

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 Angstrom'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 VOLTAGE ⁽²⁾ V	RESISTANCE RANGE Ω			LIFE FAILURE RATE ⁽¹⁾
			P _{70 °C} W	P _{125 °C} W			± 100 ppm/°C (K)	± 50 ppm/°C (H)	± 25 ppm/°C (J)	
ERC50, ERC50..31 ⁽³⁾	RNC50, RNR50	07	0.10	0.05	0.1, 0.5, 1	200	10 to 796K			M, P, R, S
ERC55, ERC55..65 ⁽³⁾	RNC55, RNR55	01	0.125	0.10	0.1, 0.5, 1	200	10 to 2M			M, P, R, S
ERC55..200, ERC55..201 ⁽³⁾	RNC60, RNR60	03	0.25	0.125	0.1, 0.5, 1	250	10 to 2M			M, P, R, S
							2.01M to 3.01M			M
ERC65, ERC65..65 ⁽³⁾	RNC65, RNR65	05	0.50	0.25	0.1, 0.5, 1	300	10 to 3.01M			M, P, R
ERC70 ERC70..4 ⁽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: ± 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	≥ 10 ¹¹ dry; ≥ 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)

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

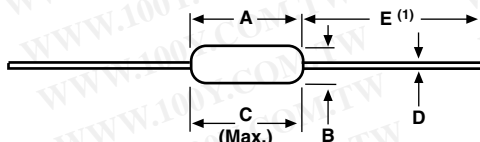
Vishay Dale

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 CODE		FAILURE RATE		PACKAGING			SPECIAL				
RNC = Solderable/ weldable RNR = Solderable only (see Standard Electrical Specifications table)	J = ± 25 ppm H = ± 50 ppm K = ± 100 ppm		3 digit significant figure, followed by a multiplier Use "R" for values < 100 Ω 10R0 = 10 Ω 2152 = 21.5 kΩ 3014 = 3.01 MΩ			B = ± 0.1 % D = ± 0.5 % F = ± 1 %		M = 1.0 %/1000 h P = 0.1 %/1000 h R = 0.01 %/1000 h S = 0.001 %/1000 h		B14 = Tin/lead, bulk BSL = Tin/lead, bulk, single lot date code R36 = Tin/lead, T/R (full: 50, 55, 60) R64 = Tin/lead, T/R (full: 65, 70) RE6 = Tin/lead, T/R (1000 pieces) RSL = Tin/lead, T/R, single lot date code			Blank = Standard (Dash number) (Up to 3 digits) From 1 to 999 as applicable 4 = Hot solder dip (70's) 31 = Hot solder dip (50's) 65 = Hot solder dip (55's, 65's) 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 ± 0.125 (27.43 \pm 3.18) if tape and reel

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

- ± 2.0 % maximum ΔR 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.

CAGE CODE: 91637

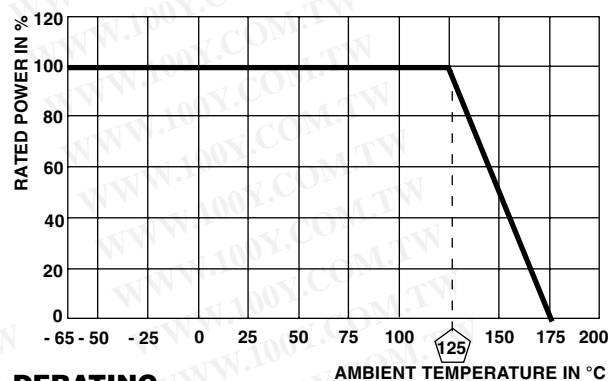
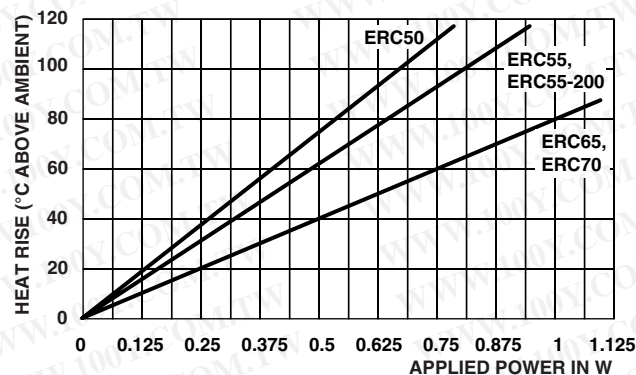
ERC (Military RNC/RNR)



Vishay Dale

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

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



Disclaimer

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

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.