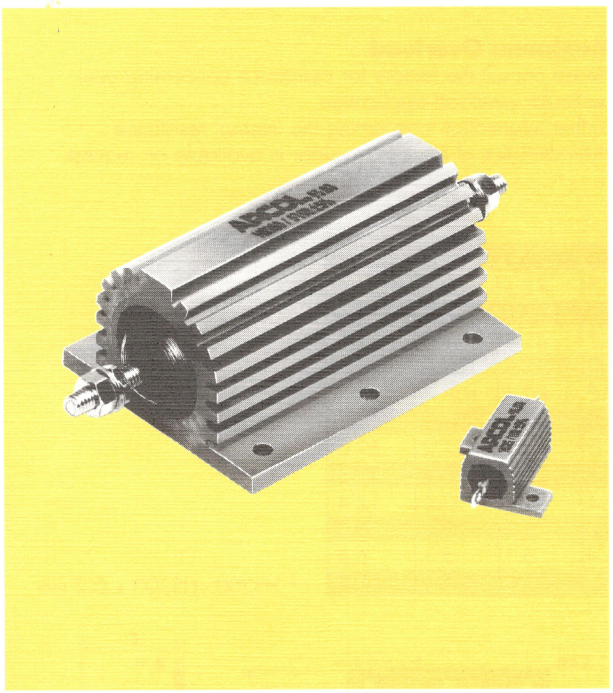
ARCOL

Issue 007/8

ALUMINIUM HOUSED POWER WIREWOUND RESISTORS

SERIES HS

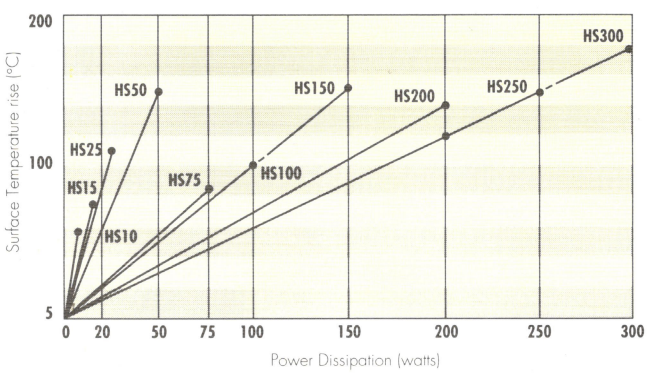


- **Designed for heat sink mounting**
- **Low ohmic values down to R005**
- **Solder, cable, threaded or fast-on terminations**
- **Inductive or low inductance**
- **Manufacturing approved to ISO 9001 (1994)**

The ARCOL HS style is a range of high quality, high stability aluminium housed power wirewound resistors designed for direct heat sink attachment. The resistive element is wound onto high thermal conductivity ceramic formers ground to a close toleranced finish ensuring maximum contact for rapid heat transfer. This element is encapsulated in the aluminium housing by a transfer moulding process which ensures a good humidity seal and a permanent compression fit. The encapsulant is a high temperature moulding compound and the special ARCOL mould tool design ensures accurate concentricity of the resistive element inside the housing giving a high level of voltage protection. Our engineers have 30 years experience in the design and manufacture of this style of resistor and during this period we have produced many different HS types to meet customers special requirements. If you need a special design for your application, be it high voltage, short term overload, special mounting or terminations then please contact us for advice.

Electrical Specifications

ARCOL type	style mil-R 18546	power rating on standard heat sink	(watts) @ 25° without heat sink	resistance range ohms	limiting element voltage DC/AC rms	voltage proof AC peak	stability Δ R % per 1000 hrs	max weight gms	typ. surface temp. rise °C/W standard heat sink mounted	standard heat sink (aluminium) area cm2	thickness (mm)
HS10	RE60	10	5,5	R005-5K	160	1000	1	4	5.8	415	1
HS15	RE65	15	8	R005-10K	265	1000	1	7	5.1	415	1
HS25	RE70	25	12,5	R01-25K	550	2500	1	14	4.2	535	1
HS50	RE75	50	20	R01-50K	1250	2500	1	32	3.0	535	1
HS75		75	45	R1-50K	1400	5000	2	85	1.1	995	3
HS100		100	50	R1-70K	1900	5000	2	115	1.0	995	3
HS150		150	55	R1-100K	2500	5000	2	175	1.0	995	3
HS200		200	50	R1-39K	1900	5000	3	475	0.7	3750	3
HS250		250	60	R1-51K	2200	5000	3	600	0.6	4765	3
HS300		300	75	R1-63K	2500	5000	3	700	0.6	5780	3



◂ **Graph showing Surface Temperature rise/Power Dissipation**
Surface Temperature of resistor related to power dissipation. The resistor is standard heat sink mounted using a proprietary heat sink compound.

Tolerance
Standard J and K (5% and 10%)
Also available 1%, 2% and 3%

Tolerance for low Ohmic Values
≥ R 05 ±5% ≤ R 047 ±10%

Temperature Coefficients typical values
Above 50R 25ppm/°C
IR-50R 50ppm/°C
Below IR 100ppm/°C
For lower TC's please consult the factory

Insulation resistance (Dry)
10,000M R minimum

Low inductance Styles «NHS»
ARCOL HS resistors are available with low inductance windings and are identified by adding the letter N before the HS identification, e.g. NHS10, NHS15, NHS25, NHS50
Divide maximum value by 4
Divide maximum working volts by 1.414

Power dissipation at high ambient temperatures
Dissipation derates linearly to zero at 200 °C

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www.lvelectronics.com **Email: sales@lvelectronics.com**

Mechanical Specifications

Core	Ceramic-steatite or alumina depending on size
Element	Copper nickel alloy or nickel chrome alloy
End caps	Nickel iron or stainless steel
Encapsulant	High temperature moulding compound
Housing	Anodised aluminium
Terminals	HS10 to HS150: silver plated steel cored copper HS200 to HS300: Brass, stainless steel or copper clad steel

Application Notes

Heat Dissipation

Whilst the use of proprietary heat sinks with lower thermal resistance is acceptable uprating is not recommended. For maximum heat transfer it is recommended that a heat sink compound be applied between the resistor base and heat sink/chassis mounting surface. It is essential that the maximum hot spot temperature of 200° is not exceeded and therefore the resistor must be mounted on a heat sink of correct thermal resistance for the power being dissipated.

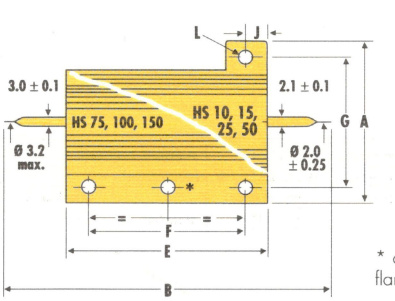
Maximum Overload

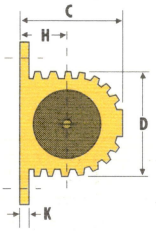
Please consult the factory for assistance concerning your particular overload application.
Further information concerning the internal resistance characteristics of each HS resistor is available on request.

Dimensions (mm)

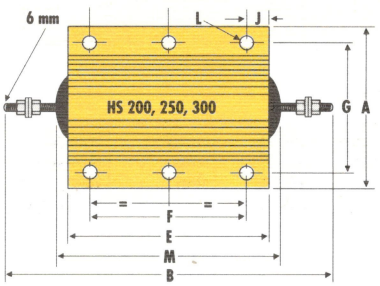
	Tol.	HS10	HS15	HS25	HS50	HS75	HS100	HS150	HS200	HS250	HS300
A	Max.	16.5	21.0	28.0	29.3	47.5	47.5	47.5	72.5	72.5	72.5
B	Max.	30.0	36.5	51.0	72.5	72.0	88.0	121.0	145.7	167.0	184.4
C	Max.	8.8	11.0	14.6	14.8	24.1	24.1	24.1	41.8	41.8	41.8
D	±1.6	8.5	11.2	14.0	14.2	27.3	27.3	27.3	45.5	45.5	45.5
E	Max.	15.9	19.9	27.3	49.1	48.7	65.2	97.7	89.7	108.7	127.7
F	±0.3	11.3	14.3	18.3	39.7	29.0	35.0	58.0	70.0	89.0	104.0
G	± 0.3	12.4	15.9	19.8	21.4	37.0	37.0	37.0	57.2	57.2	59.0
H	Max.	4.4	5.5	7.3	8.5	11.8	11.8	11.8	20.5	20.5	20.5
J	Max.	2.4	2.8	4.7	5.2	10.4	15.4	20.4	10.4	10.4	12.4
K	± 0.8	1.8	1.8	3.5	3.5	3.7	3.7	3.7	5.5	5.5	5.5
L	± 0.25*	2.4	2.4	3.2	3.2	4.4	4.4	4.4	5.1	5.1	6.6
M	Max.	Not applicable							103.4	122.4	141.4

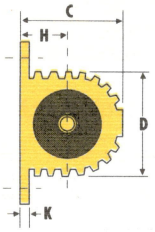
* HS200 - HS300 ± 0.2 mm





* center hole in each flange - HS150 only





Ordering information

N HS 25 2R2 J (±5%)

- J (±5%) — Tolerance
- 2R2 — Nominal value ohms
- 25 — Max wattage rating heat sink mounted
- HS — Std. type
- N — Low inductance winding

ARCOL will be pleased to advise and to provide further information on the following subjects:

- ☐ HS resistors for pulse applications
- ☐ Maximum overload
- ☐ Inductance values
- ☐ Low ohmic values
- ☐ Special terminations
- ☐ Alternative aluminium housing designs and mountings
- ☐ MIHS minerally insulated for high voltage applications