REVISIONS

LT	DESCRIPTION	DATE	APPROVED
A	Revise section 4. Editorial changes throughout.	2 MAR 1992	D. Moore
B	Changes in accordance with NOR 5905-R018-93.	21 OCT 1993	A. Ernst
C	Dimension changes. Add vendor. Editorial changes throughout.	10 SEP 1999	K. Cottongim
D	Changes in accordance with NOR 5905-R004-99.	15 NOV 1999	K. Cottongim
E	Changes in accordance with NOR 5905-R001-00.	8 DEC 1999	K. Cottongim
F	Inactive for new design. Update to present DoD policy requirements.	12 APR 2005	K. Cottongim
G	Revise to present DoD policy requirements. Change reference document from MIL-PRF-55342 to MIL-PRF-32159. Remove vendor.	30 MAY 2014	M. Radecki

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

Notice of Inactivation for New Design

DLA Land and Maritime Drawing 90047 is inactive for new design and is no longer used, except for replacement purposes.
Use MIL-PRF-32159/5.

Prepared in accordance with ASME Y14.100

REV STATUS OF PAGES																		
	REV	G	G	G	G	G												
	PAGES	1	2	3	4	5												

PMIC N/A	**PREPARED BY** David Wood	**DEFENSE ELECTRONIC SUPPLY CENTER** **DAYTON, OH**
Original date of drawing 28 August 1990	**CHECKED BY** David Wood	**TITLE** RESISTOR, CHIP, FIXED, FILM, ZERO-OHM, STYLE RM2208
	APPROVED BY David E. Moore	
	SIZE A / **CODE IDENT. NO.** 14933	**DWG NO.** 90047
	REV G	**PAGE** 1 **OF** 5

1. SCOPE

1.1 Scope. This drawing describes the requirements for a fixed, film, .220 x .080, zero-ohm, chip, resistor.

1.2 Part or Identifying Number (PIN). The complete PIN is as follows, and is available in a wrap around termination:

90047	-	B
Drawing Number		(see 3.2.1)

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 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-32159 - Resistor, Chip, Fixed, Film, Zero Ohm, Industrial, High Reliability, Space Level, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

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

MIL-STD-1285 - Marking of Electrical and Electronic Parts.

* (Copies of these documents are available online at http://quicksearch.dla.mil.)

* 2.2 Order of precedence. Unless otherwise noted herein or in the contract, or 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.

3. REQUIREMENTS

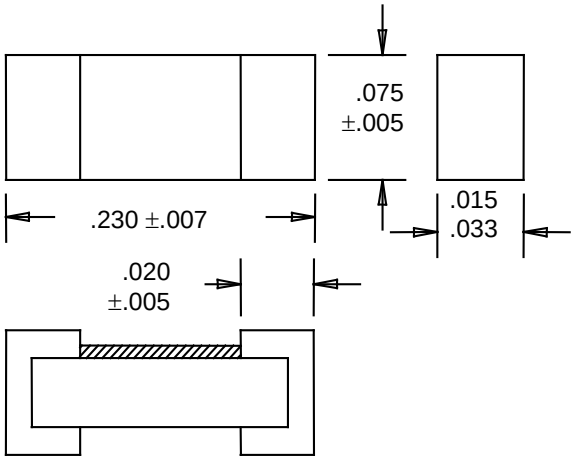
* 3.1 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-32159 and as specified herein.

* 3.2 Interface and physical dimensions. The resistor shall meet the interface, and physical dimensions as specified in MIL-PRF-32159 and herein (see figure 1).

* 3.2.1 Termination material. Termination material shall be in accordance with MIL-PRF-32159, code letter B.

* 3.2.2 Design documentation. The design documentation shall be in accordance with MIL-PRF-32159 and unless otherwise specified in the contract or purchase order, shall be retained by the manufacturer and available for review by the acquiring activity or contractor upon request.

* 3.2.3 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 6.3).



Inches	mm
.005	0.13
.015	0.38
.020	0.51
.075	1.90
.230	5.84

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±.005 (0.13 mm).
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 devices are acceptable.

FIGURE 1. Zero-ohm chip resistor style RM2208.

3.3 Electrical characteristics.

3.3.1 Temperature range. The temperature range shall be -55°C to +125°C.

3.3.2 Resistance. The resistance shall not exceed 0.04 ohm.

3.4 Marking. Marking of the individual chip resistors is not required; however, each unit package shall be marked in accordance with MIL-STD-1285 and include the PIN as specified herein (see 1.2), the manufacturer's name or Commercial and Government Entity (CAGE) code, and date lot codes.

* 3.5 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased 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.

* 3.6 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be listed on the MIL-PRF-32159 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.

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

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

4. VERIFICATION

* 4.1 Product assurance program. The product assurance program specified in MIL-PRF-32159 and maintained in accordance with MIL-STD-790 is not applicable to this document.

4.2 Qualification inspection. Qualification inspection is not applicable to this document.

* 4.3 Product level qualification. The product level qualification specified in MIL-PRF-32159 is not applicable to this document.

4.4 Conformance inspection.

* 4.4.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection (established reliability level only and the parts per million reporting is not applicable) of MIL-PRF-32159.

* 4.5 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 requirement of MIL-PRF-32159.

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 requisite requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the Military Services System Command. 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, also in most surface mount applications.

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

a. Complete PIN (see 1.2).

b. Requirements for delivery: One copy of the conformance inspection data or certification of compliance that parts have passed conformance inspection with each shipment of parts by the manufacturer.

c. Requirements for packaging and packing.

* 6.3 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).

* 6.4 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, which specifies a preventive packaging procedure.

* 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-32159.

* 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 or in writing to: DLA Land and Maritime, Attn: 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 or contact DLA Land and Maritime, Attn: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0552 or DSN 850-0552.

DLA Land and Maritime drawing PIN	Vendors similar designation or type number 1/	Vendor CAGE	Vendor's name and address
90092-B	H2208CPX000 (DEC092)	56235	State of the Art, Incorporated 2470 Fox Hill Road State College, PA 16803-1797
90092-B	RCWPM-7225-99	91637	Vishay Dale Electronics PO Box 609 Columbus, NE 68602-0609

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