

MR25 0.25W 1% Metal Film Resistors

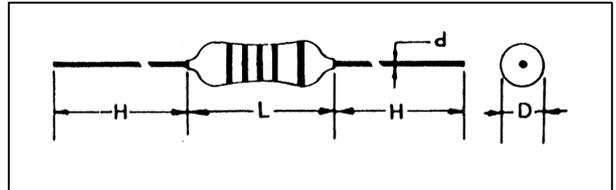
MR25 Series

Introduction

To fill the gap between carbon film resistors and metal oxide resistors is this range of metal film resistors. The resistive element is a high content of AL₂O₃ ceramic rod on which a thin film of Ni/Cr alloy is deposited by vacuum sputtering system. Then contact caps are pressed on to the ends of the rod and a helical groove cut through the film to give the required resistance value. Connecting copper wire is welded to the end caps. Finally the resistors are coated with multiple layers of insulation lacquer. The MF series is suitable for all circuit applications especially where tighter tolerance and low temperature coefficient is required.

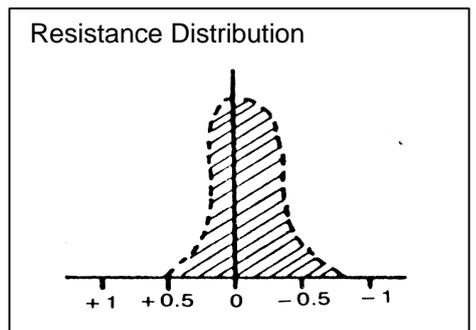
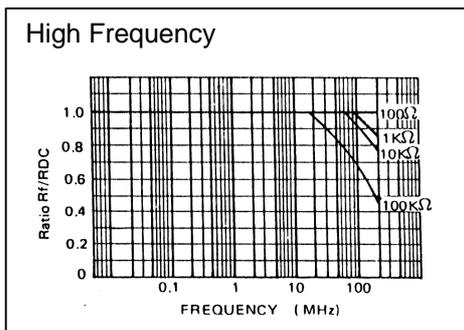
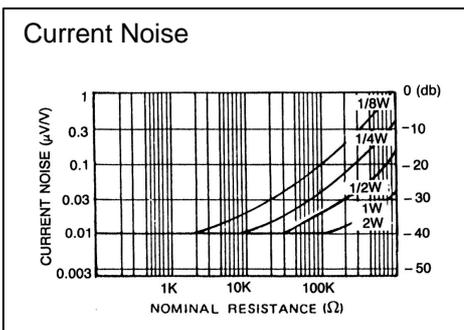
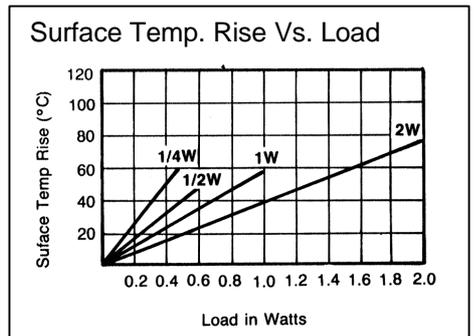
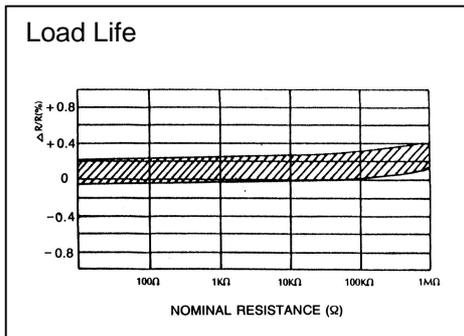
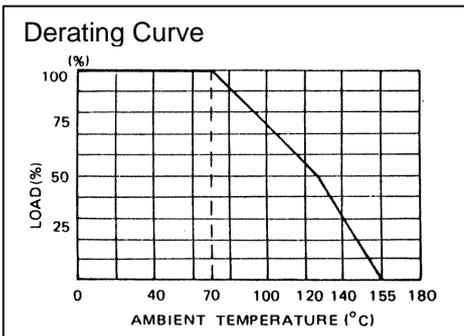
Features

- Meets American military specification MIL-R-10509F
- Very low current noise
- Temperature coefficient of 50ppm/°C
- Wattage of 0.25W
- Tolerance of 1%
- Resistance range of 10Ω up to 1MΩ
- Small package size
- Major applications are switching power supplies, communications equipment, monitors, testing meters



Specifications

| Type | Power Rating @70°C | Dimensions (mm) | | | | Maximum Working Voltage | Maximum Overload Voltage | Resistance Range |
|-------|--------------------|-----------------|----------|-------|------------|-------------------------|--------------------------|------------------|
| | | L | D | H | d | | | |
| MR-25 | 0.25W | 6.0 ±0.5 | 2.3 ±0.3 | 28 ±2 | 0.60 ±0.05 | 250V | 500V | 10Ω - 1MΩ |



Characteristics:

| Test | Test Method | Limits | | | | |
|--|---|---|--------------------|---------------------|--------------------|--|
| Short-Time Overload | Resistors shall be tested at 2.5 times rated voltage for 5 seconds at ambient room temperature | Resistance shall not change more than $\pm 0.25\%$ No evidence of mechanical damage | | | | |
| Terminal Strength | Pull a resistor with a weight of 1kg for 30 seconds. Bend the terminal lead wire with 500g weight to 90 degree and bend it to 90 degree in opposite direction and return to normal | Resistance shall not change more than $\pm 0.2\%$. No evidence of mechanical damage | | | | |
| Resistance To Soldering Heat | Immerse each terminal wire of a resistor up to $4 \pm 0.8\text{mm}$ away from the resistor body in the solder tank at $350 \pm 10^\circ\text{C}$ for 3 ± 0.5 seconds. Measure resistance in 3 hours | Resistance shall not change more than $\pm 0.1\%$. No evidence of mechanical damage | | | | |
| Moisture Resistance | At temperature of $40 \pm 2^\circ\text{C}$ and a relative humidity of 90-95% for 1000 ± 12 hours, under a rating DC voltage for 1 hour on and $\frac{1}{2}$ hour off | Resistance shall not change more than $\pm 0.5\%$ No evidence of mechanical damage | | | | |
| Load Life | Thermostatic chamber at a temperature of $70 \pm 5^\circ\text{C}$ under a rated DC voltage for 1.5 hours on and $\frac{1}{2}$ hour off, repeat this cycle for 1000 ± 12 hours | Resistance shall not change more than $\pm 0.5\%$ No evidence of mechanical damage | | | | |
| Insulation Resistance | Resistors shall be clamped in the trough of a 90 degree metallic V-block, apply DC 100V between this electrode and another lead wire for 1 minute | 10,000 $\text{M}\Omega$ above | | | | |
| Noise | Quad-Tech Laboratories Inc. Model 515B | 100K Ω below $0.3\mu\text{ V/V}$ 100K Ω - 1M Ω below $0.5\mu\text{ V/V}$ 1M Ω - 5.6M Ω $1.0\mu\text{ V/V}$ | | | | |
| Vibration | Total amplitude of 1.5mm. The frequency shall vary from 10Hz to 55Hz, for approximate 1 second. Make this test in the direction parallel to the resistor axis, and up/down for 2 hours respectively. (all together 6 hours) | Resistance shall not change more than $\pm 0.25\%$. No evidence of mechanical damage | | | | |
| Dielectric Withstanding Voltage | Resistors shall be clamped in the trough of a 90 degree metallic V-block, apply AC between this electrode and another lead wire for 1 minute | Resistance shall not change more than $\pm 0.5\%$ No evidence of mechanical damage | | | | |
| Resistance To Solvents | Immerse a resistor completely in reagent at a temperature of $20\text{-}25^\circ\text{C}$ for 30 ± 0.5 seconds | No evidence of mechanical damage | | | | |
| Solderability | Apply flux to the terminal wire of a resistor up to $4 \pm 0.8\text{mm}$ away from the resistor body and immerse the flux applied portion in the solder tank at $230 \pm 5^\circ\text{C}$ for 5 ± 0.5 seconds | More than 95% of a circumference of the immersed portion shall be completely covered with new solder | | | | |
| Temperature Cycling | STEP | 1 | 2 | 3 | 4 | Resistance shall not change more than $\pm(0.25\% + 0.05\Omega)$ No evidence of mechanical damage |
| | TEMP | -55°C | 25°C | 155°C | 25°C | |
| | TIME | 30min | 10-15min | 30min | 10-15min | |
| Form 1 to 4 is a cycle as shown above, repeat 5 cycles measure resistance after 1 hour in normal temperature | | | | | | |