Vishay Dale



# 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 Angstrohm's HDN (Military RNR/RNN) data sheet

STANDARD ELECTRICAL SPECIFICATIONS									
VISHAY DALE MODEL	MIL-PRF-55182 TYPE	POWER RATING		RESISTANCE TOLERANCE	MAXIMUM WORKING	RESISTANCE RANGE (Ω) <sup>(1)</sup>			LIFE FAILURE
		<i>P</i> <sub>70 °C</sub> W	<i>P</i> <sub>125 °C</sub> W	%	VOLTAGE	100 ppm/°C (K)	50 ppm/°C (H)	25 ppm/°C (J)	RATE (1)
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
ERC55200	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

(1) Consult factory for current QPL failure rates

Standard resistance tolerances: ± 0.1 % (B), ± 0.5 % (D) and ± 1 % (F). ± 0.1 % not applicable to Characteristic K

TECHNICAL SPECIFICATIONS					
PARAMETER	UNIT	CONDITION			
Voltage Coefficient, max.	ppm/°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	Ω	≥ 10 <sup>11</sup> dry; ≥ 10 <sup>9</sup> after moisture test			
Operating Temperature Range	°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	q	RNC50 = 0.11; RNC55 = 0.35; RNC60 = 0.35; RNC65 = 0.84; RNC70 = 1.60			

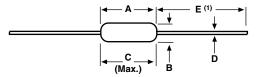
#### **GLOBAL PART NUMBER INFORMATION** New Global Part Numbering: RNC55H2152FRR36 (preferred part numbering format) N С Н 2 R 6 R RESISTANCE **TOLERANCE FAILURE** CHARACTERISTICS MIL STYLE **PACKAGING SPECIAL** VALUE CODE RATE RNC = Solderable/ $\mathbf{J} = \pm 25 \text{ ppm}$ **M** = 1.0 %/1000 h 3 digit significant $B = \pm 0.1 \%$ B14 = Tin/Lead, Bulk Blank = Standard $H = \pm 50 \text{ ppm}$ BSL = Tin/Lead, Bulk, $D = \pm 0.5 \%$ Weldable figure, followed P = 0.1 % / 1000 h(Dash Number) Single Lot Date Code RNR = Solderable $K = \pm 100 \text{ ppm}$ by a multiplier $F = \pm 1 \%$ R = 0.01 % / 1000 h(up to 3 digits) **R36**= Tin/Lead,**10R0** = $10 \Omega$ **S** = 0.001 %/1000 h From 1 - 999 only R (Full; 50, 55, 60) (see Standard **2152** = 21.5 $k\Omega$ as applicable R64 = Tin/Lead, 4 = Hot Solder Dip (70's) Electrical $3014 = 3.01 \text{ M}\Omega$ T/R (Full; 65, 70) 31 = Hot Solder Dip (50's) Specifications RE6 = Tin/Lead, 65 = Hot Solder Dip (55's) table) T/R (1000 pieces) RSL = Tin/Lead, T/R, 65 = Hot Solder Dip (65's) Single Lot Date Code 201 = Hot Solder Dip (60's) Historical Part Number example: RNC55H2152FR R36 (will continue to be accepted) RNC55 н 2152 **R36** MIL STYLE **CHARACTERISTIC** RESISTANCE VALUE **TOLERANCE CODE FAILURE RATE PACKAGING**



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#### **DIMENSIONS** in inches [millimeters]



#### Note:

 $^{(1)}$  1.08 ± 0.125 [27.43 ± 3.18] if tape and reel

VISHAY DALE MODEL	MIL-PRF-55182 STYLE	А	В	C (Max.)	D	E
ERC50	RNC50,	0.150 ± 0.020	0.070 ± 0.010	0.187	0.016 ± 0.002	1.25 ± 0.266
	RNR50	[3.81 ± 0.51]	[1.78 ± 0.25]	[4.75]	[0.41 ± 0.05]	[31.75 ± 6.76]
ERC55	RNC55, RNR55	0.250 + 0.031 - 0.046 [6.35 + 0.79 - 1.17]	$0.094 \pm 0.012$ [2.39 ± 0.30]	0.300 [7.62]	0.025 ± 0.002 {0.64 ± 0.05]	1.50 ± 0.125 [38.1 ± 3.18]
ERC55200	RNC60, RNR60	0.280 ± 0.020 [7.11 ± 0.51]	$0.097 \pm 0.012$ [2.46 ± 0.30]	0.350 [8.89]	$0.025 \pm 0.002$ [0.64 ± 0.05]	1.50 ± 0.125 [38.1 ± 3.18]
ERC65	RNC65,	0.562 ± 0.031	0.180 ± 0.015	0.687	0.025 ± 0.002	1.50 ± 0.125
	RNR65	[14.27 ± 0.79]	[4.57 ± 0.38]	[17.45]	[0.64 ± 0.05]	[38.1 ± 3.18]
ERC70	RNC70,	0.562 ± 0.031	0.180 ± 0.015	0.687	0.032 ± 0.002	1.50 ± 0.125
	RNR70	[14.27 ± 0.79]	[4.57 ± 0.38]	[17.45]	[0.81 ± 0.05]	[38.1 ± 3.18]

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

#### **POWER RATING**

Power ratings are based on the following two conditions:

- 1.  $\pm$  2.0 % maximum  $\Delta R$  in 10 000 h load life
- 2. + 175 °C maximum operating temperature

#### **APPLICABLE MIL-SPECIFICATIONS**

#### MIL-PRF-55182:

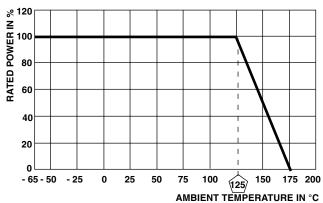
The ERC series meets the electrical, environmental and dimensional requirements of MIL-PRF-55182.

#### 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

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