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Vishay Dale

# Metal Film Resistors, Axial, Military/Established Reliability, MIL-PRF-55182 Qualified, Precision, 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) datasheet (www.vishay.com/doc?66001)

STANDARD ELECTRICAL SPECIFICATIONS									
GLOBAL MODEL	MIL-PRF-55182 STYLE	MIL SPEC. SHEET	POWER RATING P <sub>70</sub> °C W	POWER RATING P <sub>125°C</sub> W	TOLERANCE (4) ± %	MAXIMUM WORKING VOLTAGE (2) V	RESISTANCE RANGE Ω	TEMPERATURE COEFFICIENT ± ppm/°C	LIFE FAILURE RATE (1)
ERC50, ERC5031 <sup>(3)</sup>	RNC50, RNR50	07	0.10	0.05	0.1, 0.5, 1	200	10 to 796K	100 (K), 50 (H), 25 (J)	M, P, R, S
ERC55, ERC5565 <sup>(3)</sup>	RNC55, RNR55	01	0.125	0.10	0.1, 0.5, 1	200	10 to 2M	100 (K), 50 (H), 25 (J)	M, P, R, S
ERC55200, ERC55201 <sup>(3)</sup>	RNC60, RNR60	03	0.25	0.125	0.1, 0.5, 1 250		10 to 2M	100 (K), 50 (H), 25 (J)	M, P, R, S
ERC55201 (9)							2.01M to 3.01M	100 (K), 50 (H), 25 (J)	М
ERC65, ERC6565 <sup>(3)</sup>	RNC65, RNR65	05	0.50	0.25	0.1, 0.5, 1	300	10 to 3.01M	100 (K), 50 (H), 25 (J)	M, P, R
ERC70 ERC704 <sup>(3)</sup>	RNC70, RNR70	06	0.75	0.50	0.1, 0.5, 1	350	10 to 3.01M	100 (K), 50 (H), 25 (J)	M, P, R

#### Notes

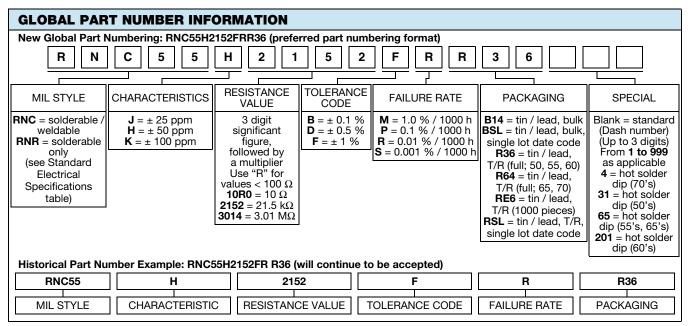
- (1) Consult factory for current QPL failure rates.
- <sup>(2)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.
- (3) Hot solder dipped leads.
- (4) Tolerance of ± 0.1 % is not applicable to characteristics K.

TECHNICAL SPECIFICATIONS			
PARAMETER	UNIT	CONDITION	
Voltage Coefficient, max.	ppm/V	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	g	RNC50 = 0.11; RNC55 = 0.35; RNC60 = 0.35; RNC65 = 0.84; RNC70 = 1.06	

Revision: 06-Jul-2021 1 Document Number: 31025

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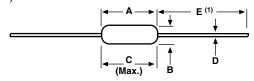
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#### Note

• For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishav.com/doc?31544)

## **DIMENSIONS** in inches (millimeters)



#### Note

(1) Lead length for product in bulk pack. For product supplied in tape and reel, the actual lead length would be based on the body size, tape spacing, and lead trim

VISHAY DALE MODEL	MIL-PRF-55182 STYLE	Α	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,	0.250 + 0.031 - 0.046	0.094 ± 0.012	0.379	0.025 ± 0.002	1.50 ± 0.125
	RNR55	(6.35 + 0.79 - 1.17)	(2.39 ± 0.30)	(9.62)	(0.64 ± 0.05)	(38.1 ± 3.18)
ERC55200	RNC60,	0.280 ± 0.020	0.097 ± 0.012	0.350	0.025 ± 0.002	1.50 ± 0.125
	RNR60	(7.11 ± 0.51)	(2.46 ± 0.30)	(8.89)	(0.64 ± 0.05)	(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		
Core	Fire-cleaned high purity ceramic		
Encapsulation	Specially formulated epoxy compound		
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 supersedes 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.

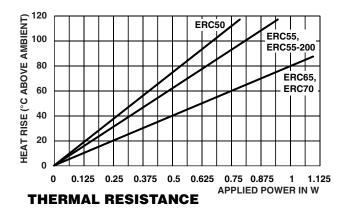
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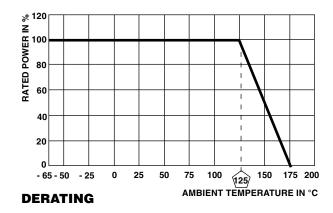


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Vishay Dale ERC resistors have an operating temperature range of -65 °C to +175 °C. They must be derated according to the following curve:





## MARKING (per MIL-PRF-55182)

Characteristics: K = 100 ppm, H = 50 ppm, J = 25 ppm

Tolerance: F = 1 %, D = 0.5 %, B = 0.1 % Value = three significant figures and multiplier

J = JAN (Joint Army - Navy) brand

RNC/RNR50, 55 (4 lines) RNC/RNR60, 65, 70 (5 lines)

D Manufacturer's code 91637 CAGE code
210H 3 digit date code and characteristic RNC60J Style and characteristic

1003 Value 1211FS Value, tolerance, and failure rate

FSCJ Tolerance, failure rate, lead material and JAN 1209A Production lot code



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