

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



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.

Applications

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

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

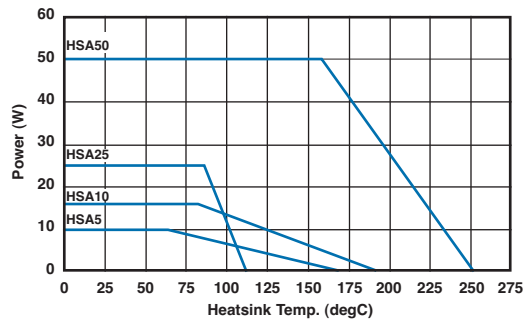
| | HSC100 | HSC150 | HSC200 | HSC250 | HSC300 |
|--|--------|--------|--------|--------|--------|
| Dissipation @ 25°C with Heatsink (Watts): | 100 | 150 | 200 | 250 | 300 |
| Without Heatsink: | 50 | 55 | 50 | 60 | 75 |
| Ohmic Value Min (Ohms): | R05 | R10 | R10 | R10 | R10 |
| Max: | 100K | 100K | 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 |

Type HS Series

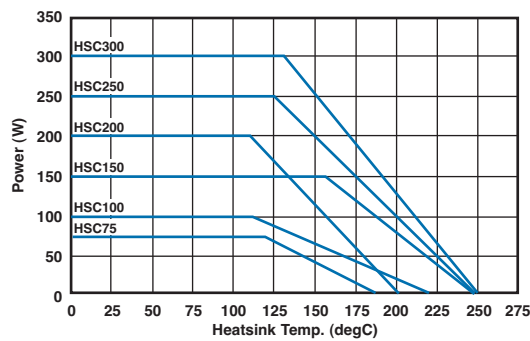
Characteristics - Electrical

| | |
|-------------------------------|--|
| 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: 10,000M Ω minimum. After moisture test: 1000M Ω minimum. |
| Heat Dissipation: | Although the use of proprietary heat sinks with lower thermal resistance is acceptable, up rating is not recommended. 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/ $^{\circ}$ 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 |

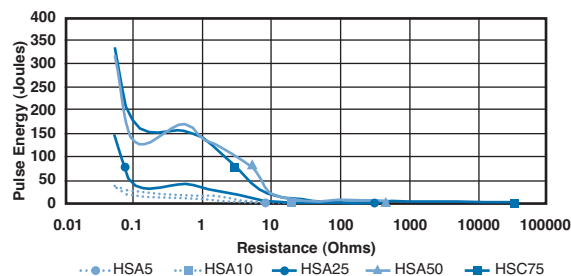
Derating Curve HSA5 to HSA50



Derating Curve HSC75 to HSC300

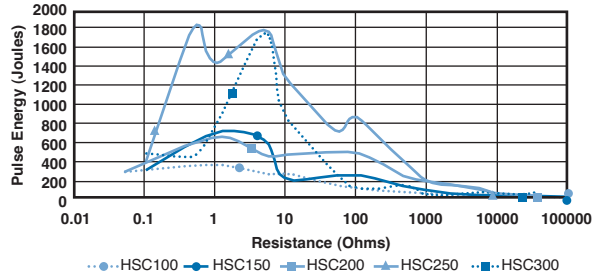


Pulse Energy HSA5 to HSC75

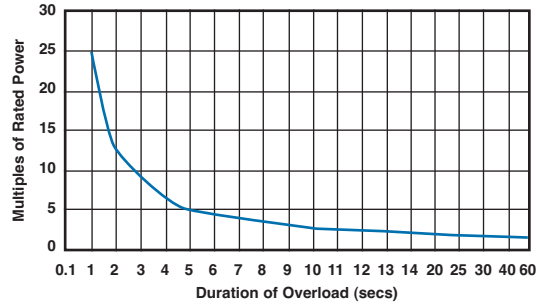


Type HS Series

Pulse Energy HSC100 to HSC300

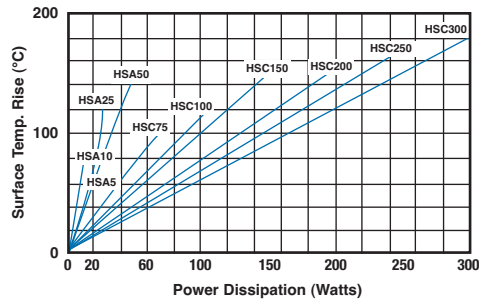


Power Overload



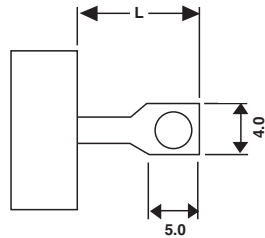
This graph indicates the amount that the rated power (at 20°C) of the standard HS Series resistor may be increased for overloads of 100mS to 60S

Surface Temperature Rise



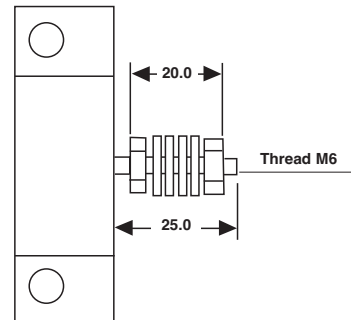
For resistor mounted on standard heatsink, related to power dissipation

Product Specifications - HSA5 - HSC150



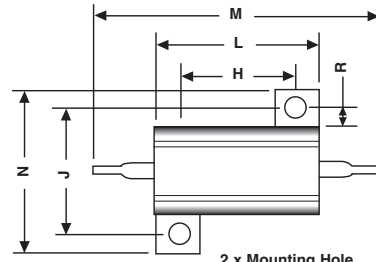
| Type | L |
|-----------------|----|
| HSA5, 10 | 7 |
| HSA25, 50 | 10 |
| HSC75, 100, 150 | 8 |

HSC200 - HSC300



Type HS Series

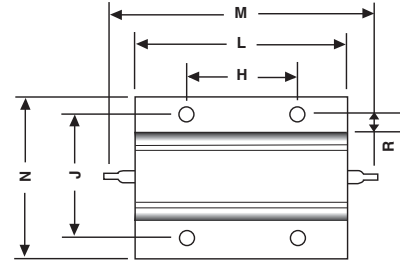
Dimensions - HSA5 - HSA50



2 x Mounting Hole

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

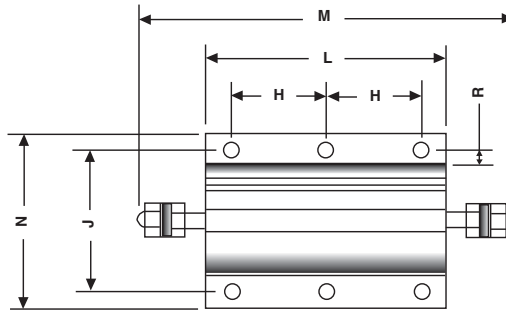
HSC75 - HSC150



4 x Mounting Hole

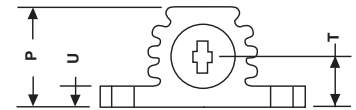
- HSC75 - 4.4mm
- HSC100 - 4.4mm
- HSC150 - 4.4mm

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 |
| <p>HS - Standard</p> <p>NHS - Low Inductance</p> | <p>A - Single Opposing mounting Feet</p> <p>B - Flange One Side</p> <p>C - Flange Two Sides</p> | <p>10 Watt = HSA5</p> <p>16 Watt = HSA10</p> <p>25 Watt = HSA25</p> <p>50 Watt = HSA50</p> <p>75 Watt = HSA75</p> <p>etc</p> | <p>0.1ohm (100 mille ohms)</p> <p>R10</p> <p>1ohm (1000 mille ohms)</p> <p>1R0</p> <p>1K (1000 ohms)</p> <p>1KO</p> | <p>F - 1%</p> <p>G - 2%</p> <p>E - 3%</p> <p>J - 5%</p> <p>K - 10%</p> |

TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks.
Other logos, product and Company names mentioned herein may be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this datasheet are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.