

INCH-POUND

MIL-R-83516/4D
16 December 2021
SUPERSEDING
MIL-R-83516/4C
1 November 2011

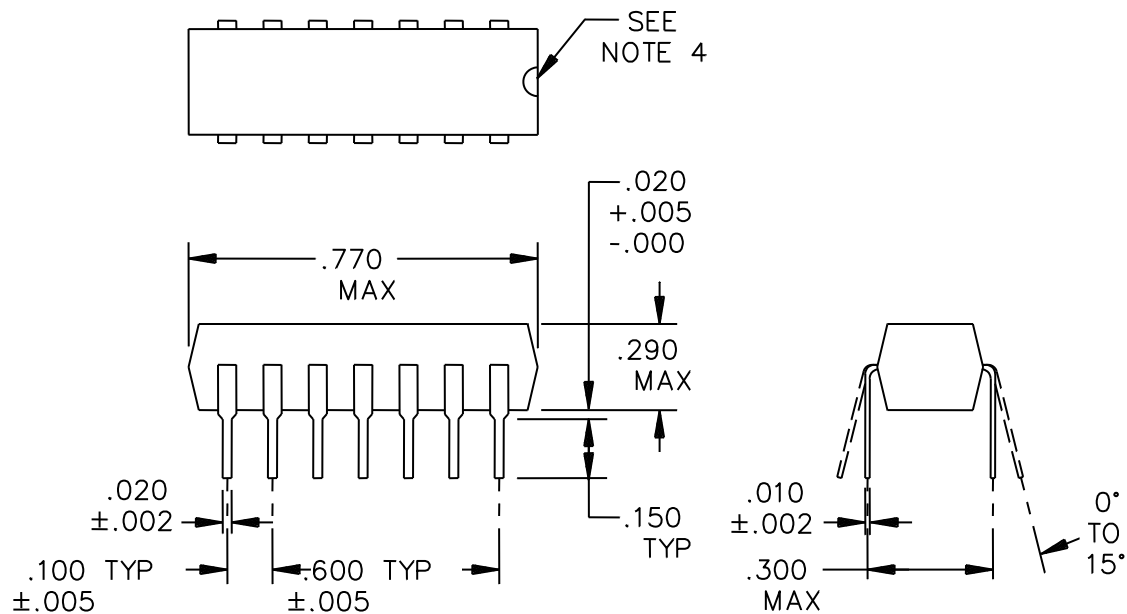
MILITARY SPECIFICATION SHEET

RELAYS, REED, DRY, DUAL IN-LINE PACKAGE (DIP),
GENERAL PURPOSE, LOW-POWER COIL

Reactivated after 16 December 2021 and
may be used for new and existing design

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

The requirements for acquiring the relays described herein shall
consist of this specification sheet and [MIL-R-83516](#).



CONFIGURATION A
14 PINS

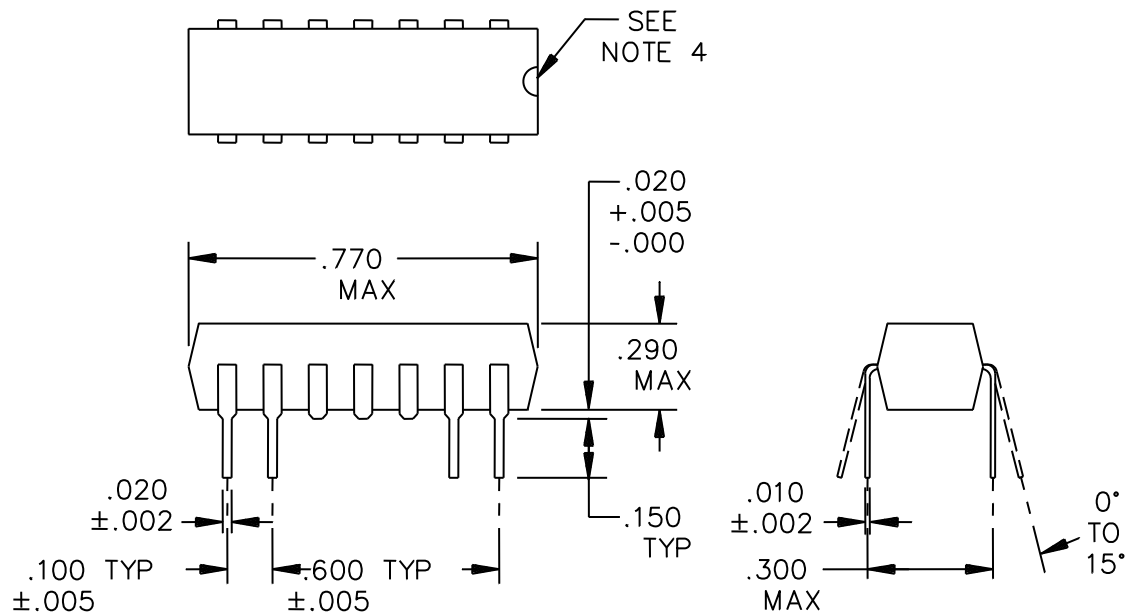
FIGURE 1. Outline drawing.

AMSC N/A

FSC 5945

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.





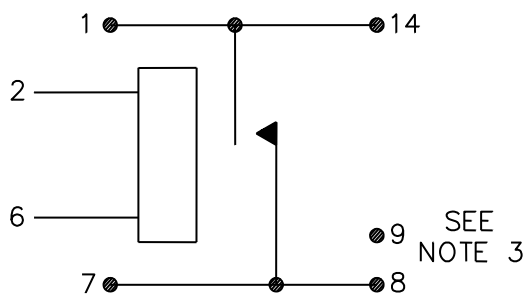
CONFIGURATION B
8 PINS

Inches	mm	Inches	mm
.002	0.05	.150	3.81
.005	0.13	.290	7.36
.010	0.25	.300	7.62
.020	0.51	.600	15.24
.100	2.54	.770	19.55

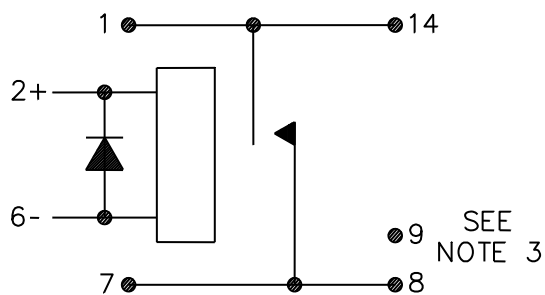
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Relays are available with electrostatic shielding at pin 9.
4. A position identifier (shape optional) shall be placed on the top of each relay centered between pins 1 and 14 or directly over pin 1.
5. Relay heights can be found in [table I](#).
6. Unless otherwise specified, tolerance is $\pm .010$ (0.25 mm).

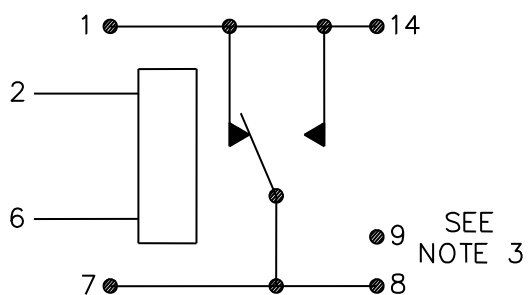
FIGURE 1. Outline drawing - Continued.



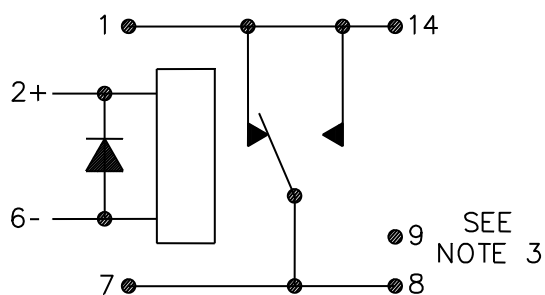
CIRCUIT DIAGRAM A
I FORM A



CIRCUIT DIAGRAM B
I FORM A



CIRCUIT DIAGRAM C
I FORM C



CIRCUIT DIAGRAM D
I FORM C

FIGURE 1. Outline drawing - Continued.

TABLE I. Dash numbers and applicable characteristics.

Dash number		Circuit diagram (See figure 1)	Config-uration (See figure 1)	DC coil data at 25°C			
Without shielding	With shielding			Resistance (minimum) ohms	Pickup voltage (maximum)	Dropout voltage (minimum)	Power dissipation (nominal) mW
5-volt coil	5-volt coil						
001	002	A	A	450	4.0	1.0	50
003	004	B	A	"	"	"	"
005	006	A	B	"	"	"	"
007	008	B	B	"	"	"	"
009	010	C	A	324	"	"	170
011	012	D	A	"	"	"	"
013	014	C	B	"	"	"	"
015	016	D	B	"	"	"	"

REQUIREMENTS:

Design and construction:

Dimensions and configurations: See [figure 1](#).Diode characteristics (when applicable): Diodes shall be JANTX as a minimum. [1/](#)

Peak inverse voltage: 75.0 V dc.

Contact data:

Arrangements: See [figure 1](#).

Load ratings:

<u>Contacts</u>	<u>V dc (max)</u>	<u>mA (max)</u>	<u>VA (max)</u>
Form A	100	500	10
Form C	28	250	3

[1/](#) WARNING: Reverse polarity on coil terminals will destroy diode.

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Contact resistance:

Before life: 0.130 ohm maximum.

During and after life: 1.0 ohm maximum.

Group A inspection: 0.200 ohm maximum.

Contact noise: Applicable.

Contact stability: Applicable.

Coil data: See [table I](#).

Duty rating: Continuous.

Coil power dissipation: See [table I](#).

Operate time: See [table II](#).

Release time: See [table II](#).

TABLE II. Operate and release time (including bounce).

Contact arrangement	Operate time (nominal)		Release time (nominal)	
	Without diode	With diode	Without diode	With diode
	<u>ms</u>	<u>ms</u>	<u>ms</u>	<u>ms</u>
Form A	1	1	.5	1
Form C	2	2	2.5	2.5

Electrical data:

Dielectric withstanding voltage: [MIL-STD-202-301](#). [2/](#)

Test points:

Between all mutually insulated components: 500 V dc.

Across contacts: 250 V dc.

[2/](#) For relays supplied with an internal diode, the coil leads shall be connected together to avoid damage to the coil.

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Insulation resistance: 10,000 MΩ minimum.

Test potential: 100 V dc ±10 percent.

Test points: Between contacts.

Coil transient suppression (relays with internal diodes): 1.0 V maximum negative transient.

Capacitance, pF maximum:

	<u>1A</u>	<u>1C</u>
Across open contacts, no shield:	1.25	2.0
Across open contacts, shield guarded:	0.25	1.2
Contact to coil, no shield:	3.0	3.5
Contact to coil, shield guarded:	2.0	2.0

Environmental data:

Thermal EMF: Not applicable.

Thermal shock: Applicable.

Shock (specified pulse): Applicable.

Vibration, high frequency: Applicable.

Salt spray (corrosion): Applicable.

Moisture resistance: Applicable.

Magnetic interference: Relays are subject to interaction with stray magnetic fields. To keep within operating parameters, relays should be mounted no closer than .500 inch (12.7 mm) of each other. Greater spacing is required for stronger magnetic fields.

Resistance to soldering heat: Applicable.

Physical:

Enclosure: Molded plastic.

Operating temperature range: -40°C to +85°C.

Lead integrity: [MIL-STD-883](#), method 2004, test condition B2; the force to be applied shall be 8.0 ±0.5 ounces.

Solderability: Applicable.

Life: Applicable.

Weight: 2.5 grams maximum.

Part or Identifying Number (PIN): M83516/4- (dash number from [table I](#)).

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Qualification:

Qualification inspection and sample size: See [table III](#).

TABLE III. Qualification inspection and sample size.

M83516/4-	Number of samples
008 016	13 units each part number plus 1 open unit. Qualification inspection as applicable.

Quality assurance provisions:

Group B inspection not required. Group A inspection required. The qualifying activity shall be notified of any design and/or construction changes and shall impose additional testing requirements as necessary.

[MIL-R-83516](#), paragraph 4.5.1.2.2.1, first sentence does not apply.

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 previous issue

Referenced documents. In addition to [MIL-R-83516](#), this document references the following:
[MIL-STD-202-301](#) [MIL-STD-883](#)

Custodians:
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-2022-006)

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/>.