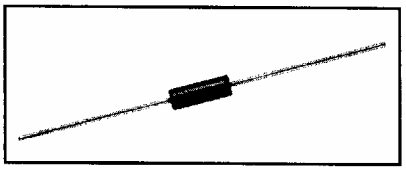
# MODEL HN
# Metal Film Resistors
## Military/Established Reliability
## MIL-R-39017 Qualified, Type RLR, Semi-Precision



### FEATURES

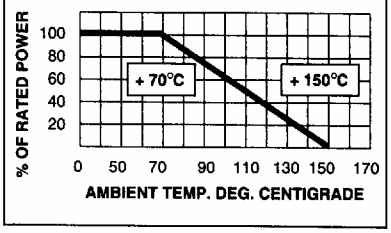
- "S" level failure rate
- High purity copper leads in accordance with MIL-STD-1276. Two solder finishes are available, electroplated 60/40 solder and hot dipped 60/40 solder.
- Blue epoxy insulation over polyimide varnish provides superior moisture resistance properties

### STANDARD ELECTRICAL SPECIFICATIONS

| DALE MODEL | MIL-R-39017 TYPE | WATTAGE RATING @ + 70°C | VOLTAGE RATING | RESISTANCE RANGE (Ohms) | STANDARD * TOLERANCE | TEMPERATURE COEFFICIENT PPM/°C |
|---|---|---|---|---|---|---|
| HN3 | RLR05C | 1/8 | 200 | 4.7 - 300k | ± 1%, ± 2%, ± 5% | 100 |
| HN4 | RLR07C | 1/4 | 250 | 10 - 1M | ± 1%, ± 2%, ± 5% | 100 |
| HN5 | RLR20C | 1/2 | 350 | 10 - 1M | ± 1%, ± 2%, ± 5% | 100 |
| HN6 | RLR32C | 1 | 500 | 10 - 1M | ± 1%, ± 2%, ± 5% | 100 |

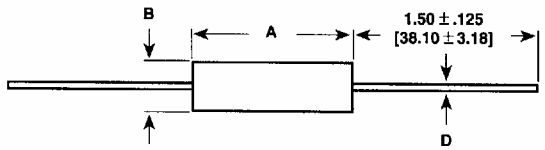
* ± 5% tolerance is inactive for new design.

### DERATING




### DIMENSIONAL CONFIGURATIONS

[Numbers in brackets indicate millimeters]




| DALE MODEL | MIL-R-39017 TYPE | A | B | D |
|---|---|---|---|---|
| HN3 | RLR05C | .145 ± .015 [3.68 ± .381] | .066 ± .008 [1.68 ± .203] | .016* [.406] |
| HN4 | RLR07C | .235 ± .020 [5.97 ± .508] | .090 ± .008 [2.29 ± .203] | .025 [.635] |
| HN5 | RLR20C | .375 + .025 - .040 [9.53 + .635 - 1.02] | .135 + .020 - .005 [3.43 + .508 - .127] | .032 [.813] |
| HN6 | RLR32C | .560 ± .030 [14.22 ± .762] | .190 ± .015 [4.83 ± .381] | .040 [1.02] |

* Leads are 1.25" ± .265" [31.75mm ± 6.73mm] long.

### ENVIRONMENTAL PERFORMANCE

| TEST | MAXIMUM ΔR HN3/ RLR05C | HN4/ RLR07C | HN5/ RLR20C | HN6/ RLR32C |
|---|---|---|---|---|
| Power Conditioning | ± 0.50% | ± 0.50% | ± 0.50% | ± 0.50% |
| Thermal Shock | ± 0.25% | ± 0.25% | ± 0.25% | ± 0.25% |
| Short Time Overload | ± 0.50% | ± 0.50% | ± 0.25% | ± 0.25% |
| Low Temperature Storage | ± 0.10% | ± 0.10% | ± 0.10% | ± 0.25% |
| Low Temperature Operation | ± 0.10% | ± 0.10% | ± 0.10% | ± 0.25% |
| Moisture Resistance | ± 0.50% | ± 0.50% | ± 0.50% | ± 0.50% |
| Shock & Vibration | ± 0.05% | ± 0.05% | ± 0.05% | ± 0.10% |
| Load Life (2000 hours Mil rating) | ± 1.0% | ± 1.0% | ± 1.0% | ± 2.0% |
| Terminal Strength | ± 0.05% | ± 0.05% | ± 0.05% | ± 0.10% |
| Dielectric Withholding Voltage | ± 0.05% | ± 0.05% | ± 0.05% | ± 0.10% |
| Effect Solder Heat | ± 0.10% | ± 0.10% | ± 0.10% | ± 0.10% |

### PART MARKING

**RLR05**
— Year, week of year, lot code
— Coded resistance value*
— Tolerance, FR, JAN, manufacturer symbol

**RLR07**
— Year, week of year, lot code, JAN
— Model, lead material
— Coded resistance value*, tolerance
— FR, manufacturer symbol

**RLR20 & RLR32**
— Year, week of year, lot code, JAN
— Model, lead material
— Coded resistance value*, tolerance, FR
— Source code
— Dale

* ± 5% tolerance parts are marked with 3 digit resistance value code, e.g. 103. ± 2% tolerance parts are marked with 4 digit code but may be special ordered with 3 digit code. All ± 5% parts and ± 2% parts with 3 digit coding are inactive for new design.

### HOW TO ORDER - MILITARY PART NUMBER

| RLR | 20 | C | 1003 | G | S |
|---|---|---|---|---|---|
| MODEL | SIZE | LEAD MATERIAL | VALUE | TOLERANCE | FAILURE RATE |
| | 05<br>07<br>20<br>32 | Type C solderable/ weldable | First 3 digits are significant figures, fourth digit is the multiplier. | F = ± 1%<br>G = ± 2%<br>J = ± 5% | 1000 Hours (60% confidence)<br>M = 1.0%<br>P = 0.1%<br>R = 0.01%<br>S = 0.001% |

### HOW TO ORDER - DALE MODEL

| HN | 3 | 1003 | ±1% |
|---|---|---|---|
| MODEL | SIZE | VALUE | TOLERANCE |
| | 3<br>4<br>5<br>6 | First 3 digits are significant figures, fourth digit is the multiplier. | ± 1%<br>± 2%<br>± 5% |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