

INCH-POUND

MIL-M-38510/308B
12 November 2003
SUPERSEDING
MIL-M-38510/308A
2 February 1982

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, LOW-POWER SCHOTTKY TTL, ARITHMETIC
LOGIC UNITS/FUNCTION GENERATORS, MONOLITHIC SILICON

Inactive for new design after 6 September 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, low-power Schottky TTL, arithmetic logic units/function generators. Two product assurance classes and a choice of case outlines and lead finishes are provided for each type and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).

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

1.2.1 Device types. The device types should be as follows:

<u>Device type</u>	<u>Circuit</u>
01	Arithmetic logic unit/function generator

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

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

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
J	GDIP1-T24 or CDIP2-T24	24	Dual-in-line
K	GDFP2-F24 or CDFP3-F24	24	Flat pack
Z	GDFP7-F24 or CDFP8-F24	24	Flat pack
3	CQCC1-N28	28	Square leadless chip carrier

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43216-5000, 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 www.dodssp.daps.mil.

1.3 Absolute maximum ratings.

Supply voltage	-0.5 V to 7.0 V dc
Input voltage range	-1.5 V dc at -18 mA to 5.5 V dc
Storage temperature range	-65° to +150°C
Maximum power dissipation (P_D) <u>1/</u>	193 mW dc
Lead temperature (soldering, 10 seconds)	300°C
Thermal resistance, junction to case (θ_{JC}):	
Cases J, K, 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
Maximum low level input voltage (V_{IL})	0.7 V
Normalized fanout (each output)	
Logical low level	10 maximum
Logical high level	20 maximum
Case operating temperature range (T_C)	-55°C to +125°C

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

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

DEPARTMENT OF DEFENSE SPECIFICATIONS

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

DEPARTMENT OF DEFENSE STANDARDS

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

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or www.dodssp.daps.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 test (e.g., I_{OS}).

2/ Maximum junction temperature shall not be exceeded except for allowable short duration burn-in screening conditions in accordance with MIL-PRF-38535.

3. REQUIREMENTS

3.1 Qualification. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.4).

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

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

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

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

3.3.3 Logic diagram. The logic diagram shall be as specified on figure 3.

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

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

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.

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

4. VERIFICATION

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

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

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

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C	Limits		Unit
			Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.5 V, V _{IL} = 0.7 V, V _{IH} = 2.0 V, I _{OH} = -400 μA	2.5		V
Low level output voltage	V _{OL}	V _{CC} = 4.5 V, V _{IL} = 0.7 V, V _{IH} = 2.0 V, I _{OL} = 4.0 mA		0.4	V
Input diode clamp	V _{IC}	V _{CC} = 4.5 V, I _{IN} = -18 mA, T _C = +25°C		-1.5	V
Low level input current at M input	I _{IL1}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>2/</u>	-0.03	-0.40	mA
Low level input current at $\bar{B}$ input	I _{IL2}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>2/</u>	-0.09	-1.20	mA
Low level input current at S0 or S3 input	I _{IL3}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>2/</u>	-0.12	-1.60	mA
Low level input current at S1 or S2 input	I _{IL4}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>2/</u> A0, A1, A2, A3 = 5.5 V <u>3/</u>	-0.12	-1.60	mA
Low level input current at Cn input	I _{IL5}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>3/</u>	-0.15	-2.0	mA
Low level input current at $\bar{A}$ input	I _{IL6}	V _{CC} = 5.5 V, V _{IN} = 0.4 V <u>2/</u>	-0.09	-1.20	mA
High level input current at M input	I _{IH1}	V _{CC} = 5.5 V, V _{IN} = 2.7 V <u>3/</u>		20	μA
High level input current at $\bar{A}$ or $\bar{B}$ input	I _{IH2}	V _{CC} = 5.5 V, V _{IN} = 2.7 V <u>3/</u>		60	μA
High level input current at S0 or S3 input	I _{IH3}	V _{CC} = 5.5 V, V _{IN} = 2.7 V <u>3/</u>		80	μA
High level input current at S1 or S2 input	I _{IH4}	V _{CC} = 5.5 V, V _{IN} = 2.7 V <u>3/</u> B1, B1, B2, B3 = 5.5 V		80	μA
High level input current at Cn input	I _{IH5}	V _{CC} = 5.5 V, V _{IN} = 2.7 V <u>2/</u>		100	μA
High level input current at M input	I _{IH6}	V _{CC} = 5.5 V, V _{IN} = 5.5 V <u>3/</u>		100	μA
High level input current at $\bar{A}$ or $\bar{B}$ input	I _{IH7}	V _{CC} = 5.5 V, V _{IN} = 5.5 V <u>3/</u>		300	μA
High level input current at S0 or S3 input	I _{IH8}	V _{CC} = 5.5 V, V _{IN} = 5.5 V <u>3/</u>		400	μA
High level input current at S1 or S2 input	I _{IH9}	V _{CC} = 5.5 V, V _{IN} = 5.5 V <u>3/</u> $\bar{B}1, \bar{B}1, \bar{B}2, \bar{B}3 = 5.5 V$ <u>3/</u>		400	μA
High level input current at Cn input	I _{IH10}	V _{CC} = 5.5 V, V _{IN} = 5.5 V <u>2/</u>		500	μA
Short circuit output current at $\bar{G}$ output	I _{OS1}	V _{CC} = 5.5 V, $\bar{S}3, \bar{A}3, \bar{B}3 = 5.5 V$ <u>3/ 4/</u>	-15	-100	mA
Short circuit output current at Cn+4 output	I _{OS2}	V _{CC} = 5.5 V, <u>3/ 4/</u>	-15	-100	mA

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C	Limits		Unit
			Min	Max	
Short circuit output current at $\bar{P}$, $\bar{F} 0$ thru $\bar{F} 3$ outputs	I _{OS3}	V _{CC} = 5.5 V, <u>2/ 4/</u>	-15	-100	mA
Collector cutoff current at A = B output	I _{CEX}	V _{CC} = 4.5 V, V _(A=B) = 5.5 V, all input = 4.5 V		100	μA
Supply current	I _{CC1}	V _{CC} = 5.5 V, S0 thru S3, M, and A = 5.5 V		35	mA
	I _{CC2}	V _{CC} = 5.5 V, S0 thru S3 and M = 5.5 V, all others grounded		35	mA
Propagation delay times, high to low level output: <u>5/</u> , <u>6/</u>					
$\bar{A}$ i or $\bar{B}$ i to any $\bar{F}$, $\overline{\text{sum}}$ mode	t _{PHL1}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	37	ns
$\bar{A}$ i or $\bar{B}$ i to any $\bar{F}$, $\overline{\text{diff}}$ mode	t _{PHL2}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	55	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{P}$, $\overline{\text{sum}}$ mode	t _{PHL3}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	52	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{P}$, $\overline{\text{diff}}$ mode	t _{PHL4}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	57	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{G}$, $\overline{\text{sum}}$ mode	t _{PHL5}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	42	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{G}$, $\overline{\text{diff}}$ mode	t _{PHL6}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	55	ns
C _n to any $\bar{F}$, $\overline{\text{sum}}$ mode	t _{PHL7}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	37	ns
$\bar{A}$ i to $\bar{B}$ i to A = B, $\overline{\text{diff}}$ mode	t _{PHL8}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	100	ns
C _n to C _{n+4} , $\overline{\text{sum}}$ mode	t _{PHL9}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	37	ns
C _n to C _{n+4} , $\overline{\text{diff}}$ mode	t _{PHL10}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	37	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{C}_{n+4}$, $\overline{\text{sum}}$ mode	t _{PHL11}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	64	ns
$\bar{A}$ i or $\bar{B}$ i to $\bar{C}_{n+4}$, $\overline{\text{diff}}$ mode	t _{PHL12}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	60	ns
$\bar{A}$ i or $\bar{B}$ i to any $\bar{F}$, logic mode	t _{PHL13}	V _{CC} = 5.0 V, See figure 4 logic mode test table	2	48	ns

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> -55°C ≤ T _C ≤ +125°C	Limits		Unit
			Min	Max	
Propagation delay times, low to high level output: <u>5/</u> , <u>6/</u>					
$\overline{A}$ i or $\overline{B}$ i to any $\overline{F}$, $\overline{\text{sum}}$ mode	t _{PLH1}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	55	ns
$\overline{A}$ i or $\overline{B}$ i to any $\overline{F}$, $\overline{\text{diff}}$ mode	t _{PLH2}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	55	ns
$\overline{A}$ i or $\overline{B}$ i to any $\overline{P}$, $\overline{\text{sum}}$ mode	t _{PLH3}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	52	ns
$\overline{A}$ i or $\overline{B}$ i to $\overline{P}$, $\overline{\text{diff}}$ mode	t _{PLH4}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	52	ns
$\overline{A}$ i or $\overline{B}$ i to $\overline{G}$, $\overline{\text{sum}}$ mode	t _{PLH5}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	51	ns
$\overline{A}$ i or $\overline{B}$ i to $\overline{G}$, $\overline{\text{diff}}$ mode	t _{PLH6}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	55	ns
Cn to any $\overline{F}$, $\overline{\text{sum}}$ mode	t _{PLH7}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	46	ns
$\overline{A}$ i to $\overline{B}$ i to A = B, $\overline{\text{diff}}$ mode	t _{PLH8}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	76	ns
Cn to Cn+4, $\overline{\text{sum}}$ mode	t _{PLH9}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	48	ns
Cn to Cn+4, $\overline{\text{diff}}$ mode	t _{PLH10}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	48	ns
$\overline{A}$ i or $\overline{B}$ i to Cn+4, $\overline{\text{sum}}$ mode	t _{PLH11}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{sum}}$ mode test table	2	64	ns
$\overline{A}$ i or $\overline{B}$ i to Cn+4, $\overline{\text{diff}}$ mode	t _{PLH12}	V _{CC} = 5.0 V, See figure 4 $\overline{\text{diff}}$ mode test table	2	69	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	2	57	ns

1/ Condition of inputs specified in table III.2/ All unspecified inputs at 5.5 V.3/ All unspecified inputs at 0 V.4/ Not more than one output should be shorted at a time.5/ In $\bar{A}_i$ and $\bar{B}_i$ i = 0, 1, 2, 3.6/ C_L = 50 pF ±10%, R_L = 2 kΩ ±5%.

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, 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.

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

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

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

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

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

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

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

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

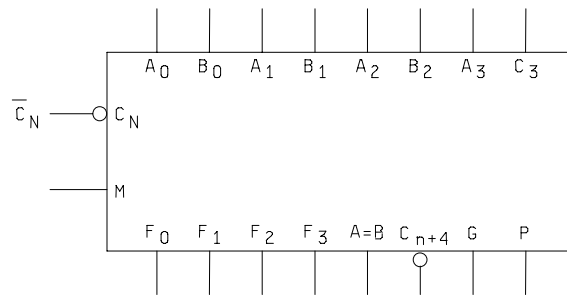
4.5 Methods of inspection. Methods of inspection shall be specified and as follows:

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

Terminal number	Terminal symbol	
	Case J, K, Z	Case 3
1	$\bar{B} 0$	NC
2	$\bar{A} 0$	$\bar{B} 0$
3	S3	$\bar{A} 0$
4	S2	S3
5	S1	S2
6	S0	S1
7	Cn	S0
8	M	NC
9	$\bar{F} O$	Cn
10	$\bar{F} 1$	M
11	$\bar{F} 2$	$\bar{F} O$
12	GND	$\bar{F} 1$
13	$\bar{F} 3$	$\bar{F} 2$
14	A = B	GND
15	$\bar{P}$	NC
16	Cn+4	$\bar{F} 3$
17	$\bar{G}$	A = B
18	$\bar{B} 3$	$\bar{P}$
19	$\bar{A} 3$	Cn+4
20	$\bar{B} 2$	$\bar{G}$
21	$\bar{A} 2$	$\bar{B} 3$
22	$\bar{B} 1$	NC
23	$\bar{A} 1$	$\bar{A} 3$
24	V _{CC}	$\bar{B} 2$
25		$\bar{A} 2$
26		$\bar{B} 1$
27		$\bar{A} 1$
28		V _{CC}

Designation	Pin numbers Case J, K, Z	Function
$\bar{A} 3, \bar{A} 2, \bar{A} 1, \bar{A} 0$	19, 21, 23, 2	Word A inputs
$\bar{B} 3, \bar{B} 2, \bar{B} 1, \bar{B} 0$	18, 20, 22, 1	Word B inputs
S3, S2, S1, S0	3, 4, 5, 6	Function select inputs
Cn	7	Inv. carry input
M	8	Mode control input
$\bar{F} 3, \bar{F} 2, \bar{F} 1, \bar{F} 0$	13, 11, 10, 9	Function outputs
A = B	14	Comparator output
$\bar{P}$	15	Carry propagate output
Cn+4	16	Inv. carry output
$\bar{G}$	17	Carry generate output
V _{CC}	24	Supply voltage
GND	12	Ground

FIGURE 1. Terminal connections and pin designations.



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

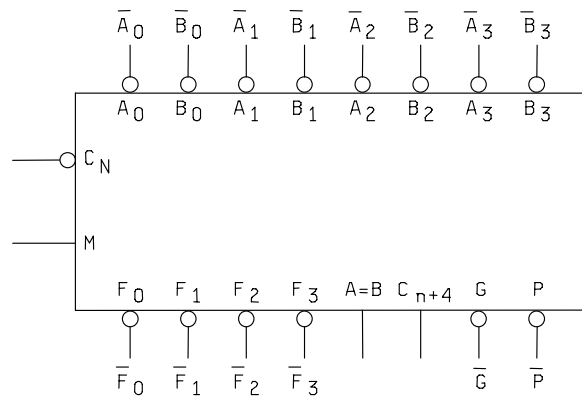
When Cn is low and Cn+4 is high, then $A < B$

When Cn is high and Cn+4 is low, then $A > B$

When Cn is low and Cn+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.



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

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

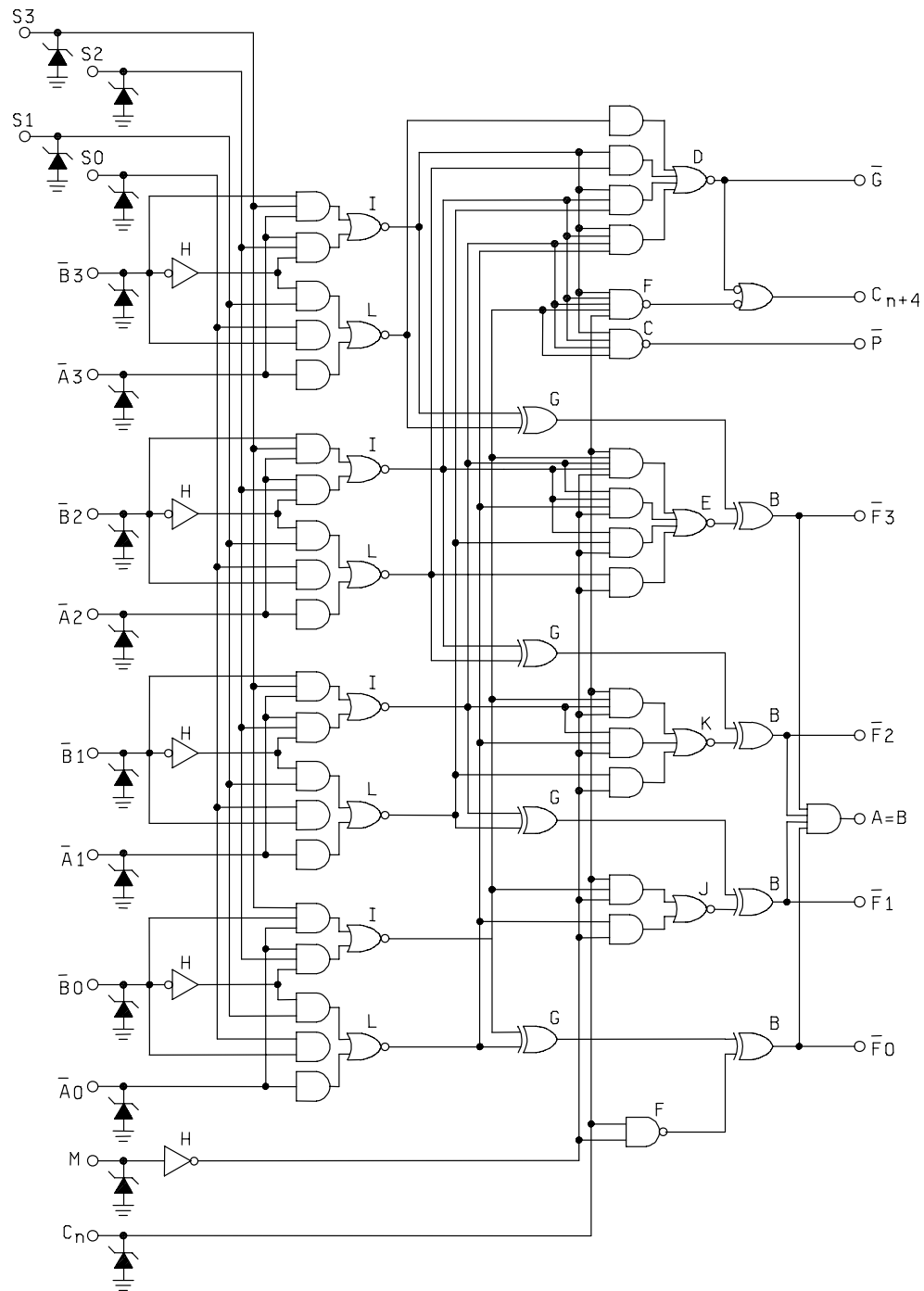
2/ This device (ALU) can be used as a comparator when placed in the subtract mode (i. e., S3 S2 S1 S0 are at logical levels LHHH respectively) and the following expressions are valid:

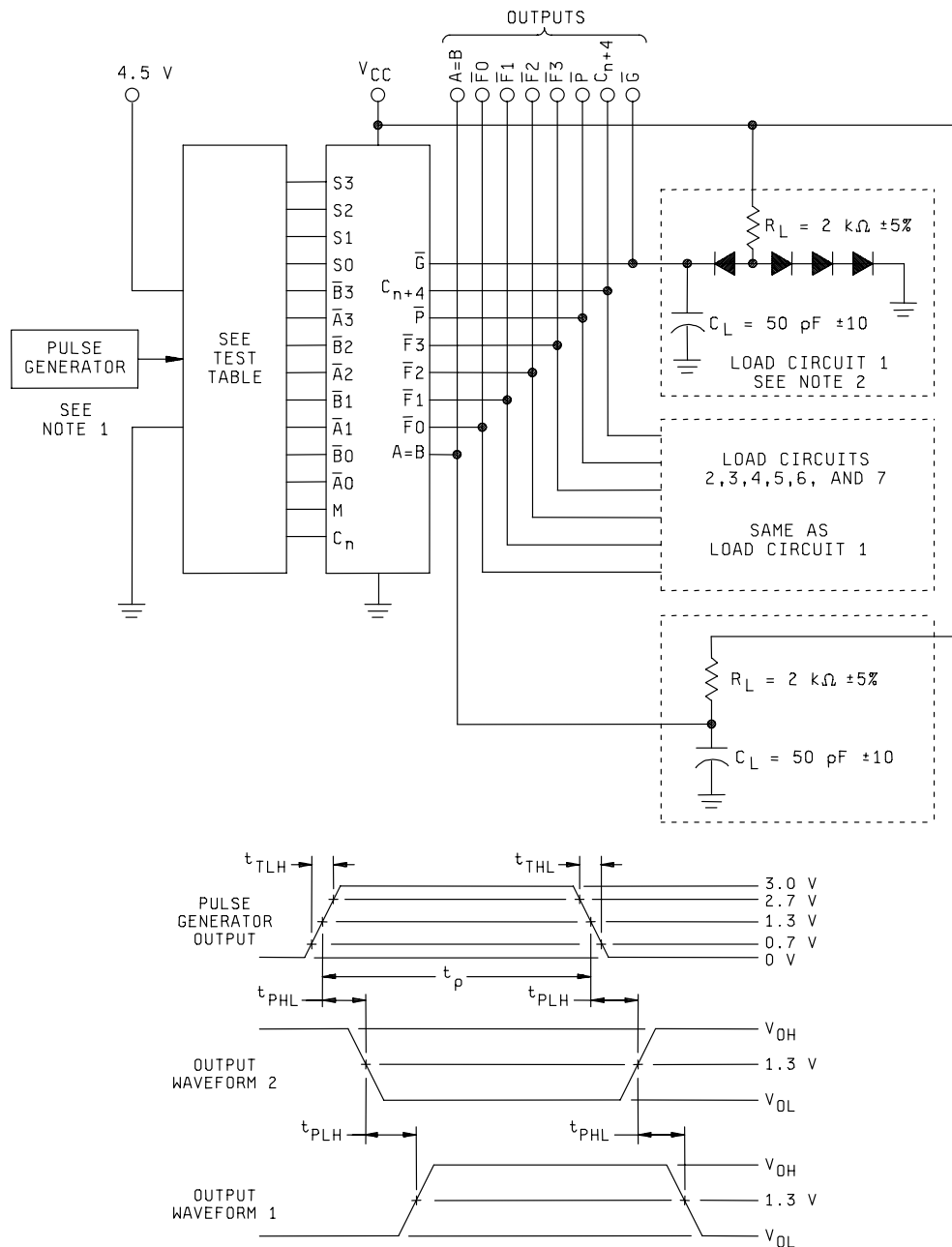
Active high data

When Cn is low and Cn+4 is low, then $A \leq B$
 When Cn is high and Cn+4 is low, then $A < B$
 When Cn is low and Cn+4 is high, then $A > B$
 When Cn is high and Cn+4 is high, then $A \geq B$

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

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

FIGURE 3. Logic diagram.



NOTES:

1. The pulse generator has the following characteristics: $PRR \leq 1 \text{ MHz} \pm 10\%$, $Z_{OUT} \approx 50 \text{ ohms}$, Pulse width = $200 \text{ ns} \pm 10\%$, $t_{TLH} \leq 15 \text{ ns}$, and $t_{THL} \leq 6 \text{ ns}$.
2. Load circuit on a given output are only required where the specific test given in table III indicates "OUT" on that output. Load circuits may otherwise be omitted.
3. C_L = includes probe and jig capacitance.
4. All diodes are 1N3064 or equivalent.

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

SUM MODE TEST TABLE

FUNCTION INPUTS: S0 = S3 = 4.5 V, S1 = S2 = M = 0 V

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 4.5 V	APPLY GND	APPLY 4.5 V	APPLY GND		
t_{PLH1}	$\bar{A} i \text{ } \underline{1}/$	$\bar{B} i$	None	Remaining	Cn	Any $\bar{F} i$	1
t_{PHL1}				$\bar{A}$ and $\bar{B}$			
t_{PLH1}	$\bar{B} i$	$\bar{A} i$	None	Remaining	Cn	Any $\bar{F} i$	1
t_{PHL1}				$\bar{A}$ and $\bar{B}$			
t_{PLH3}	$\bar{A} i$	$\bar{B} i$	None	None	Remaining	$\bar{P}$	1
t_{PHL3}					$\bar{A}$ and $\bar{B}$, Cn		
t_{PLH3}	$\bar{B} i$	$\bar{A} i$	None	None	Remaining	$\bar{P}$	1
t_{PHL3}					$\bar{A}$ and $\bar{B}$, Cn		
t_{PLH5}	$\bar{A} i$	None	$\bar{B} i$	Remaining	Remaining	$\bar{G}$	1
t_{PHL5}				$\bar{B}$	$\bar{A}$, Cn		
t_{PLH5}	$\bar{B} i$	None	$\bar{A} i$	Remaining	Remaining	$\bar{G}$	1
t_{PHL5}				$\bar{B}$	$\bar{A}$, Cn		
t_{PLH7}	Cn	None	None	All	All	Any $\bar{F} i$	1
t_{PHL7}				$\bar{A}$	$\bar{B}$		
t_{PLH9}	Cn	None	None	All	All	Cn+4	1
t_{PHL9}				$\bar{A}$	$\bar{B}$		
t_{PLH11}	$\bar{A} i$	None	$\bar{B} i$	Remaining	Remaining	Cn+4	2
t_{PHL11}				$\bar{B}$	$\bar{A}$, Cn		
t_{PLH11}	$\bar{B} i$	None	$\bar{A} i$	Remaining	Remaining	Cn+4	2
t_{PHL11}				$\bar{B}$	$\bar{A}$, Cn		

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

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

DIFF MODE TEST TABLE

FUNCTION INPUTS: S1 = S2 = 4.5 V, S0 = S3 = M = 0 V

TEST	INPUT UNDER TEST	OTHER INPUT SAME BIT		OTHER DATA INPUTS		OUTPUT UNDER TEST	OUTPUT WAVEFORM
		APPLY 4.5 V	APPLY GND	APPLY 4.5 V	APPLY GND		
t_{PLH2}	$\bar{A} i \text{ 1/}$	None	$\bar{B} i$	Remaining	Remaining	Any $\bar{F} i$	1
t_{PHL2}				$\bar{A}$	$\bar{B}, Cn$		
t_{PLH2}	$\bar{B} i$	$\bar{A} i$	None	Remaining	Remaining	Any $\bar{F} i$	2
t_{PHL2}				$\bar{A}$	$\bar{B}, Cn$		
t_{PLH4}	$\bar{A} i$	None	$\bar{B} i$	None	Remaining	$\bar{P}$	1
t_{PHL4}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH4}	$\bar{B} i$	$\bar{A} i$	None	None	Remaining	$\bar{P}$	2
t_{PHL4}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH6}	$\bar{A} i$	$\bar{B} i$	None	None	Remaining	$\bar{G}$	1
t_{PHL6}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH6}	$\bar{B} i$	None	$\bar{A} i$	None	Remaining	$\bar{G}$	2
t_{PHL6}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH8}	$\bar{A} i$	None	$\bar{B} i$	Remaining	Remaining	$A = B$	1
t_{PHL8}				$\bar{A}$	$\bar{B}, Cn$		
t_{PLH8}	$\bar{B} i$	$\bar{A} i$	None	Remaining	Remaining	$A = B$	2
t_{PHL8}				$\bar{A}$	$\bar{B}, Cn$		
t_{PLH10}	Cn	None	None	All	None	$Cn+4$	1
t_{PHL10}				$\bar{A}$ and $\bar{B}$			
t_{PLH12}	$\bar{A} i$	$\bar{B} i$	None	None	Remaining	$Cn+4$	2
t_{PHL12}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH12}	$\bar{B} i$	None	$\bar{A} i$	None	Remaining	$Cn+4$	1
t_{PHL12}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH13}	$\bar{A} i$	None	$\bar{B} i$	None	Remaining	Any $\bar{F} i$	1
t_{PHL13}					$\bar{A}$ and $\bar{B}, Cn$		
t_{PLH13}	$\bar{B} i$	None	$\bar{A} i$	None	Remaining	Any $\bar{F} i$	2
t_{PHL13}					$\bar{A}$ and $\bar{B}, Cn$		

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

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z 31/	Voltage, Current, Resistance (V, I, R) = Ohm's Law																Measured terminal	Limits		Unit		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	Min	Max						
1 Tc = 25°C	V _{OH1}	3006	1	B ₀	2.0V	A ₀	S3	2.0V	S2	0.7V	S1	0.7V	S0	0.7V	Cn	M	F ₀	F ₁	F ₂	GND	G	2.5		V	
	V _{OH2}	"	2	2.0V	"	"	2.0V	"	2.0V	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V					"	Ch+4	"		"	
	OH3	"	3	"	"	"	"	"	"	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V					"	P	"		"	
	OH4	"	4	"	"	"	"	"	"	2.0V	2.0V	2.0V	2.0V	2.0V	2.0V	400 μA				"	F ₀	"		"	
		"	5	"	"	"	"	"	"	"	"	"	"	"	0.7V			-400 μA		"	F ₁	"		"	
		"	6	"	"	"	"	"	"	"	"	"	"	"	0.7V			-400 μA		"	F ₂	"		"	
		"	7	"	"	"	"	"	"	"	"	"	"	"	0.7V					"	F ₃	"		"	
	OL1	3007	8	"	"	"	"	"	"	"	0.7V	"	"	"	0.7V					"	G		0.4	"	
	OL2	"	9	"	"	"	"	"	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V					"	Ch+4	"		"	
	OL3	"	10	"	"	"	0.7V	2.0V	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V	0.7V					"	P	"		"	
	OL4	"	11	"	0.7V	2.0V	"	2.0V	2.0V	"	2.0V	2.0V	2.0V	2.0V	2.0V	4 mA				"	F ₀	"		"	
		"	12	"	"	"	"	"	"	"	"	"	"	"	"	"	4 mA				"	F ₁	"		"
		"	13	"	"	"	"	"	"	"	"	"	"	"	"	"	"		4 mA		"	F ₂	"		"
		"	14	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	F ₃	"		"
	OL5	"	15	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	A=B	"		"
	IL1	3009	16	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	0.4V				"	M		5/	5/	mA
	IL2	"	17	0.4V	"	"	"	"	"	"	"	"	"	"	"	"	5.5V				"	B ₀	"		"
		"	18	5.5V	"	"	"	"	"	"	"	"	"	"	"	"	"				"	B ₁	"		"
		"	19	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	B ₂	"		"
		"	20	"	"	"	"	"	"	"	"	"	"	"	"	GND					"	B ₃	"		"
	IL3	"	21	"	"	"	"	"	"	"	"	"	"	0.4V	5.5V	5.5V	"				"	S ₀	"		"
		"	22	"	"	"	0.4V	"	"	"	"	"	"	5.5V	5.5V	5.5V	"				"	S ₃	"		"
	IL4	"	23	GND	"	"	GND	"	GND	"	0.4V	GND	GND	GND	GND	GND					"	S ₁	"		"
		"	24	"	"	"	"	"	"	0.4V	GND	GND	GND	GND	GND	GND					"	S ₂	"		"
	IL5	"	25	"	GND	"	"	"	"	GND	GND	GND	GND	GND	0.4V	GND					"	Cn	"		"
	IL6	"	26	"	0.4V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V					"	A ₀	"		"

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits		Unit
				16	17	18	19	20	21	22	23	24	Min	Max					
1	V _{OH1}	3006	1												4.5 V	$\overline{G}$	2.5		V
	V _{OH2}	"	2				-400 μA		2.0 V	0.7 V	2.0 V	"	2.0 V	"	"	Cn+4	"	"	
	O _{H3}	"	3			-400 μA			"	2.0 V	2.0 V	"	"	"	"	$\overline{P}$	"	"	
	O _{H4}	"	4						"	0.7 V	2.0 V	"	"	"	"	$\overline{F}0$	"	"	
		"	5						"	2.0 V	"	"	"	"	"	$\overline{F}1$	"	"	
		"	6						"	2.0 V	"	"	"	"	"	$\overline{F}2$	"	"	
		"	7	-400 μA					"	2.0 V	"	"	"	"	"	$\overline{F}3$	"	"	
	O _{L1}	3007	8					4 mA	0.7 V	0.7 V	2.0 V	2.0 V	"	"	"	$\overline{G}$	0.4	"	
	O _{L2}	"	9				4 mA		0.7 V	2.0 V	0.7 V	2.0 V	0.7 V	"	"	Cn+4	"	"	
	O _{L3}	"	10			4 mA			2.0 V	"	2.0 V	2.0 V	2.0 V	"	"	$\overline{P}$	"	"	
	O _{L4}	"	11						"	"	2.0 V	0.7 V	"	"	"	$\overline{F}0$	"	"	
		"	12						"	"	"	0.7 V	"	0.7 V	"	$\overline{F}1$	"	"	
		"	13						"	"	"	0.7 V	"	2.0 V	"	$\overline{F}2$	"	"	
		"	14	4 mA					"	0.7 V	"	2.0 V	"	2.0 V	"	$\overline{F}3$	"	"	
	O _{L5}	"	15		4 mA				"	2.0 V	"	2.0 V	"	2.0 V	"	A=B	"	"	
	I _{L1}	3009	16						5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	M	5/	mA	
	I _{L2}	"	17						"	"	5.5 V	"	5.5 V	"	"	$\overline{B}0$	"	"	
		"	18						"	"	5.5 V	"	0.4 V	"	"	$\overline{B}1$	"	"	
		"	19						"	"	0.4 V	"	5.5 V	"	"	$\overline{B}2$	"	"	
		"	20						0.4 V	"	5.5 V	"	"	"	"	$\overline{B}3$	"	"	
	I _{L3}	"	21						5.5 V	"	5.5 V	"	"	"	"	S0	"	"	
		"	22						5.5 V	"	5.5 V	"	"	"	"	S3	"	"	
	I _{L4}	"	23						GND	"	GND	"	GND	"	"	S1	"	"	
		"	24						GND	"	GND	"	GND	"	"	S2	"	"	
	I _{L5}	"	25						GND	GND	GND	GND	GND	"	"	Cn	"	"	
	I _{L6}	"	26						5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	"	"	A 0	"	"	
		"	27						5.5 V	5.5 V	5.5 V	5.5 V	GND	0.4 V	"	$\overline{A}1$	"	"	
		"	28						5.5 V	5.5 V	GND	0.4 V	5.5 V	5.5 V	"	$\overline{A}2$	"	"	
		"	29						GND	GND	5.5 V	5.5 V	5.5 V	5.5 V	"	$\overline{A}3$	"	"	
	I _{H1}	3010	30						"	GND	GND	GND	GND	GND	"	M	20	μA	
	I _{H2}	"	31						"	"	"	GND	"	GND	"	$\overline{A}0$	60	"	
		"	32						"	"	"	GND	"	2.7 V	"	$\overline{A}1$	"	"	
		"	33						"	"	"	2.7 V	"	GND	"	$\overline{A}2$	"	"	
		"	34						"	2.7 V	"	GND	"	"	"	$\overline{A}3$	"	"	

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	Pin												Measured terminal	Limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12		Min	Max	
1 Tc = 25°C	IH2	3010	Test no.	B 0	A 0	S 3	S 2	S 1	S 0	Cn	M	F 0	F 1	F 2	GND	GND	60	μA	
			35	2.7 V	GND	GND	GND	GND	GND	GND	GND	GND	GND						
			36	GND	"	"	"	"	"	"	"	"	"						"
			37	"	"	"	"	"	"	"	"	"	"						"
			38	"	"	"	"	"	"	"	5.5 V	"	"						"
			39	"	"	"	"	"	"	2.7 V	GND	"	"						"
			40	"	"	"	2.7 V	"	GND	"	"	"	"					80	"
			41	5.5 V	"	GND	"	2.7 V	GND	"	"	"	"					"	"
	IH4	"	42	5.5 V	"	GND	2.7 V	GND	"	"	"	"					"	"	
			43	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	2.7 V	5.5 V							100	"	
	IH6	"	44	GND	GND	GND	GND	GND	GND	GND	GND	5.5 V					100	"	
			45	"	5.5 V	"	"	"	"	GND	"	"	"				300	"	
	IH7	"	46	"	GND	"	"	"	"	"	"	"					"	"	
			47	"	"	"	"	"	"	"	"	"	"				"	"	
		"	48	"	"	"	"	"	"	"	"	"					"	"	
			49	5.5 V	"	"	"	"	"	"	"	"	"				"	"	
		"	50	GND	"	"	"	"	"	"	"	"					"	"	
			51	"	"	"	"	"	"	"	"	"	"				"	"	
		"	52	"	"	"	"	"	"	"	"	"					"	"	
			53	"	"	"	"	"	5.5 V	"	"	"	"				"	"	
	IH8	"	54	"	"	"	5.5 V	"	GND	"	"	"					400	"	
			55	5.5 V	"	GND	"	5.5 V	GND	"	"	"	"				"	"	
	IH9	"	56	5.5 V	"	GND	5.5 V	5.5 V	GND	GND	"	"					"	"	
			57	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	GND	GND	GND				500	"	
	OS1		3011	58 ckts A, B & C	GND	GND	5.5 V	GND	GND	GND	GND	GND				-15	-100	mA	
	OS2		"	59 ckts A, B & C	GND	GND	GND	GND	GND	GND	GND	GND				"	"	"	
	OS3	"	"	60 ckts A, B & C	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V				"	"	"	
				61 ckts A, B & C	"	"	"	"	"	"	"	"	GND				"	"	"
				62 ckts A, B & C	"	"	"	"	"	"	"	"	"				"	"	"
				63 ckts A, B & C	"	"	"	"	"	"	"	"	"		GND		"	"	"
				64 ckts A, B & C	"	"	"	"	"	"	"	"	"				"	"	"
				65 ckts A, B & C	"	"	"	"	"	"	"	"	"				"	"	"
66 ckts A, B & C				"	"	"	"	"	"	"	"	"				"	"	"	
67 ckts A, B & C				"	"	"	"	"	"	"	"	"				"	"	"	

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).												Measured terminal	Limits		Unit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
				13	14	15	16	17	18	19	20	21	22	23	24		Min	Max																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
1 Tc = 25°C	IH2	3010																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						</

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits	Unit
				Test no.	$\bar{B} 0$	$\bar{A} 0$	S3	S2	S1	S0	Cn	M	$\bar{F} 0$	$\bar{F} 1$	$\bar{F} 2$	GND	Min	Max
1 $T_c = 25^\circ\text{C}$	I_{CC1}	3005		65	GND	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	GND	5.5 V				GND	V_{CC}	32 mA
	I_{CH1}	"		66	GND	GND	5.5 V	5.5 V	5.5 V	5.5 V	GND	5.5 V				"	V_{CC}	35 mA
	I_C	"	"	67	-18 mA											"	$\bar{B} 0$	-1.5 V
				68		-18 mA										"	$\bar{A} 0$	"
				69			-18 mA									"	S3	"
				70				-18 mA								"	S2	"
				71					-18 mA							"	S1	"
				72						-18 mA						"	S0	"
				73							-18 mA					"	Cn	"
				74								-18 mA				"	M	"
				75												"	B 3	"
				76												"	A 3	"
2	I_C	"	"	77												"	B 2	"
				78												"	$\bar{A} 2$	"
				79												"	$\bar{B} 1$	"
				80												"	$\bar{A} 1$	"
				81		2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V				"	A = B	100 μA
				Same tests, terminal conditions, and limits as for subgroup 1, except $T_c = 125^\circ\text{C}$, and V_{IC} tests are omitted.														
				Same tests, terminal conditions, and limits as for subgroup 1, except $T_c = -55^\circ\text{C}$, and V_{IC} tests are omitted.														
				82	B	B	B	B	B	B	B	B	B	H 3/	L 3/	GND	All outputs	H or L as shown 3/
				83	B	B	B	A	A	A	A	A	A	"	"	"	"	
				84	B	B	A	A	"	B	A	A	A	"	"	"	"	
				85	A	A	A	A	B	"	A	B	B	"	"	"	"	
				86	B	A	B	A	"	"	B	"	"	"	"	"	"	
				87	B	B	A	A	A	"	B	"	"	"	"	"	"	
				88	A	"	"	A	B	"	A	"	"	"	"	"	"	
				89	B	"	"	B	B	B	A	A	A	H	H	"	"	
				90	"	"	"	A	B	"	A	B	L	"	"	"	"	
				91	"	A	A	A	A	"	B	B	H	"	"	"	"	
3 7 1/2 4/ $T_c = 25^\circ\text{C}$	Functional tests	3014	"	92	"	B	B	A	B	"	A	A	H	"	"	"	"	H or L as shown 3/
				93	"	B	A	B	"	"	B	B	H	"	"	"	"	
				94	"	A	A	A	"	A	A	"	L	L	H	"	"	
				95	"	"	A	"	"	B	A	"	"	"	"	"	"	
				96	"	A	B	"	"	A	B	"	"	"	"	"	"	
				97	"	"	B	"	"	"	A	"	"	"	"	"	"	
				98	"	A	A	"	"	A	A	"	"	"	"	"	"	
				99	"	"	A	B	"	A	B	"	"	"	"	"	"	
				100	"	A	A	"	"	A	A	"	"	"	"	"	"	
				101	"	B	B	"	"	B	B	"	"	"	"	"	"	
				102	"	"	B	A	"	B	A	"	"	"	"	"	"	
				103	"	B	"	"	B	"	"	"	"	"	"	"	"	
				104	"	A	"	"	A	"	"	"	"	"	"	"	"	
				105	A	B	"	"	B	"	"	"	"	"	"	"	"	
				106	B	B	"	"	A	B	"	"	"	"	"	"	"	
				107	A	A	B	A	B	B	"	"	"	"	"	"	"	

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

[illegible]

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z 3 J	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits	Unit		
				1	2	3	4	5	6	7	8	9	10	11	12		Min	Max		
				Test no.	$\bar{B}0$	$\bar{A}0$	S3	S2	S1	S0	Cn	M	$\bar{F}0$	$\bar{F}1$	$\bar{F}2$	GND	All outputs	H or L as shown 3/		
7 1/2/ 4/ T _C = 25°C	Func-tional tests	3014	108	B	B	A	B	B	B	B	A	A	H	H	H	GND	All outputs			
	"	"	109	B	A	B	B	B	B	A	A	B	H	H	H	"	"			
	"	"	110	A	B	A	B	B	B	B	A	A	H	H	H	"	"			
	"	"	111	B	A	A	B	A	A	A	A	A	L	H	L	"	"			
	"	"	112	B	A	A	A	A	A	B	B	A	H	L	L	"	"			
	"	"	113	A	B	A	A	A	A	B	A	B	L	L	L	"	"			
	"	"	114	B	B	B	B	B	B	B	B	B	H	H	H	"	"			
	"	"	115	"	A	A	A	A	A	A	A	B	A	H	L	H	"			
	"	"	116	"	B	A	A	B	B	A	B	B	"	"	"	"	"			
	"	"	117	"	A	"	"	"	"	"	"	"	L	L	L	"	"			
	"	"	118	"	B	"	"	"	"	"	"	"	H	H	H	"	"			
	"	"	119	A	B	"	"	"	"	"	"	"	L	L	L	"	"			
"	"	120	B	B	"	"	"	"	"	"	"	H	H	H	"	"				
8 1/2/ 4/ 9 T _C = 25°C	t _{PHL1}	3003 Fig 4	121	GND	IN	4.5 V	GND	GND	GND	4.5 V	GND	GND	OUT	OUT		GND	$\bar{A}0$ to $\bar{F}0$	2	25	ns
			122	"	GND	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{A}1$ to $\bar{F}1$	"	"	"
			123	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{A}2$ to $\bar{F}2$	"	"	"
			124	"	"	"	"	"	"	"	"	"				"	$\bar{A}3$ to $\bar{F}3$	"	"	"
			125	"	"	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{B}0$ to $\bar{F}0$	"	"	"
			126	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{B}1$ to $\bar{F}1$	"	"	"
			127	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{B}2$ to $\bar{F}2$	"	"	"
			128	"	"	"	"	"	"	"	"	"				"	$\bar{B}3$ to $\bar{F}3$	"	"	"
			129	"	IN	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{A}0$ to $\bar{F}0$	"	55	"
			130	"	GND	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{A}1$ to $\bar{F}1$	"	"	"
			131	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{A}2$ to $\bar{F}2$	"	"	"
			132	"	"	"	"	"	"	"	"	"				"	$\bar{A}3$ to $\bar{F}3$	"	"	"
			133	"	"	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{B}0$ to $\bar{F}0$	"	"	"
			134	"	"	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{B}1$ to $\bar{F}1$	"	"	"
			135	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{B}2$ to $\bar{F}2$	"	"	"
			136	"	"	"	"	"	"	"	"	"				"	$\bar{B}3$ to $\bar{F}3$	"	"	"
			137	"	IN	GND	4.5 V	GND	GND	GND	"	"	OUT	OUT		"	$\bar{A}0$ to $\bar{F}0$	"	30	"
			138	"	4.5 V	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{A}1$ to $\bar{F}1$	"	"	"
			139	"	"	"	"	"	"	"	"	"			OUT	"	$\bar{A}2$ to $\bar{F}2$	"	"	"
			140	"	"	"	"	"	"	"	"	"				"	$\bar{A}3$ to $\bar{F}3$	"	"	"
			141	IN	"	"	"	"	"	"	"	"	OUT	OUT		"	$\bar{B}0$ to $\bar{F}0$	"	"	"
			142	GND	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{B}1$ to $\bar{F}1$	"	"	"
			143	"	"	"	"	"	"	"	"	"		OUT	OUT	"	$\bar{B}2$ to $\bar{F}2$	"	"	"
			144	"	"	"	"	"	"	"	"	"				"	$\bar{B}3$ to $\bar{F}3$	"	"	"

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits	Unit
			3 J/	16	17	18	19	20	21	23	24	25	26	27	28		Min	Max
			Test no.	F 3	A = B	P	Cn+4	G	B 3	A 3	B 2	A 2	B 1	A 1	V _{CC}	All outputs		
7 1/2/ 4/ T _C = 25°C	Func-	3014	108	H	H	H	L	H	A	A	B	B	B	B	4.5 V			
	tional	"	109	"	H	L	H	"	"	B	A	B	A	B	"			
	tests	"	110	"	H	H	L	"	"	A	A	A	B	B	"			
	"	"	111	"	L	"	L	"	"	A	A	B	A	A	"			
	"	"	112	"	"	"	H	L	"	B	B	B	B	B	"			
	"	"	113	L	"	"	L	H	B	"	"	B	A	A	"			
	"	"	114	L	"	"	L	L	"	B	"	A	B	A	"			
	"	"	115	H	"	H	L	H	"	A	"	A	"	B	"			
	"	"	116	"	"	"	"	"	"	B	"	B	"	B	"			
	"	"	117	L	"	"	"	"	A	"	A	"	"	A	"			
	"	"	118	H	"	"	"	"	B	"	B	"	"	B	"			
	"	"	119	L	"	"	"	"	A	B	A	B	A	B	"			
	"	"	120	H	"	"	"	"	B	B	B	B	B	B	"			
8 1/2/ 4/ 9 T _C = 25°C	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = 125°C and T _C = -55°C	3003	121						GND	GND	GND	GND	GND	GND	5.0 V	A 0 to F 0	2	25
	t _{PHL1}	Fig 4	122						"	GND	"	GND	"	IN	"	A 1 to F 1	"	"
		"	123						"	GND	"	IN	"	GND	"	A 2 to F 2	"	"
		"	124	OUT					"	IN	"	GND	"	"	"	A 3 to F 3	"	"
		"	125						"	GND	"	"	"	"	"	B 0 to F 0	"	"
		"	126						"	"	"	"	IN	"	"	B 1 to F 1	"	"
		"	127						"	"	IN	"	GND	"	"	B 2 to F 2	"	"
		"	128	OUT				IN	IN	"	GND	"	"	"	"	B 3 to F 3	"	"
		"	129					GND	"	"	"	"	"	"	"	A 0 to F 0	"	55
		"	130					"	"	"	"	"	"	IN	"	A 1 to F 1	"	"
		"	131					"	"	"	"	IN	"	GND	"	A 2 to F 2	"	"
		"	132	OUT				"	"	IN	"	GND	"	"	"	A 3 to F 3	"	"
PHL2		"	133					"	"	GND	"	"	"	"	"	B 0 to F 0	"	"
		"	134					"	"	"	"	"	IN	"	"	B 1 to F 1	"	"
		"	135					"	"	"	IN	"	GND	"	"	B 2 to F 2	"	"
		"	136	OUT				IN	IN	"	GND	"	"	"	"	B 3 to F 3	"	"
		"	137						GND	4.5 V	GND	4.5 V	"	4.5 V	"	A 0 to F 0	"	30
		"	138						"	4.5 V	"	4.5 V	"	IN	"	A 1 to F 1	"	"
		"	139						"	4.5 V	"	IN	"	4.5 V	"	A 2 to F 2	"	"
		"	140	OUT					"	IN	"	4.5 V	"	"	"	A 3 to F 3	"	"
		"	141						"	4.5 V	"	"	"	"	"	B 0 to F 0	"	"
		"	142						"	"	"	"	IN	"	"	B 1 to F 1	"	"
		"	143						"	"	IN	"	GND	"	"	B 2 to F 2	"	"
		"	144	OUT				IN	IN	"	GND	"	"	"	"	B 3 to F 3	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits	Unit				
																Min	Max					
9 Tc = 25°C	t _{PH2}	3003 Fig 4	Test no.	B 0	A 0	S3	S2	S1	S0	Cn	M	F 0	F 1	F 2	GND	A 0 to F 0	2	32	ns			
			145	GND	IN	GND	4.5 V	4.5 V	GND	GND	GND	GND	OUT				GND	A 0 to F 0	2	32	ns	
			146	"	4.5 V	"	"	"	"	"	"	"	"	OUT				GND	A 1 to F 1	"	"	"
			147	"	"	"	"	"	"	"	"	"	"			OUT		GND	A 2 to F 2	"	"	"
			148	"	"	"	"	"	"	"	"	"	"					GND	A 3 to F 3	"	"	"
			149	IN	"	"	"	"	"	"	"	"	"	OUT				GND	B 0 to F 0	"	"	"
			150	GND	"	"	"	"	"	"	"	"	"		OUT			GND	B 1 to F 1	"	"	"
			151	GND	"	"	"	"	"	"	"	"	"			OUT		GND	B 2 to F 2	"	"	"
			152	GND	"	"	"	"	"	"	"	"	"					GND	B 3 to F 3	"	"	"
			153	4.5 V	IN	4.5 V	GND	GND	4.5 V	"	"	"	"					GND	A 0 to P	"	"	"
			154	GND	GND	"	"	"	"	"	"	"	"					GND	A 1 to P	"	"	"
			155	GND	GND	"	"	"	"	"	"	"	"					GND	A 2 to P	"	"	"
			156	GND	GND	"	"	"	"	"	"	"	"					GND	A 3 to P	"	"	"
			157	IN	4.5 V	"	"	"	"	"	"	"	"					GND	B 0 to P	"	"	"
			158	GND	GND	"	"	"	"	"	"	"	"					GND	B 1 to P	"	"	"
			159	GND	GND	"	"	"	"	"	"	"	"					GND	B 2 to P	"	"	"
160	GND	GND	"	"	"	"	"	"	"	"					GND	B 3 to P	"	"	"			
	PLH3		161	4.5 V	IN	"	"	"	"	"	"					GND	A 0 to P	30	"	"		
			162	GND	GND	"	"	"	"	"	"	"					GND	A 1 to P	"	"	"	
			163	GND	GND	"	"	"	"	"	"	"					GND	A 2 to P	"	"	"	
			164	GND	GND	"	"	"	"	"	"	"					GND	A 3 to P	"	"	"	
			165	IN	4.5 V	"	"	"	"	"	"	"					GND	B 0 to P	"	"	"	
			166	GND	GND	"	"	"	"	"	"	"					GND	B 1 to P	"	"	"	
			167	"	GND	"	"	"	"	"	"	"					GND	B 2 to P	"	"	"	
			168	"	GND	"	"	"	"	"	"	"					GND	B 3 to P	"	"	"	
	PHL4		169	"	IN	GND	4.5 V	4.5 V	GND	GND	GND					GND	A 0 to P	33	"	"		
			170	"	GND	"	"	"	"	"	"	"					GND	A 1 to P	"	"	"	
			171	"	GND	"	"	"	"	"	"	"					GND	A 2 to P	"	"	"	
			172	"	GND	"	"	"	"	"	"	"					GND	A 3 to P	"	"	"	
			173	IN	4.5 V	"	"	"	"	"	"	"					GND	B 0 to P	"	"	"	
			174	GND	GND	"	"	"	"	"	"	"					GND	B 1 to P	"	"	"	
			175	GND	GND	"	"	"	"	"	"	"					GND	B 2 to P	"	"	"	
			176	GND	GND	"	"	"	"	"	"	"					GND	B 3 to P	"	"	"	

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z 3 1/	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits		Unit
																	Min	Max	
9 $T_c = 25^\circ\text{C}$	t_{PLH2}	3003 Fig 4	Test no.	13	14	15	16	17	18	19	20	21	22	23	24				
			145	16	17	18	19	20	21	23	24	25	26	27	28	$\bar{A} 0$ to $\bar{F} 0$	2	32	ns
			146							GND		GND		IN		$\bar{A} 1$ to $\bar{F} 1$	"	"	"
			147							GND		IN		4.5 V		$\bar{A} 2$ to $\bar{F} 2$	"	"	"
			148	OUT						IN		4.5 V		"		$\bar{A} 3$ to $\bar{F} 3$	"	"	"
			149							4.5 V		"		"		$\bar{B} 0$ to $\bar{F} 0$	"	"	"
			150							"		"		"		$\bar{B} 1$ to $\bar{F} 1$	"	"	"
			151							"	IN	"	GND	"		$\bar{B} 2$ to $\bar{F} 2$	"	"	"
			152	OUT					IN	"	GND	"	GND	"		$\bar{B} 3$ to $\bar{F} 3$	"	"	"
			153			OUT			GND	GND	GND	GND	GND	GND	"	$\bar{A} 0$ to $\bar{P}$	"	"	"
			154			"			GND	GND	GND	GND	4.5 V	IN	"	$\bar{A} 1$ to $\bar{P}$	"	"	"
			155			"			GND	GND	4.5 V	IN	GND	GND	"	$\bar{A} 2$ to $\bar{P}$	"	"	"
			156			"			4.5 V	IN	GND	GND	GND	GND	"	$\bar{A} 3$ to $\bar{P}$	"	"	"
			157			"			GND	GND	GND	GND	GND	GND	"	$\bar{B} 0$ to $\bar{P}$	"	"	"
			158			"			GND	GND	GND	GND	IN	4.5 V	"	$\bar{B} 1$ to $\bar{P}$	"	"	"
			159			"			GND	GND	IN	4.5 V	GND	GND	"	$\bar{B} 2$ to $\bar{P}$	"	"	"
			160			"			IN	4.5 V	GND	GND	GND	GND	"	$\bar{B} 3$ to $\bar{P}$	"	"	"
t	t_{PLH8}		161			"			GND	GND	GND	GND	GND	IN	"	$\bar{A} 0$ to $\bar{P}$	"	30	"
			162			"			GND	GND	GND	GND	4.5 V	IN	"	$\bar{A} 1$ to $\bar{P}$	"	"	"
			163			"			GND	GND	4.5 V	IN	GND	GND	"	$\bar{A} 2$ to $\bar{P}$	"	"	"
			164			"			4.5 V	IN	GND	GND	GND	GND	"	$\bar{A} 3$ to $\bar{P}$	"	"	"
			165			"			GND	GND	GND	GND	GND	GND	"	$\bar{B} 0$ to $\bar{P}$	"	"	"
			166			"			GND	GND	GND	GND	IN	4.5 V	"	$\bar{B} 1$ to $\bar{P}$	"	"	"
			167			"			GND	GND	IN	4.5 V	GND	GND	"	$\bar{B} 2$ to $\bar{P}$	"	"	"
			168			"			IN	4.5 V	GND	GND	"	GND	"	$\bar{B} 3$ to $\bar{P}$	"	"	"
			169			"			GND	GND	"	GND	"	GND	"	$\bar{A} 0$ to $\bar{P}$	"	33	"
			170			"			"	GND	"	GND	"	IN	"	$\bar{A} 1$ to $\bar{P}$	"	"	"
			171			"			"	GND	"	IN	"	GND	"	$\bar{A} 2$ to $\bar{P}$	"	"	"
			172			"			"	IN	"	GND	"	GND	"	$\bar{A} 3$ to $\bar{P}$	"	"	"
			173			"			"	GND	"	GND	"	GND	"	$\bar{B} 0$ to $\bar{P}$	"	"	"
			174			"			"	GND	"	GND	IN	4.5 V	"	$\bar{B} 1$ to $\bar{P}$	"	"	"
			175			"			"	GND	IN	4.5 V	GND	GND	"	$\bar{B} 2$ to $\bar{P}$	"	"	"
			176			"			IN	4.5 V	GND	GND	GND	GND	"	$\bar{B} 3$ to $\bar{P}$	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	Timing conditions (V _{DD} = 5.0 V, V _{SS} = 0 V, t _{PLH} = 10 ns,											
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See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits		Unit
				16	17	18	19	20	21	23	24	25	26	27	28		Min	Max	
9 $T_c = 25^\circ\text{C}$	t_{PH4}	3003 Fig 4	Test no.	$\bar{F} 3$	A = B	$\bar{P}$	Cn+4	$\bar{G}$	$\bar{B} 3$	$\bar{A} 3$	$\bar{B} 2$	$\bar{A} 2$	$\bar{B} 1$	$\bar{A} 1$	V_{CC}	$\bar{A} 0$ to $\bar{P}$	2	30	ns
			177			OUT			GND	GND	GND	GND	GND	GND	5.0 V	$\bar{A} 1$ to $\bar{P}$	"	"	"
			178			"			"	GND	"	GND	"	IN	"	$\bar{A} 2$ to $\bar{P}$	"	"	"
			179			"			"	GND	"	IN	"	GND	"	$\bar{A} 3$ to $\bar{P}$	"	"	"
			180			"			"	IN	"	GND	"	GND	"	$\bar{B} 0$ to $\bar{P}$	"	"	"
			181			"			"	GND	"	GND	"	GND	"	$\bar{B} 1$ to $\bar{P}$	"	"	"
			182			"			"	GND	"	GND	IN	4.5 V	"	$\bar{B} 2$ to $\bar{P}$	"	"	"
			183			"			"	GND	IN	4.5 V	GND	GND	"	$\bar{B} 3$ to $\bar{P}$	"	"	"
			184			"			IN	4.5 V	GND	GND	GND	GND	"	$\bar{A} 0$ to $\bar{G}$	"	28	"
			185					OUT	4.5 V	GND	4.5 V	GND	4.5 V	GND	"	$\bar{A} 1$ to $\bar{G}$	"	"	"
			186					"	4.5 V	GND	4.5 V	GND	IN	GND	"	$\bar{A} 2$ to $\bar{G}$	"	"	"
			187					"	4.5 V	GND	GND	IN	4.5 V	GND	"	$\bar{A} 3$ to $\bar{G}$	"	"	"
			188					"	GND	IN	4.5 V	GND	4.5 V	"	"	$\bar{B} 0$ to $\bar{G}$	"	"	"
			189					"	4.5 V	GND	4.5 V	"	4.5 V	"	"	$\bar{B} 1$ to $\bar{G}$	"	"	"
			190					"	4.5 V	"	4.5 V	"	IN	"	"	$\bar{B} 2$ to $\bar{G}$	"	"	"
			191					"	4.5 V	"	IN	"	4.5 V	"	"	$\bar{B} 3$ to $\bar{G}$	"	"	"
t	t_{PH5}		192					"	IN	"	4.5 V	"	4.5 V	"	"	$\bar{A} 0$ to $\bar{G}$	"	32	"
			193					"	4.5 V	"	4.5 V	"	4.5 V	"	"	$\bar{A} 1$ to $\bar{G}$	"	"	"
			194					"	4.5 V	"	4.5 V	"	GND	IN	"	$\bar{A} 2$ to $\bar{G}$	"	"	"
			195					"	4.5 V	"	GND	IN	4.5 V	GND	"	$\bar{A} 3$ to $\bar{G}$	"	"	"
			196					"	GND	IN	4.5 V	GND	4.5 V	"	"	$\bar{B} 0$ to $\bar{G}$	"	"	"
			197					"	4.5 V	GND	4.5 V	"	4.5 V	"	"	$\bar{B} 1$ to $\bar{G}$	"	"	"
			198					"	4.5 V	"	4.5 V	"	IN	"	"	$\bar{B} 2$ to $\bar{G}$	"	"	"
			199					"	4.5 V	"	IN	"	4.5 V	"	"	$\bar{B} 3$ to $\bar{G}$	"	"	"
			200					"	IN	"	4.5 V	"	4.5 V	"	"	$\bar{A} 0$ to $\bar{G}$	"	30	"
			201					"	GND	"	GND	"	GND	"	"	$\bar{A} 1$ to $\bar{G}$	"	"	"
			202					"	GND	"	GND	"	4.5 V	IN	"	$\bar{A} 2$ to $\bar{G}$	"	"	"
			203					"	GND	"	4.5 V	IN	GND	GND	"	$\bar{A} 3$ to $\bar{G}$	"	"	"
			204					"	4.5 V	IN	GND	GND	GND	"	"	$\bar{B} 0$ to $\bar{G}$	"	"	"
			205					"	GND	GND	GND	"	GND	"	"	$\bar{B} 1$ to $\bar{G}$	"	"	"
			206					"	GND	"	GND	"	IN	"	"	$\bar{B} 2$ to $\bar{G}$	"	"	"
			207					"	GND	"	IN	"	GND	"	"	$\bar{B} 3$ to $\bar{G}$	"	"	"
			208					"	IN	"	GND	"	GND	"	"				"
t	t_{PH6}		193					"	4.5 V	"	4.5 V	"	4.5 V	"	"	$\bar{A} 0$ to $\bar{G}$	"	32	"
			194					"	4.5 V	"	4.5 V	"	GND	IN	"	$\bar{A} 1$ to $\bar{G}$	"	"	"
			195					"	4.5 V	"	GND	IN	4.5 V	GND	"	$\bar{A} 2$ to $\bar{G}$	"	"	"
			196					"	GND	IN	4.5 V	GND	4.5 V	"	"	$\bar{A} 3$ to $\bar{G}$	"	"	"
			197					"	4.5 V	GND	4.5 V	"	4.5 V	"	"	$\bar{B} 0$ to $\bar{G}$	"	"	"
			198					"	4.5 V	"	4.5 V	"	IN	"	"	$\bar{B} 1$ to $\bar{G}$	"	"	"
			199					"	4.5 V	"	IN	"	4.5 V	"	"	$\bar{B} 2$ to $\bar{G}$	"	"	"
			200					"	IN	"	4.5 V	"	4.5 V	"	"	$\bar{B} 3$ to $\bar{G}$	"	"	"
			201					"	GND	"	GND	"	GND	"	"	$\bar{A} 0$ to $\bar{G}$	"	30	"
			202					"	GND	"	GND	"	4.5 V	IN	"	$\bar{A} 1$ to $\bar{G}$	"	"	"
			203					"	GND	"	4.5 V	IN	GND	GND	"	$\bar{A} 2$ to $\bar{G}$	"	"	"
			204					"	4.5 V	IN	GND	GND	GND	"	"	$\bar{A} 3$ to $\bar{G}$	"	"	"
			205					"	GND	GND	GND	"	GND	"	"	$\bar{B} 0$ to $\bar{G}$	"	"	"
			206					"	GND	"	GND	"	IN	"	"	$\bar{B} 1$ to $\bar{G}$	"	"	"
			207					"	GND	"	IN	"	GND	"	"	$\bar{B} 2$ to $\bar{G}$	"	"	"
			208					"	IN	"	GND	"	GND	"	"	$\bar{B} 3$ to $\bar{G}$	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z 3 1/	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits		Unit
				Test no.	A 0	GND	S3	S2	S1	S0	Cn	M	F 0	F 1	F 2		Min	Max	
9 Tc = 25°C	t_{PLH6}	3003 Fig 4		209	B 0	4.5 V	IN	A 0	GND	4.5 V	S1	GND	S0	GND	GND	A 0 to G	2	32	ns
				210	GND	GND	GND	GND	"	"	"	"	"	"	"	A 1 to G	"	"	"
				211	GND	GND	GND	GND	"	"	"	"	"	"	"	A 2 to G	"	"	"
				212	GND	GND	GND	GND	"	"	"	"	"	"	"	A 3 to G	"	"	"
				213	IN	IN	IN	IN	"	"	"	"	"	"	"	B 0 to G	"	"	"
				214	GND	GND	GND	GND	"	"	"	"	"	"	"	B 1 to G	"	"	"
				215	GND	GND	GND	GND	"	"	"	"	"	"	"	B 2 to G	"	"	"
				216	GND	GND	GND	GND	"	"	"	"	"	"	"	B 3 to G	"	"	"
				217	"	4.5 V	4.5 V	GND	GND	4.5 V	IN	IN	OUT	OUT	"	Cn to F 0	"	25	"
				218	"	4.5 V	4.5 V	GND	GND	4.5 V	IN	IN	OUT	OUT	"	Cn to F 0	"	26	"
t	PHL7			219	"	IN	IN	GND	4.5 V	GND	GND	GND	"	"	"	A 0 to A = B	"	75	"
				220	"	"	"	"	"	"	"	"	"	"	"	A 1 to A = B	"	"	"
				221	"	"	"	"	"	"	"	"	"	"	"	A 2 to A = B	"	"	"
				222	"	"	"	"	"	"	"	"	"	"	"	A 3 to A = B	"	"	"
				223	IN	"	"	"	"	"	"	"	"	"	"	B 0 to A = B	"	"	"
				224	GND	"	"	"	"	"	"	"	"	"	"	B 1 to A = B	"	"	"
				225	"	"	"	"	"	"	"	"	"	"	"	B 2 to A = B	"	"	"
				226	"	"	"	"	"	"	"	"	"	"	"	B 3 to A = B	"	"	"
				227	"	IN	IN	"	"	"	"	"	"	"	"	A 0 to A = B	"	80	"
				228	"	4.5 V	4.5 V	"	"	"	"	"	"	"	"	A 1 to A = B	"	"	"
t	PHL8			229	"	"	"	"	"	"	"	"	"	"	"	A 2 to A = B	"	"	"
				230	"	"	"	"	"	"	"	"	"	"	"	A 3 to A = B	"	"	"
				231	IN	"	"	"	"	"	"	"	"	"	"	B 0 to A = B	"	"	"
				232	GND	"	"	"	"	"	"	"	"	"	"	B 1 to A = B	"	"	"
				233	"	"	"	"	"	"	"	"	"	"	"	B 2 to A = B	"	"	"
				234	"	"	"	"	"	"	"	"	"	"	"	B 3 to A = B	"	"	"
				235	"	"	"	4.5 V	GND	4.5 V	IN	IN	"	"	"	Cn to Cn+4	"	25	"
				236	"	"	"	4.5 V	GND	4.5 V	"	"	"	"	"	Cn to Cn+4	"	26	"
				237	4.5 V	"	"	GND	4.5 V	GND	"	"	"	"	"	Cn to Cn+4	"	25	"
				238	4.5 V	"	"	GND	4.5 V	GND	"	"	"	"	"	Cn to Cn+4	"	26	"

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high $\geq 2.0 V$; low $\leq 0.7 V$; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits		Unit
				16	17	18	19	20	21	22	23	24	25	26	27		Min	Max	
9 $T_c = 25^\circ\text{C}$	t_{PLH6}	3003 Fig 4	Case 3 J/ Test no.	$\overline{F} 3$	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}	$\overline{A} 0$ to $\overline{G}$	2	32	ns
								OUT	GND	GND	"	GND	4.5 V	IN	"	$\overline{A} 1$ to $\overline{G}$	"	"	"
								"	GND	GND	4.5 V	IN	GND	GND	"	$\overline{A} 2$ to $\overline{G}$	"	"	"
								"	4.5 V	IN	GND	GND	GND	GND	"	$\overline{A} 3$ to $\overline{G}$	"	"	"
								"	GND	GND	GND	"	GND	"	"	$\overline{B} 0$ to $\overline{G}$	"	"	"
								"	GND	"	GND	"	IN	"	"	$\overline{B} 1$ to $\overline{G}$	"	"	"
								"	GND	"	IN	"	GND	"	"	$\overline{B} 2$ to $\overline{G}$	"	"	"
								"	IN	"	GND	"	"	"	"	$\overline{B} 3$ to $\overline{G}$	"	"	"
									GND	4.5 V	"	4.5 V	"	"	4.5 V	Cn to $\overline{F} 0$	"	25	"
	$PHL7$	"							"	"	"	"	"	"	4.5 V	Cn to $\overline{F} 0$	"	26	"
	$PLH7$	"			OUT				"	"	"	"	"	"	4.5 V	$\overline{A} 0$ to A = B	"	75	"
	$PHL8$	"			"				"	"	"	"	"	IN	"	$\overline{A} 1$ to A = B	"	"	"
		"			"				"	"	"	IN	"	4.5 V	"	$\overline{A} 2$ to A = B	"	"	"
		"			"				"	IN	"	4.5 V	"	"	"	$\overline{A} 3$ to A = B	"	"	"
		"			"				"	4.5 V	"	"	"	"	"	$\overline{B} 0$ to A = B	"	"	"
		"			"				"	"	"	"	IN	"	"	$\overline{B} 1$ to A = B	"	"	"
		"			"				"	"	IN	"	GND	"	"	$\overline{B} 2$ to A = B	"	"	"
t	$PHL8$	"	"		"				IN	"	"	"	"	"	"	$\overline{B} 3$ to A = B	"	80	"
					"				GND	"	"	"	"	"	"	$\overline{A} 0$ to A = B	"	"	"
					"				"	"	"	"	"	IN	"	$\overline{A} 1$ to A = B	"	"	"
					"				"	"	"	IN	"	4.5 V	"	$\overline{A} 2$ to A = B	"	"	"
					"				"	"	"	4.5 V	"	"	"	$\overline{A} 3$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{B} 0$ to A = B	"	"	"
					"				"	"	"	"	IN	"	"	$\overline{B} 1$ to A = B	"	"	"
					"				"	"	"	4.5 V	"	"	"	$\overline{B} 2$ to A = B	"	"	"
					"				"	4.5 V	"	"	"	"	"	$\overline{B} 3$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{A} 0$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{A} 1$ to A = B	"	"	"
t	$PHL9$	"	"		"				"	"	"	"	"	"	"	$\overline{A} 2$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{A} 3$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{B} 0$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{B} 1$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{B} 2$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	$\overline{B} 3$ to A = B	"	"	"
					"				"	"	"	"	"	"	"	Cn to Cn+4	"	25	"
					"				"	"	"	"	"	"	"	Cn to Cn+4	"	26	"
t	$PHL10$	"	"				"		4.5 V	"	4.5 V	"	"	"	"	Cn to Cn+4	"	25	"
							"		4.5 V	"	4.5 V	"	"	"	"	Cn to Cn+4	"	25	"
							"		4.5 V	"	4.5 V	"	"	"	"	Cn to Cn+4	"	25	"
							"		4.5 V	"	4.5 V	"	"	"	"	Cn to Cn+4	"	26	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits		Unit
				Test no.	A 0	IN	S3	S2	S1	S0	M	F 0	F 1	F 2	GND		Min	Max	
9 T _C = 25°C	t _{PHL11}	3003 Fig 4	J, K, Z 3 J	239	GND	IN	4.5 V	GND	GND	4.5 V	GND					A 0 to Cn+4	2	40	ns
				240	4.5 V	GND	"	"	"	"	"					A 1 to Cn+4	"	"	"
				241	4.5 V	"	"	"	"	"	"					A 2 to Cn+4	"	"	"
				242	4.5 V	"	"	"	"	"	"					A 3 to Cn+4	"	"	"
				243	IN	"	"	"	"	"	"					B 0 to Cn+4	"	"	"
				244	4.5 V	"	"	"	"	"	"					B 1 to Cn+4	"	"	"
				245	4.5 V	"	"	"	"	"	"					B 2 to Cn+4	"	"	"
				246	4.5 V	"	"	"	"	"	"					B 3 to Cn+4	"	"	"
				247	GND	IN	"	"	"	"	"					A 0 to Cn+4	"	38	"
				248	4.5 V	GND	"	"	"	"	"					A 1 to Cn+4	"	"	"
t	PHL11	"	"	249	4.5 V	"	"	"	"	"	"					A 2 to Cn+4	"	"	"
				250	4.5 V	"	"	"	"	"	"					A 3 to Cn+4	"	"	"
				251	IN	"	"	"	"	"	"					B 0 to Cn+4	"	"	"
				252	4.5 V	"	"	"	"	"	"					B 1 to Cn+4	"	"	"
				253	4.5 V	"	"	"	"	"	"					B 2 to Cn+4	"	"	"
				254	4.5 V	"	"	"	"	"	"					B 3 to Cn+4	"	"	"
				255	4.5 V	IN	GND	4.5 V	4.5 V	GND	"					A 0 to Cn+4	"	46	"
				256	GND	GND	"	"	"	"	"					A 1 to Cn+4	"	"	"
				257	GND	"	"	"	"	"	"					A 2 to Cn+4	"	"	"
				258	GND	"	"	"	"	"	"					A 3 to Cn+4	"	"	"
t	PHL12	"	"	259	IN	"	"	"	"	"	"					B 0 to Cn+4	"	"	"
				260	GND	"	"	"	"	"	"					B 1 to Cn+4	"	"	"
				261	GND	"	"	"	"	"	"					B 2 to Cn+4	"	"	"
				262	GND	"	"	"	"	"	"					B 3 to Cn+4	"	"	"
				263	4.5 V	IN	"	"	"	"	"					A 0 to Cn+4	"	40	"
				264	GND	GND	"	"	"	"	"					A 1 to Cn+4	"	"	"
				265	GND	"	"	"	"	"	"					A 2 to Cn+4	"	"	"
				266	GND	"	"	"	"	"	"					A 3 to Cn+4	"	"	"
				267	IN	"	"	"	"	"	"					B 0 to Cn+4	"	"	"
				268	GND	"	"	"	"	"	"					B 1 to Cn+4	"	"	"
t	PHL12	"	"	269	GND	"	"	"	"	"	"					B 2 to Cn+4	"	"	"
				270	GND	"	"	"	"	"	"					B 3 to Cn+4	"	"	"

See footnotes at end of table. Pins 13 thru 24 on next page.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).											Measured terminal	Limits		Unit
				13	14	15	16	17	18	19	20	21	22	23		24	Min	
9 $T_C = 25^\circ\text{C}$	t_{PHL1}	3003 Fig 4	Case 3 J	16	17	18	19	20	21	23	24	25	26	27	28	$\overline{A}$ 0 to Cn+4 $\overline{A}$ 1 to Cn+4 $\overline{A}$ 2 to Cn+4 $\overline{A}$ 3 to Cn+4 $\overline{B}$ 0 to Cn+4 $\overline{B}$ 1 to Cn+4 $\overline{B}$ 2 to Cn+4 $\overline{B}$ 3 to Cn+4 $\overline{A}$ 0 to Cn+4 $\overline{A}$ 1 to Cn+4 $\overline{A}$ 2 to Cn+4 $\overline{A}$ 3 to Cn+4 $\overline{B}$ 0 to Cn+4 $\overline{B}$ 1 to Cn+4 $\overline{B}$ 2 to Cn+4 $\overline{B}$ 3 to Cn+4	2 "	40 ns " " " " " " " " " " " " " " " " " "
			Test no.	$\overline{F}$ 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}			
			239				OUT		4.5 V	GND	4.5 V	GND	4.5 V	GND	5.0 V			
			240				"		"	GND	"	GND	GND	IN	"			
			241				"		"	GND	GND	IN	4.5 V	GND	"			
			242				"		GND	IN	4.5 V	GND	4.5 V	"	"			
			243				"		4.5 V	GND	4.5 V	"	4.5 V	"	"			
			244				"		4.5 V	"	4.5 V	"	IN	"	"			
			245				"		4.5 V	"	IN	"	4.5 V	"	"			
			246				"		IN	"	4.5 V	"	4.5 V	"	"			
	PH_{L1}			247				"		4.5 V	"	4.5 V	"	4.5 V	"	"	38 " " " " " " " " " "	
				248				"		4.5 V	"	4.5 V	"	GND	IN	"		
				249				"		4.5 V	"	GND	IN	4.5 V	GND	"		
				250				"		GND	IN	4.5 V	GND	4.5 V	"	"		
				251				"		4.5 V	GND	4.5 V	"	4.5 V	"	"		
				252				"		4.5 V	"	4.5 V	"	IN	"	"		
				253				"		4.5 V	"	IN	"	4.5 V	"	"		
				254				"		IN	"	4.5 V	"	4.5 V	"	"		
				255				"		GND	"	GND	"	GND	"	"		
				256				"		GND	"	GND	"	4.5 V	IN	"		
PH_{L2}			257				"		GND	"	4.5 V	IN	GND	GND	"	46 " " " " " " " " " "		
			258				"		4.5 V	IN	GND	GND	GND	"	"			
			259				"		GND	GND	GND	"	GND	"	"			
			260				"		GND	"	GND	"	IN	"	"			
			261				"		GND	"	IN	"	GND	"	"			
			262				"		IN	"	GND	"	GND	"	"			
			263				"		GND	"	GND	"	GND	"	"			
			264				"		GND	"	GND	"	4.5 V	IN	"			
			265				"		GND	"	4.5 V	IN	GND	GND	"			
			266				"		4.5 V	IN	GND	GND	GND	"	"			
PL_{H2}			267				"		GND	GND	GND	"	GND	"	"	40 " " " " " " " " " "		
			268				"		GND	"	GND	"	IN	"	"			
			269				"		GND	"	IN	"	GND	"	"			
			270				"		IN	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			
							"		"	"	GND	"	GND	"	"			

See footnotes at end of table.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Measured terminal	Limits		Unit		
				Test no.	B 0	A 0	S3	S2	S1	S0	Cn	M	F 0	F 1	F 2		GND	Min		Max	
9	t _{PHL13}	3003 Fig 4	J, K, Z	271	GND	IN	GND	4.5 V	4.5 V	GND	GND	OUT	OUT	OUT	OUT	GND	A 0 to F 0	2	38	ns	
				272	"	GND	"	"	"	"	"	"	"	"	"	"	"	A 1 to F 1	"	"	"
				273	"	"	"	"	"	"	"	"	"	"	"	"	"	A 2 to F 2	"	"	"
				274	"	"	"	"	"	"	"	"	"	OUT	OUT	OUT	OUT	A 3 to F 3	"	"	"
				275	IN	"	"	"	"	"	"	"	"	OUT	OUT	OUT	OUT	B 0 to F 0	"	"	"
				276	GND	"	"	"	"	"	"	"	"	"	"	OUT	OUT	B 1 to F 1	"	"	"
				277	"	"	"	"	"	"	"	"	"	"	"	"	"	B 2 to F 2	"	"	"
				278	"	"	"	"	"	"	"	"	"	"	"	"	"	B 3 to F 3	"	"	"
				279	"	IN	"	"	"	"	"	"	"	"	OUT	OUT	OUT	A 0 to F 0	"	33	"
				280	"	GND	"	"	"	"	"	"	"	"	"	OUT	OUT	A 1 to F 1	"	"	"
10	t	Same tests and terminal conditions as subgroup 9, except T _c = 125°C and limits as follows: t _{PHL8} = 2 to 96 ns; t _{PLH8} = 2 to 100 ns; t _{PHL9} = 2 to 37 ns; t _{PLH9} = 2 to 48 ns; t _{PHL10} = 2 to 37 ns; t _{PLH10} = 2 to 48 ns; t _{PHL11} and t _{PLH11} = 2 to 64 ns; t _{PHL12} = 2 to 60 ns; t _{PLH12} = 2 to 69 ns; t _{PHL13} = 2 to 48 ns; t _{PLH13} = 2 to 57 ns;	t	281	"	"	"	"	"	"	"	"	OUT	OUT	OUT	A 2 to F 2	"	"	"		
				282	"	"	"	"	"	"	"	"	OUT	OUT	OUT	OUT	A 3 to F 3	"	"	"	
				283	IN	"	"	"	"	"	"	"	"	OUT	OUT	OUT	B 0 to F 0	"	"	"	
				284	GND	"	"	"	"	"	"	"	"	"	OUT	OUT	B 1 to F 1	"	"	"	
				285	GND	"	"	"	"	"	"	"	"	"	"	"	B 2 to F 2	"	"	"	
				286	GND	"	"	"	"	"	"	"	"	"	"	"	B 3 to F 3	"	"	"	
				287	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				288	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
11	t	Same tests, terminal conditions and limits as subgroup 10, except T _c = -55°C	t	289	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
				290	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				291	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				292	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				293	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				294	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				295	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				296	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				297	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
				298	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.7 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Limits	Unit				
			Case 3 J	16	17	18	19	20	21	23	24	25	26	27	28		Min	Max				
			Test no.	F 3	A = B	P	Cn+4	G	B 3	A 3	B 2	A 2	B 1	A 1	V _{CC}							
9	t _{PHL13}	3003 Fig 4	271						GND	GND	GND	GND	GND	GND	GND	5.0 V	A 0 to F 0	2	38			
			272							"	GND	"	GND	"	IN	"	"	A 1 to F 1	"	"		
			273							"	GND	"	GND	IN	"	GND	"	"	A 2 to F 2	"	"	
			274	OUT						"	IN	"	GND	"	"	"	"	"	A 3 to F 3	"	"	
			275							"	GND	"	"	"	"	"	"	"	B 0 to F 0	"	"	
			276							"	"	"	"	"	IN	"	"	"	B 1 to F 1	"	"	
			277							"	"	IN	"	"	GND	"	"	"	B 2 to F 2	"	"	
			278	OUT						IN	"	GND	"	"	"	"	"	"	B 3 to F 3	"	"	
			279							GND	"	"	"	"	"	"	"	"	A 0 to F 0	"	33	
			280							"	"	"	"	"	"	IN	"	"	A 1 to F 1	"	"	
10	t	Same tests and terminal conditions as subgroup 9, except T _c = 125°C and limits as follows: t _{PHL8} = 2 to 96 ns; t _{PH8} = 2 to 100 ns; t _{PHL9} = 2 to 37 ns; t _{PH9} = 2 to 48 ns; t _{PHL10} = 2 to 37 ns; t _{PHL10} = 2 to 48 ns; t _{PHL11} and t _{PHL11} = 2 to 64 ns; t _{PHL12} = 2 to 60 ns; t _{PHL12} = 2 to 69 ns; t _{PHL13} = 2 to 48 ns; t _{PHL13} = 2 to 57 ns;	281						"	"	"	IN	"	GND	"	"	A 2 to F 2	"	"			
			282	OUT						"	IN	"	GND	"	"	"	"	"	A 3 to F 3	"	"	
			283							"	GND	"	"	"	"	"	"	"	B 0 to F 0	"	"	
			284							"	"	"	"	"	IN	"	"	"	B 1 to F 1	"	"	
			285							"	"	IN	"	"	GND	"	"	"	B 2 to F 2	"	"	
			286	OUT						IN	"	GND	"	"	GND	"	"	"	B 3 to F 3	"	"	
			11	t	Same tests, terminal conditions and limits as subgroup 10, except T _c = -55°C																	

1/ Tests shall be performed in sequence.

2/ Input voltages shown are: A = 2.0 volts minimum and B = 0.7 volts maximum.

3/ Output voltages shall be either: (a) H = 2.5 V, minimum and L = 0.4 V, maximum when using a high speed checker double comparator, or (b) H > 1.5 V and L < 1.5 V when using a high speed checker single comparator.

4/ All functional tests (82 thru 120) require a 1 k Ω pull up resistor between pin 14 and V_{CC} .

5/ I_{IL} limits (mA) min/max values for circuits shown:

Parameter	Test no.	A	B	C	D
I_{IL1}	16	-0.16/-0.40	-0.03/-0.30	-0.16/-0.40	-0.15/-0.38
I_{IL2}	17, 18, 19, 29	-0.48/-1.20	-0.09/-0.90	-0.48/-1.20	-0.45/-1.14
I_{IL3}	21, 22, 23, 24	-0.64/-1.60	-0.72/-1.44	-0.64/-1.60	-0.60/-1.52
I_{IL4}	21, 22, 23, 24	-0.64/-1.60	-0.72/-1.44	-0.64/-1.60	-0.60/-1.52
I_{IL5}	25	-0.80/-2.0	-1.0/-2.0	-0.80/-2.0	-0.75/-1.90
I_{IL6}	26, 27, 28, 29	-0.32/-0.80	-0.09/-0.09	0.32/-0.82	-0.30/-0.76

5. PACKAGING

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

6. NOTES

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

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

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. PIN and compliance identifier, if applicable (see 1.2).
- c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
- d. Requirements for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to contracting activity in addition to notification to the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
- i. Requirements for "JAN" marking.
- j. Packaging requirements (see 5.1).

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

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

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

GND	Ground zero voltage potential
V _{IN}	Voltage level at an input terminal
V _{IC}	Input clamp voltage
I _{IN}	Current flowing into an input terminal

6.6 Logistic support. Lead materials and finishes (see 3.4) 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 should not affect the part number.

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

Military device type	Generic-industry type
01	54LS181

6.8 Manufacturers' designation. Manufacturers' circuits, which form a part of this specification, are designated with an "X" as shown in table IV herein.

TABLE IV. Manufacturer's designator.

Device type	A	B	C	D
	Texas Instruments	Signetics Corporation	Raytheon Company	Motorola Incorporated
01	X	X	X	X

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

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

Preparing activity:
DLA - CC

(Project 5962-1993)

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 www.dodssp.daps.mil.