INCH-POUND

MS25321N
27 November 2003
SUPERSEDING
MS25321M
31 Aug 1993

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 5 AMPERES, 2 PDT, TYPE I, SOCKET MOUNTED, MECHANICALLY SEALED

INACTIVE FOR NEW DESIGN AFTER 5 JUN 87 NO SUPERSEDING SPECIFICATION. (FOR NEW DESIGN USE MIL-PRF-83536/1 OR MIL-PRF-83536/2)

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.

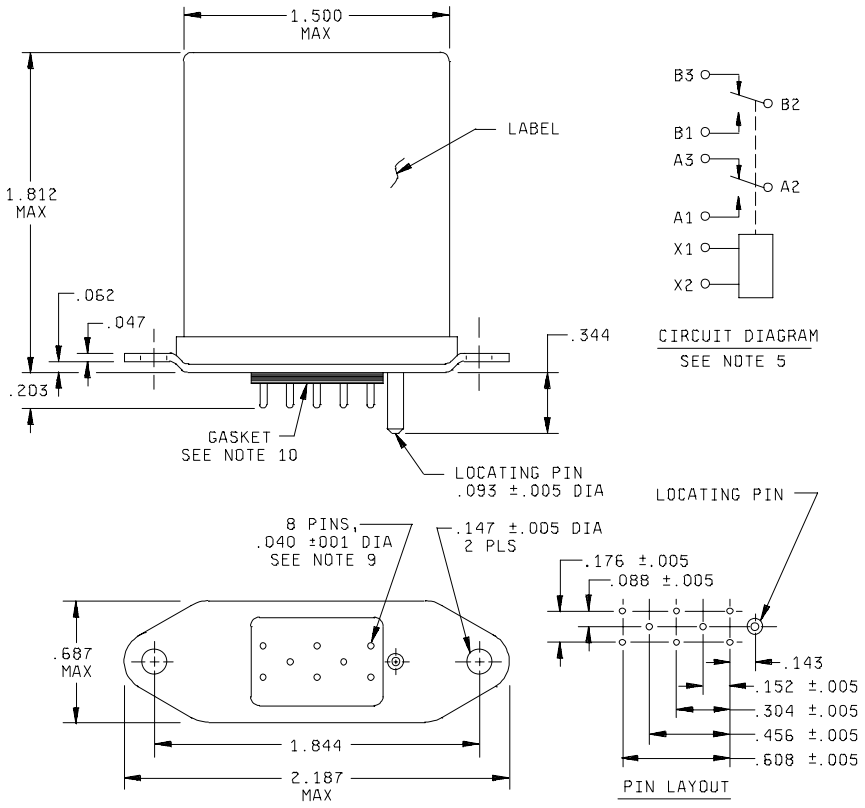

FIGURE 1. Design, dimensions, and circuit diagram.

Inches	mm	Inches	mm
.001	0.03	.176	4.47
.005	0.13	.203	5.16
.010	0.25	.304	7.72
.040	1.02	.344	8.74
.047	1.19	.456	11.58
.062	1.57	.608	15.44
.075	1.91	.687	17.45
.088	2.24	1.500	38.10
.093	2.36	1.812	46.02
.143	3.63	1.844	46.84
.147	3.73	2.187	55.55
.152	3.86		

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 shall not appear on relay headers. There shall be affixed to the relay a legible circuit diagram that permanently and positively identifies each term in allocation specified herein.
5. The use of diodes on ac relays is optional. Actual application shall be shown on label.
6. Pins shall be perpendicular to header surface within one degree.
7. In the event of conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.
8. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specification and Standards (DoDISS) specified in the solicitation forms a part of this standard to the extent specified herein.
9. 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.
10. 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 shore hardness 20 ±5, thickness .075 ±.005 recessed .047 into bracket. Gasket material according to AMS 3332 has been considered acceptable.

FIGURE 1. Design, dimensions, and circuit diagram - Continued.

REQUIREMENTS:

Design, dimensions, and circuit diagram: See figure 1.

Part or Identifying Numbers (PIN's) and general characteristics: See table I.

Contact data:

Load ratings: See table II.

Maximum contact drop:

Initial: 0.150 volt.

After life test: 0.175 volt.

Overload current: 20 amperes.

Rupture current: 25 amperes.

Coil data: See table III.

Duty rating: Continuous.

RFI specification: MIL-STD-461 (applicable to coil circuits of ac operated relays).

Electrical data:

Minimum insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric strength (sea level):

	Initial	After life tests
Coil to case	1,000 V rms	750 V rms
Aux contacts	N/A	N/A
All other points	1,000 V rms	1,000 V rms

Dielectric strength (80,000 ft):

	Initial	After life tests
Coil to case	250 V rms	N/A
Aux contacts	N/A	N/A
All other points	250 V rms	N/A

Environmental characteristics:

Temperature range -70° to +125°C.

Maximum altitude rating: 80,000 feet.

Shock g-level: 50 g's.

Duration: 6 ms.

Max duration contact opening: 100 μs.

Vibration (sinusoidal):

G-level: 10 g's.

Frequency range: 5 - 1,500 Hz.

Acceleration: 15 g's.

Performance of groups B and C tests is not applicable.

Part or Identifying Number (PIN): MS25321 - (plus dash number from table I).

Qualification by similarity: See MIL-PRF-6106.

TABLE V. Dash numbers and general characteristics.

PIN MS25321-	Type	Coil	Terminal type	Maximum weight pounds
D2	I	dc	Plug in	0.18
A2	I	ac	Plug in	0.20
A3	I	ac	Plug in	0.20

TABLE II. Rated contact load (amperes per pole) (case grounded). 1/

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase				See notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	
Resistive	100	5	5			5	4							
	100													
Inductive	20	3	3			3	2							
Motor	100	1.5	1.5			1.5	1							
Lamp	100	0.8	0.8			0.8	0.6							
Transfer load														2/
Mechanical life reduced current	400	1.25	1.25			1.25	1							
Mixed loads	Applicable per MIL-PRF-6106													

1/ Absence of value indicates parameter is not applicable to this specification.
2/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

TABLE III. Operating characteristics.

PIN MS25321 -	Coil data											Time - milliseconds max 2/					
	Coil	Rated			Max		Max pick-up voltage			Hold voltage 2/	Drop out voltage 2/	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
D2	X1, X2	28	dc	N/A	29	0.15	18	19.8	22.5	7.0	1.5	20	20	2	2	N/A	N/A
A2	X1, X2	115	400	N/A	122	0.06	90	95	103	35	5.0	25	50	2	2	N/A	N/A
A3	X1, X2	115	50/ 60	N/A	122	0.07	90	95	103	35	5.0	25	50	2	2	N/A	N/A

1/ CAUTION: Use of any coil voltage less than rated coil voltage will compromise the operation of the relay.
2/ Over the temperature range.
3/ With rated coil voltage.
4/ From rated coil voltage.
5/ Absence of value indicates parameter is not applicable to this specification.

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 5945-1221-07)

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.