

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	Page 5 - Paragraph 3.4.y, changed insulation resistance requirements. Page 6 - TABLE I, changed measurement frequencies for insertion loss at -55°C and +125°C. Page 7 - Paragraph 6.4, changed vendor style numbers.	9 Jan 85	Ivan R. Jones
B	Pages 3 and 4 - Dimensional changes. Page 5 - Paragraph 3.7, changed manufacturer eligibility requirement. Page 6 - TABLE I, changed insertion loss limits on several dash numbers. Changed dc resistance and voltage drops on -017 through -019.	25 Aug 87	David E. Moore
C	Page 8 - Added another suggested source of supply.	4 Jun 90	David E. Moore
D	Added suggested source of supply. Editorial changes throughout.	14 Nov 91	David E. Moore
E	Page 2 - Changed PIN to include case finish option. Paragraph 3.1.3, added case finish options; prohibited use of pure tin as a case finish. Page 7 - Added paragraph to explain prohibition of pure tin; added supersession table. Editorial changes throughout.	2 May 94	David E. Moore
F	Editorial changes throughout. Removed a source of supply.	22 Aug 2000	K. A. Cottongim
G	Editorial changes throughout.	14 Sep 2005	K. A. Cottongim
H	Editorial changes throughout	2 Dec 2010	M. Radecki

CURRENT DESIGN ACTIVITY CAGE CODE 037Z3
HAS CHANGED NAMES TO:
DLA LAND AND MARITIME
COLUMBUS, OHIO 43218-3990

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

Source control drawing

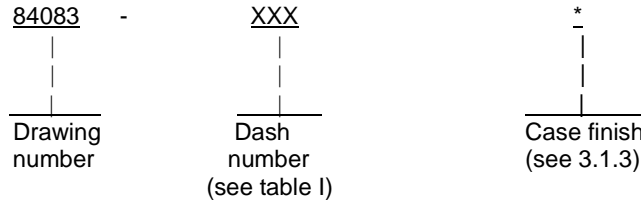
REV STATUS OF PAGES	REV	H	H	H	H	H	H	H	H	H								
	PAGES	1	2	3	4	5	6	7	8	9								

PMIC N/A	PREPARED BY Randy Larson	DESIGN ACTIVITY DEFENSE ELECTRONICS SUPPLY CENTER, DAYTON, OH
Original date of drawing 11 Sep 84	CHECKED BY David E. Moore	TITLE FILTERS AND CAPACITORS, RADIO FREQUENCY/ ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY SEALED
	APPROVED BY Randy Larson	
SIZE A	CODE IDENT. NO. 14933	DWG NO. 84083
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1. SCOPE

1.1 Scope. This drawing and MIL-PRF-28861 describe the 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 E of this drawing to include a case finish option (see 3.1.3). For supersession data, see 6.7).

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 in sections 3 and 4 of this drawing, whether or not they are listed here.

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 6.3).

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 <https://assist.daps.dla.mil/quicksearch/> or from the Standardization Document Order Desk, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. Unless otherwise stated herein or in the contract, 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

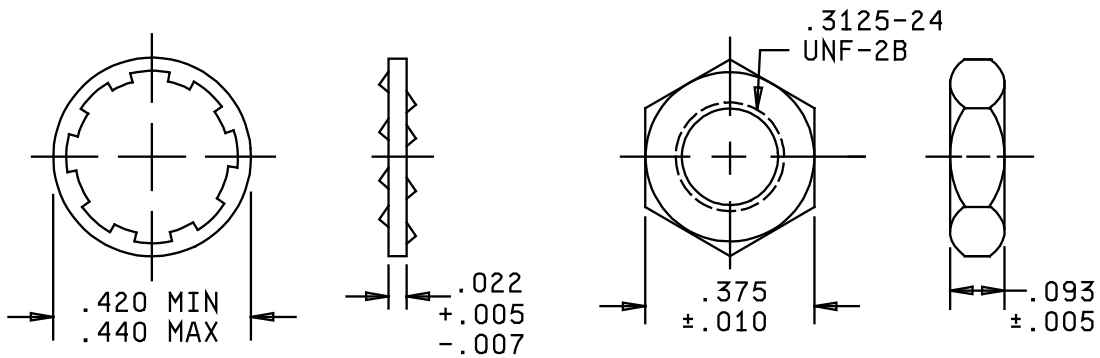
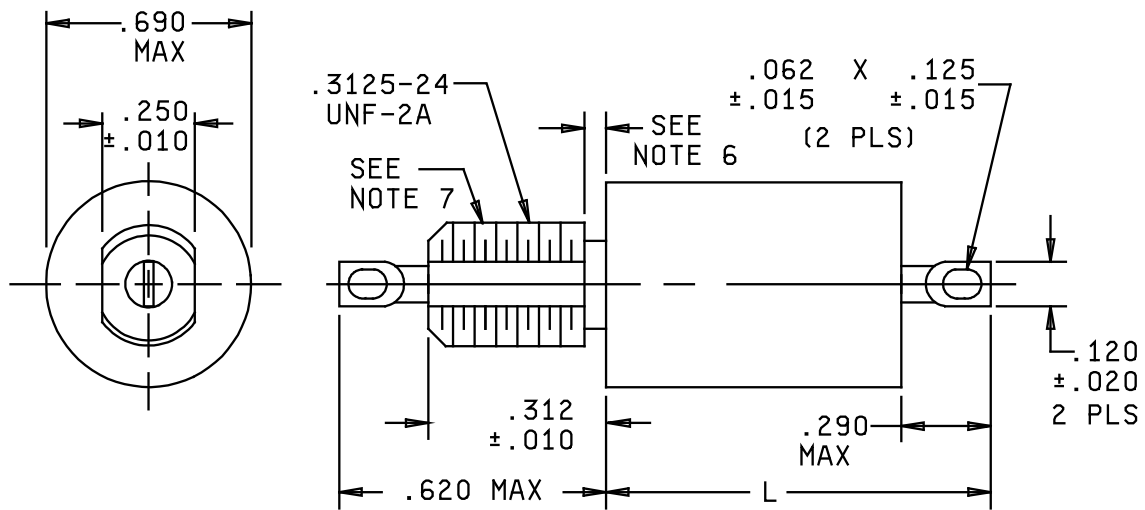
3.1 Interface and physical dimensions. The interface and physical dimensions shall be as specified in MIL-PRF-28861 and herein.

3.1.1 Terminals. Terminals shall be solderable and in accordance with figure 1.

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

3.1.3 Finish. The case and lead finish shall be T (tin-lead plated), S (silver plated), or G (gold plated), in accordance with MIL-PRF-28861. (NOTE: Pure tin finish is prohibited after 4 November 1994 (see 6.2). Pure tin is prohibited as specified in MIL-PRF-28861. Finish T, tin-lead plating, shall have a minimum lead content of 3 percent.)

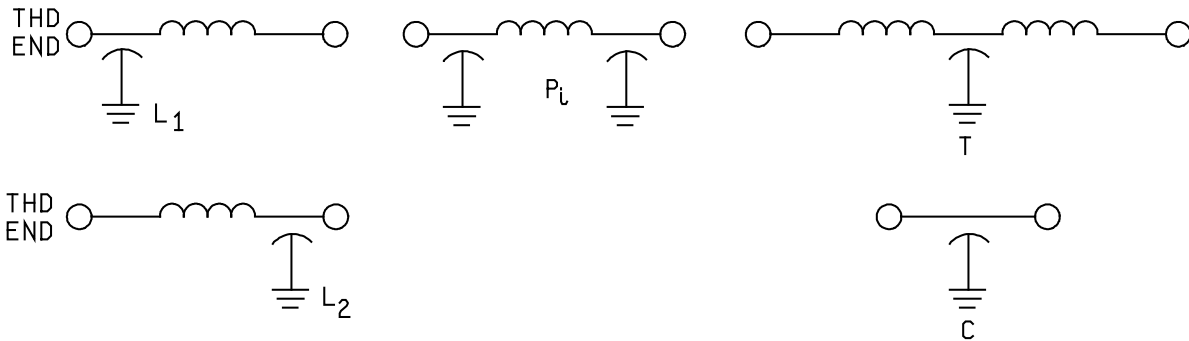
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LOCKWASHER

HEX NUT

MOUNTING HARDWARE



CIRCUIT DIAGRAMS

FIGURE 1. Case and hardware dimensions and circuit diagrams.

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PIN 84083-	L dimension max	Weight (grams) maximum
001*	.700	18.0
002*	1.060	20.0
003*	"	"
004*	"	"
005*	"	"
006*	"	"
007*	"	"
008*	"	"
009*	"	"
010*	"	"
011*	"	"
012*	1.205	29.0
013*	"	"
014*	"	"
015*	"	"
016*	"	"
017*	1.400	"
018*	"	"
019*	"	"

Inches	mm	Inches	mm	Inches	mm
.005	0.12	.120	3.04	.440	11.17
.007	0.17	.125	3.17	.620	15.74
.010	0.25	.250	6.35	.690	17.52
.015	0.38	.290	7.36	.700	17.78
.020	0.50	.312	7.92	1.060	26.92
.022	0.55	.3125	7.93	1.205	30.60
.062	1.57	.375	9.52	1.400	35.56
.093	2.36	.420	10.66		

NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only.
- Circuit diagram is for information only.
- 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.
- Terminal identification (non-symmetrical 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

- Imperfect thread or undercut optional .062 inch (1.57 mm) maximum.
- One imperfect thread allowed .035 inch (0.89 mm) maximum.
- Recommended mounting torque: 60 ounce-inches ± 4 ounce-inch.

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

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3.1.4 Weight. The maximum weight shall be as specified on figure 1.

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 +125 volts ac at maximum rated frequency and 300 volts dc.

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 Insertion loss. The insertion loss shall be in accordance with table I.

3.4.5 Voltage and temperature limits of capacitance. +15, -40 percent.

3.4.6 DC resistance. The dc resistance shall be in accordance with table I.

3.4.7 Insulation resistance.

a. At +25°C: 1,000 megohms minimum.

b. At +125°C: 100 megohms minimum.

3.4.8 Voltage drop. The voltage drop shall be as specified in table I.

3.4.9 Capacitance to ground. Capacitance to ground shall be as specified in table I.

3.5 Environmental and mechanical requirements. The environmental and mechanical requirements shall be in accordance with [MIL-PRF-28861](#) for class B, hermetically sealed filters.

3.6 Product assurance level. Level B only.

3.7 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.

3.8 Manufacturer eligibility. To be eligible for listing as a suggested 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.

3.9 Certificate of compliance. A certificate of compliance shall be required from manufacturers requesting to be a suggested source of supply.

3.10 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.

3.11 Workmanship. Filters and capacitors shall be processed in such a manner as to be uniform in quality and shall be free from cold soldering, corrosion, pits, dents, cracks, rough sharp edges, misalignments, and other defects that will affect life, serviceability, or appearance. Cracks in glass seals are not allowed, however, minor meniscus crazing is acceptable.

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TABLE I. Electrical characteristics.

PIN 84083-	Circuit	Maximum rated current (A)	Capacitance -0, +100 percent (μ F)	Maximum voltage drop		Maximum dc resistance (ohms)	Minimum insertion loss (dB) in accordance with MIL-STD-220 1/ 2/																	
							At +25°C									At -55°C and +125°C								
							50 kHz	100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz	50 kHz	100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz		
001*	C	15	.30	.14	.12	.008	7	13	16	22	32	46	58	70	5	11	14	20	30	44	56	70		
002*	L ₁	0.5	.30	.47	.165	.33	13	23	28	40	60	60	70	70	11	21	26	38	58	58	70	70		
003*	L ₂																							
004*	L ₁	1.0	.30	.47	.15	.15	6	18	24	37	56	60	70	70	4	16	22	35	54	58	70	70		
005*	L ₂																							
006*	L ₁	3.0	.30	.32	.078	.026	7	13	17	24	42	70	70	70	5	11	15	22	40	70	70	70		
007*	L ₂																							
008*	L ₁	5.0	.30	.21	.065	.013	7	13	16	22	34	68	70	70	5	11	14	20	32	66	70	70		
009*	L ₂																							
010*	L ₁	10.0	.30	.12	.08	.008	7	13	16	20	30	56	70	70	5	11	14	18	28	54	70	70		
011*	L ₂																							
012*	Pi	0.5	.36	.47	.165	.33	14	34	44	62	80	80	80	80	12	32	42	60	80	80	80	80		
013*	Pi	1.0	.36	.47	.15	.15	---	26	37	56	80	80	80	80	---	24	35	54	80	80	80	80		
014*	Pi	3.0	.36	.32	.078	.026	---	---	18	40	70	80	80	80	---	---	16	38	68	80	80	80		
015*	Pi	5.0	.36	.21	.065	.013	---	---	---	25	60	80	80	80	---	---	---	23	58	80	80	80		
016*	Pi	10.0	.36	.12	.08	.008	---	---	---	---	50	80	80	80	---	---	---	---	48	80	80	80		
017*	T	1.0	.30	.22	.07	.07	6	13	18	28	58	70	70	70	4	11	16	26	56	70	70	70		
018*	T	2.0	.30	.32	.10	.05	6	12	16	22	37	70	70	70	4	10	14	20	35	70	70	70		
019*	T	4.0	.30	.22	.12	.03	6	12	16	20	34	70	70	70	4	10	14	18	32	70	70	70		

1/ Insertion loss measurements shall be made under full load over the frequency range of 100 kHz to 10 MHz. Insertion loss measurements above and below this frequency range shall be 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 certification of compliance with group B requirements in lieu of performing group B tests (see 6.3c).

5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.3). When actual 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 services' system commands. 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. 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 plated finish. Pure tin is prohibited since it may result in tin whisker growth. The use of alloys with tin content greater than 97 percent 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 or certificate of compliance that parts have passed conformance inspection 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 (see 5.1).

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

6.5 Cataloging information. Dash number 001* 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 Users of record. Military and industry users of his drawing should inform DLA Land and Maritime when a system application requires configuration control. DLA Land and Maritime-VA will maintain a record of users and this list will be used for coordination and distribution of changes to this drawing. 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 should be in writing to: DLA Land and Maritime, ATTN: VAT, PO Box 3990, Columbus, OH 43218-3990, by e-mail to capacitorfilter@dla.mil, or by telephone (614) 692-4709.

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

TABLE II. Supersession data.

Superseded PIN	Superseding PIN
84083-	84083-
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

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6.8 Approved sources of supply. The approved sources of supply are listed herein. Additional sources will be added as they become available. For assistance in the use of this drawing, contact DLA Land and Maritime-VAT, PO Box 3990, Columbus, OH 43218-3990, by e-mail to capacitorfilter@dla.mil, or by telephone (614) 692-4709.

DSCC drawing 84083-	Vendor CAGE number	Vendor name and address	Similar vendor type <u>1/</u>	Vendor CAGE number	Vendor name and address	Similar vendor type <u>1/</u>
001*	33095	Spectrum Control, Incorporated 2185 West Eighth Street Erie, PA 16505	54-310-041	59942	AVX Filters Corporation 11144 Penrose Street Unit 5 Sun Valley, CA 91352	JD1LB-304M*
002*	"		51-320-150	"		JD2LB-R07M*
003*	"		51-320-151	"		JD2LB-S07M*
004*	"		51-320-152	"		JD2LB-R08M*
005*	"		51-320-153	"		JD2LB-S08M*
006*	"		51-320-154	"		JD2LB-R10M*
007*	"		51-320-155	"		JD2LB-S10M*
008*	"		51-320-156	"		JD2LB-R11M*
009*	"		51-320-157	"		JD2LB-S11M*
010*	"		51-320-158	"		JD2LB-R12M*
011*	"		51-320-159	"		JD2LB-S12M*
012*	"		51-321-392	"		JD3LB-P07M*
013*	"		51-321-393	"		JD3LB-P08M*
014*	"		51-321-394	"		JD3LB-P10M*
015*	"		51-321-395	"		JD3LB-P11M*
016*	"		51-321-396	"		JD3LB-P12M*
017*	"		51-321-664	"		JD4LB-T08M*
018*	"		51-321-665	"		JD4LB-T09M*
019*	"		51-321-666	"		JD4LB-T16M*
001*	66230	Pacific Aerospace and Electronics Incorporated Filter Division 434 Olds Station Road Wenatchee, WA 98801	3148-9083-100B*C			
002*	"		3342-9083-100B*C			
003*	"		3242-9083-100B*C			
004*	"		3343-9083-100B*C			
005*	"		3243-9083-100B*C			
006*	"		3344-9083-100B*C			
007*	"		3244-9083-100B*C			
008*	"		3345-9083-100B*C			
009*	"		3245-9083-100B*C			
010*	"		3346-9083-100B*C			
011*	"		3246-9083-100B*C			
012*	"		3442-9083-100B*C			
013*	"		3443-9083-100B*C			
014*	"		3444-9083-100B*C			
015*	"		3445-9083-100B*C			
016*	"		3446-9083-100B*C			
017*	"		3543-9083-100B*C			
018*	"		3549-9083-100B*C			
019*	"		3540-9083-100B*C			

1/ Parts must be purchased to the DSCC PIN to assure that all performance requirements and tests are met.

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