

INCH-POUND

MIL-M-38510/53F
13 December 2004

SUPERSEDING
MIL-M-38510/53E
7 August 1987

MILITARY SPECIFICATION
MICROCIRCUITS, DIGITAL, CMOS, COMPLIMENTARY PAIR PLUS INVERTER,
AND-OR-SELECT EXCLUSIVE OR GATES, EXPANDABLE 8-INPUT GATE
MONOLITHIC SILICON

Reactivated after 13 Dec. 2004 and may be used for new and existing designs and acquisitions.

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, CMOS, logic microcircuits. Two product assurance classes and a choice of case outlines, lead finishes, and radiation hardness assurance (RHA) are provided and are reflected in the complete Part or Identifying Number (PIN). For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535 (see 6.3).

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

1.2.1 Device types. The device types are as follows:

Device type	Circuit
01	Dual complimentary pair plus inverter
02	Quad AND-OR-select gate
03	Quad 2-input exclusive OR gate
04	Multi-function expandable 8-input gate
51	Dual complimentary pair plus inverter
52	Quad AND-OR-select gate
53	Quad 2-input exclusive OR gate
54	Multi-function expandable 8-input gate

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

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

Outline letter	Descriptive designator	Terminals	Package style
A	GDFP5-F14 or CDFP6-F14	14	Flat pack
C	GDIP1-T14 or CDIP2-T14	14	Dual-in-line
D	GDFP1-F14 or CDFP2-F14	14	Flat pack
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-line
F	GDFP2-F16 or CDFP3-F16	16	Flat pack
N	CDFP4-F16	16	Flat pack
T	CDFP3-F14	14	Flat pack
X 1/ 2/	GDFP5-F14 or CDFP6-F14	14	Flat pack, except A dimension equals 0.100" (2.54 mm) max
Y 1/ 2/	GDFP1-F14 or CDFP2-F14	14	Flat pack, except A dimension equals 0.100" (2.54 mm) max
Z 1/ 2/	GDFP2-F16 or CDFP3-F16	16	Flat pack, except A dimension equals 0.100" (2.54 mm) max

1/ As an exception to the nickel plate or undercoating paragraph of MIL-PRF-38535, appendix A, for case outlines X, Y, and Z only, the leads of bottom brazed ceramic packages (i.e., configuration 2 of case outlines A, D, and F) may have electroless nickel undercoating which is 50 to 200 microinches (1.27 to 5.08 μ m) thick provided the lead finish is hot solder dip (i.e., finish letter A) and provided that, after any lead forming, an additional hot solder dip coating is applied which extends from the outer tip of the lead to no more than 0.015 inch (0.38 mm) from the package edge.

2/ For bottom or side brazed packages, case outlines X, Y and Z only, the S₁ dimension may go to .000 inch (.00 mm) minimum.

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAC, P.O. Box 3990, Columbus, OH 43218-3990, or email CMOS@dscclia.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 ($V_{DD} - V_{SS}$):	
Device types 01, 02, 03, 04.....	-0.5 V dc to +15.5 V dc ^{1/}
Device types 51, 52, 53, 54.....	-0.5 V dc to +18.0 V dc
Input current (each input).....	± 10 mA
Input voltage range.....	$(V_{SS} - 0.5 \text{ V}) \leq V_i \leq (V_{DD} + 0.5 \text{ V})$
Storage temperature range (T_{STG}).....	-65° to +175°C
Maximum power dissipation (P_D).....	200 mW
Lead temperature (soldering, 10 seconds).....	+300°C
Thermal resistance, junction to case (θ_{JC}).....	See MIL-STD-1835
Junction temperature (T_J).....	175°C

1.4 Recommended operating conditions.

Supply voltage range ($V_{DD} - V_{SS}$):	
Device types 01, 02, 03, 04.....	4.5 V dc to 12.5 V dc
Device types 51, 52, 53, and 54.....	4.5 V dc to 15.0 V dc
Input low voltage range (V_{IL}):	
Device types 01, 02, 03, 04.....	0.0 V to 0.85 V dc @ $V_{DD} = 5.0$ V dc 0.0 V to 2.1 V dc @ $V_{DD} = 12.5$ V dc
Device type 51.....	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 0.0 V to 1.0 V dc @ $V_{DD} = 5.0$ V dc 0.0 V to 2.0 V dc @ $V_{DD} = 10.0$ V dc 0.0 V to 3.0 V dc @ $V_{DD} = 15.0$ V dc
Device types 52, 53, and 54.....	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 0.0 V to 1.5 V dc @ $V_{DD} = 5.0$ V dc 0.0 V to 2.0 V dc @ $V_{DD} = 10.0$ V dc 0.0 V to 4.0 V dc @ $V_{DD} = 15.0$ V dc
Input high voltage range (V_{IH}):	
Device types 01, 02, 03, 04.....	3.95 V to 5.0 V dc @ $V_{DD} = 5.0$ V dc 10.0 V to 12.5 V dc @ $V_{DD} = 12.5$ V dc
Device type 51.....	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 4.0 V to 5.0 V dc @ $V_{DD} = 5.0$ V dc 8.0 V to 10.0 V dc @ $V_{DD} = 10.0$ V dc 12 V to 15.0 V dc @ $V_{DD} = 15.0$ V dc
Device types 52, 53, and 54.....	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 3.5 V to 5.0 V dc @ $V_{DD} = 5.0$ V dc 8.0 V to 10.0 V dc @ $V_{DD} = 10.0$ V dc 11.0 V to 15.0 V dc @ $V_{DD} = 15.0$ V dc
Load capacitance.....	50 pF maximum
Case operating temperature range (T_C).....	-55°C to +125°C

^{1/} Applied voltage (for device type 01 only) on pins 2, 4, 9, and 11 is $\geq V_{SS}$ and $\leq V_{DD}$.

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 SPECIFICATION

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

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard Microcircuits.

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 document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

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

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

3.3 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein. Although eutectic die bonding is preferred, epoxy die bonding may be performed. However the resin used shall be Dupont 5504 Conductive Silver Paste, or equivalent, which is cured at $200^{\circ}\text{C} \pm 10^{\circ}\text{C}$ for a minimum of 2 hours. The use of equivalent epoxies or cure cycles shall be approved by the qualifying activity. Equivalency shall be demonstrated in data submitted to the qualifying activity for verification.

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

3.3.2 Logic diagrams. The logic diagrams shall be as specified on figure 2.

3.3.3 Truth tables and logic equations. The truth tables and logic equations shall be as specified on figure 3.

3.3.4 Switching time test circuits and waveforms. The switching time test circuits and waveforms shall be as specified on figures 4 to 16.

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

3.3.6 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.

3.7.1 Radiation hardness assurance identifier. The radiation hardness assurance identifier shall be in accordance with MIL-PRF-38535 and 4.5.4 herein.

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 36 (see MIL-PRF-38535, appendix A).

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions 1/ $V_{SS} = 0\text{ V}$ $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ Unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Positive clamping input to V_{DD}	$V_{IC(POS)}$	$T_C = +25^{\circ}\text{C}$, $V_{DD} = \text{GND}$ $V_{SS} = \text{Open}$, Output = Open $I_{IN} = 1\text{ mA}$	All		1.5	V dc
Negative clamping input to V_{SS}	$V_{IC(NEG)}$	$T_C = +25^{\circ}\text{C}$, $V_{DD} = \text{Open}$ $V_{SS} = \text{GND}$, Output = Open $I_{IN} = -1\text{ mA}$	All		-6.0	V dc
Quiescent supply current	I_{SS}	Any combination of inputs	$V_{DD} = 15\text{ V}$	01	-500	nA
				02, 03	-750	
				04	-3	μA
		$V_{DD} = 18\text{ V}$		51	-500	nA
				52, 53	-750	
				54	-3	μA
High level output voltage	V_{OH1}	$V_{DD} = 4.5\text{ V dc}$ $I_{OH} = -0.1\text{ mA}$ Any one input = V_{IL}	01, 02, 03	2.50		V
	V_{OH2}	$V_{DD} = 5.0\text{ V dc}$ $I_{OH} = -0.13\text{ mA}$ Any one input = V_{IL}	01, 02, 03	4.5		V
	V_{OH3}	$V_{DD} = 5.0\text{ V dc}$ $I_{OH} = 0.0\text{ A}$ Any one input = V_{IL}	01, 02, 03, 04	4.95		V
	V_{OH4}	$V_{DD} = 12.5\text{ V dc}$ $I_{OH} = 0.0\text{ A}$ Any one input = V_{IL}	01, 02, 03, 04	11.25		V
	V_{OH5}	$V_{DD} = 15.0\text{ V dc}$ $I_{OH} = 0.0\text{ A}$	51, 52, 53, 54	14.95		V
Low level output voltage	V_{OL1}	$V_{DD} = 5.5\text{ V dc}$ $I_{OL} = 0.23\text{ mA}$ Any one input = V_{IH}	01, 02, 03		0.50	V
	V_{OL2}	$V_{DD} = 5.0\text{ V dc}$ $I_{OL} = 0.28\text{ mA}$ Any one input = V_{IH}	01, 02, 03		0.50	V
	V_{OL3}	$V_{DD} = 5.0\text{ V dc}$ $I_{OL} = 0.0\text{ A}$ Any one input = V_{IH}	01, 02, 03, 04		0.05	V
	V_{OL4}	$V_{DD} = 12.5\text{ V dc}$ $I_{OL} = 0.0\text{ A}$ Any one input = V_{IH}	01, 02, 03, 04		1.25	V
	V_{OL5}	$V_{DD} = 5.0\text{ V dc}$ Any one input = V_{IH}	03		0.50	V
	V_{OL6}	$V_{DD} = 15.0\text{ V dc}$ $I_{OL} = 0.0\text{ A}$	51, 52, 53, 54		0.05	V
Input high voltage	V_{IH1}	$V_{DD} = 5\text{ V dc}$ $V_O = 0.5\text{ V}$ $ I_O \leq 1\mu\text{A}$	51	4.0		V dc
			52, 53, 54	3.5		
	V_{IH2}	$V_{DD} = 10\text{ V dc}$ $V_O = 1.0\text{ V}$ $ I_O \leq 1\mu\text{A}$	51	8.0		V dc
			52, 53, 54	7.0		
	V_{IH3}	$V_{DD} = 15\text{ V dc}$ $V_O = 1.5\text{ V}$ $ I_O \leq 1\mu\text{A}$	51	12.0		V dc
			52, 53, 54	11.0		

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> $V_{SS} = 0\text{ V}$ $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ Unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Input low voltage	V_{IL1}	$V_{DD} = 5\text{ V dc}$ $V_O = 4.5\text{ V}$ $ I_O \leq 1\mu\text{A}$	51		1.0	V dc
			52, 53, 54		1.5	
	V_{IL2}	$V_{DD} = 10\text{ V dc}$ $V_O = 9.0\text{ V}$ $ I_O \leq 1\mu\text{A}$	51		2.0	V dc
			52, 53, 54		2.0	
	V_{IL3}	$V_{DD} = 15\text{ V dc}$ $V_O = 13.5\text{ V}$ $ I_O \leq 1\mu\text{A}$	51		3.0	V dc
			52, 53, 54		4.0	
Output low (sink) current	I_{OL1}	$V_{DD} = 5\text{ V dc}$ $V_{IN} = 5.0\text{ V dc}$ $V_{OL} = 0.4\text{ V dc}$	51, 52, 53, 54	0.36		mA
	I_{OL2}	$V_{DD} = 15\text{ V dc}$ $V_{IN} = 15\text{ V dc}$ $V_{OL} = 1.5\text{ V dc}$	51, 52, 53, 54	2.4		mA
Output high (source) current	I_{OH1}	$V_{DD} = 5\text{ V dc}$ All inputs = GND $V_{OH} = 4.6\text{ V dc}$	51, 52, 53, 54	-0.36		mA
	I_{OH2}	$V_{DD} = 15\text{ V dc}$ All inputs = GND $V_{OH} = 13.5\text{ V dc}$	51, 52, 53, 54	-2.4		mA
Input leakage <u>2/</u> current, high	I_{IH}	Measure inputs sequentially	$V_{DD} = 15\text{ V}$	01, 02		nA
				03, 04		
			$V_{DD} = 18\text{ V}$	51, 54		
				52, 53		
Input leakage <u>2/</u> current, low	I_{IL}	Measure inputs sequentially	$V_{DD} = 15\text{ V}$	01, 02		nA
				03, 04		
			$V_{DD} = 18\text{ V}$	51, 54		
				52, 53		
Three-state output leakage current	I_{OC1}	Measure inputs sequentially $V_O = V_{DD}$	$V_{DD} = 15\text{ V dc}$	04		nA
			$V_{DD} = 18\text{ V dc}$	54		
Three-state output leakage current	I_{OC2}	Measure outputs sequentially $V_O = V_{SS}$	$V_{DD} = 15\text{ V dc}$	04		nA
			$V_{DD} = 18\text{ V dc}$	54		
Input capacitance	C_i	$V_{DD} = 0\text{ V dc}$, $f = 1\text{ MHz}$ $T_C = +25^{\circ}\text{C}$	All		12	pF
Propagation delay time, high-to-low level	t_{PHL}	$V_{DD} = 5.0\text{ V dc}$, $C_L = 50\text{ pF}$ $R_L = 200\text{ k}\Omega$ (see figure 4)	01	6	255	ns
			51	6	155	
			02	13	525	ns
			52	13	420	
			03	10	270	ns
			53	10	350	

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions 1/ $V_{SS} = 0 \text{ V}$ $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Propagation delay time, low-to-high level	t_{PLH}	$V_{DD} = 5.0 \text{ V dc}$, $C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figure 4)	01	6	165	ns
			51	6	155	
			02	13	525	ns
			52	13	420	
			03	10	270	ns
			53	10	350	
Transition time, high-to-low level	t_{THL}	$V_{DD} = 5.0 \text{ V dc}$, $C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figure 4)	01	6	360	ns
			51	6	280	
			02	10	525	ns
			52	10	420	
			03	10	380	ns
			53	10	280	
Transition time, low-to-high level	t_{TLH}	$V_{DD} = 5.0 \text{ V dc}$, $C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figure 4)	01	6	240	ns
			51	6	280	
			02	10	525	ns
			52	10	420	
			03	10	530	ns
			53	10	280	
Propagation delay time, high-to-low level (NOR gate)	t_{PHL1}	$V_{DD} = 5.0 \text{ V dc}$, $C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figures 5-15)	04	30	820	ns
			54			
Propagation delay time, high-to-low level (OR gate)	t_{PHL2}		04	28	755	ns
			54			
Propagation delay time, high-to-low level (AND gate)	t_{PHL3}		04	33	905	ns
			54			
Propagation delay time, high-to-low level (NAND gate)	t_{PHL4}		04	29	670	ns
			54			
Propagation delay time, high-to-low level (OR/AND gate)	t_{PHL5}		04	29	775	ns
			54			
Propagation delay time, high-to-low level (OR/NAND gate)	t_{PHL6}		04	27	755	ns
			54			
Propagation delay time, high-to-low level (AND/NOR gate)	t_{PHL7}		04	30	790	ns
			54			
Propagation delay time, high-to-low level (AND/OR gate)	t_{PHL8}		04	31	840	ns
			54			
Propagation delay time, high-to-low level (Ka to output)	t_{PHL9}		04	30	760	ns
			54			
Propagation delay time, high-to-low level (Kb to output)	t_{PHL10}		04	23	615	ns
			54			

See footnotes at end of table.

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Test	Symbol	Conditions ^{1/} $V_{SS} = 0 \text{ V}$ $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Propagation delay time, high-to-low level (Kc to output)	t_{PHL11}	$V_{DD} = 5.0 \text{ V dc}, C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figures 5-15)	04	18	475	ns
			54			
Propagation delay time, low-to-high level (NOR gate)	t_{PLH1}		04	24	640	ns
			54			
Propagation delay time, low-to-high level (OR gate)	t_{PLH2}		04	28	750	ns
			54			
Propagation delay time, low-to-high level (AND gate)	t_{PLH3}		04	25	655	ns
			54			
Propagation delay time, low-to-high level (NAND gate)	t_{PLH4}		04	31	830	ns
			54			
Propagation delay time, low-to-high level (OR/AND gate)	t_{PLH5}		04	24	645	ns
			54			
Propagation delay time, low-to-high level (OR/NAND gate)	t_{PLH6}		04	26	700	ns
			54			
Propagation delay time, low-to-high level (AND/NOR gate)	t_{PLH7}		04	27	730	ns
			54			
Propagation delay time, low-to-high level (AND/OR gate)	t_{PLH8}		04	27	720	ns
			54			
Propagation delay time, low-to-high level (Ka to output)	t_{PLH9}		04	28	730	ns
			54			
Propagation delay time, low-to-high level (Kb to output)	t_{PLH10}		04	23	605	ns
			54			
Propagation delay time, low-to-high level (Kc to output)	t_{PLH11}		04	17	445	ns
			54			
Transition time, high-to-low level	t_{THL}	$V_{DD} = 5.0 \text{ V dc}, C_L = 50 \text{ pF}$ $R_L = 200 \text{ k}\Omega$ (see figure 5)	04	6	160	ns
			54			
Transition time, low-to-high level	t_{TLH}		04	5	140	ns
			54			
Propagation delay time, low to Z, high to Z (Kd input to output)	$t_{PLZ},$ t_{PHZ}	$V_{DD} = 5.0 \text{ V dc}, C_L = 50 \text{ pF}$ $R_L = 1.0 \text{ k}\Omega$ (see figure 16)	04	18	490	ns
			54			
Propagation delay time, Z to low, Z to high (Kd input to output)	$t_{PZL},$ t_{PZH}	$V_{DD} = 5.0 \text{ V dc}, C_L = 50 \text{ pF}$ $R_L = 1.0 \text{ k}\Omega$ (see figure 16)	04	23	630	ns
			54			

^{1/} Complete terminal conditions shall be as specified in table III.^{2/} Input current at one input mode.

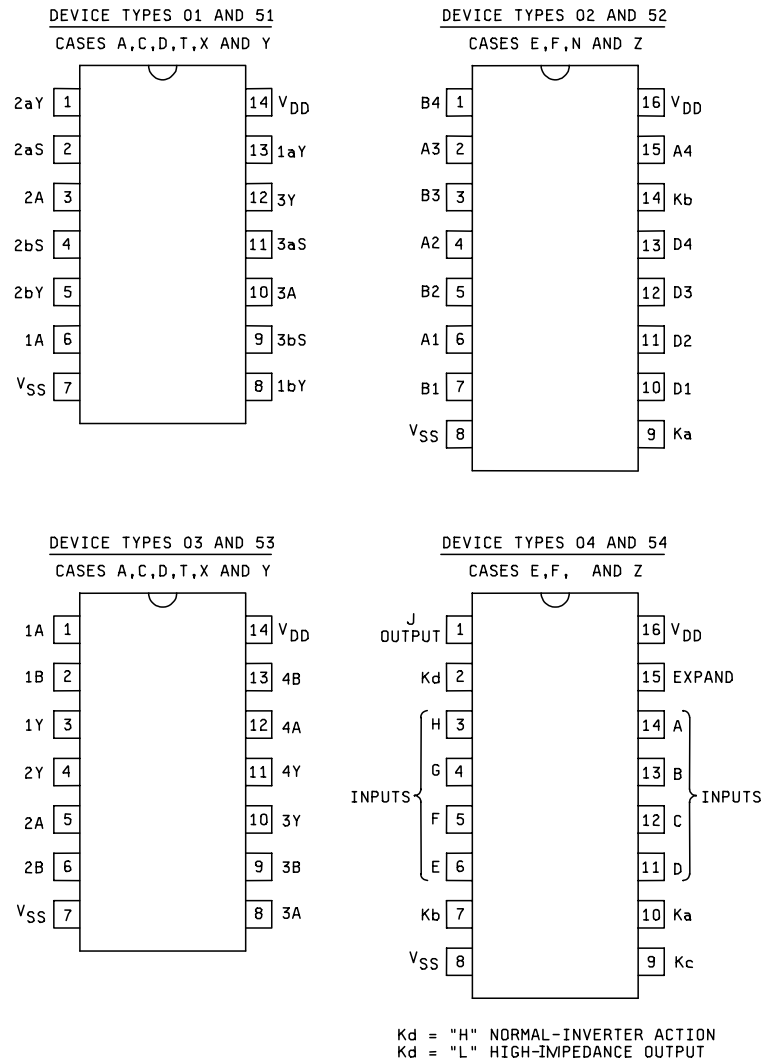


FIGURE 1. Terminal connections.

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Device types 01 and 51

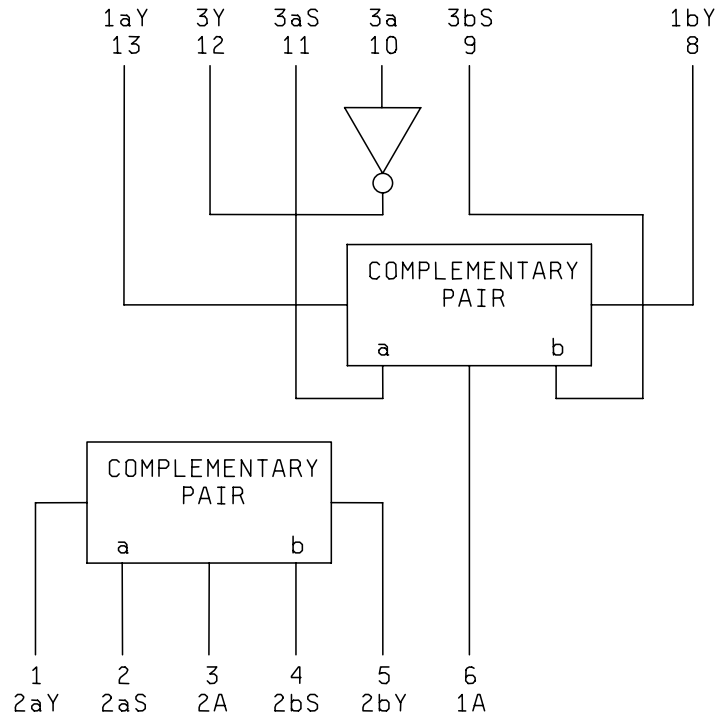
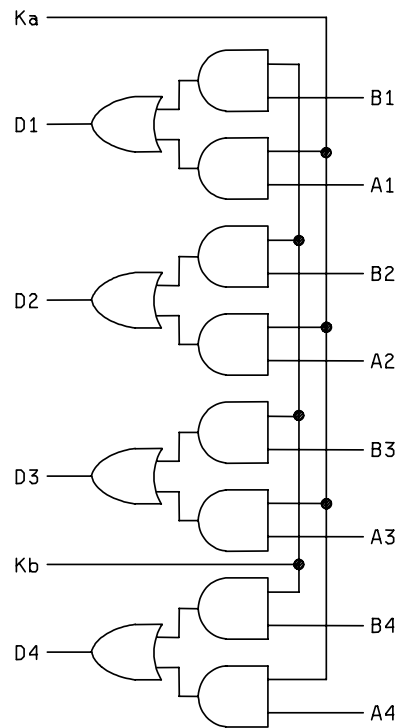


FIGURE 2. Logic diagrams.

DEVICE TYPES 02 AND 52



DEVICE TYPES 03 AND 53

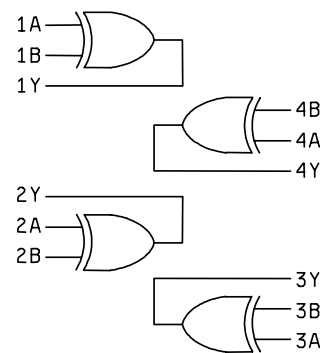


FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 04 AND 54

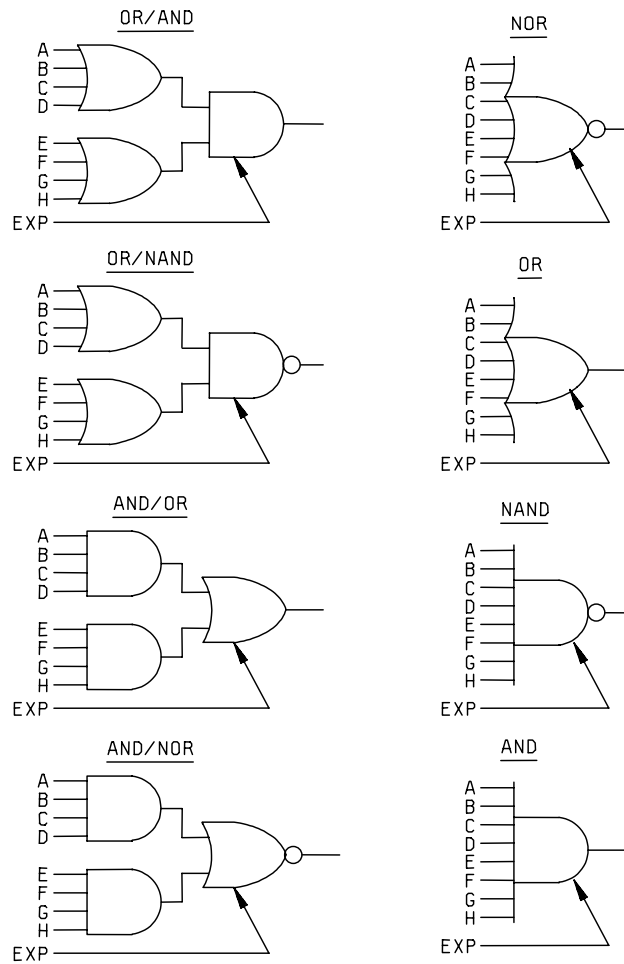


FIGURE 2. Logic diagrams – Continued.

Device types 01 and 51

Complimentary pair
(not applicable)

INVERTER
Truth table

Input	Output
3A	3Y
H	L
L	H

Positive logic $3Y = \overline{3A}$

Device type 03 and 53

Truth table each gate

Input		Output
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

Positive logic $Y = A \oplus B$

Device types 02 and 52

Truth table

Inputs				Ouput
An	Ka	Bn	Kb	Dn
L	L	L	L	L
H	L	L	L	L
L	H	L	L	L
L	L	H	L	L
L	L	L	H	L
H	H	L	L	H
L	H	H	L	L
L	L	H	H	H
H	L	L	H	L
H	L	H	L	L
L	H	L	H	L
H	H	H	L	H
L	H	H	H	H
H	L	H	H	H
H	H	L	H	H
H	H	H	H	H

Positive logic $Dn = (An \bullet Ka) + (Bn \bullet Kb)$
 $n = 1, 2, 3, \text{ or } 4$

Device types 04 and 54

Function truth table

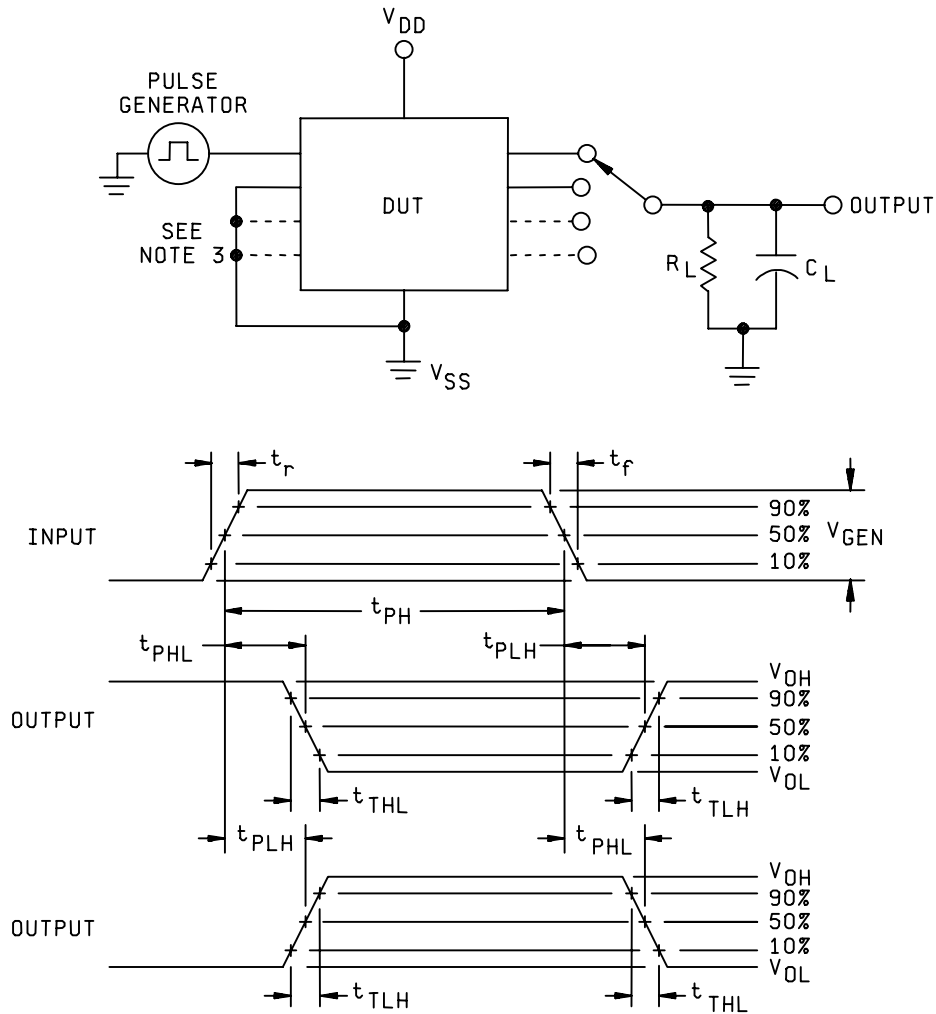
Output function	Boolean expression	Ka	Kb	Kc	Unused input
NOR	$J = \overline{A+B+C+D+E+F+G+H}$	0	0	0	V_{SS}
OR	$J = A+B+C+D+E+F+G+H$	0	0	1	V_{SS}
OR/AND	$J = (A+B+C+D) \bullet (E+F+G+H)$	0	1	0	V_{SS}
OR/NAND	$J = \overline{(A+B+C+D) \bullet (E+F+G+H)}$	0	1	1	V_{SS}
AND	$J = ABCDEFGH$	1	0	0	V_{DD}
NAND	$J = \overline{ABCDEFGH}$	1	0	1	V_{DD}
AND/NOR	$J = \overline{ABCD+EFGH}$	1	1	0	V_{DD}
AND/OR	$J = ABCD+EFGH$	1	1	1	V_{DD}

Kd = 1 Normal-inverter action
Kd = 0 High-impedance output

Expand input = 0

H = High level voltage
L = Low level voltage

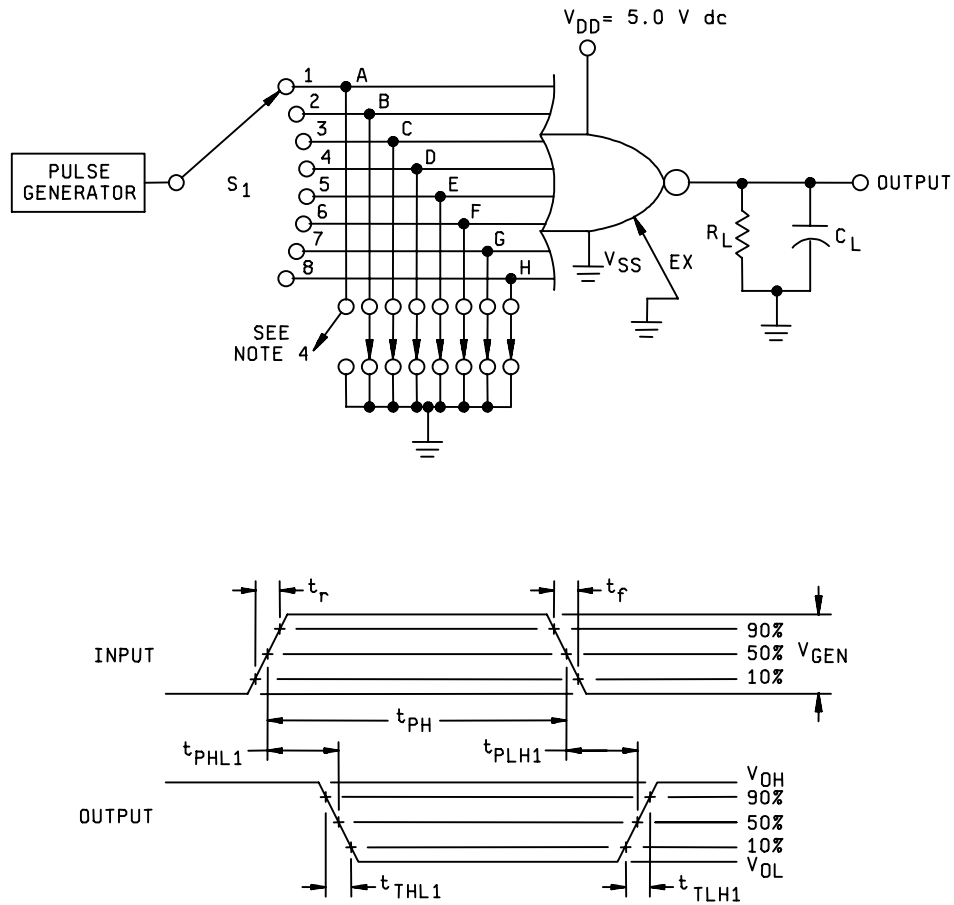
FIGURE 3. Truth tables and logic equations.



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 \text{ ns}$.
2. See table III for complete terminal conditions.
3. All unused inputs must be tied to V_{SS} .
4. $R_L = 200 \text{ k}\Omega \pm 10\%$ and $C_L = 50 \text{ pF} \pm 5\%$ including wiring and probe capacitance.

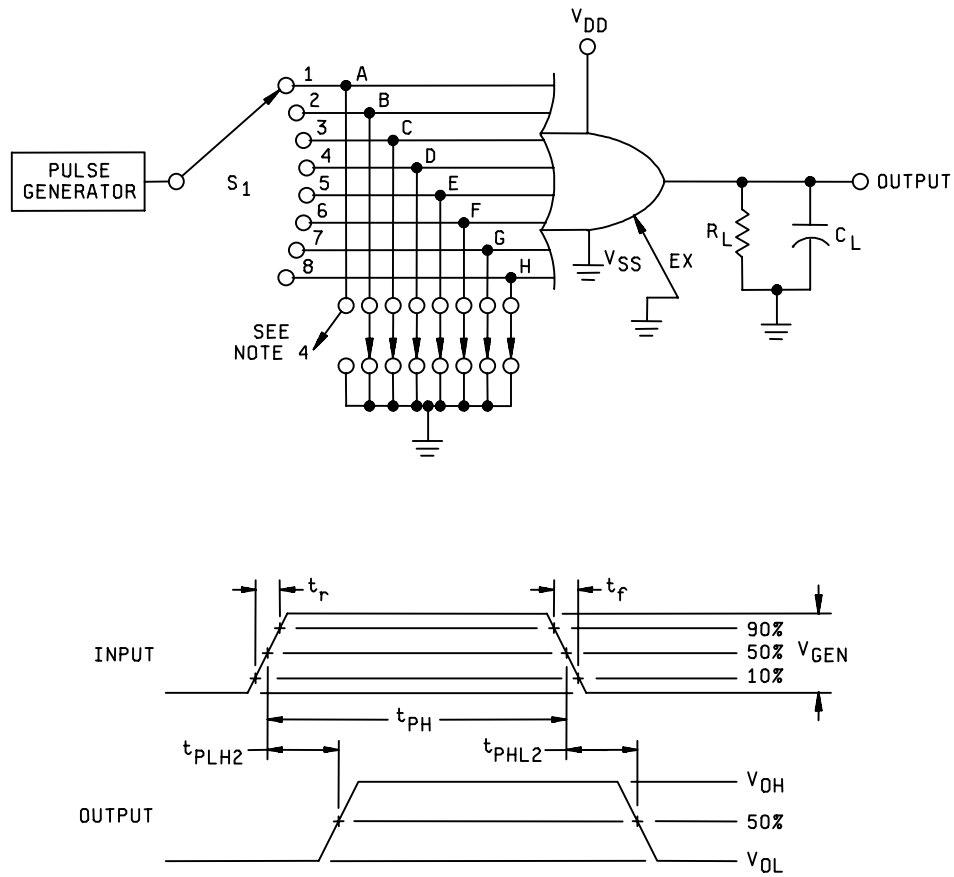
FIGURE 4. Switching time test circuit and waveforms for device types 01, 02, 03, 51, 52, and 53.



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu\text{s}$, t_r and $t_f \leq 10 \text{ ns}$.
2. $R_L = 200 \text{ k}\Omega \pm 10\%$ and $C_L = 50 \text{ pF} \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{SS} except for input connected to the pulse generator.

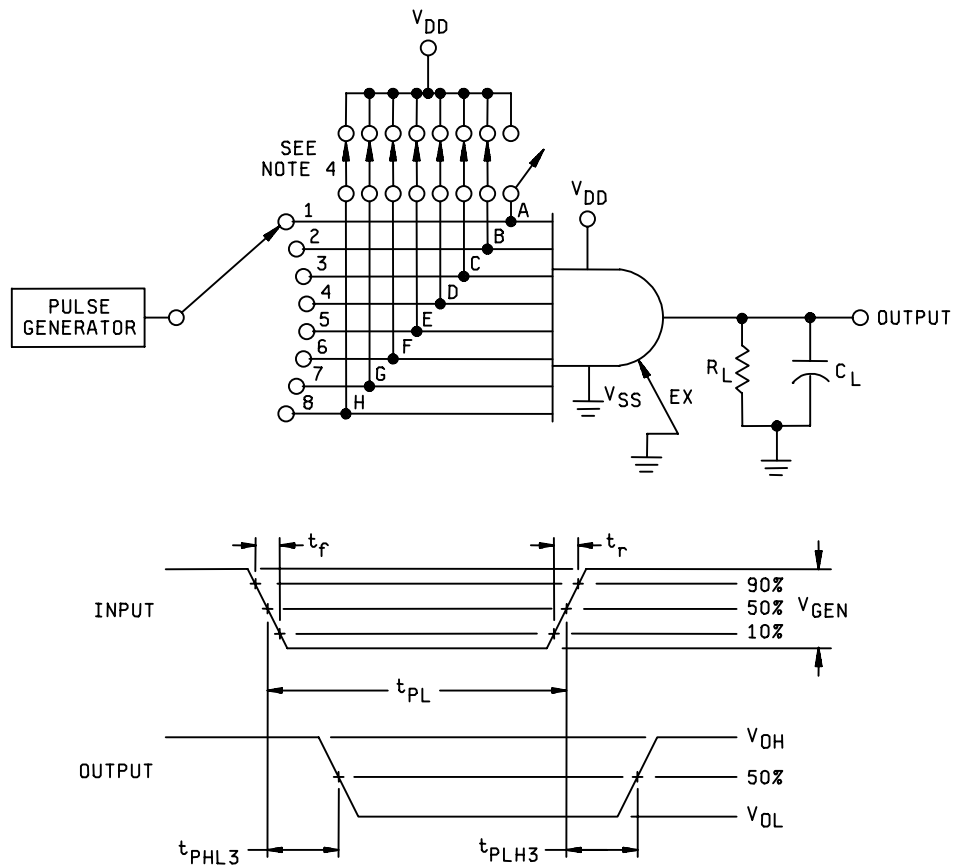
FIGURE 5. Switching time test circuit and waveforms for device types 04 and 54 (NOR gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{SS} except for input connected to the pulse generator.

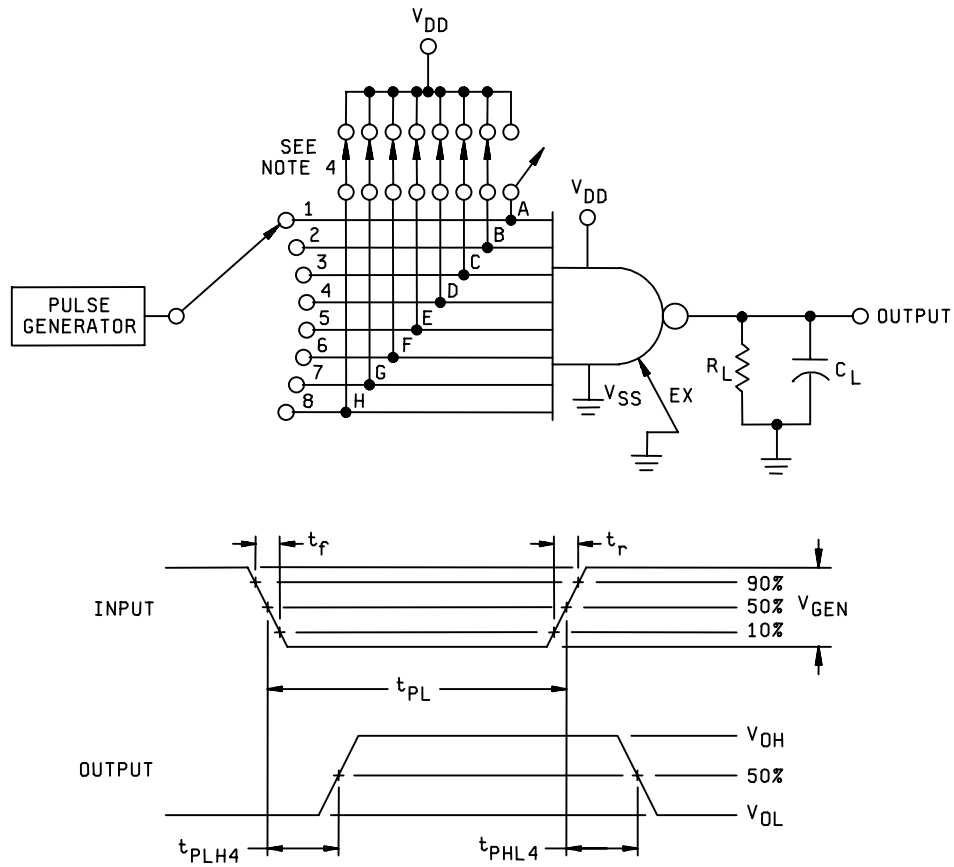
FIGURE 6. Switching time test circuit and waveforms for device types 04 and 54 (OR gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{DD} except for input connected to the pulse generator.

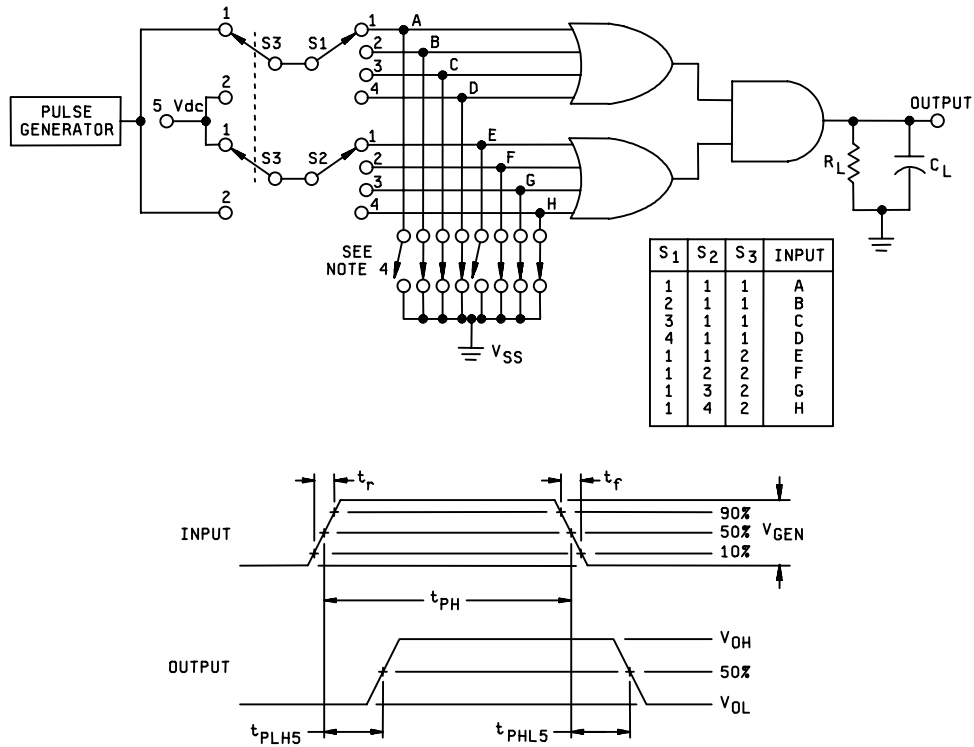
FIGURE 7. Switching time test circuit and waveforms for device types 04 and 54 (AND gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{DD} except for input connected to the pulse generator.

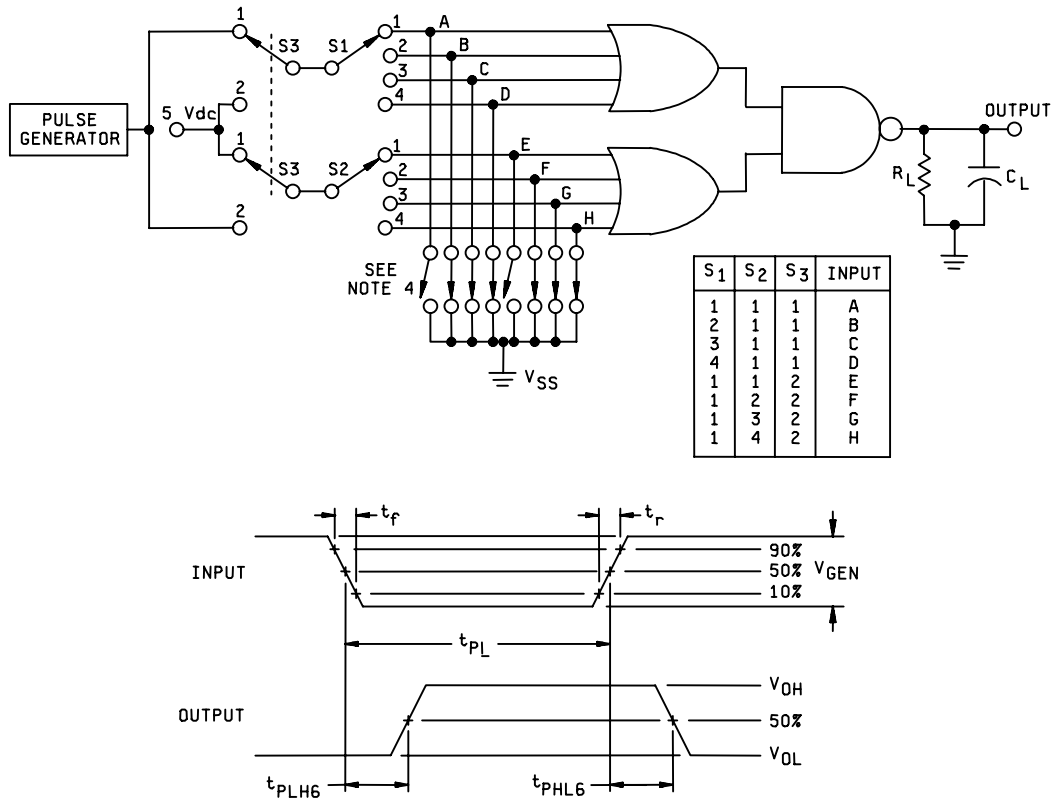
FIGURE 8. Switching time test circuit and waveforms for device types 04 and 54 (NAND gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{SS} except for input connected to S1 and S2.

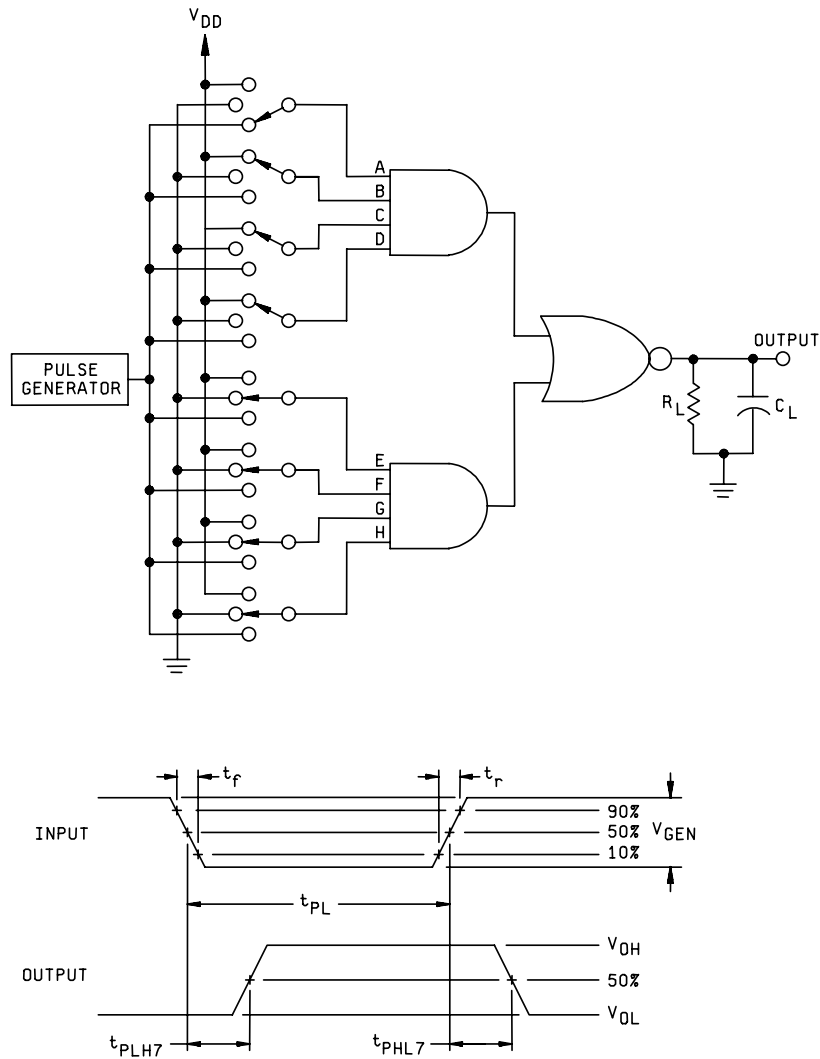
FIGURE 9. Switching time test circuit and waveforms for device types 04 and 54 (OR/AND gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. All inputs are tied to V_{SS} except for input connected to S1 and S2.

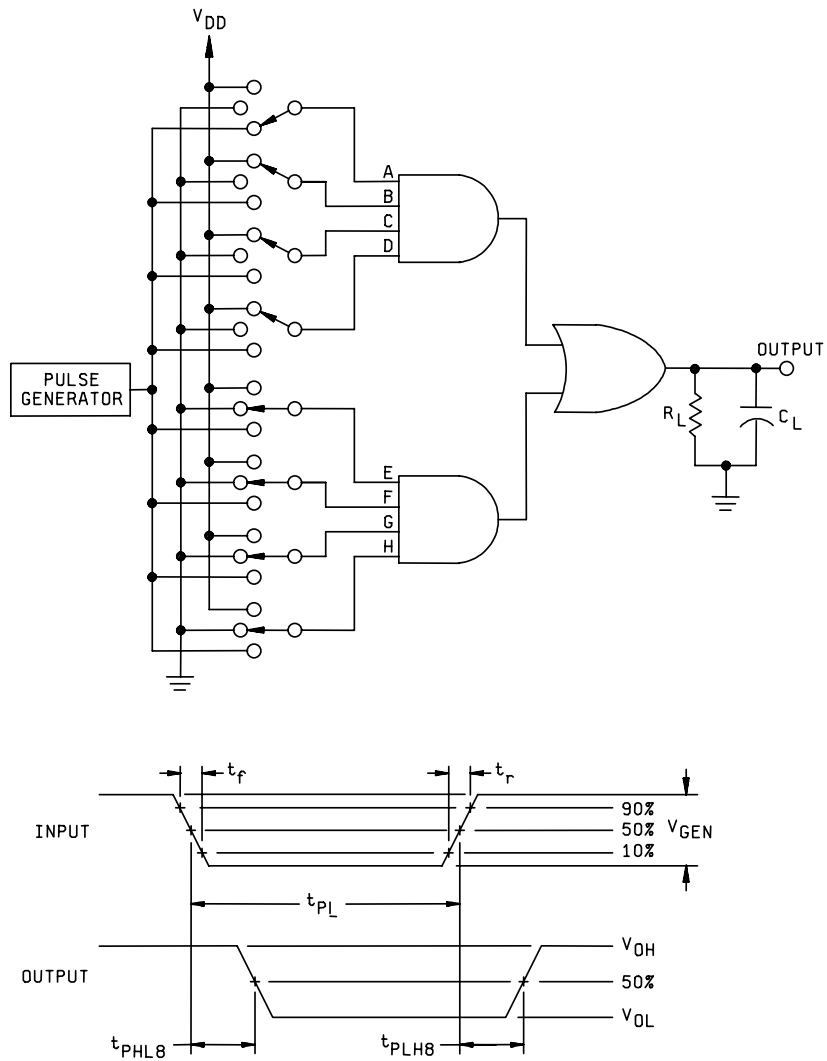
FIGURE 10. Switching time test circuit and waveforms for device types 04 and 54 (OR/NAND gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.

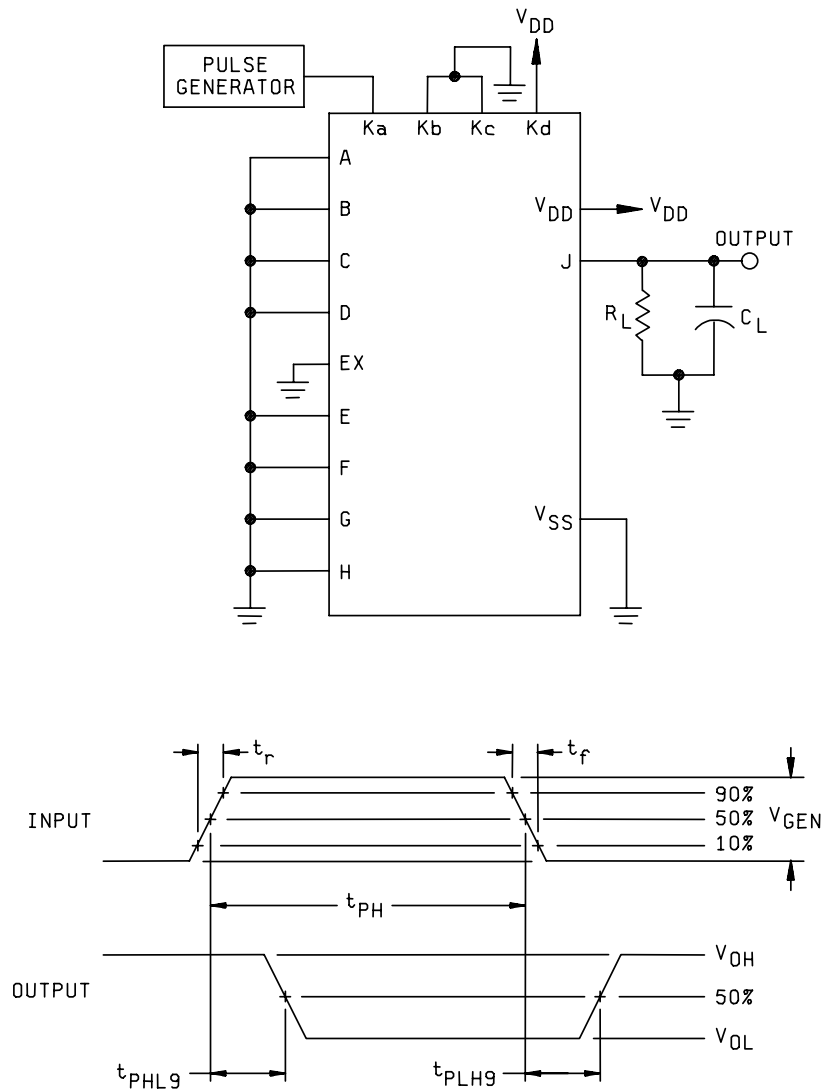
FIGURE 11. Switching time test circuit and waveforms for device types 04 and 54 (AND/NOR gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.

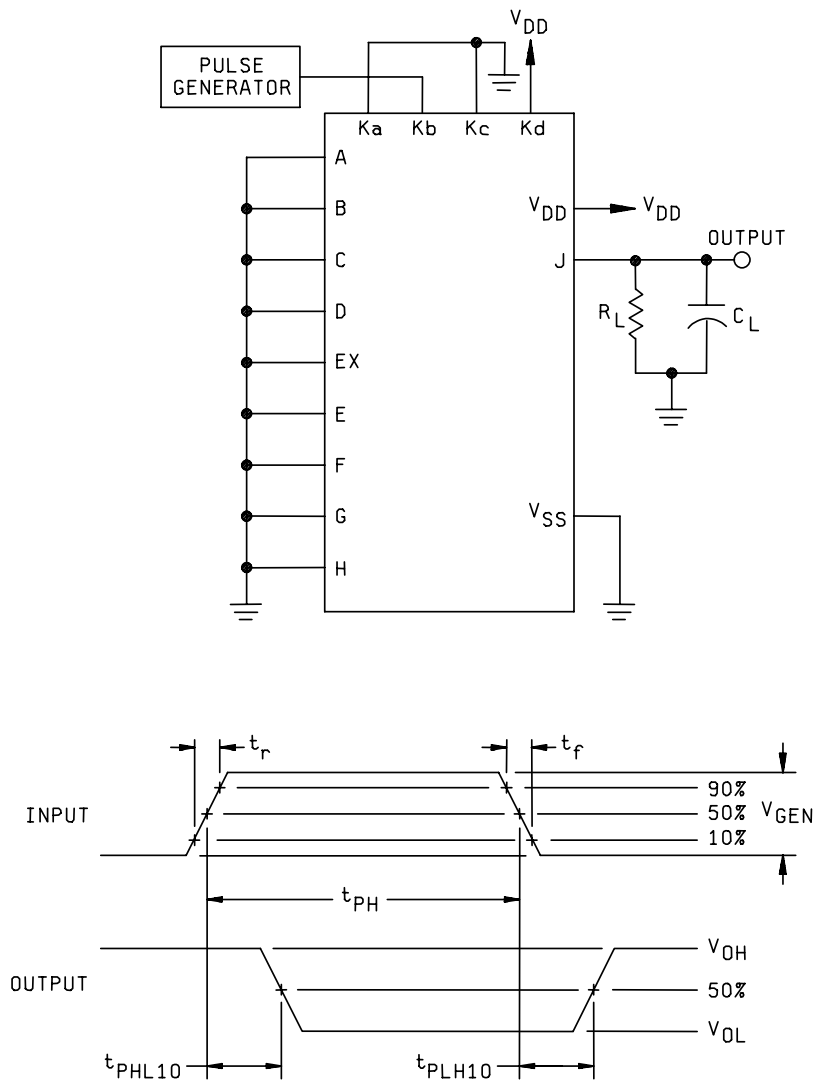
FIGURE 12. Switching time test circuit and waveforms for device types 04 and 54 (AND/OR gate).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.

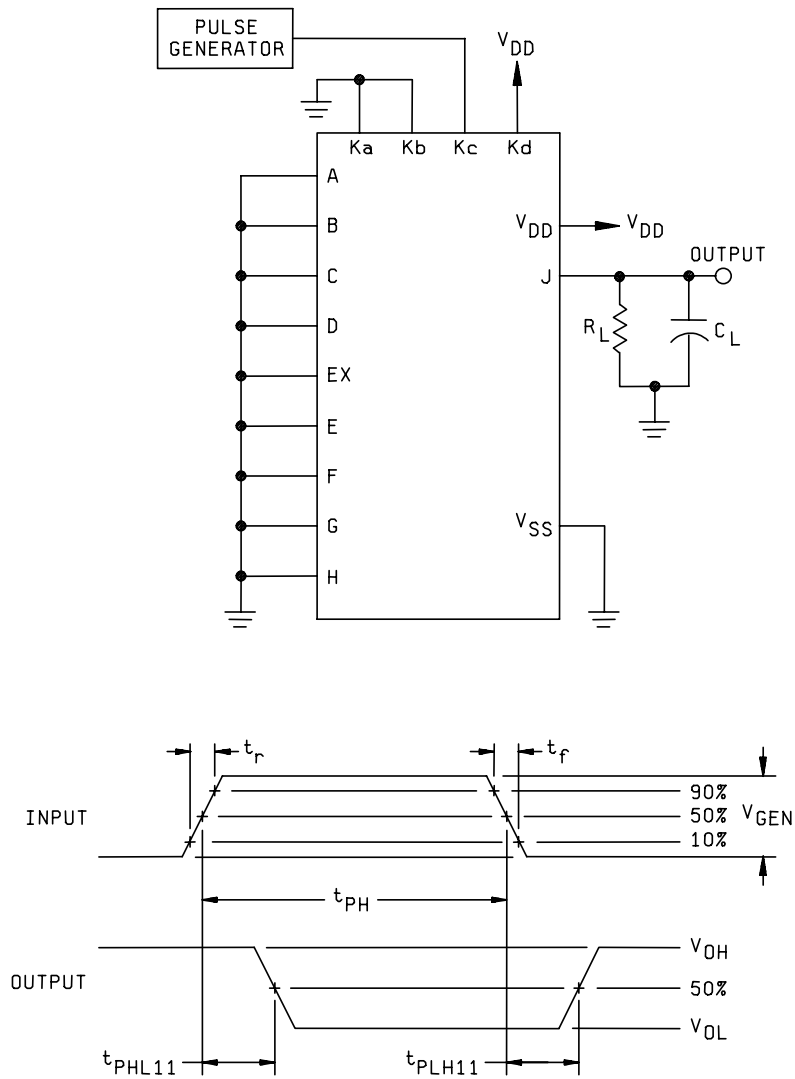
FIGURE 13. Switching time test circuit and waveforms for device types 04 and 54 (Ka to output).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.

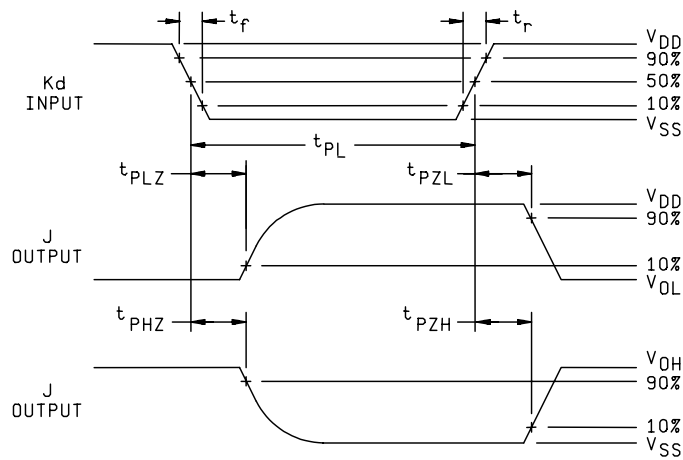
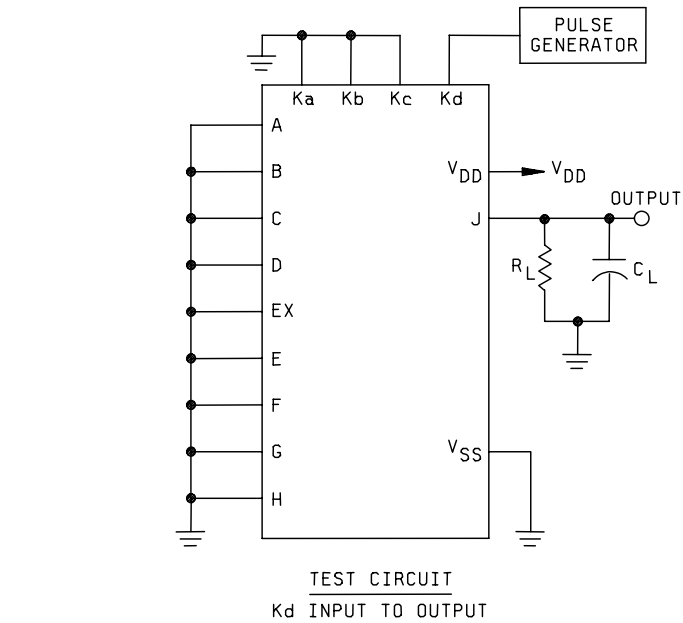
FIGURE 14. Switching time test circuit and waveforms for device types 04 and 54 (Kb to output).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 200 k\Omega \pm 10\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.

FIGURE 15. Switching time test circuit and waveforms for device types 04 and 54 (Kc to output).



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PL} = 1.0 \pm 0.1 \mu s$, t_r and $t_f \leq 10 ns$.
2. $R_L = 1.0 k\Omega \pm 5\%$ and $C_L = 50 pF \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. $R_L = 1.0 k\Omega \pm 5\%$ to V_{DD} for t_{PLZ} .

FIGURE 16. Switching time test circuit and waveforms for device types 04 and 54 (Kd to output).

4. VERIFICATION

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

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

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- b. Delete the sequence specified as interim (pre-burn-in) electrical parameters through interim (post-burn-in) electrical parameters of table IA of MIL-PRF-38535 and substitute lines 1 through 7 of table II herein.
- c. Burn-in (method 1015 of MIL-STD-883).
 - (1) Unless otherwise specified in the manufacturers QM plan for static tests (test condition A), case temperature (T_C) shall be +125°C minimum. Test duration for each static test shall be 24 hours minimum for class S devices and in accordance with table I of method 1015 for class B devices.
 - i. For static burn-in I, all inputs shall be connected to 0.0 V.
 - ii. For static burn-in II, all inputs shall be connected to V_{DD} .
 - iii. Except for V_{DD} and V_{SS} , the terminal shall be connected through resistors whose value is 2 k Ω to 47 k Ω . The actual measured value of the resistor selected shall not exceed $\pm 20\%$ of its branded value due to use, heat or age.
 - iv. Output may be open or connected to $V_{DD}/2$.
 - v. For device types 01 and 51:
 - (a) Connect pins 2, 11, and 14 together.
 - (b) Connect pins 4, 7, and 9 together.
 - (c) Connect pins 8 and 13 together.
 - (d) Connect pins 1 and 5 together.
 - vi. $V_{DD} = 12.5$ V minimum and 15 V maximum for device types 01, 02, 03, and 04.
 $V_{DD} = 15$ V minimum and 18 V maximum for device types 51, 52, 53, and 54.
 $V_{DD}/2 = V_{DD}/2 \pm 1.0$ V for all devices. $V_{SS} = 0.0$ V.
 - (2) Unless otherwise specified in the manufacturers QM plan for dynamic test (test condition D), case temperature shall be +125°C minimum. Test duration shall be in accordance with table I of method 1015.
 - i. Except for V_{DD} and V_{SS} , the terminals shall be connected through resistors whose value is 2 k Ω to 47 k Ω . The actual measured value of the resistor selected shall not exceed $\pm 20\%$ of its branded value due to use, heat or age.
 - ii. Input signal requirements: Square wave, 50% duty cycle; 25 kHz < PRR < 1 MHz; t_{TLH} and $t_{THL} < 1$ μ s. Voltage level: Minimum = $V_{SS} - 0.5$ V, +10% V_{DD} ; maximum = $V_{DD} + 0.5$ V, -10% V_{DD} .

- iii For device types 01 and 51:
 - (a) Connect pins 2, 11, and 14 together.
 - (b) Connect pins 4, 7, and 9 together.
 - (c) Connect pins 8 and 13 together.
 - (d) Connect pins 1 and 5 together.
- iv $V_{DD} = 12.5 \text{ V}$ minimum and 15 V maximum for device types 01, 02, 03, and 04.
 $V_{DD} = 15 \text{ V}$ minimum and 18 V maximum for device types 51, 52, 53, and 54.
 $V_{DD}/2 = V_{DD}/2 \pm 1.0 \text{ V}$. $V_{SS} = 0.0 \text{ V}$.
- d. Interim and final electrical test parameters shall be as specified in table II.
- e. For class S devices, post dynamic burn-in, or class B devices, post static burn-in, electrical parameter measurements may, at the manufacturer's option, be performed separately or included in the final electrical parameter requirements.
- f. When device types 01 through 04 are qualified by extension (see 4.3.1), they shall be screened in accordance with the requirements for corresponding device types 51 through 54, respectively.

TABLE II. Electrical test requirements.

Line no.	MIL-PRF-38535 test requirements	Class S device ^{1/}			Class B device ^{1/}		
		Ref. par.	Table III Subgroups ^{2/}	Table IV delta limits ^{3/}	Ref. par.	Table III subgroups ^{2/}	Table IV delta limits ^{3/}
1	Interim electrical parameters		1			1	
2	Static burn-in I (method 1015)	4.2c 4.5.2					
3	Same as line 1		1	Δ			
4	Static burn-in II (method 1015)	4.2c 4.5.2			4.2c 4.5.2	^{4/}	
5	Same as line 1	4.2e	1*	Δ	4.2e	1*	Δ
6	Dynamic burn-in (method 1015)	4.2c 4.5.2					
7	Same as line 1	4.2e	1*	Δ			
8	Final electrical parameters (method 5004)		1*, 2, 3, 9			1*, 2, 3, 9	
9	Group A test requirements (method 5005)	4.4.1	1, 2, 3, 4, 9, 10, 11		4.4.1	1, 2, 3, 4, 9, 10, 11	
10	Group B test when using method 5005 QCI option	4.4.2	1, 2, 3, 9, 10, 11	Δ			
11	Group C end-point electrical parameters (method 5005)				4.4.3	1, 2, 3	Δ
12	Group D end-point electrical parameters (method 5005)	4.4.4	1, 2, 3		4.4.4	1, 2, 3	

^{1/} Blank spaces indicate tests are not applicable.^{2/} * indicates PDA applies to subgroup 1 (see 4.2.1).^{3/} Δ indicates delta limits shall be required only on table III subgroup 1, where specified, and the delta values shall be computed with reference to the previous interim electrical parameters.^{4/} The device manufacturer may at his option either perform delta measurements or within 24 hours after burn-in (or removal of bias) perform the final electrical parameter measurements.

4.2.1 Percent defective allowable (PDA).

- a. The PDA for class S devices shall be 5 percent for static burn-in and 5 percent for dynamic burn-in, based on the exact number of devices submitted to each separate burn-in.
- b. Static burn-in I and II failure shall be cumulative for determining the PDA.
- c. The PDA for class B devices shall be in accordance with MIL-PRF-38535 for static burn-in. Dynamic burn-in is not required.
- d. Those devices whose measured characteristics, after burn-in, exceed the specified delta (Δ) limits or electrical parameter limits specified in table III, subgroup 1, are defective and shall be removed from the lot. The verified failures divided by the total number of devices in the lot initially submitted to burn-in shall be used to determine the percent defective for the lot and the lot shall be accepted or rejected based on the specified PDA.

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

4.3.1 Qualification extension. When authorized by the qualifying activity, for qualification inspection, if a manufacturer qualifies to a 51-54 device type which is manufactured identically to a 01-04 device type on this specification, then the 01-04 device type may be part I qualified by conducting only worst case group A electrical tests and any electrical tests specified as additional group C subgroups and submitting data 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, D, and E inspections (see 4.4.1 through 4.4.5).

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 performed in accordance with table II herein.
- b. Subgroups 5, 6, 7, and 8 shall be omitted.
- c. Subgroup 4 (C_i measurement) shall be measured only for initial qualification and after process or design changes that may affect input capacitance. Capacitance shall be measured between the designated terminal and V_{SS} at a frequency of 1 MHz.
- d. Subgroups 9 and 11 shall be measured only for initial qualification and after process or design changes which may affect dynamic performance.
- e. When device types 01 through 04 are qualified by extension (see 4.3.1), these device types will be inspected (QCI) according to the requirements for device types 51 through 54, respectively.

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

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

- a. End-point electrical parameters shall be as specified in table II herein. Delta limits shall apply only to subgroup 1 of group C inspection and shall consist of tests specified in table IV 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.
- c. When device types 01 through 04 are qualified by extension (see 4.3.1), these device types will be inspected (QCI) according to the requirements for device types 51 through 54, respectively.

TABLE III. Group A inspection for device type 01.

Symbol	MIL-STD-883 method	Cases A,C,D,T,X,Y	Terminal conditions 1/									
		Symbol	2aY	2aS	2A	2bS	2bY	1A	V _{SS}	1bY	3bS	3A
		Test no.	1	2	3	4	5	6	7	8	9	10
V _{IC(POS)}		1	(5) 2/	GND	1 mA		2/	1 mA		(13) 2/		1 mA
		2	"	"			"			"		
		3	"	"			"			"		
V _{IC(NEG)}		4	"		-1 mA	GND	"	-1 mA	GND	"	GND	
		5	"			"(1)	"		"	"		
		6	"				"		"	"		-1 mA
I _{SS}	3005	7	"	15.0V	GND	"	"	GND	"	"	"	GND
		8	"	15.0V	15.0V	"	"	15.0V	"	"	"	15.0V
V _{OH1}	3006	9	3/	4.5V	GND	"	"	V _{IL1}	"	"	"	GND
		10	" I _{OH1}	"	V _{IL1}	"	"	GND	"	"	"	GND
		11	"	"	GND	"	"	GND	"	"	"	V _{IL1}
V _{OH2}		12	4/	5.0V	GND	"	"	V _{IL1}	"	"	"	GND
		13	" I _{OH2}	"	V _{IL1}	"	"	GND	"	"	"	GND
		14	"	"	GND	"	"	GND	"	"	"	V _{IL1}
V _{OH3}		15	"	"	GND	"	"	V _{IL1}	"	"	"	GND
		16	"	"	V _{IL1} 5/	"	"	GND	"	"	"	GND
		17	"	"	GND	"	"	GND	"	"	"	V _{IL1}
V _{OH4}		18	"	12.5V	GND	"	"	V _{IL2}	"	"	"	GND
		19	"	"	V _{IL2} 5/	"	"	GND	"	"	"	GND
		20	"	"	GND	"	"	GND	"	"	"	V _{IL2}
V _{OL1}	3007	21	7/	5.5V	GND	"	"	V _{IH1}	"	"	"	GND
		22	" I _{OL1}	"	V _{IH1} 8/	"	"	GND	"	"	"	GND
		23	"	"	GND	"	"	GND	"	"	"	V _{IH1}
V _{OL2}		24	9/	5.0V	GND	"	"	V _{IH1}	"	"	"	GND
		25	" I _{OL2}	"	V _{IH1}	"	"	GND	"	"	"	GND
		26	"	"	GND	"	"	GND	"	"	"	V _{IH1}
V _{OL3}		27	"	"	GND	"	"	V _{IH1}	"	"	"	GND
		28	"	"	V _{IH1}	"	"	GND	"	"	"	GND
		29	"	"	GND	"	"	GND	"	"	"	V _{IH1}
V _{OL4}		30	"	12.5V	GND	"	"	V _{IH2}	"	"	"	GND
		31	"	"	V _{IH2} 10/	"	"	GND	"	"	"	GND
		32	"	"	GND	"	"	GND	"	"	"	V _{IH2}
I _{IH1} 11/	3010	33	"	15.0V	15.0V	"	"	15.0V	"	"	"	15.0V
		34	"	"	GND	"	"	15.0V	"	"	"	GND
I _{IH2}		35	"	"	15.0V	"	"	GND	"	"	"	GND
		36	"	"	GND	"	"	"	"	"	"	15.0V
I _{IL1} 11/	3009	37	"	"	GND	"	"	"	"	"	"	GND
		38	"	"	15.0V	"	"	"	"	"	"	15.0V
		39	"	"	GND	"	"	15.0V	"	"	"	15.0V
I _{IL2}		40	"	"	15.0V	"	"	15.0V	"	"	"	GND

See footnotes at end of device type 01.

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

Symbol	MIL-STD-883 method	Cases A,C,D,T,X,Y	Terminal conditions 1/				Measured terminal	Test limits						Unit
		Symbol	3aS	3Y	1aY	V _{DD}		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C		
		Test no.	11	12	13	14		Min	Max	Min	Max	Min	Max	
V _{IC(POS)}		1	GND		2/	GND	1A							V
		2	"		"	"	2A		"					"
		3	"		"	"	3A		"					"
V _{IC(NEG)}		4			"									"
		5		(8)	"		2A	1.5	"					"
		6			"		3A							"
I _{SS}	3005	7	15.0V			15.0V	V _{SS}		-50					nA
		8	15.0V		"	15.0V	V _{SS}		-50		-500			nA
V _{OH1}	3006	9	4.5V		" I _{OH1}	4.5V	1aY	2.5		"		"		
		10	"		"	"	2aY	"		"		"		
		11	"		I _{OH1}	"	3Y	"		-500		"		
V _{OH2}		12	5.0V	"	" I _{OH2}	5.0V	1aY	4.5		"		"		
		13	"		"	"	2aY	"		"		"		
		14	"	I _{OH2}	"	"	3Y	"	2.5	"	2.5	"	V	
V _{OH3}		15	"		"	"	1aY	4.95		"		"		
		16	"		"	"	2aY	"		"		"		
		17	"		"	"	3Y	"	4.5	"	4.5	"	"	
V _{OH4}		18	12.5V		"	12.5V	1aY	11.25		"		"		
		19	"		"	"	2aY	"		"		"		
		20	"	"	"	"	3Y	"	4.95	"	4.95	"	"	
V _{OL1}	3007	21	5.5V		" I _{OL1}	5.5V	1aY		0.4			"		
		22	"		"	"	2aY	"	11.25		"11.25		"	
		23	"	I _{OL1}	"	"	3Y	"	"		"	"	"	
V _{OL2}		24	5.0V		" I _{OL2}	5.0V	1aY		0.5					
		25	"		"	"	2aY	"						
		26	"	I _{OL2}	"	"	3Y	"	0.5	"		0.4	"	
V _{OL3}		27	"		"	"	1aY		50					mV dc
		28	"		"	"	2aY	"	"		"			
		29	"		"	"	3Y	"	"		"	0.5	"	
V _{OL4}		30	12.5V		"	12.5V	1aY		1.25					V
		31	"		"	"	2aY	"	"		"		"	
		32	"	"	"	"	3Y	"	50	"	50	"	"	
I _{IH1} 11/	3010	33	15.0V		"	15.0V	All inputs together		300.0					nA
		34	"		"	"	1A			1.25		1.25		"
		35	"		"	"	2A		"		"			"
		36	"		"	"	3A		"		"			"
I _{IL1} 11/	3009	37	"		"	"	All inputs together	100.0	-300.0	100.0				"
		38	"		"	"	1A							"
		39	"		"	"	2A		"		"			"
I _{IL2}		40	"		"	"	3A		"		"			"

-100.0

-100.0

"

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

Symbol	MIL-STD-883 method	Cases A,C,D,T,X,Y	Terminal conditions <u>1/</u>									
		Symbol	2aY	2aS	2A	2bS	2bY	1A	V _{SS}	1bY	3bS	3A
		Test no.	1	2	3	4	5	6	7	8	9	10
C _I	3012	41	(5) <u>2/</u>	GND	<u>12/</u>	GND		<u>—/</u>	GND			<u>12/</u>
		42	"	"		"			"		"	
		43	"	"		"			"		"	
t _{PHL}	3003 (Fig. 4)	44	(5)	5.0V	GND	GND	(1)	IN	GND	(13)	GND	GND
		45	"	"	IN	"	<u>12</u>	GND	"	GND	"	GND
		46	"	"	GND	"	"	GND	"	"	"	IN
t _{PLH}		47	"	"	GND	"	"	IN	"	"	"	GND
		48	"	"	IN	"	"	GND	"	"	"	GND
		49	"	"	GND	"	"	GND	"	"	"	IN
t _{THL}	3004 (Fig. 4)	50	"	"	GND	"	"	IN	"	"	"	GND
		51	"	"	IN	"	"	GND	"	"	"	GND
		52	"	"	GND	"	"	GND	"	"	"	IN
t _{TLH}		53	"	"	GND	"	"	IN	"	"	"	GND
		54	"	"	IN	"	"	GND	"	"	"	GND
		55	"	"	GND	"	"	GND	"	"	"	IN

^{1/} Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.

^{2/} Terminals in parentheses are connected together as indicated by the included number.

^{3/} I_{OH1} = -0.1 mA at +25°C; -0.1 mA at +125°C; -0.1 mA at -55°C.

^{4/} I_{OH2} = -0.30 mA at +25°C; -0.21 mA at +125°C; -0.375 mA at -55°C.

^{5/} V_{IL1} = 0.9 V at +25°C; 0.65 V at +125°C; 0.95 V at -55°C.

^{6/} V_{IL2} = 2.25 V at +25°C; 1.95 V at +125°C; 2.40 V at -55°C.

^{7/} I_{OL1} = 0.23 mA at +25°C; 0.23 mA at +125°C; 0.23 mA at -55°C.

^{8/} V_{IH1} = 3.95 V at +25°C; 3.85 V at +125°C; 4.05 V at -55°C.

^{9/} I_{OL2} = 600 μA at +25°C; 400 μA at +125°C; 750 μA at -55°C.

^{10/} V_{IH2} = 10.25 V at +25°C; 10.0 V at +125°C; 10.5 V at -55°C.

^{11/} The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.

^{12/} See 4.4.1c.

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

Symbol	MIL-STD-883 method	Cases A C,D,T,X,Y	Terminal conditions 1/				Measured terminal	Test limits						Unit
		Symbol	3aS	3Y	1aY	V _{DD}		Subgroup 4 T _A = 25°C						
		Test no.	11	12	13	14		Min	Max					
C _i	3012	41 42 43	GND " "	 	 	GND " "	1A 2A 3A	 	" "					" "
								Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C		
								Min	Max	Min	Max	Min	Max	
t _{PHL}	3003 (Fig. 4)	44 45 46	5.0V " "	 	" 	5.0V " "	1A to 1aY 2A to 2aY 3A to 3Y	6 " "	170 " "	9 " "	255 " "	6 " "	170 " "	ns
t _{PLH}		48 49	" " "	 	" 	" 	1A to 1aY 2A to 2aY 3A to 3Y	" " "	110 " "	" " "	165 " "	" " "	110 " "	"
t _{THL}	3004 (Fig. 4)	50 51 52	" " "	 	" 	" 	1aY 2aY 3Y	" " "	240 " "	" " "	360 " "	pF " "	240 " "	"
t _{TLH}	47	53 54 55	" " "	 	" 	" 	1aY 2aY 3Y	" " "	160 " "	" " "	240 " "	" " "	160 " "	"

TABLE III. Group A inspection for device type 02.

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions <u>1/</u>									
		Symbol	B4	A3	B3	A2	B2	A1	B1	V _{ss}	Ka	D1
		Test no.	1	2	3	4	5	6	7	8	9	10
V _{IC(POS)}		1										
		2										
		3										
		4										
		5										
		6										
		7										
		8										
		9										
		10										
V _{IC(NEG)}		11										
		12										
		13										
		14										
		15										
		16										
		17										
		18										
		19										
		20										
I _{ss}	3005	21	GND	15.0V	GND	15.0V	GND	15.0V	GND	"	15.0V	
		22	GND	GND	GND	GND	GND	GND	GND	"	"	
		23	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	
		24	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	GND	
V _{OH1}	3006	25	V _{IH1} 2/ GND	GND	GND	GND	GND	GND	GND	"	4.5V	
		26	"	V _{IH1}	GND	"	"	"	"	"	"	
		27	"	GND	GND	"	"	"	"	"	"	
		28	"	"	V _{IH1}	"	"	"	"	"	"	
		29	"	"	GND	"	"	"	"	"	"	
		30	"	"	"	"	"	"	"	"	"	
		31	"	"	"	"	"	"	"	"	"	I _{OH1} 3/ I _{OH1}
		32	"	"	"	"	"	"	"	"	"	
V _{OH2}	3006	33	V _{IH1} 2/ GND	"	"	"	"	"	"	"	5.0V	
		34	"	V _{IH1}	"	"	"	"	"	"	"	
		35	"	GND	"	"	"	"	"	"	"	
		36	"	"	V _{IH1}	"	"	"	"	"	"	
		37	"	"	GND	"	"	"	"	"	"	
		38	"	"	"	"	"	"	"	"	"	
		39	"	"	"	"	"	"	"	"	"	I _{OH2} 4/ I _{OH2}
		40	"	"	"	"	"	"	"	"	"	
V _{OH3}	3006	41	V _{IH1} 2/ GND	"	"	"	"	"	"	"		
		42	"	V _{IH1}	"	"	"	"	"	"		
		43	"	GND	"	"	"	"	"	"		
		44	"	"	V _{IH1}	"	"	"	"	"		
		45	"	"	GND	"	"	"	"	"		
		46	"	"	"	"	"	"	"	"		
		47	"	"	"	"	"	"	"	"		
		48	"	"	"	"	"	"	"	"		
V _{OH4} 5/	3006	49	V _{IH2} 5/	"	V _{IH2} 5/	"	V _{IH2} 5/	"	V _{IH2} 5/	"		
		50	"	"	"	"	"	"	"	"		
		51	"	"	"	"	"	"	"	"		
		52	"	"	"	"	"	"	"	"		
		53	GND	V _{IH2} 5/	GND	V _{IH2} 5/	GND	V _{IH2} 5/	GND	"		
		54	"	"	"	"	"	"	"	"		
		55	"	"	"	"	"	"	"	"		
		56	"	"	"	"	"	"	"	"		

See footnotes at end of device type 02.

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/						Measured terminal	Test limits						Unit
		Symbol	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1 T _A = +25°C		Subgroup 2 T _A = +125°C		Subgroup 3 T _A = -55°C		
		Test no.	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
V _{IC(POS)}		1						GND	B1							V
2								A1		"					"	
3								B2		"					"	
4								A2		"					"	
5								B3		"					"	
6								A3	1.5	"					"	
7								B4		"					"	
8							1 mA	A4		"					"	
9								Ka		"					"	
10						1 mA		Kb		"					"	
V _{IC(NEG)}		11							A1		-6.0					"
12								B2		"					"	
13								A2		"					"	
14								B3		"					"	
15								A3		"					"	
16								B4		"					"	
17								A4		"					"	
18							-1 mA	Ka		"					"	
19								Kb		"					"	
20						-1 mA				"					"	
I _{SS}	3005	21				15.0V	15.0V	15.0V	V _{SS}		-75		-750			nA
		22				"	GND	"	"		"		"			"
		23				"	GND	"	"		"		"			"
		24				GND	15.0V	"	"		"		"			"
V _{OH1}	3006	25				4.5V	GND	4.5V	D4	2.5						"
		26				"	"	"	D3	"		"				"
		27		I _{OH1}	I _{OH1}	"	"	"	D3	"		"				"
		28	I _{OH1}			"	"	"	D2	"		"				"
		29	I _{OH1}			"	"	"	D2	"		"				"
		30				"	"	"	D1	"	2.5	"	2.5		V	"
		31				"	"	"	D1	"		"				"
		32			I _{OH1}	"	V _{IH1}	"	D4	"		"				"
V _{OH2}	3006	33				5.0V	GND	5.0V	D4	4.5						"
		34				"	"	"	D3	"		"				"
		35		I _{OH2}	I _{OH2}	"	"	"	D3	"		"				"
		36	I _{OH2}			"	"	"	D2	"		"				"
		37	I _{OH2}			"	"	"	D2	"		"				"
		38				"	"	"	D1	"	4.5	"	4.5			"
		39				"	"	"	D1	"		"				"
		40			I _{OH2}	"	V _{IH1}	"	D4	"		"				"
V _{OH3}	3006	41				"	GND	"	D4	4.95						"
		42				"	"	"	D3	"		"				"
		43				"	"	"	D3	"		"				"
		44				"	"	"	D2	"		"				"
		45				"	"	"	D2	"		"				"
		46				"	"	"	D1	"	4.95	"	4.95			"
		47				"	"	"	D1	"		"				"
		48				"	V _{IH1}	"	D4	"		"				"
V _{OH4} 5/	3006	49				12.5V	GND	12.5V	D4	11.25		11.25		11.25		"
		50				"	"	"	D3	"		"				"
		51				"	"	"	D2	"		"				"
		52				"	"	"	D1	"		"				"
		53				"	V _{IH2} 5/	"	D4	"		"				"
		54				"	"	"	D3	"		"				"
		55				"	"	"	D2	"		"				"
		56				"	"	"	D4	"		"				"

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/										
		Symbol	B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1	
		Test no.	1	2	3	4	5	6	7	8	9	10	
V _{OL1}	3007	57	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V	GND	V _{IL1} 6/	I _{OL1}	
		58	"	"	"	"	"	"	"	"	"		
		59	"	"	"	"	"	"	"	"	"		
		60	"	"	"	"	"	"	"	"	"		
		61	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	"	5.5V		
		62	"	"	"	"	"	"	"	"	"		
		63	"	"	"	"	"	"	"	"	"		
		64	"	"	"	"	"	"	"	"	"	I _{OL1}	
V _{OL2}		65	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	V _{IL1}	I _{OL2}	
		66	"	"	"	"	"	"	"	"	"		
		67	"	"	"	"	"	"	"	"	"		
		68	"	"	"	"	"	"	"	"	"		
		69	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	"	5.0V		
		70	"	"	"	"	"	"	"	"	"		
		71	"	"	"	"	"	"	"	"	"		
		72	"	"	"	"	"	"	"	"	"	I _{OL2}	
V _{OL3}		73	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	V _{IL1}		
		74	"	"	"	"	"	"	"	"	"		
		75	"	"	"	"	"	"	"	"	"		
		76	"	"	"	"	"	"	"	"	"		
		77	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	"	5.0V		
		78	"	"	"	"	"	"	"	"	"		
		79	"	"	"	"	"	"	"	"	"		
		80	"	"	"	"	"	"	"	"	"		
V _{OL4}	81	12.5V	12.5V	12.5V	12.5V	12.5V	12.5V	12.5V	"	V _{IL2} 9/			
	82	"	"	"	"	"	"	"	"	"			
	83	"	"	"	"	"	"	"	"	"			
	84	"	"	"	"	"	"	"	"	"			
	85	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	"	12.5V			
	86	"	"	"	"	"	"	"	"	"			
	87	"	"	"	"	"	"	"	"	"			
	88	"	"	"	"	"	"	"	"	"			
I _{IH1} 10/	3010	89	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	15.0V		
I _{IH2}		90	15.0V	GND	GND	GND	GND	GND	GND	GND	"		GND
		91	GND	15.0V	GND	GND	"	"	"	"	"		"
		92	"	GND	15.0V	GND	"	"	"	"	"		"
		93	"	"	GND	15.0V	"	"	"	"	"		"
		94	"	"	"	GND	15.0V	"	"	"	"		"
		95	"	"	"	"	GND	15.0V	"	"	"		"
		96	"	"	"	"	"	GND	15.0V	"	"		"
		97	"	"	"	"	"	"	GND	15.0V	"		"
		98	"	"	"	"	"	"	"	GND	15.0V		"
99	"	"	"	"	"	"	"	"	GND	"			
I _{IL1} 10/	3009	100	"	"	"	"	"	"	"	"	"		
I _{IL2}		101	"	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	15.0V		
		102	15.0V	GND	15.0V	"	"	"	"	"	"		
		103	"	15.0V	GND	"	"	"	"	"	"		
		104	"	"	15.0V	GND	"	"	"	"	"		
		105	"	"	"	15.0V	"	"	"	"	"		
		106	"	"	"	"	GND	"	"	"	"		
		107	"	"	"	"	15.0V	"	"	"	"		
		108	"	"	"	"	"	GND	"	"	"		
		109	"	"	"	"	"	"	GND	"	"		
110	"	"	"	"	"	"	"	GND	15.0V				

See footnotes at end of device type 02.

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/						Measured terminal	Test limits						Unit																
		Symbol	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1 T _A = +25°C		Subgroup 2 T _A = +125°C		Subgroup 3 T _A = -55°C																		
		Test no.	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max																	
V _{OL1}	3007	57 58 59 60 61 62 63 64	I _{OL1}	I _{OL1}	I _{OL1} Z/	V _{IL1}	5.5V	5.5V	D4 D3 D2 D1 D4 D3 D2 D1	0.4		0.5		0.4		V																
V _{OL2}		I _{OL1}				I _{OL1}	I _{OL1}	5.5V									V _{IL1}															
																				I _{OL2}	I _{OL2}	I _{OL2} g/	V _{IL1}	5.0V	5.0V							
																										I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}		
					I _{OL2}																											
		I _{OL2}				I _{OL2}	I _{OL2}	5.0V									V _{IL1}															
																				I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}								
																										I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}		
			I _{OL2}	I _{OL2}	I _{OL2}				5.0V	V _{IL1}																						
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
															I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}													
																						I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}						
			I _{OL2}	I _{OL2}	I _{OL2}				5.0V	V _{IL1}																						
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
															I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}													
																						I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}						
			I _{OL2}	I _{OL2}	I _{OL2}				5.0V	V _{IL1}																						
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
															I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}													
																						I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}						
			I _{OL2}	I _{OL2}	I _{OL2}				5.0V	V _{IL1}																						
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
															I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}													
																						I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}						
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														
																					I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}							
	I _{OL2}		I _{OL2}	I _{OL2}	5.0V				V _{IL1}																							
I _{OL2}		I _{OL2}				I _{OL2}	5.0V	V _{IL1}																								
														I _{OL2}	I _{OL2}	I _{OL2}	5.0V	V _{IL1}														

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/									
		Symbol	B4	A3	B3	A2	B2	A1	B1	V _{ss}	Ka	D1
		Test no.	1	2	3	4	5	6	7	8	9	10
C _i	3012	111	11/							GND		
		112		11/						"		
		113			11/					"		
		114								"		
		115				11/				"		
		116					11/			"		
		117						11/	11/	"		
		118								"		
		119								"	11/	
		120								"		
t _{PHL}	3003 (Fig. 4)	121	IN	GND	GND	GND	GND	GND	GND	GND	5.0V	
		122	GND	"	IN	"	GND	"	GND	"	"	
		123	"	"	GND	"	IN	"	IN	"	"	OUT
		124	"	"	"	"	GND	"	GND	"	"	
		125	"	"	"	"	"	"	"	"	"	
		126	"	IN	"	"	"	"	"	"	"	
		127	"	GND	"	IN	"	"	"	"	"	OUT
		128	"	"	"	GND	"	"	"	"	"	
		129	"	5.0V	"	"	"	IN	"	"	IN	OUT
		130	"	GND	"	5.0V	"	"	"	"	"	
		131	"	"	"	GND	"	5.0V	"	"	5.0V	OUT
		132	5.0V	"	"	"	"	GND	"	"	"	
		133	GND	"	5.0V	"	5.0V	"	"	"	"	OUT
		134	"	"	GND	"	"	"	"	"	"	
		135	"	"	"	"	"	"	5.0V	"	"	OUT
		136	"	"	"	"	GND	"	"	"	"	
		137	IN	"	"	"	"	"	GND	"	"	
		138	GND	"	IN	"	IN	"	"	"	"	OUT
		139	"	"	"	"	"	"	IN	"	"	
		140	"	"	"	"	"	"	GND	"	"	OUT
t _{PLH}		141	"	"	"	"	"	"	"	"	"	
		142	"	IN	"	"	"	"	"	"	"	
		143	"	GND	"	IN	"	"	"	"	"	OUT
		144	"	"	"	GND	"	IN	"	"	"	
		145	"	"	"	"	"	GND	"	"	IN	OUT
		146	"	5.0V	"	"	"	"	"	"	"	
		147	"	GND	"	5.0V	"	"	"	"	"	OUT
		148	"	"	"	GND	"	5.0V	"	"	5.0V	OUT
		149	5.0V	"	"	"	"	GND	"	"	"	
		150	GND	"	5.0V	"	"	"	"	"	"	OUT
t _{THL}	3004 (Fig. 4)	151	"	"	"	"	5.0V	"	"	"	"	
		152	"	"	"	"	GND	"	5.0V	"	"	OUT
		153	IN	"	"	"	"	"	GND	"	"	
		154	GND	"	IN	"	IN	"	"	"	"	OUT
		155	"	"	"	"	"	"	"	"	"	
		156	"	"	"	"	"	"	IN	"	"	
		157	"	"	"	"	"	"	GND	"	"	OUT
		158	"	IN	"	"	"	"	"	"	"	
		159	"	GND	"	IN	"	"	"	"	"	OUT
		160	"	"	"	"	"	IN	"	"	IN	
		161	"	"	"	"	"	GND	"	"	"	OUT
		162	"	5.0V	"	"	"	"	"	"	"	
		163	"	GND	"	5.0V	"	"	"	"	"	OUT
		164	"	"	"	GND	"	5.0V	"	"	5.0V	
		165	5.0V	"	"	"	"	GND	"	"	"	OUT
		166	GND	"	5.0V	"	"	"	"	"	"	
		167	"	"	GND	"	5.0V	"	"	"	"	OUT
		168	"	"	GND	"	GND	"	5.0V	"	"	

See footnotes at end of device type 02.

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/						Measured terminal	Test limits						Unit
		Symbol	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 4 T _A = +25°C						
		Test no.	11	12	13	14	15	16		Min	Max					
C _i	3012	111						GND	B4 A3 B3 A2 B2 A1 B1 A4 Ka Kb	12	"					pF
		112						"								
		113						"								
		114						"								
		115						"								
		116						"								
		117						"								
		118					11/	"								
		119						"								
		120				11/		"								
									Subgroup 9 T _A = +25°C		Subgroup 10 T _A = +125°C		Subgroup 11 T _A = -55°C			
									Min	Max	Min	Max	Min	Max		
t _{PHL}	3003 (Fig. 4)	122	OUT	OUT	OUT	5.0V	GND	5.0V	B4 to D4 B3 to D3 B2 to D2 B1 to D1 A4 to D4 A3 to D3 A2 to D2 A1 to D1 Ka to D4 Ka to D3 Ka to D2 Ka to D1 Kb to D4 Kb to D3 Kb to D2 Kb to D1	13	350	18	525	13	350	ns
		"				"	"	"		"	"	"	"			
		"				"	"	"		"	"	"	"			
		"				"	"	"		"	"	"	"			
		123	OUT	OUT	OUT	"	"	"	IN GND 5.0V GND IN "	"	"	"	"	"	"	
		124				"	"	"		"	"	"	"			
		125				"	"	"		"	"	"	"			
		126				"	"	"		"	"	"	"			
		127	OUT	OUT	OUT	"	"	"	"	"	"	"	"	"	"	
		128				"	"	"		"	"	"	"			
		129				"	"	"		"	"	"	"			
		130				"	"	"		"	"	"	"			
		131	OUT	OUT	OUT	"	"	"	"	"	"	"	"	"	"	
		132				"	"	"		"	"	"	"			
		133				"	"	"		"	"	"	"			
		134				"	"	"		"	"	"	"			
135	OUT	OUT	OUT	IN	"	"	"	"	"	"	"	"	"			
136				"	"	"		"	"	"	"					
137				"	"	"		"	"	"	"					
138				"	"	"		"	"	"	"					
t _{PLH121}	3003 (Fig. 4)	139	OUT	OUT	OUT	5.0V	"	"	B4 to D4 B3 to D3 B2 to D2 B1 to D1 A4 to D4 A3 to D3 A2 to D2 A1 to D1 Ka to D4 Ka to D3 Ka to D2 Ka to D1 Kb to D4 Kb to D3 Kb to D2 Kb to D1	"	"	"	"	"	"	
		140				"	"	"		"	"	"	"			
		141				"	"	"		"	"	"	"			
		142				"	"	"		"	"	"	"			
		143	OUT	OUT	OUT	"	IN GND	"	"	"	"	"	"	"	"	
		144				"	"	"		"	"	"	"			
		145				"	"	"		"	"	"	"			
		146				"	"	"		"	"	"	"			
		147	OUT	OUT	OUT	"	5.0V GND	"	"	"	"	"	"	"	"	
		148				"	"	"		"	"	"	"			
		149				"	"	"		"	"	"	"			
		150				"	"	"		"	"	"	"			
		151	OUT	OUT	OUT	IN	"	"	"	"	"	"	"	"	"	
		152				"	"	"		"	"	"	"			
		153				"	"	"		"	"	"	"			
		154				"	"	"		"	"	"	"			
t _{THL}	3004 (Fig. 4)	155	OUT	OUT	OUT	5.0V	"	"	D4 D3 D2 D1 D4 D3 D2 D1 D4 D3 D2 D1 D4 D3 D2 D1	10	"	14	"	10	"	"
		156				"	"	"		"	"	"	"	"		
		157				"	"	"		"	"	"	"	"		
		158				"	"	"		"	"	"	"			
		159	OUT	OUT	OUT	"	IN GND	"	"	"	"	"	"	"	"	
		160				"	"	"		"	"	"	"			
		161				"	"	"		"	"	"	"			
		162				"	"	"		"	"	"	"			
		163	OUT	OUT	OUT	"	5.0V GND	"	"	"	"	"	"	"	"	
		164				"	"	"		"	"	"	"			
		165				"	"	"		"	"	"	"			
		166				"	"	"		"	"	"	"			
		167	OUT	OUT	OUT	IN	"	"	"	"	"	"	"	"	"	
		168				"	"	"		"	"	"	"			
		169				"	"	"		"	"	"	"			
		170				"	"	"		"	"	"	"			

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions <u>1/</u>									
		Symbol	B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1
		Test no.	1	2	3	4	5	6	7	8	9	10
t _{TLH}	3004 (Fig. 4)	169	IN	GND	GND	GND	GND	GND	GND	GND	5.0V	OUT
		170	GND	"	IN	"	GND	"	"	"	"	
		171	"	"	GND	"	IN	"	"	"	"	
		172	"	"	"	"	GND	"	IN	"	"	OUT
		173	"	"	"	"	"	"	GND	"	"	
		174	"	IN	"	"	"	"	"	"	"	
		175	"	GND	"	IN	"	"	"	"	"	OUT
		176	"	"	"	GND	"	IN	"	"	IN	
		177	"	"	"	"	"	GND	"	"	"	
		178	"	5.0V	"	"	"	"	"	"	"	OUT
		179	"	GND	"	5.0V	"	"	"	"	"	
		180	"	"	"	GND	"	5.0V	"	"	"	
		181	5.0V	"	"	"	"	GND	"	"	5.0V	OUT
		182	GND	"	5.0V	"	"	"	"	"	"	
		183	"	"	GND	"	5.0V	"	"	"	"	
		184	"	"	GND	"	GND	"	5.0V	"	"	OUT

1/ Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.

2/ V_{IH1} = 3.8 V at +25°C; 3.5 V at +125°C; 3.95 V at -55°C.

3/ I_{OH1} = -0.1 mA at +25°C; -0.1 mA at +125°C; -0.1 mA at -55°C.

4/ I_{OH2} = -0.25 mA at +25°C; -0.175 mA at +125°C; -0.31 mA at -55°C.

5/ V_{IH2} = 9.5 V at +25°C; 9.25 V at +125°C; 9.75 V at -55°C.

6/ V_{IL1} = 1.1 V at +25°C; 0.85 V at +125°C; 1.35 V at -55°C.

7/ I_{OL1} = 0.23 mA at +25°C; 0.23 mA at +125°C; 0.23 mA at -55°C.

8/ I_{OL2} = 0.5 mA at +25°C; 0.4 mA at +125°C; 0.55 mA at -55°C.

9/ V_{IL2} = 2.8 V at +25°C; 2.55 V at +125°C; 3.05 V at -55°C.

10/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.

11/ See 4.4.1c.

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/						Measured terminal	Test limits						Unit
		Symbol	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 9 T _A = +25°C		Subgroup 10 T _A = +125°C		Subgroup 11 T _A = -55°C		
		Test no.	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
t _{TLH}	3004 (Fig. 4)	169			OUT	5.0V	GND	5.0V	D4	10	350	14	525	10	350	ns
		170				"	"	"	D3	"	"	"	"	"	"	"
		171	OUT	OUT		"	"	"	D2	"	"	"	"	"	"	"
		172				"	"	"	D1	"	"	"	"	"	"	"
		173			OUT	"	IN	"	D4	"	"	"	"	"	"	"
		174		OUT		"	GND	"	D3	"	"	"	"	"	"	"
		175	OUT	OUT		"	"	"	D2	"	"	"	"	"	"	"
		176				"	"	"	D1	"	"	"	"	"	"	"
		177			OUT	"	5.0V	"	D4	"	"	"	"	"	"	"
		178		OUT		"	GND	"	D3	"	"	"	"	"	"	"
		179	OUT			"	"	"	D2	"	"	"	"	"	"	"
		180				"	"	"	D1	"	"	"	"	"	"	"
		181			OUT	IN	"	"	D4	"	"	"	"	"	"	"
		182		OUT		"	"	"	D3	"	"	"	"	"	"	"
		183	OUT			"	"	"	D2	"	"	"	"	"	"	"
		184				"	"	"	D1	"	"	"	"	"	"	"

TABLE III. Group A inspection for device type 03.

Symbol	MIL-STD-883 method	Cases A,C,D,T,X,Y	Terminal conditions <u>1/</u>										
		Symbol	1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y
		Test no.	1	2	3	4	5	6	7	8	9	10	11
V _{IC(POS)}		1	1 mA										
		2		1 mA			1 mA						
		3						1 mA					
		4											
		5								1 mA			
		6									1 mA		
		7											
		8											
V _{IC(NEG)}		9	-1 mA	-1 mA			-1 mA	-1 mA	GND				
		10							"				
		11							"				
		12							"	-1 mA			
		13							"		-1 mA		
		14							"				
		15							"				
		16							"				
I _{SS} <u>2/</u>	3005	17	15.0V	GND			GND	15.0V	"	15.0V	GND		
		18	GND	15.0V			15.0V	GND	"	GND	15.0V		
		19	GND	GND			GND	GND	"	GND	GND		
V _{OH1}	3006	20	V _{IL1} <u>3/</u>	4.5V	I _{OH1} <u>4/</u>	I _{OH1}	4.5V	4.5V	"	4.5V	4.5V		
		21	4.5V	"			V _{IL1}	"	"	4.5V	"	I _{OH1}	I _{OH1}
		22	"	"			4.5V	"	"	V _{IL1}	"		
		23	"	"			4.5V	"	"	4.5V	"		
V _{OH2}		24	V _{IL1}	5.0V	I _{OH2} <u>5/</u>	I _{OH2}	5.0V	5.0V	"	5.0V	5.0V		
		25	5.0V	"			V _{IL1}	"	"	5.0V	"	I _{OH2}	I _{OH2}
		26	"	"			5.0V	"	"	V _{IL1}	"		
		27	"	"			5.0V	"	"	5.0V	"		
V _{OH3}		28	V _{IL1}	"			"	"	"	5.0V	"		
		29	5.0V	"			V _{IL1}	"	"	5.0V	"		
		30	"	"			5.0V	"	"	V _{IL1}	"		
		31	"	"			5.0V	"	"	5.0V	"		
V _{OH4}		32	V _{IL2} <u>6/</u>	12.5V			12.5V	12.5V	"	12.5V	12.5V		
		33	12.5V	"			V _{IL2}	"	"	12.5V	"		
		34	"	"			12.5V	"	"	V _{IL2}	"		
		35	"	"			12.5V	"	"	12.5V	"		
V _{OL1}	3007	36	V _{IH1} <u>7/</u>	V _{IH1}	I _{OL1} <u>8/</u>		GND	GND	"	GND	GND		
		37	GND	GND	I _{OL1}		GND	GND	"	"	"		
		38	"	"		I _{OL1}	V _{IH1}	V _{IH1}	"	"	"		
		39	"	"		I _{OL1}	GND	GND	"	"	"		
		40	"	"			"	"	"	V _{IH1}	V _{IH1}	I _{OL1}	
		41	"	"			"	"	"	GND	GND	I _{OL1}	
		42	"	"			"	"	"	"	"		I _{OL1}
		43	"	"			"	"	"	"	"		I _{OL1}
V _{OL2}		44	V _{IH1}	V _{IH1}	I _{OL2} <u>9/</u>		"	"	"	"	"		
		45	GND	GND	I _{OL2}		"	"	"	"	"		
		46	"	"		I _{OL2}	V _{IH1}	V _{IH1}	"	"	"		
		47	"	"		I _{OL2}	GND	GND	"	"	"		
		48	"	"			"	"	"	V _{IH1}	V _{IH1}	I _{OL2}	
		49	"	"			"	"	"	GND	GND	I _{OL2}	
		50	"	"			"	"	"	"	"		I _{OL2}
		51	"	"			"	"	"	"	"		I _{OL2}

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 – Continued.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y	Terminal conditions 1/			Measured terminal	Test limits						Unit	
		Symbol	4A	4B	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
		Test no.	12	13	14		Min	Max	Min	Max	Min	Max		
V _{IC(POS)}		1	1 mA	1 mA	GND	1A	1.5						V	
		2			1B	1B								
		3			2A	2A								
		4			2B	2B								
		5			3A	3A								
		6			3B	3B								
		7			4A	4A								
		8			4B	4B								
V _{IC(NEG)}		9	-1 mA	-1 mA		1A	-6							
		10			1B	1B								
		11			2A	2A								
		12			2B	2B								
		13			3A	3A								
		14			3B	3B								
		15			4A	4A								
		16			4B	4B								
I _{SS} 2/	3005	17	GND	15.0V	15.0V	V _{SS}		-25		-750			nA	
		18	15.0V	GND										
		19	GND	GND										
V _{OH1}	3006	20	4.5V	4.5V	4.5V	1Y	2.5							
		21				2Y								
		22				3Y								
V _{OH2}		23	V _{IL1}			4Y								
		24	5.0V	5.0V	5.0V	1Y	4.5							
		25				2Y								
V _{OH3}		26				3Y		2.5		2.5				
		27	V _{IL1}			4Y						V		
		28	5.0V			1Y	4.95							
V _{OH4}		29				2Y								
		30				3Y		4.5		4.5				
		31	V _{IL1}			4Y								
V _{OH4}	3006	32	12.5V	12.5V	12.5V	1Y	11.25		11.25		11.25			
		33				2Y								
		34				3Y		4.95		4.95				
35		V _{IL2}			4Y									
V _{OL1}	3007	36	GND	GND	5.5V	1Y		0.4						
		37				1Y								1Y
		38				2Y								2Y
		39				2Y								2Y
		40				3Y								3Y
		41				3Y								3Y
		42	V _{IH1}	V _{IH1}		4Y								4Y
		43	GND	GND		4Y								4Y
V _{OL2}		44			5.0V	1Y		0.5						
		45				1Y								1Y
		46				2Y								2Y
		47				2Y								2Y
		48				3Y								3Y
		49				3Y								3Y
		50	V _{IH1}	V _{IH1}		4Y								4Y
		51	GND	GND		4Y								4Y

TABLE III. Group A inspection for device type 03 – Continued.

Symbol	MIL-STD-883 method	Cases A, C, D, T, X, Y	Terminal conditions 1/										
		Symbol	1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y
		Test no.	1	2	3	4	5	6	7	8	9	10	11
V _{OL3}	3007	52	V _{IH1}	V _{IH1}			GND	GND	GND	GND	GND		
		53	GND	GND			GND	GND	"	"	"		
		54	"	"			V _{IH1}	V _{IH1}	"	"	"		
		55	"	"			GND	GND	"	"	"		
		56	"	"			"	"	"	V _{IH1}	V _{IH1}		
		57	"	"			"	"	"	GND	GND		
		58	"	"			"	"	"	"	"		
59		"	"			"	"	"	"	"			
V _{OL4}		60	V _{IH2} 10/	V _{IH2}			"	"	"	"	"		
		61	GND	GND			"	"	"	"	"		
		62	"	"			V _{IH2}	V _{IH2}	"	"	"		
		63	"	"			GND	GND	"	"	"		
		64	"	"			"	"	"	V _{IH2}	V _{IH2}		
		65	"	"			"	"	"	GND	GND		
		66	"	"			"	"	"	"	"		
67		"	"			"	"	"	"	"			
V _{OL5}		68	V _{IH1}	V _{IH1}	I _{OL3} 11/		"	"	"	"	"		
		69	GND	GND	I _{OL3}		"	"	"	"	"		
		70	"	"		I _{OL3}	V _{IH1}	V _{IH1}	"	"	"		
		71	"	"			"	"	"	"	"		
		72	"	"			"	"	"	"	"		
		73	"	"			"	"	"	V _{IH1}	V _{IH1}	I _{OL3}	
		74	"	"			"	"	"	GND	GND	I _{OL3}	
75		"	"			"	"	"	"	"		I _{OL3} I _{OL3}	
I _{IH1} 12/	3010	76	15.0V	15.0V			15.0V	15.0V	"	15.0V	15.0V		
I _{IH2}		77	15.0V	GND			GND	GND	"	GND	GND		
		78	GND	15.0V			GND	GND	"	"	"		
		79	"	GND			15.0V	15.0V	"	"	"		
		80	"	"			GND	GND	"	"	"		
		81	"	"			"	15.0V	"	15.0V	15.0V		
		82	"	"			"	GND	"	GND	GND		
83	"	"			"	"	"	"	"				
84	"	"			"	"	"	"	"				
I _{IL1} 12/	3009	85	"	"			"	"	"	"	"		
I _{IL2}		86	"	"			"	"	"	"	"		
		87	"	"			"	"	"	"	"		
		88	"	"			"	"	"	"	"		
		89	"	"			"	"	"	"	"		
		90	"	"			"	"	"	"	"		
		91	"	"			"	"	"	"	"		
		92	"	"			"	"	"	"	"		
		93	"	"			"	"	"	"	"		
		C _i	3012	94	13/	13/			13/	13/	GND		
95	"			"			"	"	"	"	"		
96	"			"			"	"	"	"	"		
97	"			"			"	"	"	"	"		
98	"			"			"	"	"	13/	13/		
99	"			"			"	"	"	"	"		
100	"			"			"	"	"	"	"		
101	"			"			"	"	"	"	"		

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 – Continued.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y	Terminal conditions 1/			Measured terminal	Test limits						Unit		
		Symbol	4A	4B	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
		Test no.	12	13	14		Min	Max	Min	Max	Min	Max			
V _{OL3}	3007	52	GND	GND	5.0V	1Y		50					mV dc		
		53	"	"	"	1Y		"		"		"	"		
		54	"	"	"	2Y		"		"		"	"		
		55	"	"	"	2Y		"		"		"	"		
		56	"	"	"	3Y		"		"		"	"		
		57	"	"	"	3Y		"		"		"	"		
		58	V _{IH1}	V _{IH1}	"	4Y		"	50	"	50	"	"		
		59	GND	GND	"	4Y		"		"		"	"		
V _{OL4}		60	"	"	12.5V	1Y		1.25		"		"	V		
		61	"	"	"	1Y		"		"		"	"		
		62	"	"	"	2Y		"		"		"	"		
		63	"	"	"	2Y		"		"		"	"		
		64	"	"	"	3Y		"		"		"	"		
		65	"	"	"	3Y		"		"		"	"		
		66	V _{IH2}	V _{IH2}	"	4Y		"	1.25	"	1.25	"	"		
		67	GND	GND	"	4Y		"		"		"	"		
V _{OL5}		68	"	"	5.0V	1Y		0.5		"		"	"		
		69	"	"	"	1Y		"		"		"	"		
		70	"	"	"	2Y		"		"		"	"		
		71	"	"	"	2Y		"		"		"	"		
		72	"	"	"	3Y		"		"		"	"		
	73	"	"	"	3Y		"		"		"	"			
	74	V _{IH1}	V _{IH1}	"	4Y		"	0.5	"	0.5	"	"			
	75	GND	GND	"	4Y		"		"		"	"			
I _{IH1} 12/	3010	76	15.0V	15.0V	15.0V	All inputs together		8.0					nA		
I _{IH2}		77	GND	GND	"	1A		"		"		"	"		
		78	"	"	"	1B		"		"		"	"		
		79	"	"	"	2A		"		"		"	"		
		80	"	"	"	2B		"		"		"	"		
		81	"	"	"	3A		"		"		"	"		
		82	"	"	"	3B		"		"		"	"		
		83	15.0V	"	"	4A	1.0	"	45	"	"		"		
84	GND	15.0V	"	4B		"		"		"	"				
I _{IL1} 12/	3009	85	"	GND	"	All inputs together		-8.0					"		
I _{IL2}		86	"	"	"	1A		-1.0		-45			"		
		87	"	"	"	1B		"		"		"	"		
		88	"	"	"	2A		"		"		"	"		
		89	"	"	"	2B		"		"		"	"		
		90	"	"	"	3A		"		"		"	"		
		91	"	"	"	3B		"		"		"	"		
		92	"	"	"	4A		"		"		"	"		
		93	"	"	"	4B		"		"		"	"		
									Subgroup 4 T _C = +25°C						
									Min	Max					
C _i	3012	94			GND	1A							"		
		95			"	1B		"					"		
		96			"	2A		"					"		
		97			"	2B		"					"		
		98			"	3A		"					"		
		99			"	3B		"					"		
		100	13/		"	4A	12	"					"		
		101		13/	"	4B		"					"		

TABLE III. Group A inspection for device type 03 – Continued.

Symbol	MIL-STD-883 method	Cases A, C, D, T, X, Y	Terminal conditions ^{1/}										
		Symbol	1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y
		Test no.	1	2	3	4	5	6	7	8	9	10	11
t _{PHL}	3003 (Fig. 4)	102	IN	GND	OUT		GND	GND	GND	GND	GND		
		103	GND	IN	OUT		GND	"	"	"	"		
		104	"	GND		OUT	IN	"	"	"	"		
		105	"	"		OUT	GND	"	"	"	"		
		106	"	"			"	IN	"	"	"	OUT	
		107	"	"			"	GND	"	IN	IN	OUT	
		108	"	"			"	"	"	"	GND		OUT
		109	"	"			"	"	"	"	"		OUT
t _{PLH}	3003 (Fig. 4)	110	IN	"	OUT		"	"	"	"	"		
		111	GND	"	OUT		"	"	"	"	"		
		112	"	IN		OUT	IN	"	"	"	"		
		113	"	GND		OUT	GND	IN	"	"	"		
		114	"	"			"	GND	"	IN	"	OUT	
		115	"	"			"	"	"	GND	IN	OUT	
		116	"	"			"	"	"	"	GND		OUT
		117	"	"			"	"	"	"	"		OUT
t _{THL}	3004 (Fig. 4)	118	IN	"	OUT		"	"	"	"	"		
		119	GND	IN	OUT		"	"	"	"	"		
		120	"	GND		OUT	IN	"	"	"	"		
		121	"	"		OUT	GND	IN	"	"	"		
		122	"	"			"	GND	"	IN	"	OUT	
		123	"	"			"	"	"	"	IN	OUT	
		124	"	"			"	"	"	"	GND		OUT
		125	"	"			"	"	"	"	"		OUT
t _{TLH}	3004 (Fig. 4)	126	IN	"	OUT		"	"	"	"	"		
		127	GND	IN	OUT		"	"	"	"	"		
		128	"	GND		OUT	IN	"	"	"	"		
		129	"	"		OUT	GND	IN	"	"	"		
		130	"	"			"	GND	"	"	"	OUT	
		131	"	"			"	"	"	IN	"	OUT	
		132	"	"			"	"	"	"	GND		OUT
		133	"	"			"	"	"	"	"		OUT

- 1/ Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.
- 2/ I_{SS} measurements shall be performed in sequence.
- 3/ V_{IL1} = 1.1 V at +25°C; 0.35 V at +125°C; 1.35 V at -55°C.
- 4/ I_{OH1} = -0.1 mA at +25°C; -0.1 mA at +125°C; -0.1 mA at -55°C.
- 5/ I_{OH2} = -0.2 mA at +25°C; -0.13 mA at +125°C; -0.25 mA at -55°C.
- 6/ V_{IL2} = 2.8 V at +25°C; 2.55 V at +125°C; 3.05 V at -55°C.
- 7/ V_{IH1} = 3.8 V at +25°C; 3.5 V at +125°C; 3.95 V at -55°C.
- 8/ I_{OL1} = 0.23 mA at +25°C; 0.23 mA at +125°C; 0.23 mA at -55°C.
- 9/ I_{OL2} = 0.40 mA at +25°C; 0.28 mA at +125°C; 0.5 mA at -55°C.
- 10/ V_{IH2} = 9.5 V at +25°C; 9.25 V at +125°C; 9.75 V at -55°C.
- 11/ I_{OL3} = 0.60 mA at +25°C; 0.56 mA at +125°C; 1.0 mA at -55°C.
- 12/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.
- 13/ See 4.4.1c.

TABLE III. Group A inspection for device type 03 – Continued.

Symbol	MIL-STD-883 method	Cases A, C, D, T, X, Y	Terminal conditions 1/			Measured terminal	Test limits						Unit
		Symbol	4A	4B	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
		Test no.	12	13	14		Min	Max	Min	Max	Min	Max	
t _{PHL}	3003 (Fig. 4)	102	GND	GND	5.0 V	1A to 1Y	10	210	14	270	10	155	ns
		103	“	“	“	1B to 1Y	“	“	“	“	“	“	
		104	“	“	“	2A to 2Y	“	“	“	“	“	“	
		105	“	“	“	2B to 2Y	“	“	“	“	“	“	
		106	“	“	“	3A to 3Y	“	“	“	“	“	“	
		107	“	“	“	3B to 3Y	“	“	“	“	“	“	
		108	IN	“	“	4A to 4Y	“	“	“	“	“	“	
		109	GND	IN	“	4B to 4Y	“	“	“	“	“	“	
t _{PLH}		110	“	GND	“	1A to 1Y	“	“	“	“	“	“	“
		111	“	“	“	1B to 1Y	“	“	“	“	“	“	“
		112	“	“	“	2A to 2Y	“	“	“	“	“	“	“
		113	“	“	“	2B to 2Y	“	“	“	“	“	“	“
		114	“	“	“	3A to 3Y	“	“	“	“	“	“	“
		115	“	“	“	3B to 3Y	“	“	“	“	“	“	“
		116	IN	“	“	4A to 4Y	“	“	“	“	“	“	“
		117	GND	IN	“	4B to 4Y	“	“	“	“	“	“	“
t _{THL}	3004 (Fig. 4)	118	“	GND	“	1Y	“	300	“	380	“	220	“
		119	“	“	“	1Y	“	“	“	“	“	“	“
		120	“	“	“	2Y	“	“	“	“	“	“	“
		121	“	“	“	2Y	“	“	“	“	“	“	“
		122	“	“	“	3Y	“	“	“	“	“	“	“
		123	“	“	“	3Y	“	“	“	“	“	“	“
		124	IN	“	“	4Y	“	“	“	“	“	“	“
		125	GND	IN	“	4Y	“	“	“	“	“	“	“
t _{TLH}		126	“	GND	“	1Y	“	410	“	530	“	305	“
		127	“	“	“	1Y	“	“	“	“	“	“	“
		128	“	“	“	2Y	“	“	“	“	“	“	“
		129	“	“	“	2Y	“	“	“	“	“	“	“
		130	“	“	“	3Y	“	“	“	“	“	“	“
		131	“	“	“	3Y	“	“	“	“	“	“	“
		132	IN	“	“	4Y	“	“	“	“	“	“	“
		133	GND	IN	“	4Y	“	“	“	“	“	“	“

TABLE III. Group A inspection for device type 04.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
V _{IC} (pos) 2/		1 2 3 4 5 6 7 8 9 10 11 12 13		1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	GND	Kd H G F E Kb Kc Ka D C B A EX		1.5					V	
V _{IC} (NEG) 2/		14 15 16 17 18 19 20 21 22 23 24 25 26		-1mA	-1mA	-1mA	-1mA	-1mA	GND								-1mA	Kd H G F E Kb Kc Ka D C B A EX		-6.0							
I _{SS} 3/	3005	27 28 29 30		15.0V GND 15.0V	GND GND 15.0V	GND GND 15.0V	GND GND 15.0V	GND GND 15.0V		GND 15.0V 15.0V	GND 15.0V 15.0V	GND GND 15.0V	GND GND 15.0V	GND GND 15.0V	GND GND 15.0V	GND GND 15.0V	-1mA	V _{SS}		-1.9						μA	
V _{OH3}	3006	31 32			V _{IL1} 4/ V _{IL1}	V _{IL1} V _{IL1}	V _{IL1} V _{IL1}	V _{IL1} V _{IL1}	GND		GND 5.0V	GND 5.0V	V _{IL1} V _{IL1}	V _{IL1} V _{IL1}	V _{IL1} V _{IL1}	V _{IL1} V _{IL1}	GND	5.0V 5.0V	J	4.95 4.95			4.95		4.95		
V _{OH4}		33 34	5.0V		V _{IL2} 5/ V _{IL2}	V _{IL2} V _{IL2}	V _{IL2} V _{IL2}	V _{IL2} V _{IL2}			GND 5.0V	GND 5.0V	V _{IL2} V _{IL2}	V _{IL2} V _{IL2}	V _{IL2} V _{IL2}	V _{IL2} V _{IL2}		12.5V 12.5V		11.25 11.25	4.95	11.25	4.95	11.25	11.25	V	
V _{OL3}	3007	35 36			V _{IH1} 6/ V _{IH1}	V _{IH1} V _{IH1}	V _{IH1} V _{IH1}	V _{IH1} V _{IH1}			GND 5.0V	GND 5.0V	V _{IH1} V _{IH1}	V _{IH1} V _{IH1}	V _{IH1} V _{IH1}	V _{IH1} V _{IH1}		5.0V 5.0V			0.05		0.05		0.05		
V _{OL4}		37 38			V _{IH2} 7/ V _{IH2}	V _{IH2} V _{IH2}	V _{IH2} V _{IH2}	V _{IH2} V _{IH2}			GND 5.0V	GND 5.0V	V _{IH2} V _{IH2}	V _{IH2} V _{IH2}	V _{IH2} V _{IH2}	V _{IH2} V _{IH2}		12.5V 12.5V		0.05	1.25	0.05	1.25	0.05	1.25		
I _{IH1} 8/	3010	39		15.0V	15.0V	15.0V	15.0V	15.0V		15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	All inputs together	1.25	13	1.25		1.25		1.25	nA	
I _{IH2}		40 41 42 43 44 45 46 47 48 49 50 51 52		15.0V GND	GND 15.0V GND	GND GND 15.0V GND	GND 15.0V GND	GND 15.0V GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	Kd H G F E Kb Kc Ka D C B A EX		1.0		45					

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
I _{IL1} 8/	3009	53		GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	15.0V	All inputs together		-13					nA
I _{IL2}		54																		Kd		-1.0		-45			
		55																		H							
		56																		G							
		57																		F							
		58																		E							
		59																		Kb							
		60																		Kc							
		61																		Ka							
		62																		D							
		63																		C							
		64																		B							
		65																		A							
		66																		EX							
I _{OC1}		67	15.0V		15.0V	15.0V	15.0V	15.0V	15.0V		15.0V	15.0V	15.0V	15.0V	15.0V		15.0V	J			25		90		25		
I _{OC2}		68	GND		15.0V	15.0V	15.0V	15.0V	15.0V		15.0V	15.0V	15.0V	15.0V	15.0V		15.0V	J			-25		-90		-25		
																				Subgroup 4 T _C = +25°C							
C ₁	3012	69		—	g/	g/	g/	g/	g/	GND								GND	Kd		12					pF	
		70																	H								
		71																	G								
		72	9																F								
		73																	E								
		74																	Kb								
		75																	Kc								
		76																	Ka								
		77																	D								
		78																	C								
		79																	B								
		80																	A								
		81																	EX								
																				Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		ns	
																					Min	Max	Min	Max	Min		Max
t _{PHL1}	3003 (Fig. 5)	82	OUT	5.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	IN	GND	GND	5.0V	A to J	34	685	41	820	30	600	
t _{PLH1}		83																		B to J							
		84																		C to J							
		85																		D to J							
		86																		E to J							
		87																		F to J							
		88																		G to J							
		89																		H to J							
		90				GND														A to J	26	535	32	640	24	475	
		91																		B to J							
		92																		C to J							
		93																		D to J							
		94																		E to J							
		95																		F to J							
		96																		G to J							
		97																		H to J							

See footnotes on end of device type 04.

TABLE III. Group A inspection for device type 04 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
t _{PHL2}	3003 (Fig. 6)	98	OUT	5.0V	GND	GND	GND	GND	GND	GND	5.0 V	GND	GND	GND	GND	IN	GND	5.0V	A to J	32	635	38	755	28	555	ns	
		99	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		100	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		101	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		102	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		103	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		104	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		105	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
		106	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	31	620	"	750	"	550	"
		107	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
t _{PLH2}	3003 (Fig. 6)	108	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		109	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		110	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		111	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		112	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		113	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
t _{PHL3}	3003 (Fig. 7)	114	"	"	5.0V	5.0V	5.0V	5.0V	"	"	GND	5.0V	5.0V	5.0V	5.0V	IN	"	"	A to J	38	760	45	905	33	665	"	
		115	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		116	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		117	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		118	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		119	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		120	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		121	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
t _{PLH3}	3003 (Fig. 7)	122	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	IN	"	"	A to J	33	650	32	655	25	490	"	
		123	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		124	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		125	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		126	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		127	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		128	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		129	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
t _{PHL4}	3003 (Fig. 8)	130	"	"	5.0V	"	"	"	"	"	5.0V	"	"	"	"	IN	"	"	A to J	32	"	33	670	29	570	"	
		131	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		132	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		133	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		134	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		135	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		136	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		137	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
t _{PLH4}	3003 (Fig. 8)	138	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	IN	"	"	A to J	35	695	42	830	31	610	"	
		139	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		140	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		141	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		142	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		143	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		144	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		145	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
t _{PHL5}	3003 (Fig. 9)	146	"	"	GND	GND	GND	5.0V	5.0V	"	GND	GND	GND	GND	GND	IN	"	"	A to J	33	655	39	775	29	575	"	
		147	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		148	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		149	"	"	5.0V	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"	
		150	"	"	GND	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		151	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		152	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		153	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
t _{PLH5}	3003 (Fig. 9)	154	OUT	5.0V	GND	GND	GND	5.0V	5.0V	GND	GND	GND	GND	GND	GND	IN	GND	5.0V	A to J	27	540	32	645	24	485	ns
		155	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		156	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		157	"	"	5.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		158	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		159	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		160	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		161	"	"	IN	"	"	"	"	"	"	"	"	5.0V	5.0V	GND	"	"	H to J	"	"	"	"	"	"	"
t _{PHL6}	3003 (Fig. 10)	162	"	"	GND	"	"	5.0V	"	"	5.0V	"	GND	"	"	IN	"	"	A to J	32	640	38	755	27	540	"
		163	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		164	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		166	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		167	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		168	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		169	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
t _{PLH6}		170	"	"	GND	"	"	5.0V	"	"	"	"	"	"	"	"	IN	"	A to J	30	585	35	700	26	520	"
		171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		174	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		175	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		176	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		177	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
t _{PHL7}	3003 (Fig. 11)	178	"	"	GND	"	"	"	"	"	GND	5.0 V	5.0 V	5.0 V	5.0 V	IN	"	"	A to J	34	675	40	790	30	590	"
		179	"	"	"	"	"	"	"	"	"	"	"	5.0 V	IN	"	"	"	B to J	"	"	"	"	"	"	"
		180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		182	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		183	"	"	"	5.0 V	IN	5.0 V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		184	"	"	"	"	5.0 V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		185	"	"	IN	"	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
t _{PLH7}		186	"	"	GND	GND	GND	GND	"	"	"	"	"	5.0 V	5.0 V	5.0 V	IN	"	A to J	31	615	36	730	27	550	"
		187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		188	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		189	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		190	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		191	"	"	"	5.0 V	IN	5.0 V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		192	"	"	"	"	5.0 V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		193	"	"	IN	"	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
t _{PHL8}	3003 (Fig. 12)	194	"	"	GND	GND	GND	GND	"	"	5.0 V	"	5.0 V	5.0 V	5.0 V	IN	"	"	A to J	36	715	42	840	31	630	"
		195	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		196	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		197	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		198	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		199	"	"	"	5.0 V	IN	5.0 V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		200	"	"	"	"	5.0 V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		201	"	"	IN	"	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
t _{PLH8}		202	"	"	GND	GND	GND	GND	"	"	"	"	"	5.0 V	5.0 V	5.0 V	IN	"	A to J	30	600	36	720	27	535	"
		203	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		204	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		205	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		206	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		207	"	"	"	5.0 V	IN	5.0 V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		208	"	"	"	"	5.0 V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
		209	"	"	IN	"	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
t _{PHL9}	3003 (Fig. 13)	210	OUT	5.0 V	GND	GND	GND	GND	GND	GND	GND	IN	GND	GND	GND	GND	GND	5.0 V	Ka to J	34	690	38	760	30	595	ns	
t _{PLH9}		211	"	"	"	"	"	"	"	GND	"	"	IN	"	"	"	"	"	"	Ka to J	31	625	37	730	28	555	"
t _{PHL10}	3003 (Fig. 14)	212	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	Kb to J	27	535	31	615	23	460	"
t _{PLH10}		213	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	Kb to J	26	515	30	605	23	465	"
t _{PHL11}	3003 (Fig. 15)	214	"	"	"	"	"	"	"	"	GND	"	IN	"	"	"	"	"	"	Kc to J	21	420	24	475	18	360	"
t _{PLH11}		215	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	Kc to J	19	380	22	445	17	340
t _{THL}	3004 (Fig. 5)	216	"	"	"	"	"	"	"	"	"	GND	"	"	"	IN	IN	"	"	J	7	135	8	160	6	115	"
		217	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	
		218	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	
		219	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	
		220	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		221	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		222	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		223	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
t _{TLH}		224	"	"	GND	"	"	"	"	"	"	"	"	"	IN	IN	"	"	"	6	115	7	140	5	100	"	
		225	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		226	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		227	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"		
		228	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"		
		229	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		230	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		231	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
t _{PLZ}	3003 (Fig. 16)	232	"	IN	GND	"	"	"	"	"	"	"	"	"	5.0 V	"	"	"	Kd to J	18	350	25	490	18	350	"	
t _{PHZ}		233	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	18	350	25	490	18	350	"	
t _{PZL}		234	"	"	"	"	"	"	"	"	"	"	"	"	"	5.0 V	"	"	"	"	23	450	32	630	23	450	"
t _{PZH}		235	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	23	450	32	630	23	450	"

1/ Pins not designated shall be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the output shall be open.

During V_{IC(POS)} and V_{IC(NEG)} tests, the V_{SS} terminals respectively shall be open.

I_{SS} measurements shall be performed in sequence.

V_{IL1} = 1.1 V at +25°C; 0.8 V at +125°C; 1.35 V at -55°C.

V_{IL2} = 2.8 V at +25°C; 2.55 V at +125°C; 1.35 V at -55°C.

V_{IH1} = 3.8 V at +25°C; 3.6 V at +125°C; 3.95 V at -55°C.

V_{IH2} = 9.5 V at +25°C; 9.25 V at +125°C; 9.75 V at -55°C.

The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.

See 4.4.1c.

TABLE III. Group A inspection for device type 51.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y	Terminal conditions 1/														Measured terminal	Test limits						Unit	
			Symbol	2aY	2aS	2A	2bS	2bY	1A	V _{SS}	1bY	3bS	3A	3aS	3Y	1aY		V _{DD}	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	Min	Max	Min	Max	Min		Max
V _{IC(POS)}			1 2 3	(5) 2/ " "	GND " "	1mA " "		(1) 2/ " "	1mA " "		(13) 2/ " "		1mA " "	GND " "		(8) 2/ " "	GND " "	1A 2A 3A		" " "					V " "
V _{IC(NEG)}			4 5 6	" " "	" " "	-1mA " "	GND " "	" " "	-1mA " "	GND " "	" " "	GND " "				" " "		2A 3A	1.5 " "	" " "					" " "
I _{SS} 3/	3005		7 8	" "	18.0V 18.0V	GND 18.0V	" "	" "	GND 18.0V	" "	" "	" "	GND 18.0V	18.0V 18.0V		" "	18.0V 18.0V	V _{SS} V _{SS}	-6 -50	-50 -50		-500 -500			nA nA
V _{OH5}	3006		9 10 11	" " "	15.0V " "	GND " "	" "	" "	GND " "	" "	" "	" "	GND " "	15.0V " "		" "	15.0V " "	1aY 2aY 3Y	14.95 " "		14.95 " "		14.95 " "		" " "
V _{OL6}	3007		12 13 14	" " "	" " "	" " "	" "	" "	15.0V GND GND	" "	" "	" "	" "	" "		" "	" "	1aY 2aY 3Y	" " "	0.05 " "		" "		V " "	
V _{IH1} 4/			15 16 17	" " "	5.0V 4.0V GND	GND 4.0V GND	" "	" "	4.0V GND GND	" "	" "	" "	GND 4.0V GND	5.0V " "	" "	" "	5.0V " "	1aY 2aY 3Y	" " "	0.5 " "	0.05 " "		0.05 " "	" " "	
V _{IH2} 4/			18 19 20	" " "	10.0V 8.0V GND	GND 8.0V GND	" "	" "	8.0V GND GND	" "	" "	" "	GND GND 8.0V	10.0V " "	" "	" "	10.0V " "	1aY 2aY 3Y	" " "	1.0 " "	0.5 " "		0.5 " "	" " "	
V _{IH3} 4/			21 22 23	" " "	15.0V GND 12.0V	GND 12.0V GND	" "	" "	12.0V GND GND	" "	" "	" "	GND GND 12.0V	15.0V " "	" "	" "	15.0V " "	1aY 2aY 3Y	" " "	1.5 " "	1.0 " "		1.0 " "	" " "	
V _{IL1} 4/			24 25 26	" " "	5.0V 1.0V GND	GND 1.0V GND	" "	" "	1.0V GND GND	" "	" "	" "	GND GND 1.0V	5.0V " "	" "	" "	5.0V " "	1aY 2aY 3Y	4.5 " "		1.5 " "		1.5 " "	" " "	
V _{IL2} 4/			27 28 29	" " "	10.0V 2.0V GND	GND 2.0V GND	" "	" "	2.0V GND GND	" "	" "	" "	GND GND 2.0V	10.0V " "	" "	" "	10.0V " "	1aY 2aY 3Y	9.0 " "	4.5 " "		4.5 " "		" " "	
V _{IL3} 4/			30 31 32	" " "	15.0V 3.0V GND	GND 3.0V GND	" "	" "	3.0V GND GND	" "	" "	" "	GND GND 3.0V	15.0V " "	" "	" "	15.0V " "	1aY 2aY 3Y	13.5 " "	9.0 " "		9.0 " "		" " "	
I _{OL1}			33 34 35	" " 0.4V "	5.0V 5.0V GND	GND 5.0V GND	" "	" "	5.0V GND GND	" "	" "	" "	GND GND 5.0V	5.0V " "	" " 0.4V	" "	5.0V " "	1aY 2aY 3Y	0.51 " "	13.5 " "		13.5 " "		" " "	
I _{OL2}			36 37 38	" " 1.5V "	15.0V GND 15.0V	GND 15.0V GND	" "	" "	15.0V GND GND	" "	" "	" "	GND GND 15.0V	15.0V " "	" " 1.5V	" "	15.0V " "	1aY 2aY 3Y	3.4 " "	0.36 " "		0.64 " "		" " "	
I _{OH1}			39 40 41	" " 4.6V "	5.0V GND 5.0V	GND 5.0V GND	" "	" "	GND 5.0V 5.0V	" "	" "	" "	5.0V 5.0V GND	" " "	" " 4.6V	" "	5.0V " "	1aY 2aY 3Y	-0.51 " "	2.4 " "	-0.36 " "	4.2 " "	-0.64 " "	" " "	
I _{OH2}			42 43 44	" " 13.5V "	15.0V GND 15.0V	15.0V GND 15.0V	" "	" "	GND 15.0V 15.0V	" "	" "	" "	15.0V 15.0V GND	15.0V " "	" " 13.5V	" "	15.0V " "	1aY 2aY 3Y	-3.4 " "		-2.4 " "		-4.2 " "	" " "	

See footnotes at end of device type 51.

TABLE III. Group A inspection for device type 51 – Continued.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y	Terminal conditions 1/														Measured terminal	Test limits						Unit	
			Symbol	2aY	2aS	2A	2bS	2bY	1A	V _{SS}	1bY	3bS	3A	3aS	3Y	1aY		V _{DD}	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
																			Min	Max	Min	Max	Min		Max
I _{IH1} 5/	3010	45	(5) 2/	18.0V	18.0V	GND	(1) 2/	18.0V	GND	(13) 2/	GND	18.0V	18.0V		(8) 2/	18.0V	All inputs together		6.0					nA	
I _{IH2} 5/		46	"	"	GND	"	"	18.0V	"	"	"	GND	"		"	"	1A		"				"		
		47	"	"	18.0V	"	"	GND	"	"	"	GND	"		"	"	2A		"				"		
		48	"	"	GND	"	"	"	"	"	"	18.0V	"		"	"	3A		"				"		
I _{IL1} 5/	3009	49	"	"	GND	"	"	"	"	"	"	GND	"	"	"	"	All inputs together	1.0	-6.0	45					
I _{IL2} 5/		50	"	"	18.0V	"	"	"	"	"	"	18.0V	"		"	"	1A		-1.0		-45			"	
		51	"	"	GND	"	"	18.0V	"	"	"	18.0V	"		"	"	2A		"		"			"	
		52	"	"	18.0V	"	"	18.0V	"	"	"	GND	"		"	"	3A		"		"			"	
																	Subgroup 4 T _C = +25°C								
																	Min	Max							
C _i	3012	53	(5) 2/	GND	6/	GND	(1) 2/	6/	GND	(13) 2/	GND		GND		(8) 2/	GND	1A						"		
		54	"	"	"	"	"	"	"	"	"	6/	"		"	"	2A		"				"		
		55	"	"	"	"	"	"	"	"	"	"	"		"	"	3A		"				"		
																	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C				
																	Min	Max	Min	Max	Min	Max			
t _{PHL}	3003 (Fig. 4)	56	(5) 2/	5.0V	GND	GND	(1) 2/	IN	GND	(13) 2/	GND	GND	5.0V		(8) 2/	5.0V	1A to 1aY	6	110	9	155	6	110	ns	
			57	"	"	IN	"	"	GND	"	"	"	GND	"	"	"	2A to 2aY	"	"	"	"	"	"	"	
			58	"	"	GND	"	"	GND	"	"	"	IN	"	"	"	3A to 3Y	"	"	"	"	"	"	"	
t _{PLH}	3004 (Fig. 4)	59	"	"	GND	"	"	IN	"	"	"	GND	"		"	"	1A to 1aY	"	"	"	"	"	"	"	
			60	"	"	IN	"	"	GND	"	"	"	GND	"		"	"	2A to 2aY	"	"	"	"	"	"	
			61	"	"	GND	"	"	GND	"	"	"	IN	"		"	"	3A to 3Y	"	"	"	"	"	"	
t _{THL}		62	"	"	GND	"	"	IN	"	"	"	GND	"	"	"	"	1aY	"	200	"	280	"	200	"	
			63	"	"	IN	"	"	GND	"	"	"	GND	"		"	"	2aY	"	"	"	"	"	"	
			64	"	"	GND	"	"	GND	"	"	"	IN	"		"	"	3Y	"	"	"	"	"	"	
t _{TLH}		65	"	"	GND	"	"	IN	"	"	"	GND	"	"	"	"	1aY	"	"	"	"	"	"	"	
			66	"	"	IN	"	"	GND	"	"	"	GND	"		"	"	2aY	"	"	"	"	"	"	
			67	"	"	GND	"	"	GND	"	"	"	IN	"		"	"	3Y	"	"	"	"	"	"	

1/ Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.

1/ Terminals in parentheses are connected together as indicated by the included number.

1/ I_{SS} measurements shall be performed in sequence.

1/ The V_{IL} and V_{IH} input test requirements are acceptable if the output state list is met, attributes data required.

1/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.

1/ See 4.4.1c.

TABLE III. Group A inspection for device type 52.

Symbol	MIL-STD-883 method	Cases E,F,N,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
V _{IC(POS)}	1	2 3 4 5 6 7 8 9 10	1mA	1mA	1mA	1mA	1mA	1mA	1mA		1mA						1mA	GND	B1 A1 B2 A2 B3 A3 B4 A4 Ka Kb	1.5	"					V
V _{IC(NEG)}	11	12 13 14 15 16 17 18 19 20	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND								B1	A1 B2 A2 B3 A3 B4 A4 Ka Kb	-6.0	"					"
I _{SS} 2/	3005	21 22 23 24	GND GND 18.0V 18.0V	18.0V GND GND 18.0V	GND GND 18.0V 18.0V	18.0V GND GND 18.0V	GND GND 18.0V 18.0V	18.0V GND GND 18.0V	GND GND 18.0V 18.0V	" " " "	18.0V " " GND					18.0V " GND	18.0V GND GND 18.0V	V _{SS} " " "		-75	"	-750	"		nA	
V _{OH5}	3006	25 26 27 28 29 30 31 32	15.0V GND " " " " "	GND 15.0V " " " " "	GND GND 15.0V GND " " "	" " " 15.0V GND " "	GND " " 15.0V GND " "	GND " " 15.0V GND " "	GND " " 15.0V GND 15.0V GND "	" " " " " " "	15.0V " " " " " "					15.0V " " " " " "	GND " " " " " 15.0V	15.0V " " " " " "	D4 D3 D3 D2 D2 D1 D1 D4	14.95 " " " " " "		14.95	"	14.95	V	
V _{OL6}	3007	33 34 35 36 37 38 39 40	15.0V " " " GND " " "	15.0V " " " GND " " "	15.0V " " " GND " " "	15.0V " " " GND " " "	15.0V " " " GND " " "	15.0V " " " GND " " "	15.0V " " " GND " " "	" " " " " " "	GND " " 15.0V " " "					GND " 15.0V " " "	" " GND " " "	D4 D3 D2 D1 D4 D3 D2 D1	0.05 " " " " " "	"	0.05	"	0.05	"		
V _{IH1} 3/		41 42 43 44 45 46 47 48	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	3.5V " " " 1.5V " " "	" " " " " " "	1.5V " " 5.0V " " "					1.5V " 5.0V " " "	3.5V " 1.5V " " "	D4 D3 D2 D1 D4 D3 D2 D1	0.5 " " 0.5 " " "	"	0.5	"	0.5	"		
V _{IH2} 3/		49 50 51 52 53 54 55 56	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	7.0V " " " 3.0V " " "	" " " " " " "	3.0V " " 10.0V " " "					3.0V " 10.0V " " "	7.0V " 3.0V " " "	D4 D3 D2 D1 D4 D3 D2 D1	1.0 " " 1.0 " " "	"	1.0	"	1.0	"		

See footnotes at end of device type 52.

TABLE III. Group A inspection for device type 52 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,N,Z Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit
			B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min	
V _{IH3} 3/		57 58 59 60 61 62 63 64	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	11.0V " " " 4.0V " " "	GND " " " 15.0V " " "	4.0V " " " 15.0V " " "		11	12	13	14 4.0V " " 15.0V " " "	11.0V " " " 4.0V " " "	15.0V " " " " " "	D4 D3 D2 D1 D4 D3 D2 D1	1.5	"	1.5	"	1.5	"	V
V _{IL1} 3/		65 66 67 68 69 70 71 72	3.5V GND " " " " 1.5V	GND 3.5V 1.5V GND " " "	GND 1.5V 3.5V GND 3.5V 1.5V GND	GND 1.5V 3.5V GND 1.5V 3.5V GND	GND 1.5V 3.5V GND 3.5V 1.5V GND	GND 1.5V 3.5V GND 1.5V 3.5V GND	" " " " " " "	5.0V " " " " " "					5.0V " " " " " "	1.5V GND " " " " "	5.0V " " " " " "	D4 D3 D3 D2 D2 D1 D1 D4	4.5	"	"	4.5	"	"	"	
V _{IL2} 3/		73 74 75 76 77 78 79 80	7.0V GND " " " " 3.0V	7.0V 3.0V GND " " "	3.0V 7.0V GND 7.0V 3.0V GND	" " " 7.0V 3.0V GND	" " " 3.0V 7.0V GND	" " " 7.0V 3.0V GND	" " " 3.0V 7.0V GND	10.0V " " " " " "					10.0V " " " " " "	3.0V GND " " " " 7.0V	10.0V " " " " " "	D4 D3 D3 D2 D2 D1 D1 D4	9.0	"	"	9.0	"	"	"	
V _{IL3} 3/		81 82 83 84 85 86 87 88	11.0V GND " " " " 4.0V	11.0V 4.0V GND " " "	4.0V 11.0V GND 11.0V 4.0V GND	" " " 4.0V 11.0V GND	" " " 4.0V 11.0V GND	" " " 11.0V 4.0V GND	" " " 4.0V 11.0V GND	15.0V " " " " " "					15.0V " " " " " "	4.0V GND " " " " 11.0V	15.0V " " " " " "	D4 D3 D3 D2 D2 D1 D1 D4	13.5	"	"	13.5	"	"	"	
I _{OL1}	89	90 91 92 93 94 95 96	5.0V " " GND " " "	5.0V " " GND " " "	5.0V " " GND " " "	5.0V " " GND " " "	5.0V " " GND " " "	5.0V " " GND " " "	5.0V " " GND " " "	GND " " 5.0V " " "	0.4V " " 0.4V " " "	0.4V " " 0.4V " " "	0.4V " " 0.4V " " "	0.4V " " 0.4V " " "	GND " " 5.0V " " "	5.0V " " GND " " "	5.0V " " " " " "	D4 D3 D2 D1 D4 D3 D2 D1	0.51	"	0.36	"	0.64	"	mA	
I _{OL2}	97	98 99 100 101 102 103 104	15.0V " " GND " " "	15.0V " " GND " " "	15.0V " " GND " " "	15.0V " " GND " " "	15.0V " " GND " " "	15.0V " " GND " " "	15.0V " " GND " " "	GND " " 15.0V " " "	1.5V " " 1.5V " " "	1.5V " " 1.5V " " "	1.5V " " 1.5V " " "	1.5V " " 1.5V " " "	GND " " 15.0V " " "	15.0V " " GND " " "	15.0V " " " " " "	D4 D3 D2 D1 D4 D3 D2 D1	3.4	"	2.4	"	4.2	"	"	
I _{OH1}	105	106 107 108 109 110 111 112	5.0V GND " " " " "	5.0V GND " " " " "	" " 5.0V GND " " "	" " 5.0V GND " " "	" " 5.0V GND " " "	" " 5.0V GND " " "	" " 5.0V GND " " "	5.0V " " " " " "	" " " 4.6V 4.6V " " "	4.6V 4.6V " " 4.6V 4.6V "	4.6V 4.6V " " 4.6V 4.6V "	4.6V " " 4.6V " " "	5.0V " " " " " "	GND " " " " 5.0V "	5.0V " " " " " "	D4 D3 D3 D2 D2 D1 D1 D4	-0.51	"	-0.36	"	-0.64	"	"	

See footnotes at end of device type 52.

TABLE III. Group A inspection for device type 52 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,N,Z Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit	
			B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min		Max
I _{OH2}	113		15.0V GND	GND 15.0V GND	GND 15.0V GND	GND "	GND "	GND "	GND "	GND "	15.0V GND	15.0V GND			13.5V 13.5V	13.5V	15.0V "	GND "	15.0V "	D4 D3 D3 D2 D2 D1 D1 D4	-3.4 "	Max	-2.4 "	Max	-4.2 "	Max	mA
		114																									
		115																									
		116																									
		117																									
		118																									
		119																									
120																											
I _{IH1} 4/	3010	121	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	18.0V					18.0V	18.0V	18.0V	All inputs together		1000						nA
I _{IH2} 4/		122	18.0V	GND	GND	GND	GND	GND	GND	"	GND						GND	GND	"	B4	100		100				
		123	GND	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	GND						GND	GND	"	A3							
		124	"	GND	18.0V	18.0V	18.0V	18.0V	18.0V	"	GND						"	"	"	B3							
		125	"	"	GND	18.0V	18.0V	18.0V	18.0V	"	GND						"	"	"	A2							
		126	"	"	"	18.0V	18.0V	18.0V	18.0V	"	GND						"	"	"	B2							
		127	"	"	"	"	18.0V	18.0V	18.0V	"	GND						"	"	"	A1							
		128	"	"	"	"	"	18.0V	18.0V	"	GND						"	"	"	B1							
		129	"	"	"	"	"	"	18.0V	18.0V	"	GND					"	"	"	Ka							
		130	"	"	"	"	"	"	"	18.0V	18.0V	"	GND				"	"	"	Kb							
131	"	"	"	"	"	"	"	"	"	"	"				18.0V GND	18.0V	"	A4									
I _{IL1} 4/	3009	132	"	"	"	"	"	"	"	"	"					GND	GND	"	All inputs together		-1000					"	
I _{IL2} 4/		133	"	"	"	"	"	"	"	"	"	"					18.0V	18.0V	"	B4	-100		-100				
		134	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	"	"	"				18.0V	18.0V	"	A3							
		135	"	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	"	"	"				"	"	"	B3							
		136	"	"	18.0V	18.0V	18.0V	18.0V	18.0V	"	"	"	"				"	"	"	A2							
		137	"	"	"	18.0V	18.0V	18.0V	18.0V	"	"	"	"				"	"	"	B2							
		138	"	"	"	"	18.0V	18.0V	18.0V	"	"	"	"				"	"	"	A1							
		139	"	"	"	"	"	18.0V	18.0V	"	"	"	"				"	"	"	B1							
		140	"	"	"	"	"	"	18.0V	18.0V	"	"	"				"	"	"	Ka							
		141	"	"	"	"	"	"	"	18.0V	18.0V	"	"				GND	"	"	Kb							
142	"	"	"	"	"	"	"	"	"	"	"				18.0V 18.0V	GND	"	A4									
																				Subgroup 4 T _C = +25°C							
C _I	3012	143	5/	5/	5/	5/	5/	5/	5/	GND							GND	B4	12.0								
		144									"						"	A3									
		145									"						"	B3									
		146									"						"	A2									
		147									"						"	B2									
		148									"						"	A1									
		149									"						"	B1									
		150									"						"	Ka									
151									"	5/					5/	"	Kb										
152									"	"					"	"	Kb										
																				Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
t _{PHL}	3003 (Fig. 4)	153	IN	GND	GND	GND	GND	GND	GND	GND	5.0V					5.0V	GND	5.0V	D4	13	300	18	420	13	300	ns	
		154	GND	"	IN	IN	IN	IN	IN	IN	"					"	"	"	D3	"	"	"	"	"	"		
		155	"	"	"	"	"	"	"	"	"					"	"	"	D2	"	"	"	"	"	"		
		156	"	"	"	"	"	"	"	"	"					"	"	"	D1	"	"	"	"	"	"		
		157	"	"	"	"	"	"	"	"	"	"					IN	"	"	D4	"	"	"	"	"		"

See footnotes at end of device type 52.

TABLE III. Group A inspection for device type 52 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,N,Z Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit	
			B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1	D2	D3	D4	Kb	A4	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min		Max
t _{PHL}	3003 (Fig. 4)	158	GND	IN	GND	GND	GND	GND	GND	GND	5.0V		OUT	OUT	OUT	5.0V	GND	5.0V	D3	13	300	18	420	13	300	ns	
		159		GND															D2								
		160																	D1								
		161										IN							D4								
		162		5.0V															D3								
		163		GND			5.0V							OUT	OUT			GND	D2								
		164								5.0V									D1								
		165	5.0V									5.0V		OUT		OUT			D4								
		166	GND			5.0V									OUT	OUT	OUT	IN	D3								
		167				GND													D2								
168					5.0V			5.0V			OUT	OUT					D1										
t _{PLH}		169	IN						GND					OUT	OUT	5.0V			D4								
		170	GND																D3								
		171				IN							OUT	OUT					D2								
		172								IN									D1								
		173																	D4								
		174																	D3								
		175		IN										OUT	OUT			IN	D2								
		176					IN					IN							D1								
		177												OUT		OUT			D4								
		178		5.0V											OUT	OUT			5.0V	D3							
179		GND			5.0V							OUT		OUT			GND	D2									
180																		D1									
181	5.0V							5.0V				OUT		OUT				D4									
182	GND			5.0V						5.0V				OUT			IN	D3									
183				GND									OUT	OUT				D2									
184					5.0V			5.0V			OUT							D1									
t _{THL}	3004 (Fig. 4)	185	IN						GND					OUT	OUT	5.0V			D4	10		14		10			
		186	GND																D3								
		187																	D2								
		188								IN			OUT	OUT					D1								
		189																	D4								
		190																	D3								
		191		IN									OUT	OUT					D2								
		192					IN												D1								
		193																	D4								
		194		5.0V											OUT	OUT			5.0V	D3							
195		GND			5.0V												GND	D2									
196																		D1									
197	5.0V							5.0V				OUT		OUT				D4									
198	GND			5.0V						5.0V			OUT	OUT			IN	D3									
199																		D2									
200					5.0V			5.0V			OUT	OUT						D1									
t _{TLH}		201	IN						GND					OUT	OUT	5.0V			D4								
		202	GND																D3								
		203																	D2								
		204																	D1								
		205																	D4								
		206																	D3								
		207		IN										OUT	OUT				D2								
		208																	D1								
		209					IN					IN							D4								
		210		5.0V															5.0V	D3							
211		GND															GND	D2									
212																		D1									
213	5.0V																	D4									
214	GND			5.0V									OUT	OUT			IN	D3									
215																		D2									
216					5.0V							OUT						D1									

- 1/ Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.
- / I_{SS} measurements shall be performed in sequence.
- / The V_{IL} and V_{IH} input test requirements are acceptable if the output state limit is met, attributes data required.
- / The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.
- / See 4.4.1c.

TABLE III. Group A inspection for device type 53.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y Symbol	Terminal conditions 1/														Measured terminal	Test limits						Unit						
			1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y	4A	4B	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max	Min	Max	Min	Max							
V _{IC(POS)}	1	2 3 4 5 6 7 8	1mA	1mA			1mA	1mA								GND " " " " " "	1A 1B 2A 2B 3A 3B 4A 4B	1.5	" " " " " "					V						
V _{IC(NEG)}		9 10 11 12 13 14 15 16	-1mA	-1mA			-1mA	-1mA	GND " " " "							1A 2A 2B 3A 3B 4A 4B	-6		" " " " " "					"						
I _{SS} 2/		3005	17 18 19 20	GND GND 18.0V 18.0V	GND 18.0V GND 18.0V			GND GND 18.0V 18.0V	GND 18.0V GND 18.0V	" " " "	GND GND 18.0V 18.0V	GND 18.0V GND 18.0V			GND GND 18.0V 18.0V	18.0V " " "			V _{SS} " " "	-25 " " "		-750 " " "			nA " " "					
V _{OH5}		3006	21 22 23 24 25 26 27 28	15.0V GND " " " " "	GND 15.0V GND 15.0V GND " "			GND GND 15.0V GND 15.0V GND "	GND " " 15.0V GND 15.0V GND "	" " " " " "	GND " " 15.0V GND 15.0V GND "	GND " " " " " "			GND GND 15.0V GND 15.0V GND "	15.0V " " " " " "			14.95 " " " " " "			14.95 " " " " " "		14.95 " " " " " "	V " " " " " "					
V _{OL6}		3007	29 30 31 32 33 34 35 36	15.0V GND " " " " "	15.0V GND " " " " "			" 15.0V GND " " " "	" 15.0V GND " " " "	" " " " " "	" " " " " "	" " " " " "			" " 15.0V GND 15.0V GND "	" " " " " "					1Y 1Y 2Y 2Y 3Y 3Y 4Y 4Y	0.05 " " " " " "		0.05 " " " " " "		0.05 " " " " " "	" " " " " "			
V _{IH1} 3/			37 38 39 40 41 42 43 44	3.5V 1.5V GND " " " "	1.5V 3.5V GND " " " "			" 3.5V 1.5V GND " " "	" 1.5V 3.5V GND " " "	" " " " " "	" " " " " "	" " " " " "			" " 3.5V 1.5V GND " "	" " " 1.5V 3.5V GND "							5.0V " " " " " "	4.5 " " 4.5 " " "		" " " 4.5 " " "		" " " " " "	" " " " " "	
V _{IH2} 3/			45 46 47 48 49 50 51 52	7.0V 3.0V GND " " " "	3.0V 7.0V GND " " " "			" 7.0V 3.0V GND " "	" 3.0V 7.0V GND " "	" " " " " "	" " " " " "	" " " " " "			GND GND " " 7.0V 3.0V GND GND "	GND GND " " 7.0V 3.0V GND 7.0V "							10.0V " " " " " "		9.0 " " 9.0 " " "		" " " 9.0 " " "		" " " " " "	" " " " " "

See footnotes at the end of device type 53.

TABLE III. Group A inspection for device type 53 – Continued.

Symbol	MIL-STD-883 method	Cases A,C,D,T,X,Y	Terminal conditions 1/														Measured terminal	Test limits						Unit
			Symbol	1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y	4A	4B		V _{DD}	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C	
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	Min	Max	Min	Max	Min	Max
V _{IH3} 3/		53 54 55 56 57 58 59 60	11.0V 4.0V GND 4.0V 11.0V 4.0V GND	4.0V 11.0V GND			GND GND 11.0V 4.0V GND	GND GND 4.0V 11.0V GND	GND	GND			GND	GND	15.0V	1Y 1Y 2Y 2Y 3Y 3Y 4Y 4Y	13.5 " " 13.5 " " " "		13.5 " " 13.5 " " " "		V			
V _{IL1} 3/		61 62 63 64	1.5V GND	"			" 1.5V GND	"	"	1.5V GND			GND " 1.5V	GND " "	5.0V	1Y 2Y 3Y 4Y		0.5 " " 0.5		0.5 " " 0.5		"		
V _{IL2} 3/		65 66 67 68	3.0V GND	"			3.0V GND	"	"	3.0V GND			GND " 3.0V	"	10.0V	1Y 2Y 3Y 4Y		1.0 " " 1.0		" " " 1.0		"		
V _{IL3} 3/		69 70 71 72	4.0V GND	"			4.0V GND	"	"	4.0V GND			GND " 4.0V	"	15.0V	1Y 2Y 3Y 4Y		1.5 " " 1.5		" " " 1.5		"		
I _{OL1}		74 75 76	"	"	0.4V	0.4V	"	"	"	"		0.4V	GND " "	"	5.0V	1Y 2Y 3Y 4Y	0.51 " " 0.36		" " " 0.64		" " " mA			
I _{OL2}	73	78 79 80	"	"	1.5V	1.5V	"	"	"	"		1.5V	GND " "	"	15.0V	1Y 2Y 3Y 4Y	3.4 " " 2.4		" " " 4.2		"			
I _{OH1}	77	82 83 84	5.0V	"	4.6V	4.6V	5.0V	"	"	5.0V		4.6V	5.0V " "	"	5.0V	1Y 2Y 3Y 4Y	-0.51 " " "		-0.36 " " -0.64		"			
I _{OH2}	81	86 87 88	15.0V	"	13.5V	13.5V	15.0V	"	"	15.0V		13.5V	15.0V " "	"	15.0V	1Y 2Y 3Y 4Y	-3.4 " " "		-2.4 " " -4.2		"			
I _{IH1} 4/	3009	89	18.0V	18.0V			18.0V	18.0V	"	18.0V	18.0V		18.0V	18.0V	18.0V	All inputs together		800.0				nA		
I _{IH2}		90 91 92 93 94 95 96 97	18.0V GND 18.0V GND	GND 18.0V GND			GND GND 18.0V GND	GND GND 18.0V GND	"	GND	GND		GND	GND	"	1A 1B 2A 2B 3A 3B 4A 4B		100.0 " " 100.0 " " " "		100.0 " " " " " " "		"		
I _{IL1} 4/	3009	98	"	"			"	"	"	"			GND	GND	"	All inputs together		-800.0				"		

See footnotes at end of device type 53.

TABLE III. Group A inspection for device type 53 – Continued.

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y	Terminal conditions 1/														Measured terminal	Test limits						Unit		
		Symbol	1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y	4A	4B	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max	Min	Max	Min	Max			
I _{IL2}	3009	99	GND	18.0V				18.0V	18.0V	GND	18.0V	18.0V			18.0V	18.0V	18.0V	1A		-100.0		-100.0			nA	
		100	18.0V	GND				18.0V	18.0V						18.0V	18.0V		1B								
		101	"	18.0V				"	"	"	"	"	"	"	"	"	"	2A								
		102	"	GND				"	"	"	"	"	"	"	"	"	"	2B								
		103	"	"				"	"	"	"	"	"	"	"	"	"	3A								
		104	"	"				"	"	"	"	"	"	"	"	"	"	3B								
		105	"	"				"	"	"	"	"	"	"	"	"	"	4A								
		106	"	"				"	"	"	"	"	"	"	"	"	"	4B								
																			Subgroup 4 T _C = +25°C							
																			Min	Max						
		C _I	3012	107	5/						GND							GND	1A							
108				5/				5/		"						"	1B									
109									5/	"						"	2A									
110									"		5/					"	2B									
111									"			5/				"	3A									
112									"				5/			"	3B									
113									"					5/		"	4A									
114									"						5/		4B									
																	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
																	Min	Max	Min	Max	Min	Max				
t _{PHL}	3003 (Fig. 6)	115	IN	GND	GND	OUT		GND	GND	GND	GND	GND		GND	GND	5.0V	1A to 1Y	10	250	14	350	10	250	ns		
		116	"	"	"		"	"	"	"	"	"		"	"	"	1B to 1Y	"	"	"	"	"	"	"		
		117	"	"	"		"	"	"	"	"	"		"	"	"	2A to 2Y	"	"	"	"	"	"	"		
		118	"	"	"	OUT	"	"	"	"	"	"		"	"	"	2B to 2Y	"	"	"	"	"	"	"		
		119	"	"	"		"	"	"	"	"	"		"	"	"	3A to 3Y	"	"	"	"	"	"	"		
		120	"	"	"		"	"	"	"	"	"		"	"	"	3B to 3Y	"	"	"	"	"	"	"		
		121	"	"	"		"	"	"	"	"	"		"	"	"	4A to 4Y	"	"	"	"	"	"	"		
		122	"	"	"		"	"	"	"	"	"		"	"	"	4B to 4Y	"	"	"	"	"	"	"		
		t _{PLH}	3003 (Fig. 6)	123	IN	GND	OUT		"	"	"	"	"		"	GND	"	"	1A to 1Y	"	"	"	"	"	"	"
				124	"	"	"		"	"	"	"	"		"	"	"	"	1B to 1Y	"	"	"	"	"	"	"
125	"			"	"	OUT	"	"	"	"	"		"	"	"	"	2A to 2Y	"	"	"	"	"	"	"		
126	"			"	"		"	"	"	"	"		"	"	"	"	2B to 2Y	"	"	"	"	"	"	"		
127	"			"	"		"	"	"	"	"		"	"	"	"	3A to 3Y	"	"	"	"	"	"	"		
128	"			"	"		"	"	"	"	"		"	"	"	"	3B to 3Y	"	"	"	"	"	"	"		
129	"			"	"		"	"	"	"	"		"	"	"	"	4A to 4Y	"	"	"	"	"	"	"		
130	"			"	"		"	"	"	"	"		"	"	"	"	4B to 4Y	"	"	"	"	"	"	"		
t _{TLH}	3004 (Fig. 6)	131	IN	GND	OUT		"	"	"	"	"		"	GND	"	"	1Y	10	200	14	280	10	200	"		
		132	"	"	"		"	"	"	"	"		"	"	"	"	1Y	"	"	"	"	"	"	"		
		133	"	"	"	OUT	"	"	"	"	"		"	"	"	"	2Y	"	"	"	"	"	"	"		
		134	"	"	"		"	"	"	"	"		"	"	"	"	2Y	"	"	"	"	"	"	"		
		135	"	"	"		"	"	"	"	"		"	"	"	"	3Y	"	"	"	"	"	"	"		
		136	"	"	"		"	"	"	"	"		"	"	"	"	3Y	"	"	"	"	"	"	"		
		137	"	"	"		"	"	"	"	"		"	"	"	"	4Y	"	"	"	"	"	"	"		
t _{TLH}	3004 (Fig. 6)	138	"	"	"		"	"	"	"	"		"	"	"	"	4Y	"	"	"	"	"	"	"		
		139	IN	GND	OUT		"	"	"	"	"		"	GND	"	"	1Y	"	"	"	"	"	"	"		
		140	"	"	"		"	"	"	"	"		"	"	"	"	1Y	"	"	"	"	"	"	"		
		141	"	"	"	OUT	"	"	"	"	"		"	"	"	"	2Y	"	"	"	"	"	"	"		
		142	"	"	"		"	"	"	"	"		"	"	"	"	2Y	"	"	"	"	"	"	"		
		143	"	"	"		"	"	"	"	"		"	"	"	"	3Y	"	"	"	"	"	"	"		
		144	"	"	"		"	"	"	"	"		"	"	"	"	3Y	"	"	"	"	"	"	"		
		145	"	"	"		"	"	"	"	"		"	"	"	"	4Y	"	"	"	"	"	"	"		
146	"	"	"		"	"	"	"	"		"	"	"	"	4Y	"	"	"	"	"	"	"				

- / Pins not designated may be “high” level logic, “low” level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.
- / I_{SS} measurements shall be performed in sequence.
- / The V_{IL} and V_{IH} input test requirements are acceptable if the output state limit is met, attributes data required.
- / The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.
- / See 4.4.1c.

TABLE III. Group A inspection for device type 54.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
V _{IC(POS)}	1	2 3 4 5 6 7 8 9 10 11 12 13	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	GND	Kd H G F E Kb Kc Ka D C B A EX	1.5					V	
V _{IC(NEG)}		14 15 16 17 18 19 20 21 22 23 24 25 26	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND									Kd	H G F E Kb Kc Ka D C B A EX	-6.0						
I _{SS} 2/	3005	27 28 29 30	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	"	GND 18.0V GND 18.0V	GND 18.0V GND 18.0V	GND GND 18.0V 18.0V	GND GND 18.0V 18.0V	GND GND 18.0V 18.0V	GND GND 18.0V 18.0V	GND GND 18.0V 18.0V	18.0V	V _{SS}	"	-1.9					μA	
V _{OH5}	3006	31 32	15.0V "	GND GND	GND GND	GND GND	GND GND	GND "	"	GND 15.0V	GND 15.0V	GND GND	GND GND	GND GND	GND GND	GND GND	15.0V	J	14.95 14.95		14.95 14.95		14.95 14.95		"	
V _{OL6}	3007	33 34	"	15.0V 15.0V	15.0V 15.0V	15.0V 15.0V	15.0V 15.0V	"	"	GND 15.0V	GND 15.0V	15.0V 15.0V	15.0V 15.0V	15.0V 15.0V	15.0V 15.0V	"	"	"	"	0.05		0.05		0.05 0.05	"	
V _{IH1}		35 36 37 38 39 40 41 42 43	3.5V " " " " " " "	3.5V 1.5V " " " " " "	1.5V 3.5V 1.5V " " " "	1.5V 3.5V 1.5V " " " "	1.5V 3.5V 1.5V " " " "	1.5V 3.5V 1.5V " " " "	"	1.5V " " " " " "	1.5V " " " " " "	1.5V " " " " 3.5V 1.5V	1.5V " " " " 3.5V 1.5V	1.5V " " " " 3.5V 1.5V	1.5V " " " " 3.5V 1.5V	1.5V " " " " 3.5V 1.5V	5.0V	"	0.05 0.05		0.05 0.05		0.05 0.05		"	
V _{IH2}		44 45 46 47 48 49 50 51 52	7.0V " " " " " " "	7.0V 3.0V " " " " " "	3.0V 7.0V 3.0V " " " "	3.0V 7.0V 3.0V " " " "	3.0V 7.0V 3.0V " " " "	3.0V 7.0V 3.0V " " " "	"	3.0V " " " " " "	3.0V " " " " " "	3.0V " " " " 7.0V 3.0V	3.0V " " " " 7.0V 3.0V	3.0V " " " " 7.0V 3.0V	3.0V " " " " 7.0V 3.0V	3.0V " " " " 7.0V 3.0V	10.0V	"	1.0		1.0		1.0		"	

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
V _{IH3}		53		11.0V	11.0V	4.0V	4.0V	4.0V	4.0V	GND	4.0V	4.0V	4.0V	4.0V	4.0V	4.0V	GND	15.0V	J	1.5	Max	Min	Max	Min	Max	V
		54		"	4.0V	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	1.5	"	1.5	"	"	"
		55		"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		56		"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		57		"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		58		"	"	"	"	"	"	"	"	"	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	
		59		"	"	"	"	"	"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	
		60		"	"	"	"	"	"	"	"	"	4.0V	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	
		61		"	11.0V	11.0V	11.0V	11.0V	"	"	11.0V	11.0V	11.0V	11.0V	11.0V	11.0V	"	"	"	"	"	"	"	"	"	
V _{IL1}	62	63		"	1.5V	1.5V	1.5V	1.5V	1.5V	"	1.5V	1.5V	1.5V	1.5V	1.5V	1.5V	"	5.0V	"	"	"	"	"	"	"	
		64		3.5V	1.5V	3.5V	3.5V	3.5V	"	"	3.5V	3.5V	3.5V	3.5V	3.5V	3.5V	"	"	"	4.5	"	4.5	"	4.5	"	
		65		"	3.5V	1.5V	3.5V	3.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		66		"	"	3.5V	1.5V	3.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		67		"	"	"	3.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		68		"	"	"	"	3.5V	1.5V	"	"	"	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	
		69		"	"	"	"	"	"	"	"	"	3.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	
		70		"	"	"	"	"	"	"	"	"	"	3.5V	1.5V	1.5V	"	"	"	"	"	"	"	"	"	
V _{IL2}	71	72		"	3.0V	3.0V	3.0V	3.0V	3.0V	"	3.0V	3.0V	3.0V	3.0V	3.0V	3.0V	"	10.0V	"	"	"	"	"	"	"	
		73		"	3.0V	7.0V	7.0V	7.0V	"	"	7.0V	7.0V	7.0V	7.0V	7.0V	7.0V	"	"	"	9.0	"	9.0	"	9.0	"	
		74		"	7.0V	3.0V	7.0V	7.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		75		"	"	7.0V	3.0V	7.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		76		"	"	"	7.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		77		"	"	"	"	7.0V	3.0V	"	"	"	3.0V	"	"	"	"	"	"	"	"	"	"	"	"	
		78		"	"	"	"	7.0V	"	"	"	"	7.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	
		79		"	"	"	"	"	"	"	"	"	"	7.0V	3.0V	3.0V	3.0V	"	"	"	"	"	"	"	"	
V _{IL3}		80		11.0V	4.0V	4.0V	4.0V	4.0V	4.0V	"	4.0V	4.0V	4.0V	4.0V	4.0V	4.0V	"	15.0V	"	"	"	"	"	"	"	
		81		"	4.0V	11.0V	11.0V	11.0V	"	"	11.0V	11.0V	11.0V	11.0V	11.0V	11.0V	"	"	"	13.5	"	13.5	"	13.5	"	
		82		"	11.0V	4.0V	11.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		83		"	"	11.0V	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		84		"	"	"	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		85		"	"	"	"	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		86		"	"	"	"	11.0V	"	"	"	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	
		87		"	"	"	"	"	"	"	"	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	
		88		"	"	"	"	"	"	"	"	"	11.0V	4.0V	4.0V	4.0V	"	"	"	"	"	"	"	"	"	
I _{OL1}	89	90	0.4V	5.0V	5.0V	GND	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	"	5.0V	"	0.51	"	"	"	"	"	
		91		"	"	"	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		92		"	"	"	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	0.36	"	0.64	"	mA	"
		93		"	"	"	GND	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		94		"	"	"	"	GND	"	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	
		95		"	"	"	"	"	"	"	"	"	"	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"
		96		"	"	"	"	"	"	"	"	"	"	GND	GND	5.0V	5.0V	"	"	"	"	"	"	"	"	
		97		"	"	5.0V	5.0V	5.0V	5.0V	"	"	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	
I _{OL2}	98	99	1.5V	15.0V	15.0V	GND	GND	GND	"	"	GND	GND	GND	GND	GND	GND	"	15.0V	"	3.4	"	"	"	"	"	
		100		"	"	GND	15.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	2.4	"	4.2	"	"	
		101		"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		102		"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		103		"	"	"	"	"	"	"	"	"	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	
		104		"	"	"	"	"	"	"	"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	
		105		"	"	"	"	"	"	"	"	"	"	GND	15.0V	15.0V	"	"	"	"	"	"	"	"	"	
		106		"	15.0V	15.0V	15.0V	15.0V	"	"	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	"	"	"	"	"	"	"	

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
I _{OH1}		107	4.6V	5.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	5.0V	J	-0.51	Max	-0.36	Max	-0.64	Max	mA
		108	"	"	GND	5.0V	5.0V	5.0V	"	"	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"		
		109	"	"	GND	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		110	"	"	5.0V	5.0V	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		111	"	"	"	"	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		112	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		113	"	"	"	"	"	"	"	"	"	"	GND	5.0V	GND	"	"	"	"	"	"	"	"	"	"		
		114	"	"	"	"	"	"	"	"	"	"	5.0V	5.0V	5.0V	GND	GND	"	"	"	"	"	"	"	"		
I _{OH2}		116	13.5V	15.0V	GND	GND	GND	GND	"	"	GND	GND	GND	GND	GND	GND	GND	"	15.0V	"	-3.4		-2.4		-4.2		
		117	"	"	GND	15.0V	15.0V	15.0V	"	"	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	"	"	"	"	"	"		
		118	"	"	GND	15.0V	15.0V	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		119	"	"	"	GND	15.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		120	"	"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		121	"	"	"	"	"	15.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		122	"	"	"	"	"	"	15.0V	"	"	"	GND	GND	"	"	"	"	"	"	"	"	"	"	"		
		123	"	"	"	"	"	"	"	"	"	"	15.0V	15.0V	GND	"	"	"	"	"	"	"	"	"	"		
124	"	"	"	"	"	"	"	"	"	"	"	15.0V	15.0V	15.0V	GND	"	"	"	"	"	"	"	"				
I _{IH1 3/}	3010	125		18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	All inputs together		13				nA		
I _{IH2}			126		18.0V	GND	GND	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	GND	"	Kd	1		45				
			127		GND	18.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	H							
			128		"	GND	18.0V	"	"	"	"	"	"	"	"	"	"	"	"	G							
			129		"	"	GND	18.0V	"	"	"	"	"	"	"	"	"	"	"	F							
			130		"	"	"	GND	18.0V	"	"	"	"	"	"	"	"	"	"	E							
			131		"	"	"	"	GND	18.0V	"	"	"	"	"	"	"	"	"	Kb							
			132		"	"	"	"	"	18.0V	GND	"	"	"	"	"	"	"	"	Kc							
			133		"	"	"	"	"	"	"	18.0V	18.0V	"	"	"	"	"	"	Ka							
			134		"	"	"	"	"	"	"	GND	GND	18.0V	"	"	"	"	"	D							
			135		"	"	"	"	"	"	"	"	"	GND	18.0V	"	"	"	"	C							
			136		"	"	"	"	"	"	"	"	"	"	GND	18.0V	"	"	"	B							
137		"	"	"	"	"	"	"	"	"	"	"	GND	18.0V	"	"	A										
138		"	"	"	"	"	"	"	"	"	"	"	"	GND	18.0V	"	EX										
I _{IL1 3/}	3009	139															GND	All inputs together		-13							
I _{IL2}			140																Kd		-1.0		-45				
			141																H								
			142																G								
			143																F								
			144																E								
			145																Kb								
			146																Kc								
			147																Ka								
			148																D								
			149																C								
			150																B								
151																A											
152																EX											
I _{OC1}		153	18.0V		18.0V	18.0V	18.0V	18.0V	18.0V	"	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	J		25		90		25			
I _{OC2}		154	GND		18.0V	18.0V	18.0V	18.0V	18.0V	"	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	J		-25		-90		-25			

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits			Unit				
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 4 T _C = +25°C							
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Min	Max							
C _i	3012	155		—						GND								GND	Kd H C F E Kb Kc Ka D C B A EX	12	pF	"					
		156			4/		4/																				
		157						4/																			
		158																									
		159																									
		160							4/																		
		161								4/																	
		162									4/																
		163										4/															
		164											4/														
		165												4/													
		166													4/												
		167														4/											
																		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
																		Min	Max	Min	Max	Min	Max				
t _{PHL1}	3003 (Fig. 5)	168	OUT	5.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	IN	GND	GND	5.0V	A to J	34	685	41	820	30	600	ns
		169	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	
		170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	
		171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	
		172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	
		173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
t _{PLH1}	3003 (Fig. 5)	175	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	
		176	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	27	535	32	640	24	475	
		177	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	
		178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	
		179	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	
		180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	
		181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
t _{PHL2}	3003 (Fig. 6)	182	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
		183	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	
		184	"	"	GND	"	"	"	"	"	5.0V	"	"	"	"	IN	IN	IN	"	A to J	32	635	38	755	28	555	
		185	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	
		186	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	
		187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	
		188	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	
t _{PLH2}	3003 (Fig. 6)	189	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		190	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
		191	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	
		192	"	"	GND	"	"	"	"	"	"	5.0V	"	"	"	"	IN	IN	"	A to J	31	620	"	750	"	550	
		193	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	
		194	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	
		195	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	
t _{PHL3}	3003 (Fig. 7)	196	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	
		197	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		198	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
		199	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	
		200	"	"	5.0V	5.0V	5.0V	5.0V	"	"	"	5.0V	5.0V	5.0V	5.0V	IN	5.0V	"	A to J	38	760	45	905	33	665		
		201	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	
		202	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	
t _{PHL3}	3003 (Fig. 7)	203	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	
		204	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	
		205	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		206	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
		207	"	"	IN	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	
		208	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		209	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
t _{PLH3}	3003 (Fig. 7)	208	OUT	5.0V	5.0V	5.0V	5.0V	5.0V	GND	GND	GND	5.0V	5.0V	5.0V	5.0V	IN	5.0V	5.0V	A to J	32	650	32	655	25	490	ns
		209	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	B to J	"	"	"	"	"	"	"
		210	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	C to J	"	"	"	"	"	"	"
		211	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	D to J	"	"	"	"	"	"	"
		212	"	"	"	"	"	IN	"	"	"	"	IN	5.0V	"	"	"	"	E to J	"	"	"	"	"	"	"
		213	"	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		214	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
215	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL4}	3003 (Fig. 8)	216	"	"	5.0V	"	"	"	"	"	5.0V	"	"	"	IN	5.0V	IN	5.0V	A to J	"	"	33	670	29	570	"
		217	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	IN	5.0V	"	B to J	"	"	"	"	"	"	"
		218	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	"
		219	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	D to J	"	"	"	"	"	"	"
		220	"	"	"	"	"	IN	"	"	"	"	IN	5.0V	"	"	"	"	E to J	"	"	"	"	"	"	"
		221	"	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		222	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
223	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH4}		224	"	"	5.0V	"	"	"	"	"	"	"	"	IN	5.0V	IN	5.0V	A to J	35	695	42	830	31	610	"	
		225	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	IN	5.0V	"	B to J	"	"	"	"	"	"	"
		226	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	"
		227	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	D to J	"	"	"	"	"	"	"
		228	"	"	"	"	"	IN	"	"	"	"	IN	5.0V	"	"	"	"	E to J	"	"	"	"	"	"	"
		229	"	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		230	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
231	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL5}	3003 (Fig. 9)	232	"	"	GND	GND	GND	"	5.0V	"	GND	GND	GND	GND	IN	IN	GND	A to J	33	665	39	775	29	575	"	
		233	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	B to J	"	"	"	"	"	"	"
		234	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	C to J	"	"	"	"	"	"	"
		235	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	D to J	"	"	"	"	"	"	"
		236	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	5.0V	"	E to J	"	"	"	"	"	"	"
		237	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		238	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
239	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH5}		240	"	"	GND	"	"	5.0V	"	"	"	"	"	"	IN	IN	IN	A to J	27	540	32	645	24	485	"	
		241	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to J	"	"	"	"	"	"	"
		242	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to J	"	"	"	"	"	"	"
		243	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	D to J	"	"	"	"	"	"	"
		244	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	5.0V	"	E to J	"	"	"	"	"	"	"
		245	"	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		246	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
247	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL6}	3003 (Fig. 10)	248	"	"	GND	"	"	5.0V	"	"	5.0V	"	"	"	IN	IN	IN	A to J	32	640	38	755	27	540	"	
		249	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to J	"	"	"	"	"	"	"
		250	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to J	"	"	"	"	"	"	"
		251	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to J	"	"	"	"	"	"	"
		252	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	5.0V	"	E to J	"	"	"	"	"	"	"
		253	"	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		254	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
255	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH6}		256	"	"	GND	"	"	5.0V	"	"	"	"	"	"	IN	IN	IN	A to J	30	585	35	700	26	520	"	
		257	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to J	"	"	"	"	"	"	"
		258	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to J	"	"	"	"	"	"	"
		259	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to J	"	"	"	"	"	"	"
		260	"	"	"	"	"	IN	IN	GND	"	"	"	"	"	"	5.0V	"	E to J	"	"	"	"	"	"	"
		261	"	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		262	"	"	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
263	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
t _{PHL7}	3003 (Fig. 11)	264	OUT	5.0V	GND	GND	GND	GND	5.0V	GND	GND	5.0V	5.0V	5.0V	5.0V	IN	5.0V	GND	5.0V	A to J	34	675	40	790	30	590	ns
		265	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	B to J	"	"	"	"	"	"	
		266	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	
		267	"	"	"	"	"	"	"	"	"	"	"	"	5.0V	GND	"	"	"	D to J	"	"	"	"	"	"	
		268	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	IN	5.0V	5.0V	GND	"	"	"	E to J	"	"	"	"	"	"	
		269	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		270	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
271	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"			
t _{PLH7}		272	"	"	GND	GND	GND	GND	"	"	"	"	5.0V	5.0V	5.0V	IN	"	"	"	A to J	31	"	36	730	27	550	"
		273	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	B to J	"	"	"	"	"	"	
		274	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	5.0V	"	"	"	C to J	"	"	"	"	"	"	
		275	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	5.0V	"	"	"	D to J	"	"	"	"	"	"	
		276	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	GND	GND	GND	GND	"	"	"	E to J	"	"	"	"	"	"	
		277	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		278	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
279	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"			
t _{PHL8}	3003 (Fig. 12)	280	"	"	GND	GND	GND	GND	"	"	5.0V	"	5.0V	5.0V	5.0V	IN	"	"	"	A to J	36	715	42	840	31	630	"
		281	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	B to J	"	"	"	"	"	"	
		282	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	
		283	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	5.0V	"	"	"	D to J	"	"	"	"	"	"	
		284	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	GND	GND	GND	GND	"	"	"	E to J	"	"	"	"	"	"	
		285	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		286	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
287	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"			
t _{PLH8}		288	"	"	GND	GND	GND	GND	"	"	"	"	5.0V	5.0V	5.0V	IN	"	"	"	A to J	30	600	36	720	27	535	"
		289	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	B to J	"	"	"	"	"	"	
		290	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	
		291	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	5.0V	"	"	"	D to J	"	"	"	"	"	"
		292	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	GND	GND	GND	GND	"	"	"	E to J	"	"	"	"	"	"	
		293	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	
		294	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	
295	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"			
t _{PHL9}	3003 (Fig. 13)	296	"	"	GND	GND	GND	GND	GND	"	"	GND	IN	"	"	"	"	"	Ka to J	34	690	38	760	30	595	"	
297		"	"	"	"	"	"	GND	"	"	"	IN	"	"	"	"	"	"	Ka to J	31	625	37	730	28	555	"	
t _{PHL10}	3003 (Fig. 14)	298	"	"	"	"	"	"	IN	"	"	"	GND	"	"	"	"	"	Kb to J	27	535	31	615	23	460	"	
299		"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	Kb to J	26	515	30	605	23	465	"	
t _{PLH10}	3003 (Fig. 15)	300	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	Kc to J	21	420	24	475	18	360	"	
301		"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	Kc to J	19	380	24	445	17	340	"	
t _{THL}	3004 (Fig. 5)	302	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	IN	"	J	7	135	8	160	6	115	"	
303		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
304		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
305		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
306		"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"		
307		"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
308		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
309	"	"	"	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			

See footnotes at end of device type 54.

TABLE III. Group A inspection for device type 54 – Continued.

Symbol	MIL-STD-883 method	Cases E,F,Z	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Symbol	J	Kd	H	G	F	E	Kb	V _{SS}	Kc	Ka	D	C	B	A	EX	V _{DD}		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
		Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
t _{TLH}	3004 (Fig. 5)	310	OUT	5.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	IN	GND	5.0V	J	6	115	7	140	5	100	ns
		311	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		312	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		313	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		314	"	"	"	"	"	"	IN	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	
		315	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		316	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		317	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
t _{PLZ}	3003 (Fig. 16)	318	"	IN	GND	"	"	"	"	"	"	"	"	"	5.0V	"	"	Kd to J	18	350	25	490	18	350	"	
t _{PHZ}		319	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	18	350	25	490	18	350	"	
t _{PZL}		320	"	"	"	"	"	"	"	"	"	"	"	"	5.0V	"	"	"	23	450	32	630	23	450	"	
t _{PZH}		321	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	23	450	32	630	23	450	"	

- 1/ Pins not designated may be "high" level logic, "low" level logic, or open. Exceptions are as follows: For V_{IC(POS)} tests, the V_{SS} terminal shall be open; for V_{IC(NEG)} tests, the V_{DD} terminal shall be open; for I_{SS} tests, the outputs shall be open.
- 2/ I_{SS} measurements shall be performed in sequence.
- 3/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at +25°C for each individual input or measure all inputs together.
- 4/ See 4.4.1c.

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.

4.4.5 Group E inspection. Group E inspection is required only for parts intended to be marked as radiation hardness assured (see 3.7 herein). RHA levels for device classes B and S shall be as specified in MIL-PRF-38535 and 4.5.4 herein.

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

4.5.1 Voltage and current. Unless otherwise specified, all voltages given are referenced to the microcircuit V_{SS} terminal. Currents given are conventional current and positive when flowing into the referenced terminal.

4.5.2 Burn-in and life test cool down procedures. When the burn-in and life tests are completed and prior to removal of bias voltages, the devices under test (DUT) shall be cooled to a temperature of $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$; then, electrical parameter end-point measurements shall be performed.

TABLE IV. Delta limits at 25°C .

Parameter 1/	Device types	
	01, 02, 03, 04	51, 52, 53, 54
I_{SS}	$\pm 10 \text{ nA}$	$\pm 10 \text{ nA}$
V_{OL1}	$\pm 0.04 \text{ V}$	2/
V_{OH1}	$\pm 0.08 \text{ V}$	2/
I_{OL1}	2/	$\pm 15\%$
I_{OH1}	2/	$\pm 15\%$

1/ Each of the above parameters shall be recorded before and after the required burn-in and life tests to determine delta (Δ).

2/ Not applicable.

4.5.3 Quiescent supply current (I_{SS} test). When performing quiescent supply current measurements (I_{SS}), the meter shall be placed so that all currents flow through the meter.

4.5.4 Radiation hardness assurance (RHA) testing. The RHA testing shall be performed in accordance with test procedures and sampling specified in MIL-PRF-38535 and herein.

- Before irradiation, selected samples shall be assembled in qualified packages and pass the governing electrical parameters (group A subgroup 1 at 25°C) and also be subjected to the threshold-voltage test in table VII in order to calculate the delta threshold (ΔV_T) after irradiation.
- The devices shall be subjected to a total radiation dose as specified in MIL-PRF-38535 for the radiation hardness assurance level being tested, and meet the end-point electrical parameters as defined in table V at 25°C , after exposure. The start and completion of the end-point electrical parameter measurements shall not exceed 2 hours following irradiation.
- Threshold-voltage test circuit conditions shall be as specified in table VII and on figure 17. In situ and remote testing, the tests shall be performed with the devices biased in accordance with table VI and the bias may be interrupted for up to 1 minute to remove devices to the remote bias fixture.
- After irradiation, the devices shall pass the truth table test as specified in subgroup 7 in table III or if subgroup 7 is not required, then an equivalent truth table test shall be performed.

TABLE V. Radiation hardened end-point electrical parameters at 25°C.

Parameter	Test limits (All device types)	V_{DD}	
		Device types 01, 02, 03, 04	Device types 51, 52, 53, 54
V_{TN}	0.3 V min	10 V	10 V
V_{TP}	2.8 V max	10 V	10 V
ΔV_T	1.4 V max	10 V	10 V
I_{SS}	100 x max limit	15 V	18 V
t_{PLH}	1.35 x max limit	5 V	5 V
t_{PHL}	1.35 x max limit	5 V	5 V

TABLE VI. Bias during exposure to radiation.

Device type	Pin connections <u>1/</u>		
	$V_{DD} = 10$ V dc (through a 30 k Ω to 60 k Ω resistor)	$V_{SS} = \text{GND}$	$V_{DD} = 10$ V dc
01, 51	2, 3, 6, 10, 11,	4, 7, 9	14
02, 52	1, 2, 3, 4, 5, 6, 7, 9, 14, 15	8	16
03, 53	1, 2, 5, 6, 8, 9, 12, 13	7	14
04, 54	2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15	8	16

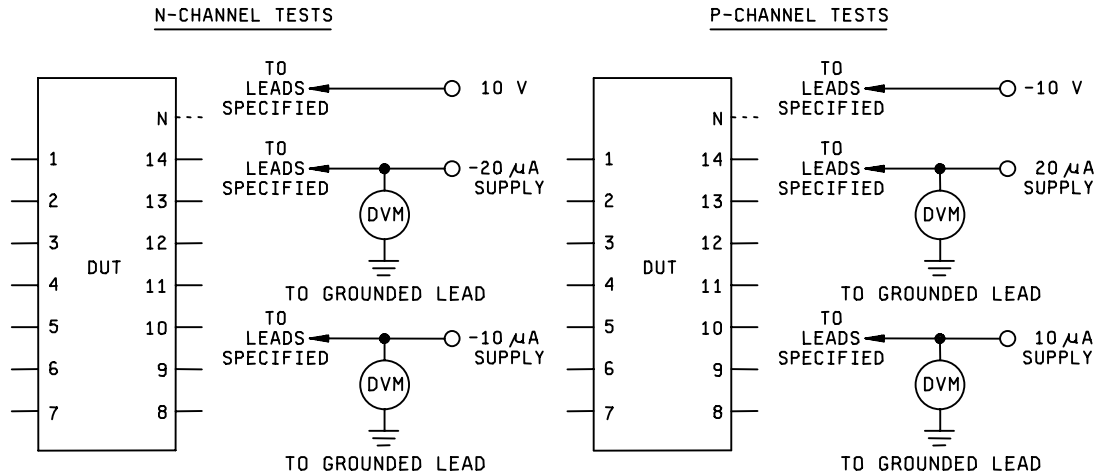
1/ Pins not designated are open, or tied to 10 V dc through a 30 k Ω to 60 k Ω resistor.

5. PACKAGING

5.1 Packaging. 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 Defense Agency, or within the military service's system commands. 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

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

FIGURE 17. Threshold-voltage test circuit.TABLE VII. Threshold-voltage test circuit conditions.

Device type	GND	10 V	V _{TN} measured at		GND	-10 V	V _{TP} measured at	
			-20 μA supply	-10 μA supply			20 μA supply	10 μA supply
01, 51	6	8, 14		7	6	7, 13		14
02, 52	9	14-16	1-8		9	1-8	14-16	
03, 53	8	14		1, 2, 5-7, 9, 12, 13	8	1, 2-5, 7, 9, 12, 13		14
04, 54	10	16	2-9, 11-15		10	2-9, 11-15	16	

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 quality 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 and radiation hardness 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 contractors parts lists.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, P.O. Box 3990, Columbus, Ohio 43218-3990.

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

C_I	Input terminal-to-GND capacitance.
GND	Ground zero voltage potential.
I_{OC}	Three-state output leakage current.
I_{SS}	Quiescent supply current.
T_A	Free air temperature.
V_{DD}	Positive supply voltage.
V_{SS}	Negative supply voltage.

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 S for National Aeronautics and Space Administration or class B for Department of Defense (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 Data reporting. When specified in the purchase order or contract, a copy of the following data, as applicable, will be supplied.

- a. Attributes data for all screening tests (see 4.2) and variables data for all static burn-in, dynamic burn-in, and steady-state life tests (see 3.6).
- b. A copy of each radiograph.
- c. The technology conformance inspection (TCI) data (see 4.4).
- d. Parameter distribution data on parameters evaluated during burn-in (see 3.6).
- e. Final electrical parameters data (see 4.2d).
- f. RHA delta limits.

6.8 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, post irradiation performance 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	4007A
02	4019A
03	4030A
04	4048A
51	4007UB
52	4019B
53	4030B
54	4048B

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.

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

Preparing activity:
 DLA - CC
 (Project 5962-2065)

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 ASSIST Online database at <http://assist.daps.dla.mil>.