

INCH-POUND

MIL-M-38510/654A
9 May 2006

SUPERSEDING
MIL-M-38510/654
19 December 1986

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, HIGH-SPEED CMOS, LATCHES, MONOLITHIC SILICON

Reactivated after 9 May 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, high speed CMOS, logic microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete Part or Identifying Number (PIN). For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535 (see 6.3).

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

1.2.1 Device types. The device types are as follows:

<u>Device type</u>	<u>Circuit</u>
01	Quad bistable transparent latch
02	8-bit addressable latch
03	Octal D type transparent latch with three-state outputs
04	Octal transparent latch, three-state, inverting
05	Octal transparent latch, three-state, inverting
06	Octal transparent latch, three-state
53	Octal D-type transparent latch with three-state outputs and TTL compatible inputs

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
R	GDIP1-T20 or CDIP2-T20	20	Dual-in-line
S	GDFP2-F20 or CDFP3-F20	20	Flat pack
2	CQCC1-N20	20	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/>.

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}):	
Device types 01, 02	± 25 mA
Device types 03-06, 53	± 35 mA
DC V_{CC} or GND current per pin (I_{CC}, I_{GND}):	
Device types 01, 02	± 50 mA
Device types 03-06, 53	± 70 mA
Storage temperature range (T_{STG})	-65°C 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 to 06:

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
Supply voltage (V_{CC})	2.0 V dc to 6.0 V dc
Input voltage (V_{IN})	0.0 V to V_{CC}
Operating temperature range (T_A)	-55°C to +125°C
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 type 53:

Maximum input low voltage (V_{IL})	0.8 V at $V_{CC} = 4.5$ V and 5.5 V
Minimum input high voltage (V_{IH})	2.0 V at $V_{CC} = 4.5$ V and 5.5 V
Supply voltage (V_{CC})	4.5 V dc to 5.5 V dc
Input voltage	0.0 V to V_{CC}
Operating temperature range (T_A)	-55°C to +125°C
Maximum input rise and fall time (t_r, t_f):	
$V_{CC} = 4.5$ V	500 ns

Width of clock pulse (t_p clock) ($V_{CC} = 4.5$ V minimum):

Device types 01, 02, 05, 06	24 ns minimum
Device types 03, 04, 53	30 ns minimum
Device type 02 reset	24 ns minimum

Data setup time before clock (t_{setup}) ($V_{CC} = 4.5$ V minimum):

Device types 01, 02, 03, 04, 53	30 ns minimum
Device types 05, 06	23 ns minimum

Data hold time after clock (t_{hold}) ($V_{CC} = 4.5$ V minimum):

Device types 01, 02,	8 ns minimum
Device types 03-06, 53	15 ns minimum

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 Logic diagrams and terminal connections. The logic diagrams and terminal connections shall be as specified on figure 1.

3.3.2 Truth tables. The truth tables shall be as specified on figure 2.

3.3.3 Switching time test circuit and waveforms. The switching time test circuit and waveforms shall be as specified on figure 3.

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

3.3.5 Case outlines. The case outlines shall be as specified in 1.2.3 and MIL-STD-1835.

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 38 (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 table IA of MIL-PRF-38535 and substitute lines 1 through 7 of table II herein.
- c. Burn-in (method 1015 of MIL-STD-883).
 - (1) Unless otherwise specified in the manufacturers QM plan for static tests (test condition A), 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 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 a resistor to V_{CC} . Output shall be open or connected to $V_{CC}/2$. Resistors are optional on outputs if open. Resistors are required on inputs and on outputs connected to $V_{CC}/2$. $R = 680\Omega$ to 47 k Ω .
 - (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.
 - i. For dynamic burn-in, all inputs shall be connected through the resistors in parallel to a common CP. Outputs shall be connected to $V_{CC}/2 \pm 0.5$ V through the resistors. $R = 1$ k $\Omega \pm 5\%$ for outputs for device types 01 and 02. $R = 680\Omega \pm 5\%$ for outputs for device types 03-06 and 53. $R = 1$ k Ω to 47 k Ω for inputs for device types 01 and 02, and $R = 680\Omega$ to 47 k Ω for inputs of device types 03-06 and 53.
 - ii. CP = 25 kHz to 1 MHz square wave; duty cycle = 50% $\pm 15\%$; $V_{IH} = 4.5$ V to V_{CC} ; $V_{IL} = 0.0$ V ± 0.5 V; transition time ≤ 0.5 μ s.
 - iii. For device types 01-06, $V_{CC} = 6.0$ V ± 0.5 V. For device type 53, $V_{CC} = 5.5$ V ± 0.5 V.
- d. Interim and final electrical test parameters shall be as specified in table II.
- e. For class S devices, post dynamic burn-in, or class B devices, post static burn-in, electrical parameter measurements may, at the manufacturer's option, be performed separately or included in the final electrical parameter requirements.

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} and C_O measurements) shall be measured only for initial qualification and after process or design changes that may affect 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} 2/	$V_{IH} = 1.5\text{ V}$ $V_{IL} = 0.3\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01-06	2.0 V	1.95		V
	V_{OH2} 2/	$V_{IH} = 3.15\text{ V}$ $V_{IL} = 0.9\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01-06	4.5 V	4.45		V
	V_{OH3}	$V_{IH} = 4.2\text{ V}$ $V_{IL} = 1.2\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	01-06	6.0 V	5.95		V
	V_{OH4} 2/	$V_{IH} = 3.15\text{ V}$ $V_{IL} = 0.9\text{ V}$	$I_{OH} = -6.0\text{ mA}$ $I_{OH} = -4.0\text{ mA}$	03-06	4.5 V	3.7	V
		$V_{IH} = 4.2\text{ V}$ $V_{IL} = 1.2\text{ V}$	$I_{OH} = -5.2\text{ mA}$ $I_{OH} = -7.8\text{ mA}$	01,02 03-06	6.0 V	5.2	V
	V_{OH6}	$V_{IH} = 2.0\text{ V}$ $V_{IL} = 0.8\text{ V}$ $I_{OH} = -20\text{ }\mu\text{A}$	53	4.5 V	4.4		V
	V_{OH7}	$V_{IH} = 2.0\text{ V}$ $V_{IL} = 0.8\text{ V}$ $I_{OH} = -6.0\text{ mA}$	53	5.5 V	3.7		V
Low-level output voltage	V_{OL1} 2/	$V_{IL} = 0.3\text{ V}$ $V_{IH} = 1.5\text{ V}$ $I_{OL} = 20.0\text{ }\mu\text{A}$	01-06	2.0 V		0.05	V
	V_{OL2} 2/	$V_{IL} = 0.9\text{ V}$ $V_{IH} = 3.15\text{ V}$ $I_{OL} = 20.0\text{ }\mu\text{A}$	01-06	4.5 V		0.05	V
	V_{OL3}	$V_{IL} = 1.2\text{ V}$ $V_{IH} = 4.2\text{ V}$ $I_{OL} = 20.0\text{ }\mu\text{A}$	01-06	6.0 V		0.05	V
	V_{OL4} 2/	$V_{IL} = 0.9\text{ V}$ $V_{IH} = 3.15\text{ V}$	$I_{OL} = 4.0\text{ mA}$ $I_{OL} = 6.0\text{ mA}$	01,02 03-06	4.5 V	0.4	V
		$V_{IL} = 1.2\text{ V}$ $V_{IH} = 4.2\text{ V}$	$I_{OL} = 5.2\text{ mA}$ $I_{OL} = 7.8\text{ mA}$	01,02 03-06	6.0 V	0.4	V
	V_{OL6}	$V_{IH} = 2.0\text{ V}$ $V_{IL} = 0.8\text{ V}$ $I_{OL} = 20\text{ }\mu\text{A}$	53	4.5 V		0.1	V
	V_{OL7}	$V_{IH} = 2.0\text{ V}$ $V_{IL} = 0.8\text{ V}$ $I_{OL} = 6.0\text{ mA}$	53	5.5 V		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}	$V_{IN} = \text{GND}$	01-06	6.0 V		-0.1	μA
			53	5.5 V			
Input current high	I_{IH}	$V_{IN} = V_{CC}$	01-05	6.0 V		0.1	μA
			53	5.5 V			

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions 1/ T _C = +125°C unless otherwise specified	Device type	V _{CC}	Limits		Unit
					Min	Max	
Short circuit output current	I _{OS1} <u>2/</u>	V _O = GND V _I = GND or V _{CC}	01-02	2.0 V	-2	-50	mA
			03-06			-60	
	I _{OS2} <u>2/</u>		01-02	4.5 V	-15	-150	
			03-06			-165	
	I _{OS3} <u>2/</u>		01-02	6.0 V	-25	-180	
			03-06			-210	
	I _{OS4}		01-02	4.0 V	-10	-120	
Quiescent supply current	I _{CC}	V _I = 6.0 V or GND	01	6.0 V		10	μA
			02-06			20	
	I _{CC}	V _I = 5.5 V or GND	53	5.5 V		20	
	I _{CCZ}	V _I = 6.0 V	03-06	6.0 V		10	
Additional quiescent supply current per input pin (one unit load)	I _{CCA} <u>3/</u>	V _{IL} = 0.8 V V _{IH} = 2.4 V, I _O = 0 Pin under test at 2.4 V, other pins at GND, 0.8 V, or V _{CC}	53	5.5 V		3.0	μA
	Power dissipation capacitance	C _{PD} <u>2/ 4/</u>	T _C = 25°C	01			46
02				33			
03				51			
53				53			
04-06				50			
Three-state output leakage current low	I _{OZL} <u>5/</u>	V _{OUT} = GND OC = V _{IH}	03-06	6.0 V		-2.0	μA
		53	5.5 V				
Three-state output leakage current high	I _{OZH} <u>5/</u>	V _{OUT} = V _{CC} OC = V _{IH}	03-06	6.0 V		+2.0	μA
		53	5.5 V				
Input capacitance	C _{IN}	T _C = 25°C	All			10	pF
Three-state output capacitance	C _O		03-06, 53			20	
Propagation delay time, data to outputs	t _{PHL1} , t _{PLH1} <u>6/ 7/</u>	C _L = 50 pF ± 10%	01	4.5 V	3	30	ns
			02		5	43	
			03		6	35	
			04		6	39	
			05,06		4	41	
			53		6	41	
			Propagation delay time, enable or clock to outputs		t _{PHL2} , t _{PLH2} <u>6/ 7/</u>	01	
02	7					47	
03,53	6					41	
04	6					41	
05	4					41	
06	4					41	
02	5					50	
Propagation delay time, A to outputs	t _{PHL3} , t _{PLH3} <u>6/, 7/</u>						

See footnotes at end of table.

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions 1/ T _C = +125°C unless otherwise specified	Device type	V _{CC}	Limits		Unit
					Min	Max	
Propagation delay time, clear to outputs	t _{PHL4} <u>6/</u> , <u>7/</u>	C _L = 50 pF ± 10%	02	4.5 V	5	36	ns
Output enable time	t _{PZH} , t _{PZL} <u>6/</u> , <u>7/</u>	C _L = 50 pF ± 10% R _L = 1kΩ ± 10%	03		5	35	
			04		5	35	
			05,06		4	35	
			53		5	41	
Output disable time	t _{PHZ} , t _{PLZ} <u>6/</u> , <u>7/</u>		03		5	35	
			04		5	35	
			05,06		3	35	
			53		5	41	
Transition delay time	t _{THL} , t _{TLH} <u>6/</u> , <u>7/</u>	C _L = 50 pF ± 10%	01		3	20	
			02		3	20	
			03,04, 53		2	16	
			05		2	16	
			06		2	16	

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

2/ Guaranteed but not tested.

3/ $I_{CC} + I_{CC\Delta}$ = Total supply current.

4/ Power dissipation capacitance (C_{PD}) per latch.

5/ I_{OZL} : Set output to high state.

I_{OZH} : Set output to low state.

6/ Tested at $V_{CC} = 4.5 \text{ V}$ at 125°C for sample testing and at $V_{CC} = 4.5 \text{ V}$ at 25°C for screening. Guaranteed at other V_{CC} voltages and temperatures. See table IA and the exception in 4.4.1d.

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

TABLE IA. Calculated dynamic values at -55°C / $+25^\circ\text{C}$ case temperature.

V_{CC}	$T_C = ^\circ\text{C}$	
	+125	-55/+25
2.0 V	5	5×0.75
	↑	↑
4.5 V	1→	→0.75
	↓	↓
6.0 V	0.85	0.85×0.75

NOTE: Normalized numbers ($+125^\circ\text{C} = 1$).

The 2.0 V and 6.0 V numbers are derived from their 4.5 V integer value (rounding off according 5/4).

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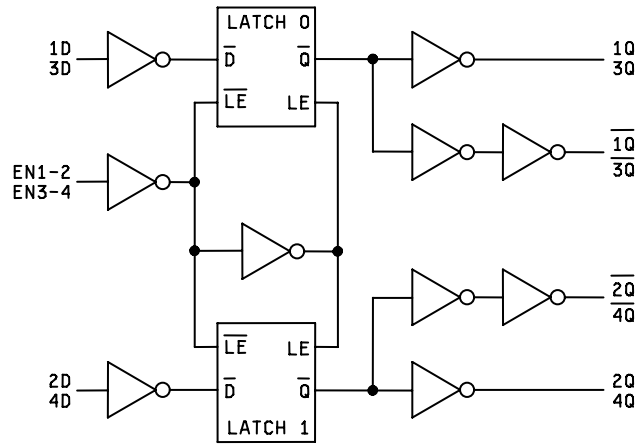
Line no.	MIL-PRF-38535 test requirements	Class S device <u>1/</u>			Class B device <u>1/</u>		
		Ref. par.	Table III Subgroups <u>2/</u>	Table IV delta limits <u>3/</u>	Ref. par.	Table III subgroups <u>2/</u>	Table IV delta <u>3/</u>
1	Interim electrical parameters		1			1	
2	Static burn-in I (method 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 <u>4/</u>	
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 <u>4/</u>	
9	Group A test requirements	4.4.1	1, 2, 3, 4, 7, 8, 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, 9, 10, 11	Δ			
11	Group C end-point electrical parameters	4.4.2	1, 2, 3, 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 his 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 measurements without delta measurements within 24 hours after burn-in completion (removal of bias).



DEVICE TYPE 01
CASES E AND F

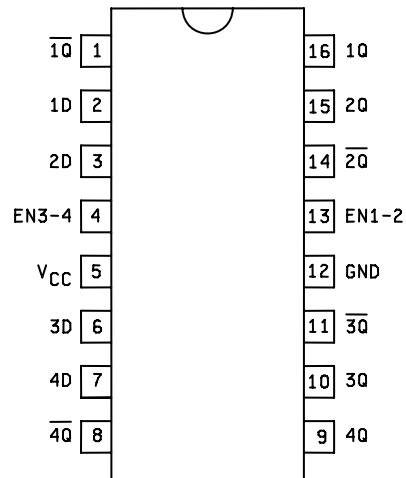


FIGURE 1. Logic diagrams and terminal connections.

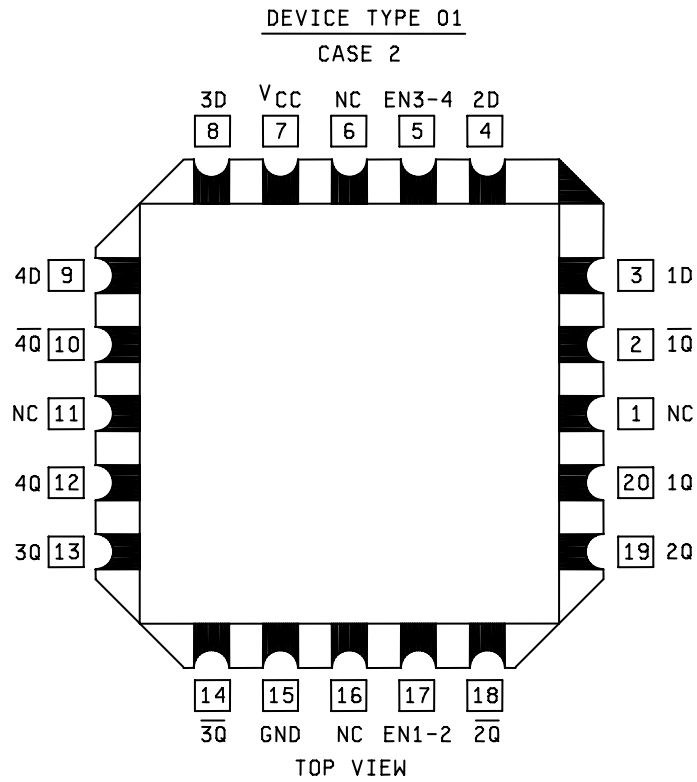
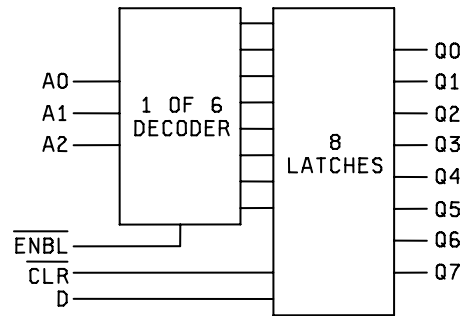


FIGURE 1. Logic diagrams and terminal connections – Continued.



DEVICE TYPE Q2
CASES E AND F

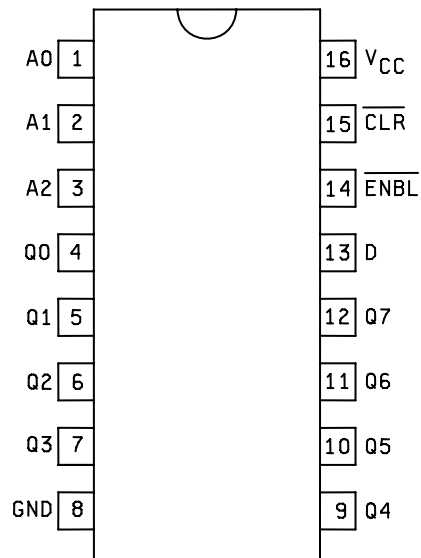


FIGURE 1. Logic diagrams and terminal connections – Continued.

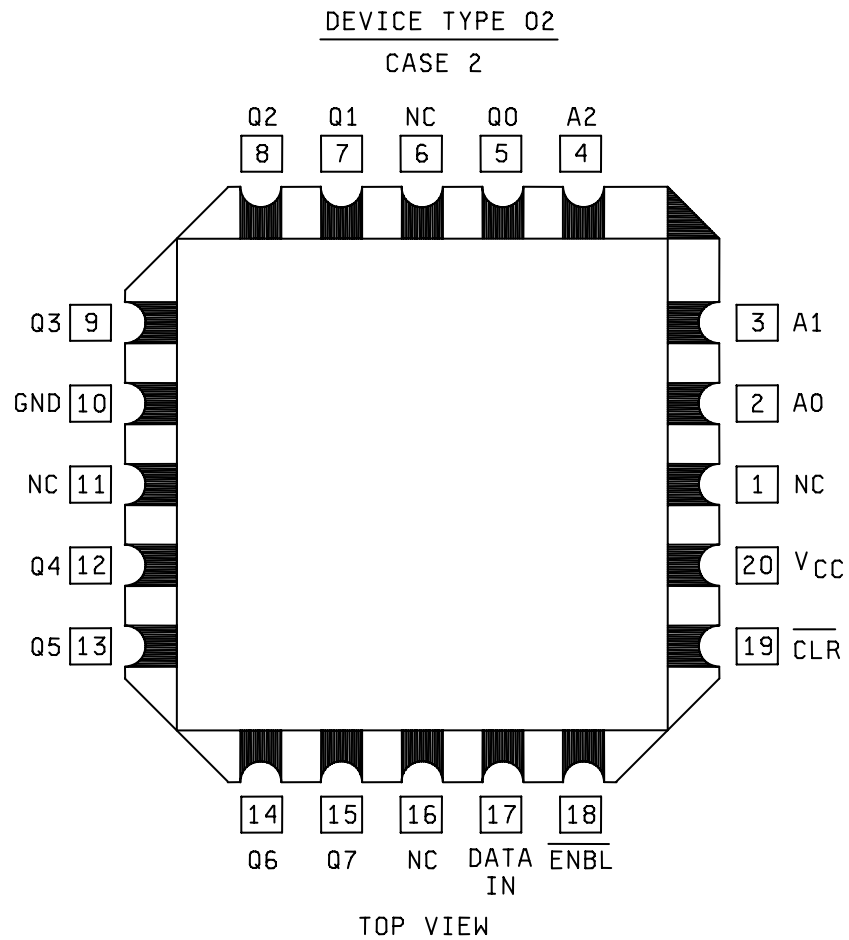


FIGURE 1. Logic diagrams and terminal connections – Continued.

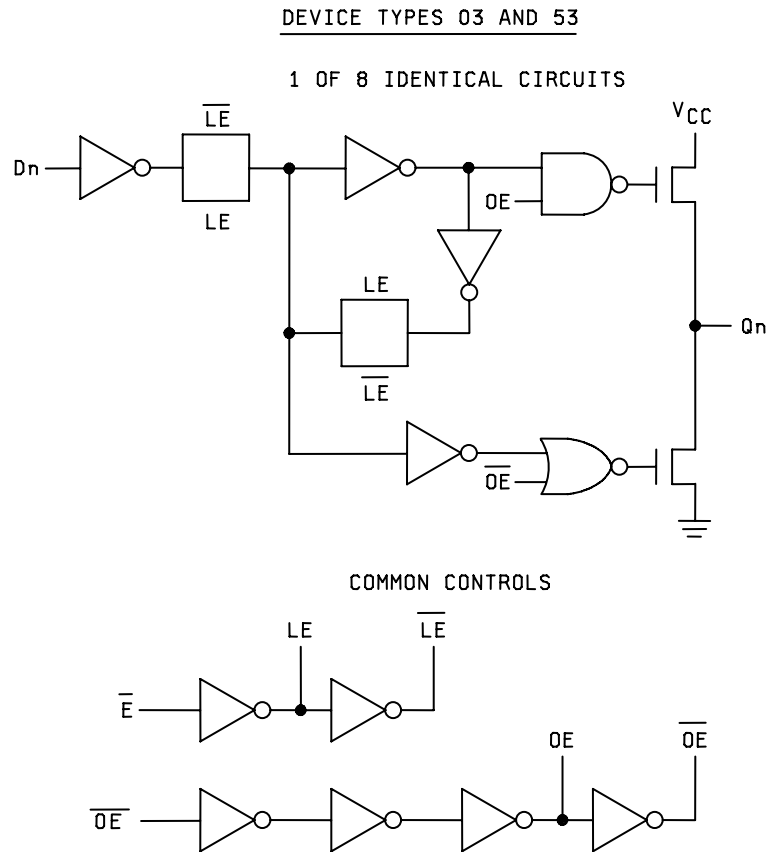


FIGURE 1. Logic diagrams and terminal connections – Continued.

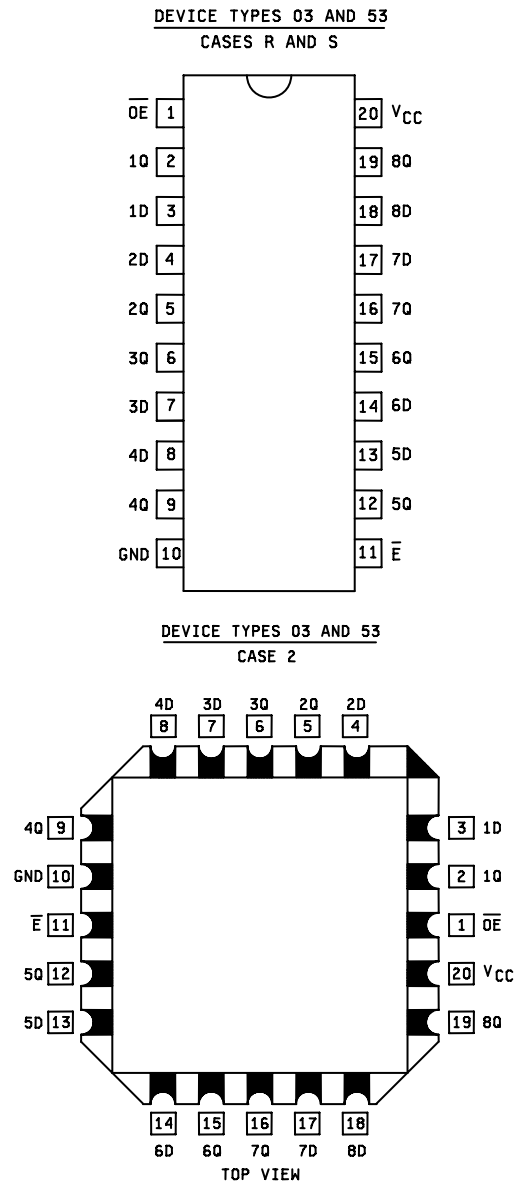
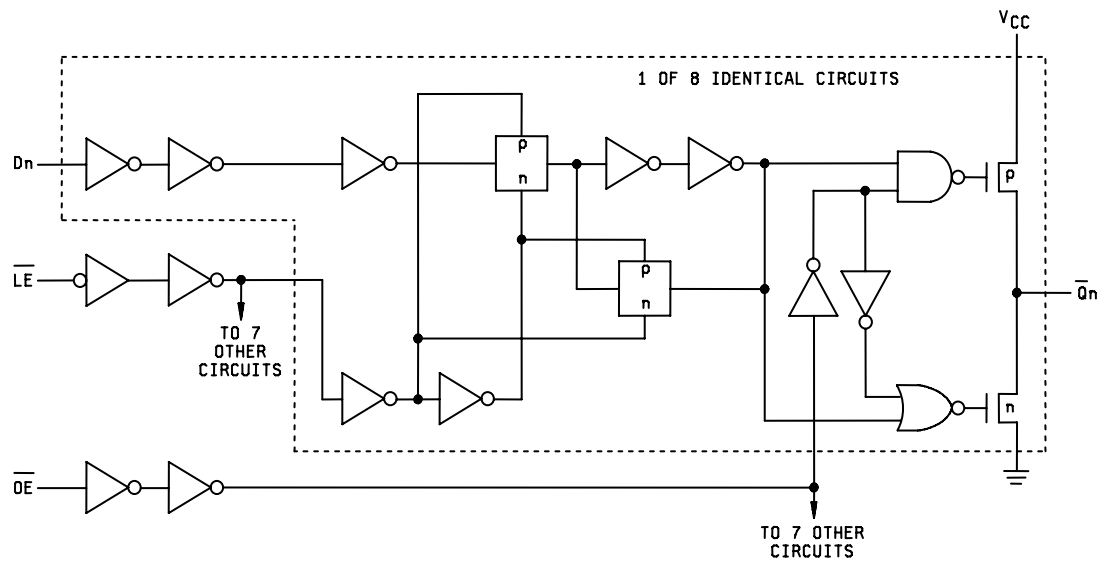


FIGURE 1. Logic diagrams and terminal connections – Continued.

DEVICE TYPE 04FIGURE 1. Logic diagrams and terminal connections – Continued.

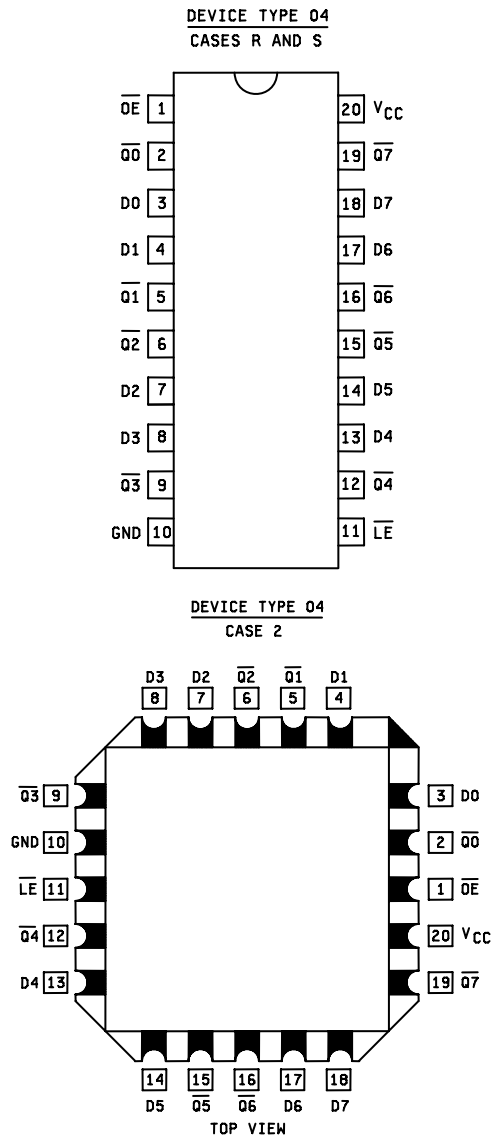


FIGURE 1. Logic diagrams and terminal connections – Continued.

DEVICE TYPE 05

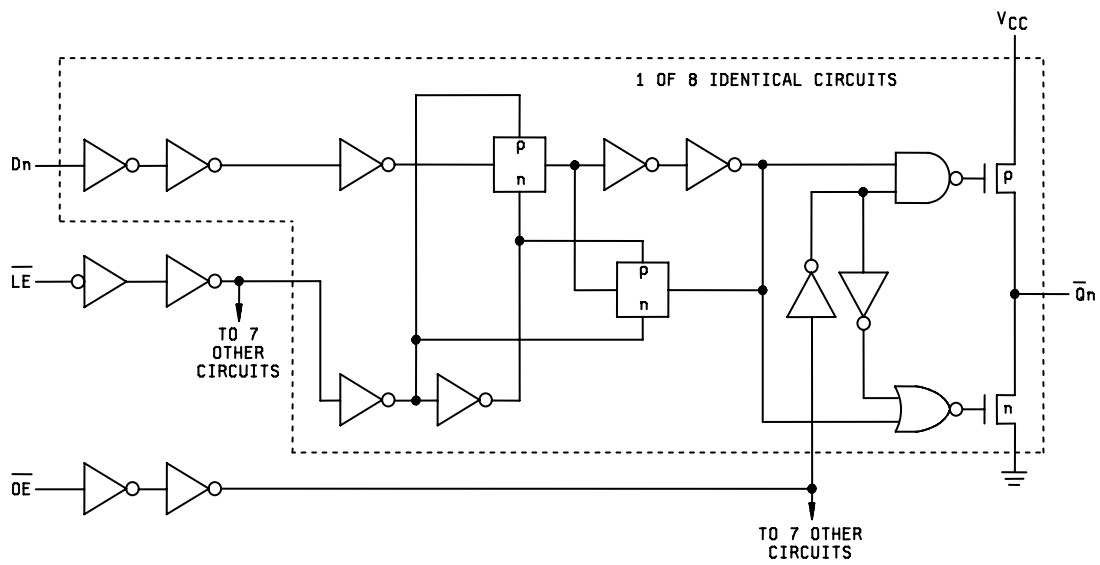


FIGURE 1. Logic diagrams and terminal connections – Continued.

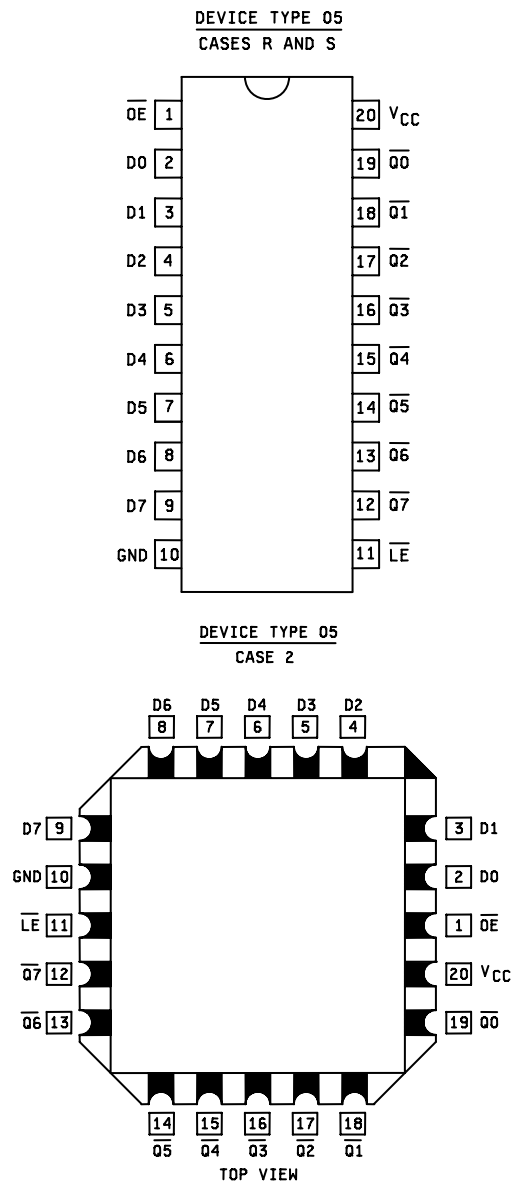
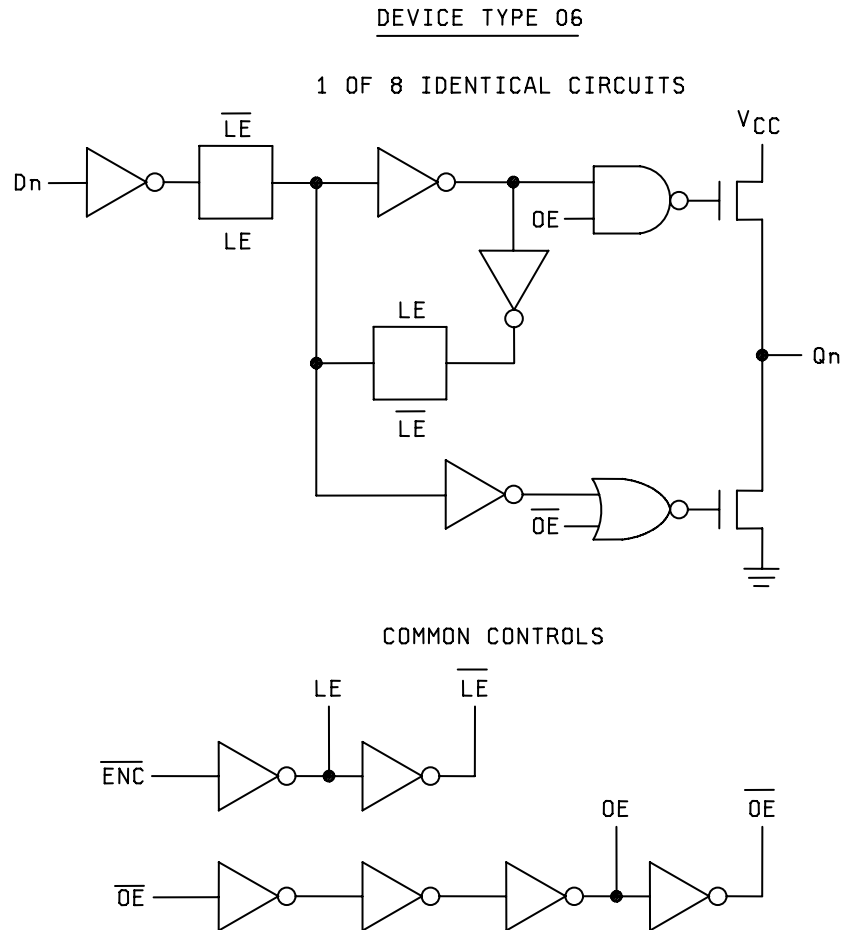


FIGURE 1. Logic diagrams and terminal connections – Continued.

FIGURE 1. Logic diagrams and terminal connections – Continued.

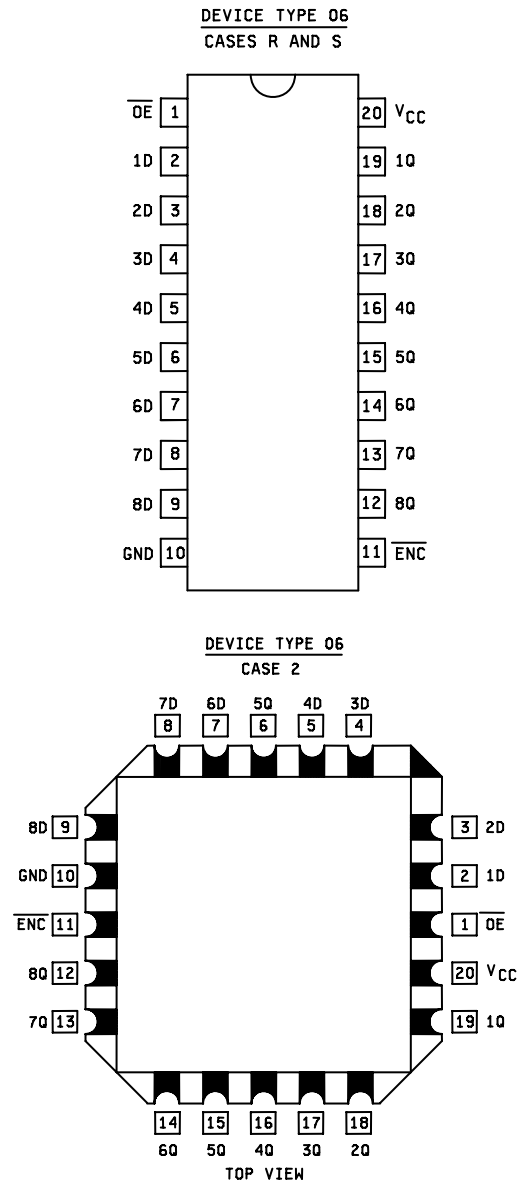


FIGURE 1. Logic diagrams and terminal connections – Continued.

Device type 01

Inputs		Outputs	
D	$\overline{\text{EN}}$	Q	$\overline{\text{Q}}$
L	H	L	H
H	H	H	L
X	L	Q ₀	$\overline{\text{Q}}_0$

H = High level voltage

L = Low level voltage

X = Don't care

Q₀ ($\overline{\text{Q}}_0$) = The level of Q ($\overline{\text{Q}}$) before the transition of ENDevice type 02

Inputs		Output of addressed latch	Each other output	Function
CLR	$\overline{\text{EN}}$			
H	L	D	Q _{io}	Addressable latch
H	H	Q _{io}	Q _{io}	Memory
L	L	D	L	8-line demultiplexer
L	H	L	L	Reset

H = High level voltage

L = Low level voltage

D = The level at the data input

Q_{io} = The level of Q (i = 0, 1, ..., 7) as appropriate before the indicated steady-state input conditions were establishedLatch selection table, device type 02

Select inputs			Latch addressed
A2	A1	A0	
L	L	L	0
L	L	H	1
L	H	L	2
L	H	H	3
H	L	L	4
H	L	H	5
H	H	L	6
H	H	H	7

FIGURE 2. Truth tables.

Device types 03 and 53

$\overline{\text{OE}}$	$\overline{\text{E}}$	D data	Q output
L	H	H	H
L	H	L	L
L	L	l	L
L	L	h	H
H	X	X	Z

Device type 04

Output enable $\overline{\text{OE}}$	Latch enable $\overline{\text{LE}}$	D data	$\overline{\text{Q}}$ output
L	H	H	L
L	H	L	H
L	L	l	H
L	L	h	L
H	X	X	Z

Device type 05

Output enable $\overline{\text{OE}}$	Latch enable $\overline{\text{LE}}$	D data	$\overline{\text{Q}}$ output
L	H	H	L
L	H	L	H
L	L	l	H
L	L	h	L
H	X	X	Z

Device type 06

$\overline{\text{OE}}$	$\overline{\text{ENC}}$	D data	Q output
L	H	H	H
L	H	L	L
L	L	l	L
L	L	h	H
H	X	X	Z

NOTES:

L = Low level voltage

H = High level voltage

l = Low voltage level one setup time prior to the high-to-low latch enable transition

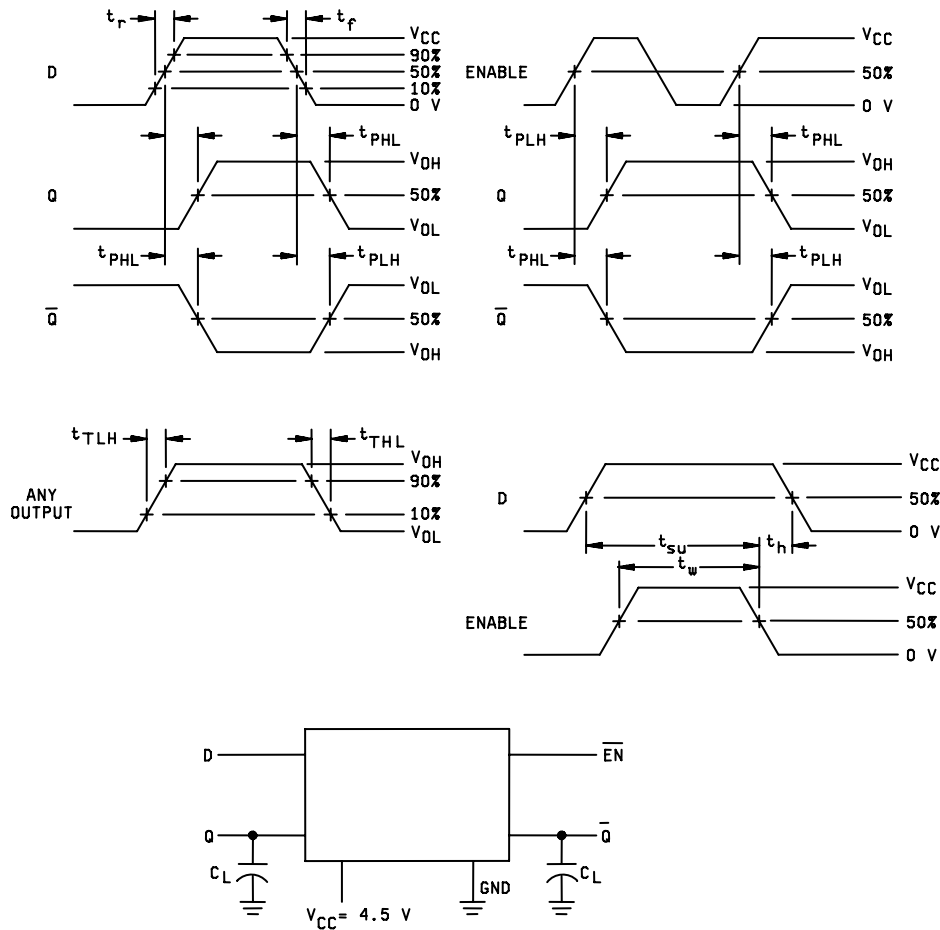
h = High voltage level one setup time prior to the high-to-low latch enable transition

X = Don't care

Z = High impedance state

FIGURE 2. Truth tables – Continued.

DEVICE TYPE 01

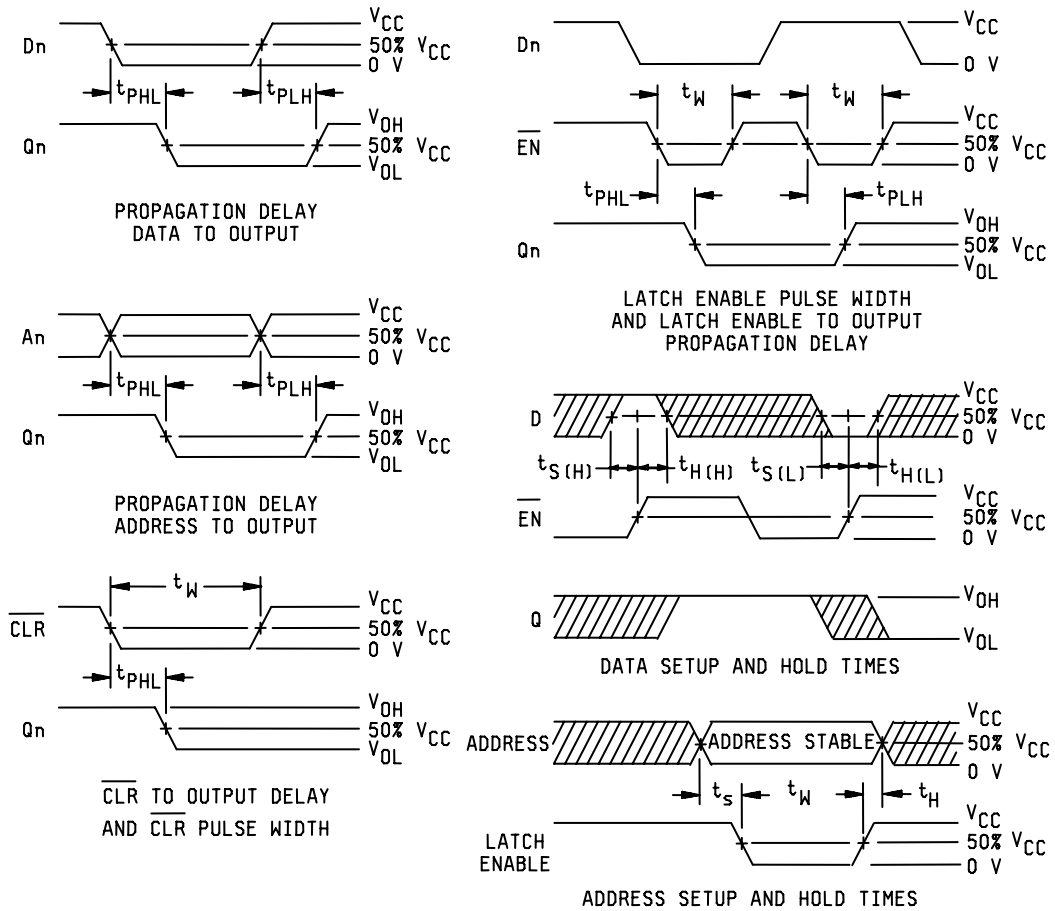


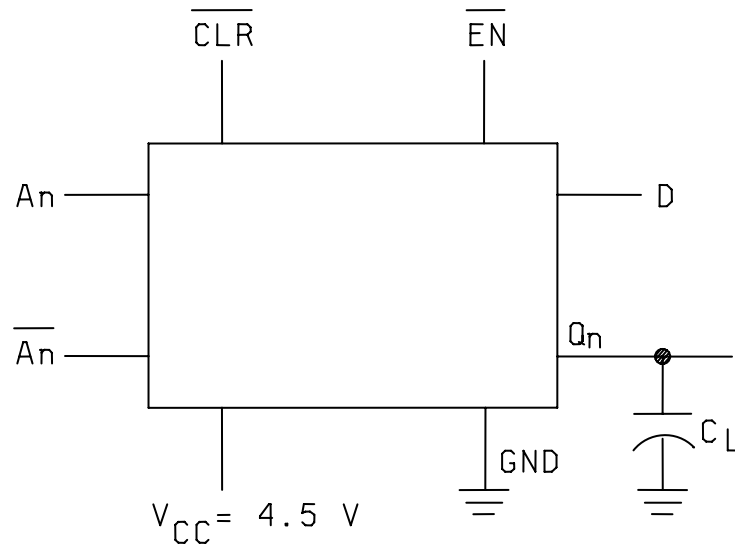
NOTES:

1. Clock input pulse characteristics: $t_r = t_f \leq 6$ ns.
2. Data or enable input characteristics: $t_r = t_f = 6$ ns; $t_{SETUP} \leq 30$ ns; $t_{HOLD} = 8$ ns, and $t_{PULSE WIDTH} = 24$ ns.
3. $C_L = 50$ pF.
4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 3. Switching time test circuit and waveforms.

DEVICE TYPE 02

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPE 02

NOTES:

1. Clock input pulse characteristics: $t_r = t_f \leq 6 \text{ ns}$.
2. Data, address, latch enable, or clear input pulse characteristics: $t_r = t_f = 6 \text{ ns}$; $t_{\text{SETUP}} \leq 30 \text{ ns}$; $t_{\text{PULSE WIDTH}} \leq 24 \text{ ns}$ and $t_{\text{HOLD}} \leq 24 \text{ ns}$.
3. $C_L = 50 \text{ pF}$.
4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPES 03 AND 53

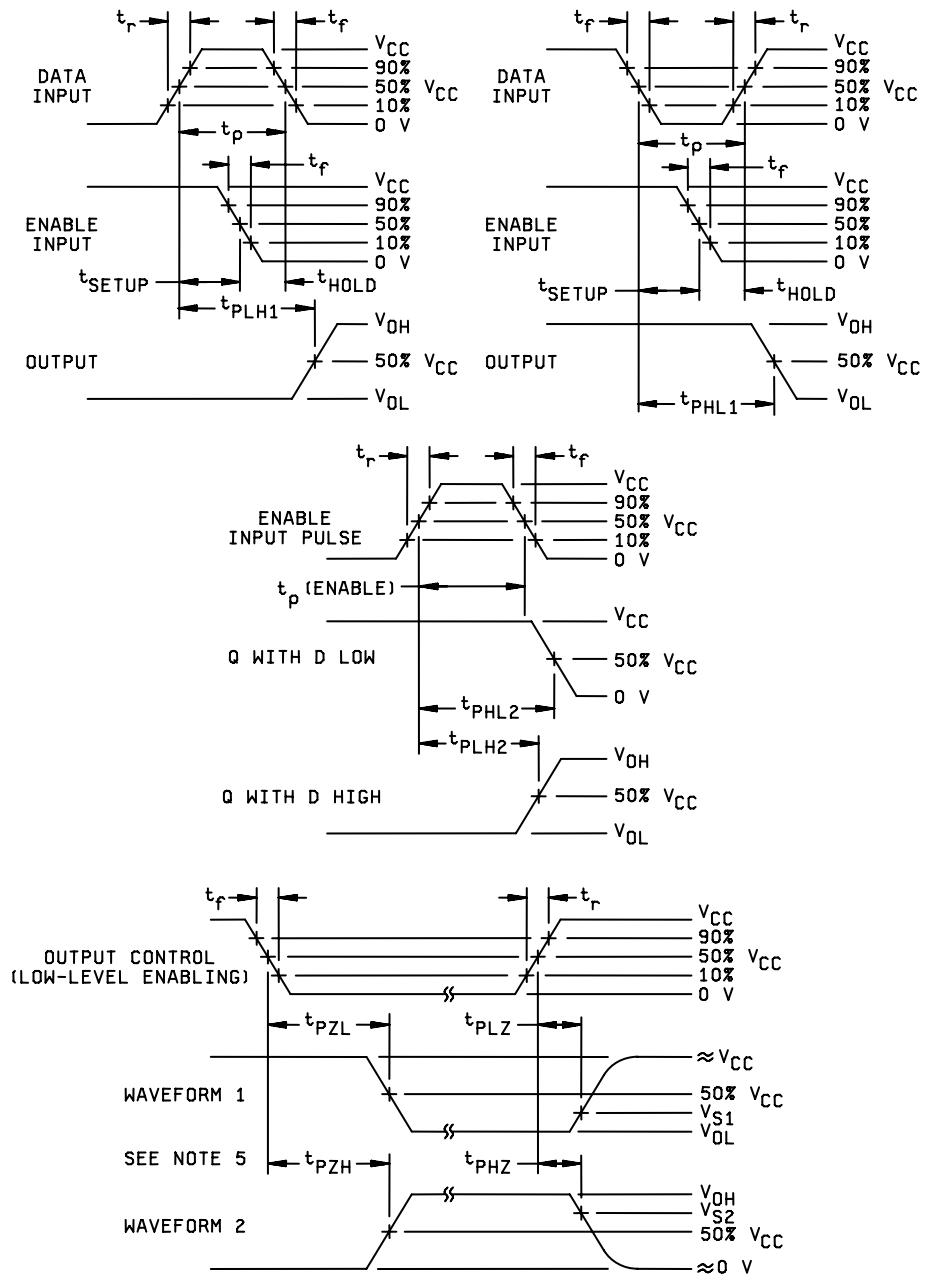
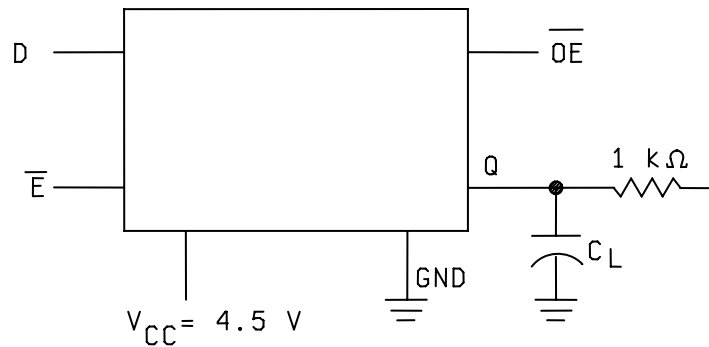
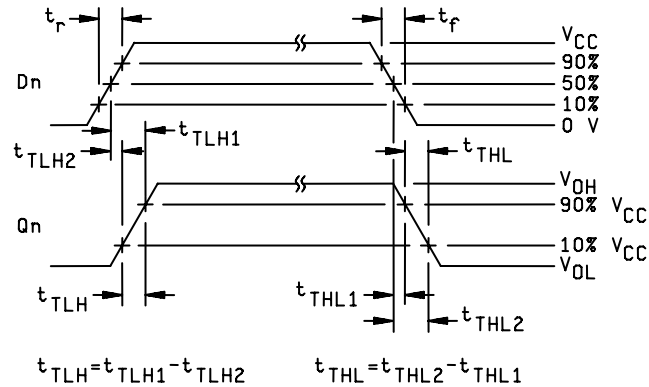


FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPES 03 AND 53

NOTES:

1. Clock input pulse characteristics: $t_r = t_f \leq 6\text{ ns}$.
2. Data, latch enable, and output enable input pulse characteristics: $t_r = t_f \leq 6\text{ ns}$; $t_{\text{SETUP}} \leq 30\text{ ns}$; $t_{\text{PULSE WIDTH}} \leq 30\text{ ns}$ and $t_{\text{HOLD}} \leq 15\text{ ns}$.
3. $C_L = 50\text{ pF}$ and $R_L = 1000\Omega$.
4. Voltage measurements are to be made with respect to the network ground terminal.
5. For t_{PHZ} and t_{PZH} , a $1\text{ k}\Omega$ resistor is connected between the output and GND terminal. For t_{PZL} and t_{PLZ} , a $1\text{ k}\Omega$ resistor is connected between the output and V_{CC} terminal. $V_{S1} = V_{OL} + 0.1\text{ V}$ ($V_{OH} - V_{OL}$). $V_{S2} = V_{OH} - 0.1\text{ V}$ ($V_{OH} - V_{OL}$).
6. The input signal for HCT device type 53 will be $0 - 3\text{ V}$; however, the 50% V_{CC} measure point is 1.3 V for input and output signals. The 10% V_{CC} and 90% V_{CC} points are 0.3 V and 2.7 V , respectively.

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPE 04

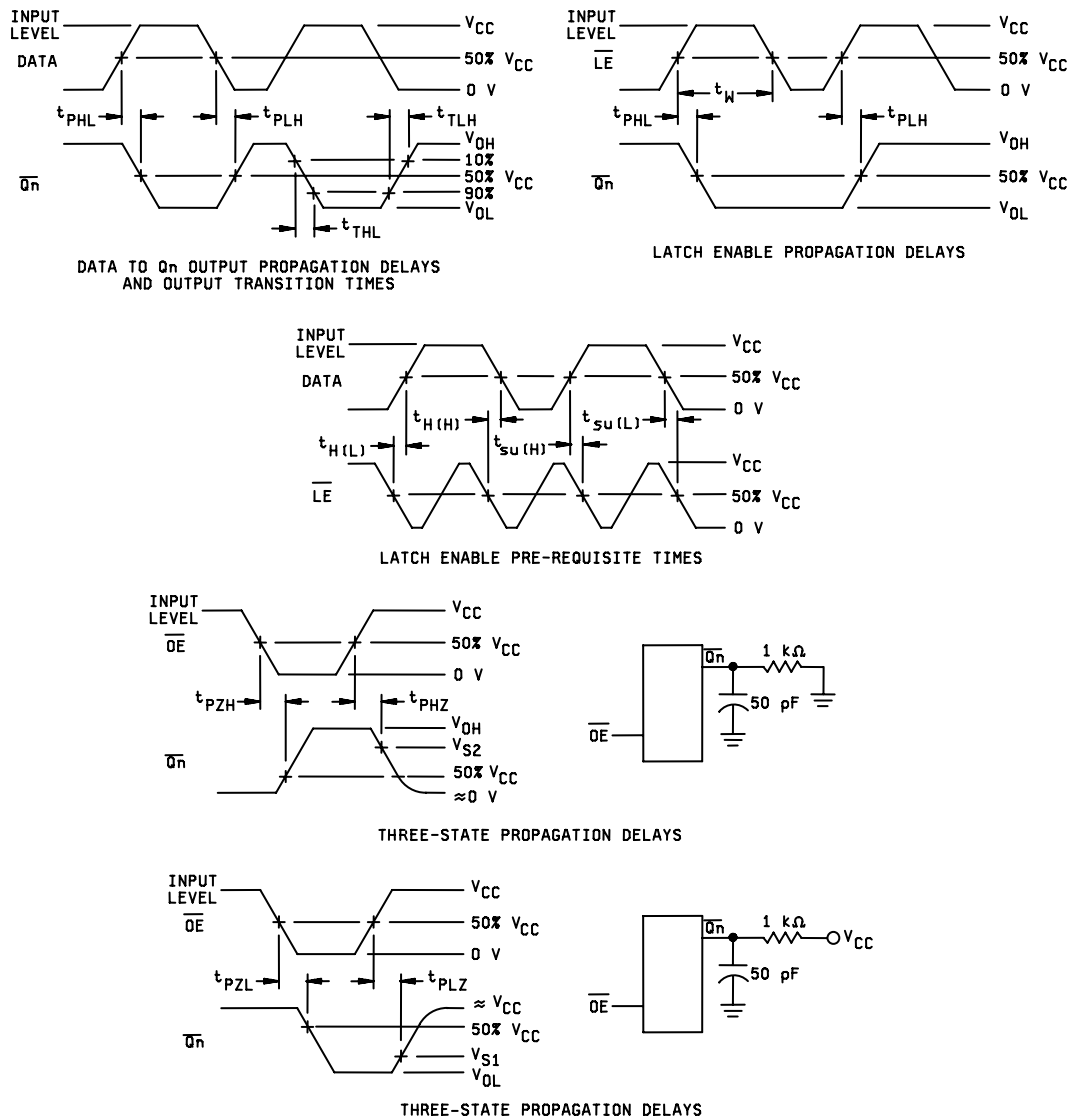
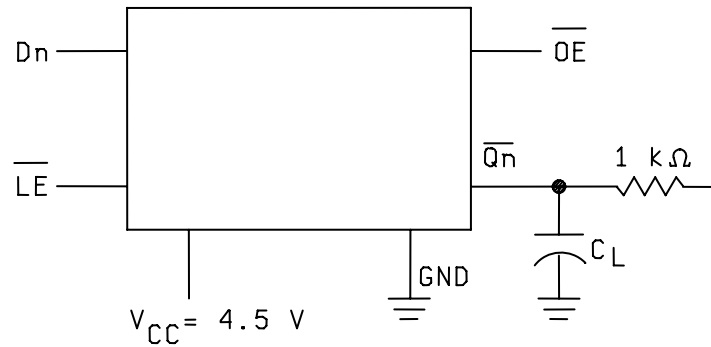


FIGURE 3. Switching time test circuit and waveforms – Continued.

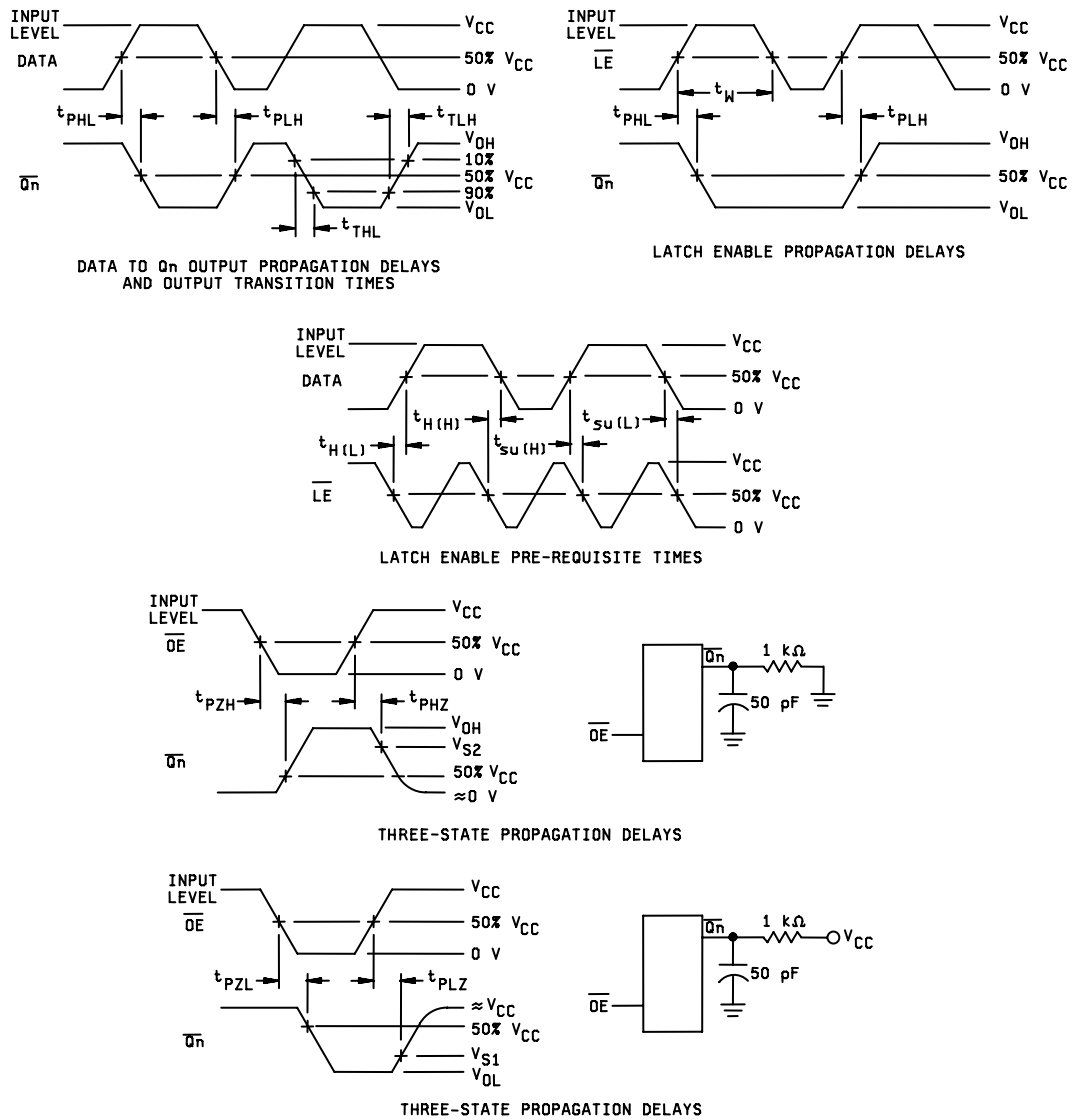
DEVICE TYPE 04

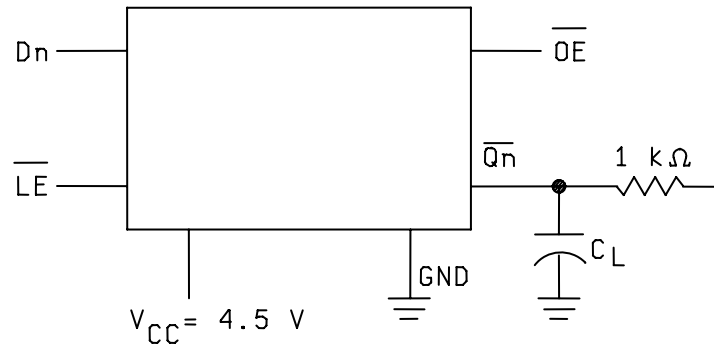
NOTES:

1. Clock input pulse characteristics: $t_r = t_f \leq 6\text{ ns}$.
2. Data, latch enable, and output enable input pulse characteristics: $t_r = t_f \leq 6\text{ ns}$; $t_{SETUP} \leq 30\text{ ns}$; $t_{PULSE\ WIDTH} \leq 30\text{ ns}$ and $t_{HOLD} \leq 15\text{ ns}$.
3. $C_L = 50\text{ pF}$ and $R_L = 1000\Omega$.
4. Voltage measurements are to be made with respect to the network ground terminal.
5. For t_{PHZ} and t_{PZH} , a $1\text{ k}\Omega$ resistor is connected between the output and ground terminal. For t_{PZL} and t_{PLZ} , a $1\text{ k}\Omega$ resistor is connected between the output and V_{CC} terminal. $V_{S1} = V_{OL} + 0.1\text{ V}$ ($V_{OH} - V_{OL}$). $V_{S2} = V_{OH} - 0.1\text{ V}$ ($V_{OH} - V_{OL}$).

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPE 05

FIGURE 3. Switching time test circuit and waveforms – Continued.

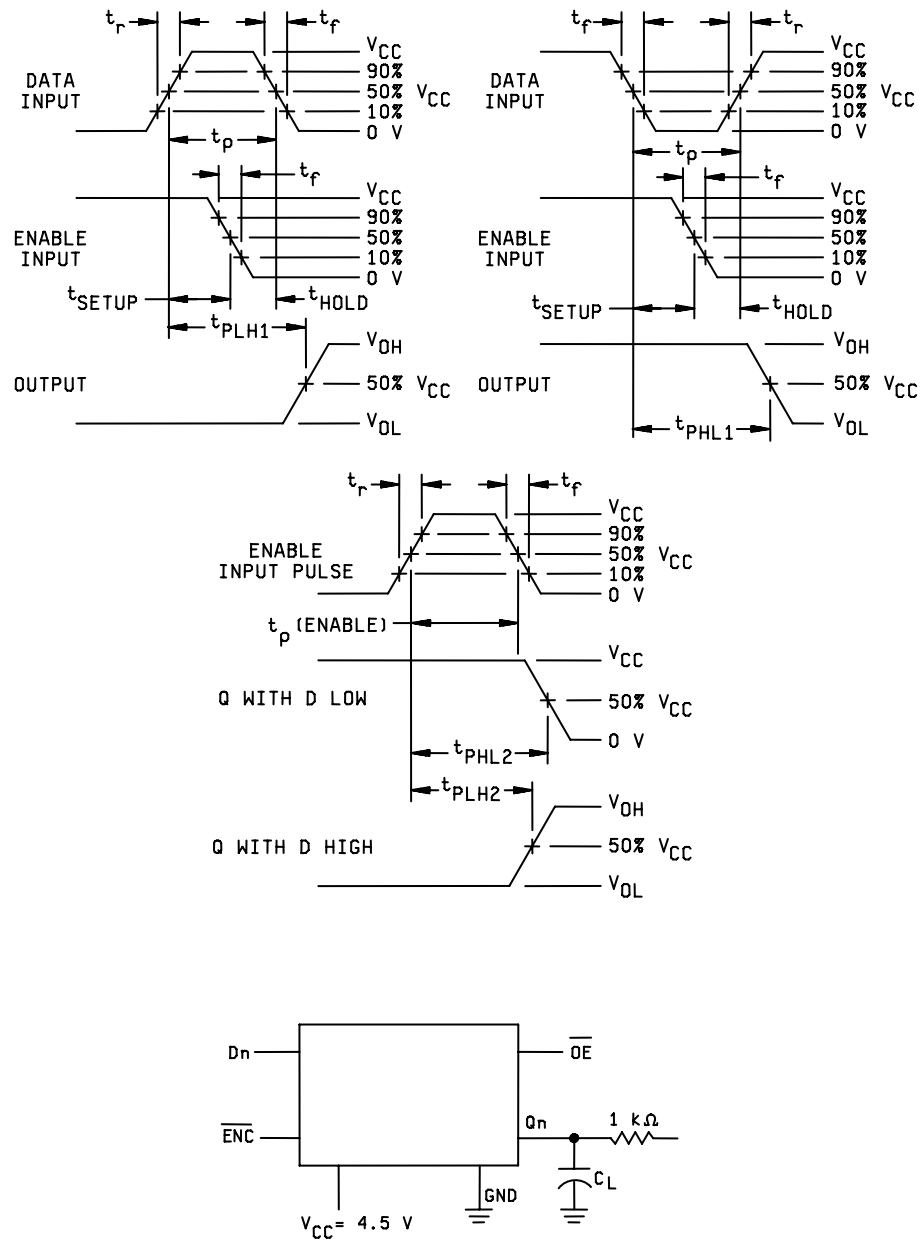
DEVICE TYPE 05

NOTES:

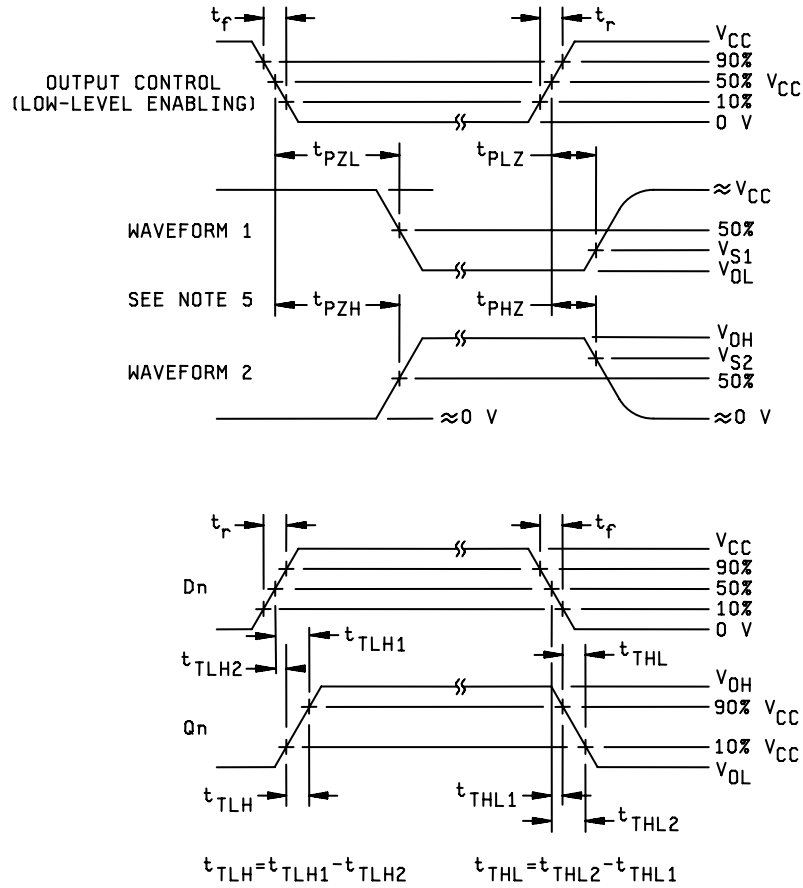
1. Clock input pulse characteristics: $t_r = t_f \leq 6 \text{ ns}$.
2. Data, latch enable, and output enable input pulse characteristics: $t_r = t_f \leq 6 \text{ ns}$; $t_{\text{SETUP}} \leq 23 \text{ ns}$; $t_{\text{PULSE WIDTH}} \leq 24 \text{ ns}$ and $t_{\text{HOLD}} \leq 15 \text{ ns}$.
3. $C_L = 50 \text{ pF}$ and $R_L = 1000\Omega$.
4. Voltage measurements are to be made with respect to the network ground terminal.
5. For t_{PHZ} and t_{PZH} , a $1 \text{ k}\Omega$ resistor is connected between the output and ground terminal. For t_{PZL} and t_{PLZ} , a $1 \text{ k}\Omega$ resistor is connected between the output and V_{CC} terminal. $V_{S1} = V_{OL} + 0.1 \text{ V}$ ($V_{OH} - V_{OL}$). $V_{S2} = V_{OH} - 0.1 \text{ V}$ ($V_{OH} - V_{OL}$).
6. All trip points are referenced to V_{CC} .

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPE 06

FIGURE 3. Switching time test circuit and waveforms – Continued.

DEVICE TYPE 06



NOTES:

1. Clock input pulse characteristics: $t_r = t_f \leq 6$ ns.
2. Data, latch enable, and output enable input pulse characteristics: $t_r = t_f \leq 6$ ns; $t_{SETUP} \leq 23$ ns; $t_{PULSE WIDTH} \leq 24$ ns and $t_{HOLD} \leq 15$ ns.
3. $C_L = 50$ pF and $R_L = 1000\Omega$.
4. Voltage measurements are to be made with respect to the network ground terminal.
5. For t_{PHZ} and t_{PZH} , a 1 k Ω resistor is connected between the output and ground terminal. For t_{PZL} and t_{PLZ} , a 1 k Ω resistor is connected between the output and V_{CC} terminal. $V_{S1} = V_{OL} + 0.1$ V ($V_{OH} - V_{OL}$). $V_{S2} = V_{OH} - 0.1$ V ($V_{OH} - V_{OL}$).
6. All trip points are referenced to V_{CC} .

FIGURE 3. Switching time test circuit and waveforms – Continued.

TABLE III. Group A inspection for device type 01.

Symbol	MIL-STD-883 method	Case 2 Cases E and F Test no.	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 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
V _{IC} (pos)		1 2 3 4 5 6	1Q	1D	2D	EN3-4	V _{CC}	3D	4D	4Q	4Q	3Q	3Q	GND	EN1-2	2Q	2Q	1Q	1D 2D EN3-4 3D 4D EN1-2		1.5 " " " "						V
V _{IC} (neg)		7 8 9 10 11 12		-1mA	-1mA		1/ "							GND					1D 2D EN3-4 3D 4D EN1-2		-1.5 " " " "						"
I _{CC}	3005	13 14		6.0V GND	6.0V GND	6.0V GND	6.0V "	6.0V GND	6.0V GND					"	6.0V GND				V _{CC} V _{CC}		.1 .1		10 10				μA μA
V _{OH3}	3006	15 16 17 18 19 20 21 22		4.2V	4.2V		"	4.2V	4.2V			-20μA	-20μA	"	4.2V 4.2V		-20μA	-20μA	1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q	5.95 " " " "		5.95 " " "		5.95 " " "			V
V _{OH5}	3006	23-30	Same tests and terminal conditions as V _{OH3} except I _{OH} = -5.2 mA.																	5.48		5.2		5.48		"	
V _{OL3}	3007	31 32 33 34 35 36 37 38		1.2V	1.2V		6.0 V "	1.2V	1.2V		20μA	20μA		GND " " "	4.2V 4.2V		20μA	20μA	1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q		.05 " " "		.05 " " "		.05 " " "		"
V _{OL5}	3007	39-46	Same tests and terminal conditions as V _{OL3} except I _{OL} = 5.2 mA.																		.26		.4		.26	"	
I _{OS4}	3011	47 48 49 50 51 52 53 54		4.0V	4.0V		4.0V " 4.0V "	4.0V "	4.0V		GND	GND		GND " " "	4.0V 4.0V		GND	GND	1Q 2Q 3Q 4Q 1Q 2Q 3Q 4Q	-10 " " "	-120 " " "	-10 " " "	-120 " " "	-10 " " "	-120 " " "		mA
I _{IH}	3010	55 56 57 58 59 60		6.0V	6.0V		6.0V " "	6.0V "	6.0V					"	6.0V				1D 2D EN3-4 3D 4D EN1-2		.05 " " "		.1 " "				μA

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case 2	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 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
		Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16									
		Test no.	1Q	1D	2D	EN3-4	V _{CC}	3D	4D	4Q	3Q	3Q	GND	EN1-2	2Q	2Q	1Q	Min	Max		Min	Max	Min	Max			
I _{IL}	3009	61 62 63 64 65 66		GND	GND	6.0V " " " "		GND	GND				GND					1D 2D EN3-4 3D 4D EN1-2		-.05 " " " "		-.1 " " " "			μA		
																		Subgroup 4 T _C = +25°C									
																		Min	Max								
C _{in}	3012	67 68 69 70 71 72		2/	2/		GND " " " "	2/	2/				GND " " " "					1D 2D 3D 4D EN3-4 EN1-2		10 " " " "					pF		
																		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 3/	3014	73 74 75 76	L L L H	A A B B	A A B B	A B B A	4.5V " " "	A A B B	A A B B	L L L H	H H H L	H H H L	L L L H	GND " " "	A B B A	L L L H	H H H L	H H H L	All outputs 4/								
																		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
																		Min	Max	Min	Max	Min	Max				
t _{PLH1}	3003 (Fig. 3)	77 78 79 80		IN	IN	4.5V 4.5V	4.5V " "	IN	IN		OUT	OUT		GND " "	4.5V 4.5V		OUT	OUT	1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q	3 " " "	23 " " "	3 " " "	30 " " "	3 " " "	23 " " "	ns	
t _{PHL1}	3003 (Fig. 3)	81 82 83 84		IN	IN	4.5V 4.5V	4.5V " "	IN	IN		OUT	OUT		4.5V 4.5V	4.5V		OUT	OUT	1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	
t _{PLH1}	3003 (Fig. 3)	85 86 87 88	OUT	IN	IN	4.5V 4.5V	" " "	IN	IN	OUT		OUT		" " "	4.5V 4.5V	OUT			1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	
t _{PHL1}	3003 (Fig. 3)	89 90 91 92	OUT	IN	IN	4.5V 4.5V	" " "	IN	IN	OUT		OUT		" " "	4.5V 4.5V	OUT			1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case 2	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 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
		Cases 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.		$\overline{1Q}$	1D	2D	EN3-4	V _{CC}	3D	4D	$\overline{4Q}$	4Q	3Q	$\overline{3Q}$	GND	EN1-2	$\overline{2Q}$	2Q	1Q									
t _{PHL2}	3003 (Fig. 3)	93 94 95 96 97 98 99 100		4.5V GND	4.5V GND	IN IN IN IN	4.5V " " " " " " " " " "	4.5V GND	4.5V GND		OUT OUT	OUT OUT	GND " " " " " " " " " "	IN IN IN IN		OUT OUT	OUT OUT	EN to 1Q EN to 2Q EN to 3Q EN to 4Q EN to 1Q EN to 2Q EN to 3Q EN to 4Q	4 " " " " " " " " "	26 " " " " " " " " "	4 " " " " " " " " "	34 " " " " " " " " "	4 " " " " " " " " "	26 " " " " " " " " "	ns	
t _{PLH2}	3003 (Fig. 3)	101 102 103 104 105 106 107 108	OUT OUT	GND 4.5V	GND 4.5V	IN IN IN IN	" " " " " " " " "	GND 4.5V	GND 4.5V	OUT OUT		OUT OUT	" " " " " " " " "	IN IN IN IN	OUT OUT			EN to 1Q EN to 2Q EN to 3Q EN to 4Q EN to 1Q EN to 2Q EN to 3Q EN to 4Q	" " " " " " " " "	" " " " " " " " "	" " " " " " " " "	" " " " " " " " "	" " " " " " " " "	" " " " " " " " "		
t _{THL}	3004 (Fig. 3)	109 110 111 112		IN IN	IN 4.5V 4.5V	" " " "	IN IN	IN IN		OUT OUT	OUT OUT		" " " "	4.5V 4.5V		OUT	OUT	1Q 2Q 3Q 4Q	3 " " "	15 " " "	3 " " "	20 " " "	3 " " "	15 " " "		
t _{TLH}	3004 (Fig. 3)	113 114 115 116		IN IN	IN 4.5V 4.5V	" " " "	IN IN	IN IN		OUT OUT	OUT OUT		" " " "	4.5V 4.5V		OUT	OUT	1Q 2Q 3Q 4Q	" " " "	" " " "	" " " "	" " " "	" " " "	" " " "		

See footnotes at end of table.

TABLE III. Group A inspection for device type 02.

Symbol	MIL-STD-883 method	Case 2 Cases E and F Test no.	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 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
V _{IC} (pos)		1 2 3 4 5 6	1mA	1mA	1mA					1/					1mA	1mA	1mA	GND	A0 A1 A2 Data EN CLR		1.5					V
V _{IC} (neg)		7 8 9 10 11 12	-1mA	-1mA	-1mA					GND					-1mA	-1mA	-1mA	1/	A0 A1 A2 Data EN CLR		-1.5					
I _{CC}	3005	13 14	6.0V GND	6.0V GND	6.0V GND										6.0V GND	6.0V GND	6.0V GND	6.0V 6.0V	V _{CC} V _{CC}		.2 .2		20 20			μA μA
V _{OH3}	3006	15 16 17 18 19 20 21 22	1.2V 4.2V 1.2V 4.2V 1.2V 4.2V 1.2V 4.2V	1.2V 1.2V 4.2V 4.2V 1.2V 4.2V 1.2V 4.2V	1.2V 1.2V 1.2V 4.2V 4.2V 4.2V 4.2V 4.2V	-20μA -20μA -20μA -20μA -20μA -20μA -20μA -20μA								4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V	1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V	4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	5.95 5.95 5.95 5.95 5.95 5.95 5.95 5.95		5.95 5.95 5.95 5.95 5.95 5.95 5.95 5.95				V		
V _{OH5}	3006	23-30	Same tests and terminal conditions as V _{OH3} , except I _{OH} = -5.2 mA.																	5.48		5.2		5.48		
V _{OL3}	3007	31 32 33 34 35 36 37 38	1.2V 4.2V 1.2V 4.2V 1.2V 4.2V 1.2V 4.2V	1.2V 1.2V 4.2V 4.2V 1.2V 4.2V 1.2V 4.2V	1.2V 1.2V 1.2V 4.2V 4.2V 4.2V 4.2V 4.2V	20mA 20mA 20mA 20mA 20mA 20mA 20mA 20mA								1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V	1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V 1.2V	4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V 4.2V	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7		.05 .05 .05 .05 .05 .05 .05 .05		.05 .05 .05 .05 .05 .05 .05 .05					
V _{OL5}	3007	39-46	Same tests and terminal conditions as V _{OL3} , except I _{OL} = 5.2 mA.																	.26		.4		.26		
I _{OS4}	3011	47 48 49 50 51 52 53 54	GND 4.0V GND 4.0V GND 4.0V GND 4.0V	GND GND 4.0V 4.0V GND 4.0V 4.0V 4.0V	GND GND GND 4.0V GND 4.0V 4.0V 4.0V	GND GND GND GND GND GND GND GND										GND GND GND GND GND GND GND GND	4.0V 4.0V 4.0V 4.0V 4.0V 4.0V 4.0V 4.0V	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	-10 -120 -10 -120 -10 -120 -10 -120		-10 -120 -10 -120 -10 -120 -10 -120			mA		
I _{IH}	3010	55 56 57 58 59 60	6.0V	6.0V	6.0V					GND					6.0V	6.0V	6.0V	6.0V	A0 A1 A2 Data EN CLR		.05		.1			μA

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case 2 Cases E and F Test no.	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 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
I _{IL}	3009	61 62 63 64 65 66	GND	GND	GND					GND					GND			6.0V	A0 A1 A2 Data EN CLR		-.05		-.1			μA
																			Subgroup 4 T _C = +25°C							
																			Min	Max						
C _{in}	3012	67 68 69 70 71 72	2/	2/	2/										2/	2/		GND	A0 A1 A2 Data EN CLR		10					pF
																			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 3/	3014	73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	B B A A B B A A A B B A A A A B B A A B B A A A	B A A A A A A A A A A A A A A A A A A A A A A A	B A A A A A A A A A A A A A A A A A A A A A A A	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	GND	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	L H L H L H L H L H L H L H L H L H L H L H L H	A B A B A B A B A B A B A B A B A B A B A B A B	A B A B A B A B A B A B A B A B A B A B A B A B	B A B A B A B A B A B A B A B A B A B A B A B A	4.5V	All Outputs 4/							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case 2	Terminal conditions 1/																Measured terminal	Test limits						Unit
		Cases E and F	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C		
		Test no.	A0	A1	A2	Q0	Q1	Q2	Q3	GND	Q4	Q5	Q6	Q7	Data IN	EN	CLR	V _{CC}		Min	Max	Min	Max	Min	Max	
Truth table 3/	3014	101	A	B	B	H	H	L	L	GND	L	L	L	H	A	A	A	4.5V	All Outputs 4/							
		102	B	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		103	B	"	"	"	"	"	H	"	"	"	"	"	"	"	"	"		"						
		104	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		105	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		106	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		107	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		108	B	B	A	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		109	B	"	"	"	"	"	"	"	"	"	"	H	"	"	"	"		"						
		110	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		111	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		112	A	"	"	"	"	"	"	"	"	"	"	"	"	H	"	"		"						
		113	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		114	B	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		115	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		116	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		117	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
		118	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"						
																			Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
																			Min	Max	Min	Max	Min	Max		
t _{PHL1}	3003 (Fig. 3)	119	GND	GND	GND	OUT	OUT	OUT	OUT	GND	GND	GND	OUT	IN	GND 5/	4.5V	4.5V	Data to Q0	5	37	5	43	5	37	ns	
		120	4.5V	4.5V	4.5V	"	"	"	"	"	"	"	"	"	"	"	"	Data to Q1	"	"	"	"	"	"	"	
		121	GND	4.5V	GND	"	"	OUT	OUT	"	"	"	"	"	"	"	"	Data to Q2	"	"	"	"	"	"	"	
		122	4.5V	4.5V	GND	"	"	"	"	"	"	"	"	"	"	"	"	Data to Q3	"	"	"	"	"	"	"	
		123	GND	GND	4.5V	"	"	"	"	"	OUT	OUT	"	"	"	"	"	Data to Q4	"	"	"	"	"	"	"	
		124	4.5V	GND	4.5V	"	"	"	"	"	"	OUT	OUT	"	"	"	"	Data to Q5	"	"	"	"	"	"	"	
		125	GND	4.5V	4.5V	"	"	"	"	"	"	OUT	OUT	"	"	"	"	Data to Q6	"	"	"	"	"	"	"	
		126	4.5V	4.5V	4.5V	"	"	"	"	"	"	OUT	OUT	"	"	"	"	Data to Q7	"	"	"	"	"	"	"	
t _{PLH1}	3003 (Fig. 3)	127-134	Same tests and terminal conditions and limits as specified above for t _{PHL1} .																							
t _{PHL2}	3003 (Fig. 3)	135	GND	GND	GND	OUT	OUT	OUT	OUT	GND	"	"	"	4.5V	IN	4.5V	4.5V	EN to Q0	7	35	7	47	7	35	ns	
		136	4.5V	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	EN to Q1	"	"	"	"	"	"	"	
		137	GND	4.5V	GND	"	"	OUT	OUT	"	"	"	"	"	"	"	"	EN to Q2	"	"	"	"	"	"	"	
		138	4.5V	4.5V	GND	"	"	"	"	"	"	"	"	"	"	"	"	EN to Q3	"	"	"	"	"	"	"	
		139	GND	GND	4.5V	"	"	"	"	"	OUT	OUT	"	"	"	"	"	EN to Q4	"	"	"	"	"	"	"	
		140	4.5V	GND	4.5V	"	"	"	"	"	"	OUT	OUT	"	"	"	"	EN to Q5	"	"	"	"	"	"	"	
		141	GND	4.5V	4.5V	"	"	"	"	"	"	"	OUT	OUT	"	"	"	EN to Q6	"	"	"	"	"	"	"	
		142	4.5V	4.5V	4.5V	"	"	"	"	"	"	"	OUT	OUT	"	"	"	EN to Q7	"	"	"	"	"	"	"	
t _{PLH2}	3003 (Fig. 3)	143-150	Same tests and terminal conditions and limits as specified above for t _{PHL2} , with the exception that Data IN is at GND.																							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case 2 Cases E and F Test no.	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 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max	
			A0	A1	A2	Q0	Q1	Q2	Q3	GND	Q4	Q5	Q6	Q7	Data IN	EN	CLR	V _{CC}								
t _{PHL3}	3003	151 152 153 154 155 156 157 158	IN IN GND IN GND IN GND IN	GND GND IN 4.5V GND GND IN 4.5V	GND GND GND IN 4.5V GND IN 4.5V	OUT	OUT	OUT	OUT	GND					4.5V	IN	4.5V	4.5V	A0 to Q0 A0 to Q1 A1 to Q2 A0 to Q3 A2 to Q4 A0 to Q5 A1 to Q6 A0 to Q7	5	38	5	50	5	38	ns
t _{PLH3}	3003 (Fig. 3)	159-166	Same tests and terminal conditions and limits as specified above for t _{PHL3} , with the exception that Data IN is at GND.																							
t _{PHL4}	3003 (Fig. 3)	167 168 169 170 171 172 173 174	GND 4.5V GND 4.5V GND 4.5V GND 4.5V	GND GND 4.5V 4.5V GND GND 4.5V 4.5V	GND GND GND 4.5V 4.5V GND 4.5V 4.5V	OUT	OUT	OUT	OUT	GND					4.5V	5/	IN	4.5V	CLR to Q0 CLR to Q1 CLR to Q2 CLR to Q3 CLR to Q4 CLR to Q5 CLR to Q6 CLR to Q7	5	26	5	36	5	26	ns
t _{THL}	3004 (Fig. 3)	175 176 177 178 179 180 181 182	GND 4.5V GND 4.5V GND 4.5V GND 4.5V	GND GND 4.5V 4.5V GND GND 4.5V 4.5V	GND GND GND 4.5V 4.5V GND 4.5V 4.5V	OUT	OUT	OUT	OUT	GND					IN	GND	4.5V	4.5V	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	3	15	3	20	3	15	ns
t _{TLH}	3004 (Fig. 3)	183-190	Same tests and terminal conditions and limits as specified above for as t _{THL} .																							

See footnotes at end of table.

TABLE III. Group A inspection for device type 03.

Symbol	MIL-STD-883 method	Cases R, S, and 2 Test no.	Terminal conditions 1/																			Measured terminal	Test limits						Unit			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20	Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
			OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	E	5Q	5D	6D	6Q	7Q	7D	8D	8Q		V _{CC}	Min	Max	Min	Max	Min		Max		
V _{IC} (pos)		1 2 3 4 5 6 7 8 9 10	1mA		1mA	1mA			1mA	1mA		1/										GND	OE 1D 2D 3D 4D E	.4 1/	1.5						V	
V _{IC} (neg)		11 12 13 14 15 16 17 18 19 20	-1mA		-1mA	-1mA			-1mA	-1mA		GND										1/	OE 1D 2D 3D 4D E		-1.5						V	
I _{CC}	3005	21 22	GND GND		6.0V GND	6.0V GND			6.0V GND	6.0V GND			6.0V 6.0V		6.0V GND	6.0V GND			6.0V GND	6.0V GND		6.0V	V _{CC} V _{CC}		.2 .2		20 20				μA μA	
I _{CCZ}	3005	23	6.0V		6.0V	6.0V			6.0V	6.0V			6.0V		6.0V	6.0V			6.0V	6.0V			V _{CC}		.1		10				μA	
V _{OH3}	3006	24 25 26 27 28 29 30 31	1.2V "	-20μA	4.2V	4.2V	-20μA	-20μA	4.2V	4.2V	-20μA		4.2V										1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q	5.95 "		5.95		5.95			V	
V _{OH5}	3006	32-39	Same tests and terminal conditions as V _{OH3} , except I _{OH} = -7.8 mA.																				5.36		5.2		5.36					
V _{OL3}	3007	40 41 42 43 44 45 46 47	1.2V "	20μA	1.2V	1.2V	20μA	20μA	1.2V	1.2V	20μA		GND	4.2V								6.0V	1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q		.05		.05		.05		V	
V _{OL5}	3007	48-55	Same tests and terminal conditions as V _{OL3} , except I _{OL} = 7.8 mA.																					.26		.4		.26				
V _{OS4}	3011	56 57 58 59 60 61 62 63	GND "	GND	4.0V "	4.0V "	GND	GND	4.0V "	4.0V "	GND		GND	4.0V "	4.0V "			4.0V "	4.0V "		4.0V "	4.0V "		1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q	-10 "	-135	-10 "	-135	-10 "	-135		mA

See footnotes at end of table.

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C				
			Test no.	OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	E	5Q	5D	6D	6Q	7Q	7D	8D	8Q		V _{CC}	Min	Max	Min	Max	Min		Max	
Truth table 3/	3014	118	B	H	A	A	H	H	A	A	H	GND	A	H	A	A	H	H	A	A	H	L	4.5V	All outputs 4/								
		119	"	L	B	B	L	L	B	B	L	"	A	L	B	B	L	L	B	B	L	L	"									
		120	"	L	B	B	L	L	B	B	L	"	B	L	B	B	L	L	B	B	L	L	"									
		121	"	L	A	A	A	L	L	A	A	L	"	B	L	B	A	A	L	L	A	A	L		"							
		122	"	H	A	A	A	H	H	A	A	H	"	A	H	A	A	H	H	A	A	H	H		"							
		123	"	H	A	A	A	H	H	A	A	H	"	B	H	A	A	H	H	A	A	H	H		"							
		124	"	H	B	B	B	H	H	B	B	H	"	B	H	B	B	H	H	B	B	H	H		"							
																							Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
																							Min	Max	Min	Max	Min	Max				
t _{PHL1}	3003 (Fig. 3)	125 126 127 128 129 130 131 132	GND " " " " " "	OUT " " " " " "	IN " " " " " "	IN " " " " " "	OUT " " " " " "	OUT " " " " " "	IN " " " " " "	IN " " " " " "	OUT " " " " " "	GND " " " " " "	IN " " " " " "	OUT " " " " " "	IN " " " " " "	IN " " " " " "	OUT " " " " " "	OUT " " " " " "	IN " " " " " "	IN " " " " " "	OUT " " " " " "	4.5V " " " " " "	1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q 5D to 5Q 6D to 6Q 7D to 7Q 8D to 8Q	6 26 " " " " " "	26 " " " " " "	6 35 " " " " " "	35 " " " " " "	6 26 " " " " " "	26 " " " " " "	ns " " " " " "		
t _{PLH1}	3003 (Fig. 3)	133-140	Same tests and terminal conditions and limits as specified above for at t _{PHL1} .																													
t _{PLH2}	3003 (Fig. 3)	141 142 143 144 145 146 147 148	GND " " " " " "	OUT " " " " " "	4.5V 4.5V " " " "	4.5V " " " " "	OUT " " " " "	OUT " " " " "	4.5V 4.5V " " " "	4.5V " " " " "	OUT " " " " "	GND " " " " "	IN " " " " "	OUT " " " " "	4.5V " " " " "	4.5V " " " " "	OUT " " " " "	OUT " " " " "	4.5V " " " " "	4.5V " " " " "	OUT " " " " "	4.5V " " " " "	4.5V " " " " "	E to 1Q E to 2Q E to 3Q E to 4Q E to 5Q E to 6Q E to 7Q E to 8Q	6 31 " " " " " "	31 " " " " " "	6 41 " " " " " "	41 " " " " " "	6 31 " " " " " "	31 " " " " " "	ns " " " " " "	
t _{PHL2}	3003 (Fig. 3)	149 150 151 152 153 154 155 156	" " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	" " " " "	" " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	" " " " "	E to 1Q E to 2Q E to 3Q E to 4Q E to 5Q E to 6Q E to 7Q E to 8Q	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "		
t _{PHZ}	3003 (Fig. 3)	157 158 159 160 161 162 163 164	IN " " " " "	OUT " " " " "	4.5V 4.5V " " " "	4.5V " " " " "	OUT " " " " "	OUT " " " " "	4.5V 4.5V " " " "	4.5V " " " " "	OUT " " " " "	" " " " "	4.5V " " " " "	OUT " " " " "	OUT " " " " "	4.5V " " " " "	4.5V " " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	" " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	5 26 " " " " " "	26 " " " " " "	5 35 " " " " " "	35 " " " " " "	5 26 " " " " " "	26 " " " " " "	" " " " " "		
t _{PLZ}	3003 (Fig. 3)	165 166 167 168 169 170 171 172	" " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	" " " " "	" " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	OUT " " " " "	OUT " " " " "	GND " " " " "	GND " " " " "	" " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "	" " " " " "		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																		Measured terminal	Test limits						Unit			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C			Subgroup 11 T _C = -55°C		
			Test no.	OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	OE	5Q	5D	6D	6Q	7Q	7D		8D	8Q	V _{CC}	Min	Max	Min		Max	Min	Max
t _{PZH}	3003 (Fig. 3)	173	IN	OUT	4.5V							GND	4.5V										4.5V	OE to 1Q	5	26	5	35	5	26	ns
		174	"			4.5V	OUT		OUT	4.5V		"	"									"	OE to 2Q	"	"	"	"	"	"	"	
		175	"									"	"									"	OE to 3Q	"	"	"	"	"	"	"	
		176	"									"	"									"	OE to 4Q	"	"	"	"	"	"	"	
		177	"									"	"	OUT	4.5V							"	OE to 5Q	"	"	"	"	"	"	"	
		178	"									"	"			4.5V	OUT					"	OE to 6Q	"	"	"	"	"	"	"	
		179	"									"	"					OUT	4.5V			"	OE to 7Q	"	"	"	"	"	"	"	
		180	"									"	"							4.5V	OUT	"	OE to 8Q	"	"	"	"	"	"	"	
t _{PZL}	3003 (Fig. 3)	181-188	Same test and terminal conditions and limits as specified above for t _{PLZ} .																												
t _{THL}	3004 (Fig. 3)	189	GND	OUT	IN							GND	4.5V										4.5V	1Q	2	12	2	16	2	12	ns
		190	"			IN	OUT					"	"									"	2Q	"	"	"	"	"	"	"	
		191	"					OUT	IN			"	"									"	3Q	"	"	"	"	"	"	"	
		192	"							IN	OUT	"	"	OUT	IN							"	4Q	"	"	"	"	"	"	"	
		193	"									"	"			IN	OUT					"	5Q	"	"	"	"	"	"	"	
		194	"									"	"					OUT				"	6Q	"	"	"	"	"	"	"	
		195	"									"	"					OUT	IN			"	7Q	"	"	"	"	"	"	"	
		196	"									"	"							IN	OUT	"	8Q	"	"	"	"	"	"	"	
t _{TLH}	3004 (Fig. 3)	197-204	Same tests and terminal conditions and limits as specified above for t _{THL} .																												

See footnotes at end of table.

TABLE III. Group A inspection for device type 04.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit				
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C						
			Test no.	OE	Q0	D0	D1	Q1	Q2	D2	D3	Q3	GND	LE	Q4	D4	D5	Q5	Q6	D6	D7	Q7		V _{CC}	Min	Max	Min	Max	Min		Max			
V _{IC} (pos)		1 2 3 4 5 6 7 8 9 10	1mA		1mA	1mA					1mA	1mA											GND	OE D0 D1 D2 D3 LE D4 D5 D6 D7	.4 1/	1.5						V		
V _{IC} (neg)		11 12 13 14 15 16 17 18 19 20	-1mA		-1mA	-1mA					GND												1/	OE D0 D1 D2 D3 LE D4 D5 D6 D7		-1.5								
I _{CC}	3005	21 22	GND GND		6.0V GND	6.0V GND				6.0V GND	6.0V GND			6.0V		6.0V GND	6.0V GND				6.0V GND	6.0V GND		6.0V	V _{CC} V _{CC}		.2 .2		20 20				μA	
I _{CCZ}	3005	23 24	6.0V 6.0V		6.0V GND	6.0V GND				6.0V GND	6.0V GND					GND 6.0V	GND 6.0V				GND 6.0V	GND 6.0V			V _{CC} V _{CC}		.1 .1		10 10					
V _{OH3}	3006	25 26 27 28 29 30 31 32	1.2V " " " " " " "	-20μA	1.2V	1.2V	-20μA	-20μA	1.2V	1.2V	-20μA		"	4.2V										"	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	5.95 " " " " " " "		5.95 " " " " " " "		5.95 " " " " " " "			V	
V _{OH5}	3006	33 34 35 36 37 38 39 40	" " " " " " " "	-7.8mA	1.2V	1.2V	-7.8mA	-7.8mA	1.2V	1.2V	-7.8mA		"	"									"	"	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	5.36 " " " " " " "		5.2 " " " " " " "		5.36 " " " " " " "				
V _{OL3}	3007	41 42 43 44 45 46 47 48	" " " " " " " "	20μA	4.2V	4.2V	20μA	20μA	4.2V	4.2V	20μA		"	"									"	"	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7		.05 " " " " " " "		.05 " " " " " " "		.05 " " " " " " "			V
V _{OL5}	3007	49 50 51 52 53 54 55 56	" " " " " " " "	7.8mA	4.2V	4.2V	7.8mA	7.8mA	4.2V	4.2V	7.8mA		"	"									"	"	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7		.26 " " " " " " "		.4 " " " " " " "		.26 " " " " " " "			

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2 Test no.	Terminal conditions 1/																				Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			OE	Q0	D0	D1	Q1	Q2	D2	D3	Q3	GND	LE	Q4	D4	D5	Q5	Q6	D6	D7	Q7	V _{CC}		Min	Max	Min	Max	Min	Max	
I _{OS4}	3011	57	GND		GND	GND						GND	4V									4V	Q0	-10	-135	-10	-135	-10	-135	mA
		58	"									"	"									"	Q1	"	"	"	"	"	"	
		59	"									"	"									"	Q2	"	"	"	"	"	"	
		60	"									"	"									"	Q3	"	"	"	"	"	"	
		61	"									"	"									"	Q4	"	"	"	"	"	"	
		62	"									"	"									"	Q5	"	"	"	"	"	"	
		63	"									"	"									"	Q6	"	"	"	"	"	"	
I _{OZH}		64	"									"	"									"	Q7	"	"	"	"	"	"	
		65	Z/	6V	Z/	Z/	6V	6V	Z/	Z/	6V	"	4.2V									6V	Q0		-2		-2.0			μA
		66	"									"	"									"	Q1		"					
		67	"									"	"									"	Q2		"					
		68	"									"	"									"	Q3		"					
		69	"									"	"									"	Q4		"					
		70	"									"	"									"	Q5		"					
I _{OZL}		71	"									"	"									"	Q6		"					
		72	"									"	"									"	Q7		"					
		73	"	GND	Z/	Z/	GND	GND	Z/	Z/	GND	"	"									"	Q0		.2		2.0			μA
		74	"									"	"									"	Q1		"					
		75	"									"	"									"	Q2		"					
		76	"									"	"									"	Q3		"					
		77	"									"	"									"	Q4		"					
I _{IH}	3010	78	"									"	"									"	Q5		"					
		79	"									"	"									"	Q6		"					
		80	"									"	"									"	Q7		"					
		81	6V		6V	6V			6V	6V		"										"	OE		.05		.1			μA
		82										"										"	D0		"					
		83										"										"	D1		"					
		84										"										"	D2		"					
85										"										"	D3		"							
86										"	6V		6V	6V						"	LE		"							
I _{IL}	3009	87										"										"	D4		"					
		88										"										"	D5		"					
		89										"										"	D6		"					
		90										"										"	D7		"					
		91	GND		GND	GND			GND	GND		"										"	OE		-.05		-.1			μA
		92										"										"	D0		"					
		93										"										"	D1		"					
C _{in}	3012	94									"										"	D2		"					pF	
		95										"									"	D3		"						
		96										"									"	D4		"						
		97										"									"	D5		"						
		98										"									"	D6		"						
		99										"									"	D7		"						
		100										"									"	LE		"						
																						Subgroup 4 T _C = +25°C								
																						Min	Max							
C _{in}	3012	101	Z/		Z/	Z/					"											GND	OE		10				pF	
		102										"										"	D0		"					
		103										"										"	D1		"					
		104										"										"	D2		"					
		105										"										"	D3		"					
		106										"										"	D4		"					
		107										"										"	D5		"					
		108									"											"	D6		"					
		109									"										"	D7		"						
		110									"	Z/										"	LE		"					

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 4 T _C = +25°C							
			Test no.	OE	Q0	D0	D1	Q1	Q2	D2	D3	Q3	GND	LE	Q4	D4	D5	Q5	Q6	D6	D7	Q7		V _{CC}	Min	Max					
C ₀	3012	111	6V	2/			2/					GND											6V	Q0		20					pF
		112	"									"											"	Q1		"					"
		113	"									"											"	Q2		"					"
		114	"									"											"	Q3		"					"
		115	"									"											"	Q4		"					"
		116	"									"											"	Q5		"					"
		117	"									"											"	Q6		"					"
		118	"									"											"	Q7		"					"
																							All outputs 4/	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 3/	3014	119	B	L	A	B	H	L	A	B	B	H	GND	A	L	A	B	H	L	A	B	H	4.5V								
		120	"	H	B	A	L	H	B	A	L	"	A	H	B	A	L	H	B	A	L	"									
		121	"	H	B	A	L	H	B	A	L	"	A	H	B	A	L	H	B	A	L	"									
		122	"	H	B	A	L	H	B	A	L	"	A	H	B	A	L	H	B	A	L	"									
		123	"	L	A	B	A	L	H	A	B	A	"	A	H	A	B	A	B	A	B	A	"								
		124	"	L	A	B	A	L	H	A	B	A	"	A	H	A	B	A	B	A	B	A	"								
		125	"	L	A	B	A	L	H	A	B	A	"	A	H	A	B	A	B	A	B	A	"								
		126	"	L	A	B	A	L	H	A	B	A	"	A	H	A	B	A	B	A	B	A	"								
127	"	L	A	B	A	L	H	A	B	A	"	A	H	A	B	A	B	A	B	A	"										
																							4.5V	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
																								Min	Max	Min	Max	Min	Max		
t _{PLH1}	3003 (Fig. 3)	128	0.0V	OUT	IN	IN	OUT	OUT	IN	IN	OUT	GND	4.5V										4.5V	D0 to Q0	6	29	6	39	6	29	ns
		129	"									"	"										"	D1 to Q1	"	"	"	"	"	"	"
		130	"									"	"										"	D2 to Q2	"	"	"	"	"	"	"
		131	"									"	"										"	D3 to Q3	"	"	"	"	"	"	"
		132	"									"	"										"	D4 to Q4	"	"	"	"	"	"	"
		133	"									"	"										"	D5 to Q5	"	"	"	"	"	"	"
		134	"									"	"										"	D6 to Q6	"	"	"	"	"	"	"
		135	"									"	"										"	D7 to Q7	"	"	"	"	"	"	"
t _{PH1}	3003 (Fig. 3)	136-143	Same tests, terminal conditions, and limits as specified above for t _{PLH1} .																				4.5V	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
t _{PLH2}	3003 (Fig. 3)	144	0.0V	OUT	0.0V	0.0V	OUT	OUT	0.0V	0.0V	OUT	GND	IN										4.5V	LE to Q0	6	31	6	41	6	31	ns
		145	"									"	"										"	LE to Q1	"	"	"	"	"	"	"
		146	"									"	"										"	LE to Q2	"	"	"	"	"	"	"
		147	"									"	"										"	LE to Q3	"	"	"	"	"	"	"
		148	"									"	"										"	LE to Q4	"	"	"	"	"	"	"
		149	"									"	"										"	LE to Q5	"	"	"	"	"	"	"
		150	"									"	"										"	LE to Q6	"	"	"	"	"	"	"
		151	"									"	"										"	LE to Q7	"	"	"	"	"	"	"
t _{PH2}	3003 (Fig. 3)	152	"	OUT	4.5V	4.5V	OUT	OUT	4.5V	4.5V	OUT	"	"										"	LE to Q0	"	"	"	"	"	"	"
		153	"									"	"										"	LE to Q1	"	"	"	"	"	"	"
		154	"									"	"										"	LE to Q2	"	"	"	"	"	"	"
		155	"									"	"										"	LE to Q3	"	"	"	"	"	"	"
		156	"									"	"										"	LE to Q4	"	"	"	"	"	"	"
		157	"									"	"										"	LE to Q5	"	"	"	"	"	"	"
		158	"									"	"										"	LE to Q6	"	"	"	"	"	"	"
		159	"									"	"										"	LE to Q7	"	"	"	"	"	"	"
t _{PHZ}	3003 (Fig. 3)	160	IN	OUT	0.0V	0.0V	OUT	OUT	0.0V	0.0V	OUT	"	4.5V										"	OE to Q0	5	26	5	35	5	26	"
		161	"									"	"										"	OE to Q1	"	"	"	"	"	"	"
		162	"									"	"										"	OE to Q2	"	"	"	"	"	"	"
		163	"									"	"										"	OE to Q3	"	"	"	"	"	"	"
		164	"									"	"										"	OE to Q4	"	"	"	"	"	"	"
		165	"									"	"										"	OE to Q5	"	"	"	"	"	"	"
		166	"									"	"										"	OE to Q6	"	"	"	"	"	"	"
		167	"									"	"										"	OE to Q7	"	"	"	"	"	"	"

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2 Test no.	Terminal conditions 1/																		Measured terminal	Test limits						Unit			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C			Subgroup 11 T _C = -55°C		
			OE	Q0	D0	D1	Q1	Q2	D2	D3	Q3	GND	LE	Q4	D4	D5	Q5	Q6	D6	D7		Q7	V _{CC}	Min	Max	Min	Max		Min	Max	
t _{PLZ}	3003 (Fig. 3)	168	IN	OUT	4.5V	4.5V	OUT	OUT	4.5V	4.5V	OUT	GND	4.5V									4.5V	OE to Q0	5	26	5	35	5	26	ns	
		169	"									"	"									"	OE to Q1	"	"	"	"	"	"	"	
		170	"									"	"									"	OE to Q2	"	"	"	"	"	"	"	
		171	"									"	"									"	OE to Q3	"	"	"	"	"	"	"	
		172	"									"	"	OUT	4.5V	4.5V	OUT					"	OE to Q4	"	"	"	"	"	"	"	
		173	"									"	"									"	OE to Q5	"	"	"	"	"	"	"	
		174	"									"	"									"	OE to Q6	"	"	"	"	"	"	"	
175	"									"	"									"	OE to Q7	"	"	"	"	"	"	"			
t _{PZH}	3003 (Fig. 3)	176	"	OUT	0.0V	0.0V	OUT	OUT	0.0V	0.0V	OUT	"	"									"	OE to Q0	"	"	"	"	"	"	"	
		177	"									"	"									"	OE to Q1	"	"	"	"	"	"	"	
		178	"									"	"									"	OE to Q2	"	"	"	"	"	"	"	
		179	"									"	"									"	OE to Q3	"	"	"	"	"	"	"	
		180	"									"	"	OUT	0.0V	0.0V	OUT					"	OE to Q4	"	"	"	"	"	"	"	
		181	"									"	"									"	OE to Q5	"	"	"	"	"	"	"	
		182	"									"	"									"	OE to Q6	"	"	"	"	"	"	"	
183	"									"	"									"	OE to Q7	"	"	"	"	"	"	"			
t _{PZL}	3003 (Fig. 3)	184	"	OUT	4.5V	4.5V	OUT	OUT	4.5V	4.5V	OUT	"	"									"	OE to Q0	"	"	"	"	"	"	"	
		185	"									"	"									"	OE to Q1	"	"	"	"	"	"	"	
		186	"									"	"									"	OE to Q2	"	"	"	"	"	"	"	
		187	"									"	"									"	OE to Q3	"	"	"	"	"	"	"	
		188	"									"	"									"	OE to Q4	"	"	"	"	"	"	"	
		189	"									"	"	OUT	4.5V	4.5V	OUT					"	OE to Q5	"	"	"	"	"	"	"	
		190	"									"	"									"	OE to Q6	"	"	"	"	"	"	"	
191	"									"	"									"	OE to Q7	"	"	"	"	"	"	"			
t _{THL}	3004 (Fig. 3)	192	0.0V	OUT	IN	IN	OUT	OUT	IN	IN	OUT	"	"									"	Q0	2	12	2	16	2	12	"	
		193	"									"	"									"	Q1	"	"	"	"	"	"	"	
		194	"									"	"									"	Q2	"	"	"	"	"	"	"	
		195	"									"	"									"	Q3	"	"	"	"	"	"	"	
		196	"									"	"	OUT	IN	IN	OUT					"	Q4	"	"	"	"	"	"	"	
		197	"									"	"									"	Q5	"	"	"	"	"	"	"	
		198	"									"	"									"	Q6	"	"	"	"	"	"	"	
199	"									"	"									"	Q7	"	"	"	"	"	"	"			
t _{TLH}	3004 (Fig. 3)	200-207	Same tests, terminal conditions, and limits as specified above for t _{THL} .																												

See footnotes at end of table.

TABLE III. Group A inspection for device type 05.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
			Test no.	OE	D0	D1	D2	D3	D4	D5	D6	D7	GND	LE	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0		V _{CC}	Min	Max	Min	Max	Min		Max	
V _{IC} (pos)		1	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1/										GND	OE	.4	1/	1.5				V		
		2										"										"	D0	"	"				"			
		3										"										"	D1	"	"				"			
		4										"										"	D2	"	"				"			
		5										"										"	D3	"	"				"			
		6										"										"	D4	"	"				"			
		7										"										"	D5	"	"				"			
		8										"										"	D6	"	"				"			
		9										"										"	D7	"	"				"			
		10										"	1mA									"	LE	"	"				"			
V _{IC} (neg)		11	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND											1/	OE		-1.5				"			
		12									"											"	D0	"	"				"			
		13									"											"	D1	"	"				"			
		14									"											"	D2	"	"				"			
		15									"											"	D3	"	"				"			
		16									"											"	D4	"	"				"			
		17									"											"	D5	"	"				"			
		18									"											"	D6	"	"				"			
		19									"											"	D7	"	"				"			
		20									"	-1mA										"	LE	"	"				"			
I _{CC}	3005	21	GND	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	"	6.0V									6.0V	V _{CC}		.2		20			μA		
		22	GND	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	"	6.0V									6.0V	V _{CC}		.2		20			μA		
I _{CCZ}	3005	23	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	"											6.0V	V _{CC}		.1		10			μA		
V _{OH3}	3006	24	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V	GND	4.2V										6.0V	Q0	5.95		5.95		5.95		V		
		25	"								"	"										"	Q1	"	"				"			
		26	"								"	"										"	Q2	"	"				"			
		27	"								"	"										"	Q3	"	"				"			
		28	"								"	"										"	Q4	"	"				"			
		29	"								"	"										"	Q5	"	"				"			
		30	"								"	"										"	Q6	"	"				"			
		31	"								"	"										"	Q7	"	"				"			
		V _{OH5}	3006	32	"	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V	"	"										"	Q0	5.48		5.2		5.48		"
				33	"								"	"										"	Q1	"	"				"	
34	"										"	"										"	Q2	"	"				"			
35	"										"	"										"	Q3	"	"				"			
36	"										"	"										"	Q4	"	"				"			
37	"										"	"										"	Q5	"	"				"			
38	"										"	"										"	Q6	"	"				"			
39	"										"	"										"	Q7	"	"				"			
V _{OL3}	3007			40	"	4.2V	4.2V	4.2V	4.2V	4.2V	4.2V	4.2V	"	"										"	Q0		.05		.05		.05	V
				41	"								"	"										"	Q1	"	"				"	
		42	"								"	"										"	Q2	"	"				"			
		43	"								"	"										"	Q3	"	"				"			
		44	"								"	"										"	Q4	"	"				"			
		45	"								"	"										"	Q5	"	"				"			
		46	"								"	"										"	Q6	"	"				"			
		47	"								"	"										"	Q7	"	"				"			
		V _{OL5}	3007	48	"	4.2V	4.2V	4.2V	4.2V	4.2V	4.2V	4.2V	"	"										"	Q0		.26		.4		.26	"
				49	"								"	"										"	Q1	"	"				"	
50	"										"	"										"	Q2	"	"				"			
51	"										"	"										"	Q3	"	"				"			
52	"										"	"										"	Q4	"	"				"			
53	"										"	"										"	Q5	"	"				"			
54	"										"	"										"	Q6	"	"				"			
55	"										"	"										"	Q7	"	"				"			

See footnotes at end of table.

TABLE III. Group A inspection for device type 05 - Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2 Test no.	Terminal conditions 1/																				Measured terminal	Test limits						Unit																								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C																										
			OE	D0	D1	D2	D3	D4	D5	D6	D7	GND	LE	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0	V _{CC}		Min	Max	Min	Max	Min	Max																									
I _{OS4}	3011	56	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	4V									4 V	Q0	-10	-135	-10	-135	-10	-135	mA																								
		57	"	"																			"	"	"	"	"	"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		58	"	"																			"	"	"	"	"	"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"									
		59	"	"	GND	GND	GND	GND	GND	GND	GND	GND	4V										Q1																															
		60	"	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		61	"	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		62	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																									
63	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
I _{OZH}		64	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	4.2V									6 V	6 V	6 V	6 V	6 V	6 V	6 V	μA																									
		65	"	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		66	"	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		67	"	"	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	4.2V									6 V	6 V	6 V	6 V	6 V	6 V		6 V																								
		68	"	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		69	"	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		70	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"																								
71	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
I _{OZL}		72	"	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V	GND	GND	GND	GND	GND	"																										
		73	"	"																									"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		74	"	"																									"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		75	"	"	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V	GND	GND	GND	GND	GND		GND																									
		76	"	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		77	"	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		78	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	"																								
79	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
I _{IH}	3010	80	6 V	6 V	6 V	6 V	6V	6V	6V	6V	6V	6V	6 V											OE		.05	.1		"																									
		81	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		82	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		83	"	6 V	6V	6V	6V	6V	6V	6V	6V	6V	6 V											D0																														
		84	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		85	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		86	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"																								
87	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
88	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
89	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
I _{IL}	3009	90	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND										OE		-.05	-.1		"																										
		91	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		92	"																										"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		93	"	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND											D1																														
		94	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
		95	"																											"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
		96	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	"																								
97	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
98	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
99	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
																							Subgroup 4 T _C = +25°C																															
																							Min	Max																														
C _{in}	3012	100	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	GND									GND	OE		10					pF																								
		101	"																												"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		102	"																												"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
		103	"	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	GND										D2																															
		104	"																									"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
		105	"																									"	"		"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
		106	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																										
		107	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																										
		108	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																										
		109	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																										

See footnotes at end of table.

TABLE III. Group A inspection for device type 05 – Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 4 T _C = +25°C						
			Test no.	OE	D0	D1	D2	D3	D4	D5	D6	D7	GND	LE	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0		V _{CC}	Min	Max				
C ₀	3012	110	6 V									GND											Q0		20					pF
		111	"									"										"	Q1		"					"
		112	"									"										"	Q2		"					"
		113	"									"										"	Q3		"					"
		114	"									"						2/	2/	2/	2/		"	Q4		"				"
		115	"									"				2/						"	Q5		"					"
		116	"									"			2/							"	Q6		"					"
		117	"									"		2/	2/							"	Q7		"					"
																						Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C				
Truth table 3/	3014	118	B	A	B	A	B	A	B	A	B	GND	A	H	L	H	L	H	L	H	L	4.5 V	All Outputs 4/							
		119	"	B	B	A	B	A	B	A	B	"	A	B	L	L	H	L	H	L	H	"	"							
		120	"	B	B	A	B	A	B	A	B	"	B	L	L	H	L	H	L	H	L	"	"							
		121	"	A	A	B	A	B	A	B	A	"	A	B	L	L	H	L	H	L	H	"	"							
		122	"	A	B	A	B	A	B	A	B	"	A	B	L	L	H	L	H	L	H	"	"							
		123	"	B	A	B	A	B	A	B	A	"	A	B	L	L	H	L	H	L	H	"	"							
		124	"	A	A	B	A	B	A	B	A	"	A	B	L	L	H	L	H	L	H	"	"							
		125	"	A	B	A	B	A	B	A	B	"	B	B	H	L	H	L	H	L	H	"	"							
126	"	B	A	A	B	A	B	A	B	"	B	B	H	L	H	L	H	L	H	"	"									
																						Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C				
t _{PLH1}	3003 (Fig. 3)	127	0.0V	IN	IN	IN	IN	IN	IN	IN	IN	GND	4.5 V									4.5 V	D0 to Q0	4	31	4	41	4	31	ns
		128	"									"	"									"	D1 to Q1	"	"	"	"	"	"	"
		129	"									"	"									"	D2 to Q2	"	"	"	"	"	"	"
		130	"									"	"									"	D3 to Q3	"	"	"	"	"	"	"
		131	"									"	"									"	D4 to Q4	"	"	"	"	"	"	"
		132	"									"	"									"	D5 to Q5	"	"	"	"	"	"	"
		133	"									"	"									"	D6 to Q6	"	"	"	"	"	"	"
		134	"									"	"	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	"	D7 to Q7	"	"	"	"	"	"	"
t _{PHL1}	3003 (Fig. 3)	135-142	Same tests, terminal conditions and limits as specified above for t _{PLH1} .																											
t _{PLH2}	3003 (Fig. 3)	143	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	GND	IN									4.5 V	LE to Q0	4	31	4	41	4	31	ns
		144	"									"	"									"	LE to Q1	"	"	"	"	"	"	"
		145	"									"	"									"	LE to Q2	"	"	"	"	"	"	"
		146	"									"	"									"	LE to Q3	"	"	"	"	"	"	"
		147	"									"	"									"	LE to Q4	"	"	"	"	"	"	"
		148	"									"	"									"	LE to Q5	"	"	"	"	"	"	"
		149	"									"	"									"	LE to Q6	"	"	"	"	"	"	"
		150	"									"	"	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	"	LE to Q7	"	"	"	"	"	"	"
t _{PHL2}	3003 (Fig. 3)	151	"	4.5V	4.5V	4.5V	4.5V	4.5V	4.5V	4.5V	4.5V	"	"									"	LE to Q0	"	"	"	"	"	"	"
		152	"									"	"									"	LE to Q1	"	"	"	"	"	"	"
		153	"									"	"									"	LE to Q2	"	"	"	"	"	"	"
		154	"									"	"									"	LE to Q3	"	"	"	"	"	"	"
		155	"									"	"									"	LE to Q4	"	"	"	"	"	"	"
		156	"									"	"									"	LE to Q5	"	"	"	"	"	"	"
		157	"									"	"									"	LE to Q6	"	"	"	"	"	"	"
		158	"									"	"	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	"	LE to Q7	"	"	"	"	"	"	"
t _{PHZ}	3003 (Fig. 3)	159	IN	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	0.0V	GND	4.5 V									"	OE to Q0	3	26	3	35	3	26	ns
		160	"									"	"									"	OE to Q1	"	"	"	"	"	"	"
		161	"									"	"									"	OE to Q2	"	"	"	"	"	"	"
		162	"									"	"									"	OE to Q3	"	"	"	"	"	"	"
		163	"									"	"									"	OE to Q4	"	"	"	"	"	"	"
		164	"									"	"									"	OE to Q5	"	"	"	"	"	"	"
		165	"									"	"									"	OE to Q6	"	"	"	"	"	"	"
		166	"									"	"	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	"	OE to Q7	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 05 – Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
			Test no.	OE	D0	D1	D2	D3	D4	D5	D6	D7	GND	LE	Q7	Q6	Q5	Q4	Q3	Q2	Q1	Q0		V _{CC}	Min	Max	Min	Max	Min		Max
t _{PLZ}	3003 (Fig. 3)	167	IN	4.5V	4.5V							GND	4.5 V									OUT	4.5 V	OE to Q0	3	26	3	35	3	26	ns
		168	"									"	"									"	"	OE to Q1	"	"	"	"	"	"	"
		169	"									"	"									"	"	OE to Q2	"	"	"	"	"	"	"
		170	"									"	"									"	"	OE to Q3	"	"	"	"	"	"	"
		171	"									"	"									"	"	OE to Q4	"	"	"	"	"	"	"
		172	"									"	"									"	"	OE to Q5	"	"	"	"	"	"	"
		173	"									"	"									"	"	OE to Q6	"	"	"	"	"	"	"
		174	"									"	"	OUT	OUT							"	"	OE to Q7	"	"	"	"	"	"	"
t _{PZH}	3003 (Fig. 3)	175	"	0.0V	0.0V							"	"									OUT	"	OE to Q0	4	26	4	35	4	26	"
		176	"									"	"									"	"	OE to Q1	"	"	"	"	"	"	"
		177	"									"	"									"	"	OE to Q2	"	"	"	"	"	"	"
		178	"									"	"									"	"	OE to Q3	"	"	"	"	"	"	"
		179	"									"	"									"	"	OE to Q4	"	"	"	"	"	"	"
		180	"									"	"									"	"	OE to Q5	"	"	"	"	"	"	"
		181	"									"	"									"	"	OE to Q6	"	"	"	"	"	"	"
		182	"									"	"	OUT	OUT							"	"	OE to Q7	"	"	"	"	"	"	"
t _{PZL}	3003 (Fig. 3)	183	"	4.5V	4.5V							"	"									OUT	"	OE to Q0	"	"	"	"	"	"	"
		184	"									"	"									"	"	OE to Q1	"	"	"	"	"	"	"
		185	"									"	"									"	"	OE to Q2	"	"	"	"	"	"	"
		186	"									"	"									"	"	OE to Q3	"	"	"	"	"	"	"
		187	"									"	"									"	"	OE to Q4	"	"	"	"	"	"	"
		188	"									"	"									"	"	OE to Q5	"	"	"	"	"	"	"
		189	"									"	"									"	"	OE to Q6	"	"	"	"	"	"	"
		190	"									"	"	OUT	OUT							"	"	OE to Q7	"	"	"	"	"	"	"
t _{THL}	3004 (Fig. 3)	191	0.0V	IN	IN							"	"									OUT	"	Q0	2	12	2	16	2	12	ns
		192	"									"	"									"	"	Q1	"	"	"	"	"	"	"
		193	"									"	"									"	"	Q2	"	"	"	"	"	"	"
		194	"									"	"									"	"	Q3	"	"	"	"	"	"	"
		195	"									"	"									"	"	Q4	"	"	"	"	"	"	"
		196	"									"	"									"	"	Q5	"	"	"	"	"	"	"
		197	"									"	"									"	"	Q6	"	"	"	"	"	"	"
		198	"									"	"	OUT	OUT							"	"	Q7	"	"	"	"	"	"	"
t _{TLH}	3004 (Fig. 3)	199-206	Same tests, terminal conditions and limits as specified above for t _{THL} .																												

See footnotes at end of table.

TABLE III. Group A inspection for device type 06.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C			
			Test no.	OE	1D	2D	3D	4D	5D	6D	7D	8D	GND	ENC	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q		V _{CC}	Min	Max	Min	Max	Min		Max
V _{IC} (pos)		1 2 3 4 5 6 7 8 9 10	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1/										GND	OE 1D 2D 3D 4D 5D 6D 7D 8D ENC	.4 1/	1.5					V
V _{IC} (neg)		11 12 13 14 15 16 17 18 19 20	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	GND										1/	OE 1D 2D 3D 4D 5D 6D 7D 8D ENC		-1.5					
I _{CC}	3005	21 22	GND GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND	6.0V GND		GND 6.0V									6.0V	V _{CC} V _{CC}		.2 .2		20 20			μA μA
I _{CCZ}	3005	23	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V		6.0V										V _{CC}		.1		10			μA
V _{OH3}	3006	24 25 26 27 28 29 30 31	1.2V " " " " " " "										GND	4.2V	-20μA	-20μA	-20μA	-20μA	-20μA	-20μA	-20μA	-20μA		8Q 7Q 6Q 5Q 4Q 3Q 2Q 1Q	5.95 " " " " " " "		5.95		5.95		V
V _{OH5}	3006	32-39	Same tests and terminal conditions as V _{OH3} , except I _{OH} = -7.8 mA.																						5.48		5.2		5.48		
V _{OL3}	3007	40 41 42 43 44 45 46 47	1.2V " " " " " " "										GND	4.2V	20μA	20μA	20μA	20μA	20μA	20μA	20μA	20μA		8Q 7Q 6Q 5Q 4Q 3Q 2Q 1Q		.05 " " " " " " "		.05		.05	
V _{OL5}	3007	48-55	Same tests and terminal conditions as V _{OL3} , except I _{OL} = 7.8 mA.																							.26		.4		.26	
I _{OS4}	3011	56 57 58 59 60 61 62 63	GND " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	8Q 7Q 6Q 5Q 4Q 3Q 2Q 1Q	-10 " " " " " " "	-135 " " " " " " "	-10 " " " " " " "	-135 " " " " " " "	-10 " " " " " " "	-135 " " " " " " "	mA
I _{IH}	3010	64 65 66 67 68 69 70 71 72 73	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	6.0V " " " " " " "	1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q OE ENC		.05 " " " " " " "		.1 " " " " " " "			μA

See footnotes at end of table.

TABLE III. Group A inspection for device type 06 – Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C				
			Test no.	OE	1D	2D	3D	4D	5D	6D	7D	8D	GND	ENC	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q	V _{CC}		Min	Max	Min	Max	Min	Max		
I _{IL}	3009	74		GND	GND						GND											6.0V	1D		-.05		-.1			μA		
		75				GND					"											"	2D		"		"			"		
		76									"											"	3D		"		"			"		
		77									"											"	4D		"		"			"		
		78									"											"	5D		"		"			"		
		79									"											"	6D		"		"			"		
		80									"											"	7D		"		"			"		
		81									"											"	8D		"		"			"		
		82	GND									"										"	OE		"		"			"		
		83											GND									"	ENC		"		"			"		
I _{OZH}		84	Z/	Z/	Z/	Z/					GND	4.2V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	6.0V	"	8Q		.2		2.0			μA		
		85	"								"	"										"	7Q		"		"			"		
		86	"								"	"										"	6Q		"		"			"		
		87	"								"	"										"	5Q		"		"			"		
		88	"								"	"										"	4Q		"		"			"		
		89	"								"	"										"	3Q		"		"			"		
		90	"								"	"										"	2Q		"		"			"		
		91	"								"	"										"	1Q		"		"			"		
		I _{OZL}		92	"	Z/	Z/	Z/					"	"	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	8Q		-.2		-2.0			"
				93	"								"	"										"	7Q		"		"			"
94	"										"	"										"	6Q		"		"			"		
95	"										"	"										"	5Q		"		"			"		
96	"										"	"										"	4Q		"		"			"		
97	"										"	"										"	3Q		"		"			"		
98	"									"	"										"	2Q		"		"			"			
99	"									"	"										"	1Q		"		"			"			
																							Subgroup 4 T _C = +25°C									
C _{in}	3012	100	2/	2/	2/	2/	2/	2/	2/	2/	"										GND	OE		10					pF			
		101									"											"	1D		"					"		
		102									"											"	2D		"					"		
		103									"											"	3D		"					"		
		104									"											"	4D		"					"		
		105									"											"	5D		"					"		
		106									"											"	6D		"					"		
		107									"											"	7D		"					"		
		108									"											"	8D		"					"		
		109									"		2/	2/	2/	2/	2/	2/	2/	2/	2/	"	ENC		"					"		
C _O	3012	110	6.0V								"	6.0V	2/	2/	2/	2/	2/	2/	2/	2/	2/	6.0V	8Q		20					"		
		111	"								"	"										"	7Q		"					"		
		112	"								"	"										"	6Q		"					"		
		113	"								"	"										"	5Q		"					"		
		114	"								"	"										"	4Q		"					"		
		115	"								"	"										"	3Q		"					"		
		116	"								"	"										"	2Q		"					"		
		117	"								"	"										"	1Q		"					"		
																							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 3/	3014	118	B	B	B	B	B	B	B	B	B	GND	A	L	L	L	L	L	L	L	L	4.5V	All outputs 4/									
		119	"	A	A	A	A	A	A	A	A	"	A	H	L	L	L	L	L	L	L	"										
		120	"	B	B	B	B	B	B	B	B	"	A	L	L	L	L	L	L	L	L	"										
		121	"	B	B	B	B	B	B	B	B	"	A	L	L	L	L	L	L	L	L	"										
		122	"	A	A	A	A	A	A	A	A	"	B	L	L	L	L	L	L	L	L	"										
		123	"	A	A	A	A	A	A	A	A	"	A	H	H	H	H	H	H	H	H	"										
		124	"	A	A	A	A	A	A	A	A	"	B	H	H	H	H	H	H	H	H	"										
		125	"	B	B	B	B	B	B	B	B	"	A	H	H	H	H	H	H	H	H	"										
		126	"	B	B	B	B	B	B	B	B	"	B	L	L	L	L	L	L	L	L	"										

See footnotes at end of table.

TABLE III. Group A inspection for device type 06 – Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
			Test no.	OE	1D	2D	3D	4D	5D	6D	7D	8D	GND	ENC	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q		V _{CC}	Min	Max	Min	Max	Min		Max
t _{PHL1}	3003 (Fig. 3)	127 128 129 130 131 132 133 134	GND " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	IN " " " " " " "	GND " " " " " " "	IN " " " " " " "	8Q " " " " " " "	7Q " " " " " " "	6Q " " " " " " "	5Q " " " " " " "	4Q " " " " " " "	3Q " " " " " " "	2Q " " " " " " "	1Q " " " " " " "	V _{CC} " " " " " " "	1Q to 1Q 2Q to 2Q 3Q to 3Q 4Q to 4Q 5Q to 5Q 6Q to 6Q 7Q to 7Q 8Q to 8Q	4 " " " " " " "	31 " " " " " " "	4 " " " " " " "	41 " " " " " " "	4 " " " " " " "	31 " " " " " " "	ns " " " " " " "
t _{PLH1}	3003 (Fig. 3)	135-142	Same tests, terminal conditions and limits as specified above for t _{PHL1} .																												
t _{PHL2}	3003 (Fig. 3)	143 144 145 146 147 148 149 150	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	IN " " " " " "	ENC " " " " " "	8Q " " " " " "	7Q " " " " " "	6Q " " " " " "	5Q " " " " " "	4Q " " " " " "	3Q " " " " " "	2Q " " " " " "	1Q " " " " " "	V _{CC} " " " " " "	ENC to 1Q ENC to 2Q ENC to 3Q ENC to 4Q ENC to 5Q ENC to 6Q ENC to 7Q ENC to 8Q	4 " " " " " " "	31 " " " " " " "	4 " " " " " " "	41 " " " " " " "	4 " " " " " " "	31 " " " " " " "	ns " " " " " " "
t _{PLH2}	3003 (Fig. 3)	151-158	Same tests, terminal conditions and limits as specified above for t _{PHL2} .																												
t _{PHZ}	3003 (Fig. 3)	159 160 161 162 163 164 165 166	IN " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	GND " " " " " "	4.5V " " " " " "	8Q " " " " " "	7Q " " " " " "	6Q " " " " " "	5Q " " " " " "	4Q " " " " " "	3Q " " " " " "	2Q " " " " " "	1Q " " " " " "	V _{CC} " " " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	3 " " " " " " "	26 " " " " " " "	3 " " " " " " "	35 " " " " " " "	3 " " " " " " "	26 " " " " " " "	ns " " " " " " "
t _{PZH}	3003 (Fig. 3)	167 168 169 170 171 172 173 174 175	IN " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	4.5V " " " " " " "	GND " " " " " "	4.5V " " " " " "	8Q " " " " " "	7Q " " " " " "	6Q " " " " " "	5Q " " " " " "	4Q " " " " " "	3Q " " " " " "	2Q " " " " " "	1Q " " " " " "	V _{CC} " " " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	4 " " " " " " "	26 " " " " " " "	4 " " " " " " "	35 " " " " " " "	4 " " " " " " "	26 " " " " " " "	ns " " " " " " "
t _{PLZ}	3003 (Fig. 3)	176 177 178 179 180 181 182 183	IN " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	0.0V " " " " " " "	GND " " " " " "	4.5V " " " " " "	8Q " " " " " "	7Q " " " " " "	6Q " " " " " "	5Q " " " " " "	4Q " " " " " "	3Q " " " " " "	2Q " " " " " "	1Q " " " " " "	V _{CC} " " " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	3 " " " " " " "	26 " " " " " " "	4 " " " " " " "	35 " " " " " " "	4 " " " " " " "	26 " " " " " " "	ns " " " " " " "
t _{PZL}	3003 (Fig. 3)	184 185 186 187 188 189 190 191	IN " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	GND " " " " " " "	4.5V " " " " " "	8Q " " " " " "	7Q " " " " " "	6Q " " " " " "	5Q " " " " " "	4Q " " " " " "	3Q " " " " " "	2Q " " " " " "	1Q " " " " " "	V _{CC} " " " " " "	OE to 1Q OE to 2Q OE to 3Q OE to 4Q OE to 5Q OE to 6Q OE to 7Q OE to 8Q	4 " " " " " " "	26 " " " " " " "	4 " " " " " " "	35 " " " " " " "	4 " " " " " " "	26 " " " " " " "	ns " " " " " " "

See footnotes at end of table.

TABLE III. Group A inspection for device type 06 – Continued.

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
			Test no.	OE	1D	2D	3D	4D	5D	6D	7D	8D	GND	ENC	8Q	7Q	6Q	5Q	4Q	3Q	2Q	1Q		V _{CC}	Min	Max	Min	Max	Min		Max
t _{THL}	3004 (Fig. 3)	192	GND	IN								GND	4.5V									OUT	4.5V	1Q	2	12	2	16	2	12	ns
		193	"			IN						"	"										"	2Q	"	"	"	"	"	"	"
		194	"				IN					"	"										"	3Q	"	"	"	"	"	"	"
		195	"					IN				"	"										"	4Q	"	"	"	"	"	"	"
		196	"						IN			"	"					OUT					"	5Q	"	"	"	"	"	"	"
		197	"							IN		"	"										"	6Q	"	"	"	"	"	"	"
		198	"								IN	"	"		OUT	OUT							"	7Q	"	"	"	"	"	"	"
		199	"									"	"									"	8Q	"	"	"	"	"	"	"	"
t _{TLH}	3004 (Fig. 3)	200-207	Same tests, terminal conditions and limits as specified above for t _{THL} .																												

See footnotes at end of table.

TABLE III. Group A inspection for device type 53.

Symbol	MIL-STD-883 method	Cases R, S, and 2 Test no.	Terminal conditions 1/																				Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	OE	5Q	5D	6D	6Q	7Q	7D	8D	8Q	V _{CC}		Min	Max	Min	Max	Min	Max	
V _{IC} (pos)		1	1mA		1mA	1mA					1/											GND	OE	.4	1/	1.5				V
		2									"											"	1D	"	"				"	
		3									"											"	2D	"	"				"	
		4									"											"	3D	"	"				"	
		5									"											"	4D	"	"				"	
		6									"											"	E	"	"				"	
		7									"	1mA										"	5D	"	"				"	
		8									"											"	6D	"	"				"	
		9									"											"	7D	"	"				"	
		10									"											"	8D	"	"				"	
V _{IC} (neg)		11	-1mA		-1mA	-1mA					GND											1/	OE		-1.5				"	
		12									"											"	1D	"	"				"	
		13									"											"	2D	"	"				"	
		14									"											"	3D	"	"				"	
		15									"											"	4D	"	"				"	
		16									"											"	E	"	"				"	
		17									"	-1mA										"	5D	"	"				"	
		18									"											"	6D	"	"				"	
		19									"											"	7D	"	"				"	
		20									"											"	8D	"	"				"	
I _{CC}	3005	21	GND		5.5V	5.5V				5.5V	5.5V				5.5V	5.5V				5.5V	5.5V	5.5V	V _{CC}		.2		20			μA
		22	GND		GND	GND				GND	GND				GND	GND				GND	GND		V _{CC}		.2		20			μA
I _{CCZ}	3005	23	5.5V		5.5V	5.5V				5.5V	5.5V				5.5V	5.5V				5.5V	5.5V		V _{CC}		.1		10			"
I _{CCΔ}	3005	24	2.4V																			"	V _{CC}		3.0		3.0		3.0	mA
		25	0.8V																			"	V _{CC}		3.0		3.0		3.0	"
		26	0.8V																			"	V _{CC}		3.0		3.0		3.0	"
I _{OZH}		27	Z/	5.5V	Z/																	"	1Q		.2		2.0			μA
		28	"																			"	2Q							"
		29	"																			"	3Q							"
		30	"																			"	4Q							"
		31	"																			"	5Q							"
		32	"																			"	6Q							"
		33	"																			"	7Q							"
		34	"																			"	8Q							"
I _{OZL}		35	"	GND	Z/																	"	1Q		-.2		-2.0			"
		36	"																			"	2Q							"
		37	"																			"	3Q							"
		38	"																			"	4Q							"
		39	"																			"	5Q							"
		40	"																			"	6Q							"
		41	"																			"	7Q							"
		42	"																			"	8Q							"
V _{OH6}	3006	43	0.8V	-20μA	2.0V								2.0V									4.5V	1Q	4.4		4.4		4.4		V
		44	"										"									"	2Q							"
		45	"										"									"	3Q							"
		46	"										"									"	4Q							"
		47	"										"									"	5Q							"
		48	"										"									"	6Q							"
		49	"										"									"	7Q							"
		50	"										"									"	8Q							"
V _{OH7}	3006	51-58	Same tests and terminal conditions as V _{OH6} , except I _{OH} = -6.0 mA.																			5.5 V		3.98		3.7		3.98		"

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 1 T _C = +25°C		Subgroup 2 T _C = +125°C		Subgroup 3 T _C = -55°C		
			Test no.	OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	E	5Q	5D	6D	6Q	7Q	7D	8D	8Q		V _{CC}	Min	Max	Min	Max	Min	
V _{OL6}	3007	59 60 61 62 63 64 65 66	0.8V " " " " " " "	20μA	0.8V	20μA	20μA	0.8V	0.8V	20μA	GND " " " " " " "	2.0V " " " " " " "	5Q	5D	6D	6Q	7Q	7D	8D	8Q	4.5V " " " " " " "	1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q	 " " " " " " "	0.1 " " " " " " "	 " " " " " " "	0.1 " " " " " " "	 " " " " " " "	0.1 " " " " " " "	V	
V _{OL7}	3007	67-74	Same tests and terminal conditions as V _{OL6} , except I _{OL} = 6.0 mA.																		5.5 V			.25		.40		.25	"	
I _{OS4}	3011	75 76 77 78 79 80 81 82	GND " " " " " " "	GND	4.0V " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	GND	4.0V " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	4.0V " " " " " " "	GND " " " " " " "	4.0V " " " " " " "	1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q	-10 " " " " " " "	-135 " " " " " " "	-10 " " " " " " "	-135 " " " " " " "	-10 " " " " " " "	-135 " " " " " " "	mA
I _{IH}	3010	83 84 85 86 87 88 89 90 91 92	5.5V " " " " " " "		5.5V " " " " " " "	5.5V " " " " " " "		5.5V " " " " " " "	5.5V " " " " " " "		5.5V " " " " " " "	5.5V " " " " " " "		5.5V " " " " " " "	5.5V " " " " " " "							5.5V " " " " " " "	OE 1D 2D 3D 4D E 5D 6D 7D 8D	 " " " " " " "	.05 " " " " " " "	 " " " " " " "	.1 " " " " " " "	 " " " " " " "	 " " " " " " "	μA
I _{IL}	3009	93 94 95 96 97 98 99 100 101 102	GND " " " " " " "		GND " " " " " " "	GND " " " " " " "		GND " " " " " " "	GND " " " " " " "		GND " " " " " " "	GND " " " " " " "		GND " " " " " " "	GND " " " " " " "							5.5V " " " " " " "	OE 1D 2D 3D 4D E 5D 6D 7D 8D	 " " " " " " "	-.05 " " " " " " "	 " " " " " " "	-.1 " " " " " " "	 " " " " " " "	 " " " " " " "	"
																						Subgroup 4 T _C = +25°C								
																						Min	Max							
C _{in}	3012	103 104 105 106 107 108 109 110 111 112	2/ " " " " " " "		2/ " " " " " " "	2/ " " " " " " "		2/ " " " " " " "	2/ " " " " " " "		GND " " " " " " "	2/ " " " " " " "									GND " " " " " " "	OE 1D 2D 3D 4D 5D 6D 7D 8D E	 " " " " " " "	 " " " " " " "	 " " " " " " "	 " " " " " " "	 " " " " " " "	pF		
C _O	3012	113 114 115 116 117 118 119 120	2.0V " " " " " " "	2/ " " " " " " "		2/ " " " " " " "	2/ " " " " " " "		2/ " " " " " " "	GND " " " " " " "	GND " " " " " " "	2/ " " " " " " "									5.5V " " " " " " "	1Q 2Q 3Q 4Q 5Q 6Q 7Q 8Q	 " " " " " " "	20 " " " " " " "	 " " " " " " "	 " " " " " " "	 " " " " " " "	"		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 7 T _C = +25°C		Subgroup 8 T _C = +125°C		Subgroup 8 T _C = -55°C			
			Test no.	OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	OE	5Q	5D	6D	6Q	7Q	7D	8D	8Q		V _{CC}	Min	Max	Min	Max	Min		Max
Truth table 3/	3014	121	B	H	A	A	H	H	A	A	H	GND	A	H	A	A	H	H	A	A	H	4.5V	All outputs 4/								
		122	"	L	B	B	L	L	B	B	L	"	A	L	B	B	L	L	A	B	L	"									
		123	"	L	B	B	L	L	B	B	L	"	A	L	B	B	L	L	A	B	L	"									
		124	"	L	A	A	L	L	A	A	L	"	B	L	A	A	L	L	A	A	A	"									
		125	"	H	A	A	H	H	A	A	H	"	A	H	A	A	H	H	A	A	A	"									
		126	"	H	A	A	H	H	A	A	H	"	B	H	A	A	H	H	A	A	A	"									
		127	"	H	B	B	H	H	B	B	H	"	B	H	B	B	H	H	B	B	H	"									
																						Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C					
																								Min	Max	Min	Max	Min	Max		
t _{PHL1}	3003 (Fig. 3)	128	GND	OUT	IN		IN	OUT		IN		GND	IN									4.5V	1D to 1Q	6	31	6	41	6	31	ns	
		129	"			IN	OUT		OUT		IN		"	"								"	2D to 2Q	"	"	"	"	"	"		
		130	"										"	"								"	3D to 3Q	"	"	"	"	"	"		
		131	"										"	"								"	4D to 4Q	"	"	"	"	"	"		
		132	"										"	"								"	5D to 5Q	"	"	"	"	"	"		
		133	"										"	"								"	6D to 6Q	"	"	"	"	"	"		
		134	"										"	"								"	7D to 7Q	"	"	"	"	"	"		
135	"										"	"								"	8D to 8Q	"	"	"	"	"	"				
t _{PLH1}	3003 (Fig. 3)	136-143	Same tests, terminal conditions and limits as specified above for t _{PHL1} .																												
t _{PLH2}	3003 (Fig. 3)	144	GND	OUT	4.5V	4.5V	OUT		OUT	4.5V	4.5V	OUT	GND	IN								4.5V	1E to 1Q	6	31	6	41	6	31	ns	
		145	"										"	"								"	2E to 2Q	"	"	"	"	"	"		
		146	"										"	"								"	3E to 3Q	"	"	"	"	"	"		
		147	"										"	"								"	4E to 4Q	"	"	"	"	"	"		
		148	"										"	"								"	5E to 5Q	"	"	"	"	"	"		
		149	"										"	"								"	6E to 6Q	"	"	"	"	"	"		
		150	"										"	"								"	7E to 7Q	"	"	"	"	"	"		
151	"										"	"								"	8E to 8Q	"	"	"	"	"	"				
t _{PHL2}	3003 (Fig. 3)	152	"	OUT	GND	GND	OUT		OUT	GND	GND	OUT	"	"								"	1E to 1Q	"	"	"	"	"	"	"	
		153	"										"	"								"	2E to 2Q	"	"	"	"	"	"	"	
		154	"										"	"								"	3E to 3Q	"	"	"	"	"	"	"	
		155	"										"	"								"	4E to 4Q	"	"	"	"	"	"	"	
		156	"										"	"								"	5E to 5Q	"	"	"	"	"	"	"	
		157	"										"	"								"	6E to 6Q	"	"	"	"	"	"	"	
		158	"										"	"								"	7E to 7Q	"	"	"	"	"	"	"	
159	"										"	"								"	8E to 8Q	"	"	"	"	"	"	"			
t _{PHZ}	3003 (Fig. 3)	160	IN	OUT	4.5V	4.5V	OUT		OUT	4.5V	4.5V	OUT	"	4.5V								"	OE to 1Q	5	"	5	"	5	"	"	
		161	"										"	"								"	OE to 2Q	"	"	"	"	"	"	"	
		162	"										"	"								"	OE to 3Q	"	"	"	"	"	"	"	
		163	"										"	"								"	OE to 4Q	"	"	"	"	"	"	"	
		164	"										"	"								"	OE to 5Q	"	"	"	"	"	"	"	
		165	"										"	"								"	OE to 6Q	"	"	"	"	"	"	"	
		166	"										"	"								"	OE to 7Q	"	"	"	"	"	"	"	
167	"										"	"								"	OE to 8Q	"	"	"	"	"	"	"			
t _{PLZ}	3003 (Fig. 3)	168	"	OUT	GND	GND	OUT		OUT	GND	GND	OUT	"	4.5V								"	OE to 1Q	"	"	"	"	"	"	"	
		169	"										"	"								"	OE to 2Q	"	"	"	"	"	"	"	
		170	"										"	"								"	OE to 3Q	"	"	"	"	"	"	"	
		171	"										"	"								"	OE to 4Q	"	"	"	"	"	"	"	
		172	"										"	"								"	OE to 5Q	"	"	"	"	"	"	"	
		173	"										"	"								"	OE to 6Q	"	"	"	"	"	"	"	
		174	"										"	"								"	OE to 7Q	"	"	"	"	"	"	"	
175	"										"	"								"	OE to 8Q	"	"	"	"	"	"	"			

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases R, S, and 2	Terminal conditions 1/																				Measured terminal	Test limits						Unit	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		Subgroup 9 T _C = +25°C		Subgroup 10 T _C = +125°C		Subgroup 11 T _C = -55°C			
			Test no.	OE	1Q	1D	2D	2Q	3Q	3D	4D	4Q	GND	$\overline{E}$	5Q	5D	6D	6Q	7Q	7D	8D	8Q		V _{CC}	Min	Max	Min	Max	Min		Max
t _{PZH}	3003 (Fig. 3)	176	IN	OUT	4.5V	4.5V	OUT		4.5V	4.5V	OUT	GND	4.5V										4.5V	OE to 1Q	5	31	5	41	5	31	ns
		177	"									"	"										"	OE to 2Q	"	"	"	"	"	"	"
		178	"									"	"										"	OE to 3Q	"	"	"	"	"	"	"
		179	"									"	"										"	OE to 4Q	"	"	"	"	"	"	"
		180	"									"	"										"	OE to 5Q	"	"	"	"	"	"	"
		181	"									"	"										"	OE to 6Q	"	"	"	"	"	"	"
		182	"									"	"										"	OE to 7Q	"	"	"	"	"	"	"
		183	"									"	"										"	OE to 8Q	"	"	"	"	"	"	"
t _{PZL}	3003 (Fig. 3)	184-191	Same tests, terminal conditions and limits as specified above for t _{PLZ} .																												
t _{THL}	3004 (Fig. 3)	192	GND	OUT	IN		IN	OUT				GND	4.5V										4.5V	1Q	2	12	2	16	2	12	ns
		193	"				IN	OUT				"	"										"	2Q	"	"	"	"	"	"	"
		194	"						OUT	IN		"	"										"	3Q	"	"	"	"	"	"	"
		195	"								IN	OUT	"	"									"	4Q	"	"	"	"	"	"	"
		196	"										"	"									"	5Q	"	"	"	"	"	"	"
		197	"										"	"									"	6Q	"	"	"	"	"	"	"
		198	"										"	"									"	7Q	"	"	"	"	"	"	"
		199	"										"	"									"	8Q	"	"	"	"	"	"	"
t _{TLH}	3004 (Fig. 3)	200-208	Same tests, terminal conditions and limits as specified above for t _{THL} .																												

1/ Input pins not designated shall be “high” level logic or “low” level logic, or may be left open provided they do not influence the outcome of the measurement. Output pins not designated shall be tied to the loads or left open provided they do not influence the outcome of the measurement. Exceptions are as follows:

- V_{IC}(pos) tests, the GND terminal shall be open and the minimum limit of 0.4V applies only where test equipment limitations do not allow for the GND pin to be open 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, attributes data only.

4/ H > 2.5V; L < 2.5V; A = 3.7V; B = 0.4V, except for device 53; A = 2.4 V; B = 0.4 V.

5/ $\overline{EN}$ must be held at logic “1” while changing the address lines (A0, A1, A2) to select the next output bit.

6/ Apply 4.5 V  4.5 V momentary pulse prior to each test.

7/ Three-state output conditions are required. For I_{OZL}, set output to high state. For I_{OZH}, set output to low state. Set input pins to V_{IL} = V_{IL} (max) and V_{IH} = V_{IH} (min), as required.

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/	Device types	
	All	
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 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:

T_C	Case temperature.
C_{IN}	Input terminal-to-GND capacitance.
GND	Ground zero voltage potential.
I_{CC}	Quiescent supply current.
T_A	Free air temperature.
V_{CC}	Positive supply voltage.
C_{PD}	Power dissipation capacitance.

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

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

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

MIL-M-38510/654A

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-35810 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

Military device typez	Generic-industry type
01	54HC75
02	54HC259
03	54HC373
04	54HC533
05	54HC563
06	54HC573
53	54HCT373

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 5962-2005-021)

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>.