

INCH-POUND

MIL-PRF-28861/2C  
W/Amendment 1  
23 January 2009  
SUPERSEDING  
MIL-PRF-28861/2C  
10 February 2003

PERFORMANCE SPECIFICATION SHEET

FILTERS, RADIO FREQUENCY/ELECTROMAGNETIC INTERFERENCE  
SUPPRESSION, HERMETICALLY SEALED, STYLE FS20

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and [MIL-PRF-28861](#).

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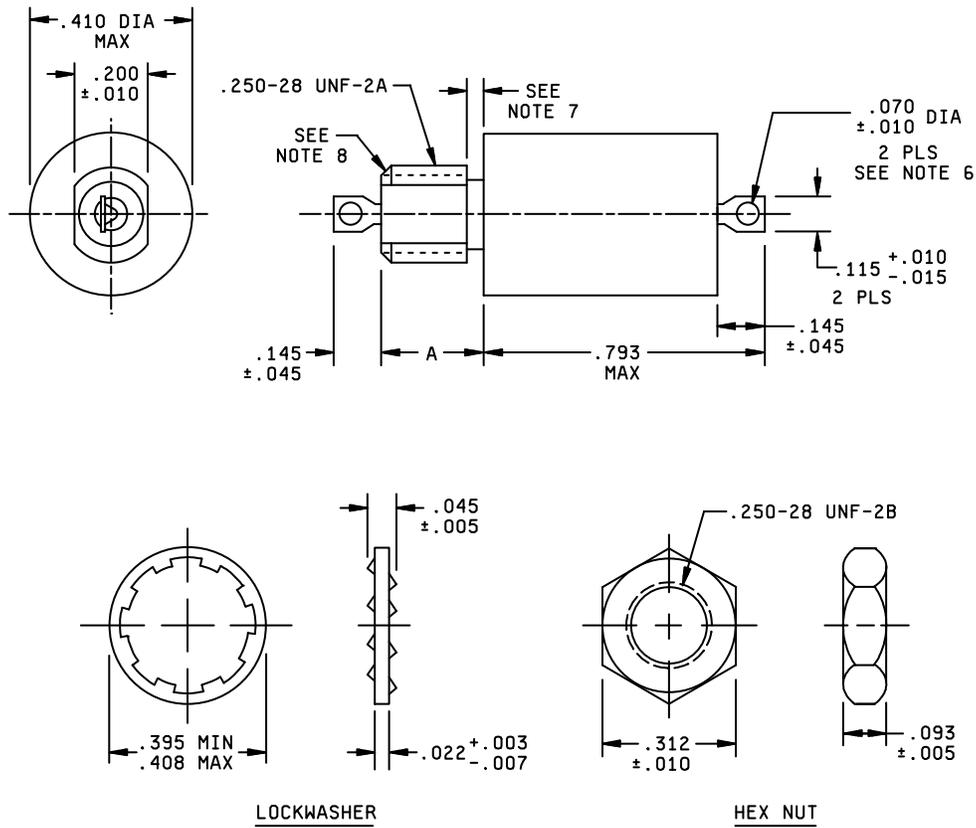
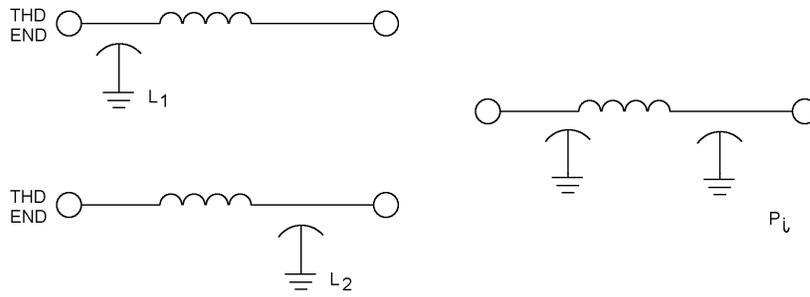


FIGURE 1. Case and hardware dimensions and circuit diagrams.

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CIRCUIT DIAGRAMS

Dash number	A dimension ( $\pm 0.010$ )
001 through 012	.187
013 through 024	.312

Inches	mm	Inches	mm
.003	0.08	.145	3.68
.005	0.13	.187	4.75
.007	0.18	.200	5.08
.010	0.25	.250	6.35
.015	0.38	.312	7.92
.022	0.56	.395	10.03
.045	1.14	.408	10.36
.070	1.78	.410	10.41
.093	2.36	.793	20.14
.115	2.92		

NOTES:

- Dimensions are in inches.
- Metric equivalents are given for general information only.
- Circuit diagrams are 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 (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 <sub>1</sub>	C
L <sub>2</sub>	L

- Optional slot may be supplied,  $.050 \pm 0.010$  inches ( $1.27 \pm 0.25$  mm) x  $.070 \pm 0.010$  inches ( $1.78 \pm 0.25$  mm).
- Imperfect thread or undercut optional  $.050$  inch ( $1.27$  mm) maximum.
- One imperfect thread allowed  $.035$  inch ( $0.89$  mm) maximum.
- Recommended mounting torque: 44 inch-ounce  $\pm 4$  inch-ounces.

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

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REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1.

Weight: 10 grams maximum.

Case finish: T, S, or G in accordance with [MIL-PRF-28861](#) (pure tin finish is prohibited).

Mounting hardware: Shall be furnished with the same finish as the filter case (pure tin finish is prohibited).

Terminals: Solderable.

Operating temperature range: -55°C to +125°C.

Rated voltage: 100 V dc.

Rated current: See table I.

Capacitance: See table I for minimum capacitance value.

Dissipation factor: 3 percent maximum.

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

Insulation resistance:

At +25°C: 1,000 megohms minimum or 1,000 megohm-microfarads minimum, whichever is less.

At +125°C: 100 megohms minimum or 100 megohm-microfarads minimum, whichever is less.

Insertion loss: See table I.

Voltage drop: See table I.

DC resistance: See table I.

Seal: In accordance with [MIL-PRF-28861](#). Leakage rate for class S filters shall not exceed  $1 \times 10^{-7}$  atm cm<sup>3</sup>/s.

Temperature rise: +25°C maximum.

Solderability of terminals: In accordance with [MIL-PRF-28861](#).

Product assurance level: In accordance with [MIL-PRF-28861](#) and table I.

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

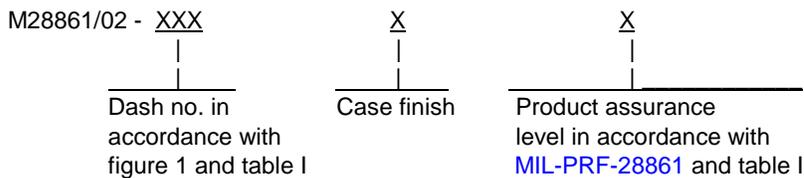


TABLE I. Electrical characteristics.

Dash number	Product assurance level		Circuit	Maximum current (amps)	Minimum capacitance ( $\mu$ F)	Maximum voltage drop (volts)	Maximum DC resistance (ohms)	Minimum insertion loss (dB) in accordance with MIL-STD-220 <u>1/</u> <u>2/</u>															
	Class							At +25°C								At -55°C and +125°C							
	B	S						100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz	100 kHz	150 kHz	300 kHz	1 MHz	10 MHz	100 MHz	1 GHz		
	001, 013	X						X	L1	0.25	0.45	0.375	1.5	30	38	50	60	60	60	70	28	36	48
002, 014	X	X	L2	0.25	0.45	0.375	1.5	30	38	50	60	60	60	70	28	36	48	58	60	60	70		
003, 015	X	X	$\pi$	0.25	0.90	0.375	1.5	54	64	80	80	80	80	80	52	62	78	78	80	80	80		
004, 016	X	X	L1	1.0	0.45	0.250	0.25	15	23	34	55	60	60	70	13	21	32	53	60	60	70		
005, 017	X	X	L2	1.0	0.45	0.250	0.25	15	23	34	55	60	60	70	13	21	32	53	60	60	70		
006, 018	X	X	$\pi$	1.0	0.90	0.250	0.25	40	52	70	80	80	80	80	38	50	68	78	80	80	80		
007, 019	X	X	L1	3.0	0.45	0.150	0.05	14	18	27	45	60	60	70	12	16	25	43	60	60	70		
008, 020	X	X	L2	3.0	0.45	0.150	0.05	14	18	27	45	60	60	70	12	16	25	43	60	60	70		
009, 021	X	X	$\pi$	3.0	0.90	0.150	0.05	---	25	51	80	80	80	80	---	23	49	78	80	80	80		
010, 022	X	X	L1	5.0	0.45	0.075	0.015	14	17	24	36	60	60	70	12	15	22	34	60	60	70		
011, 023	X	X	L2	5.0	0.45	0.075	0.015	14	17	24	36	60	60	70	12	15	22	34	60	60	70		
012, 024	X	X	$\pi$	5.0	0.90	0.075	0.015	---	---	38	75	80	80	80	---	---	36	73	80	80	80		

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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- \* Reference documents. In addition to [MIL-PRF-28861](#), this specification sheet references the following document:

[MIL-STD-220](#)

The margin of this specification sheet is marked with asterisks to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC  
NASA - NA

Preparing activity:  
DLA - CC

(Project 5915-2009-011)

Review activities:

Army - AV, MI  
Navy - AS, MC, OS, SH  
Air Force - 19, 99

- \* NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at <http://assist.daps.dla.mil> .