MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, TTL, DATA SELECTORS/MULTIPLEXERS,
MONOLITHIC SILICON

Inactive for new design after 7 September 1995.

This specification is approved for use by all Depart-
ments and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF 38535

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic, silicon, TTL, data
selectors/multiplexers, logic microcircuits. Two product assurance classes and a choice of case outlines and lead
finishes are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-
38510 have been superseded by MIL-PRF-38535, (see 6.4).

1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535, and as specified herein.

1.2.1 Device types. The device types are as follows:

| Device type | Circuit |
|---|---|
| 01 | Sixteen-input data selector/multiplexer, with enable |
| 02, 06 | Eight-input data selector/multiplexer, with enable |
| 03 | Dual, four-input data selector/multiplexer, with enable |
| 04 | Dual, four-input data selector/multiplexer, without enable |
| 05 | Quad, two-input data selector/multiplexer, with enable |

1.2.2 Device class. The device class is the product assurance level as defined in MIL-PRF-38535.

1.2.3 Case outlines. The case outlines are as designated in MIL-STD-1835 and as follows:

| Outline letter | Descriptive designator | Terminals | Package style |
|---|---|---|---|
| E | GDIP1-T16 or CDIP2-T16 | 16 | Dual-in-line |
| F | GDFP2-F16 or CDFP3-F16 | 16 | Flat-pack |
| J | GDIP1-T24 or CDIP2-T24 | 24 | Dual-in-line |
| K | GDFP2-F24 or CDFP3-F24 | 24 | Flat-pack |
| Z | GDFP7-F24 or CDFP8-F24 | 24 | Flat-pack |

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense
Supply Center Columbus, ATTN: DSCC-VAS, P. O. Box 3990, Columbus, OH 43218-3990, or emailed to
bipolar@dscc.dla.mil. Since contact information can change, you may want to verify the currency of this
address information using the ASSIST Online database at http://assist.daps.dla.mil.

MIL-M-38510/14E

1.3  Absolute maximum ratings.

Supply voltage range ......................................................  -0.5 V to +7.0 V
Input voltage range .......................................................  -1.5 V at -12 mA to +5.5 V
Storage temperature range  ...........................................  -65°C to +150°C
Maximum power dissipation per gate,  ($P_D$)  1/
    Device type 01  ......................................................  375  mW
    Device types 02 and 06 .........................................  268  mW
    Device type 03  ......................................................  286  mW
    Device type 04  ......................................................  248  mW
    Device type 05  ......................................................  275  mW
Lead temperature (soldering 10 seconds) .....................  300°C
Thermal resistance, junction-to-case  ($\theta_{JC}$).....................  (See MIL-STD-1835)
Junction temperature  ($T_J$ ) 2/........................................  175°C

1.4  Recommended operating conditions.

Supply voltage ($V_{CC}$) ......................................................  4.5 V minimum to 5.5 V maximum
Minimum high level input voltage ($V_{IH}$)  .........................  2.0 V dc
Maximum low level input voltage ($V_{IL}$)  ..........................  0.8 V dc
Maximum low level output current ($I_{IL}$) ..........................  16 mA
Normalized fanout (each output) 3/
    Low logic level  .......................................................  10  maximum
    High logic level  ......................................................  20  maximum
Case operating temperature range ($T_C$ ) ........................  -55°C to 125°C

2.0  APPLICABLE DOCUMENT

2.1  General.  The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples.  While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2  Government documents.

2.2.1  Specifications and standards.  The following specifications and standards form a part of this specification to the extent specified herein.  Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

    MIL-PRF-38535  -  Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

    MIL-STD-883  -  Test Method Standard for Microelectronics.
    MIL-STD-1835  -  Interface Standard Electronic Component Case Outlines

(Copies of these documents are available online at http://assist.daps.dla.mil/quicksearch/ or http://assist.daps.dla.mil  or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA  19111-5094.)

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1/  Must withstand the added $P_D$ due to short circuit condition (e.g. $I_{OS}$ test).
2/  Maximum junction temperature should not be exceeded except in accordance with allowable short
   duration burn-in screening condition in accordance with MIL-PRF-38535.
3/  Device will fanout in both high and low levels to the specified number of inputs of the same device type
   as that being tested.

2.3 <u>Order of precedence.</u>  In the event of a conflict between the text of this specification and the references cited herein, the text of this document takes precedence.  Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3.  REQUIREMENTS

3.1 <u>Qualification.</u>  Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.3).

3.2 <u>Item requirements.</u>  The individual item requirements shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan.  The modification in the QM plan shall not affect the form, fit, or function as described herein.

3.3 <u>Design, construction, and physical dimensions.</u>  The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.

3.3.1 <u>Logic diagrams and terminal connections.</u>  The logic diagrams and terminal connections shall be as specified on figure 1 and 2.

3.3.2 <u>Truth tables.</u>  The truth tables shall be as specified on figure 3.

3.3.4 <u>Schematic circuit.</u>  The schematic circuit shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.

3.3.5 <u>Case outlines.</u>  Case outlines shall be as specified in 1.2.3.

3.4 <u>Lead material and finish.</u>  Lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

3.5 <u>Electrical performance characteristics.</u>  The electrical performance characteristics are as specified in table 1 and apply over the full recommended case operating temperature range, unless otherwise specified.

3.6 <u>Electrical test requirements.</u>  The electrical test requirements for each device class shall be the subgroups specified in table II.  The electrical tests for each subgroup are described in table III.

3.7 <u>Marking.</u>  Marking shall be in accordance with MIL-PRF-38535.

3.8 <u>Microcircuit group assignment.</u>  The devices covered by this specification shall be in microcircuit group number 4 (see MIL-PRF-38535, appendix A).

TABLE I.  Electrical performance characteristics.

| Test | Symbol | Conditions $-55°C \leq T_C \leq +125°C$ unless otherwise specified | Device type | Limits Min | Limits Max | Unit |
|---|---|---|---|---|---|---|
| High level output voltage | $V_{OH}$ | $V_{CC}$ = 4.5 V<br>$I_{OH}$ = -.8 mA | All | 2.4 | | V |
| Low level output voltage | $V_{OL}$ | $V_{CC}$ = 4.5 V<br>$I_{OL}$ = 16 mA | All | | 0.4 | V |
| Input clamp voltage | $V_{IC}$ | $V_{CC}$ = 4.5 V<br>$I_{IN}$ = -12 mA | All | | -1.5 | V |
| Low level input current | $I_{IL}$ | $V_{CC}$ = 5.5 V<br>$V_{IN}$ = 0.4 V | 02, 03, 04 05, 06 | -0.7 | -1.6 | mA |
|  |  |  | 01 | -0.6 | -1.6 | |
| High-level input current | $I_{IH1}$ | $V_{CC}$ = 5.5 V<br>$V_{IN}$ = 2.5 V | All | | 40 | µA |
| High-level input current | $I_{IH2}$ | $V_{CC} = V_{IN}$ = 5.5 V | All | | 100 | µA |
| Short circuit output current | $I_{OS}$ | $V_{CC}$ = 5.5 V<br>$V_{OUT}$ = 0 V  1/ | 01, 03, 06 | -20 | -55 | mA |
|  |  |  | 02, 04, 05 | -20 | -120 | mA |
| Supply current | $I_{CC}$ | $V_{CC}$ = 5.5 V | 01 | | 68 | mA |
|  |  |  | 02,06 | | 48 | mA |
|  |  |  | 04 | | 45 | mA |
|  |  |  | 03 | | 52 | mA |
|  |  |  | 05 | | 50 | mA |
| Propagation delay time high-to-low level output from A, B, C or D to W | $t_{PHL1}$ | $R_L$ = 390Ω ±5%,<br>$C_L$ = 50 pF minimum<br>(figure 4) | 01 | 8 | 40 | ns |
| Propagation delay time low-to-high level output from A, B, C or D to W | $t_{PLH1}$ | | 01 | 8 | 43 | ns |
| Propagation delay time high-to-low level output from strobe to W | $t_{PHL2}$ | | 01 | 6 | 37 | ns |
| Propagation delay time low-to-high level output from strobe to W | $t_{PLH2}$ | | 01 | 6 | 32 | ns |
| Propagation delay time high-to-low level output from $E_0–E_{15}$ to W | $t_{PHL3}$ | | 01 | 3 | 23 | ns |
| Propagation delay time low-to-high level output from $E_0–E_{15}$ to W | $t_{PLH3}$ | | 01 | 3 | 30 | ns |

1/  Not more than one should be shorted at one time.

TABLE I.  Electrical performance characteristics - Continued.

| Test | Symbol | Conditions -55°C $\leq T_C \leq$ +125°C unless otherwise specified | Device type | Limits Min | Limits Max | Unit |
|---|---|---|---|---|---|---|
| Propagation delay time, high-to-low level output from A, B, or C to W | $t_{PHL1}$ | $R_L$ = 390Ω ±5%, | 02 | 6 | 40 | ns |
| | | | 06 | 6 | 48 | |
| Propagation delay time, low-to-high level output from A, B, or C to W | $t_{PLH1}$ | $C_L$ = 50 pF minimum (figure 4) | 02 | 6 | 38 | ns |
| | | | 06 | 6 | 43 | |
| Propagation delay time, high-to-low level output from A, B, or C to Y | $t_{PHL2}$ | | 02 | 8 | 49 | ns |
| | | | 06 | 8 | 60 | |
| Propagation delay time, low-to-high level output from A, B, or C to Y | $t_{PLH2}$ | | 02 | 8 | 45 | ns |
| | | | 06 | 8 | 58 | |
| Propagation delay time, high-to-low level output from strobe to W | $t_{PHL3}$ | | 02 | 6 | 37 | ns |
| | | | 06 | 6 | 38 | |
| Propagation delay time, low-to-high level output from strobe to W | $t_{PLH3}$ | | 02, 06 | 6 | 35 | ns |
| Propagation delay time, high-to-low level output from strobe to Y | $t_{PHL4}$ | | 02 | 8 | 46 | ns |
| | | | 06 | 8 | 52 | |
| Propagation delay time, low-to-high level output from strobe to Y | $t_{PLH4}$ | | 02 | 8 | 42 | ns |
| | | | 06 | 8 | 52 | |
| Propagation delay time, high-to-low level output from $D_0$-$D_7$ to W | $t_{PHL5}$ | | 02, 06 | 3 | 32 | ns |
| Propagation delay time, low-to-high level output from $D_0$-$D_7$ to W | $t_{PLH5}$ | | 02, 06 | 3 | 26 | ns |
| Propagation delay time, high-to-low level output from $D_0$-$D_7$ to Y | $t_{PHL6}$ | | 02 | 6 | 41 | ns |
| | | | 06 | 6 | 44 | |
| Propagation delay time, low-to-high level output from $D_0$-$D_7$ to Y | $t_{PLH6}$ | | 02 | 6 | 33 | ns |
| | | | 06 | 6 | 36 | |
| Propagation delay time, high-to-low level output from data to Y | $t_{PHL1}$ | $R_L$ = 390Ω ±5%, | 03 | 3 | 29 | ns |
| Propagation delay time, low-to-high level output from data to Y | $t_{PLH1}$ | $C_L$ = 50 pF minimum (figure 5) | 03 | 3 | 28 | ns |
| Propagation delay time, high-to-low level output from A or B to Y | $t_{PHL2}$ | | 03 | 6 | 44 | ns |
| Propagation delay time, low-to-high level output from A or B to Y | $t_{PLH2}$ | | 03 | 6 | 42 | ns |
| Propagation delay time, high-to-low level output from strobe to Y | $t_{PHL3}$ | | 03 | 6 | 32 | ns |
| Propagation delay time, low-to-high level output from strobe to Y | $t_{PLH3}$ | | 03 | 6 | 42 | ns |

TABLE I. Electrical performance characteristics - Continued.

| Test | Symbol | Conditions $-55°C \leq T_C \leq +125°C$ unless otherwise specified | Device type | Limits | | Unit |
|---|---|---|---|---|---|---|
| | | | | Min | Max | |
| Propagation delay time high-to-low level output from data to Y | $t_{PHL1}$ | $R_L = 390\Omega \pm5\%$, $C_L = 50$ pF minimum (figure 5) | 04 | 3 | 41 | ns |
| Propagation delay time low-to-high level output from data to Y | $t_{PLH1}$ | | 04 | 3 | 39 | ns |
| Propagation delay time high-to-low level output from data to W | $t_{PHL2}$ | | 04 | 3 | 25 | ns |
| Propagation delay time low-to-high level output from data to W | $t_{PLH2}$ | | 04 | 3 | 24 | ns |
| Propagation delay time high-to-low level output from A or B to Y | $t_{PHL3}$ | | 04 | 6 | 51 | ns |
| Propagation delay time low-to-high level output from A or B to Y | $t_{PLH3}$ | | 04 | 6 | 51 | ns |
| Propagation delay time high-to-low level output from A or B to W | $t_{PHL4}$ | | 04 | 6 | 39 | ns |
| Propagation delay time low-to-high level output from A or B to W | $t_{PLH4}$ | | 04 | 6 | 34 | ns |
| Propagation delay time high-to-low level output from A to Y | $t_{PHL1}$ | $R_L = 390\Omega \pm5\%$, $C_L = 50$ pF minimum (figure 6) | 05 | 6 | 49 | ns |
| Propagation delay time low-to-high level output from A to Y | $t_{PLH1}$ | | 05 | 6 | 41 | ns |
| Propagation delay time high-to-low level output from strobe to Y | $t_{PHL2}$ | | 05 | 3 | 39 | ns |
| Propagation delay time low-to-high level output from strobe to Y | $t_{PLH2}$ | | 05 | 3 | 33 | ns |
| Propagation delay time high-to-low level output from data to Y | $t_{PHL3}$ | | 05 | 3 | 25 | ns |
| Propagation delay time low-to-high level output from data to Y | $t_{PLH3}$ | | 05 | 3 | 35 | ns |

TABLE II.  Electrical test requirements.

| MIL-PRF-38535 Test requirement | Subgroups (see table III) | |
|---|---|---|
| | Class S Devices | Class B Devices |
| Interim electrical parameters | 1 | 1 |
| Final electrical test parameters | 1*, 2, 3, 7, 9, 10, 11 | 1*, 2, 3, 7, 9 |
| Group A test requirements | 1, 2, 3, 7, 8, 9, 10, 11 | 1, 2, 3, 7, 8, 9, 10, 11 |
| Group B electrical test parameters when using the method 5005 QCI option | 1, 2, 3 | N/A |
| Groups C end point electrical parameters | 1, 2, 3 | 1, 2, 3 |
| Group D end point electrical parameters | 1, 2, 3 | 1, 2, 3 |

*PDA applies to subgroup 1.


4.  VERIFICATION

4.1  Sampling and inspection.  Sampling and inspection procedures shall be in accordance with MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan.  The modification in the QM plan shall not effect the form, fit, or function as described herein.

4.2  Screening.  Screening shall be in accordance with MIL-PRF-38535 and shall be conducted on all devices prior to qualification and conformance inspection.  The following additional criteria shall apply:

a.  The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535.  The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request.  The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.

b.  Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.

c.  Additional screening for space level product shall be as specified in MIL-PRF-38535.

4.3  Qualification inspection.  Qualification inspection shall be in accordance with MIL-PRF-38535.

4.4  Technology Conformance Inspection (TCI).  Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).

4.4.1  Group A inspection.  Group A inspection shall be in accordance with table III of MIL-PRF-38535 and as follows:

    a.   Tests shall be as specified in table II herein.

    b.   Subgroups 4, 5, and 6, shall be omitted.

4.4.2  Group B inspection.  Group B inspection shall be in accordance with table II of MIL-PRF-38535.

4.4.3  Group C inspection.  Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:

    a.   End point electrical parameters shall be as specified in table II herein.

    b.  The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535.  The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request.  The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

4.4.4  Group D inspection.  Group D inspection shall be in accordance with table V of MIL-PRF-38535.  End-point electrical parameters shall be as specified in table II herein.

4.5  Methods of  inspection.  Methods of inspection shall be as specified in the appropriate tables and as follows:

4.5.1  Voltage and current.  All voltages given are referenced to the microcircuit ground terminal.  Currents given are conventional current and positive when flowing into the referenced terminal.

DEVICE TYPE 01

CASES J,K AND Z

DATA INPUTS

DATA
SELECT

| $V_{CC}$ | $E_8$ | $E_9$ | $E_{10}$ | $E_{11}$ | $E_{12}$ | $E_{13}$ | $E_{14}$ | $E_{15}$ | A | B | C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| $E_7$ | $E_6$ | $E_5$ | $E_4$ | $E_3$ | $E_2$ | $E_1$ | $E_0$ | STROBE | W OUT-PUT | D DATA SELECT | GND |

DATA INPUTS

DEVICE TYPE 02

CASES E AND F

OUTPUT    DATA SELECT

DATA
INPUT

| $V_{CC}$ | Y | W | C | B | A | STROBE | $D_7$ |
|---|---|---|---|---|---|---|---|
| 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| $D_0$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $D_5$ | $D_6$ | GND |

DATA
INPUTS

Figure 1.  Terminal connections  (top view).

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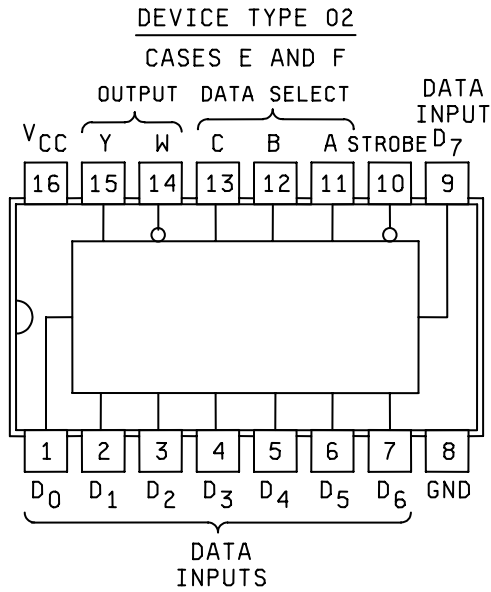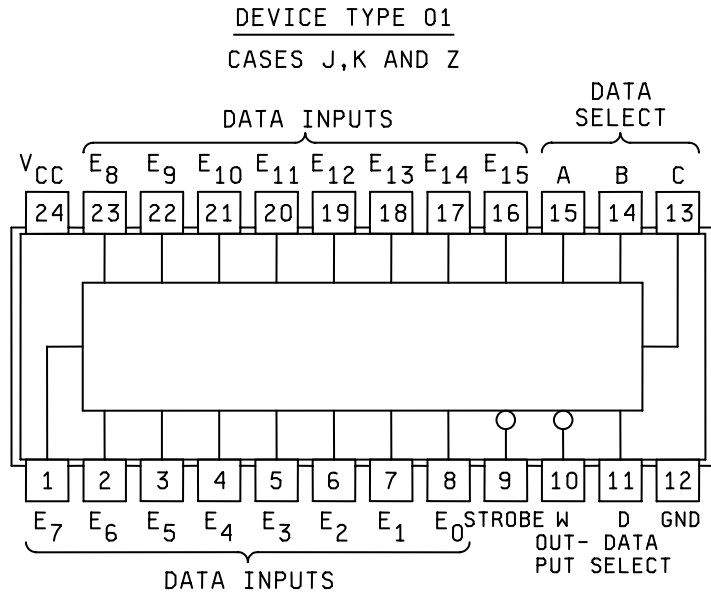
DEVICE TYPE 03

CASES E AND F
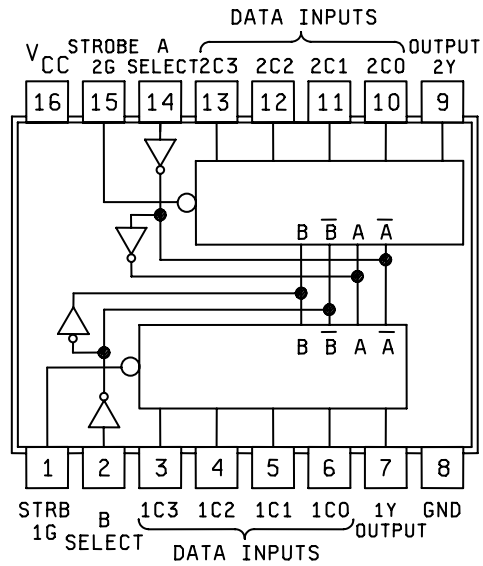


DEVICE TYPE 04

CASES E AND F



Figure 1.  Terminal connections  (top view) - Continued.

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DEVICE TYPE 05

CASES E AND F
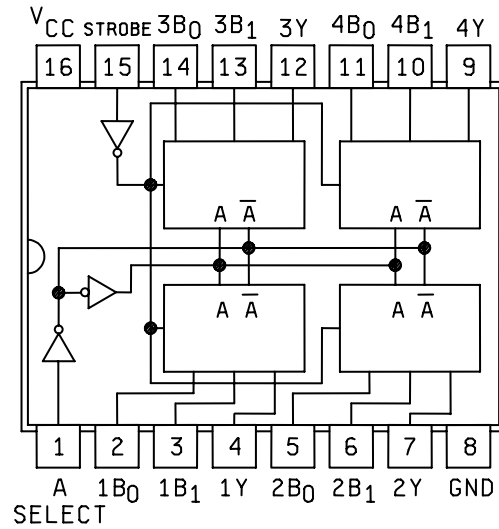


DEVICE TYPE 06

CASES E AND F
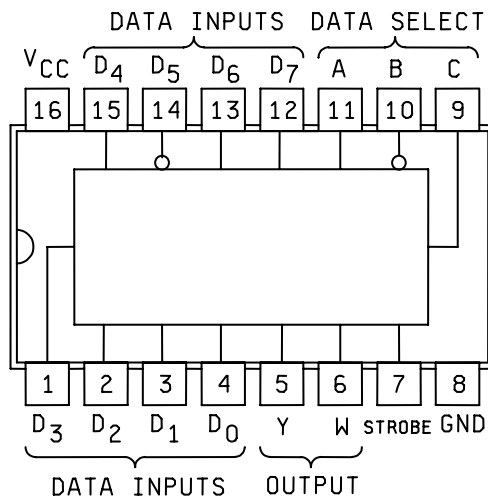


Figure 1.  Terminal connections  (top view) - Continued.
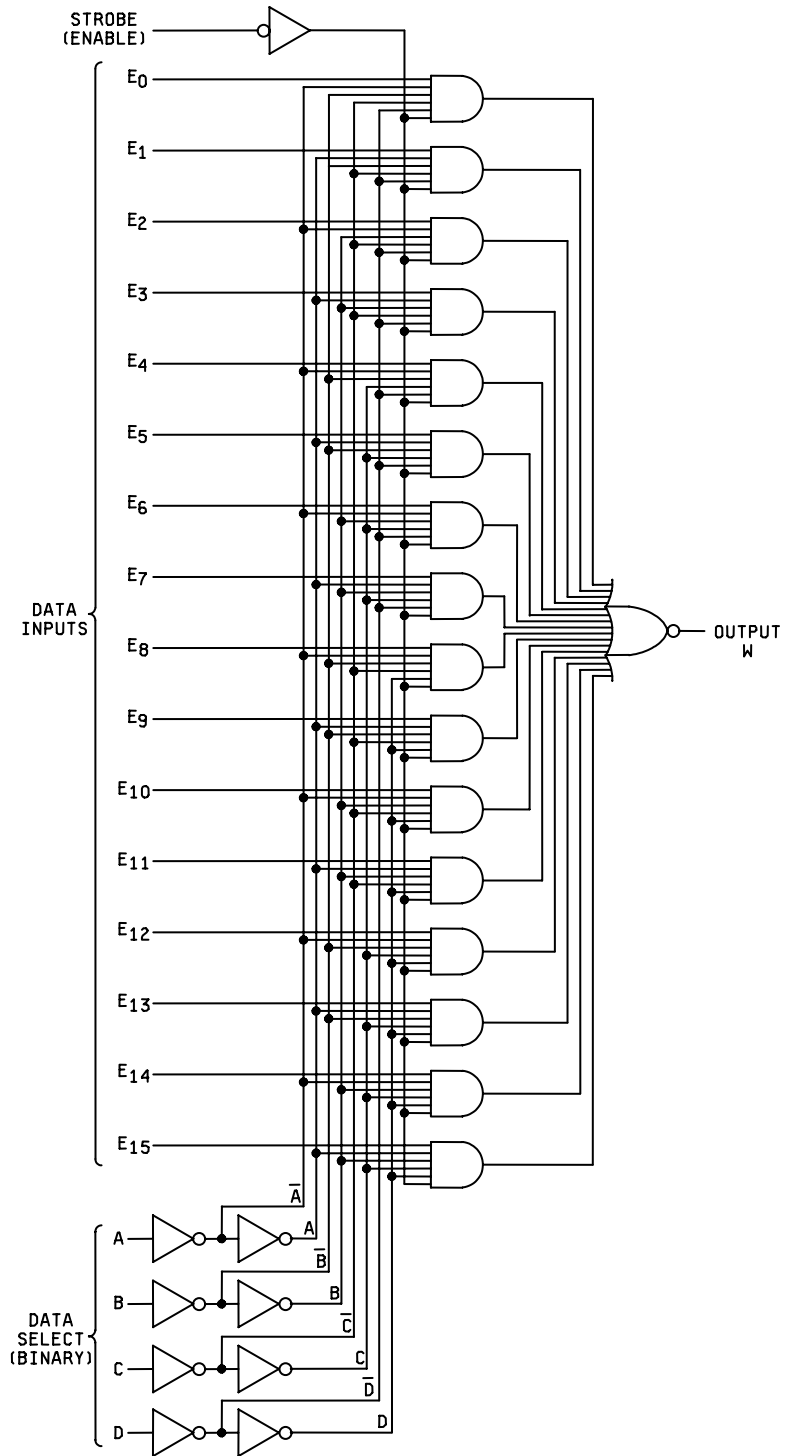
DEVICE TYPE 01



Figure 2.  Logic diagrams.

DEVICE TYPES 02 AND 06
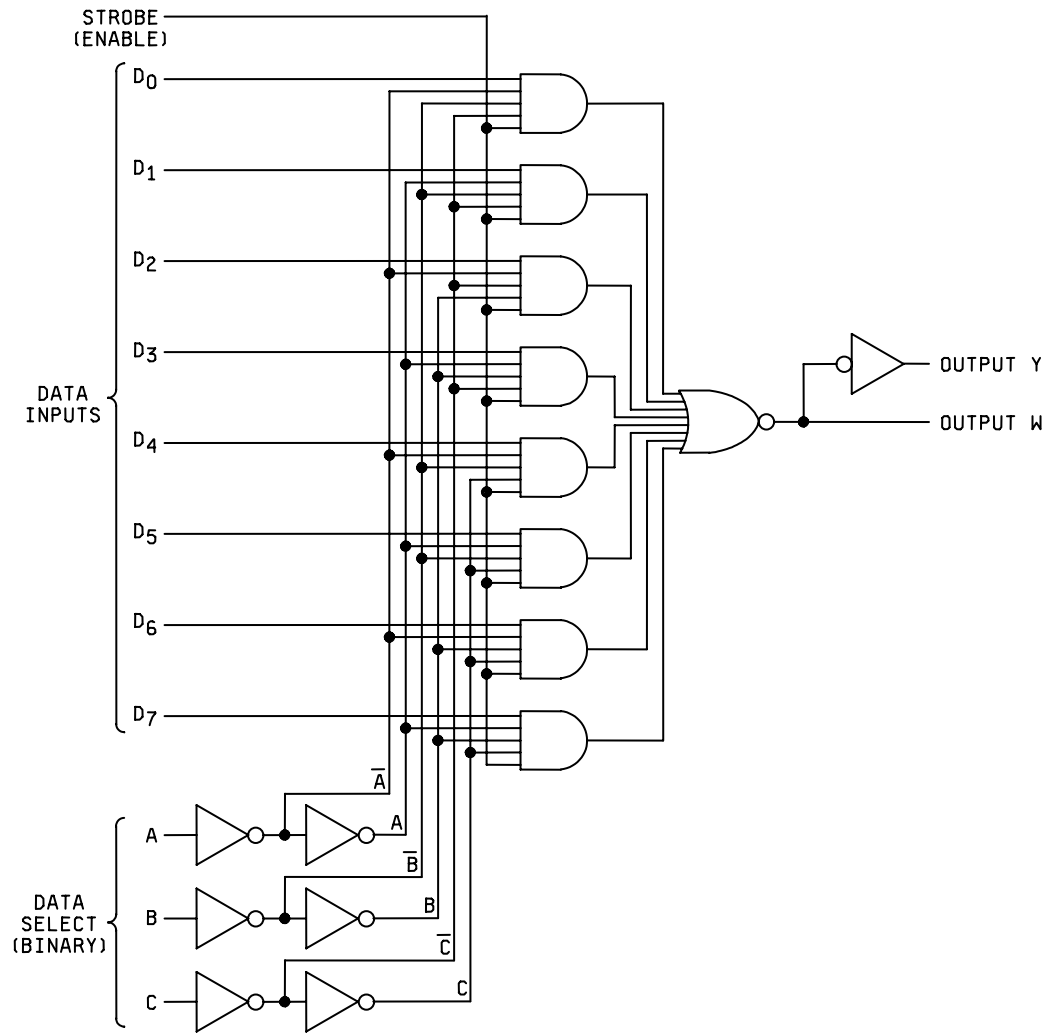


Figure 2.  Logic diagrams – Continued.

DEVICE TYPE 03



Figure 2.  Logic diagrams – Continued.

DEVICE TYPE 04

DEVICE TYPE 05



Figure 2.  Logic diagrams – Continued.

15
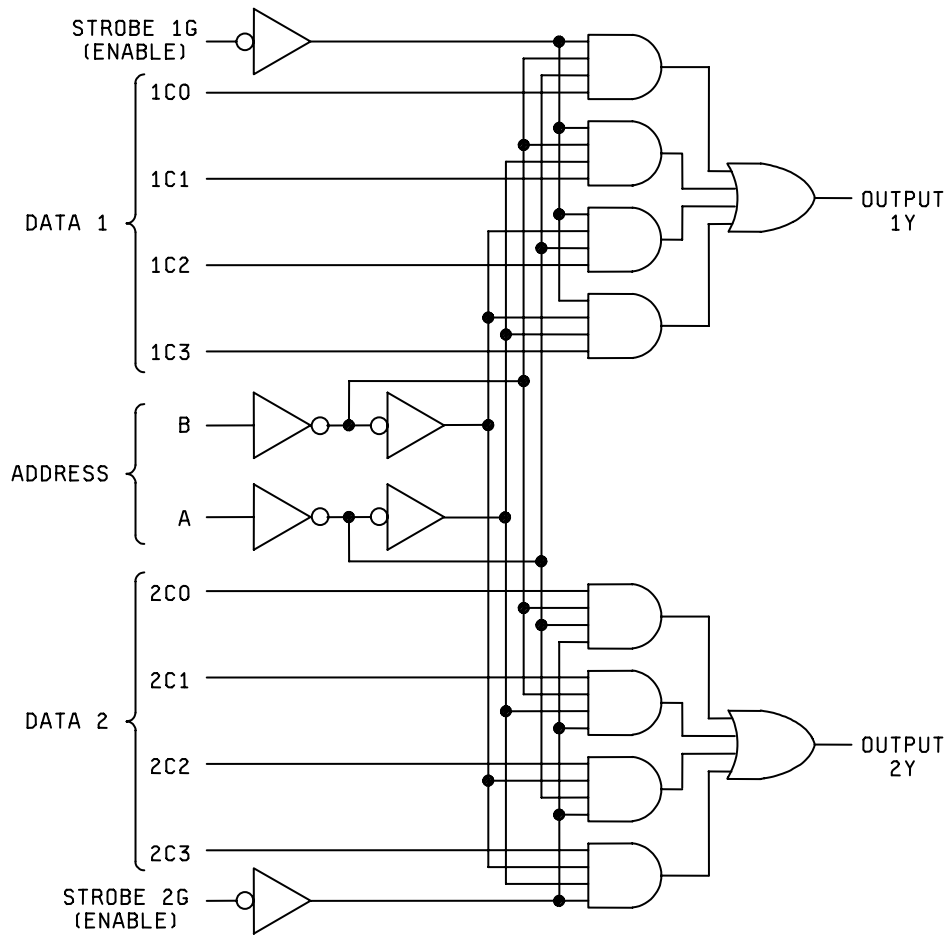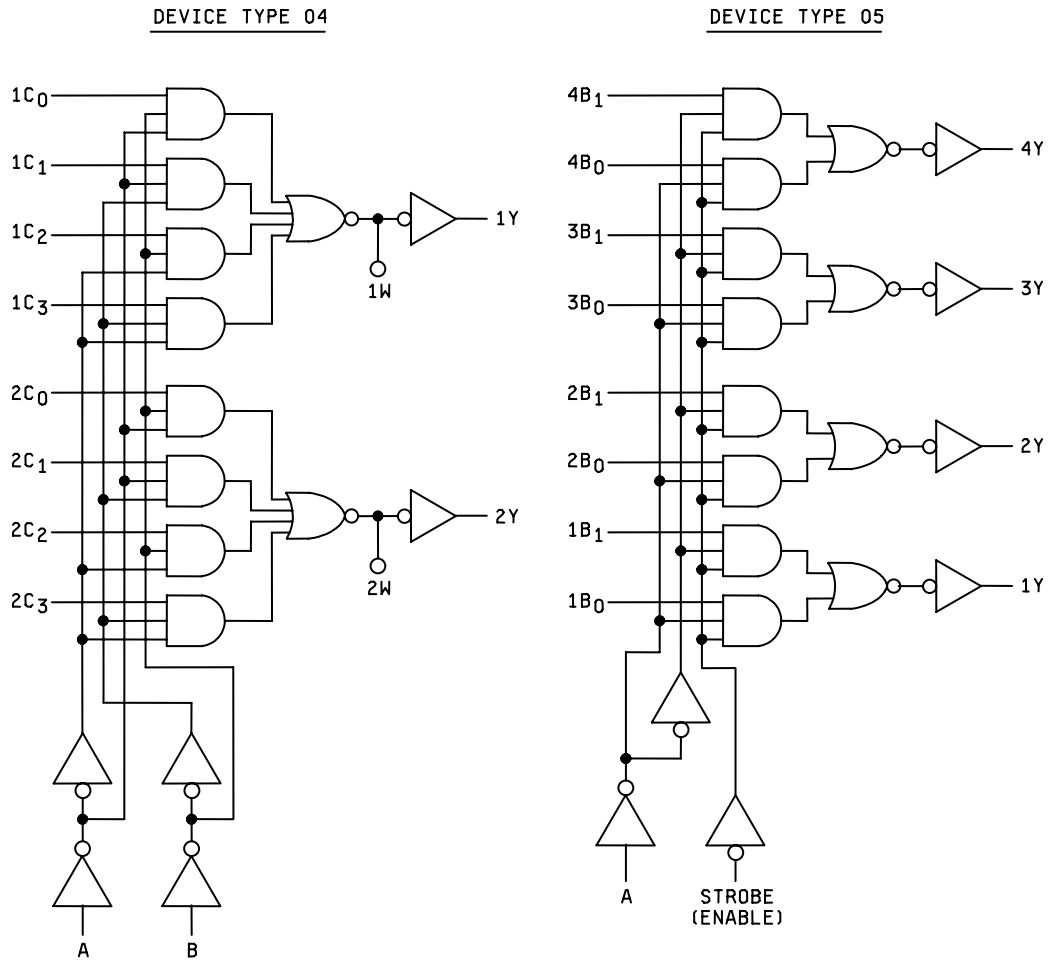
Device type 01

| | INPUTS | | | | | | | | | | | | | | | | | | | | OUTPUT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | C | B | A | STROBE | $E_0$ | $E_1$ | $E_2$ | $E_3$ | $E_4$ | $E_5$ | $E_6$ | $E_7$ | $E_8$ | $E_9$ | $E_{10}$ | $E_{11}$ | $E_{12}$ | $E_{13}$ | $E_{14}$ | $E_{15}$ | W |
| X | X | X | X | H | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | H |
| L | L | L | L | L | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | H |
| L | L | L | L | L | H | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | L |
| L | L | L | H | L | x | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | H |
| L | L | L | H | L | x | H | x | x | x | x | x | x | x | x | x | x | x | x | x | x | L |
| L | L | H | L | L | x | x | L | x | x | x | x | x | x | x | x | x | x | x | x | x | H |
| L | L | H | L | L | x | x | H | x | x | x | x | x | x | x | x | x | x | x | x | x | L |
| L | L | H | H | L | x | x | x | L | x | x | x | x | x | x | x | x | x | x | x | x | H |
| L | L | H | H | L | x | x | x | H | x | x | x | x | x | x | x | x | x | x | x | x | L |
| L | H | L | L | L | x | x | x | x | L | x | x | x | x | x | x | x | x | x | x | x | H |
| L | H | L | L | L | x | x | x | x | H | x | x | x | x | x | x | x | x | x | x | x | L |
| L | H | L | H | L | x | x | x | x | x | L | x | x | x | x | x | x | x | x | x | x | H |
| L | H | L | H | L | x | x | x | x | x | H | x | x | x | x | x | x | x | x | x | x | L |
| L | H | H | L | L | x | x | x | x | x | x | L | x | x | x | x | x | x | x | x | x | H |
| L | H | H | L | L | x | x | x | x | x | x | H | x | x | x | x | x | x | x | x | x | L |
| L | H | H | H | L | x | x | x | x | x | x | x | L | x | x | x | x | x | x | x | x | H |
| L | H | H | H | L | x | x | x | x | x | x | x | H | x | x | x | x | x | x | x | x | L |
| H | L | L | L | L | x | x | x | x | x | x | x | x | L | x | x | x | x | x | x | x | H |
| H | L | L | L | L | x | x | x | x | x | x | x | x | H | x | x | x | x | x | x | x | L |
| H | L | L | H | L | x | x | x | x | x | x | x | x | x | L | x | x | x | x | x | x | H |
| H | L | L | H | L | x | x | x | x | x | x | x | x | x | H | x | x | x | x | x | x | L |
| H | L | H | L | L | x | x | x | x | x | x | x | x | x | x | L | x | x | x | x | x | H |
| H | L | H | L | L | x | x | x | x | x | x | x | x | x | x | H | x | x | x | x | x | L |
| H | L | H | H | L | x | x | x | x | x | x | x | x | x | x | x | L | x | x | x | x | H |
| H | L | H | H | L | x | x | x | x | x | x | x | x | x | x | x | H | x | x | x | x | L |
| H | H | L | L | L | x | x | x | x | x | x | x | x | x | x | x | x | L | x | x | x | H |
| H | H | L | L | L | x | x | x | x | x | x | x | x | x | x | x | x | H | x | x | x | L |
| H | H | L | H | L | x | x | x | x | x | x | x | x | x | x | x | x | x | L | x | x | H |
| H | H | L | H | L | x | x | x | x | x | x | x | x | x | x | x | x | x | H | x | x | L |
| H | H | H | L | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | L | x | H |
| H | H | H | L | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | H | x | L |
| H | H | H | H | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | L | H |
| H | H | H | H | L | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | H | L |

When used to indicate an input condition, X = High logic level or low logic level.

Figure 3.  Truth tables.

Device types 02 and 06

| INPUTS | | | | | | | | | | | | OUTPUTS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | B | A | STROBE | $D_0$ | $D_1$ | $D_2$ | $D_3$ | $D_4$ | $D_5$ | $D_6$ | $D_7$ | Y | W |
| X | X | X | H | x | x | x | x | x | x | x | x | L | H |
| L | L | L | L | L | x | x | x | x | x | x | x | L | H |
| L | L | L | L | H | x | x | x | x | x | x | x | H | L |
| L | L | H | L | x | L | x | x | x | x | x | x | L | H |
| L | L | H | L | x | H | x | x | x | x | x | x | H | L |
| L | H | L | L | x | x | L | x | x | x | x | x | L | H |
| L | H | L | L | x | x | H | x | x | x | x | x | H | L |
| L | H | H | L | x | x | x | L | x | x | x | x | L | H |
| L | H | H | L | x | x | x | H | x | x | x | x | H | L |
| H | L | L | L | x | x | x | x | L | x | x | x | L | H |
| H | L | L | L | x | x | x | x | H | x | x | x | H | L |
| H | L | H | L | x | x | x | x | x | L | x | x | L | H |
| H | L | H | L | x | x | x | x | x | H | x | x | H | L |
| H | H | L | L | x | x | x | x | x | x | L | x | L | H |
| H | H | L | L | x | x | x | x | x | x | H | x | H | L |
| H | H | H | L | x | x | x | x | x | x | x | L | L | H |
| H | H | H | L | x | x | x | x | x | x | x | H | H | L |

When used to indicate an input, X = Irrelevant.
H = High level, L = Low level.

| ADDRESS INPUTS | | DATA INPUTS | | | | STROBE | OUTPUT |
|---|---|---|---|---|---|---|---|
| B | A | $C_0$ | $C_1$ | $C_2$ | $C_3$ | G | Y |
| X | X | x | x | x | x | H | L |
| L | L | L | x | x | x | L | L |
| L | L | H | x | x | x | L | H |
| L | H | x | L | x | x | L | L |
| L | H | x | H | x | x | L | H |
| H | L | x | x | L | x | L | L |
| H | L | x | x | H | x | L | H |
| H | H | x | x | x | L | L | L |
| H | H | x | x | x | H | L | H |

Address inputs A and B are common to both sections.
H = high level, L = low level, X = irrelevant.

Figure 3.  Truth tables – Continued.

Device type 04

| Address inputs | | Data inputs | | | | Outputs | |
|---|---|---|---|---|---|---|---|
| B | A | $C_0$ | $C_1$ | $C_2$ | $C_3$ | Y | W |
| L | L | L | X | X | X | L | H |
| L | L | H | X | X | X | H | L |
| L | H | X | L | X | X | L | H |
| L | H | X | H | X | X | H | L |
| H | L | X | X | L | X | L | H |
| H | L | X | X | H | X | H | L |
| H | H | X | X | X | L | L | H |
| H | H | X | X | X | H | H | L |

Address inputs A and B are common to both sections.
H = High level, L = Low level, X = Irrelevant.

Device type 05

| Strobe (enable) | Select input | Data inputs | | Output |
|---|---|---|---|---|
| G | A | $B_0$ | $B_1$ | Y |
| H | X | X | X | L |
| L | H | X | L | L |
| L | H | X | H | H |
| L | L | L | X | L |
| L | L | H | X | H |

Address A and strobe G are common to all sections.
H = High level, L = Low level, X = Irrelevant.
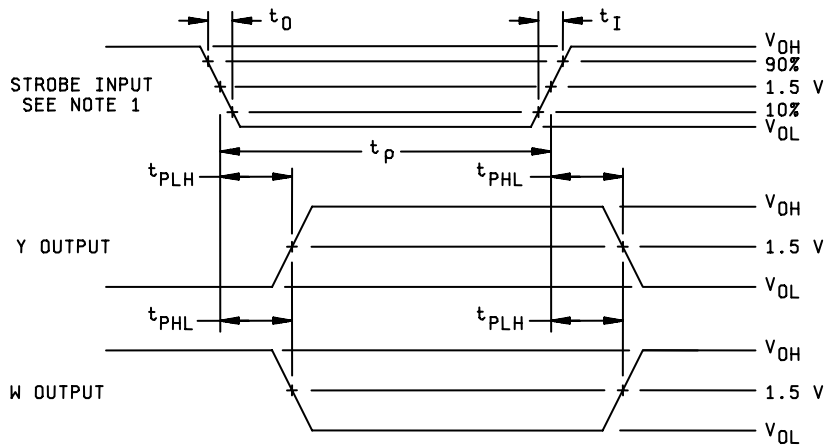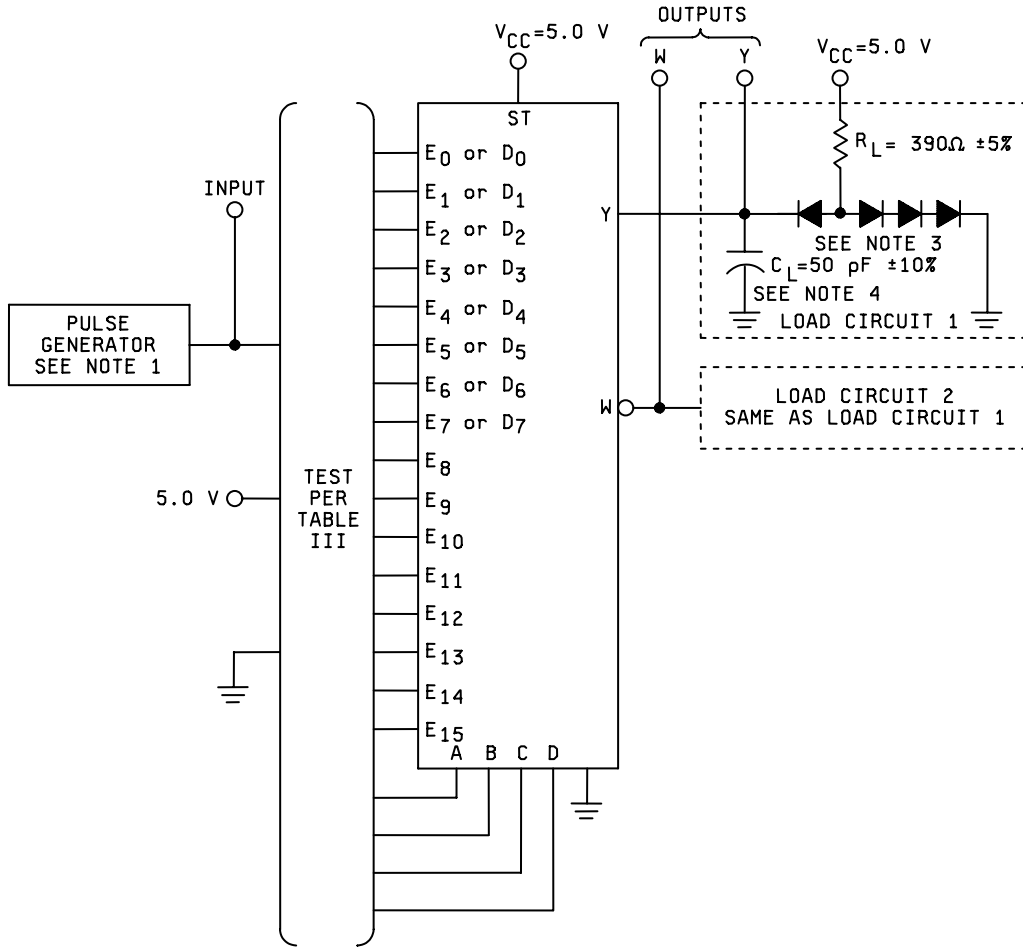
FIGURE 3. Truth tables – Continued.

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FIGURE 4.  <u>Switching test for device types 01, 02, and 06.</u>

SELECT INPUT TO OUTPUT VOLTAGE WAVEFORM



DATA INPUT TO OUTPUT VOLTAGE WAVEFORM
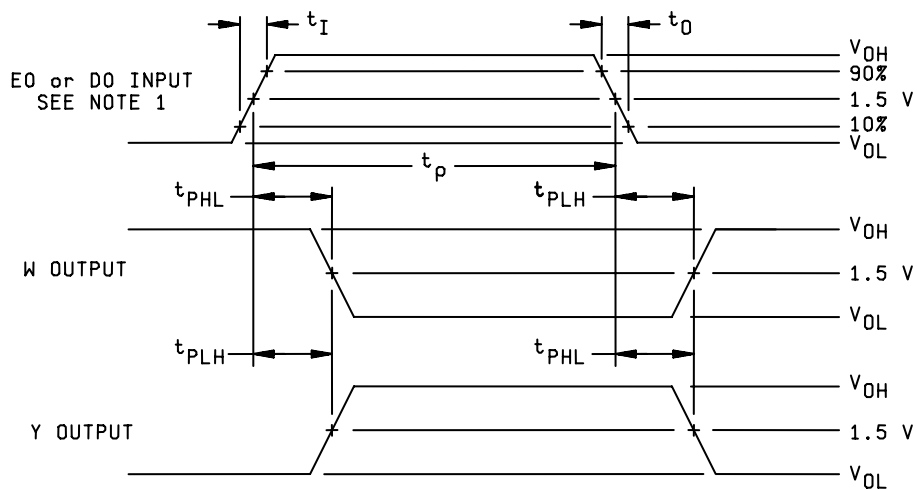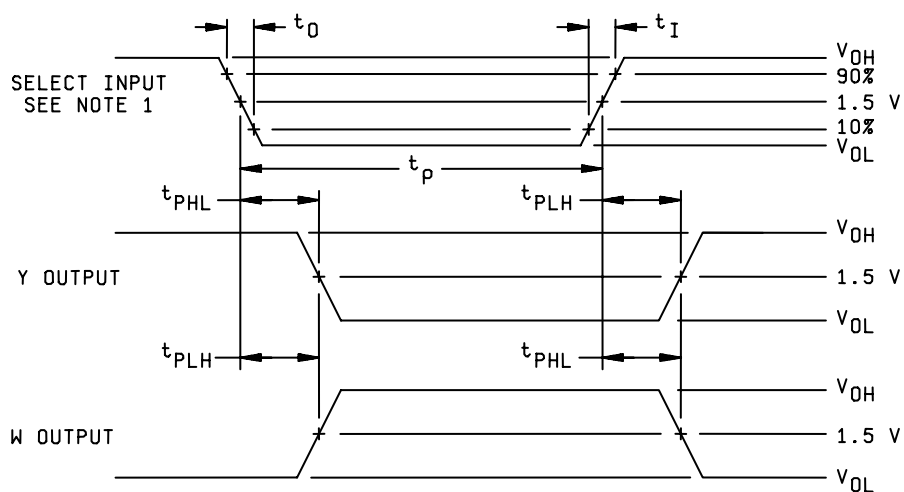
NOTES:

1.  The input pulse has the following characteristics:  $V_{OH}$ = 3 V, $V_{OL}$ = 0 V, $t_1$ = $t_0$ = 10 ns, $t_p$ = 500 ns, PRR $\leq$ 1 MHz, duty cycle = 50% ±15%, and generator $Z_{out} \approx$ 50Ω.

2.  $C_L$ includes probe and jig capacitance.

3.  All diodes are 1N3064 or equivalent.

4.  Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output.  Load circuits may otherwise be omitted.

FIGURE 4.  <u>Switching test for device types 01, 02, and 06</u> - Continued.

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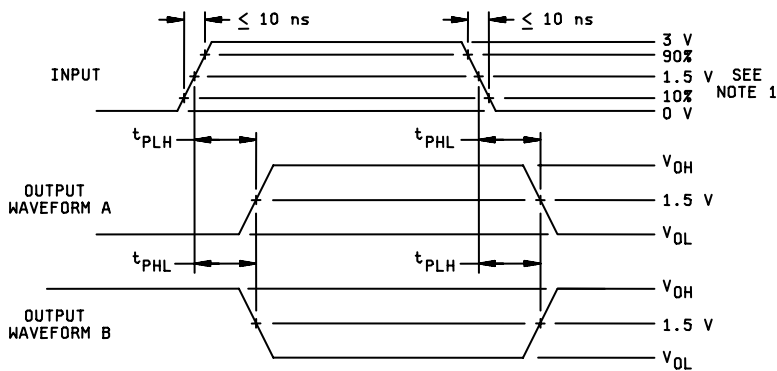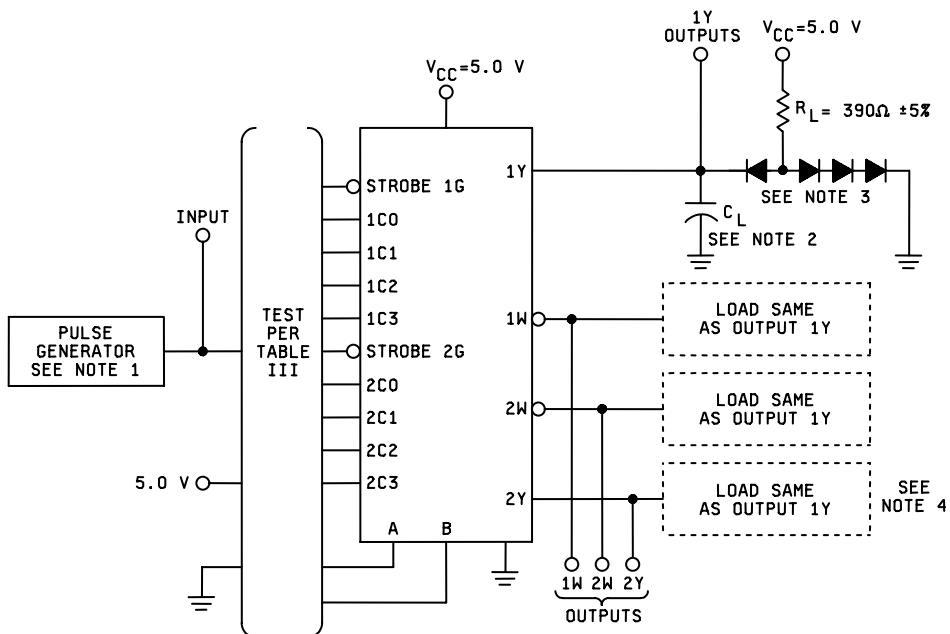
VOLTAGE WAVEFORMS

| Switching time | Output waveform |
|---|---|
| CN to Y (types 03 and 04) | A |
| CN to W (type 04 only) | B |
| A or B to Y (types 03 and 04) | A |
| A or B to W (type 04 only) | B |
| G to Y (type 03 only) | B |

NOTES:
1. The pulse generator has the following characteristics: $PRR \leq 1$ MHz, duty cycle = 50% ±15% and $Z_{out} \approx 50\Omega$.
2. $C_L$ = 50 pF ±10% and includes probe and jig capacitance.
3. All diodes are 1N3064, or equivalent.
4. Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 5. Switching test for device types 03 and 04.

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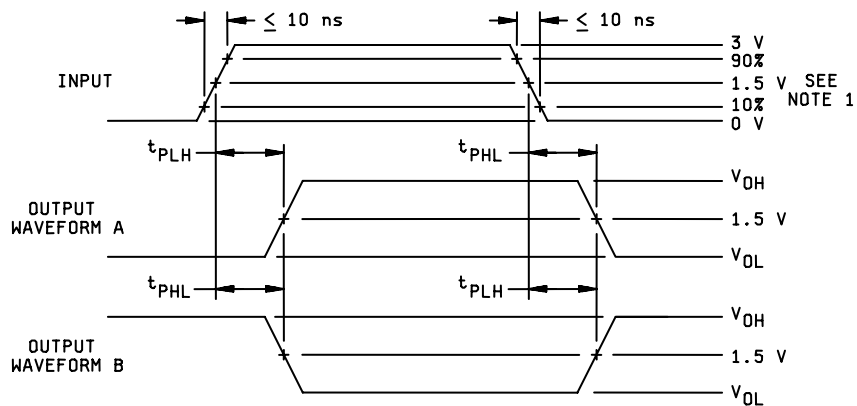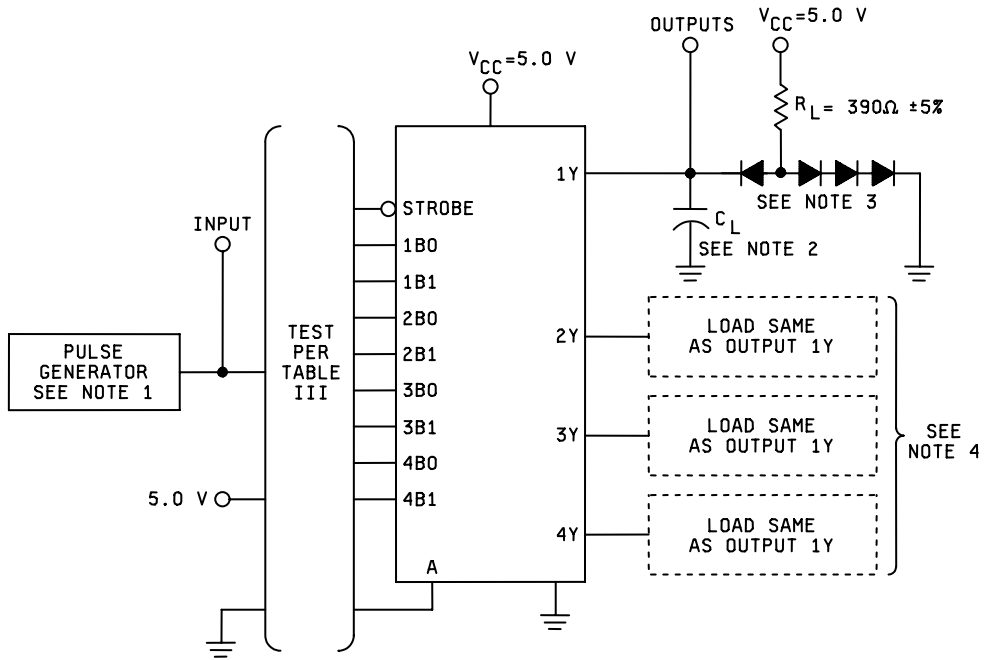
VOLTAGE WAVEFORMS

| Input | Output waveform |
|-------|-----------------|
| A to Y | A |
| B to Y | A |
| S to Y | B |

NOTES:
1. The pulse generator has the following characteristics:   PRR $\leq$ 1 MHz, duty cycle = 50% $\pm$15% and $Z_{out} \approx$ 50$\Omega$.
2. $C_L$ = 50 pF $\pm$10% and includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output.  Load circuits may otherwise be omitted.

FIGURE 6.  Switching test for device type 05.

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TABLE III.  Group A inspection for device type 01.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 $E_7$ | 2 $E_6$ | 3 $E_5$ | 4 $E_4$ | 5 $E_3$ | 6 $E_2$ | 7 $E_1$ | 8 $E_0$ | 9 G | 10 W | 11 D | 12 GND | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | $V_{OH}$ | 3006 | 1 | | | | | | | | | 2.0 V | -.8mA | | GND | W | 2.4 | | V |
| $T_C$ = 25°C | $V_{OL}$ | 3007 | 2 | | | | | | | | 2.0 V | 0.8 V | 16mA | GND | " | W | | 0.4 | V |
| " | $V_{IC}$ | | 3 | | | | | | | | | | | | " | A | | -1.5 | V |
| " | " | | 4 | | | | | | | | | | | | " | B | | " | " |
| " | " | | 5 | | | | | | | | | | | | " | C | | " | " |
| " | " | | 6 | | | | | | | | | | | -12mA | " | D | | " | " |
| " | " | | 7 | | | | | | | | | -12mA | | | " | G | | " | " |
| " | " | | 8 | | | | | | | | -12mA | | | | " | $E_0$ | | " | " |
| " | " | | 9 | | | | | | | -12mA | | | | | " | $E_1$ | | " | " |
| " | " | | 10 | | | | | | -12mA | | | | | | " | $E_2$ | | " | " |
| " | " | | 11 | | | | | -12mA | | | | | | | " | $E_3$ | | " | " |
| " | " | | 12 | | | | -12mA | | | | | | | | " | $E_4$ | | " | " |
| " | " | | 13 | | | -12mA | | | | | | | | | " | $E_5$ | | " | " |
| " | " | | 14 | | -12mA | | | | | | | | | | " | $E_6$ | | " | " |
| " | " | | 15 | -12mA | | | | | | | | | | | " | $E_7$ | | " | " |
| " | " | | 16 | | | | | | | | | | | | " | $E_8$ | | " | " |
| " | " | | 17 | | | | | | | | | | | | " | $E_9$ | | " | " |
| " | " | | 18 | | | | | | | | | | | | " | $E_{10}$ | | " | " |
| " | " | | 19 | | | | | | | | | | | | " | $E_{11}$ | | " | " |
| " | " | | 20 | | | | | | | | | | | | " | $E_{12}$ | | " | " |
| " | " | | 21 | | | | | | | | | | | | " | $E_{13}$ | | " | " |
| " | " | | 22 | | | | | | | | | | | | " | $E_{14}$ | | " | " |
| " | " | | 23 | | | | | | | | | | | | " | $E_{15}$ | | " | " |
| " | $I_{IL}$ | 3009 | 24 | | | | | | | | 0.4 V | GND | | GND | " | $E_0$ | -0.7 1/ | -1.6 | mA |
| " | " | " | 25 | | | | | | | 0.4 V | | " | | " | " | $E_1$ | " | " | " |
| " | " | " | 26 | | | | | | 0.4 V | | | " | | " | " | $E_2$ | " | " | " |
| " | " | " | 27 | | | | | 0.4 V | | | | " | | " | " | $E_3$ | " | " | " |
| " | " | " | 28 | | | | 0.4 V | | | | | " | | " | " | $E_4$ | " | " | " |
| " | " | " | 29 | | | 0.4 V | | | | | | " | | " | " | $E_5$ | " | " | " |
| " | " | " | 30 | | 0.4 V | | | | | | | " | | " | " | $E_6$ | " | " | " |
| " | " | " | 31 | 0.4 V | | | | | | | | " | | " | " | $E_7$ | " | " | " |
| " | " | " | 32 | | | | | | | | | " | | 5.5 V | " | $E_8$ | " | " | " |
| " | " | " | 33 | | | | | | | | | " | | " | " | $E_9$ | " | " | " |
| " | " | " | 34 | | | | | | | | | " | | " | " | $E_{10}$ | " | " | " |
| " | " | " | 35 | | | | | | | | | " | | " | " | $E_{11}$ | " | " | " |
| " | " | " | 36 | | | | | | | | | " | | " | " | $E_{12}$ | " | " | " |
| " | " | " | 37 | | | | | | | | | " | | " | " | $E_{13}$ | " | " | " |
| " | " | " | 38 | | | | | | | | | " | | " | " | $E_{14}$ | " | " | " |
| " | " | " | 39 | | | | | | | | | " | | " | " | $E_{15}$ | " | " | " |
| " | " | " | 40 | | | | | | | | | 0.4 V | | " | " | G | " | " | " |
| " | " | " | 41 | | | | | | | | | | | " | " | A | " | " | " |
| " | " | " | 42 | | | | | | | | | | | " | " | B | " | " | " |
| " | " | " | 43 | | | | | | | | | | | " | " | C | " | " | " |
| " | " | " | 44 | | | | | | | | | | | 0.4 V | " | D | " | " | " |

MIL-M-38510/14E

TABLE III.  Group A inspection for device type 01.

Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. (Cases J, K, Z) | 13 C | 14 B | 15 A | 16 E15 | 17 E14 | 18 E13 | 19 E12 | 20 E11 | 21 E10 | 22 E9 | 23 E8 | 24 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | $V_{OH}$ | 3006 | 1 | | | | | | | | | | | | 4.5 V | W | 2.4 | | V |
| $T_C$ = 25°C | $V_{OL}$ | 3007 | 2 | GND | GND | GND | | | | | | | | | " | W | | 0.4 | V |
| " | $V_{IC}$ | | 3 | | | -12mA | | | | | | | | | " | A | | -1.5 | V |
| " | " | | 4 | | -12mA | | | | | | | | | | " | B | | " | " |
| " | " | | 5 | -12mA | | | | | | | | | | | " | C | | " | " |
| " | " | | 6 | | | | | | | | | | | | " | D | | " | " |
| " | " | | 7 | | | | | | | | | | | | " | G | | " | " |
| " | " | | 8 | | | | | | | | | | | | " | $E_0$ | | " | " |
| " | " | | 9 | | | | | | | | | | | | " | $E_1$ | | " | " |
| " | " | | 10 | | | | | | | | | | | | " | $E_2$ | | " | " |
| " | " | | 11 | | | | | | | | | | | | " | $E_3$ | | " | " |
| " | " | | 12 | | | | | | | | | | | | " | $E_4$ | | " | " |
| " | " | | 13 | | | | | | | | | | | | " | $E_5$ | | " | " |
| " | " | | 14 | | | | | | | | | | | | " | $E_6$ | | " | " |
| " | " | | 15 | | | | | | | | | | | | " | $E_7$ | | " | " |
| " | " | | 16 | | | | | | | | | | | -12mA | " | $E_8$ | | " | " |
| " | " | | 17 | | | | | | | | | | -12mA | | " | $E_9$ | | " | " |
| " | " | | 18 | | | | | | | | | -12mA | | | " | $E_{10}$ | | " | " |
| " | " | | 19 | | | | | | | | -12mA | | | | " | $E_{11}$ | | " | " |
| " | " | | 20 | | | | | | | -12mA | | | | | " | $E_{12}$ | | " | " |
| " | " | | 21 | | | | | | -12mA | | | | | | " | $E_{13}$ | | " | " |
| " | " | | 22 | | | | | -12mA | | | | | | | " | $E_{14}$ | | " | " |
| " | " | | 23 | | | | -12mA | | | | | | | | " | $E_{15}$ | | " | " |
| " | $I_{IL}$ | 3009 | 24 | GND | GND | GND | | | | | | | | | 5.5 V | $E_0$ | -0.7 | -1.6 | mA |
| " | " | " | 25 | " | GND | 5.5 V | | | | | | | | | " | $E_1$ | 1/ | " | " |
| " | " | " | 26 | " | 5.5 V | GND | | | | | | | | | " | $E_2$ | " | " | " |
| " | " | " | 27 | " | 5.5 V | 5.5 V | | | | | | | | | " | $E_3$ | " | " | " |
| " | " | " | 28 | 5.5 V | GND | GND | | | | | | | | | " | $E_4$ | " | " | " |
| " | " | " | 29 | " | GND | 5.5 V | | | | | | | | | " | $E_5$ | " | " | " |
| " | " | " | 30 | " | 5.5 V | GND | | | | | | | | | " | $E_6$ | " | " | " |
| " | " | " | 31 | " | 5.5 V | 5.5 V | | | | | | | | | " | $E_7$ | " | " | " |
| " | " | " | 32 | GND | GND | GND | | | | | | | | 0.4 V | " | $E_8$ | " | " | " |
| " | " | " | 33 | " | GND | 5.5 V | | | | | | | 0.4 V | | " | $E_9$ | " | " | " |
| " | " | " | 34 | " | 5.5 V | GND | | | | | | 0.4 V | | | " | $E_{10}$ | " | " | " |
| " | " | " | 35 | " | 5.5 V | 5.5 V | | | | | 0.4 V | | | | " | $E_{11}$ | " | " | " |
| " | " | " | 36 | 5.5 V | GND | GND | | | | 0.4 V | | | | | " | $E_{12}$ | " | " | " |
| " | " | " | 37 | " | GND | 5.5 V | | | 0.4 V | | | | | | " | $E_{13}$ | " | " | " |
| " | " | " | 38 | " | 5.5 V | GND | | 0.4 V | | | | | | | " | $E_{14}$ | " | " | " |
| " | " | " | 39 | " | 5.5 V | 5.5 V | 0.4 V | | | | | | | | " | $E_{15}$ | " | " | " |
| " | " | " | 40 | | | | | | | | | | | | " | G | " | " | " |
| " | " | " | 41 | | | 0.4 V | | | | | | | | | " | A | " | " | " |
| " | " | " | 42 | | 0.4 V | | | | | | | | | | " | B | " | " | " |
| " | " | " | 43 | 0.4 V | | | | | | | | | | | " | C | " | " | " |
| " | " | " | 44 | | | | | | | | | | | | " | D | " | " | " |

See note at end of device type 01.

TABLE III.  Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z Test No. | 1 E7 | 2 E6 | 3 E5 | 4 E4 | 5 E3 | 6 E2 | 7 E1 | 8 E0 | 9 G | 10 W | 11 D | 12 GND | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 $T_C = 25°C$ | $I_{IH1}$ | 3010 | 45 | | | | | | | | | 2.4 V | | | GND | G | | 40 | µA |
| " | " | " | 46 | | | | | | | | | " | | GND | " | A | | " | " |
| " | " | " | 47 | | | | | | | | | " | | GND | " | B | | " | " |
| " | " | " | 48 | | | | | | | | | " | | GND | " | C | | " | " |
| " | " | " | 49 | | | | | | | | | 5.5 V | | 2.4 V | " | D | | " | " |
| " | " | " | 50 | | | | | | | | 2.4 V | " | | 5.5 V | " | E0 | | " | " |
| " | " | " | 51 | | | | | | | 2.4 V | | " | | " | " | E1 | | " | " |
| " | " | " | 52 | | | | | | 2.4 V | | | " | | " | " | E2 | | " | " |
| " | " | " | 53 | | | | | 2.4 V | | | | " | | " | " | E3 | | " | " |
| " | " | " | 54 | | | | 2.4 V | | | | | " | | " | " | E4 | | " | " |
| " | " | " | 55 | | | 2.4 V | | | | | | " | | " | " | E5 | | " | " |
| " | " | " | 56 | | 2.4 V | | | | | | | " | | " | " | E6 | | " | " |
| " | " | " | 57 | 2.4 V | | | | | | | | " | | " | " | E7 | | " | " |
| " | " | " | 58 | | | | | | | | | " | | GND | " | E8 | | " | " |
| " | " | " | 59 | | | | | | | | | " | | " | " | E9 | | " | " |
| " | " | " | 60 | | | | | | | | | " | | " | " | E10 | | " | " |
| " | " | " | 61 | | | | | | | | | " | | " | " | E11 | | " | " |
| " | " | " | 62 | | | | | | | | | " | | " | " | E12 | | " | " |
| " | " | " | 63 | | | | | | | | | " | | " | " | E13 | | " | " |
| " | " | " | 64 | | | | | | | | | " | | " | " | E14 | | " | " |
| " | " | " | 65 | | | | | | | | | " | | " | " | E15 | | | |
| " | $I_{IH2}$ | " | 66 | | | | | | | | | " | | " | " | G | | 100 | " |
| " | " | " | 67 | | | | | | | | | " | | GND | " | A | | " | " |
| " | " | " | 68 | | | | | | | | | " | | GND | " | B | | " | " |
| " | " | " | 69 | | | | | | | | | " | | GND | " | C | | " | " |
| " | " | " | 70 | | | | | | | | | " | | 5.5 V | " | D | | " | " |
| " | " | " | 71 | | | | | | | | 5.5 V | " | | " | " | E0 | | " | " |
| " | " | " | 72 | | | | | | | 5.5 V | | " | | " | " | E1 | | " | " |
| " | " | " | 73 | | | | | | 5.5 V | | | " | | " | " | E2 | | " | " |
| " | " | " | 74 | | | | | 5.5 V | | | | " | | " | " | E3 | | " | " |
| " | " | " | 75 | | | | 5.5 V | | | | | " | | " | " | E4 | | " | " |
| " | " | " | 75 | | | 5.5 V | | | | | | " | | " | " | E5 | | " | " |
| " | " | " | 77 | | 5.5 V | | | | | | | " | | " | " | E6 | | " | " |
| " | " | " | 78 | 5.5 V | | | | | | | | " | | " | " | E7 | | " | " |
| " | " | " | 79 | | | | | | | | | " | | GND | " | E8 | | " | " |
| " | " | " | 80 | | | | | | | | | " | | " | " | E9 | | " | " |
| " | " | " | 81 | | | | | | | | | " | | " | " | E10 | | " | " |
| " | " | " | 82 | | | | | | | | | " | | " | " | E11 | | " | " |
| " | " | " | 83 | | | | | | | | | " | | " | " | E12 | | " | " |
| " | " | " | 84 | | | | | | | | | " | | " | " | E13 | | " | " |
| " | " | " | 85 | | | | | | | | | " | | " | " | E14 | | " | " |
| " | " | " | 86 | | | | | | | | | " | | " | " | E15 | | " | |
| " | $I_{OS}$ | 3011 | 87 | | | | | | | | GND | GND | GND | GND | " | W | -20 | -55 | mA |
| " | $I_{CC}$ | 3005 | 88 | | | | | | | | | 5.5 V | | 5.5 V | " | $V_{CC}$ | | 68 | mA |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = 125°C$ and $V_{IC}$ are omitted. | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = -55°C$ and $V_{IC}$ are omitted. | | | | | | | | | | | | | | | | | | |

TABLE III.  <u>Group A inspection for device type 01</u> – Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Meas. terminal | Test limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Test No. | C | B | A | $E_{15}$ | $E_{14}$ | $E_{13}$ | $E_{12}$ | $E_{11}$ | $E_{10}$ | $E_9$ | $E_8$ | $V_{CC}$ | | Min | Max | Unit |
| 1 | $I_{IH1}$ | 3010 | 45 | | | | | | | | | | | | 5.5 V | G | | 40 | µA |
| $T_C$ = 25°C | " | " | 46 | GND | GND | 2.4 V | | | | | | | | | " | A | | " | " |
| " | " | " | 47 | GND | 2.4 V | GND | | | | | | | | | " | B | | " | " |
| " | " | " | 48 | 2.4 V | GND | GND | | | | | | | | | " | C | | " | " |
| " | " | " | 49 | GND | GND | GND | | | | | | | | | " | D | | " | " |
| " | " | " | 50 | 5.5 V | 5.5 V | 5.5 V | | | | | | | | | " | $E_0$ | | " | " |
| " | " | " | 51 | " | 5.5 V | GND | | | | | | | | | " | $E_1$ | | " | " |
| " | " | " | 52 | " | GND | 5.5 V | | | | | | | | | " | $E_2$ | | " | " |
| " | " | " | 53 | " | GND | GND | | | | | | | | | " | $E_3$ | | " | " |
| " | " | " | 54 | GND | 5.5 V | 5.5 V | | | | | | | | | " | $E_4$ | | " | " |
| " | " | " | 55 | " | 5.5 V | GND | | | | | | | | | " | $E_5$ | | " | " |
| " | " | " | 56 | " | GND | 5.5 V | | | | | | | | | " | $E_6$ | | " | " |
| " | " | " | 57 | " | GND | GND | | | | | | | | | " | $E_7$ | | " | " |
| " | " | " | 58 | 5.5 V | 5.5 V | 5.5 V | | | | | | | | 2.4 V | " | $E_8$ | | " | " |
| " | " | " | 59 | " | 5.5 V | GND | | | | | | | 2.4 V | | " | $E_9$ | | " | " |
| " | " | " | 60 | " | GND | 5.5 V | | | | | | 2.4 V | | | " | $E_{10}$ | | " | " |
| " | " | " | 61 | " | GND | GND | | | | | 2.4 V | | | | " | $E_{11}$ | | " | " |
| " | " | " | 62 | GND | 5.5 V | 5.5 V | | | | 2.4 V | | | | | " | $E_{12}$ | | " | " |
| " | " | " | 63 | " | 5.5 V | GND | | | 2.4 V | | | | | | " | $E_{13}$ | | " | " |
| " | " | " | 64 | " | GND | 5.5 V | | 2.4 V | | | | | | | " | $E_{14}$ | | " | " |
| " | " | " | 65 | " | GND | GND | 2.4 V | | | | | | | | " | $E_{15}$ | | " | " |
| " | $I_{IH2}$ | " | 66 | GND | GND | | | | | | | | | | " | G | | 100 | " |
| " | " | " | 67 | GND | GND | 5.5 V | | | | | | | | | " | A | | " | " |
| " | " | " | 68 | GND | 5.5 V | GND | | | | | | | | | " | B | | " | " |
| " | " | " | 69 | 5.5 V | GND | GND | | | | | | | | | " | C | | " | " |
| " | " | " | 70 | GND | GND | GND | | | | | | | | | " | D | | " | " |
| " | " | " | 71 | 5.5 V | 5.5 V | 5.5 V | | | | | | | | | " | $E_0$ | | " | " |
| " | " | " | 72 | " | 5.5 V | GND | | | | | | | | | " | $E_1$ | | " | " |
| " | " | " | 73 | " | GND | 5.5 V | | | | | | | | | " | $E_2$ | | " | " |
| " | " | " | 74 | " | GND | GND | | | | | | | | | " | $E_3$ | | " | " |
| " | " | " | 75 | GND | 5.5 V | 5.5 V | | | | | | | | | " | $E_4$ | | " | " |
| " | " | " | 75 | " | 5.5 V | GND | | | | | | | | | " | $E_5$ | | " | " |
| " | " | " | 77 | " | GND | 5.5 V | | | | | | | | | " | $E_6$ | | " | " |
| " | " | " | 78 | " | GND | GND | | | | | | | | | " | $E_7$ | | " | " |
| " | " | " | 79 | 5.5 V | 5.5 V | 5.5 V | | | | | | | | 5.5 V | " | $E_8$ | | " | " |
| " | " | " | 80 | " | 5.5 V | GND | | | | | | | 5.5 V | | " | $E_9$ | | " | " |
| " | " | " | 81 | " | GND | 5.5 V | | | | | | 5.5 V | | | " | $E_{10}$ | | " | " |
| " | " | " | 82 | " | GND | GND | | | | | 5.5 V | | | | " | $E_{11}$ | | " | " |
| " | " | " | 83 | GND | 5.5 V | 5.5 V | | | | 5.5 V | | | | | " | $E_{12}$ | | " | " |
| " | " | " | 84 | " | 5.5 V | GND | | | 5.5 V | | | | | | " | $E_{13}$ | | " | " |
| " | " | " | 85 | " | GND | 5.5 V | | 5.5 V | | | | | | | " | $E_{14}$ | | " | " |
| " | " | " | 86 | " | GND | GND | 5.5 V | | | | | | | | " | $E_{15}$ | | " | " |
| " | $I_{OS}$ | 3011 | 87 | GND | GND | GND | | | | | | | | | " | W | -20 | -55 | mA |
| " | $I_{CC}$ | 3005 | 88 | 5.5 V | 5.5 V | 5.5 V | | | | | | | | | " | $V_{CC}$ | | 68 | mA |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except $T_C$ = 125°C and $V_{IC}$ are omitted. | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except $T_C$ = -55°C and $V_{IC}$ are omitted. | | | | | | | | | | | | | | | | | | |

See note at end of device type 01.

TABLE III.  Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z — Test No. | 1 E7 | 2 E6 | 3 E5 | 4 E4 | 5 E3 | 6 E2 | 7 E1 | 8 E0 | 9 G | 10 W | 11 D | 12 GND | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 $T_C = 25°C$ | Truth table test | 3014 | 89 | | | | | | | | | A 2/ | H 3/ | | GND | | | | |
| " | " | " | 90 | | | | | | | | B | B | H | B | " | | | | |
| " | " | " | 91 | | | | | | | | A | A | L | " | " | | | | |
| " | " | " | 92 | | | | | | | B | | | H | " | " | | | | |
| " | " | " | 93 | | | | | | | A | | | L | " | " | | | | |
| " | " | " | 94 | | | | | | B | | | | H | " | " | | | | |
| " | " | " | 95 | | | | | | A | | | | L | " | " | | | | |
| " | " | " | 96 | | | | | B | | | | | H | " | " | | | | |
| " | " | " | 97 | | | | | A | | | | | L | " | " | | | | |
| " | " | " | 98 | | | | B | | | | | | H | " | " | | 3/ | | |
| " | " | " | 99 | | | | A | | | | | | L | " | " | | | | |
| " | " | " | 100 | | | B | | | | | | | H | " | " | | | | |
| " | " | " | 101 | | | A | | | | | | | L | " | " | | | | |
| " | " | " | 102 | | B | | | | | | | | H | " | " | | | | |
| " | " | " | 103 | | A | | | | | | | | L | " | " | | | | |
| " | " | " | 104 | B | | | | | | | | | H | " | " | | | | |
| " | " | " | 105 | A | | | | | | | | | L | " | " | | | | |
| " | " | " | 106 | | | | | | | | | | H | A | " | | | | |
| " | " | " | 107 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 108 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 109 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 110 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 111 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 112 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 113 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 114 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 115 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 116 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 117 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 118 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 119 | | | | | | | | | | L | " | " | | | | |
| " | " | " | 120 | | | | | | | | | | H | " | " | | | | |
| " | " | " | 121 | | | | | | | | | | L | " | " | | | | |
| 8 | Repeat subgroup 7 at $T_C = 125°C$ and $T_C = -55°C$. | | | | | | | | | | | | | | | | | | |
| 9 $T_C = 25°C$ | $t_{PHL1}$ | 3003 (Fig 4) | 122 | | | | | | | | 5.0 V | GND | GND | OUT | GND | A to W | 8 | 37 | ns |
| " | " | " | 123 | | | | | | | 5.0 V | | " | " | " | " | B to W | " | " | " |
| " | " | " | 124 | | | | 5.0 V | | | | | " | " | " | " | C to W | " | " | " |
| " | " | " | 125 | | | | | | | | | " | " | IN | " | D to W | " | " | " |
| " | $t_{PLH1}$ | " | 126 | | | | | | | | 5.0 V | GND | GND | OUT | GND | A to W | 8 | 39 | ns |
| " | " | " | 127 | | | | | | | 5.0 V | | " | " | " | " | B to W | " | " | " |
| " | " | " | 128 | | | | 5.0 V | | | | | " | " | " | " | C to W | " | " | " |
| " | " | " | 129 | | | | | | | | | " | " | IN | " | D to W | " | " | " |
| " | $t_{PHL2}$ | " | 130 | | | | | | | | 5.0 V | IN | OUT | GND | " | G to W | 6 | 34 | ns |
| " | $t_{PLH2}$ | " | 131 | | | | | | | | 5.0 V | IN | OUT | GND | " | G to W | 6 | 28 | ns |

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 13 C | 14 B | 15 A | 16 E15 | 17 E14 | 18 E13 | 19 E12 | 20 E11 | 21 E10 | 22 E9 | 23 E8 | 24 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Truth | 3014 | 89 | | | | | | | | | | | | 4.5 V | | | | |
| $T_C$ = 25°C | table | " | 90 | B | B | B | | | | | | | | | " | | | | |
| " | test | " | 91 | " | " | B | | | | | | | | | " | | | | |
| " | " | " | 92 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 93 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 94 | " | A | B | | | | | | | | | " | | | | |
| " | " | " | 95 | " | " | B | | | | | | | | | " | | | | |
| " | " | " | 96 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 97 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 98 | A | B | B | | | | | | | | | " | | | | |
| " | " | " | 99 | " | " | B | | | | | | | | | " | | | | |
| " | " | " | 100 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 101 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 102 | " | A | B | | | | | | | | | " | | | | |
| " | " | " | 103 | " | " | B | | | | | | | | | " | | | | |
| " | " | " | 104 | " | " | A | | | | | | | | | " | 3/ | | | |
| " | " | " | 105 | " | " | A | | | | | | | | | " | | | | |
| " | " | " | 106 | B | B | B | | | | | | | | B | " | | | | |
| " | " | " | 107 | " | " | B | | | | | | | | A | " | | | | |
| " | " | " | 108 | " | " | A | | | | | | | B | | " | | | | |
| " | " | " | 109 | " | " | A | | | | | | | A | | " | | | | |
| " | " | " | 110 | " | A | B | | | | | | B | | | " | | | | |
| " | " | " | 111 | " | " | B | | | | | | A | | | " | | | | |
| " | " | " | 112 | " | " | A | | | | | B | | | | " | | | | |
| " | " | " | 113 | " | " | A | | | | | A | | | | " | | | | |
| " | " | " | 114 | A | B | B | | | | B | | | | | " | | | | |
| " | " | " | 115 | " | " | B | | | | A | | | | | " | | | | |
| " | " | " | 116 | " | " | A | | | B | | | | | | " | | | | |
| " | " | " | 117 | " | " | A | | | A | | | | | | " | | | | |
| " | " | " | 118 | " | A | B | | B | | | | | | | " | | | | |
| " | " | " | 119 | " | " | B | | A | | | | | | | " | | | | |
| " | " | " | 120 | " | " | A | B | | | | | | | | " | | | | |
| " | " | " | 121 | " | " | A | A | | | | | | | | " | | | | |
| 8 | Repeat subgroup 7 at $T_C$ = 125°C and $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | |
| 9 | $t_{PHL1}$ | 3003 | 122 | GND | GND | IN | | | | | | | | | 5.0 V | A to W | 8 | 37 | ns |
| $T_C$ = 25°C | " | (Fig 4) | 123 | GND | IN | GND | | | | | | | | | " | B to W | " | " | " |
| " | " | " | 124 | IN | GND | " | | | | | | | | | " | C to W | " | " | " |
| " | " | " | 125 | GND | GND | " | | | | | | | | 5.0 V | " | D to W | " | " | " |
| " | $t_{PLH1}$ | " | 126 | GND | GND | IN | | | | | | | | | 5.0 V | A to W | 8 | 39 | ns |
| " | " | " | 127 | GND | IN | GND | | | | | | | | | " | B to W | " | " | " |
| " | " | " | 128 | IN | GND | " | | | | | | | | | " | C to W | " | " | " |
| " | " | " | 129 | GND | GND | " | | | | | | | | 5.0 V | " | D to W | " | " | " |
| " | $t_{PHL2}$ | " | 130 | GND | GND | GND | | | | | | | | | " | G to W | 6 | 34 | ns |
| " | $t_{PLH2}$ | " | 131 | GND | GND | GND | | | | | | | | | " | G to W | 6 | 28 | ns |

See note at end of device type 01

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TABLE III.  Group A inspection for device type 01 – Continued.

Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z Test No. | 1 $E_7$ | 2 $E_6$ | 3 $E_5$ | 4 $E_4$ | 5 $E_3$ | 6 $E_2$ | 7 $E_1$ | 8 $E_0$ | 9 G | 10 W | 11 D | 12 GND | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9<br>$T_C = 25°C$ | $t_{PHL3}$ | 3003<br>(Fig 4) | 132 | | | | | | | | IN | GND | OUT | GND | GND | $E_0$ to W | 3 | 18 | ns |
| " | " | " | 133 | | | | | | | IN | | " | " | " | " | $E_1$ to W | " | " | " |
| " | " | " | 134 | | | | | | IN | | | " | " | " | " | $E_2$ to W | " | " | " |
| " | " | " | 135 | | | | | IN | | | | " | " | " | " | $E_3$ to W | " | " | " |
| " | " | " | 136 | | | | IN | | | | | " | " | " | " | $E_4$ to W | " | " | " |
| " | " | " | 137 | | | IN | | | | | | " | " | " | " | $E_5$ to W | " | " | " |
| " | " | " | 138 | | IN | | | | | | | " | " | " | " | $E_6$ to W | " | " | " |
| " | " | " | 139 | IN | | | | | | | | " | " | " | " | $E_7$ to W | " | " | " |
| " | " | " | 140 | | | | | | | | | " | " | 5.0 V | " | $E_8$ to W | " | " | " |
| " | " | " | 141 | | | | | | | | | " | " | " | " | $E_9$ to W | " | " | " |
| " | " | " | 142 | | | | | | | | | " | " | " | " | $E_{10}$ to W | " | " | " |
| " | " | " | 143 | | | | | | | | | " | " | " | " | $E_{11}$ to W | " | " | " |
| " | " | " | 144 | | | | | | | | | " | " | " | " | $E_{12}$ to W | " | " | " |
| " | " | " | 145 | | | | | | | | | " | " | " | " | $E_{13}$ to W | " | " | " |
| " | " | " | 146 | | | | | | | | | " | " | " | " | $E_{14}$ to W | " | " | " |
| " | " | " | 147 | | | | | | | | | " | " | " | " | $E_{15}$ to W | " | " | " |
| " | $t_{PLH3}$ | " | 148 | | | | | | | | IN | " | OUT | GND | " | $E_0$ to W | 3 | 24 | ns |
| " | " | " | 149 | | | | | | | IN | | " | " | " | " | $E_1$ to W | " | " | " |
| " | " | " | 150 | | | | | | IN | | | " | " | " | " | $E_2$ to W | " | " | " |
| " | " | " | 151 | | | | | IN | | | | " | " | " | " | $E_3$ to W | " | " | " |
| " | " | " | 152 | | | | IN | | | | | " | " | " | " | $E_4$ to W | " | " | " |
| " | " | " | 153 | | | IN | | | | | | " | " | " | " | $E_5$ to W | " | " | " |
| " | " | " | 154 | | IN | | | | | | | " | " | " | " | $E_6$ to W | " | " | " |
| " | " | " | 155 | IN | | | | | | | | " | " | " | " | $E_7$ to W | " | " | " |
| " | " | " | 156 | | | | | | | | | " | " | 5.0 V | " | $E_8$ to W | " | " | " |
| " | " | " | 157 | | | | | | | | | " | " | " | " | $E_9$ to W | " | " | " |
| " | " | " | 158 | | | | | | | | | " | " | " | " | $E_{10}$ to W | " | " | " |
| " | " | " | 159 | | | | | | | | | " | " | " | " | $E_{11}$ to W | " | " | " |
| " | " | " | 160 | | | | | | | | | " | " | " | " | $E_{12}$ to W | " | " | " |
| " | " | " | 161 | | | | | | | | | " | " | " | " | $E_{13}$ to W | " | " | " |
| " | " | " | 162 | | | | | | | | | " | " | " | " | $E_{14}$ to W | " | " | " |
| " | " | " | 163 | | | | | | | | | " | " | " | " | $E_{15}$ to W | " | " | " |
| 10<br>$T_C = 125°C$ | $t_{PHL1}$ | " | 164 | | | | | | | 5.0 V | GND | GND | OUT | GND | " | A to W | 8 | 40 | ns |
| " | " | " | 165 | | | | | | 5.0 V | | " | " | " | " | " | B to W | " | " | " |
| " | " | " | 166 | | | | 5.0 V | | | | " | " | " | " | " | C to W | " | " | " |
| " | " | " | 167 | | | | | | | | " | " | " | IN | " | D to W | " | " | " |
| " | $t_{PLH1}$ | " | 168 | | | | | | | | " | " | " | GND | " | A to W | " | 43 | " |
| " | " | " | 169 | | | | | | 5.0 V | | " | " | " | " | " | B to W | " | " | " |
| " | " | " | 170 | | | | 5.0 V | | | | " | " | " | " | " | C to W | " | " | " |
| " | " | " | 171 | | | | | | | | " | " | " | IN | " | D to W | " | " | " |
| " | $t_{PHL2}$ | " | 172 | | | | | | | | 5.0 V | IN | OUT | GND | " | G to W | 6 | 37 | ns |
| " | $t_{PLH2}$ | " | 173 | | | | | | | | 5.0 V | IN | OUT | GND | " | G to W | 6 | 32 | ns |

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z Test No. | 13 C | 14 B | 15 A | 16 $E_{15}$ | 17 $E_{14}$ | 18 $E_{13}$ | 19 $E_{12}$ | 20 $E_{11}$ | 21 $E_{10}$ | 22 $E_9$ | 23 $E_8$ | 24 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 $T_C = 25°C$ | $t_{PHL3}$ | 3003 (Fig 4) | 132 | GND | GND | GND | | | | | | | | | 5.0 V | $E_0$ to W | 3 | 18 | ns |
| " | " | " | 133 | " | GND | 5.0 V | | | | | | | | | " | $E_1$ to W | " | " | " |
| " | " | " | 134 | " | 5.0 V | GND | | | | | | | | | " | $E_2$ to W | " | " | " |
| " | " | " | 135 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_3$ to W | " | " | " |
| " | " | " | 136 | 5.0 V | GND | GND | | | | | | | | | " | $E_4$ to W | " | " | " |
| " | " | " | 137 | " | GND | 5.0 V | | | | | | | | | " | $E_5$ to W | " | " | " |
| " | " | " | 138 | " | 5.0 V | GND | | | | | | | | | " | $E_6$ to W | " | " | " |
| " | " | " | 139 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_7$ to W | " | " | " |
| " | " | " | 140 | GND | GND | GND | | | | | | | | IN | " | $E_8$ to W | " | " | " |
| " | " | " | 141 | " | GND | 5.0 V | | | | | | | IN | | " | $E_9$ to W | " | " | " |
| " | " | " | 142 | " | 5.0 V | GND | | | | | | IN | | | " | $E_{10}$ to W | " | " | " |
| " | " | " | 143 | " | 5.0 V | 5.0 V | | | | | IN | | | | " | $E_{11}$ to W | " | " | " |
| " | " | " | 144 | 5.0 V | GND | GND | | | | IN | | | | | " | $E_{12}$ to W | " | " | " |
| " | " | " | 145 | " | GND | 5.0 V | | | IN | | | | | | " | $E_{13}$ to W | " | " | " |
| " | " | " | 146 | " | 5.0 V | GND | | IN | | | | | | | " | $E_{14}$ to W | " | " | " |
| " | " | " | 147 | " | 5.0 V | 5.0 V | IN | | | | | | | | " | $E_{15}$ to W | " | " | " |
| " | $t_{PLH3}$ | " | 148 | GND | GND | GND | | | | | | | | | " | $E_0$ to W | 3 | 24 | ns |
| " | " | " | 149 | " | GND | 5.0 V | | | | | | | | | " | $E_1$ to W | " | " | " |
| " | " | " | 150 | " | 5.0 V | GND | | | | | | | | | " | $E_2$ to W | " | " | " |
| " | " | " | 151 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_3$ to W | " | " | " |
| " | " | " | 152 | 5.0 V | GND | GND | | | | | | | | | " | $E_4$ to W | " | " | " |
| " | " | " | 153 | " | GND | 5.0 V | | | | | | | | | " | $E_5$ to W | " | " | " |
| " | " | " | 154 | " | 5.0 V | GND | | | | | | | | | " | $E_6$ to W | " | " | " |
| " | " | " | 155 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_7$ to W | " | " | " |
| " | " | " | 156 | GND | GND | GND | | | | | | | | IN | " | $E_8$ to W | " | " | " |
| " | " | " | 157 | " | GND | 5.0 V | | | | | | | IN | | " | $E_9$ to W | " | " | " |
| " | " | " | 158 | " | 5.0 V | GND | | | | | | IN | | | " | $E_{10}$ to W | " | " | " |
| " | " | " | 159 | " | 5.0 V | 5.0 V | | | | | IN | | | | " | $E_{11}$ to W | " | " | " |
| " | " | " | 160 | 5.0 V | GND | GND | | | | IN | | | | | " | $E_{12}$ to W | " | " | " |
| " | " | " | 161 | " | GND | 5.0 V | | | IN | | | | | | " | $E_{13}$ to W | " | " | " |
| " | " | " | 162 | " | 5.0 V | GND | | IN | | | | | | | " | $E_{14}$ to W | " | " | " |
| " | " | " | 163 | " | 5.0 V | 5.0 V | IN | | | | | | | | " | $E_{15}$ to W | " | " | " |
| 10 $T_C = 125°C$ | $t_{PHL1}$ | " | 164 | GND | GND | IN | | | | | | | | | " | A to W | 8 | 40 | ns |
| " | " | " | 165 | GND | IN | GND | | | | | | | | | " | B to W | " | " | " |
| " | " | " | 166 | IN | GND | GND | | | | | | | | | " | C to W | " | " | " |
| " | " | " | 167 | GND | GND | GND | | | | | | | | | 5.0 V | D to W | " | " | " |
| " | $t_{PLH1}$ | " | 168 | GND | GND | IN | | | | | | | | | " | A to W | " | 43 | " |
| " | " | " | 169 | GND | IN | GND | | | | | | | | | " | B to W | " | " | " |
| " | " | " | 170 | IN | GND | GND | | | | | | | | | " | C to W | " | " | " |
| " | " | " | 171 | GND | GND | GND | | | | | | | | | 5.0 V | D to W | " | " | " |
| " | $t_{PHL2}$ | " | 172 | GND | GND | GND | | | | | | | | | " | G to W | 6 | 37 | ns |
| " | $t_{PLH2}$ | " | 173 | GND | GND | GND | | | | | | | | | " | G to W | 6 | 32 | ns |

See note at end of device type 01

TABLE III. <u>Group A inspection for device type 01</u> – Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z Test No. | 1 E7 | 2 E6 | 3 E5 | 4 E4 | 5 E3 | 6 E2 | 7 E1 | 8 E0 | 9 G | 10 W | 11 D | 12 GND | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 $T_C = 125°C$ | $t_{PHL3}$ | 3003 (Fig 4) | 174 | | | | | | | | IN | GND | OUT | GND | GND | $E_0$ to W | 3 | 23 | ns |
| " | " | " | 175 | | | | | | | IN | | " | " | " | " | $E_1$ to W | " | " | " |
| " | " | " | 176 | | | | | | IN | | | " | " | " | " | $E_2$ to W | " | " | " |
| " | " | " | 177 | | | | | IN | | | | " | " | " | " | $E_3$ to W | " | " | " |
| " | " | " | 178 | | | | IN | | | | | " | " | " | " | $E_4$ to W | " | " | " |
| " | " | " | 179 | | | IN | | | | | | " | " | " | " | $E_5$ to W | " | " | " |
| " | " | " | 180 | | IN | | | | | | | " | " | " | " | $E_6$ to W | " | " | " |
| " | " | " | 181 | IN | | | | | | | | " | " | " | " | $E_7$ to W | " | " | " |
| " | " | " | 182 | | | | | | | | | " | " | 5.0 V | " | $E_8$ to W | " | " | " |
| " | " | " | 183 | | | | | | | | | " | " | " | " | $E_9$ to W | " | " | " |
| " | " | " | 184 | | | | | | | | | " | " | " | " | $E_{10}$ to W | " | " | " |
| " | " | " | 185 | | | | | | | | | " | " | " | " | $E_{11}$ to W | " | " | " |
| " | " | " | 186 | | | | | | | | | " | " | " | " | $E_{12}$ to W | " | " | " |
| " | " | " | 187 | | | | | | | | | " | " | " | " | $E_{13}$ to W | " | " | " |
| " | " | " | 188 | | | | | | | | | " | " | " | " | $E_{14}$ to W | " | " | " |
| " | " | " | 189 | | | | | | | | | " | " | " | " | $E_{15}$ to W | " | " | " |
| " | $t_{PLH3}$ | " | 190 | | | | | | | | IN | " | " | GND | " | $E_0$ to W | 3 | 30 | ns |
| " | " | " | 191 | | | | | | | IN | | " | " | " | " | $E_1$ to W | " | " | " |
| " | " | " | 192 | | | | | | IN | | | " | " | " | " | $E_2$ to W | " | " | " |
| " | " | " | 193 | | | | | IN | | | | " | " | " | " | $E_3$ to W | " | " | " |
| " | " | " | 194 | | | | IN | | | | | " | " | " | " | $E_4$ to W | " | " | " |
| " | " | " | 195 | | | IN | | | | | | " | " | " | " | $E_5$ to W | " | " | " |
| " | " | " | 196 | | IN | | | | | | | " | " | " | " | $E_6$ to W | " | " | " |
| " | " | " | 197 | IN | | | | | | | | " | " | " | " | $E_7$ to W | " | " | " |
| " | " | " | 198 | | | | | | | | | " | " | 5.0 V | " | $E_8$ to W | " | " | " |
| " | " | " | 199 | | | | | | | | | " | " | " | " | $E_9$ to W | " | " | " |
| " | " | " | 200 | | | | | | | | | " | " | " | " | $E_{10}$ to W | " | " | " |
| " | " | " | 201 | | | | | | | | | " | " | " | " | $E_{11}$ to W | " | " | " |
| " | " | " | 202 | | | | | | | | | " | " | " | " | $E_{12}$ to W | " | " | " |
| " | " | " | 203 | | | | | | | | | " | " | " | " | $E_{13}$ to W | " | " | " |
| " | " | " | 204 | | | | | | | | | " | " | " | " | $E_{14}$ to W | " | " | " |
| " | " | " | 205 | | | | | | | | | " | " | " | " | $E_{15}$ to W | " | " | " |
| 11 | Same tests, terminal conditions and limits as subgroup 10 except $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | |

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TABLE III. <u>Group A inspection for device type 01</u> – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases J, K, Z — Test No. | 13 / C | 14 / B | 15 / A | 16 / E15 | 17 / E14 | 18 / E13 | 19 / E12 | 20 / E11 | 21 / E10 | 22 / E9 | 23 / E8 | 24 / VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10  $T_C = 125°C$ | $t_{PHL3}$ | 3003 (Fig 4) | 174 | GND | GND | GND | | | | | | | | | 5.0 V | $E_0$ to W | 3 | 23 | ns |
| " | " | " | 175 | " | GND | 5.0 V | | | | | | | | | " | $E_1$ to W | " | " | " |
| " | " | " | 176 | " | 5.0 V | GND | | | | | | | | | " | $E_2$ to W | " | " | " |
| " | " | " | 177 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_3$ to W | " | " | " |
| " | " | " | 178 | 5.0 V | GND | GND | | | | | | | | | " | $E_4$ to W | " | " | " |
| " | " | " | 179 | " | GND | 5.0 V | | | | | | | | | " | $E_5$ to W | " | " | " |
| " | " | " | 180 | " | 5.0 V | GND | | | | | | | | | " | $E_6$ to W | " | " | " |
| " | " | " | 181 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_7$ to W | " | " | " |
| " | " | " | 182 | GND | GND | GND | | | | | | | | IN | " | $E_8$ to W | " | " | " |
| " | " | " | 183 | " | GND | 5.0 V | | | | | | | IN | | " | $E_9$ to W | " | " | " |
| " | " | " | 184 | " | 5.0 V | GND | | | | | | IN | | | " | $E_{10}$ to W | " | " | " |
| " | " | " | 185 | " | 5.0 V | 5.0 V | | | | | IN | | | | " | $E_{11}$ to W | " | " | " |
| " | " | " | 186 | 5.0 V | GND | GND | | | | IN | | | | | " | $E_{12}$ to W | " | " | " |
| " | " | " | 187 | " | GND | 5.0 V | | | IN | | | | | | " | $E_{13}$ to W | " | " | " |
| " | " | " | 188 | " | 5.0 V | GND | | IN | | | | | | | " | $E_{14}$ to W | " | " | " |
| " | " | " | 189 | " | 5.0 V | 5.0 V | IN | | | | | | | | " | $E_{15}$ to W | " | " | " |
| " | $t_{PLH3}$ | " | 190 | GND | GND | GND | | | | | | | | | " | $E_0$ to W | 3 | 30 | ns |
| " | " | " | 191 | " | GND | 5.0 V | | | | | | | | | " | $E_1$ to W | " | " | " |
| " | " | " | 192 | " | 5.0 V | GND | | | | | | | | | " | $E_2$ to W | " | " | " |
| " | " | " | 193 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_3$ to W | " | " | " |
| " | " | " | 194 | 5.0 V | GND | GND | | | | | | | | | " | $E_4$ to W | " | " | " |
| " | " | " | 195 | " | GND | 5.0 V | | | | | | | | | " | $E_5$ to W | " | " | " |
| " | " | " | 196 | " | 5.0 V | GND | | | | | | | | | " | $E_6$ to W | " | " | " |
| " | " | " | 197 | " | 5.0 V | 5.0 V | | | | | | | | | " | $E_7$ to W | " | " | " |
| " | " | " | 198 | GND | GND | GND | | | | | | | | IN | " | $E_8$ to W | " | " | " |
| " | " | " | 199 | " | GND | 5.0 V | | | | | | | IN | | " | $E_9$ to W | " | " | " |
| " | " | " | 200 | " | 5.0 V | GND | | | | | | IN | | | " | $E_{10}$ to W | " | " | " |
| " | " | " | 201 | " | 5.0 V | 5.0 V | | | | | IN | | | | " | $E_{11}$ to W | " | " | " |
| " | " | " | 202 | 5.0 V | GND | GND | | | | IN | | | | | " | $E_{12}$ to W | " | " | " |
| " | " | " | 203 | " | GND | 5.0 V | | | IN | | | | | | " | $E_{13}$ to W | " | " | " |
| " | " | " | 204 | " | 5.0 V | GND | | IN | | | | | | | " | $E_{14}$ to W | " | " | " |
| " | " | " | 205 | " | 5.0 V | 5.0 V | IN | | | | | | | | " | $E_{15}$ to W | " | " | " |
| 11 | Same tests, terminal conditions and limits as subgroup 10 except $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | |

1/ $I_{IL}$ minimum limit for CKT E is -0.6 mA.
2/ A = 3.0 V minimum, B = 0.0 V or GND.
3/ H > 1.5 V;  L < 1.5 V.
  Only attributes data is required for subgroups 7 and 8.

TABLE III.  Group A inspection for device type 02.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 D0 | 2 D1 | 3 D2 | 4 D3 | 5 D4 | 6 D5 | 7 D6 | 8 GND | 9 D7 | 10 G | 11 A | 12 B | 13 C | 14 W | 15 Y | 16 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | $V_{OH}$ | 3006 | 1 | 2.0 V | | | | | | | GND | | 0.8 V | 0.8 V | 0.8 V | 0.8 V | | -0.8 mA | 4.5 V | Y | 2.4 | | V |
| $T_C$ = 25°C | $V_{OH}$ | 3006 | 2 | | | | | | | | " | | 2.0 V | 2.0 V | 2.0 V | 2.0 V | -0.8 mA | | " | W | 2.4 | | " |
| " | $V_{OL}$ | 3007 | 3 | | | | | | | | " | | 2.0 V | 2.0 V | 2.0 V | 2.0 V | | 16 mA | " | Y | | 0.4 | " |
| " | $V_{OL}$ | 3007 | 4 | 2.0 V | | | | | | | " | | 0.8 V | 0.8 V | 0.8 V | 0.8 V | 16 mA | | " | W | | 0.4 | " |
| " | $V_{IC}$ | | 5 | -12 mA | | | | | | | " | | | | | | | | " | D0 | | -1.5 | " |
| " | " | | 6 | | -12 mA | | | | | | " | | | | | | | | " | D1 | | " | " |
| " | " | | 7 | | | -12 mA | | | | | " | | | | | | | | " | D2 | | " | " |
| " | " | | 8 | | | | -12 mA | | | | " | | | | | | | | " | D3 | | " | " |
| " | " | | 9 | | | | | -12 mA | | | " | | | | | | | | " | D4 | | " | " |
| " | " | | 10 | | | | | | -12 mA | | " | | | | | | | | " | D5 | | " | " |
| " | " | | 11 | | | | | | | -12 mA | " | | | | | | | | " | D6 | | " | " |
| " | " | | 12 | | | | | | | | " | -12 mA | | | | | | | " | D7 | | " | " |
| " | " | | 13 | | | | | | | | " | | -12 mA | | | | | | " | G | | " | " |
| " | " | | 14 | | | | | | | | " | | | -12 mA | | | | | " | A | | " | " |
| " | " | | 15 | | | | | | | | " | | | | -12 mA | | | | " | B | | " | " |
| " | " | | 16 | | | | | | | | " | | | | | -12 mA | | | " | C | | " | " |
| " | $I_{IL}$ | 3009 | 17 | | | | | | | | " | | 0.4 V | 5.5 V | 5.5 V | 5.5 V | | | 5.5 V | G | -0.7 | -1.6 | mA |
| " | " | " | 18 | | | | | | | | " | | GND | 0.4 V | 5.5 V | " | | | " | A | " | " | " |
| " | " | " | 19 | | | | | | | | " | | " | 5.5 V | 0.4 V | " | | | " | B | " | " | " |
| " | " | " | 20 | | | | | | | | " | | " | 5.5 V | 5.5 V | 0.4 V | | | " | C | " | " | " |
| " | " | " | 21 | 0.4 V | | | | | | | " | | " | GND | GND | GND | | | " | D0 | " | " | " |
| " | " | " | 22 | | 0.4 V | | | | | | " | | " | 5.5 V | GND | " | | | " | D1 | " | " | " |
| " | " | " | 23 | | | 0.4 V | | | | | " | | " | GND | 5.5 V | " | | | " | D2 | " | " | " |
| " | " | " | 24 | | | | 0.4 V | | | | " | | " | 5.5 V | 5.5 V | " | | | " | D3 | " | " | " |
| " | " | " | 25 | | | | | 0.4 V | | | " | | " | GND | GND | 5.5 V | | | " | D4 | " | " | " |
| " | " | " | 26 | | | | | | 0.4 V | | " | | " | 5.5 V | GND | " | | | " | D5 | " | " | " |
| " | " | " | 27 | | | | | | | 0.4 V | " | | " | GND | 5.5 V | " | | | " | D6 | " | " | " |
| " | " | " | 28 | | | | | | | | " | 0.4 V | " | 5.5 V | 5.5 V | " | | | " | D7 | " | " | " |
| " | $I_{IH1}$ | 3010 | 29 | | | | | | | | " | | 2.4 V | GND | GND | GND | | | " | G | | 40 | µA |
| " | " | " | 30 | | | | | | | | " | | 5.5 V | 2.4 V | GND | GND | | | " | A | | " | " |
| " | " | " | 31 | | | | | | | | " | | " | GND | 2.4 V | GND | | | " | B | | " | " |
| " | " | " | 32 | | | | | | | | " | | " | GND | GND | 2.4 V | | | " | C | | " | " |
| " | " | " | 33 | 2.4 V | | | | | | | " | | " | 5.5 V | 5.5 V | 5.5 V | | | " | D0 | | " | " |
| " | " | " | 34 | | 2.4 V | | | | | | " | | " | GND | 5.5 V | " | | | " | D1 | | " | " |
| " | " | " | 35 | | | 2.4 V | | | | | " | | " | 5.5 V | GND | " | | | " | D2 | | " | " |
| " | " | " | 36 | | | | 2.4 V | | | | " | | " | GND | GND | " | | | " | D3 | | " | " |
| " | " | " | 37 | | | | | 2.4 V | | | " | | " | 5.5 V | 5.5 V | GND | | | " | D4 | | " | " |
| " | " | " | 38 | | | | | | 2.4 V | | " | | " | GND | 5.5 V | " | | | " | D5 | | " | " |
| " | " | " | 39 | | | | | | | 2.4 V | " | | " | 5.5 V | GND | " | | | " | D6 | | " | " |
| " | " | " | 40 | | | | | | | | " | 2.4 V | " | GND | GND | " | | | " | D7 | | " | " |

See note at end of device type 02.

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TABLE III.  Group A inspection for device type 02– Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 D0 | 2 D1 | 3 D2 | 4 D3 | 5 D4 | 6 D5 | 7 D6 | 8 GND | 9 D7 | 10 G | 11 A | 12 B | 13 C | 14 W | 15 Y | 16 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 TC = 25°C | I_IH2 | 3010 | 41 | | | | | | | | GND | | 5.5 V | GND | GND | GND | | | 5.5 V | G | | 100 | µA |
| " | " | " | 42 | | | | | | | | GND | | GND | 5.5 V | GND | " | | | " | A | | " | " |
| " | " | " | 43 | | | | | | | | " | | " | GND | 5.5 V | " | | | " | B | | " | " |
| " | " | " | 44 | | | | | | | | " | | " | GND | GND | 5.5 V | | | " | C | | " | " |
| " | " | " | 45 | 5.5 V | | | | | | | " | | " | 5.5 V | 5.5 V | " | | | " | D0 | | " | " |
| " | " | " | 46 | | 5.5 V | | | | | | " | | " | GND | 5.5 V | " | | | " | D1 | | " | " |
| " | " | " | 47 | | | 5.5 V | | | | | " | | " | 5.5 V | GND | " | | | " | D2 | | " | " |
| " | " | " | 48 | | | | 5.5 V | | | | " | | " | GND | GND | " | | | " | D3 | | " | " |
| " | " | " | 49 | | | | | 5.5 V | | | " | | " | 5.5 V | 5.5 V | GND | | | " | D4 | | " | " |
| " | " | " | 50 | | | | | | 5.5 V | | " | | " | GND | 5.5 V | " | | | " | D5 | | " | " |
| " | " | " | 51 | | | | | | | 5.5 V | " | | " | 5.5 V | GND | " | | | " | D6 | | " | " |
| " | " | " | 52 | | | | | | | | " | 5.5 V | " | GND | " | " | | | " | D7 | | " | " |
| " | I_OS | 3011 | 53 | GND | GND | GND | GND | GND | GND | GND | " | GND | 5.5 V | " | " | " | GND | | " | Y | -20 | -120 | mA |
| " | I_OS | 3011 | 54 | 5.5 V | " | " | " | " | " | " | " | " | GND | " | " | " | | GND | " | W | -20 | -120 | mA |
| " | I_CC | 3005 | 55 | 5.5 V | " | " | " | " | " | " | " | " | GND | " | " | " | | | " | VCC | | 48 | mA |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except TC = 125°C and V_IC tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except TC = -55°C and V_IC tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 7 TC = 25°C | Truth table test | | 56 | | | | | | | | GND | | A 1/ | | | | H 2/ | L | 4.5 V | | | | |
| " | " | | 57 | B | | | | | | | " | | B | B | B | B | H | L | " | | | | |
| " | " | | 58 | A | | | | | | | " | | " | B | " | " | L | H | " | | | | |
| " | " | | 59 | | B | | | | | | " | | " | A | " | " | H | L | " | | | | |
| " | " | | 60 | | A | | | | | | " | | " | A | " | " | L | H | " | | | | |
| " | " | | 61 | | | B | | | | | " | | " | B | A | " | H | L | " | | | | |
| " | " | | 62 | | | A | | | | | " | | " | B | " | " | L | H | " | | | | |
| " | " | | 63 | | | | B | | | | " | | " | A | " | " | H | L | " | | | | |
| " | " | | 64 | | | | A | | | | " | | " | A | " | " | L | H | " | | 2/ | | |
| " | " | | 65 | | | | | B | | | " | | " | B | B | A | H | L | " | | | | |
| " | " | | 66 | | | | | A | | | " | | " | B | " | " | L | H | " | | | | |
| " | " | | 67 | | | | | | B | | " | | " | A | " | " | H | L | " | | | | |
| " | " | | 68 | | | | | | A | | " | | " | A | " | " | L | H | " | | | | |
| " | " | | 69 | | | | | | | B | " | | " | B | A | " | H | L | " | | | | |
| " | " | | 70 | | | | | | | A | " | | " | B | " | " | L | H | " | | | | |
| " | " | | 71 | | | | | | | | " | B | " | A | " | " | H | L | " | | | | |
| " | " | | 72 | | | | | | | | " | A | " | A | " | " | L | H | " | | | | |
| 8 | Repeat subgroup 7 at TC = 125°C and TC = -55°C. | | | | | | | | | | | | | | | | | | | | | | |

See note at end of device type 02.

TABLE III.  Group A inspection for device type 02– Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 D$_0$ | 2 D$_1$ | 3 D$_2$ | 4 D$_3$ | 5 D$_4$ | 6 D$_5$ | 7 D$_6$ | 8 GND | 9 D$_7$ | 10 G | 11 A | 12 B | 13 C | 14 W | 15 Y | 16 V$_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | t$_{PHL1}$ | 3003 (Fig 4) | 73 | GND | 5.0 V | | | | | | GND | | GND | IN | GND | GND | OUT | | 5.0 V | A to W | 6 | 32 | ns |
| T$_C$ = 25°C | " | " | 74 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | " | | " | B to W | " | " | " |
| " | " | " | 75 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | " | | " | C to W | " | " | " |
| " | t$_{PLH1}$ | " | 76 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | " | | " | A to W | " | 29 | " |
| " | " | " | 77 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | " | | " | B to W | " | " | " |
| " | " | " | 78 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | " | | " | C to W | " | " | " |
| " | t$_{PHL2}$ | " | 79 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | | OUT | " | A to Y | " | 40 | " |
| " | " | " | 80 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | | " | " | B to Y | " | " | " |
| " | " | " | 81 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | | " | " | C to Y | " | " | " |
| " | t$_{PLH2}$ | " | 82 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | | " | " | A to Y | " | 39 | " |
| " | " | " | 83 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | | " | " | B to Y | " | " | " |
| " | " | " | 84 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | | " | " | C to Y | " | " | " |
| " | t$_{PHL3}$ | " | 85 | 5.0 V | | | | | | | " | | IN | GND | GND | GND | OUT | | " | G to W | 6 | 28 | " |
| " | t$_{PLH3}$ | " | 86 | " | | | | | | | " | | " | " | " | " | OUT | | " | G to W | 6 | 24 | " |
| " | t$_{PHL4}$ | " | 87 | " | | | | | | | " | | " | " | " | " | | OUT | " | G to Y | 8 | 37 | " |
| " | t$_{PLH4}$ | " | 88 | " | | | | | | | " | | " | " | " | " | | OUT | " | G to Y | 8 | 35 | " |
| " | t$_{PHL5}$ | " | 89 | IN | | | | | | | " | | GND | GND | GND | GND | OUT | | " | D$_0$ to W | 3 | 20 | " |
| " | " | " | 90 | | IN | | | | | | " | | " | 5.0 V | GND | " | " | | " | D$_1$ to W | " | " | " |
| " | " | " | 91 | | | IN | | | | | " | | " | GND | 5.0 V | " | " | | " | D$_2$ to W | " | " | " |
| " | " | " | 92 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | " | | " | D$_3$ to W | " | " | " |
| " | " | " | 93 | | | | | IN | | | " | | " | GND | GND | 5.0 V | " | | " | D$_4$ to W | " | " | " |
| " | " | " | 94 | | | | | | IN | | " | | " | 5.0 V | GND | " | " | | " | D$_5$ to W | " | " | " |
| " | " | " | 95 | | | | | | | IN | " | | " | GND | 5.0 V | " | " | | " | D$_6$ to W | " | " | " |
| " | " | " | 96 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | " | | " | D$_7$ to W | " | " | " |
| " | t$_{PLH5}$ | " | 97 | IN | | | | | | | " | | " | GND | GND | GND | " | | " | D$_0$ to W | " | 17 | " |
| " | " | " | 98 | | IN | | | | | | " | | " | 5.0 V | GND | " | " | | " | D$_1$ to W | " | " | " |
| " | " | " | 99 | | | IN | | | | | " | | " | GND | 5.0 V | " | " | | " | D$_2$ to W | " | " | " |
| " | " | " | 100 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | " | | " | D$_3$ to W | " | " | " |
| " | " | " | 101 | | | | | IN | | | " | | " | GND | GND | 5.0 V | " | | " | D$_4$ to W | " | " | " |
| " | " | " | 102 | | | | | | IN | | " | | " | 5.0 V | GND | " | " | | " | D$_5$ to W | " | " | " |
| " | " | " | 103 | | | | | | | IN | " | | " | GND | 5.0 V | " | " | | " | D$_6$ to W | " | " | " |
| " | " | " | 104 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | " | | " | D$_7$ to W | " | " | " |

See note at end of device type 02.

TABLE III.  Group A inspection for device type 02– Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 $D_0$ | 2 $D_1$ | 3 $D_2$ | 4 $D_3$ | 5 $D_4$ | 6 $D_5$ | 7 $D_6$ | 8 GND | 9 $D_7$ | 10 G | 11 A | 12 B | 13 C | 14 W | 15 Y | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9<br>$T_C = 25°C$ | $t_{PHL6}$ | 3003 (Fig 4) | 105 | IN | | | | | | | GND | | GND | GND | GND | GND | | OUT | 5.0 V | $D_0$ to Y | 6 | 29 | ns |
| " | " | " | 106 | | IN | | | | | | " | | " | 5.0 V | GND | " | | " | " | $D_1$ to Y | " | " | " |
| " | " | " | 107 | | | IN | | | | | " | | " | GND | 5.0 V | " | | " | " | $D_2$ to Y | " | " | " |
| " | " | " | 108 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | | " | " | $D_3$ to Y | " | " | " |
| " | " | " | 109 | | | | | IN | | | " | | " | GND | GND | 5.0 V | | " | " | $D_4$ to Y | " | " | " |
| " | " | " | 110 | | | | | | IN | | " | | " | 5.0 V | GND | " | | " | " | $D_5$ to Y | " | " | " |
| " | " | " | 111 | | | | | | | IN | " | | " | GND | 5.0 V | " | | " | " | $D_6$ to Y | " | " | " |
| " | " | " | 112 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | | " | " | $D_7$ to Y | " | " | " |
| " | $t_{PLH6}$ | " | 113 | IN | | | | | | | " | | " | GND | GND | GND | | " | " | $D_0$ to Y | 6 | 29 | " |
| " | " | " | 114 | | IN | | | | | | " | | " | 5.0 V | GND | " | | " | " | $D_1$ to Y | " | " | " |
| " | " | " | 115 | | | IN | | | | | " | | " | GND | 5.0 V | " | | " | " | $D_2$ to Y | " | " | " |
| " | " | " | 116 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | | " | " | $D_3$ to Y | " | " | " |
| " | " | " | 117 | | | | | IN | | | " | | " | GND | GND | 5.0 V | | " | " | $D_4$ to Y | " | " | " |
| " | " | " | 118 | | | | | | IN | | " | | " | 5.0 V | GND | " | | " | " | $D_5$ to Y | " | " | " |
| " | " | " | 119 | | | | | | | IN | " | | " | GND | 5.0 V | " | | " | " | $D_6$ to Y | " | " | " |
| " | " | " | 120 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | | " | " | $D_7$ to Y | " | " | " |
| 10<br>$T_C = 125°C$ | $t_{PHL1}$ | " | 121 | GND | 5.0 V | | | | | | " | | " | IN | GND | GND | OUT | | " | A to W | 6 | 40 | " |
| " | " | " | 122 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | " | | " | B to W | " | " | " |
| " | " | " | 123 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | " | | " | C to W | " | " | " |
| " | $t_{PLH1}$ | " | 124 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | " | | " | A to W | " | 38 | " |
| " | " | " | 125 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | " | | " | B to W | " | " | " |
| " | " | " | 126 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | " | | " | C to W | " | " | " |
| " | $t_{PHL2}$ | " | 127 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | | OUT | " | A to Y | 8 | 49 | " |
| " | " | " | 128 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | | " | " | B to Y | " | " | " |
| " | " | " | 129 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | | " | " | C to Y | " | " | " |
| " | $t_{PLH2}$ | " | 130 | " | 5.0 V | | | | | | " | | " | IN | GND | GND | | " | " | A to Y | " | 45 | " |
| " | " | " | 131 | " | | 5.0 V | | | | | " | | " | GND | IN | GND | | " | " | B to Y | " | " | " |
| " | " | " | 132 | " | | | | 5.0 V | | | " | | " | GND | GND | IN | | " | " | C to Y | " | " | " |
| " | $t_{PHL3}$ | " | 133 | 5.0 V | | | | | | | " | | IN | GND | GND | GND | OUT | | " | G to W | 6 | 37 | " |
| " | $t_{PLH3}$ | " | 134 | " | | | | | | | " | | " | " | " | " | OUT | | " | G to W | 6 | 35 | " |
| " | $t_{PHL4}$ | " | 135 | " | | | | | | | " | | " | " | " | " | | OUT | " | G to Y | 8 | 46 | " |
| " | $t_{PLH4}$ | " | 136 | " | | | | | | | " | | " | " | " | " | | OUT | " | G to Y | 8 | 42 | " |
| " | $t_{PHL5}$ | " | 137 | IN | | | | | | | " | | GND | GND | GND | GND | OUT | | " | $D_0$ to W | 3 | 32 | " |
| " | " | " | 138 | | IN | | | | | | " | | " | 5.0 V | GND | " | " | | " | $D_1$ to W | " | " | " |
| " | " | " | 139 | | | IN | | | | | " | | " | GND | 5.0 V | " | " | | " | $D_2$ to W | " | " | " |
| " | " | " | 140 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | " | | " | $D_3$ to W | " | " | " |
| " | " | " | 141 | | | | | IN | | | " | | " | GND | GND | 5.0 V | " | | " | $D_4$ to W | " | " | " |
| " | " | " | 142 | | | | | | IN | | " | | " | 5.0 V | GND | " | " | | " | $D_5$ to W | " | " | " |
| " | " | " | 143 | | | | | | | IN | " | | " | GND | 5.0 V | " | " | | " | $D_6$ to W | " | " | " |
| " | " | " | 144 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | " | | " | $D_7$ to W | " | " | " |

See note at end of device type 02.

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TABLE III.  Group A inspection for device type 02– Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 $D_0$ | 2 $D_1$ | 3 $D_2$ | 4 $D_3$ | 5 $D_4$ | 6 $D_5$ | 7 $D_6$ | 8 GND | 9 $D_7$ | 10 G | 11 A | 12 B | 13 C | 14 W | 15 Y | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | $t_{PLH5}$ | 3003 | 145 | IN | | | | | | | GND | | GND | GND | GND | GND | OUT | | 5.0 V | $D_0$ to W | 3 | 26 | ns |
| $T_C$ = 125°C | " | (Fig 4) | 146 | | IN | | | | | | " | | " | 5.0 V | GND | " | " | | " | $D_1$ to W | " | " | " |
| " | " | " | 147 | | | IN | | | | | " | | " | GND | 5.0 V | " | " | | " | $D_2$ to W | " | " | " |
| " | " | " | 148 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | " | | " | $D_3$ to W | " | " | " |
| " | " | " | 149 | | | | | IN | | | " | | " | GND | GND | 5.0 V | " | | " | $D_4$ to W | " | " | " |
| " | " | " | 150 | | | | | | IN | | " | | " | 5.0 V | GND | " | " | | " | $D_5$ to W | " | " | " |
| " | " | " | 151 | | | | | | | IN | " | | " | GND | 5.0 V | " | " | | " | $D_6$ to W | " | " | " |
| " | " | " | 152 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | " | | " | $D_7$ to W | " | " | " |
| " | $t_{PHL6}$ | " | 153 | IN | | | | | | | " | | " | GND | GND | GND | | OUT | " | $D_0$ to Y | 6 | 41 | " |
| " | " | " | 154 | | IN | | | | | | " | | " | 5.0 V | GND | " | | " | " | $D_1$ to Y | " | " | " |
| " | " | " | 155 | | | IN | | | | | " | | " | GND | 5.0 V | " | | " | " | $D_2$ to Y | " | " | " |
| " | " | " | 156 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | | " | " | $D_3$ to Y | " | " | " |
| " | " | " | 157 | | | | | IN | | | " | | " | GND | GND | 5.0 V | | " | " | $D_4$ to Y | " | " | " |
| " | " | " | 158 | | | | | | IN | | " | | " | 5.0 V | GND | " | | " | " | $D_5$ to Y | " | " | " |
| " | " | " | 159 | | | | | | | IN | " | | " | GND | 5.0 V | " | | " | " | $D_6$ to Y | " | " | " |
| " | " | " | 160 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | | " | " | $D_7$ to Y | " | " | " |
| " | $t_{PLH6}$ | " | 161 | IN | | | | | | | " | | " | GND | GND | GND | | " | " | $D_0$ to Y | " | 33 | " |
| " | " | " | 162 | | IN | | | | | | " | | " | 5.0 V | GND | " | | " | " | $D_1$ to Y | " | " | " |
| " | " | " | 163 | | | IN | | | | | " | | " | GND | 5.0 V | " | | " | " | $D_2$ to Y | " | " | " |
| " | " | " | 164 | | | | IN | | | | " | | " | 5.0 V | 5.0 V | " | | " | " | $D_3$ to Y | " | " | " |
| " | " | " | 165 | | | | | IN | | | " | | " | GND | GND | 5.0 V | | " | " | $D_4$ to Y | " | " | " |
| " | " | " | 166 | | | | | | IN | | " | | " | 5.0 V | GND | " | | " | " | $D_5$ to Y | " | " | " |
| " | " | " | 167 | | | | | | | IN | " | | " | GND | 5.0 V | " | | " | " | $D_6$ to Y | " | " | " |
| " | " | " | 168 | | | | | | | | " | IN | " | 5.0 V | 5.0 V | " | | " | " | $D_7$ to Y | " | " | " |
| 11 | Same tests, terminal conditions and limits as subgroup 10, except $T_A$ = -55°C. | | | | | | | | | | | | | | | | | | | | | | |

1/  A = 3.0 V minimum, B = 0.0 V or GND.
2/  H > 1.5 V;  L < 1.5 V.
    Only attributes data is required for subgroups 7 and 8.

TABLE III.  Group A inspection for device type 03.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases E, F | 1G | B | 1C$_3$ | 1C$_2$ | 1C$_1$ | 1C$_0$ | 1Y | GND | 2Y | 2C$_0$ | 2C$_1$ | 2C$_2$ | 2C$_3$ | A | 2G | V$_{CC}$ | | | | |
| 1 | V$_{OH}$ | 3006 | 1 | 0.8 V | 0.8 V | | | | 2.0 V | -.8 mA | GND | | | | | | 0.8 V | | 4.5 V | 1Y | 2.4 | | V |
| T$_C$ = 25°C | V$_{OH}$ | 3006 | 2 | | 0.8 V | | | | | | " | -.8 mA | 2.0 V | | | | 0.8 V | 0.8 V | " | 2Y | 2.4 | | " |
| " | V$_{OL}$ | 3007 | 3 | 2.0 V | | | | | | 16 mA | " | | | | | | | | " | 1Y | | 0.4 | " |
| " | V$_{OL}$ | 3007 | 4 | | | | | | | | " | 16 mA | | | | | | 2.0 V | " | 2Y | | 0.4 | " |
| " | V$_{IC}$ | | 5 | | | | | | | | " | | | | | | -12 mA | | " | A | | -1.5 | " |
| " | " | | 6 | | -12 mA | | | | | | " | | | | | | | | " | B | | " | " |
| " | " | | 7 | | | | | | -12 mA | | " | | | | | | | | " | 1C$_0$ | | " | " |
| " | " | | 8 | | | | | -12 mA | | | " | | | | | | | | " | 1C$_1$ | | " | " |
| " | " | | 9 | | | | -12 mA | | | | " | | | | | | | | " | 1C$_2$ | | " | " |
| " | " | | 10 | | | -12 mA | | | | | " | | | | | | | | " | 1C$_3$ | | " | " |
| " | " | | 11 | -12mA | | | | | | | " | | | | | | | | " | 1G | | " | " |
| " | " | | 12 | | | | | | | | " | | -12 mA | | | | | | " | 2C$_0$ | | " | " |
| " | " | | 13 | | | | | | | | " | | | -12 mA | | | | | " | 2C$_1$ | | " | " |
| " | " | | 14 | | | | | | | | " | | | | -12 mA | | | | " | 2C$_2$ | | " | " |
| " | " | | 15 | | | | | | | | " | | | | | -12 mA | | | " | 2C$_3$ | | " | " |
| " | " | | 16 | | | | | | | | " | | | | | | | -12 mA | " | 2G | | " | " |
| " | I$_{IL}$ | 3009 | 17 | | | | | | | | " | | | | | | 0.4 V | | 5.5 V | A | -0.7 | -1.6 | mA |
| " | " | " | 18 | | 0.4 V | | | | | | " | | | | | | | | " | B | " | " | " |
| " | " | " | 19 | 0.4 V | | | | | | | " | | | | | | | | " | 1G | " | " | " |
| " | " | " | 20 | | | | | | | | " | | | | | | | 0.4 V | " | 2G | " | " | " |
| " | " | " | 21 | GND | GND | | | | 0.4 V | | " | | | | | | GND | | " | 1C$_0$ | " | " | " |
| " | " | " | 22 | " | GND | | | 0.4 V | | | " | | | | | | 5.5 V | | " | 1C$_1$ | " | " | " |
| " | " | " | 23 | " | 5.5 V | | 0.4 V | | | | " | | | | | | GND | | " | 1C$_2$ | " | " | " |
| " | " | " | 24 | " | 5.5 V | 0.4 V | | | | | " | | | | | | 5.5 V | | " | 1C$_3$ | " | " | " |
| " | " | " | 25 | | GND | | | | | | " | | 0.4 V | | | | GND | GND | " | 2C$_0$ | " | " | " |
| " | " | " | 26 | | GND | | | | | | " | | | 0.4 V | | | 5.5 V | " | " | 2C$_1$ | " | " | " |
| " | " | " | 27 | | 5.5 V | | | | | | " | | | | 0.4 V | | GND | " | " | 2C$_2$ | " | " | " |
| " | " | " | 28 | | 5.5 V | | | | | | " | | | | | 0.4 V | 5.5 V | " | " | 2C$_3$ | " | " | " |
| " | I$_{IH1}$ | 3010 | 29 | | | | | | | | " | | | | | | 2.4 V | | " | A | | 40 | µA |
| " | " | " | 30 | | 2.4 V | | | | | | " | | | | | | | | " | B | | " | " |
| " | " | " | 31 | 2.4 V | | | | | | | " | | | | | | | | " | 1G | | " | " |
| " | " | " | 32 | | | | | | | | " | | | | | | | 2.4 V | " | 2G | | " | " |
| " | " | " | 33 | 5.5 V | 5.5 V | | | | 2.4 V | | " | | | | | | 5.5 V | | " | 1C$_0$ | | " | " |
| " | " | " | 34 | " | 5.5 V | | | 2.4 V | | | " | | | | | | GND | | " | 1C$_1$ | | " | " |
| " | " | " | 35 | " | GND | | 2.4 V | | | | " | | | | | | 5.5 V | | " | 1C$_2$ | | " | " |
| " | " | " | 36 | " | GND | 2.4 V | | | | | " | | | | | | GND | | " | 1C$_3$ | | " | " |
| " | " | " | 37 | | 5.5 V | | | | | | " | | 2.4 V | | | | 5.5 V | 5.5 V | " | 2C$_0$ | | " | " |
| " | " | " | 38 | | 5.5 V | | | | | | " | | | 2.4 V | | | GND | " | " | 2C$_1$ | | " | " |
| " | " | " | 39 | | GND | | | | | | " | | | | 2.4 V | | 5.5 V | " | " | 2C$_2$ | | " | " |
| " | " | " | 40 | | GND | | | | | | " | | | | | 2.4 V | GND | " | " | 2C$_3$ | | " | " |

See notes at end of device type 03.

TABLE III.  Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F / Test No. | 1 1G | 2 B | 3 $1C_3$ | 4 $1C_2$ | 5 $1C_1$ | 6 $1C_0$ | 7 1Y | 8 GND | 9 2Y | 10 $2C_0$ | 11 $2C_1$ | 12 $2C_2$ | 13 $2C_3$ | 14 A | 15 2G | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1  $T_C = 25°C$ | $I_{IH2}$ | 3010 | 41 | | | | | | | | GND | | | | | | 5.5 V | | 5.5 V | A | | 100 | µA |
| " | " | " | 42 | | 5.5 V | | | | | | " | | | | | | | | " | B | | " | " |
| " | " | " | 43 | 5.5 V | | | | | | | " | | | | | | | | " | 1G | | " | " |
| " | " | " | 44 | | | | | | | | " | | | | | | | 5.5 V | " | 2G | | " | " |
| " | " | " | 45 | 5.5 V | 5.5 V | | | | 5.5 V | | " | | | | | | 5.5 V | | " | $1C_0$ | | " | " |
| " | " | " | 46 | " | 5.5 V | | | 5.5 V | | | " | | | | | | GND | | " | $1C_1$ | | " | " |
| " | " | " | 47 | " | GND | | 5.5 V | | | | " | | | | | | 5.5 V | | " | $1C_2$ | | " | " |
| " | " | " | 48 | " | GND | 5.5 V | | | | | " | | | | | | GND | | " | $1C_3$ | | " | " |
| " | " | " | 49 | 5.5 V | | | | | | | " | | 5.5 V | | | | 5.5 V | 5.5 V | " | $2C_0$ | | " | " |
| " | " | " | 50 | 5.5 V | | | | | | | " | | | 5.5 V | | | GND | " | " | $2C_1$ | | " | " |
| " | " | " | 51 | GND | | | | | | | " | | | | 5.5 V | | 5.5 V | " | " | $2C_2$ | | " | " |
| " | " | " | 52 | " | " | | | | | | " | | | | | 5.5 V | GND | " | " | $2C_3$ | | " | " |
| " | $I_{OS}$ | 3011 | 53 | GND | " | GND | GND | GND | 5.5 V | GND | " | | | | | | " | | " | 1Y | -20 | -55 | mA |
| " | $I_{OS}$ | 3011 | 54 | " | " | | | | | | " | GND | 5.5 V | GND | GND | GND | " | GND | " | 2Y | -20 | -55 | mA |
| " | $I_{CC}$ | 3005 | 55 | " | " | GND | GND | GND | GND | | " | | GND | GND | GND | GND | " | GND | " | $V_{CC}$ | | 52 | mA |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = 125°C$ and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = -55°C$ and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 7  $T_C = 25°C$ | Truth table test | | 56 | A 1/ | | | | | | L 2/ | GND | L | | | | | | A | 4.5 V | | 2/ | | |
| " | " | | 57 | B | B | | | | B | L | " | L | B | | | | B | B | " | | | | |
| " | " | | 58 | " | B | | | | A | H | " | H | A | | | | B | " | " | | | | |
| " | " | | 59 | " | B | | | B | | L | " | L | | B | | | A | " | " | | | | |
| " | " | | 60 | " | B | | | A | | H | " | H | | A | | | A | " | " | | | | |
| " | " | | 61 | " | A | | B | | | L | " | L | | | B | | B | " | " | | | | |
| " | " | | 62 | " | A | | A | | | H | " | H | | | A | | B | " | " | | | | |
| " | " | | 63 | " | A | B | | | | L | " | L | | | | B | A | " | " | | | | |
| " | " | | 64 | " | A | A | | | | H | " | H | | | | A | A | " | " | | | | |
| 8 | Repeat subgroup 7 at $T_C = 125°C$ and $T_C = -55°C$. | | | | | | | | | | | | | | | | | | | | | | |
| 9  $T_C = 25°C$ | $t_{PHL1}$ | 3003 (Fig 5) | 65 | GND | GND | | | | IN | OUT | GND | | | | | | GND | | 5.0 V | $1C_0$ to 1Y | 3 | 25 | ns |
| " | " | " | 66 | " | GND | | | IN | | " | " | | | | | | 5.0 V | | " | $1C_1$ to 1Y | " | " | " |
| " | " | " | 67 | " | 5.0 V | | IN | | | " | " | | | | | | GND | | " | $1C_2$ to 1Y | " | " | " |
| " | " | " | 68 | " | 5.0 V | IN | | | | " | " | | | | | | 5.0 V | | " | $1C_3$ to 1Y | " | " | " |
| " | " | " | 69 | " | GND | | | | | | " | OUT | IN | | | | GND | GND | " | $2C_0$ to 2Y | " | " | " |
| " | " | " | 70 | " | GND | | | | | | " | " | | IN | | | 5.0 V | " | " | $2C_1$ to 2Y | " | " | " |
| " | " | " | 71 | " | 5.0 V | | | | | | " | " | | | IN | | GND | " | " | $2C_2$ to 2Y | " | " | " |
| " | " | " | 72 | " | 5.0 V | | | | | | " | " | | | | IN | 5.0 V | " | " | $2C_3$ to 2Y | " | " | " |

See notes at end of device type 03.

TABLE III. Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F / Test No. | 1 / 1G | 2 / B | 3 / $1C_3$ | 4 / $1C_2$ | 5 / $1C_1$ | 6 / $1C_0$ | 7 / $1Y$ | 8 / GND | 9 / $2Y$ | 10 / $2C_0$ | 11 / $2C_1$ | 12 / $2C_2$ | 13 / $2C_3$ | 14 / A | 15 / $2G$ | 16 / $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | $t_{PLH1}$ | 3003 (Fig 5) | 73 | GND | GND | | | | IN | OUT | GND | | | | | | GND | | 5.0 V | $1C_0$ to $1Y$ | 3 | 24 | ns |
| $T_C = 25°C$ | " | " | 74 | " | GND | | | IN | | " | " | | | | | | 5.0 V | | " | $1C_1$ to $1Y$ | " | " | " |
| " | " | " | 75 | " | 5.0 V | | IN | | | " | " | | | | | | GND | | " | $1C_2$ to $1Y$ | " | " | " |
| " | " | " | 76 | " | 5.0 V | IN | | | | " | " | | | | | | 5.0 V | | " | $1C_3$ to $1Y$ | " | " | " |
| " | " | " | 77 | | GND | | | | | | " | OUT | IN | | | | GND | GND | " | $2C_0$ to $2Y$ | " | " | " |
| " | " | " | 78 | | GND | | | | | | " | " | | IN | | | 5.0 V | " | " | $2C_1$ to $2Y$ | " | " | " |
| " | " | " | 79 | | 5.0 V | | | | | | " | " | | | IN | | GND | " | " | $2C_2$ to $2Y$ | " | " | " |
| " | " | " | 80 | | 5.0 V | | | | | | " | " | | | | IN | 5.0 V | " | " | $2C_3$ to $2Y$ | " | " | " |
| " | $t_{PHL2}$ | " | 81 | GND | GND | | 5.0 V | 5.0 V | GND | OUT | " | | | | | | IN | | " | A to $1Y$ | 6 | 36 | " |
| " | " | " | 82 | GND | IN | | 5.0 V | 5.0 V | GND | OUT | " | | | | | | GND | | " | B to $1Y$ | " | " | " |
| " | " | " | 83 | | GND | | | | | | " | OUT | GND | 5.0 V | 5.0 V | | IN | GND | " | A to $2Y$ | " | " | " |
| " | " | " | 84 | | IN | | | | | | " | OUT | GND | 5.0 V | 5.0 V | | GND | GND | " | B to $2Y$ | " | " | " |
| " | $t_{PLH2}$ | " | 85 | GND | GND | | 5.0 V | 5.0 V | GND | OUT | GND | | | | | | IN | | 5.0 V | A to $1Y$ | 6 | 34 | " |
| " | " | " | 86 | GND | IN | | 5.0 V | 5.0 V | GND | OUT | " | | | | | | GND | | " | B to $1Y$ | " | " | " |
| " | " | " | 87 | | GND | | | | | | " | OUT | GND | 5.0 V | 5.0 V | | IN | GND | " | A to $2Y$ | " | " | " |
| " | " | " | 88 | | IN | | | | | | " | OUT | GND | 5.0 V | 5.0 V | | GND | GND | " | B to $2Y$ | " | " | " |
| " | $t_{PHL3}$ | " | 89 | IN | GND | | | | 5.0 V | OUT | " | | | | | | GND | | " | $1G$ to $1Y$ | " | 28 | " |
| " | $t_{PHL3}$ | " | 90 | | GND | | | | | | " | OUT | 5.0 V | | | | | | IN | " | $2G$ to $2Y$ | " | 28 | " |
| " | $t_{PLH3}$ | " | 91 | IN | GND | | | | 5.0 V | OUT | " | | | | | | GND | | " | $1G$ to $1Y$ | " | 38 | " |
| " | $t_{PLH3}$ | " | 92 | | GND | | | | | | " | OUT | 5.0 V | | | | | | IN | " | $2G$ to $2Y$ | " | 38 | " |
| 10 | $t_{PHL1}$ | " | 93 | GND | GND | | | | IN | OUT | " | | | | | | GND | | " | $1C_0$ to $1Y$ | 3 | 29 | " |
| $T_C = 125°C$ | " | " | 94 | " | GND | | | IN | | " | " | | | | | | 5.0 V | | " | $1C_1$ to $1Y$ | " | " | " |
| " | " | " | 95 | " | 5.0 V | | IN | | | " | " | | | | | | GND | | " | $1C_2$ to $1Y$ | " | " | " |
| " | " | " | 96 | " | 5.0 V | IN | | | | " | " | | | | | | 5.0 V | | " | $1C_3$ to $1Y$ | " | " | " |
| " | " | " | 97 | | GND | | | | | | " | OUT | IN | | | | GND | GND | " | $2C_0$ to $2Y$ | " | " | " |
| " | " | " | 98 | | GND | | | | | | " | " | | IN | | | 5.0 V | " | " | $2C_1$ to $2Y$ | " | " | " |
| " | " | " | 99 | | 5.0 V | | | | | | " | " | | | IN | | GND | " | " | $2C_2$ to $2Y$ | " | " | " |
| " | " | " | 100 | | 5.0 V | | | | | | " | " | | | | IN | 5.0 V | " | " | $2C_3$ to $2Y$ | " | " | " |
| " | $t_{PLH1}$ | " | 101 | GND | GND | | | | IN | OUT | " | | | | | | GND | | " | $1C_0$ to $1Y$ | " | 28 | " |
| " | " | " | 102 | " | GND | | | IN | | " | " | | | | | | 5.0 V | | " | $1C_1$ to $1Y$ | " | " | " |
| " | " | " | 103 | " | 5.0 V | | IN | | | " | " | | | | | | GND | | " | $1C_2$ to $1Y$ | " | " | " |
| " | " | " | 104 | " | 5.0 V | IN | | | | " | " | | | | | | 5.0 V | | " | $1C_3$ to $1Y$ | " | " | " |
| " | " | " | 105 | | GND | | | | | | " | OUT | IN | | | | GND | GND | " | $2C_0$ to $2Y$ | " | " | " |
| " | " | " | 106 | | GND | | | | | | " | " | | IN | | | 5.0 V | " | " | $2C_1$ to $2Y$ | " | " | " |
| " | " | " | 107 | | 5.0 V | | | | | | " | " | | | IN | | GND | " | " | $2C_2$ to $2Y$ | " | " | " |
| " | " | " | 108 | | 5.0 V | | | | | | " | " | | | | IN | 5.0 V | " | " | $2C_3$ to $2Y$ | " | " | " |

See notes at end of device type 03.

TABLE III.  Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1G | B | 1C$_3$ | 1C$_2$ | 1C$_1$ | 1C$_0$ | 1Y | GND | 2Y | 2C$_0$ | 2C$_1$ | 2C$_2$ | 2C$_3$ | A | 2G | V$_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 T$_C$ = 125°C | t$_{PHL2}$ | 3003 (Fig 5) | 109 | GND | GND | | | 5.0 V | GND | OUT | GND | | | | | | IN | | 5.0 V | A to 1Y | 6 | 44 | ns |
| " | " | " | 110 | GND | IN | | 5.0 V | | GND | OUT | " | | | | | | GND | | " | B to 1Y | " | " | " |
| " | " | " | 111 | | GND | | | | | | " | OUT | GND | 5.0 V | | | IN | GND | " | A to 2Y | " | " | " |
| " | " | " | 112 | | IN | | | | | | " | OUT | GND | | 5.0 V | | GND | GND | " | B to 2Y | " | " | " |
| " | t$_{PLH2}$ | " | 113 | GND | GND | | | 5.0 V | GND | OUT | " | | | | | | IN | | " | A to 1Y | " | 42 | " |
| " | " | " | 114 | GND | IN | | 5.0 V | | GND | OUT | " | | | | | | GND | | " | B to 1Y | " | " | " |
| " | " | " | 115 | | GND | | | | | | " | OUT | GND | 5.0 V | | | IN | GND | " | A to 2Y | " | " | " |
| " | " | " | 116 | | IN | | | | | | " | OUT | GND | | 5.0 V | | GND | GND | " | B to 2Y | " | " | " |
| " | t$_{PHL3}$ | " | 117 | IN | GND | | | | 5.0 V | OUT | " | | | | | | GND | | " | 1G to 1Y | " | 32 | " |
| " | t$_{PHL3}$ | " | 118 | | GND | | | | | | " | OUT | 5.0 V | | | | GND | IN | " | 2G to 2Y | " | 32 | " |
| " | t$_{PLH3}$ | " | 119 | IN | GND | | | | 5.0 V | OUT | " | | | | | | GND | | " | 1G to 1Y | " | 42 | " |
| " | t$_{PLH3}$ | " | 120 | | GND | | | | | | " | OUT | 5.0 V | | | | GND | IN | " | 2G to 2Y | " | 42 | " |
| 11 | Same tests, terminal conditions and limits as subgroup 10, except T$_C$ = -55°C. | | | | | | | | | | | | | | | | | | | | | | |

1/  A = 3.0 V minimum, B = 0.0 V or GND.

2/  H > 1.5 V;  L < 1.5 V.

    Only attributes data is required for subgroups 7 and 8.

TABLE III.  Group A inspection for device type 04.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 2Y | 2 2W | 3 B | 4 2C0 | 5 2C1 | 6 2C2 | 7 2C3 | 8 GND | 9 1C3 | 10 1C2 | 11 1C1 | 12 1C0 | 13 A | 14 1W | 15 1Y | 16 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 TC = 25°C | VOH | 3006 | 1 | | | 0.8 V | | | | | GND | | | | 2.0 V | 0.8 V | | -0.8 mA | 4.5 V | 1Y | 2.4 | | V |
| " | " | " | 2 | | | " | | | | | " | | | | 0.8 V | " | -0.8 mA | | " | 1W | " | | " |
| " | " | " | 3 | -0.8 mA | | " | 2.0 V | | | | " | | | | | " | | | " | 2Y | " | | " |
| " | " | " | 4 | | -0.8 mA | " | 0.8 V | | | | " | | | | | " | | | " | 2W | " | | " |
| " | VOL | 3007 | 5 | | | " | | | | | " | | | | 2.0 V | " | 16 mA | | " | 1W | | 0.4 | " |
| " | " | " | 6 | | | " | | | | | " | | | | 0.8 V | " | | 16 mA | " | 1Y | | " | " |
| " | " | " | 7 | | 16 mA | " | 2.0 V | | | | " | | | | | " | | | " | 2W | | " | " |
| " | " | " | 8 | 16 mA | | " | 0.8 V | | | | " | | | | | " | | | " | 2Y | | " | " |
| " | VIC | | 9 | | | | | | | | " | | | | | -12 mA | | | " | A | | -1.5 | " |
| " | " | | 10 | | | -12 mA | | | | | " | | | | | | | | " | B | | " | " |
| " | " | | 11 | | | | | | | | " | | | | -12 mA | | | | " | 1C0 | | " | " |
| " | " | | 12 | | | | | | | | " | | | -12 mA | | | | | " | 1C1 | | " | " |
| " | " | | 13 | | | | | | | | " | | -12 mA | | | | | | " | 1C2 | | " | " |
| " | " | | 14 | | | | | | | | " | -12 mA | | | | | | | " | 1C3 | | " | " |
| " | " | | 15 | | | | -12 mA | | | | " | | | | | | | | " | 2C0 | | " | " |
| " | " | | 16 | | | | | -12 mA | | | " | | | | | | | | " | 2C1 | | " | " |
| " | " | | 17 | | | | | | -12 mA | | " | | | | | | | | " | 2C2 | | " | " |
| " | " | | 18 | | | | | | | -12 mA | " | | | | | | | | " | 2C3 | | " | " |
| " | IIL | 3009 | 19 | | | | | | | | " | | | | | 0.4 V | | | 5.5 V | A | -0.7 | -1.6 | mA |
| " | " | " | 20 | | | 0.4 V | | | | | " | | | | | | | | " | B | " | " | " |
| " | " | " | 21 | | | GND | | | | | " | | | | 0.4 V | GND | | | " | 1C0 | " | " | " |
| " | " | " | 22 | | | GND | | | | | " | | | 0.4 V | | 5.5 V | | | " | 1C1 | " | " | " |
| " | " | " | 23 | | | 5.5 V | | | | | " | | 0.4 V | | | GND | | | " | 1C2 | " | " | " |
| " | " | " | 24 | | | 5.5 V | | | | | " | 0.4 V | | | | 5.5 V | | | " | 1C3 | " | " | " |
| " | " | " | 25 | | | GND | 0.4 V | | | | " | | | | | GND | | | " | 2C0 | " | " | " |
| " | " | " | 26 | | | GND | | 0.4 V | | | " | | | | | 5.5 V | | | " | 2C1 | " | " | " |
| " | " | " | 27 | | | 5.5 V | | | 0.4 V | | " | | | | | GND | | | " | 2C2 | " | " | " |
| " | " | " | 28 | | | 5.5 V | | | | 0.4 V | " | | | | | 5.5 V | | | " | 2C3 | " | " | " |
| " | IIH1 | 3010 | 29 | | | | | | | | " | | | | | 2.4 V | | | 5.5 V | A | | 40 | µA |
| " | " | " | 30 | | | 2.4 V | | | | | " | | | | | | | | " | B | | " | " |
| " | " | " | 31 | | | 5.5 V | | | | | " | | | | 2.4 V | 5.5 V | | | " | 1C0 | | " | " |
| " | " | " | 32 | | | 5.5 V | | | | | " | | | 2.4 V | | GND | | | " | 1C1 | | " | " |
| " | " | " | 33 | | | GND | | | | | " | | 2.4 V | | | 5.5 V | | | " | 1C2 | | " | " |
| " | " | " | 34 | | | GND | | | | | " | 2.4 V | | | | GND | | | " | 1C3 | | " | " |
| " | " | " | 35 | | | 5.5 V | 2.4 V | | | | " | | | | | 5.5 V | | | " | 2C0 | | " | " |
| " | " | " | 36 | | | 5.5 V | | 2.4 V | | | " | | | | | GND | | | " | 2C1 | | " | " |
| " | " | " | 37 | | | GND | | | 2.4 V | | " | | | | | 5.5 V | | | " | 2C2 | | " | " |
| " | " | " | 38 | | | GND | | | | 2.4 V | " | | | | | GND | | | " | 2C3 | | " | " |

See note at end of device type 04.

TABLE III. <u>Group A inspection for device type 04</u> - Continued.

Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 2Y | 2 2W | 3 B | 4 $2C_0$ | 5 $2C_1$ | 6 $2C_2$ | 7 $2C_3$ | 8 GND | 9 $1C_3$ | 10 $1C_2$ | 11 $1C_1$ | 12 $1C_0$ | 13 A | 14 1W | 15 1Y | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 $T_C = 25°C$ | $I_{IH2}$ | 3010 | 39 | | | | | | | | GND | | | | | 5.5 V | | | 5.5 V | A | | 100 | ns |
| " | " | " | 40 | | | 5.5 V | | | | | " | | | | | B | | | " | B | | " | " |
| " | " | " | 41 | | | " | | | | | " | | | | 5.5 V | 5.5 V | | | " | $1C_0$ | | " | " |
| " | " | " | 42 | | | " | | | | | " | | | 5.5 V | | GND | | | " | $1C_1$ | | " | " |
| " | " | " | 43 | | | GND | | | | | " | | 5.5 V | | | 5.5 V | | | " | $1C_2$ | | " | " |
| " | " | " | 44 | | | GND | | | | | " | 5.5 V | | | | GND | | | " | $1C_3$ | | " | " |
| " | " | " | 45 | | | 5.5 V | 5.5 V | | | | " | | | | | 5.5 V | | | " | $2C_0$ | | " | " |
| " | " | " | 46 | | | 5.5 V | | 5.5 V | | | " | | | | | GND | | | " | $2C_1$ | | " | " |
| " | " | " | 47 | | | GND | | | 5.5 V | | " | | | | | 5.5 V | | | " | $2C_2$ | | " | " |
| " | " | " | 48 | | | " | | | | 5.5 V | " | | | | | GND | | | " | $2C_3$ | | " | " |
| " | $I_{OS}$ | 3011 | 49 | | | " | | | | | " | GND | GND | GND | GND | " | GND | | " | 1W | -20 | -120 | mA |
| " | " | " | 50 | | | " | | | | | " | GND | GND | GND | 5.5 V | " | | GND | " | 1Y | " | " | " |
| " | " | " | 51 | | GND | " | GND | GND | GND | GND | " | | | | | " | | | " | 2W | " | " | " |
| " | " | " | 52 | GND | | " | 5.5 V | " | " | " | " | | | | | " | | | " | 2Y | " | " | " |
| " | $I_{CC}$ | 3005 | 53 | | | " | 5.5 V | " | " | " | " | GND | GND | GND | 5.5 V | " | | | " | $V_{CC}$ | | 45 | " |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = 125°C$ and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except $T_C = -55°C$ and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | |
| 7 $T_C = 25°C$ | Truth table test | | 54 | L 2/ | H | B 1/ | B | | | | GND | | | | B | B | H | L | 4.5 V | | 2/ | | |
| " | " | | 55 | H | L | " | A | | | | " | | | | A | B | L | H | " | | | | |
| " | " | | 56 | L | H | " | | B | | | " | | | B | | A | H | L | " | | | | |
| " | " | | 57 | H | L | " | | A | | | " | | | A | | A | L | H | " | | | | |
| " | " | | 58 | L | H | A | | | B | | " | | B | | | B | H | L | " | | | | |
| " | " | | 59 | H | L | " | | | A | | " | | A | | | B | L | H | " | | | | |
| " | " | | 60 | L | H | " | | | | B | " | B | | | | A | H | L | " | | | | |
| " | " | | 61 | H | L | " | | | | A | " | A | | | | A | L | H | " | | | | |
| 8 | Repeat subgroup 7 at $T_C = 125°C$ and $T_C = -55°C$. | | | | | | | | | | | | | | | | | | | | | |
| 9 $T_C = 25°C$ | $t_{PHL1}$ | 3003 (Fig 5) | 62 | | | GND | | | | | GND | | | | IN | GND | | OUT | 5.0 V | $1C_0$ to 1Y | 3 | 29 | ns |
| " | " | " | 63 | | | GND | | | | | " | | | IN | | 5.0 V | | " | " | $1C_1$ to 1Y | " | " | " |
| " | " | " | 64 | | | 5.0 V | | | | | " | | IN | | | GND | | " | " | $1C_2$ to 1Y | " | " | " |
| " | " | " | 65 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | | " | " | $1C_3$ to 1Y | " | " | " |
| " | " | " | 66 | OUT | | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to 2Y | " | " | " |
| " | " | " | 67 | " | | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to 2Y | " | " | " |
| " | " | " | 68 | " | | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to 2Y | " | " | " |
| " | " | " | 69 | " | | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to 2Y | " | " | " |

See note at end of device type 04.

TABLE III.  Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 $2Y$ | 2 $2W$ | 3 B | 4 $2C_0$ | 5 $2C_1$ | 6 $2C_2$ | 7 $2C_3$ | 8 GND | 9 $1C_3$ | 10 $1C_2$ | 11 $1C_1$ | 12 $1C_0$ | 13 A | 14 $1W$ | 15 $1Y$ | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 $T_C = 25°C$ | $t_{PLH1}$ | 3003 (Fig 5) | 70 | | | GND | | | | | GND | | | | IN | GND | | OUT | 5.0 V | $1C_0$ to $1Y$ | 3 | 29 | ns |
| " | " | " | 71 | | | GND | | | | | " | | | IN | | 5.0 V | | " | " | $1C_1$ to $1Y$ | " | " | " |
| " | " | " | 72 | | | 5.0 V | | | | | " | | IN | | | GND | | " | " | $1C_2$ to $1Y$ | " | " | " |
| " | " | " | 73 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | | " | " | $1C_3$ to $1Y$ | " | " | " |
| " | " | " | 74 | OUT | | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to $2Y$ | " | " | " |
| " | " | " | 75 | " | | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to $2Y$ | " | " | " |
| " | " | " | 76 | " | | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to $2Y$ | " | " | " |
| " | " | " | 77 | " | | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to $2Y$ | " | " | " |
| " | $t_{PHL2}$ | " | 78 | | | GND | | | | | " | | | | IN | GND | OUT | | " | $1C_0$ to $1W$ | " | 18 | " |
| " | " | " | 79 | | | GND | | | | | " | | | IN | | 5.0 V | " | | " | $1C_1$ to $1W$ | " | " | " |
| " | " | " | 80 | | | 5.0 V | | | | | " | | IN | | | GND | " | | " | $1C_2$ to $1W$ | " | " | " |
| " | " | " | 81 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | " | | " | $1C_3$ to $1W$ | " | " | " |
| " | " | " | 82 | | OUT | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to $2W$ | " | " | " |
| " | " | " | 83 | | " | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to $2W$ | " | " | " |
| " | " | " | 84 | | " | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to $2W$ | " | " | " |
| " | " | " | 85 | | " | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to $2W$ | " | " | " |
| " | $t_{PLH2}$ | " | 86 | | | GND | | | | | " | | | | IN | GND | OUT | | " | $1C_0$ to $1W$ | " | 17 | " |
| " | " | " | 87 | | | GND | | | | | " | | | IN | | 5.0 V | " | | " | $1C_1$ to $1W$ | " | " | " |
| " | " | " | 88 | | | 5.0 V | | | | | " | | IN | | | GND | " | | " | $1C_2$ to $1W$ | " | " | " |
| " | " | " | 89 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | " | | " | $1C_3$ to $1W$ | " | " | " |
| " | " | " | 90 | | OUT | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to $2W$ | " | " | " |
| " | " | " | 91 | | " | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to $2W$ | " | " | " |
| " | " | " | 92 | | " | 5.0 V | | | IN | IN | " | | | | | GND | | | " | $2C_2$ to $2W$ | " | " | " |
| " | " | " | 93 | | " | 5.0 V | | | | | " | | | | | 5.0 V | | | " | $2C_3$ to $2W$ | " | " | " |
| " | $t_{PHL3}$ | " | 94 | | | GND | | | | | " | | | 5.0 V | GND | IN | | OUT | " | A to $1Y$ | 6 | 37 | ns |
| " | " | " | 95 | OUT | | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to $2Y$ | " | " | " |
| " | " | " | 96 | | | IN | | | | | " | | 5.0 V | | GND | GND | | OUT | " | B to $1Y$ | " | " | " |
| " | " | " | 97 | OUT | | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to $2Y$ | " | " | " |
| " | $t_{PLH3}$ | " | 98 | | | GND | | | | | " | | | 5.0 V | GND | IN | | OUT | " | A to $1Y$ | " | 37 | " |
| " | " | " | 99 | OUT | | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to $2Y$ | " | " | " |
| " | " | " | 100 | | | IN | | | | | " | | 5.0 V | | GND | GND | | OUT | " | B to $1Y$ | " | " | " |
| " | " | " | 101 | OUT | | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to $2Y$ | " | " | " |
| " | $t_{PHL4}$ | " | 102 | | | GND | | | | | " | | | 5.0 V | GND | IN | OUT | | " | A to $1W$ | " | 28 | " |
| " | " | " | 103 | | OUT | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to $2W$ | " | " | " |
| " | " | " | 104 | | | IN | | | | | " | | 5.0 V | | GND | GND | OUT | | " | B to $1W$ | " | " | " |
| " | " | " | 105 | | OUT | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to $2W$ | " | " | " |

See note at end of device type 04.

TABLE III.  Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 2Y | 2 2W | 3 B | 4 $2C_0$ | 5 $2C_1$ | 6 $2C_2$ | 7 $2C_3$ | 8 GND | 9 $1C_3$ | 10 $1C_2$ | 11 $1C_1$ | 12 $1C_0$ | 13 A | 14 1W | 15 1Y | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | $t_{PLH4}$ | 3003 (Fig 5) | 106 | | | GND | | | | | GND | | | 5.0 V | GND | IN | OUT | | 5.0 V | A to 1W | 6 | 26 | ns |
| $T_C$ = 25°C | " | " | 107 | | OUT | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to 2W | " | " | " |
| " | " | " | 108 | | | IN | | | | | " | | 5.0 V | | GND | GND | OUT | | " | B to 1W | " | " | " |
| " | " | " | 109 | | OUT | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to 2W | " | " | " |
| 10 | $t_{PHL1}$ | " | 110 | | | GND | | | | | " | | | | IN | GND | | OUT | " | $1C_0$ to 1Y | 3 | 41 | " |
| $T_C$ = 125°C | " | " | 111 | | | GND | | | | | " | | | IN | | 5.0 V | | " | " | $1C_1$ to 1Y | " | " | " |
| " | " | " | 112 | | | 5.0 V | | | | | " | | IN | | | GND | | " | " | $1C_2$ to 1Y | " | " | " |
| " | " | " | 113 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | | " | " | $1C_3$ to 1Y | " | " | " |
| " | " | " | 114 | OUT | | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to 2Y | " | " | " |
| " | " | " | 115 | " | | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to 2Y | " | " | " |
| " | " | " | 116 | " | | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to 2Y | " | " | " |
| " | " | " | 117 | " | | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to 2Y | " | " | " |
| " | $t_{PLH1}$ | " | 118 | | | GND | | | | | " | | | | IN | GND | | OUT | " | $1C_0$ to 1Y | " | 39 | " |
| " | " | " | 119 | | | GND | | | | | " | | | IN | | 5.0 V | | " | " | $1C_1$ to 1Y | " | " | " |
| " | " | " | 120 | | | 5.0 V | | | | | " | | IN | | | GND | | " | " | $1C_2$ to 1Y | " | " | " |
| " | " | " | 121 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | | " | " | $1C_3$ to 1Y | " | " | " |
| " | " | " | 122 | OUT | | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to 2Y | " | " | " |
| " | " | " | 123 | " | | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to 2Y | " | " | " |
| " | " | " | 124 | " | | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to 2Y | " | " | " |
| " | " | " | 125 | " | | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to 2Y | " | " | " |
| " | $t_{PHL2}$ | " | 126 | | | GND | | | | | " | | | | IN | GND | OUT | | " | $1C_0$ to 1W | " | 25 | " |
| " | " | " | 127 | | | GND | | | | | " | | | IN | | 5.0 V | " | | " | $1C_1$ to 1W | " | " | " |
| " | " | " | 128 | | | 5.0 V | | | | | " | | IN | | | GND | " | | " | $1C_2$ to 1W | " | " | " |
| " | " | " | 129 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | " | | " | $1C_3$ to 1W | " | " | " |
| " | " | " | 130 | | OUT | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to 2W | " | " | " |
| " | " | " | 131 | | " | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to 2W | " | " | " |
| " | " | " | 132 | | " | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to 2W | " | " | " |
| " | " | " | 133 | | " | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to 2W | " | " | " |
| " | $t_{PLH2}$ | " | 134 | | | GND | | | | | " | | | | IN | GND | OUT | | " | $1C_0$ to 1W | " | 24 | " |
| " | " | " | 135 | | | GND | | | | | " | | | IN | | 5.0 V | " | | " | $1C_1$ to 1W | " | " | " |
| " | " | " | 136 | | | 5.0 V | | | | | " | | IN | | | GND | " | | " | $1C_2$ to 1W | " | " | " |
| " | " | " | 137 | | | 5.0 V | | | | | " | IN | | | | 5.0 V | " | | " | $1C_3$ to 1W | " | " | " |
| " | " | " | 138 | | OUT | GND | IN | | | | " | | | | | GND | | | " | $2C_0$ to 2W | " | " | " |
| " | " | " | 139 | | " | GND | | IN | | | " | | | | | 5.0 V | | | " | $2C_1$ to 2W | " | " | " |
| " | " | " | 140 | | " | 5.0 V | | | IN | | " | | | | | GND | | | " | $2C_2$ to 2W | " | " | " |
| " | " | " | 141 | | " | 5.0 V | | | | IN | " | | | | | 5.0 V | | | " | $2C_3$ to 2W | " | " | " |

See note at end of device type 04.

TABLE III. <u>Group A inspection for device type 04</u> - Continued.

Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 2Y | 2 2W | 3 B | 4 $2C_0$ | 5 $2C_1$ | 6 $2C_2$ | 7 $2C_3$ | 8 GND | 9 $1C_3$ | 10 $1C_2$ | 11 $1C_1$ | 12 $1C_0$ | 13 A | 14 1W | 15 1Y | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | $t_{PHL3}$ | 3003 | 142 | | | GND | | | | | GND | | | 5.0 V | GND | IN | | OUT | 5.0 V | A to 1Y | 6 | 51 | ns |
| $T_C$ = 125°C | " | (Fig 5) | 143 | OUT | | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to 2Y | " | " | " |
| " | " | " | 144 | | | IN | | | | | " | | 5.0 V | | GND | GND | | OUT | " | B to 1Y | " | " | " |
| " | " | " | 145 | OUT | | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to 2Y | " | " | " |
| " | $t_{PLH3}$ | " | 146 | | | GND | | | | | " | | | 5.0 V | GND | IN | | OUT | " | A to 1Y | " | " | " |
| " | " | " | 147 | OUT | | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to 2Y | " | " | " |
| " | " | " | 148 | | | IN | | | | | " | | 5.0 V | | GND | GND | | OUT | " | B to 1Y | " | " | " |
| " | " | " | 149 | OUT | | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to 2Y | " | " | " |
| " | $t_{PHL4}$ | " | 150 | | | GND | | | | | " | | | 5.0 V | GND | IN | OUT | | " | A to 1W | " | 39 | " |
| " | " | " | 151 | | OUT | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to 2W | " | " | " |
| " | " | " | 152 | | | IN | | | | | " | | 5.0 V | | GND | GND | OUT | | " | B to 1W | " | " | " |
| " | " | " | 153 | | OUT | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to 2W | " | " | " |
| " | $t_{PLH4}$ | " | 154 | | | GND | | | | | " | | | 5.0 V | GND | IN | OUT | | " | A to 1W | " | 34 | " |
| " | " | " | 155 | | OUT | GND | GND | 5.0 V | | | " | | | | | IN | | | " | A to 2W | " | " | " |
| " | " | " | 156 | | | IN | | | | | " | | 5.0 V | | GND | GND | OUT | | " | B to 1W | " | " | " |
| " | " | " | 157 | | OUT | IN | GND | | 5.0 V | | " | | | | | GND | | | " | B to 2W | " | " | " |
| 11 | | | Same tests, terminal conditions and limits as subgroup 10, except $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | | | |

<u>1</u>/ A = 3.0 V minimum, B = 0.0 V or GND.
<u>2</u>/ H > 1.5 V;  L < 1.5 V.
   Only attributes data is required for subgroups 7 and 8.

TABLE III. <u>Group A inspection for device type 05</u>.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 A | 2 $1B_0$ | 3 $1B_1$ | 4 1Y | 5 $2B_0$ | 6 $2B_1$ | 7 2Y | 8 GND | 9 4Y | 10 $4B_1$ | 11 $4B_0$ | 12 3Y | 13 $3B_1$ | 14 $3B_0$ | 15 G | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | $V_{OH}$ | 3006 | 1 | 2.0 V | | 2.0 V | -.8 mA | | | | GND | | | | | | | 0.8 V | 4.5 V | 1Y | 2.4 | | V |
| $T_C = 25°C$ | " | " | 2 | " | | | | | 2.0 V | -.8 mA | " | | | | | | | " | " | 2Y | " | | " |
| " | " | " | 3 | " | | | | | | | " | | | | -.8 mA | 2.0 V | | " | " | 3Y | " | | " |
| " | " | " | 4 | " | | | | | | | " | -.8 mA | 2.0 V | | | | | " | " | 4Y | " | | " |
| " | $V_{OL}$ | 3007 | 5 | | | | 16 mA | | | | " | | | | | | | 2.0 V | " | 1Y | | 0.4 | " |
| " | " | " | 6 | | | | | | | 16 mA | " | | | | | | | " | " | 2Y | | " | " |
| " | " | " | 7 | | | | | | | | " | | | | 16 mA | | | " | " | 3Y | | " | " |
| " | " | " | 8 | | | | | | | | " | 16 mA | | | | | | " | " | 4Y | | " | " |
| " | $V_{IC}$ | | 9 | -12 mA | | | | | | | " | | | | | | | | " | A | | -1.5 | " |
| " | " | | 10 | | -12 mA | | | | | | " | | | | | | | | " | $1B_0$ | | " | " |
| " | " | | 11 | | | -12 mA | | | | | " | | | | | | | | " | $1B_1$ | | " | " |
| " | " | | 12 | | | | | -12 mA | | | " | | | | | | | | " | $2B_0$ | | " | " |
| " | " | | 13 | | | | | | -12 mA | | " | | | | | | | | " | $2B_1$ | | " | " |
| " | " | | 14 | | | | | | | | " | | -12 mA | | | | | | " | $4B_1$ | | " | " |
| " | " | | 15 | | | | | | | | " | | | -12 mA | | | | | " | $4B_0$ | | " | " |
| " | " | | 16 | | | | | | | | " | | | | | -12 mA | | | " | $3B_1$ | | " | " |
| " | " | | 17 | | | | | | | | " | | | | | | -12 mA | | " | $3B_0$ | | " | " |
| " | " | | 18 | | | | | | | | " | | | | | | | -12 mA | " | G | | " | " |
| " | $I_{IL}$ | 3009 | 19 | | | | | | | | " | | | | | | | 0.4 V | 5.5 V | G | -0.7 | -1.6 | mA |
| " | " | " | 20 | 0.4 V | | | | | | | " | | | | | | | GND | " | A | " | " | " |
| " | " | " | 21 | GND | 0.4 V | | | | | | " | | | | | | | " | " | $1B_0$ | " | " | " |
| " | " | " | 22 | 5.5 V | | 0.4 V | | | | | " | | | | | | | " | " | $1B_1$ | " | " | " |
| " | " | " | 23 | GND | | | | 0.4 V | | | " | | | | | | | " | " | $2B_0$ | " | " | " |
| " | " | " | 24 | 5.5 V | | | | | 0.4 V | | " | | | | | | | " | " | $2B_1$ | " | " | " |
| " | " | " | 25 | 5.5 V | | | | | | | " | | 0.4 V | | | | | " | " | $4B_1$ | " | " | " |
| " | " | " | 26 | GND | | | | | | | " | | | 0.4 V | | | | " | " | $4B_0$ | " | " | " |
| " | " | " | 27 | 5.5 V | | | | | | | " | | | | | 0.4 V | | " | " | $3B_1$ | " | " | " |
| " | " | " | 28 | GND | | | | | | | " | | | | | | 0.4 V | " | " | $3B_0$ | " | " | " |
| " | $I_{IH1}$ | 3010 | 29 | | | | | | | | " | | | | | | | 2.4 V | " | G | | 40 | µA |
| " | " | " | 30 | 2.4 V | | | | | | | " | | | | | | | 5.5 V | " | A | | " | " |
| " | " | " | 31 | 5.5 V | 2.4 V | | | | | | " | | | | | | | " | " | $1B_0$ | | " | " |
| " | " | " | 32 | GND | | 2.4 V | | | | | " | | | | | | | " | " | $1B_1$ | | " | " |
| " | " | " | 33 | 5.5 V | | | | 2.4 V | | | " | | | | | | | " | " | $2B_0$ | | " | " |
| " | " | " | 34 | GND | | | | | 2.4 V | | " | | | | | | | " | " | $2B_1$ | | " | " |
| " | " | " | 35 | GND | | | | | | | " | | 2.4 V | | | | | " | " | $4B_1$ | | " | " |
| " | " | " | 36 | 5.5 V | | | | | | | " | | | 2.4 V | | | | " | " | $4B_0$ | | " | " |
| " | " | " | 37 | GND | | | | | | | " | | | | | 2.4 V | | " | " | $3B_1$ | | " | " |
| " | " | " | 38 | 5.5 V | | | | | | | " | | | | | | 2.4 V | " | " | $3B_0$ | | " | " |

See notes at end of device type 05.

MIL-M-38510/14E

TABLE III. <u>Group A inspection for device type 05</u> – Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 A | 2 $1B_0$ | 3 $1B_1$ | 4 1Y | 5 $2B_0$ | 6 $2B_1$ | 7 2Y | 8 GND | 9 4Y | 10 $4B_1$ | 11 $4B_0$ | 12 3Y | 13 $3B_1$ | 14 $3B_0$ | 15 G | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 $T_C = 25°C$ | $I_{IH2}$ | 3010 | 39 | | | | | | | | GND | | | | | | | 5.5 V | 5.5 V | G | | 100 | µA |
| " | " | " | 40 | 5.5 V | | | | | | | " | | | | | | | " | " | A | | " | " |
| " | " | " | 41 | 5.5 V | 5.5 V | | | | | | " | | | | | | | " | " | $1B_0$ | | " | " |
| " | " | " | 42 | GND | | 5.5 V | | | | | " | | | | | | | " | " | $1B_1$ | | " | " |
| " | " | " | 43 | 5.5 V | | | | 5.5 V | | | " | | | | | | | " | " | $2B_0$ | | " | " |
| " | " | " | 44 | GND | | | | | 5.5 V | | " | | | | | | | " | " | $2B_1$ | | " | " |
| " | " | " | 45 | GND | | | | | | | " | | 5.5 V | | | | | " | " | $4B_1$ | | " | " |
| " | " | " | 46 | 5.5 V | | | | | | | " | | | 5.5 V | | | | " | " | $4B_0$ | | " | " |
| " | " | " | 47 | GND | | | | | | | " | | | | | 5.5 V | | " | " | $3B_1$ | | " | " |
| " | " | " | 48 | 5.5 V | | | | | | | " | | | | | | 5.5 V | " | " | $3B_0$ | | " | " |
| " | $I_{OS}$ | 3011 | 49 | 5.5 V | 5.5 V | 5.5 V | GND | | | | " | | | | | | | GND | " | 1Y | -20 | -120 | mA |
| " | " | " | 50 | " | | | | 5.5 V | 5.5 V | GND | " | | | | | | | " | " | 2Y | " | " | " |
| " | " | " | 51 | " | | | | | | | " | GND | 5.5 V | 5.5 V | | | | " | " | 4Y | " | " | " |
| " | " | " | 52 | " | | | | | | | " | | | | GND | 5.5 V | 5.5 V | " | " | 3Y | " | " | " |
| " | $I_{CC}$ | 3005 | 53 | GND | GND | GND | | GND | GND | | " | | GND | GND | | GND | GND | GND | " | $V_{CC}$ | | 50 | " |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except $T_C$ = 125°C and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except $T_C$ = -55°C and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | |
| 7 $T_C = 25°C$ | Truth table test | | 54 | | | | L 2/ | | B | L | GND | L | | | L | | | A | 4.5 V | | | 2/ | |
| " | " | " | 55 | A 1/ | | B | L | | B | L | " | L | B | | L | B | | B | " | | | | |
| " | " | " | 56 | A | | A | H | | A | H | " | H | A | | H | A | | " | " | | | | |
| " | " | " | 57 | B | B | | L | B | | L | " | L | | B | L | | B | " | " | | | | |
| " | " | " | 58 | B | A | | H | A | | H | " | H | | A | H | | A | " | " | | | | |
| 8 | Repeat subgroup 7 at $T_C$ = 125°C and $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | | | | |
| 9 $T_C = 25°C$ | $t_{PHL1}$ | 3003 (Fig 6) | 59 | IN | GND | 5.0 V | OUT | | | | GND | | | | | | | GND | 5.0 V | A to 1Y | 6 | 30 | ns |
| " | " | " | 60 | " | | | | GND | 5.0 V | OUT | " | | | | | | | " | " | A to 2Y | " | " | " |
| " | " | " | 61 | " | | | | | | | " | | | | OUT | 5.0 V | GND | " | " | A to 3Y | " | " | " |
| " | " | " | 62 | " | | | | | | | " | OUT | 5.0 V | GND | | | | " | " | A to 4Y | " | " | " |
| " | $t_{PLH1}$ | " | 63 | " | GND | 5.0 V | OUT | | | | " | | | | | | | " | " | A to 1Y | " | 27 | " |
| " | " | " | 64 | " | | | | GND | 5.0 V | OUT | " | | | | | | | " | " | A to 2Y | " | " | " |
| " | " | " | 65 | " | | | | | | | " | | | | OUT | 5.0 V | GND | " | " | A to 3Y | " | " | " |
| " | " | " | 66 | " | | | | | | | " | OUT | 5.0 V | GND | | | | " | " | A to 4Y | " | " | " |

See notes at end of device type 05.

TABLE III.  Group A inspection for device type 05 – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F / Test No. | 1 / A | 2 / $1B_0$ | 3 / $1B_1$ | 4 / 1Y | 5 / $2B_0$ | 6 / $2B_1$ | 7 / 2Y | 8 / GND | 9 / 4Y | 10 / $4B_1$ | 11 / $4B_0$ | 12 / 3Y | 13 / $3B_1$ | 14 / $3B_0$ | 15 / G | 16 / $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | $t_{PHL2}$ " | 3003 (Fig 6) | 67 | 5.0 V | | 5.0 V | OUT | | | | GND | | | | | | | IN | 5.0 V | G to 1Y | 3 | 28 | ns |
| $T_C$ = 25°C | " | " | 68 | " | | | | | 5.0 V | OUT | " | | | | | | | " | " | G to 2Y | " | " | " |
| " | " | " | 69 | " | | | | | | | " | | | | OUT | 5.0 V | | " | " | G to 3Y | " | " | " |
| " | " | " | 70 | " | | | | | | | " | OUT | 5.0 V | | | | | " | " | G to 4Y | " | " | " |
| " | $t_{PLH2}$ | " | 71 | " | | 5.0 V | OUT | | | | " | | | | | | | " | " | G to 1Y | " | 23 | " |
| " | " | " | 72 | " | | | | | 5.0 V | OUT | " | | | | | | | " | " | G to 2Y | " | " | " |
| " | " | " | 73 | " | | | | | | | " | | | | OUT | 5.0 V | | " | " | G to 3Y | " | " | " |
| " | " | " | 74 | " | | | | | | | " | OUT | 5.0 V | | | | | " | " | G to 4Y | " | " | " |
| " | $t_{PHL3}$ | " | 75 | GND | IN | | OUT | | | | " | | | | | | | GND | " | $1B_0$ to 1Y | " | 20 | " |
| " | " | " | 76 | 5.0 V | | IN | OUT | | | | " | | | | | | | " | " | $1B_1$ to 1Y | " | " | " |
| " | " | " | 77 | GND | | | | IN | | OUT | " | | | | | | | " | " | $2B_0$ to 2Y | " | " | " |
| " | " | " | 78 | 5.0 V | | | | | IN | OUT | " | | | | | | | " | " | $2B_1$ to 2Y | " | " | " |
| " | " | " | 79 | GND | | | | | | | " | | | | OUT | | IN | " | " | $3B_0$ to 3Y | " | " | " |
| " | " | " | 80 | 5.0 V | | | | | | | " | | | | OUT | IN | | " | " | $3B_1$ to 3Y | " | " | " |
| " | " | " | 81 | GND | | | | | | | " | OUT | | IN | | | | " | " | $4B_0$ to 4Y | " | " | " |
| " | " | " | 82 | 5.0 V | | | | | | | " | OUT | IN | | | | | " | " | $4B_1$ to 4Y | " | " | " |
| " | $t_{PLH3}$ | " | 83 | GND | IN | | OUT | | | | " | | | | | | | " | " | $1B_0$ to 1Y | " | 20 | " |
| " | " | " | 84 | 5.0 V | | IN | OUT | | | | " | | | | | | | " | " | $1B_1$ to 1Y | " | " | " |
| " | " | " | 85 | GND | | | | IN | | OUT | " | | | | | | | " | " | $2B_0$ to 2Y | " | " | " |
| " | " | " | 86 | 5.0 V | | | | | IN | OUT | " | | | | | | | " | " | $2B_1$ to 2Y | " | " | " |
| " | " | " | 87 | GND | | | | | | | " | | | | OUT | | IN | " | " | $3B_0$ to 3Y | " | " | " |
| " | " | " | 88 | 5.0 V | | | | | | | " | | | | OUT | IN | | " | " | $3B_1$ to 3Y | " | " | " |
| " | " | " | 89 | GND | | | | | | | " | OUT | | IN | | | | " | " | $4B_0$ to 4Y | " | " | " |
| " | " | " | 90 | 5.0 V | | | | | | | " | OUT | IN | | | | | " | " | $4B_1$ to 4Y | " | " | " |
| 10 | $t_{PHL1}$ | 3003 (Fig 6) | 91 | IN | GND | 5.0 V | OUT | | | | " | | | | | | | " | " | A to 1Y | 6 | 49 | " |
| $T_C$ = 125°C | " | " | 92 | " | | | | GND | 5.0 V | OUT | " | | | | | | | " | " | A to 2Y | " | " | " |
| " | " | " | 93 | " | | | | | | | " | | | | OUT | 5.0 V | GND | " | " | A to 3Y | " | " | " |
| " | " | " | 94 | " | | | | | | | " | OUT | 5.0 V | GND | | | | " | " | A to 4Y | " | " | " |
| " | $t_{PLH1}$ | " | 95 | " | GND | 5.0 V | OUT | | | | " | | | | | | | " | " | A to 1Y | " | 41 | " |
| " | " | " | 96 | " | | | | GND | 5.0 V | OUT | " | | | | | | | " | " | A to 2Y | " | " | " |
| " | " | " | 97 | " | | | | | | | " | | | | OUT | 5.0 V | GND | " | " | A to 3Y | " | " | " |
| " | " | " | 98 | " | | | | | | | " | OUT | 5.0 V | GND | | | | " | " | A to 4Y | " | " | " |
| " | $t_{PHL2}$ | " | 99 | 5.0 V | | 5.0 V | OUT | | | | " | | | | | | | IN | " | G to 1Y | 3 | 39 | " |
| " | " | " | 100 | " | | | | | 5.0 V | OUT | " | | | | | | | " | " | G to 2Y | " | " | " |
| " | " | " | 101 | " | | | | | | | " | | | | OUT | 5.0 V | | " | " | G to 3Y | " | " | " |
| " | " | " | 102 | " | | | | | | | " | OUT | 5.0 V | | | | | " | " | G to 4Y | " | " | " |

See notes at end of device type 05.

MIL-M-38510/14E

TABLE III. <u>Group A inspection for device type 05</u> – Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 A | 2 $1B_0$ | 3 $1B_1$ | 4 $1Y$ | 5 $2B_0$ | 6 $2B_1$ | 7 $2Y$ | 8 GND | 9 $4Y$ | 10 $4B_1$ | 11 $4B_0$ | 12 $3Y$ | 13 $3B_1$ | 14 $3B_0$ | 15 G | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | $t_{PLH2}$ | 3003 | 103 | 5.0 V | | 5.0 V | OUT | | | | GND | | | | | | | IN | 5.0 V | G to 1Y | 3 | 33 | ns |
| $T_C$ = 125°C | " | (Fig 6) | 104 | " | | | | | 5.0 V | OUT | " | | | | | | | " | " | G to 2Y | " | " | " |
| " | " | " | 105 | " | | | | | | | " | | | | OUT | 5.0 V | | " | " | G to 3Y | " | " | " |
| " | " | " | 106 | " | | | | | | | " | OUT | 5.0 V | | | | | " | " | G to 4Y | " | " | " |
| " | $t_{PHL3}$ | " | 107 | GND | IN | | OUT | | | | " | | | | | | | GND | " | $1B_0$ to 1Y | " | 25 | " |
| " | " | " | 108 | 5.0 V | | IN | OUT | | | | " | | | | | | | " | " | $1B_1$ to 1Y | " | " | " |
| " | " | " | 109 | GND | | | | IN | | OUT | " | | | | | | | " | " | $2B_0$ to 2Y | " | " | " |
| " | " | " | 110 | 5.0 V | | | | | IN | OUT | " | | | | | | | " | " | $2B_1$ to 2Y | " | " | " |
| " | " | " | 111 | GND | | | | | | | " | | | | OUT | | IN | " | " | $3B_0$ to 3Y | " | " | " |
| " | " | " | 112 | 5.0 V | | | | | | | " | | | | OUT | IN | | " | " | $3B_1$ to 3Y | " | " | " |
| " | " | " | 113 | GND | | | | | | | " | OUT | | IN | | | | " | " | $4B_0$ to 4Y | " | " | " |
| " | " | " | 114 | 5.0 V | | | | | | | " | OUT | IN | | | | | " | " | $4B_1$ to 4Y | " | " | " |
| " | $t_{PLH3}$ | " | 115 | GND | IN | | OUT | | | | " | | | | | | | " | " | $1B_0$ to 1Y | " | 35 | " |
| " | " | " | 116 | 5.0 V | | IN | OUT | | | | " | | | | | | | " | " | $1B_1$ to 1Y | " | " | " |
| " | " | " | 117 | GND | | | | IN | | OUT | " | | | | | | | " | " | $2B_0$ to 2Y | " | " | " |
| " | " | " | 118 | 5.0 V | | | | | IN | OUT | " | | | | | | | " | " | $2B_1$ to 2Y | " | " | " |
| " | " | " | 119 | GND | | | | | | | " | | | | OUT | | IN | " | " | $3B_0$ to 3Y | " | " | " |
| " | " | " | 120 | 5.0 V | | | | | | | " | | | | OUT | IN | | " | " | $3B_1$ to 3Y | " | " | " |
| " | " | " | 121 | GND | | | | | | | " | OUT | | IN | | | | " | " | $4B_0$ to 4Y | " | " | " |
| " | " | " | 122 | 5.0 V | | | | | | | " | OUT | IN | | | | | " | " | $4B_1$ to 4Y | " | " | " |
| 11 | | | Same tests, terminal conditions and limits as subgroup 10, except $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | | | |

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ H > 1.5 V;  L < 1.5 V.

Only attributes data is required for subgroups 7 and 8.

TABLE III.  Group A inspection for device type 06.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 D3 | 2 D2 | 3 D1 | 4 D0 | 5 Y | 6 W | 7 G | 8 GND | 9 C | 10 B | 11 A | 12 D7 | 13 D6 | 14 D5 | 15 D4 | 16 VCC | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1<br>Tc = 25°C | V_OH | 3006 | 1 | | | | 2.0 V | -0.8 mA | | 0.8 V | GND | 0.8 V | 0.8 V | 0.8 V | | | | | 4.5 V | Y | 2.4 | | V |
| " | V_OH | 3006 | 2 | | | | | | -0.8 mA | 2.0 V | " | 2.0 V | 2.0 V | 2.0 V | | | | | " | W | 2.4 | | " |
| " | V_OL | 3007 | 3 | | | | | 16 mA | | 2.0 V | " | 2.0 V | 2.0 V | 2.0 V | | | | | " | Y | | 0.4 | " |
| " | V_OL | 3007 | 4 | | | | 2.0 V | | 16 mA | 0.8 V | " | 0.8 V | 0.8 V | 0.8 V | | | | | " | W | | 0.4 | " |
| " | V_IC | | 5 | | | | -12 mA | | | | " | | | | | | | | " | D0 | | -1.5 | " |
| " | " | | 6 | | | -12 mA | | | | | " | | | | | | | | " | D1 | | " | " |
| " | " | | 7 | | -12 mA | | | | | | " | | | | | | | | " | D2 | | " | " |
| " | " | | 8 | -12 mA | | | | | | | " | | | | | | | | " | D3 | | " | " |
| " | " | | 9 | | | | | | | | " | | | | | | | -12 mA | " | D4 | | " | " |
| " | " | | 10 | | | | | | | | " | | | | | | -12 mA | | " | D5 | | " | " |
| " | " | | 11 | | | | | | | | " | | | | | -12 mA | | | " | D6 | | " | " |
| " | " | | 12 | | | | | | | | " | | | | -12 mA | | | | " | D7 | | " | " |
| " | " | | 13 | | | | | | | -12 mA | " | | | | | | | | " | G | | " | " |
| " | " | | 14 | | | | | | | | " | | | -12 mA | | | | | " | A | | " | " |
| " | " | | 15 | | | | | | | | " | | -12 mA | | | | | | " | B | | " | " |
| " | " | | 16 | | | | | | | | " | -12 mA | | | | | | | " | C | | " | " |
| " | I_IL | 3009 | 17 | | | | | | | 0.4 V | " | 5.5 V | 5.5 V | 5.5 V | | | | | 5.5 V | G | -0.7 | -1.6 | mA |
| " | " | " | 18 | | | | | | | GND | " | 5.5 V | 5.5 V | 0.4 V | | | | | " | A | " | " | " |
| " | " | " | 19 | | | | | | | " | " | 5.5 V | 0.4 V | 5.5 V | | | | | " | B | " | " | " |
| " | " | " | 20 | | | | | | | " | " | 0.4 V | 5.5 V | 5.5 V | | | | | " | C | " | " | " |
| " | " | " | 21 | | | | 0.4 V | | | " | " | GND | GND | GND | | | | | " | D0 | " | " | " |
| " | " | " | 22 | | | 0.4 V | | | | " | " | " | GND | 5.5 V | | | | | " | D1 | " | " | " |
| " | " | " | 23 | | 0.4 V | | | | | " | " | " | 5.5 V | GND | | | | | " | D2 | " | " | " |
| " | " | " | 24 | 0.4 V | | | | | | " | " | " | 5.5 V | 5.5 V | | | | | " | D3 | " | " | " |
| " | " | " | 25 | | | | | | | " | " | 5.5 V | GND | GND | | | | 0.4 V | " | D4 | " | " | " |
| " | " | " | 26 | | | | | | | " | " | " | GND | 5.5 V | | | 0.4 V | | " | D5 | " | " | " |
| " | " | " | 27 | | | | | | | " | " | " | 5.5 V | GND | | 0.4 V | | | " | D6 | " | " | " |
| " | " | " | 28 | | | | | | | " | " | " | 5.5 V | 5.5 V | 0.4 V | | | | " | D7 | " | " | " |
| " | I_IH1 | 3010 | 29 | | | | | | | 2.4 V | " | GND | GND | GND | | | | | " | G | | 40 | µA |
| " | " | " | 30 | | | | | | | 5.5 V | " | GND | GND | 2.4 V | | | | | " | A | | " | " |
| " | " | " | 31 | | | | | | | " | " | GND | 2.4 V | GND | | | | | " | B | | " | " |
| " | " | " | 32 | | | | | | | " | " | 2.4 V | GND | GND | | | | | " | C | | " | " |
| " | " | " | 33 | | | | 2.4 V | | | " | " | 5.5 V | 5.5 V | 5.5 V | | | | | " | D0 | | " | " |
| " | " | " | 34 | | | 2.4 V | | | | " | " | " | 5.5 V | GND | | | | | " | D1 | | " | " |
| " | " | " | 35 | | 2.4 V | | | | | " | " | " | GND | 5.5 V | | | | | " | D2 | | " | " |
| " | " | " | 36 | 2.4 V | | | | | | " | " | " | GND | GND | | | | | " | D3 | | " | " |
| " | " | " | 37 | | | | | | | " | " | GND | 5.5 V | 5.5 V | | | | 2.4 V | " | D4 | | " | " |
| " | " | " | 38 | | | | | | | " | " | " | 5.5 V | GND | | | 2.4 V | | " | D5 | | " | " |
| " | " | " | 39 | | | | | | | " | " | " | GND | 5.5 V | | 2.4 V | | | " | D6 | | " | " |
| " | " | " | 40 | | | | | | | " | " | " | GND | GND | 2.4 V | | | | " | D7 | | " | " |

See note at end of device type 06.

MIL-M-38510/14E

TABLE III.  Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $D_3$ | $D_2$ | $D_1$ | $D_0$ | Y | W | G | GND | C | B | A | $D_7$ | $D_6$ | $D_5$ | $D_4$ | $V_{CC}$ | | | | |
| 1  TC = 25°C | $I_{IH2}$ | 3010 | 41 | | | | | | | 5.5 V | GND | GND | GND | GND | | | | | 5.5 V | G | | 100 | µA |
| " | " | " | 42 | | | | | | | " | " | " | GND | 5.5 V | | | | | " | A | | " | " |
| " | " | " | 43 | | | | | | | " | " | " | 5.5 V | GND | | | | | " | B | | " | " |
| " | " | " | 44 | | | | | | | " | " | 5.5 V | GND | GND | | | | | " | C | | " | " |
| " | " | " | 45 | | | | 5.5 V | | | " | " | " | 5.5 V | 5.5 V | | | | | " | $D_0$ | | " | " |
| " | " | " | 46 | | | 5.5 V | | | | " | " | " | 5.5 V | GND | | | | | " | $D_1$ | | " | " |
| " | " | " | 47 | | 5.5 V | | | | | " | " | " | GND | 5.5 V | | | | | " | $D_2$ | | " | " |
| " | " | " | 48 | 5.5 V | | | | | | " | " | " | GND | GND | | | | | " | $D_3$ | | " | " |
| " | " | " | 49 | | | | | | | " | " | GND | 5.5 V | 5.5 V | | | | 5.5 V | " | $D_4$ | | " | " |
| " | " | " | 50 | | | | | | | " | " | " | 5.5 V | GND | | | 5.5 V | | " | $D_5$ | | " | " |
| " | " | " | 51 | | | | | | | " | " | " | GND | 5.5 V | | 5.5 V | | | " | $D_6$ | | " | " |
| " | " | " | 52 | | | | | | | " | " | " | " | GND | 5.5 V | | | | " | $D_7$ | | " | " |
| " | $I_{OS}$ | 3011 | 53 | GND | GND | GND | GND | | GND | " | " | " | " | " | GND | GND | GND | GND | " | W | -20 | -55 | mA |
| " | $I_{OS}$ | 3011 | 54 | " | " | " | 5.5 V | GND | | GND | " | " | " | " | " | " | " | " | " | Y | -20 | -55 | mA |
| " | $I_{CC}$ | 3005 | 55 | " | " | " | 5.5 V | | | GND | " | " | " | " | " | " | " | " | " | $V_{CC}$ | | 48 | mA |
| 2 | Same tests, terminal conditions and limits as subgroup 1, except TC = 125°C and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Same tests, terminal conditions and limits as subgroup 1, except TC = -55°C and $V_{IC}$ tests are omitted. | | | | | | | | | | | | | | | | | | | | | | |
| 7  TC = 25°C | Truth table test | | 56 | | | | 1/ | L 2/ | H | A | GND | | | | | | | | 4.5 V | | | 2/ | |
| " | " | | 57 | | | | B | L | H | B | " | | B | B | | | | | " | | | | |
| " | " | | 58 | | | | A | H | L | " | " | | " | B | | | | | " | | | | |
| " | " | | 59 | | | B | | L | H | " | " | | " | A | | | | | " | | | | |
| " | " | | 60 | | | A | | H | L | " | " | | " | A | | | | | " | | | | |
| " | " | | 61 | | B | | | L | H | " | " | | A | B | | | | | " | | | | |
| " | " | | 62 | | A | | | H | L | " | " | | " | B | | | | | " | | | | |
| " | " | | 63 | B | | | | L | H | " | " | | " | A | | | | | " | | | | |
| " | " | | 64 | A | | | | H | L | " | " | | " | A | | | | | " | | | | |
| " | " | | 65 | | | | | L | H | " | " | A | B | B | | | | B | " | | | | |
| " | " | | 66 | | | | | H | L | " | " | " | " | B | | | | A | " | | | | |
| " | " | | 67 | | | | | L | H | " | " | " | " | A | | | B | | " | | | | |
| " | " | | 68 | | | | | H | L | " | " | " | " | A | | | A | | " | | | | |
| " | " | | 69 | | | | | L | H | " | " | " | A | B | | B | | | " | | | | |
| " | " | | 70 | | | | | H | L | " | " | " | " | B | | A | | | " | | | | |
| " | " | | 71 | | | | | L | H | " | " | " | " | A | B | | | | " | | | | |
| " | " | | 72 | | | | | H | L | " | " | " | " | A | A | | | | " | | | | |
| 8 | Repeat subgroup 7 at TC = 125°C and TC = -55°C. | | | | | | | | | | | | | | | | | | | | | | |

See notes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H $\geq$ 2.0 V, or L $\leq$ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Meas. terminal | Test limits | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | | Test No. | $D_3$ | $D_2$ | $D_1$ | $D_0$ | Y | W | G | GND | C | B | A | $D_7$ | $D_6$ | $D_5$ | $D_4$ | $V_{CC}$ | | Min | Max | Unit |
| 9 | $t_{PHL1}$ | 3003 | 73 | | | 5.0 V | GND | | OUT | GND | GND | GND | GND | IN | | | | | 5.0 V | A to W | 6 | 32 | ns |
| $T_C = 25°C$ | " | (Fig 4) | 74 | | 5.0 V | | " | | " | " | " | GND | IN | GND | | | | | " | B to W | " | " | " |
| " | " | " | 75 | | | | " | | " | " | " | IN | GND | GND | | | | 5.0 V | " | C to W | " | " | " |
| " | $t_{PLH1}$ | " | 76 | | | 5.0 V | " | | " | " | " | GND | GND | IN | | | | | " | A to W | " | 29 | " |
| " | " | " | 77 | | 5.0 V | | " | | " | " | " | GND | IN | GND | | | | | " | B to W | " | " | " |
| " | " | " | 78 | | | | " | | " | " | " | IN | GND | GND | | | | 5.0 V | " | C to W | " | " | " |
| " | $t_{PHL2}$ | " | 79 | | | 5.0 V | " | OUT | | " | " | GND | GND | IN | | | | | " | A to Y | 8 | 40 | " |
| " | " | " | 80 | | 5.0 V | | " | " | | " | " | GND | IN | GND | | | | | " | B to Y | " | " | " |
| " | " | " | 81 | | | | " | " | | " | " | IN | GND | GND | | | | 5.0 V | " | C to Y | " | " | " |
| " | $t_{PLH2}$ | " | 82 | | | 5.0 V | " | " | | " | " | GND | GND | IN | | | | | " | A to Y | " | 39 | " |
| " | " | " | 83 | | 5.0 V | | " | " | | " | " | GND | IN | GND | | | | | " | B to Y | " | " | " |
| " | " | " | 84 | | | | " | " | | " | " | IN | GND | " | | | | 5.0 V | " | C to Y | " | " | " |
| " | $t_{PHL3}$ | " | 85 | | | | 5.0 V | | OUT | IN | " | GND | " | " | | | | | " | G to W | 6 | 28 | " |
| " | $t_{PLH3}$ | " | 86 | | | | " | | OUT | " | " | " | " | " | | | | | " | G to W | 6 | 26 | " |
| " | $t_{PHL4}$ | " | 87 | | | | " | OUT | | " | " | " | " | " | | | | | " | G to Y | 8 | 37 | " |
| " | $t_{PLH4}$ | " | 88 | | | | " | OUT | | " | " | " | " | " | | | | | " | G to Y | 8 | 35 | " |
| " | $t_{PHL5}$ | " | 89 | | | | IN | | OUT | GND | " | " | " | " | | | | | " | $D_0$ to W | 3 | 20 | " |
| " | " | " | 90 | | | IN | | | " | " | " | " | " | 5.0 V | | | | | " | $D_1$ to W | " | " | " |
| " | " | " | 91 | | IN | | | | " | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to W | " | " | " |
| " | " | " | 92 | IN | | | | | " | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to W | " | " | " |
| " | $t_{PHL5}$ | " | 93 | | | | | | OUT | GND | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to W | " | " | " |
| " | " | " | 94 | | | | | | " | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to W | " | " | " |
| " | " | " | 95 | | | | | | " | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to W | " | " | " |
| " | " | " | 96 | | | | | | " | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to W | " | " | " |
| " | $t_{PLH5}$ | " | 97 | | | | IN | | " | " | " | GND | GND | GND | | | | | " | $D_0$ to W | " | 17 | " |
| " | " | " | 98 | | | IN | | | " | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to W | " | " | " |
| " | " | " | 99 | | IN | | | | " | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to W | " | " | " |
| " | " | " | 100 | IN | | | | | " | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to W | " | " | " |
| " | " | " | 101 | | | | | | " | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to W | " | " | " |
| " | " | " | 102 | | | | | | " | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to W | " | " | " |
| " | " | " | 103 | | | | | | " | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to W | " | " | " |
| " | " | " | 104 | | | | | | " | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to W | " | " | " |

See notes at end of device type 06.

TABLE III.  Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Test No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | $D_3$ | $D_2$ | $D_1$ | $D_0$ | Y | W | G | GND | C | B | A | $D_7$ | $D_6$ | $D_5$ | $D_4$ | $V_{CC}$ | | | | |
| 9  TC = 25°C | $t_{PHL6}$ | 3003 (Fig 4) | 105 | | | | IN | OUT | | GND | GND | GND | GND | GND | | | | | 5.0 V | $D_0$ to Y | 6 | 29 | ns |
| " | " | " | 106 | | | IN | | " | | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to Y | " | " | " |
| " | " | " | 107 | | IN | | | " | | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to Y | " | " | " |
| " | " | " | 108 | IN | | | | " | | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to Y | " | " | " |
| " | " | " | 109 | | | | | " | | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to Y | " | " | " |
| " | " | " | 110 | | | | | " | | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to Y | " | " | " |
| " | " | " | 111 | | | | | " | | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to Y | " | " | " |
| " | " | " | 112 | | | | | " | | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to Y | " | " | " |
| " | $t_{PLH6}$ | " | 113 | | | | IN | " | | " | " | GND | GND | GND | | | | | " | $D_0$ to Y | " | 33 | " |
| " | " | " | 114 | | | IN | | " | | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to Y | " | " | " |
| " | " | " | 115 | | IN | | | " | | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to Y | " | " | " |
| " | " | " | 116 | IN | | | | " | | " | " | " | 5.0 V | 5.0 V | | | | IN | " | $D_3$ to Y | " | " | " |
| " | " | " | 117 | | | | | " | | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to Y | " | " | " |
| " | " | " | 118 | | | | | " | | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to Y | " | " | " |
| " | " | " | 119 | | | | | " | | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to Y | " | " | " |
| " | " | " | 120 | | | | | " | | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to Y | " | " | " |
| 10  TC = 125°C | $t_{PHL1}$ | " | 121 | | | 5.0 V | GND | | OUT | " | " | GND | GND | IN | | | | | " | A to W | " | 48 | " |
| " | " | " | 122 | | 5.0 V | | " | | " | " | " | GND | IN | GND | | | | | " | B to W | " | " | " |
| " | " | " | 123 | | | | " | | " | " | " | IN | GND | GND | | | | 5.0 V | " | C to W | " | " | " |
| " | $t_{PLH1}$ | " | 124 | | | 5.0 V | " | | " | " | " | GND | GND | IN | | | | | " | A to W | " | 43 | " |
| " | " | " | 125 | | 5.0 V | | " | | " | " | " | GND | IN | GND | | | | | " | B to W | " | " | " |
| " | " | " | 126 | | | | " | | " | " | " | IN | GND | GND | | | | 5.0 V | " | C to W | " | " | " |
| " | $t_{PHL2}$ | " | 127 | | | 5.0 V | " | OUT | | " | " | GND | GND | IN | | | | | " | A to Y | 8 | 60 | " |
| " | " | " | 128 | | 5.0 V | | " | " | | " | " | GND | IN | GND | | | | | " | B to Y | " | " | " |
| " | " | " | 129 | | | | " | " | | " | " | IN | GND | GND | | | | 5.0 V | " | C to Y | " | " | " |
| " | $t_{PLH2}$ | " | 130 | | | 5.0 V | " | " | | " | " | GND | GND | IN | | | | | " | A to Y | " | 58 | " |
| " | " | " | 131 | | 5.0 V | | " | " | | " | " | GND | IN | GND | | | | | " | B to Y | " | " | " |
| " | " | " | 132 | | | | " | " | | " | " | IN | GND | " | | | | 5.0 V | " | C to Y | " | " | " |
| " | $t_{PHL3}$ | " | 133 | | | | 5.0 V | | OUT | IN | " | GND | " | " | | | | | " | G to W | 6 | 38 | " |
| " | $t_{PLH3}$ | " | 134 | | | | " | | OUT | " | " | " | " | " | | | | | " | G to W | 6 | 35 | " |
| " | $t_{PHL4}$ | " | 135 | | | | " | OUT | | " | " | " | " | " | | | | | " | G to Y | 8 | 52 | " |
| " | $t_{PLH4}$ | " | 136 | | | | " | OUT | | " | " | " | " | " | | | | | " | G to Y | 8 | 52 | " |
| " | $t_{PHL5}$ | " | 137 | | | | IN | | OUT | GND | " | " | " | " | | | | | " | $D_0$ to W | 3 | 32 | " |
| " | " | " | 138 | | | IN | | | " | " | " | " | " | 5.0 V | | | | | " | $D_1$ to W | " | " | " |
| " | " | " | 139 | | IN | | | | " | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to W | " | " | " |
| " | " | " | 140 | IN | | | | | " | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to W | " | " | " |

See notes at end of device type 06.

TABLE III.  Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

| Subgroup | Symbol | MIL-STD-883 method | Cases E, F Test No. | 1 $D_3$ | 2 $D_2$ | 3 $D_1$ | 4 $D_0$ | 5 Y | 6 W | 7 G | 8 GND | 9 C | 10 B | 11 A | 12 $D_7$ | 13 $D_6$ | 14 $D_5$ | 15 $D_4$ | 16 $V_{CC}$ | Meas. terminal | Min | Max | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 / $T_C$ = 125°C | $t_{PHL5}$ | 3003 (Fig 4) | 141 | | | | | | OUT | GND | GND | 5.0 V | GND | GND | | | | IN | 5.0 V | $D_4$ to W | 3 | 32 | ns |
| " | " | " | 142 | | | | | | " | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to W | " | " | " |
| " | " | " | 143 | | | | | | " | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to W | " | " | " |
| " | " | " | 144 | | | | | | " | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to W | " | " | " |
| " | $t_{PLH5}$ | " | 145 | | | | IN | | " | " | " | GND | GND | GND | | | | | " | $D_0$ to W | " | 26 | " |
| " | " | " | 146 | | | IN | | | " | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to W | " | " | " |
| " | " | " | 147 | | IN | | | | " | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to W | " | " | " |
| " | " | " | 148 | IN | | | | | " | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to W | " | " | " |
| " | " | " | 149 | | | | | | " | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to W | " | " | " |
| " | " | " | 150 | | | | | | " | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to W | " | " | " |
| " | " | " | 151 | | | | | | " | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to W | " | " | " |
| " | " | " | 152 | | | | | | " | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to W | " | " | " |
| " | $t_{PHL6}$ | " | 153 | | | | IN | OUT | | " | " | GND | GND | GND | | | | | " | $D_0$ to Y | 6 | 44 | " |
| " | " | " | 154 | | | IN | | " | | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to Y | " | " | " |
| " | " | " | 155 | | IN | | | " | | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to Y | " | " | " |
| " | " | " | 156 | IN | | | | " | | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to Y | " | " | " |
| " | " | " | 157 | | | | | " | | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to Y | " | " | " |
| " | " | " | 158 | | | | | " | | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to Y | " | " | " |
| " | " | " | 159 | | | | | " | | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to Y | " | " | " |
| " | " | " | 160 | | | | | " | | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to Y | " | " | " |
| " | $t_{PLH6}$ | " | 161 | | | | IN | " | | " | " | GND | GND | GND | | | | | " | $D_0$ to Y | " | 36 | " |
| " | " | " | 162 | | | IN | | " | | " | " | " | GND | 5.0 V | | | | | " | $D_1$ to Y | " | " | " |
| " | " | " | 163 | | IN | | | " | | " | " | " | 5.0 V | GND | | | | | " | $D_2$ to Y | " | " | " |
| " | " | " | 164 | IN | | | | " | | " | " | " | 5.0 V | 5.0 V | | | | | " | $D_3$ to Y | " | " | " |
| " | " | " | 165 | | | | | " | | " | " | 5.0 V | GND | GND | | | | IN | " | $D_4$ to Y | " | " | " |
| " | " | " | 166 | | | | | " | | " | " | " | GND | 5.0 V | | | IN | | " | $D_5$ to Y | " | " | " |
| " | " | " | 167 | | | | | " | | " | " | " | 5.0 V | GND | | IN | | | " | $D_6$ to Y | " | " | " |
| " | " | " | 168 | | | | | " | | " | " | " | 5.0 V | 5.0 V | IN | | | | " | $D_7$ to Y | " | " | " |
| 11 | Same tests, terminal conditions and limits as subgroup 10, except $T_C$ = -55°C. | | | | | | | | | | | | | | | | | | | | | | |

1/  A = 3.0 V minimum, B = 0.0 V or GND.
2/  H > 1.5 V;  L < 1.5 V.
     Only attributes data is required for subgroups 7 and 8.

5.  PACKAGING

5.1  <u>Packaging requirements.</u>  For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2).  When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements.  Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command.  Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6.  NOTES

(This section contains information of a general or explanatory nature that may be helpful, but it not mandatory)

6.1  <u>Intended use.</u>  Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

6.2  <u>Acquisition requirements.</u>  Acquisition documents should specify the following:

   a.  Title, number, and date of the specification.
   b.  PIN and compliance identifier, if applicable (see 1.2).
   c.  Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
   d.  Requirement for certificate of compliance, if applicable.
   e.  Requirements for notification of change of product or process to acquiring activity in addition to notification to the qualifying activity, if applicable.
   f.  Requirements for failure analysis (including required test condition of method 5003), corrective action and reporting of results, if applicable.
   g.  Requirements for product assurance options.
   h.  Requirements for carriers, special lead lengths or lead forming, if applicable.  These requirements shall not affect the part number.  Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
   i.  Requirements for "JAN" marking.
   j.  Packaging requirements (see 5.1).

6.3  <u>Qualification.</u>  With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date.  The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification.  Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

6.4  <u>Superseding information.</u>  The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535.  Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535.  All technical requirements now consist of this specification and MIL-PRF-38535.  The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.

6.5  Abbreviations, symbols and definitions.   The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535 and MIL-HDBK-1331, and as follows:

GND ................................................. Ground zero voltage potential
$V_{IN}$ ..................................................... Voltage level at an input terminal
$V_{IC}$ ..................................................... Input clamp voltage
$I_{IN}$ ..................................................... Current-flowing into an input terminal

6.6  Logistic support.   Lead materials and finishes (see 3.3) are interchangeable.  Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4).  Longer lead lengths and lead forming shall not affect the part number.

6.7  Substitutability.   The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type.  Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-35810 device types and may have slight physical variations in relation to case size.  The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

| Military device type | Generic-industry type |
|---|---|
| 01 | 54150 |
| 02 | 9312 |
| 03 | 54153 |
| 04 | 9309 |
| 05 | 9322, 54157 |
| 06 | 54151 |

6.8  Manufacturers designation.  Manufacturer circuits included in this specification are designated as shown in table IV herein.

TABLE IV.   Substitutability and manufacturers designator.

| Device Types | Motorola | Signetics | Fairchild | Texas Instruments | National | Advanced Micro Device |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| 01 | X | X | | | X | |
| 02 | X | X | | | X | X |
| 03 | X | X | X | | X | |
| 04 | X | X | X | | X | X |
| 05 | X | X | X | X | X | X |
| 06 | X | X | X | X | X | |

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

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

Review activities:
 Army - MI, SM
 Navy - AS, CG, MC, SH, TD
 Air Force - 03, 19, 99

Preparing activity:
 DLA - CC

(Project 5962-2103)

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 http://assist.daps.dla.mil.