

PERFORMANCE SPECIFICATION

RESISTOR, VARIABLE, NONWIREWOUND (ADJUSTMENT TYPE,  
LEAD-SCREW ACTUATED), NONESTABLISHED RELIABILITY, AND  
ESTABLISHED RELIABILITY STYLE RJR24

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall  
consist of this specification sheet and [MIL-PRF-39035](#).

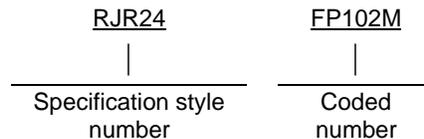
\*

Characteristic C and H are inactive for new design.  
Use characteristic F as their replacement.

1. SCOPE

\* 1.1 Scope. This specification covers the requirements for style RJR24, nonestablished reliability, and established reliability, adjustment type, lead-screw actuated, nonwirewound, variable resistors. This style is available in characteristic F. Characteristics C and H are inactive for new design.

1.2 Part or Identifying Number (PIN). Resistors covered in this specification are identified by a PIN which consists of a basis style of this specification and a coded number. The PIN is in the following form:



2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract (see [6.2](#)).

Comments, suggestions, or questions on this document should be addressed to: DLA Land and Maritime, Columbus, ATTN: VAT, Post Office Box 3990, Columbus, Ohio 43218-3990 or by email [Resistor@dla.mil](mailto:Resistor@dla.mil). Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil/>.

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-39035 - Resistors, Variable, Nonwirewound (Adjustment Type), Nonestablished Reliability, and Established Reliability, General Specification for

- \* (Copies of these documents are available online at <http://quicksearch.dla.mil>).
- \* 2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence unless otherwise noted. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-39035.

3.2 Interface and physical dimension requirement. Resistors shall be of the interface, and physical dimensions specified on [figure 1](#).

3.3 Power rating. The power rating shall be 1/2 watt for all characteristics.

- \* 3.4 Terminals. Characteristic F is available with L-, P-, W- and X- type terminals. Characteristics C and H are inactive for new design.

3.5 Nominal resistance value and maximum rated ac or dc working voltage. Nominal resistance values and maximum rated ac or dc working voltages shall be as specified in [table I](#).

3.5.1 Resistance value deviations. All maximum deviations as specified in this section are to be considered absolute limits with the exception of the contact resistance adjustments.

TABLE I. Nominal resistance value and maximum rated ac or dc working voltage.

\*

Nominal resistance value (in Ohms)	Maximum rated ac or dc working voltage per characteristics C, F, and H <sup>1/</sup>	Nominal resistance value (in Ohms)	Maximum rated ac or dc working voltage per characteristics C, F, and H <sup>1/</sup>
10	2.23	20,000	100
20	3.1	25,000	111
50	5.0	50,000	158
100	7.0	megohms	
200	10.0		
500	15.8		
1,000	22.3		
2,000	31.6		
5,000	50.0		
10,000	70.7		
		0.10	223
		0.20	300
		0.25	300
		0.50	300
		1.00	300

<sup>1/</sup> Characteristics C and H are inactive for new design.

3.6 Actual effective electrical travel. Actual effective electrical travel shall be 15 turns minimum, and 30 turns maximum.

3.7 Operating torque. Operating torque shall be a maximum of 5 ounces-inches.

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w/ Amendment 1

3.8 Maximum voltage. Maximum rated ac or dc working voltage shall be 300 volts.

3.9 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.5).

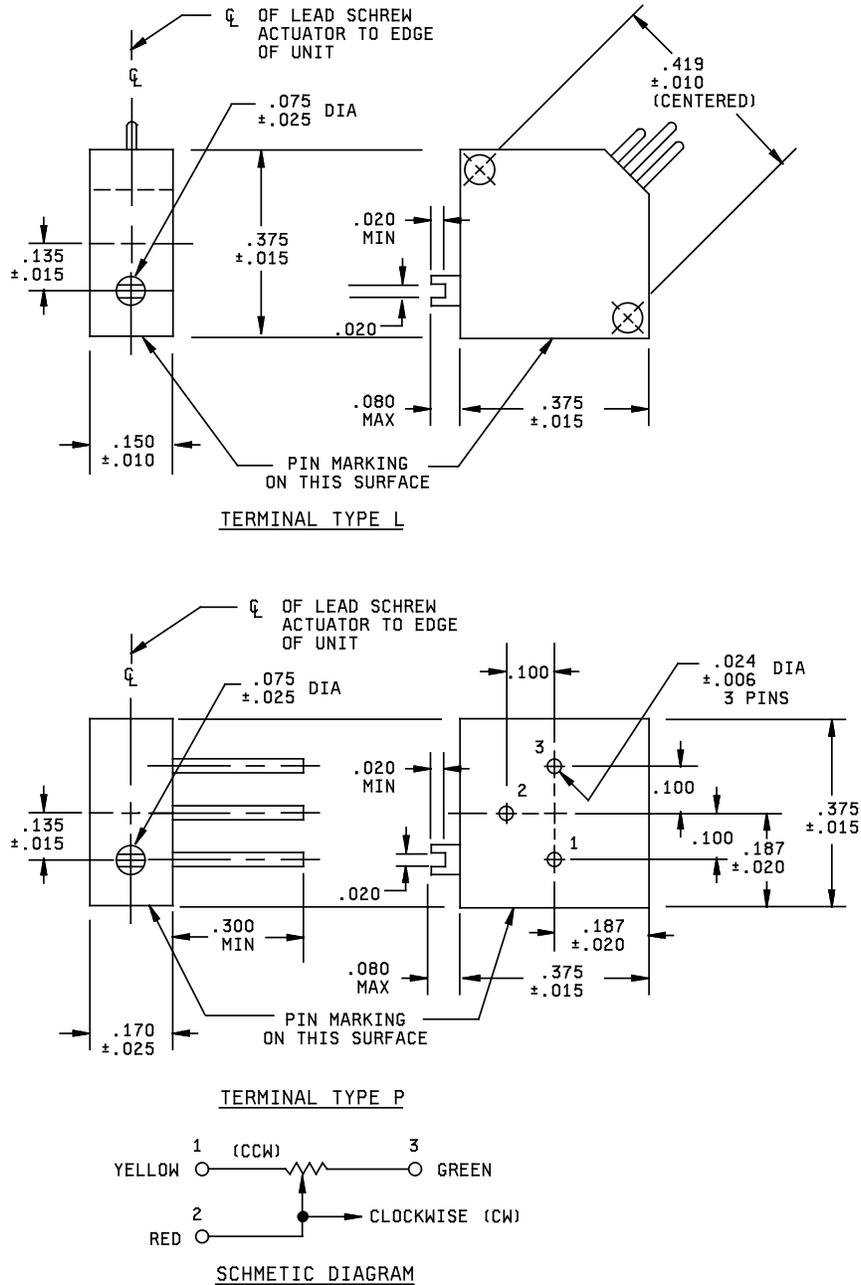
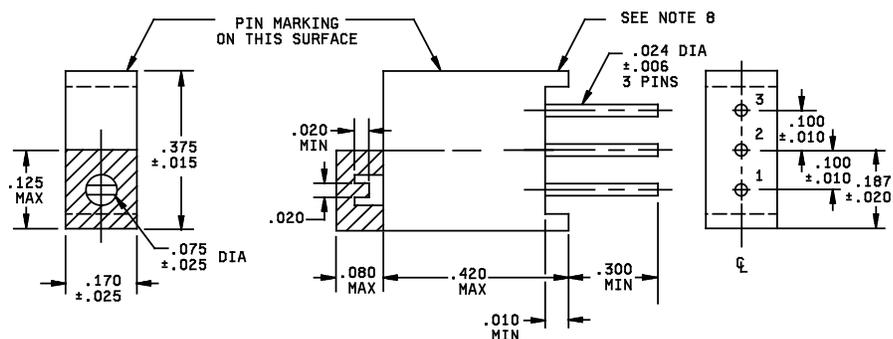
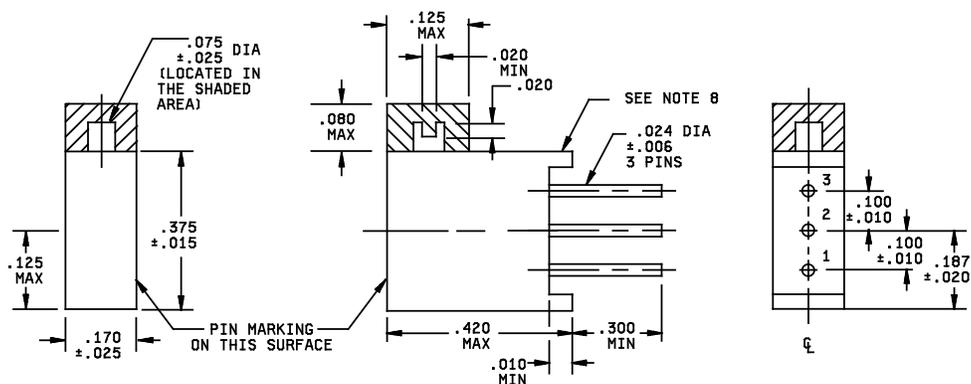


FIGURE 1. Style RJR24 resistors.

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TERMINAL TYPE W



TERMINAL TYPE X

Inches	mm												
.006	0.15	.020	0.51	.030	0.76	.080	2.03	.135	3.43	.187	4.75	.419	10.64
.010	0.25	.024	0.61	.072	1.83	.100	2.54	.150	3.81	.300	7.62	.420	10.67
.015	0.38	.025	0.64	.075	1.91	.125	3.18	.170	4.32	.375	9.53		

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is  $\pm .005$  ( $\pm .13 \text{ mm}$ ).
3. Metric equivalents are given for general information only.
4. The picturization of the styles above are given as representative of the envelope of the item. Slight deviations from the outline shown, which are contained within the envelope, and do not alter the functional aspects of the device are acceptable.
5. The entire slot of the actuating screw must be above the surface of the unit.
6. For types P, W, and X normal mounting means is by use of pins only.
7. The three leads shall be insulated wire, AWG size 28 to 30, having a minimum length of 6.00 (152.4 mm); they shall be insulated with polytetrafluoroethylene, stripped  $.250 \pm .062$  (6.35 mm  $\pm 1.57 \text{ mm}$ ) from the end and color coded
8. Design of standoff is optional.
9. For terminal types P, W, and X, shorter lead lengths (.172 minimum) are available, and can be ordered though acquisition requirements (see 6.2c).

FIGURE 1. Style RJR24 resistors - Continued.

#### 4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with [MIL-PRF-39035](#).

4.2 Visual and mechanical inspection. Visual and mechanical inspection shall be in accordance with MIL-PRF-39035.

4.3 Dielectric withstanding voltage. The magnitude of test voltage shall be 900 volts for all characteristics at atmospheric pressure, and 350 volts for all characteristics at reduced barometric pressure.

#### 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military services system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity

#### 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but not mandatory.)

6.1 Intended use. The notes specified in [MIL-PRF-39035](#) are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification, and the complete PIN (see 1.2).
- \* b. Unless otherwise specified (see 2.1), the versions of the individual documents referenced will be those in effect on the date of release of the solicitation.
- c. Packaging instructions (see 5.1).
- d. Terminal lead lengths requirements (shorter lead lengths can be specified in the purchase order).

6.3 Weight. The weight is .046 ounces (1.3 grams).

6.4 MIL-PRF-22097 substitution data. Resistors of this specification regardless of their failure rate designation are substitutes for resistors of the same resistance value, tolerance, terminal characteristic and resistance temperature characteristics specified in the inactivated specifications [MIL-PRF-22097/3](#) and [MIL-PRF-22097/4](#).

6.5 Tin whisker growth. The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to [ASTM-B545](#) (Standard Specification for Electrodeposited Coatings of Tin).

\* 6.6 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website <http://www.epa.gov/osw/hazard/wastemin/priority.htm>. Use of the materials on the list should be minimized or eliminated unless needed to meet the requirements specified herein (see section 3).

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- \* 6.7 Amendment notification. The margins of this specification are marked with an asterisk to indicate modification generated by this amendment. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:  
DLA - CC

Review activities:

Army - AR, AT, AV, CR4, MI  
Navy - AS, MC, OS  
Air Force - 19, 99

(Project 5905-2014-010)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <https://assist.dla.mil>.