

INCH-POUND

MIL-PRF-83532/7A
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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

DELAY LINES, ACTIVE, 16-PIN DIP COMPATIBLE, PROGRAMMABLE 3-BIT, TTL COMPATIBLE, WITH INPUT BUFFER

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

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-PRF-83532.

REQUIREMENTS:

Design and construction: Parts shall be of the design, construction, and physical dimensions specified in the appendix of MIL-PRF-83532 (case style F), and shall meet the requirements for product assurance level B of MIL-PRF-83532.

Schematic: See figure 1.

Input pulse: Delay lines must be capable of meeting the applicable table I and table II requirements with an input pulse having the following characteristics:

- A - Leading edge of a positive-going pulse.
- B - Minimum pulse width of 50 percent of maximum delay time.
- C - Fixed pulse repetition rate equal to ten times the maximum delay time.
- D - Duty cycle not to exceed 50 percent.

Delay times: Delay time from input to all taps shall be as specified in table I (+25°C) and table II (-55°C and +125°C).

Output rise time (applied to leading edge): 6 ns maximum. Measurement conditions (-55°C ≤ T_C ≤ +125°C): V_{CC} = 5.0 V dc; TR₁ ≤ 3 ns.

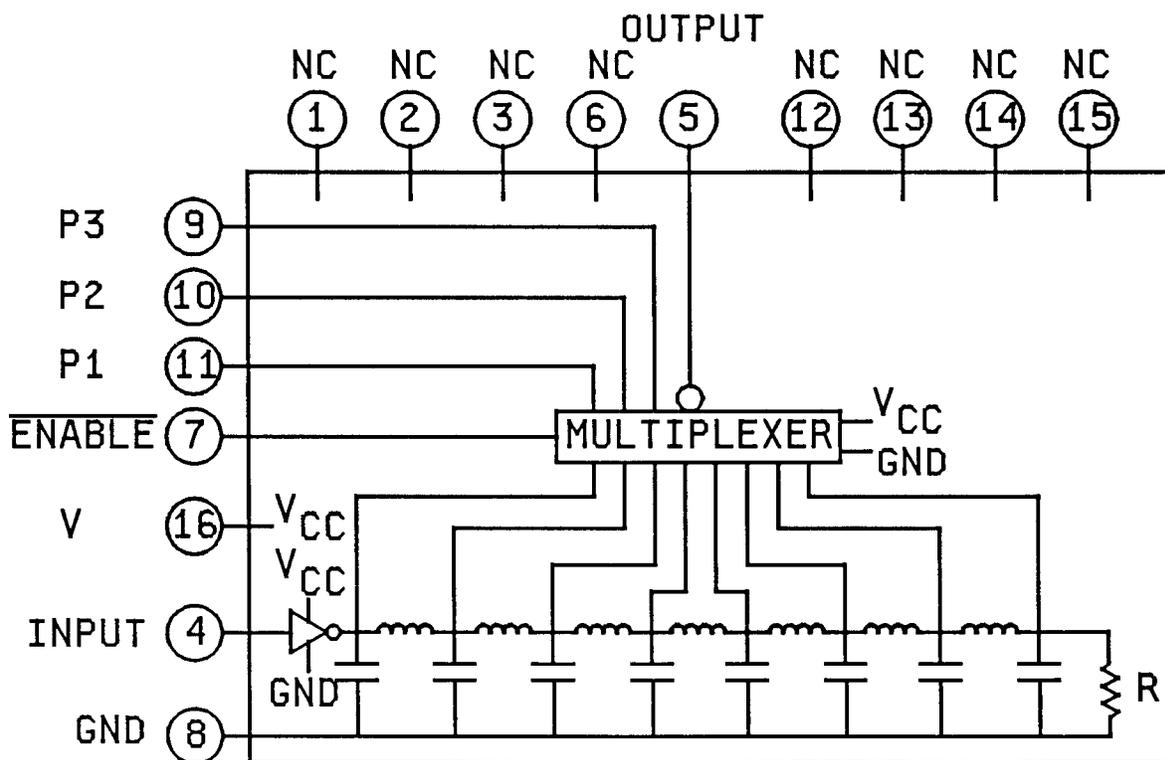
DC characteristics (over the operating temperature range): See table III.

Truth table: See table IV.

Rated maximum load (fan-out): Ten TTL Schottky loads per tap (no more than 20 TTL Schottky loads per unit).

Terminations: Part terminations shall be printed-circuit pin type in accordance with MIL-PRF-38534.

Operating temperature range: Operating temperature range shall be -55°C to +125°C.



NOTES:

1. Schematic is for general information only. Variation in actual circuit is allowable, provided that form, fit, and function are not compromised and all electrical characteristics in tables I through IV are maintained.
2. This is a level B device. All 16 pins must be present.

FIGURE 1. Schematic.

TABLE I. Dash numbers and delay characteristics at +25°C, Vcc = 5.00 ±.01 volts.

Dash number	<u>1/</u> <u>2/</u> Step zero delay time (ns)	<u>2/</u> <u>3/</u> Maximum delay time (ns) (+2.0 ns or 5%, whichever is greater)	<u>2/</u> Delay change per step (ns)
001	8.0 ±2.0	15	1 ±0.4
002	8.0 ±2.0	22	2 ±0.8
003	8.0 ±2.0	29	3 ±1.0
004	8.0 ±2.0	43	5 ±1.5
005	8.0 ±2.0	78	10 ±1.5
006	8.0 ±2.0	113	15 ±1.5
007	8.0 ±2.0	148	20 ±1.5

1/ Delay time at step zero is referenced to the input pin.

2/ The maximum delay time is measured at +1.5 volt level with no load.

3/ For maximum delay time, a step zero delay time of 8 ns is assumed.

TABLE II. Dash numbers and delay characteristics at -55°C and +125°C, Vcc = 5.00 ±.01 volts.

Dash number	<u>1/</u> <u>2/</u> Step zero delay time (ns)	<u>2/</u> <u>3/</u> Maximum delay time (ns) (±3.0 ns or 8%, whichever is greater)	<u>2/</u> Delay change per step (ns)
001	8.0 ±3.5	15	1 ±0.7
002	8.0 ±3.5	22	2 ±1.0
003	8.0 ±3.5	29	3 ±1.5
004	8.0 ±3.5	43	5 ±2.0
005	8.0 ±3.5	78	10 ±3.0
006	8.0 ±3.5	113	15 ±3.0
007	8.0 ±3.5	148	20 ±3.5

1/ Delay time at step zero is referenced to the input tap.

2/ The maximum delay time is measured at +1.5 volt level with no load.

3/ For maximum delay time, a step zero delay time of 8 ns is assumed.

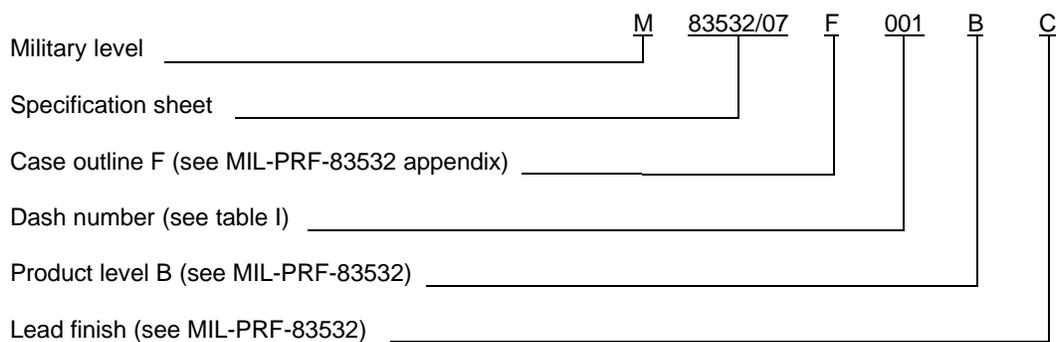
TABLE III. DC characteristics.

Test	Symbol	Conditions -55°C ≤ T _c ≤ +125°C	Limits		Unit
			Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.75 V V _{IH} = 2.0 V I _{OH} = -1 mA	2.5		V
Low level output voltage	V _{OL}	V _{CC} = 4.75 V V _{IL} = 0.8 V I _{OL} = 20 mA		0.5	V
Input clamp voltage	V _{IC}	V _{CC} = 4.75 V I _I = -18 mA T _C = +25°C		-1.2	V
High level input current	I _{IH1}	V _{CC} = 5.25 V V _{IH} = 3.0 V		100	μA
Low level input current	I _{IL}	V _{CC} = 5.25 V V _{IH} = 0.5 V		-4.0	mA
Low level supply current	I _{CCL}	V _{CC} = 5.25 V V _I = 0.0 V		100	mA

TABLE IV. Truth table.

Programming pins	3	0	0	0	0	1	1	1	1
	2	0	0	1	1	0	0	1	1
	1	0	1	0	1	0	1	0	1
Dash numbers									
001	8	1	2	3	4	5	6	7	
002	8	2	4	6	8	10	12	14	
003	8	3	6	9	12	15	18	21	
004	8	5	10	15	20	25	30	35	
005	8	10	20	30	40	50	60	70	
006	8	15	30	45	60	75	90	105	
007	8	20	40	60	80	100	120	140	

Part or Identifying Number (PIN): The PIN shall be in the following format:



VERIFICATION:

Extent of qualification: The extent of qualification shall be as specified in MIL-PRF-83532.
Qualification and testing of dash numbers -001 and -007 herein shall be sufficient to grant qualification to all intermediate dash numbers.

Product level: Only product level B applies to this specification sheet.

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5999-0384)

Review activities:

Navy - AS, CG, MC, SH
Air Force - 19, 99