

INCH-POUND

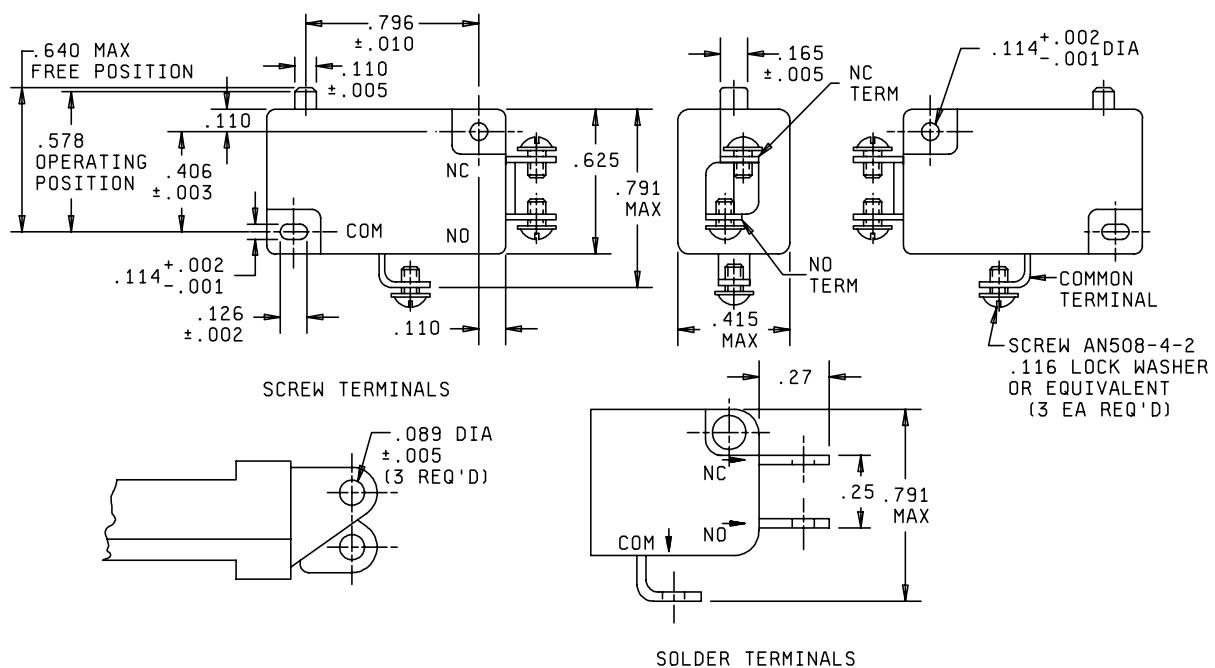
MIL-PRF-8805/27E  
1 May 2006SUPERSEDING  
MIL-PRF-8805/27D  
31 October 2001

## PERFORMANCE SPECIFICATION SHEET

## SWITCHES, SENSITIVE, 10 AMPERES AND LOW LEVEL, UNSEALED

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

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

FIGURE 1. Dimensions and configurations.

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Inches	mm	Inches	mm	Inches	mm
.001	0.03	.126	3.20	.640	16.26
.002	0.05	.165	4.19	.791	20.09
.003	0.08	.250	6.35	.796	20.22
.005	0.13	.270	6.86	.875	22.23
.010	0.25	.406	10.31	1.094	27.79
.089	2.26	.415	10.54	1.406	35.71
.110	2.79	.578	14.68		
.114	2.90	.625	15.88		

## NOTES:

1. Dimensions are in inches.
2. Unless otherwise stated, tolerance is  $\pm 0.015$  (0.38 mm).
3. Exact shape of switch optional provided dimensions specified are not exceeded.
4. Mark, stamp or mold NO, NC and COM terminal designations and arrows on either side of switch.
5. Metric equivalents are given for general information only and are based upon 1.00 inch = 25.4 mm.
6. Military Standard Drawing MS25253 is canceled and superceded by MIL-PRF-8805/27.

FIGURE 1. Dimensions and configurations - Continued

## REQUIREMENTS:

Dimensions and configurations: See figure 1.

Enclosure design: 1 (Unsealed).

Temperature characteristic: 1 ( $-55^{\circ}$  to  $+85^{\circ}\text{C}$ ).

Shock type: Method 213, test condition A, MIL-STD-202 (50 G).

Vibration grade: 1 (10 to 500 Hz).

Weight: .30 ounce maximum.

Operating characteristics:

Actuating force:

MS25253-1, -2, -3, and -5 through -7: 14 ounces maximum.

MS25253-8, through -13: 135 grams maximum.

Movement differential:

MS25253-1, -2, -3, and -5 through -7: .020 inch maximum.

MS25253-8, through -13: .010 inch maximum.

Pretravel: .047 inch maximum.

Overtravel:

MS25253-1, -2, -3, and -5 through -7: .031 inch minimum.

MS25253-8, through -13: .050 inch minimum.

Strength of actuating means: 25 pounds.

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### Material:

Plunger: May be glass filled nylon.

### Contact resistance:

MS25253-1, -2, -3, and -5 through -7: Not applicable.

MS25253-8, through -13: : 0.05 ohm maximum initially.  
0.10 ohm maximum after mechanical life.

### Contact bounce:

MS25253-1, -2, -3, and -5 through -7: Not applicable.

MS25253-8, through -13: : 5 milliseconds maximum.

### Dielectric withstanding voltage:

Sea level: 1,000 Vrms.

Altitude: 50,000 feet – 400 Vrms.

In qualification inspection table after electrical endurance the dielectric withstanding voltage points of application between all unconnected terminals of the same pole is not applicable.

### Mechanical endurance:

MS25253-1, -2, -3, and -5 through -7: 25,000 cycles..

MS25253-8, through -13: 500,000 cycles.

Electrical endurance (power circuits): 25,000 cycles.

### Low level circuits:

MS25253-1, -2, -3, and -5 through -7: Not applicable.

MS25253-8, through -13: : 50,000 cycles.

### Electronic logic circuits (5.0 V dc, .010 ampere):

MS25253-1, -2, -3, and -5 through -7: Not applicable.

MS25253-8, through -13: : 50,000 cycles when tested in accordance with EIA-448, method 17. Rate of action shall be 120 cycles per minute maximum. No "stick" or "misses" allowed.

### Operating temperature:

- a. 25 percent of the test cycle at the minimum temperature specified.
- b. 25 percent of the test cycle at room ambient conditions.
- c. 50 percent of the test cycle at the maximum temperature specified.

Electrical ratings: See table I and II.

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Quality assurance:

Qualification inspection: See table III

Inspection of product for delivery: See table IV.

Part or Identifying Number (PIN): See table V

TABLE I. Electrical ratings silver contacts (MS25253-1, -2, -3, and -5 through -7).

Load	Sea level		50,000 feet	
	28 V dc	115 V ac, 60 Hz	28 V dc	115 V ac, 60 Hz
	<u>Amperes</u>	<u>Amperes</u>	<u>Amperes</u>	<u>Amperes</u>
Resistive	10	10	10	10
Inductive	10	10	6	10
Motor	6	3	----	----

TABLE II. Electrical ratings gold contacts (MS25253-8 through -13).

Load	Sea level and 50,000 feet		Sea level
	Power circuit 28 V dc	Electronic logic circuit 5 V dc	Low level <sup>1/</sup> 30 millivolts
	<u>Amperes</u>	<u>Amperes</u>	<u>Amperes</u>
Resistive	1.0	0.01	0.01
Inductive	0.5	----	----

<sup>1/</sup> 30 millivolts max dc or peak ac.

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TABLE III. Qualification inspection (group submission).

Inspection	Sample	Extent of approval
<u>Group I</u> Visual and mechanical <u>1/</u> Solderability (when applicable) <u>2/</u> Dielectric withstanding voltage Insulation resistance Operating characteristics	MS25253-1 (all samples) MS25253-2, -3, (2 samples each) Visual and mechanical MS25253-11 (all samples)	All
<u>Group II</u> Terminal strength <u>3/</u> Strength of actuating means <u>3/</u> Thermal shock Vibration Shock Moisture resistance Marking visibility Dielectric withstanding voltage Operating characteristics	MS25253-1, -11 (4 sample each)	
<u>Group IV</u> Salt spray Marking visibility	MS25253-1 (2 samples)	
<u>Group V</u> Explosion Operating characteristics	MS25253-1 (2 samples)	
<u>Group VI</u> Contact resistance (when applicable) Contact bounce (when specified) Low temperature operation Mechanical endurance at low temperature Mechanical endurance at high temperature Contact resistance (when applicable) Short circuit <u>4/</u> Dielectric withstanding voltage Operating characteristics	MS25253-1, -11 (4 samples)	
<u>Group VII</u> Overload cycling Electrical endurance Contact resistance (when applicable) Dielectric withstanding voltage Operating characteristics	MS25253-1, (20 samples) MS25253-11 (8 samples)	
<u>Group X</u> Low level circuit Operating characteristics	MS25253-11 (2 samples)	
Electronic logic circuit Operating characteristics	MS25253-11 (2 samples)	

1/ Two samples for physical dimensions.

2/ Four samples of each applicable terminal type..

3/ Two samples of each PIN.

4/ Short circuit test shall be conducted at the 28 V dc electrical rating.

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TABLE IV. Inspection of product for delivery.

Inspection
Visual and mechanical <u>1/</u> Operating characteristics <u>2/</u> Contact bounce (when specified) <u>2/</u> Dielectric withstanding voltage Contact resistance (when applicable) <u>2/</u>

1/ In-process inspection may be used to satisfy the dimensional requirements.

2/ Do not exceed 6 V dc, or peak ac, 10 milliamperes during inspection of MS25253-8 through -13..

TABLE V. PIN's.

PIN <u>1/</u> MS25253-	Description					Suggested application <u>2/</u>		
	Contacts	Circuit	Rating maximum	Terminals		Power Circuit	Electronic logic	Low level
				Type	Strength (lbs.)			
1	Silver	SPDT	Table I (10 AMPS)	Screw	20	X		
2	"	SPNO	"	"	"	X		
3	"	SPNC	"	"	"	X		
5	"	SPDT	"	Solder	"	X		
6	"	SPNO	"	"	"	X		
7	"	SPNC	"	"	"	X		
8 <u>3/</u>	Gold	SPDT	Table II (1 AMP)	Screw	"	X	X	X
9 <u>3/</u>	"	SPNO	"	"	"	X	X	X
10 <u>3/</u>	"	SPNC	"	"	"	X	X	X
11 <u>3/</u>	"	SPDT	"	Solder	"	X	X	X
12 <u>3/</u>	"	SPNO	"	"	"	X	X	X
13 <u>3/</u>	"	SPNC	"	"	"	X	X	X

1/ MS25253-4 is canceled, use MS25253-1.

2/ Application information

Power circuits – Those electrical loads where the voltage and current exceed the minimum arcing conditions of the contact material. As a general rule, application loads in excess of 8 volts, 0.5 amperes are considered power circuits.

Electronic logic circuits – Those electrical loads in which the applied voltage is less than the arcing voltage and greater than the non-arcing application loads in excess of 0.5 volts are considered logic level circuits.

Low level circuits - Those electrical loads in which the applied voltage is less than the softening voltage of the contact material. As a general rule, application loads less than .08 volts are considered low level circuits.

3/ MS25253-8 through -13 have two levels of capabilities. However, switches previously tested or used above 10 milliamperes resistive at 6 V dc max or peak ac are not recommended for use in electronic logic or low level application.

## MIL-PRF-8805/27E

Referenced documents. In addition to MIL-PRF-8805, this document references the following:

MIL-STD-202  
AN508  
EIA-448

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

### Custodians:

Army - CR  
Navy - EC  
Air Force – 11  
DLA - CC

### Preparing activity:

DLA - CC

(Project 5930-2006-018)

### Review activities:

Army – AR, AV, MI  
Navy - AS, MC  
Air Force - 19

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/>