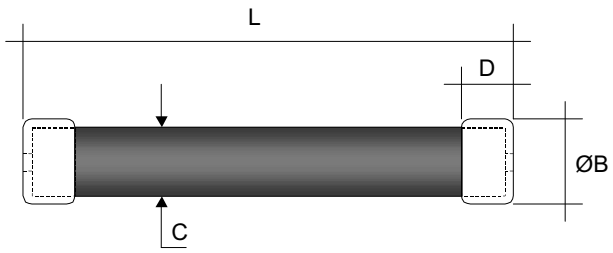
# High Voltage Surge Resistors Series P500

## High Pulse Energy, High Power, Non-Inductive

High Voltage Surge Resistors Series P500 combine proprietary non-inductive power film resistance system and design to achieve excellent pulse withstand performance, high stability, high power density and high operating voltages. The new Series P500 has been developed to meet the demanding high power / high energy requirements of pulse / transient applications such as Medical Surge Protection (defibrillator cables), RC Snubber Circuits, Spark-Gap Limiters and High Voltage Power Supplies. Series P500 is also an ideal replacement of carbon composition resistors and bulk ceramic resistors over an extended resistance range. These resistors are ideally suited for high power and high frequency applications.





| Model | Wattage | Max. Peak Pulse Voltage | Dimensions in millimeters ± 1.00 [Dimensions in inches ± 0.04] | | | | |
|---|---|---|---|---|---|---|---|
| | | | L (max.) | B | C | D | G |
| **P500.10** | 15.00 | 35'000 | 81.00 [3.19] | 14.00 [0.55] | 13.50 [0.53] | 10.00 [0.40] | M4 |
| **P500.20** | 25.00 | 80'000 | 156.00 [6.14] | 14.00 [0.55] | 13.50 [0.53] | 10.00 [0.40] | M4 |
| **P500.50** | 55.00 | 70'000 | 160.00 [6.30] | 31.50 [1.24] | 30.50 [1.20] | 17.00 [0.67] | M8 |
| **P500.70** | 75.00 | 100'000 | 210.00 [8.27] | 31.50 [1.24] | 30.50 [1.20] | 17.00 [0.67] | M8 |
| **P500.100** | 110.00 | 150'000 | 310.00 [12.20] | 31.50 [1.24] | 30.50 [1.20] | 17.00 [0.67] | M8 |

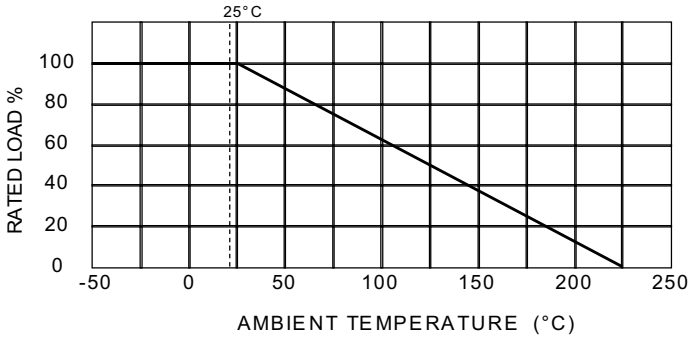
## Characteristics

| | | | |
|---|---|---|---|
| Resistance Values | from 1Ω to as high as 1MΩ | | |
| Tolerances | 1%, 2%, 5%, 10% (other tolerances to 0.05% on request) | | |
| Temperature Coefficients | 25, 50 and 100 ppm/°C (other temperature coefficients to 10 ppm/°C on request) | | |
| Operating Temperature | -55 .. +225°C | (extended temperature range to 350°C available) | |
| Insulation Resistance | > 10'000 MΩ | 500 Volt 25 °C 75% relative humidity | |
| Dielectric Strength | > 1'000 Volt | 25 °C 75% relative humidity | |
| Thermal Shock | Δ R/R < 0.5% typ., 1% max. | MIL Std. 202, method 107 Cond. C | IEC 68 - 2 -14 |
| Overload | Δ R/R < 0.5% typ., 1% max. | 1,5 x Pnom, 5 sec (do not exceed max. voltage) | |
| Moisture Resistance | Δ R/R < 0.5% typ., 1% max. | MIL Std. 202, method 106 | IEC 68 - 2 - 3 |
| Load Life | Δ R/R < 0.5% typ., 1% max. | 1000 hours at rated power | IEC 115 - 1 |
| Continuous Working Voltage | Power Limited | = √(PxR) | |
| Encapsulation | Silicone Conformal Coating | Core Material | $Al_2O_3$ (96%) |
| Lead Material | Brass Caps (lug terminations avail.) | Resistor Material | Ruthenium Oxide |

## Single Pulse Energy

| Type | Nominal Energy Rating (Pulse Duration 10 ms)* |
|---|---|
| **P500.10** | 200 Joules |
| **P500.20** | 500 Joules |
| **P500.50** | 1000 Joules |
| **P500.70** | 1400 Joules |
| **P500.100** | 2200 Joules |

## Derating Curve




*Max. Single Pulse Energy is based on a pulse duration of 10 ms.
For shorter pulses the energy rating should be decreased (see Application Notes for details). In case of repeated pulses, the average pulse power should not exceed the Nominal Power Rating.