

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	To correct dimension errors. Editorial changes throughout.	26 AUG 05	K. Cottongim
B	Change vendor's part number. Add pure tin, manufacturer eligibility, and pulse application paragraphs. Editorial changes throughout.	9 JUN 11	M. Radecki
C	Add new vendors. Editorial changes throughout.	5 APR 12	M. Radecki
D	Change voltage rating to 100V. Editorial changes throughout.	22 APR 13	M. Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3  
HAS CHANGED NAMES TO:  
DLA LAND AND MARITIME  
COLUMBUS, OHIO 43218-3990

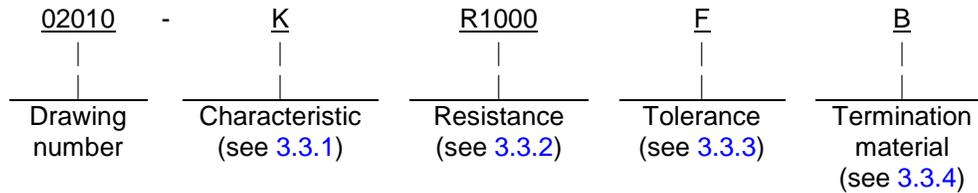
Prepared in accordance with [ASME Y14.100](#)

REV STATUS OF PAGES	REV	D	D	D	D	D	D	D										
	PAGES	1	2	3	4	5	6	7										
PMIC N/A	<b>PREPARED BY</b> Dennis L. Cross								<b>DEFENSE SUPPLY CENTER, COLUMBUS</b> <b>COLUMBUS, OH</b>									
Original date of drawing 22 April 2003	<b>CHECKED BY</b> Dennis L. Cross								<b>TITLE:</b> RESISTOR, CHIP, FIXED, FILM, VALUES LESS THAN 1 OHM, STYLE 1206									
	<b>APPROVED BY</b> Kendall A. Cottongim																	
	SIZE A	<b>CODE IDENT. NO.</b> 037Z3							<b>DWG NO.</b> 02010									
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1. SCOPE

1.1 Scope. This drawing describes the requirements for a very low resistance values and a wide range of characteristics and tolerances chip resistor, style 1206.

1.2 Part or Identifying Number (PIN). The complete PIN is shown in the following example:



2. APPLICABLE DOCUMENTS

\* 2.1 General. The documents listed in this section are specified in sections 3, 4 or 5 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 of documents in sections 3, 4 or 5 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.

DEPARTMENT OF DEFENSE SPECIFICATIONS

- MIL-PRF-55342 - Resistors, Chip, Fixed, Film, Nonestablished Reliability, Established Reliability, Space Level, General Specification for.
- MIL-PRF-55342/7 - Resistors, Chip, Fixed, Film, Nonestablished Reliability, Established Reliability, Space Level, Style RM1206.

DEPARTMENT OF DEFENSE STANDARDS

- MIL-STD-690 - Failure Rate Sampling Plans and Procedures.
- MIL-STD-790 - Standard Practice for Established Reliability and High Reliability Qualified Products List (QPL) Systems for Electrical, Electronic, and Fiber Optic Parts Specifications.

\* (Copies of these documents are available online at <https://assist.dla.mil/quicksearch/> or from the DLA Document Services, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-55342, and as specified herein.

3.2 Interface and physical dimensions. The resistor shall meet the interface and physical dimensions as specified in MIL-PRF-55342/7 and herein (see figure 1).

3.3 Electrical characteristics.

3.3.1 Characteristic. Resistors are available in characteristics K ( $\pm 100$  ppm), L ( $\pm 200$  ppm), M ( $\pm 300$  ppm), N ( $\pm 400$  ppm), W ( $\pm 500$  ppm), X ( $\pm 700$  ppm), and Z ( $\pm 800$  ppm) in accordance with 6.7 herein.

3.3.1.1 Characteristics L, N, W, X, and Z. The maximum change in resistance for conformance pertaining to characteristics L, N, W, X, and Z shall be as specified in MIL-PRF-55342, table I, characteristic M.

3.3.2 Resistance. The nominal resistance is expressed in ohms and is identified by five digits. The letter "R" is substituted for one of the significant digits to represent the decimal point. The succeeding digits of the group represent the significant figures. Minimum and maximum values are as specified (see 3.3.2.1 and 6.7).

3.3.2.1 Resistance measurement. When measuring the dc resistance of this device the side opposite the film shall be the referee point.

3.3.2.2 Resistance range. The resistance range shall be 0.0499 ohms to 0.9999 ohms inclusive in accordance with table I and paragraph 6.7 herein.

TABLE I. Resistance value designations.

Designation	Resistance ohms
R0499 to R0999 incl.	0.0499 to 0.0999 incl.
R1000 to R4999 incl.	0.1000 to 0.4999 incl.
R5000 to R9990 incl.	0.5000 to 0.9990 incl.

3.3.3 Resistance tolerance. Resistors are available in resistance tolerances F ( $\pm 1$  percent), G ( $\pm 2$  percent), J ( $\pm 5$  percent), K ( $\pm 10$  percent), and M ( $\pm 20$  percent) in accordance with paragraph 6.7 herein.

3.3.4 Termination material. Termination material shall be in accordance with MIL-PRF-55342, code letter B.

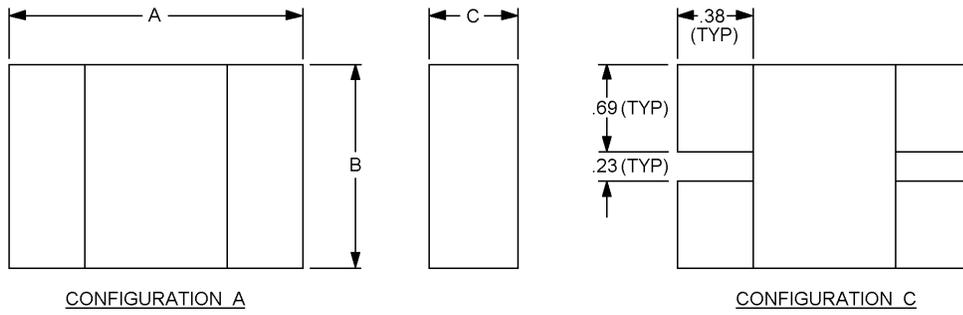
3.3.5 Power rating. The power rating for all characteristics shall be 250 milliwatts at 70°C derated to zero power at +150°C.

\* 3.3.6 Voltage rating. The maximum continuous working voltage shall not exceed 100 volts.

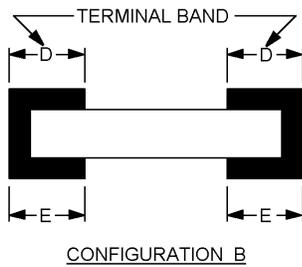
3.4 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.4).

3.5 Marking. Marking of the resistor is not required; however, each unit package shall be marked with the PIN specified herein (see 1.2), the manufacturer's name or CAGE code, and date lot codes.

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mm	Inches
0.13	0.005
0.20	0.008
0.23	0.009
0.25	0.010
0.30	0.012
0.38	0.015
0.51	0.020
0.69	0.027
0.76	0.030
0.84	0.033
1.60	0.063
3.20	0.126



Configuration	Dimension A mm	Dimension B mm	Dimension C mm	Dimension D mm	Dimension E mm
A	3.20 $\pm$ 0.13	1.60 $\pm$ 0.13	0.30/0.76	0.51 $\pm$ 0.25	N/A
B	3.20 $\pm$ 0.20	1.60 $\pm$ 0.13	0.38/0.84	0.51 $\pm$ 0.25	0.51 $\pm$ 0.25
C	3.20 $\pm$ 0.20	1.60 $\pm$ 0.13	0.38/0.84	0.51 $\pm$ 0.25	0.51 $\pm$ 0.25

NOTES:

1. Dimensions are in millimeters.
2. Inch equivalents are given for general information only.
3. Unless otherwise specified dimension tolerances are  $\pm$ 0.13 (0.005).
4. The pictorial view of the styles above is 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. Configuration A is not applicable to this document.

FIGURE 1. Chip resistor.

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3.6 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements and promotes economically advantageous life cycle costs.

3.7 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be listed on the [MIL-PRF-55342](#) Qualified Products List for at least one part, or perform the group A and group B inspections specified herein on a sample agreed upon by the manufacturer and DLA Land and Maritime-VAT.

3.7.1 Certificate of compliance. A certificate of compliance shall be required from manufacturers requesting to be listed as an approved source of supply.

3.8 Workmanship. Resistors shall be uniform in quality and free from any defects that will affect life, serviceability, or appearance.

#### 4. VERIFICATION

4.1 Product assurance program. The product assurance program specified in MIL-PRF-55342 and maintained in accordance with [MIL-STD-790](#) is not applicable to this document.

4.2 Product level qualification. The product level qualification specified in MIL-PRF-55342 and [MIL-STD-690](#) is not applicable to this document.

4.3 Conformance inspection.

4.3.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection (ER level only and the ppm reporting is not applicable) and group B inspection of MIL-PRF-55342.

4.3.2 Certification. The procuring activity may accept a certificate of compliance in lieu of group B inspection (see [6.2d](#)).

4.4 Visual and mechanical examination. Resistors shall be examined to verify that the materials, design, construction, physical dimensions, marking, and workmanship are in accordance with the applicable requirements of [MIL-PRF-55342](#).

#### 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 activities within the Military Service or Defense Agency, or within the military service's 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 is not mandatory.)

6.1 Intended use. Chip resistors are intended for use in thick or thin film circuits where microcircuitry is intended. Chip resistors can also be used in surface mount applications.

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6.2 Ordering data. The contract or purchase order shall specify the following:

- a. Complete PIN (see 1.2).
- b. Requirements for delivery: One copy of the conformance inspection data that parts have passed conformance inspection, with each shipment of parts by the manufacturer.
- c. Packaging requirements.
- d. Whether the manufacturer performs the group B inspection or provides a certificate of compliance (see 4.3.2).

6.3 Electrostatic charge. Under several combinations of conditions, these resistors can be electrically damaged, by electrostatic charges, and drift from specified value. Users should consider this phenomena when ordering or shipping resistors. Direct shipment to the Government is controlled by MIL-DTL-39032 that specifies a preventive packaging procedure.

6.4 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).

6.5 Pulse applications. Designers are CAUTIONED on using the above resistors in high power pulse applications. Since they have not been qualified nor tested for such applications, damage and premature failure are possible. These resistors only see a onetime pulse (Short-time overload) as part of the group B inspection of MIL-PRF-55342.

6.6 User of record. Coordination of this document for future revisions is coordinated only with the approved source of supply and the users of record of this document. Requests to be added as a recorded user of this drawing may be achieved online at [resistor@dla.mil](mailto:resistor@dla.mil) or in writing to: DLA Land and Maritime-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0552 or DSN 850-0552.

6.7 Approved source of supply. Approved source of supply is listed herein. Additional sources will be added as they become available. Assistance in the use of this drawing may be obtained online at [resistor@dla.mil](mailto:resistor@dla.mil) or contact DLA Land and Maritime-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0552 or DSN 850-0552.

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DLA Land and Maritime drawing PIN 02010-*****	Vendor similar designation or type number <u>1/</u>	Vendor CAGE	Vendor name and address
Char. K, L; res. values 0.500 ohms thru 0.999 ohms; Char. M; res. values 0.300 ohms thru 0.999 ohms; Char. N; 0.200 ohms thru 0.999 ohms; res. tol. 1, 2, 5, 10, & 20 pct. Char. W, X, Z; res. values 0.100 ohms thru 0.999 ohms; res. tol. 1, 2 pct.; res. Values 0.0499 ohms thru 0.999 ohms; res tol. 5, 10, 20 pct.; configuration B.	WA87PS-*****-NS62P WA87PS-*****-NS62*	50316	MINI-SYSTEMS, Incorporated 20 David Road N. Attleboro, MA 02760-0069
Char. K, L, M, N, W, X, Z; res. values 0.0499 ohms thru 0.999 ohms; res. tol. 1, 2, 5, 10, 20 pct.; configuration B and C.	H1206C*X***** (D02010)	56235	State of the Art, Incorporated 2470 Fox Hill Road. State College, PA 16803-1797
Char. K & M; res. values 0.0499 ohms to 0.9999 ohms; res. tol. 1, 2, & 5 pct.; configuration B.	TFS-02010-XX-NNNNN-T-B	57027	TT Electronics / IRC 4222 S. Staples St. Corpus Christi, TX 78411-2702
Char. K, L, M, N, W, X, Z; res. values 0.0499 ohms thru 0.999 ohms; res. tol. 1, 2, 5, 10, 20 pct.; configuration B.	RCWP-1206-100	SH903	Vishay Dale Electronics 1122 23 <sup>rd</sup> Street Columbus, NE 68601-3647  <u>Plant:</u> Vishay Israel, LTD Emek-Sara "B" Industrial Park Beer Sheva, Israel 84874
Char. M & N; res. values 0.1000 ohms to 0.9999 ohms; res. tol. 1, 2, 5, & 10 pct.; configuration B.	L1206MXXXXXYB	57489	Vishay Thin Film 2160 Liberty Drive Niagara Falls, NY 14304-3676

1/ Parts must be purchased to the DLA Land and Maritime PIN to assure that all performance requirements and tests are met.

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