

REVISIONS			
LT	DESCRIPTION	DATE	APPROVED
A	Notice of Revision	7/22/1999	Kendall Cottongim
B	Incorporate NOR 5950-R001-99. Update referenced documents.	1/30/2006	Michael A. Radecki
C	Addition of pure tin prohibition requirement. Update drawing format throughout.	5/29/2013	Michael A. Radecki

THE ORIGINAL FIRST PAGE OF THIS DRAWIING HAS BEEN REPLACED

<p>CURRENT DESIGN ACTIVITY CAGE CODE 037Z3  DEFENSE LOGISTICS AGENCY  DEFENSE SUPPLY CENTER COLUMBUS  COLUMBUS, OHIO 43216-5000</p>
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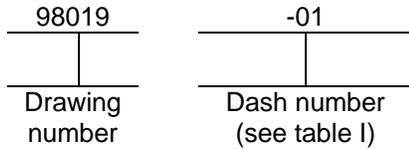
Prepared in accordance with ASME Y14.100

REV STATUS OF PAGES	REV	C	C	C	C	C	C	C										
	PAGES	1	2	3	4	5	6	7										
PMIC N/A	PREPARED BY KEN R. BEYMER							DESIGN ACTIVITY DEFENSE SUPPLY CENTER, COLUMBUS COLUMBUS, OH										
Original date of drawing  October 22, 1998	CHECKED BY KEN R. BEYMER							TITLE Inductor Toroidal										
	APPROVED BY JIM CRUM																	
	SIZE A	CODE IDENT. NO. 037Z3					DWG NO. <b>98019</b>											
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1. SCOPE

1.1 Scope. This drawing describes the requirements for a toroidal inductor, for use in various applications in shipboard and airborne environments.

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



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 of documents 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).

SPECIFICATIONS

FEDERAL

DEPARTMENT OF DEFENSE

MIL-PRF-27 - Transformers and Inductors (Audio, Power and High-Power Pulse), General Specification For

STANDARDS

FEDERAL

DEPARTMENT OF DEFENSE

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

(Copies of these documents are available online at <http://quicksearch.dla.mil> or from the Standardization Documents order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, 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 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.

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

3.3 General. Inductors procured to this drawing shall meet the requirements as specified herein and MIL-PRF-27.

3.4 Qualification. Qualification is not required.

3.5 Electrical Requirements.

3.5.1 Open-circuit inductance. Shall be as specified in table I.

3.5.2 Incremental inductance. Shall be as specified in table I.

3.5.3 D.C. resistance (DCR). When measured at room ambient temperature of 20°C, the maximum DC resistance shall be as specified in table I.

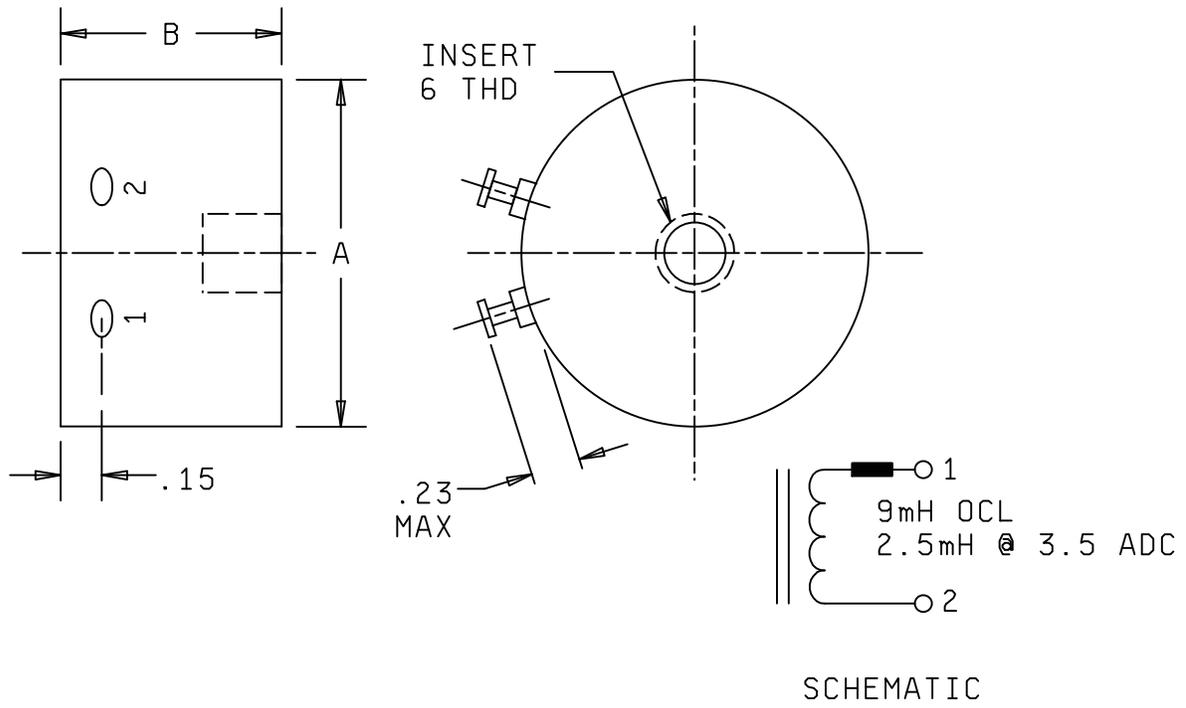
3.5.4 Operating current. Shall be as specified in table I.

3.5.4.1 Duty cycle. Continuous.

TABLE I. Electrical ratings.

Test Parameter	Terminals	Limits (-01)
Open circuit inductance(@ 1.0V 1KHz)	(1-2)	8.5 - 9.5 mH
Incremental inductance (3.5ADC, 1.0V 1KHz)	(1-2)	2.25 mH minimum
D.C. resistance	(1-2)	.250 - .305 ohms
Operating (load) current	(1-2)	4.0 amps maximum
Dielectric withstanding voltage (@ 20°C) (at sea level)	(1-2) to case	1000 Vrms
Dielectric withstanding voltage (@ 20°C) (at barometric pressure)	(1-2) to case	447 Vrms
Insulation resistance	(1-2) to case	10K meg ohms minimum @ 500 V dc

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	-01
Dim A	2.13
Dim B	1.10
Wt(Lb Max)	0.58
Insert	8-32

NOTES: UNLESS OTHERWISE SPECIFIED  
 1. FINISH: BLACK EPOXY  
 2. MARKING: WHITE EPOXY INK

FIGURE 1. Configuration and schematic.

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3.5.5 Dielectric withstanding voltage (DWV). Test shall be performed with inductor at 20°C.

3.5.5.1 At sea level. Shall be as specified in table I.

3.5.5.2 At barometric pressure. Shall be as specified in table I.

3.5.6 Insulation resistance. Shall be as specified in table I.

3.6 Configuration and design.

3.6.1 Configuration and schematic. See figure 1.

3.6.2 Construction. Shall be encapsulated per MIL-PRF-27, grade 5.

3.6.2.1 Case. Shall be epoxy fiberglass.

3.6.3 Terminals.

3.6.3.1 Primary terminals. Turret terminals, capable of accommodating (2) 20 AWG wires, or (1) 14 AWG wire.

3.6.4 Terminal strength. Shall be in accordance with MIL-STD-202, method 211, test condition A, 5 pounds.

3.6.5 Mounting. Inductors are designed to mount on a metal or insulated surface. Mounting accommodation is a single threaded insert, 6 threads deep minimum.

3.6.6 Dimensions. See figure 1.

3.6.7 Weight. See figure 1.

3.6.8 Marking. Marking shall be in accordance with MIL-STD-1285, except the inductor 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. Markings can be either on the side or top of the case. Markings shall be made in such a manner that they will not be obliterated in service.

3.7 Environmental requirements. Shall meet the environmental requirements of MIL-PRF-27 and as specified.

3.7.1 Temperature rise. 40°C maximum when mounted by normal means in an ambient environment of 90°C and operating at normal input voltage and maximum continuous load per table I.

3.7.2 Operating temperature. -55°C to +130°C, includes 90°C ambient temperature plus rise.

3.7.3 Altitude. Sea level to 70,000 feet (operating). 100,000 feet maximum (non-operating).

3.7.4 Fungus. All external materials used shall be non-nutrient to fungus growth or shall be treated to retard fungus growth.

3.8 Manufacturer eligibility. To be eligible for listing as an approved source of supply, the manufacturer shall be listed on the MIL-PRF-27 qualified products list for MIL-PRF-27/352.

3.9 Pure tin. The use of pure tin, as an underplate or final finish is prohibited both internally and externally. Tin content of transformer 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).

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3.10 Workmanship. The inductors shall be processed in such a manner as to be uniform in quality and free of defects that will affect life, serviceability, function or appearance.

#### 4. VERIFICATION

4.1 Qualification inspection. Qualification inspection is not required.

4.2 Conformance inspection.

4.2.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection and group B inspection.

4.2.2 Group A inspection. Group A inspection tests are as follows:

- a.) Visual inspection: per paragraph 3.6, Figure I herein.
- b.) D.C. resistance: per paragraph 3.5.3, table I herein.
- c.) Open-circuit inductance: per paragraph 3.5.1, table I herein.
- d.) Insulation resistance: per paragraph 3.5.6, table I herein.
- e.) Dielectric withstanding voltage: per paragraph 3.5.5, table I herein.

4.2.3 Group B inspection (1 unit per lot or as required by purchase order only). Group B inspection tests are as follows:

- a.) Temperature rise: per paragraph 3.7.1 herein.
- b.) Incremental inductance: per paragraph 3.5.2, table I herein.

#### 5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD 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 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 which may be helpful, but is not mandatory.)

6.1 Intended use.

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

- a. Complete PIN (see 1.2).
- b. Requirements for delivery of one copy of the conformance inspection data or certificate of compliance that parts have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Requirements for packaging and packing.

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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 Users of record. Coordination of this document for future revisions is coordinated only with the approved source(s) 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 [Transformer@dla.mil](mailto:Transformer@dla.mil), or if in writing to: DLA Land and Maritime, Columbus, ATTN: DLA Land and Maritime-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0557 or DSN 850-0557.

6.5 Approved sources of supply. Approved sources of supply are listed herein. Additional sources will be added as they become available. Assistance in the use of this drawing may be obtained online at [Transformer@dla.mil](mailto:Transformer@dla.mil), or by contacting DLA Land and Maritime, Columbus, ATTN: : DLA Land and Maritime-VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0557 or DSN 850-0557.

DLA Land and Maritime drawing PIN	Vendor similar designation or type number <u>1/</u>	Vendor CAGE	Vendor name and address
98019-01	S8296	58910	Abbott Technologies, Inc. Sun Valley Division 8203 Vineland CA 91352-3956

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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