



Resistor Glossary

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▶ RATED POWER

The maximum value of power, which can be continuously loaded to a resistor at a rated ambient temperature. Please confirm beforehand that there is such a case in a network that rated power per package as well as per element is specified.

▶ RATED VOLTAGE

The maximum value of D.C. voltage or A.C. voltage (commercial frequency effective value) capable of being applied continuously to resistors at the rated ambient temperature. Rated voltage shall be calculated from the following formula. However, it shall not exceed the maximum working voltage.

$$\text{Rated Voltage (V)} = \sqrt{\text{Rated Power (W)} \times \text{Nominal Resistance Value}(\Omega)}$$

▶ CRITICAL RESISTANCE VALUE

The maximum nominal resistance value at which the rated power can be loaded without exceeding the maximum working voltage. The rated voltage is equal to the maximum working voltage in the critical resistance value.

▶ MAXIMUM WORKING VOLTAGE

The maximum value of D.C. voltage or A.C. voltage (commercial frequency effective value) capable of being applied continuously to resistors or element. However, the maximum value of the applicable voltage is the rated voltage at the critical resistance value or lower.

▶ MAXIMUM OVERLOAD VOLTAGE

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use. The maximum value of voltage capable of being applied to resistors for five seconds in the overload test. (JIS C 5201- 1 4.13) Typically the applied voltage in the short time overload test shall be 2.5 times larger than the rated voltage. However, it shall not exceed the maximum overload voltage.

▶ DIELECTRIC WITHSTANDING VOLTAGE

A.C. voltage (commercial frequency effective value) that can be applied to a designated spot between the electrode and the outer coating for a minute in the dielectric withstanding voltage test. (JIS C 5201- 1 4.7)

▶ RATED AMBIENT TEMPERATURE

The maximum ambient temperature at which resistors are capable of being used continuously with the prescribed rated load (power). The rated ambient temperature refers to the temperature around the resistors inside the equipment, not to the air- temperature outside the equipment.

▶ DERATING CURVE

The curve that expresses the relation between the ambient temperature and the maximum value of continuously loadable power at its temperature, which is generally expressed in percentage.

▶ TEMPERATURE COEFFICIENT OF RESISTANCE(T.C.R.)

The rate of change in resistance value per 1 °C in the prescribed temperature within the range of resistors operating temperature shall be expressed in the following formula:

$$\text{T.C.R. (ppm/°C)} = (\text{R}-\text{R}_0)/\text{R}_0 \times 1/(\text{T}-\text{T}_0) \times 10^6$$

R: Measured resistance(Ω) at T °C

R₀: Measured resistance(Ω) at T₀ °C

T: Measured test temperature(°C)

T₀: Measured base temperature(°C)

