Vishay Dale



# Metal Film Resistors, 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

STANDARD ELECTRICAL SPECIFICATIONS										
VISHAY DALE MODEL	MIL-PRF-55182 STYLE	MIL SPEC. SHEET	POWER RATING		TOLERANCE (4)	MAXIMUM WORKING	RESISTANCE RANGE $\Omega$			LIFE FAILURE
			<i>P</i> <sub>70 °C</sub> W	<i>P</i> <sub>125 °C</sub> W	± %	VOLTAGE (2) V	± 100 ppm/°C (K)	± 50 ppm/°C (H)	± 25 ppm/°C (J)	RATE (1)
ERC50, ERC5031 <sup>(3)</sup>	RNC50, RNR50	07	0.10	0.05	0.1, 0.5, 1	200		10 to 796K		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		M, P, R, S
ERC55200,	RNC60, RNR60	360 03 0.25 0.125 0.1, 0.5, 1 250	250	10 to 2M			M, P, R, S			
ERC55201 (3)	1111000, 11111100		0.23	0.123	0.1, 0.5, 1	250	2.01M to 3.01M		М	
ERC65, ERC6565 <sup>(3)</sup>	RNC65, RNR65	05	0.50	0.25	0.1, 0.5, 1	300	10 to 3.01M		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		M, P, R	

#### Notes

<sup>(4)</sup> 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/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	$\geq 10^{11}$ dry; $\geq 10^9$ 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 = 1.60	

For technical questions, contact: <u>ff2aresistors@vishay.com</u>
Document Number: 31025
Revision: 11-Mar-10

<sup>(1)</sup> Consult factory for current QPL failure rates.

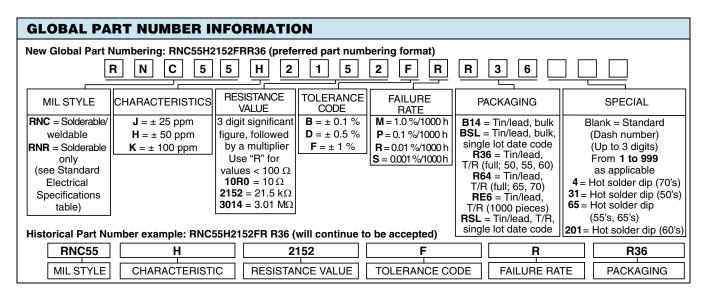
<sup>(2)</sup> Continuous working voltage shall be  $\sqrt{P \times R}$  or maximum working voltage, whichever is less.

<sup>(3)</sup> Hot solder dipped leads

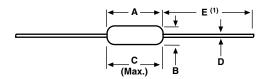


## **ERC (Military RNC/RNR)**

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



#### **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	Α	В	C (Max.)	D	E
ERC50	RNC50,	0.150 ± 0.020	$0.070 \pm 0.010$	0.187	$0.016 \pm 0.002$	1.25 ± 0.266
	RNR50	$(3.81 \pm 0.51)$	$(1.78 \pm 0.25)$	(4.75)	$(0.41 \pm 0.05)$	$(31.75 \pm 6.76)$
ERC55	RNC55,	0.250 + 0.031 - 0.046	0.094 ± 0.012	0.300	0.025 ± 0.002	1.50 ± 0.125
	RNR55	(6.35 + 0.79 - 1.17)	$(2.39 \pm 0.30)$	(7.62)	$(0.64 \pm 0.05)$	$(38.1 \pm 3.18)$
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)	$(2.46 \pm 0.30)$	(8.89)	$(0.64 \pm 0.05)$	$(38.1 \pm 3.18)$
ERC65	RNC65,	0.562 ± 0.031	0.180 ± 0.015	0.687	0.025 ± 0.002	1.50 ± 0.125
	RNR65	$(14.27 \pm 0.79)$	$(4.57 \pm 0.38)$	(17.45)	$(0.64 \pm 0.05)$	$(38.1 \pm 3.18)$
ERC70	RNC70,	0.562 ± 0.031	0.180 ± 0.015	0.687	0.032 ± 0.002	1.50 ± 0.125
	RNR70	$(14.27 \pm 0.79)$	$(4.57 \pm 0.38)$	(17.45)	$(0.81 \pm 0.05)$	$(38.1 \pm 3.18)$

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

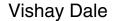
#### **Documentation:**

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.

**CAGE CODE:** 91637

Document Number: 31025 For technical question Revision: 11-Mar-10

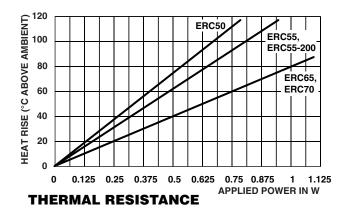
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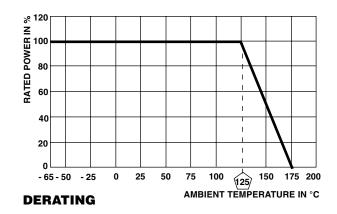


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Vishay Dale ERC resistors have an operating temperature range of - 65 °C to + 175 °C. They must be derated according to the following curve:





#### **MARKING**

- Per MIL-PRF-55182

Document Number: 31025 Revision: 11-Mar-10



## **Legal Disclaimer Notice**

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Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.