



DEFENSE LOGISTICS AGENCY

Land and Maritime
P.O. BOX 3990
COLUMBUS, OH 43218-3990

18 August 2016

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Draft of DLA Land and Maritime drawings 88008C & 88009F.
Resistor, Chip, Fixed, Film, Tantalum Nitride, Style 0505 & Style 1050, respectively.
Project numbers: 5905-2016-E34 & -2016-E35.

The subject drafts of these documents are being made available for review and comments. Particular attention should be paid to the following, as all data is suggestive: Paragraph changes are marked with a vertical line in the margins.

DLA Land and Maritime drawing 88008C.

Section 2 has been revised.
Paragraphs 3.4, 3.5, 3.7, 3.7.1, 3.8 & 3.9 have been revised.
Paragraph 5.1 has been revised.
Paragraph 6.2, 6.4 & 6.5 have been revised.

DLA Land and Maritime drawing 88009F.

Section 2 has been revised.
Paragraphs 3.4, 3.5, 3.6, & 3.6.1 have been revised.
Paragraph 5.1 has been revised.
Paragraph 6.2, 6.4 & 6.5 have been revised.

If these documents are of interest to you, please provide your comments to the project engineer electronically. It is very important that you attempt to respond electronically to this initial draft. This can be in the form of a return e-mail, with or without an attached text file. Because we believe electronic coordination should be faster than hard copy distribution, we have allotted a 30-day coordination cycle from the date of this letter. Please provide your comments within that time period. After the 30-day cycle is completed, a **"no response" will be noted as concurrence** and any comments received after will be held until the next action. If an electronic response is not possible we will still accept comments via letter, facsimile or phone call but only after you have contacted the project officer listed below. The initial draft documents can be found at the following DLA Land and Maritime-VA web page:

<http://www.landandmaritime.dla.mil/Programs/MilSpec/initialdrafts.aspx>

This process still requires military departments to identify their comments as "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians or this office, as applicable, in sufficient time to allow for consolidating the department reply.

If there are any questions, please contact Andrew Ernst by the preferred method of electronic mail at Andrew.ernst@dla.mil by telephone at commercial 614-692-0552, DSN 850-0552; or by facsimile at 614-692-6939. Our mailing address as a last resort is DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218-3990. If you have further questions or concerns you may contact me at Michael.radecki@dla.mil, by telephone at 614-692-0561.

SIGNED

Michael Radecki
Chief,
Electronic Components Branch

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Update and validation of drawing. Editorial changes throughout.	14 JUL 00	K. COTTONGIM
B	Add pure tin prohibition paragraph. Editorial changes throughout.	7 MAR 07	M. Radecki
C	5 year review cycle. Editorial changes throughout	DRAFT	

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3
 DEFENSE LOGISTICS AGENCY
 DEFENSE SUPPLY CENTER, COLUMBUS
 COLUMBUS, OHIO 43218-3990



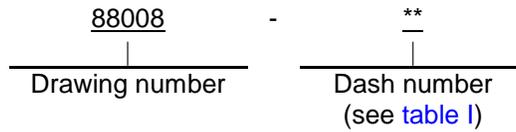
Prepared in accordance with [ASME Y14.100](#)

REV STATUS OF PAGES	REV	C	C	C	C	C	C											
	PAGES	1	2	3	4	5	6											
PMIC N/A	PREPARED BY Allen R. Knox							DESIGN ACTIVITY: DEFENSE ELECTRONIC SUPPLY CENTER DAYTON, OHIO 45444-5000										
Original date of drawing: 20 JULY 1988	CHECKED BY David E. Moore							TITLE RESISTOR, CHIP, FIXED, FILM, TANTALUM NITRIDE, STYLE 0505										
	APPROVED BY David E. Moore																	
	SIZE A	CODE IDENT. NO. 14933						DWG NO. 88008										
	REV B							PAGE 1 OF 6										

1. SCOPE

1.1 Scope. This drawing describes the requirements for a fixed, .05 x.05 tantalum nitride, chip resistor.

1.2 Part or Identifying Number (PIN). The complete PIN is as follows:



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 SPECIFICATION

[MIL-PRF-55342](#) - Resistor, Chip, Fixed, Film, Nonestablished Reliability, Established Reliability, Space Level, General Specification For.

DEPARTMENT OF DEFENSE STANDARD

[MIL-STD-790](#) - Standard Practice for Established Reliability and High Reliability Qualified Products List (QPL) System of 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>).

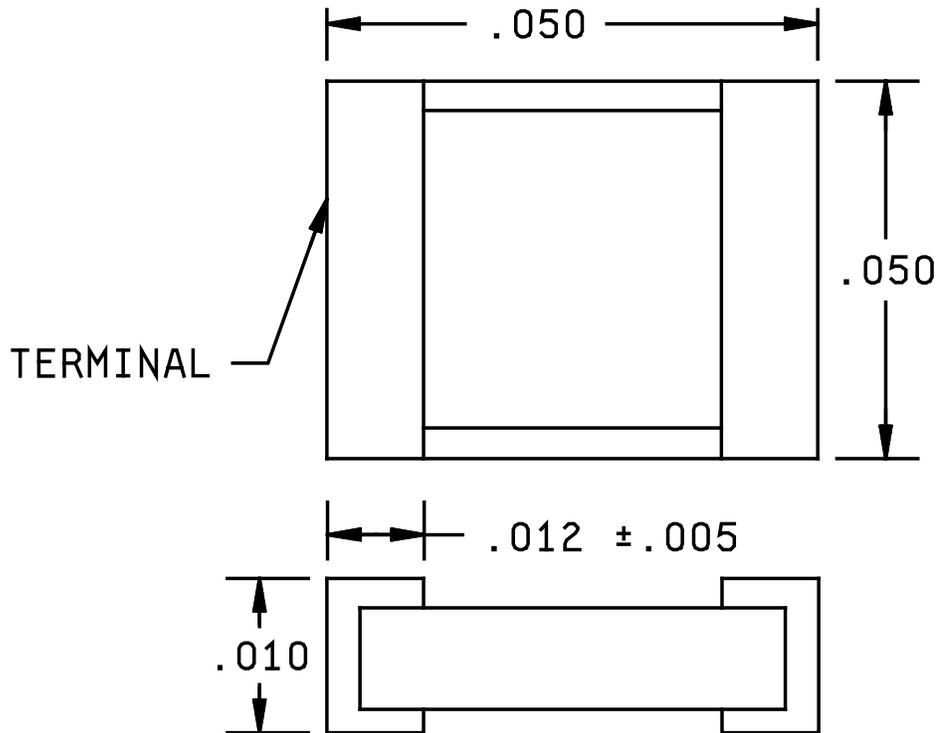
2.2 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence unless otherwise noted. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 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](#) and herein (see [figure 1](#)).

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Inches	mm	Inches	mm
.005	0.13	.012	0.30
.010	0.25	.050	1.27

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.003 (0.08 mm).

FIGURE 1. Leadless chip carrier.

3.3 Electrical characteristics.

3.3.1 Resistance. The nominal resistance shall be as specified in [table I.](#)

3.3.2 Resistance tolerance. The resistance tolerance shall be as specified in [table I.](#)

3.3.3 Power rating. The power rating at 25°C shall be as specified in [table I.](#)

3.3.4 Thermal resistance. Thermal resistance (RO) shall be as specified in [table I.](#)

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TABLE I. Electrical characteristics.

Drawing dash number	Resistance (ohms)	Resistance tolerance (%)	RO (°C/W) ^{1/}	Maximum power (watts)
-01	44	±1	10.00	0.100
-02	13	±2	10.00	0.100
-03	33	±2	10.00	0.100
-04	20	±2	10.00	0.100

^{1/} RO is the thermal resistance in °C/W between film and mounting surface.

3.3.5 Resistance temperature coefficient. The resistance temperature coefficient shall be ±100 ppm/°C.

3.3.6 Operating temperature. The operating temperature shall be -55°C to +125°C.

3.3.7 DC resistance. When resistors are tested as specified in 4.6, the dc resistance shall be within the specified tolerance of the nominal resistance.

3.3.8 Terminations. The terminations shall be in accordance with MIL-PRF-55342 (termination B).

3.3.8.1 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).

3.3.9 Short time overload. When resistors are tested as specified in 4.7, the change in resistance shall not exceed ±2 percent.

3.3.10 Life. When resistors are tested as specified in 4.8, there shall be no evidence of mechanical damage. The change in resistance shall not exceed ±0.5 percent.

3.4 Marking. Marking shall be in accordance with MIL-STD-1285 except the networks shall be marked with the PIN as specified herein (see 1.2), the manufacturer's name or Commercial and Government Entity (CAGE) code, and date lot codes.

3.4.1 Package marking for Beryllium Oxide. Manufacturers which use beryllium oxide in their construction shall mark each resistor package with the symbol "BeO".

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 of parts 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 a approved source of supply.

3.8 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.

3.9 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-55342 and maintained in accordance with MIL-STD-790 is not applicable to this document.

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

4.2.1 Failure rate qualification. The failure rate qualification specified in MIL-PRF-55342 is not applicable to this document.

4.3 Conformance inspections.

4.3.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A and group B inspections of MIL-PRF-55342. Additionally; a life test as specified in 4.8 shall be performed.

4.3.2 Certification. The acquiring activity, at its discretion, may accept a certificate of compliance with group B requirements and/or the life test in lieu of performing group B tests, and the life test (see 6.2d).

4.4 Inspection of packaging. Inspection of packaging shall be in accordance with MIL-PRF-55342.

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 requirements of MIL-PRF-55342.

4.6 DC resistance. Resistors shall be tested in accordance with MIL-PRF-55342. The following exceptions shall apply:

- a. Measuring apparatus: Bridges.
- b. Limit of error of measuring apparatus: One fourth of the specified initial-resistance tolerance or 0.1 percent, whichever is less, ± 0.002 ohm.
- c. Test voltage: Measurements of resistance shall be made by using a dc potential resulting in not more than 5 percent of rated wattage. This same voltage shall be used whenever a subsequent resistance measurement is made.

4.7 Short time overload. Resistance shall be submitted to a short time overload as specified in MIL-PRF-55342. There shall be no evidence of arcing, burning, or charring and resistance shall not change more than as specified in 3.3.9.

4.8 Life. Resistors shall be tested in accordance with MIL-PRF-55342. The following exceptions shall apply:

- a. Test condition - 100 hours.
- b. Measurement during test - none.
- c. Test shall be performed monthly.

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 packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's 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.

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6. NOTES

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

6.1 Intended use. Resistor networks are used in surface mounting applications where space is a major concern.

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. (i.e. ESD sensitive packaging).
- d. Whether the manufacturer performs the group B tests and life test or provides certification of compliance (see 4.3.2).

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 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-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-8754 or DSN 850-8754.

6.5 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-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-8754 or DSN 850-8754.

DLA Land and Maritime drawing PIN	Vendors similar designation or type number ^{1/}	Vendor CAGE	Vendor's name and address
88008-**	A3WD01	64537	Aeroflex / KDI 60 South Jefferson Road Whippany, NJ 07981

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

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