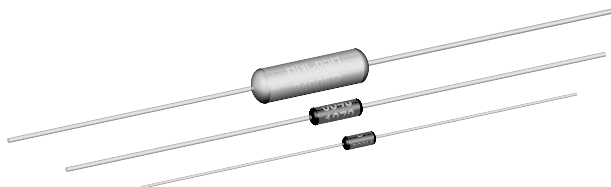


## Metal Film Resistors, Military/Established Reliability, MIL-PRF-55182 Qualified, Type RNC, Characteristics J, H, K



### FEATURES

- Meets requirements of MIL-PRF-55182
- Very low noise (- 40 dB)
- Verified Failure Rate (Contact factory for current level)
- 100 % stabilization and screening tests. Group A testing, if desired, to customer requirements
- Controlled temperature coefficient
- Epoxy coating provides superior moisture protection
- Standard lead on RNC product is solderable and weldable
- Traceability of materials and processing
- Monthly acceptance testing
- Vishay Dale has complete capability to develop specific reliability programs designed to customer requirements
- Extensive stocking program at distributors and factory on RNC50, RNC55, RNC60 and RNC65
- For MIL-PRF-55182 Characteristics E and C product, see Vishay Angstrom's HDN (Military RNR/RNN) data sheet

| STANDARD ELECTRICAL SPECIFICATIONS |                    |                          |                           |                           |                         |  |                              |                              |                                  |
|------------------------------------|--------------------|--------------------------|---------------------------|---------------------------|-------------------------|--|------------------------------|------------------------------|----------------------------------|
| VISHAY DALE MODEL                  | MIL-PRF-55182 TYPE | POWER RATING             |                           | RESISTANCE TOLERANCE %    | MAXIMUM WORKING VOLTAGE | RESISTANCE RANGE ( $\Omega$ ) <sup>(1)</sup> |                              |                              | LIFE FAILURE RATE <sup>(1)</sup> |
|                                    |                    | $P_{70^\circ\text{C}}$ W | $P_{125^\circ\text{C}}$ W |                           |                         | 100 ppm/ $^\circ\text{C}$ (K)                | 50 ppm/ $^\circ\text{C}$ (H) | 25 ppm/ $^\circ\text{C}$ (J) |                                  |
| ERC50                              | RNC50, RNR50       | 0.10                     | 0.05                      | $\pm 0.1, \pm 0.5, \pm 1$ | 200                     | 10R - 796K                                   | 10R - 796K                   | 10R - 796K                   | M, P, R, S                       |
| ERC55                              | RNC55, RNR55       | 0.125                    | 0.10                      | $\pm 0.1, \pm 0.5, \pm 1$ | 200                     | 10R - 2M0                                    | 10R - 2M0                    | 10R - 2M0                    | M, P, R, S                       |
| ERC55..200                         | RNC60, RNR60       | 0.25                     | 0.125                     | $\pm 0.1, \pm 0.5, \pm 1$ | 250                     | 10R - 3M01                                   | 10R - 3M01                   | 10R - 3M01                   | M, P, R, S                       |
| ERC65                              | RNC65, RNR65       | 0.50                     | 0.25                      | $\pm 0.1, \pm 0.5, \pm 1$ | 300                     | 10R - 3M01                                   | 10R - 3M01                   | 10R - 3M01                   | M, P, R                          |
| ERC70                              | RNC70, RNR70       | 0.75                     | 0.50                      | $\pm 0.1, \pm 0.5, \pm 1$ | 350                     | 10R - 3M01                                   | 10R - 3M01                   | 10R - 3M01                   | M, P, R                          |

**Note**

<sup>(1)</sup>Consult factory for current QPL failure rates  
Standard resistance tolerances:  $\pm 0.1\%$  (B),  $\pm 0.5\%$  (D) and  $\pm 1\%$  (F).  $\pm 0.1\%$  not applicable to Characteristic K

| TECHNICAL SPECIFICATIONS    |                       |   |
|-----------------------------|-----------------------|---|
| PARAMETER                   | UNIT                  | CONDITION   |
| Voltage Coefficient, max.   | ppm/ $^\circ\text{C}$ | 5/V when measured between 10 % and full rated voltage                                   |
| Dielectric Strength         | $V_{AC}$              | RNC50, RNC55 and RNC60 = 450; RNC65 and RNC70 = 900                                     |
| Insulations Resistance      | $\Omega$              | $\geq 10^{11}$ dry; $\geq 10^9$ after moisture test                                     |
| Operating Temperature Range | $^\circ\text{C}$      | - 65 to + 175   |
| Terminal Strength           | lb                    | 2 lb pull test on RNC50, RNC55, RNC60 and RNC65; 4.5 lb pull test on RNC70              |
| Solderability               |                       | Continuous satisfactory coverage when tested in accordance with MIL-STD-202, Method 208 |
| Weight                      | g                     | RNC50 = 0.11; RNC55 = 0.35; RNC60 = 0.35; RNC65 = 0.84; RNC70 = 1.60                    |

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: RNC55H2152FRR36 (preferred part numbering format)

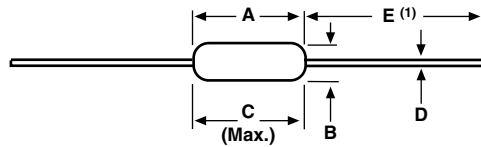
|  |   |  |   |   |  |   |   |   |   |   |   |   |   |   |  |  |  |
|--|---|--|---|---|--|---|---|---|---|---|---|---|---|---|--|--|--|
| R  | N   | C  | 5   | 5   | H  | 2   | 1 | 5 | 2 | F | R | R | 3 | 6 |  |  |  |
| <b>MIL STYLE</b>   | <b>CHARACTERISTICS</b>                                    | <b>RESISTANCE VALUE</b>  | <b>TOLERANCE CODE</b>                               | <b>FAILURE RATE</b>   | <b>PACKAGING</b>   | <b>SPECIAL</b>  |   |   |   |   |   |   |   |   |  |  |  |
| RNC = Solderable/Weldable<br>RNR = Solderable only<br>(see Standard Electrical Specifications table) | J = $\pm 25$ ppm<br>H = $\pm 50$ ppm<br>K = $\pm 100$ ppm | 3 digit significant figure, followed by a multiplier<br>10R0 = 10 $\Omega$<br>2152 = 21.5 k $\Omega$<br>3014 = 3.01 M $\Omega$ | B = $\pm 0.1\%$<br>D = $\pm 0.5\%$<br>F = $\pm 1\%$ | M = 1.0%/1000 h<br>P = 0.1%/1000 h<br>R = 0.01%/1000 h<br>S = 0.001%/1000 h | B14 = Tin/Lead, Bulk<br>BSL = Tin/Lead, Bulk, Single Lot Date Code<br>R36 = Tin/Lead, T/R (Full; 50, 55, 60)<br>R64 = Tin/Lead, T/R (Full; 65, 70)<br>RE6 = Tin/Lead, T/R (1000 pieces)<br>RSL = Tin/Lead, T/R, Single Lot Date Code | Blank = Standard (Dash Number) (up to 3 digits)<br>From 1 - 999 as applicable<br>4 = Hot Solder Dip (70's)<br>31 = Hot Solder Dip (50's)<br>65 = Hot Solder Dip (55's)<br>65 = Hot Solder Dip (65's)<br>201 = Hot Solder Dip (60's) |   |   |   |   |   |   |   |   |  |  |  |

Historical Part Number example: RNC55H2152FR R36 (will continue to be accepted)

|           |                |                  |                |              |           |
|-----------|----------------|------------------|----------------|--------------|-----------|
| RNC55     | H              | 2152             | F              | R            | R36       |
| MIL STYLE | CHARACTERISTIC | RESISTANCE VALUE | TOLERANCE CODE | FAILURE RATE | PACKAGING |



**DIMENSIONS** in inches [millimeters]



**Note:**

(1)  $1.08 \pm 0.125$  [27.43 ± 3.18] if tape and reel

| VISHAY DALE MODEL | MIL-PRF-55182 STYLE | A   | B                                  | C (Max.)         | D                                  | E                                  |
|-------------------|---------------------|---|------------------------------------|------------------|------------------------------------|------------------------------------|
| ERC50             | RNC50, RNR50        | $0.150 \pm 0.020$<br>[3.81 ± 0.51]              | $0.070 \pm 0.010$<br>[1.78 ± 0.25] | 0.187<br>[4.75]  | $0.016 \pm 0.002$<br>[0.41 ± 0.05] | $1.25 \pm 0.266$<br>[31.75 ± 6.76] |
| ERC55             | RNC55, RNR55        | $0.250 + 0.031 - 0.046$<br>[6.35 + 0.79 - 1.17] | $0.094 \pm 0.012$<br>[2.39 ± 0.30] | 0.300<br>[7.62]  | $0.025 \pm 0.002$<br>[0.64 ± 0.05] | $1.50 \pm 0.125$<br>[38.1 ± 3.18]  |
| ERC55..200        | RNC60, RNR60        | $0.280 \pm 0.020$<br>[7.11 ± 0.51]              | $0.097 \pm 0.012$<br>[2.46 ± 0.30] | 0.350<br>[8.89]  | $0.025 \pm 0.002$<br>[0.64 ± 0.05] | $1.50 \pm 0.125$<br>[38.1 ± 3.18]  |
| ERC65             | RNC65, RNR65        | $0.562 \pm 0.031$<br>[14.27 ± 0.79]             | $0.180 \pm 0.015$<br>[4.57 ± 0.38] | 0.687<br>[17.45] | $0.025 \pm 0.002$<br>[0.64 ± 0.05] | $1.50 \pm 0.125$<br>[38.1 ± 3.18]  |
| ERC70             | RNC70, RNR70        | $0.562 \pm 0.031$<br>[14.27 ± 0.79]             | $0.180 \pm 0.015$<br>[4.57 ± 0.38] | 0.687<br>[17.45] | $0.032 \pm 0.002$<br>[0.81 ± 0.05] | $1.50 \pm 0.125$<br>[38.1 ± 3.18]  |

| MATERIAL SPECIFICATIONS |                                      |                       |   |
|-------------------------|--------------------------------------|-----------------------|---|
| <b>Element:</b>         | Vacuum-deposited nickel-chrome alloy | <b>Encapsulation:</b> | Specially formulated epoxy compound   |
| <b>Core:</b>            | Fire-cleaned high purity ceramic     | <b>Termination:</b>   | Standard lead material is solder-coated copper<br>Solderable and weldable per MIL-STD-1276, Type C. |

**POWER RATING**

Power ratings are based on the following two conditions:

- ± 2.0 % maximum  $\Delta R$  in 10 000 h load life
- + 175 °C maximum operating temperature

**APPLICABLE MIL-SPECIFICATIONS**

**MIL-PRF-55182:**

The ERC series meets the electrical, environmental and dimensional requirements of MIL-PRF-55182.

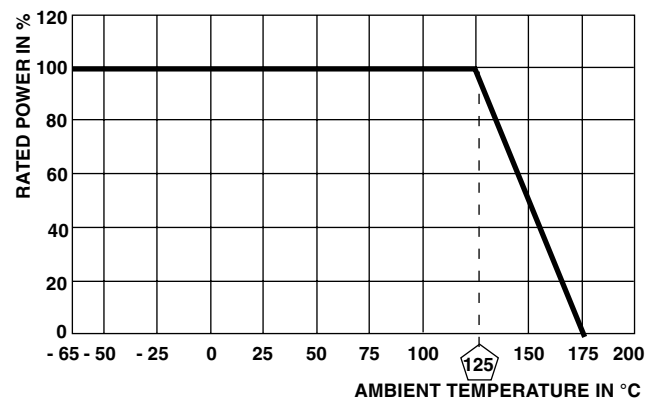
**MIL-R-10509:**

MIL-PRF-55182 supercedes MIL-R-10509 on new designs. The ERC series meets or exceeds MIL-R-10509 requirements.

**Documentation:**

Qualification and failure rate verification test data is maintained by Vishay Dale and is available upon request. Lot traceability and identification data is maintained by Vishay Dale for five years.

Vishay Dale ERC resistors have an operating temperature range of - 65 °C to + 175 °C. They must be derated according to the following curve:



**DERATING**

**CAGE CODE: 91637**

| MARKING             |
|---------------------|
| - Per MIL-PRF-55182 |



## Disclaimer

All product specifications and data are subject to change without notice.

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