INCH-POUND

MS27418K
27 November 2003
SUPERSEDING
MS27418J
10 Feb 1989

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 25 AMPERES, 3 PST-NO, TYPE I, HERMETICALLY SEALED, HOOK AND SCREW TERMINALS, STUD AND BRACKET MOUNTED

INACTIVE FOR NEW DESIGN AFTER 15 NOVEMBER 2002. NO SUPERSEDING SPECIFICATION.

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.

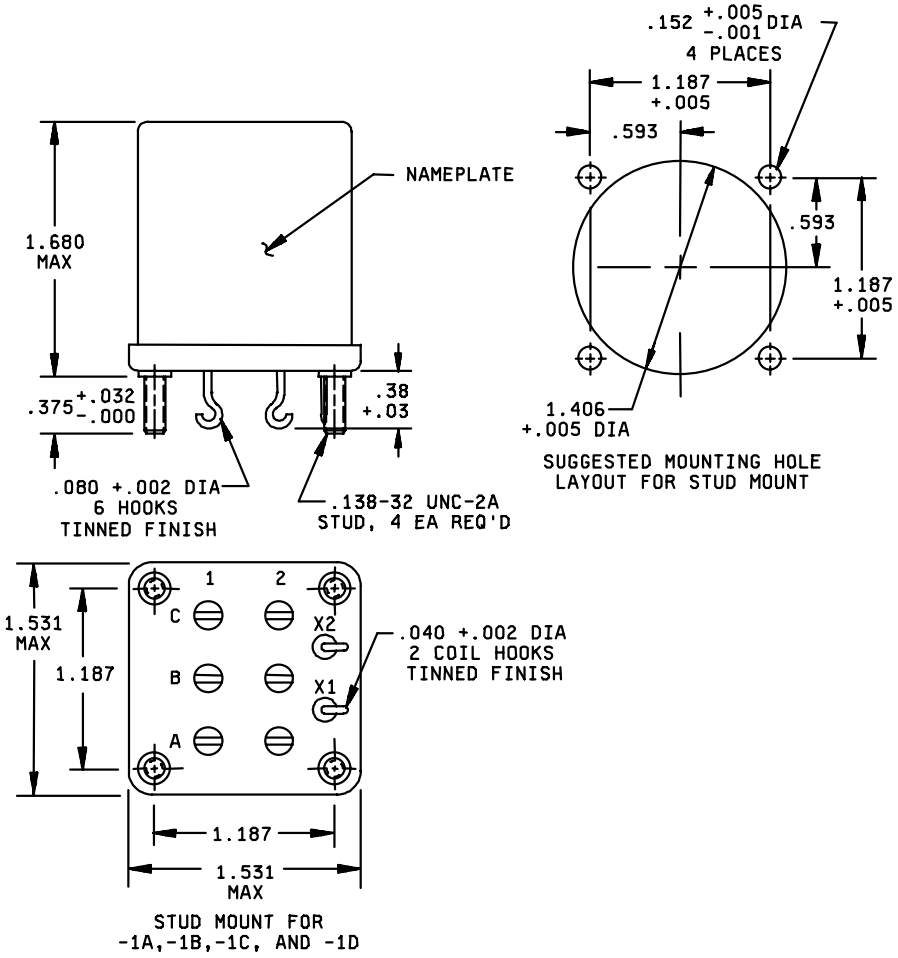


FIGURE 1. Dimensions and configuration.

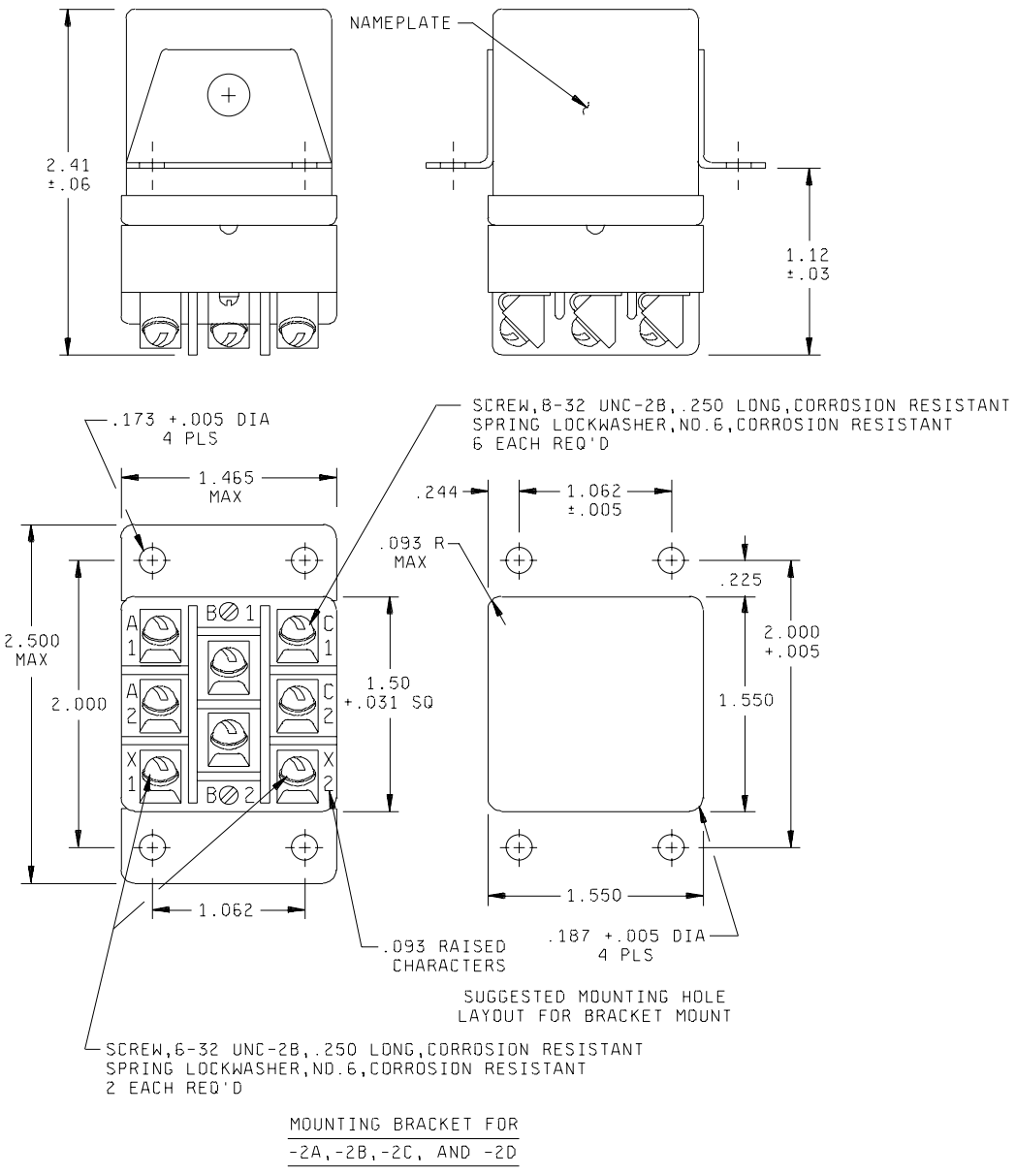
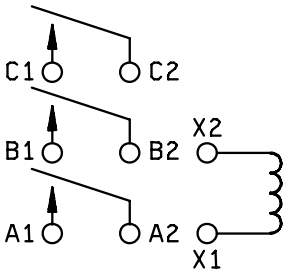
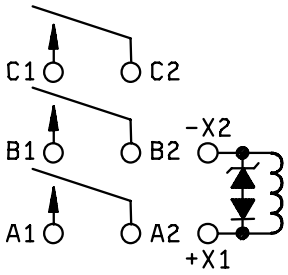


FIGURE 1. Dimensions and configurations - Continued.



CIRCUIT DIAGRAM A
(DC UNSUPPRESSED AND AC COILS)



CIRCUIT DIAGRAM B
(DC SUPPRESSED COILS)

Inches	mm	Inches	mm	Inches	mm
.001	0.03	.138	3.51	1.12	28.5
.002	0.05	.152	3.86	1.187	30.15
.005	0.13	.173	4.39	1.406	35.71
.03	0.8	.187	4.75	1.465	37.21
.031	0.79	.225	5.72	1.50	38.1
.032	0.81	.244	6.20	1.531	38.89
.040	1.02	.375	9.52	1.550	39.37
.06	1.5	.38	9.7	1.680	42.67
.080	2.03	.593	15.06	2.000	50.80
.093	2.36	1.062	26.97	2.41	61.2
				2.500	63.50

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. A, B, and C contacts capable of accepting MS25036-53 lugs, X1 and X2 contacts capable of accepting MS25036-7 or -2 lugs.
5. Terminal numbers need not appear on relay headers provided there is affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.
6. In the event of a conflict between the text of this standard and the references cited herein, the text of this standard shall take precedence.
7. 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 form a part of this specification to the extent specified herein.
8. Tin/lead plating over copper plating with a minimum lead content of 3%.

FIGURE 1. Dimensions and configurations - Continued.

TABLE I. Dash numbers and characteristics.

Dash number MS27418-	Type	Coil	Circuit	Terminal type	Mounting or mating socket	Max weight in pounds
1A	I	ac	A	Solder hook	Stud	.50
1B	I	dc	A	Solder hook	Stud	.50
1C	I	ac	A	Solder hook	Stud	.50
2A	I	ac	A	Screw	Bracket	.60
2B	I	dc	A	Screw	Bracket	.60
2C	I	ac	A	Screw	Bracket	.60
1D	I	dc	B 1/ 2/	Solder hook	Stud	.51
2D	I	dc	B 1/ 2/	Screw	Bracket	.61

1/ Transient voltage (back emf) 42 V dc maximum.
2/ Diodes shall have a peak inverse voltage of 600 V dc minimum.

FIGURE 1. Dimensions and configurations - Continued.

TABLE II. Operating characteristics.

Part no. MS 27418-	Coil data											Time - (milliseconds maximum)					
	Coil	Nominal			Max		Max pick-up voltage			Hold voltage 3/	Drop out voltage 3/	Operate 4/	Release 5/	Contact Bounce			
														Main		Aux	
		Volts 1/	Freq Hz	Ω Res	Volts	Amp	Normal 3/	High temp test	Cont current test					NO	NC	NO	NC
1A	X1,X2	115	400	N/A	122	.055	95	100	108	40	5.0	25	50	2	---	---	---
2A	X1,X2	115	400	N/A	122	.055	95	100	108	40	5.0	25	50	2	---	---	---
1B	X1,X2	28	dc	160	29 2/	.25	18	19.5	22.5	7.0	1.5	20	10	2	---	---	---
2B	X1,X2	28	dc	160	29 2/	.25	18	19.5	22.5	7.0	1.5	20	10	2	---	---	---
1C	X1,X2	115	50/ 60	N/A	122	.06	95	100	108	40	5.0	25	50	2	---	---	---
2C	X1,X2	115	50/ 60	N/A	122	.06	95	100	108	40	5.0	25	50	2	---	---	---
1D	X1,X2	28	dc	160	29 2/	.25	18	19.5	22.5	7.0	1.5	20	10	2	---	---	---
2D	X1,X2	28	dc	160	29 2/	.25	18	19.5	22.5	7.0	1.5	20	10	2	---	---	---

1/ Caution: Use of any coil voltage less than nominal coil voltage will compromise the operation of the relay.
2/ Maximum coil voltage shall be +32 V dc when maximum ambient temperature does not exceed 85°C.
3/ Over the temperature range.
4/ With nominal coil voltage.
5

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	50	25				25	25			25	25			
Inductive	10					25	25			25	25			2/
Inductive	10	15												
Motor	50	20				20	12			20	12			
Lamp	50	10				10	10			10	10			
Transfer load														3/
Mechanical life reduced current	200	6.3				6.3	6.3			6.3	6.3			
Mixed loads	Applicable per specification													

1/ Absence of value indicates relay is not rated for 3 phase applications.
2/ 0.7 pF, inductive.
3/ 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.

Maximum altitude rating: 80,000 feet.

Shock g-level: 50 g's.

Duration: 11 ms.

Max duration contact opening: 2 ms.

Vibration - sinusoidal:

Operating

G-level 10 g's.

Frequency range 5 - 1,000 Hz.

Non-operation.

G-level: 15 g's.

Frequency range: 20 to 2,000 Hz.

Acceleration 10 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	1,250 V rms	1,000 V rms
Aux contacts	N/A	N/A
All other points	1,500 V rms	1,125 V rms

Dielectric strength (altitude):

		80,000 ft
Coil to case	N/A	500 V rms
Aux contacts	N/A	
All other points	N/A	500 V rms

Maximum contact drop initial: 0.150 volt.

After life test: 0.175 volt.

Overload current: 80 amperes dc,
120 amperes ac.

Rupture current: 100 amperes dc,
150 amperes ac.

Duty rating: Continuous.

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

Conformance inspection.

Performance of groups B and C tests may be suspended at the discretion of the qualifying activity.

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-AS25036 - Terminal, Lug, Crimp Style, Copper, Insulated, Ring Tongue, Bell-Mouthed, Type II, Class 1, (for 105 Deg C Total Conductor Temperature)

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

Preparing activity:
DLA - CC

(Project 5945-1221-19)

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 ASSIST Online database at www.dodssp.daps.mil.