



DEFENSE LOGISTICS AGENCY
DEFENSE SUPPLY CENTER, COLUMBUS
POST OFFICE BOX 3990
COLUMBUS, OH 43218-3990

IN REPLY
REFER TO

DSCC-VAC

13-August-04

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Draft of MIL-M-38510/53 revision F; Project Number 5962-2065

The initial draft for this subject document, dated 13-August-04, is now available for viewing and downloading from the DSCC-VA Web site:

<http://www.dsccl.dla.mil/Programs/MilSpec/DocSearch.asp>

The changes to this document are to update the document to the latest requirements of MIL-PRF-38535 and to reactivate the specification and update the boilerplate to the latest MIL-STD-961 revision E requirements.

Concurrence or comments are required at this Center within 45 days from the date of this letter. Late comments will be held for the next coordination of the document. Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians of this office, as applicable, in sufficient time to allow for consolidating the department reply.

The point of contact for this document is Mr. Joe Kerby, Defense Supply Center Columbus, DSCC-VAC, Post Office Box 3990, Columbus, OH 43218-3990. Mr. Kerby can also be reached at 614-692-0544/850-0544, or by facsimile 614-692-6939/850-6939, or by e-mail to: joseph.kerby@dla.mil.

/ signed /

Thomas M. Hess
Chief
Active Devices Team

cc:
VSC
VQC

NOTE: This draft, dated 13 Aug, 2004, prepared by the Defense Supply Center Columbus (DSCC-VAC) has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. (Project 5962-2065)

INCH-POUND

MIL-M-38510/53F
DRAFT

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 xx xxxx. 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:

<u>Device type</u>	<u>Circuit</u>
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:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
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-T16	16	Flat pack
T	CDFP3-F14	14	Flat pack
X <u>1/</u> <u>2/</u>	GDFP5-F14 or CDFP6-F14	14	Flat pack, except A dimension equals 0.100" (2.54 mm) max
Y <u>1/</u> <u>2/</u>	GDFP1-F14 or CDFP2-F14	14	Flat pack, except A dimension equals 0.100" (2.54 mm) max
Z <u>1/</u> <u>2/</u>	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 www.dodssp.daps.mil.

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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 @ $V_{DD} = 5.0 \text{ V dc}$ 0.0 V to 2.1 V dc @ $V_{DD} = 12.5 \text{ V dc}$
Device type 51	$V_{OL} = 10\% V_{DD}, V_{OH} = 90\% V_{DD}$ 0.0 V to 1.0 V dc @ $V_{DD} = 5.0 \text{ V dc}$ 0.0 V to 2.0 V dc @ $V_{DD} = 10.0 \text{ V dc}$ 0.0 V to 3.0 V dc @ $V_{DD} = 15.0 \text{ V dc}$
Device types 52, 53, and 54.....	0.0 V to 1.5 V dc @ $V_{DD} = 5.0 \text{ V dc}$ 0.0 V to 2.0 V dc @ $V_{DD} = 10.0 \text{ V dc}$ 0.0 V to 4.0 V dc @ $V_{DD} = 15.0 \text{ V dc}$
Input high voltage range (V_{IH}):	
Device types 01, 02, 03, 04.....	3.95 V to 5.0 V dc @ $V_{DD} = 5.0 \text{ V dc}$ 10.0 V to 12.5 V dc @ $V_{DD} = 12.5 \text{ V dc}$
Device type 51	$V_{OL} = 10\% V_{DD}, V_{OH} = 90\% V_{DD}$ 4.0 V to 5.0 V dc @ $V_{DD} = 5.0 \text{ V dc}$ 8.0 V to 10.0 V dc @ $V_{DD} = 10.0 \text{ V dc}$ 12 V to 15.0 V dc @ $V_{DD} = 15.0 \text{ V dc}$
Device types 52, 53, and 54.....	3.5 V to 5.0 V dc @ $V_{DD} = 5.0 \text{ V dc}$ 8.0 V to 10.0 V dc @ $V_{DD} = 10.0 \text{ V dc}$ 11.0 V to 15.0 V dc @ $V_{DD} = 15.0 \text{ V dc}$
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 are $\geq V_{SS}$ 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 www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this 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°C ±10°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).

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TABLE I. Electrical performance characteristics.

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

See footnotes at end of table.

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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	
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 ^{2/} current, high	I_{IH}	Measure inputs sequentially	$V_{DD} = 15\text{ V}$	01, 02	100	nA	
				03, 04	45		
			$V_{DD} = 18\text{ V}$	51, 54	45		
				52, 53	100		
Input leakage ^{2/} current, low	I_{IL}	Measure inputs sequentially	$V_{DD} = 15\text{ V}$	01, 02	-100	nA	
				03, 04	-45		
			$V_{DD} = 18\text{ V}$	51, 54	-45		
				52, 53	-100		
Three-state output leakage current	I_{OC1}	Measure inputs sequentially $V_O = V_{DD}$	$V_{DD} = 15\text{ V dc}$	04	90	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	-90	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 V -55°C ≤ T _C ≤ +125°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 V dc, C _L = 50 pF R _L = 200 kΩ (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 V dc, C _L = 50 pF R _L = 200 kΩ (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 V dc, C _L = 50 pF R _L = 1.0 kΩ (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 V dc, C _L = 50 pF R _L = 1.0 kΩ (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.

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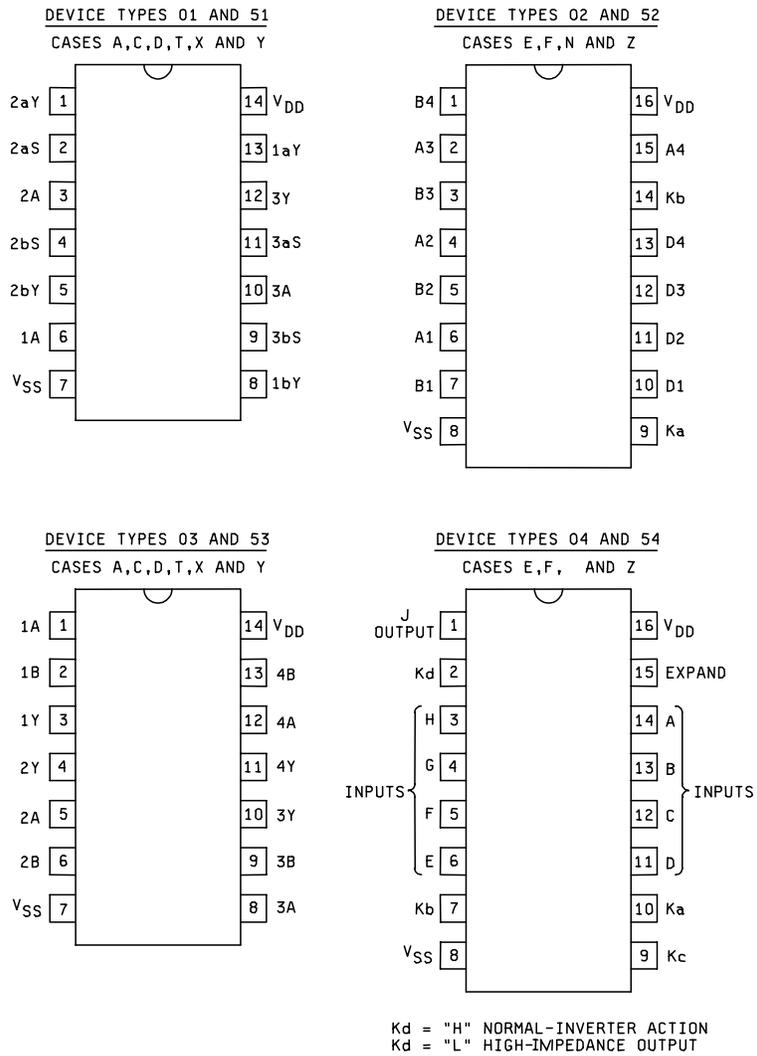


FIGURE 1. Terminal connections.

Device types 01 and 51

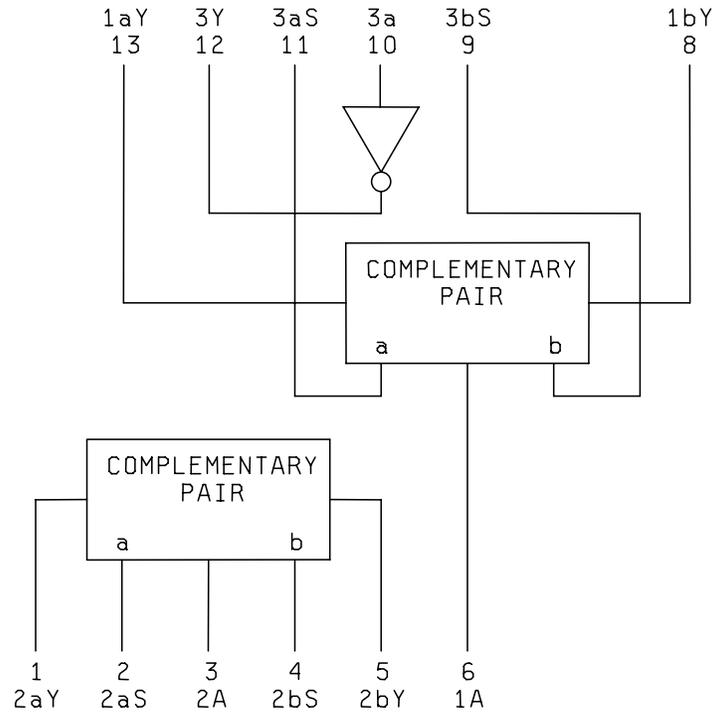
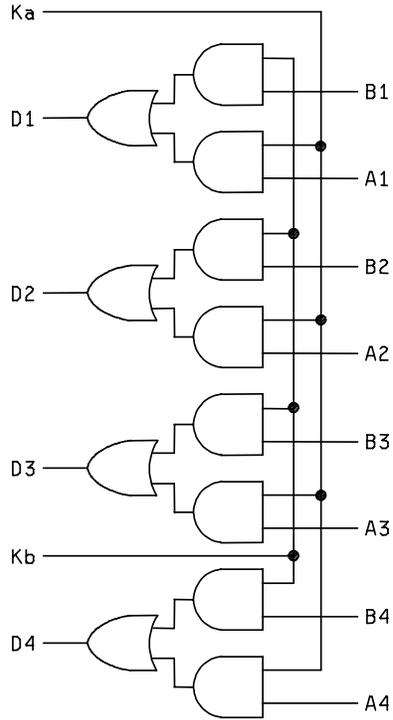


FIGURE 2. Logic diagrams.

DEVICE TYPES 02 AND 52



DEVICE TYPES 03 AND 53

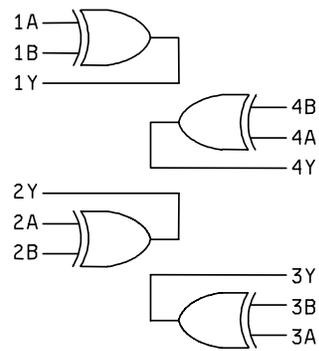


FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 04 AND 54

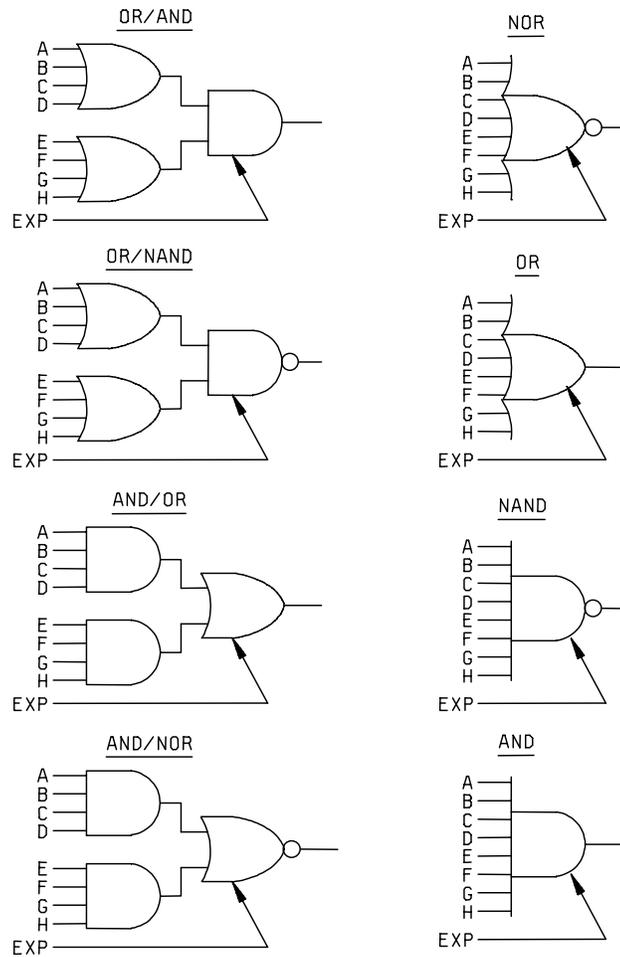


FIGURE 2. Logic diagrams – Continued.

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

Device types 04 and 54

Function truth table

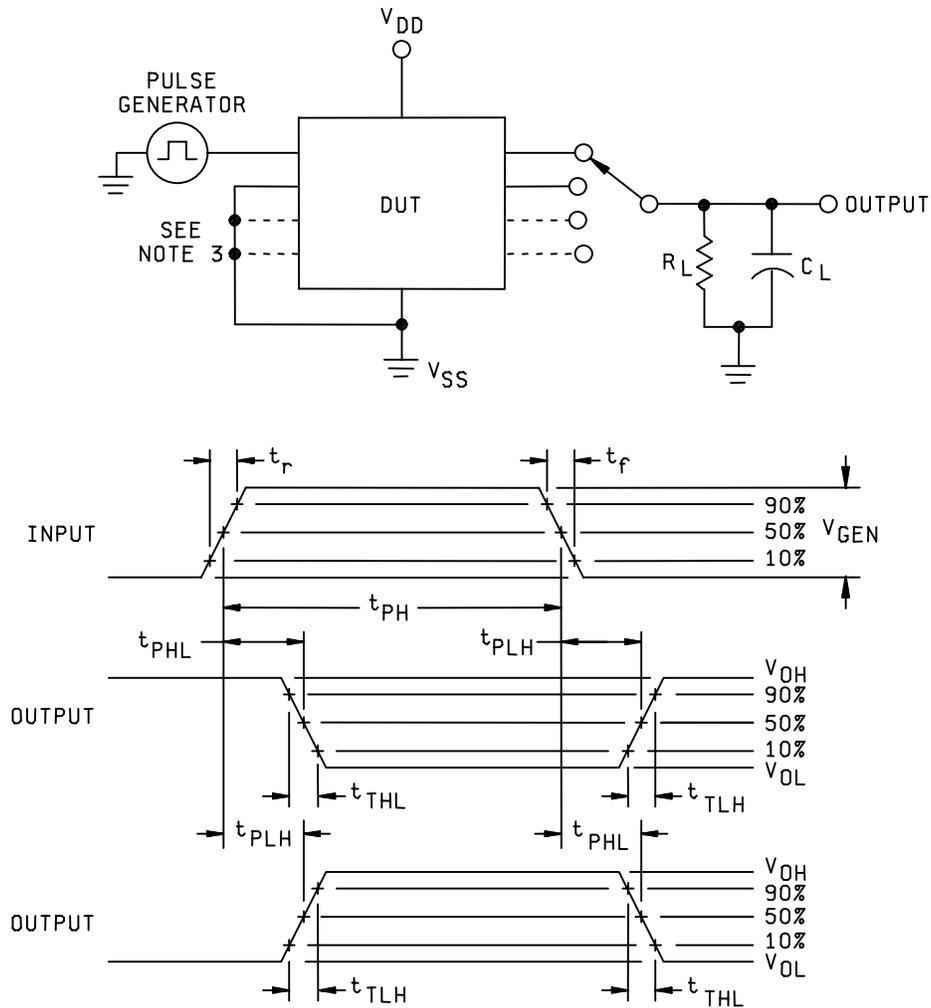
Output function	Boolean expression	Ka	Kb	Kc	Unused input
NOR	$J = \overline{A+B+C+D+E+F+G+H}$	0	0	0	V_{SS}
OR	$J = A+B+C+D+E+F+G+H$	0	0	1	V_{SS}
OR/AND	$J = (A+B+C+D) \cdot (E+F+G+H)$	0	1	0	V_{SS}
OR/NAND	$J = \overline{(A+B+C+D) \cdot (E+F+G+H)}$	0	1	1	V_{SS}
AND	$J = ABCDEFGH$	1	0	0	V_{DD}
NAND	$J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

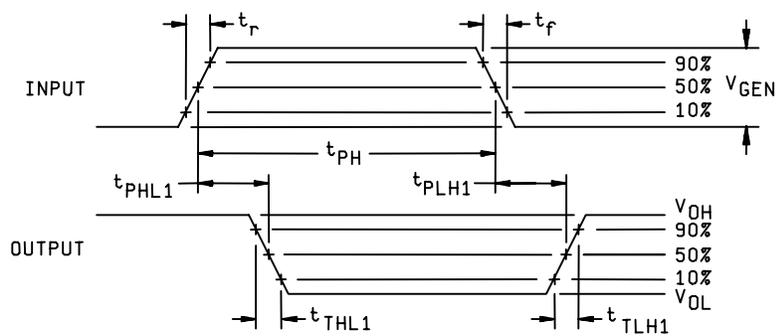
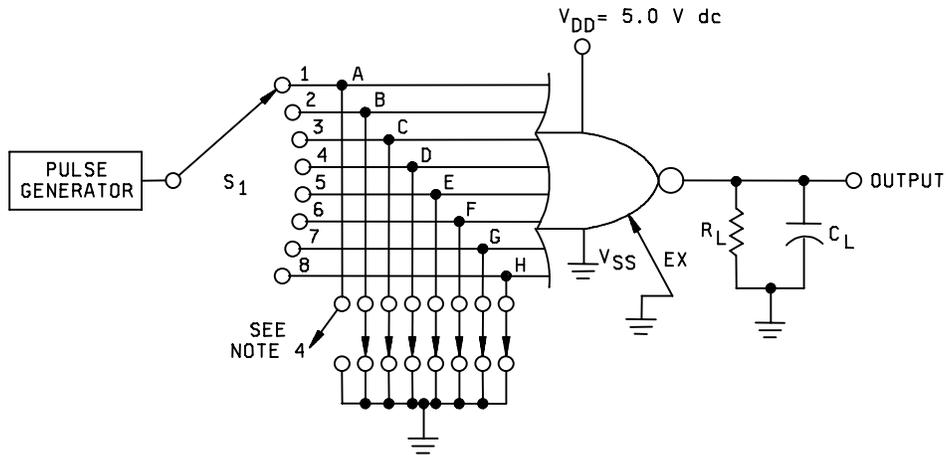
FIGURE 3. Truth tables and logic equations.



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.

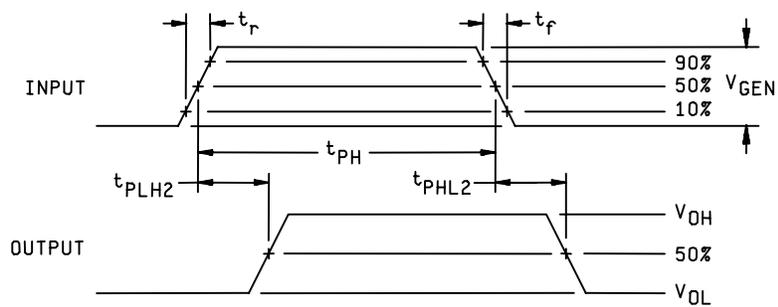
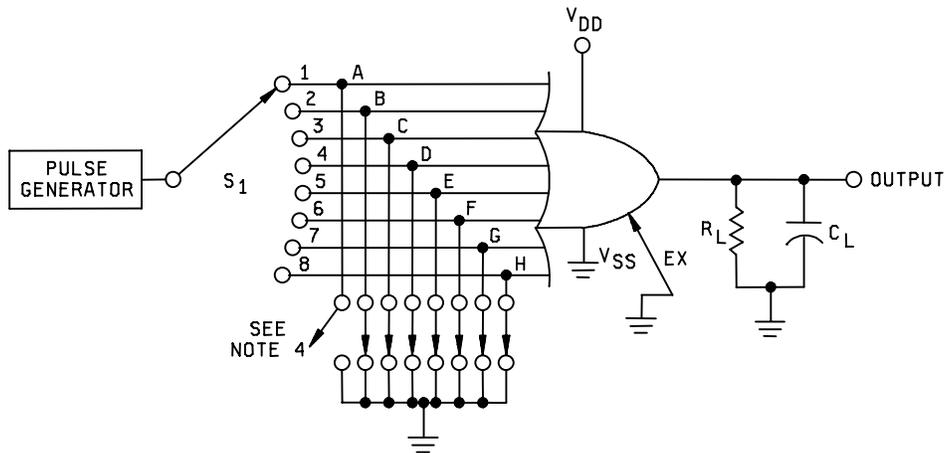
FIGURE 4. Switching time test circuit and waveforms for device types 01, 02, 03, 51, 52, and 53.



NOTES:

1. Pulse generator has the following characteristics: $V_{GEN} = V_{DD} \pm 1\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, 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.

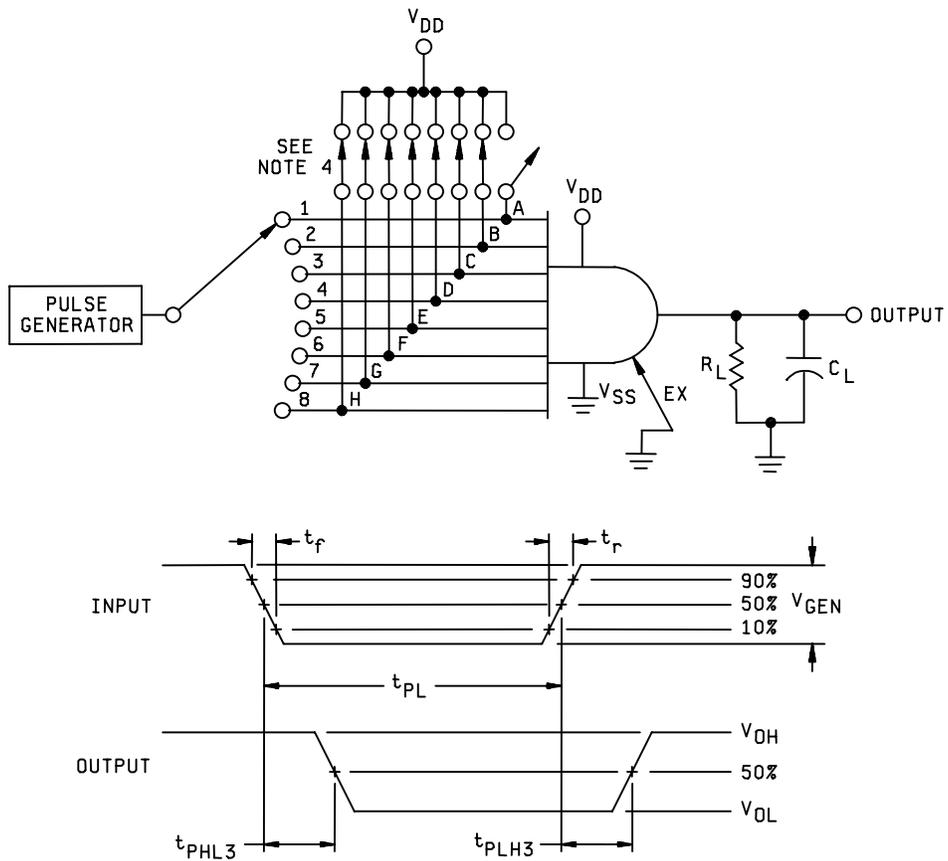
FIGURE 5. Switching time test circuit and waveforms for device types 04 and 54 (NOR gate).



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 $t_f \leq 10 \text{ ns}$.
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.

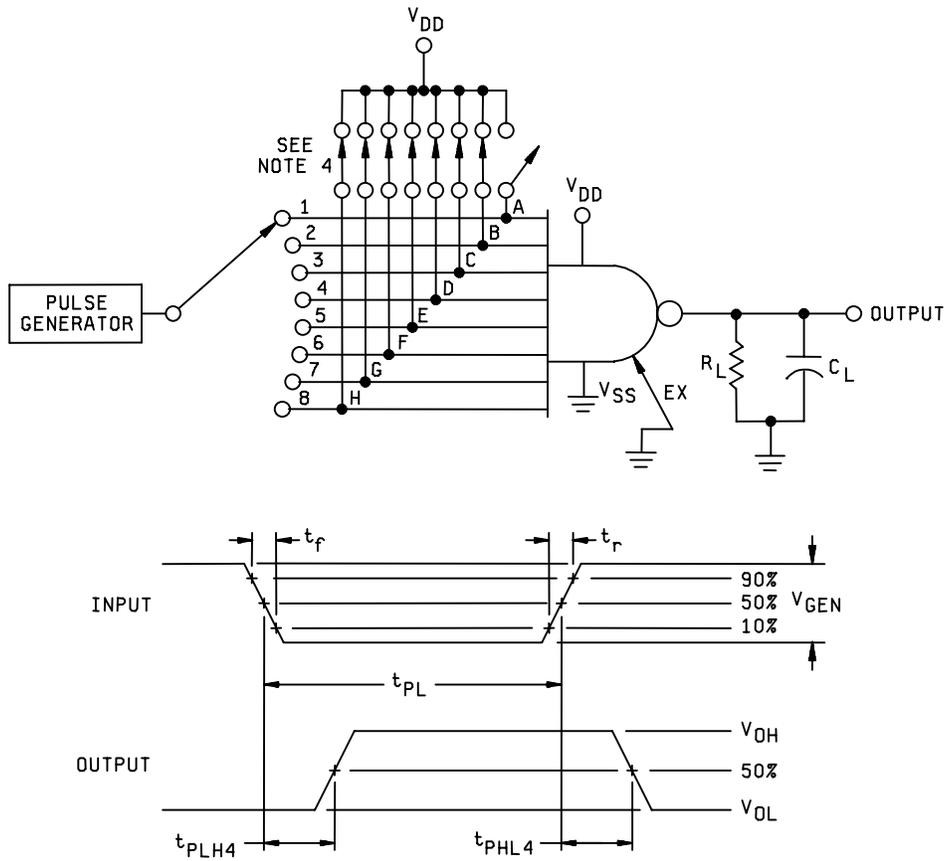
FIGURE 6. Switching time test circuit and waveforms for device types 04 and 54 (OR gate).



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 $t_f \leq 10 \text{ ns}$.
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_{DD} except for input connected to the pulse generator.

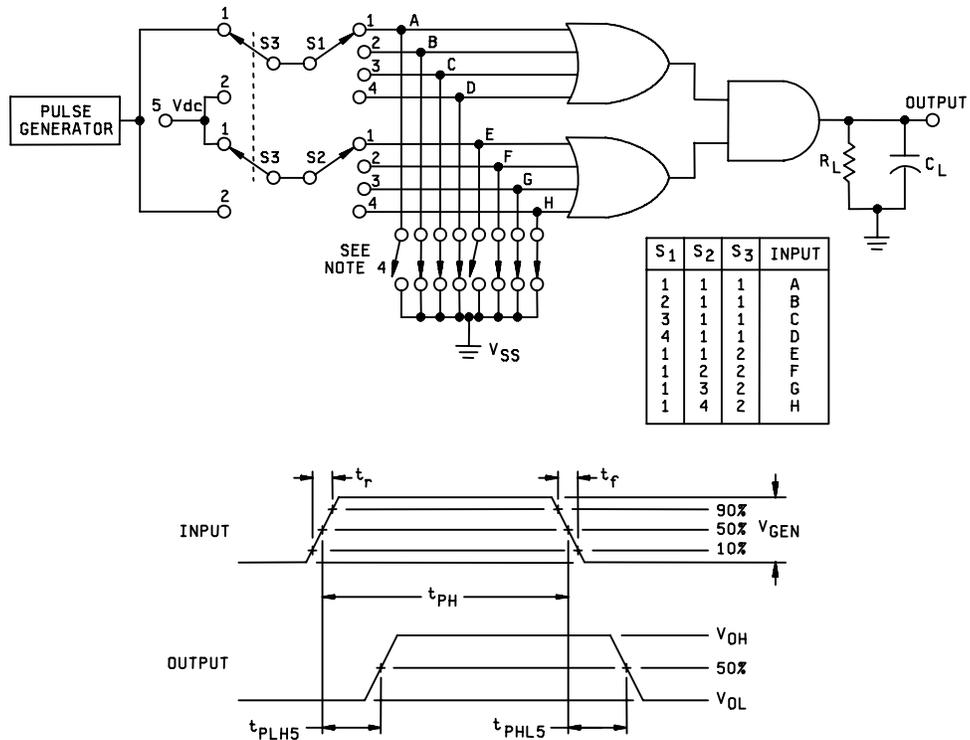
FIGURE 7. Switching time test circuit and waveforms for device types 04 and 54 (AND gate).



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 $t_f \leq 10 \text{ ns}$.
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_{DD} except for input connected to the pulse generator.

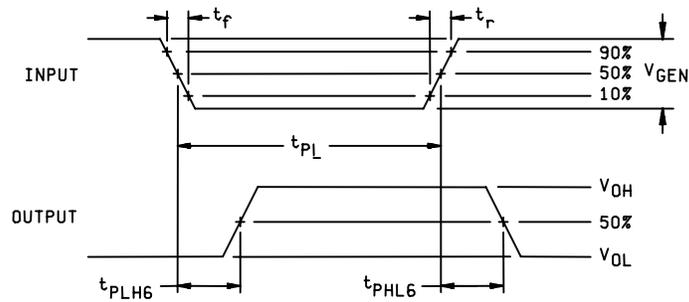
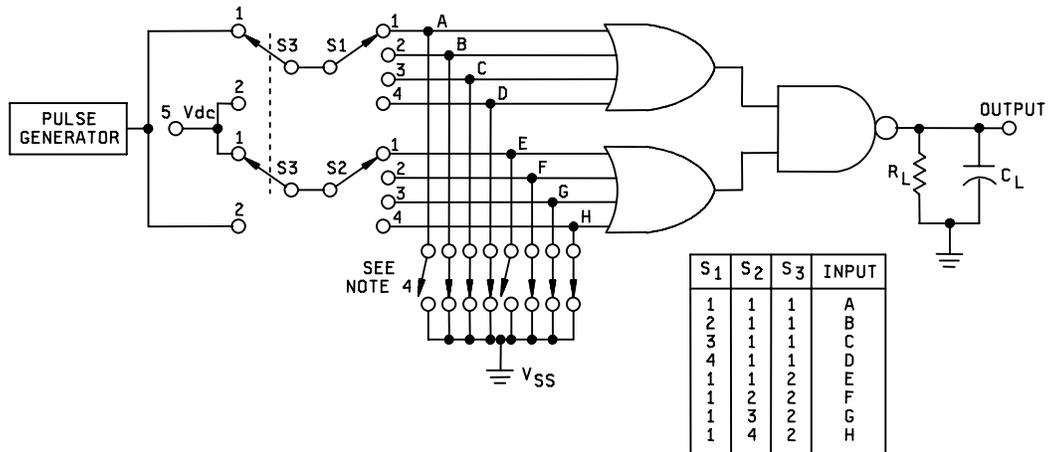
FIGURE 8. Switching time test circuit and waveforms for device types 04 and 54 (NAND gate).



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.

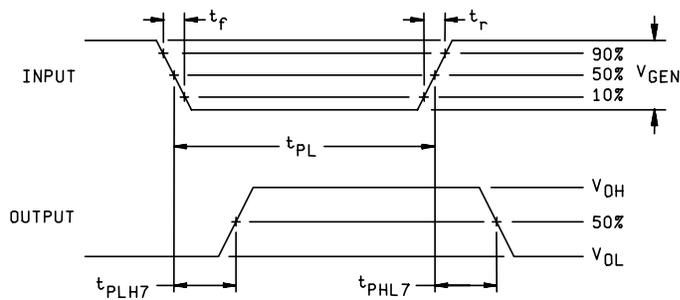
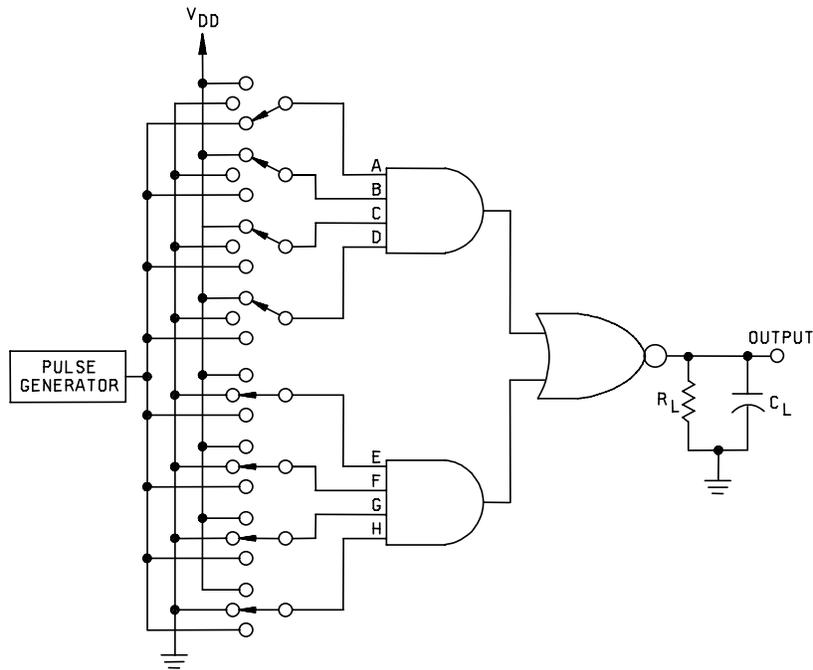
FIGURE 9. Switching time test circuit and waveforms for device types 04 and 54 (OR/AND gate).



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.

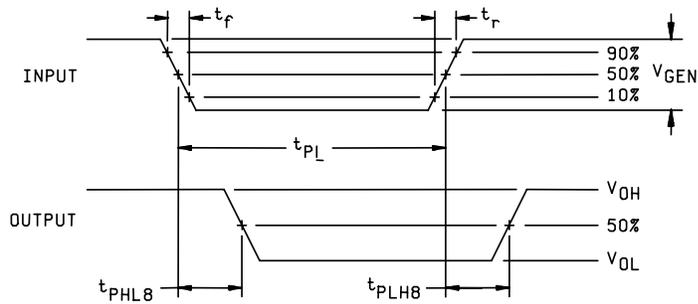
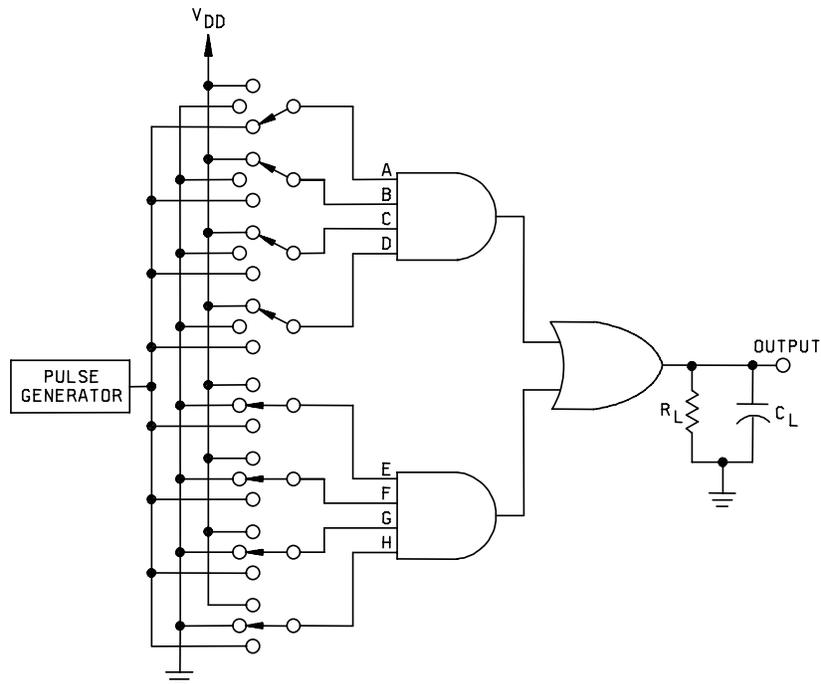
FIGURE 10. Switching time test circuit and waveforms for device types 04 and 54 (OR/NAND gate).



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.

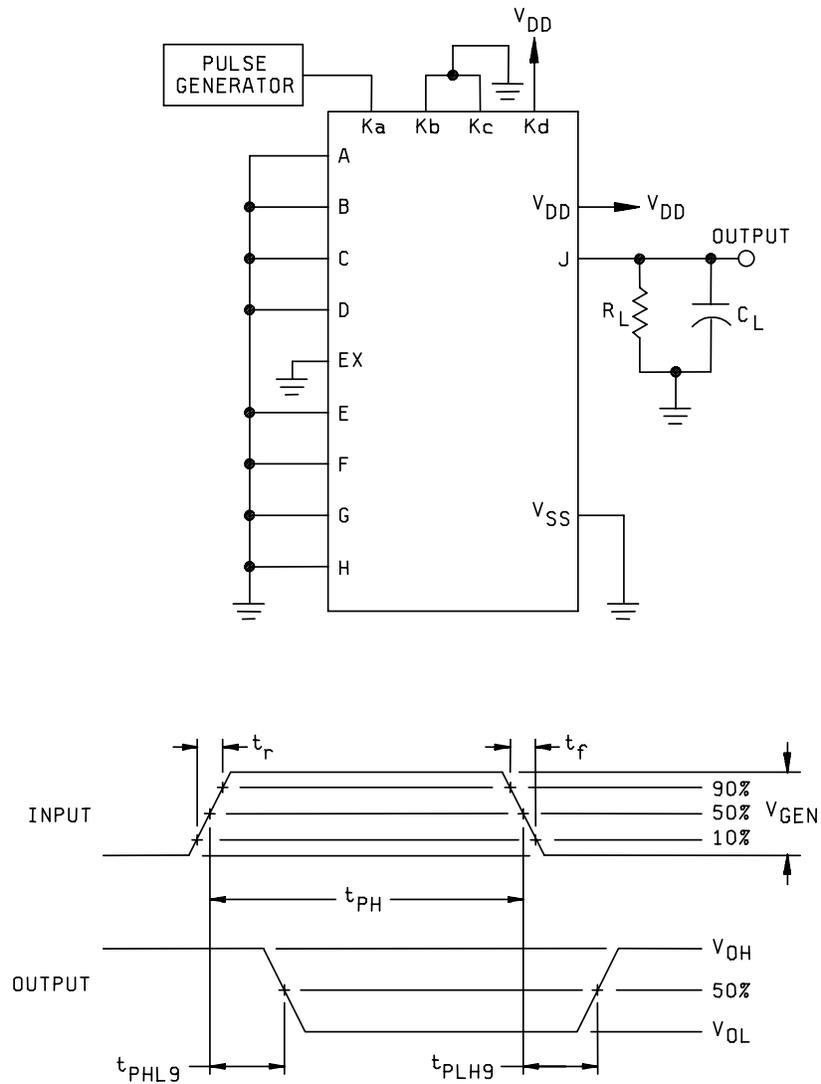
FIGURE 11. Switching time test circuit and waveforms for device types 04 and 54 (AND/NOR gate).



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.

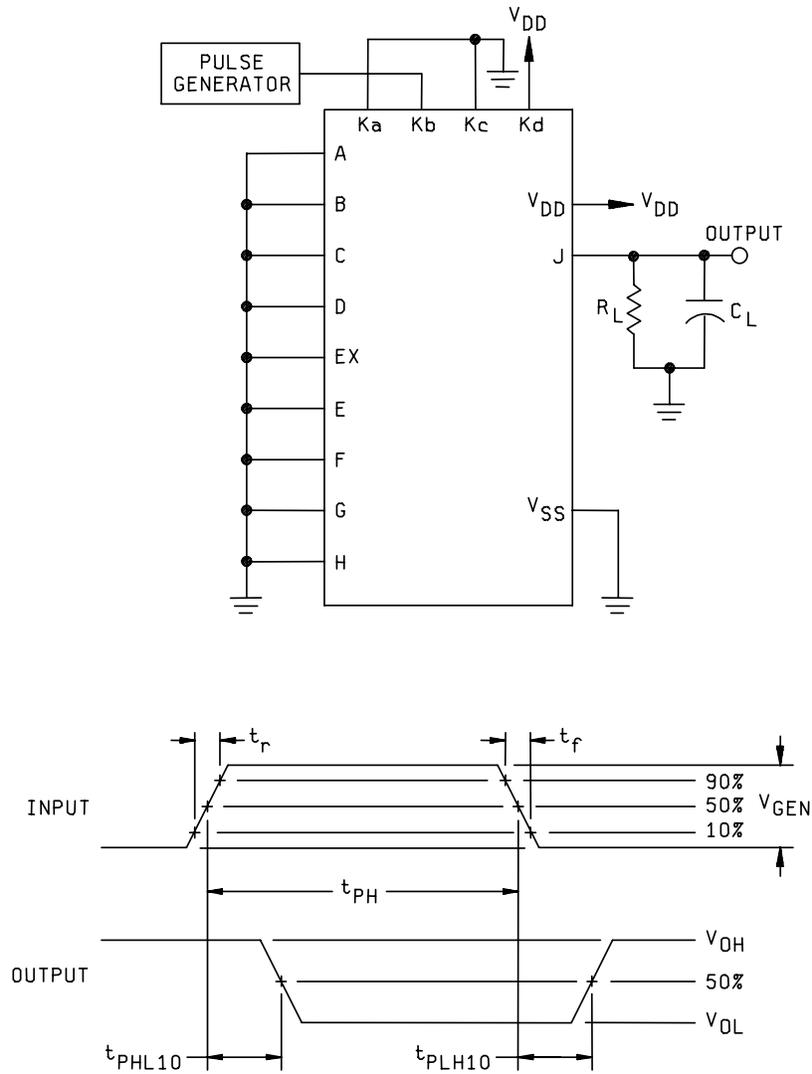
FIGURE 12. Switching time test circuit and waveforms for device types 04 and 54 (AND/OR gate).



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.

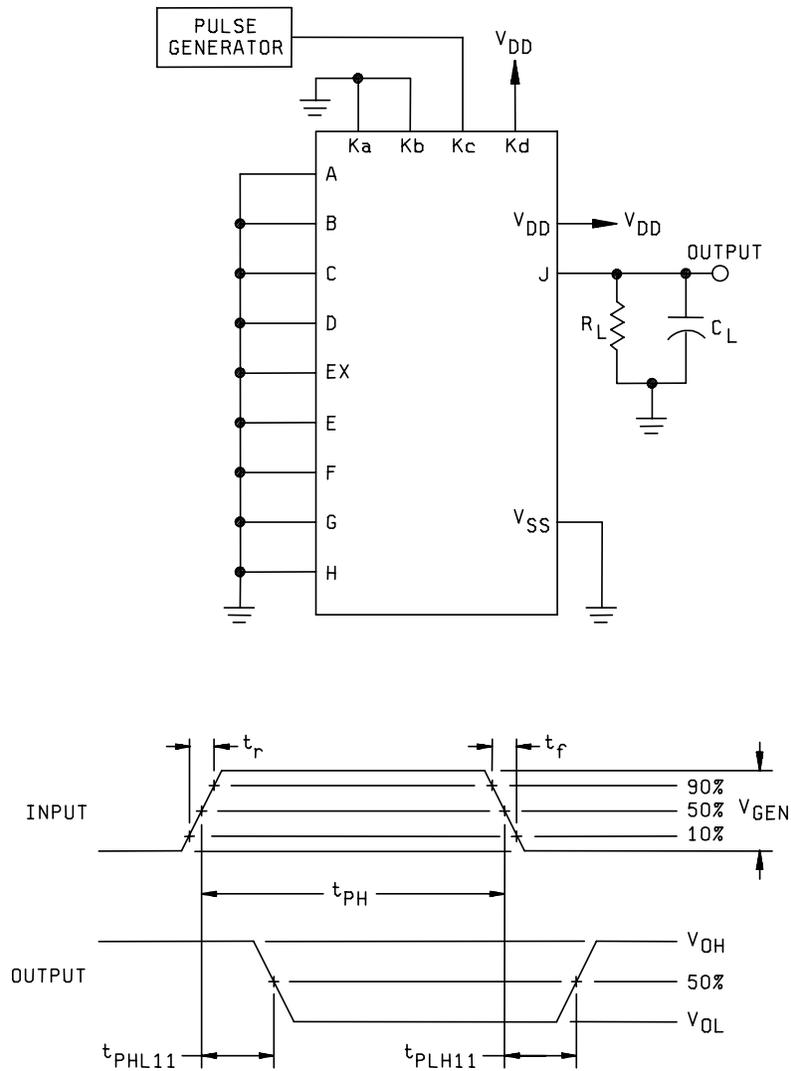
FIGURE 13. Switching time test circuit and waveforms for device types 04 and 54 (Ka to output).



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.

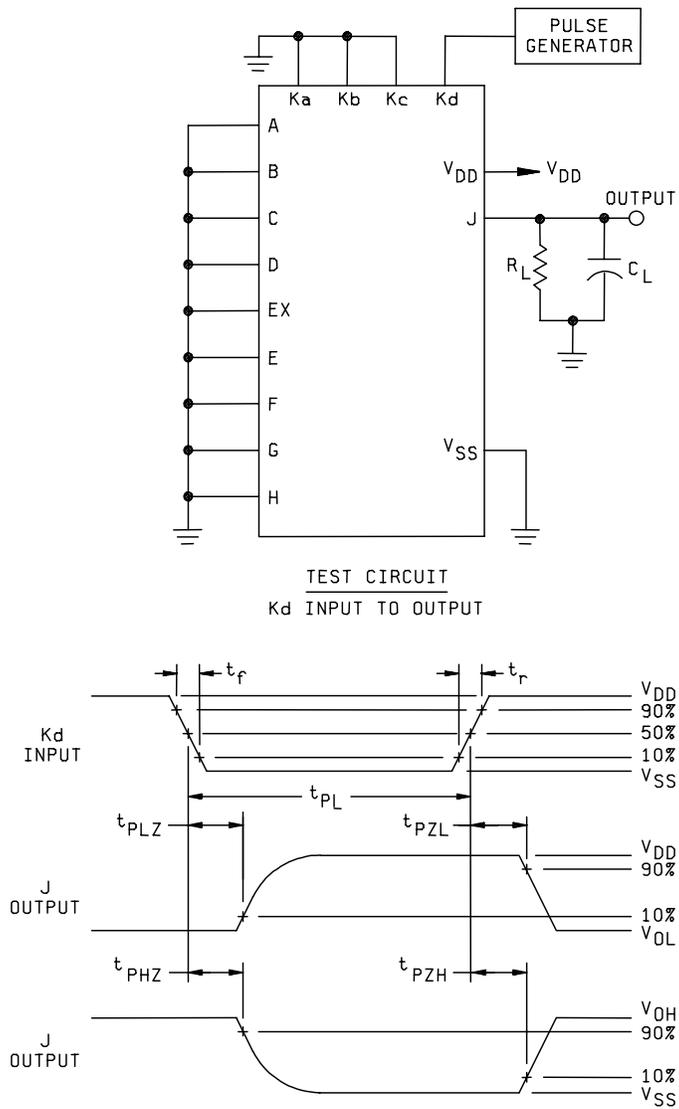
FIGURE 14. Switching time test circuit and waveforms for device types 04 and 54 (Kb to output).



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 $t_f \leq 10 \text{ ns}$.
2. $R_L = 1.0 \text{ k}\Omega \pm 5\%$ and $C_L = 50 \text{ pF} \pm 5\%$ including wiring and probe capacitance.
3. See table III for complete terminal conditions.
4. $R_L = 1.0 \text{ k}\Omega \pm 5\%$ 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} .

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- 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						(13) 2/		
		2	"	"	1 mA					"		
		3	"	"						"		1 mA
V _{IC(NEG)}		4	"			GND				"	GND	
		5	"		-1 mA	"				"	"	
		6	"			"				"	"	-1 mA
I _{SS}	3005	7	"	15.0V	GND	"	"			"	"	GND
		8	"	15.0V	15.0V	"	"			"	"	15.0V
V _{OH1}	3006	9	" 3/	4.5V	GND	"	"			V _{IL1}	"	"
		10	" I _{OH1}	"	V _{IL1}	"	"			GND	"	"
		11	"	"	GND	"	"			GND	"	"
V _{OH2}		12	" 4/	5.0V	GND	"	"			V _{IL1}	"	"
		13	" I _{OH2}	"	V _{IL1}	"	"			GND	"	"
		14	"	"	GND	"	"			GND	"	"
V _{OH3}		15	"	"	GND	"	"			V _{IL1}	"	"
		16	"	"	V _{IL1} 5/	"	"			GND	"	"
		17	"	"	GND	"	"			GND	"	"
V _{OH4}		18	"	12.5V	GND	"	"			V _{IL2}	"	"
		19	"	"	V _{IL2} 5/	"	"			GND	"	"
		20	"	"	GND	"	"			GND	"	"
V _{OL1}	3007	21	" 7/	5.5V	GND	"	"			V _{IH1}	"	"
		22	" I _{OL1}	"	V _{IH1} 8/	"	"			GND	"	"
		23	"	"	GND	"	"			GND	"	"
V _{OL2}		24	" 9/	5.0V	GND	"	"			V _{IH1}	"	"
		25	" I _{OL2}	"	V _{IH1}	"	"			GND	"	"
		26	"	"	GND	"	"			GND	"	"
V _{OL3}		27	"	"	GND	"	"			V _{IH1}	"	"
		28	"	"	V _{IH1}	"	"			GND	"	"
		29	"	"	GND	"	"			GND	"	"
V _{OL4}		30	"	12.5V	GND	"	"			V _{IH2}	"	"
		31	"	"	V _{IH2} 10/	"	"			GND	"	"
		32	"	"	GND	"	"			GND	"	"
I _{IH1} 11/	3010	33	"	15.0V	15.0V	"	"			15.0V	"	"
		34	"	"	GND	"	"			15.0V	"	"
		35	"	"	15.0V	"	"			GND	"	"
I _{IH2}		36	"	"	GND	"	"			"	"	15.0V
		37	"	"	GND	"	"			"	"	GND
		38	"	"	15.0V	"	"			"	"	15.0V
I _{IL1} 11/	3009	39	"	"	GND	"	"			15.0V	"	"
		40	"	"	15.0V	"	"			"	"	15.0V
		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		Subgroup 2		Subgroup 3		
								T _A = 25°C		T _A = 125°C		T _A = -55°C		
								Min	Max	Min	Max	Min	Max	
V _{IC(POS)}		1	GND		(8) 2/	GND	1A		1.5					V
V _{IC(NEG)}		2	"		"	"	2A		"					"
		3	"		"	"	3A		"					"
		4			"		1A		-6					"
I _{SS}	3005	5			"		2A		"					"
		6			"		3A		"					"
		7	15.0V		"	15.0V	V _{SS}		-50		-500			nA
V _{OH1}	3006	8	15.0V		"	15.0V	V _{SS}		-50		-500			nA
		9	4.5V		" I _{OH1}	4.5V	1aY	2.5		2.5		2.5		V
V _{OH2}	3006	10	"		"	"	2aY	"		"		"		"
		11	"	I _{OH1}	"	"	3Y	"		"		"		"
		12	5.0V		" I _{OH2}	5.0V	1aY	4.5		4.5		4.5		"
V _{OH3}	3006	13	"		"	"	2aY	"		"		"		"
		14	"	I _{OH2}	"	"	3Y	"		"		"		"
		15	"		"	"	1aY	4.95		4.95		4.95		"
V _{OH4}	3006	16	"		"	"	2aY	"		"		"		"
		17	"		"	"	3Y	"		"		"		"
		18	12.5V		"	12.5V	1aY	11.25		11.25		11.25		"
V _{OL1}	3007	19	"		"	"	2aY	"		"		"		"
		20	"		"	"	3Y	"		"		"		"
		21	5.5V		" I _{OL1}	5.5V	1aY		0.4		0.5		0.4	"
V _{OL2}	3007	22	"		"	"	2aY	"		"		"		"
		23	"	I _{OL1}	"	"	3Y	"		"		"		"
		24	5.0V		" I _{OL2}	5.0V	1aY		0.5		"		0.5	"
V _{OL3}	3007	25	"		"	"	2aY	"		"		"		"
		26	"	I _{OL2}	"	"	3Y	"		"		"		"
		27	"		"	"	1aY		50		50		50	mV dc
V _{OL4}	3007	28	"		"	"	2aY	"		"		"		"
		29	"		"	"	3Y	"		"		"		"
		30	12.5V		"	12.5V	1aY		1.25		1.25		1.25	V
I _{IH1 11/}	3010	31	"		"	"	2aY	"		"		"		"
		32	"		"	"	3Y	"		"		"		"
		33	15.0V		"	15.0V	All inputs together		300.0					nA
I _{IH2}	3010	34	"		"	"	1A		100.0		100.0			"
		35	"		"	"	2A		"		"		"	
		36	"		"	"	3A		"		"		"	
I _{IL1 11/}	3009	37	"		"	All inputs together		-300.0					"	
I _{IL2}	3009	38	"		"	"	1A		-100.0		-100.0			"
		39	"		"	"	2A		"		"		"	
		40	"		"	"	3A		"		"		"	

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/									
		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>12/</u>	GND		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	"	"	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 Symbol	Terminal conditions 1/				Measured terminal	Test limits						Unit		
			3aS	3Y	1aY	V _{DD}		Subgroup 4 T _A = 25°C								
								Test no.	11							
C _i	3012	41	GND			GND	1A		12					pF		
		42	"			"	2A		"				"			
		43	"			"	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	5.0V		(8)	5.0V	1A to 1aY	6	170	9	255	6	170	ns		
		45	"		"	"	2A to 2aY	"	"	"	"	"	"	"		
		46	"		"	"	3A to 3Y	"	"	"	"	"	"	"		
t _{PLH}		47	"		"	"	1A to 1aY	"	110	"	165	"	110	"		
		48	"		"	"	2A to 2aY	"	"	"	"	"	"	"		
		49	"		"	"	3A to 3Y	"	"	"	"	"	"	"		
t _{THL}	3004 (Fig. 4)	50	"		"	"	1aY	"	240	"	360	"	240	"		
		51	"		"	"	2aY	"	"	"	"	"	"	"		
		52	"		"	"	3Y	"	"	"	"	"	"	"		
t _{TLH}		53	"		"	"	1aY	"	160	"	240	"	160	"		
		54	"		"	"	2aY	"	"	"	"	"	"	"		
		55	"		"	"	3Y	"	"	"	"	"	"	"		

TABLE III. Group A inspection for device type 02.

Symbol	MIL-STD-883 method	Cases E,F,N,Z Symbol Test no.	Terminal conditions <u>1/</u>																				
			B4	A3	B3	A2	B2	A1	B1	V _{SS}	Ka	D1											
			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	GND	15.0V											
		22	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND										
		23	15.0V	15.0V	15.0V	15.0V	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	15.0V	15.0V	15.0V	15.0V										
V _{OH1}	3006	25	V _{IH1} 2/ GND	GND	GND	GND	GND	GND	GND	GND	GND	GND											
		26	"	V _{IH1}	GND	"	"	"	"	"	"	"											
		27	"	"	GND	"	"	"	"	"	"	"											
		28	"	"	"	"	"	"	"	"	"	"											
		29	"	"	"	"	"	"	"	"	"	"											
		30	"	"	"	"	"	"	"	"	"	"											
		31	"	"	"	"	"	"	"	"	"	"											
		32	"	"	"	"	"	"	"	"	"	"											
V _{OH2}	3006	33	V _{IH1} 2/ GND	"	"	"	"	"	"	"	"												
		34	"	V _{IH1}	"	"	"	"	"	"	"	"											
		35	"	GND	"	"	"	"	"	"	"	"											
		36	"	"	"	"	"	"	"	"	"	"											
		37	"	"	"	"	"	"	"	"	"	"											
		38	"	"	"	"	"	"	"	"	"	"											
		39	"	"	"	"	"	"	"	"	"	"											
		40	"	"	"	"	"	"	"	"	"	"											
V _{OH3}	3006	41	V _{IH1} 2/ GND	"	"	"	"	"	"	"	"												
		42	"	V _{IH1}	"	"	"	"	"	"	"	"											
		43	"	GND	"	"	"	"	"	"	"	"											
		44	"	"	"	"	"	"	"	"	"	"											
		45	"	"	"	"	"	"	"	"	"	"											
		46	"	"	"	"	"	"	"	"	"	"											
		47	"	"	"	"	"	"	"	"	"	"											
		48	"	"	"	"	"	"	"	"	"	"											
V _{OH4} 5/	3006	49	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	V _{IH2} 5/	GND	V _{IH2} 5/											
		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 Symbol	Terminal conditions 1/						Measured terminal	Test limits						Unit		
			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				
			11	12	13	14	15	16		Min	Max	Min	Max	Min	Max			
			Test no.															
V _{IC(POS)}		1							GND	B1		1.5					V	
		2							"	A1		"					"	
		3							"	B2		"					"	
		4							"	A2		"					"	
		5							"	B3		"					"	
		6							"	A3		"					"	
		7							"	B4		"					"	
		8							1 mA	A4		"					"	
		9							"	Ka		"					"	
		10							1 mA	Kb		"					"	
V _{IC(NEG)}		11								B1		-6.0					"	
		12								A1		"					"	
		13								B2		"					"	
		14								A2		"					"	
		15								B3		"					"	
		16								A3		"					"	
		17								B4		"					"	
		18							-1 mA	A4		"					"	
		19							"	Ka		"					"	
		20							-1 mA	Kb		"					"	
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		2.5		2.5		V	
		26					"	"	"	D3	"		"		"		"	
		27						"	"	"	D3	"		"		"		"
		28	I _{OH1}	I _{OH1}	I _{OH1}		"	"	"	"	D2	"		"		"		"
		29	I _{OH1}	I _{OH1}	I _{OH1}		"	"	"	"	D2	"		"		"		"
		30	I _{OH1}	I _{OH1}	I _{OH1}		"	"	"	"	D1	"		"		"		"
		31	I _{OH1}	I _{OH1}	I _{OH1}		"	"	"	"	D1	"		"		"		"
		32	I _{OH1}	I _{OH1}	I _{OH1}	I _{OH1}		V _{IH1}	"	"	D4	"		"		"		"
V _{OH2}	3006	33					5.0V	GND	5.0V	D4	4.5		4.5		4.5		"	
		34					"	"	"	D3	"		"		"		"	
		35					"	"	"	D3	"		"		"		"	
		36	I _{OH2}	I _{OH2}	I _{OH2}		"	"	"	"	D2	"		"		"		"
		37	I _{OH2}	I _{OH2}	I _{OH2}		"	"	"	"	D2	"		"		"		"
		38	I _{OH2}	I _{OH2}	I _{OH2}		"	"	"	"	D1	"		"		"		"
		39	I _{OH2}	I _{OH2}	I _{OH2}		"	"	"	"	D1	"		"		"		"
		40	I _{OH2}	I _{OH2}	I _{OH2}	I _{OH2}		V _{IH1}	"	"	D4	"		"		"		"
V _{OH3}	3006	41					"	GND	"	D4	4.95		4.95		4.95		"	
		42					"	"	"	D3	"		"		"		"	
		43					"	"	"	D3	"		"		"		"	
		44					"	"	"	D2	"		"		"		"	
		45					"	"	"	D2	"		"		"		"	
		46					"	"	"	D1	"		"		"		"	
		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					"	"	"	D4	"		"		"		"	
		54					"	V _{IH2} 5/	"	"	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	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}	V _{IL1}	"	5.5V	
		62	"	"	"	"	"	"	"	"	"	"	
		63	"	"	"	"	"	"	"	"	"	"	
		64	"	"	"	"	"	"	"	"	"	"	
V _{OL2}	3007	65	5.0V	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}	V _{IL1}	"	5.0V	
		70	"	"	"	"	"	"	"	"	"	"	
V _{OL3}	3007	71	"	"	"	"	"	"	"	"	"	"	I _{OL2}
		72	"	"	"	"	"	"	"	"	"	"	
		73	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	V _{IL1}	
		74	"	"	"	"	"	"	"	"	"	"	
		75	"	"	"	"	"	"	"	"	"	"	
		76	"	"	"	"	"	"	"	"	"	"	
V _{OL4}	3007	77	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	"	5.0V	I _{OL2}
		78	"	"	"	"	"	"	"	"	"	"	
		79	"	"	"	"	"	"	"	"	"	"	
		80	"	"	"	"	"	"	"	"	"	"	
		81	12.5V	12.5V	12.5V	12.5V	12.5V	12.5V	12.5V	12.5V	"	V _{IL2} 9/	
		82	"	"	"	"	"	"	"	"	"	"	
I _{IH1} 10/ I _{IH2}	3010	83	"	"	"	"	"	"	"	"	"	"	I _{OL2}
		84	"	"	"	"	"	"	"	"	"	"	
		85	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	"	12.5V	
		86	"	"	"	"	"	"	"	"	"	"	
		87	"	"	"	"	"	"	"	"	"	"	
		88	"	"	"	"	"	"	"	"	"	"	
		89	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	15.0V	
		90	15.0V	GND	"	GND							
I _{IL1} 10/ I _{IL2}	3009	91	GND	15.0V	GND	GND	"	"	"	"	"	"	I _{OL2}
		92	"	GND	15.0V	"	"	"	"	"	"	"	
		93	"	"	GND	15.0V	GND	"	"	"	"	"	
		94	"	"	"	GND	15.0V	GND	"	"	"	"	
		95	"	"	"	"	GND	15.0V	GND	"	"	"	
		96	"	"	"	"	"	GND	15.0V	GND	"	"	
		97	"	"	"	"	"	"	GND	15.0V	"	15.0V	
		98	"	"	"	"	"	"	"	GND	"	GND	
		99	"	"	"	"	"	"	"	"	"	15.0V	
		100	"	"	"	"	"	"	"	"	"	"	
I _{IL1} 10/ I _{IL2}	3009	101	"	15.0V	"	15.0V	I _{OL2}						
		102	15.0V	GND	15.0V	"	"	"	"	"	"	"	
		103	"	15.0V	GND	"	"	"	"	"	"	"	
		104	"	"	15.0V	GND	"	"	"	"	"	"	
		105	"	"	"	15.0V	GND	"	"	"	"	"	
		106	"	"	"	"	GND	15.0V	GND	"	"	"	
		107	"	"	"	"	"	GND	15.0V	GND	"	"	
		108	"	"	"	"	"	"	GND	15.0V	"	GND	
		109	"	"	"	"	"	"	"	GND	"	15.0V	
		110	"	"	"	"	"	"	"	"	"	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 Symbol	Terminal conditions 1/						Measured terminal	Test limits						Unit
			D2	D3	D4	Kb	A4	V _{DD}		Subgroup 1		Subgroup 2		Subgroup 3		
										T _A = +25°C		T _A = +125°C		T _A = -55°C		
										Min	Max	Min	Max	Min	Max	
Test no.	11	12	13	14	15	16										
V _{OL1}	3007	57			I _{OL1} Z/	V _{IL1}	5.5V	5.5V	D4		0.4		0.5		0.4	V
		58				"	"	"	D3		"		"		"	"
		59	I _{OL1}	I _{OL1}		"	"	"	D2		"		"		"	"
		60				"	"	"	D1		"		"		"	"
		61			I _{OL1}	5.5V	V _{IL1}	"	D4		"		"		"	"
		62		I _{OL1}		"	"	"	D3		"		"		"	"
		63	I _{OL1}	I _{OL1}		"	"	"	D2		"		"		"	"
		64				"	"	"	D1		"		"		"	"
V _{OL2}	3007	65			I _{OL2} Z/	V _{IL1}	5.0V	5.0V	D4		0.5		"		0.5	"
		66				"	"	"	D3		"		"		"	"
		67	I _{OL2}	I _{OL2}		"	"	"	D2		"		"		"	"
		68				"	"	"	D1		"		"		"	"
		69			I _{OL2}	5.0V	V _{IL1}	"	D4		"		"		"	"
		70		I _{OL2}		"	"	"	D3		"		"		"	"
		71	I _{OL2}	I _{OL2}		"	"	"	D2		"		"		"	"
		72				"	"	"	D1		"		"		"	"
V _{OL3}	3007	73				V _{IL1}	5.0V	"	D4		50		50		50	mV dc
		74				"	"	"	D3		"		"		"	"
		75				"	"	"	D2		"		"		"	"
		76				"	"	"	D1		"		"		"	"
		77				5.0V	V _{IL1}	"	D4		"		"		"	"
		78				"	"	"	D3		"		"		"	"
		79				"	"	"	D2		"		"		"	"
		80				"	"	"	D1		"		"		"	"
V _{OL4}	3007	81				V _{IL2}	12.5V	12.5V	D4		1.25		1.25		1.25	V
		82				"	"	"	D3		"		"		"	"
		83				"	"	"	D2		"		"		"	"
		84				"	"	"	D1		"		"		"	"
		85				12.5V	V _{IL2}	"	D4		"		"		"	"
		86				"	"	"	D3		"		"		"	"
		87				"	"	"	D2		"		"		"	"
		88				"	"	"	D1		"		"		"	"
I _{IH1} 10/	3010	89				15.0V	15.0V	15.0V	All inputs together		1000.0					nA
I _{IH2}		90				GND	GND	"	B4		100.0		100.0			"
		91				"	"	"	A3		"		"		"	"
		92				"	"	"	B3		"		"		"	"
		93				"	"	"	A2		"		"		"	"
		94				"	"	"	B2		"		"		"	"
		95				"	"	"	A1		"		"		"	"
		96				"	"	"	B1		"		"		"	"
	97				"	"	"	Ka		"		"		"	"	
98				15.0V	"	"	Kb		"		"		"	"		
99				GND	15.0V	"	A4		"		"		"	"		
I _{IL1} 10/	3009	100				GND	GND	"	All inputs together		-1000.0				"	
I _{IL2}		101				15.0V	15.0V	"	B4		-100.0		-100.0			"
		102				"	"	"	A3		"		"		"	"
		103				"	"	"	B3		"		"		"	"
		104				"	"	"	A2		"		"		"	"
		105				"	"	"	B2		"		"		"	"
		106				"	"	"	A1		"		"		"	"
		107				"	"	"	B1		"		"		"	"
	108				"	"	"	Ka		"		"		"	"	
109				GND	"	"	Kb		"		"		"	"		
110				15.0V	GND	"	A4		"		"		"	"		

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

Symbol	MIL-STD-883 method	Cases E,F,N,Z											
		Symbol	B4	A3	B3	A2	Terminal conditions 1/		B1	V _{SS}	Ka	D1	
		Test no.	1	2	3	4	5	6	7	8	9	10	
C ₁	3012	111	11/								GND		
		112											
		113											
		114											
		115											
		116											
		117											
		118											
		119										11/	
		120											
t _{PHL}	3003 (Fig. 4)	121	IN	GND	GND	GND	GND	GND	GND	GND	GND	5.0V	
		122	GND	"	IN	"	"	"	"	"	"	"	
		123	"	"	"	"	"	"	"	"	"	"	
		124	"	"	"	"	"	"	"	"	"	"	
		125	"	"	"	"	"	"	"	"	"	"	
		126	"	"	"	"	"	"	"	"	"	"	
		127	"	IN	"	"	"	"	"	"	"	"	
		128	"	GND	"	"	IN	"	"	"	"	"	
		129	"	"	"	"	"	"	"	"	"	"	
		130	"	5.0V	"	"	"	"	"	"	"	"	
		131	"	GND	"	"	"	"	"	"	"	"	
		132	"	"	"	"	5.0V	"	"	"	"	"	
		133	5.0V	"	"	"	GND	"	"	5.0V	"	"	
		134	GND	"	"	5.0V	"	"	"	"	"	5.0V	
		135	"	"	"	GND	"	"	"	"	"	"	
		136	"	"	"	"	"	5.0V	"	"	5.0V	"	
t _{PLH}		137	IN	"	"	"	"	"	"	"	"	"	
		138	GND	"	"	"	"	"	"	"	"	"	
		139	"	"	"	IN	"	"	"	"	"	"	
		140	"	"	"	"	"	IN	"	"	"	"	
		141	"	"	"	"	"	"	"	IN	"	"	
		142	"	"	"	"	"	"	"	"	"	"	
		143	"	IN	"	"	"	"	"	"	"	"	
		144	"	GND	"	"	IN	"	"	"	"	"	
		145	"	"	"	"	"	"	"	"	"	"	
		146	"	5.0V	"	"	"	"	"	"	"	"	
		147	"	GND	"	"	"	"	"	"	"	"	
		148	"	"	"	"	5.0V	"	"	"	"	"	
149	5.0V	"	"	"	GND	"	"	5.0V	"	"			
150	GND	"	"	5.0V	"	"	"	"	"	5.0V			
151	"	"	"	GND	"	"	"	"	"	"			
152	"	"	"	"	"	5.0V	"	"	5.0V	"			
t _{THL}	3004 (Fig. 4)	153	IN	"	"	"	"	"	"	"	"	"	
		154	GND	"	"	"	"	"	"	"	"	"	
		155	"	"	"	IN	"	"	"	"	"	"	
		156	"	"	"	"	"	IN	"	"	"	"	
		157	"	"	"	"	"	"	"	IN	"	"	
		158	"	"	"	"	"	"	"	"	"	"	
		159	"	IN	"	"	"	"	"	"	"	"	
		160	"	GND	"	"	IN	"	"	"	"	"	
		161	"	"	"	"	"	"	"	"	"	"	
		162	"	"	"	"	"	"	"	"	"	"	
		163	"	5.0V	"	"	"	"	"	"	"	"	
		164	"	GND	"	"	"	"	"	"	"	"	
		165	5.0V	"	"	"	"	"	"	"	"	"	
		166	GND	"	"	5.0V	"	"	"	"	"	5.0V	
		167	"	"	"	GND	"	"	"	"	"	"	
		168	"	"	"	"	"	5.0V	"	"	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								B4		12					pF
		112								A3							"
		113								B3							"
		114								A2							"
		115								B2							"
		116								A1							"
		117								B1							"
		118						11/		A4							"
		119								Ka							"
		120					11/			Kb							"
										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 _{FHL}	3003 (Fig. 4)	121			OUT	5.0V	GND	5.0V	B4 to D4	13	350	18	525	13	350		ns
		122				"	"	"	B3 to D3	"	"	"	"	"	"		"
		123	OUT	OUT		"	"	"	B2 to D2	"	"	"	"	"	"		"
		124				"	"	"	B1 to D1	"	"	"	"	"	"		"
		125			OUT	"	IN	"	A4 to D4	"	"	"	"	"	"		"
		126		OUT		"	GND	"	A3 to D3	"	"	"	"	"	"		"
		127	OUT	OUT		"	"	"	A2 to D2	"	"	"	"	"	"		"
		128				"	"	"	A1 to D1	"	"	"	"	"	"		"
		129			OUT	"	5.0V	"	Ka to D4	"	"	"	"	"	"		"
		130		OUT		"	GND	"	Ka to D3	"	"	"	"	"	"		"
		131	OUT			"	"	"	Ka to D2	"	"	"	"	"	"		"
		132				"	"	"	Ka to D1	"	"	"	"	"	"		"
		133			OUT	IN	"	"	Kb to D4	"	"	"	"	"	"		"
134	OUT	OUT		"	"	"	Kb to D3	"	"	"	"	"	"		"		
135				"	"	"	Kb to D2	"	"	"	"	"	"		"		
136				"	"	"	Kb to D1	"	"	"	"	"	"		"		
t _{PLH}	3003 (Fig. 4)	137			OUT	5.0V	"	"	B4 to D4	"	"	"	"	"	"		"
		138		OUT		"	"	"	B3 to D3	"	"	"	"	"	"		"
		139	OUT			"	"	"	B2 to D2	"	"	"	"	"	"		"
		140				"	"	"	B1 to D1	"	"	"	"	"	"		"
		141			OUT	"	IN	"	A4 to D4	"	"	"	"	"	"		"
		142		OUT		"	GND	"	A3 to D3	"	"	"	"	"	"		"
		143			OUT	"	"	"	A2 to D2	"	"	"	"	"	"		"
		144	OUT			"	"	"	A1 to D1	"	"	"	"	"	"		"
		145			OUT	"	5.0V	"	Ka to D4	"	"	"	"	"	"		"
		146		OUT		"	GND	"	Ka to D3	"	"	"	"	"	"		"
		147	OUT			"	"	"	Ka to D2	"	"	"	"	"	"		"
		148			OUT	"	"	"	Ka to D1	"	"	"	"	"	"		"
		149			OUT	IN	"	"	Kb to D4	"	"	"	"	"	"		"
150	OUT	OUT		"	"	"	Kb to D3	"	"	"	"	"	"		"		
151				"	"	"	Kb to D2	"	"	"	"	"	"		"		
152				"	"	"	Kb to D1	"	"	"	"	"	"		"		
t _{FHL}	3004 (Fig. 4)	153			OUT	5.0V	"	"	D4	10	"	14	"	10	"		"
		154	OUT	OUT		"	"	"	D3	"	"	"	"	"	"		"
		155				"	"	"	D2	"	"	"	"	"	"		"
		156				"	"	"	D1	"	"	"	"	"	"		"
		157			OUT	"	IN	"	D4	"	"	"	"	"	"		"
		158		OUT		"	GND	"	D3	"	"	"	"	"	"		"
		159	OUT			"	"	"	D2	"	"	"	"	"	"		"
		160				"	"	"	D1	"	"	"	"	"	"		"
		161			OUT	"	5.0V	"	D4	"	"	"	"	"	"		"
		162		OUT		"	GND	"	D3	"	"	"	"	"	"		"
		163	OUT			"	"	"	D2	"	"	"	"	"	"		"
		164			OUT	"	"	"	D1	"	"	"	"	"	"		"
		165			OUT	IN	"	"	D4	"	"	"	"	"	"		"
166	OUT	OUT		"	"	"	D3	"	"	"	"	"	"		"		
167				"	"	"	D2	"	"	"	"	"	"		"		
168				"	"	"	D1	"	"	"	"	"	"		"		

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		
t _{RLH}	3004 (Fig. 4)	169	IN	GND	GND	GND	GND	GND	GND	GND	GND	5.0V	OUT	
		170	GND	"	"	IN	"	GND	"	"	"	"		
		171	"	"	"	GND	"	IN	"	"	"	"		
		172	"	"	"	"	"	GND	"	IN	"	"		
		173	"	"	"	"	"	"	"	GND	"	"		
		174	"	IN	"	"	"	"	"	"	"	"		
		175	"	GND	"	"	IN	"	"	"	"	"		
		176	"	"	"	"	GND	"	IN	"	"	"		
		177	"	"	"	"	"	"	GND	"	"	IN		
		178	"	5.0V	"	"	"	"	"	"	"	"		"
		179	"	GND	"	"	5.0V	"	"	"	"	"		"
		180	"	"	"	"	GND	"	"	5.0V	"	"		"
		181	5.0V	"	"	"	"	"	"	GND	"	"		5.0V
		182	GND	"	"	5.0V	"	"	"	"	"	"		"
		183	"	"	"	GND	"	"	5.0V	"	"	"		"
		184	"	"	"	GND	"	"	GND	"	5.0V	"		"

- 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 Symbol Test no.	Terminal conditions 1/						Measured terminal	Test limits						Unit
			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		
			11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
t _{PLH}	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	OUT	"	GND	"	D3	"	"	"	"	"	"	"
		175	OUT			"	"	"	D2	"	"	"	"	"	"	"
		176				"	"	"	D1	"	"	"	"	"	"	"
		177			OUT	"	5.0V	"	D4	"	"	"	"	"	"	"
		178		OUT	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	1 mA			1 mA	1 mA		1 mA								
		2																
		3																
		4																
		5																
		6																
		7																
		8																
V _{IC(NEG)}		9	-1 mA	-1 mA			-1 mA	-1 mA	GND		-1 mA	-1 mA						
		10																
		11																
		12																
		13																
		14																
		15																
		16																
I _{SS} <u>2/</u>	3005	17	15.0V	GND			GND	15.0V		15.0V	GND							
		18	GND	15.0V			GND	GND		15.0V								
		19	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	I _{OH1}	I _{OH1}					
		21	4.5V	"			V _{IL1}	"		4.5V	"							
		22	"	"			V _{IL1}	"		4.5V	"							
		23	"	"			V _{IL1}	"		4.5V	"							
		24	V _{IL1}	5.0V			I _{OH2} <u>5/</u>	I _{OH2}		5.0V	5.0V				5.0V	5.0V	I _{OH2}	I _{OH2}
25	5.0V	"	V _{IL1}	"	5.0V	"												
26	"	"	V _{IL1}	"	5.0V	"												
27	"	"	V _{IL1}	"	5.0V	"												
28	V _{IL1}	"	I _{OL1} <u>8/</u>	I _{OL1}	"	"				5.0V	"	I _{OL1}	I _{OL1}					
29	5.0V	"			V _{IL1}	"	5.0V	"										
30	"	"			V _{IL1}	"	5.0V	"										
31	"	"			V _{IL1}	"	5.0V	"										
32	V _{IL2} <u>6/</u>	12.5V			I _{OL2} <u>9/</u>	I _{OL2}	12.5V	12.5V			12.5V			12.5V	I _{OL2}	I _{OL2}		
33	12.5V	"	V _{IL2}	"			12.5V	"										
34	"	"	V _{IL2}	"			12.5V	"										
35	"	"	V _{IL2}	"			12.5V	"										
36	V _{IH1} <u>7/</u>	V _{IH1}	I _{OL1} <u>8/</u>	I _{OL1}			GND	GND			GND	GND	I _{OL1}	I _{OL1}				
37	GND	GND			V _{IH1}	"	"	"										
38	"	"			V _{IH1}	"	"	"										
39	"	"			V _{IH1}	"	"	"										
40	"	"			V _{IH1}	"	"	"										
V _{OL1}	3007	41	"	"	I _{OL1} <u>8/</u>	I _{OL1}	"	"		V _{IH1}	V _{IH1}	I _{OL1}	I _{OL1}					
		42	"	"			V _{IH1}	"		"								
		43	"	"			V _{IH1}	"		"								
		44	V _{IH1}	V _{IH1}			I _{OL2} <u>9/</u>	I _{OL2}		"	"				"	"	I _{OL2}	I _{OL2}
		45	GND	GND						V _{IH1}	"				"			
		46	"	"						V _{IH1}	"				"			
		47	"	"						V _{IH1}	"				"			
		48	"	"						V _{IH1}	"				"			
49	"	"	V _{IH1}	"	"													
50	"	"	V _{IH1}	"	"													
51	"	"	V _{IH1}	"	"													

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 Symbol	Terminal conditions 1/			Measured terminal	Test limits						Unit																																																		
			Test no.	4A	4B		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																																																	
V _{IC(POS)}		1 2 3 4 5 6 7 8	1 mA	1 mA	GND " " " " " " "	1A 1B 2A 2B 3A 3B 4A 4B		1.5 " " " " " " "					V " " " " " " "																																																		
														V _{IC(NEG)}	9 10 11 12 13 14 15 16	-1 mA	-1 mA	" " " " " " " "	1A 1B 2A 2B 3A 3B 4A 4B		-6 " " " " " " "					" " " " " " " "																																					
																											I _{SS 2/}	3005	17 18 19	GND 15.0V GND	15.0V GND GND	15.0V " "	V _{SS} " "	-25 "		-750 "			nA " "																								
																																								V _{OH1}	3006	20 21 22 23	4.5V " " V _{IL1}	4.5V " " "	4.5V " " "	1Y 2Y 3Y 4Y	2.5 " " "		2.5 " " "	2.5 " " "		V " " " "											
																																																					V _{OH2}	24 25 26 27	5.0V " " V _{IL1}	5.0V " " "	5.0V " " "	1Y 2Y 3Y 4Y	4.5 " " "		4.5 " " "	4.5 " " "	
																											V _{OH3}	28 29 30 31	5.0V " " V _{IL1}	" " " "	" " " "	1Y 2Y 3Y 4Y	4.95 " " "		4.95 " " "	4.95 " " "		" " " "																									
																																							V _{OH4}																								
																																																					V _{OL1}	3007	36 37 38 39 40 41 42 43	GND " " " " V _{IH1} GND	GND " " " " " V _{IH1} GND	5.5V " " " " " " "	1Y 1Y 2Y 2Y 3Y 3Y 4Y 4Y	0.4 " " " " " " "		0.5 " " " " " " "	0.5 " " " " " " "
V _{OL2}	44 45 46 47 48 49 50 51	" " " " " V _{IH1} GND	" " " " " V _{IH1} GND	5.0V " " " " " " "	1Y 1Y 2Y 2Y 3Y 3Y 4Y 4Y	0.5 " " " " " " "		" " " " " " " "	" " " " " " " "	0.5 " " " " " " "		" " " " " " " "																																																			

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	"	"			"	"	"	"	"		
V _{OL4}	3007	59	"	"			"	"	"	"			
		60	V _{IH2} 10/ GND	V _{IH2} GND			"	"	"	"	"		
		61	"	"			"	"	"	"	"		
		62	"	"			V _{IH2}	V _{IH2}	"	"	"		
		63	"	"			GND	GND	"	"	"		
		64	"	"			"	"	"	V _{IH2}	V _{IH2}		
		65	"	"			"	"	"	GND	GND		
V _{OL5}	3007	66	"	"			"	"	"	"			
		67	"	"			"	"	"	"			
		68	V _{IH1}	V _{IH1}	I _{OL3} 11/ I _{OL3}		"	"	"	"	"		
		69	GND	GND		I _{OL3}	V _{IH1}	V _{IH1}	"	"	"		
		70	"	"		I _{OL3}	GND	GND	"	"	"		
		71	"	"			"	"	"	"	"		
		72	"	"			"	"	"	V _{IH1}	V _{IH1}	I _{OL3}	
I _{IH1} 12/ I _{IH2}	3010	73	"	"			"	"	"	"			
		74	"	"			"	"	"	"	I _{OL3}		
		75	"	"			"	"	"	"	"	I _{OL3}	
		76	15.0V	15.0V			15.0V	15.0V	"	15.0V	15.0V		
		77	15.0V	GND			GND	GND	"	GND	GND		
		78	GND	15.0V			GND	"	"	"	"		
		79	"	GND			15.0V	"	"	"	"		
I _{IL1} 12/ I _{IL2}	3009	80	"	"			"	"	"	"			
		81	"	"			"	15.0V	"	"	"		
		82	"	"			"	GND	"	15.0V	"		
		83	"	"			"	"	"	GND	15.0V		
		84	"	"			"	"	"	"	GND		
		85	"	"			"	"	"	"	"		
		86	"	"			"	"	"	"	"		
C ₁	3012	87	"	"			"	"	"	"			
		88	"	"			"	"	"	"			
		89	"	"			"	"	"	"			
		90	"	"			"	"	"	"			
		91	"	"			"	"	"	"			
		92	"	"			"	"	"	"			
		93	"	"			"	"	"	"			
C ₁	3012	94	13/					GND					
		95		13/			13/		"				
		96							13/	"			
		97							"	"			
		98							"	13/			
		99							"		13/		
		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 Symbol	Terminal conditions 1/			Measured terminal	Test limits						Unit
			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	
V _{OL3}	3007	52	GND	GND	5.0V	1Y		50		50		50	mV dc
		53	"	"	"	1Y		"		"		"	"
		54	"	"	"	2Y		"		"		"	"
		55	"	"	"	2Y		"		"		"	"
		56	"	"	"	3Y		"		"		"	"
		57	"	"	"	3Y		"		"		"	"
		58	V _{IH1}	V _{IH1}	"	4Y		"		"		"	"
		59	GND	GND	"	4Y		"		"		"	"
		V _{OL4}	3007	60	"	"	12.5V	1Y		1.25		1.25	
61	"			"	"	1Y		"		"		"	"
62	"			"	"	2Y		"		"		"	"
63	"			"	"	2Y		"		"		"	"
64	"			"	"	3Y		"		"		"	"
65	"			"	"	3Y		"		"		"	"
66	V _{IH2}			V _{IH2}	"	4Y		"		"		"	"
67	GND			GND	"	4Y		"		"		"	"
V _{OL5}	3007	68	"	"	5.0V	1Y		0.5		0.5		0.5	"
		69	"	"	"	1Y		"		"		"	"
		70	"	"	"	2Y		"		"		"	"
		71	"	"	"	2Y		"		"		"	"
		72	"	"	"	3Y		"		"		"	"
		73	"	"	"	3Y		"		"		"	"
		74	V _{IH1}	V _{IH1}	"	4Y		"		"		"	"
		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		1.0		45			"
		78	"	"	"	1B		"		"		"	"
		79	"	"	"	2A		"		"		"	"
		80	"	"	"	2B		"		"		"	"
		81	"	"	"	3A		"		"		"	"
		82	"	"	"	3B		"		"		"	"
		83	15.0V	"	"	4A		"		"		"	"
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 ₁	3012	94			GND	1A		12					pF
		95			"	1B		"				"	"
		96			"	2A		"				"	"
		97			"	2B		"				"	"
		98			"	3A		"				"	"
		99			"	3B		"				"	"
		100			"	4A		"				"	"
101		13/	13/	"	4B		"				"	"	

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

Symbol	MIL-STD-883 method	Cases A, C,D,T,X,Y Symbol Test no.	Terminal conditions ^{1/}										
			1A	1B	1Y	2Y	2A	2B	V _{SS}	3A	3B	3Y	4Y
			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	OUT	GND	"	"	"	"		
		106	"	"			"	IN	"	"	"		
		107	"	"			"	GND	"	IN	IN	OUT	
		108	"	"			"	"	"	GND	GND	OUT	
		109	"	"			"	"	"	"	IN	IN	OUT
		110	IN	"	OUT		"	"	"	"	"		
t _{PLH}	3003 (Fig. 4)	111	GND	IN	OUT		"	"	"	"			
		112	"	GND	OUT	OUT	IN	"	"	"			
		113	"	"			GND	IN	"	"			
		114	"	"			"	GND	"	"			
		115	"	"			"	"	"	IN	IN	OUT	
		116	"	"			"	"	"	GND	GND	OUT	
		117	"	"			"	"	"	"	"		OUT
t _{THL}	3004 (Fig. 4)	118	IN	"	OUT		"	"	"	"			
		119	GND	IN	OUT		"	"	"	"			
		120	"	GND		OUT	IN	"	"	"	"		
		121	"	"			GND	IN	"	"	"		
		122	"	"			"	GND	"	IN	IN	OUT	
		123	"	"			"	"	"	GND	GND	OUT	
		124	"	"			"	"	"	"	IN	IN	OUT
125	"	"			"	"	"	"	"		OUT		
t _{TLH}	3004 (Fig. 4)	126	IN	"	OUT		"	"	"	"			
		127	GND	IN	OUT		"	"	"	"			
		128	"	GND		OUT	IN	"	"	"	"		
		129	"	"			"	IN	"	"	"		
		130	"	"			"	GND	IN	"	"		
		131	"	"			"	"	"	IN	IN	OUT	
		132	"	"			"	"	"	GND	GND	OUT	
		133	"	"			"	"	"	"	IN	IN	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_{BH1} = 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_{BH2} = 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		
				1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	Min	Max	Min		Max	Min	Max
				Test no.	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	Min	Max		Min	Max	Min
V _{IC} (pos) 2/			1	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	GND	Kd	1.5					V		
			2															"	H	"					"		
			3															"	G	"					"		
			4															"	F	"					"		
			5															"	E	"					"		
			6															"	Kb	"					"		
			7															"	Kc	"					"		
			8															"	Ka	"					"		
			9															"	D	"					"		
			10															"	C	"					"		
			11															"	B	"					"		
			12															"	A	"					"		
			13															"	EX	"					"		
V _{IC} (NEG) 2/			14	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND	Kd	-6.0					V		
			15															"	H	"					"		
			16															"	G	"					"		
			17															"	F	"					"		
			18															"	E	"					"		
			19															"	Kb	"					"		
			20															"	Kc	"					"		
			21															"	Ka	"					"		
			22															"	D	"					"		
			23															"	C	"					"		
			24															"	B	"					"		
			25															"	A	"					"		
			26															"	EX	"					"		
	I _{SS} 3/	3005	27		GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	V _{SS}		-1.9		-3			μA	
28				15.0V	GND	GND	GND	GND	GND	15.0V	"	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	"	"	"	"	"		
29				GND	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	GND	GND	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	"	"	"	"	"	"	
30				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	15.0V	"	"	"	"	"	"	"	"	
V _{OH3}	3006	31		5.0V	V _{IL1} 4/	V _{IL1}	V _{IL1}	V _{IL1}	GND	"	GND	GND	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	GND	J	4.95		4.95		4.95	V			
		32		"	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	"	"	5.0V	5.0V	V _{IL1}	V _{IL1}	V _{IL1}	V _{IL1}	5.0V	"	4.95		4.95		4.95	"			
V _{OH4}	3006	33		"	V _{IL2} 5/	V _{IL2}	V _{IL2}	V _{IL2}	"	"	GND	GND	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	"	"	11.25		11.25		11.25	"			
		34		"	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	"	"	5.0V	5.0V	V _{IL2}	V _{IL2}	V _{IL2}	V _{IL2}	12.5V	"	11.25		11.25		11.25	"			
V _{OL3}	3007	35		"	V _{IH1} 6/	V _{IH1}	V _{IH1}	V _{IH1}	"	"	GND	GND	V _{IH1}	V _{IH1}	V _{IH1}	V _{IH1}	"	"	0.05		0.05		0.05	"			
		36		"	V _{IH1}	V _{IH1}	V _{IH1}	V _{IH1}	"	"	5.0V	5.0V	V _{IH1}	V _{IH1}	V _{IH1}	V _{IH1}	5.0V	"	0.05		0.05		0.05	"			
V _{OL4}	3007	37		"	V _{IH2} 7/	V _{IH2}	V _{IH2}	V _{IH2}	"	"	GND	GND	V _{IH2}	V _{IH2}	V _{IH2}	V _{IH2}	"	"	1.25		1.25		1.25	"			
		38		"	V _{IH2}	V _{IH2}	V _{IH2}	V _{IH2}	"	"	5.0V	5.0V	V _{IH2}	V _{IH2}	V _{IH2}	V _{IH2}	12.5V	"	1.25		1.25		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		13				nA			
I _{IH2}	3010	40		15.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	Kd	1.0		45		"			
		41		GND	15.0V	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	H	"		"		"		
		42		"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	G	"		"		"		
		43		"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	F	"		"		"		
		44		"	"	GND	15.0V	15.0V	"	"	"	"	"	"	"	"	"	"	"	E	"		"		"		
		45		"	"	"	"	"	15.0V	"	"	"	"	"	"	"	"	"	"	Kb	"		"		"		
		46		"	"	"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	"	Kc	"		"		"		
		47		"	"	"	"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	Ka	"		"		"		
		48		"	"	"	"	"	"	"	GND	15.0V	"	15.0V	"	"	"	"	"	D	"		"		"		
		49		"	"	"	"	"	"	"	"	GND	"	GND	15.0V	"	"	"	"	C	"		"		"		
		50		"	"	"	"	"	"	"	"	"	"	"	GND	15.0V	"	"	"	B	"		"		"		
		51		"	"	"	"	"	"	"	"	"	"	"	"	GND	15.0V	"	"	A	"		"		"		
		52		"	"	"	"	"	"	"	"	"	"	"	"	GND	15.0V	15.0V	"	EX	"		"		"		

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
I _{IL1} g/	3009	53		GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	15.0V	All inputs together		-13					nA	
I _{IL2}	3009	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	"	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	"	15.0V	J		-25		-90		-25	"	
																			Subgroup 4 T _C = +25°C								
																			Min	Max							
C ₁	3012	69		g/	g/	g/	g/	g/	g/	GND								GND	Kd		12				pF		
		70		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H		"		"	"	"	
		71		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G		"		"	"	"	
		72		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	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				
																			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	5.0V	A to J	34	685	41	820	30	600	ns	
		83	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		84	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		85	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"
		86	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"
		87	"	"	"	"	"	IN	IN	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"
		88	"	"	"	IN	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"
89	"	"	"	IN	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"		
t _{PLH1}	3003 (Fig. 5)	90	"	"	GND	"	"	"	"	"	"	"	"	"	"	IN	"	"	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	"	"	"	"	"	IN	IN	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"
		96	"	"	"	IN	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"
		97	"	"	"	IN	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	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 Symbol	Terminal conditions 1/																	Measured terminal	Test limits						Unit		
			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	5.0V	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	"	"	"	"	"	"	"
t _{PLH2}	3003 (Fig. 7)	104	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"		
		105	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
		106	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	31	620	"	750	"	550	"	
		107	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		108	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		109	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
t _{PHL3}	3003 (Fig. 8)	110	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"		
		111	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		112	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		113	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
		114	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	38	760	45	905	33	665	"	
		115	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
t _{PLH3}	3003 (Fig. 9)	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 _{PHL4}	3003 (Fig. 8)	122	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	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	"	"	"	"	"	"	"
t _{PLH4}	3003 (Fig. 8)	128	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"		
		129	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
		130	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	32	"	33	670	29	570	"	
		131	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		132	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		133	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
t _{PHL5}	3003 (Fig. 9)	134	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"		
		135	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"	
		136	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		137	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	
		138	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	35	695	42	830	31	610	"
		139	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
t _{PHL5}	3003 (Fig. 9)	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	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	33	655	39	775	29	575	"	
		147	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		148	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		149	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		150	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		151	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
t _{PHL5}	3003 (Fig. 9)	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 Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit			
			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		
I _{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	GND	"	"	"	"	"	"	IN	IN	IN	"	"	"	"	D to J	"	"	"	"	"	"	"	
		158	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"	
		159	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
I _{PHL6}	3003 (Fig. 10)	162	"	"	GND	"	"	5.0V	"	"	5.0V	"	GND	"	"	IN	IN	"	"	A to J	32	640	38	755	27	540	"		
		163	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		164	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		166	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		167	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"
I _{PLH6}	3003 (Fig. 10)	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"	
		169	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"
		170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
I _{PHL7}	3003 (Fig. 11)	174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		175	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		176	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		177	"	"	IN	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		179	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
I _{PHL7}	3003 (Fig. 11)	180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		182	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		183	"	"	"	5.0 V	IN	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		184	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		185	"	"	IN	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
I _{PHL7}	3003 (Fig. 11)	186	"	"	GND	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		188	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		189	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		190	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		191	"	"	"	5.0 V	IN	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
I _{PHL8}	3003 (Fig. 12)	192	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		193	"	"	IN	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		194	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		195	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		196	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		197	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
I _{PHL8}	3003 (Fig. 12)	198	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		199	"	"	"	5.0 V	IN	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		200	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		201	"	"	IN	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		202	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		203	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
I _{PHL8}	3003 (Fig. 12)	204	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		205	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		206	"	"	5.0 V	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		207	"	"	"	5.0 V	IN	5.0 V	5.0 V	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		208	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		209	"	"	IN	5.0 V	5.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		

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	IN	GND	GND	GND	GND	GND	5.0 V	Ka to J	34	690	38	760	30	595	ns							
t _{PLH9}		211	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	Ka to J	31	625	37	730	28	555	"	
t _{PHL10}	3003 (Fig. 14)	212	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	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	IN	"	J	7	135	8	160	6	115	"	
		217	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		218	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		219	"	"	"	"	"	"	"	"	"	"	"	"	IN	IN	"	"	"	"	"	"	"	"	"	"	
		220	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	
		221	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	
		222	"	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		223	"	"	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
t _{TLH}		224	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	6	115	7	140	5	100	"
		225	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		226	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		227	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		228	"	"	"	"	"	"	"	"	"	"	"	"	IN	IN	"	"	"	"	"	"	"	"	"	"	
		229	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	
		230	"	"	"	IN	IN	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		231	"	"	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.
- 2/ During V_{IC(POS)} and V_{IC(NEG)} tests, the V_{SS} terminals respectively shall be open.
- 3/ I_{SS} measurements shall be performed in sequence.
- 4/ V_{IL1} = 1.1 V at +25°C; 0.8 V at +125°C; 1.35 V at -55°C.
- 5/ V_{IL2} = 2.8 V at +25°C; 2.55 V at +125°C; 1.35 V at -55°C.
- 6/ V_{IH1} = 3.8 V at +25°C; 3.6 V at +125°C; 3.95 V at -55°C.
- 7/ V_{IH2} = 9.5 V at +25°C; 9.25 V at +125°C; 9.75 V at -55°C.
- 8/ 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.
- 9/ 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	(5) 2/	GND	1mA		(1) 2/	1mA		(13) 2/		GND		(8) 2/	GND	1A		1.5					V		
		2	"	"			"			"				"	"	2A		"					"		
		3	"	"	1mA		"			"	1mA	"		"	"	3A		"					"		
V _{IC(NEG)}		4	"		-1mA	GND	"	-1mA	GND	"	GND			"	"	1A		-6					"		
		5	"			"	"		"	"	"			"	"	2A		"					"		
		6	"			"	"		"	"	"			"	"	3A		"					"		
I _{SS} 3/	3005	7	"	18.0V	GND	"	"	GND	"	"	GND	18.0V	"	"	18.0V	V _{SS}		-50		-500			nA		
		8	"	18.0V	18.0V	"	"	18.0V	"	"	"	18.0V	18.0V	"	"	18.0V	V _{SS}		-50		-500		nA		
V _{OH5}	3006	9	"	15.0V	GND	"	"	GND	"	"	GND	15.0V	"	"	15.0V	1aY	14.95		14.95		14.95		V		
		10	"	"	"	"	"	"	"	"	"	"	"	"	"	2aY	"		"		"		"		
V _{OL6}	3007	11	"	"	"	"	"	"	"	"	"	"	"	"	"	3Y	"		"		"		"		
		12	"	"	"	"	"	"	"	"	"	"	"	"	"	1aY		0.05		0.05		0.05	"		
		13	"	"	15.0V	"	"	GND	"	"	"	"	"	"	"	2aY		"		"		"	"		
V _{IH1} 4/		14	"	"	GND	"	"	GND	"	"	15.0V	"	"	"	"	3Y		"		"		"	"		
		15	"	5.0V	GND	"	"	4.0V	"	"	GND	5.0V	"	"	5.0V	1aY		0.5		0.5		0.5	"		
		16	"	"	4.0V	"	"	GND	"	"	GND	"	"	"	"	2aY		"		"		"	"		
V _{IH2} 4/		17	"	"	GND	"	"	GND	"	"	4.0V	"	"	"	"	3Y		"		"		"	"		
		18	"	10.0V	GND	"	"	8.0V	"	"	GND	10.0V	"	"	10.0V	1aY		1.0		1.0		1.0	"		
		19	"	"	8.0V	"	"	GND	"	"	GND	"	"	"	"	2aY		"		"		"	"		
V _{IH3} 4/		20	"	"	GND	"	"	GND	"	"	8.0V	"	"	"	"	3Y		"		"		"	"		
		21	"	15.0V	GND	"	"	12.0V	"	"	GND	15.0V	"	"	15.0V	1aY		1.5		1.5		1.5	"		
		22	"	"	12.0V	"	"	GND	"	"	GND	"	"	"	"	2aY		"		"		"	"		
V _{IL1} 4/		23	"	"	GND	"	"	GND	"	"	12.0V	"	"	"	"	3Y		"		"		"	"		
		24	"	5.0V	GND	"	"	1.0V	"	"	GND	5.0V	"	"	5.0V	1aY	4.5		4.5		4.5		"		
		25	"	"	1.0V	"	"	GND	"	"	GND	"	"	"	"	2aY	"		"		"		"		
V _{IL2} 4/		26	"	"	GND	"	"	GND	"	"	1.0V	"	"	"	"	3Y		"		"		"	"		
		27	"	10.0V	GND	"	"	2.0V	"	"	GND	10.0V	"	"	10.0V	1aY	9.0		9.0		9.0		"		
		28	"	"	2.0V	"	"	GND	"	"	GND	"	"	"	"	2aY	"		"		"		"		
V _{IL3} 4/		29	"	"	GND	"	"	GND	"	"	2.0V	"	"	"	"	3Y		"		"		"	"		
		30	"	15.0V	GND	"	"	3.0V	"	"	GND	15.0V	"	"	15.0V	1aY	13.5		13.5		13.5		"		
		31	"	"	3.0V	"	"	GND	"	"	GND	"	"	"	"	2aY	"		"		"		"		
I _{OL1}		32	"	"	GND	"	"	GND	"	"	3.0V	"	"	"	"	3Y		"		"		"	"		
		33	"	5.0V	GND	"	"	5.0V	"	"	GND	5.0V	"	"	5.0V	1aY	0.51		0.36		0.64		mA		
		34	"	0.4V	5.0V	"	"	GND	"	"	GND	"	"	"	"	2aY	"		"		"		"		
I _{OL2}		35	"	"	GND	"	"	GND	"	"	5.0V	"	"	"	"	3Y		"		"		"	"		
		36	"	15.0V	GND	"	"	15.0V	"	"	GND	15.0V	"	"	15.0V	1aY	3.4		2.4		4.2		"		
		37	"	"	15.0V	"	"	GND	"	"	GND	"	"	"	"	2aY	"		"		"		"		
I _{OH1}		38	"	"	GND	"	"	GND	"	"	15.0V	"	"	1.5V	"	3Y		"		"		"	"		
		39	"	5.0V	"	"	GND	"	"	"	5.0V	"	"	"	5.0V	1aY	-0.51		-0.36		-0.64		mA		
		40	"	"	5.0V	"	"	5.0V	"	"	5.0V	"	"	"	"	2aY	"		"		"		"		
I _{OH2}		41	"	4.6V	5.0V	"	"	5.0V	"	"	5.0V	"	"	4.6V	"	3Y		"		"		"	"		
		42	"	15.0V	15.0V	"	"	GND	"	"	15.0V	15.0V	"	"	13.5V	1aY	-3.4		-2.4		-4.2		"		
		43	"	13.5V	GND	"	"	15.0V	"	"	15.0V	"	"	"	"	2aY	"		"		"		"		
		44	"	"	15.0V	"	"	15.0V	"	"	GND	"	"	13.5V	3Y		"		"		"	"			

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		
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	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		1.0		45		"		
		47	"	"	18.0V	"	"	"	"	"	"	"	GND	"	"	"	"	2A		"		"		"	
I _{IL1} 5/	3009	48	"	"	GND	"	"	"	"	"	"	18.0V	"	"	"	"	3A		"		"		"		
I _{IL2} 5/		49	"	"	GND	"	"	"	"	"	"	GND	"	"	"	"	All inputs together		-6.0				"		
		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 ₁	3012	53	(5) 2/	GND	6/	GND	(1) 2/	6/	GND	(13) 2/	GND	6/	GND		(8) 2/	GND	1A		12					pF	
		54	"	"	"	"	"	"	"	"	"	"	"		"	"	2A		"					"	
		55	"	"	"	"	"	"	"	"	"	"	"		"	"	3A		"					"	
																		Subgroup 9 T _C = +25°C							
																		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	"	"	"	"	"	"	"	"	2A to 2aY	"	"	"	"	"	"	"
		58	"	"	"	GND	"	"	GND	"	"	"	"	"	"	"	"	3A to 3Y	"	"	"	"	"	"	"
t _{PLH}	3004 (Fig. 4)	59	"	"	GND	"	"	IN	"	"	"	GND	"	"	"	"	1A to 1aY	"	"	"	"	"	"	"	
		60	"	"	"	IN	"	"	GND	"	"	"	"	"	"	"	"	2A to 2aY	"	"	"	"	"	"	"
		61	"	"	"	GND	"	"	GND	"	"	"	"	"	"	"	"	3A to 3Y	"	"	"	"	"	"	"
t _{THL}	3004 (Fig. 4)	62	"	"	GND	"	"	IN	"	"	"	GND	"	"	"	"	1aY	"	200	"	"	280	"	200	"
		63	"	"	"	IN	"	"	GND	"	"	"	"	"	"	"	"	2aY	"	"	"	"	"	"	"
		64	"	"	"	GND	"	"	GND	"	"	"	"	"	"	"	"	3Y	"	"	"	"	"	"	"
t _{TLH}	3004 (Fig. 4)	65	"	"	GND	"	"	IN	"	"	"	GND	"	"	"	"	1aY	"	"	"	"	"	"	"	
		66	"	"	"	IN	"	"	GND	"	"	"	"	"	"	"	"	2aY	"	"	"	"	"	"	"
		67	"	"	"	GND	"	"	GND	"	"	"	"	"	"	"	"	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.
- 2/ Terminals in parentheses are connected together as indicated by the included number.
- 3/ I_{SS} measurements shall be performed in sequence.
- 4/ The V_{IL} and V_{IH} input test requirements are acceptable if the output state list is met, attributes data required.
- 5/ 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.
- 6/ See 4.4.1c.

TABLE III. Group A inspection for device type 52.

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					
V _{IC(POS)}			1															GND	B1							V						
			2																	"	A1		1.5				"					
			3																	"	B2		"				"					
			4																	"	A2		"				"					
			5																	"	B3		"				"					
			6																	"	A3		"				"					
			7																	"	B4		"				"					
			8																	"	A4		"				"					
			9																	"	Ka		"				"					
			10																	"	Kb		"				"					
V _{IC(NEG)}			11																"	B1						"						
			12																	"	A1		-6.0				"					
			13																	"	B2		"				"					
			14																	"	A2		"				"					
			15																	"	B3		"				"					
			16																	"	A3		"				"					
			17																	"	B4		"				"					
			18																	"	A4		"				"					
			19																	"	Ka		"				"					
			20																	"	Kb		"				"					
I _{SS} 2/	3005		21	GND	18.0V	GND	18.0V	GND	18.0V	GND	18.0V	"						18.0V	18.0V	18.0V	V _{SS}			-75		-750			nA			
			22	GND	GND	GND	"						"	"	"	"			"		"			"								
			23	18.0V	18.0V	18.0V	"							"	"	"	"			"		"			"							
			24	18.0V	18.0V	18.0V	"							GND	GND	GND	"			"		"			"							
V _{OH5}	3006		25	15.0V	GND	GND	GND	GND	GND	GND	GND	"						15.0V	15.0V	15.0V	D4	14.95		14.95		14.95			V			
			26	GND	15.0V	GND	GND	GND	GND	GND	GND	GND	"						"	"	"	D3	"		"		"			"		
			27	"	GND	15.0V	GND	GND	GND	GND	GND	GND	"						"	"	"	D3	"		"		"			"		
			28	"	"	GND	15.0V	GND	GND	GND	GND	GND	"						"	"	"	D2	"		"		"			"		
			29	"	"	"	15.0V	GND	GND	GND	GND	GND	"						"	"	"	D2	"		"		"			"		
			30	"	"	"	"	15.0V	GND	GND	GND	GND	"						"	"	"	D1	"		"		"			"		
			31	"	"	"	"	"	15.0V	GND	GND	GND	"						"	"	"	D1	"		"		"			"		
			32	"	"	"	"	"	"	15.0V	GND	GND	"						"	"	"	D4	"		"		"			"		
			V _{OL6}	3007		33	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"							GND	GND	GND	D4			0.05		0.05		0.05	"
						34	"	"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"
35	"	"				"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"			
36	"	"				"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"			
37	GND	GND				GND	GND	GND	GND	GND	GND	GND	"						15.0V	GND	GND	D4	"		"		"		"	"		
38	"	"				"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"		
39	"	"				"	"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"		
40	"	"				"	"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"		
V _{IH1} 3/						41	3.5V	3.5V	3.5V	3.5V	3.5V	3.5V	3.5V	"							1.5V	1.5V	5.0V	D4			0.5		0.5		0.5	"
						42	"	"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"
			43	"	"	"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"			
			44	"	"	"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"			
			45	1.5V	1.5V	1.5V	"						5.0V	1.5V	"	D4	"		"		"		"	"								
			46	"	"	"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"		
			47	"	"	"	"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"		
			48	"	"	"	"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"		
V _{IH2} 3/			49	7.0V	"							3.0V	7.0V	10.0V	D4			1.0		1.0		1.0	"									
			50	"	"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"			
			51	"	"	"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"			
			52	"	"	"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"			
			53	3.0V	3.0V	3.0V	"						10.0V	3.0V	"	D4	"		"		"		"	"								
			54	"	"	"	"	"	"	"	"	"	"						"	"	"	D3	"		"		"		"	"		
			55	"	"	"	"	"	"	"	"	"	"						"	"	"	D2	"		"		"		"	"		
			56	"	"	"	"	"	"	"	"	"	"						"	"	"	D1	"		"		"		"	"		

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	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 _{IH3} 3/		57	11.0V	11.0V	11.0V	11.0V	11.0V	11.0V	11.0V	GND	4.0V					4.0V	11.0V	15.0V	D4		1.5		1.5		1.5	V		
		58	"	"	"	"	"	"	"	"	"					"	"	"	D3		"		"		"	"		
		59	"	"	"	"	"	"	"	"	"					"	"	"	D2		"		"		"	"		
		60	"	"	"	"	"	"	"	"	"					"	"	"	D1		"		"		"	"		
		61	4.0V	4.0V	4.0V	4.0V	4.0V	4.0V	4.0V	4.0V	"	15.0V				15.0V	4.0V	"	D4		"		"		"	"		
		62	"	"	"	"	"	"	"	"	"	"				"	"	"	D3		"		"		"	"		
		63	"	"	"	"	"	"	"	"	"	"				"	"	"	D2		"		"		"	"		
		64	"	"	"	"	"	"	"	"	"	"				"	"	"	D1		"		"		"	"		
V _{IL1} 3/		65	3.5V	GND	GND	GND	GND	GND	GND	"	5.0V					5.0V	1.5V	5.0V	D4	4.5		4.5		4.5		"		
		66	GND	3.5V	1.5V	"	"	"	"	"	"					"	GND	"	D3	"	"	"	"	"	"	"		
		67	"	1.5V	3.5V	"	"	"	"	"	"					"	"	"	D3	"	"	"	"	"	"	"		
		68	"	GND	GND	3.5V	1.5V	"	"	"	"					"	"	"	D2	"	"	"	"	"	"	"		
		69	"	"	"	1.5V	3.5V	"	"	"	"					"	"	"	D2	"	"	"	"	"	"	"		
		70	"	"	"	GND	GND	3.5V	1.5V	"	"					"	"	"	D1	"	"	"	"	"	"	"		
		71	"	"	"	"	"	1.5V	3.5V	"	"					"	"	"	D1	"	"	"	"	"	"	"		
		72	1.5V	"	"	"	"	GND	GND	"	"					"	3.5V	"	D4	"	"	"	"	"	"	"		
V _{IL2} 3/		73	7.0V	"	"	"	"	"	"	"	10.0V				10.0V	3.0V	10.0V	D4	9.0		9.0		9.0		"			
		74	GND	7.0V	3.0V	"	"	"	"	"	"				"	GND	"	D3	"	"	"	"	"	"	"			
		75	"	3.0V	7.0V	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		76	"	GND	GND	7.0V	3.0V	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		77	"	"	"	3.0V	7.0V	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		78	"	"	"	GND	GND	7.0V	3.0V	"	"				"	"	"	D1	"	"	"	"	"	"	"			
		79	"	"	"	"	"	3.0V	7.0V	"	"				"	"	"	D1	"	"	"	"	"	"	"			
		80	3.0V	"	"	"	"	GND	GND	"	"				"	7.0V	"	D4	"	"	"	"	"	"	"			
V _{IL3} 3/		81	11.0V	"	"	"	"	"	"	"	15.0V				15.0V	4.0V	15.0V	D4	13.5		13.5		13.5		"			
		82	GND	11.0V	4.0V	"	"	"	"	"	"				"	GND	"	D3	"	"	"	"	"	"	"			
		83	"	4.0V	11.0V	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		84	"	GND	GND	11.0V	4.0V	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		85	"	"	"	4.0V	11.0V	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		86	"	"	"	GND	GND	11.0V	4.0V	"	"				"	"	"	D1	"	"	"	"	"	"	"			
		87	"	"	"	"	"	4.0V	11.0V	"	"				"	"	"	D1	"	"	"	"	"	"	"			
		88	4.0V	"	"	"	"	GND	GND	"	"				"	11.0V	"	D4	"	"	"	"	"	"	"			
I _{OL1}		89	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	GND				GND	5.0V	5.0V	D4	0.51		0.36		0.64		mA			
		90	"	"	"	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		91	"	"	"	"	"	"	"	"	"	0.4V	0.4V	0.4V	"	"	"	D2	"	"	"	"	"	"	"			
		92	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"			
		93	GND	GND	GND	GND	GND	GND	GND	"	5.0V				0.4V	5.0V	GND	"	D4	"	"	"	"	"	"			
		94	"	"	"	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		95	"	"	"	"	"	"	"	"	"	0.4V	0.4V	0.4V	"	"	"	D2	"	"	"	"	"	"	"			
		96	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"			
I _{OL2}		97	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	GND				GND	15.0V	15.0V	D4	3.4		2.4		4.2		"			
		98	"	"	"	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		99	"	"	"	"	"	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		100	"	"	"	"	"	"	"	"	"	1.5V	1.5V	1.5V	"	"	"	D1	"	"	"	"	"	"	"			
		101	GND	GND	GND	GND	GND	GND	GND	"	15.0V				1.5V	15.0V	GND	"	D4	"	"	"	"	"	"			
		102	"	"	"	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		103	"	"	"	"	"	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		104	"	"	"	"	"	"	"	"	"	1.5V	1.5V	1.5V	"	"	"	D1	"	"	"	"	"	"	"			
I _{OH1}		105	5.0V	"	"	"	"	"	"	"	5.0V				5.0V	GND	5.0V	D4	-0.51		-0.36		-0.64		"			
		106	GND	5.0V	"	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		107	"	GND	5.0V	"	"	"	"	"	"				"	"	"	D3	"	"	"	"	"	"	"			
		108	"	"	GND	5.0V	"	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		109	"	"	"	5.0V	"	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		110	"	"	"	"	5.0V	"	"	"	"				"	"	"	D2	"	"	"	"	"	"	"			
		111	"	"	"	"	"	5.0V	"	"	"	4.6V	4.6V	4.6V	"	"	"	D1	"	"	"	"	"	"	"			
		112	"	"	"	"	"	GND	5.0V	"	"				4.6V	"	"	D4	"	"	"	"	"	"	"			

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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	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
I _{OH2}			113	15.0V	GND	GND	GND	GND	GND	GND	15.0V								D4	-3.4		-2.4		-4.2		mA		
			114	GND	15.0V	GND	GND	"	"	"	"	"							D3	"		"		"		"		
			115	"	"	GND	15.0V	"	"	"	"	"								D3	"		"		"		"	
			116	"	"	"	GND	15.0V	"	"	"	"								D2	"		"		"		"	
			117	"	"	"	"	15.0V	GND	15.0V	"	"								D2	"		"		"		"	
			118	"	"	"	"	"	GND	15.0V	15.0V	GND	15.0V							D1	"		"		"		"	
			119	"	"	"	"	"	"	"	GND	15.0V	GND	15.0V						D1	"		"		"		"	
			120	"	"	"	"	"	"	"	"	GND	GND	"						D4	"		"		"		"	
I _{IH1 4/}	3010	121	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	GND	GND	GND	GND	GND	"	"					"	"	"	A3		"		"			"		
		124	"	"	GND	18.0V	"	"	"	"	"					"	"	"	B3		"		"			"		
		125	"	"	"	GND	18.0V	"	"	"	"					"	"	"	A2		"		"			"		
		126	"	"	"	"	18.0V	GND	18.0V	"	"					"	"	"	B2		"		"			"		
		127	"	"	"	"	"	GND	18.0V	18.0V	GND	18.0V				"	"	"	A1		"		"			"		
		128	"	"	"	"	"	"	"	"	"	18.0V	GND	18.0V		"	"	"	B1		"		"			"		
	129	"	"	"	"	"	"	"	"	"	"	"	"		"	"	"	Ka		"		"			"			
130	"	"	"	"	"	"	"	"	"	"	"	"		18.0V	GND	18.0V	Kb		"		"			"				
131	"	"	"	"	"	"	"	"	"	"	"	"		"	"	"	A4		"		"			"				
I _{IL1 4/}	3009	132	"	"	"	"	"	"	"	"	"				GND	GND	"	All inputs together		-1000					"			
I _{IL2 4/}		133	"	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	18.0V					18.0V	18.0V	"	B4		-100		-100			"		
		134	18.0V	GND	18.0V	GND	"	"	"	"	"					"	"	"	A3		"		"			"		
		135	"	18.0V	GND	18.0V	"	"	"	"	"					"	"	"	B3		"		"			"		
		136	"	"	18.0V	GND	18.0V	"	"	"	"					"	"	"	A2		"		"			"		
		137	"	"	"	18.0V	GND	18.0V	"	"	"					"	"	"	B2		"		"			"		
		138	"	"	"	"	18.0V	GND	18.0V	"	"					"	"	"	A1		"		"			"		
		139	"	"	"	"	"	18.0V	GND	18.0V	GND	18.0V				"	"	"	B1		"		"			"		
	140	"	"	"	"	"	"	"	"	"	GND	18.0V			"	"	"	Ka		"		"			"			
141	"	"	"	"	"	"	"	"	"	"	"			GND	18.0V	"	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							pF			
		144	"	"	"	"	"	"	"	"	"						"	A3							"			
		145	"	"	"	"	"	"	"	"	"						"	B3							"			
		146	"	"	"	"	"	"	"	"	"						"	A2							"			
		147	"	"	"	"	"	"	"	"	"						"	B2							"			
		148	"	"	"	"	"	"	"	"	"						"	A1							"			
		149	"	"	"	"	"	"	"	"	"						"	B1							"			
		150	"	"	"	"	"	"	"	"	"						5/	"	A4							"		
151	"	"	"	"	"	"	"	"	"	5/					"	Ka								"				
152	"	"	"	"	"	"	"	"	"	"				5/	"	Kb								"				
																			Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
I _{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	"	"	"	"	"	"					"	"	"	D3	"	"	"	"	"	"	"		
		155	"	"	"	IN	"	"	"	"	"					"	"	"	D2	"	"	"	"	"	"	"		
		156	"	"	"	"	GND	"	"	IN	"					"	"	"	D1	"	"	"	"	"	"	"		
		157	"	"	"	"	GND	"	"	GND	"			OUT	OUT	OUT	"	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					
			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								D3	13	300	18	420	13	300	ns			
		159	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
		160	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
		161	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"		
		162	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"		
		163	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
		164	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
		165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"		
		166	"	5.0V	"	"	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	D3	"	"	"	"	"	"	"		
		167	"	GND	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
		168	"	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
		t _{PLH}	3003 (Fig. 4)	169	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
				170	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"
				171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"
				172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"
				173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"
				174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"
				175	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"
176	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
177	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"		
178	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"		
179	"			5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
180	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
181	"			5.0V	"	"	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
182	"			GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"	
183	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"	
184	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
t _{THL}	3004 (Fig. 4)			185	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	10	"	14	"	10	"	"	
				186	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"
		187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
		188	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
		189	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"		
		190	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"		
		191	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
		192	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
		193	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
		194	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"	
		195	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"	
		196	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
		197	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
		198	"	5.0V	"	"	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"	
		199	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"	
		200	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
		t _{TLH}	3004 (Fig. 4)	201	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
				202	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"
203	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
204	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"		
205	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
206	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"	
207	"			IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"		
208	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
209	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"	
210	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"	
211	"			5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"	
212	"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1	"	"	"	"	"	"	"	
213	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D4	"	"	"	"	"	"	"			
214	"	5.0V	"	"	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	D3	"	"	"	"	"	"	"			
215	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2	"	"	"	"	"	"	"			
216	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	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.
- 2/ I_{SS} measurements shall be performed in sequence.
- 3/ The V_{IL} and V_{IH} input test requirements are acceptable if the output state limit is met, attributes data required.
- 4/ 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.
- 5/ See 4.4.1c.

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	11.0V	4.0V			GND	GND	GND	GND	GND			GND	GND	15.0V	1Y	13.5		13.5		13.5		V	
		54	4.0V	11.0V			GND	GND	GND	GND	GND			"	"	"	1Y	"		"		"		"	
		55	GND	GND			11.0V	4.0V	"	"	"			"	"	"	2Y	"		"		"		"	
		56	"	"			4.0V	11.0V	"	"	"			"	"	"	2Y	"		"		"		"	
		57	"	"			GND	GND	"	11.0V	4.0V			"	"	"	3Y	"		"		"		"	
		58	"	"			"	"	"	4.0V	11.0V			"	"	"	3Y	"		"		"		"	
		59	"	"			"	"	"	GND	GND			11.0V	4.0V	"	4Y	"		"		"		"	
		60	"	"			"	"	"	"	"			4.0V	11.0V	"	4Y	"		"		"		"	
V _{IL1} 3/		61	1.5V	"			"	"	"	"			"	GND	GND	5.0V	1Y		0.5		0.5		0.5	"	
		62	GND	"			1.5V	"	"	"			"	"	"	"	2Y		"		"		"	"	
		63	"	"			GND	"	"	"			"	"	"	"	3Y		"		"		"	"	
		64	"	"			"	"	"	1.5V	"			1.5V	"	"	4Y		"		"		"	"	
V _{IL2} 3/		65	3.0V	"			"	"	"	"			"	"	"	10.0V	1Y		1.0		1.0		1.0	"	
		66	GND	"			3.0V	"	"	"			"	"	"	"	2Y		"		"		"	"	
		67	"	"			"	"	"	"			"	"	"	"	3Y		"		"		"	"	
		68	"	"			"	"	"	3.0V	"			3.0V	"	"	4Y		"		"		"	"	
V _{IL3} 3/		69	4.0V	"			4.0V	"	"	"			"	"	"	15.0V	1Y		1.5		1.5		1.5	"	
		70	GND	"			"	"	"	"			"	"	"	"	2Y		"		"		"	"	
		71	"	"			"	"	"	"			"	"	"	"	3Y		"		"		"	"	
		72	"	"			"	"	"	4.0V	"			4.0V	"	"	4Y		"		"		"	"	
I _{OL1}		73	"	"	0.4V		"	"	"	"			"	"	"	5.0V	1Y	0.51		0.36		0.64		mA	
		74	"	"	"	0.4V	"	"	"	"			"	"	"	"	2Y	"		"		"		"	
		75	"	"	"	"	"	"	"	"		0.4V	"	"	"	"	3Y	"		"		"		"	
		76	"	"	"	"	"	"	"	"		"	0.4V	"	"	"	4Y	"		"		"		"	
I _{OL2}		77	"	"	1.5V		"	"	"	"			"	"	"	15.0V	1Y	3.4		2.4		4.2		"	
		78	"	"	"	1.5V	"	"	"	"			"	"	"	"	2Y	"		"		"		"	
		79	"	"	"	"	"	"	"	"		1.5V	"	"	"	"	3Y	"		"		"		"	
		80	"	"	"	"	"	"	"	"		"	1.5V	"	"	"	4Y	"		"		"		"	
I _{OH1}		81	5.0V	"	4.6V		5.0V	"	"	5.0V	"			5.0V	"	5.0V	1Y	-0.51		-0.36		-0.64		"	
		82	"	"	"	4.6V	"	"	"	"			"	"	"	"	2Y	"		"		"		"	
		83	"	"	"	"	"	"	"	"		4.6V	"	"	"	"	3Y	"		"		"		"	
		84	"	"	"	"	"	"	"	"		"	4.6V	"	"	"	4Y	"		"		"		"	
I _{OH2}		85	15.0V	"	13.5V		15.0V	"	"	15.0V	"			15.0V	"	15.0V	1Y	-3.4		-2.4		-4.2		"	
		86	"	"	"	13.5V	"	"	"	"			"	"	"	"	2Y	"		"		"		"	
		87	"	"	"	"	"	"	"	"		13.5V	"	"	"	"	3Y	"		"		"		"	
		88	"	"	"	"	"	"	"	"		"	13.5V	"	"	"	4Y	"		"		"		"	
I _{IH1} 4/	3010	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	
		90	18.0V	GND			GND	GND	"	GND	GND			GND	GND	"	"	1A		100.0		100.0		"	
I _{IH2}		91	GND	18.0V			GND	GND	"	GND	GND			"	"	"	"	1B		"		"		"	
		92	"	GND			18.0V	"	"	"	"			"	"	"	"	2A		"		"		"	
		93	"	GND			"	18.0V	"	"	"			"	"	"	"	2B		"		"		"	
		94	"	"			"	18.0V	"	"	"			"	"	"	"	3A		"		"		"	
		95	"	"			"	"	"	"	18.0V	"			"	"	"	3B		"		"		"	
		96	"	"			"	"	"	"	"	"			18.0V	"	"	4A		"		"		"	
97	"	"			"	"	"	"	"	"			GND	18.0V	"	4B		"		"		"			
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 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		1mA													GND	Kd		1.5				V			
			2			1mA													H						"			
			3				1mA												G							"		
			4					1mA											F							"		
			5						1mA										E							"		
			6							1mA									Kb							"		
			7								1mA								Kc							"		
			8									1mA							Ka							"		
			9										1mA						D							"		
			10											1mA					C							"		
			11												1mA				B							"		
			12													1mA			A							"		
			13														1mA		EX							"		
V _{IC(NEG)}			14		-1mA					GND									Kd		-6.0				V			
			15			-1mA													H						"			
			16				-1mA												G						"			
			17					-1mA											F						"			
			18						-1mA										E						"			
			19							-1mA									Kb							"		
			20								-1mA								Kc							"		
			21									-1mA							Ka							"		
			22										-1mA						D							"		
			23											-1mA					C							"		
			24												-1mA				B							"		
			25													-1mA			A							"		
			26														-1mA		EX							"		
I _{SS} 2/	3005		27		GND	GND	GND	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	18.0V	V _{SS}		-1.9		-3		µA			
			28		18.0V	GND	GND	GND	GND	GND	18.0V	"	18.0V	GND	GND	GND	GND	GND	"							"		
			29		GND	18.0V	18.0V	18.0V	18.0V	18.0V	GND	"	GND	GND	18.0V	18.0V	18.0V	18.0V	18.0V	"							"	
			30		18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	"	18.0V	"							"							
V _{OH5}	3006		31		15.0V	GND	GND	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	15.0V	J	14.95		14.95		14.95	V			
			32		"	GND	GND	GND	GND	GND	"	"	15.0V	15.0V	GND	GND	GND	GND	"	"	14.95		14.95		14.95	"		
V _{OL6}	3007		33		15.0V	15.0V	15.0V	15.0V	15.0V	"	"	GND	GND	15.0V	15.0V	15.0V	15.0V	"	"		0.05		0.05		0.05	"		
			34		"	15.0V	15.0V	15.0V	15.0V	15.0V	"	"	15.0V	15.0V	15.0V	15.0V	15.0V	15.0V	"	"		0.05		0.05		0.05	"	
V _{IH1}			35		3.5V	3.5V	1.5V	1.5V	1.5V	"	1.5V	1.5V	1.5V	1.5V	1.5V	1.5V	"	5.0V	"	0.5		0.5		0.5	"			
			36		"	1.5V	3.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			37		"	"	1.5V	3.5V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			38		"	"	"	3.5V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			39		"	"	"	1.5V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			40		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"		
			41		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"		
			42		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"		
		43		"	3.5V	3.5V	3.5V	3.5V	"	"	3.5V	3.5V	3.5V	3.5V	3.5V	3.5V	"	"	"						"			
V _{IH2}			44		7.0V	7.0V	3.0V	3.0V	3.0V	"	3.0V	3.0V	3.0V	3.0V	3.0V	3.0V	"	10.0V	"	1.0		1.0		1.0	"			
			45		"	3.0V	7.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			46		"	"	3.0V	7.0V	"	"	"	"	"	"	"	"	"	"	"	"						"		
			47		"	"	"	3.0V	7.0V	"	"	"	"	"	"	"	"	"	"	"						"		
			48		"	"	"	"	3.0V	"	"	"	"	"	"	"	"	"	"	"						"		
			49		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"		
			50		"	"	"	"	"	"	"	"	"	"	7.0V	7.0V	7.0V	"	"	"						"		
			51		"	"	"	"	"	"	"	"	"	"	3.0V	3.0V	7.0V	"	"	"						"		
		52		"	7.0V	7.0V	7.0V	7.0V	"	"	7.0V	7.0V	7.0V	7.0V	7.0V	7.0V	"	"	"						"			

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
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		1.5		1.5		V			
	54		"	"	4.0V	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	55		"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	56		"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	57		"	"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	58		"	"	"	"	"	"	"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"	"			
	59		"	"	"	"	"	"	"	"	"	"	"	4.0V	11.0V	"	"	"	"	"	"	"	"	"	"			
	60		"	"	"	"	"	"	"	"	"	"	"	"	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	11.0V	11.0V	"	"	"	"	"	"	"	"	"	"			
V _{IL1}	62		3.5V	1.5V	1.5V	1.5V	1.5V	1.5V	"	1.5V	1.5V	1.5V	1.5V	1.5V	1.5V	"	5.0V	"	"	4.5		4.5		4.5	"			
	63		"	1.5V	3.5V	3.5V	3.5V	3.5V	"	3.5V	3.5V	3.5V	3.5V	3.5V	3.5V	"	"	"	"	"	"	"	"	"	"			
	64		"	3.5V	1.5V	1.5V	1.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	65		"	"	3.5V	1.5V	1.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	66		"	"	"	3.5V	1.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	67		"	"	"	"	3.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	68		"	"	"	"	"	3.5V	"	"	"	"	1.5V	"	"	"	"	"	"	"	"	"	"	"	"			
	69		"	"	"	"	"	"	"	"	"	"	3.5V	1.5V	"	"	"	"	"	"	"	"	"	"	"			
70		"	"	"	"	"	"	"	"	"	"	"	3.5V	1.5V	1.5V	"	"	"	"	"	"	"	"	"				
V _{IL2}	71		7.0V	3.0V	3.0V	3.0V	3.0V	3.0V	"	3.0V	3.0V	3.0V	3.0V	3.0V	3.0V	"	10.0V	"	"	9.0		9.0		9.0	"			
	72		"	3.0V	7.0V	7.0V	7.0V	7.0V	"	7.0V	7.0V	7.0V	7.0V	7.0V	7.0V	"	"	"	"	"	"	"	"	"	"			
	73		"	7.0V	3.0V	3.0V	3.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	74		"	"	7.0V	3.0V	3.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	75		"	"	"	7.0V	3.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	76		"	"	"	"	7.0V	3.0V	"	"	"	"	3.0V	"	"	"	"	"	"	"	"	"	"	"	"			
	77		"	"	"	"	"	7.0V	"	"	"	"	7.0V	3.0V	"	"	"	"	"	"	"	"	"	"	"			
	78		"	"	"	"	"	"	"	"	"	"	"	7.0V	3.0V	"	"	"	"	"	"	"	"	"	"			
79		"	"	"	"	"	"	"	"	"	"	"	7.0V	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	"	"	13.5		13.5		13.5	"			
	81		"	4.0V	11.0V	11.0V	11.0V	11.0V	"	11.0V	11.0V	11.0V	11.0V	11.0V	11.0V	"	"	"	"	"	"	"	"	"	"			
	82		"	11.0V	4.0V	4.0V	4.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	83		"	"	11.0V	4.0V	4.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	84		"	"	"	11.0V	4.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	85		"	"	"	"	11.0V	4.0V	"	"	"	"	4.0V	"	"	"	"	"	"	"	"	"	"	"	"			
	86		"	"	"	"	"	11.0V	"	"	"	"	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"	"			
	87		"	"	"	"	"	"	"	"	"	"	"	11.0V	4.0V	"	"	"	"	"	"	"	"	"	"			
88		"	"	"	"	"	"	"	"	"	"	"	11.0V	4.0V	4.0V	"	"	"	"	"	"	"	"	"				
I _{OL1}	89		0.4V	5.0V	5.0V	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	"	5.0V	"	"	0.51		0.36		0.64	mA			
	90		"	"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	91		"	"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	92		"	"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	93		"	"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	94		"	"	"	"	GND	GND	"	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"			
	95		"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	96		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
97		"	"	5.0V	5.0V	5.0V	5.0V	"	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"				
I _{OL2}	98		1.5V	15.0V	15.0V	GND	GND	GND	"	GND	GND	GND	GND	GND	GND	"	15.0V	"	"	3.4		2.4		4.2	"			
	99		"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	100		"	"	"	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	101		"	"	"	"	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	102		"	"	"	"	"	GND	"	"	"	"	15.0V	"	"	"	"	"	"	"	"	"	"	"	"			
	103		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	104		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
	105		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
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	5.0V	J	-0.51		-0.36		-0.64		mA		
			108	"	"	GND	5.0V	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			109	"	"	5.0V	GND	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			110	"	"	"	5.0V	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			111	"	"	"	"	5.0V	GND	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			112	"	"	"	"	"	GND	5.0V	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"
			113	"	"	"	"	"	"	"	"	"	"	"	5.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"
I _{OH2}			114	"	"	"	"	"	"	"	"	"	"	5.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"	
			115	"	"	"	"	"	"	"	"	"	"	"	5.0V	GND	"	"	"	"	"	"	"	"	"	"	"	"
			116	13.5V	15.0V	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	"	"	"	"	"	"	"	"	"	"
			118	"	"	15.0V	GND	15.0V	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			119	"	"	"	15.0V	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
			120	"	"	"	"	GND	15.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
I _{IH1 3/}	3010		125		18.0V	18.0V	18.0V	18.0V	18.0V	"	"	18.0V	All inputs together		13					nA								
			126		18.0V	GND	GND	GND	GND	GND	"	"	GND	"	Kd		1		45		"							
			127		"	18.0V	GND	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	H		"		"		"	
			128		"	"	18.0V	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	G		"		"		"
			129		"	"	"	18.0V	GND	GND	"	"	"	"	"	"	"	"	"	"	"	F		"		"		"
			130		"	"	"	"	18.0V	GND	"	"	"	"	"	"	"	"	"	"	"	E		"		"		"
			131		"	"	"	"	"	18.0V	GND	18.0V	"	"	"	"	"	"	"	"	"	Kb		"		"		"
			132		"	"	"	"	"	"	18.0V	GND	"	"	"	"	"	"	"	"	"	Kc		"		"		"
			133		"	"	"	"	"	"	"	"	18.0V	GND	"	"	"	"	"	"	"	Ka		"		"		"
			134		"	"	"	"	"	"	"	"	"	"	18.0V	GND	"	"	"	"	"	D		"		"		"
			135		"	"	"	"	"	"	"	"	"	"	"	18.0V	GND	"	"	"	"	C		"		"		"
I _{IL1 3/}	3009		136		"	"	"	"	"	"	"	"	"	"	18.0V	GND	"	"	"	B		"		"		"		
			137		"	"	"	"	"	"	"	"	"	"	"	"	18.0V	GND	"	"	A		"		"		"	
			138		"	"	"	"	"	"	"	"	"	"	"	"	"	18.0V	GND	"	EX		"		"		"	
			139		"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	All inputs together		-13					"
			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	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	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 Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit			
			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	5.0V	GND	GND	GND	5.0V	5.0V	5.0V	5.0V	IN	5.0V	GND	5.0V	A to J	32	650	32	655	25	490	ns	
		209	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		210	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		211	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		212	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		213	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		214	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
215	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL4}	3003 (Fig. 8)	216	"	"	5.0V	"	"	"	"	"	"	5.0V	"	"	"	"	"	"	"	"	A to J	"	"	33	670	29	570	"	
		217	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		218	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		219	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		220	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		221	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		222	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
223	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH4}	3003 (Fig. 8)	224	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A to J	35	695	42	830	31	610	"	
		225	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"	
		226	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"	
		227	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		228	"	"	"	"	"	"	"	"	"	"	"	"	IN	5.0V	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		229	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		230	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
231	"	"	"	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL5}	3003 (Fig. 9)	232	"	"	"	GND	GND	GND	"	5.0V	"	GND	GND	GND	GND	IN	GND	"	"	"	A to J	33	665	39	775	29	575	"	
		233	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		234	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		235	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		236	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		237	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		238	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
239	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH5}	3003 (Fig. 9)	240	"	"	"	GND	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	A to J	27	540	32	645	24	485	"	
		241	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		242	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		243	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		244	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		245	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		246	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
247	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PHL6}	3003 (Fig. 10)	248	"	"	"	GND	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	A to J	32	640	38	755	27	540	"	
		249	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		250	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		251	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		252	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		253	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		254	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
255	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"		
t _{PLH6}	3003 (Fig. 10)	256	"	"	"	GND	"	"	"	5.0V	"	"	"	"	"	"	"	"	"	"	A to J	30	585	35	700	26	520	"	
		257	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B to J	"	"	"	"	"	"	"
		258	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	C to J	"	"	"	"	"	"	"
		259	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D to J	"	"	"	"	"	"	"
		260	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	E to J	"	"	"	"	"	"	"
		261	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"
		262	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"
263	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	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	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	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	C to J	"	"	"	"	"	"	"						
		267	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	"	D to J	"	"	"	"	"	"	"						
		268	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	IN	5.0V	5.0V	GND	GND	"	"	E to J	"	"	"	"	"	"	"						
		269	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	F to J	"	"	"	"	"	"	"					
		270	"	"	"	5.0V	IN	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	G to J	"	"	"	"	"	"	"					
t _{PLH7}		271	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"							
t _{PHL8}	3003 (Fig. 12)	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	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	C to J	"	"	"	"	"	"	"	"	"					
		275	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	D to J	"	"	"	"	"	"	"	"	"					
		276	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	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	"	"	"	"	"	"	"	"				
t _{PLH8}		279	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	"						
t _{PHL9}	3003 (Fig. 13)	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	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	C to J	"	"	"	"	"	"	"	"	"	"				
		283	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	D to J	"	"	"	"	"	"	"	"	"	"				
		284	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	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	"	"	"	"	"	"	"	"	"			
t _{PLH9}		287	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	"	"					
t _{PHL10}	3003 (Fig. 14)	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	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	C to J	"	"	"	"	"	"	"	"	"	"	"			
		291	"	"	"	"	"	"	"	"	"	"	"	5.0V	IN	5.0V	"	"	D to J	"	"	"	"	"	"	"	"	"	"	"			
		292	"	"	5.0V	5.0V	5.0V	IN	"	"	"	"	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	"	"	"	"	"	"	"	"	"	"	"	
t _{PHL11}		295	"	"	IN	5.0V	5.0V	"	"	"	"	"	"	"	"	"	"	"	H to J	"	"	"	"	"	"	"	"	"	"	"			
t _{PHL9}		296	"	"	GND	GND	GND	GND	GND	"	GND	IN	"	"	"	"	"	"	Ka to J	34	690	38	760	30	595	"							
t _{PLH9}		297	"	"	"	"	"	"	GND	"	"	IN	"	"	"	"	"	"	Ka to J	31	625	37	730	28	555	"							
t _{PHL10}		298	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	Kb to J	27	535	31	615	23	460	"							
t _{PLH10}		299	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	Kb to J	26	515	30	605	23	465	"							
t _{PHL11}		300	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	Kc to J	21	420	24	475	18	360	"							
t _{PLH11}		301	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	Kc to J	19	380	24	445	17	340	"							
t _{THL}		302	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	J	7	135	8	160	6	115	"							
t _{THL}	3004 (Fig. 5)	303	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		304	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		305	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		306	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		307	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		308	"	"	"	IN	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
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 Symbol	Terminal conditions 1/																Measured terminal	Test limits						Unit
			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	
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	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"
		312	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"
		313	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	"	"	"	"	"	"	"
		314	"	"	"	"	"	"	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.

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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 ^{1/}		
	V _{DD} = 10 V dc (through a 30 kΩ to 60 kΩ resistor)	V _{SS} = 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 kΩ to 60 kΩ 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 actual packaging of material is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department of Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

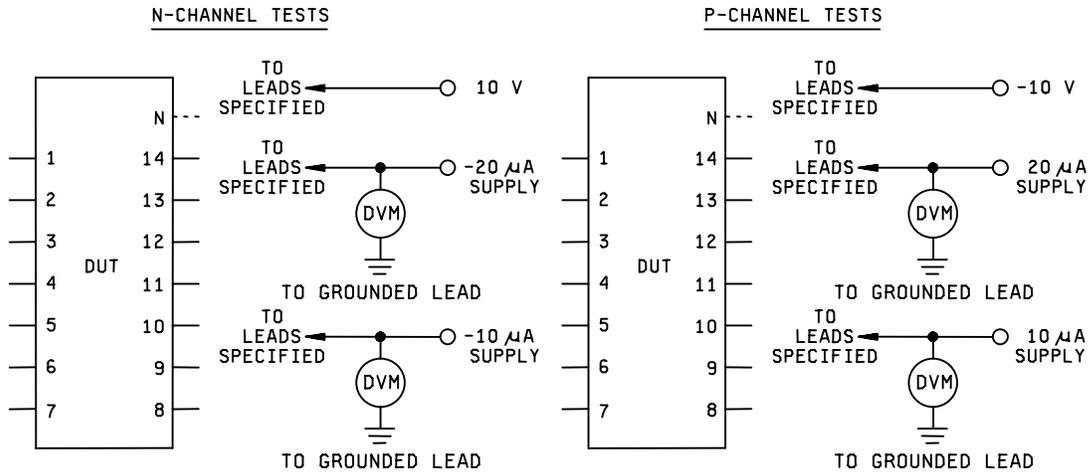


FIGURE 17. Threshold-voltage test circuit.

TABLE VII. Threshold-voltage test circuit conditions.

Device type	GND	10 V	V_{TN} measured at		GND	-10 V	V_{TP} measured at	
			-20 μ A supply	-10 μ A supply			20 μ A supply	10 μ A 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.

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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 www.dodssp.daps.mil.