

INCH-POUND

MIL-PRF-83532/2C  
7 June 2004  
SUPERSEDING  
MIL-PRF-83532/2B  
30 December 1991

## PERFORMANCE SPECIFICATION SHEET

### DELAY LINES, 14-PIN DIP COMPATIBLE, 5 TAP

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:

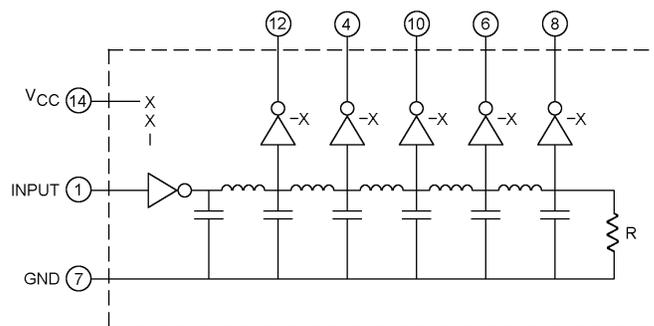
Design and construction: Parts shall be of the design, construction, and physical dimensions specified in the appendix of MIL-PRF-83532. Four case styles (A, B, C, and D) are available.

Input pulse: Delay lines must be capable of meeting 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 25 percent of total delay time.
- C: Fixed pulse repetition rate equal to ten times the total delay time.
- D: Duty cycle not to exceed 50 percent.

Schematic: See figure 1.

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).



#### NOTES:

1. Schematic is for general information only.
2. Pins 2, 3, 5, 9, 11, and 13 are omitted on level A delay lines.
3. All pins are installed on level B delay lines.

FIGURE 1. Schematic.

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

Dash number	Delay and tolerances (ns)				
	Tap 1 Pin 12	Tap 2 Pin 4	Tap 3 Pin 10	Tap 4 Pin 6	Output Pin 8
001	5 ±2 ns	10 ±2 ns	15 ±2 ns	20 ±2 ns	25 ±2 ns
002	6 ±2 ns	12 ±2 ns	18 ±2 ns	24 ±2 ns	30 ±2 ns
003	7 ±2 ns	14 ±2 ns	21 ±2 ns	28 ±2 ns	35 ±2 ns
004	8 ±2 ns	16 ±2 ns	24 ±2 ns	32 ±2 ns	40 ±2 ns
005	9 ±2 ns	18 ±2 ns	27 ±2 ns	36 ±2 ns	45 ±5%
006	10 ±2 ns	20 ±2 ns	30 ±2 ns	40 ±2 ns	50 ±5%
007	11 ±2 ns	22 ±2 ns	33 ±2 ns	44 ±5%	55 ±5%
008	12 ±2 ns	24 ±2 ns	36 ±2 ns	48 ±5%	60 ±5%
009	13 ±2 ns	26 ±2 ns	39 ±2 ns	52 ±5%	65 ±5%
010	14 ±2 ns	28 ±2 ns	42 ±5%	56 ±5%	70 ±5%
011	15 ±2 ns	30 ±2 ns	45 ±5%	60 ±5%	75 ±5%
012	16 ±2 ns	32 ±2 ns	48 ±5%	64 ±5%	80 ±5%
013	18 ±2 ns	36 ±2 ns	54 ±5%	72 ±5%	90 ±5%
014	20 ±2 ns	40 ±2 ns	60 ±5%	80 ±5%	100 ±5%
015	25 ±2 ns	50 ±5%	75 ±5%	100 ±5%	125 ±5%
016	30 ±2 ns	60 ±5%	90 ±5%	120 ±5%	150 ±5%
017	35 ±2 ns	70 ±5%	105 ±5%	140 ±5%	175 ±5%
018	40 ±2 ns	80 ±5%	120 ±5%	160 ±5%	200 ±5%
019	45 ±5%	90 ±5%	135 ±5%	180 ±5%	225 ±5%
020	50 ±5%	100 ±5%	150 ±5%	200 ±5%	250 ±5%
021	55 ±5%	110 ±5%	165 ±5%	210 ±5%	275 ±5%
022	60 ±5%	120 ±5%	180 ±5%	240 ±5%	300 ±5%
023	70 ±5%	140 ±5%	210 ±5%	280 ±5%	350 ±5%
024	80 ±5%	160 ±5%	240 ±5%	320 ±5%	400 ±5%
025	90 ±5%	180 ±5%	270 ±5%	360 ±5%	450 ±5%
026	100 ±5%	200 ±5%	300 ±5%	400 ±5%	500 ±5%
027	120 ±5%	240 ±5%	360 ±5%	480 ±5%	600 ±5%
028	140 ±5%	280 ±5%	420 ±5%	560 ±5%	700 ±5%
029	160 ±5%	320 ±5%	480 ±5%	640 ±5%	800 ±5%
030	180 ±5%	360 ±5%	540 ±5%	720 ±5%	900 ±5%
031	200 ±5%	400 ±5%	600 ±5%	800 ±5%	1,000 ±5%

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TABLE II. Dash numbers and delay characteristics at -55°C and +125°C.  
V<sub>CC</sub> = 5.00 ± 0.01 volts.

Dash number	Delay and tolerances (ns)				
	Tap 1 Pin 12	Tap 2 Pin 4	Tap 3 Pin 10	Tap 4 Pin 6	Output Pin 8
001	5 ±3 ns	10 ±3 ns	15 ±3 ns	20 ±3 ns	25 ±3 ns
002	6 ±3 ns	12 ±3 ns	18 ±3 ns	24 ±3 ns	30 ±3 ns
003	7 ±3 ns	14 ±3 ns	21 ±3 ns	28 ±3 ns	35 ±3 ns
004	8 ±3 ns	16 ±3 ns	24 ±3 ns	32 ±3 ns	40 ±3 ns
005	9 ±3 ns	18 ±3 ns	27 ±3 ns	36 ±3 ns	45 ±8%
006	10 ±3 ns	20 ±3 ns	30 ±3 ns	40 ±3 ns	50 ±8%
007	11 ±3 ns	22 ±3 ns	33 ±3 ns	44 ±8%	55 ±8%
008	12 ±3 ns	24 ±3 ns	36 ±3 ns	48 ±8%	60 ±8%
009	13 ±3 ns	26 ±3 ns	39 ±3 ns	52 ±8%	65 ±8%
010	14 ±3 ns	28 ±3 ns	42 ±8%	56 ±8%	70 ±8%
011	15 ±3 ns	30 ±3 ns	45 ±8%	60 ±8%	75 ±8%
012	16 ±3 ns	32 ±3 ns	48 ±8%	64 ±8%	80 ±8%
013	18 ±3 ns	36 ±3 ns	54 ±8%	72 ±8%	90 ±8%
014	20 ±3 ns	40 ±3 ns	60 ±8%	80 ±8%	100 ±8%
015	25 ±3 ns	50 ±8%	75 ±8%	100 ±8%	125 ±8%
016	30 ±3 ns	60 ±8%	90 ±8%	120 ±8%	150 ±8%
017	35 ±3 ns	70 ±8%	105 ±8%	140 ±8%	175 ±8%
018	40 ±3 ns	80 ±8%	120 ±8%	160 ±8%	200 ±8%
019	45 ±8%	90 ±8%	135 ±8%	180 ±8%	225 ±8%
020	50 ±8%	100 ±8%	150 ±8%	200 ±8%	250 ±8%
021	55 ±8%	110 ±8%	165 ±8%	210 ±8%	275 ±8%
022	60 ±8%	120 ±8%	180 ±8%	240 ±8%	300 ±8%
023	70 ±8%	140 ±8%	210 ±8%	280 ±8%	350 ±8%
024	80 ±8%	160 ±8%	240 ±8%	320 ±8%	400 ±8%
025	90 ±8%	180 ±8%	270 ±8%	360 ±8%	450 ±8%
026	100 ±8%	200 ±8%	300 ±8%	400 ±8%	500 ±8%
027	120 ±8%	240 ±8%	360 ±8%	480 ±8%	600 ±8%
028	140 ±8%	280 ±8%	420 ±8%	560 ±8%	700 ±8%
029	160 ±8%	320 ±8%	480 ±8%	640 ±8%	800 ±8%
030	180 ±8%	360 ±8%	540 ±8%	720 ±8%	900 ±8%
031	200 ±8%	400 ±8%	600 ±8%	800 ±8%	1,000 ±8%

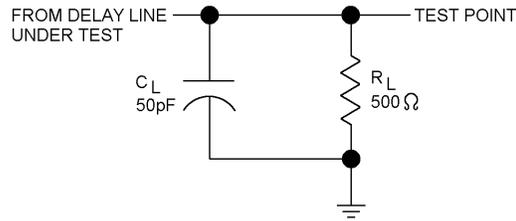
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TABLE III. DC characteristics.

Test	Symbol	Conditions $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$	Limits		Unit
			Min	Max	
High level output voltage	$V_{OH}$	$V_{CC} = 4.5\text{ V}$ $V_{IH} = 2.0\text{ V}$ $I_{OH} = -1\text{ mA}$	2.5		V
Low level output voltage	$V_{OL}$	$V_{CC} = 4.5\text{ V}$ $V_{IL} = 0.8\text{ V}$ $I_{OL} = 20\text{ mA}$		0.5	V
Input clamp voltage	$V_{IC}$	$V_{CC} = 4.5\text{ V}$ $I_I = -18\text{ mA}$ $T_C = +25^{\circ}\text{C}$		-1.2	V
High level input current	$I_{IH1}$	$V_{CC} = 5.5\text{ V}, V_{IH} = 2.7\text{ V}$		50	$\mu\text{A}$
	$I_{IH2}$	$V_{CC} = 5.5\text{ V}, V_{IH} = 5.5\text{ V}$		1,000	$\mu\text{A}$
Low level input Current	$I_{IL}$	$V_{CC} = 5.5\text{ V}, V_{IL} = 0.5$		-2.0	mA
Short circuit output current	$I_{OS}$	$V_{CC} = 5.5\text{ V}, V_{OS} = 0.0\text{ V}$ (not more than one output shorted at a time)	-40	-150	mA
Low level supply current	$I_{CCL}$	$V_{CC} = 5.5\text{ V}$ $V_I = 0.0\text{ V}$		75	mA

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Output rise time (applied to leading edge only): 5 ns maximum. Measurement conditions ( $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ ):  $V_{CC} = 5.0 \text{ V dc}$ ;  $TR_1 \leq 3 \text{ ns}$ . The load circuit shall be as follows ( $C_L$  includes probe and test fixture capacitance):



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

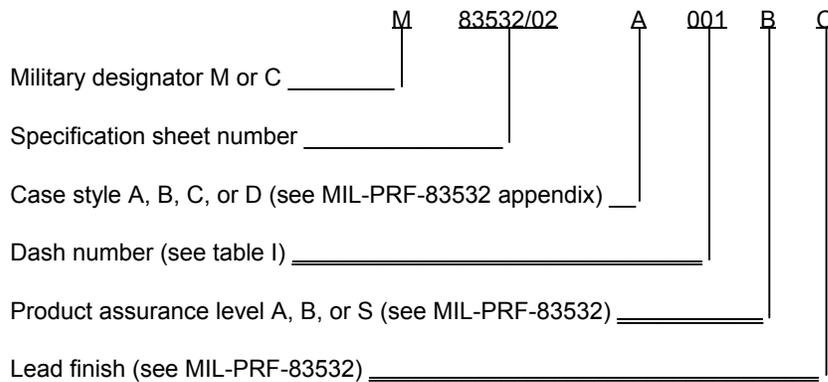
Rated maximum load (fan-out): Ten TTL Schottky loads per tap (no more than 20 TTL Schottky loads per unit).

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

Operating temperature: Operating temperature range shall be  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ .

Number of sections: Ten sections minimum, except for dash numbers 001 through 005 which shall have eight sections minimum.

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, for example:

Qualification and testing of M83532/02A001A\* 1/ and M83532/02A031A\* 1/ shall be sufficient to grant qualification for all dash numbers with case style A contained in this specification sheet. Similarly, for case styles B, C, and D, qualification and testing of dash numbers 001 and 031 shall be sufficient to grant qualification for all dash numbers in this specification sheet having the same case style as the components tested.

1/ \* - Asterisk represents any of the applicable finishes.

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Product assurance level: Product assurance level A shall not extend to level B. Level B shall not extend to level A. Level S shall extend to level B. Level B shall not extend to level S.

Supersession data: MIL-PRF-83532/2 supersedes DESC drawing numbers 84087, 85008, and 85013 when a qualified source is available.

Referenced documents. In addition to MIL-PRF-83532, this document references the following:

MIL-PRF-38534      DD 84087      DD 85008      DD 85013

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.

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Navy - EC  
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Preparing activity:

DLA - CC  
  
(Project 5999-0396)

Review activities:

Navy - AS, CG, MC, SH  
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