INCH-POUND

MS27749F
17 September 2012
SUPERSEDING
MS27749E
27 November 2003

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 60 AMPERES, 3 PDT MAGNETIC LATCH, HERMETICALLY SEALED

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.

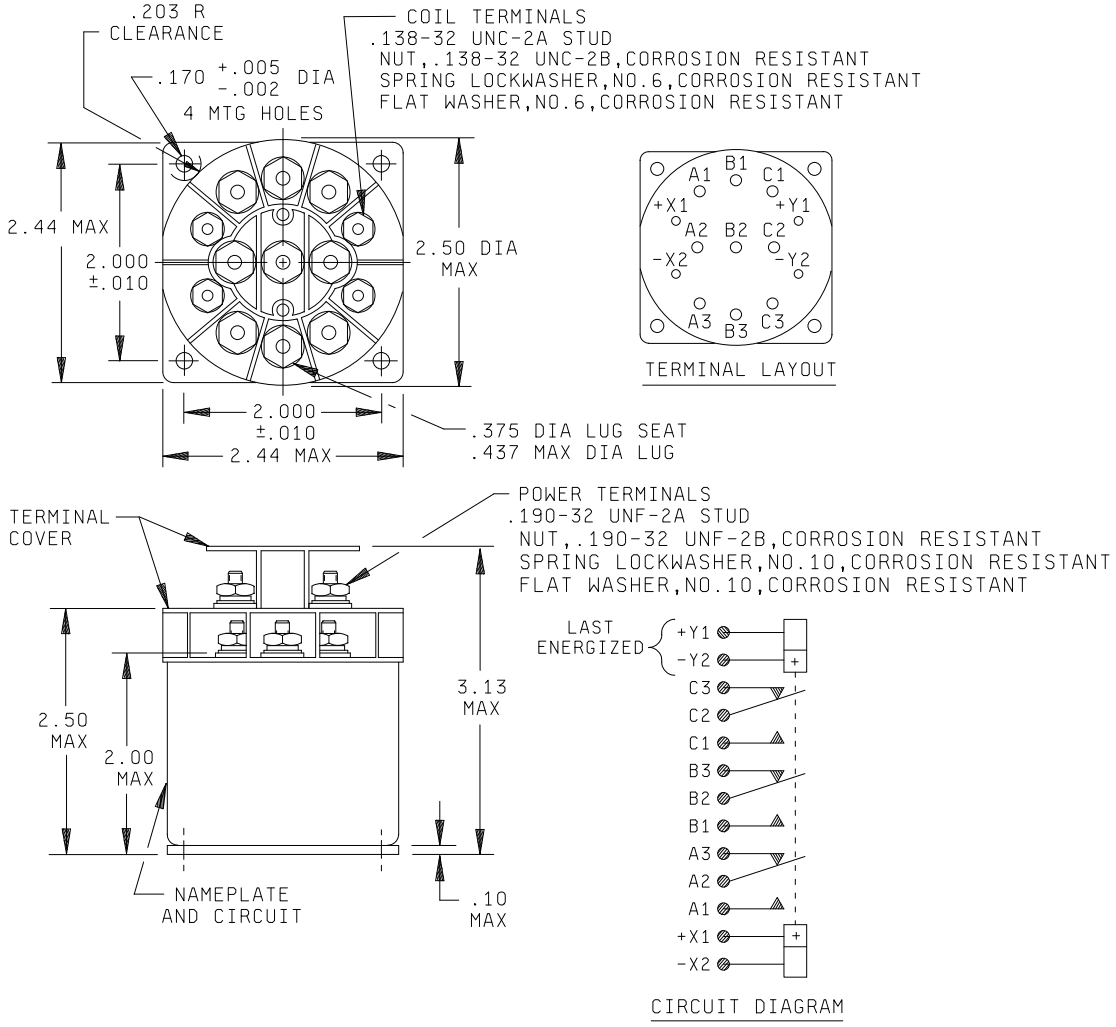

FIGURE 1. Dimensions and configuration.

Inches	mm
.002	0.080
.005	0.127
.010	0.254
.100	2.540
.170	4.380
.203	5.156
.375	9.525
.437	11.100
1.910	48.514
2.000	50.800
2.440	61.976
2.450	62.230
2.500	63.500
3.130	79.502

NOTES:
1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is ±.031 (0.79 mm).
3. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
4. Relay is magnetically latched in both positions.
5. Coils are not to be energized simultaneously (unless connected series aiding).
6. Metric equivalents are given for general information only.

MS part number	Type	Coil	Terminal type	Mounting	Max weight in pounds 1/
MS27749-1	I	dc	Stud	Plate	.875
MS27749-2	I	dc	Stud	Plate	.938

1/ Weight includes terminal barriers.

FIGURE 1. Dimensions and configurations - Continued.

REQUIREMENTS:

Contact data:

Load ratings: See table I and table III.

Initial contact voltage drop: 0.150 volt.

After life test: 0.175 V.

Overload current: 50 amperes dc; 80 amperes ac.

Rupture current: 60 amperes dc; 100 amperes ac.

Coil data: See table II.

Duty rating: Continuous.

Electrical data:

Insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric withstanding voltage:

Sea level:

	Initial	After life tests
Coil to case	1,000	1,000
Aux contacts	N/A	N/A
All other points	1,250	1,000

Altitude:

	80,000 ft	300,000 ft
Coil to case	350	500
Aux contacts	N/A	
All other points	350	500

Environmental characteristics:

Temperature range: -70°C to +125°C.

Maximum altitude rating: 300,000 feet.

Shock g-level: 200 g's.

Duration: 6 ms.

Max duration contact opening: 10 μs.

Vibration - sinusoidal:

G-level 30 g's.

Frequency range 10 - 3,000 Hz.

Vibration - random:

Applicable specification: MIL-STD-202, method 214.

Test condition: IG.

Duration: 15 minutes each plane.

Acceleration 15 g's.

Physical data:

Dimensions and configurations: See figure 1.

Weight: 0.938 pound maximum.

Part or Identifying Number (PIN): MS27749- (dash number from table II).

Qualification by similarity: See MIL-PRF-6106.

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

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 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		400 Hz	60 Hz	
Resistive 2/	50	25	25			25				25				
Inductive	10	12	12											
Inductive	20					15				15				
Motor	50	10	10			10				10				
Lamp	50	5	5			5				5				
Transfer load	---					---				---				3/
Mechanical life reduced current	200	6	6			6				6				
Mixed loads	Applicable per specification													

1/ Absence of value indicates relay is not rated for 3 phase applications.
2/ For full rated load, temperature, and altitude, use number 12 wire or larger. Relays shall be mounted so that mounting bracket temperature is limited to +135°C maximum.
3/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

Table II. Operating characteristics.

Part no. MS 27749-	Coil data										Time - (milliseconds maximum)					
	Coil	Nominal			Max at +25°C		Max pick-up voltage			Drop out volt-age 2/	Oper -ate 3/	Rel-eas e 4/	Contact Bounce			
													Main		Aux	
		Volts 1/	Freq Hz	Ω Res ±10%	Volts	Amp	Nor-mal 2/	High temp test	Cont cur-rent test				NO	NC	NO	NC
1	X1,X2	28	dc	200	29	.190	18	20	21	N/A	35	---	3	3	---	---
2	Y1, Y2	28	dc	200	29	.190	18	20	21	N/A	---	35	3	3	---	---

1/ Contact transfer time @ rated voltage, 1.8 milliseconds minimum.
2/ Over the temperature range.
3/ With nominal coil voltage.
4/ From nominal coil voltage.

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

Type of load	Life operat ing cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 1/				See appro priate 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	50	50			60				60				
Inductive	20	20	20											
Inductive	50					60				60				
Motor	50	20	20			40				40				
Lamp	50	10	10			15				15				
Transfer load	10					12.5/ 60				12.5/ 60				2/
Mechanical life reduced current	200	7	7			14				14				2/
Mixed loads	50	1	1			5				5				

1/ Absence of value indicates relay is not rated for 3 phase applications.
2/ Transfer load indicates relay suitable for transfer between unsynchronized ac power supplies at rating indicated. 12.5 amps for -1, 60 amps for -2.

APPLICATION, NOTES:

1. Examination of product, external parts shall be performed in accordance with MIL-PRF-6106, except the case temperature shall be limited to 150°C maximum.
2. Strength of terminals, shall be performed in accordance with MIL-PRF-6106, except it shall be tested at room ambient temperature only.

ENVIRONMENTAL CHARACTERISTICS

Temperature range	55°C to +71°C.
Max altitude rating	50,000 ft.
Shock G-level	50g.
Duration	6 ms.
Max duration contact opening	10 μs.
Vibration:	
Sinusoidal:	
G-level	10 g.
Frequency range	70-2,000 Hz.
Nonoperate	
G-level	15 g.
Frequency range	20-2,000 Hz.
Acceleration	15 g.

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	N/A	N/A
All other points	1,500 V rms	1,150 V rms

Dielectric strength (altitude).

	50,000 ft
Coil to case	500 V rms
Aux contacts	N/A
All other points	700 V rms

Max contact drop initial	.150 volt.
After life test	.175 volt.
Overload current	125 A dc; 115/200 A ac;
Rupture current	150 A dc; 115/200 Vac; 400 Hz 500 A
Duty rating	Continuous.

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.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue 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 and relationship to the last previous issue.

Referenced documents. In addition to MIL-PRF-6106, this document references the following. :

MIL-STD-202

Custodians:
Air Force - 85
DLA – CC

Review activities:
Air Force - 99

Preparing activity:
DLA - CC

(Project 5945-2012-030)

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 https://assist.dla.mil/.