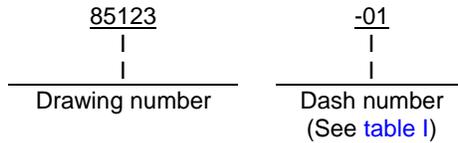




1. SCOPE

1.1 Scope. This drawing describes the requirements for a family of electrical surge arrestors used for dc overvoltages.

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

DEPARTMENT OF DEFENSE STANDARDS

[MIL-STD-202](#) - Electronic and Electrical Component Parts.

[MIL-STD-1285](#) - Marking of Electrical and Electronic Parts.

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

2.3 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents are those cited in the solicitation or contract.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE).

[IEEE C62.31](#) - IEEE Standard Test Specifications for Gas-Tube Surge Protective Devices.

(Copies of this document are available online at [www.ieee.org](http://www.ieee.org) or from The Institute of Electrical and Electronics Engineers (IEEE), 2001 L Street, NW, Suite 700, Washington, DC 20036-4910.)

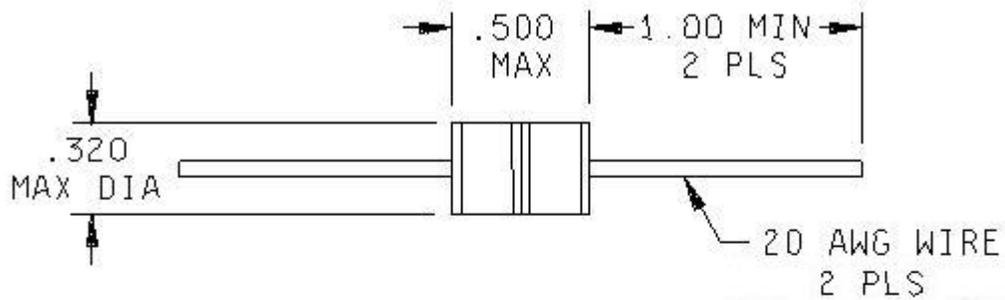
(Industry association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

2.4 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.

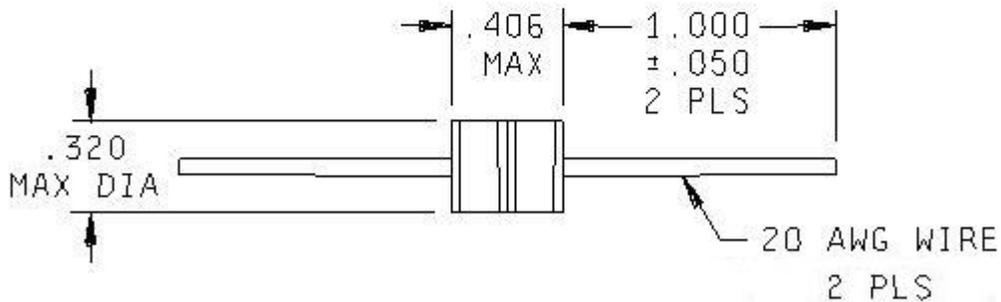
3. REQUIREMENTS

3.1 Interface and physical dimensions. The interface and physical dimensions shall be as specified herein (see [table I](#) and [figure 1](#)).

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CONFIGURATION A



CONFIGURATION B

Inches	mm
.020	0.51
.050	1.27
.320	8.13
.406	10.31
.500	12.70
1.000	25.40

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.

FIGURE 1. Dimensions and configurations.

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3.2 Marking. Marking shall be in accordance with MIL-STD-1285, except the arrestor 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.

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

3.4 Electrical characteristics. See table I.

3.5 DC breakdown voltage. The dc breakdown voltage shall be in accordance with 4.2.2 and table I.

3.6 Maximum single impulse discharge current. Maximum single impulse discharge current shall be in accordance with 4.2.3 and table I.

TABLE I. P/Ns and electrical characteristics.

P/N 85123-	Dc breakdown voltage +20 percent, -10 percent (dc)	Maximum single impulse discharge current (amperes)	Configuration
01	440	10,000	A
02	400	1,000	B

3.7 Insulation resistance. The insulation resistance shall be 10,000 megohms minimum and in accordance with 4.2.4.

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

3.9 Recycled, recovered, or environmentally preferable, or biobased materials. Recycled, recovered, or 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.

3.10 Workmanship. Parts shall be free of flash pits, voids, and excessive mold marks. Visible parting line is acceptable.

#### 4. VERIFICATION

4.1 Conformance inspection.

4.1.1 Inspection of product for delivery. Inspection of product for delivery shall consist of the group A inspection.

4.1.1.1 Group A inspection. Group A inspection shall consist of the inspections specified in table II, in the order shown.

4.1.1.1.1 Sampling plan. Group A inspection shall be on an inspection lot basis. Samples shall be selected in accordance with table III, based on the inspection lot. If there are one or more failures, the inspection lot shall be considered to have failed.

4.1.1.1.1.1 Rejected lots. The rejected lots shall be segregated from new lots and those lots that have passed inspection. The supplier may rework it to correct the defect or 100 percent inspect the lot and remove all defective parts. The rejected lot shall then be inspected in accordance with table II for those quality characteristics found defective in the sample. If one or more defects are found in this second sample, the lot shall be rejected and shall not be supplied to this specification.

TABLE II. Group A inspection.

Inspection	Requirement paragraph	Test method paragraph
Visual and mechanical inspection		
Dimensions	3.2	4.2.1
Marking	3.3	4.2.1
Workmanship	3.10	4.2.1
DC breakdown voltage	3.5	4.2.2
Maximum single impulse discharge current	3.6	4.2.3
Insulation resistance	3.7	4.2.4

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4.1.1.1.1.2 Disposition of sample units. Sample units which have passed all the group A inspection may be delivered on the contract or purchase order, if the lot is accepted and the sample units are still within specified electrical tolerances.

TABLE III. Group A zero defect sampling plan.

Lot size			Sample size
1	-	13	100 percent
14	-	150	13
151	-	280	20
281	-	500	29
501	-	1,200	34
1,201	-	3,200	42
3,201	-	10,000	50
10,001	-	35,000	60
35,001	-	150,000	74
150,001	-	500,000	90
500,001	-	and up	102

4.1.2 Defective characteristics and properties. All dimensional characteristics are considered defective when out of tolerance. All physical and functional properties are considered defective when outside the specified minimum, maximum, or range as applicable. All workmanship characteristics are considered defective when they would be detrimental to the intended use, performance requirements, or environmental survival.

4.2 Methods of inspection.

4.2.1 Visual and mechanical inspection. Electrical surge arrestors shall be examined to verify that the physical dimensions, marking, and workmanship are in accordance with the applicable requirements (see 3.1, 3.2, and 3.10)

4.2.2 DC breakdown voltage. The dc breakdown voltage shall be tested in accordance with IEEE C62.31 and shall be within the tolerances specified in table I herein. DC breakdown voltage tests shall be performed before and after the test performed in 4.2.3.

4.2.3 Maximum single impulse discharge current. Maximum single impulse discharge current shall be tested in accordance with IEEE C62.31 using an 8 by 20 microsecond wave shape, and shall be as specified in table I.

4.2.4 Insulation resistance. The insulation resistance shall be measured at 100 V dc in accordance with MIL-STD-202, method 302.

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 Departments 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. Devices conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application.

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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 conformance that parts have passed conformance inspection with each shipment of parts by the manufacturer.
- c. Whether the manufacturer performs the group A inspection or provides a certificate of compliance with group A requirements.
- d. Requirements for notification of change in product to contracting activity, if applicable.
- e. Requirements for packaging (see 5.1).

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 Environmentally preferable materials. 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>. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see [Section 3](#)).

6.5 Replaceability. Devices covered by this drawing will replace the same commercial device covered by contractor prepared specification or drawing.

6.6 Users of record. Coordination of this document for future revisions is coordinated only with the approved sources 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 [CircuitProtect@dla.mil](mailto:CircuitProtect@dla.mil) or if in writing to: DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0548 or DSN 850-0548.

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6.7 Approved source of supply. An 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 [CircuitProtect@dla.mil](mailto:CircuitProtect@dla.mil), or by contacting DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0548 or DSN 850-0548.

DLA Land and Maritime drawing PIN	Vendor similar designation or type number	Vendor CAGE	Vendor name and address
85123- <u>1/</u>			
01	EP-9016	99747	Teledyne Reynolds, Incorporated 5005 McConnell Avenue Los Angeles, CA 90066-6734 Phone number (310) 823-5491 Facsimile number (310) 822-8046 E-mail: <a href="mailto:aalves@teledyne.com">aalves@teledyne.com</a> URL: <a href="http://www.teledynereynolds.com/">http://www.teledynereynolds.com/</a>
02	EP-9014		

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

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