

INCH-POUND

MIL-PRF-83726/21E

15 June 1999

SUPERSEDING

MIL-R-83726/21D(USAF)

15 June 1992

PERFORMANCE SPECIFICATION SHEET

RELAY, SOLID-STATE, TIME DELAY (ON OPERATE), TYPE I,  
CLASS C, SPST, 250 MILLIAMPERES, VARIABLE TIME, 0.05 TO 500 SECONDS

This specification is approved for use within the Department of the Air Force, and is available 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 MIL-PRF-83726.

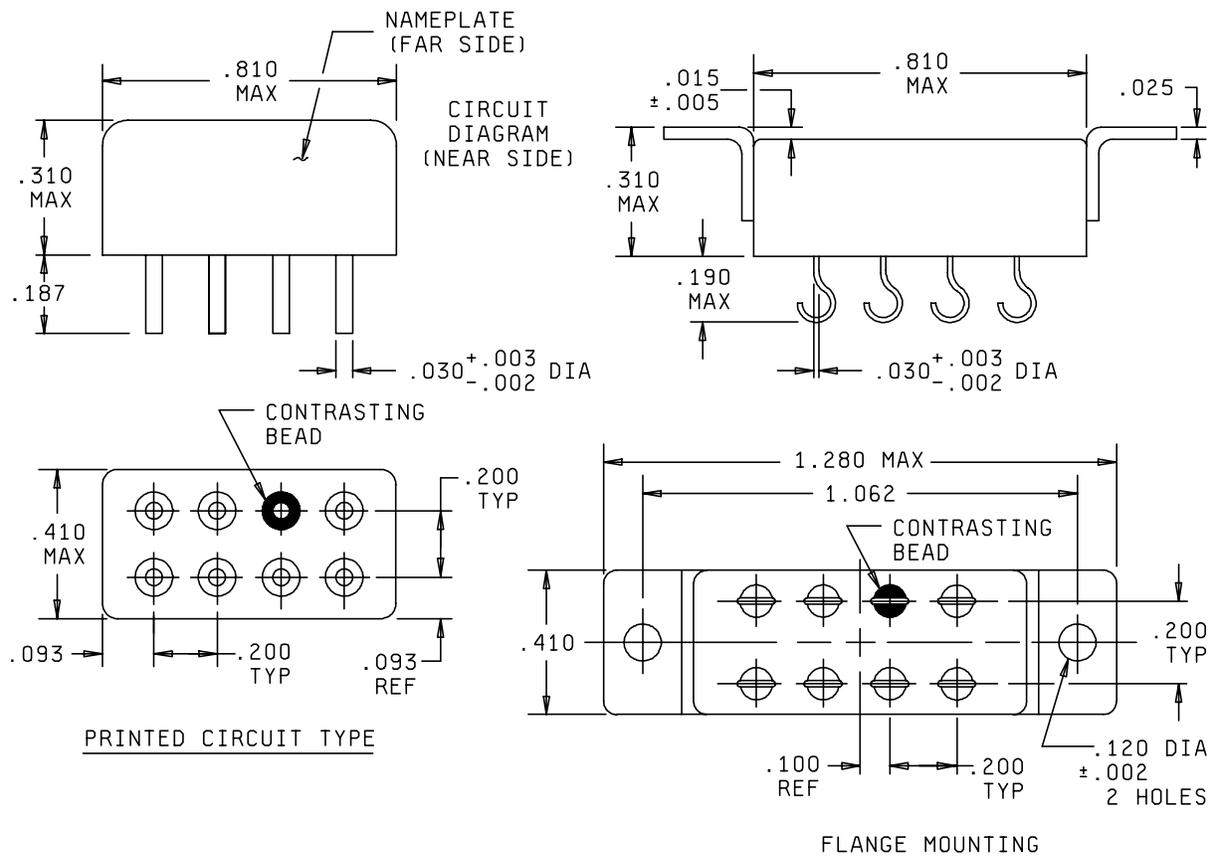
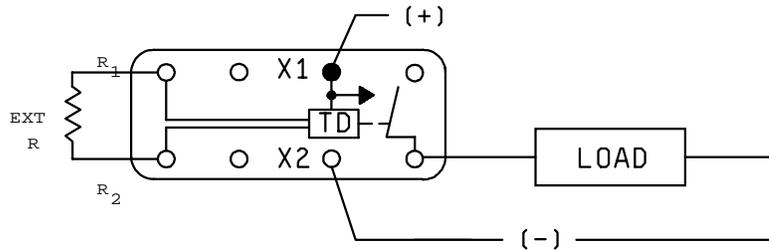
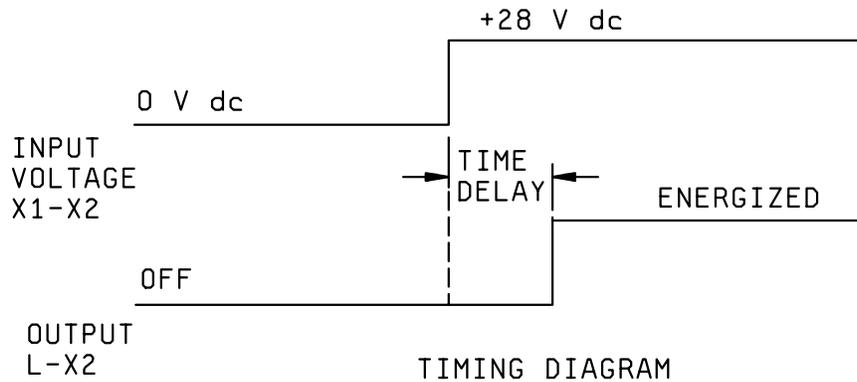


FIGURE 1. Outline drawing and dimensions.



CIRCUIT DIAGRAM  
(SEE NOTE 4)



TIMING DIAGRAM

Inches	mm	Inches	mm
.002	0.05	.187	4.75
.003	0.08	.190	4.83
.010	0.25	.200	5.08
.025	0.64	.310	7.87
.030	0.76	.410	10.41
.093	2.36	.810	20.57
.100	2.54	1.062	26.97
.120	3.05	1.280	32.51

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is  $\pm .010$  (0.25 mm) for three place decimals and  $\pm .03$  (0.76 mm) for two place decimals.
4. Spare terminals are connected internally. Do not use for external tie points or for terminals.

FIGURE 1. Outline drawing and dimensions – Continued.

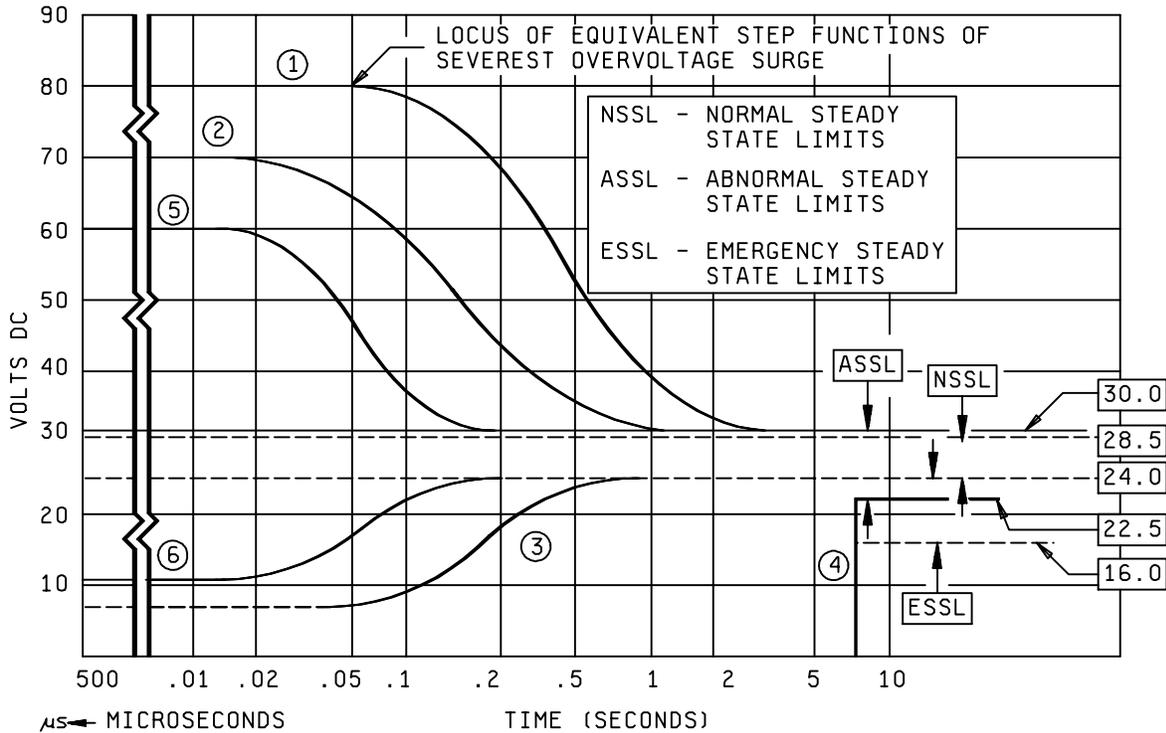


FIGURE 2. Transient Surge dc voltage step function loci limits for category B equipment.

REQUIREMENTS:

OPERATING REQUIREMENTS:

Timing action: Delay-on-operate.

Time delay 1/: Adjustable (see table I) with external resistor according to the following formula:

$$R_{ext} = 100 \text{ k}\Omega (T / T_m) - 1)$$

where T = desired time, T<sub>m</sub> = minimum time, and (T / T<sub>m</sub>) ≤ 10

Timing accuracy 2/: +10 percent of the nominal value.

Recycle time 3/: 10 milliseconds.

Power interrupt: The accuracy will not be affected by power interruptions up to 1 millisecond spaced at least 10 milliseconds apart.

1/ External resistor in accordance with MIL-R-55182, RNC60HXXXXFS or equal.

2/ The accuracy requirement applies for any combination of operating temperature and voltage.

3/ Recycle time is defined as the maximum time that power must be removed from the input terminals to assure that the next timing cycle will be completed within the specified timing tolerance. (Units can be recycled during timing or after time-out.)

TABLE I. Available time delays. 1/

Dash number		Time delay (seconds)	
Printed circuit type terminals	Flange mounting	±10%	
-001	-005	0.05	0.5
-002	-006	0.5	5
-003	-007	5	50
-004	-008	50	500

1/ CAUTION: Relays supplied to this specification sheet are susceptible to damage from electrostatic discharge under class I devices as defined by DOD-STD-1686 (see ESDS requirements herein).

#### INPUT REQUIREMENTS:

Input voltage: 28 V dc nominal; range 18 V dc to 32 V dc.

Duty rating: Continuous.

Current drain: 5 milliamperes maximum plus load at 25°C.

Polarity protection: The timer shall be inoperative during, and undamaged by, reversal of the polarity of the operating voltage.

#### OUTPUT REQUIREMENTS:

Configuration: SPST; switch closure to +28 V dc.

Rating: 250 milliamperes maximum.

Suppression: Inductive suppression provided for output protection.

Voltage drop: 2 V dc maximum.

Leakage current: 1.0 microampere maximum at 28 V dc and 25°C; 10 microamperes maximum at 28 V dc and 125°C.

Endurance: 1,000,000 cycles minimum for test.

Qualification: 2,000 hours or 1,000,000 cycles, whichever is less.

Group B: 1,000 hours or 1,000,000 cycles, whichever is less.

#### ELECTRICAL REQUIREMENTS:

Transients: In accordance with MIL-STD-704 and figure 2 (limit 1, duty cycle 2 percent for category B equipment).

Spike:

Self-generated: None.

Susceptibility: +80 V maximum; -600 V maximum.

Radio noise: MIL-STD-461, class 1D.

Motor load: Not applicable.

Insulation resistance: 1,000 megohms at 500 V dc at sea level, and 100 V dc at 80,000 feet between each pin and case.

Dielectric strength: 1,000 V rms at 60 Hz at sea level, and 350 V rms at 80,000 feet between case and pins connected together.

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ENVIRONMENTAL REQUIREMENTS:

- Ambient temperature (operating or nonoperating): -55°C to +125°C.
- Vibration (sinusoidal): 10 Hz to 100 Hz at 0.06 inch DA; 100 Hz to 3,000 Hz at 30 g's.
- Vibration (random): MIL-STD-202, method 214, condition I, letter J, duration of 30 minutes.
- Maximum altitude rating: 80,000 feet.
- Shock: 1,100 g's for 0.5 millisecond.
- Acceleration: 100 g's.
- Seal: MIL-STD-883, method 1014, condition B and condition C.
- Moisture resistance: MIL-STD-202, method 106.

PHYSICAL REQUIREMENTS:

- Dimensions and configurations: See figure 1.
- Terminations: See figure 1.
- Terminal strength: 3 pounds pull.
- Weight: 0.5 ounce.
- Marking: Marking shall be in accordance with MIL-PRF-83726. In addition, relays shall be marked with the ESDS identifier as specified in MIL-STD-1285.
- Part or Identifying Number (PIN): The PIN consists of the prefix M83726/21- and a three digit dash number. 4/ 5/
- Example: M83726/21-001

Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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4/ Relays numbered prior to the date of this specification shall be considered interchangeable (store and issue).

5/ For dash numbers refer to table I.

Custodian:  
Air Force - 11

Review activity:  
Air Force - 19

Preparing activity:  
DLA - CC

(Project 5945-F798)