25)	18	13	5	544
DA (WH50)				

Aluminium thickness 1mm

Reference chassis



### WH50 only

To load at maximum commercial rating (50W) mount on heatsink 30.5cm x 30.5cm x 1.5mm.

Derating must be applied when resistors are mounted on a heat sink of smaller dimensions than defined in Graph 1.

It is recommended that the resistor base should be coated with heatsink compound before mounting to obtain the stated operating characteristics.

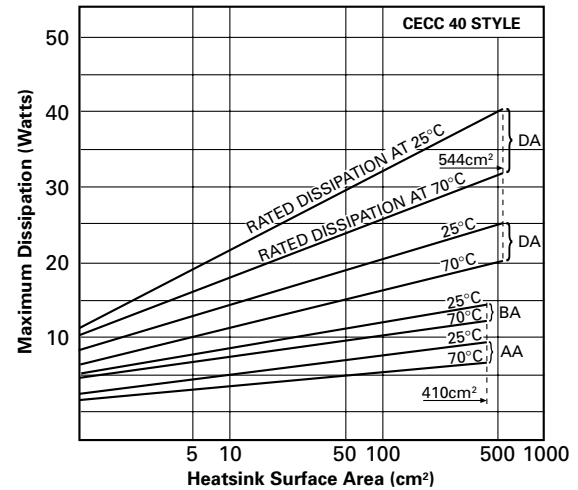
The heatsink compound increases thermal conductivity to the heatsink.

After soldering care should be taken to ensure that there are no flux residues on the moulding compound, otherwise insulation resistance will be reduced.

### Packaging

Resistors are packed in plastic bags and boxed for maximum protection.

Graph 1



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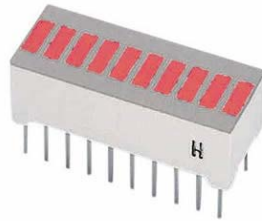


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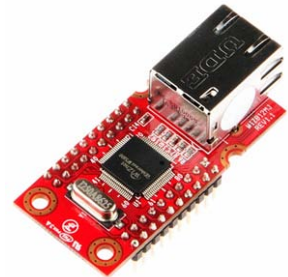
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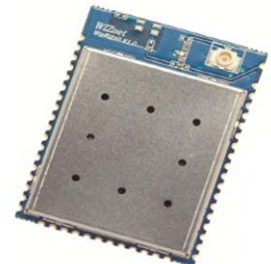
Ethernet Module



Arduino Uno



MicroSD Breakout Board



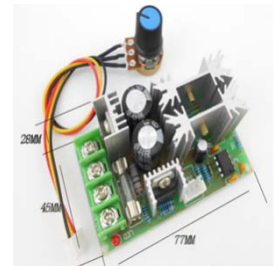
WiFi Module



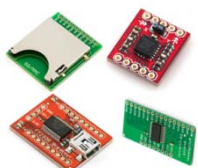
20x4 LCD Display Module



Stepper Motor Driver



PWM Motor Speed Controller



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Breakout Board & Modules



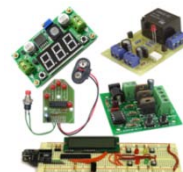
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