

INCH-POUND

MIL-PRF-15733/59B
2 June 2009
SUPERSEDING
MIL-PRF-15733/59A
23 January 2004

PERFORMANCE SPECIFICATION SHEET

FILTERS, RADIO FREQUENCY INTERFERENCE,
HERMETICALLY SEALED, STYLE FL64

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

* Part or Identifying Numbers (PIN's) M15733/59-0001 through M15733/59-0006 are inactive for new design after 2 June 2009. For new design see table V for supersession data.

The requirements for acquiring the filters described herein shall consist of this specification sheet and [MIL-PRF-15733](#).

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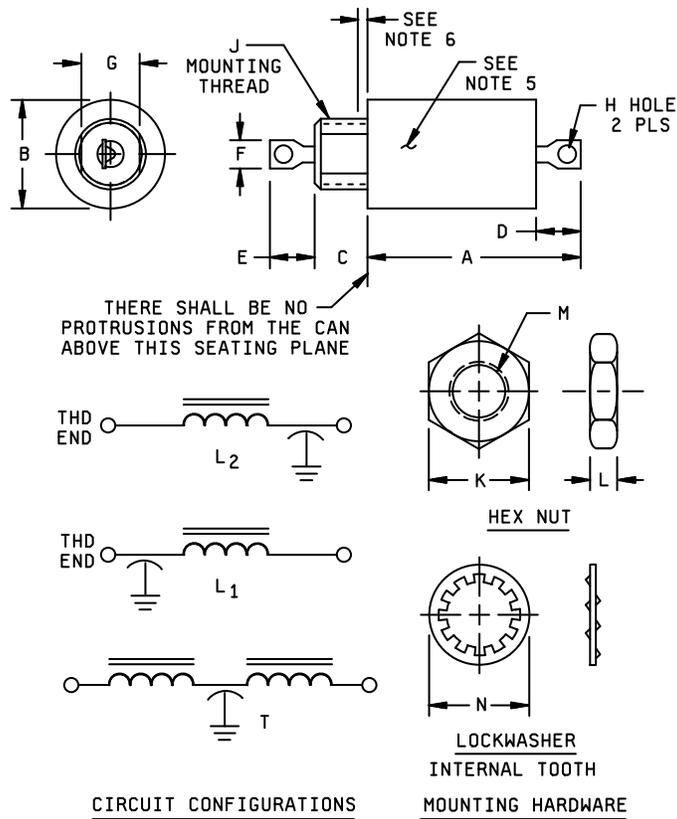


FIGURE 1. Filter and hardware dimensions, and circuit configurations.

Dash no.	A		B		C		D		E		F	G		H		J
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Typ	Min	Max	Min	Max	
0001	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0002	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0003	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0004	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0005	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0006	---	.743 (18.87)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0007	---	1.170 (29.72)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A
0008	---	1.170 (29.72)	---	.416 (10.57)	.175 (4.45)	.205 (5.21)	.100 (2.54)	.190 (4.83)	.100 (2.54)	.190 (4.83)	.119 (3.02)	.190 (4.83)	.210 (5.330)	.045 (1.14)	.075 (1.91)	.250-28 UNF-2A

FIGURE 1. Filter and hardware dimensions, and circuit configurations - Continued.

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Dash no	Hex nut					Lockwasher	
	K		L		M	N	
	Min	Max	Min	Max	Thread	Min	Max
0001	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0002	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0003	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0004	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0005	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0006	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0007	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)
0008	.307 (7.80)	.317 (8.05)	.088 (2.24)	.098 (2.49)	.250-28 UNF-2B	.395 (10.03)	.410 (10.41)

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are in parentheses.
3. Metric equivalents are given for general information only.
4. All filters shall be supplied with mounting hardware.
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:

Circuit	Symbol
L ₁	C
L ₂	L

6. Imperfect thread or undercut optional; .047 (1.19) max, 2 places.
7. For use in applications where mounting panel thickness does not exceed .062 inch (1.57 mm).
8. Recommended mounting torque: 48 ounce-inch, maximum.

FIGURE 1. Filter and hardware dimensions, and circuit configurations - Continued.

TABLE I. Electrical Characteristics.

Dash no.	Circuit configuration	Maximum rated current (amp)	Maximum rated voltage				Voltage drop (volts DC) or (volts rms) max	Minimum full load insertion loss (dB) in accordance with MIL-STD-220 over full temperature range -55°C to +125°C				
			Volts, DC		AC Vrms 60 Hz or 400 Hz			150 kHz	300 kHz	1.0 MHz	10.0 MHz	1.0 GHz
			+85°C to -55°C	+125°C	+85°C to -55°C	+125°C						
0001 <u>1/</u>	L ₂	1.0	200	200	150	150	.250	12	23	44	70	70
0002 <u>1/</u>	L ₁	1.0	200	200	150	150	.250	12	23	44	70	70
0003 <u>1/</u>	L ₂	3.0	200	200	150	150	.150	7	13	29	67	70
0004 <u>1/</u>	L ₁	3.0	200	200	150	150	.150	7	13	29	67	70
0005 <u>1/</u>	L ₂	5.0	200	200	150	150	.075	7	12	24	57	70
0006 <u>1/</u>	L ₁	5.0	200	200	150	150	.075	7	12	24	57	70
0007	T	2.0	200	200	150	150	.200	11	19	42	70	70
0008	T	4.0	200	200	150	150	.250	10	17	32	70	70

1/ Inactive for new design.

REQUIREMENTS:

Dimensions and configuration: As specified in figure I.

Case: Metal.

Case and hardware finish: In accordance with [MIL-PRF-15733](#). Pure tin is prohibited as an undercoat and as a final finish.

Seal: Glass to metal.

Terminals: Solderable (see figure 1). Pure tin is prohibited as an undercoat and as a final finish.

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

Rated voltage: See table I.

Rated current: See table I.

Voltage drop: See table I.

Insertion loss: See table I.

Seal: In accordance with [MIL-PRF-15733](#) and [method 112, MIL-STD-202](#); test condition A or D.

Temperature rise: In accordance with [MIL-PRF-15733](#). Temperature rise shall be +25°C, maximum.

Dielectric withstanding voltage: In accordance with [MIL-PRF-15733](#). The following exception shall apply:

Test voltage: 2 times rated voltage (V dc).

Barometric pressure (reduced): In accordance with [MIL-PRF-15733](#) and [method 105, MIL-STD-202](#); test condition D.

Inrush transients test: the filters shall be subjected to test by instantaneous application of 115 V rms, 400 Hz to the filter with the output unloaded. The source impedance shall be less than 0.5 ohm and its energy capability shall not limit the inrush current to the filter. The filters shall be subjected to this inrush a minimum of 10 times, with a maximum time of 5 minutes between applications. The input shall always be into the inductor for non-symmetrical filters.

Measurements after test: Insulation resistance (at +125°C) and insertion-loss shall meet initial requirements.

Transient voltage test: The filters shall be subjected to the overvoltage allowed by [MIL-STD-704](#) for ac systems. The following details and exceptions shall apply:

Preconditioning: Filter shall be energized at 115 V rms, 400 Hz carrying rated current for 15 minutes minimum.

Transient application: The output load shall be removed and the input voltage shall be stepped from 115 V rms to 180 volts within 20 milliseconds of removal of the load. The step from 115 to 180 volts shall be accomplished with a rise time of less than 60 milliseconds. The 180 volts shall be maintained for 100 milliseconds minimum. This cycle shall be repeated 10 times.

Measurements after test: Insulation resistance (at +125°C) and insertion-loss shall meet initial requirements.

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Insulation resistance: In accordance with [MIL-PRF-15733](#). The following details and exceptions shall apply:

Test potential: Rated dc voltage.

Insulation resistance: Shall not be less than 100 megohms at +25°C and not less than 5 megohms at +125°C, when measured between the case (ground) and all terminals connected together.

Voltage drop: In accordance with [MIL-PRF-15733](#). Maximum voltage drop at +25°C shall be as specified in table I.

Insertion loss: In accordance with [MIL-PRF-15733](#) and table I at +25°C and temperature extremes.

Terminal strength: In accordance with [MIL-PRF-15733](#) and [method 211, MIL-STD-202](#); test condition A (pull).

Applied force: 4.5 pounds.

Salt atmosphere (corrosion): In accordance with [MIL-PRF-15733](#) and [method 101, MIL-STD-202](#); test condition B.

Shock (specified pulse): In accordance with [MIL-PRF-15733](#) and [method 213, MIL-STD-202](#); test condition I.

Vibration, high frequency: In accordance with [MIL-PRF-15733](#) and [method 204, MIL-STD-202](#); test condition D (20 G).

Moisture resistance: In accordance with [MIL-PRF-15733](#). The following exceptions shall apply:

Measurements after 24-hour drying period:

Dielectric withstanding voltage: Voltage at 1.8 times rated dc voltage.

Insulation resistance and insertion-loss shall meet initial requirements.

Life: In accordance with [MIL-PRF-15733](#) and [method 108, MIL-STD-202](#). The following details and exceptions shall apply:

Test condition D (1,000 hours) for qualification inspection, test condition B (250 hours) for group C inspection.

Measurements after test at +25°C:

Dielectric withstanding voltage at 1.8 times rated dc voltage.

Insulation resistance and insertion-loss shall meet initial requirements.

Voltage conditioning: Voltage conditioning shall consist of applying rated ac voltage 400 Hz to the part at +125°C. The voltage shall be applied for a minimum of 250 hours. Charging and discharging current shall be limited within the range of 30 to 150 milliamperes. The test circuit shall be in accordance with figure 2. E_1 shall be continuously monitored and if it falls below 95 percent of E_T , the test shall be stopped and the defective part removed. Time counted toward total test time shall be the time that E_1 is greater than 95 percent of E_T . After the completion of 250 hours and while remaining at +125°C, the insulation resistance shall be measured and shall be 5 megohms minimum.

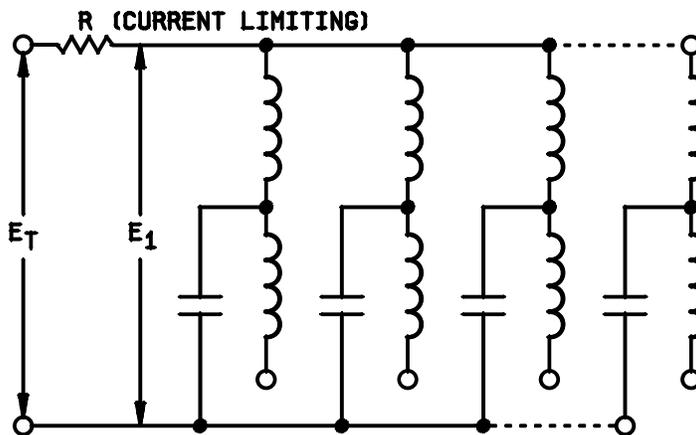


FIGURE 2. Voltage conditioning test circuit.

VERIFICATION

Qualification inspection: Requirements of this specification sheet not currently required in MIL-PRF-15733 shall be included in qualification inspection as group VI (see table II).

TABLE II. Qualification inspection. 1/

Examination or test	Number of samples to be inspected	Number of defectives allowed
<u>Group V</u>		
Transient voltage	4	0
Inrush transients	4	

* 1/ This table is an addition to table III (qualification inspection) of MIL-PRF-15733.

Conformance inspection: Conformance inspection shall be as specified in MIL-PRF-15733 except group A inspection shall be as specified in table III of this specification sheet, in the order shown. Lots that have greater than 5 percent rejects shall be considered reject lots. Reject lots may, at the option of the supplier, be resubmitted to 100 percent group A inspection; however, resubmitted lots which have greater than 2 percent rejects shall be rejected and may not be resubmitted for reinspection. Group C inspection shall be as specified in MIL-PRF-15733 and shall include the tests specified in table IV of this specification sheet.

TABLE III. Group A inspection. 1/

Test or inspection	Sampling procedure
Thermal shock	100%
Voltage conditioning	100%
Dielectric withstanding voltage	100%
Insulation resistance	100%
Voltage drop	100%
Insertion loss	100%
Seal	100%
Visual and mechanical inspection	See MIL-PRF-15733 . Group A inspection.

* 1/ This table replaces table IV (Group A inspection) of [MIL-PRF-15733](#).

TABLE IV. Group C inspection. 1/

Examination or test	Number of samples to be inspected	Number of defectives allowed
<u>Subgroup 6</u>		
Transient voltages	4	0
Inrush transients	4	

* 1/ This table is an addition to table VI (Group C inspection) of [MIL-PRF-15733](#).

Part or Identifying number (PIN): M15733/59- (dash number from table I).

* Supersession data for new design: See Table V

* TABLE V. Supersession data

Inactive PIN	For new design use	
	Specification sheet	PIN
M15733/59-0001	MIL-PRF-28861/5	M28861/05-005TB
M15733/59-0002	MIL-PRF-28861/5	M28861/05-004TB
M15733/59-0003	MIL-PRF-28861/5	M28861/05-008TB
M15733/59-0004	MIL-PRF-28861/5	M28861/05-007TB
M15733/59-0005	MIL-PRF-28861/5	M28861/05-011TB
M15733/59-0006	MIL-PRF-28861/5	M28861/05-010TB

NOTES:

* Referenced documents. In addition to [MIL-PRF-15733](#), this specification sheet references the following documents.

- [MIL-PRF-28861/5](#)
- [MIL-STD-202](#)
- [MIL-STD-220](#)
- [MIL-STD-704](#)

* Changes from previous issue: The margins of this specification sheet are 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:
Air Force - 85
Navy - EC
DLA - CC

Preparing activity:
DLA - CC

(Project 5915-2009-009)

* Review activities:
Air Force – 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 the ASSIST Online database at <http://assist.daps.dla.mil>.