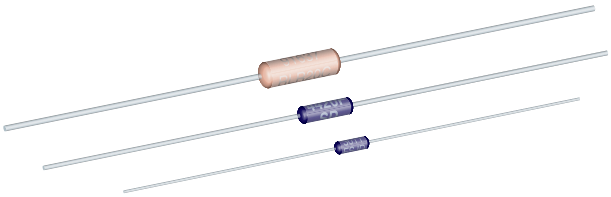
Metal Film Resistors, Axial, Military/Established Reliability, MIL-PRF-55182 Qualified, Precision, Type RNC, Characteristics J, H, K



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 $P_{70\,°C}$ W	POWER RATING $P_{125\,°C}$ W	TOLERANCE (4) ± %	MAXIMUM WORKING VOLTAGE (2) V	RESISTANCE RANGE Ω	TEMPERATURE COEFFICIENT ± ppm/°C	LIFE FAILURE RATE (1)
ERC50, ERC50..31 (3)	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, ERC55..65 (3)	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
ERC55..200, ERC55..201 (3)	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
							2.01M to 3.01M	100 (K), 50 (H), 25 (J)	M
ERC65, ERC65..65 (3)	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 ERC70..4 (3)	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.
(2) 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^{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 = 1.06

For technical questions, contact: ff2aresistors@vishay.com
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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 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)

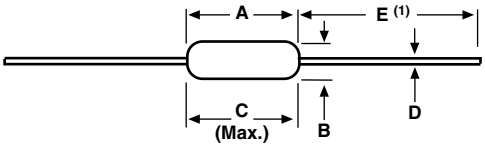
Historical Part Number Example: RNC55H2152FR R36 (will continue to be accepted)

RNC55	H	2152	F	R	R36
MIL STYLE	CHARACTERISTIC	RESISTANCE VALUE	TOLERANCE CODE	FAILURE RATE	PACKAGING

Note

- For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishay.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	A	B	C (MAX.)	D	E
ERC50	RNC50, RNR50	0.150 ± 0.020 (3.81 ± 0.51)	0.070 ± 0.010 (1.78 ± 0.25)	0.187 (4.75)	0.016 ± 0.002 (0.41 ± 0.05)	1.25 ± 0.266 (31.75 ± 6.76)
ERC55	RNC55, RNR55	0.250 + 0.031 - 0.046 (6.35 + 0.79 - 1.17)	0.094 ± 0.012 (2.39 ± 0.30)	0.379 (9.62)	0.025 ± 0.002 (0.64 ± 0.05)	1.50 ± 0.125 (38.1 ± 3.18)
ERC55..200	RNC60, RNR60	0.280 ± 0.020 (7.11 ± 0.51)	0.097 ± 0.012 (2.46 ± 0.30)	0.350 (8.89)	0.025 ± 0.002 (0.64 ± 0.05)	1.50 ± 0.125 (38.1 ± 3.18)
ERC65	RNC65, RNR65	0.562 ± 0.031 (14.27 ± 0.79)	0.180 ± 0.015 (4.57 ± 0.38)	0.687 (17.45)	0.025 ± 0.002 (0.64 ± 0.05)	1.50 ± 0.125 (38.1 ± 3.18)
ERC70	RNC70, RNR70	0.562 ± 0.031 (14.27 ± 0.79)	0.180 ± 0.015 (4.57 ± 0.38)	0.687 (17.45)	0.032 ± 0.002 (0.81 ± 0.05)	1.50 ± 0.125 (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. ± 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 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.

CAGE CODE: 91637

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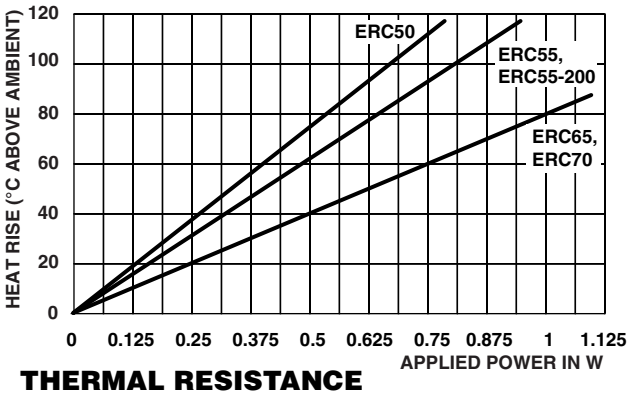
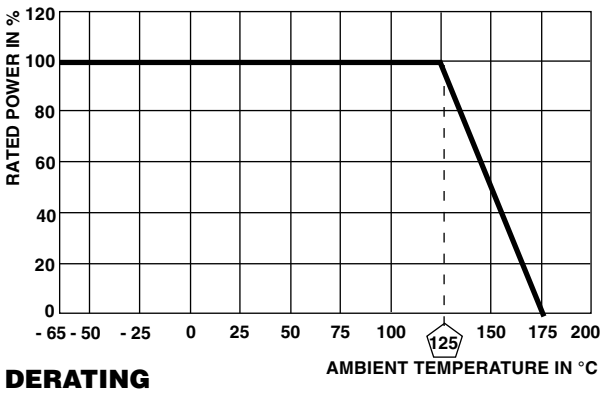
Vishay Dale ERC resistors have an operating temperature range of -65 °C to +175 °C. They must be derated according to the following curve:



THERMAL RESISTANCE



DERATING

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)

D	Manufacturer's code
210H	3 digit date code and characteristic
1003	Value
FSCJ	Tolerance, failure rate, lead material and JAN

RNC/RNR60, 65, 70 (5 lines)

91637	CAGE code
1213J	4 digit date code and JAN
RNC60J	Style and characteristic
1211FS	Value, tolerance, and failure rate
1209A	Production lot code

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