

1. SCOPE

1.1 Scope. This drawing describes the requirement for a family of extruded aluminum heat sinks.

1.2 Part number. The complete part number shall be as shown in the following example:

84002	-01
<u>Drawing number</u>	<u>Dash number</u>

2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this drawing to the extent specified herein.

SPECIFICATION

FEDERAL

- QQ-A-200 - Aluminum Alloy, Bar Rod, Shapes, Structural Shapes, Tube, and Wire, Extruded; General Specification for.
- QQ-A-250 - Aluminum and Aluminum Alloy Plate and Sheet, General Specification for.

MILITARY

- MIL-A-8625 - Anodic Coatings for Aluminum and Aluminum Alloys.
- MIL-H-87111 - Heat Sinks, Semiconductor Devices, General Specification for.
- MIL-S-19491 - Semiconductor Device, Packaging of.

STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-202 - Test Methods for Electronic and Electrical Component Parts.
- MIL-STD-750 - Test Methods for Semiconductor Devices.
- MIL-STD-1285 - Marking of Electrical and Electronic Parts.
- MIL-STD-45662 - Calibrations Systems Requirements.

FEDERAL

- FED-STD-H28 - Screw Thread Standards for Federal Services.

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2.2 Other publications

American National Standards Institute (ANSI)
ANSI B46.1 Surface Texture

American Society for Testing and Materials (ASTM)
ASTM B110-45 Standard Method of Test for Dielectric
Strength of Anodically Coated Aluminum

Electronics Industries Association (EIA)
CB 5 & 5.1 Recommended Test Procedures for
(Components Semiconductor Thermal Dissipating
Bulletin) Devices

Department of Defense
DoD-D-1000 Drawing, Engineering and Associated List

3. REQUIREMENTS

3.1 Quality conformance inspection. Heat sinks shall be products that have been inspected and passed the quality conformance inspection.

3.2 Design, construction, and dimensions. Design, construction, and dimensions of the heat sinks shall be as specified on this drawing.

3.3 Threaded parts. Screw threads shall be in accordance with Handbook H-28 and shall be as specified on drawing.

3.4 Mounting surface flatness. The maximum allowable deviation from flat on semiconductor mounting surfaces shall not exceed .004 inch per inch TIR.

3.5 Surface roughness. Mounting surface roughness shall not exceed 63 microinches rms.

3.6 Marking. Marking shall be in accordance with method I of MIL-STD-1285 except that heat sinks themselves shall not be marked; the marking shall appear on the unit package or on a tag attached to the unit package.

3.7 Workmanship. Heat sinks shall be processed in such a manner as to be uniform in quality and shall be free from surface and finish flaws that will affect life and serviceability. Heat sinks shall be finished smooth and shall have rounded edges with no evidence of chipping, cracking, deterioration, disintegration, or burrs.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this drawing where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-C-45662.

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4.2 Classification of inspections. The inspections specified herein are classified as follows:

- a. Materials and finishes inspection.
- b. Quality conformance inspection.

4.3 Materials and finishes inspection. Materials and finishes inspection shall consist of certification supported by verifying data that the materials and finishes listed in table I, used in fabricating and finishing the components, are in accordance with the applicable drawing or requirements prior to such fabrication.

TABLE I. Materials and finishes inspection.

Material of finish	Requirement paragraph	Applicable specification
Aluminum or aluminum alloy	---	QQ-A-200 or QQ-A-250
Anodized (black)	---	MIL-A-8625, Type II, class 2

4.4 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the "GENERAL REQUIREMENTS" of MIL-STD-202.

4.5 Quality conformance inspection.

4.5.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection per MIL-H-87111.

4.5.2 Period inspection. Periodic inspection shall consist of group B and group C inspection per MIL-H-87111. Except where the results of this inspection show noncompliance with the applicable requirements delivery of products which have passed group A inspection shall not be delayed pending the results of the periodic inspection.

4.5.3 Inspection of packaging. The sampling and inspection of the preservation-packaging, packing and container marking shall be in accordance with the requirements for semiconductor accessories in MIL-S-19491.

4.6 Methods of inspection.

4.6.1 Visual and dimensional inspection. Heat sinks shall be examined to verify that the design, construction, physical dimensions, marking, and workmanship are in accordance with the applicable requirements (see 3.1, 3.2, 3.5, and 3.6.)

4.6.2 Mounting surface flatness (see 3.4). Mounting surface flatness shall be measured in accordance with ANSI B46.1.

4.6.3 Surface roughness (see 3.5). Mounting surface roughness shall be measured in accordance with ANSI B46.1.

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5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with the requirements for semiconductor accessories in MIL-S-19491.

6. NOTES

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.

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

- a. Complete part number (see 1.2).
- b. Requirements for delivery of one copy of the quality conformance inspection data with each shipment of parts by the manufacturer (when applicable, see 4.1.2).
- 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 procuring activity, if applicable.
- e. Requirements for packaging and packing.

6.3 Replaceability. Replaceability is determined as follows:

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

DESC drawing part number	FSCM and part number		
	97942	08730	05820
84002-01	579R956H01	6094-1	A3031-H01
" -02	" H02	6094-2	" -H02
" -03	" H03	6094-3	" -H03
" -04	" H04	6094-4	" -H04
" -05	" H05	6094-5	" -H05
" -06	" H06	6094-6	" -H06
" -07	" H07	6094-7	" -H07

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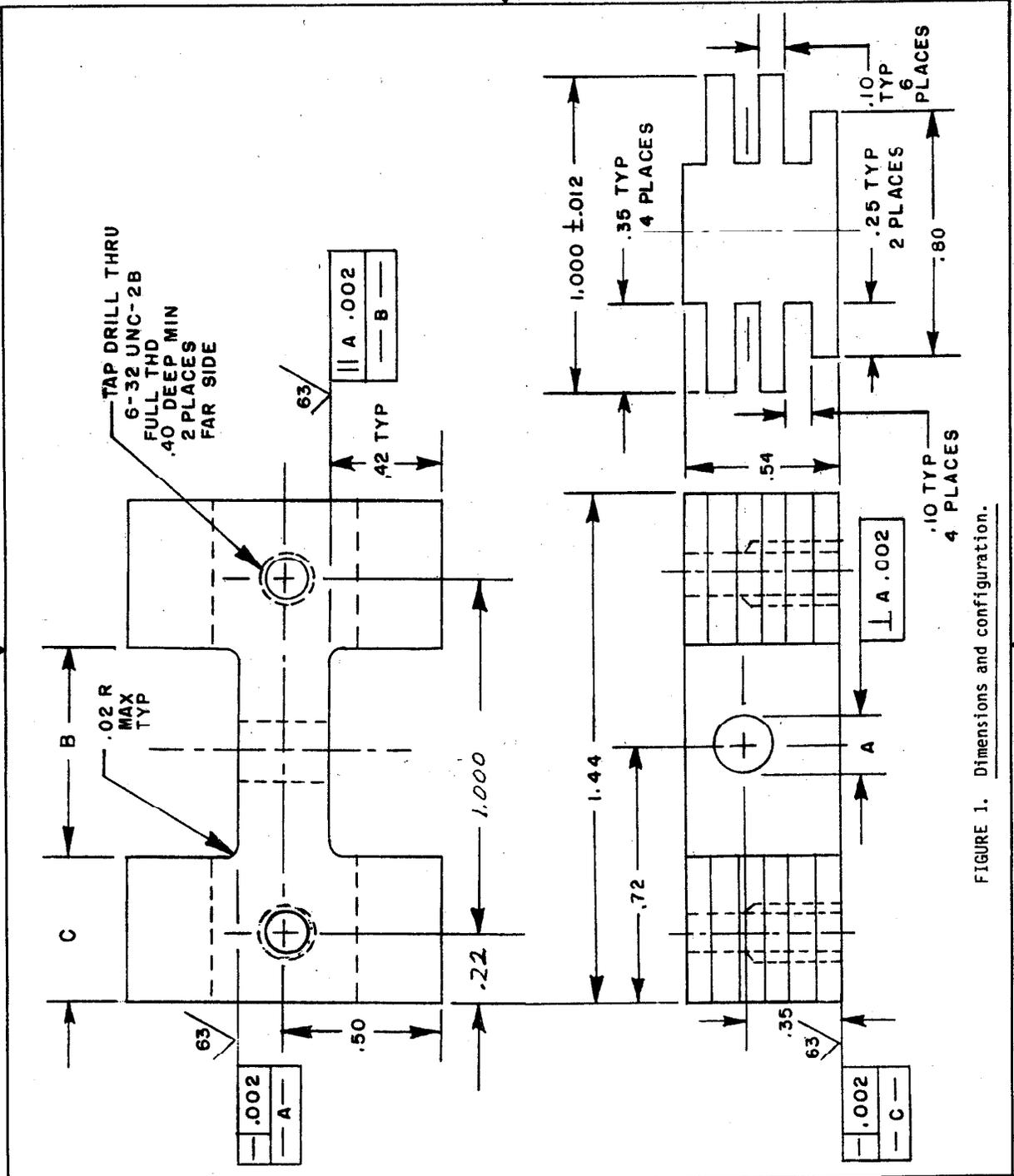


FIGURE 1. Dimensions and configuration.

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INCHES	MM	INCHES	MM
.002	.05	.348	8.84
.012	.30	.35	8.9
.02	.5	.380	9.65
.10	2.5	.42	10.7
.110	2.79	.50	12.7
.178	4.52	.54	13.7
.190	4.83	.680	17.27
.196	4.98	.72	18.3
.197	5.00	.750	19.05
.220	5.59	.80	20.3
.22	5.6	1.000	25.40
.25	6.4	1.060	26.92
.257	6.53	1.095	27.81
.294	7.47	1.220	30.99
.345	8.76	1.44	36.6

Dash Number	A	B	C
01	.196	.680	.380
02	.257	.750	.345
03	.257	1.000	.220
04	.348	1.000	.220
05	.197	1.000	.220
06	.294	1.000	.220
07	.294	.750	.345

NOTES:

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

FIGURE 1. Dimensions and configuration - Continued.

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6.4 Suggested Sources of Supply. 1/

DESC Drawing Part Number	Vendor FSCM and Part Number <u>2/</u>
	08730
84002-01	HS-10066-01
-02	" -02
-03	" -03
-04	" -04
-05	" -05
-06	" -06
-07	" -07

1/ Additional suggested sources of supply will be added as they become available. For assistance in the use of this drawing, contact DESC-E, 1507 Wilmington Pike, Dayton, OH 45444, or telephone (513) 296-651.

2/ CAUTION. DO NOT USE THIS NUMBER FOR ITEM PROCUREMENT AND MARKING. THE SIMILAR VENDOR TYPE MAY NOT SATISFY THE REQUIREMENTS OF THIS DRAWING.

Vendor FSCM

Vendor

08730

Ostby and Barton Co.
Vemaline Products Division
487 Jefferson Blvd.
Warwick, RI 02886

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