

Vishay Angstrohm

Metal Film Resistors, Military/Established Reliability, Hermetically-Sealed, MIL-PRF-55182 Qualified, Precision, Type RNR, Characteristics E and C



For the highest degree of reliability, stability and uniformity of construction, Vishay Angstrohm hermetically-sealed metal film resistors are unquestionably the first choice. The true glass-to-metal hermetic enclosure seals the resistor element in an inert gas atmosphere and protects it from virtually all adverse environmental influences. The glass enclosure will withstand in excess of 3000 psi external pressure without leakage. The reliability and stability of Vishay Angstrohm hermetically-sealed resistors have been established by their use in nearly every military, missile, aerospace and oceangraphy program having the most demanding applications and the most hostile environments.

FEATURES

- Qualified to MIL-PRF-55182 characteristics E and C (E only for RNR75)
- Performance exceeds the requirements of MIL-PRF-55182
- "S" level reliability
- Hermetic glass enclosure is impervious to harmful environments
- · Inert gas filled
- Low noise (- 40 dB)
- Standard lead on the RNR product is solderable and on the RNN is weldable
- MODEL RNC: For characteristics E and C (per MIL-PRF-55182) terminal model RNR shall be used as a substitute.
- For MIL-PRF-55182 characteristics J, H, and K product, see Vishay Dale's ERC (Military RNC/RNR) data sheet (www.vishay.com/doc?31025).

STANDARD ELECTRICAL SPECIFICATIONS										
VISHAY ANGSTROHM MODEL	MIL-PRF-55182 STYLE	MIL SPEC. SHEET	POWER RATING P ₇₀ °C W	POWER RATING P _{125°C} W	TOLERANCE ± %	MAXIMUM WORKING VOLTAGE ⁽⁴⁾ V	RESISTANCE RANGE $^{(2)}$ Ω \pm 50 ppm/°C $^{(1)}$ (C)	RESISTANCE RANGE $^{(2)}$ Ω \pm 25 ppm/°C $^{(1)}$ (E)	LIFE FAILURE RATE ⁽³⁾	
HDN55, HDN5565 ⁽⁵⁾	RNR55, RNN55	01	0.125	0.10	0.1, 0.5, 1	200	10 to 1.21M	10 to 1.21M	M, P, R, S	
HDN57, HDN571 ⁽⁵⁾	RNR57, RNN57	02	0.25	0.125	1	250	49.9 to 200K	49.9 to 200K	M, P, R, S	
HDN60, HDN601 ⁽⁵⁾	RNR60, RNN60	03	0.25	0.125	0.1, 0.5, 1	250	10 to 2.49M	10 to 2.49M	M, P, R, S	
HDN65, HDN6565 ⁽⁵⁾	RNR65, RNN65	05	0.50	0.25	0.1, 0.5, 1	300	24.9 to 4.99M	24.9 to 4.99M	M, P	
HDN70, HDN704 ⁽⁵⁾	RNR70, RNN70	06	0.75	0.50	0.1, 0.5, 1	350	24.9 to 4.99M	24.9 to 4.99M	M, P	
HDN75, HDN751 ⁽⁵⁾	RNR75, RNN75	10	2.0	1.0	0.1, 0.5, 1	750	-	49.9 to 1.21M	М	

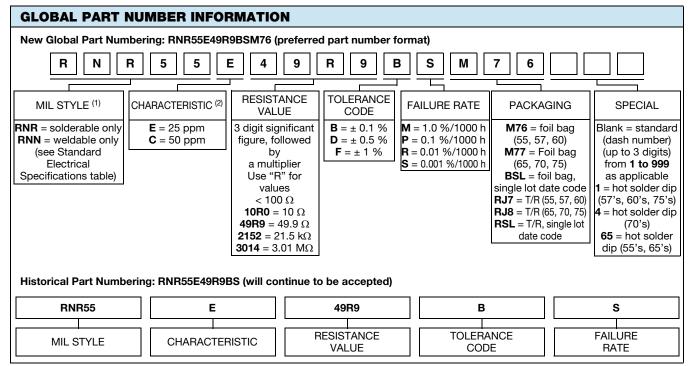
Notes

- (1) Temperature characteristics E and C designate hermetically-sealed enclosure.
- (2) Standard resistance values should be selected from the Resistance-Tolerance Decade table. B tolerance available in all values.
- (3) Contact factory for current QPL failure rates.
- (4) Continuous working voltage shall be $\sqrt{P \times R}$ or maximum working voltage, whichever is less.
- (5) Hot solder dipped leads.



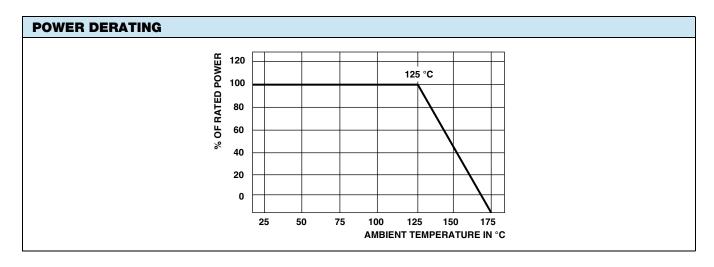
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Notes

- For additional information on packaging, refer to the Through-Hole Resistor Packaging document (www.vishav.com/doc?31544).
- (1) MODEL RNC: For characteristics C and E (per MIL-PRF-55182) terminal model RNR shall be used as a substitute
- (2) For RNR75 only: Characteristic J (± 25 ppm/°C) is also available







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MARKING (per MIL-PRF-55182)

Characteristics: C = 50 ppm, E = 25 ppm Tolerance: F = 1 %, D = 0.5 %, B = 0.1 % Value: Three significant figures and multipliers

J = JAN (Joint Army - Navy) brand

RNR/RNN55, RNR/RNN57: (4 lines) RNR/RNN60, RNR/RNN65, RNR/RNN70, RNR/RNN75: (5 lines)

Manufacturer's code 91637 CAGE code

205C 3 digit date code and characteristic 1205J 4 digit date code and JAN
1002 Value RNR60E Style and characteristic
FSRJ Tolerance, failure rate, lead material and JAN 2501FS Value, tolerance and failure rate

1203A Production lot code

COMPARISON OF VISHAY ANGSTROHM CHARACTERISTICS TO MIL SPECIFICATION LIMIT (1)									
MILITARY STYLE (RNR/RNN)	LOAD LIFE LIMIT ± 2.0 %	MOISTURE LIMIT (2) ± 0.2 %	SHOCK LIMIT ± 0.2 %	VIBRATION LIMIT ± 0.2 %	HIGH TEMPERATURE EXPOSURE LIMIT ± 2.0 %	LOW TEMPERATURE OPERATION LIMIT ± 0.15 %	RESISTANCE TO SOLDERING HEAT LIMIT ± 0.1 %		
55	< 0.2 %	< 0.03 %	< 0.02 %	< 0.02 %	< 0.4 %	< 0.004 %	< 0.02 %		
57	< 0.3 %	< 0.02 %	< 0.01 %	< 0.01 %	< 0.3 %	< 0.005 %	< 0.01 %		
60	< 0.3 %	< 0.03 %	< 0.01 %	< 0.01 %	< 0.4 %	< 0.004 %	< 0.02 %		
65	< 0.5 %	< 0.03 %	< 0.01 %	< 0.01 %	< 0.4 %	< 0.003 %	< 0.01 %		
70	< 0.6 %	< 0.01 %	< 0.01 %	< 0.01 %	< 0.4 %	< 0.006 %	< 0.01 %		
75	< 0.5 %	< 0.02 %	< 0.01 %	< 0.01 %	< 0.3 %	< 0.010 %	< 0.01 %		

Notes

- (1) This typical data is taken from the average resistance shifts from numerous values. The actual shifts are dependent on the value.
- (2) Any shift during moisture testing is due to the "load" (mini-load life) portion of the test and not due to the effect of moisture

VISHAY ANGSTROHM MODEL	MIL- PRF- 55182 STYLE	A LENGTH	B DIAMETER	C CL TO CL (MAX.)	D LENGTH ± 0.125 (± 3.18)	E DIAMETER ± 0.002 (± 0.051)	APPROX. WEIGHT (g)
HDN55	RNR55, RNN55	0.250 + 0.031 - 0.046 (6.35 + 0.78 - 1.17)	0.109 ± 0.031 (2.77 ± 0.78)	0.379 (9.63)	1.50 (38.10)	0.025 (0.635)	0.337
HDN57	RNR57, RNN57	0.281 ± 0.062 (7.14 ± 1.57)	0.155 ± 0.015 (3.94 ± 0.38)	0.467 (11.86)	1.25 (31.75)	0.025 (0.635)	0.405
HDN60	RNR60, RNN60	0.375 + 0.062 - 0.115 (9.53 + 1.57 - 2.92)	0.125 ± 0.040 (3.18 ± 1.02)	0.561 (14.25)	1.50 (38.10)	0.025 (0.635)	0.450
HDN65	RNR65, RNN65	0.625 + 0.031 - 0.094 (15.8 + 0.787 - 2.39)	0.188 + 0.062 - 0.031 (4.78 + 1.57 - 0.787)	0.780 (19.81)	1.50 (38.10)	0.025 (0.635)	1.30
HDN70	RNR70, RNN70	0.750 + 0.125 - 0.250 (19.05 + 3.18 - 6.35)	0.250 + 0.078 - 0.090 (6.35 + 1.98 - 2.29)	0.939 (23.85)	1.50 (38.10)	0.032 (0.813)	1.44
HDN75	RNR75, RNN75	1.062 ± 0.062 (26.98 ± 1.58)	0.375 + 0.062 - 0.150 (9.53 + 1.57 - 3.81)	1.186 (30.12)	1.50 (38.10)	0.032 (0.813)	2.500

Note

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



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