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MELF Resistors - Terminology & Glossary

Token Electronics Industry Co., Ltd.

Taiwan: No.137, Sec. 1, Zhongxing Rd., Wugu District,
New Taipei City, Taiwan. 248012
Tel: +886 2981 0109 Fax: +886 2988 7487

China: 17P, Nanyuan Maple Leaf Bldg., Nanshan Ave.,
Nanshan Dist., Shenzhen, Guangdong, China. 518054
Tel: +86 755 26055363

[Web: www.token.com.tw](http://www.token.com.tw)

[Email: rfq@token.com.tw](mailto:rfq@token.com.tw)



► Terminology & Glossary

Terminology & Glossary

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 as a percentage.

Dielectric Withstanding Voltage

The rated voltage that can be applied to a designated point between the resistive element and the outer coating, or the resistive element and the mounting surface, without causing dielectric breakdown.

Maximum Overload Voltage

The maximum value of voltage capable of being applied to resistors for a short period of time in the overload test. Typically the applied voltage in the short time overload test is 2.5 times larger than the rated voltage. However, it should not exceed the maximum overload voltage.

Maximum Working Voltage

The maximum value of DC voltage or AC voltage (rms) 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.

Power Rating

Power ratings are based on physical size, allowable change in resistance over life, thermal conductivity of materials, insulating and resistive materials, and ambient operating conditions. For best results, employ the largest physical size resistors at less than their maximum rated temperature and power.

Rated Ambient Temperature

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

Rated Power

The maximum amount of power that can be continuously loaded to a resistor at a rated ambient temperature. Network and array products have both rated power per package as well as per element.

Rated Voltage

The maximum value of DC voltage or AC voltage (rms) capable of being applied continuously to resistors at the rated ambient temperature.

Resistor Tolerance

Resistor tolerance is expressed as the deviation from nominal value in percent and is measured at 25 °C only with no appreciable power applied. A resistor's value will also change with applied voltage (VCR) and temperature (TCR). For networks, absolute resistor tolerance refers to the overall tolerance of the network. Ratio tolerance refers to the relationship of each resistor to the others in the package.

Temperature Coefficient of Resistance (TCR)

TCR is expressed as the change in resistance in ppm (0.0001 %) with each degree Celsius of change in temperature. TCR is typically referenced at +25 °C and changes as the temperature increases (or decreases). A resistor with a TCR of 100 ppm/°C will change 0.1 % over a 10 °C change and 1 % over a 100 °C change. In the context of a resistor network, the TCR value is called the absolute TCR in that it defines the TCR of a specific resistor element. The term TCR tracking refers to the difference in TCR between each specific resistor in a network.

MELF Resistor - Alias & Acronym

Melf is the abbreviation of "Metal Electrode Leadless Face" and is a cylindrically shaped resistor designed for surface mounting.

Acronym: Leadless Resistor; Cylindrical Resistor; Metal Electrode Leadless Face device; Surface Mounted Leadless Component.