HDN (Military RNR/RNN)



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



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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) datasheet (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	$\begin{array}{c} \textbf{RESISTANCE} \\ \textbf{RANGE} ^{(2)} \\ \Omega \\ \pm 50 \ \textbf{ppm/^{\circ}C} ^{(1)} \\ \textbf{(C)} \end{array}$	$\begin{array}{c} \textbf{RESISTANCE} \\ \textbf{RANGE}^{(2)} \\ \Omega \\ \pm 25 \text{ ppm/}^{\circ} \textbf{C}^{(1)} \\ \textbf{(E)} \end{array}$	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	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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GLOBAL PART NUMBER INFORMATION									
New Global Part Num	bering: RNR55E49R	R9BSM76 (preferi	ed part numbe	r form	at)				
RNI	R N R 5 5 E 4 9 R 9 B S M 7 6								
MIL STYLE ⁽¹⁾	CHARACTERISTIC (2)	RESISTANCE VALUE	TOLERANCE CODE	FAI	LURE RATE	PACKAG	GING	SPECIAL	
RNR = solderable only RNN = weldable only (see Standard Electrical Specifications table)	E = 25 ppm C = 50 ppm	3 digit significant figure, followed by a multiplier Use "R" for values < 100Ω 10R0 = 10Ω 49R9 = 49.9Ω 2152 = $21.5 k\Omega$ 3014 = $3.01 M\Omega$	$B = \pm 0.1 \%$ $D = \pm 0.5 \%$ $F = \pm 1 \%$	$M = \frac{1}{P} = 0$ R = 0 S = 0.	1.0 %/1000 h 0.1 %/1000 h 0.01 %/1000 h 001 %/1000 h	M76 = fo (55, 57, M77 = fo (65, 70, BSL = foi single lot da RJ7 = (55, 57, RJ8 = (65, 70, RSL = single lot da	il bag 60) il bag 75) I bag, ate code T/R 60) T/R 75) T/R, ate code	Blank = standard (dash number) (up to 3 digits) from 1 to 999 as applicable 1 = hot solder dip (57's, 60's, 75's) 4 = hot solder dip (70's) 65 = hot solder dip (55's, 65's)	
Historical Part Numbering: RNR55E49R9BS (will continue to be accepted)									
RNR55 E			49R9 B		1		S		
MIL STYLE CHARACTERISTIC		RISTIC	SISTANCE VALUE TOLERANC		E CODE	FA	ILURE RATE		

Notes

• For additional information on packaging, refer to the Through-Hole Resistor Packaging document (www.vishay.com/doc?31544)

⁽¹⁾ MODEL RNC: For characteristics C and E (per MIL-PRF-55182) terminal model RNR shall be used as a substitute



CAGE CODE: 91637



Vishay Angstrohm

MARKING (per MIL-PRF-55182)							
	Ch To Va J =	naracteristics: C = 50 p Ilerance: F = 1 %, D = 0 Ilue: Three significant fi = JAN (Joint Army - Na	ics: C = 50 ppm, E = 25 ppm F = 1 %, D = 0.5 %, B = 0.1 % Φ significant figures and multipliers nt Army - Navy) brand				
RNR/RNN55, RNR/RNN57: (4 lines)		RNR/RNI	N60, RNR/RNN65, RNR/RNN70, RNR/RNN75: (5 lines)				
A	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 ar	nd 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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