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	$\begin{array}{c} \textbf{RESISTANCE RANGE} \\ \Omega \end{array}$			LIFE FAILURE
			<i>P</i> _{70 °C} W	<i>P</i> _{125 °C} ₩	± %	VOLTAGE ⁽²⁾ V	± 100 ppm/°C (K)	± 50 ppm/°C (H)	± 25 ppm/°C (J)	
ERC50, ERC5031 ⁽³⁾	RNC50, RNR50	07	0.10	0.05	0.1, 0.5, 1	200		10 to 796K		M, P, R, S
ERC55, ERC5565 ⁽³⁾	RNC55, RNR55	01	0.125	0.10	0.1, 0.5, 1	200	10 to 2M		M, P, R, S	
ERC55200,	RNC60, RNR60	03	0.25	0.125	0.1, 0.5, 1	250	10 to 2M		M, P, R, S	
ERC55201 ⁽³⁾	1110000, 1111100	00	0.25	0.125	0.1, 0.3, 1	2.01M to 3.01M			М	
ERC65, ERC6565 ⁽³⁾	RNC65, RNR65	05	0.50	0.25	0.1, 0.5, 1	300	10 to 3.01M		M, P, R	
ERC70 ERC704 ⁽³⁾	RNC70, RNR70	06	0.75	0.50	0.1, 0.5, 1	350	10 to 3.01M		M, P, R	

Notes

⁽¹⁾ Consult factory for current QPL failure rates.

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

⁽³⁾ Hot solder dipped leads

⁽⁴⁾ 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/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		



ERC (Military RNC/RNR)

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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							
MIL STYLE	CHARACTERISTICS	RESISTANCE VALUE	TOLERANCE	FAILURE	PACKAGING	SPECIAL	
RNC = Solderable/		3 digit significant		M = 1.0 %/1000 h	B14 = Tin/lead, bulk	Blank = Standard	
weldable	H = ± 50 ppm	figure, followed	D = ± 0.5 %	P =0.1 %/1000 h	BSL = Tin/lead, bulk,	(Dash number)	
RNR = Solderable	K = ± 100 ppm	by a multiplier	F = ± 1 %	R =0.01 %/1000 h	single lot date code	(Up to 3 digits)	
only		Use "R" for		S = 0.001 %/1000h	R36 = Tin/lead,	From 1 to 999	
(see Standard		values < 100 Ω			T/R (full; 50, 55, 60) R64 = Tin/lead.	as applicable	
Electrical		10R0 = 10 Ω			T/R (full; 65, 70)	4 = Hot solder dip (70's)	
Specifications		2152 = 21.5 kΩ			$\mathbf{RE6} = \mathrm{Tin/lead},$	31 = Hot solder dip (50's)	
table)		$3014 = 3.01 \text{ M}\Omega$			T/R (1000 pieces)	65 = Hot solder dip	
RSL = Tin/lead. T/R.				(55's, 65's)			
Historical Part Number example: RNC55H2152FR R36 (will continue to be accepted) single lot date code 201 = Hot solder dip (60's)							
RNC55	Н	2	2152		R	R36	
MIL STYLE	CHARACTERISTIC	C	NCE VALUE	TOLERANCE CODE FAILURE RA		TE PACKAGING	

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
ERCOU	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	0.300	0.025 ± 0.002	1.50 ± 0.125
EnCoo	RNR55	(6.35 + 0.79 - 1.17)	(2.39 ± 0.30)	(7.62)	(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
En000.200	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
Encos	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 ΔR 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

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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



Vishay

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