INCH-POUND

MS25461J
27 November 2003
SUPERSEDING
MS25461H
20 January 1989

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 10 AMPERES, 4 PDT, TYPE I, MAGNETIC LATCH, SOCKET MOUNTED, HERMETICALLY SEALED

INACTIVE FOR NEW DESIGN AFTER 5 JUNE 1987. NO SUPERSEDING SPECIFICATION. (FOR NEW DESIGN USE MIL-PRF-83536/18, 19, 20)

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

The requirements for acquiring the relay described herein shall consist of this specification and the latest issue of MIL-PRF-6106.

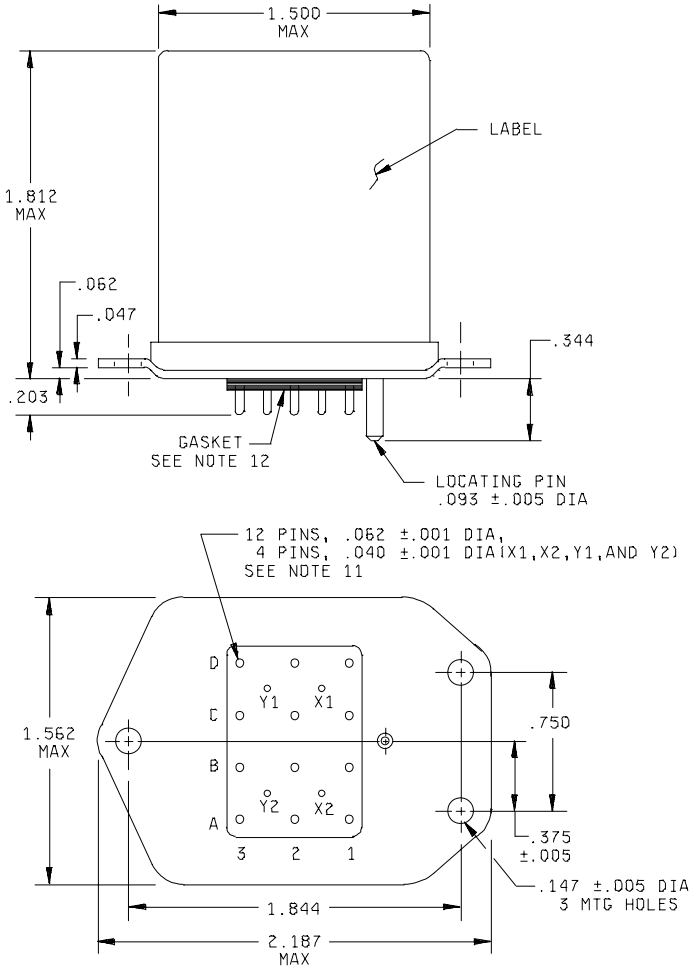
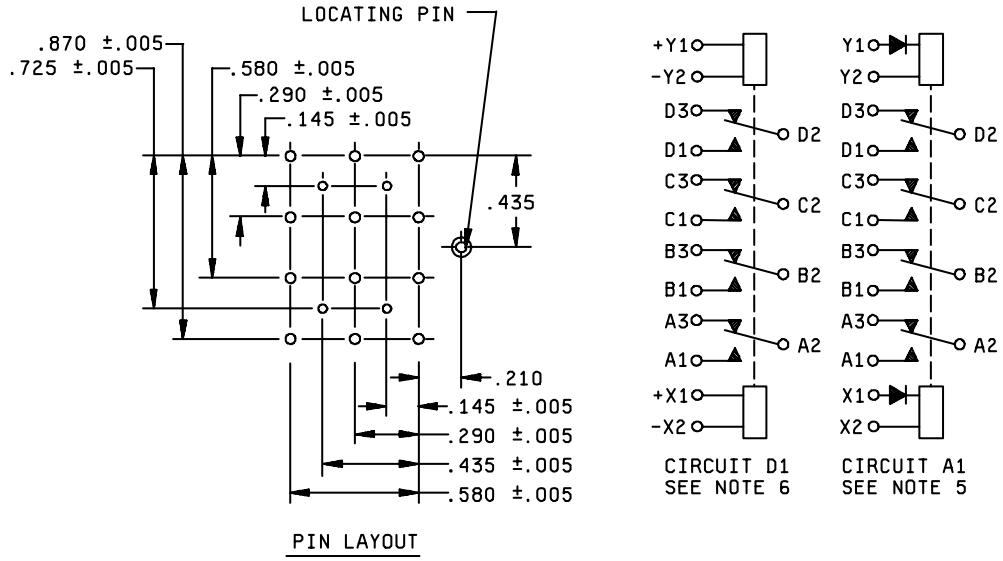


FIGURE 1. Dimensions and configurations.



Inches	mm	Inches	mm	Inches	mm
.000	0.00	.145	3.86	.725	18.42
.001	0.03	.147	3.73	.870	22.10
.005	0.13	.203	5.16	1.500	38.10
.040	1.02	.290	7.37	1.562	39.67
.047	1.19	.344	8.74	1.812	46.02
.062	1.57	.375	9.53	1.844	46.84
.0625	1.59	.435	11.05	2.187	55.55
.093	2.36	.580	14.73		

NOTES:
1/ Dimensions are in inches.
2/ Metric equivalents are given for general information only.
3/ Unless otherwise specified, tolerance is ±.010 (0.25 mm).
4/ Terminal numbers need not appear on relay headers provided there is affixed to the relay a suitable legible circuit diagram that permanently and positively identifies each terminal location specified hereon.
5/ The use of diodes on ac relays is optional. Actual application must be shown on label.
6/ Relay is magnetically latched in both positions. Caution note to observe polarity must appear on relays with dc coils.
7/ In the event of conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
8/ Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation forms a part of this specification to the extent specified herein.
9/ Shock, vibration, and acceleration requirements application with coils de-energized.
10/ Pins to be perpendicular to header surface within 1 degree.
11/ Socket pin terminals shall provide the operational, environmental, and interface characteristics to provide a reliable interconnect to gold-plated contacts. Terminals shall be gold plated. One system for gold plating that may be used is ASTM B488, type 3, class 1.25 with a nickel underplate of 50 to 150 microinches thick. The gold plating system shall enable the product to meet the performance requirements of this specification and shall be approved by the qualifying activity.
12/ Gasket shall provide a reliable seal between the relay and mating socket that will meet the environmental, operational, and interface requirements of the relay with the mating socket. The gasket shall have thickness .075, recessed .047 in to bracket. Gasket material according to AMS 3332 has been considered acceptable.

FIGURE 1. Dimensions and configurations - Continued.

TABLE I. Dash numbers and characteristics.

Dash number MS25461-	Type	Coil	Terminal type	Max weight in pounds
D1	I	dc	Plug in	0.40
A1	I	ac	Plug in	0.42

TABLE II. Operating characteristics.

PIN MS25461-	Coil data											Time - milliseconds max				
	Coil	Rated			Max		Max pick-up voltage			Drop out voltage	Operate 3/	Release 4/	Contact Bounce			
													Main		Aux	
		Volts 1/	Freq Hz	Res Ω	Volts	Amp	Normal 2/	High temp test	Cont current test				NO	NC	NO	NC
D1	X1, X2 Y1, Y2	28	dc	N/A	29	0.17	18	18	19.8	N/A	25	N/A	2	2	N/A	N/A
A1	X1, X2 Y1, Y2	115	400 5/	N/A	122	0.07	90	90	95	N/A	25	N/A	2	2	N/A	N/A

1/ CAUTION: Use of any coil voltage less than nominal voltage will compromise the operation of the relay.
2/ Over the temperature range.
3/ With nominal coil voltage.
4/ From nominal coil voltage.
5/ MS25461-A1 may be used on 60 Hz if maximum ambient temperature is limited to +85°C (maximum coil current shall be 0.077 ampere).

TABLE III. Rated contact load (amperes per pole) (case grounded).

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 1/				See appropriate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	
Resistive	100	10	10			10	6			10	6			
Inductive	100													
Inductive	20	6	6			10	4			10	4			
Motor	100	4	4			4	3			4	3			
Lamp	100	2	2			2	1.5			2	1.5			
Transfer load														2/
Mechanical life reduced current	400	2.5	2.5			2.5	2			2.5	2			
Mixed loads	Applicable per specification													

1/ Absence of value indicates relay is not rated for 3-phase application.
2/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

Environmental characteristics.

Temperature range	-70°C to +125°C
Max altitude rating	80,000 ft
Shock G-level	50 g's
Duration	11 ms
Max duration contact opening	10 μs
Vibration - sinusoidal	
G-level	10 g's
Frequency range	5 - 1,500 Hz
Acceleration	15 g's

Electrical characteristics.

Insulation resistance:

Initial: 100 megohms.

After life or environmental tests: 50 megohms.

Dielectric strength (sea level).

	Initial	After life tests
Coil to case	1,000 V rms	1,000 V rms
Aux contacts		
All other points	1,500 V rms	1,125 V rms

Dielectric strength (altitude).

	80,000 ft
Coil to case	250 V rms
Aux contacts	
All other points	350 V rms

Max contact voltage drop:

Initial:	0.150 volt.
After life test:	0.175 volt.
Overload current	40 amperes dc, 60 amperes ac.
Rupture current	50 amperes dc, 80 amperes ac.
Duty rating	Continuous.
RFI specification	MIL-STD-461.

(Applicable to coil circuits of ac operated relays.)

Conformance inspection.

Group A acceptance reports shall be submitted to the preparing activity on a yearly basis in order to retain qualification for this military specification sheet.

Performance of groups B and C tests are not applicable.

Qualification by similarity: See MIL-PRF-6106.

NOTES

Referenced documents. In addition to MIL-PRF-6106, this specification sheet references the following documents. (Government documents are available on line at http://assist.daps.dla.mil/quicksearch or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094). Society of Automotive Engineers documents are available from the Society of Automotive Engineers 400 Commonwealth Drive Warrendale, Pennsylvania, United States, 15096-0001. http://www.sae.org

STANDARDS

Department of Defense

MIL-STD-461 - Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment

Society of Automotive Engineers (SAE)

SAE-AMS3332 - Silicone Rubber Extreme Low-Temperature Resistant, 15-30

Custodians:
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-1221-14)

Review activities:
Navy - EC

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 www.dodssp.daps.mil.