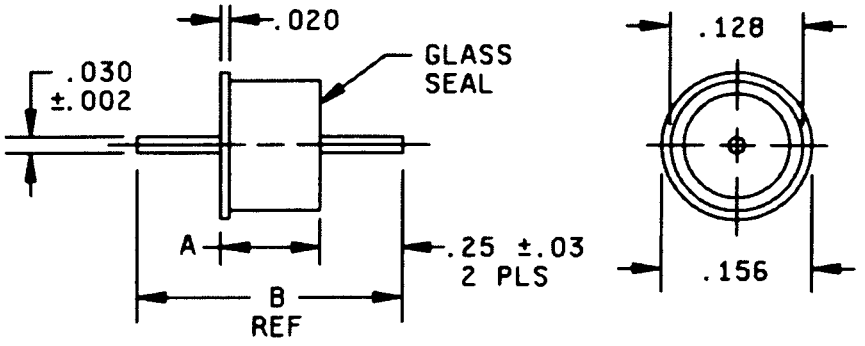
INCH-POUND
MIL-PRF-28861/12E
30 April 1996
SUPERSEDING
MIL-F-28861/12D
23 August 1993

PERFORMANCE SPECIFICATION SHEET

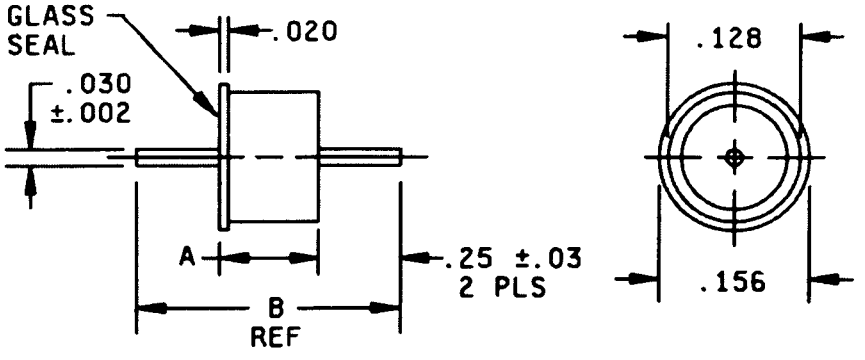
FILTERS AND CAPACITORS, RADIO FREQUENCY/ELECTROMAGNETIC INTERFERENCE SUPPRESSION, HERMETICALLY SEALED ON ONE END ONLY, STYLE FS70

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.



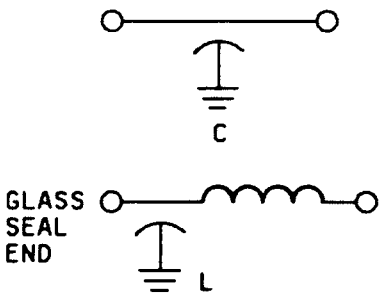
CONFIGURATION A



CONFIGURATION B

(E) denotes changes

FIGURE 1. Case and hardware dimensions and circuit diagrams.



CIRCUIT DIAGRAMS

Dash number	Configuration
001 thru 016, 033 and 034	A
017 thru 032, 035 and 036	B

Circuit diagram	A ±.005	B Ref
L	.200	.715
C	.110	.625

Inches	mm
.002	0.05
.005	0.13
.020	0.51
.030	0.76
.03	0.8
.110	2.79
.128	3.25
.156	3.96
.200	5.08
.25	6.4
.625	15.88
.715	18.16

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±.005 (0.13 mm).
4. Circuit diagrams are for information only.
5. Filters shall be supplied with 60/40 solder preform.
6. Potting on nonhermetically sealed end shall not extend beyond .030 inch (0.76 mm) from the filter body.
7. Filters shall be installed using the recommended installation methods (solder-in style) of MIL-PRF-28861.

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

REQUIREMENTS:

Design and construction:

Dimensions and configuration: See figure 1. Filters and capacitors shall be hermetically sealed on one end as shown on figure 1 for the respective style.

Weight: .25 gram maximum for C circuit parts.
.75 gram maximum for L circuit parts.

Case and lead finish: G only (gold plated).

Terminals: Solderable.

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

Rated voltage: See table I.

Rated current: 5 amperes maximum.

Capacitance: See table I.

Dissipation factor: .2 percent maximum for capacitance values 10 pF through 100 pF and 3 percent maximum for values greater than 100 pF.

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

Insulation resistance:

At +25°C: 1,000 megohm-microfarads or 100,000 megohms minimum, whichever is less.

At +125°C: 100 megohm-microfarads or 10,000 megohms minimum, whichever is less.

Insertion loss:

At +25°C: In accordance with table I.

At -55°C and +125°C: A 3 dB degradation from the +25°C value shall be allowed.

Voltage drop: 0.05 volt maximum.

DC resistance: 0.01 ohm maximum.

Seal: Not applicable.

Temperature rise: +25°C maximum.

Solderability of terminals: In accordance with MIL-PRF-28861, except temperature of solder shall be 300°C +0°C, -5°C.

Resistance to soldering heat: In accordance with MIL-PRF-28861, except temperature of solder shall be 300°C +0°C, -5°C.

Solderability of mounting termination: In accordance with MIL-PRF-28861, except temperature of solder shall be 300°C +0°C, -5°C.

Quality assurance provisions: In accordance with MIL-PRF-28861.

Product assurance level: In accordance with table I.

(E) TABLE I. Electrical characteristics.

Dash Number	Circuit	Product assurance level		Rated voltage volts dc	Capacitance (pF) -0, +100 percent	Minimum insertion loss (dB) in accordance with MIL-STD-220 1/ 2/					Minimum insertion loss at resonant frequency 3/
		Class				1 Mhz	10 Mhz	100 Mhz	1 Ghz	10 Ghz	
		B	S								
001,017 002,018	L C	X X	--- ---	50 50	15,000 15,000	7 7	25 25	42 40	50 50	60 60	35dB 100Mhz-1Ghz
003,019 004,020	L C	X X	X X	100 100	2,700 2,700	--- ---	10 10	25 25	40 40	60 60	---------
005,021 006,022	L C	X X	X X	100 100	5,000 5,000	--- ---	15 15	30 30	45 45	60 60	--------
007,023 008,024	L C	X X	X X	200 200	10 10	--- ---	--- ---	--- ---	5 4	10 10	--------
009,025 010,026	L C	X X	X X	200 200	25 25	--- ---	--- ---	--- ---	10 10	15 15	5dB 1Ghz-10Ghz
011,027 012,028	L C	X X	X X	200 200	100 100	--- ---	--- ---	3 3	20 20	30 30	10dB 1Ghz -10Ghz
013,029 014,030	L C	X X	X X	200 200	500 500	--- ---	--- ---	15 15	30 30	50 50	28dB 1Ghz-10Ghz
015,031 016,032	L C	X X	X X	200 200	1,000 1,000	--- ---	4 4	20 20	33 31	55 55	25dB 1Ghz-10Ghz
033,035 034,036	L C	X X	--- ---	50 50	10,000 10,000	4 4	20 20	38 35	50 48	60 60	35dB 100Mhz-1Ghz

1/ For C circuits, insertion loss measurements shall be made under no load. For L circuits, insertion loss measurements shall be made under full load over the frequency range of 1 MHz to 10 MHz. Insertion loss measurements above this frequency range shall be made under no load.

2/ Except as specified in 3/, 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.

3/ The frequency range in which the resonant frequency dip will occur and the minimum insertion loss at the resonant frequency.

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

M28861/12 - XXX G X

- XXX: Dash no. per figure 1 and table I
- G: Case finish
- X: Product assurance level per MIL-PRF-28861 and table I

Marking: Class B capacitors and filters shall not be marked. Class S filters and capacitors shall be marked with a green dot in accordance with color number 14187 of FED-STD-595. Full marking, in accordance with MIL-PRF-28861, shall be marked on the unit package.

Soldering temperature. Caution: These devices shall not be exposed to soldering temperatures exceeding 300°C. Exposure time to soldering temperature of 300°C shall not exceed 1 minute.

Installation note: These devices are intended to be installed into hermetically sealed packages with the glass seal oriented toward the outside world.

Cataloging information: Circuit 'C's shall be cataloged under FSC 5910 as feed-through ceramic capacitors. Circuit 'L's shall be cataloged under FSC 5915 as radio frequency interference filters.

CONCLUDING MATERIAL

Custodians:
Army - CR
NAVY - EC
Air Force - 85
NASA - NA

Review activities:
Army - AR, AT, AV, ME, MI
Navy - AS, CG, MC, OS, SH
Air Force - 19, 99

Preparing activity:
DLA - ES

(Project 59GP-0143)