

**Aluminium Housed Power Resistors**

**Key Features**

- Up to 300 Watts With Heatsink
- Low Ohmic Values Available
- Low-Inductance & Tight Tolerance Options
- Up To 2.5kVdc Operating Voltage
- Range of Terminations
- Attractively Priced
- Proven Reliability
- Available In Distribution
- Custom Designs Welcome



Tyco are the leading European supplier of standard and custom designed aluminium housed resistors for general-purpose use, power supplies, power generation and the traction industry.

The HS is a range of extremely stable, high quality wire wound resistors capable of dissipating high power in a

limited space with relatively low surface temperature. The power is rapidly dissipated as heat through the aluminium housing to a specified heatsink.

The resistors are made from quality materials for optimum reliability and stability. Tyco can test resistors to conform to

relevant international, MIL or customer specifications.

Tyco are happy to advise on the use of resistors for pulse applications and to supply information for high voltage use and low-ohmic value, alternative mountings and termination type.

**Characteristics**

**Long-term stability**

For improvements in long-term stability, resistors must be derated as follows; for 50% of stated  $\Delta R$  maximum dissipation must not exceed 70% of rating; for 25% of stated  $\Delta R$  maximum, dissipation must not exceed 50% of rating.

**Insulation resistance**

Dry: 10,000M $\Omega$  minimum.  
After moisture test: 1000M $\Omega$  minimum.

**Heat dissipation**

Although the use of proprietary heat sinks with lower thermal resistance is acceptable, up rating is not recommended. The use of propriety heat sink compound to improve thermal conductivity is recommended for optimum performance of all sizes but essential for HSC200, HSC250 & HSC300.

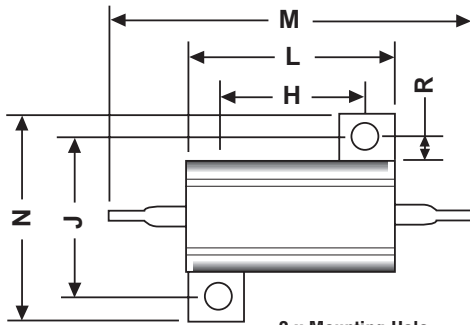
**Specification**

Temperature coefficient below 100R, 50ppm/ $^{\circ}C$   
Temperature coefficient above 100R, 30ppm/ $^{\circ}C$   
Tolerance, 5% standard: 10%, 3%, 2%, 0.5% & 0.25% available.  
Tolerance for values below R10, 10% standard.

**Aluminium Housed Power Resistors**

**Dimensions**

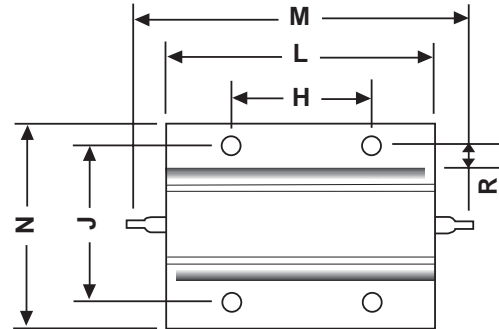
**HSA5 - HSA50**



2 x Mounting Hole

- HSA5 - 2.4mm
- HSA10 - 2.4mm
- HSA25 - 3.3mm
- HSA50 - 3.3mm

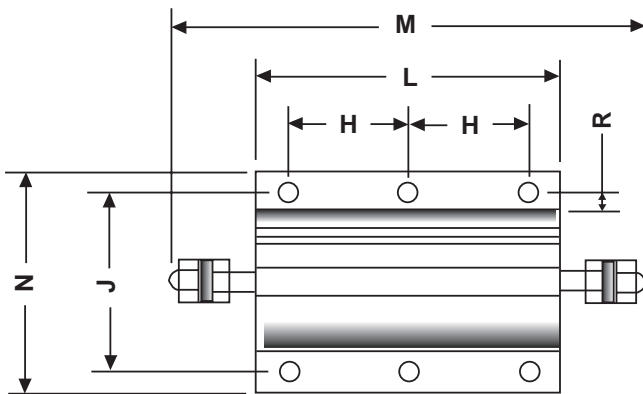
**HSC75-HSC150**



4 x Mounting Hole

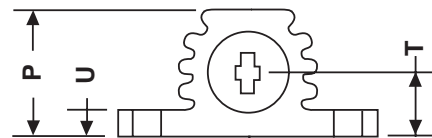
- HSC75 - 4.4mm
- HSC100 - 4.4mm
- HSC150 - 4.4mm

**HSC200+**



6 x Mounting Hole

- HSC200 - 5.3mm
- HSC250 - 5.3mm
- HSC300 - 6.5mm

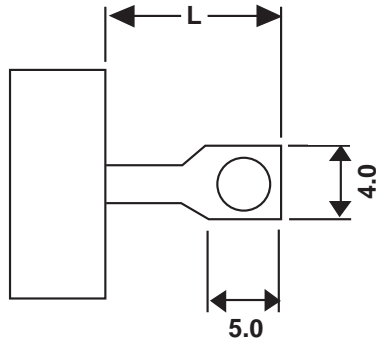


HS Type	HSA5	HSA10	HSA25	HSA50	HSC75	HSC100	HSC150	HSC200	HSC250	HSC300
<b>H ± 0.3</b>	11.3	14.3	18.3	39.7	29.0	35.0	58.0	35.0	44.5	52.0
<b>J ± 0.3</b>	12.4	15.9	19.8	21.4	37.0	37.0	37.0	57.2	57.2	59.0
<b>K ± 0.2</b>	2.4	2.4	3.3	3.3	4.4	4.4	4.4	5.3	5.3	6.5
<b>L Max</b>	17.0	21.0	29.0	51.0	49.0	65.5	98.0	90.0	109.0	128.0
<b>M Max</b>	30.0	36.5	51.8	72.5	71.0	87.5	122.0	143.0	163.0	180.0
<b>N Max</b>	17.0	21.0	28.0	30.0	47.5	47.5	47.5	73.0	73.0	73.0
<b>P Max</b>	9.0	11.0	15.0	17.0	26.0	26.0	26.0	45.0	45.0	45.0
<b>R Min</b>	1.9	1.9	2.8	2.8	5.0	5.0	5.0	5.6	5.6	6.0
<b>T±0.5</b>	3.4	5.2	7.2	7.9	11.5	11.5	11.5	22.2	22.2	22.2
<b>U Max</b>	2.5	3.2	3.2	3.2	3.5	3.5	3.5	6.75	6.75	6.75

Note: K refers to mounting hole diameter

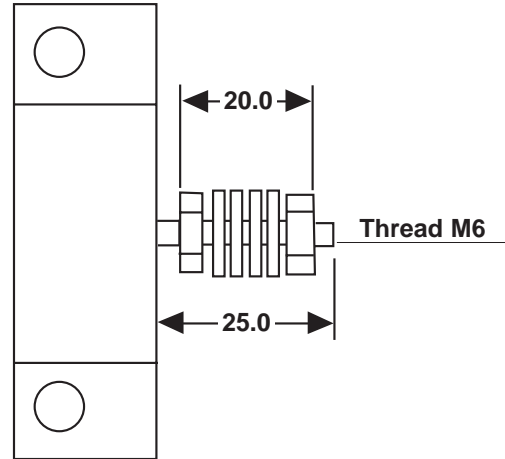
**Product Specifications**

**Types HSA5 to HSC150**



Type	L
HSA5, 10	7
HSA25, 50	10
HSA75, 100, 150	8

**Types HSC200 to HSC300**

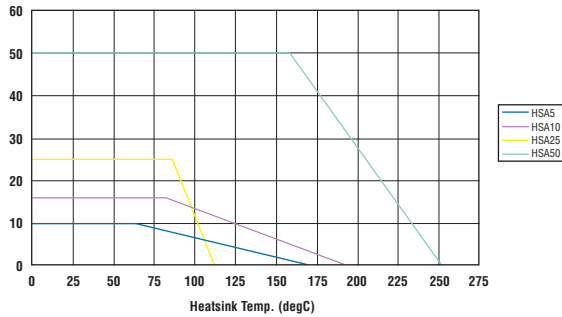


**HSA & HSC type 5 Watts to 300 Watts**

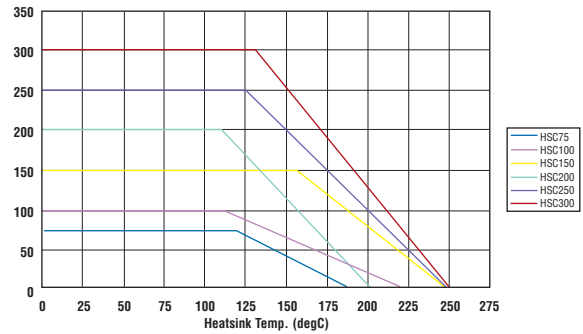
HS Type	HSA5	HSA10	HSA25	HSA50	HSC75	HSC100	HSC150	HSC200	HSC250	HSC300
<b>Dissipation at 25°C (Watts)</b>										
With Heatsink	10	16	25	50	75	100	150	200	250	300
Without Heatsink	5.5	8	12.5	20	45	50	55	50	60	75
<b>Ohmic Value (Ohms)</b>										
Min	R01	R01	R01	R01	R05	R05	R10	R10	R10	R10
Max	10K	15K	36K	100K	50K	100K	100K	50K	68K	82K
<b>Maximum Working Voltage (DC/ACrms)</b>										
Volts	160	265	550	1250	1400	1900	2500	1900	2200	2500
<b>Dielectric Strength (AC Peak)</b>										
Volts	1400	1400	2500	2500	5000	5000	5000	5600	5600	5600
<b>Stability (% resistance change, 1000 hours)</b>										
%	1	1	1	1	2	2	2	3	3	3
<b>Standard Heatsink</b>										
Area mm <sup>2</sup>	41500	41500	53500	53500	99500	99500	99500	375000	476500	578000
Thickness mm	1	1	1	1	3	3	3	3	3	3
<b>Mounting Style</b>										
Number of Mounting Holes	2 hole	2 hole	2 hole	2 hole	4 hole	4 hole	4 hole	6 hole	6 hole	6 hole

**Aluminium Housed Power Resistors**

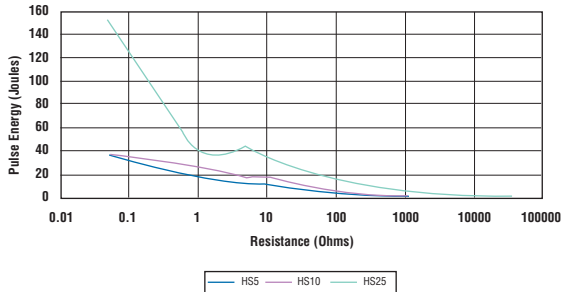
**Derating Curve HSA5 to HSA50 Resistors**



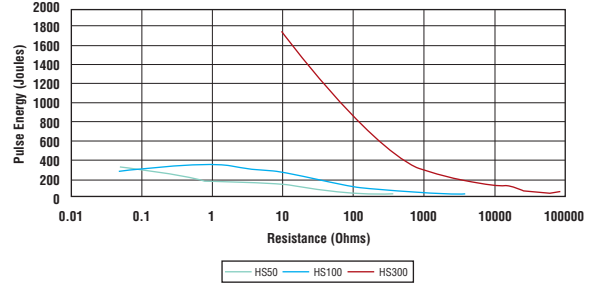
**Derating Curve HSC75 to HSC300 Resistors**



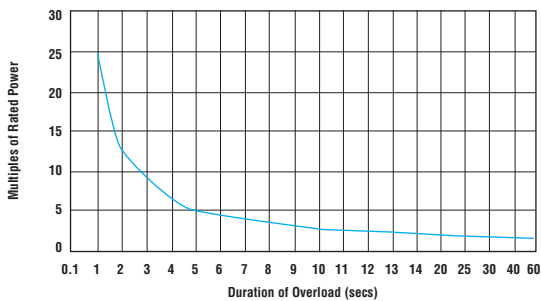
**Single Shot Pulse Energy**



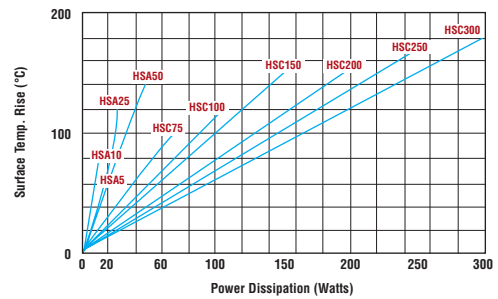
**Pulse Energy**



**Power Overload**



**Surface Temperature Rise**



This graph indicates the amount that the rated power (at 20°C) of the standard HS Series resistor may be increased for overloads of 100mS to 60S

For resistor mounted on standard heatsink, related to power dissipation

**Ordering Information**

Common Part	Mounting Style	Power Rating at 25°C with Heatsink	Resistance Value	Tolerance
HS- Standard	A - Single Opposing mounting Feet	10 Watt = HSA5	0.1ohm (100 mille ohms) R10 1ohm (1000 mille ohms) 1R0 1K (1000 ohms) 1K0	F - 1%
		16 Watt = HSA10		G - 2%
		25 Watt = HSA25		E - 3%
NHS - Low Inductance	B - Flange One Side	50 Watt = HSA50		J - 5%
	C - Flange Two Slides	75 Watt = HSA75 etc		K - 10%

**Example**

<b>HS</b>	<b>A</b>	<b>50</b>	<b>680R</b>	<b>J</b>
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