

INCH-POUND

MIL-M-38510/176B
21 July 2004

SUPERSEDING
MIL-M-38510/176A
30 April 1984

MILITARY SPECIFICATION
MICROCIRCUITS, DIGITAL, CMOS, LATCHES,
MONOLITHIC SILICON, POSITIVE LOGIC

Reactivated after 21 July, 2004 and may be used for new and existing designs and acquisitions.

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF 38535

1. SCOPE

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 For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535 (see 6.3).

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

1.2.1 Device types. The device types are as follows:

<u>Device type</u>	<u>Circuit</u>
01	8-bit addressable latch
02	Dual 4-bit latch

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
J	CDIP2-T24	24	Dual-in-line
K	GDFP2-F24 or CDFP3-F24	24	Flat pack
N	CDFP4-T16	16	Flat pack
T <u>1/</u> <u>2/</u>	GDFP7-F24 or CDFP8-F24	24	Flat pack, except A dimension equals 0.100" (2.54 mm) max
U <u>1/</u> <u>2/</u>	GDFP2-F16 or CDFP3-F16	16	Flat pack, except A dimension equals 0.100" (2.54 mm) max
Z	GDFP7-F24 or CDFP8-F24	24	Flat pack

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

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

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

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1.3 Absolute maximum ratings.

Supply voltage range ($V_{DD} - V_{SS}$).....	-0.5 V dc to +18.0 V dc
Input current (each input)	± 10 mA
Input voltage range	$(V_{SS} - 0.5 \text{ V}) \leq V_I \leq (V_{DD} + 0.5 \text{ V})$
Storage temperature range (T_{STG}).....	-65° to +175°C
Maximum power dissipation (P_D)	200 mW
Lead temperature (soldering, 10 seconds)	+300°C
Thermal resistance, junction to case (θ_{JC}).....	See MIL-STD-1835
Junction temperature (T_J)	175°C

1.4 Recommended operating conditions.

Supply voltage range ($V_{DD} - V_{SS}$).....	4.5 V dc to 15.0 V dc
Input low voltage range (V_{IL})	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 0.0 V to 1.5 V dc @ $V_{DD} = 5.0$ V dc 0.0 V to 2.0 V dc @ $V_{DD} = 10.0$ V dc 0.0 V to 4.0 V dc @ $V_{DD} = 15.0$ V dc
Input high voltage range (V_{IH}).....	$V_{OL} = 10\% V_{DD}$, $V_{OH} = 90\% V_{DD}$ 3.5 V to 5.0 V dc @ $V_{DD} = 5.0$ V dc 8.0 V to 10.0 V dc @ $V_{DD} = 10.0$ V dc 11 V to 15.0 V dc @ $V_{DD} = 15.0$ V dc
Ambient operating temperature range (T_A)	-55°C to +125°C
Load capacitance	50 pF maximum

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

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

DEPARTMENT OF DEFENSE SPECIFICATION

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

DEPARTMENT OF DEFENSE STANDARDS

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

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

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

3. REQUIREMENTS

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

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

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

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

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

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

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

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

3.3.6 Case outlines. The case outlines shall be as specified in 1.2.3.

3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

3.5 Electrical performance characteristics. Unless otherwise specified, the electrical performance characteristics are as specified in table I, and apply over the full-recommended ambient operating temperature range,.

3.6 Electrical test requirements. The electrical test requirements for each device class shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table III.

3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.

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

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 38 (see MIL-PRF-38535, appendix A).

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C Unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Positive clamping input to V _{DD}	V _{IC} (POS)	V _{DD} = GND, V _{SS} = open Output = open, I _{IN} = 1 mA T _A = +25°C	All		1.5	V dc
Negative clamping input to V _{SS}	V _{IC} (NEG)	V _{DD} = open, V _{SS} = GND Output = Open, I _{IN} = -1 mA T _A = +25°C	All		-6.0	V dc
Quiescent supply current	I _{SS} or I _{DD}	V _{DD} = 18 V dc V _{IN} = V _{SS} or V _{DD} All input combinations	All		-2.5	μA
High level output voltage	V _{OH1}	V _{DD} = 15 V dc See table III I _O ≤ 1μA	All	14.95		V dc
Low level output voltage	V _{OL1}	V _{DD} = 15 V dc See table III I _O ≤ 1μA	All		0.05	V dc
Three-state output leakage current	I _{OC1}	V _{DD} = 18.0 Vdc, each output separately, V _O = V _{DD}	02		90	nA
Three-state output leakage current	I _{OC2}	V _{DD} = 18.0 Vdc, each output separately, V _O = V _{SS}	02		-90	nA
Input high voltage	V _{IH1}	V _{DD} = 5 V dc See table III I _O ≤ 1μA	All	3.5		V dc
	V _{IH2}	V _{DD} = 10 V dc See table III I _O ≤ 1μA	All	7.0		V dc
	V _{IH3}	V _{DD} = 15 V dc See table III I _O ≤ 1μA	All	11.0		V dc
Input low voltage	V _{IL1}	V _{DD} = 5 V dc See table III I _O ≤ 1μA	All		1.5	V dc
	V _{IL2}	V _{DD} = 10 V dc See table III I _O ≤ 1μA	All		3.0	V dc
	V _{IL3}	V _{DD} = 15 V dc See table III I _O ≤ 1μA	All		4.0	V dc
Output high (source) current	I _{OH1}	V _{DD} = 5.0 V dc, V _{OH} = 4.6 V dc Decoder inputs = V _{SS} All others = V _{DD}	01	-0.36		mA dc
		V _{DD} = 5.0 V dc, V _{OH} = 4.6 V dc Data inputs and strobe = V _{DD} All others = V _{SS}	02	-0.36		
	I _{OH2}	V _{DD} = 15.0 V dc, V _{OH} = 13.5 V dc Decoder inputs = V _{SS} All others = V _{DD}	01	-2.4		mA dc
		V _{DD} = 15.0 V dc, V _{OH} = 13.5 V dc Data inputs and strobe = V _{DD} All others = V _{SS}	02	-2.4		

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C Unless otherwise specified	Device type	Limits		Units
				Min	Max	
Output low (sink) current	I _{OL1}	V _{DD} = 5.0 V dc, V _{OL} = 0.4 V dc Decoder inputs and reset = V _{SS} All others = V _{DD}	01	0.36		mA dc
		V _{DD} = 5.0 V dc, V _{OL} = 0.4 V dc Reset = V _{DD} All others = V _{SS}	02	0.36		
	I _{OL2}	V _{DD} = 15.0 V dc, V _{OL} = 1.5 V dc Decoder inputs and reset = V _{SS} All others = V _{DD}	01	2.4		mA dc
		V _{DD} = 15.0 V dc, V _{OL} = 1.5 V dc Reset = V _{DD} All others = V _{SS}	02	2.4		
Input leakage current	I _{IH}	V _{DD} = 18.0 V dc, measure inputs sequentially; connect all unused inputs to V _{SS}	All		100	nA
	I _{IL}	V _{DD} = 18.0 V dc, measure inputs sequentially; connect all unused inputs to V _{DD}	All		-100	nA
Input capacitance	C _{IN}	V _{DD} = 0 Vdc, f = 1 MHz, T _A = 25°C	All		7.5	pF
Propagation delay times, DATA to Qn, high to low level and low to high level	t _{PHL1} , t _{PLH1}	V _{DD} = 5.0 Vdc, C _L = 50 pF, R _L = 200 kΩ (see figure 4)	01	20	560	ns
Propagation delay times, WRITE DISABLE to Qn, high to low level and low to high level	t _{PHL2} , t _{PLH2}		01	20	560	ns
Propagation delay times, RESET to Qn, high to low level	t _{PHL3}		01	18	490	ns
Propagation delay times, An to Qn, high to low level and low to high level	t _{PHL4} , t _{PLH4}		01	23	630	
Propagation delay times, DATA to Qn, high to low level and low to high level	t _{PHL1} , t _{PLH1}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	01	7	150	ns
Propagation delay times, WRITE DISABLE to Qn, high to low level and low to high level	t _{PHL2} , t _{PLH2}		01	8	160	ns
Propagation delay times, RESET to Qn, high to low level	t _{PHL3}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	01	8	160	ns
Propagation delay times, An to Qn, high to low level and low to high level	t _{PHL4} , t _{PLH4}			10	200	

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C Unless otherwise specified	Device type	Limits		Units
				Min	Max	
Propagation delay times, STROBEm to Qnm, high to low level and low to high level	t _{PHL1} , t _{PLH1}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02	17	400	ns
Propagation delay times, Dnm to Qnm, high to low level and low to high level	t _{PHL2} , t _{PLH2}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02	14	400	ns
Propagation delay times, RESETm to Qnm, high to low level and low to high level	t _{PHL3} , t _{PLH3}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02	13	378	ns
Propagation delay times, STROBEm to Qnm, high to low level and low to high level	t _{PHL1} , t _{PLH1}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	02	7	140	ns
Propagation delay times, Dnm in to Qnm, high to low level and low to high level	t _{PHL2} , t _{PLH2}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	02	6	120	ns
Propagation delay times, RESETm to Qnm, high to low level and low to high level	t _{PHL3} , t _{PLH3}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	02	5	100	ns
Three-state output propagation OUTPUT DISABLEm delay times, output high to high impedance, output low to high impedance, high impedance to output low, high impedance to output high	t _{PHZ}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02	11	310	ns
	t _{PLZ}		02	9	255	
	t _{PZL}		02	9	255	
	t _{PZH}		02	10	275	
Three-state output propagation OUTPUT DISABLEm delay times, output high to high impedance, output low to high impedance, high impedance to output low, high impedance to output high	t _{PHZ}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02	6	120	ns
	t _{PLZ}		02	5	100	
	t _{PZL}		02	5	100	
	t _{PZH}		02	5	100	
Minimum RESETm pulse width	t _{PR}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	02		280	ns
Minimum STROBEm pulse width	t _{PST}		02		200	ns
Minimum data setup time, low to high level	t _{SLH}		02		70	ns
Minimum data hold time, high to low level	t _{HHL}		02		0	ns

TABLE I. Electrical performance characteristics – Continued.

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C Unless otherwise specified	Device type	Limits		Units
				Min	Max	
Minimum RESETm pulse width	t _{PR}	V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	02		140	ns
Minimum STROBEm pulse width	t _{PST}		02		80	ns
Minimum data setup time low to high level	t _{SLH}		02		30	ns
Minimum data hold time high to low level	t _{HHL}		02		0	ns
Transition times, high to low level and low to high level	t _{THL} , t _{TLH}	V _{DD} = 5.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4)	All	10	280	ns
		V _{DD} = 10.0 Vdc, C _L = 50 pF R _L = 200 kΩ (see figure 4) T _A = 25°C	All	5	100	ns

Device type 01, case outlines E, F, N, and U

Device type 02, case outlines J, K, T, and Z

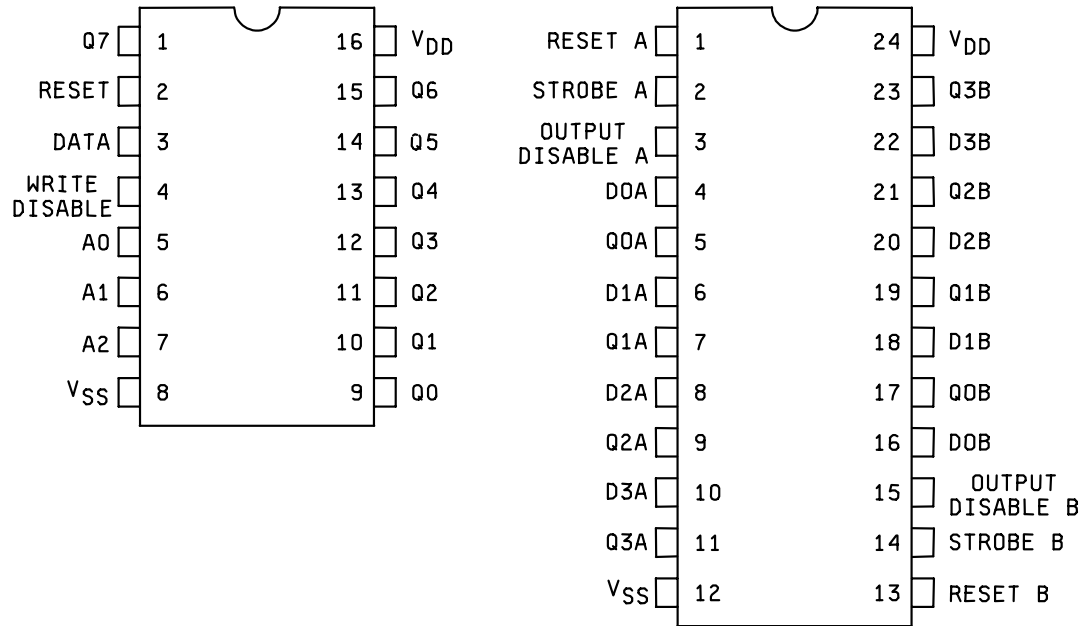
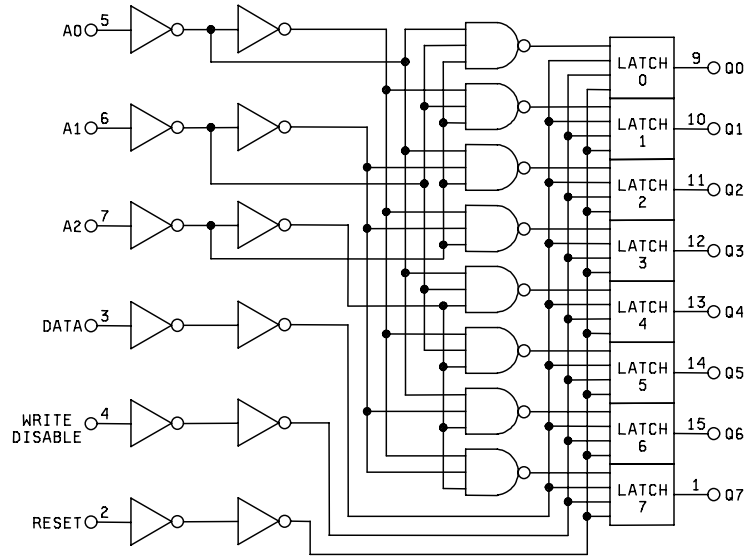


FIGURE 1. Terminal connections.

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Device type 01



V_{DD} = Pin #16
 V_{SS} = Pin #8

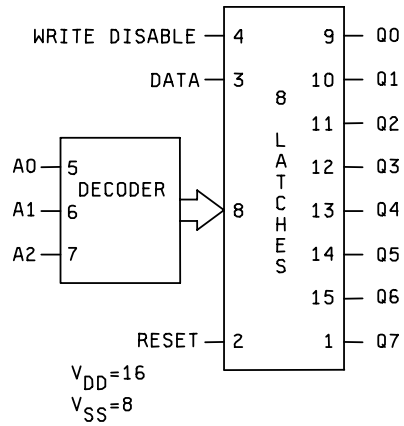
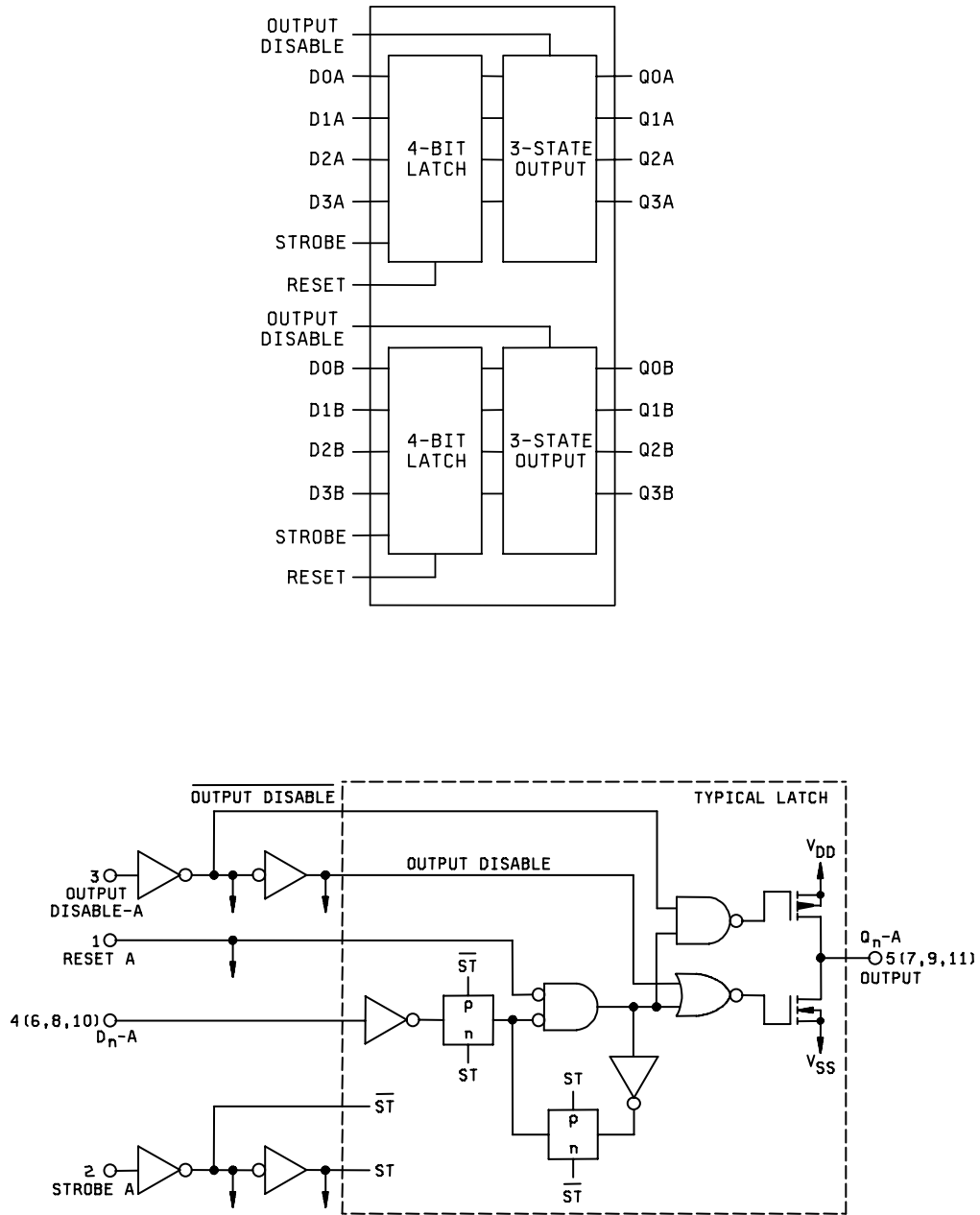


FIGURE 2. Logic diagrams.

Device type 02

(1 of 4 identical latches)

FIGURE 2. Logic diagrams – Continued.

Device type 01

Truth table			
Mode selection			
Input		Outputs	
WRITE DISABLE	RESET	Addressed latch	Unaddressed latch
L	L	Follows data	Holds previous state
L	H	Follows data (active high 8-channel demultiplexer)	Reset to L
H	L	Holds previous state	Holds previous state
H	H	Reset to L	Reset to L

Device type 01

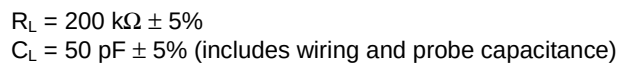
Truth table						
Output pin selection						
RESET	DATA	WRITE DISABLE	A0	A1	A2	Output
L	H	L	L	L	L	Q0
L	H	L	H	L	L	Q1
L	H	L	L	H	L	Q2
L	H	L	H	H	L	Q3
L	H	L	L	L	H	Q4
L	H	L	H	L	H	Q5
L	H	L	L	H	H	Q6
L	H	L	H	H	H	Q7

Device type 02

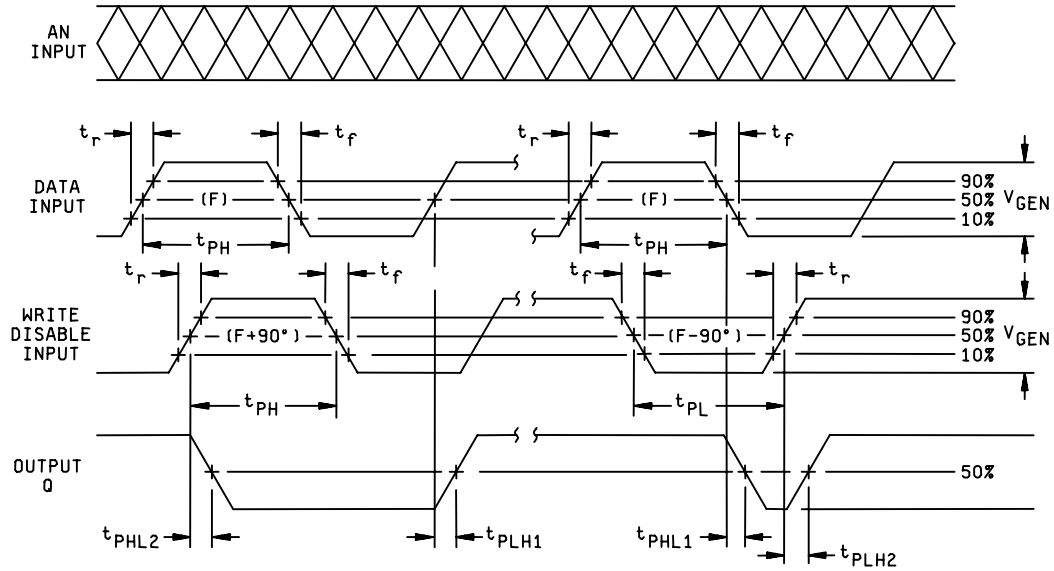
Truth table				
Inputs				Output
RESETm	OUTPUT DISABLEm	STROBEm	Dnm	Qnm
L	L	H	H	H
L	L	H	L	L
L	L	L	X	Latched
H	L	X	X	L
X	H	X	X	Z

L = Low level voltage
 H = High level voltage
 X = Don't care
 Z = High impedance

FIGURE 3. Truth tables.



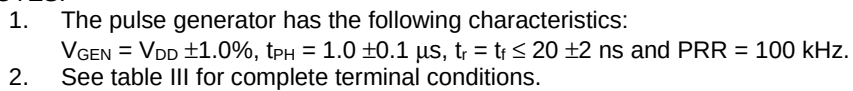
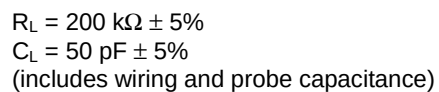
12

Device type 01

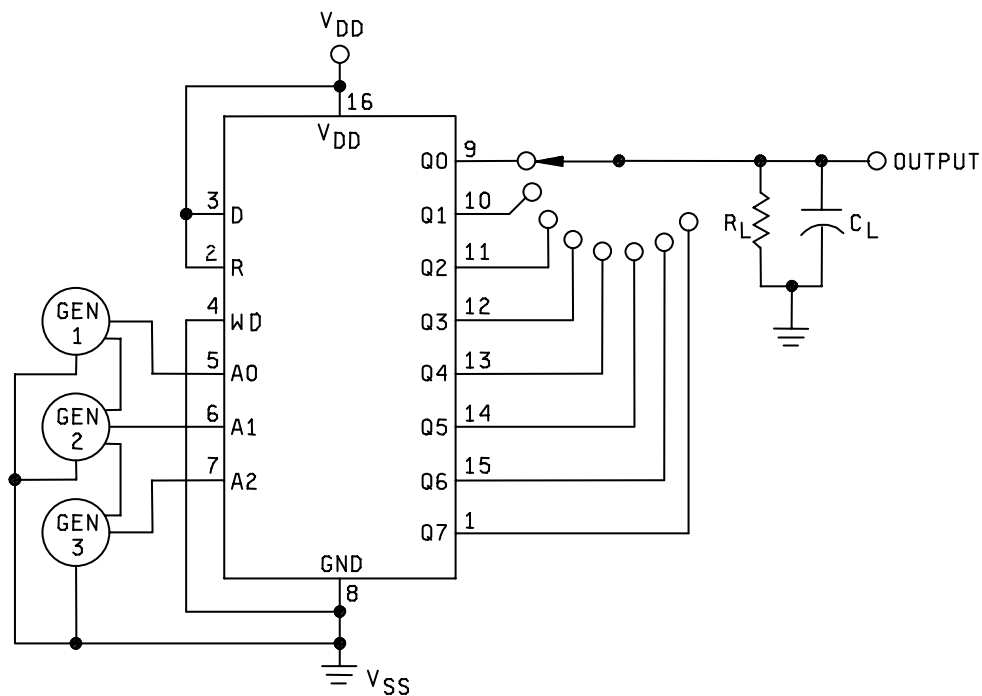
NOTES:

1. The pulse generator number 1 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, $t_r = t_f \leq 20 \pm 2 ns$ and $PRR = 100 kHz$.
2. The pulse generator number 2 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, $t_r = t_f \leq 20 \pm 2 ns$ and $PRR = 50 kHz$.
3. See table III for complete terminal conditions.

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



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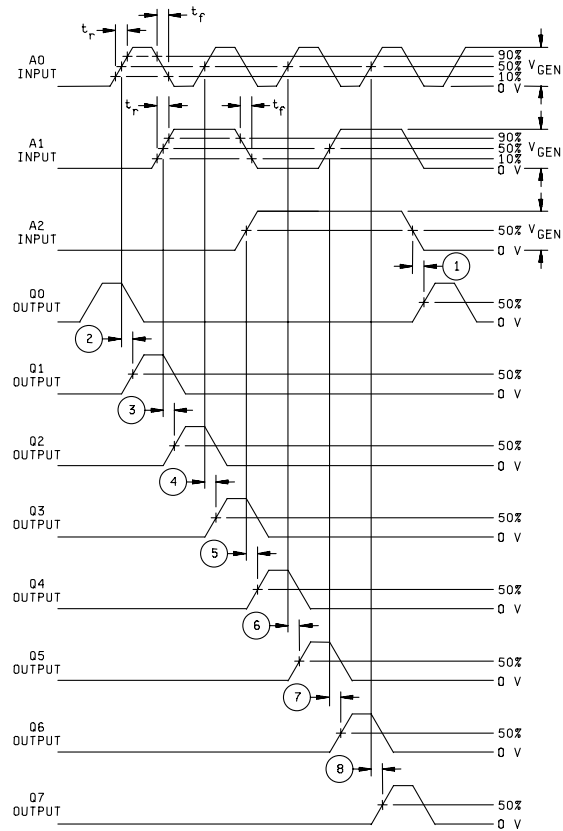
Device type 01

$R_L = 200 \text{ k}\Omega \pm 5\%$
 $C_L = 50 \text{ pF} \pm 5\%$
 (includes wiring and probe capacitance)

NOTES:

1. The pulse generator number 1 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu\text{s}$, $t_r = t_f \leq 20 \pm 2 \text{ ns}$ and $PRR = 100 \text{ kHz}$.
2. The pulse generator number 2 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu\text{s}$, $t_r = t_f \leq 20 \pm 2 \text{ ns}$ and $PRR = 50 \text{ kHz}$.
3. The pulse generator number 3 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu\text{s}$, $t_r = t_f \leq 20 \pm 2 \text{ ns}$ and $PRR = 25 \text{ kHz}$.
4. See table III for complete terminal conditions.

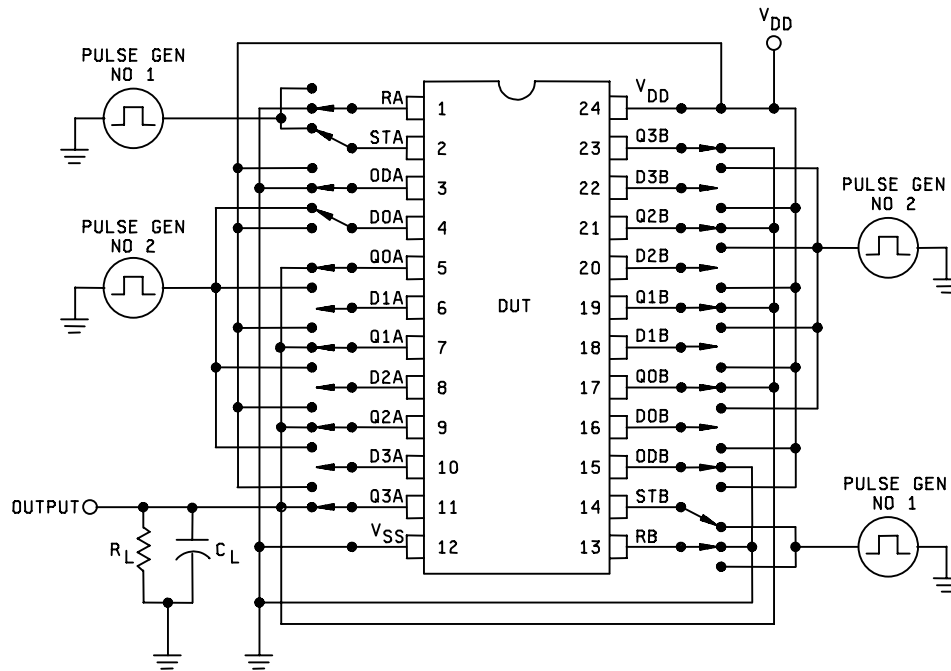
FIGURE 4. Switching time test circuit and waveforms – Continued.

Device type 01

t_{PLH4}		
	A to Q	
①	2	0
②	0	1
③	1	2
④	0	3
⑤	2	4
⑥	0	5
⑦	1	6
⑧	0	7

Example: Above table, t_{PLH4} for transition of A2 to Q0, is indicated by ① on the timing diagram.

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

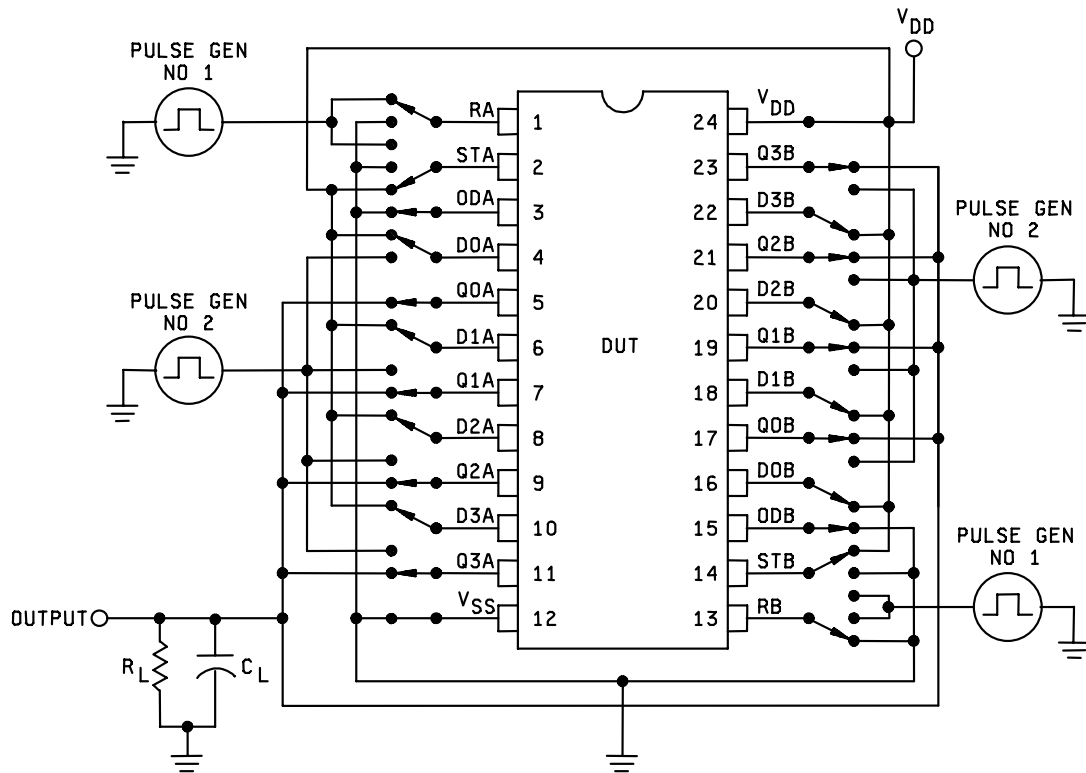
Device type 02

$R_L = 200 \text{ k}\Omega \pm 5\%$
 $C_L = 50 \text{ pF} \pm 5\%$
 (includes wiring and probe capacitance)

NOTES:

1. See notes for input pulse conditions and waveforms.
2. This test circuit applies only to t_{THL} , t_{TLH} , t_{PHL1} , t_{PLH1} , t_{PHL2} , t_{PLH2} , t_{PHL3} , and t_{PLH3} .

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

Device type 02

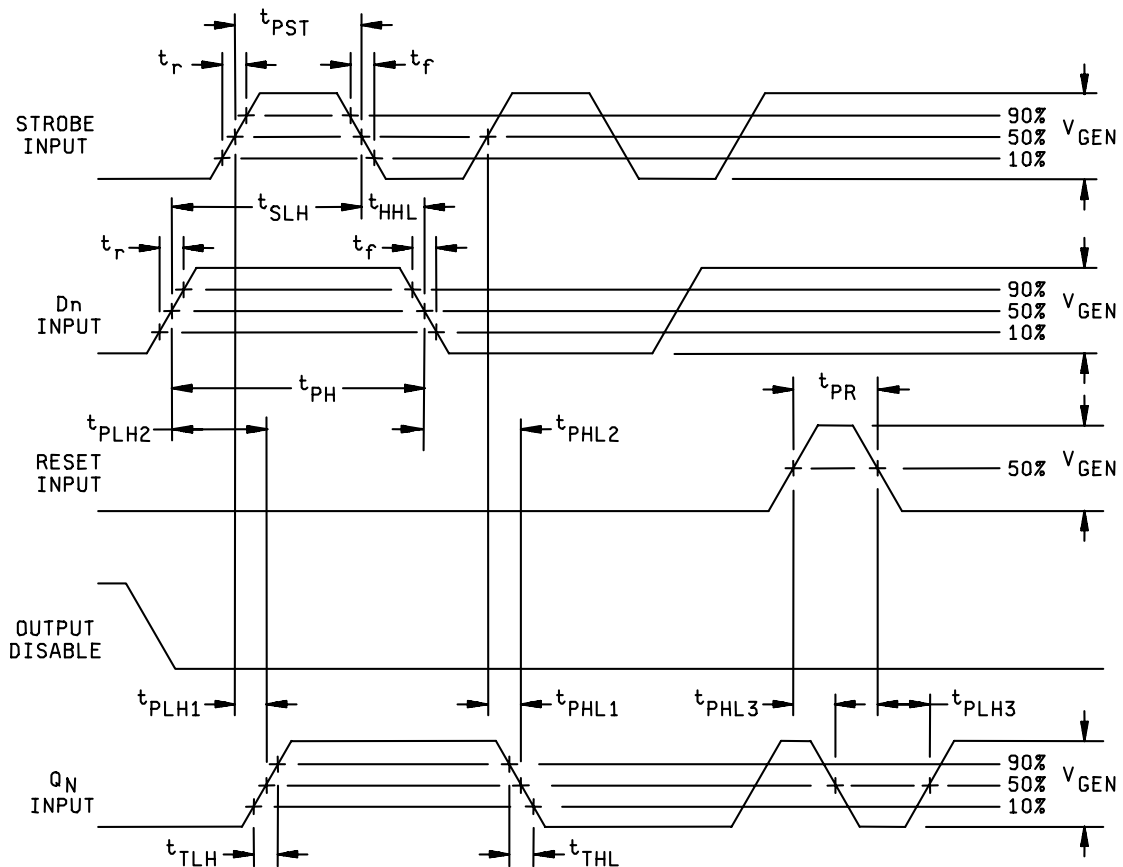
$R_L = 200 \text{ k}\Omega \pm 5\%$
 $C_L = 50 \text{ pF} \pm 5\%$
 (includes wiring and probe capacitance)

NOTES:

1. See notes for input pulse conditions and waveforms.
2. This test circuit applies only to t_{PR} , t_{PST} , t_{SLH} , and t_{HHL} .

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

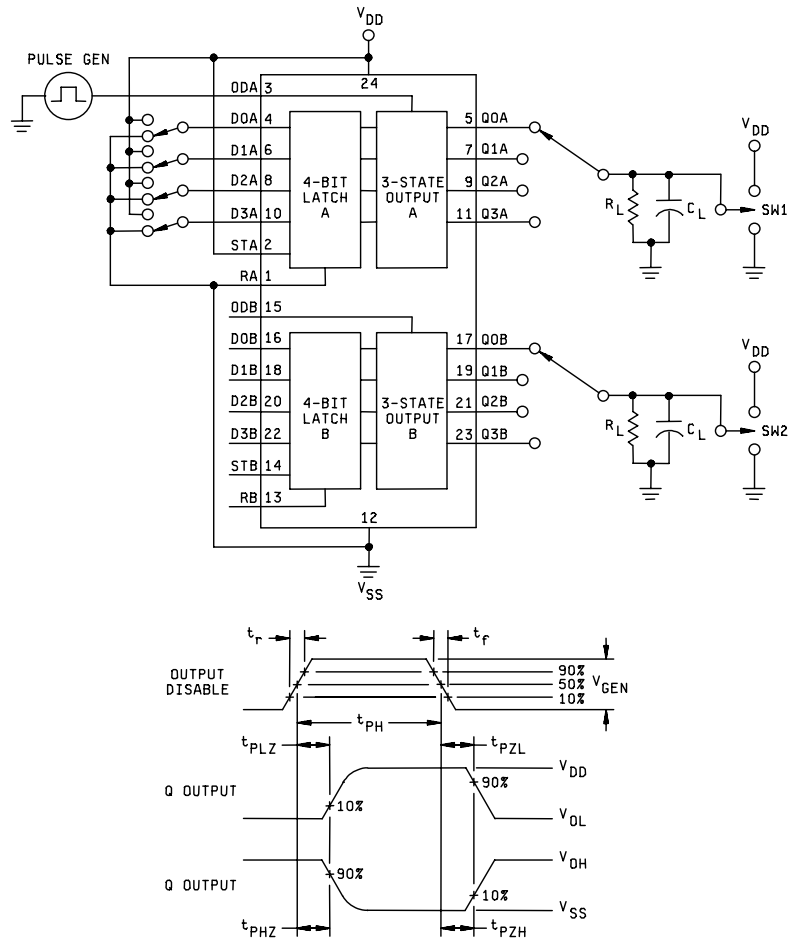
Device type 02



NOTES:

1. The pulse generator number 1 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, $t_r = t_f \leq 20 \pm 2 ns$ and $PRR = 200 kHz$.
2. The pulse generator number 2 has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu s$, $t_r = t_f \leq 20 \pm 2 ns$ and $PRR = 100 kHz$.
3. See table III for complete terminal conditions.
4. Identical measurements shall be performed on latch A and latch B.
5. Requirements for t_{PR} , t_{PST} , t_{SLH} , and t_{HHL} are established by setting the parameter to the limit given in table III and observing proper output state change.

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

Device type 02

$R_L = 200 \text{ k}\Omega \pm 5\%$
 $C_L = 50 \text{ pF} \pm 5\%$
 (includes wiring and probe capacitance)

NOTES:

1. The pulse generator has the following characteristics:
 $V_{GEN} = V_{DD} \pm 1.0\%$, $t_{PH} = 1.0 \pm 0.1 \mu\text{s}$, $t_r = t_f \leq 20 \pm 2 \text{ ns}$ and $\text{PRR} = 200 \text{ kHz}$.
2. See table III for complete terminal conditions.
3. Identical measurements shall be performed on latch A and latch B.
4. For t_{PHZ} and t_{PZH} , SW1 shall be connected to V_{SS} .
5. For t_{PLZ} and t_{PZL} , SW2 shall be connected to V_{DD} .

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

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 quality conformance inspection. The following additional criteria shall apply:

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- b. Delete the sequence specified as initial (pre-burn-in) electrical parameters through interim (post-burn-in) electrical parameters of method 5004 and substitute lines 1 through 7 of table II herein.
- c. Burn-in (method 1015 of MIL-STD-883).
 - (1) Unless otherwise specified in the manufacturers QM plan for static tests (test condition A), ambient temperature (T_A) shall be +125°C minimum. Test duration for each static test shall be 24 hours minimum for class S devices and in accordance with table I of method 1015 for class B devices.
 - i. For static burn-in I, all inputs shall be connected to 0.0 V.
 - ii. For static burn-in II, all inputs shall be connected to V_{DD} . V_{DD} = 15 V minimum and 18 V maximum.
 - iii. Except for V_{DD} and V_{SS} , the terminal shall be connected through resistors whose value is 2 k Ω to 47 k Ω . The actual measured value of the resistor selected shall not exceed $\pm 20\%$ of its branded value due to use, heat or age.
 - iv. Output may be open or connected to +9.0 V.
 - (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. Except for V_{DD} and V_{SS} , the terminals shall be connected through resistors whose value is 2 k Ω to 47 k Ω . The actual measured value of the resistor selected shall not exceed $\pm 20\%$ of its branded value due to use, heat or age.
 - ii. Input signal requirements: Square wave, 50% duty cycle; 25 kHz < PRR < 1 MHz; t_{TLH} and t_{THL} < 1 μ s. Voltage level: Minimum = $V_{SS} - 0.5$ V, +10% V_{DD} ; Maximum = $V_{DD} + 0.5$ V, -10% V_{DD} .
- 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.

TABLE II. Electrical test requirements.

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 limits <u>3/</u>
1	Interim electrical parameters		1			1	
2	Static burn-in I (method 1015)	4.2e 4.5.2					
3	Same as line 1		1	Δ			
4	Static burn-in II (method 1015)	4.2c 4.5.2			4.2c 4.5.2	<u>4/</u>	
5	Same as line 1		1*	Δ	4.2e	1*	Δ
6	Dynamic burn-in (method 1015)	4.2c 4.5.2					
7	Same as line 1	4.2e	1*	Δ			
8	Final electrical parameters (method 5004)		1*, 2, 3, 7, 9			1*, 2, 3, 7, 9, 10, 11	
9	Group A test requirements (method 5005)	4.4.1	1, 2, 3, 4, 7, 8, 9, 10, 11, 12		4.4.1	1, 2, 3, 4, 7, 9	
10	Group B test when using method 5005 QCI option	4.4.2	1, 2, 3, 7, 8, 9, 10, 11	Δ			
11	Group C end-point electrical parameters (method 5005)				4.4.3	1, 2, 3	Δ
12	Group D end-point electrical parameters (method 5005)	4.4.4	1, 2, 3		4.4.4	1, 2, 3	

1/ Blank spaces indicate tests are not applicable.

2/ * indicates PDA applies to subgroup 1 (see 4.2.1).

3/ Δ indicates delta limits shall be required only on table III subgroup 1, where specified, and the delta values shall be computed with reference to the previous interim electrical parameters.

4/ The device manufacturer may at his option either perform delta measurements or within 24 hours after burn-in (or removal of bias) perform the final electrical parameter measurements.

4.2.1 Percent defective allowable (PDA).

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

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

4.4 Technology Conformance inspection (TCI). Technology conformance inspection shall be in accordance with MIL-PRF-38535 and herein for groups A, B, C, D, and E inspections (see 4.4.1 through 4.4.5).

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

- a. Tests shall be performed in accordance with table II herein.
- b. Subgroups 5 and 6 shall be omitted.
- c. Subgroup 4 (C_i measurement) shall be measured only for initial qualification and after process or design changes that may affect input capacitance. Capacitance shall be measured between the designated terminal and V_{SS} at a frequency of 1 MHz.
- d. Subgroup 12 shall be added to the group A inspection requirements for the class S devices using a sample size series of 15 (acceptance 0) and consist of the procedure, test conditions, and limits specified in table III.
- e. 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 test method 1005 of MIL-STD-883.

TABLE III. Group A inspection for device type 01.

Symbol	MIL-STD-883 method	Cases E,F,N,U Symbol	Terminal conditions 1/																Measured terminal	Test limits						Units
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C		
		Q7	R	D	WD	A0	A1	A2	V _{SS}	Q0	Q1	Q2	Q3	Q4	Q5	Q6	V _{DD}	Min	Max	Min	Max	Min	Max			
		Test No.																								
V _{IC} (pos)	1	2		1mA	1mA	1mA												GND	R						Vdc	
"		3					1mA											"	D						"	
"		4						1mA											"	WD	1.5				"	
"		5							1mA										"	A0					"	
"		6								1mA									"	A1					"	
V _{IC} (neg)	7	8		-1mA	-1mA	-1mA				GND									R						"	
"		9					-1mA			"									D						"	
"		10						-1mA		"									"	WD	-6.0				"	
"		11							-1mA	"									"	A0					"	
"		12								"									"	A1					"	
I _{SS}	3005	13			GND	GND	GND	GND	GND	GND								18.0V	V _{SS}						μA	
2/ 3/	"	14		18.0V	GND	GND	GND	GND	GND	GND								"	"						"	
"	"	15		18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	18.0V								"	"	-0.25					"	
"	"	16	GND	GND	"	18.0V	18.0V	18.0V	18.0V	18.0V								"	"		-2.5				"	
"	"	17		GND	"	18.0V	GND	GND	GND	GND								"	"						"	
"	"	18		GND	"	GND	GND	GND	GND	GND								"	"						"	
"	"	19		18.0V	GND	GND	GND	GND	GND	GND								"	"						"	
V _{IH1}	20	21	4/	4/	4/	4/	4/	4/	4/	"	4/	4/	4/	4/	4/	4/	4/	All outputs		4/		4/		4/		
V _{IH2}		22	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"		"		"		
V _{IH3}		23	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"		"		"		
V _{IL1}		24	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	4		4		4	
V _{IL2}		25	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"		"		"	
V _{OH1}	3006	26			15.0V	GND	GND	GND	GND	GND								15.0V	Q0	14.95					Vdc	
"	"	27		"	"	"	15.0V	GND	GND	"								"	Q1						"	
"	"	28			"	"	GND	15.0V	15.0V	"								"	Q2	14.95			14.95		"	
"	"	29	GND	"	"	"	15.0V	GND	GND	"								"	Q3						"	
"	"	30		"	"	"	GND	GND	GND	15.0V								"	Q4						"	
"	"	31		"	"	"	15.0V	GND	GND	"								"	Q5						"	
"	"	32		"	"	"	GND	15.0V	15.0V	"								"	Q6						"	
"	"	33		"	"	"	15.0V	15.0V	"	"								"	Q7						"	
V _{OL1}	3007	34			"	"	GND	GND	GND	GND								"	Q0						Vdc	
"	"	35		"	"	"	15.0V	GND	15.0V	"								"	Q1						"	
"	"	36	15.0V	"	"	"	GND	15.0V	15.0V	"								"	Q2	0.05			0.05		"	
"	"	37		"	"	"	15.0V	GND	GND	"								"	Q3						"	
"	"	38		"	"	"	GND	GND	15.0V	"								"	Q4						"	
"	"	39		"	"	"	15.0V	GND	"	"								"	Q5						"	
"	"	40		"	"	"	GND	15.0V	15.0V	"								"	Q6						"	
"	"	41		"	"	"	15.0V	15.0V	"	"								"	Q7						"	
I _{OL1}	42	43		GND	5.0V	5.0V	GND	GND	"	"	0.4V	0.4V	0.4V	0.4V	0.4V	0.4V	5.0V	Q0	0.51						"	
"		44		"	"	"	"	"	"	"	"							"	Q1						"	
"		45		"	"	"	"	"	"	"	"							"	Q2						"	
"		46		"	"	"	"	"	"	"	"							"	Q3	0.36			0.64			"
"		47		"	"	"	"	"	"	"	"							"	Q4							"
"	48	48		"	"	"	"	"	"	"								"	Q5						"	
"		49	0.4V	"	"	"	"	"	"	"	"							"	Q6						"	
"																		"	Q7						"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases E,F,N,U	Terminal conditions 1/																Measured terminal	Test limits						Unit
			Q7	R	D	WD	A0	A1	A2	V _{SS}	Q0	Q1	Q2	Q3	Q4	Q5	Q6	V _{DD}		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C		
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min	
I _{OH1}		50		GND	5.0V	GND	GND	GND	GND	GND	4.6V		4.6V		4.6V		4.6V		5.0V	Q0	-0.51					
"		51		"	"	"	5.0V	"	"	"	"							"	Q1	"		"		-0.64	"	mA
"		52		"	"	"	GND	"	"	"	"							"	Q2	"	-0.35	"				
"		53		"	"	"	5.0V	"	"	"	"			4.6V				"	Q3	"						
"		54		"	"	"	GND	5.0V	5.0V	"	"							"	Q4	"						
"		55		"	"	"	5.0V	"	"	"	"					4.6V		"	Q5	"						
"		56		"	"	"	GND	"	"	"	"						4.6V	"	Q6	"						
"		57	4.6V	"	"	"	5.0V	"	"	"	"							"	Q7	"						
I _{OL2}		59		"	15.0V	15.0V	GND	GND	"	"	1.5V		1.5V					15.0V	Q0	3.4						
"	58	60		"	"	"	"	"	"	"	"			1.5V				"	Q1	"						
"		61		"	"	"	"	"	"	"	"				1.5V			"	Q2	"	2.4	"	4.2	"		
"		62		"	"	"	"	"	"	"	"					1.5V		"	Q3	"						
"		63		"	"	"	"	"	"	"	"						1.5V	"	Q4	"						
"		64		"	"	"	"	"	"	"	"							"	Q5	"						
"		65	1.5V	"	"	"	"	"	"	"	"							"	Q6	"						
"				"	"	"	"	"	"	"	"							"	Q7	"						
I _{OH2}		67		"	"	GND	GND	15.0V	"	"	13.5V		13.5V					"	Q0	-3.4						
"	66	68		"	"	"	GND	"	"	"	"			13.5V				"	Q1	"						
"		69		"	"	"	15.0V	"	"	"	"				13.5V			"	Q2	"	-2.4	"	-4.2	"		
"		70		"	"	"	GND	15.0V	15.0V	"	"					13.5V		"	Q3	"						
"		71		"	"	"	GND	"	"	"	"						13.5V	"	Q4	"						
"		72		"	"	"	15.0V	"	"	"	"							"	Q5	"						
"		73	13.5V	"	"	"	GND	15.0V	"	"	"							"	Q6	"						
"				"	"	"	15.0V	"	"	"	"							"	Q7	"						
I _{IH1} 5/	3010	74		18.0V	18.0V	18.0V	18.0V	18.0V	18.0V	"	"							18.0V	All inputs together		600					nA
I _{IH2}	3010	75		"	GND	GND	GND	GND	GND	GND	"							"	R							nA
"	"	76		"	18.0V	GND	GND	GND	"	"	"							"	D							
"	"	77	18.0V	"	GND	18.0V	GND	"	"	"	"							"	WD	100		100				
"	"	78		"	"	"	18.0V	"	"	"	"							"	A0							
"	"	79		"	"	"	GND	18.0V	"	"	"							"	A1							
"	"	80		"	"	"	GND	"	18.0V	18.0V	"							"	A2							
I _{IL1} 5/	3009	81		"	"	"	GND	GND	GND	"	"							"	All inputs together		-600					
I _{IL2}	"	82		"	18.0V	18.0V	18.0V	18.0V	"	"	"							"	R							
"	"	83		"	"	GND	18.0V	"	"	"	"							"	D							
"	"	84		"	18.0V	"	GND	18.0V	"	"	"							"	WD	-100		-100				
"	"	85		"	"	"	18.0V	"	"	"	"							"	A0							
"	"	86		"	"	"	18.0V	"	GND	18.0V	"							"	A1							
"	"	87		"	"	18.0V	"	18.0V	"	GND	GND							"	A2							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases E,F,N,U	Terminal conditions 1/																Measured terminal	Test limits						Units
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Subgroup 4 T _A = 25°C						
			Symbol	Q7	R	D	WD	A0	A1	A2	V _{SS}	Q0	Q1	Q2	Q3	Q4	Q5	Q6		V _{DD}	Min	Max				
C _i	3012	88 89 90 91 92 93		┐/	6/	6/	6/	6/	6/	6/	GND							GND	R D WD A0 A1 A2	7.5					pF	
Truth table test	3014	94	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	Z/	All Outputs	Subgroup 7 T _A = 25°C		Subgroup 8 T _A = 125°C T _A = -55°C					
																			See 7/ 9/							
																			Test limits						Units	
																			Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C			
																			Min	Max	Min	Max	Min	Max		
t _{PLH1}	3003 Fig. 4	95 96 97 98 99 100 101 102		GND	IN1	IN2 6/	GND 5.0V GND 5.0V GND 5.0V 5.0V	GND GND 5.0V GND 5.0V	GND GND 5.0V GND 5.0V	GND GND 5.0V GND 5.0V	GND GND 5.0V GND 5.0V	OUT		OUT		OUT		OUT	5.0V	D to Q0 D to Q1 D to Q2 D to Q3 D to Q4 D to Q5 D to Q6 D to Q7	20 400	28 560	20 400	ns		
t _{PHL1}		103 104 105 106 107 108 109 110	OUT				GND 5.0V GND 5.0V GND 5.0V 5.0V	GND 5.0V GND 5.0V GND 5.0V 5.0V	GND 5.0V GND 5.0V GND 5.0V	GND GND 5.0V GND 5.0V	OUT	OUT		OUT		OUT			D to Q0 D to Q1 D to Q2 D to Q3 D to Q4 D to Q5 D to Q6 D to Q7							
t _{PLH2}		111 112 113 114 115 116 117 118	OUT				GND 5.0V GND 5.0V GND 5.0V GND 5.0V	GND 5.0V GND 5.0V GND 5.0V 5.0V	GND 5.0V GND 5.0V GND 5.0V	GND GND 5.0V GND 5.0V	OUT	OUT		OUT		OUT			WD to Q0 WD to Q1 WD to Q2 WD to Q3 WD to Q4 WD to Q5 WD to Q6 WD to Q7							
t _{PHL2}		119 120					GND 5.0V	GND GND	GND GND	GND GND	OUT	OUT							WD to Q0 WD to Q1							

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases E,F,N,U	Terminal conditions 1/																Measured terminal	Test limits						Unit	
			Q7	R	D	WD	A0	A1	A2	V _{SS}	Q0	Q1	Q2	Q3	Q4	Q5	Q6	V _{DD}		Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		Min	Max	Min	Max	Min	Max		
t _{PHL2}	3003 Fig. 4	121		GND	IN1	IN2 g/	GND	5.0V	GND	GND			OUT	OUT	OUT			5.0V	WD to Q2	20	400	28	560	20	400	ns	
"	"	122		"	"	"	5.0V	5.0V	GND	"								"	WD to Q3	"	"	"	"	"	"	"	
"	"	123		"	"	"	GND	GND	GND	5.0V	"							"	WD to Q4	"	"	"	"	"	"	"	
"	"	124		"	"	"	5.0V	GND	"	"								"	WD to Q5	"	"	"	"	"	"	"	
"	"	125		"	"	"	GND	5.0V	"	"								"	WD to Q6	"	"	"	"	"	"	"	
"	"	126	OUT	"	"	"	5.0V	5.0V	"	"								"	WD to Q7	"	"	"	"	"	"	"	
t _{PHL3}	"	127		IN	5.0V	5.0V	GND	GND	GND	"	OUT	OUT	OUT	OUT	OUT			"	R to Q0	18	350	25	490	18	350	"	
"	"	128		"	"	"	5.0V	GND	5.0V	"								"	R to Q1	"	"	"	"	"	"	"	
"	"	129		"	"	"	GND	5.0V	"	"								"	R to Q2	"	"	"	"	"	"	"	
"	"	130		"	"	"	5.0V	5.0V	5.0V	"								"	R to Q3	"	"	"	"	"	"	"	
"	"	131		"	"	"	GND	GND	GND	5.0V	"							"	R to Q4	"	"	"	"	"	"	"	
"	"	132		"	"	"	5.0V	GND	"	"								"	R to Q5	"	"	"	"	"	"	"	
"	"	133		"	"	"	GND	5.0V	"	"								"	R to Q6	"	"	"	"	"	"	"	
"	"	134	OUT	"	"	"	5.0V	5.0V	"	"								"	R to Q7	"	"	"	"	"	"	"	
t _{PLH4} and t _{PHL4}	"	135		GND	"	GND	IN1	IN2	IN3	"	OUT	OUT	OUT	OUT	OUT			"	A2 to Q0	23	450	32	630	23	450	"	
"	"	136		"	"	"	"	"	"	"								"	A0 to Q1	"	"	"	"	"	"	"	
"	"	137		"	"	"	"	"	"	"								"	A1 to Q2	"	"	"	"	"	"	"	
"	"	138		"	"	"	"	"	"	"								"	A0 to Q3	"	"	"	"	"	"	"	
"	"	139		"	"	"	"	"	"	"								"	A2 to Q4	"	"	"	"	"	"	"	
"	"	140		"	"	"	"	"	"	"								"	A0 to Q5	"	"	"	"	"	"	"	
"	"	141		"	"	"	"	"	"	"								"	A1 to Q6	"	"	"	"	"	"	"	
"	"	142	OUT	"	"	"	"	"	"	"								"	A0 to Q7	"	"	"	"	"	"	"	
t _{TLH}	3004 Fig. 4	143			IN	g/	GND	GND	GND	"	OUT	OUT	OUT	OUT	OUT			"	Q0	10	200	14	280	10	200	"	
"	"	144		"	"	"	5.0V	GND	"	"								"	Q1	10	200	14	280	10	200	"	
"	"	145		"	"	"	GND	5.0V	"	"								"	Q2	10	200	14	280	10	200	"	
t _{TLH}	3004 Fig. 4	146		GND	IN	g/	5.0V	5.0V	GND	GND			OUT	OUT	OUT			5.0V	Q3	10	200	14	280	10	200	ns	
"	"	147		"	"	"	GND	GND	5.0V	"								"	Q4	"	"	"	"	"	"	"	
"	"	148		"	"	"	5.0V	GND	"	"								"	Q5	"	"	"	"	"	"	"	
"	"	149		"	"	"	GND	5.0V	"	"								"	Q6	"	"	"	"	"	"	"	
"	"	150	OUT	"	"	"	5.0V	5.0V	"	"								"	Q7	"	"	"	"	"	"	"	
t _{THL}	"	151		"	"	"	GND	GND	GND	"	OUT	OUT	OUT	OUT	OUT			"	Q0	"	"	"	"	"	"	"	
"	"	152		"	"	"	5.0V	GND	"	"								"	Q1	"	"	"	"	"	"	"	
"	"	153		"	"	"	GND	5.0V	"	"								"	Q2	"	"	"	"	"	"	"	
"	"	154		"	"	"	5.0V	5.0V	"	"								"	Q3	"	"	"	"	"	"	"	
"	"	155		"	"	"	GND	GND	5.0V	"								"	Q4	"	"	"	"	"	"	"	
"	"	156		"	"	"	5.0V	GND	"	"								"	Q5	"	"	"	"	"	"	"	
"	"	157		"	"	"	GND	5.0V	"	"								"	Q6	"	"	"	"	"	"	"	
"	"	158	OUT	"	"	"	5.0V	5.0V	"	"								"	Q7	"	"	"	"	"	"	"	
																				Subgroup 12 T _A = 25°C							
t _{PLH1} and t _{PHL1}	3003 Fig. 4	159		GND	IN1	IN2 g/	GND	GND	GND	GND	OUT	OUT	OUT	OUT	OUT			10.0V	D to Q0	7	150					ns	
"	"	160		"	"	"	10V	GND	10V	"								"	D to Q1	"	"					"	
"	"	161		"	"	"	10V	GND	10V	"								"	D to Q2	"	"					"	
"	"	162		"	"	"	10V	GND	10V	"								"	D to Q3	"	"					"	
"	"	163		"	"	"	GND	GND	10V	"								"	D to Q4	"	"					"	
"	"	164		"	"	"	10V	GND	"	"								"	D to Q5	"	"					"	
"	"	165		"	"	"	GND	10V	"	"								"	D to Q6	"	"					"	
"	"	166	OUT	"	"	"	10V	10V	"	"								"	D to Q7	"	"					"	
t _{PLH2} and t _{PHL2}	"	167		"	"	"	GND	GND	GND	"	OUT	OUT	OUT	OUT	OUT			"	WD to Q0	8	160					"	
"	"	168		"	"	"	10V	GND	"	"								"	WD to Q1	"	"					"	
"	"	169		"	"	"	GND	10V	"	"								"	WD to Q2	"	"					"	

See footnotes at end of tables.

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

Symbol	MIL-STD-883 method	Cases E,F,N,U	Terminal conditions 1/																Measured terminal	Test limits						Unit
			Q7	R	D	WD	A0	A1	A2	V _{SS}	Q0	Q1	Q2	Q3	Q4	Q5	Q6	V _{DD}		Subgroup 12 T _A = 25°C						
			Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	Min	Max	Min	Max	Min	
t _{PLH2} and t _{PHL2}	3003 Fig. 4	170 171 172 173 174		GND	IN1	IN2 g/	10V GND 10V GND 10V	10V GND 10V 10V 10V	GND 10V	GND				OUT	OUT			10.0V	WD to Q3 WD to Q4 WD to Q5 WD to Q6 WD to Q7	8 " " " "	160 " " " "					ns " " " "
t _{PHL3}	"	175 176 177 178 179 180 181 182		IN	10V	10V	GND 10V GND 10V GND 10V GND 10V	GND GND 10V 10V GND GND 10V 10V	GND	"	OUT	OUT	OUT	OUT			OUT	"	R to Q0 R to Q1 R to Q2 R to Q3 R to Q4 R to Q5 R to Q6 R to Q7	" " " " " " " "	" " " " " " " "					" " " " " " " "
t _{PLH4} and t _{PHL4}	"	183 184 185 186 187 188 189 190		GND	"	GND	IN1	IN2	IN3	"	OUT	OUT	OUT	OUT			OUT	"	A2 to Q0 A0 to Q1 A1 to Q2 A0 to Q3 A2 to Q4 A0 to Q5 A1 to Q6 A0 to Q7	10 " " " " " " "	200 " " " " " " "					" " " " " " " "
t _{TLH} and t _{THL}	3004 Fig. 4	191 192 193 194 195 196 197 198		"	IN	g/	GND 10V GND 10V GND 10V GND 10V	GND GND 10V 10V GND GND 10V 10V	GND	"	OUT	OUT	OUT	OUT			OUT	"	Q0 Q1 Q2 Q3 Q4 Q5 Q6 Q7	5 " " " " " " "	100 " " " " " " "					" " " " " " " "

See footnotes at end of tables.

TABLE III. Group A inspection for device type 02.

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units																										
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C																												
			Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B		V _{DD}	Min	Max	Min	Max	Min		Max																									
			Test No.																																																									
V _{IC} (pos)	1	2	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	1mA	GND	RA	1.5V	"	"	"	"	"	Vdc																										
"		3	"	"																							"								"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA				
"		4	"	"	"	"																					"								"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA	"	"	"	"	"	"
"		5	"	"	"	"																					"								"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D0A	"	"	"	"	"	"
"		6	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1A								"	"	"	"	"	"																				
"		7	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2A								"	"	"	"	"	"																				
"		8	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3A								"	"	"	"	"	"																				
"		9	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RB								"	"	"	"	"	"																				
"		10	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB								"	"	"	"	"	"																				
"		11	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								ODB	"	"	"	"	"	"																			
"		12	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								D0B	"	"	"	"	"	"																			
"		13	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								D1B	"	"	"	"	"	"																			
"		14	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								D2B	"	"	"	"	"	"																			
"		15	16	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA								RA	-6.0	"	"	"	"	"																			
"	17	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA																																	
"	18	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA	"	"	"	"	"	"																											
"	19	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D0A	"	"	"	"	"	"																											
"	20	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1A	"	"	"	"	"	"																											
V _{IC} (neg)	15	22	"	"	"	"	"	"	"	"	-1mA	"	GND	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	-1mA	D3A	-6.0	"	"	"	"	"																											
"		23	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RB																																	
"		24	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							SB	"	"	"	"	"	"																				
"		25	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							ODB	"	"	"	"	"	"																				
"	26	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D0B	"	"	"	"	"	"																											
"	27	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1B	"	"	"	"	"	"																											
"	28	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2B	"	"	"	"	"	"																											
"	21	29	GND	18.0V	GND	GND	GND	18.0V	GND	18.0V	GND	18.0V	"	"	GND	18.0V	GND	GND	GND	18.0V	GND	18.0V	GND	18.0V	GND	18.0V	V _{SS}	-0.25	"	"	"	"	"																											
"	30	GND	"	GND	18.0V	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	"	"	"	"																						
"	31	GND	"	GND	18.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	"	"	"	"																						
"	32	GND	"	GND	18.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	"	"	"	"																						
"	33	33	18.0V	GND	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																											
I _{OC12}	34	35	GND	"	18.0V	GND	18.0V	GND	18.0V	GND	"	GND	"	"	GND	"	18.0V	GND	GND	GND	"	GND	"	GND	"	GND	"	Q0A	25	"	"	"	"	"																										
"		36	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q1A							"	"	"	"	"																					
"		37	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q2A							"	"	"	"	"																					
"		38	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q3A							"	"	"	"	"																					
"		39	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q0B							"	"	"	"	"																					
"		40	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q1B							"	"	"	"	"																					
I _{OC12}		41	GND	GND	18.0V	GND	"	GND	"	GND	"	GND	"	GND	GND	18.0V	GND	"	GND	"	GND	"	GND	18.0V	18.0V	Q2B	"	25	"	90	"	25	nA																											
I _{OC11}		42	"	"	"	"	18.0V	"	18.0V	"	18.0V	"	18.0V	"	"	"	"	"	18.0V	"	18.0V	"	GND	18.0V	18.0V	All outputs together	"	"	"	"	"	"	"																											
I _{OC22}	43	44	"	"	"	"	GND	"	GND	"	GND	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	Q0A	400	-25	"	"	"	"	"																										
"		45	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q1A																																	
"		46	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q2A																																	
"		47	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q3A																																	
"		48	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q0B																																	
"		49	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q1B																																	
"		50	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q2B																																	
"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q3B																																	
"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								"	"	"	"	"	"																				
"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								"	"	"	"	"	"																				
"			"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																												

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C					
			Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B		V _{DD}	Min		Max		Min		Max		
			Test No.																																		
I _{OC21}			51	GND	GND	18.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	18.0V	GND	GND	GND	GND	GND	GND	GND	GND	GND	18.0V	All outputs together								nA		
V _{IL1} V _{IL2} V _{IL3} V _{IH1} V _{IH2} V _{IH3}			52 53 54 55 56 57	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/			
V _{OH1}	3006		58 59 60	GND	15.0V	GND	15.0V								GND	15.0V	GND	15.0V									Q0A Q1A Q2A	14.95							V _{dc}		
V _{OH1}	3006		61 62 63 64 65	GND	15.0V	GND	15.0V							GND	15.0V	GND	15.0V										Q3A Q0B Q1B Q2B Q3B	14.95							V _{dc}		
V _{OL1}	3007		66 67 68 69 70 71 72 73			GND			GND								GND										Q0A Q1A Q2A Q3A Q0B Q1B Q2B Q3B		0.05								
I _{OL1}			75 76 77 78 79 80 81	5.0V	GND		0.4V		0.4V						5.0V	GND											Q0A Q1A Q2A Q3A Q0B Q1B Q2B Q3B	0.51									
	74																																				
I _{OL2}			83 84 85 86 87 88 89	15.0V	GND	GND	GND	1.5V	GND						GND	15.0V	GND	GND	GND								Q0A Q1A Q2A Q3A Q0B Q1B Q2B Q3B	3.4									
	82																																				
I _{OH1}			91 92 93 94 95 96 97	GND	5.0V		5.0V	4.6V	5.0V						GND	5.0V		5.0V									Q0A Q1A Q2A Q3A Q0B Q1B Q2B Q3B	-0.51									
	90																																				
I _{OH2}			99 100 101 102		15.0V		15.0V	13.5V	15.0V						15.0V		15.0V		15.0V								Q0A Q1A Q2A Q3A Q0B	-3.4									
	98																																				

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 1 T _A = 25°C		Subgroup 2 T _A = 125°C		Subgroup 3 T _A = -55°C																				
			Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{ss}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B		V _{DD}	Min	Max	Min	Max	Min		Max																	
			Test No.																																																	
I _{OH2}			104 105	GND	15.0V	GND	15.0V		15.0V		15.0V		GND		GND	15.0V	GND	15.0V		15.0V		13.5V	15.0V		15.0V		15.0V	Q1B Q2B Q3B	-3.4						mA																	
I _{IH1} 5/	30103	106	18.0V	18.0V	18.0V	18.0V		18.0V		18.0V		18.0V			18.0V	18.0V	18.0V	18.0V		18.0V			18.0V		18.0V	All inputs together							nA																			
I _{IH2}		107	18.0V	GND	GND	GND		GND		GND				GND	GND	GND	GND		GND		GND						RA STA ODA D0A D1A D2A D3A RB STB ODB D0B D1B D2B D3B	14																								
		108	GND	18.0V	GND	GND																					1																									
		109		GND	18.0V	GND																																														
		110																																																		
		111																																																		
		112					18.0V																																													
		113					GND																																													
		114													18.0V	GND																																				
		115																																																		
		116																																																		
		117																																																		
		118																																																		
		119																																																		
		120																																																		
I _{IL1} 5/	3009	121															GND		GND		GND			GND			All inputs together																									
I _{IL2}	3009	122	GND	18.0V	18.0V	18.0V		18.0V		18.0V				18.0V	18.0V	18.0V	18.0V		18.0V		18.0V			18.0V		18.0V	RA STA ODA D0A D1A D2A D3A RB STB ODB D0B D1B D2B D3B	-14					nA																			
		123																																																		
		124																																																		
		125																																																		
		126																																																		
		127																																																		
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		131																																																		
		132																																																		
		133																																																		
		134																																																		
		135																																																		
																									Subgroup 4 T _A = 25°C																											
																									Min	Max																										
C _i	3012	136	6/										GND												GND	RA STA ODA D0A D1A							pF																			
		137		6/																																																
		138			6/																																															
		139				6/																																														
		140					6/																																													
	3012	141							6/			6/	GND		6/		6/									D2A D3A							pF																			
		142																																																		
		143																																																		
		144																																																		
		145																																																		
		146															6/																																			
		147																	6/																																	
		148																																																		
		149																																																		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 7 T _A = 25°C		Subgroup 8 T _A = 25°C T _A = -55°C				
		Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B	V _{DD}	Min	Max	Min	Max	Min	Max		
		Test No.																																
Truth table test	3014	150	GND	5.0V	GND	GND	L	GND	L	GND	L	GND	L	GND	GND	5.0V	GND	GND	L	GND	L	GND	L	GND	L	5.0V	All outputs	See 4/ 9/						
	"	151	"	"	"	GND	L	GND	L	GND	L	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	
	"	152	"	GND	"	5.0V	L	5.0V	L	5.0V	L	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	
	"	153	"	5.0V	"	5.0V	H	5.0V	H	5.0V	H	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	
	"	154	"	GND	"	5.0V	H	5.0V	H	5.0V	H	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	
	"	155	"	"	"	GND	H	GND	H	GND	H	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	"
	"	156	5.0V	"	"	5.0V	L	5.0V	L	5.0V	L	5.0V	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"				"	"	"	"	
"	157	GND	"	"	5.0V	L	5.0V	L	5.0V	L	5.0V	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"				
																												Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C		
																												Min	Max	Min	Max	Min	Max	
t _{TLH}	3004 Fig. 4	158	GND	5.0V	GND	IN	OUT	IN	OUT	IN	OUT	IN	OUT	GND	GND	5.0V	GND								5.0V	Q0A	14	280	14	280	14	280	ns	
"	"	159	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q1A	"	"	"	"	"	"	"		
"	"	160	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q2A	"	"	"	"	"	"	"		
"	"	161	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q3A	"	"	"	"	"	"	"		
"	"	162	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q0B	"	"	"	"	"	"	"		
"	"	163	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q1B	"	"	"	"	"	"	"		
"	"	164	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q2B	"	"	"	"	"	"	"		
"	"	165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							"	Q3B	"	"	"	"	"	"	"		
t _{THL}	"	166	"	"	"	IN	OUT	IN	OUT	IN	OUT	IN	OUT	"	"	"	"						"	Q0A	"	"	"	"	"	"	"	"		
"	"	167	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q1A	"	"	"	"	"	"	"	"		
"	"	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q2A	"	"	"	"	"	"	"	"		
"	"	169	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q3A	"	"	"	"	"	"	"	"		
"	"	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q0B	"	"	"	"	"	"	"	"		
"	"	171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q1B	"	"	"	"	"	"	"	"		
"	"	172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q2B	"	"	"	"	"	"	"	"		
"	"	173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	Q3B	"	"	"	"	"	"	"	"		
t _{PHL1}	3003 Fig. 4	174	"	IN1	"	IN2	OUT	IN2	OUT	IN2	OUT	IN2	OUT	"	"	IN1	"						"	STA to Q0A	17	335	23	470	17	335	"	"		
"	"	175	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q1A	"	"	"	"	"	"	"	"		
"	"	176	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q2A	"	"	"	"	"	"	"	"		
"	"	177	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q3A	"	"	"	"	"	"	"	"		
"	"	178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN2	OUT					"	STB to Q0B	"	"	"	"	"	"	"	"		
t _{PHL1}	3003 Fig. 4	179	GND	IN1	GND									GND	GND	IN1	GND			IN2	OUT	IN2	OUT	IN2	OUT	5.0V	STB to Q1B	17	335	23	470	17	335	"
"	"	180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STB to Q2B	"	"	"	"	"	"	"	"		
"	"	181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STB to Q3B	"	"	"	"	"	"	"	"		
t _{PLH1}	"	182	"	"	"	IN2	OUT	IN2	OUT	IN2	OUT	IN2	OUT	"	"	"	"						"	STA to Q0A	"	"	"	"	"	"	"	"		
"	"	183	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q1A	"	"	"	"	"	"	"	"		
"	"	184	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q2A	"	"	"	"	"	"	"	"		
"	"	185	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STA to Q3A	"	"	"	"	"	"	"	"		
"	"	186	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN2	OUT					"	STB to Q0B	"	"	"	"	"	"	"	"		
"	"	187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STB to Q1B	"	"	"	"	"	"	"	"		
"	"	188	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STB to Q2B	"	"	"	"	"	"	"	"		
"	"	189	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	STB to Q3B	"	"	"	"	"	"	"	"		
t _{PHL2}	"	190	"	5.0V	"	IN2	OUT	IN2	OUT	IN2	OUT	IN2	OUT	"	"	5.0V	"						"	D0A to Q0A	14	285	20	400	14	285	"	"		
"	"	191	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D1A to Q1A	"	"	"	"	"	"	"	"		
"	"	192	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D2A to Q2A	"	"	"	"	"	"	"	"		
"	"	193	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D3A to Q3A	"	"	"	"	"	"	"	"		
"	"	194	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D0B to Q0B	"	"	"	"	"	"	"	"		
"	"	195	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D1B to Q1B	"	"	"	"	"	"	"	"		
"	"	196	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D2B to Q2B	"	"	"	"	"	"	"	"		
"	"	197	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"						"	D3B to Q3B	"	"	"	"	"	"	"	"		
t _{PLH2}	"	198	"	"	"	IN2	OUT							"	"	"	"						"	D0A to Q0A	"	"	"	"	"	"	"	"		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C		
			Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B		V _{DD}	Min	Max	Min	Max	Min	Max
			Test No.																															
t _{PHL2}	3003 Fig. 4	199 200 201 202 203 204 205	GND	5.0V	GND			IN2	OUT		IN2	OUT		GND	GND	5.0V	GND									5.0V	D1A to Q1A D2A to Q2A D3A to Q3A D0B to Q0B D1B to Q1B D2B to Q2B D3B to Q3B	14 285	20 400	14 285	ns			
t _{PHL3}		206 207 208 209 210 211 212 213	IN1			5.0V	OUT	5.0V	OUT	5.0V		5.0V			IN1			5.0V		5.0V		5.0V		5.0V			RA to Q0A RA to Q1A RA to Q2A RA to Q3A RB to Q0B RB to Q1B RB to Q2B RB to Q3B	13 270	19 378	13 270				
t _{PLH3}		214 215 216 217 218					OUT		OUT		OUT																RA to Q0A RA to Q1A RA to Q2A RA to Q3A RB to Q0B							
t _{PLH3}	3003 Fig. 4	219 220 221	IN1	5.0V	GND	5.0V		5.0V		5.0V		GND			IN1	5.0V	GND	5.0V		5.0V		OUT	5.0V	OUT	5.0V	5.0V	RB to Q1B RB to Q2B RB to Q3B	13 270	19 378	13 270	ns			
t _{PZH}		222 223 224 225 226 227 228 229	GND		IN		OUT		OUT		OUT			GND												ODA to Q0A ODA to Q1A ODA to Q2A ODA to Q3A ODB to Q0B ODB to Q1B ODB to Q2B ODB to Q3B	10 200	14 275	10 200					
t _{PZL}		230 231 232 233 234 235 236 237			IN	GND	OUT	GND	OUT	GND		GND			GND	GND		GND		GND		GND		GND		ODA to Q0A ODA to Q1A ODA to Q2A ODA to Q3A ODB to Q0B ODB to Q1B ODB to Q2B ODB to Q3B	9 180	13 255	9 180					
t _{PHZ}		238			IN	5.0V	OUT	5.0V		5.0V		5.0V				GND	5.0V		5.0V		5.0V		5.0V			ODA to Q0A	11 220	16 310	11 220					

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z	Terminal conditions 1/																								Measured terminal	Test limits						Units
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Subgroup 9		Subgroup 10		Subgroup 11		
		Symbol	RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B	V _{DD}		T _A = 25°C		T _A = 125°C		T _A = -55°C		
		Test No.																										Min	Max	Min	Max	Min	Max	
t _{PHZ}	3003 See Fig. 4	239	GND	5.0V	IN	5.0V			OUT	5.0V		5.0V		GND	GND	5.0V	GND	5.0V		5.0V		5.0V		5.0V		5.0V	ODA to Q1A	11	220	16	310	11	220	ns
"	"	240	"	"	"	"	5.0V	"	"	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q2A	"	"	"	"	"	"	"
"	"	241	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q3A	"	"	"	"	"	"	"
"	"	242	"	"	GND	"	"	"	"	"	"	"	OUT	"	"	"	IN	"	OUT	"	"	"	"	"	"	"	ODB to Q0B	"	"	"	"	"	"	"
"	"	243	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	ODB to Q1B	"	"	"	"	"	"	"
"	"	244	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	"	ODB to Q2B	"	"	"	"	"	"	"
"	"	245	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	ODB to Q3B	"	"	"	"	"	"	"
t _{PLZ}	"	246	"	"	IN	GND	OUT	GND	OUT	GND		GND		"	"	"	GND	GND		GND		GND		GND		"	ODA to Q0A	9	180	13	255	9	180	"
"	"	247	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q1A	"	"	"	"	"	"	"
"	"	248	"	"	"	"	"	"	OUT	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q2A	"	"	"	"	"	"	"
"	"	249	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q3A	"	"	"	"	"	"	"
"	"	250	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	IN	"	OUT	"	"	"	"	"	"	"	ODB to Q0B	"	"	"	"	"	"	"
"	"	251	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	ODB to Q1B	"	"	"	"	"	"	"
"	"	252	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODB to Q2B	"	"	"	"	"	"	"
"	"	253	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	ODB to Q3B	"	"	"	"	"	"	"
t _{PR 10/}	See Fig. 4	254	IN	"	"	5.0V	OUT	5.0V	OUT	5.0V		5.0V		"	"	"	GND	5.0V		5.0V		"	"	"	"	RA to Q0A							"	
"	"	255	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RA to Q1A	200		280		200		"	
"	"	256	"	"	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	"	"	5.0V	"	5.0V	"	"	"	RA to Q2A	"	"	"	"	"	"	"
"	"	257	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RA to Q3A	"	"	"	"	"	"	"	
"	"	258	GND	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	OUT	"	"	"	"	"	"	RB to Q0B	"	"	"	"	"	"	"	
t _{PR 10/}	See Fig. 4	259	GND	5.0V	GND	5.0V		"	"	"	"	"	"	IN	5.0V	GND	5.0V		"	OUT	5.0V	"	5.0V		5.0V	RB to Q1B		200					ns	
"	"	260	"	"	"	"	5.0V	"	5.0V	"	5.0V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RB to Q2B			280		200		"	
"	"	261	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	5.0V	"	"	"	OUT	"	"	RB to Q3B						"
t _{PST 10/}	"	262	"	IN1	"	IN2	OUT	IN2	OUT	IN2		IN2		GND	GND	"	IN2		IN2		IN2		IN2		"	STA to Q0A							"	
"	"	263	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q1A	140		200		140		"	
"	"	264	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q2A	"	"	"	"	"	"	"	
"	"	265	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q3A	"	"	"	"	"	"	"	
"	"	266	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to Q0B	"	"	"	"	"	"	"	
"	"	267	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to Q1B	"	"	"	"	"	"	"	
"	"	268	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to Q2B	"	"	"	"	"	"	"	
"	"	269	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	STB to Q3B	"	"	"	"	"	"	"
t _{SLH 10/}	"	270	"	IN1	"	IN2	OUT	IN2	OUT	IN2		IN2		GND	"	"	"	"	"	"	"	"	"	"	"	D0A to STA							"	
"	"	271	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1A to STA							"	
"	"	272	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2A to STA							"	
"	"	273	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3A to STA							"	
"	"	274	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D0B to STB							"	
"	"	275	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1B to STB							"	
"	"	276	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2B to STB							"	
"	"	277	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3B to STB							"	
t _{HHL 10/}	"	278	"	IN1	"	IN2	OUT							GND	"	"	"	"	"	"	"	"	"	"	"	STA to D0A		0		0		0	"	

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z Symbol	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Test limits						Units
			RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B	V _{DD}		Subgroup 9 T _A = 25°C		Subgroup 10 T _A = 125°C		Subgroup 11 T _A = -55°C		
		Test No.																										Min	Max	Min	Max	Min	Max	
t _{PHL} 10/	See Fig. 4	279	GND	IN1	GND				IN2	OUT				GND	GND	GND	GND									5.0V	STA to D1A					ns		
"	"	280	"	"	"				"	"				"	"	"	"									"	STA to D2A					"		
"	"	281	"	"	"				"	"				"	"	"	"									"	STA to D3A					"		
"	"	282	"	GND	"				"	"				"	"	IN1	"									"	STB to D0B					"		
"	"	283	"	"	"				"	"				"	"	"	"									"	STB to D1B					"		
"	"	284	"	"	"				"	"				"	"	"	"									"	STB to D2B					"		
"	"	285	"	"	"				"	"				"	"	"	"									"	STB to D3B					"		
																											Subgroup 12 T _A = 25°C							
t _{TLH} and t _{THL}	3004 Fig. 4	286	GND	10V	GND	IN	OUT		IN	OUT		IN	OUT		GND	GND	10V	GND							10V	Q0A	5	100				ns		
"	"	287	"	"	"									"	"	"	"								"	Q1A	"	"				"		
"	"	288	"	"	"									"	"	"	"								"	Q2A	"	"				"		
"	"	289	"	"	"									"	"	"	"								"	Q3A	"	"				"		
"	"	290	"	"	"									"	"	"	"								"	Q0B	"	"				"		
"	"	291	"	"	"									"	"	"	"								"	Q1B	"	"				"		
"	"	292	"	"	"									"	"	"	"								"	Q2B	"	"				"		
"	"	293	"	"	"									"	"	"	"								"	Q3B	"	"				"		
t _{PHL1} and t _{PLH1}	3003 Fig. 4	294	"	IN1	"	IN2	OUT							"	"	IN1	"								"	STA to Q0A	7	140				"		
"	"	295	"	"	"			IN2	OUT					"	"	"	"								"	STA to Q1A	"	"				"		
"	"	296	"	"	"					IN2	OUT			"	"	"	"								"	STA to Q2A	"	"				"		
"	"	297	"	"	"						IN2	OUT		"	"	"	"								"	STA to Q3A	"	"				"		
t _{PHL1} and t _{PLH1}	3003 Fig. 4	298	GND	IN1	GND									GND	GND	IN1	GND	IN2	OUT		IN2	OUT				10.0V	STB to Q0B	7	140			ns		
"	"	299	"	"	"									"	"	"	"								"	STB to Q1B	"	"				"		
"	"	300	"	"	"									"	"	"	"								"	STB to Q2B	"	"				"		
"	"	301	"	"	"									"	"	"	"						IN2	OUT	"	STB to Q3B	"	"				"		
t _{PHL2} and t _{PLH2}	"	302	"	10V	"	IN2	OUT							"	"	10V	"								"	D0A to Q0A	6	120				"		
"	"	303	"	"	"			IN2	OUT					"	"	"	"								"	D1A to Q1A	"	"				"		
"	"	304	"	"	"									"	"	"	"								"	D2A to Q2A	"	"				"		
"	"	305	"	"	"									"	"	"	"								"	D3A to Q3A	"	"				"		
"	"	306	"	"	"									"	"	"	"								"	D0B to Q0B	"	"				"		
"	"	307	"	"	"									"	"	"	"								"	D1B to Q1B	"	"				"		
"	"	308	"	"	"									"	"	"	"								"	D2B to Q2B	"	"				"		
"	"	309	"	"	"									"	"	"	"						IN2	OUT	"	D3B to Q3B	"	"				"		
t _{PHL3} and t _{PLH3}	"	310	IN1	"	"	10V	OUT	10V	OUT	10V	OUT	10V	OUT	"	IN1	"	"	10V		10V		10V		10V		"	RA to Q0A	5	100			"		
"	"	311	"	"	"			"		"				"	"	"	"								"	RA to Q1A	"	"				"		
"	"	312	"	"	"									"	"	"	"								"	RA to Q2A	"	"				"		
"	"	313	"	"	"									"	"	"	"								"	RA to Q3A	"	"				"		
"	"	314	"	"	"									"	"	"	"								"	RB to Q0B	"	"				"		
"	"	315	"	"	"									"	"	"	"								"	RB to Q1B	"	"				"		
"	"	316	"	"	"									"	"	"	"								"	RB to Q2B	"	"				"		
"	"	317	"	"	"									"	"	"	"							OUT	"	RB to Q3B	"	"				"		
t _{PHZ} and t _{PZH}	3003 See Fig. 4	318	GND	10V	IN	10V	OUT	10V	OUT	10V	OUT	10V	OUT	GND	GND	10V	GND	10V		10V		10V		10V		10V	ODA to Q0A	6/5	120/100			"		
"	"	319	"	"	"									"	"	"	"								"	ODA to Q1A	"	"				"		
"	"	320	"	"	"									"	"	"	"								"	ODA to Q2A	"	"				"		
"	"	321	"	"	"									"	"	"	"								"	ODA to Q3A	"	"				"		
"	"	322	"	GND	"									"	"	"	"								"	ODB to Q0B	"	"				"		
"	"	323	"	"	"									"	"	"	"								"	ODB to Q1B	"	"				"		
"	"	324	"	"	"									"	"	"	"								"	ODB to Q2B	"	"				"		
"	"	325	"	"	"									"	"	"	"								"	ODB to Q3B	"	"				"		

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Cases J,K,T,Z Symbol	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Measured terminal	Test limits						Units
			RA	STA	ODA	D0A	Q0A	D1A	Q1A	D2A	Q2A	D3A	Q3A	V _{SS}	RB	STB	ODB	D0B	Q0B	D1B	Q1B	D2B	Q2B	D3B	Q3B	V _{DD}		Subgroup 12 T _A = 25°C						
			Test No.																										Min	Max	Min	Max	Min	
t _{PLZ} and t _{PZL}	3003 See Fig. 4	326	GND	10V	IN	GND	OUT	GND		GND		GND		GND	GND	10V	GND	GND		GND		GND		GND		10V	ODA to Q0A	5	100	Min	Max	Min	Max	ns
		327	"	"	"	"	"	"	OUT	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q1A	"	"				"	
		328	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q2A	"	"				"	
		329	"	"	"	"	"	"	"	"	"	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	"	ODA to Q3A	"	"				"	
		330	"	"	GND	"	"	"	"	"	"	"	"	OUT	"	"	"	IN	"	OUT	"	"	"	"	"	"	ODB to Q0B	"	"				"	
		331	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	OUT	"	"	"	ODB to Q1B	"	"				"
t _{PR} 10/	See Fig. 4	332	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	"	"	ODB to Q2B	"	"				"
		333	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	ODB to Q3B	"	"				"	
		334	IN	"	"	10V	OUT	10V		OUT	10V	10V	"	"	"	"	"	GND	10V		10V		10V		"	"	RA to Q0A						"	
		335	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RA to Q1A						"	
		336	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	"	"	"	"	"	"	"	"	"	"	"	RA to Q2A	140	"				"	
		337	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	RA to Q3A	"	"				"	
t _{PR} 10/	See Fig. 4	338	GND	10V	GND	10V		"		"	10V	"	GND	IN	10V	GND	10V	OUT	10V	OUT	10V	OUT	10V		10V	RB to Q0B		"				"		
		339	"	"	"	"	10V	"	10V	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	"	RB to Q1B		"				"	
		340	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	RB to Q2B	140	"				"	
		341	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	RB to Q3B	"	"				"	
		342	"	IN1	"	IN2	OUT	IN2		OUT	IN2	OUT	IN2	"	"	GND	GND	"	IN2		IN2		IN2		IN2	"	STA to Q0A		"				"	
		343	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q1A		"				"	
t _{PST} 10/		344	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q2A		"				"	
		345	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to Q3A	80	"				"		
		346	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to Q0B	"	"				"	
		347	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN1	"	"	OUT	"	"	OUT	"	"	"	STB to Q1B	"	"				"	
		348	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	STB to Q2B	"	"				"	
		349	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	OUT	"	STB to Q3B	"	"				"
t _{SLH} 10/		350	"	IN1	"	"	OUT	IN2	OUT	IN2	OUT	IN2	OUT	"	"	GND	"	"	"	"	"	"	"	"	"	"	D0A to Q0A		"				"	
		351	"	"	"	"	"	"	"	IN2	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1A to Q1A		"				"	
		352	"	"	"	"	"	"	"	"	IN2	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D2A to Q2A	30	"				"	
		353	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D3A to Q3A	"	"				"	
		354	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	IN1	"	IN2	OUT	IN2	OUT	IN2	OUT	"	"	D0B to Q0B	"	"				"	
		355	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	D1B to Q1B	"	"				"	
t _{HHL} 10/	See Fig. 4	356	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN2	OUT	"	D2B to Q2B	"	"				"	
		357	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	"	"	D3B to Q3B	"	"				"	
		358	GND	IN1	GND	IN2	OUT	IN2	OUT	IN2	OUT	IN2	OUT	GND	GND	GND	GND	"	"	"	"	"	"	"	10V	"	STA to D0A		"				"	
		359	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to D1A	"	"				"	
		360	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to D2A	"	"				"	
		361	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STA to D3A	"	"				"	
t _{HHL} 10/		362	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to D0B	"	"				"	
		363	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	IN1	"	IN2	OUT	IN2	OUT	IN2	OUT	"	"	STB to D1B	"	"				"	
		364	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to D2B	"	"				"	
		365	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	STB to D3B	"	"				"	

See footnotes on the next page.

- 1/ Pins not designated may be "HIGH" level logic, "LOW" level logic or open. Exceptions are as follows: $V_{IC(pos)}$ tests, the V_{SS} terminals shall be open; $V_{IC(neg)}$ tests, the V_{DD} terminal shall be open; I_{SS} tests, the output terminals shall be open.
- 2/ The I_{SS} measurements shall be performed in sequence.
- 3/ Clock device to time slot 26 of sequence B in 9/ before performing leakage test.
- 4/ The input/output conditions, contained in 9/ shall be used. For device type 01, the timing sequence specified in 9/, sequence B, (except for the truth table test) shall be used; for device type 02, the timing sequence specified in 9/, sequence A shall be used.
- 5/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at 25°C for each individual input or measure all inputs together.
- 6/ See 4.4.1c.
- 7/ The truth table shall be performed using the input/output conditions and timing sequence contained in 9/, sequence C.
- 8/ Write disable (WD) must be held at logic "1" while changing the address lines (A0, A1, A2) to select the next output bit.
- 9/ The following timing sequence and input/output conditions shall apply:

Input/output conditions.

Test	V_{DD}	Input levels		Output levels	
		1	0	1 (min)	0 (max)
V_{IL1}	5.0 V	V_{DD}	1.5 V	4.5 V	0.5 V
V_{IH1}	5.0 V	3.5 V	V_{SS}	4.5 V	0.5 V
V_{IL2}	10.0 V	V_{DD}	3.0 V	9.0 V	1.0 V
V_{IH2}	10.0 V	7.0 V	V_{SS}	9.0 V	1.0 V
V_{IL3}	15.0 V	V_{DD}	4.0 V	13.5 V	1.5 V
V_{IH3}	15.0 V	11.0V	V_{SS}	13.5 V	1.5 V
Truth table	$\leq 5.0 \text{ V}, \geq 18.0 \text{ V}$	V_{DD}	V_{SS}	$V_{DD} - 0.5 \text{ V}$	$V_{SS} + 0.5 \text{ V}$

SEQUENCE A

		Time slot	1	2	3	4	5	6	7	8
I N P U T S	RA		0	0	0	0	0	0	1	0
	STA		1	0	0	1	0	0	0	0
	ODA		0	0	0	0	0	0	0	0
	D0A		0	0	1	1	1	0	1	1
	D1A		0	0	1	1	1	0	1	1
	D2A		0	0	1	1	1	0	1	1
	D3A		0	0	1	1	1	0	1	1
	RB		0	0	0	0	0	0	1	0

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SEQUENCE A (continued)

	Time slot	1	2	3	4	5	6	7	8
I N P U T S	STB	1	0	0	1	0	0	0	0
	ODB	0	0	0	0	0	0	0	0
	D0B	0	0	1	1	1	0	1	1
	D1B	0	0	1	1	1	0	1	1
	D2B	0	0	1	1	1	0	1	1
	D3B	0	0	1	1	1	0	1	1
O U T P U T S	Q0A	0	0	0	1	1	1	0	0
	Q1A	0	0	0	1	1	1	0	0
	Q2A	0	0	0	1	1	1	0	0
	Q3A	0	0	0	1	1	1	0	0
	Q0B	0	0	0	1	1	1	0	0
	Q1B	0	0	0	1	1	1	0	0
	Q2B	0	0	0	1	1	1	0	0
	Q3B	0	0	0	1	1	1	0	0

SEQUENCE B

	Time slot	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
I N P U T S	A2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
	A1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0
	A0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0
	R	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	WD	1	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1	1	1	1
O U T P U T S	Q0	X	0	0	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	0
	Q1	X	0	0	X	0	0	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	0
	Q2	X	0	0	X	0	0	X	0	0	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	0
	Q3	X	0	0	X	0	0	X	0	0	X	0	0	X	1	1	X	1	1	X	1	1	X	1	1	X	1	1	X	0
	Q4	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	1	1	X	1	1	X	1	1	X	1	1	X	0
	Q5	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	1	1	X	1	1	X	1	1	X	0
	Q6	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	1	1	X	1	1	X	0
	Q7	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	0	0	X	1	1	X	0

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SEQUENCE C

Time slot		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
I N P U T S	A2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	A0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1			
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0			
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0			
O U T P U T S	Q0	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0		BIT 0	
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0			
Time slot		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34			
I N P U T S	A2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	A1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	A0		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
	R		1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1			
	D		1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0			
	WD		1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0			0
O U T P U T S	Q0		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		BIT 1
	Q1		X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0		
	Q2		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q3		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q4		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q5		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q6		X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q7	P1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		

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SEQUENCE C – Continued

Time slot		35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51		
I N P U T S	A2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	} BIT 2	
	A1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	A0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0		
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0		
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	} BIT 2	
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q2	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0		
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
Time slot		52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68		
I N P U T S	A2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	} BIT 3	
	A1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	A0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1		
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0		
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0		
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	} BIT 3	
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q3	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0		
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0		

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SEQUENCE C – Continued

Time slot		69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
I N P U T S	A2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	A0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q4	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
		} BIT 4																
Time slot		86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
I N P U T S	A2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	A1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	A0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q5	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0
		} BIT 5																

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SEQUENCE C – Continued

	Time slot	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	
I N P U T S	A2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	A1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	A0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	R	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0	
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0	
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	} BIT 6
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q6	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0	
	Q7	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Time slot	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	
I N P U T S	A2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	A1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	A0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	R	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
	D	1	1	1	1	1	0	0	0	1	1	1	1	1	1	1	0	0	
	WD	1	1	1	0	1	1	0	1	1	0	1	1	1	0	0	0	0	
O U T P U T S	Q0	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	} BIT 7
	Q1	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q2	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q3	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q4	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q5	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q6	X	0	0	X	0	0	X	0	0	X	0	X	0	X	0	X	0	
	Q7	X	0	0	X	1	1	X	0	0	X	1	X	0	X	1	X	0	

10/ The requirements for t_{PR} , t_{PS} , t_{SLH} , and t_{HHL} are considered met by setting the parameter to the values given in the limits column and observing proper output state changes.

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

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

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

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

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

TABLE IV. Delta limits at 25°C .

Parameter <u>1/</u>	Device types	
	01	02
I_{SS}	$\pm 10 \text{ nA}$	$\pm 10 \text{ nA}$
I_{OL1}	$\pm 15\%$	$\pm 15\%$
I_{OH1}	$\pm 15\%$	$\pm 15\%$

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

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

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

- Before irradiation, selected samples shall be assembled in qualified packages and pass the governing electrical parameters (group A subgroup 1 at 25°C) and also be subjected to the threshold-voltage test in table VII in order to calculate the delta threshold (ΔV_T) after irradiation.
- The devices shall be subjected to a total radiation dose as specified in MIL-PRF-38535 for the radiation hardness assurance level being tested, and meet the end-point electrical parameters as defined in table V at 25°C , after exposure. The start and completion of the end-point electrical parameter measurements shall not exceed 2 hours following irradiation.
- Threshold-voltage test circuit conditions shall be as specified in table VII and on figure 5. In situ and remote testing, the tests shall be performed with the devices biased in accordance with table VI and the bias may be interrupted for up to 1 minute to remove devices to the remote bias fixture.
- After irradiation, the devices shall pass the truth table test as specified in subgroup 7 in table III or if subgroup 7 is not required, then an equivalent truth table test shall be performed.

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

Parameter	All device types	V _{DD}
V _{TN}	0.3 V min	10 V
V _{TP}	2.8 V max	10 V
ΔV _T	1.4 V	10 V
I _{SS}	100 x max limit	18 V
t _{PLH}	1.35 x max limit	5 V
t _{PHL}	1.35 x max limit	5 V

TABLE VI. Bias during exposure to radiation.

Device type	Pin connections <u>1/</u>		
	V _{DD} = 10 V dc (through a 30 kΩ to 60 kΩ resistor)	V _{SS} = GND	V _{DD} = 10 V dc
01	2, 3, 4, 5, 6, 7	8	16
02	1, 2, 4, 6, 8, 10, 13, 14, 16, 18, 20, 22	3, 12, 15	24

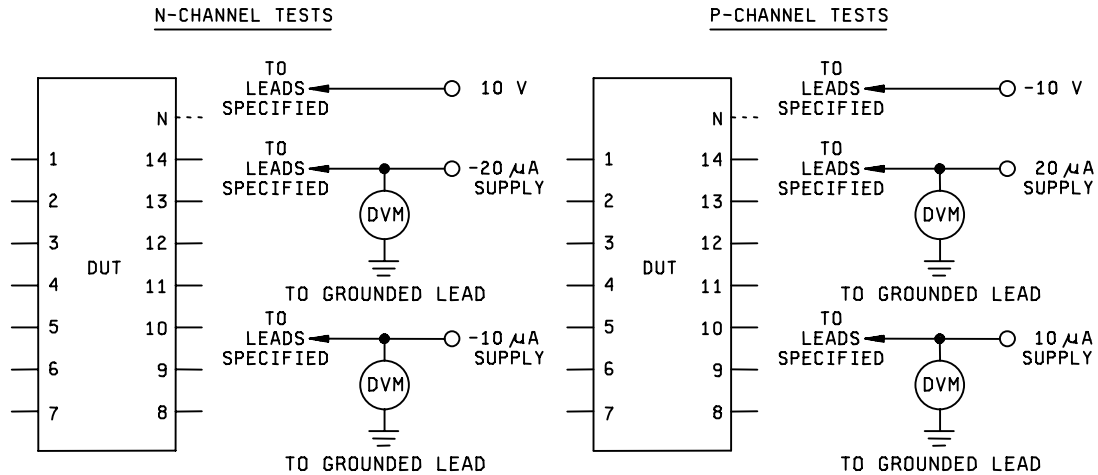
1/ Pins not designated are open, or may be tied to 10 V dc through a 30 to 60 kΩ resistor.

5. PACKAGING

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

6. NOTES

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

FIGURE 5. Threshold-voltage test circuit.TABLE VII. Threshold-voltage test circuit conditions.

Device type	GND	10 V	V _{TN} measured at		GND	-10 V	V _{TP} measured at	
			-20 μA supply	-10 μA supply			20 μA supply	10 μA supply
01	3	2, 4, 5, 6, 7, 16		8	3	2, 4, 5, 6, 7, 8		16
02	2	1, 3, 4, 6, 8, 10, 13, 14, 15, 16, 18, 20, 22, 24		12	2	12		1, 3, 4, 6, 8, 10, 13, 14, 15, 16, 18, 20, 22, 24

6.2 Acquisition requirements. Acquisition documents should specify the following:

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

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

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

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

C _I	Input terminal-to-GND capacitance.
GND	Ground zero voltage potential.
T _A	Free air temperature.
V _{DD}	Positive supply voltage.
V _{SS}	Negative supply voltage.
I _{SS}	Quiescent supply current.

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.

4.6 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 4.2e).
- f. RHA delta limits.

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

Military device type	Generic-industry type
01	4099B
02	4508B

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 5962-2030)

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

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