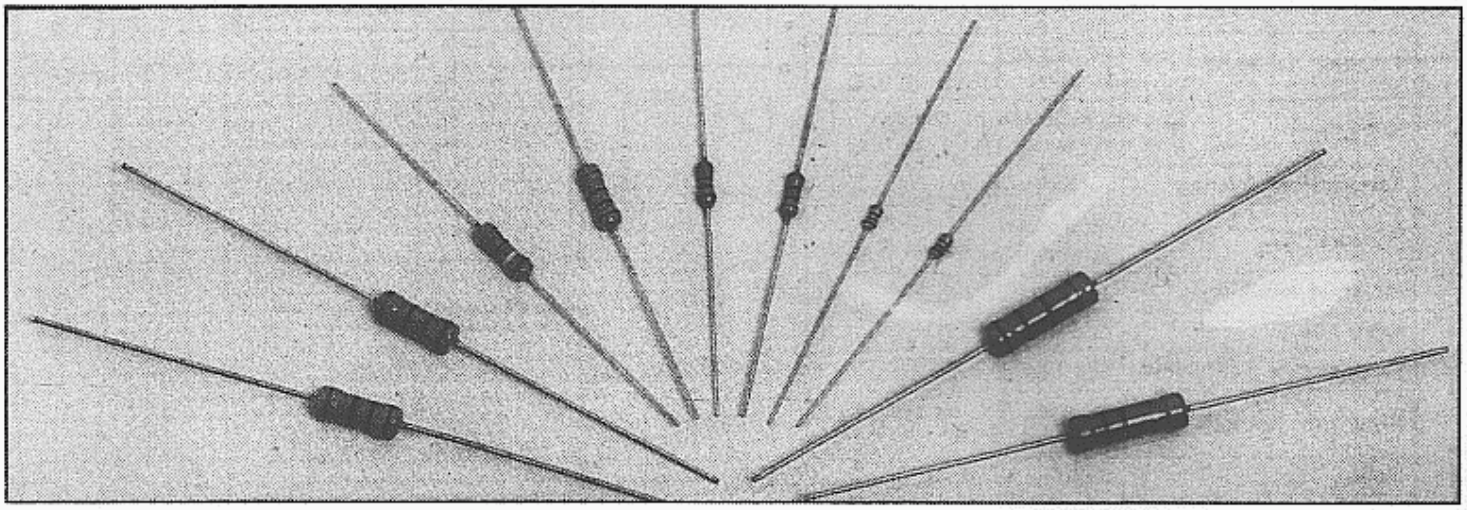
# CARBON FILM RESISTORS



## ELECTRICAL SPECIFICATIONS

*All measurements are taken at +25 ℃ at 1KHz and 65% relative humidity, unless otherwise stated.*

### INTRODUCTION

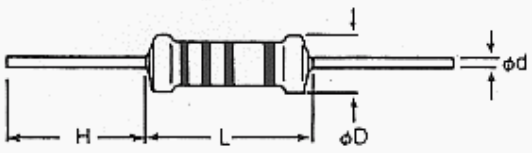
Billions of products are already in use worldwide in all types of applications — from process control instrumentation to telephone receivers and FM radio to color television.

The secret is in a proprietary production system and baking by a uniquely designed and automated production technique. Years of experience in making raw materials and production machinery prove the unique quality and high reliability of these products. They meet — or far exceed — such specifications as EIA-RS-196A, JIS-C-6402 and IEC-115.

### FEATURES

- Industry's lowest cost
- Delivery from stock in bulk, taped, and reel
- Exceptional long-term stability
- Standard tolerances: ±2%, ±5% (±1% available)
- Variety of packaging — bulk, 26mm and 52mm tape and reel, cut and formed, or radial Panasert, Avisert

### DIMENSIONS(mm)




### GENERAL SPECIFICATIONS

| TYPE | DIMENSION(mm) | | | | POWER RATING | MAXIMUM WORKING VOLTAGE | MAXIMUM OVERLOAD VOLTAGE | RESISTANCE RANGE | |
|---|---|---|---|---|---|---|---|---|---|
| | L | D | H | d±0.02 | | | | ±2%(G) | ±5%(J) |
| CR-12 | 3.2±0.2 | 1.6±0.2 | 28±1 | 0.48 | 1/8W | 200 | 400 | 10Ω−470K | 1Ω−10M |
| CR-25 | 6.0±0.5 | 2.3±0.3 | 28±1 | 0.60 | 1/4W | 250 | 500 | 1Ω−10M | 0.5Ω−22M |
| CR-50 | 9.0±0.5 | 3.0±0.5 | 28±1 | 0.70 | 1/2W | 350 | 700 | 1Ω−10M | 0.5Ω−22M |
| CR-100 | 11 ±1.0 | 4.0±0.5 | 35±3 | 0.80 | 1W | 500 | 1000 | 1Ω−10M | 0.5Ω−22M |
| CR-200 | 15 ±1.0 | 5.0±0.5 | 35±3 | 0.80 | 2W | 500 | 1000 | 1Ω−10M | 0.5Ω−22M |
| CR-300 | 17 ±1.0 | 6.0±1.0 | 35±3 | 0.80 | 3W | 500 | 1000 | 1Ω−10M | 0.5Ω−22M |

## CHARACTERISTICS

| | |
|---|---|
| **Terminal Strength** | no damage<br>△ Rmax ±0.3% or 0.5 Ω |
| **Soldering** | good tining no damage<br>△ Rmax ±0.5% or 0.5 Ω |
| **Temperature Cycling** | △ Rmax ±0.5% |
| **Vibration** | no damage<br>△ Rmax ±0.5% or 0.5 Ω |
| **Moisture Resistance** | △ Rmax ±3% See Fig-1 |
| **Load Life** | △ Rmax ±2.5% See Fig-2 |
| **Temperature Coefficient** | See Fig-4 |
| **Dielectric Strength** | 2x Work Volt no breakdown<br>△ Rmax 0.5% |
| **Noise** | See Fig-5 |
| **Insulation Resistance** | min $10^{10}$ Ω |
| **Short-time Overload** | △ Rmax ±0.5% |
| **Voltage Coefficient** | <5 ppm |
| **Resistance to Solvents** | no damage |

**FIG. 1 Moisture Resistance**

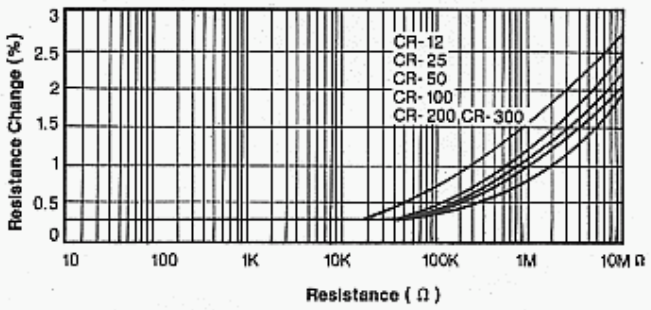



**FIG. 2 Load Life**

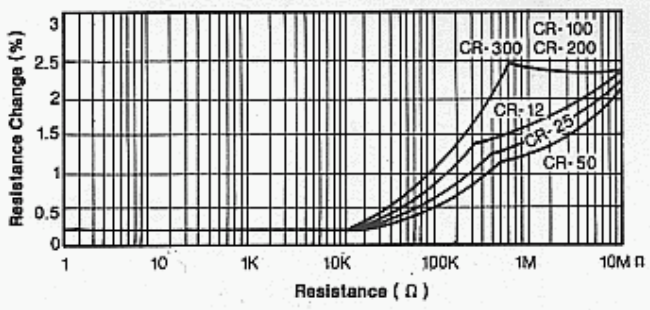



**FIG. 3 Derating Curve**

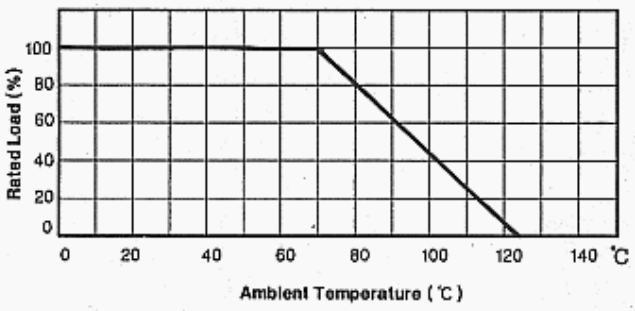



**FIG. 4 Temperature coefficient**

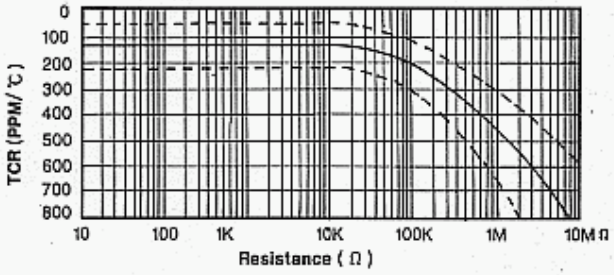



**FIG. 5 Current Noise**

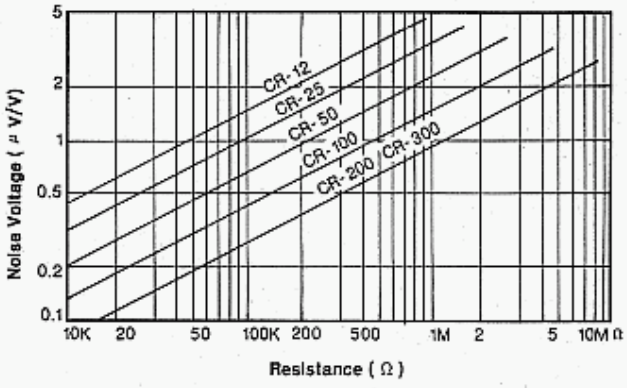



**FIG. 6 High Frequency Characteristic**