KOA SPEER ELECTRONICS, INC.

Terms & Definitions

Rated Power:
The maximum value of power which can be continuously loaded to a resistor at a rated ambient temperature.

Rated Voltage:
The maximum value of D.C. voltage or A.C. voltage (rms) capable of being applied continuously to a resistor at the rated ambient temperature. Rated voltage shall be calculated from the following formula:

Rated Voltage(V) =

$$\sqrt{\text{Rated Power(W) x Nominal Resistance Value (ohm)}}$$

However, it shall not exceed the maximum working voltage.

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 Value:
The maximum value of D.C. voltage or A.C. voltage (rms) capable of being applied continuously to a resistor or a resistor element. However, the maximum value of the applicable voltage is the rated voltage at the critical resistance value or lower.

Maximum Overload Voltage:
The maximum value of voltage capable of being applied to a resistor for five seconds in the short-time overload test. 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 (rms) that can be applied to a designated spot between the electrode and the outer coating for one minute in the dielectric withstanding voltage test.

Rated Ambient Temperature:
The maximum ambient temperature at which a resistor is capable of being used continuously with the prescribed rated power. The rated ambient temperature refers to the temperature around the resistor inside the equipment, not to the air temperature outside the equipment.

Derating Curve:
The curve that expresses the relation between 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 resistor operating temperature shall be expressed in the following formula:

$$\text{T.C.R. (ppm/°C)} = \frac{R-R_0}{R_0} \times \frac{1}{T-T_0} \times 10^6$$

Where: R: Measured Resistance at T°C
R_0: Measured Resistance at T_0°C
T: Measured Test Temperature (°C)
T_0: Measured Base Temperature (°C)