

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Para 3.4.6, changed insulation resistance requirements. TABLE I, changed insertion loss requirements for -010, -011, and -013. Para 6.4, changed vendor style numbers	85-01-09	Ivan R. Jones
B	Para 3.7, changed manufacturer eligibility requirement. Dimensional changes. TABLE I, changed insertion loss limits on several dash numbers. Changed dc resistance and voltage drops on -017 through -019. Added another suggested source of supply. Editorial changes throughout.	87-08-25	David E. Moore
C	Figure 1, changed tolerance on terminal slot major dimension. Added cataloging information.	88-12-05	David E. Moore
D	Added another suggested source of supply.	90-06-04	David E. Moore
E	Added a suggested source of supply. Editorial changes throughout.	91-11-14	David E. Moore
F	Page 2 - Changed PIN to include case finish Para 3.1.3, added case finish options; prohibited pure tin as a case finish. Pages 4 and 6 - Added three new part numbers. Page 7 - Added para to explain prohibition of pure tin; added supersession table. Page 8 - Removed source of supply.	94-11-1	B. Boulter
G	Changes in accordance with NOR 59GP-R001-9B	98-03-24	David E. Moore
H	Editorial changes throughout. Page 2 - Added paragraph 2.1. Paragraph 3.1.3; removed reference to MIL-T-10727. Added text to include prohibition of pure tin on the hardware and as an undercoat.	28 OCT 2003	Kendall A. Cottongim
J	Changed drawing type to Source Control. Added new pure tin prohibition paragraph; 3.1.3 Corrected the terminal flag position. Editorial changes.	19 AUG 2009	Michael A. Radecki
K	Editorial changes, add QR code and update vendor's list.	25 JUN 2015	Michael A. Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3
DEFENSE LOGISTICS AGENCY
DEFENSE SUPPLY CENTER COLUMBUS
COLUMBUS, OHIO 43216-5000



Prepared in accordance with ASME Y14.100

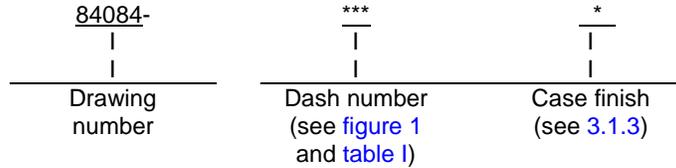
REV STATUS OF PAGES	REV	K	K	K	K	K	K	K	K	K								
	PAGES	1	2	3	4	5	6	7	8	9								

PMIC N/A	PREPARED BY Randy Larson	DESIGN ACTIVITY DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OH 45444-5000	
Original date of drawing 11 July 1984	CHECKED BY Randy Larson	TITLE FILTERS AND CAPACITORS, RADIO FREQUENCY/ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY SEALED	
	APPROVED BY Ivan R. Jones		
	SIZE A	CODE IDENT. NO. 14933	DWG NO. 84084
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1. SCOPE

1.1 Scope. This drawing and MIL-PRF-28861 describe the complete requirements for radio frequency/electromagnetic interference suppression, hermetically sealed filters and capacitors.

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



(NOTE: The PIN has been revised with revision F of this drawing to include a case finish option (see 3.1.3). For supersession data, see 6.6).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this drawing. This section does not include documents cited in other sections of this drawing 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 cited in sections 3 and 4 of this drawing, 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 drawing 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-28861 - Filters and Capacitors, Radio Frequency/Electromagnetic Interference Suppression, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-220 - Method of Insertion Loss Measurement.
MIL-STD-1285 - Marking of Electrical and Electronic Parts.

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

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this drawing 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 in MIL-PRF-28861 and herein.

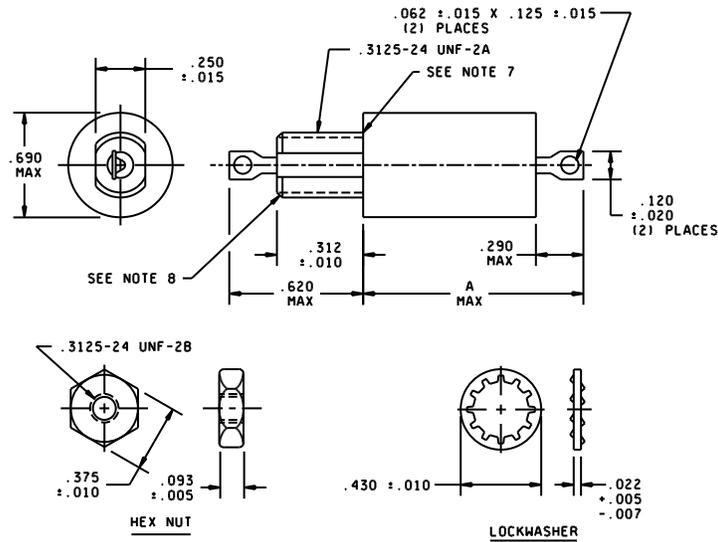
3.1.1 Terminals. Terminals shall be solderable.

3.1.2 Case dimensions. The case dimensions shall be in accordance with figure 1.

3.1.3 Pure tin prohibition. The use of pure tin is prohibited internally and externally as specified in MIL-PRF-28861.

3.1.4 Case and hardware finish. T (tin plated or tin-lead plated), S (silver plated), or G (gold plated), in accordance with MIL-PRF-28861. Pure tin finish is prohibited as a final finish and as an undercoat. When used, tin plating shall have a minimum lead content of 3 percent (see MIL-PRF-28861).

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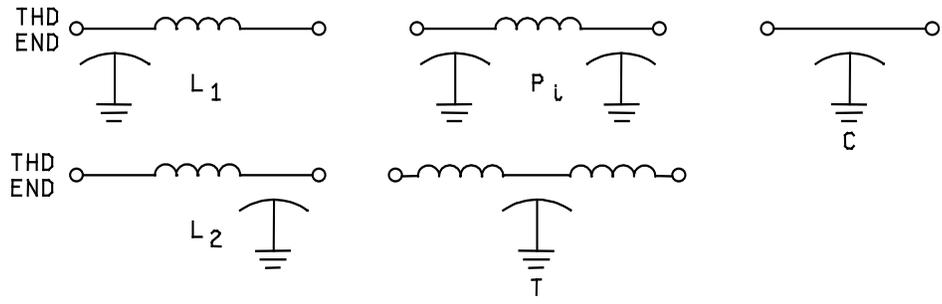


MOUNTING HARDWARE

Inches	mm	Inches	mm
.005	0.13	.250	6.35
.007	0.17	.290	7.36
.010	0.25	.312	7.92
.015	0.38	.3125	7.937
.020	0.51	.375	9.53
.022	0.56	.430	10.92
.035	0.89	.620	15.75
.062	1.57	.690	17.52
.093	2.36	.700	17.78
.120	3.05	1.060	26.92
.125	3.18	1.205	30.61
		1.400	35.56

FIGURE 1. Case dimensions and circuit configurations.

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CIRCUIT DIAGRAMS

PIN 84084-	A max	PIN 84084-	A max
001*	.700	012*	1.205
002*	1.060	013*	1.205
003*	1.060	014*	1.205
004*	1.060	015*	1.205
005*	1.060	016*	1.205
006*	1.060	017*	1.400
007*	1.060	018*	1.400
008*	1.060	019*	1.400
009*	1.060	020*	.700
010*	1.060	021*	.700
011*	1.060	022*	.700

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Circuit diagram is for information only.
4. All filters shall be supplied with mounting hardware (hex nut and lockwasher). Mounting hardware shall be furnished with the same finish as the filter case.
5. Terminal identification (nonsymmetrical filters): The case shall be marked at the threaded end of the filter, with the symbol "C" or the symbol "L", as follows, or the circuit diagram shall be marked on the case.

Circuit	Symbol
L ₁	C
L ₂	L

6. Recommended mounting torque: 60 oz-in ±4 oz-in.
7. Imperfect thread or undercut optional .062 inch (1.57 mm) maximum.
8. One imperfect thread allowed .035 inch (0.89 mm) maximum.

FIGURE 1. Case and hardware dimensions and circuit diagrams - Continued.

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- 3.1.5 Weight. The weight shall be as follows:
- 19 grams, maximum for dash number 001, 020, 021, and 022.
 - 21 grams, maximum for dash numbers 002 through 011.
 - 30 grams, maximum for dash numbers 012 through 019.
- 3.2 Operating temperature range. The operating temperature range shall be -55°C to +125°C.
- 3.3 Temperature rise. The temperature rise shall be +25°C maximum.
- 3.4 Electrical characteristics.
- 3.4.1 Rated voltage. The rated voltage shall be 400 volts dc and 230 volts ac rms.
- 3.4.2 Rated current. The rated current shall be in accordance with [table I](#).
- 3.4.3 Rated frequency. The rated frequency shall be dc to 400 Hz.
- 3.4.4 Capacitance. See [table I](#).
- 3.4.5 Voltage and temperature limits of capacitance. +15, -40 percent.
- 3.4.6 Insulation resistance.
- At +25°C: 1,000 megohms minimum.
 - At +125°C: 100 megohms minimum.
- 3.4.7 Insertion loss.
- At +25°C: In accordance with [table I](#).
 - At -55°C and +125°C: A 2 dB degradation from the +25°C value shall be allowed except at 1 GHz.
- 3.4.8 Voltage drop. Voltage drop shall be in accordance with [table I](#).
- 3.4.9 DC resistance. DC resistance shall be in accordance with [table I](#).
- 3.4.10 Seal. In accordance with [MIL-PRF-28861](#), class B.
- 3.4.11 Solderability of terminals. In accordance with [MIL-PRF-28861](#).
- 3.5 Product assurance level. Class B only.
- 3.6 Marking. Marking shall be in accordance with [MIL-STD-1285](#) except the PIN shall be as specified in [1.2](#) with the manufacturer's name or code, date code, voltage rating, current rating, and terminal identification.
- 3.7 Manufacturer eligibility. To be eligible for listing as an approved source of supply, a manufacturer shall be listed on the [MIL-PRF-28861](#) qualified products list for at least one part or perform first article inspection in accordance with the [MIL-PRF-28861](#) qualification inspection requirements for class B.
- 3.8 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply (see [6.3](#)).
- 3.9 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.
- 3.10 Workmanship. Parts shall be uniform in quality and free from any defects that will affect life, serviceability, or appearance.

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TABLE I. Electrical characteristics.

PIN 84084-	Circuit	Voltage drop maximum		Maximum rated current (amps)	Capaci- tance (μ F) -0, +100%	DC resistance (ohms) maximum	Minimum insertion loss (dB) in accordance with MIL-STD-220 1/ 2/						
		Volts ac rms	Volts dc				100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz
001*	C	.14	.12	15	.15	.008	7	10	16	26	40	52	70
002*	L1	.47	.165	0.5	.15	.330	18	24	32	50	60	70	70
003*	L2	.47	.165	0.5	.15	.330	18	24	32	50	60	70	70
004*	L1	.47	.15	1.0	.15	.150	12	19	30	46	60	70	70
005*	L2	.47	.15	1.0	.15	.150	12	19	30	46	60	70	70
006*	L1	.32	.078	3.0	.15	.026	7	11	19	36	60	70	70
007*	L2	.32	.078	3.0	.15	.026	7	11	19	36	60	70	70
008*	L1	.21	.065	5.0	.15	.013	7	10	16	28	54	70	70
009*	L2	.21	.065	5.0	.15	.013	7	10	16	28	54	70	70
010*	L1	.12	.08	10.0	.15	.008	7	10	16	25	48	70	70
011*	L2	.12	.08	10.0	.15	.008	7	10	16	25	48	70	70
012*	Pi	.47	.165	0.5	.20	.330	24	34	52	80	80	80	80
013*	Pi	.47	.15	1.0	.20	.150	16	27	46	74	80	80	80
014*	Pi	.32	.078	3.0	.20	.026	---	---	30	60	80	80	80
015*	Pi	.21	.065	5.0	.20	.013	---	---	12	50	80	80	80
016*	Pi	.12	.08	10.0	.20	.008	---	---	---	30	80	80	80
017*	T	.22	.07	1.0	.15	.07	6	12	25	48	70	70	70
018*	T	.32	.10	2.0	.15	.05	6	10	18	40	64	70	70
019*	T	.22	.12	4.0	.15	.03	6	10	16	31	58	70	70
020*	C	.14	.12	15	.01	.008	---	---	---	2	20	40	60
021*	C	.14	.12	15	.0027	.008	---	---	---	---	10	28	50
022*	C	.14	.12	15	.001	.008	---	---	---	---	2	20	35

1/ Insertion loss measurements shall be made under full load over the frequency range of 100 kHz to 10 MHz. Insertion loss measurements above this frequency range shall be made under no load.

2/ The insertion loss requirements between any two adjacent specified frequencies shall be that of the lower of the two frequencies in order to accommodate resonant dips.

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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 groups A and B inspections of [MIL-PRF-28861](#).

4.2.2 Certification. The acquiring activity, at its discretion, may accept a certificate of compliance with group B requirements in lieu of performing group B tests (see [6.3c](#)).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see [6.3](#)). 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 activity within the Military Department 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 which may be helpful, but is not mandatory.)

6.1 Intended use. Filters 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. This drawing is intended exclusively to prevent the proliferation of unnecessary duplicate specifications, drawings, and stock catalog listings. When a military specification exists and the product covered by this drawing has been qualified for listing on QPL-28861, this drawing becomes obsolete and will not be used for new design. The QPL-28861 product shall be the preferred item for all applications.

6.2 Tin whisker growth. Pure tin plating is prohibited since it may result in 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 Coating of Tin).

6.3 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 with each shipment of parts by the manufacturer.
- c. Whether the manufacturer performs the group B tests or provides certification of compliance with group B requirements.
- d. Requirements for notification of change of product to acquiring activity, if applicable.
- e. Requirements for packaging and packing.

6.4 Replaceability. Filters covered by this drawing will replace the same commercial device covered by a contractor-prepared specification or drawing.

6.5 Cataloging information. Dash number 001* and 020* through 022* shall be cataloged under FSC 5910 as a feed-through ceramic capacitor. Dash numbers 002* through 019* shall be cataloged under FSC 5915 as radio frequency interference filters.

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6.6 Supersession data. Table II provides a list of supersession data from previous revisions to the superseding PIN of revision F and later. The superseding PIN indicates only the "T" case finish since that was the only case finish available prior to revision F.

TABLE II. Supersession data.

Superseded PIN	Superseding PIN
84084-	84084-
001	001T
002	002T
003	003T
004	004T
005	005T
006	006T
007	007T
008	008T
009	009T
010	010T
011	011T
012	012T
013	013T
014	014T
015	015T
016	016T
017	017T
018	018T
019	019T

6.7 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 capacitorfilter@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) 692-0551 or DSN 850-0551.

6.8 Approved sources of supply. Approved source(s) 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 capacitorfilter@dla.mil, or by contacting DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990 or by telephone (614) 692-0551 or DSN 850-0551.

DLA Land and Maritime drawing PIN 1/ 84084-	Vendor CAGE number	Similar vendor type	Vendor CAGE number	Similar vendor type
001*	59942	JD1EB-154M*	13619	RF12719-1
002*	59942	JD2EB-R07M*	13619	RF12719-2
003*	59942	JD2EB-S07M*	13619	RF12719-3
004*	59942	JD2EB-R08M*	13619	RF12719-4
005*	59942	JD2EB-S08M*	13619	RF12719-5
006*	59942	JD2EB-R10M*	13619	RF12719-6
007*	59942	JD2EB-S10M*	13619	RF12719-7
008*	59942	JD2EB-R11M*	13619	RF12719-8
009*	59942	JD2EB-S11M*	13619	RF12719-9
010*	59942	JD2EB-R12M*	13619	RF12719-10
011*	59942	JD2EB-S12M*	13619	RF12719-11
012*	59942	JD3EB-P07M*	13619	RF12719-12
013*	59942	JD3EB-P08M*	13619	RF12719-13
014*	59942	JD3EB-P10M*	13619	RF12719-14
015*	59942	JD3EB-P11M*	13619	RF12719-15
016*	59942	JD3EB-P12M*	13619	RF12719-16
017*	59942	JD4EB-T08M*	13619	RF12719-17
018*	59942	JD4EB-T09M*	13619	RF12719-18
019*	59942	JD4EB-T16M*	13619	RF12719-19
020*	59942	JD1EB-103M*	13619	RF12719-20
021*	59942	JD1EB-272M*	13619	RF12719-21
022*	59942	JD1EB-102M*	13619	RF12719-22

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

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Vendor CAGE
number

Vendor name and address

59942

AVX Filters Corporation
11144 Penrose Street
Sun Valley, CA 91352

13619

EMS Development Corp. (Formally RFI Corp.)
95 Horseblock Rd., Unit 2,
Yaphank, NY, 11980

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