ETM

Carbon Composition Resistors

Features:

1. Low inductance
2. Modern molded craftsmanship construction
3. High pulse withstanding and high voltage/energy capability
4. Pb-free terminations
5. RoHS and REACH EU compliant

Applications:

1. Tube/valve based electronics
2. High voltage power supplies
3. Strobe lighting
4. Inrush current limiting, protection (e.g. discharge circuits, surge protection)
5. High power lighting
6. Medical defibrillators, welding, automotive
7. Meters and instruments
8. Protection circuits of electronics devices

Dimensions: (mm)

Wattage, Tolerance and Resistance printed on resistors.

	Body Length	Body Dia.	Lead Length	Lead Dia.
1 Watt	15 +/-0.5	5.25 +/-0.5	28.0 +/-1.0	0.80 +/-0.05
2 Watt	18 +/-0.5	6.50 +/-0.5	33.0 +/-1.0	0.85 +/-0.05

All 1W and 2W resistors have Wattage, Tolerance and Resistance printed on them. Color Bands are not used.

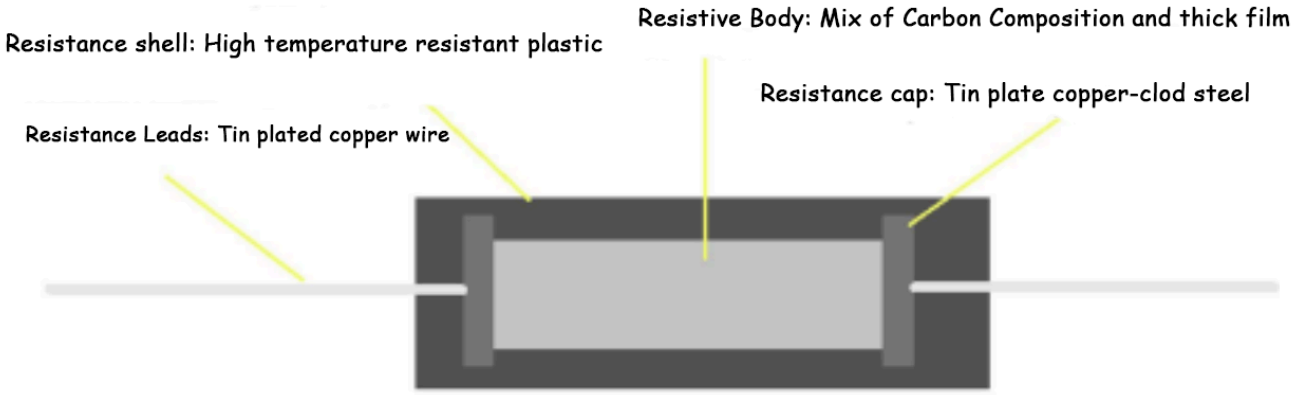
Technical/Environmental Parameters:

1. Operating temperature range: -55C to +155C
2. Low-pressure: 8.5Kpa
3. Stability level: 2%
4. Limit of resistance change: Long term test: +/- (5% R+0.1 ohm). Short term test: +/- (1% R+0.5 ohm)
5. Relative humidity: ≤ 90%
6. Pressure variation range: 86Kpa – 106Kpa
7. Manufacturing Technique: Mix of Carbon composition and thick film technology. Slurry of the resistor contains Carbon element which is sprayed onto a whitish rod and fired at high temperature.

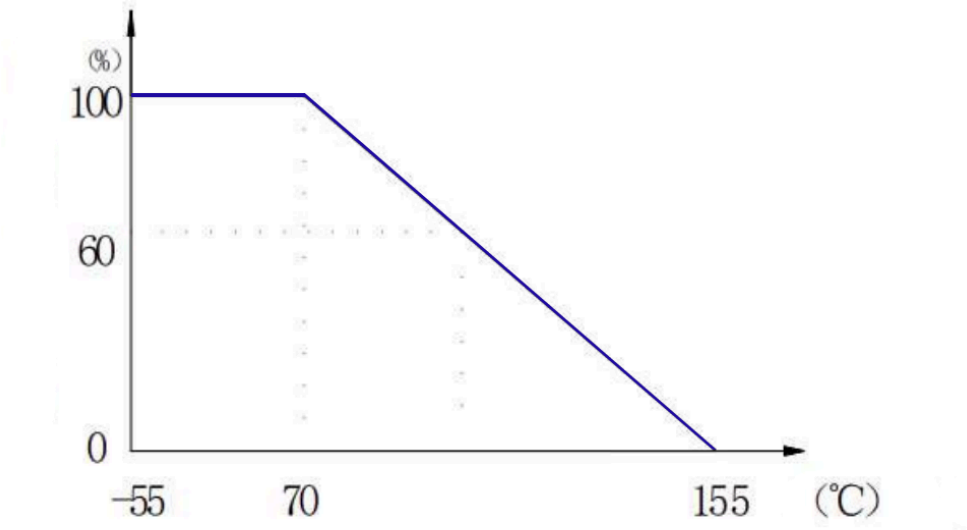
Specifications:

1. Maximum (insulation) voltage: 1000V
2. Maximum operating voltage: 700V
3. Nominal resistance: E24,E12,E6
4. Tolerance: 5%, 10%, 20%
5. Resistance Range: 10 ohm to 100M ohm
6. Operating temp. range: -55C to +155C
7. Rated Voltage: v= $\sqrt{PR}$ (1) (2)
   Note: (1) When calculating the rated voltage, P is the power of the resistor and R is the resistance value of the resistor.
   (2) If the calculated rated voltage is greater than the highest working voltage, the rated voltage of the resistance value is the highest working voltage,

Structure



Derating Curve:



Main test items, test methods and performance requirements:

Item	Test conditions	Performance Requirement
Resistance	Testing machines with an accuracy of over 0.1%	Meets resistance accuracy requirements
Dimensions	Measuring tools with an accuracy of over 0.02%	Meet the requirements of external dimensions
Solderability	255±5°C 2±0.5S	Solder wets the leading out end and can flow freely
Overload	v=2.5$\sqrt{PR}$ 5S	△R≤±(1%R+0.05Ω)
Terminal tensile strength	Tensile force 10N	△R≤±(1%R+0.05Ω)
Vibrate	10Hz~500Hz 98/s² 6h	△R≤±(1%R+0.05Ω)
Resistance to Soldering Heat	260±5°C 3.5±0.5	△R≤±(1%R+0.05Ω)
Rapid temperature changes	-55°C/155°C	△R≤±(1%R+0.05Ω)
Solvent resistance	Anhydrous ethanol 5min	

Climatic sequence	- Dry heat - Cyclic damp heat (first cycle) - Cold - Low-pressure area - Cyclic damp heat (other cycles) - DC load	△R≤±(5%R+0.1Ω)
Durability	70℃ v=$\sqrt{PR}$ 1000h	△R≤±(5%R+0.1Ω)
Withstanding voltage	The V-block method applies an AC voltage of 1.42 times the insulation voltage value.	No breakdown or arcing

Package

Ammo Package or in Bulk

Storage

Packaged resistors should be stored indoors with an ambient temperature of 0- 35 °C, relative humidity of ≤ 75%, no corrosive gases, and good ventilation.

Environmental Requirements

Comply with the requirements of the ROHS Directive and REACH EU Directive and prohibit the use of regulated environmental management substances.