

INCH-POUND

MIL-PRF-8805/3L
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PERFORMANCE SPECIFICATION SHEET SWITCHES, PUSH, 10 AMPERES OR LOW LEVEL, DUSTTIGHT

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

The complete requirements for acquiring the switches described herein shall consist of this specification and the latest issue of MIL-PRF-8805.

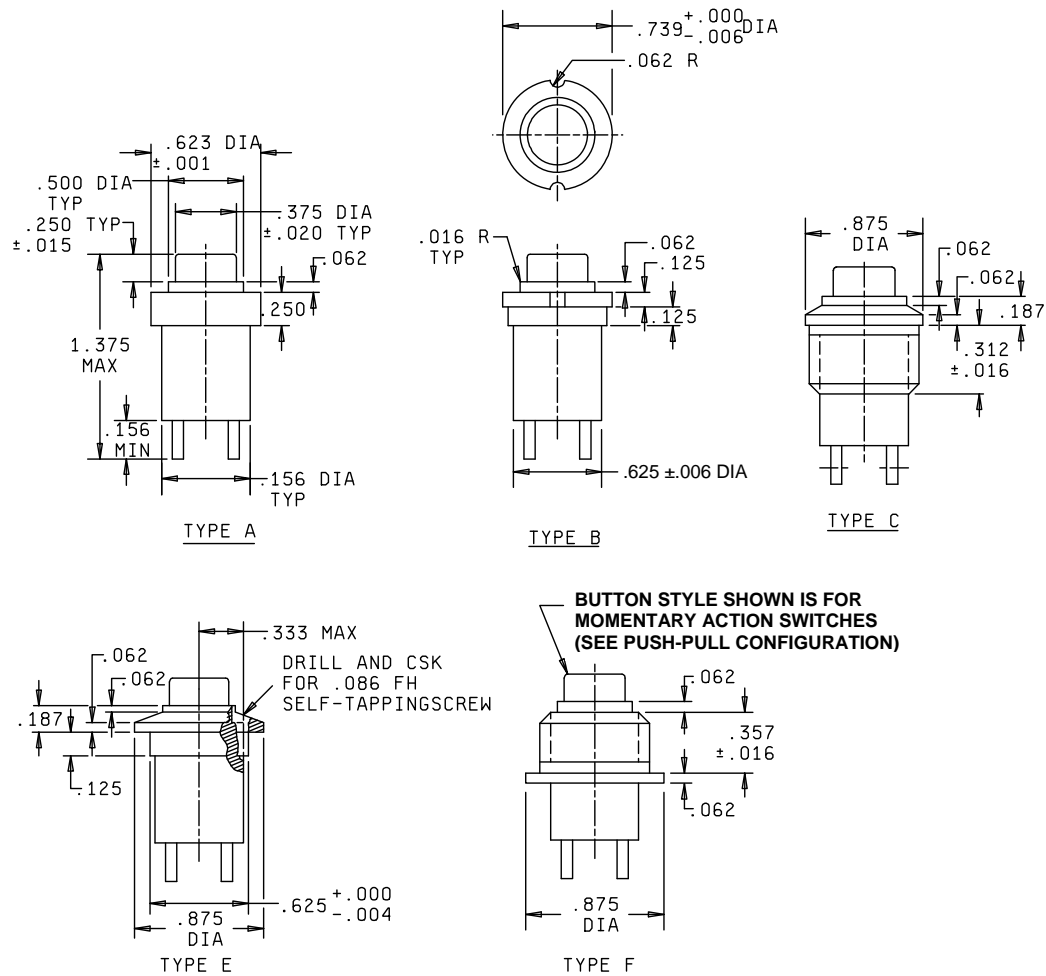
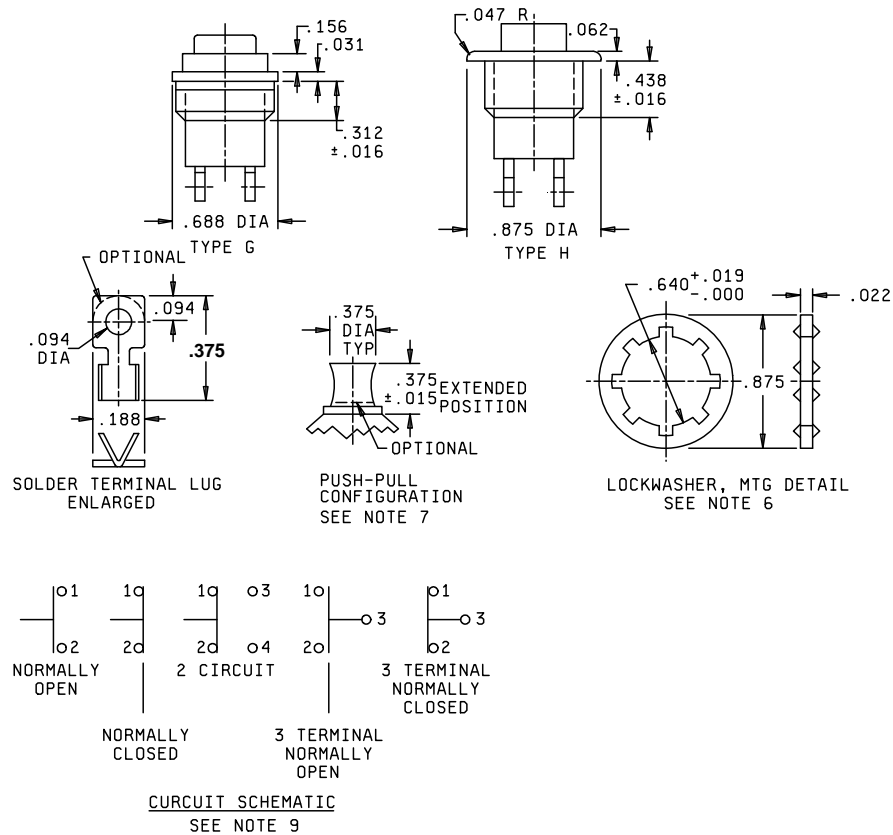


FIGURE 1. Configuration and dimensions.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.031	0.79	.250	6.35	.623	15.82
.004	0.10	.047	1.19	.312	7.92	.625	15.88
.006	0.15	.062	1.57	.333	8.46	.640	16.26
.015	0.38	.094	2.39	.375	9.53	.688	17.48
.016	0.41	.125	3.18	.438	11.13	.739	18.77
.019	0.48	.156	3.96	.500	12.70	.875	22.23
.020	0.51	.187	4.75	.562	14.27	1.375	34.93
.022	0.56	.188	4.78				

NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerance is ± 0.010 (0.25 mm).
3. Mounting thread .625-24 UNEF-2A applies to type C, F, G, and H. All threads to be within .10 (2.54 mm) of shoulder.
4. All terminal threads are .086-56UNC-28.
5. Hardware for each terminal includes one screw, one terminal lug, and one lockwasher.
6. Types C, F, G, and H shall be furnished with suitable mounting hardware.
7. Overall height of switch with push-pull activator is 1.530 (38.66 mm) maximum in extended position.
8. Metric equivalents are given for general information only.
9. For push-pull configuration, circuit schematic is shown with actuator in extended position.

FIGURE 1. Configuration and dimensions - Continued.

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REQUIREMENTS:

Dimensions and configuration: See figure 1.

Enclosure design: 2 (dust-tight).

Temperature characteristic: 1 (-55°C to +85°C).

Shock type: H for monetary type only (no contact opening or closing in excess of 20 milliseconds).
M for other units.

Sinusoidal vibration grade: 2 (10 to 2,000 Hz).

Weight: .050 pound maximum.

Solderability: Applicable to screw tabs and solder lugs.

Operating characteristics:

Total plunger travel: $.085 \pm .015$ inch.

Operating force:

 Momentary: 4 ± 1 pounds.

 Push-pull: 0.5 to 2 pounds.

 Releasing force: 1 pound minimum, monetary.

Terminal strength torque test: Not applicable.

Strength of actuator and stop: 75 pounds for 3 terminals circuitry; 40 pounds for all others.

Finish: The switch case shall be corrosion resistant , lusterless black.

Dielectric withstanding voltage:

 Sea level: 1,000 V rms.

 After electrical endurance: 200 V rms.

Intermediate current: 1/

 MS25089-1, MS25089-2, and MS25089-3: 200,000 cycles.

 MS25089-4 and MS25089-5: 50, 000 cycles.

1/ Prior to test, units preconditioned at 85°C for 48 hours.

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Mechanical endurance (10 to 15 cpm):

MS25089-1, MS25089-2, and MS25089-3:

At room temperature: 200,000 cycles.

At -55°C and +85°C: 100,000 cycles each.

MS25089-4 and MS25089-5: 50,000 cycles.

Electrical endurance: 25,000 cycles at sea level; 5,000 cycles at 50,000 feet.

Electrical ratings:

Central terminal ratings: 3 amperes maximum.

Other than center terminals: See table I.

TABLE I. Electrical ratings, power circuit switches. ^{1/}

Load	Sea level		50,000 feet
	28 V dc	115/V ac, 60/400 Hz	28 V dc
	Amperes	Amperes	Amperes
Resistive-----	10	10	---
Inductive-----	5	5	5
Lamp-----	3	3	---

^{1/} Center terminal rating: 3 amperes maximum.

^{2/} The 400 Hz ratings are shown for information only and do not require electrical endurance testing.

Sand and dust: Applicable.

Electrical logic circuit (5.0 V dc, .010 ampere): Applicable when specified (see table II): 25,000 cycles at an actuation rate of 120 cycles per minute maximum with no "stick", or "misses", allowed when tested in accordance with EIA RS448, method 17 as follows:

Test condition:

Each switch contact shall be tested using a 5.0 \pm 0.5 V dc, 10 \pm 1 mA resistive load. During each closure of the contacts, the voltage drop across the switch terminals shall be monitored for a duration of no less than 50 percent of each contact static closure. The switch contacts need not be monitored until 10 milliseconds after the initial contact closure to exclude any contact bounce. During each opening of the contacts, the voltage drop across the switch terminals shall be monitored for a duration of no less than 50 percent of each contact opening.

A voltage of 2.1 volts or greater across the switch terminals shall constitute a contact "miss" (failure to properly close the circuit). A voltage drop of less than 90 percent of the open-circuit voltage shall constitute a contact "stick" (failure to properly open the circuit).

The monitoring device shall either record the number of contact closures at which "sticks" and/or "misses" occur, or discontinue the test when "sticks" and/or "misses" occur.

Operating temperature:

- 25 percent of the test cycle at -55°C specified.
- 25 percent of the test cycle at room ambient conditions.
- 50 percent of the test cycle at +85°C.

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Qualification:

Group submission: See table III.

Group A inspection: When low level circuit applies, switches shall not be subjected to loads greater than 100 milliamperes at an open circuit voltage of 6 volts maximum dc or peak ac.

Part number: See table II.

TABLE II. Part numbers and characteristics.

Type	Momentary action switches			Push-pull switches			Switch circuit
	Button color			Button color			
	Black	Red	White	Black	Red	White	
A	1A	1AR	1AW	None			NO
	2A	2AR	2AW				NC
	3A	3AR	3AW				2 circuit
	4A	4AR	4AW				3 term NO
	5A	5AR	5AW				3 term NC
B	1B	1BR	1BW	None			NO
	2B	2BR	2BW				NC
	3B	3BR	3BW				2 circuit
	4B	4BR	4BW				3 term NO
	5B	5BR	5BW				3 term NC
C	1C	1CR	1CW	1C-1	1CR-1	1CW-1	NO
	2C	2CR	2CW	2C-1	2CR-1	2CW-1	NC
	3C	3CR	3CW	3C-1	3CR-1	3CW-1	2 circuit
	4C	4CR	4CW	4C-1	4CR-1	4CW-1	3 term NO
	5C	5CR	5CW	5C-1	5CR-1	5CW-1	3 term NC
E	1E	1ER	1EW	None			NO
	2E	2ER	2EW				NC
	3E	3ER	3EW				2 circuit
	4E	4ER	4EW				3 term NO
	5E	5ER	5EW				3 term NC
F	1F	1FR	1FW	1F-1	1FR-1	1FW-1	NO
	2F	2FR	2FW	2F-1	2FR-1	2FW-1	NC
	3F	3FR	3FW	3F-1	3FR-1	3FW-1	2 circuit
	4F	4FR	4FW	4F-1	4FR-1	4FW-1	3 term NO
	5F	5FR	5FW	5F-1	5FR-1	5FW-1	3 term NC
G	1G	1GR	1GW	1G-1	1GR-1	1GW-1	NO
	2G	2GR	2GW	2G-1	2GR-1	2GW-1	NC
	3G	3GR	3GW	3G-1	3GR-1	3GW-1	2 circuit
	4G	4GR	4GW	4G-1	4GR-1	4GW-1	3 term NO
	5G	5GR	5GW	5G-1	5GR-1	5GW-1	3 term NC
H	1H	1HR	1HW	1H-1	1HR-1	1HW-1	NO
	2H	2HR	2HW	2H-1	2HR-1	2HW-1	NC
	3H	3HR	3HW	3H-1	3HR-1	3HW-1	2 circuit
	4H	4HR	4HW	4H-1	4HR-1	4HW-1	3 term NO
	5H	5HR	5HW	5H-1	5HR-1	5HW-1	3 term NC

1/ Low level circuit and electronic logic circuit does not apply for dash numbers shown. To specify switches with low circuit and electronic logic circuit applicable, add the letter "L" to the dash number.

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Examples of part numbers:

MS25089-4C = Switch, Push, Dusttight, 3 Terminal (NO), Type C, Momentary, Black Button.

MS25089-4CR-1 = Switch, Push, Dusttight, 3 Terminal (NO), Type C, Push-Pull, Red Button.

MS25089-4CL = As above, except low level circuit and electronic logic circuit applies. Power circuit electrical ratings do not apply.

MS25089-4CR-1L = As above, except low level circuit and electronic logic circuit applies. Power circuit electrical ratings do not apply.

TABLE III. Qualification inspection.

Examination or test	Basic switch	Other switch samples	Extent of approval	
Qualification <u>1/</u> inspection table of MIL-PRF-8805	Required sample units of any 2 circuit configurations <u>2/</u>	Required number of sample units of 3 terminal NO or 3 terminal NC (groups VII and x tests, qualification inspection table, MIL-PRF-8805 plus 2 additional sample units shall be subjected to electronic logic circuit test and operating characteristics) <u>2/</u>	All	In addition, 2 sample units of each of the other configurations shown on this specification sheet shall be submitted. Visual and mechanical examination.

1/ Electrical endurance tests shall be performed at 28 V dc and 115 V ac, 60 Hz only.

2/ One-half of sample units shall be momentary and one-half shall be push-pull.

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The margins of this specification are marked with vertical lines to indicate where modifications from this amendment 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.

Referenced documents:

MIL-PRF-8805
EIA RS448

Custodians:

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

Preparing activity:

DLA - CC

(Project 5930-2009-012)

Review activities:

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

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/>.