

INCH-POUND

MIL-M-38510/658A
7 MARCH 2006

SUPERSEDING
MIL-M-38510/658
19 December 1986

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, HIGH-SPEED CMOS,
DECODERS, MONOLITHIC SILICON, POSITIVE LOGIC

Reactivated after 07 Mar. 2006 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 For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535 (see 6.3).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 be as follows:

<u>Device type</u>	<u>Circuit</u>
01	BCD-to-decimal decoder
02	Single 3-to-8 line decoder
03	Dual 2-to-4 line decoder
04	4-to-16 line decoder/demultiplexer
52	Single 3-to-8 line decoder (TTL compatible)
53	Dual 2-to-4 line decoder (TTL compatible)

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

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

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-line
F	GDFP2-F16 or CDFP3-F16	16	Flat pack
K	GDFP2-F24 or CDFP3-F24	24	Flat pack
L	GDFP3-F24 or CDFP4-F24	24	Dual-in-line
2	CQCC1-N20	20	Square leadless chip carrier
3	CQCC1-N28	28	Square leadless chip carrier

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAC, P.O. Box 3990, Columbus, OH 43218-3990, or email CMOS@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <http://assist.daps.dla.mil/>

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1.3 Absolute maximum ratings.

Supply voltage range (V_{CC})	-0.5 V dc to +7.0 V dc
DC input voltage range (V_{IN})	-0.5 V dc to $V_{CC} + 0.5$ V dc
DC output voltage range (V_{OUT})	-0.5 V dc to $V_{CC} + 0.5$ V dc
Clamp diode current (I_{IK}, I_{OK})	± 20 mA
DC output current per pin (I_{OUT})	± 25 mA
DC V_{CC} or GND current per pin (I_{OC})	± 50 mA
Storage temperature range (T_{STG})	-65° to +150°C
Maximum power dissipation, (P_D)	300 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.

Device types 01, 02, 03, and 04:

Supply voltage range (V_{CC})	2.0 V dc to 6.0 V dc
Maximum input low voltage (V_{IL})	0.3 V at $V_{CC} = 2.0$ V 0.9 V at $V_{CC} = 4.5$ V 1.2 V at $V_{CC} = 6.0$ V
Minimum input high voltage (V_{IH})	1.5 V at $V_{CC} = 2.0$ V 3.15 V at $V_{CC} = 4.5$ V 4.2 V at $V_{CC} = 6.0$ V
Maximum input rise and fall times (t_r, t_f):	
$V_{CC} = 2.0$ V	1000 ns
$V_{CC} = 4.5$ V	500 ns
$V_{CC} = 6.0$ V	400 ns

Device types 52 and 53:

Supply voltage range (V_{CC})	4.5 V dc to 5.5 V dc
Maximum input low voltage (V_{IL})	0.8 V at $V_{CC} = 4.5$ V through 5.5 V
Minimum input high voltage (V_{IH})	2.0 V at $V_{CC} = 4.5$ V through 5.5 V
Maximum input rise and fall times (t_r, t_f):	
$V_{CC} = 4.5$ V and 5.5 V	500 ns

All devices:

Output voltage (V_{OUT})	0.0 V to V_{CC}
Case operating temperature range (T_C)	-55° to +125°C

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

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

DEPARTMENT OF DEFENSE SPECIFICATION

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

DEPARTMENT OF DEFENSE STANDARDS

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

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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

3. REQUIREMENTS

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

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

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

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

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

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

3.3.4 Switching time test circuit and waveforms. The switching time test circuit and waveforms shall be as specified on figure 4.

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 ambient 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.

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 39 (see MIL-PRF-38535, appendix A).

4. VERIFICATION

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

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

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in 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 method 5004 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), ambient temperature (T_A) 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 GND. Outputs shall be open or connected to $V_{CC}/2$. Resistors are optional on outputs if open. Resistors are required on inputs and required on outputs and required on outputs connected to $V_{CC}/2$. $R = 680\Omega$ to 47 k Ω .
 - ii. For static burn-in II, all inputs shall be connected through the resistors to V_{CC} . Outputs shall be open or connected to $V_{CC}/2$. Resistors are optional on outputs if open. Resistors are required on inputs and required on outputs connected to $V_{CC}/2$. $R = 680\Omega$ to 47 k Ω .
 - iii. $V_{CC}/2 = V_{CC}/2 \pm 0.5 V$.
 - iv. $V_{CC} = 6.0 V \pm 0.5 V$ for device types 01-04.
 $V_{CC} = 5.5 V \pm 0.5 V$ for device types 52 and 53.
- (2) Unless otherwise specified in the manufacturers QM plan for dynamic test (test condition D), ambient temperature shall be +125°C minimum. Test duration shall be in accordance with table I of method 1015 of MIL-STD-883.
 - i. For dynamic burn-in, all select inputs shall be connected through the resistors R1 in parallel to the clock pulses as shown in paragraph v below. All outputs shall be connected through the resistors R2 to $V_{CC}/2$. Output resistors = 1 k $\Omega \pm 5\%$.
 - ii. $V_{CC} = 6.0 V \pm 0.5 V$ for device types 01-04; $V_{CC} = 5.5 V \pm 0.5 V$ for device types 52 and 53.
 - iii. $V_{CC}/2 = V_{CC}/2 \pm 0.5 V$.
 - iv. Duty cycle = 50 percent ± 15 percent; $V_{IH} = 4.5 V$ minimum to V_{CC} maximum; $V_{IL} = 0.0 V \pm 0.5 V$; t_{TLH} and $t_{THL} \leq 500 ns$.
 - v. For device type 01, input A, CP1 = 100 kHz square wave; input B, CP2 = 50 kHz square wave; input C, CP3 = 25 kHz square wave; input D, CP4 = 12.5 kHz square wave.

 For device types 02 and 52, inputs A, B, and C, CP1, CP2, and CP3 = 25 kHz to 1 MHz square wave; CP3 = CP2/2, CP2 = CP1/2. Enable inputs G2A and G2B are connected to GND and G1 is connected through the resistor R2 to $V_{CC}/2$.

 For device types 03 and 53, input A, CP1 = 25 kHz to 1 MHz square wave; input B, CP2 = CP1/2. Enable input G is connected to GND.

 For device type 04, inputs A, B, C, D, CP1, CP2, CP3, CP4 = 25 kHz to 1 MHz square wave; CP2 = CP1/2, CP3 = CP2/2, CP4 = CP3/2. Enable inputs G1 and G2 are connected through the resistors R1 to GND.

- 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.

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.

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

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

- a. Tests shall be performed in accordance with table II herein.
- b. Subgroups 5 and 6 shall be omitted.
- c. Subgroup 4 (C_{IN} 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.

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 method 1005 of MIL-STD-883.

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

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions 1/ $T_C = +125^\circ\text{C}$ unless otherwise specified	Device type	V_{CC}	Limits		Unit
					Min	Max	
High level output voltage	V_{OH1} <u>2/</u>	$V_{IH} = 1.5\text{ V}$, $V_{IL} = 0.3\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01,02 03,04	2.0V	1.95		V
	V_{OH2} <u>2/</u>	$V_{IH} = 3.15\text{ V}$, $V_{IL} = 0.9\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01,02 03,04	4.5V	4.45		V
	V_{OH3}	$V_{IH} = 4.2\text{ V}$, $V_{IL} = 1.2\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01,02 03,04	6.0V	5.95		V
	V_{OH4} <u>2/</u>	$V_{IH} = 3.15\text{ V}$; $V_{IL} = 0.9\text{ V}$ $I_{OH} = -4.0\text{ mA}$	01,02 03,04	4.5V	3.7		V
	V_{OH5}	$V_{IH} = 4.2\text{ V}$, $V_{IL} = 1.2\text{ V}$ $I_{OH} = -5.2\text{ mA}$	01,02 03,04	6.0V	5.2		V
	V_{OH6}	$V_{IH} = 2.0\text{ V}$, $V_{IL} = 0.8\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	52,53	4.5V	4.40		V
	V_{OH7}	$V_{IH} = 2.0\text{ V}$, $V_{IL} = 0.8\text{ V}$ $I_{OH} = -4.0\text{ mA}$	52,53	5.5V	3.70		V
Low level output voltage	V_{OL1} <u>2/</u>	$V_{IL} = 0.3\text{ V}$, $V_{IH} = 1.5\text{ V}$ $I_{OL} = 20\text{ }\mu\text{A}$	01,02 03,04	2.0V		0.05	V
	V_{OL2} <u>2/</u>	$V_{IL} = 0.9\text{ V}$, $V_{IH} = 3.15\text{ V}$ $I_{OL} = 20\text{ }\mu\text{A}$	01,02 03,04	4.5V		0.05	V
	V_{OL3}	$V_{IL} = 1.2\text{ V}$, $V_{IH} = 4.2\text{ V}$ $I_{OL} = 20\text{ }\mu\text{A}$	01,02 03,04	6.0V		0.05	V
	V_{OL4} <u>2/</u>	$V_{IL} = 0.9\text{ V}$, $V_{IH} = 3.15\text{ V}$ $I_{OL} = 4.0\text{ mA}$	01,02 03,04	4.5V		0.4	V
	V_{OL5}	$V_{IL} = 1.2\text{ V}$, $V_{IH} = 4.2\text{ V}$ $I_{OL} = 5.2\text{ mA}$	01,02 03,04	6.0V		0.4	V
	V_{OL6}	$V_{IL} = 0.8\text{ V}$, $V_{IH} = 2.0\text{ V}$ $I_{OL} = 20\text{ }\mu\text{A}$	52,53	4.5V		0.05	V
	V_{OL7}	$V_{IL} = 0.8\text{ V}$, $V_{IH} = 2.0\text{ V}$ $I_{OL} = 4.0\text{ mA}$	52,53	5.5V		0.4	V
Positive input clamp voltage	V_{IC+}	$I_{IN} = 1\text{ mA}$ $T_C = +25^\circ\text{C}$	All	GND		1.5	V
Negative input clamp voltage	V_{IC-}	$I_{IN} = -1\text{ mA}$ $T_C = +25^\circ\text{C}$	All	OPEN		-1.5	V
Input current low	I_{IL}	$V_{IN} = \text{GND}$	01,02 03,04	6.0V		-0.1	μA
			52,53	5.5V		-0.1	μA
Input current high	I_{IH}	$V_{IN} = V_{CC}$	01,02 03,04	6.0V		0.1	μA
			52,53	5.5V		0.1	μA

See footnotes at the end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions <u>1/</u> T _C = +125°C unless otherwise specified	Device type	V _{CC}	Limits		Unit			
					Min	Max				
Short-circuit output current	I _{OS1} <u>2/</u>	T _C = -55°C to +125°C V _O = GND V _I = GND	01,02 03,04	2.0V	-2	-50	mA			
	I _{OS2} <u>2/</u>			4.5V	-15	-150				
	I _{OS3} <u>2/</u>			6.0V	-25	-180				
	I _{OS4}			4.0V	-10	-120				
	I _{OS2} <u>2/</u>		52,53	4.5V	-15	-150				
	I _{OS5} <u>2/</u>			5.5V	-25	-180				
	I _{OS4}			4.0V	-10	-120				
Supply current quiescent	I _{CC}	V _I = GND or V _{CC}	All	6.0V		20	μA			
Additional supply current quiescent per input pin (one unit load)	I _{CCΔ} <u>3/</u>	V _{IL} = 0.8 V V _{IH} = 2.4 V Test pin at V _{IN} = 2.4 V Other pins at 0.8 V or 5.5 V I _O = 0 V	52	5.5V		3.0	mA			
			53			1.5				
Input capacitance	C _I	T _C = +25°C	All			10	pF			
Power dissipation capacitance	C _{PD} <u>2/</u> <u>4/</u>	T _C = +25°C	01			65	pF			
			02			85				
			03			75				
			04			90				
			52			85				
			53			75				
Propagation delay times, input to output <u>5/</u> <u>6/</u>	t _{PHL1} , t _{PLH1}		01	4.5V	4	35	ns			
	t _{PLH1}				02	4.5V		4	47	
	t _{PHL1}			5						
	t _{PLH1} , t _{PHL1}	4 levels	03	4.5V	6	51				
	t _{PLH1} , t _{PHL1}	5 levels				8				
	t _{PLH1} , t _{PHL1}		04	4.5V	6	44				
	t _{PLH1}				52	4.5V		5	47	
	t _{PHL1}			6						
	t _{PLH1} , t _{PHL1}	4 levels	53	4.5V	5	41				
	t _{PLH1} , t _{PHL1}	5 levels				7		41		
	Propagation delay times, enable to output <u>5/</u> <u>6/</u>	t _{PHL2} , t _{PLH2}		C _L = 50 pF ± 10%	02	4.5V		4	41	ns
					03	4.5V		6	41	
04					4.5V	6	42			
52					4.5V	4	47			
53					4.5V	5	47			
Transition delay times <u>5/</u> <u>6/</u>	t _{THL} , t _{TLH}		All	4.5V	3	20				

1/ Complete terminal conditions and limits shall be as specified in table III.

2/ Guaranteed but not tested.

3/ Total supply current = $I_{CC} + I_{CC\Delta}$.4/ Power dissipation capacitance (C_{PD}) per decoder/demultiplexer.5/ Tested at $V_{CC} = 4.5\text{ V}$ at $+125^\circ\text{C}$ for sample testing and $V_{CC} = 4.5\text{ V}$ at $+25^\circ\text{C}$ for screening. Guaranteed at other V_{CC} voltages and temperatures, see table IA and exception in 4.4.1d.

TABLE I. Electrical performance characteristics – Continued.

- 6/ For propagation and transition delay times at $V_{CC} = 2.0$ V, increase limit by a factor of 5.
 For propagation and transition delay times at $V_{CC} = 6.0$ V, decrease limit by a factor of .85.

TABLE IA. Calculated dynamic figures at -55°C and +25°C ambient temperatures.

V_{CC} <u>1/</u>	$T_A = (^\circ\text{C})$ <u>2/</u>	
	+125	-55 and +25
2.0 V	5	5 x 0.75
4.5 V	↑ 1 ↓	↑ 0.75 ↓
6.0 V	0.85	0.85 x 0.75

1/ The 2.0 V and 6.0 V numbers are derived from their 4.5 V integer value. Rounding off according 5/4.

2/ Normalized numbers (+125°C equals 1).

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	Req'd			Not req'd	
3	Same as line 1		1*	Δ			
4	Static burn-in II (method 1015)	4.2c 4.5.2	Req'd		4.2c 4.5.2	Req'd ^{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	Req'd			Not req'd	
7	Same as line 1	4.2e	1	Δ			
8	Final electrical parameters		1*, 2, 3, 7, 8, 9			1*, 2, 7, 9 ^{4/}	
9	Group A test requirements	4.4.1	1, 2, 3, 4, 7, 9, 10, 11		4.4.1	1, 2, 3, 4, 7, 8, 9, 10, 11	
10	Group B test when using method 5005 QCI option	4.4.2	1, 2, 3, 7, 8, 9, 10, 11	Δ			
11	Group C end-point electrical parameters	4.4.2	1, 2, 3, 7, 8, 9, 10, 11	Δ	4.4.3	1, 2	Δ
12	Group D end-point electrical parameters	4.4.4	1, 2, 3		4.4.4	1, 2	

^{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 their option, either complete subgroup 1 electrical parameter measurements, including delta measurements, within 96 hours after burn-in completion (removal of bias); or may complete subgroup 1 electrical measurement without delta measurements within 24 hours after burn-in completion (removal of bias).

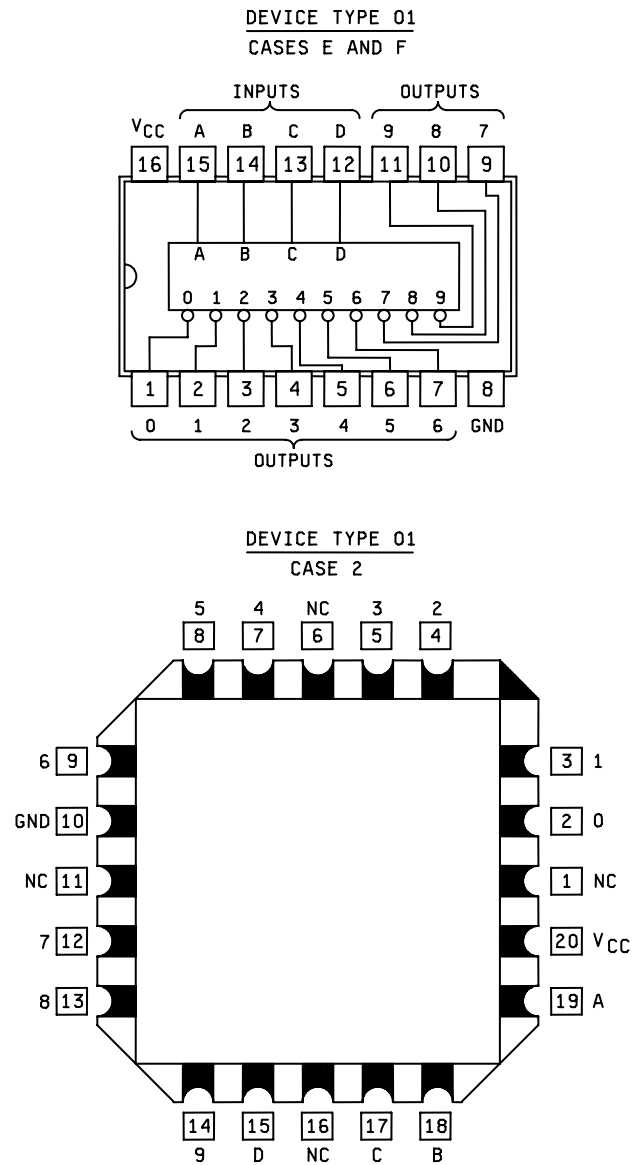
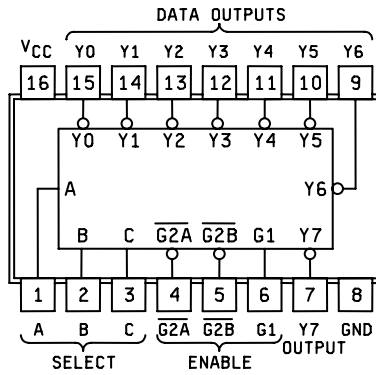


FIGURE 1. Terminal connections (top view).

DEVICE TYPES 02 AND 52
CASES E AND F



DEVICE TYPES 02 AND 52
CASE 2

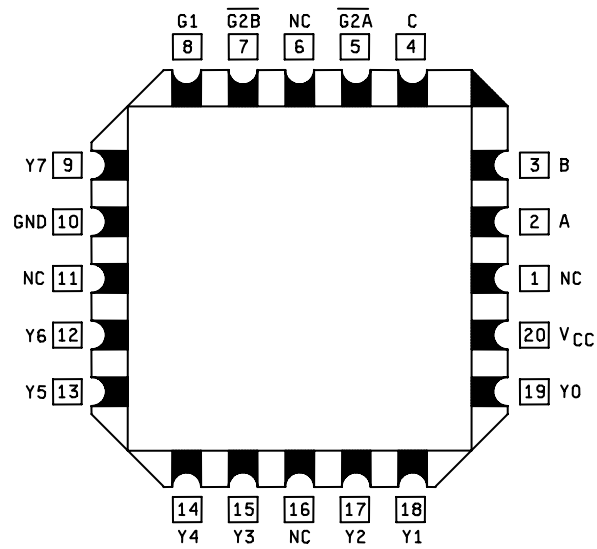


FIGURE 1. Terminal connections (top view) - Continued.

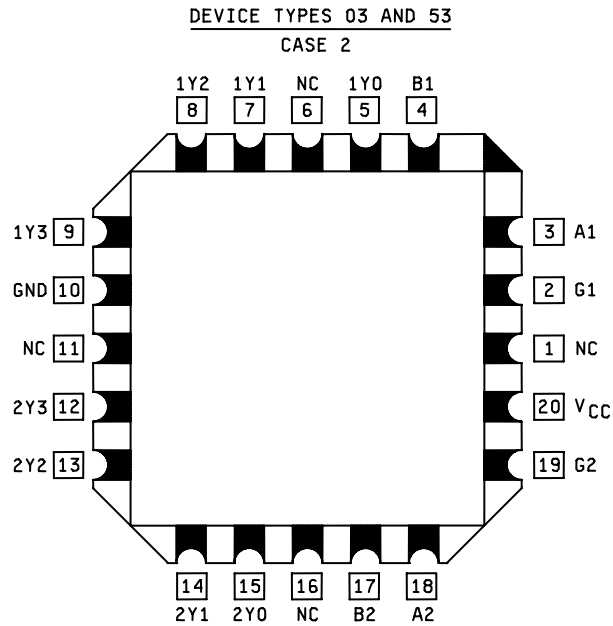
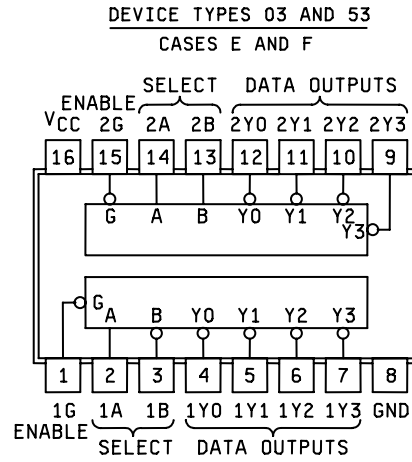


FIGURE 1. Terminal connections (top view) - Continued.

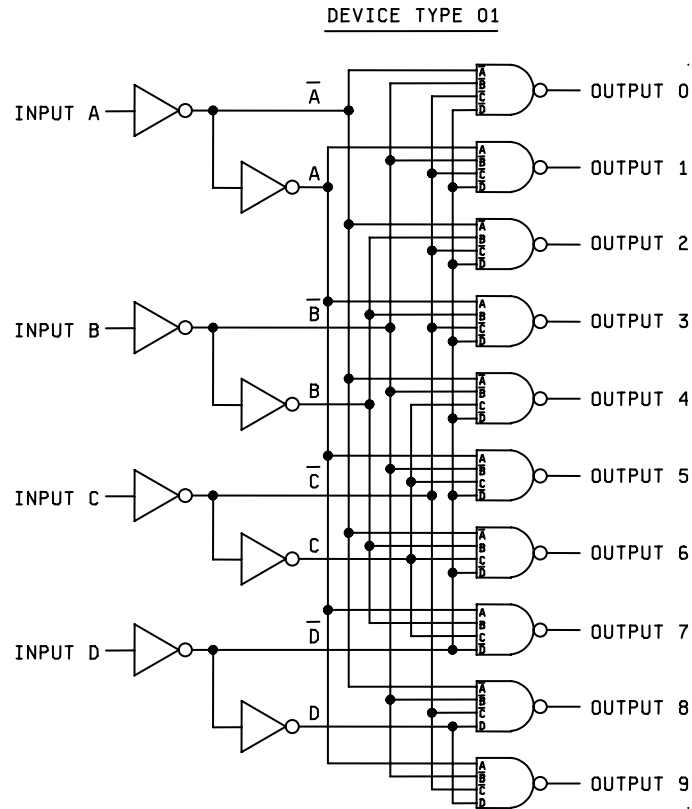
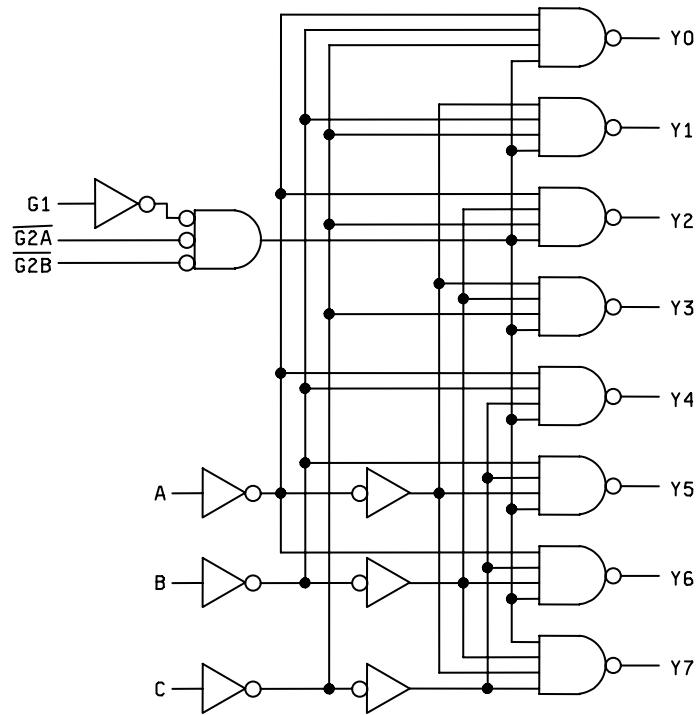


FIGURE 2. Logic diagrams.

DEVICE TYPES 02 AND 52FIGURE 2. Logic diagrams – Continued.

DEVICE TYPES 03 AND 53

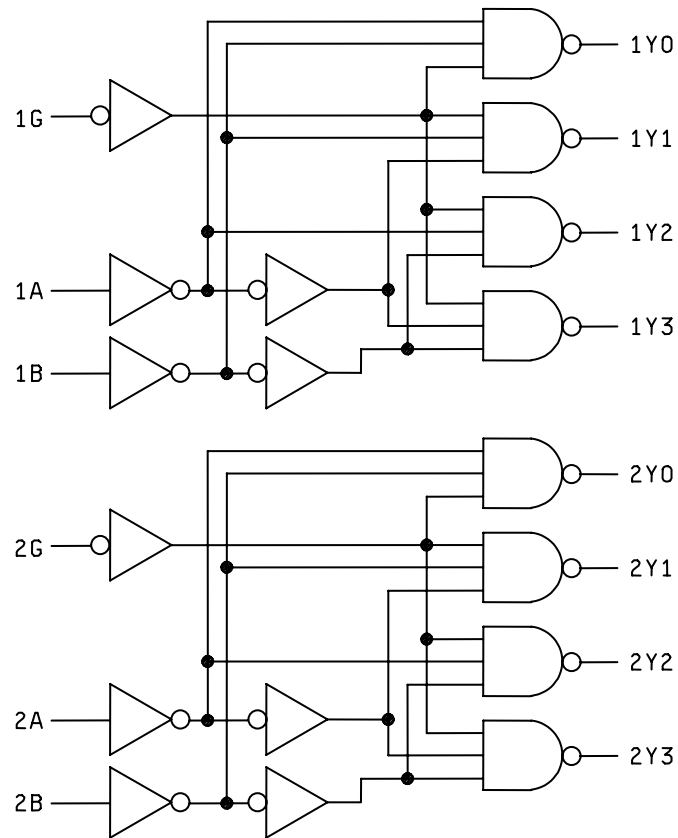
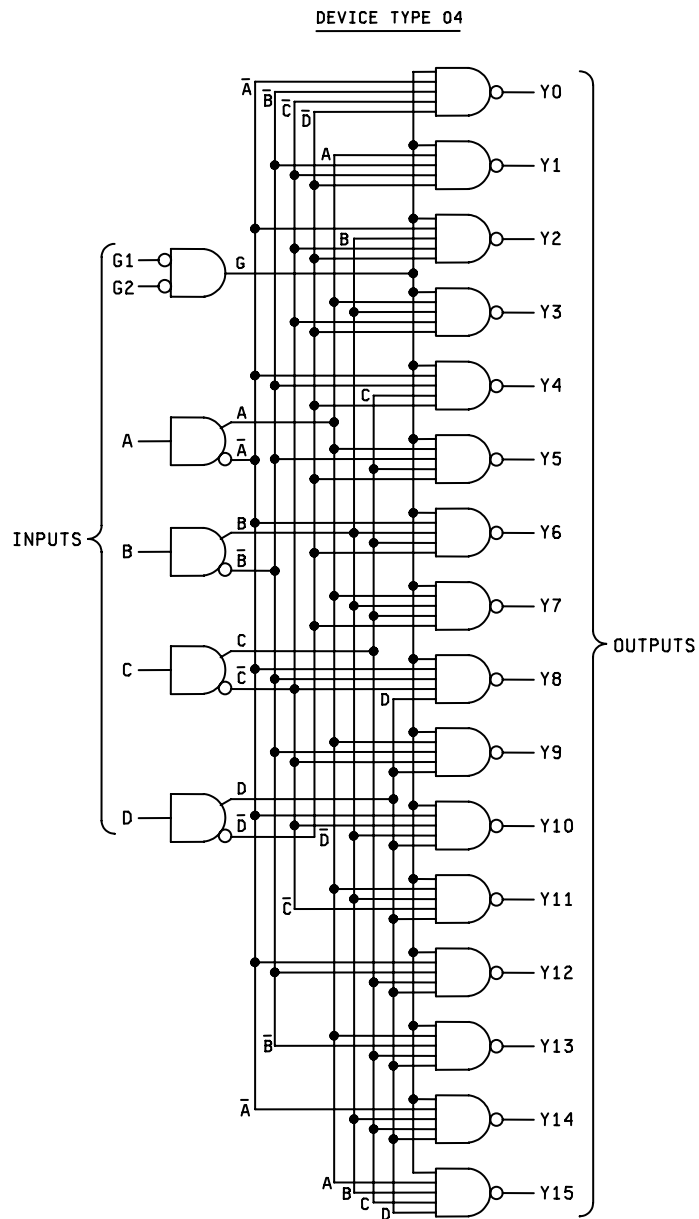


FIGURE 2. Logic diagrams – Continued.

FIGURE 2. Logic diagrams – Continued.

Device type 01

Inputs				Outputs									
D	C	B	A	0	1	2	3	4	5	6	7	8	9
L	L	L	L	L	H	H	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H	H	H
L	L	H	L	H	H	L	H	H	H	H	H	H	H
L	L	H	H	H	H	H	L	H	H	H	H	H	H
L	H	L	L	H	H	H	H	L	H	H	H	H	H
L	H	L	H	H	H	H	H	H	L	H	H	H	H
L	H	H	L	H	H	H	H	H	H	L	H	H	H
L	H	H	H	H	H	H	H	H	H	H	L	H	H
H	L	L	L	H	H	H	H	H	H	H	H	L	H
H	L	L	H	H	H	H	H	H	H	H	H	H	L
H	L	H	L	H	H	H	H	H	H	H	H	H	H
H	L	H	H	H	H	H	H	H	H	H	H	H	H
H	H	L	L	H	H	H	H	H	H	H	H	H	H
H	H	L	H	H	H	H	H	H	H	H	H	H	H
H	H	H	L	H	H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H	H	H	H	H	H

H = High level voltage

L = Low level voltage

Device types 02 and 52

Inputs					Outputs							
Enable		Select										
G1	$\overline{G2}^*$	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	H	L	H	H	H	H	H	H
H	L	L	H	L	H	H	L	H	H	H	H	H
H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	H	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	L	H	H
H	L	H	H	L	H	H	H	H	H	H	L	H
H	L	H	H	H	H	H	H	H	H	H	H	L

* $\overline{G2} = \overline{G2A} + \overline{G2B}$

H = High level voltage

L = Low level voltage

X = Irrelevant

FIGURE 3. Truth tables.

Device types 03 and 53

Inputs			Outputs			
Enable	Select					
G	B	A	Y0	Y1	Y2	Y3
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	L	H	H	L	H	H
L	H	L	H	H	L	H
L	H	H	H	H	H	L

H = High level voltage

L = Low level voltage

X = Irrelevant

Device type 04

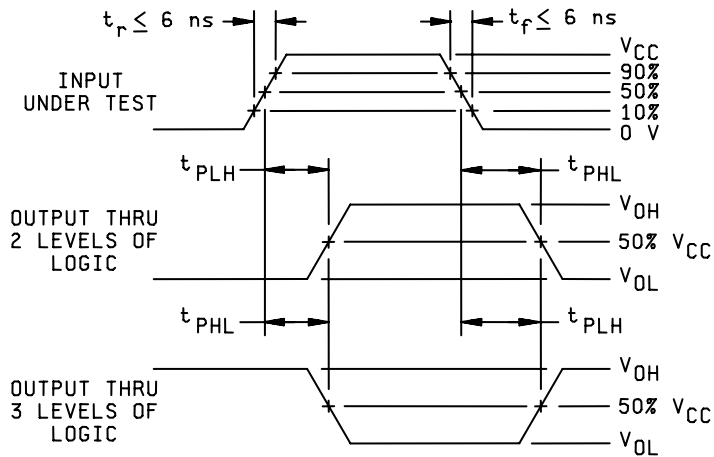
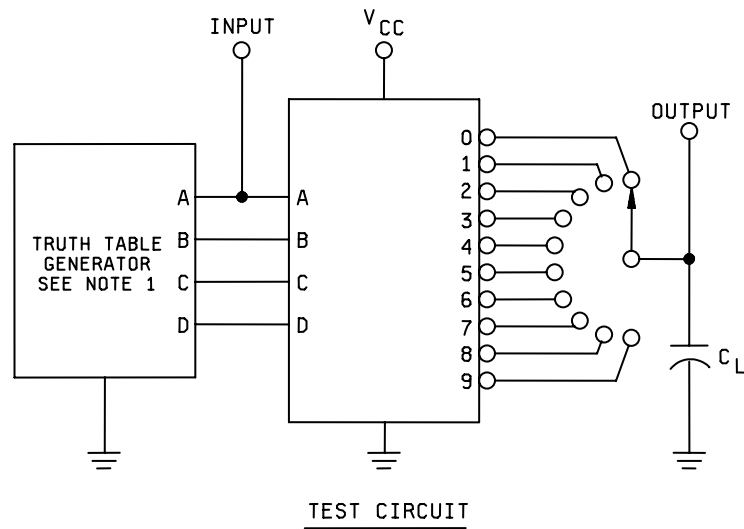
Inputs						Outputs															
G1	G2	D	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
L	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
L	L	H	L	L	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H
L	L	H	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H
L	L	H	L	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H
L	L	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H
L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H
L	L	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H
L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H
L	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	L	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

H = High level voltage

L = Low level voltage

X = Irrelevant

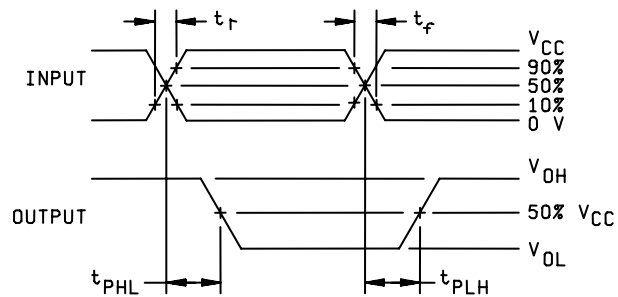
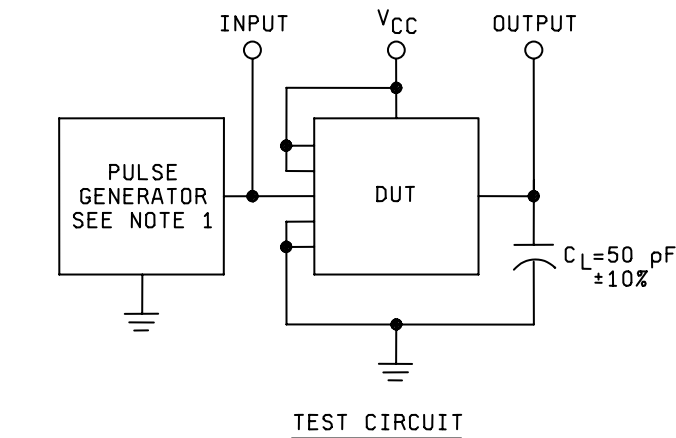
FIGURE 3. Truth tables – Continued.

DEVICE TYPE 01

NOTES:

1. The truth table generator has the following characteristics: PRR < 1 MHz, 50% duty cycle. Transition of the input under test shall occur simultaneously with or following the transition of the other inputs, $t_r = t_f \leq 6 \text{ ns}$.
2. C_L = 50 pF ± 10%; includes probe and jig capacitance.

FIGURE 4. Switching time test circuits and waveforms.

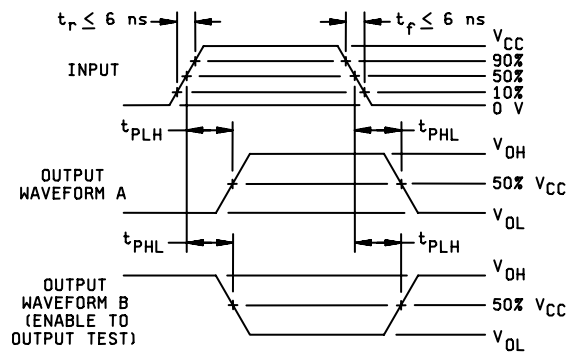
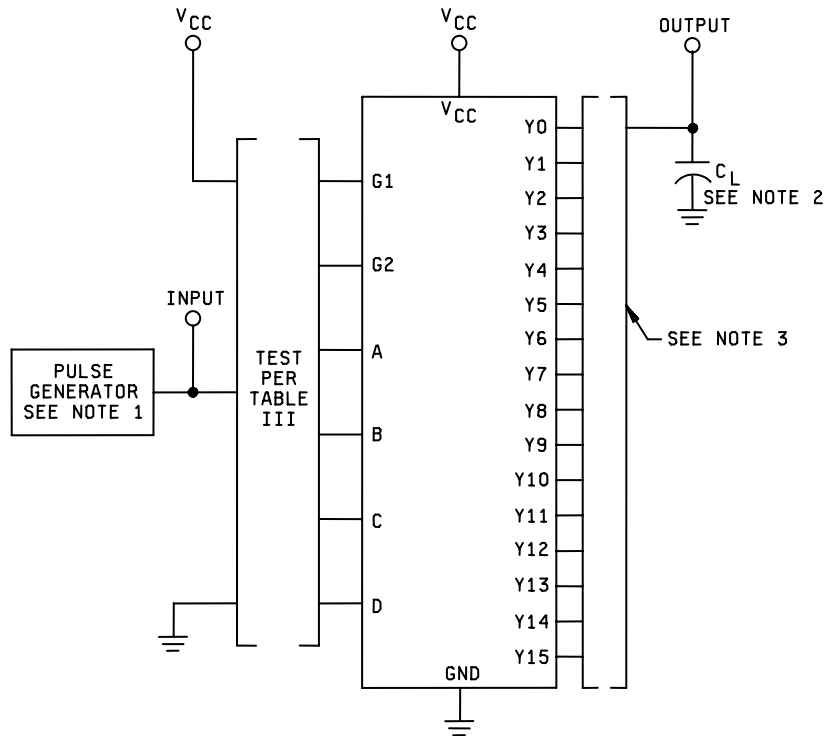
DEVICE TYPES 02,03,52 AND 53

NOTES:

1. Pulse generator has the following characteristics: $t_r = t_f \leq 6 \text{ ns}$; $\text{PRR} \leq 1 \text{ MHz}$; duty cycle = 50%.
2. $C_L = 50 \text{ pF} \pm 10\%$; includes scope probe, wiring, and stray capacitance, without package in test fixture.
3. Voltage measurements are to be made with respect to network ground terminal.
4. All unused inputs are tied to V_{CC} or ground according to table III.
5. The input signal for HCT device types (52 and 53) will be 0 to 3 volts; however, the 50% V_{CC} measuring point is 1.3 volts for input and output.

FIGURE 4. Switching time test circuits and waveforms – Continued.

DEVICE TYPE 04



NOTES:

1. Pulse generator has the following characteristics: $t_r = t_f \leq 6 \text{ ns}$; $\text{PRR} \leq 1 \text{ MHz}$; duty cycle = 50%.
2. $C_L = 50 \text{ pF} \pm 10\%$; includes probe and jig capacitance.
3. Load circuit is applied separately to each output pin under test. All other outputs may be open or loaded.

FIGURE 4. Switching time test circuits and waveforms – Continued.

TABLE III. Group A inspection for device type 01.

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
		Test no.	0	1	2	3	4	5	6	GND	7	8	9	D	C	B	A	V _{CC}								
V _{IC} (pos)		1 2 3 4								1/ "				1mA	1mA	1mA		GND	D C B A	1.5	"					V
V _{IC} (neg)		5 6 7 8								GND				-1mA	-1mA	-1mA		1/ "	D C B A	-1.5	"					"
I _{CC}	3005	9								"				6.0V	6.0V	6.0V	6.0V	6.0V	V _{CC}		0.2		20			μA
V _{OH3}	3006	10 11 12 13 14 15 16 17 18 19	-20μA	-20μA	-20μA	-20μA	-20μA	-20μA	-20μA	"				4.2V	4.2V	4.2V	4.2V	"	0 1 2 3 4 5 6 7 8 9	5.95	"	5.95	5.95	V	"	
V _{OH5}	3006	20 21 22 23 24 25 26 27 28 29	-5.2mA	-5.2mA	-5.2mA	-5.2mA	-5.2mA	-5.2mA	-5.2mA	"				"	"	"	"	"	0 1 2 3 4 5 6 7 8 9	5.48	"	5.2	5.48	"	"	
V _{OL3}	3007	30 31 32 33 34 35 36 37 38 39	20μA	20μA	20μA	20μA	20μA	20μA	20μA	"				1.2V	1.2V	1.2V	1.2V	"	0 1 2 3 4 5 6 7 8 9	0.05	"	0.05	0.05	"	"	
V _{OL5}	3007	40 41 42 43 44 45 46 47 48 49	5.2mA	5.2mA	5.2mA	5.2mA	5.2mA	5.2mA	5.2mA	"				1.2V	1.2V	1.2V	1.2V	"	0 1 2 3 4 5 6 7 8 9	0.26	"	0.4	0.26	"	"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
		Test no.	0	1	2	3	4	5	6	GND	7	8	9	D	C	B	A	V _{CC}								
I _{OS4}	3011	50	GND							GND				4.0V	4.0V	4.0V	4.0V	4.0V	0	-10	-120	-10	-120	-10	-120	mA
		51		GND															1							
		52			GND														2							
		53				GND													3							
		54					GND												4							
		55						GND											5							
		56							GND										6							
		57								GND									7							
		58									GND								8							
		59										GND							9							
I _{IH}	3010	60											6.0V	GND	GND	GND	6.0V	D							μA	
		61												GND	6.0V	GND	GND	C								
		62													GND	6.0V	6.0V	B	.05		.01					
		63														GND	GND	A								
I _{IL}	3009	64											6.0V	6.0V	6.0V	GND		A								
		65												6.0V	GND	6.0V		B								
		66												GND	6.0V	6.0V		C								
		67												GND	6.0V	6.0V		D								
																		Subgroup 4 T _C = +25°C								
																		Min	Max							
C _i	3012	68								GND				2/				GND	D						pF	
		69													2/				C							
		70														2/			B	10						
		71														2/			A							
																		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C				
																		Min	Max	Min	Max	Min	Max			
Truth table tests 3/	3009	72	L	H	H	H	H	H	H	GND	H	H	H	B	B	B	B	4.5V	4/							
		73	H																							
		74		H	L																					
		75			H	L																				
		76				H										A	B	A								
		77					L									B	A									
		78						L									B	A								
		79							L								A									
		80								L								A								
		81									L						B									
		82										L					A									
		83											L				B									
		84													A	B	A									
		85															B									
		86															A									
		87															A									

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit							
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9		Subgroup 10		Subgroup 11									
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/		T _C = +125°C		T _C = -55°C 5/									
		Test no.	0	1	2	3	4	5	6	GND	7	8	9	D	C	B	A	V _{CC}		Min	Max	Min	Max	Min	Max								
t _{PHL1}	3003 (Fig. 4)	88	OUT	OUT	OUT	OUT	OUT	OUT	OUT	GND	OUT	OUT	OUT	GND	GND	GND	IN	4.5V	A to 0	4	26	4	35	4	26	ns							
		89	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		90	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		91	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		92	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		93	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		94	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		95	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		96	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		97	"							"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		98	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		99	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		100	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		101	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		102	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		103	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		104	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		105	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		106	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		107	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		108	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		109	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		110	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		111	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		112	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		113	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		114	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		115	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		116	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		117	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		118	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		119	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		120	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		121	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		122	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		123	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		124	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		125	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		126	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		127	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	Subgroup 9		Subgroup 10		Subgroup 11					
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/		T _C = +125°C		T _C = -55°C 5/			
		Test no.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min		Max
t _{PLH1}	3003 (Fig. 4)	128	OUT								GND				GND	GND	GND	IN	4.5V	A to 0	4	26	4	35	4	26	ns
		129	"								"				"	GND	IN	GND	"	B to 0	"	"	"	"	"	"	"
		130	"								"				"	IN	GND	"	"	C to 0	"	"	"	"	"	"	"
		131	"								"				"	GND	"	"	"	D to 0	"	"	"	"	"	"	"
		132		OUT							"				"	GND	"	IN	"	A to 1	"	"	"	"	"	"	"
		133		"							"				"	"	IN	4.5V	"	B to 1	"	"	"	"	"	"	"
		134		"							"				"	IN	GND	"	"	C to 1	"	"	"	"	"	"	"
		135		"							"				"	IN	GND	GND	"	D to 1	"	"	"	"	"	"	"
		136			OUT						"				"	GND	"	4.5V	IN	"	A to 2	"	"	"	"	"	"
		137		"							"				"	"	IN	GND	"	B to 2	"	"	"	"	"	"	"
		138		"							"				"	IN	4.5V	"	"	C to 2	"	"	"	"	"	"	"
		139		"							"				"	IN	GND	"	"	D to 2	"	"	"	"	"	"	"
		140				OUT					"				"	GND	"	"	IN	"	A to 3	"	"	"	"	"	"
		141		"		"					"				"	"	IN	4.5V	"	B to 3	"	"	"	"	"	"	"
		142		"		"					"				"	"	IN	4.5V	"	C to 3	"	"	"	"	"	"	"
		143		"		"					"				"	IN	GND	4.5V	"	D to 3	"	"	"	"	"	"	"
		144					OUT				"				"	GND	4.5V	GND	IN	"	A to 4	"	"	"	"	"	"
		145					"				"				"	"	4.5V	IN	GND	"	B to 4	"	"	"	"	"	"
		146					"				"				"	"	IN	GND	"	C to 4	"	"	"	"	"	"	"
		147					"				"				"	IN	4.5V	"	"	D to 4	"	"	"	"	"	"	"
		148						OUT			"				"	GND	"	"	IN	"	A to 5	"	"	"	"	"	"
		149					"				"				"	"	IN	4.5V	"	B to 5	"	"	"	"	"	"	"
		150					"				"				"	"	IN	GND	"	C to 5	"	"	"	"	"	"	"
		151					"				"				"	IN	4.5V	GND	"	D to 5	"	"	"	"	"	"	"
		152							OUT		"				"	GND	"	4.5V	IN	"	A to 6	"	"	"	"	"	"
		153							"		"				"	"	IN	GND	"	B to 6	"	"	"	"	"	"	"
		154							"		"				"	"	IN	4.5V	"	C to 6	"	"	"	"	"	"	"
		155							"		"				"	IN	4.5V	"	"	D to 6	"	"	"	"	"	"	"
		156								OUT	"				"	GND	"	"	IN	"	A to 7	"	"	"	"	"	"
		157								"	"				"	"	"	IN	4.5V	"	B to 7	"	"	"	"	"	"
		158								"	"				"	"	IN	4.5V	"	C to 7	"	"	"	"	"	"	"
		159								"	"				"	IN	4.5V	4.5V	"	D to 7	"	"	"	"	"	"	"
		160									"			OUT	"	4.5V	GND	GND	IN	"	A to 8	"	"	"	"	"	"
		161									"			"		"	GND	IN	GND	"	B to 8	"	"	"	"	"	"
		162									"			"		"	IN	GND	"	C to 8	"	"	"	"	"	"	"
		163									"			"		"	"	GND	"	D to 8	"	"	"	"	"	"	"
		164									"			OUT	"	4.5V	"	"	IN	"	A to 9	"	"	"	"	"	"
		165									"			"		"	"	IN	4.5V	"	B to 9	"	"	"	"	"	"
		166									"			"		"	IN	GND	"	C to 9	"	"	"	"	"	"	"
		167									"			"		IN	GND	"	"	D to 9	"	"	"	"	"	"	"
t _{THL}	3004 (Fig. 4)	168	OUT							"					GND	"	"	IN	"	0	3	15	3	20	3	15	"
		169		OUT						"					"	"	"	"	"	1	"	"	"	"	"	"	"
		170			OUT					"					"	"	4.5V	"	"	2	"	"	"	"	"	"	"
		171				OUT				"					"	"	"	"	"	3	"	"	"	"	"	"	"
		172					OUT			"					"	4.5V	GND	"	"	4	"	"	"	"	"	"	"
		173						OUT		"					"	"	GND	"	"	5	"	"	"	"	"	"	"
		174							OUT	"					"	"	4.5V	"	"	6	"	"	"	"	"	"	"
		175								"				OUT	"	"	4.5V	"	"	7	"	"	"	"	"	"	"
		176								"		OUT			4.5V	GND	GND	"	"	8	"	"	"	"	"	"	"
		177								"			OUT		4.5V	"	"	"	"	9	"	"	"	"	"	"	"

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/	Subgroup 10 T _C = +125°C	Subgroup 11 T _C = -55°C 5/				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
		Test no.	0	1	2	3	4	5	6	GND	7	8	9	D	C	B	A	V _{CC}					Min	Max	Min	
t _{THL}	3004 (Fig. 4)	178	OUT							GND				GND	GND	GND	IN	4.5V	0	3	15	3	20	3	15	ns
		179		OUT						"				"	"	"	"	"	1	"	"	"	"	"	"	"
		180			OUT					"				"	"	4.5V	"	"	2	"	"	"	"	"	"	"
		181				OUT				"				"	"	4.5V	"	"	3	"	"	"	"	"	"	"
		182					OUT			"				"	"	GND	"	"	4	"	"	"	"	"	"	"
		183						OUT		"				"	"	GND	"	"	5	"	"	"	"	"	"	"
		184							OUT	"				"	"	GND	"	"	6	"	"	"	"	"	"	"
		185								"	OUT			"	"	4.5V	"	"	7	"	"	"	"	"	"	"
		186								"		OUT		"	"	4.5V	"	"	8	"	"	"	"	"	"	"
		187								"			OUT	4.5V	GND	"	"	"	9	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 02.

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}								
V _{IC} (pos)		1 2 3 4 5 6	1mA	1mA	1mA	1mA	1mA	1mA	1	/								GND	A B C G2A G2B G1	1.5				V		
V _{IC} (neg)		7 8 9 10 11 12	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND									/	A B C G2A G2B G1	-1.5						
I _{CC}	3005	13	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V										6.0V	V _{CC}		0.2		20	μA		
V _{OH3}	3006	14 15 16 17 18 19 20 21	1.2V	1.2V	1.2V	4.2V	1.2V	1.2V										Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	5.95				V			
V _{OH5}	3006	22 23 24 25 26 27 28 29																Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	5.48							
V _{OL3}	3007	30 31 32 33 34 35 36 37	4.2V	4.2V	4.2V	1.2V		4.2V										Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	0.05							
V _{OL5}	3007	38 39 40 41 42 43 44 45	1.2V	1.2V	1.2V													Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	0.26							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1		Subgroup 2		Subgroup 3		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C		T _C = +125°C		T _C = -55°C		
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}		Min	Max	Min	Max	Min	Max	
I _{OS4}	3011	46	GND	GND	GND	4.0V	4.0V	GND		GND								4.0V	Y0	-10	-120	-10	-120	-10	-120	mA
		47																	Y1							
		48																	Y2							
		49																	Y3							
		50																	Y4							
		51																	Y5							
		52																	Y6							
		53									GND		GND						Y7							
I _{IH}	3010	54	6.0V	GND	GND	GND	GND	GND										6.0V	A	0.05		0.1				μA
		55	GND	6.0V	GND													B								
		56		GND	6.0V													C								
		57			GND	6.0V												G2A								
		58			GND	GND	6.0V											G2B								
		59			GND	GND	GND	6.0V										G1								
I _{IL}	3009	60		6.0V	6.0V	6.0V	6.0V											A	-0.05		-0.1					
		61	6.0V	GND	GND													B								
		62		6.0V	6.0V													C								
		63			GND													G2A								
		64			6.0V	GND												G2B								
		65			6.0V	6.0V	GND											G1								
																			Subgroup 4 T _C = +25°C							
C _i	3012	66	2/															GND	A	10						pF
		67		2/														B								
		68			2/													C								
		69				2/												G2A								
		70					2/											G2B								
		71						2/										G1								
																			Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C			
Truth table tests 3/	3014	72	A	A	A	A	A	A	H	GND	H	H	H	H	H	H	H	4.5V	4/							
		73	B	A																						
		74		B																						
		75			B																					
		76				B																				
		77				A	B																			
		78				A	B	B																		
		79				A	B	A																		
		80					B																			
		81						A																		
		82																								
		83																								
		84																								
		85																								
		86																								
		87																								
		88																								

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																	Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	Subgroup 9 T _C = +25°C 5/		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Min	Max	Min	Max	Min	Max	
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}									
t _{PHL1}	3003 (Fig. 4)	89	IN	GND	GND	GND	GND	4.5V		GND							OUT	4.5V	A to Y0	5	35	5	47	5	35	ns	
t _{PHL1}		90	GND	IN	GND	"	"	"		"							"	"	B to Y0	"	"	"	"	"	"	"	
t _{PHL1}		91	"	GND	IN	"	"	"	"	"							"	"	C to Y0	"	"	"	"	"	"	"	
t _{PHL2}		92	"	"	GND	IN	"	"	"	"							"	"	G2A to Y0	4	31	4	41	4	31	"	
t _{PHL2}		93	"	"	"	GND	IN	"	"	"							"	"	G2B to Y0	"	"	"	"	"	"	"	
t _{PHL2}		94	"	"	"	"	"	GND	IN	"							"	"	G1 to Y0	"	"	"	"	"	"	"	
t _{PHL1}		95	IN	"	"	"	"	"	4.5V		"						OUT	"	A to Y1	5	35	5	47	5	35	"	
t _{PHL1}		96	4.5V	IN	"	"	"	"	"	"						"		"	B to Y1	"	"	"	"	"	"	"	
t _{PHL1}		97	"	GND	IN	"	"	"	"	"						"		"	C to Y1	"	"	"	"	"	"	"	
t _{PHL2}		98	"	"	GND	IN	"	"	"	"						"		"	G2A to Y1	4	31	4	41	4	31	"	
t _{PHL2}		99	"	"	"	GND	IN	"	"	"						"	"	"	G2B to Y1	"	"	"	"	"	"	"	
t _{PHL2}		100	"	"	"	"	"	GND	IN	"						"	"	"	G1 to Y1	"	"	"	"	"	"	"	
t _{PHL1}		101	IN	4.5V	"	"	"	"	4.5V		"					OUT	"	A to Y2	5	35	5	47	5	35	"		
t _{PHL1}		102	GND	IN	"	"	"	"	"	"					"		"	"	B to Y2	"	"	"	"	"	"	"	
t _{PHL1}		103	"	4.5V	IN	"	"	"	"	"					"		"	"	C to Y2	"	"	"	"	"	"	"	
t _{PHL2}		104	"	"	GND	IN	"	"	"	"					"		"	"	G2A to Y2	4	31	4	41	4	31	"	
t _{PHL2}		105	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y2	"	"	"	"	"	"	"	
t _{PHL2}		106	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y2	"	"	"	"	"	"	"	
t _{PHL1}		107	IN	"	"	"	"	"	4.5V		"				OUT	"	"	A to Y3	5	35	5	47	5	35	"		
t _{PHL1}		108	4.5V	IN	"	"	"	"	"	"						"	"	"	B to Y3	"	"	"	"	"	"	"	
t _{PHL1}		109	"	4.5V	IN	"	"	"	"	"						"	"	"	C to Y3	"	"	"	"	"	"	"	
t _{PHL2}		110	"	"	"	"	"	"	"	"						"	"	"	G2A to Y3	4	31	4	41	4	31	"	
t _{PHL2}		111	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y3	"	"	"	"	"	"	"	
t _{PHL2}		112	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y3	"	"	"	"	"	"	"	
t _{PHL1}		113	IN	GND	4.5V	"	"	"	4.5V		"			OUT			"	"	A to Y4	5	35	5	47	5	35	"	
t _{PHL1}		114	GND	IN	4.5V	"	"	"	"	"					"	"	"	"	B to Y4	"	"	"	"	"	"	"	
t _{PHL1}		115	"	GND	IN	"	"	"	"	"					"	"	"	"	C to Y4	"	"	"	"	"	"	"	
t _{PHL2}		116	"	"	4.5V	"	"	"	"	"					"	"	"	"	G2A to Y4	4	31	4	41	4	31	"	
t _{PHL2}		117	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y4	"	"	"	"	"	"	"	
t _{PHL2}		118	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y4	"	"	"	"	"	"	"	
t _{PHL1}		119	IN	GND	"	"	"	"	4.5V		"		OUT				"	"	A to Y5	5	35	5	47	5	35	"	
t _{PHL1}		120	4.5V	IN	"	"	"	"	"	"					"	"	"	"	B to Y5	"	"	"	"	"	"	"	
t _{PHL1}		121	"	GND	IN	"	"	"	"	"					"	"	"	"	C to Y5	"	"	"	"	"	"	"	
t _{PHL2}		122	"	"	4.5V	IN	"	"	"	"					"	"	"	"	G2A to Y5	4	31	4	41	4	31	"	
t _{PHL2}		123	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y5	"	"	"	"	"	"	"	
t _{PHL2}		124	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y5	"	"	"	"	"	"	"	
t _{PHL1}		125	IN	4.5V	"	"	"	"	4.5V		"		OUT				"	"	A to Y6	5	35	5	47	5	35	"	
t _{PHL1}		126	GND	IN	"	"	"	"	"	"					"	"	"	"	B to Y6	"	"	"	"	"	"	"	
t _{PHL1}		127	"	4.5V	IN	"	"	"	"	"					"	"	"	"	C to Y6	"	"	"	"	"	"	"	
t _{PHL2}		128	"	"	4.5V	IN	"	"	"	"					"	"	"	"	G2A to Y6	4	31	4	41	4	31	"	
t _{PHL2}		129	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y6	"	"	"	"	"	"	"	
t _{PHL2}		130	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y6	"	"	"	"	"	"	"	
t _{PHL1}		131	IN	"	"	"	"	"	4.5V	OUT	"						"	"	A to Y7	5	35	5	47	5	35	"	
t _{PHL1}		132	4.5V	IN	"	"	"	"	"	"					"	"	"	"	B to Y7	"	"	"	"	"	"	"	
t _{PHL1}		133	"	4.5V	IN	"	"	"	"	"					"	"	"	"	C to Y7	"	"	"	"	"	"	"	
t _{PHL2}		134	"	"	4.5V	IN	"	"	"	"					"	"	"	"	G2A to Y7	4	31	4	41	4	31	"	
t _{PHL2}		135	"	"	"	GND	IN	"	"	"					"	"	"	"	G2B to Y7	"	"	"	"	"	"	"	
t _{PHL2}		136	"	"	"	"	"	GND	IN	"					"	"	"	"	G1 to Y7	"	"	"	"	"	"	"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/	Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Min	Max	Min	Max	Min		Max
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}									
t _{PLH1}	3003 (Fig. 4)	137	IN	GND	GND	GND	GND	4.5V		GND							OUT	4.5V	A to Y0	4	35	4	47	4	35	ns	
t _{PLH1}		138	GND	IN	GND	"	"	"		"							"	"	B to Y0	"	"	"	"	"	"	"	
t _{PLH1}		139	"	GND	IN	"	"	"	"	"							"	"	C to Y0	"	"	"	"	"	"	"	
t _{PLH2}		140	"	"	GND	IN	"	"	"	"							"	"	G2A to Y0	"	31	"	41	"	31	"	
t _{PLH2}		141	"	"	"	GND	IN	"	"	"							"	"	G2B to Y0	"	"	"	"	"	"	"	
t _{PLH2}		142	"	"	"	"	GND	IN	"	"							"	"	G1 to Y0	"	"	"	"	"	"	"	
t _{PLH1}		143	IN	"	"	"	"	"	4.5V		"						OUT	"	A to Y1	"	35	"	47	"	35	"	
t _{PLH1}		144	4.5V	IN	"	"	"	"	"		"						"	"	B to Y1	"	"	"	"	"	"	"	
t _{PLH1}		145	"	GND	IN	"	"	"	"		"						"	"	C to Y1	"	"	"	"	"	"	"	
t _{PLH2}		146	"	"	GND	IN	"	"	"		"						"	"	G2A to Y1	"	31	"	41	"	31	"	
t _{PLH2}		147	"	"	"	GND	IN	"	"		"						"	"	G2B to Y1	"	"	"	"	"	"	"	
t _{PLH2}		148	"	"	"	"	GND	IN	"		"						"	"	G1 to Y1	"	"	"	"	"	"	"	
t _{PLH1}		149	IN	4.5V	"	"	"	"	4.5V		"						OUT	"	A to Y2	"	35	"	47	"	35	"	
t _{PLH1}		150	GND	IN	"	"	"	"	"		"						"	"	B to Y2	"	"	"	"	"	"	"	
t _{PLH1}		151	"	4.5V	IN	"	"	"	"		"						"	"	C to Y2	"	"	"	"	"	"	"	
t _{PLH2}		152	"	"	GND	IN	"	"	"		"						"	"	G2A to Y2	"	31	"	41	"	31	"	
t _{PLH2}		153	"	"	"	GND	IN	"	"		"						"	"	G2B to Y2	"	"	"	"	"	"	"	
t _{PLH2}		154	"	"	"	"	GND	IN	"		"						"	"	G1 to Y2	"	"	"	"	"	"	"	
t _{PLH1}		155	IN	"	"	"	"	"	4.5V		"				OUT		"	"	A to Y3	"	35	"	47	"	35	"	
t _{PLH1}		156	4.5V	IN	"	"	"	"	"		"				"		"	"	B to Y3	"	"	"	"	"	"	"	
t _{PLH1}		157	"	4.5V	IN	"	"	"	"		"				"		"	"	C to Y3	"	"	"	"	"	"	"	
t _{PLH2}		158	"	"	GND	IN	"	"	"		"				"		"	"	G2A to Y3	"	31	"	41	"	31	"	
t _{PLH2}		159	"	"	"	GND	IN	"	"		"				"		"	"	G2B to Y3	"	"	"	"	"	"	"	
t _{PLH2}		160	"	"	"	"	GND	IN	"		"				"		"	"	G1 to Y3	"	"	"	"	"	"	"	
t _{PLH1}		161	IN	GND	4.5V	"	"	"	4.5V		"			OUT			"	"	A to Y4	"	35	"	47	"	35	"	
t _{PLH1}		162	GND	IN	4.5V	"	"	"	"		"			"			"	"	B to Y4	"	"	"	"	"	"	"	
t _{PLH1}		163	"	GND	IN	"	"	"	"		"			"			"	"	C to Y4	"	"	"	"	"	"	"	
t _{PLH2}		164	"	"	4.5V	IN	"	"	"		"			"			"	"	G2A to Y4	"	31	"	41	"	31	"	
t _{PLH2}		165	"	"	"	GND	IN	"	"		"			"			"	"	G2B to Y4	"	"	"	"	"	"	"	
t _{PLH2}		166	"	"	"	"	GND	IN	"		"			"			"	"	G1 to Y4	"	"	"	"	"	"	"	
t _{PLH1}		167	IN	GND	"	"	"	"	4.5V		"		OUT				"	"	A to Y5	"	35	"	47	"	35	"	
t _{PLH1}		168	4.5V	IN	"	"	"	"	"		"		"		"		"	"	B to Y5	"	"	"	"	"	"	"	
t _{PLH1}		169	"	GND	IN	"	"	"	"		"		"		"		"	"	C to Y5	"	"	"	"	"	"	"	
t _{PLH2}		170	"	"	4.5V	IN	"	"	"		"		"		"		"	"	G2A to Y5	"	31	"	41	"	31	"	
t _{PLH2}		171	"	"	"	GND	IN	"	"		"		"		"		"	"	G2B to Y5	"	"	"	"	"	"	"	
t _{PLH2}		172	"	"	"	"	GND	IN	"		"		"		"		"	"	G1 to Y5	"	"	"	"	"	"	"	
t _{PLH1}		173	IN	4.5V	"	"	"	"	4.5V		"		OUT				"	"	A to Y6	"	35	"	47	"	35	"	
t _{PLH1}		174	GND	IN	"	"	"	"	"		"		"		"		"	"	B to Y6	"	"	"	"	"	"	"	
t _{PLH1}		175	"	4.5V	IN	"	"	"	"		"		"		"		"	"	C to Y6	"	"	"	"	"	"	"	
t _{PLH2}		176	"	"	4.5V	IN	"	"	"		"		"		"		"	"	G2A to Y6	"	31	"	41	"	31	"	
t _{PLH2}		177	"	"	"	GND	IN	"	"		"		"		"		"	"	G2B to Y6	"	"	"	"	"	"	"	
t _{PLH2}		178	"	"	"	"	GND	IN	"		"		"		"		"	"	G1 to Y6	"	"	"	"	"	"	"	
t _{PLH1}		179	IN	"	"	"	"	"	4.5V	OUT	"		"		"		"	"	A to Y7	"	35	"	47	"	35	"	
t _{PLH1}		180	4.5V	IN	"	"	"	"	"		"		"		"		"	"	B to Y7	"	"	"	"	"	"	"	
t _{PLH1}		181	"	4.5V	IN	"	"	"	"		"		"		"		"	"	C to Y7	"	"	"	"	"	"	"	
t _{PLH2}		182	"	"	4.5V	IN	"	"	"		"		"		"		"	"	G2A to Y7	"	31	"	41	"	31	"	
t _{PLH2}		183	"	"	"	GND	IN	"	"		"		"		"		"	"	G2B to Y7	"	"	"	"	"	"	"	
t _{PLH2}		184	"	"	"	GND	GND	IN	"		"		"		"		"	"	G1 to Y7	"	"	"	"	"	"	"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9		Subgroup 10		Subgroup 11		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/		T _C = +125°C		T _C = -55°C 5/		
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}		Min	Max	Min	Max	Min	Max	
t _{THL}	3004 (Fig. 4)	185	GND	GND	GND	GND	GND	IN		GND								4.5V	Y0	3	15	3	20	3	15	ns
		186	4.5V	GND	"	"	"	"		"								"	Y1	"	"	"	"	"	"	"
		187	GND	4.5V	"	"	"	"		"								"	Y2	"	"	"	"	"	"	"
		188	4.5V	4.5V	"	"	"	"		"								"	Y3	"	"	"	"	"	"	"
		189	GND	GND	4.5V	"	"	"		"			OUT	OUT				"	Y4	"	"	"	"	"	"	"
		190	4.5V	GND	"	"	"	"		"		OUT						"	Y5	"	"	"	"	"	"	"
		191	GND	4.5V	"	"	"	"		"	OUT							"	Y6	"	"	"	"	"	"	"
		192	4.5V	4.5V	"	"	"	"	OUT	"								"	Y7	"	"	"	"	"	"	"
t _{TLH}	3004 (Fig. 4)	193	GND	GND	GND	"	"	"		"								"	Y0	"	"	"	"	"	"	"
		194	4.5V	GND	"	"	"	"		"								"	Y1	"	"	"	"	"	"	"
		195	GND	4.5V	"	"	"	"		"								"	Y2	"	"	"	"	"	"	"
		196	4.5V	4.5V	"	"	"	"		"								"	Y3	"	"	"	"	"	"	"
		197	GND	GND	4.5V	"	"	"		"			OUT	OUT				"	Y4	"	"	"	"	"	"	"
		198	4.5V	GND	"	"	"	"		"		OUT						"	Y5	"	"	"	"	"	"	"
		199	GND	4.5V	"	"	"	"		"	OUT							"	Y6	"	"	"	"	"	"	"
		200	4.5V	4.5V	"	"	"	"	OUT	"								"	Y7	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 03.

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit			
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C					
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max				
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}											
V _{IC} (pos)		1 2 3 4 5 6	1mA	1mA	1mA					1/ 11							1mA	1mA	1mA	GND	G1 A1 B1 G2 A2 B2	1.5	11						V
V _{IC} (neg)		7 8 9 10 11 12	-1mA	-1mA	-1mA					GND										1/ 11	G1 A1 B1 G2 A2 B2	-1.5	11						11
I _{CC}	3005	13	6.0V	6.0V	6.0V					11					6.0V	6.0V	6.0V	6.0V	V _{CC}		0.2		20					μA	
V _{OH3}	3006	14 15 16 17 18 19 20 21	4.2V 11 11 11 11 11 11 11	GND 11 11 11 11 11 11 11	GND 11 11 11 11 11 11 11	-20μA	-20μA	-20μA	-20μA	11					GND 11 11 11 11 11 11 11	GND 11 11 11 11 11 11 11		11	11	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	5.95 11 5.95 11 11 11 11 11		5.95	11	11	V	11		
V _{OH5}	3006	22 23 24 25 26 27 28 29	4.2V 11 11 11 11 11 11 11	11 11 11 11 11 11 11 11	11 11 11 11 11 11 11 11	-5.2mA	-5.2mA	-5.2mA	-5.2mA	11					11 11 11 11 11 11 11 11	11 11 11 11 11 11 11 11		11	11	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	5.48 11 5.2 11 11 11 11 11		5.48	11	11	11	11		
V _{OL3}	3007	30 31 32 33 34 35 36 37	GND 11 11 11 11 11 11 11	11 4.2V GND 4.2V GND 11 11	11 4.2V 4.2V GND 11 11 11	20μA	20μA	20μA	20μA	11					11 11 11 11 11 11 11	11 11 11 11 11 11 11	GND	11	11	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	0.05 11 0.05 11 11 11 11 11		0.05	11	0.05	11	11		
V _{OL5}	3007	38 39 40 41 42 43 44 45	11 11 11 11 11 11 11 11	11 4.2V GND 4.2V GND 11 11	11 4.2V 4.2V GND 11 11 11	5.2mA	5.2mA	5.2mA	5.2mA	11					11 11 11 11 11 11 11	11 11 11 11 11 11 11	GND 11 11 11 11 11 11 11	11	11	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	0.26 11 0.4 11 11 11 11 11		0.4	11	0.26	11	11		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit														
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C																
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max															
I _{OS4}	3011	46	4.0V	GND	GND	GND	GND	GND	GND	GND	2Y3	2Y2	2Y1	2Y0	GND	GND	4.0V	4.0V	1Y0	-10	-120	-10	-120	-10	-120	mA														
		47	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
		48	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
		49	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
		50	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
		51	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
		52	"	"	"	"				"					"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
I _{IH}	3010	53	"	"	"	"	"	"	"	"	GND	GND	"	"	"	"	"	"	1Y1	"	"	"	"	"	"															
		54	6.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	6.0V	G1	.05	"	0.1	"	"	μA															
		55	GND	6.0V	GND	6.0V	"	"	"	"	"	"	"	"	"	"	"	"	A1																					
		56	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B1																					
		57	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G2																					
		58	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A2																					
		59	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2																					
I _{IL}	3009	60	GND	6.0V	6.0V	"	"	"	"	"	"	"	"	"	"	6.0V	6.0V	6.0V	G1							-.05	"	-0.1	"	"	μA									
		61	6.0V	GND	6.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	A1																					
		62	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B1																					
		63	"	"	6.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	G2																					
		64	"	"	6.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	A2																					
		65	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2																					
																				Subgroup 4 T _C = +25°C																				
																		Min	Max																					
C _i	3012	66	2/	2/	2/					GND						2/	2/	2/	GND	G1	10					pF														
		67	"							"									"	"							"	"	"	"	"	"	"	"	"	"	"	"	"	"
		68	"							"									"	"							"	"	"	"	"	"	"	"	"	"	"	"	"	"
		69	"							"									"	"							"	"	"	"	"	"	"	"	"	"	"	"	"	"
		70	"							"									"	"							"	"	"	"	"	"	"	"	"	"	"	"	"	"
																		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C																		
																		Min	Max	Min	Max	Min	Max																	
Truth table tests 3/	3014	72	A	A	A	H	H	H	H	GND	H	H	H	H	A	A	A	4.5V	4/																					
		73	"	B	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"														
		74	"	A	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"														
		75	"	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"														
		76	B	B	"	L	"	"	"	"	"	"	"	"	"	"	"	"	"							"														
		77	"	A	"	H	L	"	"	"	"	"	"	"	"	"	"	"	"							"														
		78	"	B	A	"	H	L	"	"	"	"	"	"	"	"	"	"	"							"														
79	"	A	A	"	H	H	L	"	"	L	H	"	"	A	A	"	"	"																						

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9		Subgroup 10		Subgroup 11		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/		T _C = +125°C		T _C = -55°C 5/		
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}		Min	Max	Min	Max	Min	Max	
t _{PHL2}	3003 (Fig. 4)	80	IN	GND	GND	OUT				GND					GND	GND	GND	4.5V	G1 to 1Y0	6	31	6	41	6	31	ns
t _{PHL1}		81	GND	IN	GND	"				"					"	"	"	"	A1 to 1Y0	"	39	"	51	"	39	"
t _{PHL1}		82	GND	GND	IN	"				"					"	"	"	"	B1 to 1Y0	"	39	"	51	"	39	"
t _{PHL2}		83	IN	4.5V	GND		OUT			"					"	"	"	"	G1 to 1Y1	"	31	"	41	"	31	"
t _{PHL1}		84	GND	IN	GND		"			"					"	"	"	"	A1 to 1Y1	"	39	"	51	"	39	"
t _{PHL1}		85	GND	4.5V	IN		"			"					"	"	"	"	B1 to 1Y1	"	39	"	51	"	39	"
t _{PHL2}		86	IN	GND	4.5V			OUT		"					"	"	"	"	G1 to 1Y2	"	31	"	41	"	31	"
t _{PHL1}		87	GND	IN	4.5V			"		"					"	"	"	"	A1 to 1Y2	"	39	"	51	"	39	"
t _{PHL1}		88	GND	GND	IN					"					"	"	"	"	B1 to 1Y2	"	39	"	51	"	39	"
t _{PHL2}		89	IN	4.5V	4.5V				OUT	"					"	"	"	"	G1 to 1Y3	"	31	"	41	"	31	"
t _{PHL1}		90	GND	IN	4.5V				"	"					"	"	"	"	A1 to 1Y3	8	39	8	51	8	39	"
t _{PHL1}		91	"	4.5V	IN				"	"					"	"	"	"	B1 to 1Y3	8	39	8	51	8	39	"
t _{PHL2}		92	"	GND	GND				"	"				OUT	"	"	IN	"	G2 to 2Y0	6	31	6	41	6	31	"
t _{PHL1}		93	"	"	"				"	"				"	"	IN	GND	"	A2 to 2Y0	"	39	"	51	"	39	"
t _{PHL1}		94	"	"	"				"	"				"	IN	GND	GND	"	B2 to 2Y0	"	39	"	51	"	39	"
t _{PHL2}		95	"	"	"				"	"			OUT	"	GND	4.5V	IN	"	G2 to 2Y1	"	31	"	41	"	31	"
t _{PHL1}		96	"	"	"				"	"			"		GND	IN	GND	"	A2 to 2Y1	"	39	"	51	"	39	"
t _{PHL1}		97	"	"	"				"	"			"		IN	4.5V	GND	"	B2 to 2Y1	"	39	"	51	"	39	"
t _{PHL2}		98	"	"	"				"	"		OUT	"		4.5V	GND	IN	"	G2 to 2Y2	"	31	"	41	"	31	"
t _{PHL1}		99	"	"	"				"	"		"			4.5V	IN	GND	"	A2 to 2Y2	"	39	"	51	"	39	"
t _{PHL1}		100	"	"	"				"	"		"			IN	GND	GND	"	B2 to 2Y2	"	39	"	51	"	39	"
t _{PHL2}		101	"	"	"				"	"	OUT	"			4.5V	4.5V	IN	"	G2 to 2Y3	"	31	"	41	"	31	"
t _{PHL1}		102	"	"	"				"	"	"				4.5V	IN	GND	"	A2 to 2Y3	8	39	8	51	8	39	"
t _{PHL1}		103	"	"	"				"	"	"				IN	4.5V	"	"	B2 to 2Y3	8	39	8	51	8	39	"
t _{PLH2}		104	IN	"	"	OUT			"	"					GND	GND	"	"	G1 to 1Y0	6	31	6	41	6	31	"
t _{PLH1}		105	GND	IN	"	"			"	"					"	"	"	"	A1 to 1Y0	"	39	"	51	"	39	"
t _{PLH1}		106	GND	GND	IN	"			"	"					"	"	"	"	B1 to 1Y0	"	39	"	51	"	39	"
t _{PLH2}		107	IN	4.5V	GND		OUT		"	"					"	"	"	"	G1 to 1Y1	"	31	"	41	"	31	"
t _{PLH1}		108	GND	IN	GND		"		"	"					"	"	"	"	A1 to 1Y1	"	39	"	51	"	39	"
t _{PLH1}		109	GND	4.5V	IN		"		"	"					"	"	"	"	B1 to 1Y1	"	39	"	51	"	39	"
t _{PLH2}		110	IN	GND	4.5V			OUT	"	"					"	"	"	"	G1 to 1Y2	"	31	"	41	"	31	"
t _{PLH1}		111	GND	IN	4.5V			"	"	"					"	"	"	"	A1 to 1Y2	"	39	"	51	"	39	"
t _{PLH1}		112	GND	GND	IN				"	"					"	"	"	"	B1 to 1Y2	"	39	"	51	"	39	"
t _{PLH2}		113	IN	4.5V	4.5V				OUT	"					"	"	"	"	G1 to 1Y3	"	31	"	41	"	31	"
t _{PLH1}		114	GND	IN	4.5V				"	"					"	"	"	"	A1 to 1Y3	8	39	8	51	8	39	"
t _{PLH1}		115	"	GND	IN				"	"					"	"	"	"	B1 to 1Y3	8	39	8	51	8	39	"
t _{PLH2}		116	"	"	GND				"	"				OUT	"	"	IN	"	G2 to 2Y0	6	31	6	41	6	31	"
t _{PLH1}		117	"	"	"				"	"				"	"	IN	GND	"	A2 to 2Y0	"	39	"	51	"	39	"
t _{PLH1}		118	"	"	"				"	"				"	IN	GND	GND	"	B2 to 2Y0	"	39	"	51	"	39	"
t _{PLH2}		119	"	"	"				"	"			OUT	"	GND	4.5V	IN	"	G2 to 2Y1	"	31	"	41	"	31	"
t _{PLH1}		120	"	"	"				"	"			"		GND	IN	GND	"	A2 to 2Y1	"	39	"	51	"	39	"
t _{PLH1}		121	"	"	"				"	"			"		IN	4.5V	GND	"	B2 to 2Y1	"	39	"	51	"	39	"
t _{PLH2}		122	"	"	"				"	"		OUT	"		4.5V	GND	IN	"	G2 to 2Y2	"	31	"	41	"	31	"
t _{PLH1}		123	"	"	"				"	"		"			4.5V	IN	GND	"	A2 to 2Y2	"	39	"	51	"	39	"
t _{PLH1}		124	"	"	"				"	"		"			IN	GND	GND	"	B2 to 2Y2	"	39	"	51	"	39	"
t _{PLH2}		125	"	"	"				"	"	OUT	"			4.5V	4.5V	IN	"	G2 to 2Y3	"	31	"	41	"	31	"
t _{PLH1}		126	"	"	"				"	"	"				4.5V	IN	GND	"	A2 to 2Y3	8	39	8	51	8	39	"
t _{PLH1}		127	"	"	"				"	"	"				IN	4.5V	"	"	B2 to 2Y3	8	39	8	51	8	39	"

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9		Subgroup 10		Subgroup 11		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/		T _C = +125°C		T _C = -55°C 5/		
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}		Min	Max	Min	Max	Min	Max	
t _{THL}	3003 (Fig. 4)	128	IN	GND	GND					GND					GND	GND	GND	4.5V	1Y0	3	15	3	20	3	15	ns
		129	"	4.5V	"					"					"	"	"	"	1Y1	"	"	"	"	"	"	"
		130	"	GND	4.5V					"					"	"	"	"	1Y2	"	"	"	"	"	"	"
		131	"	4.5V	4.5V					"					"	"	"	"	1Y3	"	"	"	"	"	"	"
		132	GND	GND	GND					"					"	GND	IN	"	2Y0	"	"	"	"	"	"	"
		133	"	"	"					"					"	4.5V	"	"	2Y1	"	"	"	"	"	"	"
		134	"	"	"					"					4.5V	GND	"	"	2Y2	"	"	"	"	"	"	"
		135	"	"	"					"					4.5V	4.5V	"	"	2Y3	"	"	"	"	"	"	"
t _{TLH}	3003 (Fig. 4)	136	IN	"	"					"					GND	GND	GND	"	1Y0	"	"	"	"	"	"	"
		137	"	4.5V	"					"					"	"	"	"	1Y1	"	"	"	"	"	"	"
		138	"	GND	4.5V					"					"	"	"	"	1Y2	"	"	"	"	"	"	"
		139	"	4.5V	4.5V					"					"	"	"	"	1Y3	"	"	"	"	"	"	"
		140	GND	GND	GND					"					"	GND	IN	"	2Y0	"	"	"	"	"	"	"
		141	"	"	"					"					"	4.5V	"	"	2Y1	"	"	"	"	"	"	"
		142	"	"	"					"					4.5V	GND	"	"	2Y2	"	"	"	"	"	"	"
		143	"	"	"					"					4.5V	4.5V	"	"	2Y3	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 04.

Symbol	MIL-STD-883 method	Terminal conditions 1/																												Measured terminal	Test limits						Unit
		Case 3	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C						
		K and L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
		Test no.	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	GND	Y11	Y12	Y13	Y14	Y15	G1	G2	D	C	B	A	V _{CC}	Min	Max	Min		Max	Min	Max				
V _{IC} (pos)		1											1/											1mA	GND	A						V					
		2											"											"	B	1.5	"					"					
		3											"											"	C	"	"					"					
		4											"											"	D	"	"					"					
		5											"											"	G2	"	"					"					
		6											"							1mA	1mA	1mA	1mA	1mA	"	G1	"	"					"				
V _{IC} (neg)		7											GND												A							"					
		8											"											"	B	-1.5	"					"					
		9											"											"	C	"	"					"					
		10											"											"	D	"	"					"					
		11											"											"	G2	"	"					"					
		12											"							-1mA	-1mA	-1mA	-1mA	-1mA	"	G1	"	"					"				
I _{CC}	3005	13											"						6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	V _{CC}		0.2		20			μA					
V _{OH3}	3006	14	-20μA										"						4.2V	4.2V	4.2V	4.2V	4.2V	4.2V	Y0	5.95					"						
		15		-20μA									"											"	Y1	"						"					
		16			-20μA								"											"	Y2	"	5.95		5.95			V					
		17				-20μA							"											"	Y3	"						"					
		18					-20μA						"											"	Y4	"						"					
		19						-20μA					"											"	Y5	"						"					
		20							-20μA				"											"	Y6	"						"					
		21								-20μA			"											"	Y7	"						"					
		22									-20μA			"										"	Y8	"						"					
		23										-20μA		"										"	Y9	"						"					
		24											-20μA	"										"	Y10	"						"					
		25												"	-20μA									"	Y11	"						"					
		26												"		-20μA								"	Y12	"						"					
		27												"			-20μA							"	Y13	"						"					
		28												"				-20μA						"	Y14	"						"					
		29												"					-20μA					"	Y15	"						"					
V _{OH5}	3006	30	-5.2mA																						Y0	5.48						"					
		31		-5.2mA																					Y1	"						"					
		32			-5.2mA																				Y2	"	5.2		5.48			"					
		33				-5.2mA																			Y3	"						"					
		34					-5.2mA																		Y4	"						"					
		35						-5.2mA																	Y5	"						"					
		36							-5.2mA																Y6	"						"					
		37								-5.2mA															Y7	"						"					
		38									-5.2mA														Y8	"						"					
		39										-5.2mA													Y9	"						"					
		40											-5.2mA												Y10	"						"					
		41												-5.2mA											Y11	"						"					
		42													-5.2mA										Y12	"						"					
		43														-5.2mA									Y13	"						"					
		44															-5.2mA								Y14	"						"					
		45																-5.2mA							Y15	"						"					

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Terminal conditions 1/																												Measured terminal	Test limits						Unit
		Case 3	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C						
		K and L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Min	Max	Min		Max	Min	Max				
		Test no.	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	GND	Y11	Y12	Y13	Y14	Y15	G1	G2	D	C	B	A	V _{CC}											
V _{OL3}	3007	46	20μA											GND						GND	GND	GND	GND	GND	GND	6.0V	Y0					V					
		47		20μA																						Y1											
		48			20μA																						Y2	0.05		0.05							
		49				20μA																					Y3										
		50					20μA																4.2V	4.2V	4.2V		Y4										
		51						20μA																GND	GND		Y5										
		52							20μA															4.2V	GND		Y6										
		53								20μA														4.2V	4.2V		Y7										
		54									20μA												4.2V	GND	GND		Y8										
		55										20μA												GND	4.2V		Y9										
		56											20μA											4.2V	GND		Y10										
		57												20μA										4.2V	4.2V		Y11										
58													20μA									GND	GND		Y12												
59															20μA							4.2V	GND		Y13												
60																	20μA					GND	4.2V		Y14												
61																		20μA				4.2V	4.2V		Y15												
V _{OL5}	3007	62	5.2mA																			GND	GND	GND	GND		Y0										
		63		5.2mA																						Y1											
		64			5.2mA																					Y2	0.26		0.4								
		65				5.2mA																				Y3											
		66					5.2mA																			Y4											
		67						5.2mA															4.2V	GND		Y5											
		68							5.2mA															GND	4.2V	Y6											
		69								5.2mA														4.2V	GND	Y7											
		70									5.2mA													4.2V	GND	Y8											
		71										5.2mA												GND	4.2V	Y9											
		72											5.2mA											4.2V	GND	Y10											
		73												5.2mA										4.2V	4.2V	Y11											
74													5.2mA									GND	GND	Y12													
75															5.2mA							4.2V	GND	Y13													
76																	5.2mA					GND	4.2V	Y14													
77																		5.2mA				4.2V	4.2V	Y15													
I _{OS4}	3011	78	GND																			4.0V	4.0V	GND	GND	GND	GND	Y0	-10	-120	-10	-120	mA				
		79		GND																						Y1											
		80			GND																					Y2											
		81				GND																				Y3											
		82					GND																			Y4											
		83						GND																		Y5											
		84							GND																	Y6											
		85								GND																Y7											
		86									GND															Y8											
		87										GND														Y9											
		88											GND													Y10											
		89												GND												Y11											
90													GND											Y12													
91															GND									Y13													
92																	GND							Y14													
93																		GND							Y15												
I _{IH}	3010	94																				GND	GND	GND	GND	6.0V	6.0V	A					μA				
		95																								B											
		96																								C	0.05		0.1								
		97																								D											
		98																								G1											
99																					6.0V	GND		G2													
I _{IL}	3009	100																								A											
		101																								B											
		102																								C	-0.05		-0.1								
		103																								D											
		104																								G2											
105																					6.0V	GND		G1													

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Terminal conditions 1/																												Measured terminal	Test limits						Unit
		Case 3	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Subgroup 9 T _C = +25°C 5/		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/						
		K and L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Min	Max	Min		Max	Min	Max				
		Test no.	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	GND	Y11	Y12	Y13	Y14	Y15	G1	G2	D	C	B	A	V _{CC}											
t _{THL}	3004 (Fig. 4)	165	OUT											GND							IN	GND	GND	GND	GND	GND	4.5V	Y0	3	15	3	20	3	15	ns		
		166			OUT																			GND	4.5V		Y1										
		167																							GND		Y2										
		168				OUT																			4.5V	4.5V		Y3									
		169					OUT																	4.5V	GND	GND		Y4									
		170						OUT																	GND	4.5V		Y5									
		171																							4.5V	GND		Y6									
		172																							4.5V	4.5V		Y7									
		173																						4.5V	GND	GND		Y8									
		174																							GND	4.5V		Y9									
		175																							4.5V	GND		Y10									
		176															OUT								4.5V	4.5V		Y11									
		177																OUT							GND	GND		Y12									
		178																	OUT						GND	4.5V		Y13									
		179																		OUT					4.5V	GND		Y14									
		180																		OUT					4.5V	4.5V		Y15									
		t _{TLH}	3004 (Fig. 4)	181	OUT																				GND	GND	GND	GND		Y0							
182					OUT																				GND	4.5V		Y1									
183						OUT																			4.5V	GND		Y2									
184																									4.5V	4.5V		Y3									
185							OUT																			GND	GND		Y4								
186																									GND	4.5V		Y5									
187								OUT																	4.5V	GND		Y6									
188																									4.5V	4.5V		Y7									
189																									4.5V	GND	GND		Y8								
190																									GND	4.5V		Y9									
191																									4.5V	GND		Y10									
192																									4.5V	4.5V		Y11									
193																										GND	GND		Y12								
194																									GND	4.5V		Y13									
195																									4.5V	GND		Y14									
196																									4.5V	4.5V		Y15									

TABLE III. Group A inspection for device type 52.

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																	Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Min		Max	Min	Max	Min	Max		
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}									
V _{IC} (pos)		1 2 3 4 5 6	1mA	1mA	1mA	1mA	1mA	1mA	1	/								GND	A B C G2A G2B G1	1.5						V	
V _{IC} (neg)		7 8 9 10 11 12	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA		GND								1/	A B C G2A G2B G1	-1.5							
I _{CC}	3005	13	5.5V	5.5V	5.5V	5.5V	5.5V	5.5V										5.5V	V _{CC}		0.2		20			μA	
I _{CCΔ}		14 15 16	0.8V 2.4V	0.8V 0.8V	0.8V 0.8V	0.8V 0.8V	0.8V 2.4V	2.4V 5.5V 0.8V																		mA	
V _{OH6}	3006	17 18 19 20 21 22 23 24	0.8V " " " " " "	0.8V " " " " " "	0.8V " " " " " "	2.0V " " " " " "	0.8V " " " " " "	0.8V " " " " " "						-20μA	-20μA	-20μA	-20μA	-20μA	4.5V	Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	4.40 " " 4.40 " " "		4.40 " " 4.40 " " "			V	
V _{OH7}	3006	25 26 27 28 29 30 31 32	" " " " " " "	" " " " " " "	" " " " " " "	" " " " " " "	" " " " " " "	" " " " " " "					-4.0mA	-4.0mA	-4.0mA	-4.0mA	-4.0mA	5.5V	Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	3.98 " 3.70 " 3.98 " "							
V _{OL6}	3007	33 34 35 36 37 38 39 40	" 2.0V 0.8V 2.0V 0.8V 2.0V 0.8V 2.0V	" 2.0V 2.0V 0.8V 0.8V 2.0V 2.0V	" " 2.0V 2.0V 2.0V 2.0V	0.8V " " " " " "	" " " " " " "	2.0V " " " " " "					20μA	20μA	20μA	20μA	20μA	4.5V	Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		0.05 " 0.05 " 0.05 "		0.05 " 0.05 " 0.05 "				
V _{OL7}	3007	41 42 43 44 45 46 47 48	0.8V 2.0V 0.8V 2.0V 0.8V 2.0V 0.8V 2.0V	0.8V 0.8V 2.0V 2.0V 0.8V 0.8V 2.0V 2.0V	0.8V " 2.0V 2.0V 2.0V 2.0V	0.8V " " " " " "	0.8V " " " " " "	2.0V " " " " " "					4.0mA	4.0mA	4.0mA	4.0mA	4.0mA	5.5V	Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7		0.26 " 0.4 " 0.26 "						

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C		T _C = +125°C		T _C = -55°C		
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}		Min	Max	Min	Max	Min	Max	
I _{OS4}	3011	49	GND	GND	GND	4.0V	4.0V	GND	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	GND	4.0V	Y0	-10	-120	-10	-120	-10	-120	mA
		50																		Y1						
		51																		Y2						
		52																		Y3						
		53																		Y4						
		54																		Y5						
		55																		Y6						
		56									GND		GND							Y7						
I _{IH}	3010	57	5.5V	5.5V		GND	GND											5.5V	A	0.05		0.1			μA	
		58	GND														B									
		59			GND												C									
		60				5.5V										G2A										
		61				GND	5.5V									G2B										
		62				GND	GND	5.5V								G1										
I _{IL}	3009	63	5.5V	5.5V	5.5V	5.5V												A	-0.05		-0.1					
		64														B										
		65														C										
		66					5.5V									G2A										
		67					5.5V	GND								G2B										
		68					5.5V	5.5V	GND							G1										
																		Subgroup 4 T _C = +25°C								
																		Min	Max							
C _i	3012	69	2/	2/	2/	2/	2/	2/	GND								GND	A	10						pF	
		70														B										
		71														C										
		72														G2A										
		73														G2B										
		74														G1										
																		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C				
																		Min	Max	Min	Max	Min	Max			
Truth table tests 3/	3014	75	A	A	A	A	A	A	H	GND	H	H	H	H	H	H	H	4.5V	4/							
		76	B	B																						
		77																								
		78			B																					
		79																								
		80				B	B																			
		81				A	B	B																		
		82				A	A																			
		83					B																			
		84					B																			
		85						A																		
		86																								
		87																								
		88																								
		89																								
		90																								
		91																								

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit	
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/	Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Min	Max	Min	Max	Min		Max
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}									
t _{PHL1}	3003 (Fig. 4)	92	IN	GND	GND	GND	GND	4.5V		GND							OUT	4.5V	A to Y0	6	35	6	47	6	35	ns	
t _{PHL1}		93	GND	IN	GND														B to Y0								
t _{PHL1}		94		GND	IN															C to Y0							
t _{PHL2}		95			GND	IN														G2A to Y0	4		4		4		
t _{PHL2}		96				GND	IN													G2B to Y0							
t _{PHL2}		97					GND	IN												G1 to Y0							
t _{PHL1}		98	IN					4.5V								OUT				A to Y1	6		6		6		
t _{PHL1}		99	4.5V	IN																B to Y1							
t _{PHL1}		100		GND	IN															C to Y1							
t _{PHL2}		101			GND	IN														G2A to Y1	4		4		4		
t _{PHL2}		102				GND	IN													G2B to Y1							
t _{PHL2}		103					GND	IN												G1 to Y1							
t _{PHL1}		104	IN	4.5V				4.5V							OUT					A to Y2	6		6		6		
t _{PHL1}		105	GND	IN																B to Y2							
t _{PHL1}		106		4.5V	IN															C to Y2							
t _{PHL2}		107			GND	IN														G2A to Y2	4		4		4		
t _{PHL2}		108				GND	IN													G2B to Y2							
t _{PHL2}		109					GND	IN												G1 to Y2							
t _{PHL1}		110	IN					4.5V							OUT					A to Y3	6		6		6		
t _{PHL1}		111	4.5V	IN																B to Y3							
t _{PHL1}		112		4.5V	IN															C to Y3							
t _{PHL2}		113				IN														G2A to Y3	4		4		4		
t _{PHL2}		114				GND	IN													G2B to Y3							
t _{PHL2}		115					GND	IN												G1 to Y3							
t _{PHL1}	116	IN	GND	4.5V			4.5V						OUT						A to Y4	6		6		6			
t _{PHL1}	117	GND	IN	4.5V															B to Y4								
t _{PHL1}	118		GND	IN															C to Y4								
t _{PHL2}	119			4.5V	IN														G2A to Y4	4		4		4			
t _{PHL2}	120				GND	IN													G2B to Y4								
t _{PHL2}	121					GND	IN												G1 to Y4								
t _{PHL1}	122	IN	GND				4.5V					OUT							A to Y5	6		6		6			
t _{PHL1}	123	4.5V	IN																B to Y5								
t _{PHL1}	124		GND	IN															C to Y5								
t _{PHL2}	125			4.5V	IN														G2A to Y5	4		4		4			
t _{PHL2}	126				GND	IN													G2B to Y5								
t _{PHL2}	127					GND	IN												G1 to Y5								
t _{PHL1}	128	IN	4.5V				4.5V			OUT									A to Y6	6		6		6			
t _{PHL1}	129	GND	IN																B to Y6								
t _{PHL1}	130		4.5V	IN															C to Y6								
t _{PHL2}	131			4.5V	IN														G2A to Y6	4		4		4			
t _{PHL2}	132				GND	IN													G2B to Y6								
t _{PHL2}	133					GND	IN												G1 to Y6								
t _{PHL1}	134	IN					4.5V	OUT											A to Y7	6		6		6			
t _{PHL1}	135	4.5V	IN																B to Y7								
t _{PHL1}	136		4.5V	IN															C to Y7								
t _{PHL2}	137			4.5V	IN														G2A to Y7	4		4		4			
t _{PHL2}	138				GND	IN													G2B to Y7								
t _{PHL2}	139					GND	IN												G1 to Y7								

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}								
t _{PLH1}	3003 (Fig. 4)	140	IN	GND	GND	GND	GND	4.5V		GND								4.5V	A to Y0	5	35	5	47	5	35	ns
t _{PLH1}		141	GND	IN	GND														B to Y0							
t _{PLH1}		142		GND	IN														C to Y0							
t _{PLH2}		143			GND	IN													G2A to Y0	4		4		4		
t _{PLH2}		144				GND	IN												G2B to Y0							
t _{PLH2}		145					GND	IN											G1 to Y0							
t _{PLH1}		146	IN						4.5V								OUT		A to Y1	5		5		5		
t _{PLH1}		147	4.5V	IN															B to Y1							
t _{PLH1}		148		GND	IN														C to Y1							
t _{PLH2}		149			GND	IN													G2A to Y1	4		4		4		
t _{PLH2}		150				GND	IN												G2B to Y1							
t _{PLH2}		151					GND	IN											G1 to Y1							
t _{PLH1}		152	IN	4.5V					4.5V							OUT			A to Y2	5		5		5		
t _{PLH1}		153	GND	IN															B to Y2							
t _{PLH1}		154		4.5V	IN														C to Y2							
t _{PLH2}		155			GND	IN													G2A to Y2	4		4		4		
t _{PLH2}		156				GND	IN												G2B to Y2							
t _{PLH2}		157					GND	IN											G1 to Y2							
t _{PLH1}		158	IN						4.5V						OUT				A to Y3	5		5		5		
t _{PLH1}		159	4.5V	IN															B to Y3							
t _{PLH1}		160		4.5V	IN														C to Y3							
t _{PLH2}		161			GND	IN													G2A to Y3	4		4		4		
t _{PLH2}		162				GND	IN												G2B to Y3							
t _{PLH2}		163					GND	IN											G1 to Y3							
t _{PLH1}		164	IN	GND	4.5V				4.5V					OUT					A to Y4	5		5		5		
t _{PLH1}		165	GND	IN	4.5V														B to Y4							
t _{PLH1}		166		GND	IN														C to Y4							
t _{PLH2}		167			4.5V	IN													G2A to Y4	4		4		4		
t _{PLH2}		168				GND	IN												G2B to Y4							
t _{PLH2}		169					GND	IN											G1 to Y4							
t _{PLH1}		170	IN	GND					4.5V					OUT					A to Y5	5		5		5		
t _{PLH1}		171	4.5V	IN															B to Y5							
t _{PLH1}		172		GND	IN														C to Y5							
t _{PLH2}		173			4.5V	IN													G2A to Y5	4		4		4		
t _{PLH2}		174				GND	IN												G2B to Y5							
t _{PLH2}		175					GND	IN											G1 to Y5							
t _{PLH1}		176	IN	4.5V					4.5V			OUT							A to Y6	5		5		5		
t _{PLH1}		177	GND	IN															B to Y6							
t _{PLH1}		178		4.5V	IN														C to Y6							
t _{PLH2}		179			4.5V	IN													G2A to Y6	4		4		4		
t _{PLH2}		180				GND	IN												G2B to Y6							
t _{PLH2}		181					GND	IN											G1 to Y6							
t _{PLH1}		182	IN						4.5V	OUT									A to Y7	5		5		5		
t _{PLH1}		183	4.5V	IN															B to Y7							
t _{PLH1}		184		4.5V	IN														C to Y7							
t _{PLH2}		185			4.5V	IN													G2A to Y7	4		4		4		
t _{PLH2}		186				GND	IN												G2B to Y7							
t _{PLH2}		187					GND	IN											G1 to Y7							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16								
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}		Min	Max	Min	Max	Min	Max	
t _{THL}	3004 (Fig. 4)	188	GND	GND	GND	GND	GND	IN		GND								4.5V	Y0	3	15	3	20	3	15	ns
		189	4.5V	GND															Y1							
		190	GND	4.5V															Y2							
		191	4.5V	4.5V															Y3							
		192	GND	GND	4.5V								OUT	OUT					Y4							
		193	4.5V	GND															Y5							
		194	GND	4.5V								OUT							Y6							
		195	4.5V	4.5V						OUT									Y7							
t _{TLH}	3004 (Fig. 4)	196	GND	GND	GND														Y0							
		197	4.5V	GND															Y1							
		198	GND	4.5V															Y2							
		199	4.5V	4.5V															Y3							
		200	GND	GND	4.5V								OUT	OUT					Y4							
		201	4.5V	GND															Y5							
		202	GND	4.5V								OUT							Y6							
		203	4.5V	4.5V						OUT									Y7							

See footnotes at end of table.

TABLE III. Group A inspection for device type 53.

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit		
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max			
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}		Min	Max	Min	Max	Min	Max			
V _{IC} (pos)		1 2 3 4 5 6	1mA	1mA	1mA					1/							1mA	1mA	1mA	GND	G1 A1 B1 G2 A2 B2	1.5						V
V _{IC} (neg)		7 8 9 10 11 12	-1mA	-1mA	-1mA					GND									-1mA	1/	G1 A1 B1 G2 A2 B2	-1.5						
I _{CC}	3005	13	5.5V	5.5V	5.5V										5.5V	5.5V	5.5V	5.5V	V _{CC}		0.2						μA	
I _{CC} Δ		14 15	2.4V 0.8V	0.8V 0.8V											0.8V 0.8V	0.8V 2.4V	5.5V GND	V _{CC} V _{CC}		.345 .345							mA mA	
V _{OH6}	3006	16 17 18 19 20 21 22 23	2.0V " " "	0.8V " " "	0.8V " " "	-20μA	-20μA	-20μA	-20μA	" " " "	" " " "	" " " "	-20μA	-20μA	GND " " "	GND " " "	" " " "	4.5V " " "	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	4.40 " " "	4.40 " " "	1.5 " " "	4.40 " " "	" " " "	V " " "			
V _{OH7}	3006	24 25 26 27 28 29 30 31	2.0V " " "	" " " "	" " " "	-4.0mA	-4.0mA	-4.0mA	-4.0mA	" " " "	" " " "	" " " "	-4.0mA	-4.0mA	" " " "	" " " "	" " " "	5.5V " " "	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	3.98 " " "	3.70 " " "	" " " "	3.98 " " "	" " " "	" " " "			
V _{OL6}	3007	32 33 34 35 36 37 38 39	0.8V " " "	" 2.0V 0.8V 2.0V 0.8V	" 2.0V 2.0V 0.8V	20μA	20μA	20μA	20μA	" " " "	" " " "	20μA	20μA	20μA	0.8V " " "	0.8V " " "	0.8V " " "	4.5V " " "	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	0.05 " " "	" " " "	0.05 " " "	" " " "	0.05 " " "	" " " "			
V _{OL7}	3007	40 41 42 43 44 45 46 47	" " " "	" 2.0V 0.8V 2.0V 0.8V	" 2.0V 2.0V 0.8V	4.0mA	4.0mA	4.0mA	4.0mA	" " " "	" " " "	4.0mA	4.0mA	4.0mA	0.8V " " "	0.8V " " "	" " " "	4.5V " " "	1Y0 1Y1 1Y2 1Y3 2Y0 2Y1 2Y2 2Y3	0.26 " " "	" " " "	0.4 " " "	" " " "	0.26 " " "	" " " "			

See footnotes at end of table.

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See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9		Subgroup 10		Subgroup 11		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		T _C = +25°C 5/	T _C = +125°C	T _C = -55°C 5/				
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}		Min	Max	Min	Max	Min	Max	
t _{PHL2}	3003 (Fig. 4)	82	IN	GND	GND	OUT				GND					GND	GND	GND	4.5V	G1 to 1Y0	5	35	5	47	5	35	ns
t _{PHL1}		83	GND	IN	GND	"				"					"	"	"	"	A1 to 1Y0	"	31	"	41	"	31	"
t _{PHL1}		84	GND	GND	IN	"				"					"	"	"	"	B1 to 1Y0	"	31	"	41	"	31	"
t _{PHL2}		85	IN	4.5V	GND		OUT			"					"	"	"	"	G1 to 1Y1	"	35	"	47	"	35	"
t _{PHL1}		86	GND	IN	GND		"			"					"	"	"	"	A1 to 1Y1	"	31	"	41	"	31	"
t _{PHL1}		87	GND	4.5V	IN		"			"					"	"	"	"	B1 to 1Y1	"	31	"	41	"	31	"
t _{PHL2}		88	IN	GND	4.5V			OUT		"					"	"	"	"	G1 to 1Y2	"	35	"	47	"	35	"
t _{PHL1}		89	GND	IN	4.5V		"			"					"	"	"	"	A1 to 1Y2	"	31	"	41	"	31	"
t _{PHL1}		90	GND	GND	IN					"					"	"	"	"	B1 to 1Y2	"	31	"	41	"	31	"
t _{PHL2}		91	IN	4.5V	4.5V				OUT	"					"	"	"	"	G1 to 1Y3	"	35	"	47	"	35	"
t _{PHL1}		92	GND	IN	4.5V				"	"					"	"	"	"	A1 to 1Y3	7	31	7	41	7	31	"
t _{PHL1}		93	"	4.5V	IN				"	"					"	"	"	"	B1 to 1Y3	7	31	7	41	7	31	"
t _{PHL2}		94	"	GND	GND				"	"				OUT	"	"	IN	"	G2 to 2Y0	5	35	5	47	5	35	"
t _{PHL1}		95	"	"	"				"	"				"	"	IN	GND	"	A2 to 2Y0	"	31	"	41	"	31	"
t _{PHL1}		96	"	"	"				"	"				"	IN	GND	GND	"	B2 to 2Y0	"	31	"	41	"	31	"
t _{PHL2}		97	"	"	"				"	"			OUT		GND	4.5V	IN	"	G2 to 2Y1	"	35	"	47	"	35	"
t _{PHL1}		98	"	"	"				"	"			"		GND	IN	GND	"	A2 to 2Y1	"	31	"	41	"	31	"
t _{PHL1}		99	"	"	"				"	"			"		IN	4.5V	GND	"	B2 to 2Y1	"	31	"	41	"	31	"
t _{PHL2}		100	"	"	"				"	"		OUT			4.5V	GND	IN	"	G2 to 2Y2	"	35	"	47	"	35	"
t _{PHL1}		101	"	"	"				"	"		"			4.5V	IN	GND	"	A2 to 2Y2	"	31	"	41	"	31	"
t _{PHL1}		102	"	"	"				"	"		"			IN	GND	GND	"	B2 to 2Y2	"	31	"	41	"	31	"
t _{PHL2}		103	"	"	"				"	"	OUT				4.5V	4.5V	IN	"	G2 to 2Y3	"	35	"	47	"	35	"
t _{PHL1}		104	"	"	"				"	"	"				4.5V	IN	GND	"	A2 to 2Y3	7	31	7	41	7	31	"
t _{PHL1}		105	"	"	"				"	"	"				IN	4.5V	"	"	B2 to 2Y3	7	31	7	41	7	31	"
t _{PLH2}		106	IN	"	"	OUT			"	"					GND	GND	"	"	G1 to 1Y0	5	35	5	47	5	35	"
t _{PLH1}		107	GND	IN	"	"			"	"					"	"	"	"	A1 to 1Y0	"	31	"	41	"	31	"
t _{PLH1}		108	GND	GND	IN	"			"	"					"	"	"	"	B1 to 1Y0	"	31	"	41	"	31	"
t _{PLH2}		109	IN	4.5V	GND		OUT		"	"					"	"	"	"	G1 to 1Y1	"	35	"	47	"	35	"
t _{PLH1}		110	GND	IN	GND		"		"	"					"	"	"	"	A1 to 1Y1	"	31	"	41	"	31	"
t _{PLH1}	111	GND	4.5V	IN				"	"					"	"	"	"	B1 to 1Y1	"	31	"	41	"	31	"	
t _{PLH2}	112	IN	GND	4.5V			OUT	"	"					"	"	"	"	G1 to 1Y2	"	35	"	47	"	35	"	
t _{PLH1}	113	GND	IN	4.5V		"		"	"					"	"	"	"	A1 to 1Y2	"	31	"	41	"	31	"	
t _{PLH1}	114	GND	GND	IN			"		"					"	"	"	"	B1 to 1Y2	"	31	"	41	"	31	"	
t _{PLH2}	115	IN	4.5V	4.5V				OUT	"					"	"	"	"	G1 to 1Y3	"	35	"	47	"	35	"	
t _{PLH1}	116	GND	IN	4.5V				"	"					"	"	"	"	A1 to 1Y3	7	31	7	41	7	31	"	
t _{PLH1}	117	"	GND	IN				"	"					"	"	"	"	B1 to 1Y3	7	31	7	41	7	31	"	
t _{PLH2}	118	"	"	GND				"	"			OUT		"	"	IN	"	G2 to 2Y0	5	35	5	47	5	35	"	
t _{PLH1}	119	"	"	"				"	"			"		"	IN	GND	"	A2 to 2Y0	"	31	"	41	"	31	"	
t _{PLH1}	120	"	"	"				"	"			"		IN	GND	GND	"	B2 to 2Y0	"	31	"	41	"	31	"	
t _{PLH2}	121	"	"	"				"	"		OUT			GND	4.5V	IN	"	G2 to 2Y1	"	35	"	47	"	35	"	
t _{PLH1}	122	"	"	"				"	"		"			GND	IN	GND	"	A2 to 2Y1	"	31	"	41	"	31	"	
t _{PLH1}	123	"	"	"				"	"		"			IN	4.5V	GND	"	B2 to 2Y1	"	31	"	41	"	31	"	
t _{PLH2}	124	"	"	"				"	"	OUT				4.5V	GND	IN	"	G2 to 2Y2	"	35	"	47	"	35	"	
t _{PLH1}	125	"	"	"				"	"		"			4.5V	IN	GND	"	A2 to 2Y2	"	31	"	41	"	31	"	
t _{PLH1}	126	"	"	"				"	"		"			IN	GND	GND	"	B2 to 2Y2	"	31	"	41	"	31	"	
t _{PLH2}	127	"	"	"				"	"	OUT				4.5V	4.5V	IN	"	G2 to 2Y3	"	35	"	47	"	35	"	
t _{PLH1}	128	"	"	"				"	"	"				4.5V	IN	GND	"	A2 to 2Y3	7	31	7	41	7	31	"	
t _{PLH1}	129	"	"	"				"	"	"				IN	4.5V	GND	"	B2 to 2Y3	7	31	7	41	7	31	"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case	Terminal conditions 1/																Measured terminal	Test limits						Unit
		2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 9 T _C = +25°C 5/		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C 5/		
		E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
		Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}								
t _{THL}	3003 (Fig. 4)	130	IN	GND	GND					GND					GND	GND	GND	4.5V	1Y0	3	15	3	20	3	15	ns
		131	"	4.5V	GND					"					"	"	"	"	1Y1	"	"	"	"	"	"	"
		132	"	GND	4.5V					"					"	"	"	"	1Y2	"	"	"	"	"	"	"
		133	"	4.5V	4.5V					"					"	"	"	"	1Y3	"	"	"	"	"	"	"
		134	GND	GND	GND					"					"	"	IN	"	2Y0	"	"	"	"	"	"	"
		135	"	"	"					"					"	4.5V	"	"	2Y1	"	"	"	"	"	"	"
		136	"	"	"					"					4.5V	GND	"	"	2Y2	"	"	"	"	"	"	"
		137	"	"	"					"					4.5V	4.5V	"	"	2Y3	"	"	"	"	"	"	"
		t _{TLH}	3003 (Fig. 4)	138	IN	"	"					"					GND	GND	GND	"	1Y0	"	"	"	"	"
139	"			4.5V	"					"					"	"	"	"	1Y1	"	"	"	"	"	"	"
140	"			GND	4.5V					"					"	"	"	"	1Y2	"	"	"	"	"	"	"
141	"			4.5V	4.5V					"					"	"	"	"	1Y3	"	"	"	"	"	"	"
142	GND			GND	GND					"					"	"	IN	"	2Y0	"	"	"	"	"	"	"
143	"			"	"					"					"	4.5V	"	"	2Y1	"	"	"	"	"	"	"
144	"			"	"					"					4.5V	GND	"	"	2Y2	"	"	"	"	"	"	"
145	"			"	"					"					4.5V	4.5V	"	"	2Y3	"	"	"	"	"	"	"

- 1/ Output pins not designated may be high level logic, low level logic, open. Input pins not designated may be high level logic or low level logic. Exceptions are as follows:
- V_{IC}(pos) tests, the GND terminal shall be open. A minimum limit of 0.4 V applies to tests being performed on equipment not capable of opening the GND pin during test.
 - V_{IC}(neg) tests, the V_{CC} terminal shall be open.
 - I_{CC} tests, the output terminal shall be open.
- 2/ See 4.4.1c.
- 3/ Tests shall be performed in sequence. A = 2.4 V; B = 0.4 V for device types 52 and 53; A = 3.7 V; B = 0.4 V for device types 01 through 04.
- 4/ X = indeterminate output voltage. Output shall be H > 2.5 V; L < 2.5 V.
- 5/ See 4.4.1d.
- 6/ The input signal for HCT device types shall be 0 to 3 volts; however, the 50 percent V_{CC} measuring point is 1.3 V for input and output signals. The 10 percent and 90 percent V_{CC} points are 0.3 V and 2.7 V, respectively for HCT devices.

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 GND 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 within 10°C of their power stable condition at room temperature; then, electrical parameter end-point measurements shall be performed.

TABLE IV. Delta limits at 25°C.

Parameter ^{1/}	All device types
I_{CC}	± 30 nA

^{1/} The above parameters shall be recorded before and after the required burn-in and life tests to determine deltas (Δ).

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

5. PACKAGING

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

6. NOTES

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

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

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. PIN and compliance identifier, if applicable (see 1.2).
- c. Requirements for delivery of one copy of the 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.
I_{CC}	Quiescent supply current.
$I_{CC\Delta}$	Additional supply current when using worst case TTL input levels.
T_C	Case temperature.
GND	Ground zero voltage potential.
V_{CC}	Positive supply voltage.

6.6 Logistic support. Lead materials and finishes (see 3.4) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class S for National Aeronautics and Space Administration or class B for Department of Defense (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.

6.7 Data reporting. When specified in the purchase order or contract, a copy of the following data, as applicable, will be supplied.

- 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).
- A copy of each radiograph.
- The technology conformance inspection (TCI) data (see 4.4).
- Parameter distribution data on parameters evaluated during burn-in (see 3.6).
- Final electrical parameters data (see 4.2d).

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 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	54HC42
02	54HC138
03	54HC139
04	54HC154
52	54HCT138
53	54HCT139

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 5962-2005-024)

Review activities:

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

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using ASSIST Online database at <http://assist.daps.dla.mil/>.