CR, CRS

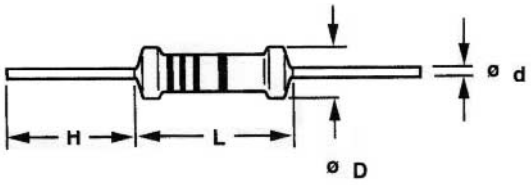
ELECTRICAL SPECIFICATIONS

LEADFREE
RoHS Compliant

## INTRODUCTION

The resistance temperature coefficient of MEGASTAR-OHM carbon film resistors is relatively high. Their resistance value changes inversely with temperature. But, as they are big in volune, causing quick dissipation of heat and low temperature rise, they are good enough in quality, stability and reliability, and are therefore popularly used in consumer electronic appliances.

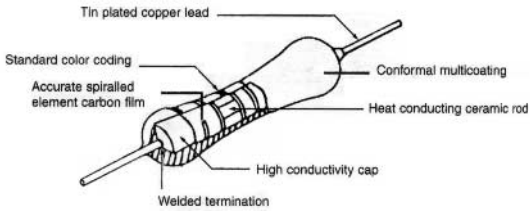
### Dimensions




## FEATURES

- Industry's lowest cost!
- Delivery from stock in bulk, taped, and srtip pack!
- Exceptional long-term stability.
- Exceeds carbon comp MIL-R-11 performance.
- Standard tolerances:±2%, ±5% (±1% available)
- Variety of packaging - bulk, strip pack, 26mm and 52mm tape and reel, cut and formed, or radial Panasert/Avisert.
- They meet - or far exceed - such specifications as EIA, RS196A, JIS-C-6402 and IEC-115.

* Other Ohmic values available upon request.




## GENERAL SPECIFICATIONS

| Internal Code | MIL Style | Type | Power Rating | Dimensions | | | | Max. Working V. | Max. Overload V. | *Resistance Range | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | L | D | d | H (min) | | | ±2% (G) | ±5% (J) |
| C12 | RD-50 | CR 1/8 | 1/8W (.125W) | 3.7±0.4 | 1.5±0.2 | .45±.02 | 27 | 200V | 400V | 0.1Ω-33M | 0.1Ω-33M |
| C16 | | CR 1/6 | 1/6W (.16W) | 3.7±0.4 | 1.5±0.2 | .45±.02 | 27 | 200V | 400V | 0.1Ω-33M | 0.1Ω-33M |
| C18 | RD-50 | CRS 1/4 | 1/4W Mini Size | 3.7±0.4 | 1.5±0.2 | .45±.02 | 27 | 200V | 400V | 0.1Ω-33M | 0.1Ω-33M |
| C25 | | CR 1/4 | 1/4W (.25W) | 6.5±0.5 | 2.3±0.2 | .56±.02 | 27 | 250V | 500V | 0.1Ω-33M | 0.1Ω-33M |
| C33 | RD-60 | CRS 1/2 | 1/2W Mini Size | 6.5±0.5 | 2.8±0.3 | .56±.02 | 25 | 300V | 600V | 0.1Ω-33M | 0.1Ω-33M |
| C50 | | CR 1/2 | 1/2W (.5W) | 9±1 | 3.5±0.5 | .56±.02 | 25 | 350V | 700V | 0.1Ω-33M | 0.1Ω-33M |
| CS1 | RD-65 | CRS 1 | 1W Mini Size | 9±1 | 4.0±0.5 | .65±.02 | 25 | 400V | 800V | 10Ω-1M | 0.1Ω-22M |
| CR1 | | CR 1 | 1W | 12±1 | 4.0±0.5 | .8±.03 | 25 | 500V | 1000V | 10Ω-1M | 0.1Ω-22M |
| CR2 | RD-70 | CR2 | 2W | 16±1 | 5.5±0.5 | .8±.03 | 27 | 500V | 1000V | 10Ω-1M | 0.1Ω-22M |
| CS3 | RD-75 | CRS3 | 3W Mini Size | 18±1 | 6.5±0.5 | .8±.03 | 27 | 650V | 1200V | 10Ω-470K | 0.1Ω-22M |
| CR3 | | CR3 | 3W | 24±1 | 8.5±0.5 | .8±.03 | 27 | 650V | 1200V | 10Ω-470K | 0.1Ω-22M |

## Part Numbering system

**CR**

| Type |
|---|
| CR<br>CRS |

**1/4**

| Rated Power |
|---|
| 1/8<br>↓<br>3W |

**5%**

| Resistance tolerance |
|---|
| ±5% |
| ±2% |
| ±1% |

**2K2**

| Nominal Resistance | | |
|---|---|---|
| Code | Description | |
| R10 | 0.10 | OHMs |
| 22R | 22.0 | OHMs |
| 2K2 | $2.2X10^3$ | OHMs |
| 22K | $22X10^3$ | OHMs |
| 33M | $33X10^6$ | OHMs |

**TR**

| Packaging | |
|---|---|
| Code | Description |
| B | Bulk |
| TR | Tape & Reel |
| TB | Tape & Box |
| PATR | Avisert T/R |
| PNTR | Panasert T/R |

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| Requirements | | Performance | | | | | Test Method | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | JIS C 5202 | MIL-STD-202 |
| Operating Temp. Range | | -55°C ~ +155°C | | | | | ------- | ------- |
| Temp. Coefficient (ppm/°C) | TYPE \ T.C.R. | ±450 | -150 -700 | -150 -1000 | -150 -1300 | | 5.2 | Method 304 |
| | .125W | under 1KΩ | 1.1KΩ-47KΩ | 51KΩ-510KΩ | 560KΩ-1MΩ | | | |
| | .25W | under 10KΩ | 1.1KΩ-150KΩ | 160KΩ-2.2MΩ | 2.4MΩ-5.1MΩ | | | |
| | .5W & over | under 22KΩ | 24KΩ-470KΩ | 510KΩ-2.2MΩ | 2.4MΩ-10MΩ | | | |
| Noise (μV/V) | TYPE \ Noise | 0.1 | 0.3 | 0.6 | 1.0 | | 5.9-11 | Method 308 |
| | .125W & 0.16W | --- | under 10KΩ | 11KΩ-100KΩ | over 110KΩ | | | |
| | .125W & over | under 100KΩ | 110KΩ-510KΩ | 560KΩ-2.2MΩ | over 2.4MΩ | | | |
| Dielectric Withstanding Voltage | | No evidence of flashover or breakdown | | | | | 5.7. - A | Method 301 |
| Resistance to Solvents | | Permanent marking. No physical or electrical damage or deterioration | | | | | ------ | Method 215 |
| Short Time Overload | | ³RmaxΩ ±(1%+0.05Ω) | | | | | 5.5 - A | |
| Resistance to Soldering Heat | | ³RmaxΩ ±(1%+0.05Ω) | | | | | 6.4 350°C / 3 sec. | Method 210 |
| Temperature Cycling | | ³RmaxΩ ±(0.5%+0.05Ω) | | | | | 7.4-55°C/85°C | Method 107 |
| Vibration | | ³RmaxΩ ±(0.5%+0.05Ω) | | | | | 6.3.3-A | Method 204 |
| Moisture Resistance | R>100KΩ | ³Rmax <= ±5% | | | | | 7.9, 40°C 90-95% RH, / 1000 hrs. | Method 106 |
| | R <= 100KΩ | ³Rmax <= ±(3%+0.05 ) | | | | | | |
| Load Life | R>100KΩ | ³Rmax <= ±3% | | | | | 7.10 70°C 1000 hrs. | Method 108 |
| | R <= 100KΩ | ³Rmax <= ±(2%+0.05 ) | | | | | | |