# Type HS Series

## Key Features

- Established product with proven reliability
  - Leading the way with over 50 years of design and manufacturing experience
- 5 Watts to 300 Watts (500 Watt and 1000 Watt versions available)
  - Largest range on the market
- Versatile product
  - Bench mark in every industry
- Custom designs
  - Windings, terminations, mountings - We have a solution for your application
- Low resistance, low inductance and higher voltage versions available
  - Specialising the standard

## Applications

- Braking Resistor
- Balancing Resistor
- Capacitor Charging & Discharging
- Crowbar
- Filter
- Electrical Machinery general use
- Available through Distribution



TE Connectivity 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. TE can test resistors to conform to relevant international, MIL or customer specifications.

TE 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 - Electrical
## HSA & HSC - 5 Watts to 75 Watts

| | HSA5 | HSA10 | HSA25 | HSA50 | HSC75 |
|---|---|---|---|---|---|
| Dissipation @ 25°C with Heatsink (Watts): | 10 | 16 | 25 | 50 | 75 |
| Without Heatsink: | 5.5 | 8 | 12.5 | 20 | 45 |
| Ohmic Value Min (Ohms): | R01 | R01 | R01 | R01 | R05 |
| Max: | 10K | 15K | 36K | 100K | 50K |
| Max. Working Voltage (DC or ACrms) Volts: | 160 | 265 | 550 | 1250 | 1400 |
| Dielectric Strength (AC Peak) Volts: | 1400 | 1400 | 2500 | 2500 | 5000 |
| Stability (% resistance change, 1000 hours) (%): | 1 | 1 | 1 | 1 | 2 |
| Standard Heatsink - Area ($mm^2$): | 41500 | 41500 | 53500 | 53500 | 99500 |
| Thickness (mm): | 1 | 1 | 1 | 1 | 3 |
| Number of Mounting Holes: | 2 hole | 2 hole | 2 hole | 2 hole | 4 hole |

## Characteristics - Electrical
## HSC - 100 Watts to 300 Watts

| | HSC100 | HSC150 | HSC200 | HSC250 | HSC300 |
|---|---|---|---|---|---|
| Dissipation @ 25°C with Heatsink (Watts): | 100 | 150 | 200 | 250 | 300 |
| Without Heatsink: | 50 | 55 | 50 | 60 | 75 |
| Ohmic Value Min (Ohms): | R05 | R10 | R10 | R10 | R10 |
| Max: | 100K | 100K | 50K | 68K | 82K |
| Max. Working Voltage (DC or ACrms) Volts: | 1900 | 2500 | 1900 | 2200 | 2500 |
| Dielectric Strength (AC Peak) Volts: | 5000 | 5000 | 5600 | 5600 | 5600 |
| Stability (% resistance change, 1000 hours) (%): | 2 | 2 | 3 | 3 | 3 |
| Standard Heatsink - Area ($mm^2$): | 99500 | 99500 | 375000 | 476500 | 578000 |
| Thickness (mm): | 3 | 3 | 3 | 3 | 3 |
| Number of Mounting Holes: | 4 hole | 4 hole | 6 hole | 6 hole | 6 hole |



Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

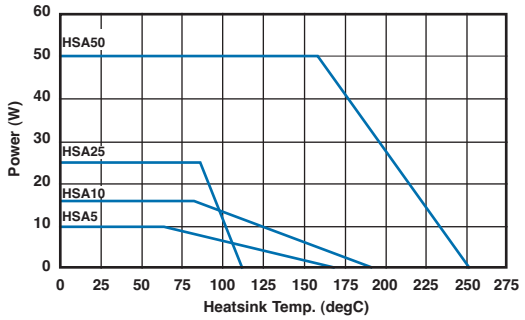
Dimensions are shown for reference purposes only. Specifications subject to change.

# Type HS Series

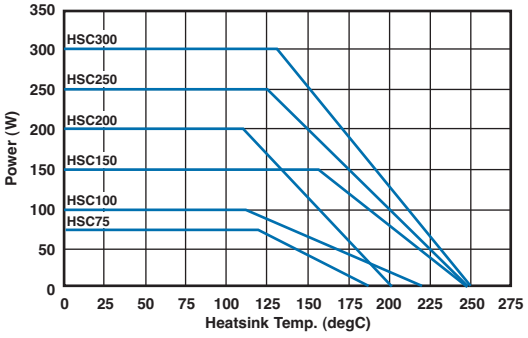
## Characteristics - Electrical

| | |
|---|---|
| **Long Term Stability:** | For improvements in long-term stability, resistors must be derated as follows; for 50% of stated ΔR maximum dissipation must not exceed 70% of rating; for 25% of stated ΔR maximum, dissipation must not exceed 50% of rating |
| **Insulation Resistance:** | Dry: 10,000MΩ minimum. After moisture test: 1000MΩ minimum. |
| Heat Dissipation: | Although the use of proprietary heat sinks with lower thermal resistance is acceptable, up rating is not recommended.<br>The use of proprietary 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/°C<br>Temperature coefficient above 100R, 30ppm/°C<br>Tolerance, 5% standard: 10%, 3%, 2%, 0.5% & 0.25% available<br>Tolerance for values below R10, 10% standard |

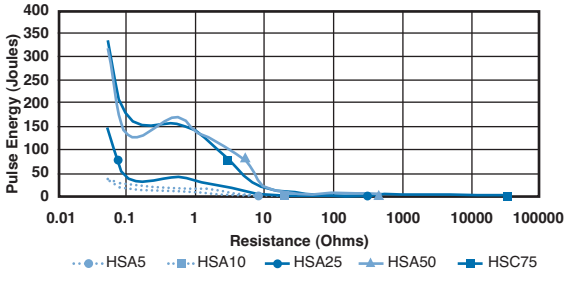
## Derating Curve HSA5 to HSA50




## Derating Curve HSC75 to HSC300




## Pulse Energy HSA5 to HSC75



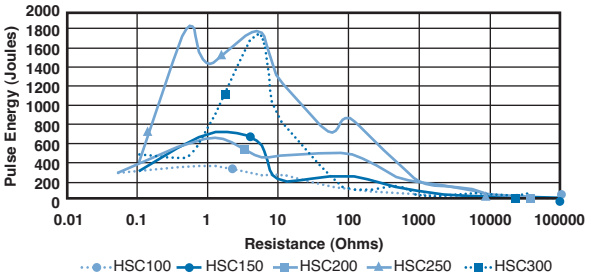



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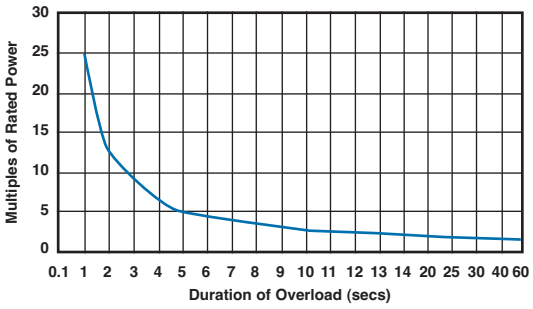
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# Type HS Series

## Pulse Energy HSC100 to HSC300

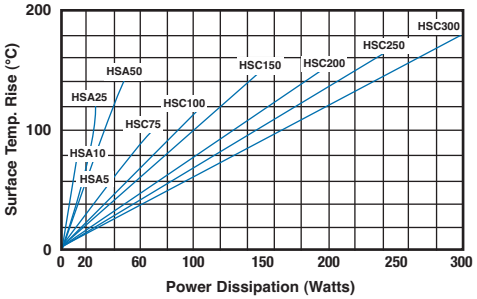



## Power Overload



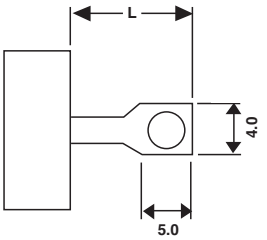

This graph indicates the amount that the rated power (at 20°C) of the standard HS Series resistor may be increased for overloads of 100mS to 60S

## Surface Temperature Rise



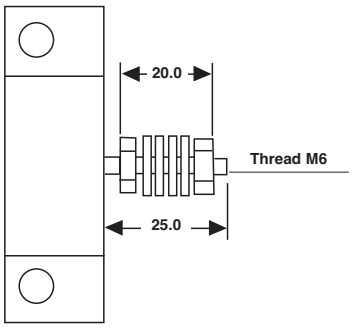

For resistor mounted on standard heatsink, related to power dissipation

## Product Specifications - HSA5 - HSC150




| Type | L |
|---|---|
| HSA5, 10 | 7 |
| HSA25, 50 | 10 |
| HSC75, 100, 150 | 8 |

## HSC200 - HSC300



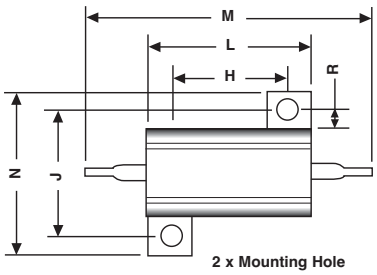



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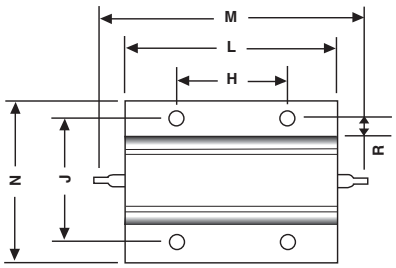
## Dimensions - HSA5 - HSA50




2 x Mounting Hole

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

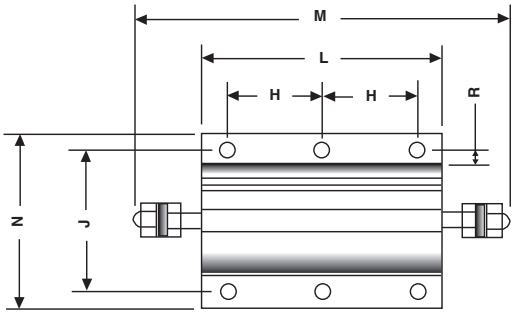
## HSC75 - HSC150




4 x Mounting Hole

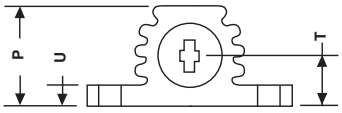
HSC75 - 4.4mm
HSC100 - 4.4mm
HSC150 - 4.4mm

## HSC200+




6 x Mounting Hole

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




| Type | H±0.3 | J±0.3 | K±0.2 | L Max | M Max | N Max | P Max | R Min | T±0.5 | U Max |
|---|---|---|---|---|---|---|---|---|---|---|
| **HSA5** | 11.3 | 12.4 | 2.4 | 17.0 | 30.0 | 17.0 | 9.0 | 1.9 | 4.3 | 2.5 |
| **HSA10** | 14.3 | 15.9 | 2.4 | 21.0 | 36.5 | 21.0 | 11.0 | 1.9 | 5.2 | 3.2 |
| **HSA25** | 18.3 | 19.8 | 3.3 | 29.0 | 51.0 | 28.0 | 15.0 | 2.8 | 7.2 | 3.2 |
| **HSA50** | 39.7 | 21.4 | 3.3 | 51.0 | 72.5 | 30.0 | 17.0 | 2.8 | 8.2 | 3.2 |
| **HSC75** | 29.0 | 37.0 | 4.4 | 49.0 | 71.0 | 47.5 | 26.0 | 5.0 | 11.5 | 3.5 |
| **HSC100** | 35.0 | 37.0 | 4.4 | 65.5 | 87.5 | 47.5 | 26.0 | 5.0 | 11.5 | 3.5 |
| **HSC150** | 58.0 | 37.0 | 4.4 | 98.0 | 122.0 | 47.5 | 26.0 | 5.0 | 11.5 | 3.5 |
| **HSC200** | 35.0 | 57.2 | 5.3 | 90.0 | 143.0 | 73.0 | 42.0 | 5.6 | 20.25 | 5.3 |
| **HSC250** | 44.5 | 57.2 | 5.3 | 109.0 | 163.0 | 73.0 | 42.0 | 5.6 | 20.25 | 5.3 |
| **HSC300** | 52.0 | 59.0 | 6.5 | 128.0 | 180.0 | 73.0 | 42.0 | 5.6 | 20.25 | 5.3 |

## How to Order

| HS | A | 50 | 680R | J |
|---|---|---|---|---|
| **Common Part** | **Mounting Style** | **Power Rating** | **Resistance Value** | **Tolerance** |
| HS - Standard<br>NHS - Low Inductance | A - Single Opposing mounting Feet<br>B - Flange One Side<br>C - Flange Two Sides | 10 Watt = HSA5<br>16 Watt = HSA10<br>25 Watt = HSA25<br>50 Watt = HSA50<br>75 Watt = HSA75<br>etc | 0.1ohm (100 mille ohms) R10<br>1ohm (1000 mille ohms) 1R0<br>1K (1000 ohms) 1KO | F - 1%<br>G - 2%<br>E - 3%<br>J - 5%<br>K - 10% |

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- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
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