

INCH POUND

MIL-M-38510/78B
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SUPERSEDING
MIL-M-38510/78A
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MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, SCHOTTKY TTL, ARITHMETIC LOGIC UNIT / FUNCTION GENERATORS, MONOLITHIC SILICON

Inactive for new design after 23 August 1996.

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, Schottky TTL, arithmetic logic unit / function generators. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.4).

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

1.2.1 Device type. The device type is as follows:

<u>Device type</u>	<u>Circuit</u>
01	4-bit arithmetic logic unit / function generator
02	Lookahead carry generator

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>
E	GDIP1-T16, CDIP2-T16	16	Dual in line package
F	GDFP2-F16, CDFP3-F16	16	Flat Package
J	GDIP1-T24, CDIP2-T24	24	Dual in line package
K	GDFP2-F24, CDFP3-F24	24	Flat Package
X	CQCC2-N28	28	Square chip carrier package
Z	GDFP7-F24, CDFP8-F24	24	Flat Package
3	CQCC1-N28	28	Square chip carrier package

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@dsccl.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 dc to +7.0 V dc
Input voltage range	-1.2 V dc at -18 mA to +5.5 V dc
Storage temperature range	-65°C to +150°C
Maximum power dissipation (P_D) <u>1/</u> :	
Device types 01	990 mW dc
Device type 02.....	544 mW dc
Lead temperature (soldering 10 seconds)	300°C
Thermal resistance, junction-to-case (θ_{JC}) :	
Cases E, F, J, K, X, Z, and 3	(See MIL-STD-1835)
Junction temperature (T_J) <u>2/</u>	+175°C

1.4 Recommended operating conditions:

Supply voltage (V_{CC}).....	4.5 V dc minimum to 5.5 V dc maximum
Minimum high level input voltage (V_{IH})	2.0 V dc
Maximum low level input voltage (V_{IL})	0.8 V dc <u>3/</u>
Normalized fanout (each output) <u>4/</u>	
Logic low level	10 maximum
Logic high level	20 maximum
Case operating temperature range (T_C)	-55°C to 125°C

2.0 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.

1/ Must withstand the added P_D due to short circuit condition (e.g., I_{OS}) at one output for 5 seconds duration.

2/ Maximum junction temperature should not be exceeded except for the allowable short duration burn-in screening per MIL-PRF-38535.

3/ $V_{IL} = 0.7$ V at +125°C

4/ A fanout of 20 normalized loads is provided to facilitate connection of unused inputs to used inputs.

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 6.3).

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 pin designations. The terminal connections and pin designations 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 Logic diagrams. The logic diagrams shall be as specified on figure 3.

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

3.3.5 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. Unless otherwise specified, the electrical performance characteristics are as specified in table I, and apply over the full recommended case operating temperature range.

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.

3.7 Marking. Marking shall be in accordance with MIL-PRF-38535 and 1.2 herein

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 11 (see MIL-PRF-38535, appendix A).

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.5 V; V _{IL} = 0.8 V; <u>2/</u> V _{IN} = 2.0 V; I _{OH} = -1 mA	01, 02	2.5		V
Low level output voltage	V _{OL}	V _{CC} = 4.5 V; V _{IL} = 0.8 V; <u>2/</u> V _{IH} = 2.0 V; I _{OL} = 20 mA	01, 02	0.2	0.5	V <u>3/</u>
Input diode clamp	V _{IC}	V _{CC} = 4.5 V; I _{IN} = -18 mA T _C = +25°C	01, 02		-1.2	V
Low level input current at M input	I _{IL1}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	01	-1	-2	mA
Low level input current at B input	I _{IL2}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	01	-3	-6	mA
Low level input current at S0 or S3 input	I _{IL3}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	01	-4	-8	mA
Low level input current at S1 or S2	I _{IL4}	V _{CC} = 5.5 V; V _{IN} = 0.5 V; <u>5/</u> A0, A1, A2, A3 = 5.5 V	01	-4	-8	mA
Low level input current at C _n input	I _{IL5}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>5/</u>	01	-5	-10	mA
Low level input current at A input	I _{IL6}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	01	-2	-4	mA
Low level input current at G1 input	I _{IL1}	V _{CC} = 5.5 V; V _{IN} = 0.5 V, C _n = GND <u>4/</u>	02	-8	-16	mA
Low level input current at P1 input	I _{IL2}	V _{CC} = 5.5 V; V _{IN} = 0.5 V, C _n = GND <u>4/</u>	02	-4	-8	mA
Low level input current at G0 input	I _{IL3}	V _{CC} = 5.5 V; V _{IN} = 0.5 V, C _n = GND <u>4/</u>	02	-7	-14	mA
Low level input current at P0 input	I _{IL4}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	02	-4	-8	mA
Low level input current at G3 input	I _{IL5}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	02	-4	-8	mA
Low level input current at P3 input	I _{IL6}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	02	-2	-4	mA

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
Low level input current at C _n input	I _{IL7}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	02	-1	-2	mA
Low level input current at G2 input	I _{IL8}	V _{CC} = 5.5 V; V _{IN} = 0.5 V, C _n = GND <u>4/</u>	02	-7	-14	mA
Low level input current at P2 input	I _{IL9}	V _{CC} = 5.5 V; V _{IN} = 0.5 V <u>4/</u>	02	-3	-6	mA
High level input current at M input	I _{IH1}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	01		50	μA
High level input current at A or B input	I _{IH2}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	01		150	μA
High level input current at S0 or S3 input	I _{IH3}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	01		200	μA
High level input current at S1 or S2 input	I _{IH4}	V _{CC} = 5.5 V; V _{IN} = 2.7 V; <u>5/</u> B0, B1, B2, B3 = 5.5 V	01		200	μA
High level input current at C _n input	I _{IH5}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>4/</u>	01		250	μA
High level input current at M input	I _{IH6}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	01		1	mA
High level input current at A or B input	I _{IH7}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	01		1	mA
High level input current at S0 or S3 input	I _{IH8}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	01		1	mA
High level input current at S1 or S2 input	I _{IH9}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; <u>5/</u> B0, B1, B2, B3 = 5.5 V	01		1	mA
High level input current at C _n input	I _{IH10}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>4/</u>	01		1	mA
High level input current at G1 input	I _{IH1}	V _{CC} = 5.5 V; V _{IN} = 2.7 V; C _n = 5.5 V <u>5/</u>	02		400	μA
High level input current at P1 input	I _{IH2}	V _{CC} = 5.5 V; V _{IN} = 2.7 V C _n = 5.5 V <u>5/</u>	02		200	μA

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
High level input current at G0 input	I _{IH3}	V _{CC} = 5.5 V; V _{IN} = 2.7 V C _n = 5.5 V <u>5/</u>	02		350	μA
High-level input current at P0 input	I _{IH4}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	02		200	μA
High-level input current at G3 input	I _{IH5}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	02		200	μA
High-level input current at P3 input	I _{IH6}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	02		100	μA
High level input current at C _n input	I _{IH7}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	02		50	μA
High-level input current at G2 input	I _{IH8}	V _{CC} = 5.5 V; V _{IN} = 2.7 V; C _n = 5.5 V <u>5/</u>	02		350	μA
High-level input current at P2 input	I _{IH9}	V _{CC} = 5.5 V; V _{IN} = 2.7 V <u>5/</u>	02		150	μA
High level input current at G1 input	I _{IH10}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; C _n = 5.5 V <u>5/</u>	02		1	mA
High level input current at P1 input	I _{IH11}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; C _n = 5.5 V <u>5/</u>	02		1	mA
High level input current at G0	I _{IH12}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; C _n = 5.5 V <u>5/</u>	02		1	mA
High level input current at P0 input	I _{IH13}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	02		1	mA
High level input current at G3 input	I _{IH14}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; C _n = GND <u>5/</u>	02		1	mA
High level input current at P3 input	I _{IH15}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	02		1	mA
High level input current at C _n input	I _{IH16}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	02		1	mA
High level input current at G2	I _{IH17}	V _{CC} = 5.5 V; V _{IN} = 5.5 V; C _n = 5.5 V <u>5/</u>	02		1	mA

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
High level input current at P2 input	I _{IH18}	V _{CC} = 5.5 V; V _{IN} = 5.5 V <u>5/</u>	02		1	mA
Short circuit output current at G output	I _{OS1}	V _{CC} = 5.5 V; S3, $\overline{A3}$, $\overline{B3}$ = 5.5 V <u>5/</u> <u>6/</u>	01	-40	-100	mA
Short circuit output current at C _{n+4} output	I _{OS2}	V _{CC} = 5.5 V <u>5/</u> <u>6/</u>	01	-40	-100	mA
Short circuit output current at P, F0 thru F3 outputs	I _{OS3}	V _{CC} = 5.5 V <u>4/</u> <u>6/</u>	01	-40	-100	mA
Short circuit output current	I _{OS}	V _{CC} = 5.5 V; V _{IL} = GND; V _{IN} = 5.5 V <u>6/</u>	02	-40	-100	mA
Collector cutoff current	I _{CEX}	V _{CC} = 5.5 V; V _{OH} = 5.5 V; V _{IH} = 2.0 V; V _{IL} = GND	01		1	mA
		V _{CC} = 5.5 V; V _{OH} = 5.5 V; V _{IH} = 5.5 V; V _{IL} = GND	02		250	μA
Low level supply current	I _{CCL}	V _{CC} = 5.5 V; V _{IL} = 0 V; V _{IH} = 5.5 V <u>7/</u>	01		180	mA
	I _{CCL}	V _{CC} = 5.5 V; V _{IL} = 0 V; V _{IH} = 5.5 V	02		99	mA
High level supply current	I _{CCH}	V _{CC} = 5.5 V; V _{IL} = 0 V; V _{IH} = 5.5 V <u>8/</u>	01		180	mA
	I _{CCH}	V _{CC} = 5.5 V; V _{IL} = 0 V; V _{IH} = 5.5 V	02		65	mA
Propagation delay times, high to low level output: <u>9/</u>						
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ sum mode	t _{PHL1}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	23	ns
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ diff mode	t _{PHL2}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	28	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{P}$ sum mode	t _{PHL3}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
Propagation delay times, high-to-low level output: <u>9/</u>						
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{P}$ diff mode	t _{PHL4}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	20	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{G}$ sum mode	t _{PHL5}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{G}$ diff mode	t _{PHL6}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	20	ns
C _n to any $\overline{F_0}$ sum mode	t _{PHL7}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns
$\overline{A_i}$ or $\overline{B_i}$ to A = B diff mode	t _{PHL8}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	42	ns
C _n to C _{n+4} sum mode	t _{PHL9}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	14.5	ns
C _n to C _{n+4} diff mode	t _{PHL10}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	14.5	ns
$\overline{A_i}$ or $\overline{B_i}$ to C _{n+4} sum mode	t _{PHL11}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	25	ns
$\overline{A_i}$ or $\overline{B_i}$ to C _{n+4} diff mode	t _{PHL12}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	29	ns
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ logic mode	t _{PHL13}	V_{CC} = 5.0 V See figure 4 logic mode test table	01	2	28	ns
Propagation delay times, low to high level output: <u>9/</u>						
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ sum mode	t _{PLH1}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	23	ns
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ diff mode	t _{PLH2}	V_{CC} = 5.0 V See figure 4 diff mode test table	01	2	26	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{P}$ sum mode	t _{PLH3}	V_{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
Propagation delay times, low to high level output: <u>9/</u>						
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{P}$ diff mode	t _{PLH4}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	20	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{G}$ sum mode	t _{PLH5}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns
$\overline{A_i}$ or $\overline{B_i}$ to $\overline{G}$ diff mode	t _{PLH6}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	20	ns
C _n to any $\overline{F}$ sum mode	t _{PLH7}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	16	ns
$\overline{A_i}$ or $\overline{B_i}$ to A = B diff mode	t _{PLH8}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	29	ns
C _n to C _{n+4} sum mode	t _{PLH9}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	14.5	ns
C _n to C _{n+4} diff mode	t _{PLH10}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	14.5	ns
$\overline{A_i}$ or $\overline{B_i}$ to C _{n+4} sum mode	t _{PLH11}	V _{CC} = 5.0 V See figure 4 sum mode test table	01	2	25	ns
$\overline{A_i}$ or $\overline{B_i}$ to C _{n+4} diff mode	t _{PLH12}	V _{CC} = 5.0 V See figure 4 diff mode test table	01	2	29	ns
$\overline{A_i}$ or $\overline{B_i}$ to any $\overline{F}$ logic mode	t _{PLH13}	V _{CC} = 5.0 V See figure 4 logic mode test table	01	2	26	ns
Propagation delay times, high to low level output: <u>10/</u>						
C _n to C _{n+x} , C _{n+y} , C _{n+z}	t _{PHL1}	V _{CC} = 5.0 V; $\overline{P0}$, $\overline{P1}$, $\overline{P2}$ = GND, $\overline{G_i}$ = 2.7 V	02	2	14.5	ns
$\overline{P0}$, $\overline{P1}$, or $\overline{P2}$, to C _{n+x} , C _{n+y} , C _{n+z}	t _{PHL2}	V _{CC} = 5.0 V; $\overline{P0}$, $\overline{P1}$, $\overline{P2}$ = GND; C _n , $\overline{G_i}$ = 2.7 V	02	2	11	ns
$\overline{G0}$, $\overline{G1}$, or $\overline{G2}$ to C _{n+y} , C _{n+x} , C _{n+z}	t _{PHL3}	V _{CC} = 5.0 V; C _n , $\overline{P0}$, $\overline{P1}$, $\overline{P2}$ = GND, $\overline{G_i}$ = 2.7 V <u>11/</u>	02	2	11	ns

See footnotes at end of table I.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C Unless Otherwise Specified	Device type	Limits		Unit
				Min	Max	
Propagation delay times, high to low level output: <u>10/</u>						
$\bar{P}1, \bar{P}2, \text{ or } \bar{P}3 \text{ to } \bar{G}$	t _{PHL4}	V _{CC} = 5.0 V; $\bar{P}_i$ = GND; <u>11/</u> C _n , $\bar{G}1, \bar{G}2, \bar{G}3$ = 2.7 V	02	2	14.5	ns
$\bar{G}0, \bar{G}1, \bar{G}2, \text{ or } \bar{G}3$ to $\bar{G}$	t _{PHL5}	V _{CC} = 5.0 V; $\bar{G}_i$ = 2.7 V; <u>11/</u> $\bar{P}1, \bar{P}2, \bar{P}3$ = GND	02	2	14.5	ns
$\bar{P}0, \bar{P}1, \bar{P}2, \text{ or } \bar{P}3$ to $\bar{P}$	t _{PHL6}	$\bar{P}_i$ = GND <u>11/</u> , V _{CC} = 5.0 V; C _n , $\bar{G}_i$ = 2.7 V	02	2	14	ns
Propagation delay times, low to high level output: <u>10/</u>						
C _n to C _{n+x} , C _{n+y} , C _{n+z}	t _{PLH1}	V _{CC} = 5.0 V; $\bar{P}0, \bar{P}1, \bar{P}2,$ = GND, $\bar{G}_i$ = 2.7 V	02	2	14	ns
$\bar{P}0, \bar{P}1, \text{ or } \bar{P}2, \text{ to}$ C _{n+x} , C _{n+y} , C _{n+z}	t _{PLH2}	V _{CC} = 5.0 V; C _n , $\bar{G}_i$ = 2.7 V; $\bar{P}0, \bar{P}1, \bar{P}2,$ = GND <u>11/</u>	02	2	11	ns
$\bar{G}0, \bar{G}1, \text{ or } \bar{G}2, \text{ to}$ C _{n+x} , C _{n+y} , C _{n+z}	t _{PLH3}	V _{CC} = 5.0 V; C _n , $\bar{P}0, \bar{P}1,$ $\bar{P}2,$ = GND; $\bar{G}_i$ = 2.7 V <u>11/</u>	02	2	11	ns
$\bar{P}1, \bar{P}2, \text{ or } \bar{P}3 \text{ to } \bar{G}$	t _{PLH4}	V _{CC} = 5.0 V; C _n , $\bar{G}1, \bar{G}2,$ $\bar{G}3$ = 2.7 V; $\bar{P}_i$ = GND <u>11/</u>	02	2	11.5	ns
$\bar{G}0, \bar{G}1, \bar{G}2, \text{ or } \bar{G}3$ to $\bar{G}$	t _{PLH5}	V _{CC} = 5.0 V; $\bar{P}1, \bar{P}2, \bar{P}3$ = GND; $\bar{G}_i$ = 2.7 V <u>11/</u>	02	2	11.5	ns
$\bar{P}0, \bar{P}1, \bar{P}2, \text{ or } \bar{P}3$ to $\bar{P}$	t _{PLH6}	V _{CC} = 5.0 V; $\bar{P}_i$ = GND <u>11/</u> C _n , $\bar{G}_i$ = 2.7 V	02	2	10	ns

1/ Condition of inputs specified in table III.2/ V_{IL} = 0.7 V dc at 125°C.3/ V_{OL(max)} = 0.45 V dc at 125°C.4/ All unspecified inputs at 5.5 V.5/ All unspecified inputs at 0 V.6/ Not more than one output should be shorted at a time.7/ S_i, M $\bar{A}_i$ at 4.5 V; all other inputs grounded; outputs open.8/ S_i, M at 4.5 V; all other inputs grounded; outputs open.9/ In $\bar{A}_i$ and $\bar{B}_i$, i = 0, 1, 2, or 3.10/ In $\bar{G}_i$ and $\bar{P}_i$, i = 0, 1, 2, or 3.11/ If not under test.

TABLE II. Electrical test requirements.

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

*PDA applies to subgroup 1.

4. VERIFICATION

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

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

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

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
- c. Additional screening for space level product shall be as specified in MIL-PRF-38535.

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

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

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of MIL-PRF-38535. Electrical parameters shall be as specified in table II herein.

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.

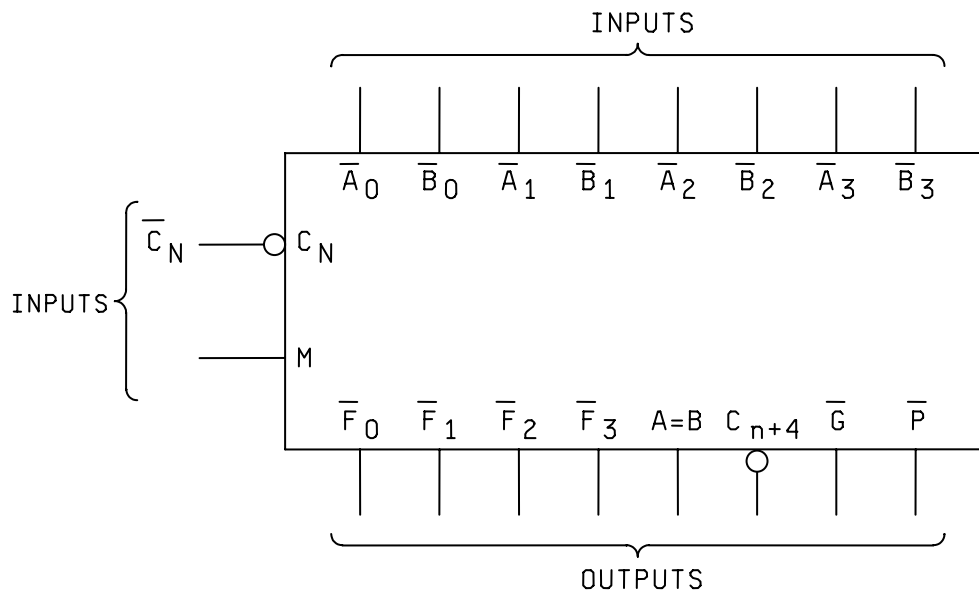
4.4.4 Group D inspection. Group D inspection shall be in accordance with table V of MIL-PRF-38535. End-point electrical tests shall be as specified in table II herein.

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

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

Terminal Number	Device type 01				Device type 02	
	Case Outline J, K, and Z		Case Outline 3 and X		Case Outline E and F	
	Function		Function		Function	
1	$\bar{B}0$	Word B inputs	NC	No Connect	$\bar{G}1$	Carry generate input
2	$\bar{A}0$	Word A inputs	$\bar{B}0$	Word B inputs	$\bar{P}1$	Carry propagate input
3	S3	Function select inputs	$\bar{A}0$	Word A inputs	$\bar{G}0$	Carry generate input
4	S2	Function select inputs	S3	Function select inputs	$\bar{P}0$	Carry propagate input
5	S1	Function select inputs	S2	Function select inputs	$\bar{G}3$	Carry generate input
6	S0	Function select inputs	S1	Function select inputs	$\bar{P}3$	Carry propagate input
7	C_n	Inv. Carry output	S0	Function select inputs	$\bar{P}$	Carry Propagate output
8	M	Mode control input	C_n	Inv. Carry output	GND	Ground
9	$\bar{F}0$	Function outputs	M	Mode control input	C_{n+z}	Carry output
10	$\bar{F}1$	Function outputs	NC	No Connect	$\bar{G}$	Carry generate output
11	$\bar{F}2$	Function outputs	$\bar{F}0$	Function outputs	C_{n+y}	Carry output
12	GND	Ground	$\bar{F}1$	Function outputs	C_{n+x}	Carry output
13	$\bar{F}3$	Function outputs	$\bar{F}2$	Function outputs	C_n	Carry input
14	A=B	Comparator output	GND	Ground	$\bar{G}2$	Carry generate input
15	$\bar{P}$	Carry Propagate output	NC	No Connect	$\bar{P}2$	Carry propagate input
16	C_{n+4}	Inv. Carry output	$\bar{F}3$	Function outputs	V_{CC}	Supply voltage
17	$\bar{G}$	Carry generate output	A=B	Comparator output		
18	$\bar{B}3$	Word B inputs	$\bar{P}$	Carry Propagate output		
19	$\bar{A}3$	Word A inputs	C_{n+4}	Inv. Carry output		
20	$\bar{B}2$	Word B inputs	$\bar{G}$	Carry generate output		
21	$\bar{A}2$	Word A inputs	NC	No Connect		
22	$\bar{B}1$	Word B inputs	$\bar{B}3$	Word B inputs		
23	$\bar{A}1$	Word A inputs	$\bar{A}3$	Word A inputs		
24	V_{CC}	Supply Voltage	$\bar{B}2$	Word B inputs		
25			$\bar{A}2$	Word A inputs		
26			$\bar{B}1$	Word B inputs		
27			$\bar{A}1$	Word A inputs		
28			V_{CC}	Supply voltage		

FIGURE 1. Terminal connections and pin designations.



	Selection S3 S2 S1 S0	Active high data <u>3/</u>		
		M = H Logic functions	M = L; Arithmetic operations	
			C _n = 0 $\overline{C}_n = 1 = H$	C _n = 1 $\overline{C}_n = 0 = L$
0	L L L L	F = $\overline{A}$	F = A	F = A plus 1
1	L L L H	F = $\overline{A + B}$	F = A + B	F = (A + B) plus 1
2	L L H L	F = $\overline{A} B$	F = A + $\overline{B}$	F = (A + $\overline{B}$) plus 1
3	L L H H	F = 0	F = minus 1 (2's compl)	F = zero
4	L H L L	F = $\overline{AB}$	F = A plus A $\overline{B}$	F = A plus A $\overline{B}$ plus 1
5	L H L H	F = $\overline{B}$	F = (A + B) plus A $\overline{B}$	F = (A + B) plus A $\overline{B}$ plus 1
<u>2/</u> 6	L H H L	F = A $\oplus$ B	F = A minus B minus 1	F = A minus B
7	L H H H	F = A $\overline{B}$	F = A $\overline{B}$ minus 1	F = A $\overline{B}$

FIGURE 2. Truth tables and logic equations for device type 01.

	Selection S3 S2 S1 S0	Active high data 3/		
		M = H Logic functions	M = L; Arithmetic operations	
			$C_n = 0$ $\overline{C}_n = 1 = H$	$C_n = 1$ $\overline{C}_n = 0 = L$
8	H L L L	$F = \overline{A} + B$	$F = A \text{ plus } AB$	$F = A \text{ plus } AB \text{ plus } 1$
9	H L L H	$F = \overline{A \oplus B}$	$F = A \text{ plus } B$	$F = A \text{ plus } B \text{ plus } 1$
10	H L H L	$F = B$	$F = (A + \overline{B}) \text{ plus } AB$	$F = (A + \overline{B}) \text{ plus } AB \text{ plus } 1$
11	H L H H	$F = AB$	$F = AB \text{ minus } 1$	$F = AB$
12	H H L L	$F = 1$	$F = A \text{ plus } A \quad \underline{1/}$	$F = A \text{ plus } A \text{ plus } 1$
13	H H L H	$F = A + \overline{B}$	$F = (A + B) \text{ plus } A$	$F = (A + B) \text{ plus } A \text{ plus } 1$
14	H H H L	$F = A + B$	$F = (A + \overline{B}) \text{ plus } A$	$F + (A + \overline{B}) \text{ plus } A \text{ plus } 1$
15	H H H H	$F = A$	$F = A \text{ minus } 1$	$F = A$

1/ Each bit is shifted to the next more significant position.

2/ This device (ALU) can be used as a comparator when placed in the subtract mode (i.e., S3 S2 S1 S0 are at logical levels LHHL, respectively) and the following expressions are valid:

Active high data

When C_n is high and C_{n+4} is high, then $A \leq B$

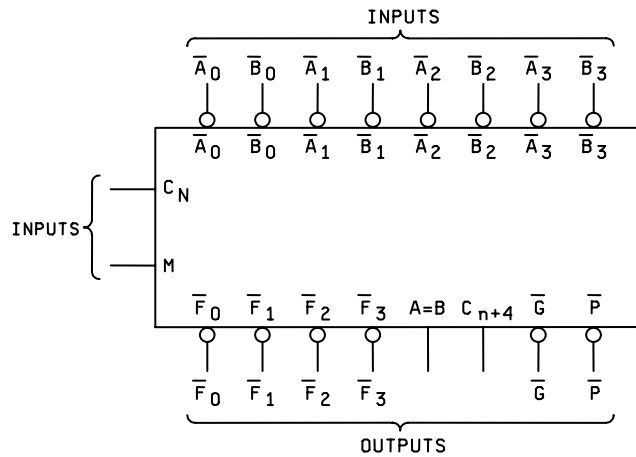
When C_n is low and C_{n+4} is high, then $A < B$

When C_n is high and C_{n+4} is low, then $A > B$

When C_n is low and C_{n+4} is low, then $A \geq B$

3/ The table shown applies for positive logic. If negative logic is used, active high data becomes active low data.

FIGURE 2. Truth tables and logic equations for device type 01 – Continued.



	Selection S3 S2 S1 S0	Active high data 5/		
		M = H Logic functions	M = L; Arithmetic operations	
			C _n = 0 = L	C _n = 1 = H
0	L L L L	$F = \overline{A}$	F = A minus 1	F = A
1	L L L H	$F = \overline{AB}$	F = AB minus 1	F = AB
2	L L H L	$F = \overline{A} + B$	F = $A\overline{B}$ minus 1	$F = A\overline{B}$
3	L L H H	F = 1	F = minus 1 (2's compl)	F = zero
4	L H L L	$F = \overline{A} + \overline{B}$	F = A plus (A + $\overline{B}$)	F = A plus (A + $\overline{B}$) plus 1
5	L H L H	$F = \overline{B}$	F = AB plus (A + $\overline{B}$)	F = AB plus (A + $\overline{B}$) plus 1
4/ 6	L H H L	$F = \overline{A \oplus B}$	F = A minus B minus 1	F = A minus B
7	L H H H	$F = A + \overline{B}$	$F = A + \overline{B}$	F = (A + $\overline{B}$) plus 1
8	H L L L	$F = \overline{A} B$	F = A plus (A + B)	F = A plus (A + B) plus 1
9	H L L H	$F = A \oplus B$	F = A plus B	F = A, plus B plus 1
10	H L H L	F = B	F = $A\overline{B}$ plus (A + B)	F = $A\overline{B}$ plus (A + B) plus 1
11	H L H H	F = A + B	F = A + B	F = (A + B) plus 1
12	H H L L	F = 0	F = A plus A 1/	F = A plus A plus 1
13	H H L H	$F = A\overline{B}$	F = AB plus A	F = AB plus A plus 1
14	H H H L	F = AB	F = $A\overline{B}$ plus A	F = $A\overline{B}$ plus A plus 1
15	H H H H	F = A	F = A	F = A plus 1

4/ This device (ALU) can be used as a comparator when placed in the subtract mode (i.e., S3 S2 S1 S0 are at logical levels LHHL, respectively) and the following expressions are valid:

Active low data

When C_n is low and C_{n+4} is low, then $A \leq B$

When C_n is high and C_{n+4} is low, then $A < B$

When C_n is low and C_{n+4} is high, then $A > B$

When C_n is high and C_{n+4} is high, then $A \geq B$

5/ The table shown applies for negative logic. If positive logic is used, active low data becomes active high data.

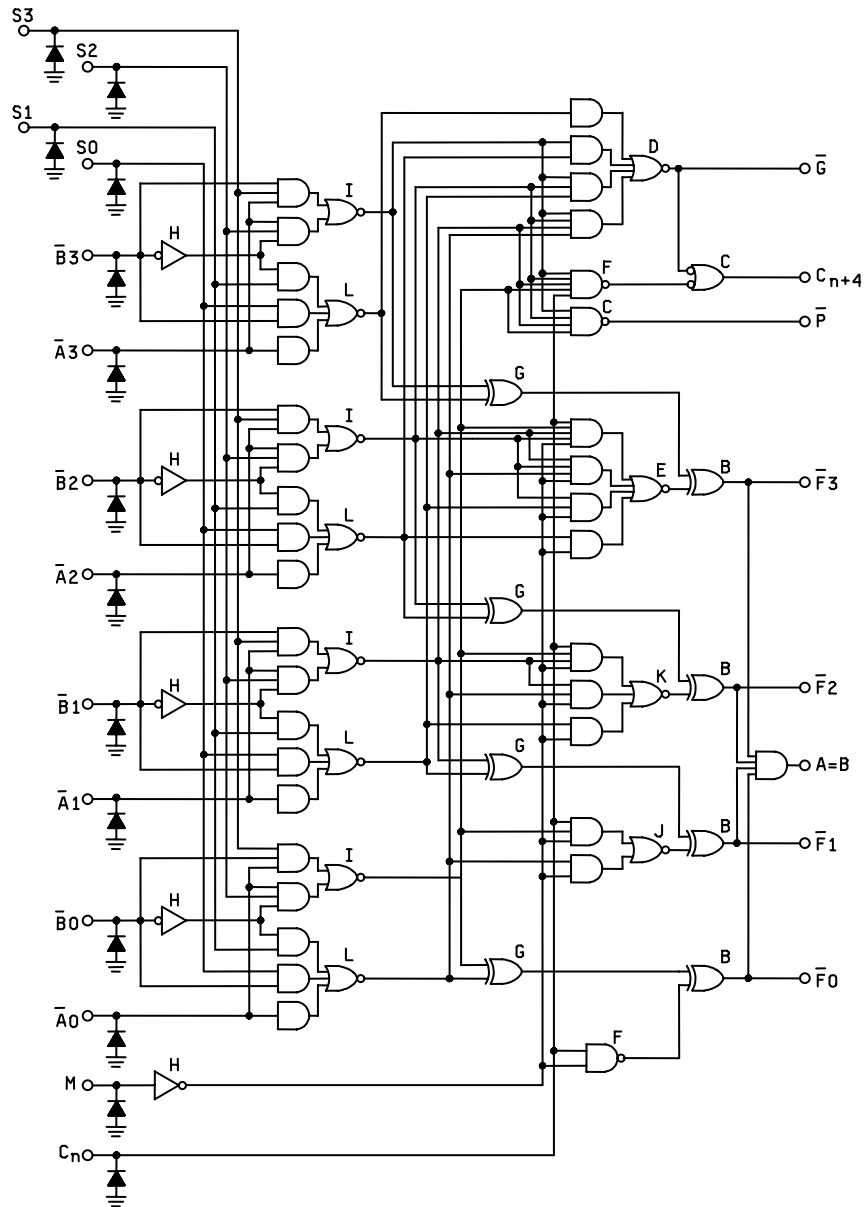
FIGURE 2. Truth tables and logic equations for device type 01 - Continued.

Inputs									Outputs				
C _n	$\bar{G}0$	$\bar{P}0$	$\bar{G}1$	$\bar{P}1$	$\bar{G}2$	$\bar{P}2$	$\bar{G}3$	$\bar{P}3$	C _{n+x}	C _{n+y}	C _{n+z}	$\bar{G}$	$\bar{P}$
X	H	H							L				
L	H	X							L				
X	L	X							H				
H	X	L							H				
X	X	X	H	H						L			
X	H	H	H	X						L			
L	H	X	H	X						L			
X	X	X	L	X						H			
X	L	X	X	L						H			
H	X	L	X	L						H			
X	X	X	X	X	H	H					L		
X	X	X	H	H	H	X					L		
X	H	H	H	X	H	X					L		
L	H	X	H	X	H	X					L		
X	X	X	X	X	L	X					H		
X	X	X	L	X	X	L					H		
X	L	X	X	L	X	L					H		
H	X	L	X	L	X	L					H		
	X		X	X	X	X	H	H				H	
	X		X	X	H	H	H	X				H	
	X		H	H	H	X	H	X				H	
	H		H	X	H	X	H	X				H	
	X		X	X	X	X	L	X				L	
	X		X	X	L	X	X	L				L	
	X		L	X	X	L	X	L				L	
	L		X	L	X	L	X	L				L	
		H		X		X		X					H
		X		H		X		X					H
		X		X		H		X					H
		X		X		X		H					H
		L		L		L		L					L

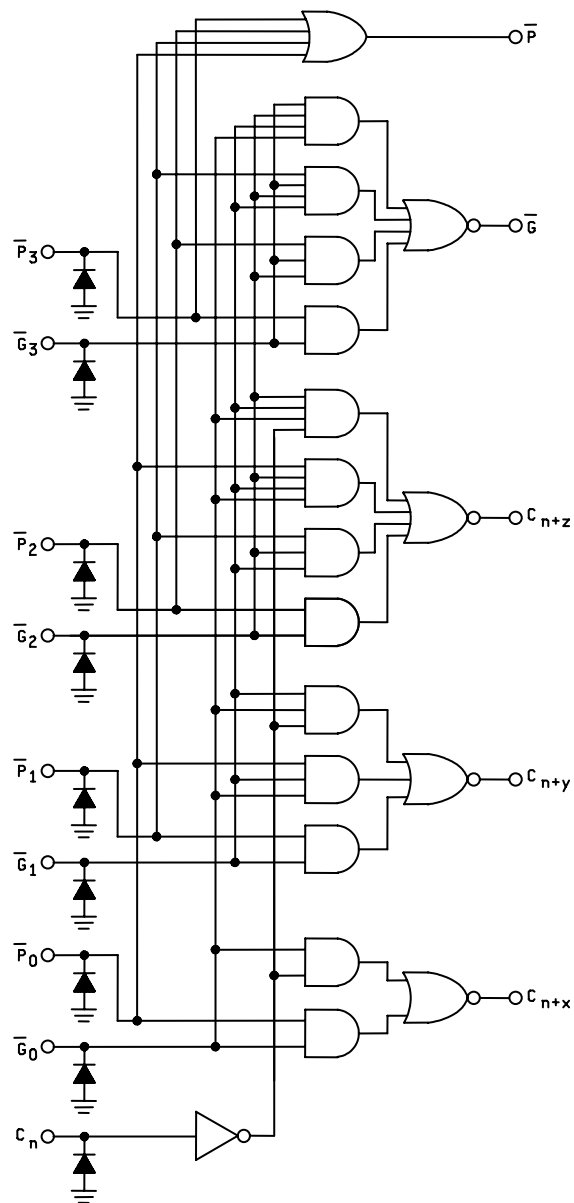
H = High voltage level L = Low voltage level X = Don't care

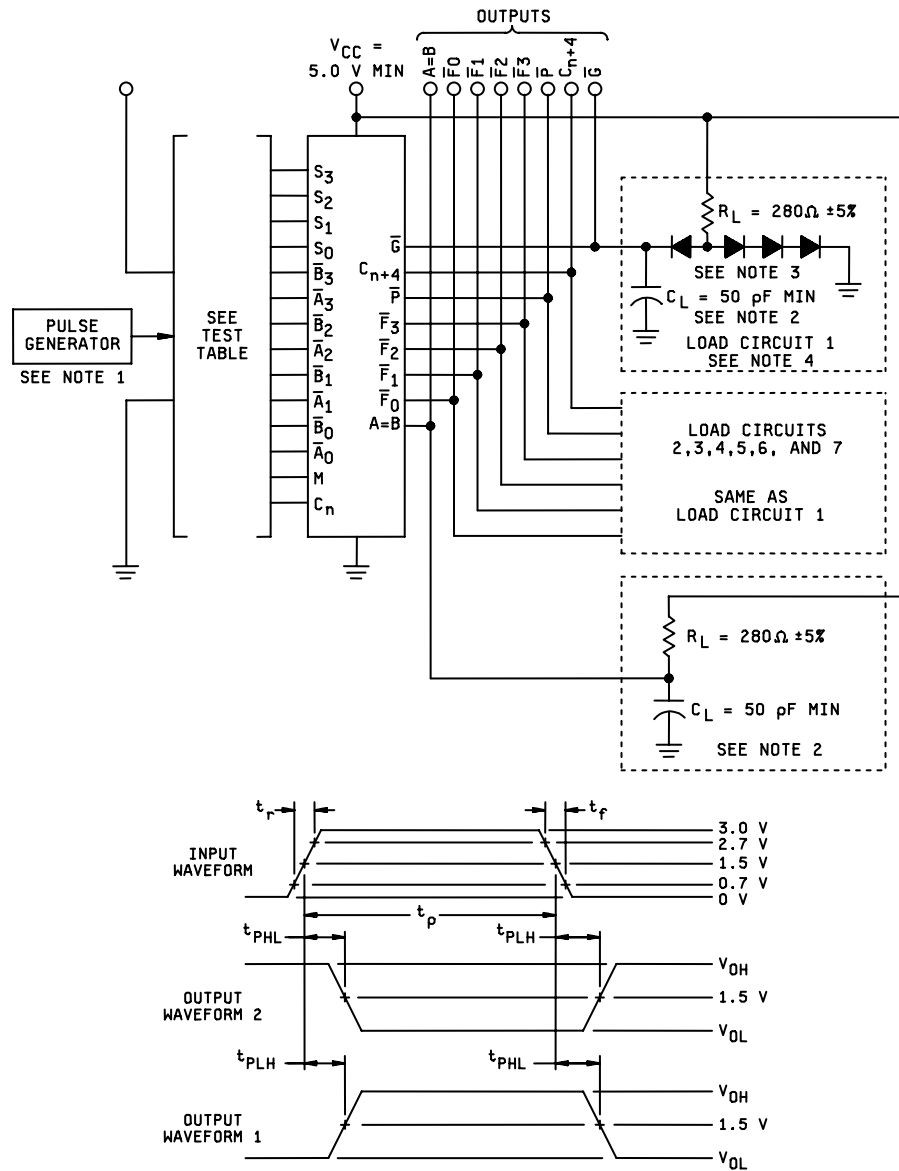
FIGURE 2. Truth tables and logic equations for device type 02 – Continued.

DEVICE TYPE 01

FIGURE 3. Logic diagrams.

DEVICE TYPE 02

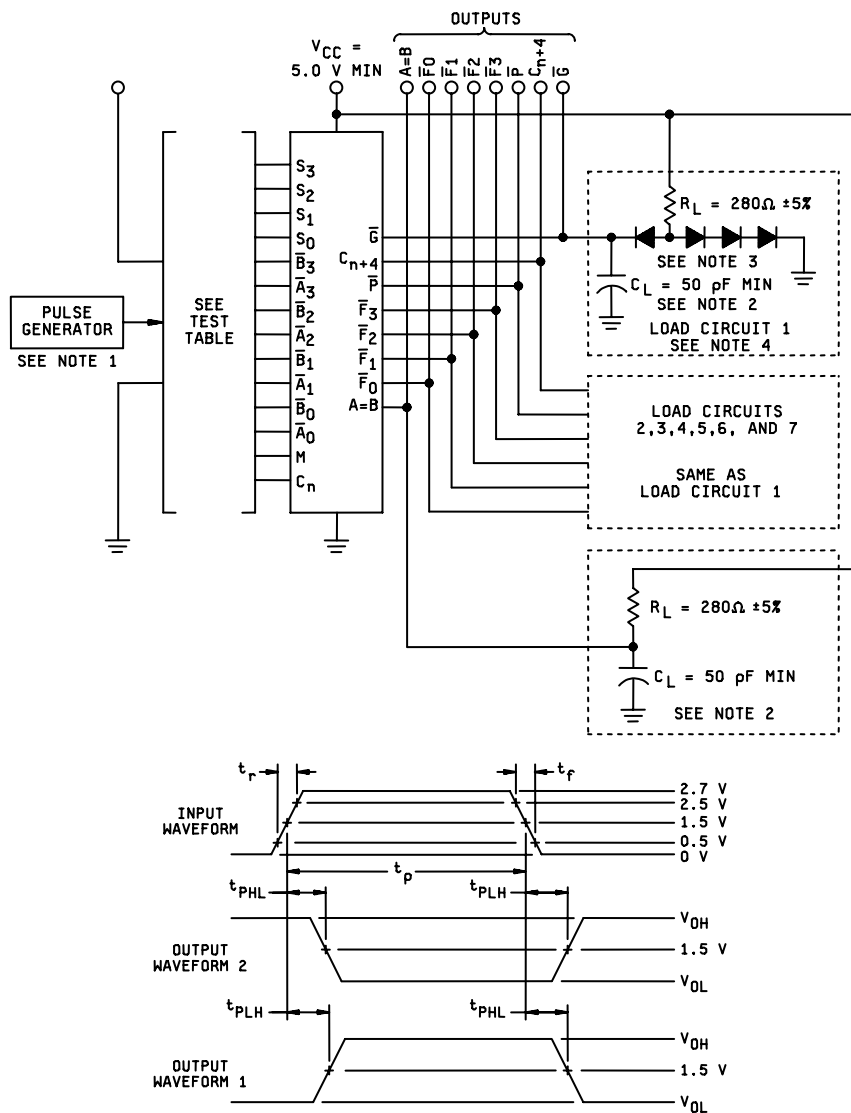
FIGURE 3. Logic diagrams – Continued.



NOTES:

1. The input pulse has the following characteristics: $PRR \leq 1 \text{ MHz}$, $t_r = t_f \leq 2.5 \text{ ns}$. $Z_{OUT} \approx 50 \Omega$.
2. C_L includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuit is required on a given output only where table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01.



NOTES:

1. The input pulse has the following characteristics: $PRR \leq 1 \text{ MHz}$, $t_r = t_f \leq 2.5 \text{ ns}$. $Z_{OUT} = 50 \Omega$.
2. C_L includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuit is required on a given output only where table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01 – Continued.

SUM MODE TEST TABLEFUNCTION INPUTS: $S_0 = S_3 = 2.7 \text{ V}$, $S_1 = S_2 = M = 0 \text{ V}$

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 2.7 V	APPLY GND	APPLY 2.7 V	APPLY GND		
t _{PLH1}	$\bar{A}_i$	$\bar{B}_i$	None	Remaining $\bar{A}$ and $\bar{B}$	C_n	Any $\bar{F}_i$	1
t _{PHL1}	1/						
t _{PLH1}	$\bar{B}_i$	$\bar{A}_i$	None	Remaining $\bar{A}$ and $\bar{B}$	C_n	Any $\bar{F}_i$	1
t _{PHL1}							
t _{PLH3}	$\bar{A}_i$	$\bar{B}_i$	None	None	Remaining $\bar{A}$ and $\bar{B}$ C_n	$\bar{P}$	1
t _{PHL3}							
t _{PLH3}	$\bar{B}_i$	$\bar{A}_i$	None	None	Remaining $\bar{A}$ and $\bar{B}$ C_n	$\bar{P}$	1
t _{PHL3}							
t _{PLH5}	$\bar{A}_i$	None	$\bar{B}_i$	Remaining $\bar{B}$	Remaining $\bar{A}$, C_n	$\bar{G}$	1
t _{PHL5}							

1/ In $\bar{A}_i$, $\bar{B}_i$, and $\bar{F}_i$, $i = 0, 1, 2$, or 3 .

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01 – Continued.

FUNCTION INPUTS: $S_0 = S_3 = 2.7 \text{ V}$, $S_1 = S_2 = M = 0 \text{ V}$

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 2.7 V	APPLY GND	APPLY 2.7 V	APPLY GND		
t _{PLH5}	$\bar{B}_i$	None	$\bar{A}_i$	Remaining $\bar{B}$	Remaining $\bar{A}$, C_n	$\bar{G}$	1
t _{PHL5}							
t _{PLH7}	C_n	None	None	All $\bar{A}$	All $\bar{B}$	Any $\bar{F}_i$	1
t _{PHL7}							
t _{PLH9}	C_n	None	None	All $\bar{A}$	All $\bar{B}$	C_{n+4}	1
t _{PHL9}							
t _{PLH11}	$\bar{A}_i$	None	$\bar{B}_i$	Remaining $\bar{B}$	Remaining $\bar{A}$ and C_n	C_{n+4}	2
t _{PHL11}							
t _{PLH11}	$\bar{B}_i$	None	$\bar{A}_i$	Remaining $\bar{B}$	Remaining $\bar{A}$ and C_n	C_{n+4}	2
t _{PHL11}							

1/ In $\bar{A}_i$, $\bar{B}_i$, and $\bar{F}_i$, $i = 0, 1, 2$, or 3 .

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01 – Continued.

DIFF MODE TEST TABLEFUNCTION INPUTS: $S_1 = S_2 = 2.7 \text{ V}$, $S_0 = S_3 = M = 0 \text{ V}$

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 2.7 V	APPLY GND	APPLY 2.7 V	APPLY GND		
t_{PLH2}	$\bar{A}_i$ 1/	None	$\bar{B}_i$	Remaining $\bar{A}$	Remaining $\bar{B}$, C_n	Any $\bar{F}_i$	1
t_{PHL2}							
t_{PLH2}	$\bar{B}_i$	$\bar{A}_i$	None	Remaining $\bar{A}$	Remaining $\bar{B}$, C_n	Any $\bar{F}_i$	2
t_{PHL2}							
t_{PLH4}	$\bar{A}_i$	None	$\bar{B}_i$	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	$\bar{P}$	1
t_{PHL4}							
t_{PLH4}	$\bar{B}_i$	$\bar{A}_i$	None	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	$\bar{P}$	2
t_{PHL4}							
t_{PLH6}	$\bar{A}_i$	$\bar{B}_i$	None	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	$\bar{G}$	1
t_{PHL6}							
t_{PLH6}	$\bar{B}_i$	None	$\bar{A}_i$	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	$\bar{G}$	2
t_{PHL6}							
t_{PLH8}	$\bar{A}_i$	None	$\bar{B}_i$	Remaining $\bar{A}$	Remaining $\bar{B}$, C_n	$A = B$	1
t_{PHL8}							
t_{PLH8}	$\bar{B}_i$	$\bar{A}_i$	None	Remaining $\bar{A}$	Remaining $\bar{B}$, C_n	$A = B$	2
t_{PHL8}							
t_{PLH10}	C_n	None	None	All $\bar{A}$ and $\bar{B}$	None	C_{n+4}	1
t_{PHL10}							
t_{PLH12}	$\bar{A}_i$	$\bar{B}_i$	None	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	C_{n+4}	2
t_{PHL12}							
t_{PLH12}	$\bar{B}_i$	None	$\bar{A}_i$	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	C_{n+4}	1
t_{PHL12}							

1/ In $\bar{A}_i$, $\bar{B}_i$, and $\bar{F}_i$, $i = 0, 1, 2$, or 3 .

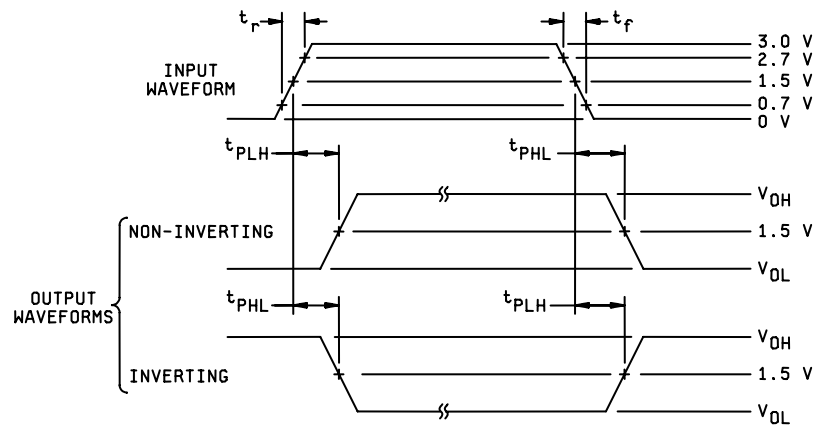
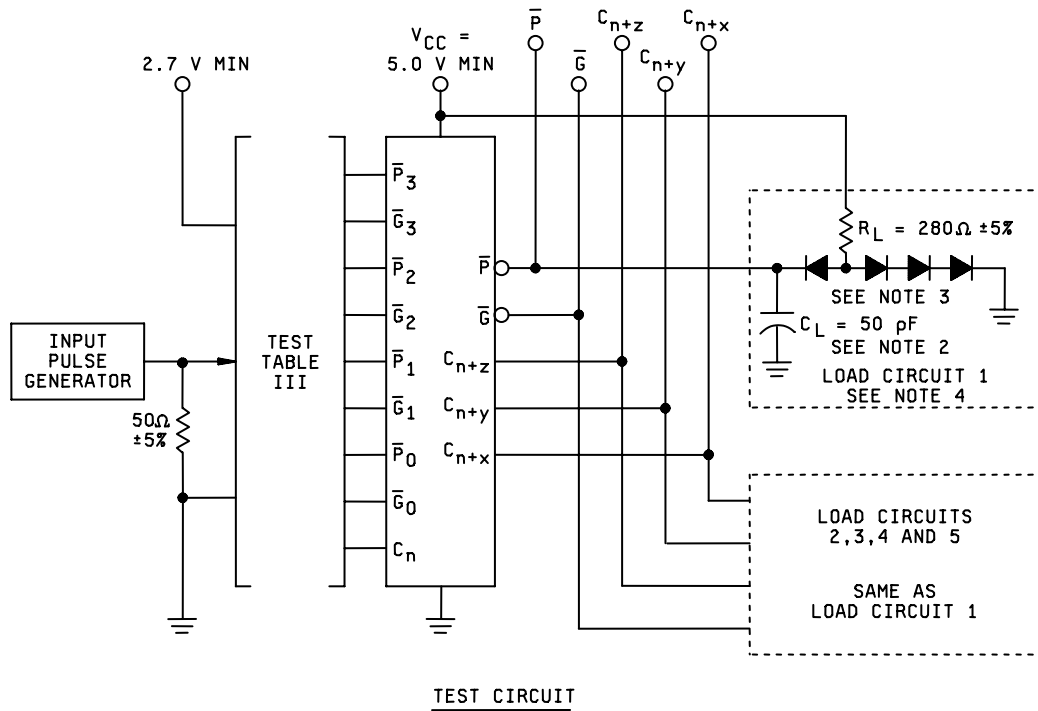
FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01 – Continued.

LOGIC MODE TEST TABLE
 FUNCTION INPUTS: $S_1 = S_2 = M = 2.7 \text{ V}$, $S_0 = S_3 = 0 \text{ V}$

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 2.7 V	APPLY GND	APPLY 2.7 V	APPLY GND		
t_{PLH13}	$\bar{A}_i$	None	$\bar{B}_i$	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	Any $\bar{F}_i$	1
t_{PHL13}	$\underline{1}$						
t_{PLH13}	$\bar{B}_i$	None	$\bar{A}_i$	None	Remaining $\bar{A}$ and $\bar{B}$, C_n	Any $\bar{F}_i$	1
t_{PHL13}							

1/ In $\bar{A}_i$, $\bar{B}_i$ and $\bar{F}_i$, $i = 0, 1, 2$, or 3 .

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 01 – Continued.



NOTES:

1. The input pulse has the following characteristics: $PRR \leq 1 \text{ MHz}$, $t_r = t_f \leq 2.5 \text{ ns}$. $Z_{OUT} \approx 50 \Omega$.
2. C_L includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuit is required on a given output only where table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 4. Waveforms for propagation delay time and test circuit for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/ Cases J,K,Z	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	Vcc		Min	Max	
1 Tc=+25°C	VOH	3006	1	0.8 V	2.0 V	2.0 V	0.8 V	0.8 V	0.8 V	2.0 V					GND					-1 mA	0.8 V	2.0 V	0.8 V	2.0 V	0.8 V	2.0 V	4.5 V	G	2.5		V
			2	2.0 V			2.0 V			0.8 V								-1 mA			0.8 V	0.8 V	2.0 V	2.0 V				Cn+4			
			3							0.8 V											0.8 V	2.0 V	0.8 V					P			
			4						2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	F0			
			5																		0.8 V							F1			
			6																									F2			
			7																									F3			
																		</													

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X.3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit	
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max		
			Test no.	B̄0	Ā0	S3	S2	S1	S0	Cn	M	F̄0	F̄1	F̄2	GND	F̄3	A=B	P̄	Cn+4	Ḡ	B̄3	Ā3	B̄2	Ā2	B̄1	Ā1	V _{CC}					
1 T _C =+25°C	I _{IH4}	3010	41 42	5.5 V "	GND "	GND GND	GND 2.7 V	2.7 V GND	GND GND	GND GND	GND GND				GND "						5.5 V "	GND GND	5.5 V "	GND GND	5.5 V "	GND GND	5.5 V "	S1 S2			μA	
	I _{IH5}	"	43	"	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	2.7 V	5.5 V				"						"	5.5 V	"	5.5 V	"	5.5 V	"	Cn	200	250	"	
	I _{IH6}	"	44	GND	GND	GND	GND	GND	GND	GND	5.5 V				"						GND	GND	GND	GND	GND	GND	"	M		1	mA	
	I _{IH7}	"	45	"	5.5 V	"	"	"	"	"	"	GND			"						"	"	"	"	"	GND	"	Ā0	"	"	"	
		"	46	"	"	GND	"	"	"	"	"	"			"						"	"	"	"	"	5.5 V	"	Ā1	"	"	"	
		"	47	"	"	"	"	"	"	"	"	"			"						"	"	"	5.5 V	"	GND	"	Ā2	"	"	"	
		"	48	"	"	"	"	"	"	"	"	"			"						"	5.5 V	"	GND	"	"	"	Ā3	"	"	"	
		"	49	5.5 V	"	"	"	"	"	"	"	"			"						"	"	"	"	"	"	"	B̄0	"	"	"	
		"	50	GND	"	"	"	"	"	"	"	"			"						"	"	"	"	5.5 V	"	"	B̄1	"	"	"	
	I _{IH8}	"	53	"	"	"	"	"	5.5 V	"	"	"			"						GND	"	"	"	"	"	"	"	S0		"	"
		"	54	"	"	5.5 V	"	"	GND	"	"	"			"						GND	"	"	"	"	"	"	"	S3		"	"
	I _{IH9}	"	55	5.5 V	"	GND	"	5.5 V	GND	"	"	"			"						5.5 V	"	5.5 V	"	5.5 V	"	"	"	S1		"	"
		"	56	"	"	GND	5.5 V	GND	"	"	"	"			"						"	"	"	"	"	"	"	"	S2		"	"
	I _{IH10}	"	57	"	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V				"						"	5.5 V	"	5.5 V	"	5.5 V	"	Cn	"	"	"	
	I _{OS1}	3011	58	GND	GND	5.5 V	GND	GND	GND	GND	GND				"					GND	"	5.5 V	GND	GND	GND	GND	GND	"	Ḡ	-40	-100	"
	I _{OS2}	"	59	GND	GND	GND	GND	GND	GND	GND	GND				"				GND		GND	GND	GND	GND	GND	GND	GND	"	Cn+4	"	"	"
I _{OS3}	"	60	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			"			GND			5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	"	F̄	"	"	"		
	"	61	"	"	"	"	"	"	"	"				"						"	"	"	"	"	"	"	"	F0	"	"	"	
	"	62	"	"	"	"	"	"	"	"	GND			"						"	"	"	"	"	"	"	"	F1	"	"	"	
	"	63	"	"	"	"	"	"	"	"			GND							"	"	"	"	"	"	"	"	F2	"	"	"	
	"	64	"	"	"	"	"	"	"	"				"	GND					"	"	"	"	"	"	"	"	F3	"	"	"	
I _{CCL}	3005	65	GND	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	GND	4.5 V				"						GND	4.5 V	GND	4.5 V	GND	4.5 V	"	V _{CC}		180	"		
I _{CCH}	3005	66	GND	GND	4.5 V	4.5 V	4.5 V	4.5 V	GND	4.5 V				"						GND	GND	GND	GND	GND	GND	"	V _{CC}		180	"		
V _{IC}		67	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA				"												4.5 V	B̄0	-1.2	V		
		"	A0																													
		"	S3																													
		"	S2																													
		70	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	S1	"	"		
		71	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	S0	"	"		
		72	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Cn	"	"	
		73	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	M	"	"	
		74	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B̄3	"	"	
		75	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Ā3	"	"	
		76	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B̄2	"	"	
		77	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Ā2	"	"
		78	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B̄1	"	"
		79	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Ā1	"	"
		80	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	VCC				
1 Tc=+25°C	ICEX		81 82 83 84 85 86 87 88	2.0 V GND 2.0 V " " " " "	2.0 V GND 2.0 V " " " " "	2.0 V " 2.0 V " " " " "	2.0 V GND 2.0 V " 2.0 V 2.0 V "	2.0 V GND " 2.0 V 2.0 V "	2.0 V GND " 2.0 V 2.0 V "	2.0 V " " " 5.5 V "	5.5 V " 5.5 V "	5.5 V " 5.5 V "	GND " " " 5.5 V "	F3 " " "	5.5 V " 5.5 V "	5.5 V " 5.5 V "	5.5 V " 5.5 V "	5.5 V " 5.5 V "	5.5 V " 5.5 V "	2.0 V 2.0 V GND 2.0 V GND 2.0 V "	A3 2.0 V GND 2.0 V " " " "	B2 2.0 V GND 2.0 V " " " "	A2 2.0 V GND 2.0 V " " " "	B1 2.0 V GND 2.0 V " " " "	A1 2.0 V GND 2.0 V " " " "	VCC 4.5 V 5.5 V " " " "	A=B G Cn+4 P E0 E1 E2 F3	1	"	"	mA
2	Same tests, terminal conditions, and limits as for subgroup 1, except Tc = +125°C, and VIC tests are omitted. VIL = 0.7 V dc and VOL(max) = 0.45 V dc.																														
3	Same tests, terminal conditions, and limits as for subgroup 1, except Tc = -55°C, and VIC tests are omitted.																														
7 Tc=+25°C	Functional tests 1/ 4/	89	90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122	B 2/ " A B A " B " " A " B "																											

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/ Cases J,K,Z	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit			
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	Vcc		Min	Max				
9 Tc=+25°C	tPH1	3003 (Fig. 4)	131	2.7 V	IN	2.7 V	GND	GND	2.7 V	GND	GND	OUT	OUT	OUT	GND	OUT					2.7 V	2.7 V	2.7V	2.7 V	2.7 V	2.7 V	5.0 V	A0 to E0	2	20	ns			
			132	"	2.7 V	"	"	"	"	"	"	"	"	OUT	OUT	"	"					"	"	"	2.7 V	IN	"	"	A1 to E1	"	"	"		
			133	"	"	"	"	"	"	"	"	"	"	"	"	"	"					"	"	IN	"	2.7 V	"	"	"	A2 to E2	"	"	"	
			134	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"					"	"	IN	2.7 V	"	"	"	"	A3 to E3	"	"	"	
			135	IN	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"					"	"	2.7 V	"	"	"	"	"	B0 to F0	"	"	"	
			136	2.7 V	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"				"	"	"	"	IN	"	"	"	"	B1 to F1	"	"	"
	137	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT					"	"	"	"	2.7 V	"	"	"	"	B2 to F2	"	"	"		
	138	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"					IN	"	2.7 V	"	2.7 V	"	"	"	"	B3 to F3	"	"	"		
	tPH2	"	139	GND	IN	GND	2.7 V	2.7 V	GND	"	"	OUT	OUT	OUT	"	"						GND	"	GND	"	GND	"	"	A0 to E0	"	25	"		
			140	"	2.7 V	"	"	"	"	"	"	"	"	OUT	OUT	"	"					"	"	"	"	IN	2.7 V	"	"	A1 to E1	"	"	"	
			141	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT					"	"	"	"	"	"	"	"	A2 to E2	"	"	"	
			142	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"					"	"	IN	2.7 V	"	"	"	"	A3 to E3	"	"	"	
			143	IN	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"					"	"	2.7 V	"	"	"	"	"	B0 to E0	"	"	"	
			144	GND	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"				"	"	"	"	IN	"	"	"	"	B1 to F1	"	"	"
	145	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT					IN	"	IN	GND	"	"	"	"	B2 to F2	"	"	"			
	146	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"					"	"	IN	GND	"	"	"	"	B3 to F3	"	"	"			
	tPLH2	"	147	"	IN	"	"	"	"	"	"	OUT	OUT	OUT	"	"						GND	"	"	"	"	"	"	A0 to E0	"	23	"		
			148	"	2.7 V	"	"	"	"	"	"	"	"	"	"	"	"					"	"	"	"	"	IN	2.7 V	"	"	A1 to E1	"	"	"
			149	"	"	"	"	"	"	"	"	"	"	"	"	"	"					"	"	"	"	"	"	"	"	A2 to E2	"	"	"	
			150	"	"	"	"	"	"	"	"	"	"	"	"	"	"					"	"	"	IN	2.7 V	"	"	"	"	A3 to E3	"	"	"
			151	IN	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"					"	"	2.7 V	"	"	"	"	"	B0 to E0	"	"	"	
			152	GND	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"				"	"	"	"	IN	"	"	"	"	B1 to F1	"	"	"
	153	"	"	"	"	"	"	"	"	"	"	"	"	"	"					"	"	IN	GND	"	"	"	"	B2 to F2	"	"	"			
	154	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"					IN	"	IN	GND	"	"	"	"	B3 to F3	"	"	"			
	tPHL3	"	155	2.7 V	IN	2.7 V	GND	GND	2.7 V	"	"	"	"	"	"	"			OUT			GND	GND	"	GND	2.7 V	GND	"	A0 to P	"	14	"		
			156	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	IN	GND	"	"	"	A1 to P	"	"	"		
			157	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	2.7 V	GND	"	"	"	"	A2 to P	"	"	"		
			158	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	IN	GND	"	"	"	"	A3 to P	"	"	"		
			159	IN	2.7 V	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	GND	"	"	"	"	"	"	B0 to P	"	"	"	
			160	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	IN	2.7 V	"	"	"	B1 to P	"	"	"	
	161	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	IN	GND	"	"	"	"	"	B2 to P	"	"	"			
	162	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	2.7 V	GND	"	"	"	"	"	B3 to P	"	"	"			
	tPLH3	"	163	2.7 V	IN	"	"	"	"	"	"	"	"	"	"	"			"			GND	GND	"	"	"	"	"	A0 to P	"	"	"		
			164	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	2.7 V	IN	"	"	"	A1 to P	"	"	"	
			165	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	2.7 V	IN	"	"	"	"	A2 to P	"	"	"		
			166	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	IN	GND	"	"	"	"	A3 to P	"	"	"		
			167	IN	2.7 V	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	GND	"	"	"	"	"	"	B0 to P	"	"	"	
			168	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	IN	2.7 V	"	"	"	B1 to P	"	"	"	
	169	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	B2 to P	"	"	"				
	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	IN	2.7 V	"	2.7V	GND	"	"	B3 to P	"	"	"			
	tPHL4	"	171	"	IN	GND	2.7 V	2.7 V	GND	"	"	"	"	"	"	"			"			GND	GND	"	"	"	"	"	A0 to P	"	18	"		
			172	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	IN	"	"	A1 to P	"	"	"	
			173	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	A2 to P	"	"	"		
			174	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	A3 to P	"	"	"		
			175	IN	2.7V	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	"	B0 to P	"	"	"	
			176	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	"	B1 to P	"	"	"	
			177	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	"	"	"	"	"	"	"	B2 to P	"	"	"	
			178	"	"	"	"	"	"	"	"	"	"	"	"	"	"			"	"	"	IN	2.7 V	"	GND	"	"	"	B3 to P	"	"	"	

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 <u>u</u> Cases J,K,Z Test no.	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
				B ₀	A ₀	S ₃	S ₂	S ₁	S ₀	C _n	M	F ₀	F ₁	F ₂	GND	F ₃	A=B	P	C _{n+4}	G	B ₃	A ₃	B ₂	A ₂	B ₁	A ₁	V _{CC}				
9 T _C =+25°C	t _{PLH4}	3003 (Fig. 4)	179	GND	IN	GND	2.7 V	2.7 V	GND	GND	GND				GND			OUT			GND	GND	GND	GND	GND	GND	5.0 V	A ₀ to P	2	18	ns
			180	"	GND	"	"	"	"	"	"				"			"			"	"	"	"	"	IN	"	A ₁ to P	"	"	"
			181	"	"	"	"	"	"	"	"				"			"			"	"	"	"	"	GND	"	A ₂ to P	"	"	"
			182	"	"	"	"	"	"	"	"				"			"			"	"	"	"	"	"	"	A ₃ to P	"	"	"
			183	IN	2.7 V	"	"	"	"	"	"				"			"			"	"	"	"	"	"	"	B ₀ to P	"	"	"
			184	GND	GND	"	"	"	"	"	"				"			"			"	"	"	"	"	IN	2.7 V	B ₁ to P	"	"	"
			185	"	"	"	"	"	"	"	"				"			"			"	"	"	"	"	GND	"	B ₂ to P	"	"	"
			186	"	"	"	"	"	"	"	"				"			"			"	IN	2.7 V	IN	GND	"	"	B ₃ to P	"	"	"
	t _{PHL5}		187	"	IN	2.7 V	GND	GND	2.7 V	"	"				"					OUT	2.7 V	GND	2.7 V	"	2.7 V	"	"	A ₀ to G	"	14	"
			188	2.7 V	GND	"	"	"	"	"	"				"					"	"	"	2.7 V	"	GND	IN	"	A ₁ to G	"	"	"
			189	"	"	"	"	"	"	"	"				"					"	"	"	GND	IN	2.7 V	"	"	A ₂ to G	"	"	"
			190	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₃ to G	"	"	"
			191	IN	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₀ to G	"	"	"
			192	2.7 V	"	"	"	"	"	"	"				"					"	"	"	"	"	"	IN	"	B ₁ to G	"	"	"
			193	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	2.7 V	"	B ₂ to G	"	"	"
			194	"	"	"	"	"	"	"	"				"					"	"	"	IN	2.7 V	"	"	"	B ₃ to G	"	"	"
	t _{PLH5}		195	GND	IN	"	"	"	"	"	"				"					"	2.7 V	"	"	"	"	"	"	A ₀ to G	"	"	"
			196	2.7 V	GND	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₁ to G	"	"	"
			197	"	"	"	"	"	"	"	"				"					"	"	"	GND	IN	2.7 V	"	"	A ₂ to G	"	"	"
			198	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₃ to G	"	"	"
			199	IN	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₀ to G	"	"	"
			200	2.7 V	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₁ to G	"	"	"
			201	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	IN	2.7 V	B ₂ to G	"	"	"
			202	"	"	"	"	"	"	"	"				"					"	"	"	IN	2.7 V	2.7 V	"	"	B ₃ to G	"	"	"
	t _{PHL6}		203	"	IN	GND	2.7 V	2.7 V	GND	"	"				"					"	GND	"	"	"	"	"	"	A ₀ to G	"	18	"
			204	GND	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₁ to G	"	"	"
			205	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₂ to G	"	"	"
			206	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₃ to G	"	"	"
			207	IN	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₀ to G	"	"	"
			208	GND	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₁ to G	"	"	"
			209	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₂ to G	"	"	"
			210	"	"	"	"	"	"	"	"				"					"	"	"	IN	GND	"	"	"	B ₃ to G	"	"	"
	t _{PLH6}		211	2.7 V	IN	"	"	"	"	"	"				"					"	GND	"	"	"	"	"	"	A ₀ to G	"	"	"
			212	GND	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₁ to G	"	"	"
			213	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₂ to G	"	"	"
			214	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₃ to G	"	"	"
			215	IN	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₀ to G	"	"	"
			216	GND	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₁ to G	"	"	"
			217	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₂ to G	"	"	"
			218	"	"	"	"	"	"	"	"				"					"	"	"	IN	GND	"	"	"	B ₃ to G	"	"	"
	t _{PHL7}		219	"	2.7 V	2.7 V	GND	GND	2.7 V	IN	"	OUT			"					"	GND	2.7 V	"	2.7 V	"	2.7 V	"	C _n to F ₀	"	14	"
	t _{PLH7}		220	"	2.7 V	2.7 V	GND	GND	2.7 V	IN	"	OUT			"					"	"	"	"	"	"	"	"	C _n to F ₀	"	14	"
	t _{PHL8}		221	"	IN	GND	2.7 V	2.7 V	GND	GND	"				"					"	"	"	"	"	"	"	"	A ₀ to A=B	"		
			222	"	2.7 V	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₁ to A=B	"		
			223	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₂ to A=B	"		
			224	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	A ₃ to A=B	"		
			225	IN	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₀ to A=B	"		
			226	GND	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₁ to A=B	"		
			227	"	"	"	"	"	"	"	"				"					"	"	"	"	"	"	"	"	B ₂ to A=B	"		
			228	"	"	"	"	"	"	"	"				"					"	"	"	IN	GND	"	"	"	B ₃ to A=B	"		

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/ Cases J,K,Z	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit			
			Test no.	$\overline{B_0}$	$\overline{A_0}$	S3	S2	S1	S0	Cn	M	$\overline{F_0}$	$\overline{F_1}$	$\overline{F_2}$	GND	$\overline{F_3}$	A=B	$\overline{P}$	Cn+4	$\overline{G}$	$\overline{B_3}$	$\overline{A_3}$	$\overline{B_2}$	$\overline{A_2}$	$\overline{B_1}$	$\overline{A_1}$	V _{CC}		Min	Max				
9 T _C =+25°C	t _{PLH8}	3003 (Fig. 4)	229	GND	IN	GND	2.7 V	2.7 V	GND	GND	GND				GND		OUT				GND	2.7 V	GND	2.7 V	GND	2.7 V	5.0 V	$\overline{A_0}$	to	A=B	2	27	ns	
			230	"	2.7 V	"	"	"	"	"	"	"				"		"				"	"	"	2.7 V	IN	"	$\overline{A_1}$	to	A=B	"	"	"	
			231	"	"	"	"	"	"	"	"	"				"		"				"	"	"	"	"	"	$\overline{A_2}$	to	A=B	"	"	"	
			232	"	"	"	"	"	"	"	"	"				"		"				"	IN	"	2.7 V	"	"	$\overline{A_3}$	to	A=B	"	"	"	
			233	IN	"	"	"	"	"	"	"	"				"		"				"	2.7 V	"	"	"	"	$\overline{B_0}$	to	A=B	"	"	"	
			234	GND	"	"	"	"	"	"	"	"				"		"				"	"	"	"	IN	"	$\overline{B_1}$	to	A=B	"	"	"	
	235	"	"	"	"	"	"	"	"	"				"		"				"	"	IN	"	GND	"	$\overline{B_2}$	to	A=B	"	"	"			
	236	"	"	"	"	"	"	"	"	"				"		"				"	IN	"	GND	"	"	$\overline{B_3}$	to	A=B	"	"	"			
	t _{PLH9}	"	237	"	"	2.7 V	GND	GND	2.7 V	IN	"			"				OUT		GND	"	"	"	"	"	"	Cn to Cn+4	"	13	"				
	t _{PLH9}	"	238	"	"	2.7 V	GND	GND	2.7 V	"	"			"						GND	"	"	"	"	"	"	Cn to Cn+4	"	"	"				
	t _{PHL10}	"	239	2.7 V	"	GND	2.7 V	2.7 V	GND	"	"			"				"		2.7 V	"	2.7 V	"	2.7 V	"	"	Cn to Cn+4	"	"	"				
	t _{PHL10}	"	240	2.7 V	"	GND	2.7 V	2.7 V	GND	"	"			"				"		"	"	"	"	"	"	"	Cn to Cn+4	"	"	"				
	t _{PHL11}	"	241	GND	IN	2.7 V	GND	GND	2.7 V	GND	"			"	"				"	"		"	GND	"	GND	"	GND	"	$\overline{A_0}$	to	Cn+4	"	23	"
			242	2.7 V	GND	"	"	"	"	"	"	"			"	"			"	"		"	"	"	GND	IN	"	$\overline{A_1}$	to	Cn+4	"	"	"	
			243	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	2.7 V	"	$\overline{A_2}$	to	Cn+4	"	"	"	
			244	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_3}$	to	Cn+4	"	"	"	
			245	IN	"	"	"	"	"	"	"	"			"	"			"	"		"	IN	GND	"	"	"	$\overline{B_0}$	to	Cn+4	"	"	"	
			246	2.7 V	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	IN	"	$\overline{B_1}$	to	Cn+4	"	"	"	
	247	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	IN	2.7 V	"	$\overline{B_2}$	to	Cn+4	"	"	"			
	248	"	"	"	"	"	"	"	"	"			"	"			"	"		"	IN	"	2.7 V	"	"	$\overline{B_3}$	to	Cn+4	"	"	"			
	t _{PHL11}	"	249	GND	IN	"	"	"	"	"	"	"			"	"			"	"		2.7 V	"	"	"	"	"	"	$\overline{A_0}$	to	Cn+4	"	"	"
			250	2.7 V	GND	"	"	"	"	"	"	"			"	"			"	"		"	"	"	GND	IN	"	$\overline{A_1}$	to	Cn+4	"	"	"	
			251	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	2.7 V	"	$\overline{A_2}$	to	Cn+4	"	"	"	
			252	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_3}$	to	Cn+4	"	"	"	
253			IN	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	"	"	$\overline{B_0}$	to	Cn+4	"	"	"		
254			2.7 V	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	IN	"	$\overline{B_1}$	to	Cn+4	"	"	"		
255	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	IN	2.7 V	"	$\overline{B_2}$	to	Cn+4	"	"	"				
256	"	"	"	"	"	"	"	"	"			"	"			"	"		"	IN	"	2.7 V	2.7 V	"	$\overline{B_3}$	to	Cn+4	"	"	"				
t _{PHL12}	"	257	GND	IN	GND	2.7 V	2.7 V	GND	"	"			"	"				"	"		GND	"	GND	"	GND	"	"	$\overline{A_0}$	to	Cn+4	"	26	"	
		258	"	GND	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_1}$	to	Cn+4	"	"	"		
		259	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_2}$	to	Cn+4	"	"	"		
		260	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_3}$	to	Cn+4	"	"	"		
		261	IN	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	"	"	$\overline{B_0}$	to	Cn+4	"	"	"		
		262	GND	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	IN	"	$\overline{B_1}$	to	Cn+4	"	"	"		
263	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	IN	"	"	$\overline{B_2}$	to	Cn+4	"	"	"				
264	"	"	"	"	"	"	"	"	"			"	"			"	"		"	IN	"	GND	"	"	"	$\overline{B_3}$	to	Cn+4	"	"	"			
t _{PLH12}	"	265	2.7 V	IN	"	"	"	"	"	"	"			"	"			"	"		GND	"	"	"	"	"	"	$\overline{A_0}$	to	Cn+4	"	27	"	
		266	GND	GND	"	"	"	"	"	"	"			"	"			"	"		"	"	"	2.7 V	IN	"	$\overline{A_1}$	to	Cn+4	"	"	"		
		267	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	2.7 V	IN	GND	"	$\overline{A_2}$	to	Cn+4	"	"	"		
		268	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	GND	IN	GND	"	$\overline{A_3}$	to	Cn+4	"	"	"		
		269	IN	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	"	"	$\overline{B_0}$	to	Cn+4	"	"	"		
		270	GND	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	IN	"	$\overline{B_1}$	to	Cn+4	"	"	"		
271	"	"	"	"	"	"	"	"	"			"	"			"	"		"	"	"	"	IN	"	$\overline{B_2}$	to	Cn+4	"	"	"				
272	"	"	"	"	"	"	"	"	"			"	"			"	"		"	IN	"	GND	"	"	"	$\overline{B_3}$	to	Cn+4	"	"	"			

See footnotes at end of device type 01

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit				
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max					
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	Vcc								
9 Tc=+25°C	tPHL13	3003 (Fig. 4)	273	GND	IN	GND	2.7 V	2.7 V	GND	GND	2.7 V	OUT			GND							GND	GND	GND	GND	GND	GND	5.0 V	A0 to A1	F0 to F1	2	26	ns		
			274	"	"	"	"	"	"	"	"	"	OUT		"	"					"	"	"	GND	"	"	"	A1 to A2	F1 to F2	"	"	"			
			275	"	"	"	"	"	"	"	"	"		OUT		"		OUT		"		"	"	"	"	"	"	A2 to A3	F2 to F3	"	"	"			
			276	"	"	"	"	"	"	"	"	"			"		OUT				"	IN	"	"	"	"	"	"	A3 to B0	F3 to E0	"	"	"		
			277	IN	"	"	"	"	"	"	"		OUT		"		"				"	GND	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"		
			278	GND	"	"	"	"	"	"	"	"		OUT		"		"				"	"	"	IN	"	"	"	B1 to B2	E1 to E2	"	"	"		
			279	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	IN	"	"	"	B2 to B3	E2 to F3	"	"	"		
			280	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	IN	"	"	"	"	"	B3 to		"	"	"		
	tPLH13		281	"	IN	"	"	"	"	"	"	"	OUT			"							GND	"	"	"	"	"	A0 to A1	F0 to F1	"	24	"		
			282	"	GND	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	IN	"	"	A1 to A2	F1 to F2	"	"	"		
			283	"	"	"	"	"	"	"	"	"			OUT		"				"	IN	"	"	"	"	"	A2 to A3	F2 to F3	"	"	"			
			284	"	"	"	"	"	"	"	"	"			"		OUT				"	"	"	"	"	"	"	A3 to B0	F3 to E0	"	"	"			
			285	IN	"	"	"	"	"	"	"		OUT		"		"				"	GND	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"		
			286	GND	"	"	"	"	"	"	"	"		OUT		"		"				"	"	"	IN	"	"	"	B1 to B2	E1 to E2	"	"	"		
			287	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	IN	"	"	"	B2 to B3	E2 to F3	"	"	"		
			288	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	IN	"	GND	"	"	"	B3 to		"	"	"		
10 Tc=+125°C	tPHL1		289	2.7 V	IN	2.7 V	GND	GND	2.7 V	"	GND	OUT			"							2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	"	A0 to A1	F0 to F1	"	23	"		
			290	"	2.7 V	"	"	"	"	"	"		OUT		"						"	"	"	"	2.7V	"	"	"	A1 to A2	F1 to F2	"	"	"		
			291	"	"	"	"	"	"	"	"			OUT		"					"	IN	"	"	2.7 V	"	"	"	A2 to A3	F2 to F3	"	"	"		
			292	"	"	"	"	"	"	"	"			"		"					"	"	"	"	"	"	"	"	A3 to B0	F3 to E0	"	"	"		
			293	IN	"	"	"	"	"	"	"		OUT		"		"				"	2.7 V	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"		
			294	2.7 V	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	IN	"	"	B1 to B2	E1 to E2	"	"	"		
			295	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	2.7 V	"	"	"	B2 to B3	E2 to F3	"	"	"		
			296	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	2.7V	"	"	"	"	"	B3 to		"	"	"		
	tPLH1			297	"	IN	2.7 V	"	"	"	"	"	"	OUT			"							2.7 V	"	"	"	"	"	A0 to A1	F0 to F1	"	"	"	
				298	"	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	IN	"	"	A1 to A2	F1 to F2	"	"	"	
				299	"	"	"	"	"	"	"	"	"			OUT		"				"	"	"	"	"	"	"	A2 to A3	F2 to F3	"	"	"		
				300	"	"	"	"	"	"	"	"	"			"						"	IN	"	2.7 V	"	"	"	A3 to B0	F3 to E0	"	"	"		
				301	IN	"	"	"	"	"	"	"	"		OUT		"					"	2.7 V	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"	
				302	2.7 V	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	IN	"	"	B1 to B2	E1 to E2	"	"	"	
				303	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	2.7 V	"	"	"	B2 to B3	E2 to F3	"	"	"	
				304	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	2.7 V	"	2.7 V	"	"	"	B3 to		"	"	"	
	tPHL2			305	GND	IN	2.7 V	GND	2.7 V	2.7 V	GND	"	"	OUT			"							GND	"	GND	"	GND	"	"	A0 to A1	F0 to F1	"	28	"
				306	"	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	"	IN	"	"	A1 to A2	F1 to F2	"	"	"
				307	"	"	"	"	"	"	"	"	"			OUT		"				"	"	"	"	"	"	"	"	A2 to A3	F2 to F3	"	"	"	
				308	"	"	"	"	"	"	"	"	"			"						"	IN	"	2.7 V	"	"	"	"	A3 to B0	F3 to E0	"	"	"	
				309	IN	"	"	"	"	"	"	"		OUT		"		"				"	2.7 V	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"	
				310	GND	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	"	"	"	B1 to B2	E1 to F2	"	"	"	
				311	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	IN	"	"	"	B2 to B3	E2 to F3	"	"	"	
				312	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	IN	"	GND	"	"	"	B3 to		"	"	"	
	tPLH2			313	"	IN	2.7 V	"	"	"	"	"	"	OUT			"							GND	"	"	"	"	"	"	A0 to A1	F0 to F1	"	26	"
				314	"	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	IN	"	"	A1 to A2	F1 to F2	"	"	"	
				315	"	"	"	"	"	"	"	"	"			OUT		"				"	"	"	"	"	"	"	"	A2 to A3	F2 to F3	"	"	"	
				316	"	"	"	"	"	"	"	"	"			"						"	"	"	"	"	"	"	"	A3 to B0	F3 to E0	"	"	"	
				317	IN	"	"	"	"	"	"	"	"		OUT		"					"	2.7 V	"	"	"	"	"	"	B0 to B1	E0 to E1	"	"	"	
				318	GND	"	"	"	"	"	"	"	"		OUT		"					"	"	"	"	"	"	"	"	B1 to B2	E1 to E2	"	"	"	
				319	"	"	"	"	"	"	"	"	"		"	OUT	"					"	"	"	"	"	"	"	"	B2 to B3	E2 to F3	"	"	"	
				320	"	"	"	"	"	"	"	"	"			"	OUT	"				IN	"	IN	"	GND	"	"	"	B3 to		"	"	"	

See footnotes at end of device type 01

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit		
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max			
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	VCC						
10 T _C =+125°C	t _{PHL3}	3003 (Fig. 4)	321	2.7 V	IN	2.7 V	GND	GND	2.7 V	GND	GND				GND			OUT			GND	GND	GND	GND	GND	GND	5.0 V	A0 to A1	to P	2	16	ns	
			322	GND	GND																						A1 to A2	to P					
			323																									A2 to A3	to P				
			324																			2.7 V	IN	GND				A3 to B0	to P				
			325	IN	2.7 V																	GND	GND					B0 to B1	to P				
			326	GND	GND																				IN	2.7 V		B1 to B2	to P				
	t _{PLH3}		327																					IN	GND			B2 to B3	to P				
			328																														
			329	2.7 V	IN																GND	GND						A0 to A1	to P				
			330	GND	GND																			2.7 V	IN			A1 to A2	to P				
			331																					IN	GND			A2 to A3	to P				
			332																			2.7 V	IN	GND				A3 to B0	to P				
	t _{PHL4}		333	IN	2.7 V																							B0 to B1	to P				
			334	GND	GND																			IN	2.7 V		B1 to B2	to P					
			335																					IN	GND			B2 to B3	to P				
			336																			IN	2.7 V	GND									
			337		IN	GND	2.7 V	2.7 V	GND													GND	GND						A0 to A1	to P		20	
			338																									A1 to A2	to P				
	t _{PLH4}		339																									A2 to A3	to P				
			340																									A3 to B0	to P				
			341	IN	2.7 V																							B0 to B1	to P				
			342	GND	GND																			IN	2.7 V		B1 to B2	to P					
			343																					IN	GND			B2 to B3	to P				
			344																			IN	2.7 V	GND									
	t _{PLH4}		345		IN																		GND	GND					A0 to A1	to P			
			346		GND																							A1 to A2	to P				
			347																									A2 to A3	to P				
			348																									A3 to B0	to P				
			349	IN	2.7 V																							B0 to B1	to P				
			350	GND	GND																				IN	2.7 V		B1 to B2	to P				
	t _{PHL5}		351																									B2 to B3	to P				
			352																			IN	2.7 V										
			353		IN	2.7 V	GND	GND	2.7 V													OUT	2.7 V	GND	2.7 V		2.7 V		A0 to A1	to G		16	
			354	2.7 V	GND																				IN	2.7 V		A1 to A2	to G				
			355																						IN	GND		A2 to A3	to G				
			356																									A3 to B0	to G				
	t _{PLH5}		357	IN																								B0 to B1	to G				
			358	2.7 V																								B1 to B2	to G				
			359																									B2 to B3	to G				
			360																														
			361	GND	IN																		2.7 V						A0 to A1	to G			
			362	2.7 V	GND																							A1 to A2	to G				
	t _{PLH5}		363																									A2 to A3	to G				
			364																									A3 to B0	to G				
			365	IN																								B0 to B1	to G				
			366	2.7 V																								B1 to B2	to G				
			367																									B2 to B3	to G				
			368																														

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	B ₀	A ₀	S ₃	S ₂	S ₁	S ₀	C _n	M	F ₀	F ₁	F ₂	GND	F ₃	A=B	P	C _{n+4}	G	B ₃	A ₃	B ₂	A ₂	B ₁	A ₁	V _{CC}				
10 T _C =+125°C	t _{PHL6}	3003 (Fig. 4)	369	2.7 V	IN	GND	2.7 V	2.7 V	GND	GND	GND				GND					OUT	GND	GND	GND	GND	GND	GND	5.0V	A ₀ to A ₁	2	20	ns
			370	GND	GND																		GND	GND	GND		A ₁ to A ₂				
			371																				2.7 V	IN	GND		A ₂ to A ₃				
			372																				GND	GND			B ₀ to B ₁				
			373	IN																							B ₁ to B ₂				
			374	GND																					IN	GND		B ₂ to B ₃			
			375																												
			376																			IN		IN	GND						
	t _{PLH6}		377	2.7 V	IN																	GND						A ₀ to A ₁			
			378	GND	GND																				2.7V	IN	GND	A ₁ to A ₂			
			379																									A ₂ to A ₃			
			380																									B ₀ to B ₁			
			381	IN																								B ₁ to B ₂			
			382	GND																						IN	GND	B ₂ to B ₃			
			383																												
			384																			IN		IN	GND						
	t _{PHL7}		385		2.7 V	2.7 V	GND	GND	2.7 V	IN		OUT									GND	2.7 V		2.7V		2.7V		C _n to F ₀		16	
	t _{PLH7}		386		2.7 V	2.7 V	GND	GND	2.7 V	IN		OUT																C _n to F ₀		16	
	t _{PHL8}		387		IN	GND	2.7 V	2.7 V	GND	GND																		A ₀ to A ₁	A=B	42	
			388		2.7 V																							A ₁ to A ₂	A=B		
389																											A ₂ to A ₃	A=B			
390																											B ₀ to B ₁	A=B			
391			IN																								B ₁ to B ₂	A=B			
392			GND																								B ₂ to B ₃	A=B			
393																															
394																					IN		IN	GND							
t _{PLH8}		395		IN																	GND						A ₀ to A ₁	A=B	29		
		396		2.7 V																							A ₁ to A ₂	A=B			
		397																									A ₂ to A ₃	A=B			
		398																									B ₀ to B ₁	A=B			
		399	IN																								B ₁ to B ₂	A=B			
		400	GND																								B ₂ to B ₃	A=B			
		401																													
		402																			IN		IN	GND							
t _{PHL9}		403			2.7 V	GND	GND	2.7 V	IN										OUT		GND						C _n to C _{n+4}		14.5		
t _{PLH9}		404			2.7 V	GND	GND	2.7 V													GND						C _n to C _{n+4}				
t _{PHL10}		405	2.7 V		GND	2.7 V	2.7 V	GND													2.7 V		2.7 V		2.7 V		C _n to C _{n+4}				
t _{PLH10}		406	2.7 V		GND	2.7 V	2.7 V	GND																			C _n to C _{n+4}				
t _{PHL11}		407	GND	IN	2.7 V	GND	GND	2.7V	GND													GND		GND		GND		A ₀ to A ₁	C _{n+4}	25	
		408	2.7 V	GND																			GND	IN	2.7 V		A ₁ to A ₂	C _{n+4}			
		409																									A ₂ to A ₃	C _{n+4}			
		410																									B ₀ to B ₁	C _{n+4}			
		411	IN																								B ₁ to B ₂	C _{n+4}			
		412	2.7 V																								B ₂ to B ₃	C _{n+4}			
		413																													
		414																				IN		2.7 V							

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases X,3 5/	2	3	4	5	6	7	8	9	11	12	13	14	16	17	18	19	20	22	23	24	25	26	27	28	Measured terminal	Test limits		Unit		
			Cases J,K,Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max			
			Test no.	B0	A0	S3	S2	S1	S0	Cn	M	F0	F1	F2	GND	F3	A=B	P	Cn+4	G	B3	A3	B2	A2	B1	A1	VCC						
10 T _C =+125°C	t _{PLH11}	3003 (Fig. 4)	415	GND	IN	2.7V	GND	GND	2.7V	GND	GND				GND				OUT		2.7V	GND	2.7V	GND	2.7V	GND	5.0V	A0	Cn+4	2	25	ns	
			416	2.7V	GND																		2.7V	GND	IN			A1	Cn+4				
			417																				2.7V	IN	2.7V			A2	Cn+4				
			418																				2.7V	GND				A3	Cn+4				
			419	IN																								B0	Cn+4				
			420	2.7V																						IN			B1	Cn+4			17
			421																							2.7V			B2	Cn+4			
			422																			IN		2.7V	2.7V				B3	Cn+4			
	t _{PHL12}		423		IN	GND	2.7V	2.7V	GND													GND		GND		GND			A0	Cn+4		29	
			424	GND	GND																			2.7V	IN	IN			A1	Cn+4			
			425																					2.7V	GND				A2	Cn+4			
			426																					IN	GND				A3	Cn+4			
			427	IN																									B0	Cn+4			
			428	GND																					IN				B1	Cn+4			17
			429																										B2	Cn+4			
			430																			IN		IN	GND				B3	Cn+4			
	t _{PLH12}		431	2.7V	IN																	GND				2.7V	IN		A0	Cn+4			
			432	GND	GND																								A1	Cn+4			
			433																										A2	Cn+4			
			434																										A3	Cn+4			
			435	IN																									B0	Cn+4			
			436	GND																						IN			B1	Cn+4			17
			437																										B2	Cn+4			
			438																			IN		IN	GND				B3	Cn+4			
	t _{PHL13}		439		IN						2.7V	OUT	OUT	OUT								GND							A0	E0		28	
			440		GND																						IN		A1	E1			
			441																										A2	E2			
			442																										A3	E3			
			443	IN									OUT	OUT									IN						B0	E0			
			444	GND										OUT	OUT											IN			B1	E1			
			445											OUT															B2	E2			
			446																			IN		IN	GND				B3	E3			
	t _{PLH13}		447		IN							OUT	OUT	OUT								GND							A0	E0		26	
			448		GND																						IN		A1	E1			
			449																										A2	E2			
			450																										A3	E3			
			451	IN									OUT	OUT									IN						B0	E0			
			452	GND										OUT	OUT														B1	E1			
			453											OUT															B2	E2			
			454																			IN		IN	GND				B3	E3			
11	Same tests, terminal conditions, and limits as subgroup 10, except T _C = -55°C.																																

- 1/ Tests shall be performed in sequence.
2/ Inputs: A = 2.4 V, B = 0.4 V.
3/ Outputs: $H \geq 1.5$ V, $L \leq 1.5$ V.
4/ Only a summary of attributes data is required.
5/ Cases 3 and X pins not designated are NC.

TABLE III. Group A inspection for device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
			Test no.	$\overline{G}1$	$\overline{P}1$	$\overline{G}0$	$\overline{P}0$	$\overline{G}3$	$\overline{P}3$	$\overline{P}$	GND	C_{n+Z}	$\overline{G}$	C_{n+Y}	$n+X$	n	$\overline{G}2$	$\overline{P}2$	V_{CC}		Min	Max	
1 $T_C=+25^{\circ}C$	V_{OH}	3006	1 2 3 4 5	2.0 V 0.8 V 0.8 V	0.8 V 2.0 V 0.8 V 2.0 V	2.0 V 0.8 V 2.0 V 0.8 V	2.0 V 2.0 V 2.0 V 2.0 V	2.0 V 2.0 V	0.8 V 2.0 V	-1 mA	GND " " "	-1 mA	-1 mA	C " " -1 mA	C 0.8 V 0.8 V 0.8 V	0.8 V 0.8 V	0.8 V 2.0 V 0.8 V	4.5 V " " "	$\overline{P}$ C_{n+Z} G C_{n+Y} C_{n+X}	2.5 " " " "	 " " V "	 " " " "	
	V_{OL}	3007	6 7 8 9 10	0.8 V 2.0 V 2.0 V	0.8 V 0.8 V 2.0 V 0.8 V 2.0 V	0.8 V 0.8 V 2.0 V	0.8 V 0.8 V 0.8 V 2.0 V	0.8 V 0.8 V	0.8 V 2.0 V	20 mA	" " " "	20 mA	20 mA	20 mA	2.0 V 2.0 V 2.0 V 2.0 V	2.0 V 2.0 V	0.8 V 2.0 V 2.0 V	" " " " "	$\overline{P}$ C_{n+Z} G C_{n+Y} C_{n+X}	0.2 " " " "	0.5 " " " "	 " " " "	
	V_{IC}		11 12 13 14 15 16 17 18 19	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	" " " " " " " "					-18 mA	-18 mA	-18 mA	" " " " " " " " "	$\overline{G}1$ $\overline{P}1$ $\overline{G}0$ $\overline{P}0$ $\overline{G}3$ $\overline{P}3$ C_n $\overline{G}2$ $\overline{P}2$		-1.2 " " " " " " " "	 " " " " " " " "
	I_{IL1}	3009	20	0.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V		"					GND	5.5 V	5.5 V	5.5V	$\overline{G}1$	-8	-16	mA
	I_{IL2}	"	21	5.5 V	0.5 V	5.5 V	"	"	"		"					"	"	"	"	$\overline{P}1$	-4	-8	"
	I_{IL3}	"	22	"	5.5 V	0.5 V	"	"	"		"					"	"	"	"	$\overline{G}0$	-7	-14	"
	I_{IL4}	"	23	"	"	5.5 V	0.5 V	"	"		"					5.5 V	"	"	"	$\overline{P}0$	-4	-8	"
	I_{IL5}	"	24	"	"	"	5.5 V	0.5 V	"		"					"	"	"	"	$\overline{G}3$	-4	-8	"
	I_{IL6}	"	25	"	"	"	"	5.5 V	0.5 V		"					"	"	"	"	$\overline{P}3$	-2	-4	"
	I_{IL7}	"	26	"	"	"	"	"	5.5 V		"					0.5 V	"	"	"	C_n	-1	-2	"
	I_{IL8}	"	27	"	"	"	"	"	"		"					GND	0.5 V	"	"	$\overline{G}2$	-7	-14	"
	I_{IL9}	"	28	"	"	"	"	"	"		"					5.5 V	5.5 V	0.5 V	"	$\overline{P}2$	-3	-6	"
	I_{IH1}	3010	29	2.7 V	GND	GND	GND	GND	GND							"	GND	GND	"	$\overline{G}1$			μA
	I_{IH2}	"	30	GND	2.7 V	GND	"	"	"		"					"	"	"	"	$\overline{P}1$		200	"
	I_{IH3}	"	31	GND	GND	2.7 V	"	"	"	"	"					"	"	"	"	$\overline{G}0$	400	350	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit	
				Test no.	$\bar{G}1$	$\bar{P}1$	$\bar{G}0$	$\bar{P}0$	$\bar{G}3$	$\bar{P}3$	$\bar{P}$	GND	C_{n+Z}	$\bar{G}$	C_{n+Y}	$n+X$	n	$\bar{G}2$	$\bar{P}2$		V_{CC}	Min		Max
1 $T_C=+25^{\circ}\text{C}$	I_{IH4}	3010	32	GND	GND	GND	2.7 V	GND	GND		GND			C	C	GND	GND	GND	5.5 V	$\bar{P}0$		200	μA	
	I_{IH5}	"	33	"	"	"	GND	2.7 V	GND		"					"	"	"	"	$\bar{G}3$		200	"	
	I_{IH6}	"	34	"	"	"	"	GND	2.7 V		"					"	"	"	"	$\bar{P}3$		100	"	
	I_{IH7}	"	35	"	"	"	"	"	GND		"					2.7 V	"	"	"	C_n		50	"	
	I_{IH8}	"	36	"	"	"	"	"	"		"					5.5 V	2.7 V	"	"	$\bar{G}2$		350	"	
	I_{IH9}	"	37	"	"	"	"	"	"		"					GND	GND	2.7 V	"	$\bar{P}2$		150	"	
	I_{IH10}	"	38	5.5 V	"	"	"	"	"		"					5.5 V	"	GND	"	$\bar{G}1$		1	mA	
	I_{IH11}	"	39	GND	5.5 V	"	"	"	"		"					"	"	"	"	$\bar{P}1$		"	"	
	I_{IH12}	"	40	"	GND	5.5 V	"	"	"		"					"	"	"	"	$\bar{G}0$		"	"	
	I_{IH13}	"	41	"	"	GND	5.5 V	"	"		"					GND	"	"	"	$\bar{P}0$		"	"	
	I_{IH14}	"	42	"	"	"	GND	5.5 V	"		"					"	"	"	"	$\bar{G}3$		"	"	
	I_{IH15}	"	43	"	"	"	"	GND	5.5 V		"					"	"	"	"	$\bar{P}3$		"	"	
	I_{IH16}	"	44	"	"	"	"	"	GND		"					5.5 V	"	"	"	C_n		"	"	
	I_{IH17}	"	45	"	"	"	"	"	"		"					5.5 V	5.5 V	"	"	$\bar{G}2$		"	"	
	I_{IH18}	"	46	"	"	"	"	"	"		"					GND	GND	5.5 V	"	$\bar{P}2$		"	"	
	I_{OS}	3011	47	GND	5.5 V	GND	5.5 V	GND		5.5 V	GND	"	GND				5.5 V	GND	5.5 V	"	$\bar{P}$	-40	-100	"
		"	48	5.5 V	5.5 V	5.5 V	GND		5.5 V	5.5 V	"	"	GND	GND			5.5 V	5.5 V	5.5 V	"	C_{n+Z}	"	"	"
		"	49	GND	GND	GND	GND				"			GND	GND		5.5 V			"	G	"	"	"
		"	50	GND	GND	GND	"				"					5.5 V				"	C_{n+Y}	"	"	"
		"	51	GND	GND	GND					"					5.5 V				"	C_{n+Z}	"	"	"
I_{CCL}	3005	52	5.5 V	"	5.5 V	"	GND	GND		"						GND	5.5 V	GND	"	V_{CC}		99	"	
I_{CCH}	3005	53	GND	"	5.5 V	"	5.5 V	5.5 V		"						GND	GND	GND	"	V_{CC}		65	"	

See footnotes at end of device type 02

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
				Test no.	$\overline{G}1$	$\overline{P}1$	$\overline{G}0$	$\overline{P}0$	$\overline{G}3$	$\overline{P}3$	$\overline{P}$	GND	C _n +Z	$\overline{G}$	C _n +Y	n+X	n	$\overline{G}2$	$\overline{P}2$		V _{CC}	Min	
1 T _C =+25°C	I _{CEX}		54 55 56 57 58	5.5 V GND GND	GND 5.5 V GND 5.5 V	5.5 V GND 5.5 V GND	5.5 V 5.5 V 5.5 V 5.5 V		GND	5.5 V	GND " " " "	5.5 V		C 5.5 V	C 5.5 V	GND GND GND GND	GND GND GND	GND 5.5V GND	5.5 V " " " "	$\overline{P}$ C _n +Z G C _n +Y C _n +X	250	" " " "	μA
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted. V _{IL} = 0.7 V dc and V _{OL} (max) = 0.45 V dc.																						
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																						
7 T _C =+25°C	Functional tests 1/ 4/	59	60 61 62 63 64 65 66 67 68 69 70 71 72	B 2/ B A B A B A " " A A A B	B 2/ B A A " " B A " B A A B	B 2/ A B " " A " " B A A A	B 2/ A A " " A " " B B A A	B 2/ A " " " " " " " " " " A	B 2/ A " " " " " " " " " " "	L 3/ H " " " " " " " " " L	GND " " " " " " " " " " "	H 3/ H L H H H H H H H L L	L 3/ L L L L L L L L L L H	H 3/ H L H H H H H H H L L	H 3/ L H H H H H H H H L L	B 2/ A B A B A B A B A B B	B 2/ A " " " B A B A B A B A	B 2/ " " " " A A B A " " B	4.5V " " " " " " " " " " " "	All output " " " " " " " " " " " "	H or L as shown 3/ " " " " " " " " " " " "		
8 1/ 4/	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = +125°C and -55°C.																						
9 T _C =+25°C	t _{PLH1}	3003 (Fig. 4)	73	2.7 V	GND	2.7V	GND	2.7 V	2.7 V		GND				OUT	IN	2.7 V	GND	5.0 V	C _n to C _n +X	2	12	ns
	t _{PHL1}	"	74	"	"	"	"	"	"	"	"				OUT	"	"	"	"	C _n to C _n +X	"	12.5	"
	t _{PLH1}	"	75	"	"	"	"	"	"	"	"			OUT		"	"	"	"	C _n to C _n +Y	"	12	"
	t _{PHL1}	"	76	"	"	"	"	"	"	"	"			OUT		"	"	"	"	C _n to C _n +Y	"	12.5	"
	t _{PLH1}	"	77	"	"	"	"	"	"	"	"	OUT				"	"	"	"	C _n to C _n +Z	"	12	"
	t _{PHL1}	"	78	"	"	"	"	"	"	"	"	OUT				"	"	"	"	C _n to C _n +Z	"	12.5	"
	t _{PLH2}	"	79	"	"	"	IN	"	"	"	"				OUT	2.7 V	"	"	"	$\overline{P}0$ to C _n +X	"	9	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
				Test no.	$\overline{G}1$	$\overline{P}1$	$\overline{G}0$	$\overline{P}0$	$\overline{G}3$	$\overline{P}3$	$\overline{P}$	GND	C_{n+Z}	$\overline{G}$	C_{n+Y}	$n+X$	n	$\overline{G}2$	$\overline{P}2$		V_{CC}	Min	
9 $T_C=+25^{\circ}\text{C}$	t_{PHL2}	3003 (Fig. 4)	80	2.7 V	GND	2.7 V	IN	2.7 V	2.7 V		GND			^C	OUT C	2.7 V	2.7 V	GND	5.0V	$\overline{P}0$ to C_{n+X}	2	9	ns
	t_{PLH2}	"	81	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{P}0$ to C_{n+Y}	"	"	"
	t_{PHL2}	"	82	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{P}0$ to C_{n+Y}	"	"	"
	t_{PLH2}	"	83	"	"	"	"	"	"		"	OUT				"	"	"	"	$\overline{P}0$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	84	"	"	"	"	"	"		"	OUT				"	"	"	"	$\overline{P}0$ to C_{n+Z}	"	"	"
	t_{PLH2}	"	85	"	IN	"	GND	"	"		"			OUT		"	"	"	"	$\overline{P}1$ to C_{n+Y}	"	"	"
	t_{PHL2}	"	86	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{P}1$ to C_{n+Y}	"	"	"
	t_{PLH2}	"	87	"	"	"	"	"	"		"	OUT				"	"	"	"	$\overline{P}1$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	88	"	"	"	"	"	"		"	"				"	"	"	"	$\overline{P}1$ to C_{n+Z}	"	"	"
	t_{PLH2}	"	89	"	GND	"	"	"	"		"	"				"	"	IN	"	$\overline{P}2$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	90	"	"	"	"	"	"		"	"				"	"	IN	"	$\overline{P}2$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	91	"	"	IN	"	"	"		"				OUT	GND	"	GND	"	$\overline{G}0$ to C_{n+X}	"	"	"
	t_{PHL3}	"	92	"	"	"	"	"	"		"				OUT	"	"	"	"	$\overline{G}0$ to C_{n+X}	"	"	"
	t_{PLH3}	"	93	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{G}0$ to C_{n+Y}	"	"	"
	t_{PHL3}	"	94	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{G}0$ to C_{n+Y}	"	"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
				Test no.	$\overline{G}1$	$\overline{P}1$	$\overline{G}0$	$\overline{P}0$	$\overline{G}3$	$\overline{P}3$	$\overline{P}$	GND	C_{n+Z}	$\overline{G}$	C_{n+Y}	$n+X$	n	$\overline{G}2$	$\overline{P}2$		V_{CC}	Min	
9 $T_C=+25^{\circ}\text{C}$	t_{PLH3}	3003 (Fig. 4)	95	2.7 V	GND	IN	GND	2.7 V	2.7 V		GND	OUT		C	C	GND	2.7 V	GND	5.0 V	$\overline{G}0$ to C_{n+Z}	2	9	ns
	t_{PHL3}	"	96	2.7 V	"	IN	"	"	"		"	OUT				"	"	"	"	$\overline{G}0$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	97	IN	"	2.7 V	"	"	"		"			OUT		"	"	"	"	$\overline{G}1$ to C_{n+Y}	"	"	"
	t_{PHL3}	"	98	"	"	"	"	"	"		"			OUT		"	"	"	"	$\overline{G}1$ to C_{n+Y}	"	"	"
	t_{PLH3}	"	99	"	"	"	"	"	"		"	OUT				"	"	"	"	$\overline{G}1$ to C_{n+Z}	"	"	"
	t_{PHL3}	"	100	"	"	"	"	"	"		"	"				"	"	"	"	$\overline{G}1$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	101	2.7 V	"	"	"	"	"		"	"				"	IN	"	"	$\overline{G}2$ to C_{n+Z}	"	"	"
	t_{PHL3}	"	102	"	"	"	"	"	"		"	"				"	IN	"	"	$\overline{G}2$ to C_{n+Z}	"	"	"
	t_{PLH4}	"	103	"	IN	GND	"	"	GND		"		OUT			2.7 V	2.7 V	"	"	$\overline{P}1$ to $\overline{G}$	"	9.5	"
	t_{PHL4}	"	104	"	IN	"	"	"	"		"		"			"	"	"	"	$\overline{P}1$ to $\overline{G}$	"	12.5	"
	t_{PLH4}	"	105	"	GND	"	"	"	"		"		"			"	"	IN	"	$\overline{P}2$ to $\overline{G}$	"	9.5	"
	t_{PHL4}	"	106	"	"	"	"	"	"		"		"			"	"	IN	"	$\overline{P}2$ to $\overline{G}$	"	12.5	"
	t_{PLH4}	"	107	"	"	"	"	"	IN		"		"			"	"	GND	"	$\overline{P}3$ to $\overline{G}$	"	9.5	"
	t_{PHL4}	"	108	"	"	"	"	"	IN		"		"			"	"	"	"	$\overline{P}3$ to $\overline{G}$	"	12.5	"
	t_{PLH5}	"	109	"	"	IN	"	"	GND		"		"			"	"	"	"	$\overline{G}0$ to $\overline{G}$	"	9.5	"
	t_{PHL5}	"	110	"	"	IN	"	"	"		"		"			"	"	"	"	$\overline{G}0$ to $\overline{G}$	"	12.5	"
	t_{PLH5}	"	111	IN	"	2.7 V	"	"	"		"		"			"	"	"	"	$\overline{G}1$ to $\overline{G}$	"	9.5	"
	t_{PHL5}	"	112	IN	"	2.7 V	"	"	"		"		"			"	"	"	"	$\overline{G}1$ to $\overline{G}$	"	12.5	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
			Test no.	$\bar{G}1$	$\bar{P}1$	$\bar{G}0$	$\bar{P}0$	$\bar{G}3$	$\bar{P}3$	$\bar{P}$	GND	C_{n+Z}	$\bar{G}$	C_{n+Y}	$n+X$	n	$\bar{G}2$	$\bar{P}2$	V_{CC}		Min	Max	
9 $T_C=+25^{\circ}\text{C}$	t_{PLH5}	3003 (Fig. 4)	113	2.7 V	GND	2.7 V	GND	2.7 V	GND		GND		OUT	C	C	2.7 V	IN	GND	5.0 V	$\bar{G}2$ to $\bar{G}$	2	9.5	ns
	t_{PHL5}	"	114	"	"	"	"	2.7 V	"		"		"		"	IN	"	"	$\bar{G}2$ to $\bar{G}$	"	12.5	"	
	t_{PLH5}	"	115	"	"	"	"	IN	"		"		"		"	2.7 V	"	"	$\bar{G}3$ to $\bar{G}$	"	9.5	"	
	t_{PHL5}	"	116	"	"	"	"	IN	"		"		"		"	"	"	"	$\bar{G}3$ to $\bar{G}$	"	12.5	"	
	t_{PLH6}	"	117	"	"	"	IN	2.7 V	"	OUT	"				"	"	"	"	$\bar{P}0$ to $\bar{P}$	"	8.5	"	
	t_{PHL6}	"	118	"	"	"	IN	"	"	"	"				"	"	"	"	$\bar{P}0$ to $\bar{P}$	"	12	"	
	t_{PLH6}	"	119	"	IN	"	GND	"	"	"	"				"	"	"	"	$\bar{P}1$ to $\bar{P}$	"	8.5	"	
	t_{PHL6}	"	120	"	IN	"	"	"	"	"	"				"	"	"	"	$\bar{P}1$ to $\bar{P}$	"	12	"	
	t_{PLH6}	"	121	"	GND	"	"	"	"	"	"				"	"	IN	"	$\bar{P}2$ to $\bar{P}$	"	8.5	"	
	t_{PHL6}	"	122	"	"	"	"	"	"	"	"				"	"	IN	"	$\bar{P}2$ to $\bar{P}$	"	12	"	
	t_{PLH6}	"	123	"	"	"	"	"	"	IN	"	"			"	"	GND	"	$\bar{P}3$ to $\bar{P}$	"	8.5	"	
	t_{PHL6}	"	124	"	"	"	"	"	"	IN	"	"			"	"	"	"	$\bar{P}3$ to $\bar{P}$	"	12	"	
10 $T_C=+125^{\circ}\text{C}$	t_{PLH1}	"	125	"	"	"	"	"	2.7 V		"				OUT	IN	2.7 V	"	"	C_n to C_{n+X}	"	14	"
	t_{PHL1}	"	126	"	"	"	"	"	"		"				OUT	"	"	"	"	C_n to C_{n+X}	"	14.5	"
	t_{PLH1}	"	127	"	"	"	"	"	"		"			OUT		"	"	"	"	C_n to C_{n+Y}	"	14	"
	t_{PHL1}	"	128	"	"	"	"	"	"		"			OUT		"	"	"	"	C_n to C_{n+Y}	"	14.5	"
	t_{PLH1}	"	129	"	"	"	"	"	"		"	OUT				"	"	"	"	C_n to C_{n+Z}	"	14	"
	t_{PHL1}	"	130	"	"	"	"	"	"		"	OUT				"	"	"	"	C_n to C_{n+Z}	"	14.5	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
				$\bar{G}1$	$\bar{P}1$	$\bar{G}0$	$\bar{P}0$	$\bar{G}3$	$\bar{P}3$	$\bar{P}$	GND	C_{n+Z}	$\bar{G}$	C_{n+Y}	$n+X$	n	$\bar{G}2$	$\bar{P}2$	V_{CC}		Min	Max	
10 $T_C=+125^\circ\text{C}$	t_{PLH2}	3003 (Fig. 4)	131	2.7 V	GND	2.7 V	IN	2.7 V	2.7 V		GND			C	OUT C	2.7 V	2.7 V	GND	5.0 V	$\bar{P}0$ to C_{n+X}	2	11	ns
	t_{PHL2}	"	132	"	"	"	"	"	"		"				OUT	"	"	"	"	$\bar{P}0$ to C_{n+X}	"	"	"
	t_{PLH2}	"	133	"	"	"	"	"	"		"			OUT		"	"	"	"	$\bar{P}0$ to C_{n+Y}	"	"	"
	t_{PHL2}	"	134	"	"	"	"	"	"		"			OUT		"	"	"	"	$\bar{P}0$ to C_{n+Y}	"	"	"
	t_{PLH2}	"	135	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{P}0$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	136	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{P}0$ to C_{n+Z}	"	"	"
	t_{PLH2}	"	137	"	IN	"	GND	"	"		"			OUT		"	"	"	"	$\bar{P}1$ to C_{n+Y}	"	"	"
	t_{PHL2}	"	138	"	"	"	"	"	"		"			OUT		"	"	"	"	$\bar{P}1$ to C_{n+Y}	"	"	"
	t_{PLH2}	"	139	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{P}1$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	140	"	"	"	"	"	"		"	"				"	"	"	"	$\bar{P}1$ to C_{n+Z}	"	"	"
	t_{PLH2}	"	141	"	GND	"	"	"	"		"	"				"	"	IN	"	$\bar{P}2$ to C_{n+Z}	"	"	"
	t_{PHL2}	"	142	"	"	"	"	"	"		"	"				"	"	IN	"	$\bar{P}2$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	143	"	"	IN	"	"	"		"				OUT	GND	"	GND	"	$\bar{G}0$ to C_{n+X}	"	"	"
	t_{PHL3}	"	144	"	"	IN	"	"	"		"				OUT	GND	"	GND	"	$\bar{G}0$ to C_{n+X}	"	"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
				$\bar{G}1$	$\bar{P}1$	$\bar{G}0$	$\bar{P}0$	$\bar{G}3$	$\bar{P}3$	$\bar{P}$	GND	C_{n+Z}	$\bar{G}$	C_{n+Y}	$n+X$	n	$\bar{G}2$	$\bar{P}2$	V_{CC}		Min	Max	
10 $T_C=+125^\circ\text{C}$	t_{PLH3}	3003 (Fig. 4)	145	2.7 V	GND	IN	GND	2.7 V	2.7 V		GND			OUT ^C	C	GND	2.7 V	GND	5.0 V	$\bar{G}0$ to C_{n+Y}	2	11	ns
	t_{PHL3}	"	146	"	"	"	"	"	"		"			OUT		"	"	"	"	$\bar{G}0$ to C_{n+Y}	"	"	"
	t_{PLH3}	"	147	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{G}0$ to C_{n+Z}	"	"	"
	t_{PHL3}	"	148	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{G}0$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	149	IN	"	2.7 V	"	"	"		"			OUT		"	"	"	"	$\bar{G}1$ to C_{n+Y}	"	"	"
	t_{PHL3}	"	150	"	"	"	"	"	"		"			OUT		"	"	"	"	$\bar{G}1$ to C_{n+Y}	"	"	"
	t_{PLH3}	"	151	"	"	"	"	"	"		"	OUT				"	"	"	"	$\bar{G}1$ to C_{n+Z}	"	"	"
	t_{PHL3}	"	152	"	"	"	"	"	"		"	"				"	"	"	"	$\bar{G}1$ to C_{n+Z}	"	"	"
	t_{PLH3}	"	153	2.7 V	"	"	"	"	"		"	"				"	IN	"	"	$\bar{G}2$ to C_{n+Z}	"	"	"
	t_{PHL3}	"	154	"	"	"	"	"	"		"	"				"	IN	"	"	$\bar{G}2$ to C_{n+Z}	"	"	"
	t_{PLH4}	"	155	"	IN	"	"	"	GND		"		OUT			2.7 V	2.7 V	"	"	$\bar{P}1$ to $\bar{G}$	"	11.5	"
	t_{PHL4}	"	156	"	IN	"	"	"	"		"		"			"	"	"	"	$\bar{P}1$ to $\bar{G}$	"	14.5	"
	t_{PLH4}	"	157	"	GND	"	"	"	"		"		"			"	"	IN	"	$\bar{P}2$ to $\bar{G}$	"	11.5	"
	t_{PHL4}	"	158	"	"	"	"	"	"		"		"			"	"	IN	"	$\bar{P}2$ to $\bar{G}$	"	14.5	"
	t_{PLH4}	"	159	"	"	"	"	"	IN		"		"			"	"	GND	"	$\bar{P}3$ to $\bar{G}$	"	11.5	"
	t_{PHL4}	"	160	"	"	"	"	"	IN		"		"			"	"	"	"	$\bar{P}3$ to $\bar{G}$	"	14.5	"
	t_{PLH5}	"	161	"	"	IN	"	"	GND		"		"			"	"	"	"	$\bar{G}0$ to $\bar{G}$	"	11.5	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Test limits		Unit
			Test no.	$\overline{G}1$	$\overline{P}1$	$\overline{G}0$	$\overline{P}0$	$\overline{G}3$	$\overline{P}3$	$\overline{P}$	GND	C_{n+Z}	$\overline{G}$	C_{n+Y}	$n+X$	n	$\overline{G}2$	$\overline{P}2$	V_{CC}		Min	Max	
10 $T_C=+125^{\circ}\text{C}$	t_{PHL5}	3003 (Fig. 4)	162	2.7 V	GND	IN	GND	2.7 V	GND		GND		OUT	C	C	2.7 V	2.7 V	GND	5.0 V	$\overline{G}0$ to $\overline{G}$	2	14.5	ns
	t_{PLH5}	"	163	IN	"	2.7 V	"	"	"		"		"			"	"	"	"	$\overline{G}1$ to $\overline{G}$	"	11.5	"
	t_{PHL5}	"	164	IN	"	"	"	"	"		"		"			"	"	"	"	$\overline{G}1$ to $\overline{G}$	"	14.5	"
	t_{PLH5}	"	165	2.7 V	"	"	"	"	"		"		"			"	IN	"	"	$\overline{G}2$ to $\overline{G}$	"	11.5	"
	t_{PHL5}	"	166	"	"	"	"	"	"		"		"			"	IN	"	"	$\overline{G}2$ to $\overline{G}$	"	14.5	"
	t_{PLH5}	"	167	"	"	"	"	IN	"		"		"			"	2.7V	"	"	$\overline{G}3$ to $\overline{G}$	"	11.5	"
	t_{PHL5}	"	168	"	"	"	"	IN	"		"		"			"	"	"	"	$\overline{G}3$ to $\overline{G}$	"	14.5	"
	t_{PLH6}	"	169	"	"	"	IN	2.7 V	"	OUT	"					"	"	"	"	$\overline{P}0$ to $\overline{P}$	"	10	"
	t_{PHL6}	"	170	"	"	"	IN	"	"	"	"					"	"	"	"	$\overline{P}0$ to $\overline{P}$	"	14	"
	t_{PLH6}	"	171	"	IN	"	GND	"	"	"	"					"	"	"	"	$\overline{P}1$ to $\overline{P}$	"	10	"
	t_{PHL6}	"	172	"	IN	"	"	"	"	"	"					"	"	"	"	$\overline{P}1$ to $\overline{P}$	"	14	"
	t_{PLH6}	"	173	"	GND	"	"	"	"	"	"					"	"	IN	"	$\overline{P}2$ to $\overline{P}$	"	10	"
	t_{PHL6}	"	174	"	"	"	"	"	"	"	"					"	"	IN	"	$\overline{P}2$ to $\overline{P}$	"	14	"
	t_{PLH6}	"	175	"	"	"	"	"	"	IN	"	"				"	"	GND	"	$\overline{P}3$ to $\overline{P}$	"	10	"
	t_{PHL6}	"	176	"	"	"	"	"	"	IN	"	"				"	"	GND	"	$\overline{P}3$ to $\overline{P}$	"	14	"
11	Same tests, terminal conditions, and limits as subgroup 10, except $T_C = -55^{\circ}\text{C}$.																						

- 1/ Tests shall be performed in sequence.
- 2/ Inputs: A = 2.4 V, B = 0.4 V.
- 3/ Outputs: $H \geq 1.5$ V, $L \leq 1.5$ V.
- 4/ Only a summary of attributes data is required.

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 packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. Microcircuits conforming to this specification are intended for 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. Requirement for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to the acquiring 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 shall not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
- i. Requirements for "JAN" marking.
- j. Packaging requirements (see 5.1).

6.3 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, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

6.4 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.

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

GND	Electrical ground (common terminal)
V _{IN}	Voltage level at an input terminal.
I _{IN}	Current flowing into an input terminal.

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

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

<u>Device type</u>	<u>Commercial type</u>
01	54S181
02	54S182

6.8 Manufacturers' designations. Manufacturers' circuits included in this specification are designated as shown in table IV.

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

TABLE IV. Manufacturers' Designations.

Device type	Commercial Type	Circuits	
		A	B
		Texas Instruments	Signetics Corp.
01	54S181	X	X
02	54S182	X	

Custodians:

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

Preparing activity:
DLA - CC

(Project 5962-2005-013)

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>.