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**PART NUMBER****5401BCA-ROC**

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**Rochester Electronics****Manufactured Components**

Rochester branded components are manufactured using either die/wafers purchased from the original suppliers or Rochester wafers recreated from the original IP. All re-creations are done with the approval of the Original Component Manufacturer. (OCM)

Parts are tested using original factory test programs or Rochester developed test solutions to guarantee product meets or exceeds the OCM data sheet.

**Quality Overview**

- ISO-9001
- AS9120 certification
- Qualified Manufacturers List (QML) MIL-PRF-38535
  - Class Q Military
  - Class V Space Level

**Qualified Suppliers List of Distributors (QSLD)**

- Rochester is a critical supplier to DLA and meets all industry and DLA standards.

Rochester Electronics, LLC is committed to supplying products that satisfy customer expectations for quality and are equal to those originally supplied by industry manufacturers.

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*The original manufacturer's datasheet accompanying this document reflects the performance and specifications of the Rochester manufactured version of this device. Rochester Electronics guarantees the performance of its semiconductor products to the original OCM specifications. 'Typical' values are for reference purposes only. Certain minimum or maximum ratings may be based on product characterization, design, simulation, or sample testing.*

INCH-POUND

MIL-M-38510/1F  
16 March 2005  
SUPERSEDING  
MIL-M-38510/1E  
1 June 1982

## MILITARY SPECIFICATION

### MICROCIRCUITS, DIGITAL, TTL, NAND GATES, MONOLITHIC SILICON

This specification is approved for use by all Departments  
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, positive NAND logic gating microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided for each type 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 For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).

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:

| <u>Device type</u> | <u>Circuit</u>                                                |
|--------------------|---------------------------------------------------------------|
| 01                 | Single, 8-input positive NAND gate                            |
| 02                 | Dual, 4-input positive NAND gate                              |
| 03                 | Triple, 3-input positive NAND gate                            |
| 04                 | Quadruple, 2-input positive NAND gate                         |
| 05                 | Hex, 1-input inverter gate                                    |
| 06                 | Triple, 3-input positive NAND gate (open collector output)    |
| 07                 | Quadruple, 2-input positive NAND gate (open collector output) |
| 08                 | Hex, 1-input inverter gate (open collector output)            |
| 09                 | Same as device type 07, except different pin connections      |

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:

| <u>Outline letter</u> | <u>Descriptive designator</u> | <u>Terminals</u> | <u>Package style</u> |
|-----------------------|-------------------------------|------------------|----------------------|
| A                     | GDFP5-F14 or CDFP6-F14        | 14               | Flat                 |
| B                     | GDFP4-F14                     | 14               | Flat                 |
| C                     | GDIP1-T14 or CDIP2-T14        | 14               | Dual-in-line         |
| D                     | GDFP1-F14 or CDFP2-F14        | 14               | Flat                 |

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@dla.mil](mailto:bipolar@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>.

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° to +150°C             |
| Maximum power dissipation per gate ( $P_D$ ) <u>1/</u> ..... | 40 mW                      |
| Lead temperature (soldering, 10 seconds) .....               | 300°C                      |
| Thermal resistance, junction to case ( $\theta_{JC}$ ) ..... | (See MIL-STD-1835)         |
| Junction temperature ( $T_J$ ) <u>2/</u> .....               | 175°C                      |

1.4 Recommended operating conditions.

|                                                    |                                  |
|----------------------------------------------------|----------------------------------|
| Supply voltage.....                                | +4.5 V minimum to +5.5 V maximum |
| Minimum high level input voltage .....             | +2.0 V                           |
| Maximum low level input voltage ( $V_{IL}$ ) ..... | +0.8 V                           |
| Normalized fanout (each output) <u>3/</u> .....    | 10 maximum                       |
| Case operating temperature range .....             | -55° to +125°C                   |

1/ Must withstand the added  $P_D$  due to short-circuit test (e.g.,  $I_{OS}$ ).

2/ Maximum junction temperature shall not be exceeded except for allowable short duration burn-in screening conditions 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. APPLICABLE DOCUMENTS

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.)

2.3 Order of precedence. 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 Qualification. 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 6.4).

3.2 Item requirements. 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 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.

3.3.1 Terminal connections and logic diagrams. The terminal connections and logic diagrams shall be as specified on figure 1.

3.3.2 Truth tables and logic equations. The truth tables and logic equations shall be as specified on figure 2.

3.3.3 Schematic circuits. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.

3.3.4 Case outlines. The case outlines shall be as specified in 1.2.3.

3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

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

TABLE I. Electrical performance characteristics.

| Test                                      | Symbol    | Conditions<br>$-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$                                                     | Device types             | Limits |       | Unit          |
|-------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|--------------------------|--------|-------|---------------|
|                                           |           |                                                                                                                            |                          | Min    | Max   |               |
| High level output voltage                 | $V_{OH}$  | $V_{CC} = 4.5\text{ V}$ , $V_{IN} = 0.8\text{ V}$ ,<br>$I_{OH} = -400\ \mu\text{A}$ <u>1/</u>                              | 01, 02,<br>03, 04,<br>05 | 2.4    | - - - | V             |
| Low level output voltage                  | $V_{OL}$  | $V_{CC} = 4.5\text{ V}$ , $I_{OL} = 16\text{ mA}$ ,<br>$V_{IN} = 2.0\text{ V}$ for all inputs of gate under test <u>1/</u> | All                      |        | 0.4   | V             |
| Input clamp voltage                       | $V_{IC}$  | $V_{CC} = 4.5\text{ V}$ , $I_{IN} = -12\text{ mA}$<br>$T_C = 25^{\circ}\text{C}$                                           | All                      |        | -1.5  | V             |
| Maximum collector cut-off current         | $I_{CEX}$ | $V_{CC} = 4.5\text{ V}$ , $V_{IN} = 0.8\text{ V}$ ,<br>$V_{OH} = 5.5\text{ V}$                                             | 06, 07<br>08, 09         |        | 250   | $\mu\text{A}$ |
| High level input current                  | $I_{IH1}$ | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 2.4\text{ V}$ <u>2/</u>                                                                | All                      |        | 40    | $\mu\text{A}$ |
| High level input current                  | $I_{IH2}$ | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 5.5\text{ V}$ <u>2/</u>                                                                | All                      |        | 100   | $\mu\text{A}$ |
| Low level input current                   | $I_{IL}$  | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 0.4\text{ V}$ <u>1/</u>                                                                | All                      | -0.7   | -1.6  | mA            |
| Short circuit output current              | $I_{OS}$  | $V_{CC} = 5.5\text{ V}$ <u>2/</u> <u>3/</u>                                                                                | 01, 02,<br>03, 04,<br>05 | -20    | -55   | mA            |
| High level supply current per gate        | $I_{CCH}$ | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 0\text{ V}$ <u>2/</u>                                                                  | All                      |        | 1.65  | mA            |
| Low level supply current per gate         | $I_{CCL}$ | $V_{CC} = 5.5\text{ V}$ , $V_{IN} = 5.5\text{ V}$ <u>1/</u>                                                                | All                      |        | 5.0   | mA            |
| Propagation delay time, high-to-low level | $t_{PHL}$ | $C_L = 50\text{ pF}$ ,<br>$R_L = 390\ \Omega$                                                                              | 01, 02,<br>03, 04,<br>05 | 3      | 24    | ns            |
|                                           |           |                                                                                                                            | 06, 07,<br>08, 09        | 3      | 29    | ns            |
| Propagation delay time, low-to-high level | $t_{PLH}$ | $C_L = 50\text{ pF}$ ,<br>$R_L = 390\ \Omega$                                                                              | 01, 02,<br>03, 04,<br>05 | 3      | 27    | ns            |
|                                           |           |                                                                                                                            | 06, 07,<br>08, 09        | 3      | 35    | ns            |

1/ All unspecified inputs at 5.5 volts.

2/ All unspecified inputs grounded.

3/ Not more than one output should be shorted at a time.

3.6 Electrical test requirements. 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.

TABLE II. Electrical test requirements.

| MIL-PRF-38535<br>test requirements                                          | Subgroups (see table III) |                    |
|-----------------------------------------------------------------------------|---------------------------|--------------------|
|                                                                             | Class S<br>devices        | Class B<br>devices |
| Interim electrical parameters                                               | 1                         | 1                  |
| Final electrical test parameters                                            | 1*, 2, 3, 9<br>10, 11     | 1*, 2, 3, 9        |
| Group A test requirements                                                   | 1, 2, 3, 9,<br>10, 11     | 1, 2, 3, 9         |
| Group B electrical test parameters<br>when using the method 5005 QCI option | 1, 2, 3, 9,<br>10, 11     | N/A                |
| Group C end-point electrical<br>parameters                                  | 1, 2, 3, 9,<br>10, 11     | 1, 2, 3            |
| Additional electrical parameters for<br>group C periodic inspections        | N/A                       | 10, 11             |
| Group D end-point electrical parameters                                     | 1, 2, 3                   | 1, 2, 3            |

\*PDA applies to subgroup 1.

3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 1 (see MIL-PRF-38535, appendix A).

#### 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 affect 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, Appendix B.

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, 6, 7, and 8 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II 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 and as follows:

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

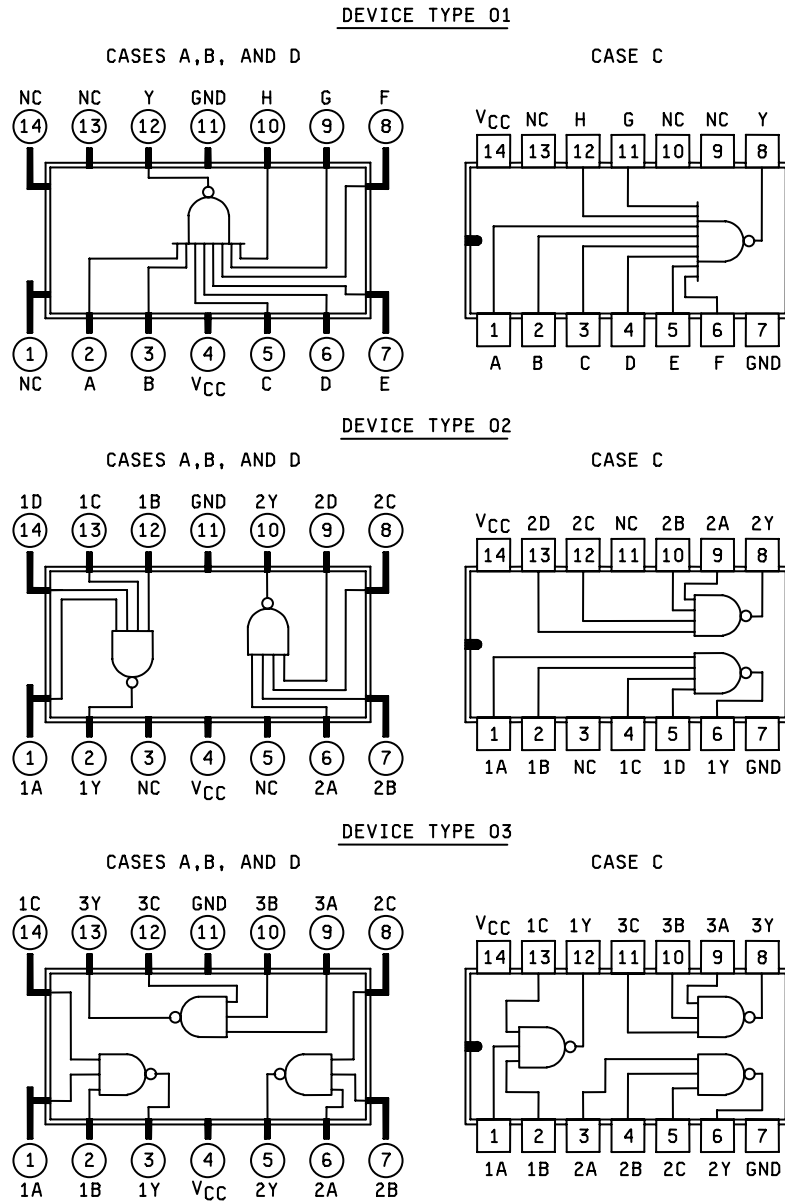
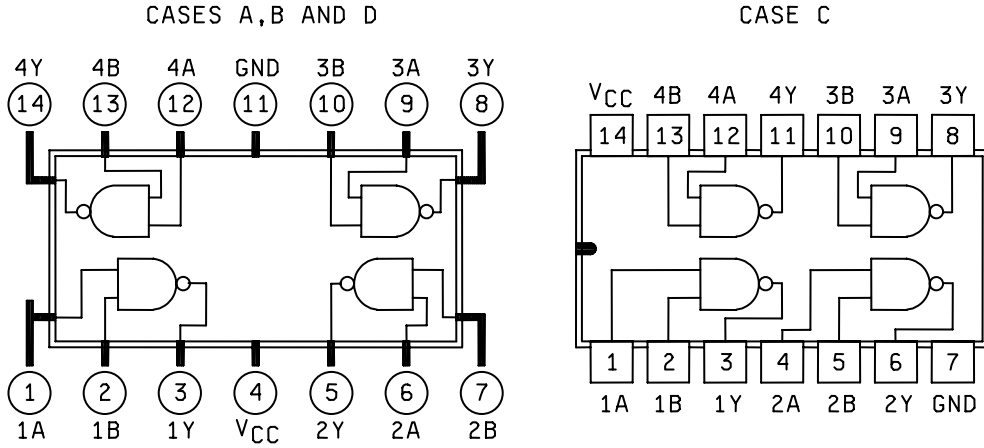


FIGURE 1. Terminal connections and logic diagrams.



DEVICE TYPE 04



DEVICE TYPES 05 AND 08

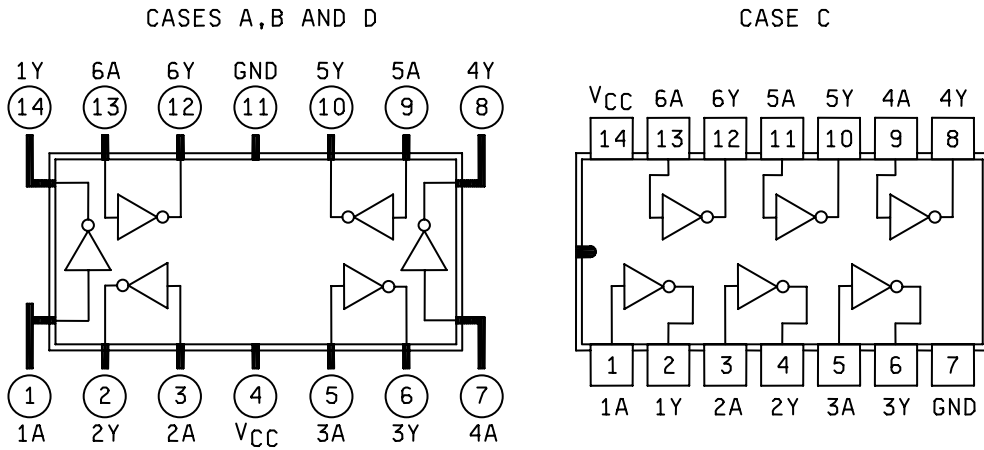
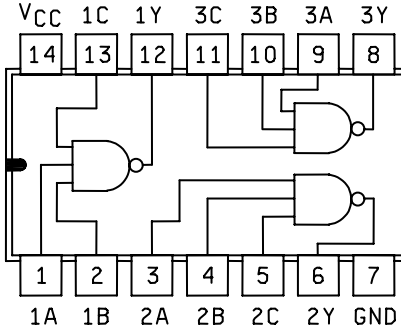


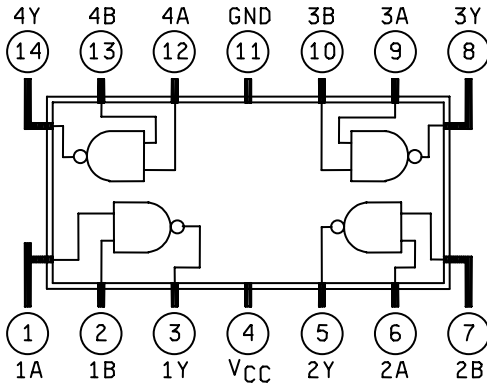
FIGURE 1. Terminal connections and logic diagrams - Continued.

DEVICE TYPE 06  
CASES A, B, C AND D

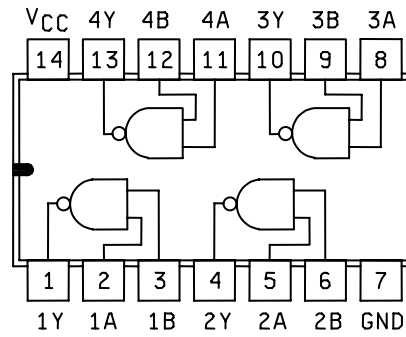


DEVICE TYPE 07

CASES A, B AND D



CASE C



DEVICE TYPE 09

CASE C

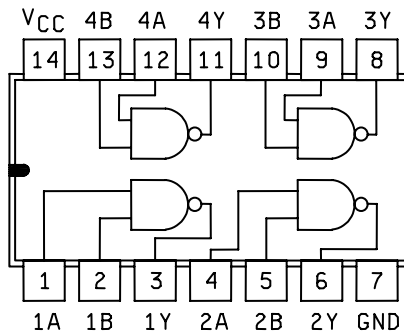


FIGURE 1. Terminal connections and logic diagrams - Continued.

Device type 01

| Truth table                                                    |   |   |   |   |   |   |        |   |
|----------------------------------------------------------------|---|---|---|---|---|---|--------|---|
| Input                                                          |   |   |   |   |   |   | Output |   |
| A                                                              | B | C | D | E | F | G | H      | Y |
| H                                                              | H | H | H | H | H | H | H      | L |
| All other combinations of H and L at the inputs give H output. |   |   |   |   |   |   |        |   |

Positive logic  $Y = \overline{ABCDEFGH}$

Device types 03 and 06

| Truth table |   |   |        |
|-------------|---|---|--------|
| Input       |   |   | Output |
| A           | B | C | Y      |
| L           | L | L | H      |
| H           | L | L | H      |
| L           | H | L | H      |
| H           | H | L | H      |
| L           | L | H | H      |
| H           | L | H | H      |
| L           | H | H | H      |
| H           | H | H | L      |

Positive logic  $Y = \overline{ABC}$

Device type 02

| Truth table |   |   |   |        |
|-------------|---|---|---|--------|
| Input       |   |   |   | Output |
| A           | B | C | D | Y      |
| L           | L | L | L | H      |
| H           | L | L | L | H      |
| L           | H | L | L | H      |
| H           | H | L | L | H      |
| L           | L | H | L | H      |
| H           | L | H | L | H      |
| L           | H | H | L | H      |
| H           | H | H | L | H      |
| L           | L | L | H | H      |
| H           | L | L | H | H      |
| L           | H | L | H | H      |
| H           | H | L | H | H      |
| L           | L | H | H | H      |
| H           | L | H | H | H      |
| L           | H | H | H | H      |
| H           | H | H | H | L      |

Positive logic  $Y = \overline{ABCD}$

Device types 04, 07, and 09

| Truth table each gate |   |        |
|-----------------------|---|--------|
| Input                 |   | Output |
| A                     | B | Y      |
| L                     | L | H      |
| H                     | L | H      |
| L                     | H | H      |
| H                     | H | L      |

Positive logic  $Y = \overline{AB}$

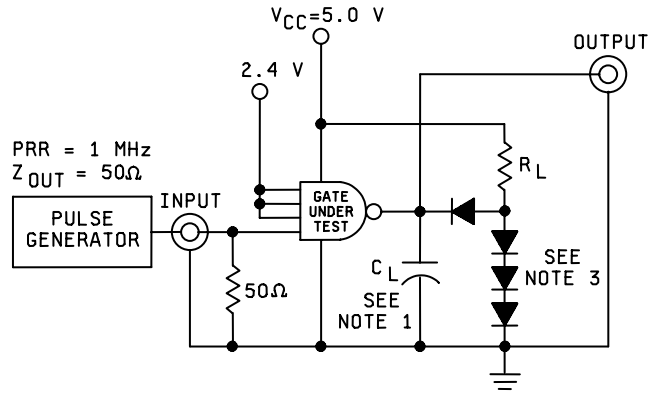
Device types 05 and 08

| Truth table each gate |       |
|-----------------------|-------|
| Input                 | Input |
| A                     | Y     |
| L                     | H     |
| H                     | L     |

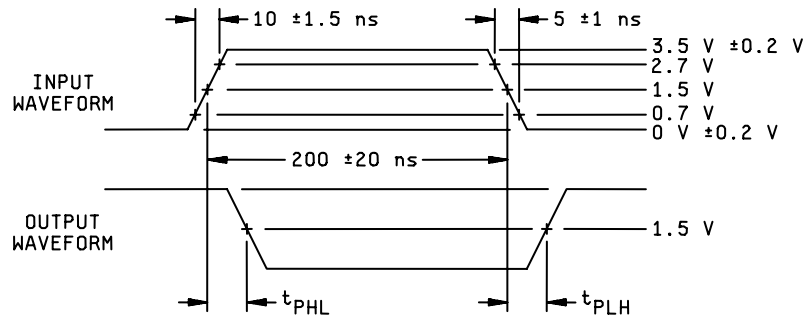
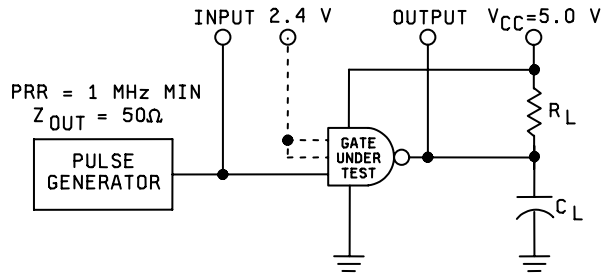
Positive logic  $Y = \overline{A}$

FIGURE 2. Truth tables and logic equations.

TEST CIRCUITS EXCEPT FOR OPEN COLLECTOR CIRCUITS



FOR OPEN COLLECTOR CIRCUITS



NOTES:

1.  $C_L = 50$  pF minimum, including scope probe, wiring and stray capacitance, without package in test fixture.
2. Voltage measurements are to be made with respect to network ground terminal.
3. All diode are 1N3064 or equivalent.
4.  $R_L = 390$  ohm  $\pm 5\%$ .

FIGURE 3. Test circuit and switching waveforms.





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

| Subgroup                   | Symbol                                                                                                                             | MIL-STD-883 method | Cases A, B, D |       |        |       |                 |       |       |       |       |       |       |       |       |       | Measured terminal | Limits          |       | Unit  |                 |     |      |    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-------|--------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|-----------------|-------|-------|-----------------|-----|------|----|
|                            |                                                                                                                                    |                    | Case C        |       |        | 1     | 2               | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10    | 11    |                   | 12              | 13    |       | 14              | Min | Max  |    |
|                            |                                                                                                                                    |                    | Test no.      | 1A    | 1B     | 1Y    | V <sub>CC</sub> | 2Y    | 2A    | 2B    | 2C    | 3A    | 3B    | GND   | 3C    | 3Y    |                   | 1C              |       |       |                 |     |      |    |
| 1<br>T <sub>c</sub> = 25°C | V <sub>OL</sub>                                                                                                                    | 3007               | 1             | 2.0 V | 2.0 V  | 16 mA | 4.5 V           |       | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | GND   | 5.5 V | 2.0 V             | 1Y              |       |       | V               |     |      |    |
|                            |                                                                                                                                    |                    | 2             | 5.5 V | 5.5 V  |       |                 | 16 mA | 2.0 V | 2.0 V | 2.0 V |       |       |       |       |       |                   | 5.5 V           | 2Y    |       | 0.4             | "   |      |    |
|                            |                                                                                                                                    |                    | 3             |       |        |       |                 |       | 5.5 V | 5.5 V | 5.5 V | 2.0 V | 2.0 V |       |       |       | 2.0 V             | 16 mA           | 3Y    |       |                 | "   |      |    |
|                            | V                                                                                                                                  | OH                 | 3006          | 4     | 0.8 V  | 5.5 V | -4 mA           | 4.5 V |       | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | GND   | 5.5 V |                   | 5.5 V           | 1Y    | 2.4   |                 | V   |      |    |
|                            |                                                                                                                                    |                    |               | 5     | 5.5 V  | 0.8 V |                 |       |       |       |       |       |       |       |       |       |                   |                 | 0.8 V | 1Y    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 6     |        | 5.5 V |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 5.5 V | 2Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 7     |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 2Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 8     |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 2Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 9     |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 2Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 10    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 3Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 11    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 3Y              |     |      | "  |
|                            |                                                                                                                                    |                    |               | 12    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       | 3Y              |     |      | "  |
| I                          |                                                                                                                                    |                    |               | OS    | 3011   | 13    | GND             | GND   | GND   | 5.5 V |       | GND   | GND   | GND   | GND   | GND   | GND               | GND             | GND   | GND   | 1Y              | -20 | -55  | mA |
|                            | 14                                                                                                                                 |                    |               |       |        |       |                 | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND               |                 | 2Y    |       |                 | "   |      |    |
|                            | 15                                                                                                                                 |                    |               |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 3Y    |       |                 | "   |      |    |
| I                          | IH1                                                                                                                                | 3010               | 16            | 2.4 V | GND    |       | 5.5 V           |       | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND               | GND             | 1A    |       | 40              | μA  |      |    |
|                            |                                                                                                                                    |                    | 17            | GND   | 2.4 V  |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 1B    |       |                 | "   |      |    |
|                            |                                                                                                                                    |                    | 18            |       | GND    |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 2.4 V | 1C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 19            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | GND   | 2A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 20            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 21            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 22            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 23            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3B    |                 |     | "    |    |
| I                          | IH2                                                                                                                                | 3010               | 25            | 5.5 V | GND    |       | 5.5 V           |       | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND   | GND               | GND             | 1A    |       | 100             | μA  |      |    |
|                            |                                                                                                                                    |                    | 26            | GND   | 5.5 V  |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 1B    |       |                 | "   |      |    |
|                            |                                                                                                                                    |                    | 27            |       | GND    |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 5.5 V | 1C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 28            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 29            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 30            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 31            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 32            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3B    |                 |     | "    |    |
| I                          | IL                                                                                                                                 | 3009               | 34            | 0.4 V | 5.5 V  |       |                 |       | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | GND   | 5.5 V |       | 5.5 V             | 1A              | -0.7  | -1.6  | mA              |     |      |    |
|                            |                                                                                                                                    |                    | 35            | 5.5 V | 0.4 V  |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 1B    |       |                 | "   |      |    |
|                            |                                                                                                                                    |                    | 36            |       | 5.5 V  |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 0.4 V | 1C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 37            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 | 5.5 V | 2A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 38            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 39            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 40            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 41            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | 42            |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    | I<br>I<br>V   | CCH   | 3005   | 43    | GND             | GND   |       | 5.5 V |       | GND   | GND   | GND   | GND   | GND   | GND               | GND             | GND   | GND   | V <sub>CC</sub> |     | 4.95 | mA |
| 44                         | 5.5 V                                                                                                                              | 5.5 V              |               |       |        |       | 5.5 V           |       | 5.5 V | 5.5 V | 5.5 V | 5.5 V | 5.5 V | GND   | 5.5 V |       | 5.5 V             | V <sub>CC</sub> |       | 15    | mA              |     |      |    |
| IC                         |                                                                                                                                    |                    |               | 45    | -12 mA |       |                 | 4.5 V |       |       |       |       |       |       |       |       |                   |                 | GND   |       | -1.5            | V   |      |    |
|                            |                                                                                                                                    |                    |               | 46    |        | -12mA |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 1A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 47    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 1B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 48    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 1C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 49    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2A    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 50    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2B    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 51    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 2C    |                 |     | "    |    |
|                            |                                                                                                                                    |                    |               | 52    |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       | 3A    |                 |     | "    |    |
| 53                         |                                                                                                                                    |                    |               |       |        |       |                 |       |       |       |       |       |       |       |       | 3B    |                   |                 | "     |       |                 |     |      |    |
| 2                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = 125°C and V <sub>IC</sub> tests are omitted. |                    |               |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       |                 |     |      |    |
| 3                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted. |                    |               |       |        |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |       |                 |     |      |    |

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

| Subgroup        | Symbol                                                                            | MIL-STD-883 method | Cases A, B, D  | 1  | 2     | 3   | 4               | 5   | 6  | 7     | 8     | 9  | 10 | 11    | 12  | 13 | 14    | Measured terminal                | Limits      |              | Unit         |
|-----------------|-----------------------------------------------------------------------------------|--------------------|----------------|----|-------|-----|-----------------|-----|----|-------|-------|----|----|-------|-----|----|-------|----------------------------------|-------------|--------------|--------------|
|                 |                                                                                   |                    | Case C         | 1  | 2     | 12  | 14              | 6   | 3  | 4     | 5     | 9  | 10 | 7     | 11  | 8  | 13    |                                  | Min         | Max          |              |
|                 |                                                                                   |                    | Test no.       | 1A | 1B    | 1Y  | V <sub>CC</sub> | 2Y  | 2A | 2B    | 2C    | 3A | 3B | GND   | 3C  | 3Y | 1C    |                                  |             |              |              |
| 9<br>Tc = 25°C  | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 54<br>55<br>56 | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    | IN | 2.4 V | GND |    | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>" | 20<br>"<br>" | ns<br>"<br>" |
|                 | PLH                                                                               | 3003 (Fig. 3)      | 57<br>58<br>59 | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    | IN | 2.4 V | GND |    | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>" | 25<br>"<br>" | ns<br>"<br>" |
| 10<br>Tc = 25°C | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 60<br>61<br>62 | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    | IN | 2.4 V | GND |    | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>" | 24<br>"<br>" | ns<br>"<br>" |
|                 | PLH                                                                               | 3003 (Fig. 3)      | 63<br>64<br>65 | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    | IN | 2.4 V | GND |    | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>" | 27<br>"<br>" | ns<br>"<br>" |
| 11              | Same tests, terminal conditions and limits as for subgroup 10, except Tc = -55°C. |                    |                |    |       |     |                 |     |    |       |       |    |    |       |     |    |       |                                  |             |              |              |



TABLE III. Group A inspection for device type 04.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup    | Symbol                                                                                                                             | MIL-STD-883 method | Cases A, B, D |       |        |        |                 |       |       |       |       |        |        |       |       |       | Measured terminal | Limits          |       | Unit |      |   |   |
|-------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-------|--------|--------|-----------------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-------------------|-----------------|-------|------|------|---|---|
|             |                                                                                                                                    |                    | Case C        |       |        |        |                 |       |       |       |       |        |        |       |       |       |                   | Min             | Max   |      |      |   |   |
|             |                                                                                                                                    |                    | 1             | 2     | 3      | 4      | 5               | 6     | 7     | 8     | 9     | 10     | 11     | 12    | 13    | 14    |                   |                 |       |      |      |   |   |
| 1           |                                                                                                                                    |                    | Test no.      | 1A    | 1B     | 1Y     | V <sub>CC</sub> | 2Y    | 2A    | 2B    | 3Y    | 3A     | 3B     | GND   | 4A    | 4B    | 4Y                |                 |       |      |      |   |   |
| V           | V <sub>OL</sub>                                                                                                                    | 3007               | 1             | 2.0 V | 2.0 V  | 16 mA  | 4.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V  | 5.5 V  | GND   | 5.5 V | 5.5 V |                   | 1Y              |       | 0.4  | V    |   |   |
|             |                                                                                                                                    |                    | 2             | 5.5 V | 5.5 V  |        |                 | 16 mA |       | 2.0 V | 2.0 V |        |        |       |       |       |                   |                 | 2Y    |      |      | " |   |
|             |                                                                                                                                    |                    | 3             | "     | "      |        |                 |       |       | 5.5 V | 5.5 V |        | 16 mA  | 2.0 V | 2.0 V |       |                   |                 |       | 3Y   |      |   | " |
|             |                                                                                                                                    |                    | 4             | "     | "      |        |                 |       |       |       |       |        |        | 5.5 V | 5.5 V |       | 2.0 V             | 2.0 V           | 16 mA | 4Y   |      |   | " |
|             | V                                                                                                                                  | OH                 | 3006          | 5     | 0.8 V  | 5.5 V  | -4 mA           | 4.5 V |       | 5.5 V | 5.5 V |        | 5.5 V  | 5.5 V | GND   | 5.5 V | 5.5 V             |                 | 1Y    | 2.4  |      | V |   |
|             |                                                                                                                                    |                    |               | 6     | 5.5 V  | 0.8 V  |                 |       |       |       |       |        |        |       |       |       |                   |                 |       | 1Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 7     | "      | 5.5 V  |                 |       |       |       |       |        |        |       |       |       |                   |                 |       | 2Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 8     | "      | "      |                 |       |       |       |       | 0.8 V  |        |       |       |       |                   |                 |       | 2Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 9     | "      | "      |                 |       |       |       |       | 5.5 V  | 0.8 V  |       |       |       |                   |                 |       | 3Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 10    | "      | "      |                 |       |       |       |       |        | 5.5 V  |       |       |       |                   |                 |       | 3Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 11    | "      | "      |                 |       |       |       |       |        |        |       |       |       |                   |                 |       | 4Y   | "    |   | " |
|             |                                                                                                                                    |                    |               | 12    | "      | "      |                 |       |       |       |       |        |        |       |       |       |                   | 0.8 V           |       | 4Y   | "    |   | " |
| I           | OS                                                                                                                                 | 3011               | 13            | GND   | GND    | GND    | 5.5 V           |       | GND   | GND   | GND   | GND    | GND    | GND   |       |       |                   | 1Y              | -20   | -55  | mA   |   |   |
|             |                                                                                                                                    |                    | 14            |       |        |        |                 |       |       |       |       |        |        |       |       |       |                   | 2Y              | "     | "    | "    |   |   |
|             |                                                                                                                                    |                    | 15            |       |        |        |                 |       |       |       |       |        |        |       |       |       |                   |                 | 3Y    | "    | "    | " |   |
|             |                                                                                                                                    |                    | 16            |       |        |        |                 |       |       |       |       |        |        |       |       |       | GND               | GND             | 4Y    | "    | "    | " |   |
| I           | IH1                                                                                                                                | 3010               | 17            | 2.4 V | GND    |        | 5.5 V           |       | GND   | GND   |       | GND    | GND    | GND   | GND   | GND   |                   | 1A              |       | 40   | μA   |   |   |
|             |                                                                                                                                    |                    | 18            | GND   | 2.4 V  |        |                 |       |       | 2.4 V |       |        |        |       |       |       |                   |                 | 1B    |      |      | " |   |
|             |                                                                                                                                    |                    | 19            | "     | GND    |        |                 |       |       |       | 2.4 V |        |        |       |       |       |                   |                 | 2A    |      |      | " |   |
|             |                                                                                                                                    |                    | 20            | "     | "      |        |                 |       |       |       | GND   | 2.4 V  |        |       |       |       |                   |                 | 2B    |      |      | " |   |
|             |                                                                                                                                    |                    | 21            | "     | "      |        |                 |       |       |       |       | GND    |        |       |       |       |                   |                 | 3A    |      |      | " |   |
|             |                                                                                                                                    |                    | 22            | "     | "      |        |                 |       |       |       |       |        |        |       |       |       |                   |                 | 3B    |      |      | " |   |
|             |                                                                                                                                    |                    | 23            | "     | "      |        |                 |       |       |       |       |        |        |       |       |       | 2.4 V             |                 | 4A    |      |      | " |   |
|             |                                                                                                                                    |                    | 24            | "     | "      |        |                 |       |       |       |       |        |        |       |       |       | GND               | 2.4 V           | 4B    |      |      | " |   |
| I           | IH2                                                                                                                                | 3010               | 25            | 5.5 V | GND    |        | 5.5 V           |       | GND   | GND   |       | GND    | GND    | GND   | GND   | GND   |                   | 1A              |       | 100  | μA   |   |   |
|             |                                                                                                                                    |                    | 26            | GND   | 5.5 V  |        |                 |       |       | 5.5 V |       |        |        |       |       |       |                   |                 | 1B    |      |      | " |   |
|             |                                                                                                                                    |                    | 27            | "     | GND    |        |                 |       |       |       | GND   |        |        |       |       |       |                   |                 | 2A    |      |      | " |   |
|             |                                                                                                                                    |                    | 28            | "     | "      |        |                 |       |       |       |       | 5.5 V  |        |       |       |       |                   |                 | 2B    |      |      | " |   |
|             |                                                                                                                                    |                    | 29            | "     | "      |        |                 |       |       |       |       |        | 5.5 V  |       |       |       |                   |                 | 3A    |      |      | " |   |
|             |                                                                                                                                    |                    | 30            | "     | "      |        |                 |       |       |       |       |        |        | 5.5 V |       |       |                   |                 | 3B    |      |      | " |   |
|             |                                                                                                                                    |                    | 31            | "     | "      |        |                 |       |       |       |       |        |        |       | 5.5 V |       |                   |                 | 4A    |      |      | " |   |
|             |                                                                                                                                    |                    | 32            | "     | "      |        |                 |       |       |       |       |        |        |       |       | 5.5 V |                   |                 | 4B    |      |      | " |   |
| I           | IL                                                                                                                                 | 3009               | 33            | 0.4 V | 5.5 V  |        | 5.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V  | 5.5 V  | GND   | 5.5 V | 5.5 V |                   | 1A              | -0.7  | -1.6 | mA   |   |   |
|             |                                                                                                                                    |                    | 34            | 5.5 V | 0.4 V  |        |                 |       |       | 0.4 V |       |        |        |       |       |       |                   |                 | 1B    | "    |      | " |   |
|             |                                                                                                                                    |                    | 35            | "     | 5.5 V  |        |                 |       |       |       | 5.5 V |        |        |       |       |       |                   |                 | 2A    | "    |      | " |   |
|             |                                                                                                                                    |                    | 36            | "     | "      |        |                 |       |       |       |       | 0.4 V  |        |       |       |       |                   |                 | 2B    | "    |      | " |   |
|             |                                                                                                                                    |                    | 37            | "     | "      |        |                 |       |       |       |       |        | 0.4 V  |       |       |       |                   |                 | 3A    | "    |      | " |   |
|             |                                                                                                                                    |                    | 38            | "     | "      |        |                 |       |       |       |       |        |        | 0.4 V |       |       |                   |                 | 3B    | "    |      | " |   |
|             |                                                                                                                                    |                    | 39            | "     | "      |        |                 |       |       |       |       |        |        | 5.5 V | 0.4 V |       |                   |                 | 4A    | "    |      | " |   |
|             |                                                                                                                                    |                    | 40            | "     | "      |        |                 |       |       |       |       |        |        |       | 5.5 V |       | 0.4 V             |                 | 4B    | "    |      | " |   |
| I<br>I<br>V | CGH                                                                                                                                | 3005               | 41            | GND   | GND    |        | 5.5 V           |       | GND   | GND   |       | GND    | GND    | GND   | GND   | GND   |                   | V <sub>CC</sub> |       | 6.6  | mA   |   |   |
|             |                                                                                                                                    |                    | 42            | 5.5 V | 5.5 V  |        | 5.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V  | 5.5 V  | GND   | 5.5 V | 5.5 V |                   | V <sub>CC</sub> |       | 20   | mA   |   |   |
|             | I<br>I<br>V                                                                                                                        | IC                 |               | 43    | -12 mA |        |                 | 4.5 V |       |       |       |        |        |       |       | GND   |                   |                 | 1A    |      | -1.5 | V |   |
|             |                                                                                                                                    |                    |               | 44    |        | -12 mA |                 |       |       |       |       |        |        |       |       |       |                   |                 | 1B    |      |      | " |   |
|             |                                                                                                                                    |                    |               | 45    |        |        |                 |       |       |       |       | -12 mA |        |       |       |       |                   |                 | 2A    |      |      | " |   |
|             |                                                                                                                                    |                    |               | 46    |        |        |                 |       |       |       |       |        | -12 mA |       |       |       |                   |                 | 2B    |      |      | " |   |
| 47          |                                                                                                                                    |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       | 3A    |                   |                 | "     |      |      |   |   |
| 48          |                                                                                                                                    |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       | 3B    |                   |                 | "     |      |      |   |   |
| 49          |                                                                                                                                    |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       | 4A    |                   |                 | "     |      |      |   |   |
| 50          |                                                                                                                                    |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       | 4B    |                   |                 | "     |      |      |   |   |
| 2           | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = 125°C and V <sub>IC</sub> tests are omitted. |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       |       |                   |                 |       |      |      |   |   |
| 3           | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted. |                    |               |       |        |        |                 |       |       |       |       |        |        |       |       |       |                   |                 |       |      |      |   |   |

TABLE III. Group A inspection for device type 04 -Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                     | Symbol                                                                                        | MIL-STD-883 method | Cases A, B, D        | 1  | 2     | 3   | 4               | 5   | 6  | 7     | 8   | 9  | 10    | 11            | 12 | 13    | 14  | Measured terminal                            | Limits           |                   | Unit              |  |
|------------------------------|-----------------------------------------------------------------------------------------------|--------------------|----------------------|----|-------|-----|-----------------|-----|----|-------|-----|----|-------|---------------|----|-------|-----|----------------------------------------------|------------------|-------------------|-------------------|--|
|                              |                                                                                               |                    | Case C               | 1  | 2     | 12  | 14              | 6   | 3  | 4     | 5   | 9  | 10    | 7             | 11 | 8     | 13  |                                              | Min              | Max               |                   |  |
|                              |                                                                                               |                    | Test no.             | 1A | 1B    | 1Y  | V <sub>CC</sub> | 2Y  | 2A | 2B    | 3Y  | 3A | 3B    | GND           | 4A | 4B    | 4Y  |                                              |                  |                   |                   |  |
| 9<br>T <sub>c</sub> = 25°C   | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 51<br>52<br>53<br>54 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" |    |       |     | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>" | 20<br>"<br>"<br>" | ns<br>"<br>"<br>" |  |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 55<br>56<br>57<br>58 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>" | 25<br>"<br>"<br>" | ns<br>"<br>"<br>" |  |
| 10<br>T <sub>c</sub> = 125°C | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 59<br>60<br>61<br>62 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>" | 24<br>"<br>"<br>" | ns<br>"<br>"<br>" |  |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 63<br>64<br>65<br>66 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>" | 27<br>"<br>"<br>" | ns<br>"<br>"<br>" |  |
| 11                           | Same tests, terminal conditions and limits as for subgroup 10, except T <sub>c</sub> = -55°C. |                    |                      |    |       |     |                 |     |    |       |     |    |       |               |    |       |     |                                              |                  |                   |                   |  |

TABLE III. Group A inspection for device type 05.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                   | Symbol                                                                                                                             | MIL-STD-883 method | Cases A, B, D   |       |        |       |                    |       |       |        |       |        |       |        |       |       | Measured terminal | Limits          |                 | Unit |      |    |   |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|-------|--------|-------|--------------------|-------|-------|--------|-------|--------|-------|--------|-------|-------|-------------------|-----------------|-----------------|------|------|----|---|
|                            |                                                                                                                                    |                    | 1               | 2     | 3      | 4     | 5                  | 6     | 7     | 8      | 9     | 10     | 11    | 12     | 13    | 14    |                   | Min             | Max             |      |      |    |   |
|                            |                                                                                                                                    |                    | Case C Test no. | 11 1A | 4 2Y   | 3 2A  | 14 V <sub>CC</sub> | 5 3A  | 6 3Y  | 9 4A   | 8 4Y  | 11 5A  | 10 5Y | 7 GND  | 12 6Y | 13 6Y |                   |                 |                 |      | 2 6A |    |   |
| 1<br>T <sub>c</sub> = 25°C | V <sub>OL</sub>                                                                                                                    | 3007               | 1               | 2.0 V |        | 5.5 V | 4.5 V              | 5.5 V |       | 5.5 V  |       | 5.5 V  |       | GND    |       | 5.5 V | 16mA              | 1Y              |                 | 0.4  | V    |    |   |
|                            |                                                                                                                                    |                    | 2               | 5.5 V | 16 mA  | 2.0 V |                    |       |       |        |       |        |       |        |       |       |                   |                 | 2Y              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 3               | "     |        | 5.5 V |                    |       | 2.0 V | 16mA   |       |        |       |        |       |       |                   |                 | 3Y              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 4               | "     |        | "     |                    |       | 5.5 V |        | 2.0 V | 16mA   |       |        |       |       |                   |                 | 4Y              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 5               | "     |        | "     |                    |       | "     |        | 5.5 V |        | 2.0 V | 16mA   |       |       |                   |                 | 5Y              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 6               | "     |        | "     |                    |       | "     |        | "     |        | 5.5 V |        | 16mA  |       |                   |                 | 6Y              |      |      | "  |   |
|                            | V                                                                                                                                  | OH                 | 3006            | 7     | 0.8 V  |       | 5.5 V              | 4.5 V | 5.5 V |        | 5.5 V |        | 5.5 V |        | GND   |       | 5.5 V             | -4mA            | 1Y              | 2.4  |      | V  |   |
|                            |                                                                                                                                    |                    |                 | 8     | 5.5 V  | -4 mA | 0.8 V              |       |       | 0.8 V  | -4 mA |        |       |        |       |       |                   |                 |                 | 2Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 9     | "      |       | 5.5 V              |       |       | 0.8 V  |       |        |       |        |       |       |                   |                 |                 | 3Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 10    | "      |       | "                  |       |       | 5.5 V  |       | 0.8 V  | -4 mA |        |       |       |                   |                 |                 | 4Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 11    | "      |       | "                  |       |       | "      |       | 5.5 V  |       | 0.8 V  | -4 mA |       |                   |                 |                 | 5Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 12    | "      |       | "                  |       |       | "      |       | "      |       | 5.5 V  |       | -4 mA |                   | 0.8 V           |                 | 6Y   |      |    | " |
|                            | I                                                                                                                                  | OS                 | 3011            | 13    | GND    | GND   | GND                | 5.5 V |       | GND    | GND   | GND    | GND   |        | GND   |       | GND               |                 | 1Y              | -20  | -55  | mA |   |
|                            |                                                                                                                                    |                    |                 | 14    |        |       |                    | "     |       | GND    |       |        |       |        |       |       |                   |                 |                 | 2Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 15    |        |       |                    | "     |       |        |       |        |       |        |       |       |                   |                 |                 | 3Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 16    |        |       |                    | "     |       |        |       |        |       |        |       |       |                   |                 |                 | 4Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 17    |        |       |                    | "     |       |        |       |        |       |        |       |       |                   |                 |                 | 5Y   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 18    |        |       |                    | "     |       |        |       |        |       | GND    | GND   |       | GND               | GND             |                 | 6Y   |      |    | " |
| I                          | IH1                                                                                                                                | 3010               | 19              | 2.4 V |        | GND   | 5.5 V              | GND   |       | GND    |       | GND    |       | GND    |       | GND   |                   | 1A              |                 | 40   | μA   |    |   |
|                            |                                                                                                                                    |                    | 20              | GND   |        | 2.4 V |                    |       | 2.4 V |        |       |        |       |        |       |       |                   |                 | 2A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 21              | "     |        | GND   |                    |       | GND   |        | 2.4 V |        |       |        |       |       |                   |                 | 3A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 22              | "     |        | "     |                    |       | "     |        | GND   |        | 2.4 V |        |       |       |                   |                 | 4A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 23              | "     |        | "     |                    |       | "     |        | "     |        | "     |        |       |       |                   |                 | 5A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 24              | "     |        | "     |                    |       | "     |        | "     |        | "     |        |       |       | 2.4 V             |                 | 6A              |      |      | "  |   |
| I                          | IH2                                                                                                                                | 3010               | 25              | 5.5 V |        | GND   | 5.5 V              | GND   |       | GND    |       | GND    |       | GND    |       | GND   |                   | 1A              |                 | 100  | μA   |    |   |
|                            |                                                                                                                                    |                    | 26              | GND   |        | 5.5 V |                    |       | 5.5 V |        |       |        |       |        |       |       |                   |                 | 2A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 27              | "     |        | GND   |                    |       | GND   |        | 5.5 V |        |       |        |       |       |                   |                 | 3A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 28              | "     |        | "     |                    |       | "     |        | "     |        | 5.5 V |        |       |       |                   |                 | 4A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 29              | "     |        | "     |                    |       | "     |        | "     |        | GND   |        |       |       |                   |                 | 5A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 30              | "     |        | "     |                    |       | "     |        | "     |        | 5.5 V |        |       |       | 5.5 V             |                 | 6A              |      |      | "  |   |
| I                          | IL                                                                                                                                 | 3009               | 31              | 0.4 V |        | 5.5 V | 5.5 V              | 5.5 V |       | 5.5 V  |       | 5.5 V  |       | GND    |       | 5.5 V |                   | 1A              | -0.7            | -1.6 | mA   |    |   |
|                            |                                                                                                                                    |                    | 32              | 5.5 V |        | 0.4 V |                    |       | 0.4 V |        |       |        |       |        |       |       |                   |                 | 2A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 33              | "     |        | 5.5 V |                    |       | 5.5 V |        | 0.4 V |        |       |        |       |       |                   |                 | 3A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 34              | "     |        | "     |                    |       | "     |        | 5.5 V |        | 0.4 V |        |       |       |                   |                 | 4A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 35              | "     |        | "     |                    |       | "     |        | "     |        | 5.5 V |        |       |       |                   |                 | 5A              |      |      | "  |   |
|                            |                                                                                                                                    |                    | 36              | "     |        | "     |                    |       | "     |        | "     |        | 5.5 V |        |       |       | 0.4 V             |                 | 6A              |      |      | "  |   |
| I<br>I<br>V                | CCL                                                                                                                                | 3005               | 37              | 5.5 V |        | 5.5 V | 5.5 V              | 5.5 V |       | 5.5 V  |       | 5.5 V  |       | GND    |       | 5.5 V |                   | V <sub>CC</sub> |                 | 30   | mA   |    |   |
|                            |                                                                                                                                    |                    | 38              | GND   |        | GND   | 5.5 V              | GND   |       |        |       |        |       |        |       |       | GND               |                 | V <sub>CC</sub> |      | 9.9  | mA |   |
|                            | I<br>I<br>V                                                                                                                        | IC                 |                 | 39    | -12 mA |       | -12 mA             | 4.5 V |       | -12 mA | GND   | -12 mA |       | -12 mA |       | GND   |                   | -12 mA          | 1A              |      | -1.5 | V  |   |
|                            |                                                                                                                                    |                    |                 | 40    | "      |       | "                  | "     |       | "      |       | "      |       | "      |       | "     |                   | "               |                 | 2A   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 41    | "      |       | "                  |       | "     | "      |       | "      |       | "      |       | "     |                   | "               |                 | 3A   |      |    | " |
|                            |                                                                                                                                    |                    |                 | 42    | "      |       | "                  |       | "     | "      |       | "      |       | "      |       | "     |                   | "               |                 | 4A   |      |    | " |
| 43                         | "                                                                                                                                  |                    | "               |       | "      | "     |                    | "     |       | "      |       | "      |       | "      |       | 5A    |                   |                 | "               |      |      |    |   |
| 44                         | "                                                                                                                                  |                    | "               |       | "      | "     |                    | "     |       | "      |       | "      |       | "      |       | 6A    |                   |                 | "               |      |      |    |   |
| 2                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = 125°C and V <sub>IC</sub> tests are omitted. |                    |                 |       |        |       |                    |       |       |        |       |        |       |        |       |       |                   |                 |                 |      |      |    |   |
| 3                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted. |                    |                 |       |        |       |                    |       |       |        |       |        |       |        |       |       |                   |                 |                 |      |      |    |   |

TABLE III. Group A inspection for device type 05 -Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup         | Symbol                                                                            | MIL-STD-883 method | Cases A, B, D | 1  | 2   | 3  | 4               | 5   | 6   | 7  | 8  | 9  | 10 | 11  | 12  | 13 | 14       | Measured terminal | Limits   |          | Unit |    |   |
|------------------|-----------------------------------------------------------------------------------|--------------------|---------------|----|-----|----|-----------------|-----|-----|----|----|----|----|-----|-----|----|----------|-------------------|----------|----------|------|----|---|
|                  |                                                                                   |                    | Case C        | 1  | 2   | 12 | 14              | 6   | 3   | 4  | 5  | 9  | 10 | 7   | 11  | 8  | 13       |                   | Min      | Max      |      |    |   |
|                  |                                                                                   |                    | Test no.      | 1A | 1B  | 1Y | V <sub>CC</sub> | 2Y  | 2A  | 2B | 3Y | 3A | 3B | GND | 4A  | 4B | 4Y       |                   |          |          |      |    |   |
| 9<br>Tc = 25°C   | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 45            | IN | OUT | IN | 5.0 V           |     |     |    |    |    |    |     | GND |    |          | OUT               | 1A to 1Y | 3        | 20   | ns |   |
|                  |                                                                                   |                    | 46            |    |     |    | "               |     |     |    |    |    |    |     |     | "  |          |                   |          | 2A to 2Y | "    | "  | " |
| 47               |                                                                                   |                    |               |    |     | "  | IN              | OUT |     |    |    |    |    |     | "   |    |          |                   | 3A to 3Y | "        | "    | "  |   |
| 48               |                                                                                   |                    |               |    |     | "  |                 |     |     |    |    |    |    |     |     | "  |          |                   |          | 4A to 4Y | "    | "  | " |
| 49               |                                                                                   |                    |               |    |     | "  |                 |     |     |    |    |    |    |     |     | "  |          |                   |          | 5A to 5Y | "    | "  | " |
|                  |                                                                                   |                    | 50            |    |     |    | "               |     |     |    |    |    |    | "   | OUT | IN |          | 6A to 6Y          | "        | "        | "    |    |   |
| t                | PLH                                                                               | 3003 (Fig. 3)      | 51            | IN | OUT | IN | 5.0 V           |     |     |    |    |    |    |     | GND |    |          | OUT               | 1A to 1Y | 3        | 25   | ns |   |
|                  |                                                                                   |                    | 52            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   | 2A to 2Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 53            |    |     |    | "               | IN  | OUT |    |    |    |    |     | "   |    |          |                   | 3A to 3Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 54            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 4A to 4Y | "    | "  | " |
|                  |                                                                                   |                    | 55            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 5A to 5Y | "    | "  | " |
|                  |                                                                                   |                    | 56            |    |     |    | "               |     |     |    |    |    | "  | OUT | IN  |    | 6A to 6Y | "                 | "        | "        |      |    |   |
| 10<br>Tc = 125°C | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 57            | IN | OUT | IN | 5.0 V           |     |     |    |    |    |    |     | GND |    |          | OUT               | 1A to 1Y | 3        | 24   | ns |   |
|                  |                                                                                   |                    | 58            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   | 2A to 2Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 59            |    |     |    | "               | IN  | OUT |    |    |    |    |     | "   |    |          |                   | 3A to 3Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 60            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 4A to 4Y | "    | "  | " |
|                  |                                                                                   |                    | 61            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 5A to 5Y | "    | "  | " |
|                  |                                                                                   |                    | 62            |    |     |    | "               |     |     |    |    |    | "  | OUT | IN  |    | 6A to 6Y | "                 | "        | "        |      |    |   |
| t                | PLH                                                                               | 3003 (Fig. 3)      | 63            | IN | OUT | IN | 5.0 V           |     |     |    |    |    |    |     | GND |    |          | OUT               | 1A to 1Y | 3        | 27   | ns |   |
|                  |                                                                                   |                    | 64            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   | 2A to 2Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 65            |    |     |    | "               | IN  | OUT |    |    |    |    |     | "   |    |          |                   | 3A to 3Y | "        | "    | "  |   |
|                  |                                                                                   |                    | 66            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 4A to 4Y | "    | "  | " |
|                  |                                                                                   |                    | 67            |    |     |    | "               |     |     |    |    |    |    |     | "   |    |          |                   |          | 5A to 5Y | "    | "  | " |
|                  |                                                                                   |                    | 68            |    |     |    | "               |     |     |    |    |    | "  | OUT | IN  |    | 6A to 6Y | "                 | "        | "        |      |    |   |
| 11               | Same tests, terminal conditions and limits as for subgroup 10, except Tc = -55°C. |                    |               |    |     |    |                 |     |     |    |    |    |    |     |     |    |          |                   |          |          |      |    |   |

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

| Subgroup       | Symbol                                                                                                                 | MIL-STD-883 method | Cases A, B, C, and D Test no. | 1      | 2      | 12    | 14              | 6     | 3     | 4      | 5      | 9      | 10     | 7      | 11    | 8     | 13     | Measured terminal | Limits |       | Unit |     |    |   |
|----------------|------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------|--------|--------|-------|-----------------|-------|-------|--------|--------|--------|--------|--------|-------|-------|--------|-------------------|--------|-------|------|-----|----|---|
|                |                                                                                                                        |                    |                               | 1A     | 1B     | 1Y    | V <sub>CC</sub> | 2Y    | 2A    | 2B     | 2C     | 3A     | 3B     | GND    | 3C    | 3Y    | 1C     |                   | Min    | Max   |      |     |    |   |
| 1<br>Tc = 25°C | V <sub>OL</sub>                                                                                                        | 3007               | 1                             | 2.0 V  | 2.0 V  | 16 mA | 4.5 V           |       | 5.5 V | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | GND    | 5.5 V |       | 2.0 V  | 1Y                |        | 0.4   | V    |     |    |   |
|                |                                                                                                                        |                    | 2                             | 5.5 V  | 5.5 V  |       |                 | 16 mA | 2.0 V | 2.0 V  | 2.0 V  |        |        |        |       | 5.5 V |        | 5.5 V             | 2Y     |       |      | "   |    |   |
|                |                                                                                                                        |                    | 3                             |        |        |       |                 |       | 5.5 V | 5.5 V  | 5.5 V  | 2.0 V  | 2.0 V  |        |       |       | 2.0 V  | 16 mA             | 5.5 V  | 3Y    |      |     | "  |   |
|                | I                                                                                                                      | CEX                |                               | 4      | 0.8 V  | 5.5 V | 5.5 V           | 4.5 V |       | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | GND   | 5.5 V |        |                   | 5.5 V  | 1Y    |      | 250 | μA |   |
|                |                                                                                                                        |                    |                               | 5      | 5.5 V  | 0.8 V | "               | "     |       | "      | "      | "      | "      | "      | "     | "     | "      | "                 |        | 0.8 V | 1Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 6      | "      | 5.5 V | "               | "     |       | "      | "      | "      | "      | "      | "     | "     | "      | "                 |        | 5.5 V | 2Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 7      | "      | "     | "               | "     |       | "      | "      | "      | "      | "      | "     | "     | "      | "                 |        | "     | 2Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 8      | "      | "     | "               | "     |       | "      | 5.5 V  | 0.8 V  | 0.8 V  | "      | "     | "     | "      | "                 |        | "     | 2Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 9      | "      | "     | "               | "     |       | "      | "      | 5.5 V  | 5.5 V  | 0.8 V  | "     | "     | "      | "                 |        | "     | 2Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 10     | "      | "     | "               | "     |       | "      | "      | "      | "      | 5.5 V  | 0.8 V | "     | "      | "                 |        | "     | 3Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 11     | "      | "     | "               | "     |       | "      | "      | "      | "      | "      | 5.5 V | 0.8 V | "      | "                 | 5.5 V  | "     | 3Y   |     | "  | " |
|                |                                                                                                                        |                    |                               | 12     | "      | "     | "               | "     |       | "      | "      | "      | "      | "      | "     | 5.5 V | 0.8 V  | "                 | "      | "     | 3Y   |     | "  | " |
| V              | I <sub>C</sub>                                                                                                         |                    | 13                            | -12 mA |        |       | 4.5 V           |       |       |        |        |        |        | GND    |       |       |        | 1A                |        | -1.5  | V    |     |    |   |
|                |                                                                                                                        |                    | 14                            |        | -12 mA |       | "               |       |       |        |        |        |        |        | "     |       |        |                   | 1B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 15                            |        |        |       | "               |       |       |        |        |        |        |        | "     |       |        |                   | 1C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 16                            |        |        |       | "               |       |       | -12 mA |        |        |        |        | "     |       |        |                   |        | 2A    |      | "   | "  |   |
|                |                                                                                                                        |                    | 17                            |        |        |       | "               |       |       |        | -12 mA |        |        |        | "     |       |        |                   |        | 2B    |      | "   | "  |   |
|                |                                                                                                                        |                    | 18                            |        |        |       | "               |       |       |        |        | -12 mA |        |        | "     |       |        |                   |        | 2C    |      | "   | "  |   |
|                |                                                                                                                        |                    | 19                            |        |        |       | "               |       |       |        |        |        | -12 mA |        | "     |       |        |                   |        | 3A    |      | "   | "  |   |
|                |                                                                                                                        |                    | 20                            |        |        |       | "               |       |       |        |        |        |        | -12 mA | "     |       |        |                   |        | 3B    |      | "   | "  |   |
|                |                                                                                                                        |                    | 21                            |        |        |       | "               |       |       |        |        |        |        |        | "     |       | -12 mA |                   |        | 3C    |      | "   | "  |   |
| I              | I <sub>H1</sub>                                                                                                        | 3010               | 22                            | 2.4 V  | GND    |       | 5.5 V           |       | GND   | GND    | GND    | GND    | GND    | GND    | GND   |       | GND    | 1A                |        | 40    | μA   |     |    |   |
|                |                                                                                                                        |                    | 23                            | GND    | 2.4 V  |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 24                            | "      | GND    |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 25                            | "      | "      |       | "               |       | "     | 2.4 V  | "      | "      | "      | "      | "     | "     |        | "                 | 2A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 26                            | "      | "      |       | "               |       | "     | GND    | 2.4 V  | "      | "      | "      | "     | "     |        | "                 | 2B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 27                            | "      | "      |       | "               |       | "     | "      | GND    | 2.4 V  | "      | "      | "     | "     |        | "                 | 2C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 28                            | "      | "      |       | "               |       | "     | "      | "      | GND    | 2.4 V  | "      | "     | "     |        | "                 | 3A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 29                            | "      | "      |       | "               |       | "     | "      | "      | "      | GND    | 2.4 V  | "     | "     |        | "                 | 3B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 30                            | "      | "      |       | "               |       | "     | "      | "      | "      | "      | GND    | 2.4 V | "     | 2.4 V  |                   | 3C     |       | "    | "   |    |   |
| I              | I <sub>H2</sub>                                                                                                        | 3010               | 31                            | 5.5 V  | GND    |       | 5.5 V           |       | GND   | GND    | GND    | GND    | GND    | GND    | GND   |       | GND    | 1A                |        | 100   | μA   |     |    |   |
|                |                                                                                                                        |                    | 32                            | GND    | 5.5 V  |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 33                            | "      | GND    |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 34                            | "      | "      |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 2A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 35                            | "      | "      |       | "               |       | "     | 5.5 V  | "      | "      | "      | "      | "     | "     |        | "                 | 2B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 36                            | "      | "      |       | "               |       | "     | "      | GND    | 5.5 V  | "      | "      | "     | "     |        | "                 | 2C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 37                            | "      | "      |       | "               |       | "     | "      | "      | GND    | 5.5 V  | "      | "     | "     |        | "                 | 3A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 38                            | "      | "      |       | "               |       | "     | "      | "      | "      | GND    | 5.5 V  | "     | "     |        | "                 | 3B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 39                            | "      | "      |       | "               |       | "     | "      | "      | "      | "      | GND    | 5.5 V | "     | 5.5 V  |                   | 3C     |       | "    | "   |    |   |
| I              | I <sub>L</sub>                                                                                                         | 3009               | 40                            | 0.4 V  | 5.5 V  |       | 5.5 V           |       | 5.5 V | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | GND    | 5.5 V |       | 5.5 V  | 1A                | -0.7   | -1.6  | mA   |     |    |   |
|                |                                                                                                                        |                    | 41                            | 5.5 V  | 0.4 V  |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 42                            | "      | 5.5 V  |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 1C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 43                            | "      | "      |       | "               |       | "     | "      | "      | "      | "      | "      | "     | "     |        | "                 | 2A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 44                            | "      | "      |       | "               |       | "     | 0.4 V  | "      | "      | "      | "      | "     | "     |        | "                 | 2B     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 45                            | "      | "      |       | "               |       | "     | "      | 0.4 V  | "      | "      | "      | "     | "     |        | "                 | 2C     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 46                            | "      | "      |       | "               |       | "     | "      | "      | 5.5 V  | 0.4 V  | "      | "     | "     |        | "                 | 3A     |       | "    | "   |    |   |
|                |                                                                                                                        |                    | 47                            | "      | "      |       | "               |       | "     | "      | "      | "      | 5.5 V  | 0.4 V  | "     | "     |        | "                 | 3B     |       | "    | "   |    |   |
| 48             | "                                                                                                                      | "                  |                               | "      |        | "     | "               | "     | "     | "      | 5.5 V  | 0.4 V  | "      | 0.4 V  |       | 3C    |        | "                 | "      |       |      |     |    |   |
|                | CCL                                                                                                                    | 3005               | 49                            | 5.5 V  | 5.5 V  |       | 5.5 V           |       | 5.5 V | 5.5 V  | 5.5 V  | 5.5 V  | 5.5 V  | GND    | 5.5 V |       | 5.5 V  | V <sub>CC</sub>   |        | 15    | mA   |     |    |   |
|                | CCH                                                                                                                    | 3005               | 50                            | GND    | GND    |       | 5.5 V           |       | GND   | GND    | GND    | GND    | GND    | GND    | GND   |       | GND    | V <sub>CC</sub>   |        | 4.95  | mA   |     |    |   |
| 2              | Same tests, terminal conditions and limits as for subgroup 1, except Tc = 125°C and V <sub>Ic</sub> tests are omitted. |                    |                               |        |        |       |                 |       |       |        |        |        |        |        |       |       |        |                   |        |       |      |     |    |   |
| 3              | Same tests, terminal conditions and limits as for subgroup 1, except Tc = -55°C and V <sub>Ic</sub> tests are omitted. |                    |                               |        |        |       |                 |       |       |        |        |        |        |        |       |       |        |                   |        |       |      |     |    |   |

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

| Subgroup        | Symbol                                                                            | MIL-STD-883 method | Cases A, B, C, and D<br>Test no. | 1  | 2     | 12  | 14              | 6   | 3  | 4     | 5     | 9  | 10 | 7   | 11    | 8  | 13    | Measured terminal | Limits |       | Unit                             |                                  |              |              |
|-----------------|-----------------------------------------------------------------------------------|--------------------|----------------------------------|----|-------|-----|-----------------|-----|----|-------|-------|----|----|-----|-------|----|-------|-------------------|--------|-------|----------------------------------|----------------------------------|--------------|--------------|
|                 |                                                                                   |                    |                                  | 1A | 1B    | 1Y  | V <sub>CC</sub> | 2Y  | 2A | 2B    | 2C    | 3A | 3B | GND | 3C    | 3Y | 1C    |                   | Min    | Max   |                                  |                                  |              |              |
| 9<br>Tc = 25°C  | t <sub>PHL</sub>                                                                  | 3003<br>(Fig. 3)   | 51<br>52<br>53                   | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    |    | IN  | 2.4 V |    | 2.4 V | GND               |        | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>"                      | 23<br>"<br>" | ns<br>"<br>" |
|                 | PLH                                                                               | 3003<br>(Fig. 3)   | 54<br>55<br>56                   | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    |    | IN  | 2.4 V |    | 2.4 V | 2.4 V             | GND    |       | 2.4 V                            | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>"  | 28<br>"<br>" |
| 10<br>Tc = 25°C | t <sub>PHL</sub>                                                                  | 3003<br>(Fig. 3)   | 57<br>58<br>59                   | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    |    | IN  | 2.4 V |    | 2.4 V | GND               |        | 2.4 V | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>"                      | 29<br>"<br>" | ns<br>"<br>" |
|                 | PLH                                                                               | 3003<br>(Fig. 3)   | 60<br>61<br>62                   | IN | 2.4 V | OUT | 5.0 V<br>"      | OUT | IN | 2.4 V | 2.4 V |    |    | IN  | 2.4 V |    | 2.4 V | 2.4 V             | GND    |       | 2.4 V                            | 1A to 1Y<br>2A to 2Y<br>3A to 3Y | 3<br>"<br>"  | 35<br>"<br>" |
| 11              | Same tests, terminal conditions and limits as for subgroup 10, except Tc = -55°C. |                    |                                  |    |       |     |                 |     |    |       |       |    |    |     |       |    |       |                   |        |       |                                  |                                  |              |              |

TABLE III. Group A inspection for device type 07.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                   | Symbol                                                                                                                             | MIL-STD-883 method | Cases A, B, D |       |       |       |                 |       |       |       |       |       |       |       |       |       | Measured terminal | Limits          |       | Unit |       |    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------|-------|-------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|-----------------|-------|------|-------|----|
|                            |                                                                                                                                    |                    | Case C        |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   | Min             | Max   |      |       |    |
|                            |                                                                                                                                    |                    | Test no.      | 1A    | 1B    | 1Y    | V <sub>CC</sub> | 2Y    | 2A    | 2B    | 3Y    | 3A    | 3B    | GND   | 4A    | 4B    |                   |                 |       |      | 4Y    |    |
| 1<br>T <sub>c</sub> = 25°C | V <sub>OL</sub>                                                                                                                    | 3007               | 1             | 2.0 V | 2.0 V | 16 mA | 4.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | GND   | 5.5 V | 5.5 V |                   | 1Y              |       | 0.4  | V     |    |
|                            |                                                                                                                                    |                    | 2             | 5.5 V | 5.5 V |       |                 | 16 mA | 2.0 V | 2.0 V |       |       |       |       |       |       |                   | 2Y              |       |      |       |    |
|                            |                                                                                                                                    |                    | 3             | "     | "     |       |                 |       | 5.5 V | 5.5 V | 16 mA | 2.0 V | 2.0 V |       |       |       |                   | 3Y              |       |      |       |    |
|                            |                                                                                                                                    |                    | 4             | "     | "     |       |                 |       |       |       |       | 5.5 V | 5.5 V |       | 2.0 V | 2.0 V | 16 mA             | 4Y              |       |      |       |    |
|                            | I                                                                                                                                  | CEX                |               | 5     | 0.8 V | 4.5 V | 5.5 V           | 4.5 V |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | GND   | 5.5 V | 5.5 V             |                 | 1Y    |      | 250   | μA |
|                            |                                                                                                                                    |                    |               | 6     | 4.5 V | 0.8 V | "               | "     | 5.5 V | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 1Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 7     | 5.5 V | 5.5 V | "               | "     | "     | 5.5 V | 0.8 V | 4.5 V | "     | "     | "     | "     | "                 | "               | 2Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 8     | "     | "     | "               | "     | "     | "     | 4.5 V | 0.8 V | "     | "     | "     | "     | "                 | "               | 2Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 9     | "     | "     | "               | "     | "     | "     | 5.5 V | 5.5 V | 5.5 V | "     | "     | "     | "                 | "               | 3Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 10    | "     | "     | "               | "     | "     | "     | "     | "     | "     | 5.5 V | 0.8 V | "     | "                 | "               | 3Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 11    | "     | "     | "               | "     | "     | "     | "     | "     | "     | "     | 4.5 V | 0.8 V | "                 | "               | 3Y    |      |       |    |
|                            |                                                                                                                                    |                    |               | 12    | "     | "     | "               | "     | "     | "     | "     | "     | "     | "     | 5.5 V | 5.5 V | 0.8 V             | 4.5 V           | 5.5 V | 4Y   | 5.5 V |    |
| I                          | IH1                                                                                                                                | 3010               | 13            | 2.4 V | GND   |       | 5.5 V           |       | GND   | GND   |       | GND   | GND   | GND   | GND   | GND   |                   | 1A              |       | 40   | μA    |    |
|                            |                                                                                                                                    |                    | 14            | GND   | 2.4 V |       |                 |       |       |       |       |       |       |       |       |       |                   | 1B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 15            | "     | GND   |       |                 |       |       | 2.4 V |       |       |       |       |       |       |                   | 2A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 16            | "     | "     |       |                 |       |       | GND   | 2.4 V |       |       |       |       |       |                   | 2B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 17            | "     | "     |       |                 |       |       | "     | GND   |       |       |       |       |       |                   | 3A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 18            | "     | "     |       |                 |       |       | "     | "     |       |       | 2.4 V |       |       |                   | 3B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 19            | "     | "     |       |                 |       |       | "     | "     |       |       | GND   | 2.4 V |       |                   | 4A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 20            | "     | "     |       |                 |       |       | "     | "     |       |       | "     | GND   | 2.4 V |                   | 4B              |       |      |       |    |
| I                          | IH2                                                                                                                                | 3010               | 21            | 5.5 V | GND   |       | 5.5 V           |       | GND   | GND   |       | GND   | GND   | GND   | GND   | GND   |                   | 1A              |       | 100  | μA    |    |
|                            |                                                                                                                                    |                    | 22            | GND   | 5.5 V |       |                 |       |       |       |       |       |       |       |       |       |                   | 1B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 23            | "     | GND   |       |                 |       |       | 5.5 V |       |       |       |       |       |       |                   | 2A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 24            | "     | "     |       |                 |       | "     | "     |       |       |       |       |       |       |                   | 2B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 25            | "     | "     |       |                 |       | "     | GND   | 5.5 V |       |       |       |       |       |                   | 3A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 26            | "     | "     |       |                 |       | "     | "     | "     |       |       | 5.5 V |       |       |                   | 3B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 27            | "     | "     |       |                 |       | "     | "     | "     |       |       | GND   | 5.5 V |       |                   | 4A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 28            | "     | "     |       |                 |       | "     | "     | "     |       |       | "     | GND   | 5.5 V | 5.5 V             | 4B              |       |      |       |    |
| I                          | IL                                                                                                                                 | 3009               | 29            | 0.4 V | 5.5 V |       | 5.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | GND   | 5.5 V | 5.5 V |                   | 1A              | -0.7  | -1.6 | mA    |    |
|                            |                                                                                                                                    |                    | 30            | 5.5 V | 0.4 V |       |                 |       |       |       |       |       |       |       |       |       |                   | 1B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 31            | "     | 5.5 V |       |                 |       |       | 0.4 V | 0.4 V |       |       |       |       |       |                   | 2A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 32            | "     | "     |       |                 |       | "     | 5.5 V | 5.5 V |       |       |       |       |       |                   | 2B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 33            | "     | "     |       |                 |       | "     | "     | "     |       |       |       |       |       |                   | 3A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 34            | "     | "     |       |                 |       | "     | "     | "     |       |       | 0.4 V |       |       |                   | 3B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 35            | "     | "     |       |                 |       | "     | "     | "     |       |       | 5.5 V | 0.4 V |       |                   | 4A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 36            | "     | "     |       |                 |       | "     | "     | "     |       |       | "     | 5.5 V | 0.4 V |                   | 4B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 37            | 5.5 V | 5.5 V |       | 5.5 V           |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | GND   | 5.5 V | 5.5 V |                   | V <sub>CC</sub> |       | 20   | mA    |    |
|                            |                                                                                                                                    |                    | 38            | GND   | GND   |       | 5.5 V           |       | 5.5 V | GND   | GND   |       | GND   | GND   | GND   | GND   | GND               | V <sub>CC</sub> |       | 6.6  | mA    |    |
| I<br>I<br>V                | IC                                                                                                                                 |                    | 39            | -12mA |       |       | 4.5 V           |       |       |       |       |       |       | GND   |       |       | 1A                |                 | -1.5  | V    |       |    |
|                            |                                                                                                                                    |                    | 40            |       | -12mA |       | "               |       |       |       |       |       |       |       | "     |       |                   | 1B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 41            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 2A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 42            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 2B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 43            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 3A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 44            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 3B              |       |      |       |    |
|                            |                                                                                                                                    |                    | 45            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 4A              |       |      |       |    |
|                            |                                                                                                                                    |                    | 46            |       | "     |       | "               |       |       |       |       |       |       |       | "     |       |                   | 4B              |       |      |       |    |
| 2                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = 125°C and V <sub>IC</sub> tests are omitted. |                    |               |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |      |       |    |
| 3                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted. |                    |               |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |       |      |       |    |

TABLE III. Group A inspection for device type 07 -Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                     | Symbol                                                                                        | MIL-STD-883 method | Cases A, B, D        | 1  | 2     | 3   | 4               | 5   | 6  | 7     | 8   | 9  | 10    | 11            | 12 | 13    | 14  | Measured terminal                            | Limits      |              | Unit         |  |
|------------------------------|-----------------------------------------------------------------------------------------------|--------------------|----------------------|----|-------|-----|-----------------|-----|----|-------|-----|----|-------|---------------|----|-------|-----|----------------------------------------------|-------------|--------------|--------------|--|
|                              |                                                                                               |                    | Case C               | 2  | 3     | 1   | 14              | 4   | 5  | 6     | 10  | 8  | 9     | 7             | 11 | 12    | 13  |                                              | Min         | Max          |              |  |
|                              |                                                                                               |                    | Test no.             | 1A | 1B    | 1Y  | V <sub>CC</sub> | 2Y  | 2A | 2B    | 3Y  | 3A | 3B    | GND           | 4A | 4B    | 4Y  |                                              |             |              |              |  |
| 9<br>T <sub>c</sub> = 25°C   | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 47<br>48<br>49<br>50 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" |    |       |     | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>" | 23<br>"<br>" | ns<br>"<br>" |  |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 51<br>52<br>53<br>54 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>" | 28<br>"<br>" | ns<br>"<br>" |  |
| 10<br>T <sub>c</sub> = 125°C | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 55<br>56<br>57<br>58 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>" | 29<br>"<br>" | ns<br>"<br>" |  |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 59<br>60<br>61<br>62 | IN | 2.4 V | OUT | 5.0 V<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | GND<br>"<br>" | IN | 2.4 V | OUT | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>" | 35<br>"<br>" | ns<br>"<br>" |  |
| 11                           | Same tests, terminal conditions and limits as for subgroup 10, except T <sub>c</sub> = -55°C. |                    |                      |    |       |     |                 |     |    |       |     |    |       |               |    |       |     |                                              |             |              |              |  |



TABLE III. Group A inspection for device type 08.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup       | Symbol                                                                                                                 | MIL-STD-883 method | Cases A, B, D   |       |       |       |                 |       |       |       |       |       |       |       |       |       | Measured terminal | Limits          |      | Unit |      |    |   |
|----------------|------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|-------|-------|-------|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|-----------------|------|------|------|----|---|
|                |                                                                                                                        |                    | 1               | 2     | 3     | 4     | 5               | 6     | 7     | 8     | 9     | 10    | 11    | 12    | 13    | 14    |                   | Min             | Max  |      |      |    |   |
|                |                                                                                                                        |                    | Case C Test no. | 1A    | 2Y    | 2A    | V <sub>CC</sub> | 3A    | 3Y    | 4A    | 4Y    | 5A    | 5Y    | GND   | 6Y    | 6A    |                   |                 |      |      | 1Y   |    |   |
| 1<br>Tc = 25°C | V <sub>OL</sub>                                                                                                        | 3007               | 1               | 2.0 V |       | 5.5 V | 4.5 V           | 5.5 V |       | 5.5 V |       | 5.5 V |       | GND   |       | 5.5 V | 16 mA             | 1Y              |      | 0.4  | V    |    |   |
|                |                                                                                                                        |                    | 2               | 5.5 V | 16 mA | 2.0 V | "               | "     | "     | 16 mA | "     | "     | "     | "     | "     | "     | "                 | "               | 2Y   |      | "    | "  |   |
|                |                                                                                                                        |                    | 3               | "     | "     | 5.5 V | "               | 2.0 V | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 3Y   |      | "    | "  |   |
|                |                                                                                                                        |                    | 4               | "     | "     | "     | "               | 5.5 V | "     | "     | 2.0 V | 16 mA | "     | "     | "     | "     | "                 | "               | 4Y   |      | "    | "  |   |
|                |                                                                                                                        |                    | 5               | "     | "     | "     | "               | "     | "     | "     | 5.5 V | "     | 2.0 V | 16 mA | "     | "     | "                 | "               | 5Y   |      | "    | "  |   |
|                |                                                                                                                        |                    | 6               | "     | "     | "     | "               | "     | "     | "     | "     | "     | 5.5 V | "     | "     | "     | "                 | "               | 6Y   |      | "    | "  |   |
|                | I                                                                                                                      | CEX                |                 | 7     | 0.8 V |       | 5.5 V           | 4.5 V | 5.5 V |       | 5.5 V |       | 5.5 V |       | GND   |       | 5.5 V             | 5.5 V           | 1Y   |      | 250  | μA |   |
|                |                                                                                                                        |                    |                 | 8     | 5.5 V | 5.5 V | 0.8 V           | "     | "     | "     | 5.5 V | "     | "     | "     | "     | "     | "                 | "               | "    | 2Y   |      | "  | " |
|                |                                                                                                                        |                    |                 | 9     | "     | "     | 5.5 V           | "     | 0.8 V | "     | "     | "     | "     | "     | "     | "     | "                 | "               | "    | 3Y   |      | "  | " |
|                |                                                                                                                        |                    |                 | 10    | "     | "     | "               | "     | 5.5 V | "     | "     | 0.8 V | 5.5 V | "     | "     | "     | "                 | "               | "    | 4Y   |      | "  | " |
|                |                                                                                                                        |                    |                 | 11    | "     | "     | "               | "     | "     | "     | "     | 5.5 V | "     | 0.8 V | 5.5 V | "     | "                 | "               | "    | 5Y   |      | "  | " |
|                |                                                                                                                        |                    |                 | 12    | "     | "     | "               | "     | "     | "     | "     | "     | "     | 5.5 V | "     | "     | "                 | "               | "    | 6Y   |      | "  | " |
|                | V                                                                                                                      | I <sub>C</sub>     |                 | 13    | -12mA |       | -12mA           | 4.5 V | "     | "     | "     | "     | "     | "     | GND   |       | "                 | "               | 1A   |      | -1.5 | V  |   |
|                |                                                                                                                        |                    |                 | 14    | "     | "     | "               | "     | "     | -12mA | "     | "     | "     | "     | "     | "     | "                 | "               | "    | 2A   |      | "  | " |
|                |                                                                                                                        |                    |                 | 15    | "     | "     | "               | "     | "     | "     | "     | -12mA | "     | "     | "     | "     | "                 | "               | "    | 3A   |      | "  | " |
|                |                                                                                                                        |                    |                 | 16    | "     | "     | "               | "     | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | "    | 4A   |      | "  | " |
|                |                                                                                                                        |                    |                 | 17    | "     | "     | "               | "     | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | "    | 5A   |      | "  | " |
|                |                                                                                                                        |                    |                 | 18    | "     | "     | "               | "     | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | "    | 6A   |      | "  | " |
| I              | IH1                                                                                                                    | 3010               | 19              | 2.4 V |       | GND   | 5.5 V           | GND   |       | GND   |       | GND   |       | GND   |       | GND   |                   | 1A              |      | 40   | μA   |    |   |
|                |                                                                                                                        |                    | 20              | GND   |       | 2.4 V | "               | "     | "     | 2.4 V | "     | "     | "     | "     | "     | "     | "                 | "               | 2A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 21              | "     |       | "     | "               | "     | "     | GND   | "     | "     | "     | "     | "     | "     | "                 | "               | 3A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 22              | "     |       | "     | "               | "     | "     | "     | 2.4 V | "     | "     | "     | "     | "     | "                 | "               | 4A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 23              | "     |       | "     | "               | "     | "     | "     | GND   | "     | 2.4 V | "     | "     | "     | "                 | "               | 5A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 24              | "     |       | "     | "               | "     | "     | "     | "     | "     | GND   | "     | "     | "     | "                 | "               | 6A   |      | "    | "  |   |
| I              | IH2                                                                                                                    | 3010               | 25              | 5.5 V |       | GND   | 5.5 V           | GND   | "     | GND   | "     | GND   | "     | GND   |       | GND   |                   | 1A              |      | 100  | μA   |    |   |
|                |                                                                                                                        |                    | 26              | GND   |       | 5.5 V | "               | "     | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 2A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 27              | "     |       | GND   | "               | "     | 5.5 V | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 3A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 28              | "     |       | "     | "               | "     | "     | "     | 5.5 V | "     | "     | "     | "     | "     | "                 | "               | 4A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 29              | "     |       | "     | "               | "     | "     | "     | "     | 5.5 V | GND   | "     | "     | "     | "                 | "               | 5A   |      | "    | "  |   |
|                |                                                                                                                        |                    | 30              | "     |       | "     | "               | "     | "     | "     | "     | "     | 5.5 V | GND   | "     | "     | "                 | "               | 6A   |      | "    | "  |   |
| I              | IL                                                                                                                     | 3009               | 31              | 0.4 V |       | 5.5 V | 5.5 V           | 5.5 V | "     | 5.5 V | "     | 5.5 V | "     | "     |       | 5.5 V |                   | 1A              | -0.7 | -1.6 | mA   |    |   |
|                |                                                                                                                        |                    | 32              | 5.5 V |       | 0.4 V | "               | "     | "     | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 2A   | "    | "    | "  |   |
|                |                                                                                                                        |                    | 33              | "     |       | 5.5 V | "               | "     | 0.4 V | "     | "     | "     | "     | "     | "     | "     | "                 | "               | 3A   | "    | "    | "  |   |
|                |                                                                                                                        |                    | 34              | "     |       | "     | "               | "     | "     | 5.5 V | "     | 0.4 V | "     | "     | "     | "     | "                 | "               | 4A   | "    | "    | "  |   |
|                |                                                                                                                        |                    | 35              | "     |       | "     | "               | "     | "     | "     | "     | 5.5 V | "     | "     | "     | "     | "                 | "               | 5A   | "    | "    | "  |   |
|                |                                                                                                                        |                    | 36              | "     |       | "     | "               | "     | "     | "     | "     | "     | 5.5 V | "     | "     | "     | "                 | "               | 6A   | "    | "    | "  |   |
|                | CCL                                                                                                                    | 3005               | 37              | 5.5 V |       | 5.5 V | 5.5 V           | 5.5 V | "     | 5.5 V |       | 5.5 V | "     | GND   |       | 5.5 V |                   | V <sub>CC</sub> |      | 30   | mA   |    |   |
|                | CCH                                                                                                                    | 3005               | 38              | GND   |       | GND   | 5.5 V           | GND   |       | GND   |       | GND   | "     | GND   |       | GND   |                   | V <sub>CC</sub> |      | 9.9  | mA   |    |   |
| 2              | Same tests, terminal conditions and limits as for subgroup 1, except Tc = 125°C and V <sub>Ic</sub> tests are omitted. |                    |                 |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |      |      |      |    |   |
| 3              | Same tests, terminal conditions and limits as for subgroup 1, except Tc = -55°C and V <sub>Ic</sub> tests are omitted. |                    |                 |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |      |      |      |    |   |
| I              | GND                                                                                                                    |                    |                 |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |      |      |      |    |   |
|                | GND                                                                                                                    |                    |                 |       |       |       |                 |       |       |       |       |       |       |       |       |       |                   |                 |      |      |      |    |   |

TABLE III. Group A inspection for device type 08 -Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup         | Symbol                                                                            | MIL-STD-883 method | Cases A, B, D | 1  | 2   | 3  | 4               | 5  | 6  | 7   | 8  | 9   | 10 | 11  | 12  | 13 | 14  | Measured terminal | Limits   |          | Unit |    |    |
|------------------|-----------------------------------------------------------------------------------|--------------------|---------------|----|-----|----|-----------------|----|----|-----|----|-----|----|-----|-----|----|-----|-------------------|----------|----------|------|----|----|
|                  |                                                                                   |                    | Case C        | 1  | 4   | 3  | 14              | 5  | 6  | 9   | 8  | 11  | 10 | 7   | 12  | 13 | 2   |                   | Min      | Max      |      |    |    |
|                  |                                                                                   |                    | Test no.      | 1A | 2Y  | 2A | V <sub>CC</sub> | 3A | 3Y | 4A  | 4Y | 5A  | 5Y | GND | 6Y  | 6A | 1Y  |                   |          |          |      |    |    |
| 9<br>Tc = 25°C   | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 39            | IN | OUT | IN | 5.0 V           | "  | IN | OUT | IN | OUT | "  | "   | GND | "  | "   | OUT               | 1A to 1Y | 3        | 23   | ns |    |
|                  |                                                                                   |                    | 40            |    |     |    | "               | "  |    |     |    |     | "  | "   | "   | "  | "   | "                 | 2A to 2Y | "        | "    | "  |    |
| t                | PLH                                                                               | 3003 (Fig. 3)      | 45            | IN | OUT | IN | 5.0 V           | "  | IN | OUT | IN | OUT | "  | "   | GND | "  | OUT | IN                | OUT      | 1A to 1Y | 3    | 28 | ns |
|                  |                                                                                   |                    | 46            |    |     |    | "               | "  |    |     |    |     | "  | "   | "   | "  | "   | "                 | 2A to 2Y | "        | "    | "  |    |
| 10<br>Tc = 125°C | t <sub>PHL</sub>                                                                  | 3003 (Fig. 3)      | 51            | IN | OUT | IN | 5.0 V           | "  | IN | OUT | IN | OUT | "  | "   | GND | "  | "   | OUT               | 1A to 1Y | 3        | 29   | ns |    |
|                  |                                                                                   |                    | 52            |    |     |    | "               | "  |    |     |    |     | "  | "   | "   | "  | "   | "                 | 2A to 2Y | "        | "    | "  |    |
| t                | PLH                                                                               | 3003 (Fig. 3)      | 57            | IN | OUT | IN | 5.0 V           | "  | IN | OUT | IN | OUT | "  | "   | GND | "  | OUT | IN                | OUT      | 1A to 1Y | 3    | 35 | ns |
|                  |                                                                                   |                    | 58            |    |     |    | "               | "  |    |     |    |     | "  | "   | "   | "  | "   | "                 | 2A to 2Y | "        | "    | "  |    |
| 11               | Same tests, terminal conditions and limits as for subgroup 10, except Tc = -55°C. |                    |               |    |     |    |                 |    |    |     |    |     |    |     |     |    |     |                   |          |          |      |    |    |

TABLE III. Group A inspection for device type 09.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                   | Symbol                                                                                                                             | MIL-STD-883 method | Case C Test no. | Terminal conditions |       |       |       |       |       |       |       |       |       |       |       |       |                 | Measured terminal | Limits |      | Unit |    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------|-----------------|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------|-------------------|--------|------|------|----|
|                            |                                                                                                                                    |                    |                 | 1A                  | 1B    | 1Y    | 2A    | 2B    | 2Y    | GND   | 3Y    | 3A    | 3B    | 4Y    | 4A    | 4B    | V <sub>CC</sub> |                   | Max    |      |      |    |
| 1<br>T <sub>c</sub> = 25°C | V <sub>OL</sub>                                                                                                                    | 3007               | 1               | 2.0 V               | 2.0 V | 16 mA | 5.5 V | 5.5 V |       | GND   |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | 4.5 V           | 1Y                | Mir    | 0.4  | V    |    |
|                            |                                                                                                                                    |                    | 2               | 5.5 V               | 5.5 V |       | 2.0 V | 2.0 V | 16 mA | "     |       | "     | "     | "     | "     | "     | "               | "                 |        | 2Y   | "    | "  |
|                            |                                                                                                                                    |                    | 3               | "                   | "     |       | 5.5 V | 5.5 V |       | "     | 16 mA | 2.0 V | 2.0 V |       | "     | "     | "               | "                 |        | 3Y   | "    | "  |
|                            |                                                                                                                                    |                    | 4               | "                   | "     |       | "     | "     |       | "     | "     | 5.5 V | 5.5 V | 16 mA | 2.0 V | 2.0 V | "               | "                 |        | 4Y   | "    | "  |
|                            | I                                                                                                                                  | CEX                |                 | 5                   | 0.8 V | 4.5 V | 5.5 V | 5.5 V | 5.5 V |       | GND   |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V           | 4.5 V             | 1Y     |      | 250  | μA |
|                            |                                                                                                                                    |                    |                 | 6                   | 4.5 V | 0.8 V | "     | 0.8 V | 4.5 V | 5.5 V |       | "     |       | "     | "     |       | "               | "                 | "      | 1Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 7                   | 5.5 V | 5.5 V |       | 0.8 V | 4.5 V | 5.5 V | 5.5 V |       | "     | "     | "     |       | "               | "                 | "      | 2Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 8                   | "     | "     |       | 4.5 V | 0.8 V | 5.5 V | 5.5 V |       | "     | "     | "     |       | "               | "                 | "      | 2Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 9                   | "     | "     |       | 5.5 V | 5.5 V |       | "     | 5.5 V | 0.8 V | 4.5 V |       | "     | "               | "                 | "      | 3Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 10                  | "     | "     |       | "     | "     |       | "     | "     | 4.5 V | 0.8 V |       | "     | "               | "                 | "      | 3Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 11                  | "     | "     |       | "     | "     |       | "     | "     | 5.5 V | 5.5 V |       | 5.5 V | 0.8 V           | 4.5 V             | "      | 4Y   | "    | "  |
|                            |                                                                                                                                    |                    |                 | 12                  | "     | "     |       | "     | "     |       | "     | "     | "     | "     |       | "     | 4.5 V           | 0.8 V             | "      | 4Y   | "    | "  |
|                            | V                                                                                                                                  | I <sub>C</sub>     |                 | 13                  | -12mA |       |       |       |       |       | GND   |       |       |       |       |       | 4.5 V           | 1A                |        | -1.5 | V    |    |
|                            |                                                                                                                                    |                    |                 | 14                  |       | -12mA |       |       |       |       | "     |       |       |       |       | "     | "               | "                 | 1B     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 15                  |       |       |       | -12mA |       |       | "     |       |       |       |       | "     | "               | "                 | 2A     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 16                  |       |       |       |       | -12mA |       | "     |       | -12mA |       |       | "     | "               | "                 | 2B     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 17                  |       |       |       |       |       |       | "     |       |       | -12mA |       | "     | "               | "                 | 3A     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 18                  |       |       |       |       |       |       | "     |       |       |       |       | "     | "               | "                 | 3B     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 19                  |       |       |       |       |       |       | "     |       |       |       |       | "     | "               | "                 | 4A     | "    | "    |    |
|                            |                                                                                                                                    |                    |                 | 20                  |       |       |       |       |       |       | "     |       |       |       |       | "     | -12mA           | "                 | 4B     | "    | "    |    |
| I                          | IH1                                                                                                                                | 3010               | 21              | 2.4 V               | GND   |       | GND   | GND   |       | GND   |       |       | GND   |       | GND   | GND   | 5.5 V           | 1A                |        | 40   | μA   |    |
|                            |                                                                                                                                    |                    | 22              | GND                 | 2.4 V |       | "     | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 1B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 23              | "                   | GND   |       | 2.4 V | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 2A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 24              | "                   | "     |       | "     | "     | "     | "     | "     | GND   | "     | "     | "     | "     | "               | "                 | 2B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 25              | "                   | "     |       | "     | "     | 2.4 V | GND   | "     | "     | 2.4 V | "     | "     | "     | "               | "                 | 3A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 26              | "                   | "     |       | "     | "     | "     | "     | "     | "     | GND   | 2.4 V | "     | "     | "               | "                 | 3B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 27              | "                   | "     |       | "     | "     | "     | "     | "     | "     | "     | GND   | 2.4 V | "     | "               | "                 | 4A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 28              | "                   | "     |       | "     | "     | "     | "     | "     | "     | "     | "     | "     | 2.4 V | "               | "                 | 4B     | "    | "    |    |
| I                          | IH2                                                                                                                                | 3010               | 29              | 5.5 V               | GND   |       | GND   | GND   | "     | GND   |       |       | GND   |       | GND   | GND   | 5.5 V           | 1A                |        | 100  | μA   |    |
|                            |                                                                                                                                    |                    | 30              | GND                 | 5.5 V |       | "     | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 1B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 31              | "                   | GND   |       | 5.5 V | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 2A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 32              | "                   | "     |       | GND   | 5.5 V | GND   | "     | "     |       | "     | "     | "     | "     | "               | "                 | 2B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 33              | "                   | "     |       | "     | "     | "     | "     | "     | GND   | 5.5 V | "     | "     | "     | "               | "                 | 3A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 34              | "                   | "     |       | "     | "     | "     | "     | "     | "     | GND   | 5.5 V | "     | "     | "               | "                 | 3B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 35              | "                   | "     |       | "     | "     | "     | "     | "     | "     | "     | GND   | 5.5 V | "     | "               | "                 | 4A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 36              | "                   | "     |       | "     | "     | "     | "     | "     | "     | "     | "     | "     | 5.5 V | 5.5 V           | "                 | 4B     | "    | "    |    |
| I                          | IL                                                                                                                                 | 3009               | 37              | 0.4 V               | 5.5 V |       | 5.5 V | 5.5 V | "     | GND   |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | 5.5 V           | 1A                | -0.7   | -1.6 | mA   |    |
|                            |                                                                                                                                    |                    | 38              | 5.5 V               | 0.4 V |       | "     | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 1B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 39              | "                   | 5.5 V |       | 0.4 V | "     | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 2A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 40              | "                   | "     |       | 5.5 V | 0.4 V | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 2B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 41              | "                   | "     |       | "     | 5.5 V | "     | "     | "     |       | "     | "     | "     | "     | "               | "                 | 3A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 42              | "                   | "     |       | "     | "     | "     | "     | "     |       | 0.4 V | "     | "     | "     | "               | "                 | 3B     | "    | "    |    |
|                            |                                                                                                                                    |                    | 43              | "                   | "     |       | "     | "     | "     | "     | "     |       | 5.5 V | 0.4 V | "     | "     | "               | "                 | 4A     | "    | "    |    |
|                            |                                                                                                                                    |                    | 44              | "                   | "     |       | "     | "     | "     | "     | "     |       | "     | 5.5 V | "     | "     | "               | "                 | 4B     | "    | "    |    |
| I                          | CCL                                                                                                                                | 3005               | 45              | 5.5 V               | 5.5 V |       | 5.5 V | 5.5 V | "     | GND   |       | 5.5 V | 5.5 V |       | 5.5 V | 5.5 V | 5.5 V           | V <sub>CC</sub>   |        | 20   | mA   |    |
|                            | CCH                                                                                                                                | 3005               | 46              | GND                 | GND   |       | GND   | GND   |       | GND   |       | GND   | GND   | "     | GND   | GND   | 5.5 V           | V <sub>CC</sub>   |        | 6.6  | mA   |    |
| 2                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = 125°C and V <sub>IC</sub> tests are omitted. |                    |                 |                     |       |       |       |       |       |       |       |       |       |       |       |       |                 |                   |        |      |      |    |
| 3                          | Same tests, terminal conditions and limits as for subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted. |                    |                 |                     |       |       |       |       |       |       |       |       |       |       |       |       |                 |                   |        |      |      |    |

TABLE III. Group A inspection for device type 09 -Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V, low  $\leq 0.8$  V or open)

| Subgroup                     | Symbol                                                                                        | MIL-STD-883 method | Case C Test no.      | 1  | 2     | 3   | 4  | 5     | 6   | 7                  | 8   | 9  | 10    | 11  | 12 | 13    | 14                   | V <sub>CC</sub>                              | Measured terminal | Limits            |                   | Unit |
|------------------------------|-----------------------------------------------------------------------------------------------|--------------------|----------------------|----|-------|-----|----|-------|-----|--------------------|-----|----|-------|-----|----|-------|----------------------|----------------------------------------------|-------------------|-------------------|-------------------|------|
|                              |                                                                                               |                    |                      |    |       |     |    |       |     |                    |     |    |       |     |    |       |                      |                                              |                   | 3                 | Max               |      |
|                              |                                                                                               |                    |                      |    |       |     |    |       |     |                    |     |    |       |     |    |       |                      |                                              |                   |                   |                   |      |
| 9<br>T <sub>c</sub> = 25°C   | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 47<br>48<br>49<br>50 | IN | 2.4 V | OUT | IN | 2.4 V | OUT | GND<br>"<br>"<br>" | OUT | IN | 2.4 V |     |    |       | 5.0 V<br>"<br>"<br>" | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>"  | 23<br>"<br>"<br>" | ns<br>"<br>"<br>" |      |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 51<br>52<br>53<br>54 | IN | 2.4 V | OUT | IN | 2.4 V | OUT | GND<br>"<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | 5.0 V<br>"<br>"<br>" | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>"  | 28<br>"<br>"<br>" | ns<br>"<br>"<br>" |      |
| 10<br>T <sub>c</sub> = 125°C | t <sub>PHL</sub>                                                                              | 3003 (Fig. 3)      | 55<br>56<br>57<br>58 | IN | 2.4 V | OUT | IN | 2.4 V | OUT | GND<br>"<br>"<br>" | OUT | IN | 2.4 V |     |    |       | 5.0 V<br>"<br>"<br>" | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>"  | 29<br>"<br>"<br>" | ns<br>"<br>"<br>" |      |
|                              | PLH                                                                                           | 3003 (Fig. 3)      | 59<br>60<br>61<br>62 | IN | 2.4 V | OUT | IN | 2.4 V | OUT | GND<br>"<br>"<br>" | OUT | IN | 2.4 V | OUT | IN | 2.4 V | 5.0 V<br>"<br>"<br>" | 1A to 1Y<br>2A to 2Y<br>3A to 3Y<br>4A to 4Y | 3<br>"<br>"<br>"  | 35<br>"<br>"<br>" | ns<br>"<br>"<br>" |      |
| 11                           | Same tests, terminal conditions and limits as for subgroup 10, except T <sub>c</sub> = -55°C. |                    |                      |    |       |     |    |       |     |                    |     |    |       |     |    |       |                      |                                              |                   |                   |                   |      |

## 5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual 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 is not mandatory.)

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

6.2 Acquisition requirements. 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. Requirements for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to contracting activity in addition to notification to the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should 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 Superseding information. 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.

6.4 Qualification. 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, P.O. Box 3990, Columbus, Ohio 43218-3990.

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

- GND ..... Ground zero voltage potential
- V<sub>IN</sub> ..... Voltage level at an input terminal
- V<sub>IC</sub> ..... Input clamp voltage
- I<sub>IN</sub> ..... 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 3.3). Longer length leads and lead forming should 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                   | 5430                  |
| 02                   | 5420                  |
| 03                   | 5410                  |
| 04                   | 5400                  |
| 05                   | 5404                  |
| 06                   | 5412                  |
| 07                   | 5401                  |
| 08                   | 5405                  |
| 09                   | 5403                  |

6.8 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

Preparing activity:  
 DLA - CC  
 (Project 5962-2072)

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

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>.