MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED LOW-POWER SCHOTTKY TTL, D-TYPE LATCHES, CASCADABLE, MONOLITHIC SILICON

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

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, advanced low-power Schottky TTL, D-type latches, bistable logic microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number.

1.2 Part number. The part number shall be in accordance with MIL-M-38510, and as specified herein.

1.2.1 Device types. The device types shall be as follows:

Device type	Circuit
01	Octal D-type transparent latch with 3-state outputs, cascadable
02	Octal D-type transparent latch with inverted 3-state outputs, cascadable
03	Dual 4-bit D-type transparent latch with 3-state outputs, cascadable
04	Dual 4-bit D-type transparent latch with inverted 3-state outputs, cascadable

1.2.2 Device class. The device class shall be the product assurance level as defined in MIL-M-38510.

1.2.3 Case outline. The case outline shall be designated as follows:

Letter	Case outline (see MIL-M-38510, appendix C)
K	F-6 (24-lead, 3/8" x 5/8"), flat package
L	D-9 (24-lead, 1/4" x 1 1/4"), dual-in-line package
R	D-8 (20-lead, 1/4" x 1 1/16"), dual-in-line package
S	F-9 (20-lead, 1/4" x 1/2"), flat package
2	C-2 (20 terminal, .350" x .350") square chip carrier package
3	C-4 (28-terminal, .450" x .450") square chip carrier package

1.3 Absolute maximum ratings.

Supply voltage range	-0.5 V dc to +7.0 V dc
Input voltage range	-1.5 V dc at -18 mA to 7.0 V dc
Storage temperature	-65°C to +150°C
Maximum power dissipation (P_D) per device 1/:	
Device types 01 and 02	148.5 mW
Device types 03 and 04	170.5 mW
Lead temperature (soldering, 10 seconds)	300°C

1/ Must withstand the added P_D due to short-circuit test (e.g., I_O).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Rome Air Development Center (RBE-2), Griffiss AFB, NY 13441, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Thermal resistance, junction-to-case (θ_{JC}):	
Cases K, L, R, S	(See MIL-M-38510, appendix C)
Cases 2, 3	60°C/W 2/
Junction temperature (T_J) 3/	+175°C

1.4 Recommended operating conditions.

Supply voltage (V_{CC})	4.5 V dc minimum to 5.5 V dc maximum
Minimum high-level input voltage (V_{IH})	2.0 V dc
Maximum low-level input voltage (V_{IL})	0.8 V dc
Case operating temperature range (T_C)	-55°C to +125°C
Input set-up time, $t_{(setup)}$:	
Device types 01, 02, 03, and 04	10 ns minimum
Input hold time, $t_{(hold)}$:	
Device types 01 and 03	7 ns minimum
Device types 02 and 04	10 ns minimum
Input pulse width, (t_p):	
Device types 01 and 03 (Enable)	10 ns minimum
Device types 02 and 04 (Enable)	15 ns minimum
Device type 03 (Clear)	15 ns minimum
Device type 04 (Preset)	15 ns minimum

2. APPLICABLE DOCUMENTS

2.1 Government specification and standard. Unless otherwise specified, the following specification and standard, of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATION

MILITARY

MIL-M-38510 - Microcircuits, General Specification for.

STANDARD

MILITARY

MIL-STD-883 - Test Methods and Procedures for Microelectronics.

(Copies of the specification and standard required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Detail specification. The individual item requirements shall be in accordance with MIL-M-38510, and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-M-38510 and herein.

3.2.1 Terminal connections and logic diagrams. The terminal connections and logic diagrams shall be as specified on figures 1 and 2 respectively.

2/ When a thermal resistance value is included in MIL-M-38510, appendix C, it shall supersede the value stated herein.

3/ Maximum junction temperature shall not be exceeded except for allowable short duration burn-in screening methods per method 5004 of MIL-STD-883.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55°C \le T_C \le +125°C$		Device type	Limits Min	Limits Max	Unit
High-level output voltage	V_{OH}	V_{CC} = 4.5 V I_{OH} = 1.0 mA V_{IH} = 2.0 V		All	2.4		V
Low-level output voltage	V_{OL}	V_{CC} = 4.5 V I_{OL} = 12 mA V_{IL} = 0.8 V		All		0.4	V
Input clamp voltage	V_{IC}	V_{CC} = 4.5 V I_{IN} = -18 mA T_C = +25°C		All		-1.5	V
Low-level input current	I_{IL}	V_{CC} = 5.5 V V_{IL} = 0.4 V		All	0	-200	µA
High-level input current	I_{IH1}	V_{CC} = 5.5 V V_{IH} = 2.7 V		All		20	µA
	I_{IH2}	V_{CC} = 5.5 V V_{IH} = 7.0 V		All		110	µA
Output current 1/	I_O	V_{CC} = 5.5 V V_O = 2.25 V		01	-15	-112	mA
				02,03,04	-15	-110	
Output current, high level, outputs off	I_{OZH}	V_{CC} = 5.5 V V_{OH} = 2.7 V		All		20	µA
Output current, low level, outputs off	I_{OZL}	V_{CC} = 5.5 V V_{OH} = 0.4 V		All		-20	µA
Supply current, outputs high	I_{CCH}	V_{CC} = 5.5 V	V_{IN} = 5.0 V	01		19	mA
				03		21	
			V_{IN} = 0 V	02		17	
				04		21	
Supply current, outputs low	I_{CCL}	V_{CC} = 5.5 V	V_{IN} = 0 V	01		24	mA
				03		29	
			V_{IN} = 5.0 V	02		24	
				04		29	
Supply current, outputs disabled	I_{CCZ}	V_{CC} = 5.5 V V_{OC} = 5.0 V	V_{IN} = 0 V	01		27	mA
				03		31	
			V_{IN} = 5.5 V	02		27	
				04		31	

See footnote at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions $-55°C \leq T_C \leq +125°C$	Device type	Limits Min	Limits Max	Unit
Propagation delay time to low level (clear or preset to output)	t_{PHL1}	V_{CC} = 5.0 V C_L = 50 pF ±10% R_L = 500Ω	03,04	6	24	ns
Propagation delay time to high level (enable to output)	t_{PLH2}		01	8	27	ns
			02,03	8	29	
			04	8	31	
Propagation delay time to low level (enable to output)	t_{PHL2}		01	8	20	ns
			02,03, 04	8	22	
Propagation delay time to high level (data to output)	t_{PLH3}		01,03	2	15	ns
			02	3	21	
			04	3	23	
Propagation delay time to low level (data to output)	t_{PHL3}		01,03	2	15	ns
			02,04	3	15	
Output control on to high-level output	t_{PZH}		All	4	21	ns
Output control on to low-level output	t_{PZL}		All	4	21	ns
High-level output to output control off	t_{PHZ}		01	2	12	ns
			02,03,04	2	10	
Low-level output to output control off	t_{PLZ}		01	3	18	ns
			02,04	3	15	
			03	2	15	

1/ The output conditions have been chosen to produce a current that closely approximates one-half of the true short-circuit output current, I_{OS}.

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

3.2.3 Schematic circuits. Schematic circuits shall be submitted to the preparing activity prior to inclusion of a manufacturer's device in the specification and shall be submitted to the qualifying activity and agent activity (DESC-ECS) as a prerequisite for qualification. All qualified manufacturers' schematics shall be maintained by the agent activity and will be available upon request.

3.2.4 Case outlines. The case outlines shall be as specified in MIL-M-38510 and 1.2.3 herein.

3.3 Lead material and finish. The lead material and finish shall be in accordance with MIL-M-38510 (see 6.4).

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

3.5 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.

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (see table III)	
	Class S devices	Class B devices
Interim electrical parameters (method 5004)	1	1
Final electrical tests (method 5004)	1*,2,3,7, 9,10,11	1*,2,3,7, 9
Group A test requirements (method 5005)	1,2,3,7, 8,9,10,11	1,2,3,7, 9
Group B electrical tests (method 5005) subgroup 5	1,2,3,9, 10,11	N/A
Group C end-point electrical parameters (method 5005)	N/A	1,2,3
Additional electrical subgroups for group C periodic inspections	N/A	10,11
Group D end-point electrical parameters (method 5005)	1,2,3	1,2,3

*PDA applies to subgroup 1 (see 4.2c).

3.6 Marking. Marking shall be in accordance with MIL-M-38510.

3.7 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 10 (see MIL-M-38510, appendix E).

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-M-38510 and MIL-STD-883, methods 5005 and 5007, as applicable, except as modified herein.

4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to qualification and quality conformance inspection. The following additional criteria shall apply:

a. Burn-in test (method 1015 of MIL-STD-883.

(1) Test condition D or E, using the circuit shown on figure 4, or equivalent.

(2) T_A = +125°C minimum.

b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical test parameters prior to burn-in are optional at the discretion of the manufacturer.

c. The percent defective allowable (PDA) shall be as specified in MIL-M-38510.

4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-M-38510. Inspections to be performed shall be those specified in method 5005 of MIL-STD-883 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4).

4.4 Quality conformance inspection. Quality conformance inspection shall be in accordance with MIL-M-38510 and as specified herein. Inspections to be performed shall be those specified in method 5005 of MIL-STD-883 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 I of method 5005 of MIL-STD-883 and as follows:

a. Tests shall be as specified in table II herein.

b. Subgroups 4, 5, and 6 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of method 5005 of MIL-STD-883. Electrical parameters shall be as specified in table II herein.

4.4.3 Group C inspection. Group C inspection shall be in accordance with table III of method 5005 of MIL-STD-883 and as follows:

a. End-point electrical parameters shall be as specified in table II herein.

b. Subgroups 3 and 4 shall be added to the group C inspection requirements for class B devices and shall consist of the tests, conditions, and limits specified for subgroups 10 and 11 of group A.

c. Steady-state life test (see method 1005 of MIL-STD-883):

(1) Test condition D or E, using the circuit shown on figure 4, or equivalent.

(2) T_A = +125°C minimum.

(3) Test duration: 1,000 hours, except as permitted by appendix B of MIL-M-38510, and method 1005 of MIL-STD-883.

4.4.4 Group D inspection. Group D inspection shall be in accordance with table IV of method 5005 of MIL-STD-883. End-point electrical tests shall be as specified in table II herein.

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

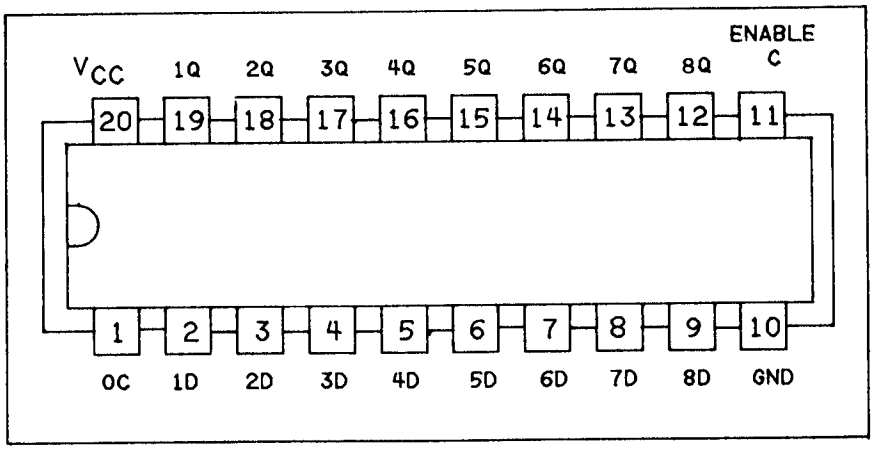
4.5.1 Voltage and current. All voltages given are referenced to the microcircuit ground terminal. Currents given are conventional and positive when flowing into the referenced terminal.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be as specified in MIL-M-38510.

Device type 01

Cases R and S



Device type 01

Case 2

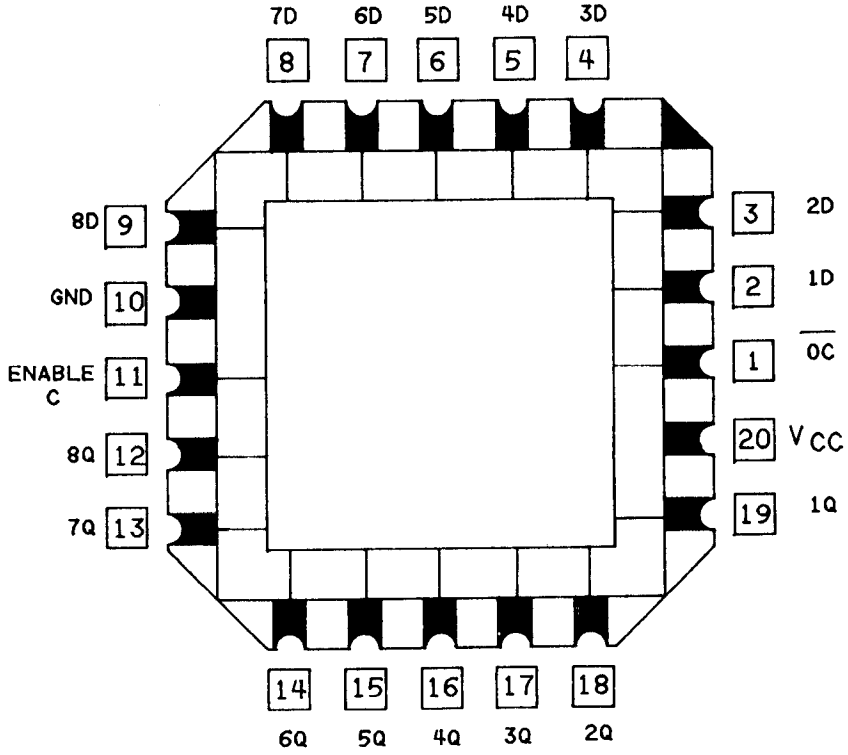
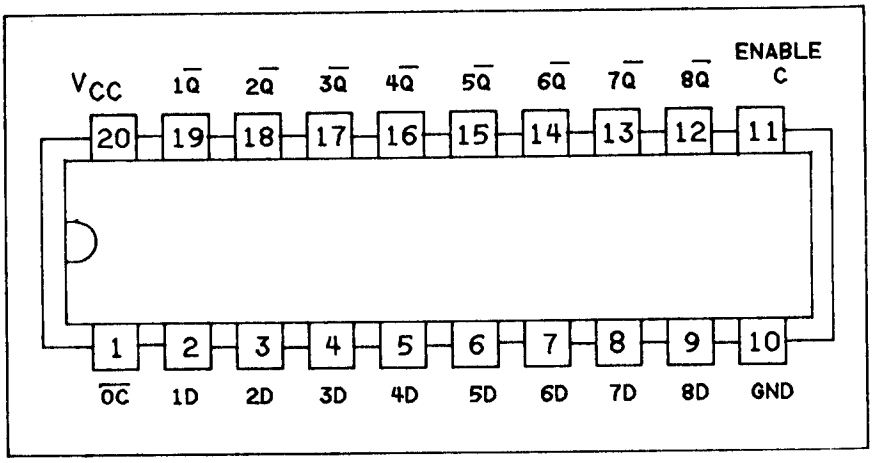


FIGURE 1. Terminal connections.

Device type 02
Cases R and S



Device Type 02

Case 2

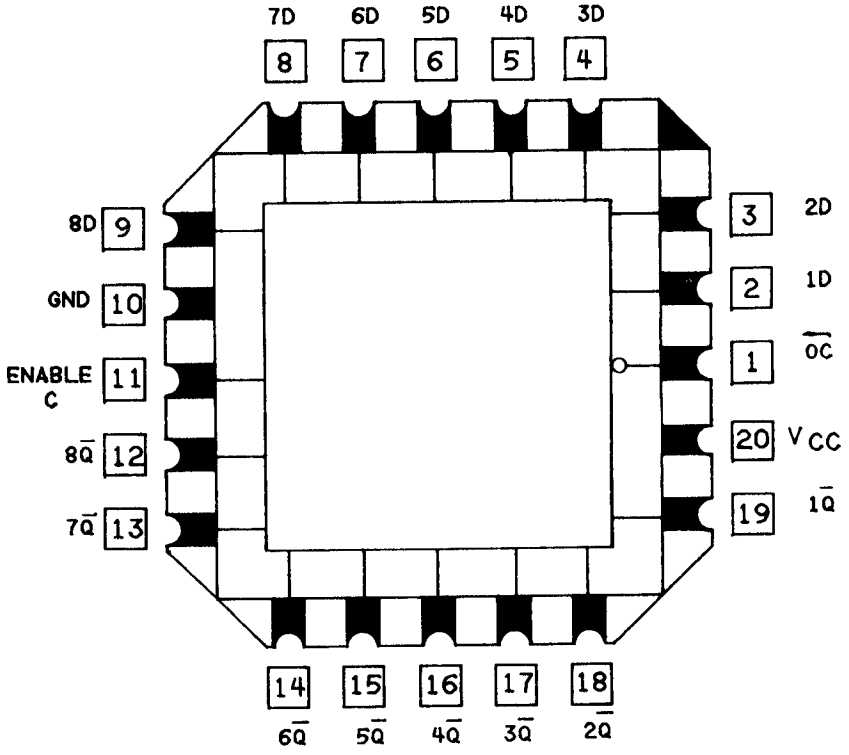
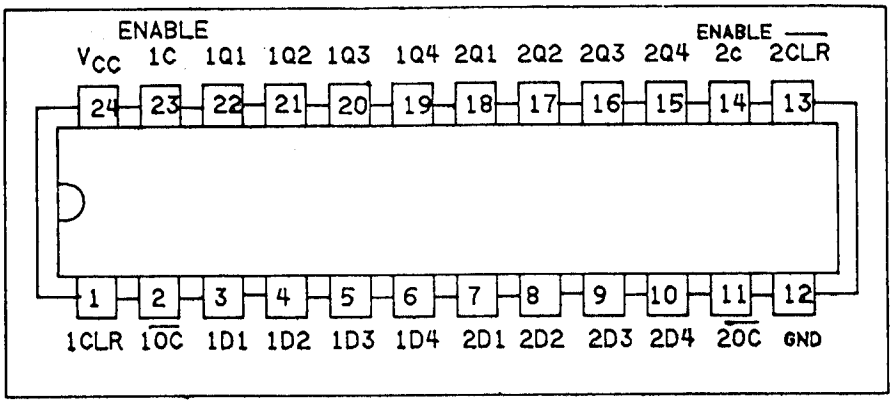


FIGURE 1. Terminal connections - Continued.

Device type 03

Cases K and L



Device type 03

Case 3

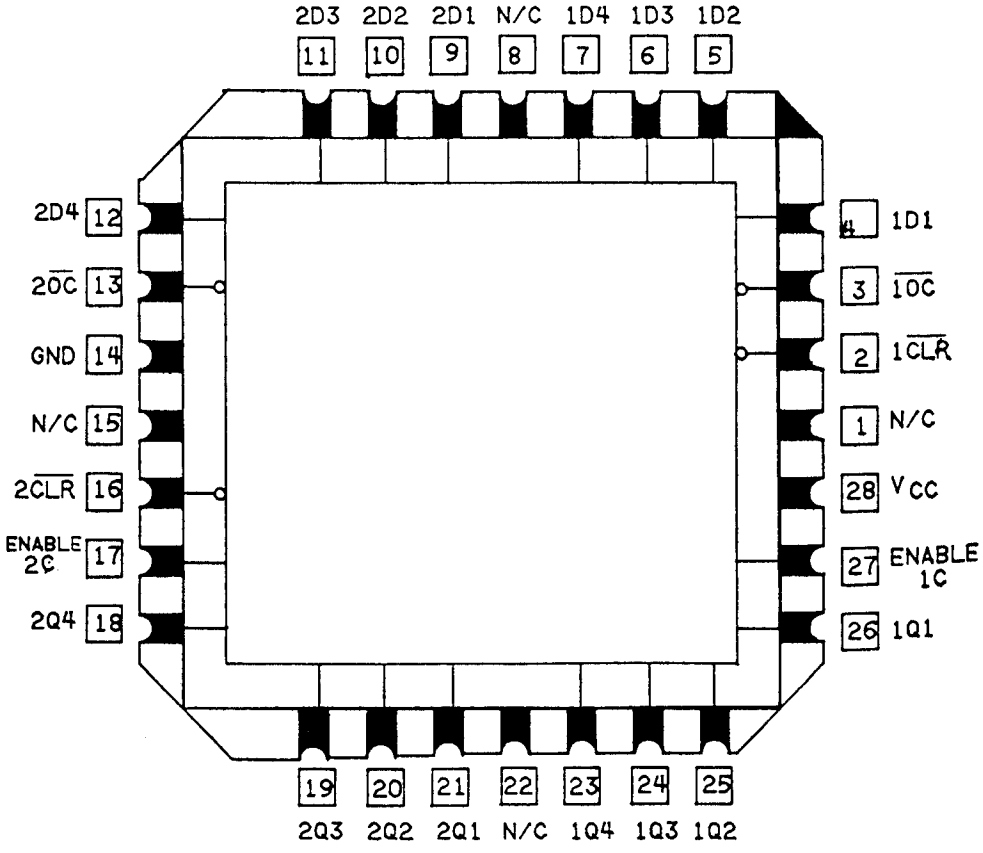
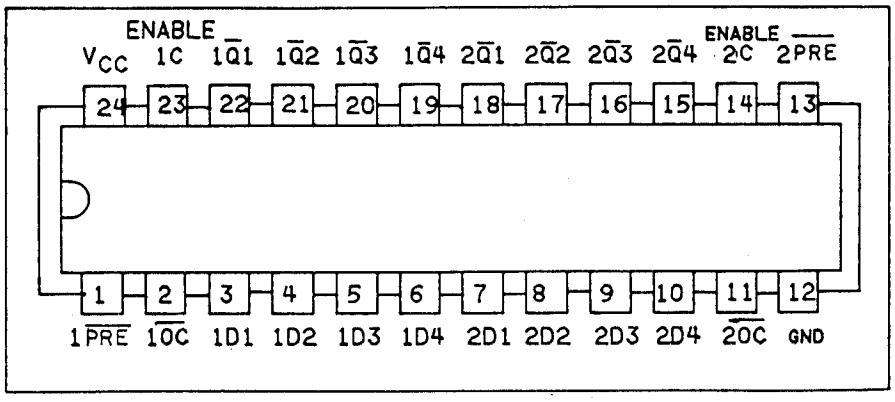


FIGURE 1. Terminal connections - Continued.

Device type 04

Cases K and L



Device type 04

Case 3

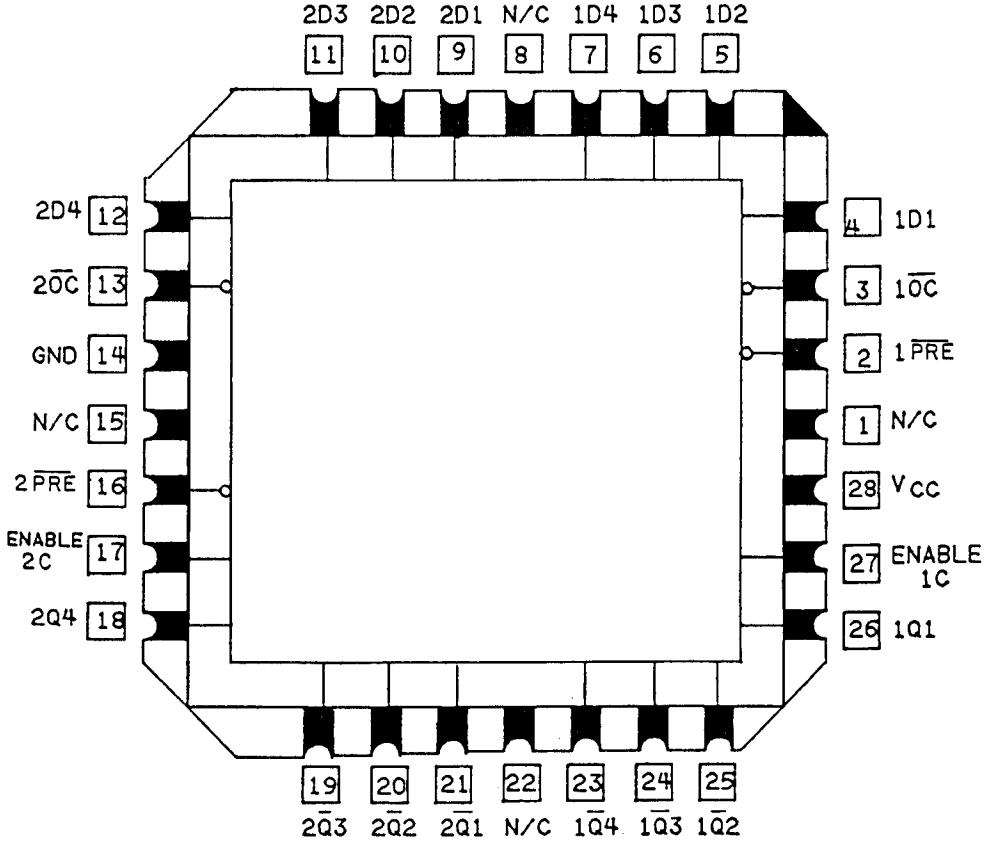


FIGURE 1. Terminal connections - Continued.

Device type 01

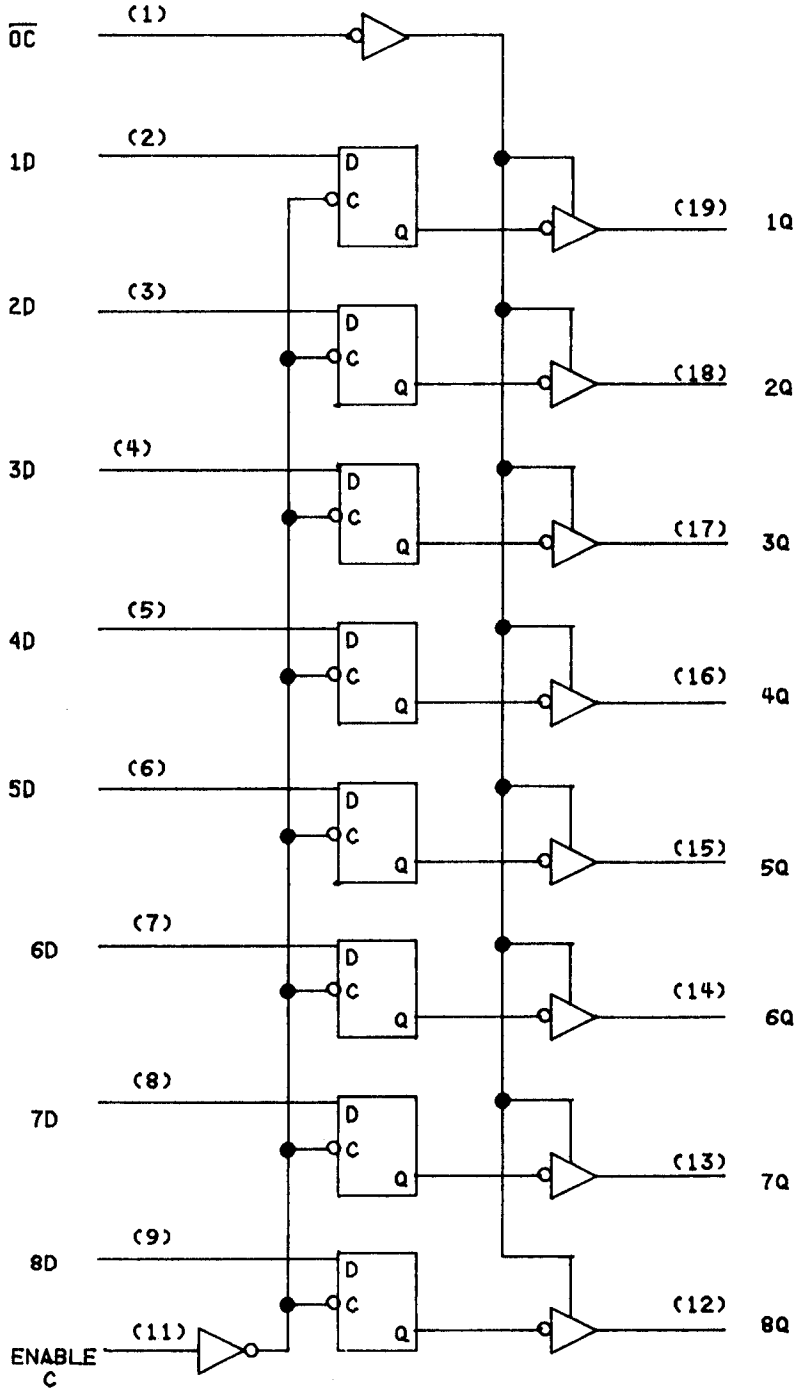


FIGURE 2. Logic diagrams.

Device type 02

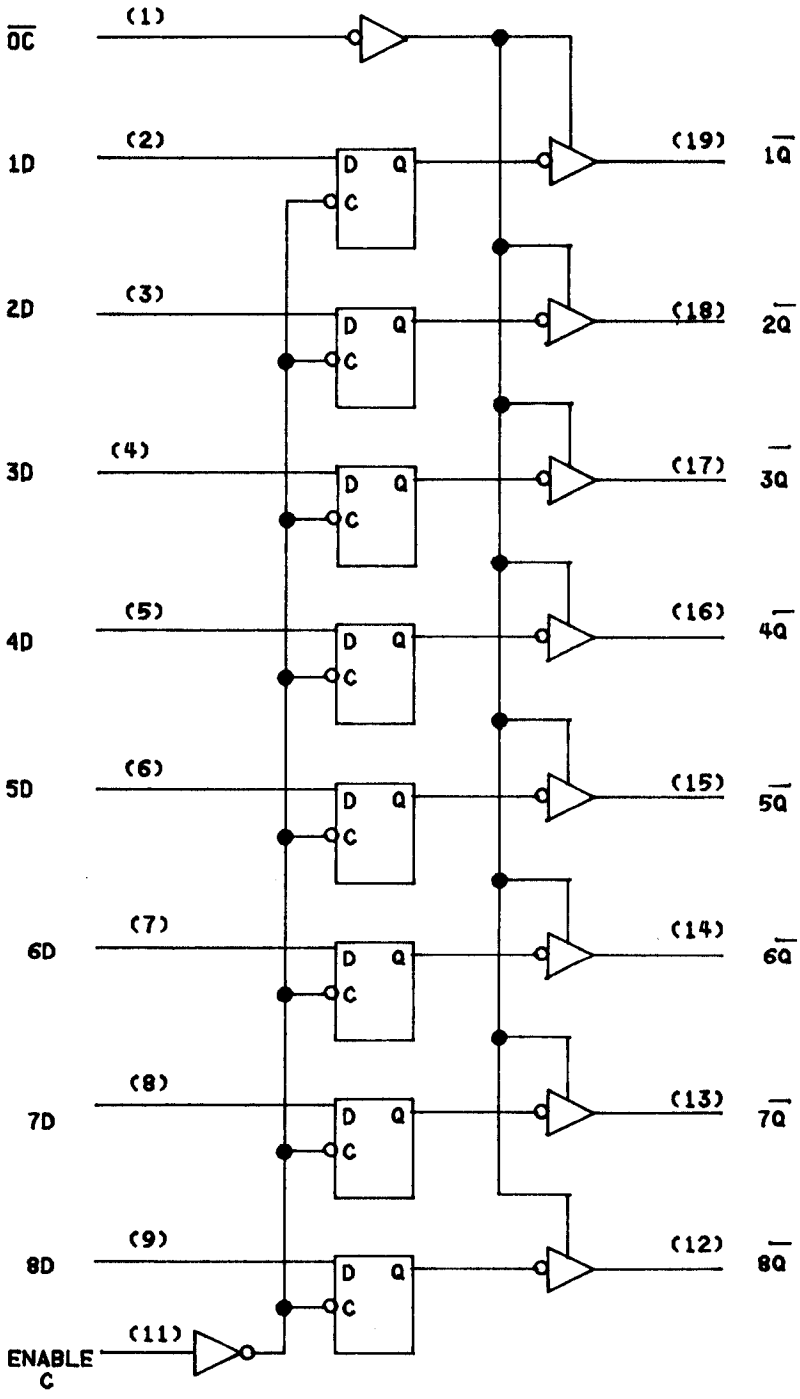


FIGURE 2. Logic diagrams - Continued.

Device type 03

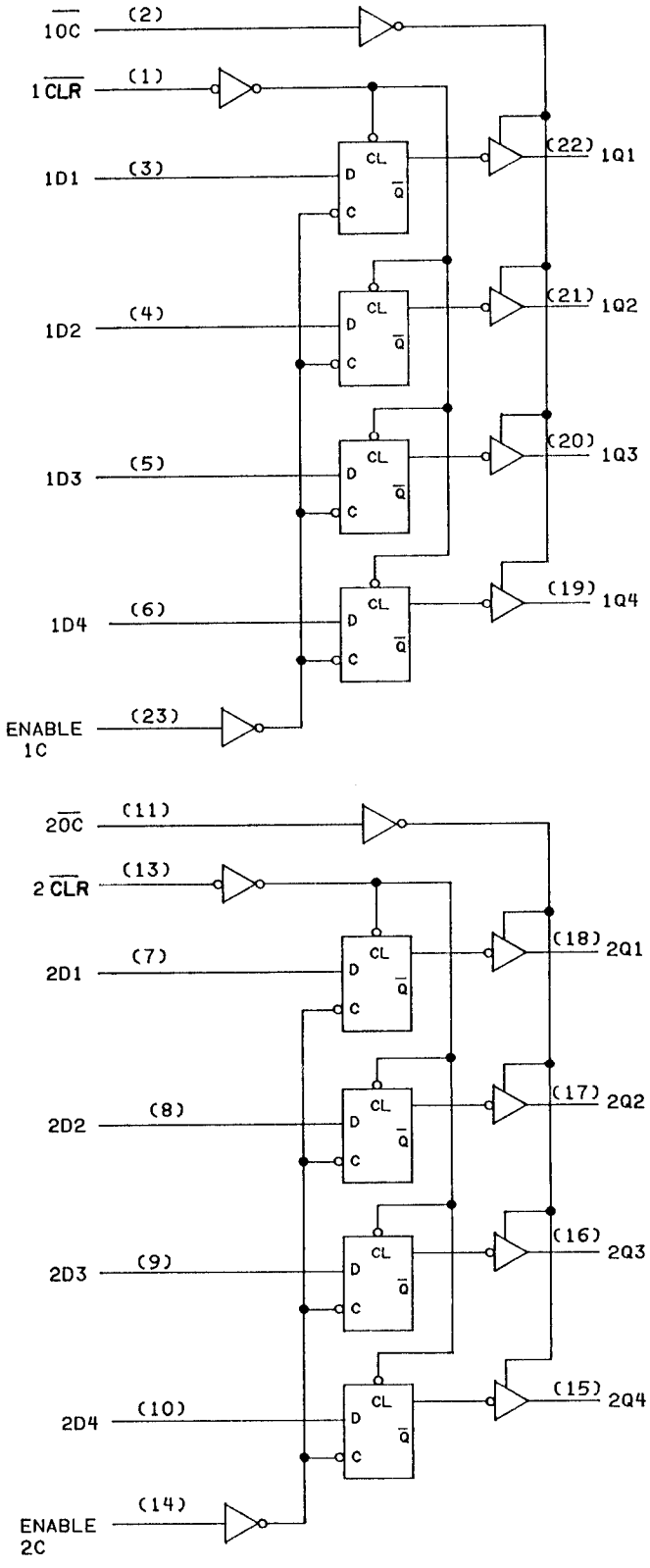


FIGURE 2. Logic diagrams - Continued.

Device type 04

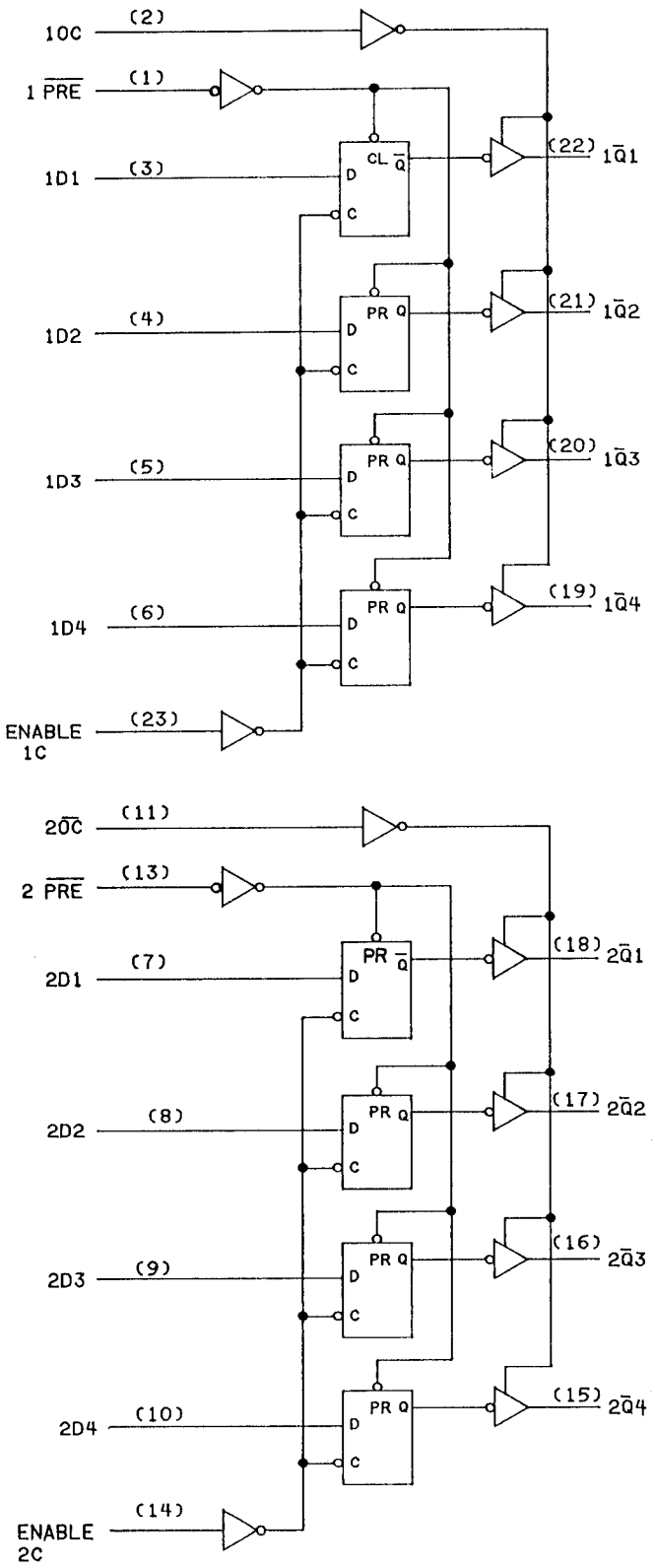


FIGURE 2. Logic diagrams - Continued.

Device type 01

Output control	Enable		Data	Output
$\overline{OC}$	EN	C	D	Q
H	X		X	Z
L	L		X	Q_0
L	H		L	L
L	H		H	H

Device type 02

Output control	Enable		Data	Output
$\overline{OC}$	EN	C	D	$\overline{Q}$
H	X		X	Z
L	L		X	$\overline{Q}_0$
L	H		L	H
L	H		H	L

Device type 03

Output control	Clear	Enable		Data	Output
$\overline{OC}$	$\overline{CLR}$	EN	C	D	Q
H	X	X		X	Z
L	L	X		X	L
L	H	L		X	Q_0
L	H	H		L	L
L	H	H		H	H

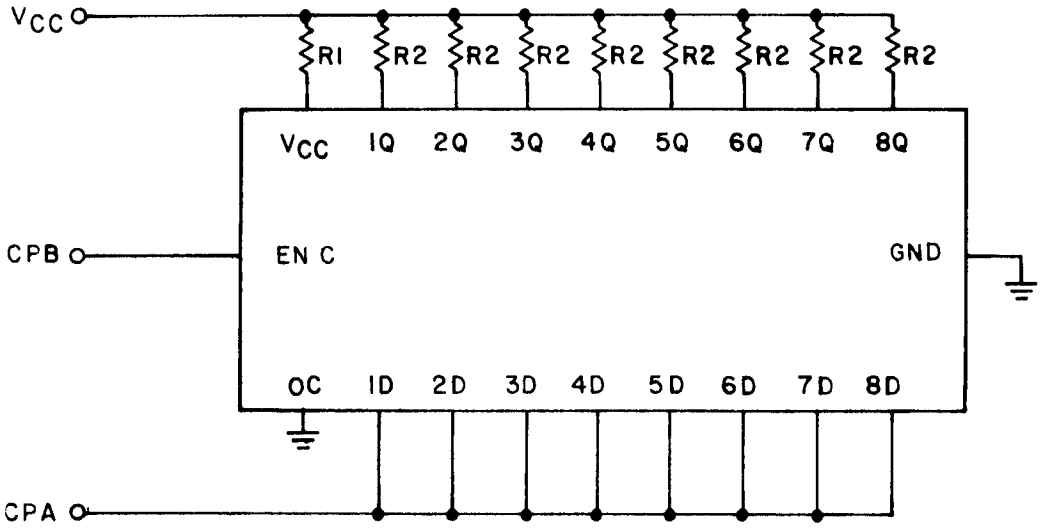
Device type 04

Output control	Preset	Enable		Data	Output
$\overline{OC}$	$\overline{PRE}$	EN	C	D	$\overline{Q}$
H	X	X		X	Z
L	L	X		X	L
L	H	L		X	Q_0
L	H	H		L	H
L	H	H		H	L

H = High level (steady state)
L = Low level (steady state)
Z = High impedance state
X = Irrelevant
Q_0 = The level of Q or $\overline{Q}$ before the indicated input conditions were established.

FIGURE 3. Truth tables.

Device type 01



Device type 02

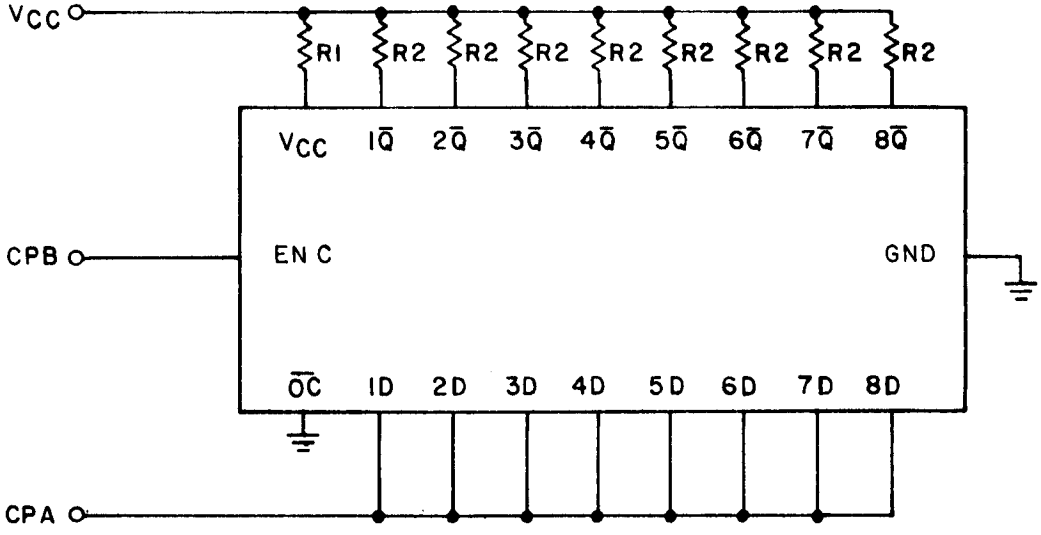
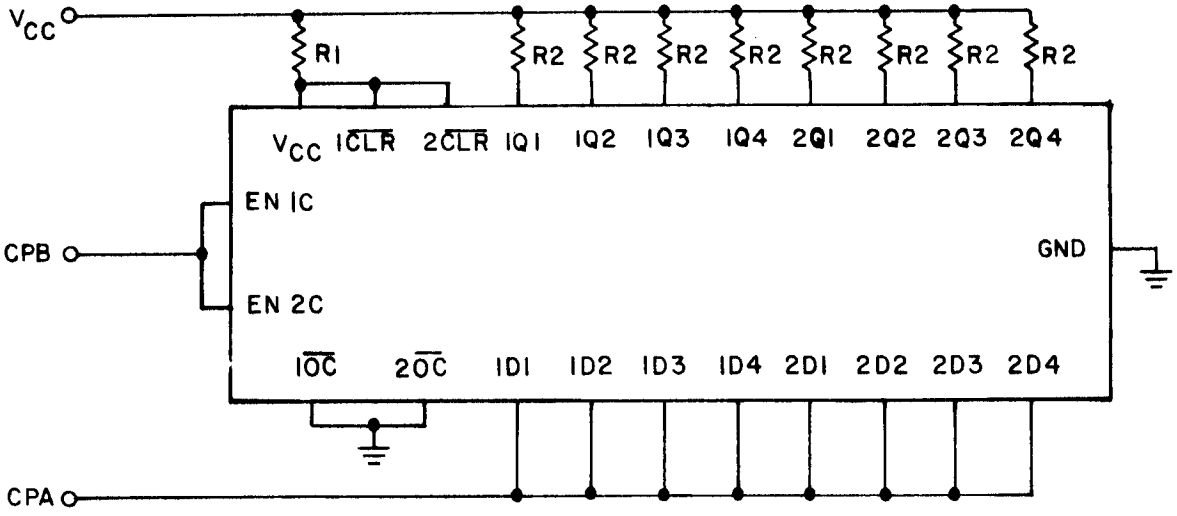
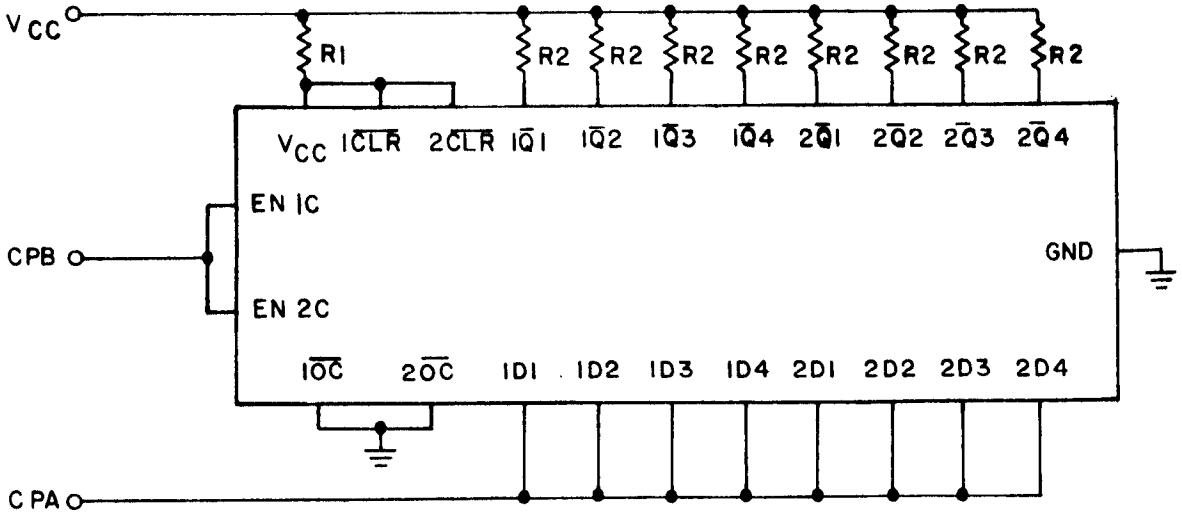


FIGURE 4. Burn-in and life test circuits.

Device type 03

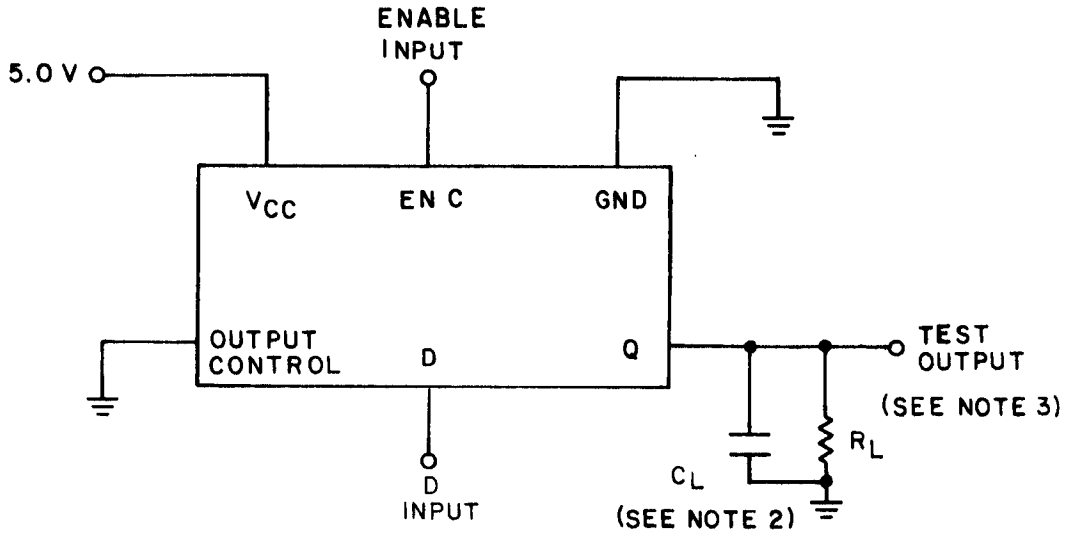


Device type 04

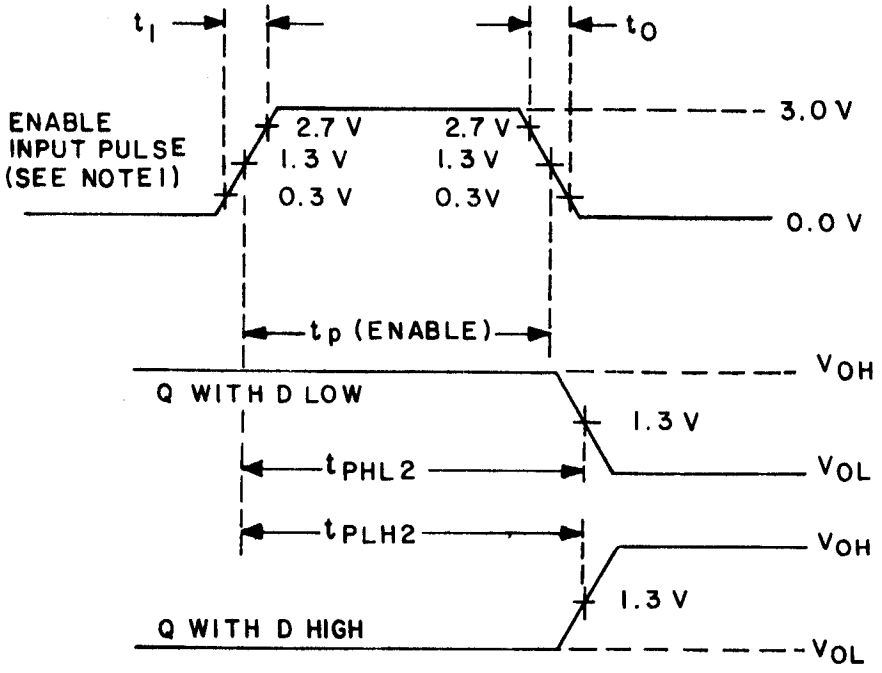


NOTES:
1. CPA = 100 kHz 50% square wave; duty cycle = 50 ±15%; V_{IL} = -0.5 V minimum to 0.7 V maximum; V_{IH} = 2.0 V minimum to 5.5 V maximum.
2. CPB is same as CPA, synchronized with CPA, except 50 kHz ±50% square wave.
3. R2 = 470Ω ±5%.
4. R_1 and V_{CC} shall be chosen to insure 5.0 V minimum is present at device V_{CC} terminal.

FIGURE 4. Burn-in and life test circuits - Continued.



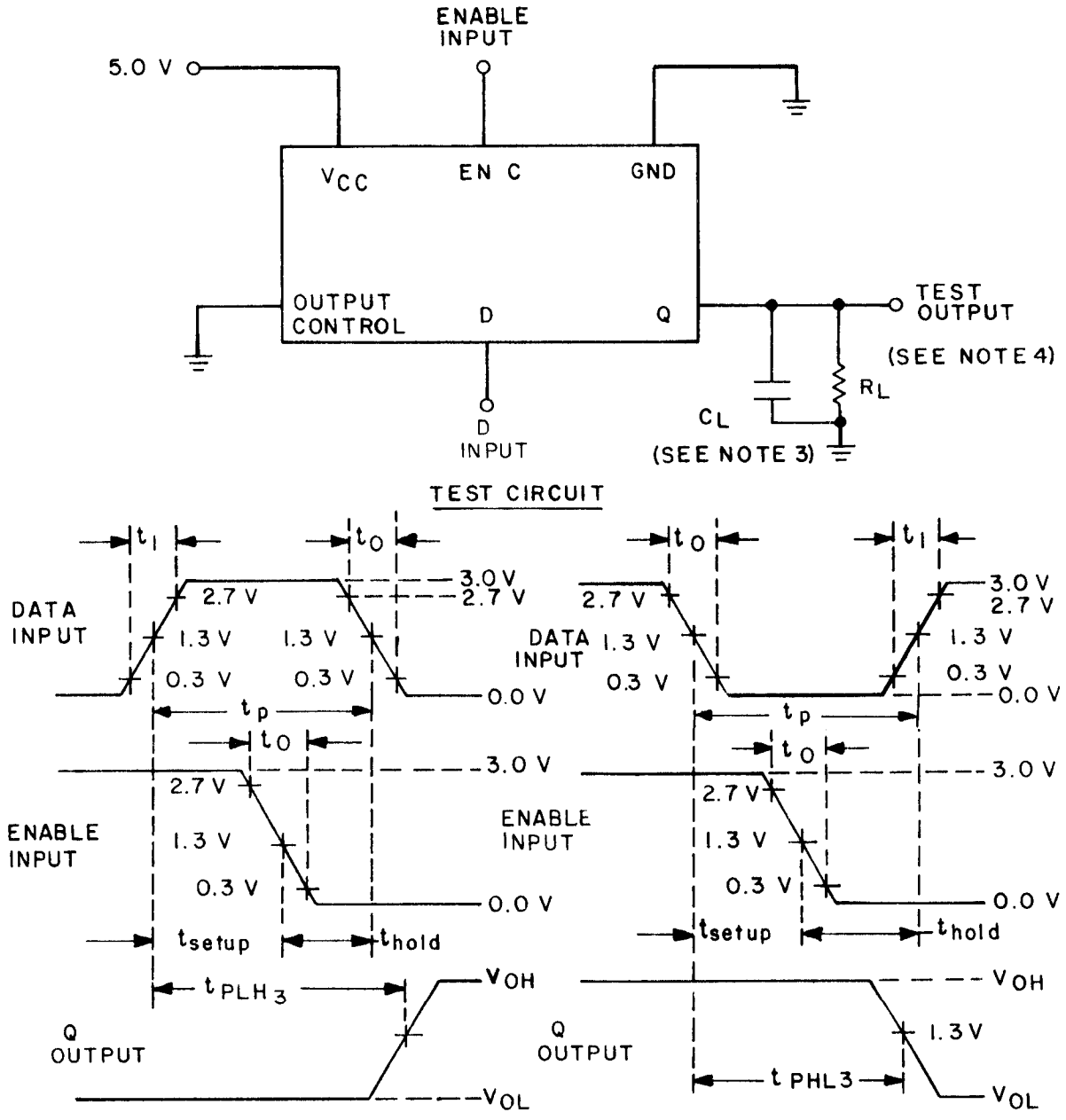
TEST CIRCUIT



VOLTAGE WAVEFORMS

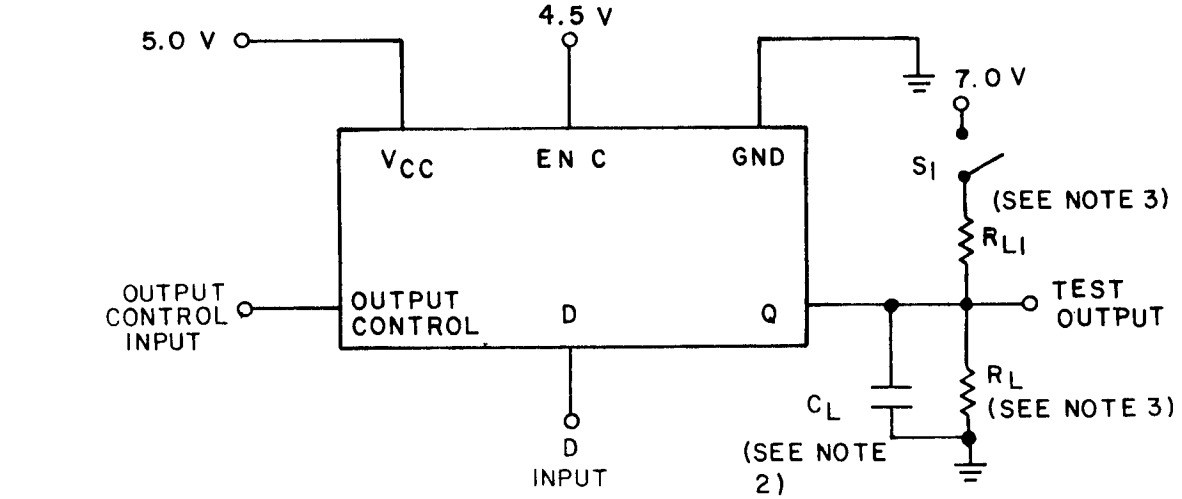
NOTES:
1. Enable input pulse characteristics: $t_1 = t_0 = 6 \pm 1.5$ ns; t_p (enable) = 10 ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. C_L = 50 pF ±10% (including jig and probe capacitance).
3. R_L = 499Ω ±1%.

FIGURE 5. Enable switching test circuit and waveforms (device type 01).

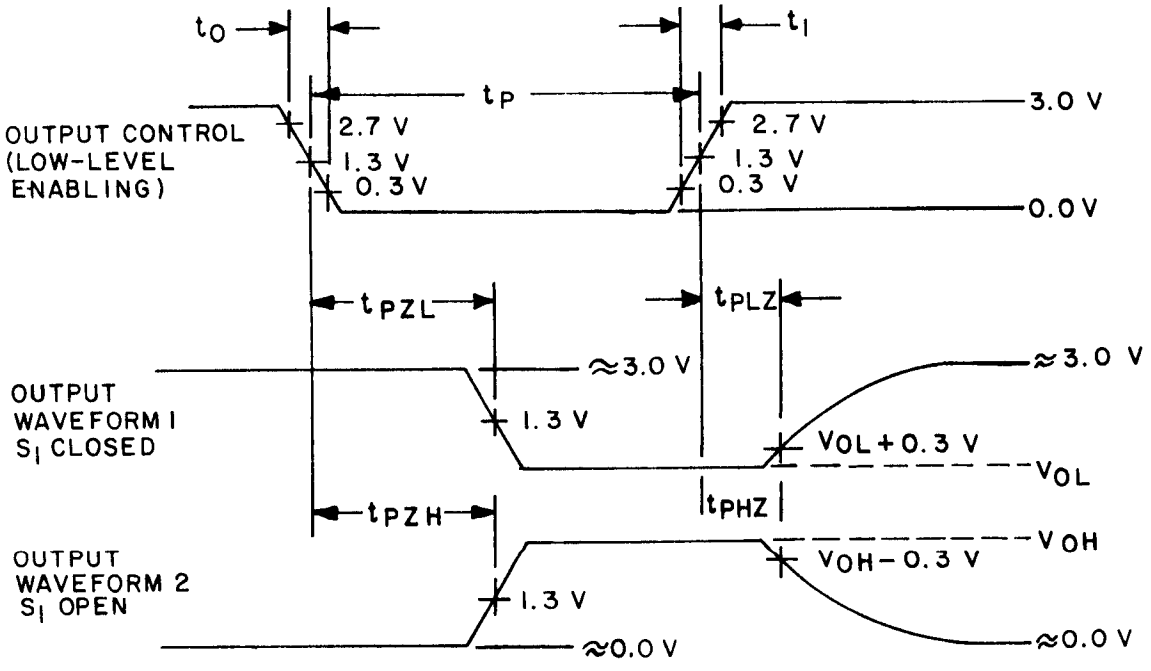


NOTES:
1. Enable input pulse characteristics: t_0 = 6 ±1.5 ns; PRR ≤ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. D input pulse characteristics: $t_1 = t_0$ = 6 ±1.5 ns; t_{setup} = 10 ns; t_{hold} = 7 ns; t_p = 17 ns; $Z_{OUT} \cong 50\Omega$.
3. C_L = 50 pF 10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Data switching test circuit and waveforms (device type 01).



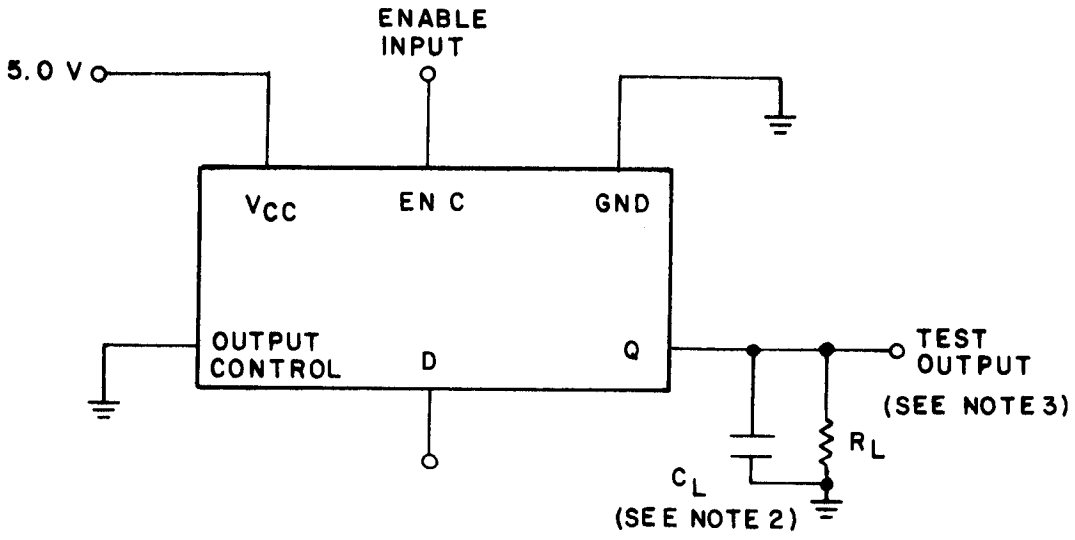
TEST CIRCUIT



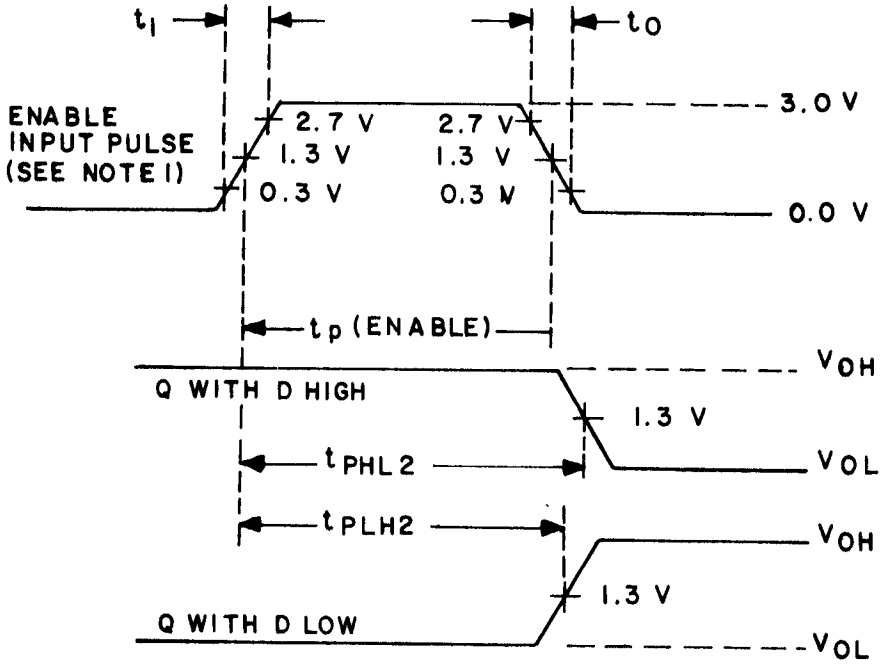
VOLTAGE WAVEFORMS

NOTES:
1. Output control input pulse characteristics: $t_0 = t_1 = 6 \pm 1.5$ ns; $t_p \geq 200$ ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. $C_L = 50$ pF ±10% (including jig and probe capacitance).
3. $R_L = R_{L_1} = 499\Omega$ ±1%.

FIGURE 5. Tri-state switching test circuit and waveforms for device type 01.



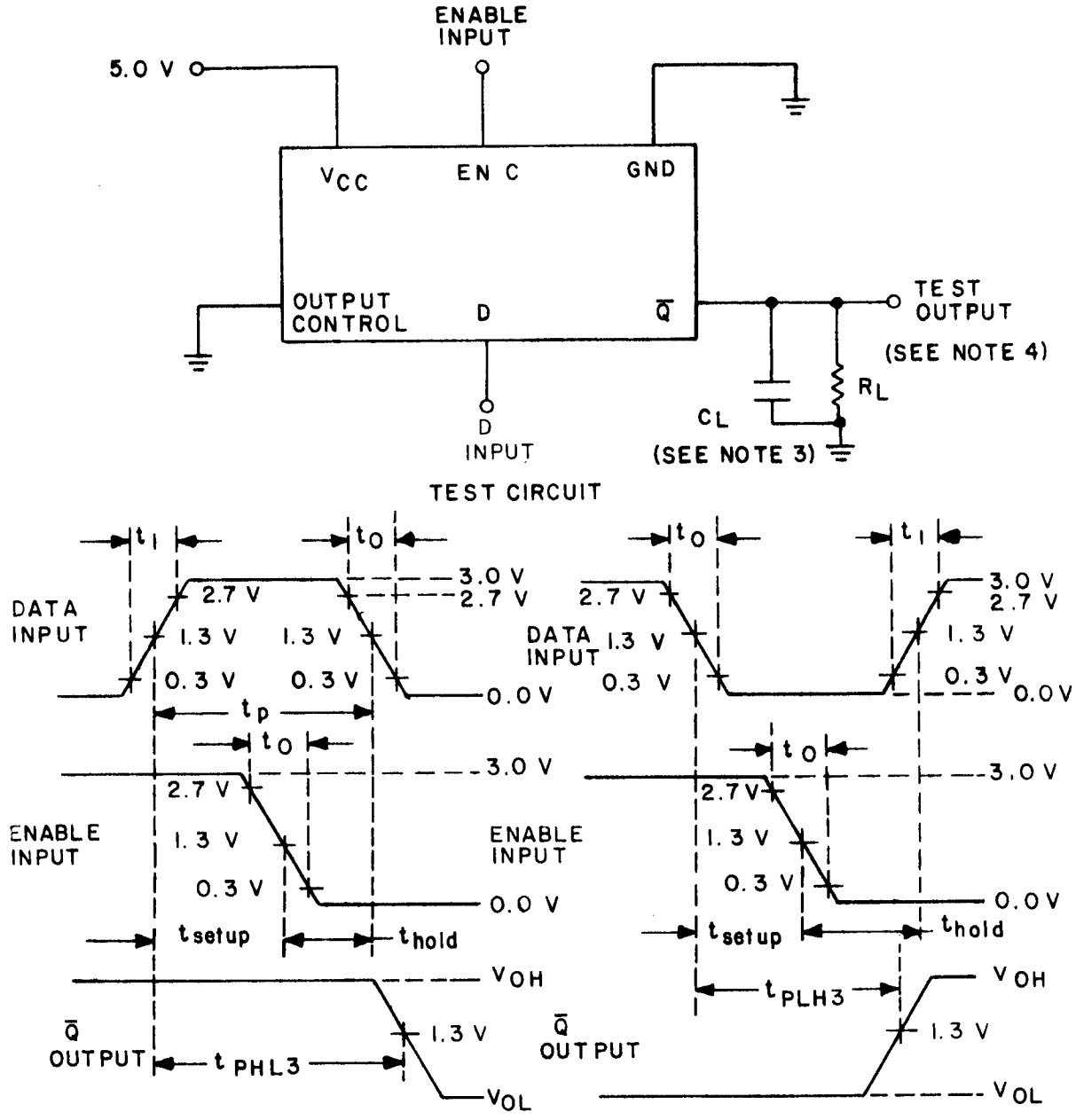
TEST CIRCUIT



VOLTAGE WAVEFORMS

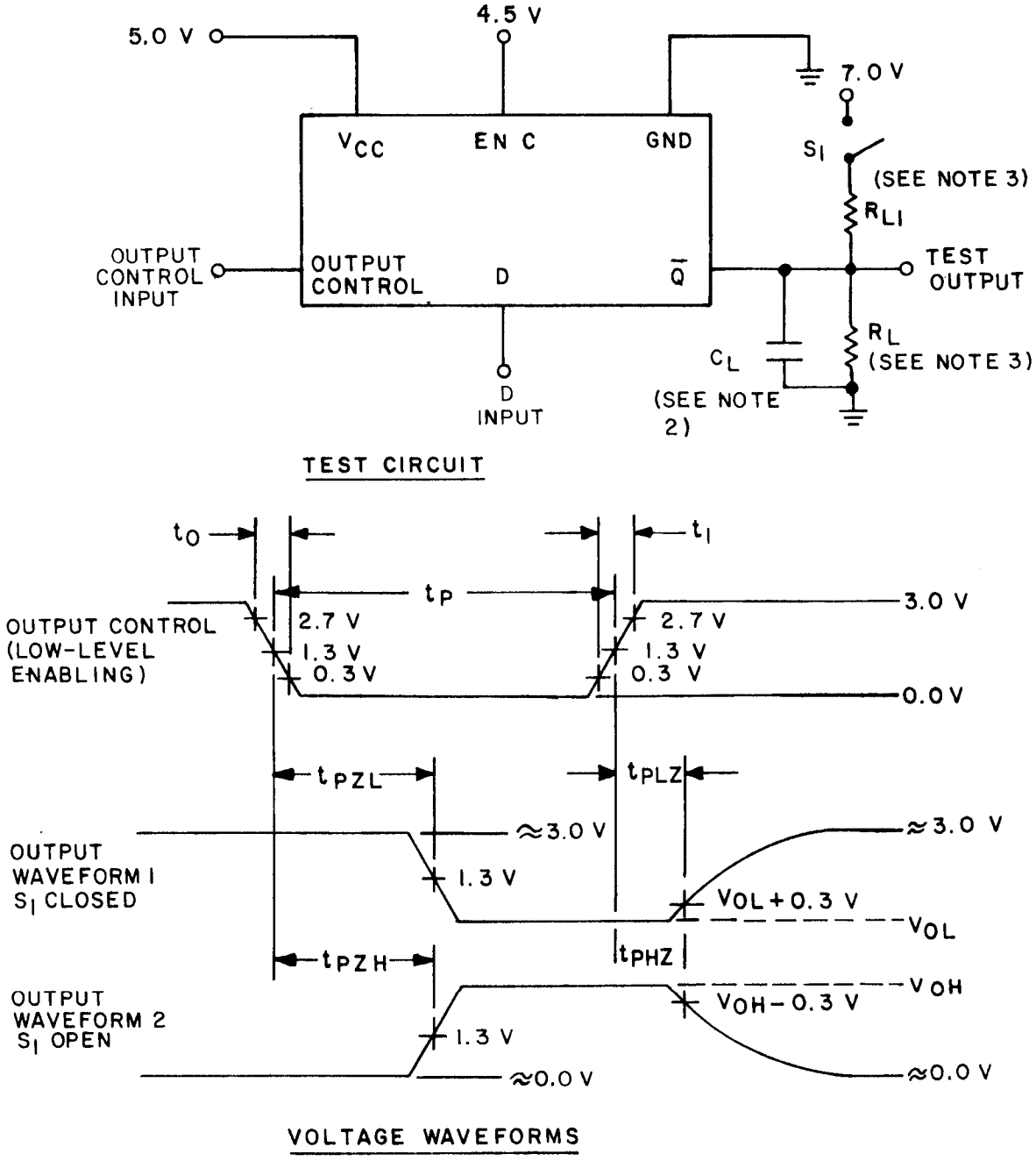
NOTES:
1. Enable input pulse characteristics: $t_1 = t_0 = 6 \pm 1.5$ ns; t_p (enable) = 15 ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. C_L = 50 pF ±10% (including jig and probe capacitance).
3. R_L = 499Ω ±1%.

FIGURE 5. Enable switching test circuit and waveforms (device type 02).



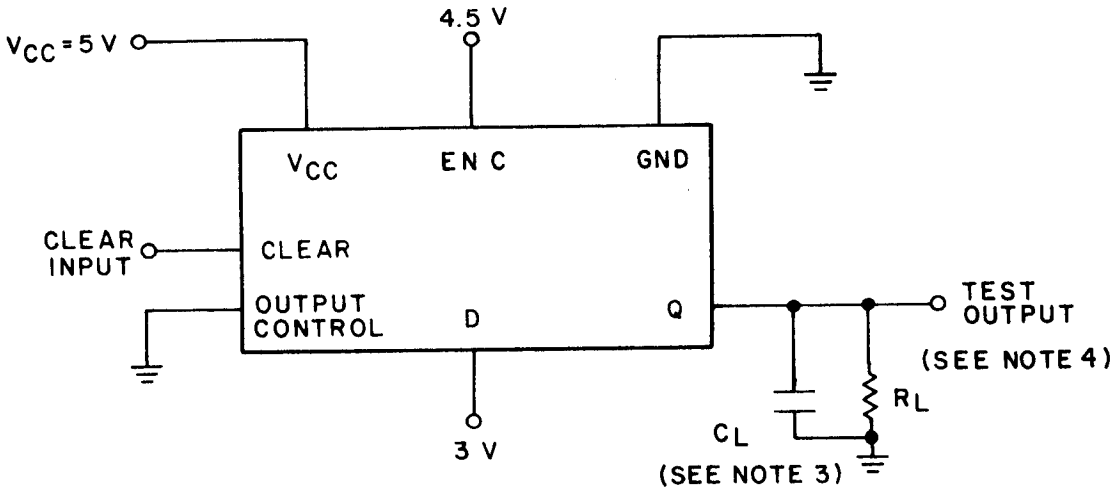
NOTES:
1. Enable input pulse characteristics: t_0 = 6 ±1.5 ns; t_p = 15 ns; PRR ≤ 1 MHz, Z_{OUT} ≅ 50Ω.
2. D input pulse characteristics: $t_1 = t_0$ = 6 ±1.5 ns; t_{setup} = 10 ns; t_{hold} = 10 ns; t_p 20 ns; PRR is 50% of enable PRR, Z_{OUT} ≅ 50Ω.
3. C_L = 50 pF ±10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Data switching test circuit and waveforms (device type 02).

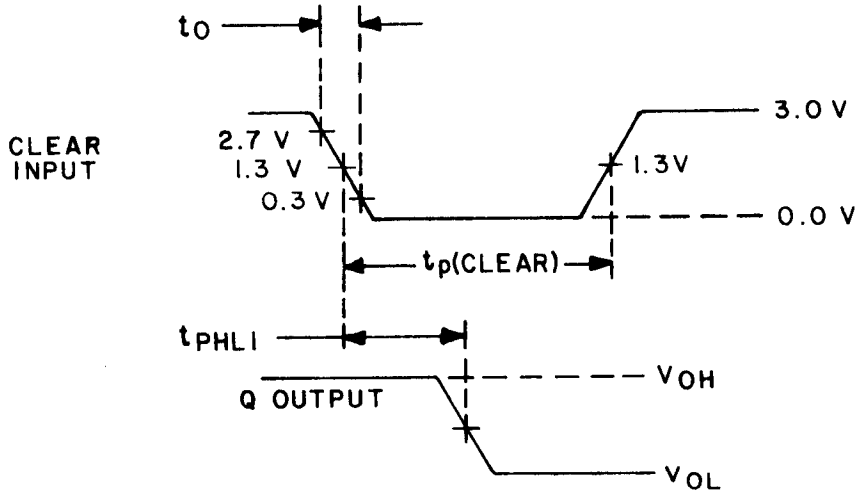


NOTES:
1. Output control input pulse characteristics: $t_0 = t_1 = 6 \pm 1.5$ ns; $t_p \geq 200$ ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. $C_L = 50$ pF ±10% (including jig and probe capacitance).
3. $R_L = R_{L_1} = 499\Omega \pm 1\%$.

FIGURE 5. Tri-state switching test circuit and waveforms for device type 02.



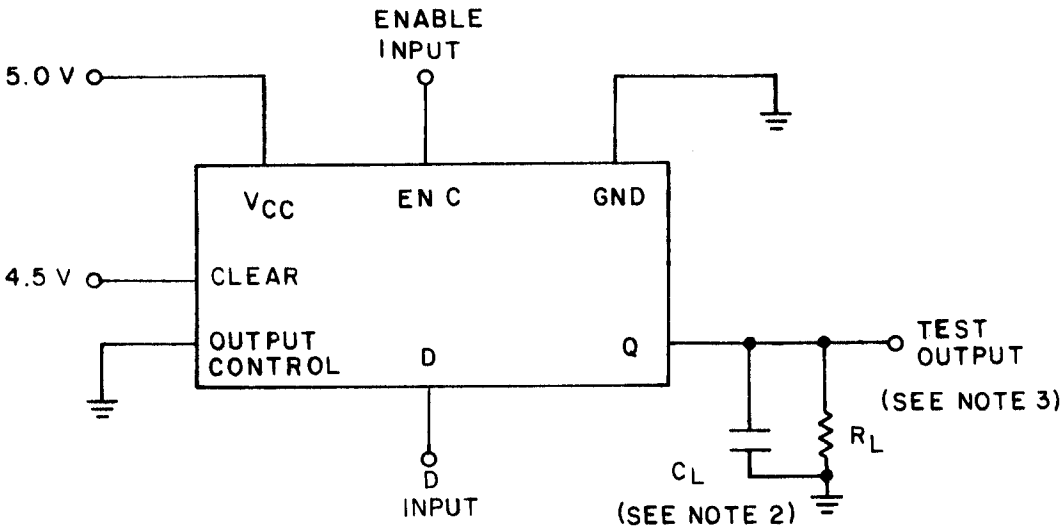
TEST CIRCUIT



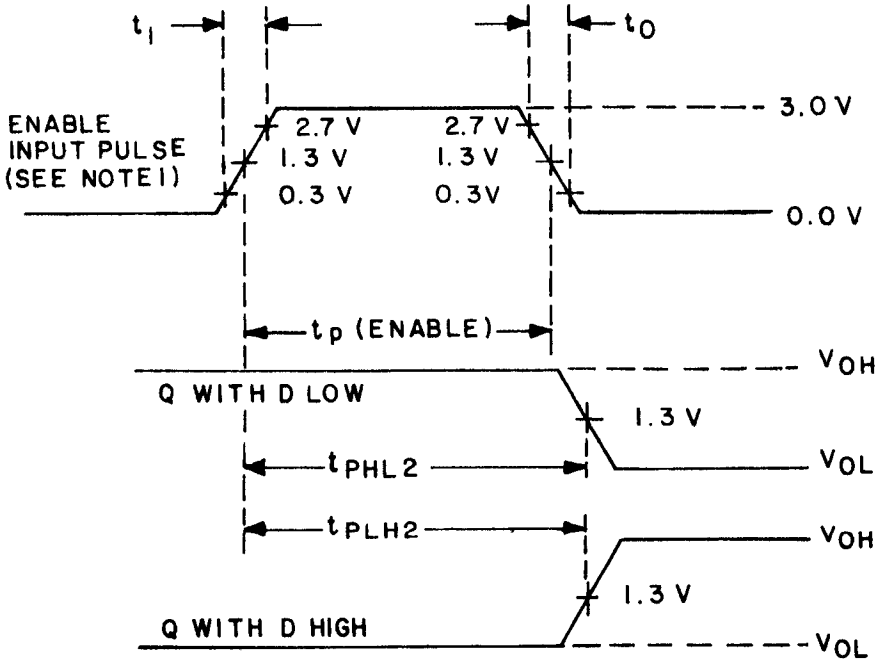
VOLTAGE WAVEFORM

NOTES:
1. Clear input dominates regardless of state of D input.
2. Clear input pulse characteristics: $t_1 = t_0 = 6 \pm 1.5$ ns; t_p (clear) = 15 ns; PRR $\leq$ 1 MHz, $Z_{OUT} \cong 50\Omega$.
3. C_L = 50 pF ±10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Clear switching test circuit and waveforms (device type 03).



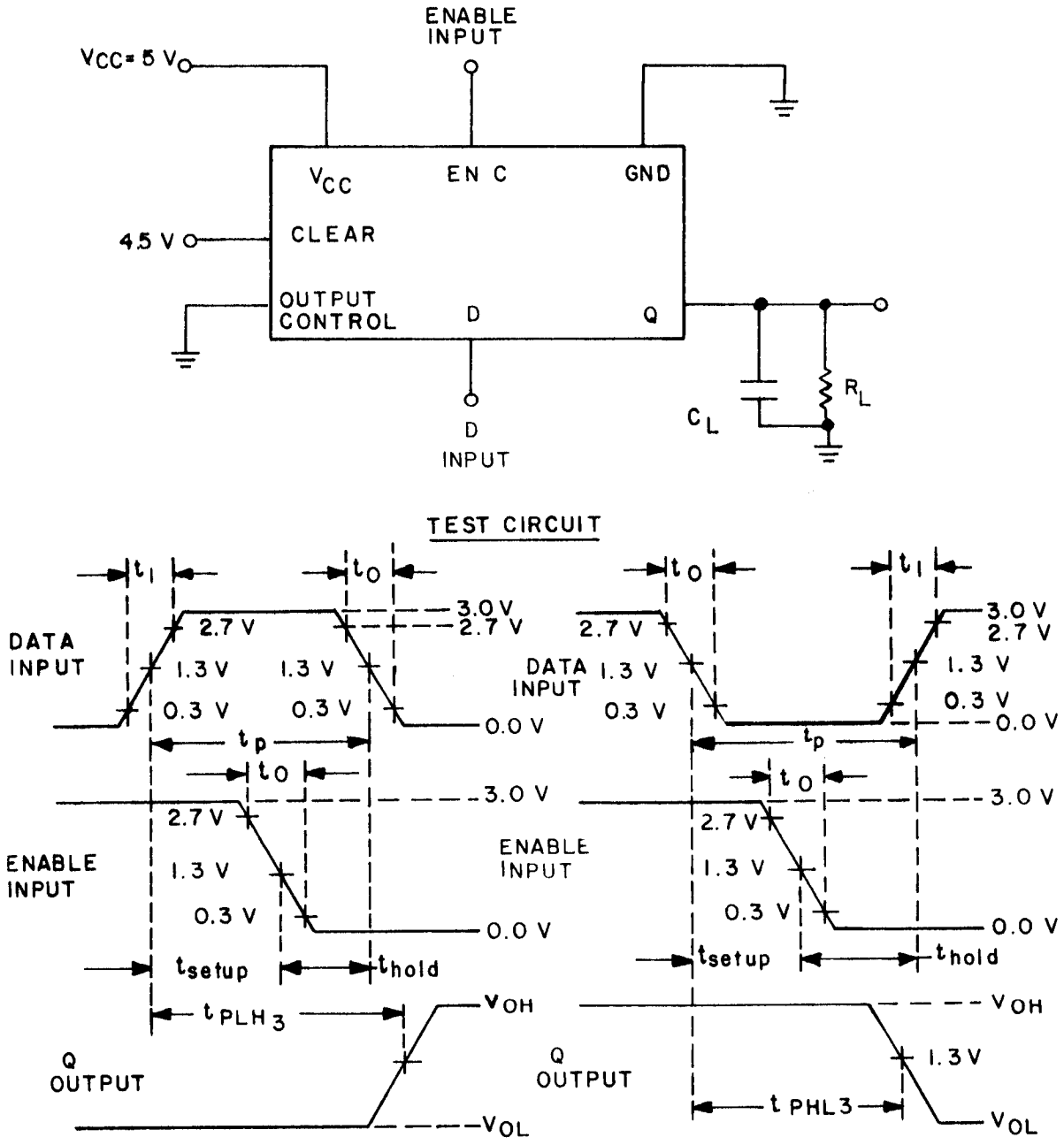
TEST CIRCUIT



VOLTAGE WAVEFORMS

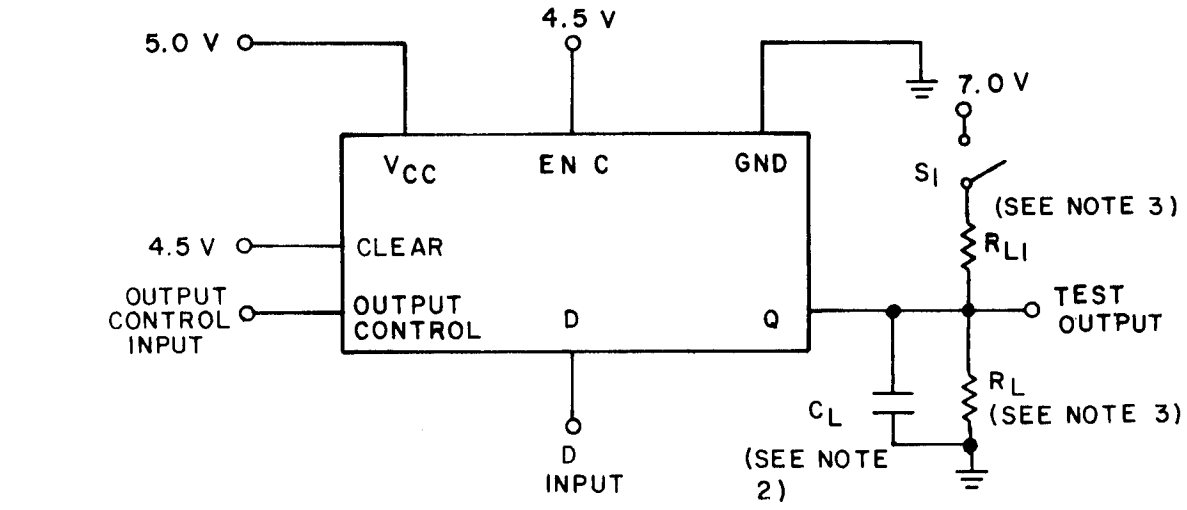
NOTES:
1. Enable input pulse characteristics: $t_1 = t_0 = 6 \pm 1.5$ ns; t_p (enable) = 10 ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. C_L = 50 pF ±10% (including jig and probe capacitance).
3. R_L = 499Ω ±1%.

FIGURE 5. Enable switching test circuit and waveforms (device type 03).

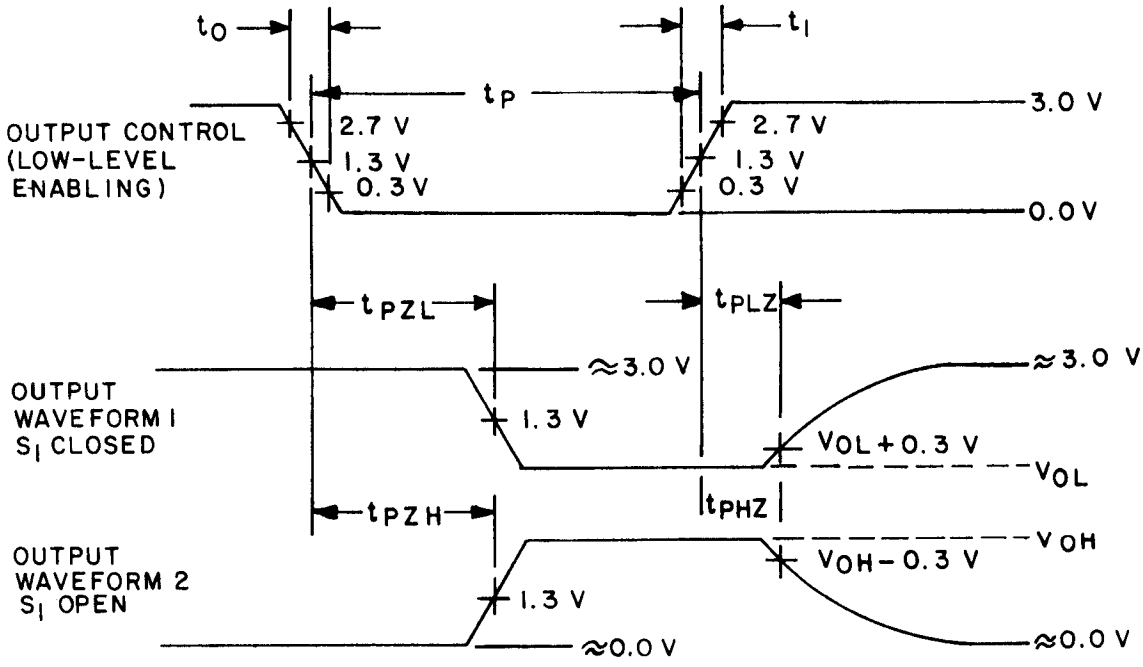


NOTES:
1. Enable input pulse characteristics: t_0 = 6 ±1.5 ns; t_p = 10 ns; PRR ≤ 1 MHz; $Z_{OUT} \cong$ 50Ω.
2. D input pulse characteristics: $t_1 = t_0$ = 6 ±1.5 ns; t_{setup} = 10 ns; t_{hold} = 7 ns; t_p = 17 ns; PRR is 50% of Enable PRR; $Z_{OUT} \cong$ 50Ω.
3. C_L = 50 pF ±10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Data switching test circuit and waveforms (device type 03).



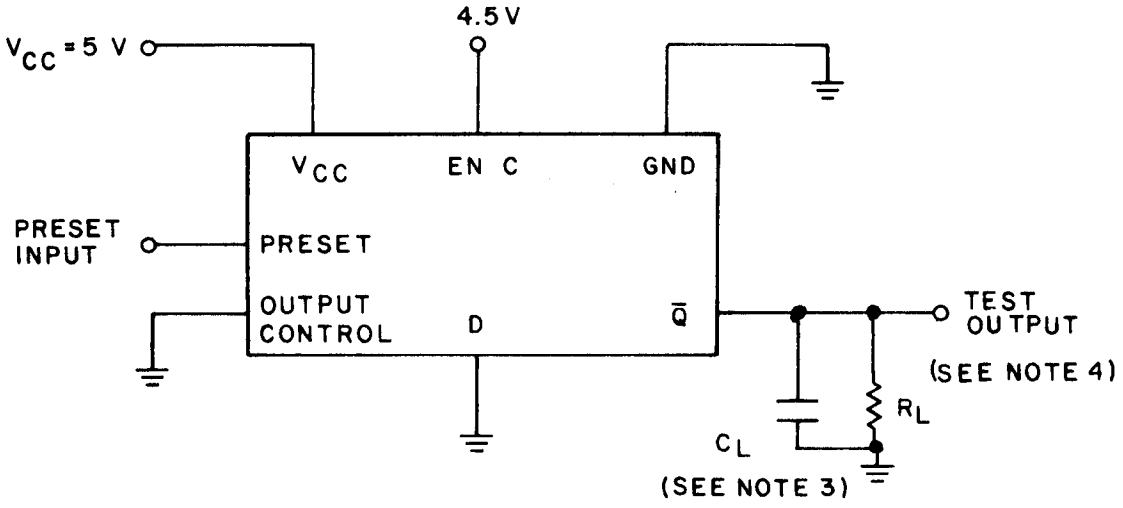
TEST CIRCUIT



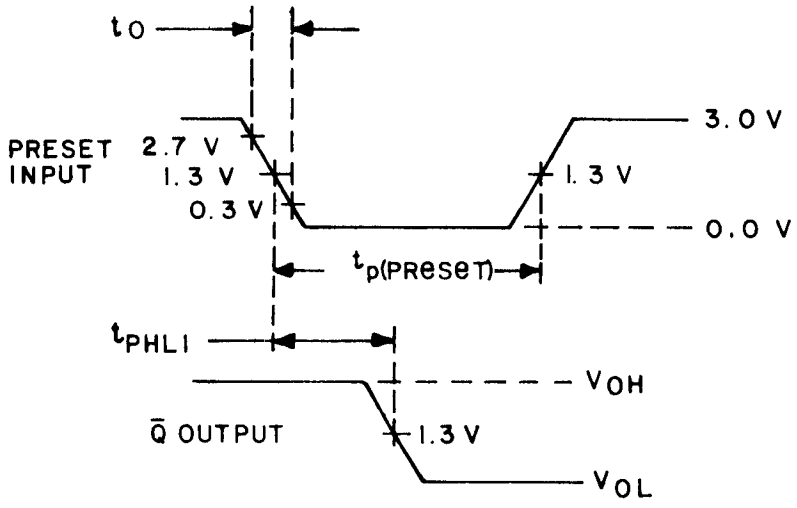
VOLTAGE WAVEFORMS

NOTES:
1. Output control input pulse characteristics: $t_0 = t_1 = 6 \pm 1.5$ ns; $t_p \geq 200$ ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. $C_L = 50$ pF ±10% (including jig and probe capacitance).
3. $R_L = R_{L_1} = 499\Omega$ ±1%.

FIGURE 5. Tri-state switching test circuit and waveforms for device type 03.



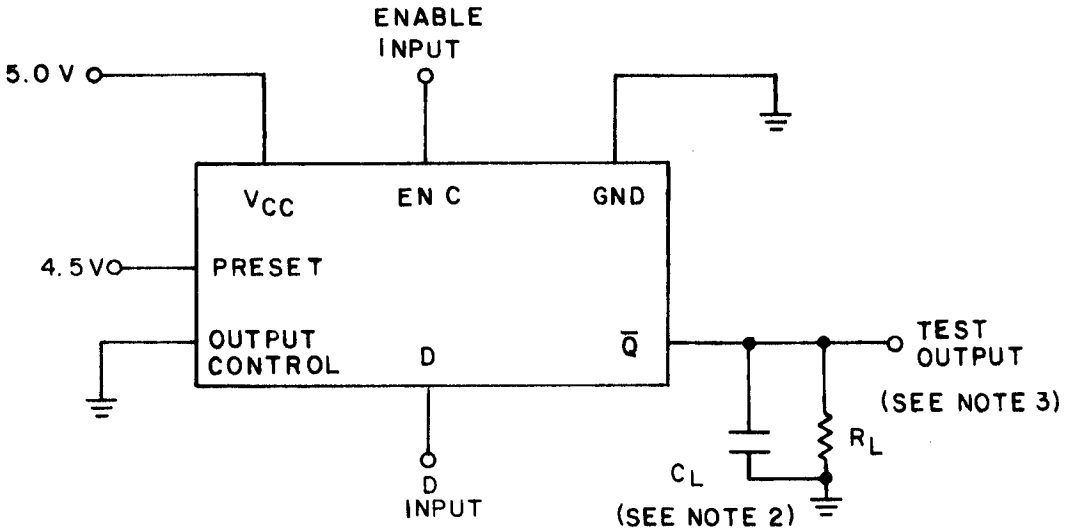
TEST CIRCUIT



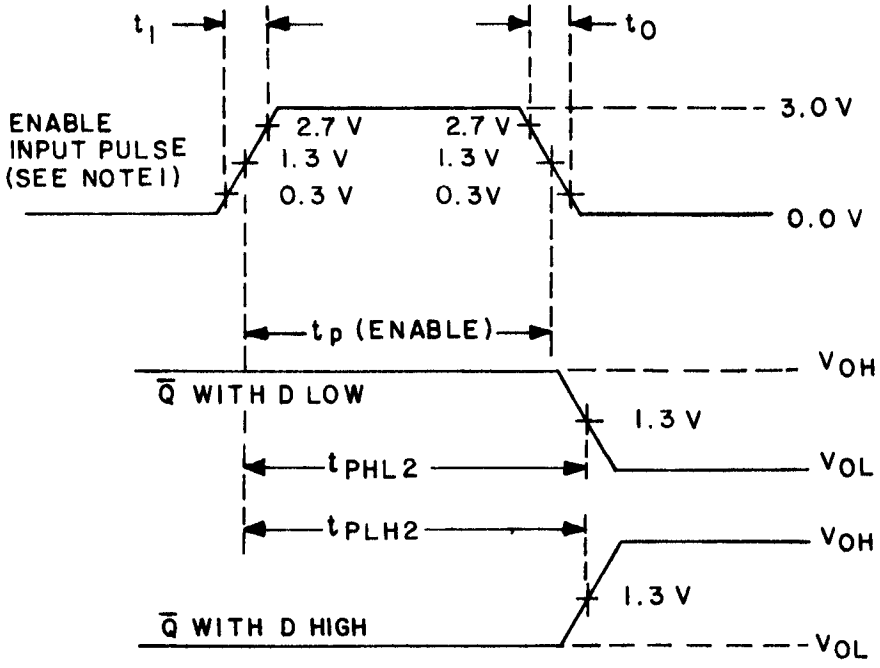
VOLTAGE WAVEFORM

NOTES:
1. Preset input dominates regardless of state of D input.
2. Preset input pulse characteristics: t_0 = 6 ±1.5 ns; t_p (preset) = 15 ns; PRR ≤ 1 MHz; $Z_{OUT} \approx$ 50Ω.
3. C_L = 50 pF ±10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Preset switching test circuit and waveforms for device type 04.



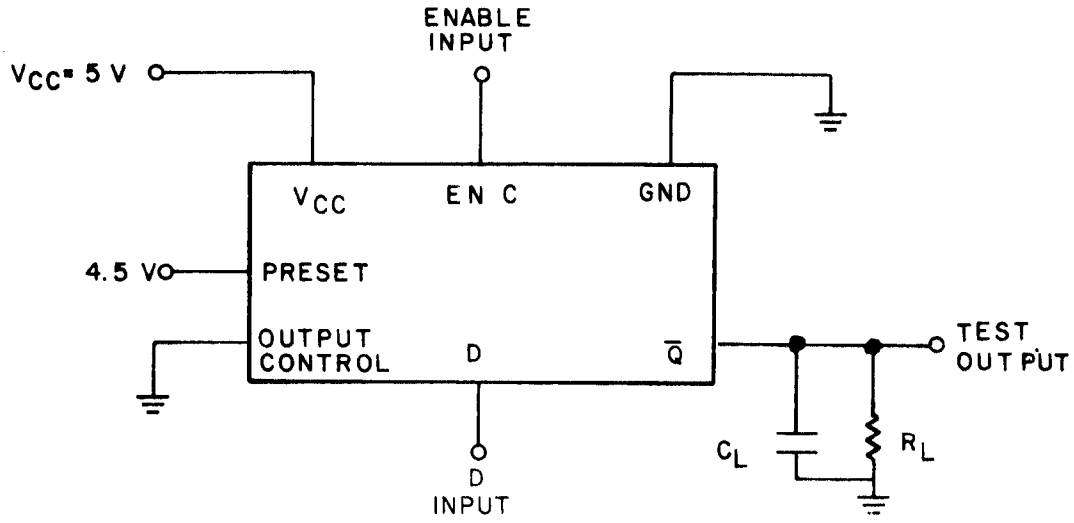
TEST CIRCUIT



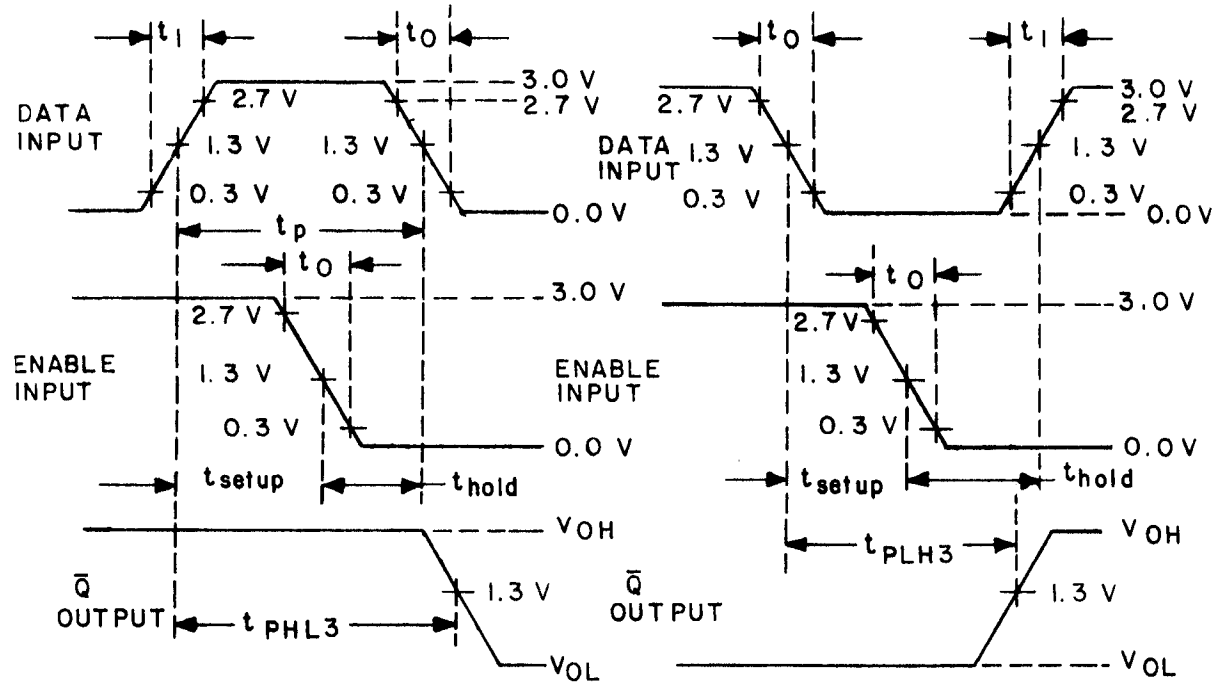
VOLTAGE WAVEFORMS

NOTES:
1. Enable input pulse characteristics: $t_1 = t_0 = 6 \pm 1.5$ ns; t_p (enable) = 15 ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. $C_L = 50$ pF ±10% (including jig and probe capacitance).
3. $R_L = 499\Omega$ ±1%.

FIGURE 5. Enable switching test circuit and waveforms (device type 04).



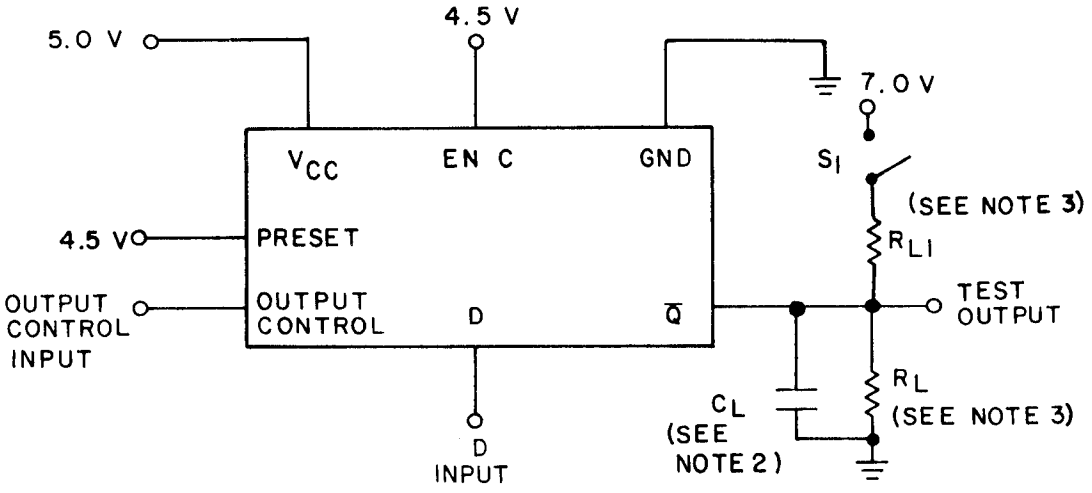
TEST CIRCUIT



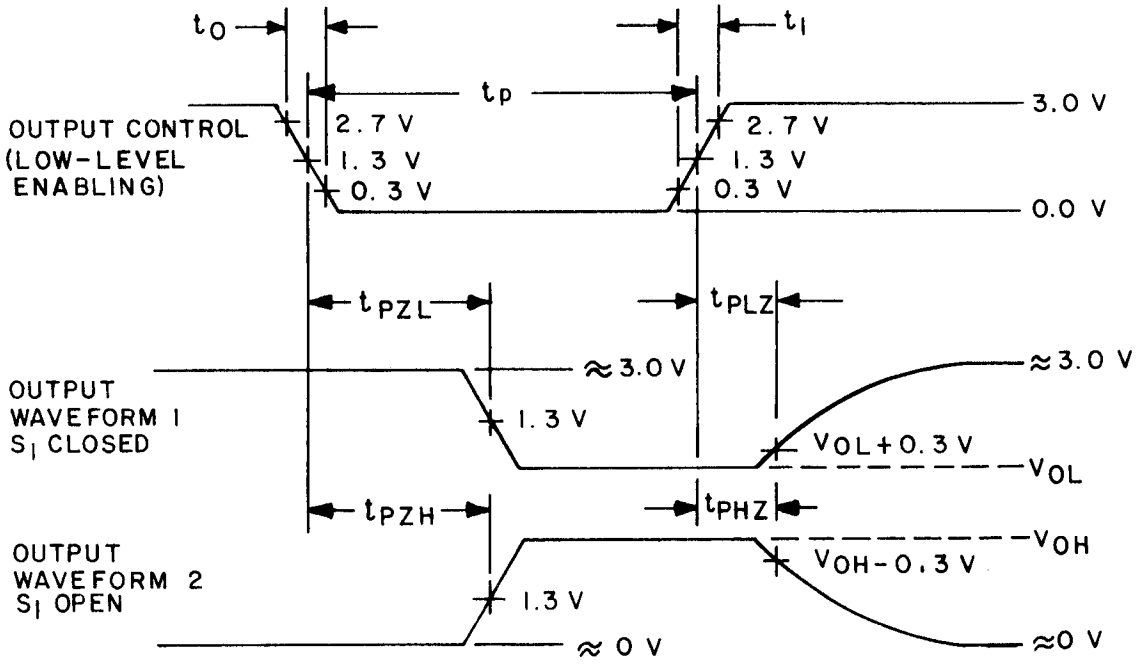
VOLTAGE WAVEFORMS

NOTES:
1. Enable input pulse characteristics: t_0 = 6 ±1.5 ns; t_p = 15 ns; PRR ≤ 1 MHz; Z_{OUT} ≅ 50Ω.
2. D input pulse characteristics: $t_1 = t_0$ = 6 ±1.5 ns; t_{setup} = 10 ns; t_{HOLD} = 10 ns; t_p = 20 ns; PRR is 50% of enable PRR, Z_{OUT} ≅ 50Ω.
3. C_L = 50 pF 10% (including jig and probe capacitance).
4. R_L = 499Ω ±1%.

FIGURE 5. Data switching test circuit and waveforms (device type 04).



TEST CIRCUIT



VOLTAGE WAVEFORMS

NOTES:
1. Output control input pulse characteristics: $t_0 = t_1 = 6 \pm 1.5$ ns; $t_p \geq 200$ ns; PRR $\leq$ 1 MHz; $Z_{OUT} \cong 50\Omega$.
2. $C_L = 50$ pF ±10% (including jig and probe capacitance).
3. $R_L = R_{L_1} = 499\Omega \pm 1\%$.

FIGURE 5. Tri-state switching test circuit and waveforms for device type 04.

TABLE III. Group A inspection for device type 01.
Terminal conditions (pins not designated may be high $\geq$2.0 V, low $\leq$0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 0C	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 8Q	13 7Q	14 6Q	15 5Q	16 4Q	17 3Q	18 2Q	19 1Q	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C=+25°C	V_{OH}	3006	1	0.8 V	2.0 V								GND	2.0 V								-1.0 mA	4.5 V	1Q	2.4		V
	"	"	2	"	"	2.0 V							"	"							-1.0 mA	"	"	2Q	"		"
	"	"	3	"	"		2.0 V						"	"						-1.0 mA		"	"	3Q	"		"
	"	"	4	"	"			2.0 V					"	"					-1.0 mA			"	"	4Q	"		"
	"	"	5	"	"				2.0 V				"	"				-1.0 mA				"	"	5Q	"		"
	"	"	6	"	"					2.0 V			"	"			-1.0 mA					"	"	6Q	"		"
	"	"	7	"	"						2.0 V		"	"		-1.0 mA						"	"	7Q	"		"
	"	"	8	"	"							2.0 V	"	"	-1.0 mA							"	"	8Q	"		"
	V_{OL}	3007	9	"	0.8 V								"	"									"	1Q		0.4	"
	"	"	10	"	"	0.8 V							"	"							12 mA	12 mA	"	2Q		"	"
	"	"	11	"	"		0.8 V						"	"						12 mA			"	3Q		"	"
	"	"	12	"	"			0.8 V					"	"					12 mA				"	4Q		"	"
	"	"	13	"	"				0.8 V				"	"				12 mA					"	5Q		"	"
	"	"	14	"	"					0.8 V			"	"			12 mA						"	6Q		"	"
	"	"	15	"	"						0.8 V		"	"		12 mA							"	7Q		"	"
	"	"	16	"	"							0.8 V	"	"	12 mA								"	8Q		"	"
	V_{IC}		17	-18 mA									"										"	0C		-1.5	"
			18		-18 mA								"										"	1D		"	"
			19			-18 mA							"										"	2D		"	"
			20				-18 mA						"										"	3D		"	"
			21					-18 mA					"										"	4D		"	"
			22						-18 mA				"										"	5D		"	"
			23							-18 mA			"										"	6D		"	"
			24								-18 mA		"										"	7D		"	"
			25									-18 mA	"										"	8D		"	"
			26										"	-18 mA									"	ENC		"	"
	I_{IL}	3009	27	0.4 V									"										5.5 V	0C	1/	1/	µA
	"	"	28		0.4 V								"										"	1D	"	"	"
	"	"	29			0.4 V							"										"	2D	"	"	"
	"	"	30				0.4 V						"										"	3D	"	"	"
	"	"	31					0.4 V					"										"	4D	"	"	"
	"	"	32						0.4 V				"										"	5D	"	"	"
	"	"	33							0.4 V			"										"	6D	"	"	"
	"	"	34								0.4 V		"										"	7D	"	"	"
	"	"	35									0.4 V	"										"	8D	"	"	"
	"	"	36										"	0.4 V									"	ENC	"	"	"
	I_{IH1}	3010	37	2.7 V									"										"	0C		20	"
	"	"	38		2.7 V								"										"	1D		"	"
	"	"	39			2.7 V							"										"	2D		"	"
	"	"	40				2.7 V						"										"	3D		"	"
	"	"	41					2.7 V					"										"	4D		"	"
	"	"	42						2.7 V				"										"	5D		"	"
	"	"	43							2.7 V			"										"	6D		"	"
	"	"	44								2.7 V		"										"	7D		"	"
	"	"	45									2.7 V	"										"	8D		"	"
	"	"	46										"	2.7 V									"	ENC		"	"
	I_{IH2}	"	47	7.0 V									"										"	0C		100	"
	"	"	48		7.0 V								"										"	1D		"	"
	"	"	49			7.0 V							"										"	2D		"	"
	"	"	50				7.0 V						"										"	3D		"	"
	"	"	51					7.0 V					"										"	4D		"	"
	"	"	52						7.0 V				"										"	5D		"	"
	"	"	53							7.0 V			"										"	6D		"	"
	"	"	54								7.0 V		"										"	7D		"	"
	"	"	55									7.0 V	"										"	8D		"	"
	"	"	56										"	7.0 V									"	ENC		"	"

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 0C	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 8Q	13 7Q	14 6Q	15 5Q	16 4Q	17 3Q	18 2Q	19 1Q	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C=+25°C	I_O	3011	57	GND	5.0 V								GND	5.0 V								2.25 V	5.5 V	1Q	3/ -15	-70	mA
		2/	58	"		5.0 V							"	"							2.25 V		"	2Q	"	"	"
		"	59	"			5.0 V						"	"						2.25 V			"	3Q	"	"	"
		"	60	"				5.0 V					"	"					2.25 V				"	4Q	"	"	"
		"	61	"					5.0 V				"	"				2.25 V					"	5Q	"	"	"
		"	62	"						5.0 V			"	"			2.25 V						"	6Q	"	"	"
		"	63	"							5.0 V		"	"		2.25 V							"	7Q	"	"	"
		"	64	"								5.0 V	"	"	2.25 V								"	8Q	"	"	"
	I_{OZH}		65	5.0 V	2.0 V								"	"								2.7 V	"	1Q		20	µA
			66	"		2.0 V							"	"							2.7 V		"	2Q		"	"
			67	"			2.0 V						"	"						2.7 V			"	3Q		"	"
			68	"				2.0 V					"	"					2.7 V				"	4Q		"	"
			69	"					2.0 V				"	"				2.7 V					"	5Q		"	"
			70	"						2.0 V			"	"			2.7 V						"	6Q		"	"
			71	"							2.0 V		"	"		2.7 V							"	7Q		"	"
			72	"								2.0 V	"	"	2.7 V								"	8Q		"	"
	I_{OZL}		73	5.0 V	0.8 V								"	"								0.4 V	"	1Q		-20	"
			74	"		0.8 V							"	"							0.4 V		"	2Q		"	"
			75	"			0.8 V						"	"						0.4 V			"	3Q		"	"
			76	"				0.8 V					"	"					0.4 V				"	4Q		"	"
			77	"					0.8 V				"	"				0.4 V					"	5Q		"	"
			78	"						0.8 V			"	"			0.4 V						"	6Q		"	"
			79	"							0.8 V		"	"		0.4 V							"	7Q		"	"
			80	"								0.8 V	"	"	0.4 V								"	8Q		"	"
	I_{CCH}	3005	81	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	"									"	V_{CC}		19	mA
	I_{CCL}	"	82	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	"									"	V_{CC}		24	"
	I_{CCZ}	"	83	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	"	"									"	V_{CC}		27	"
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C and V_{IC} tests are omitted.																										
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C and V_{IC} tests are omitted.																										
7 4/ T_C=+25°C	Truth table tests	3014	84	B	B	B	B	B	B	B	B	B	GND	A	L	L	L	L	L	L	L	L	5.0 V	All outputs	5/	5/	
		"	85	"	A	A	A	A	A	A	A	A	"	"	H	H	H	H	H	H	H	H	"	"	"	"	
		"	86	"	B	B	B	B	B	B	B	B	"	B	L	L	L	L	L	L	L	L	"	"	"	"	
		"	87	"	B	B	B	B	B	B	B	B	"	B	H	H	H	H	H	H	H	H	"	"	"	"	
		"	88	"	A	A	A	A	A	A	A	A	"	B	L	L	L	L	L	L	L	L	"	"	"	"	
		"	89	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	"	"	"	"	
		"	90	"	"	"	"	"	"	"	"	"	"	B	L	L	L	L	L	L	L	L	"	"	"	"	
		"	91	"	B	B	B	B	B	B	B	B	"	B	H	H	H	H	H	H	H	H	"	"	"	"	
		"	92	"	B	B	B	B	B	B	B	B	"	A	L	L	L	L	L	L	L	L	"	"	"	"	
8	Same tests, terminal conditions, and limits as for subgroup 7, except T_C = +125°C and -55°C.																										
9 T_C=+25°C	t_{PLH2}	3003 Fig. 5	93	GND	4.5 V								"	IN									5.0 V	ENC to 1Q	8	20	ns
		"	94	"		4.5 V							"	"									"	ENC to 2Q	"	"	"
		"	95	"			4.5 V						"	"									"	ENC to 3Q	"	"	"
		"	96	"				4.5 V					"	"									"	ENC to 4Q	"	"	"
		"	97	"					4.5 V				"	"									"	ENC to 5Q	"	"	"
		"	98	"						4.5 V			"	"									"	ENC to 6Q	"	"	"
		"	99	"							4.5 V		"	"									"	ENC to 7Q	"	"	"
		"	100	"								4.5 V	"	"	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	"	ENC to 8Q	"	"	"

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 OC	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 8Q	13 7Q	14 6Q	15 5Q	16 4Q	17 3Q	18 2Q	19 1Q	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
5 T_C=+25°C	t_{PHL2}	3003 Fig. 5	101 102 103 104 105 106 107 108	GND " " " " " " "	GND	GND	GND	GND	GND	GND	GND	GND	GND " " " " " " "	IN " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5.0 V " " " " " " "	ENC to 1Q ENC to 2Q ENC to 3Q ENC to 4Q ENC to 5Q ENC to 6Q ENC to 7Q ENC to 8Q	6 " " " " " " "	19 " " " " " " "	ns " " " " " " "
	t_{PLH3}	" " " " " " " "	109 110 111 112 113 114 115 116	" " " " " " " "	IN	IN	IN	IN	IN	IN	IN	IN	" " " " " " " "	" " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q 5D to 5Q 6D to 6Q 7D to 7Q 8D to 8Q	2 " " " " " " "	14 " " " " " " "	" " " " " " " "
	t_{PHL3}	" " " " " " " "	117 118 119 120 121 122 123 124	" " " " " " " "	IN	IN	IN	IN	IN	IN	IN	IN	" " " " " " " "	" " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	1D to 1Q 2D to 2Q 3D to 3Q 4D to 4Q 5D to 5Q 6D to 6Q 7D to 7Q 8D to 8Q	" " " " " " " "	" " " " " " " "	" " " " " " " "
	t_{PZH}	" " " " " " " "	125 126 127 128 129 130 131 132	IN " " " " " " "	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	" " " " " " " "	4.5 V " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	$\overline{OC}$ to 1Q $\overline{OC}$ to 2Q $\overline{OC}$ to 3Q $\overline{OC}$ to 4Q $\overline{OC}$ to 5Q $\overline{OC}$ to 6Q $\overline{OC}$ to 7Q $\overline{OC}$ to 8Q	4 " " " " " " "	18 " " " " " " "	" " " " " " " "
	t_{PZL}	" " " " " " " "	133 134 135 136 137 138 139 140	" " " " " " " "	GND	GND	GND	GND	GND	GND	GND	GND	" " " " " " " "	" " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	$\overline{OC}$ to 1Q $\overline{OC}$ to 2Q $\overline{OC}$ to 3Q $\overline{OC}$ to 4Q $\overline{OC}$ to 5Q $\overline{OC}$ to 6Q $\overline{OC}$ to 7Q $\overline{OC}$ to 8Q	" " " " " " " "	" " " " " " " "	" " " " " " " "
	t_{PHZ}	" " " " " " " "	141 142 143 144 145 146 147 148	" " " " " " " "	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	" " " " " " " "	" " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	$\overline{OC}$ to 1Q $\overline{OC}$ to 2Q $\overline{OC}$ to 3Q $\overline{OC}$ to 4Q $\overline{OC}$ to 5Q $\overline{OC}$ to 6Q $\overline{OC}$ to 7Q $\overline{OC}$ to 8Q	2 " " " " " " "	10 " " " " " " "	" " " " " " " "
	t_{PLZ}	" " " " " " " "	149 150 151 152 153 154 155 156	" " " " " " " "	GND	GND	GND	GND	GND	GND	GND	GND	" " " " " " " "	" " " " " " " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	" " " " " " " "	$\overline{OC}$ to 1Q $\overline{OC}$ to 2Q $\overline{OC}$ to 3Q $\overline{OC}$ to 4Q $\overline{OC}$ to 5Q $\overline{OC}$ to 6Q $\overline{OC}$ to 7Q $\overline{OC}$ to 8Q	2 " " " " " " "	15 " " " " " " "	" " " " " " " "

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 0C	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 8Q	13 7Q	14 6Q	15 5Q	16 4Q	17 3Q	18 2Q	19 1Q	20 V_{CC}	Measured terminal	Test Limits Min	Test Limits Max	Unit
10 T_C=+125°C	t_{PLH2}																								8	27	ns
	t_{PHL2}																								4	20	"
	t_{PLH3}																								2	15	"
	t_{PHL3}																								2	15	"
	t_{PZH}																								4	21	"
	t_{PZL}																								4	21	"
	t_{PHZ}																								2	12	"
	t_{PLZ}																								2	18	"
11 T_C=-55°C	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																										

Same tests and terminal conditions as for subgroup 9, except T_C = +125°C.

1/ I_{IL} limits shall be as follows:

Test	Limits in µA for circuit A	B	C
I_{IL}	0/-200	0/-100	0/-200

2/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short-circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short-circuit output current I_{OS}.

3/ I_O limits shall be as follows:

Test	Limits in mA for circuit A	B	C
I_O	-30/-112	-15/-110	-70/-110

4/ Tests shall be performed in sequence, attributes data only.

5/ Outputs shall be high ≥1.5 V, low ≤1.5 V.

TABLE III. Group A inspection for device type 02.
Terminal conditions (pins not designated may be high $\geq$2.0 V, low $\leq$0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 $\overline{OC}$	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 $8\overline{Q}$	13 $7\overline{Q}$	14 $6\overline{Q}$	15 $5\overline{Q}$	16 $4\overline{Q}$	17 $3\overline{Q}$	18 $2\overline{Q}$	19 $1\overline{Q}$	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C=+25°C	V_{OH}	3006	1	0.8 V	0.8 V								GND	2.0 V									4.5 V	$1\overline{Q}$	2.4		V
		"	2	"		0.8 V							"	"									"	$2\overline{Q}$	"		"
		"	3	"			0.8 V						"	"									"	$3\overline{Q}$	"		"
		"	4	"				0.8 V					"	"					-1.0 mA				"	$4\overline{Q}$	"		"
		"	5	"					0.8 V				"	"				-1.0 mA					"	$5\overline{Q}$	"		"
		"	6	"						0.8 V			"	"			-1.0 mA						"	$6\overline{Q}$	"		"
		"	7	"							0.8 V		"	"		-1.0 mA				-1.0 mA			"	$7\overline{Q}$	"		"
		"	8	"								0.8 V	"	"	-1.0 mA						-1.0 mA		"	$8\overline{Q}$	"		"
	V_{OL}	3007	9	"	2.0 V								"	"								12 mA	"	$1\overline{Q}$		0.4	"
		"	10	"		2.0 V							"	"							12 mA		"	$2\overline{Q}$		"	"
		"	11	"			2.0 V						"	"						12 mA			"	$3\overline{Q}$		"	"
		"	12	"				2.0 V					"	"					12 mA				"	$4\overline{Q}$		"	"
		"	13	"					2.0 V				"	"				12 mA					"	$5\overline{Q}$		"	"
		"	14	"						2.0 V			"	"			12 mA						"	$6\overline{Q}$		"	"
		"	15	"							2.0 V		"	"		12 mA							"	$7\overline{Q}$		"	"
		"	16	"								2.0 V	"	"	12 mA								"	$8\overline{Q}$		"	"
	V_{IC}		17	-18 mA									"										"	$\overline{OC}$		-1.5	"
			18		-18 mA								"										"	1D		"	"
			19			-18 mA							"										"	2D		"	"
			20				-18 mA						"										"	3D		"	"
			21					-18 mA					"										"	4D		"	"
			22						-18 mA				"										"	5D		"	"
			23							-18 mA			"										"	6D		"	"
			24								-18 mA		"										"	7D		"	"
			25									-18 mA	"										"	8D		"	"
			26										"	-18 mA									"	ENC		"	"
	I_{IL}	3009	27	0.4 V									"										5.5 V	$\overline{OC}$	1/	1/	µA
		"	28		0.4 V								"										"	1D	"	"	"
		"	29			0.4 V							"										"	2D	"	"	"
		"	30				0.4 V						"										"	3D	"	"	"
		"	31					0.4 V					"										"	4D	"	"	"
		"	32						0.4 V				"										"	5D	"	"	"
		"	33							0.4 V			"										"	6D	"	"	"
		"	34								0.4 V		"										"	7D	"	"	"
		"	35									0.4 V	"										"	8D	"	"	"
		"	36										"	0.4 V									"	ENC	"	"	"
	I_{IH1}	3010	37	2.7 V									"										"	$\overline{OC}$		20	"
		"	38		2.7 V								"										"	1D		"	"
		"	39			2.7 V							"										"	2D		"	"
		"	40				2.7 V						"										"	3D		"	"
		"	41					2.7 V					"										"	4D		"	"
		"	42						2.7 V				"										"	5D		"	"
		"	43							2.7 V			"										"	6D		"	"
		"	44								2.7 V		"										"	7D		"	"
		"	45									2.7 V	"										"	8D		"	"
		"	46										"	2.7 V									"	ENC		"	"
	I_{IH2}	"	47	7.0 V									"										"	$\overline{OC}$		100	"
		"	48		7.0 V								"										"	1D		"	"
		"	49			7.0 V							"										"	2D		"	"
		"	50				7.0 V						"										"	3D		"	"
		"	51					7.0 V					"										"	4D		"	"
		"	52						7.0 V				"										"	5D		"	"
		"	53							7.0 V			"										"	6D		"	"
		"	54								7.0 V		"										"	7D		"	"
		"	55									7.0 V	"										"	8D		"	"
		"	56										"	7.0 V									"	ENC		"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 $\overline{OC}$	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 $8\overline{Q}$	13 $7\overline{Q}$	14 $6\overline{Q}$	15 $5\overline{Q}$	16 $4\overline{Q}$	17 $3\overline{Q}$	18 $2\overline{Q}$	19 $1\overline{Q}$	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C=+25°C	I_O 2/	3011	57	GND	GND								GND	5.0 V								2.25 V	5.5 V	$1\overline{Q}$	3/ -15	3/ -70	mA
		"	58	"		GND							"	"							2.25 V		"	$2\overline{Q}$	"	"	"
		"	59	"			GND						"	"						2.25 V			"	$3\overline{Q}$	"	"	"
		"	60	"				GND					"	"				2.25 V					"	$4\overline{Q}$	"	"	"
		"	61	"					GND				"	"					2.25 V				"	$5\overline{Q}$	"	"	"
		"	62	"						GND			"	"			2.25 V						"	$6\overline{Q}$	"	"	"
		"	63	"							GND		"	"		2.25 V							"	$7\overline{Q}$	"	"	"
		"	64	"								GND	"	"	2.25 V								"	$8\overline{Q}$	"	"	"
	I_{OZH}		65	5.0 V	0.8 V								"	"								2.7 V	"	$1\overline{Q}$		20	µA
			66	"		0.8 V							"	"							2.7 V		"	$2\overline{Q}$		"	"
			67	"			0.8 V						"	"						2.7 V			"	$3\overline{Q}$		"	"
			68	"				0.8 V					"	"					2.7 V				"	$4\overline{Q}$		"	"
			69	"					0.8 V				"	"				2.7 V					"	$5\overline{Q}$		"	"
			70	"						0.8 V			"	"			2.7 V						"	$6\overline{Q}$		"	"
			71	"							0.8 V		"	"		2.7 V							"	$7\overline{Q}$		"	"
			72	"								0.8 V	"	"	2.7 V								"	$8\overline{Q}$		"	"
	I_{OZL}		73	"	2.0 V								"	"								0.4 V	"	$1\overline{Q}$		-20	"
			74	"		2.0 V							"	"							0.4 V		"	$2\overline{Q}$		"	"
			75	"			2.0 V						"	"						0.4 V			"	$3\overline{Q}$		"	"
			76	"				2.0 V					"	"					0.4 V				"	$4\overline{Q}$		"	"
			77	"					2.0 V				"	"				0.4 V					"	$5\overline{Q}$		"	"
			78	"						2.0 V			"	"			0.4 V						"	$6\overline{Q}$		"	"
			79	"							2.0 V		"	"		0.4 V							"	$7\overline{Q}$		"	"
			80	"								2.0 V	"	"	0.4 V								"	$8\overline{Q}$		"	"
	I_{CCH}	3005	81	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	"									"	V_{CC}		17	mA
	I_{CCL}	"	82	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	"									"	V_{CC}		24	"
	I_{CCZ}	"	83	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	"									"	V_{CC}		27	mA
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C and V_{IC} tests are omitted.																										
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C and V_{IC} tests are omitted.																										
7 4/ T_C=+25°C	Truth table tests	3014	84	3	A	A	A	A	A	A	A	A	GND	A	L	L	L	L	L	L	L	L	5.0 V	All outputs	5/	5/	
		"	85	"	3	A	B	B	B	B	B	B	"	"	H	L	H	L	H	L	H	L	"	"	"	"	
		"	86	"	A	A	A	A	A	A	A	A	"	"	L	L	L	L	L	L	L	L	"	"	"	"	
		"	87	"	A	A	A	A	A	A	A	A	"	B	"	"	"	"	"	"	"	"	"	"	"	"	
		"	88	"	B	B	3	3	B	3	B	B	"	B	"	"	"	"	"	"	"	"	"	"	"	"	
		"	89	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	"	"	"	"	
		"	90	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"	"	"	
		"	91	"	A	A	A	A	A	A	A	A	"	3	"	"	"	"	"	"	"	"	"	"	"	"	
		"	92	"	A	A	A	A	A	A	A	A	"	A	L	L	L	L	L	L	L	L	"	"	"	"	
8	Same tests, terminal conditions, and limits as for subgroup 7, except T_C = +125°C and -55°C.																										
9 T_C=+25°C	t_{PLH2}	3003 Fig. 5	93	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	IN								OUT	5.0 V	ENC to $1\overline{Q}$	8	22	ns
		"	94	"									"	"							OUT		"	ENC to $2\overline{Q}$	"	"	"
		"	95	"									"	"						OUT			"	ENC to $3\overline{Q}$	"	"	"
		"	96	"									"	"					OUT				"	ENC to $4\overline{Q}$	"	"	"
		"	97	"									"	"				OUT					"	ENC to $5\overline{Q}$	"	"	"
		"	98	"									"	"			OUT						"	ENC to $6\overline{Q}$	"	"	"
		"	99	"									"	"		OUT							"	ENC to $7\overline{Q}$	"	"	"
		"	100	"									"	"	OUT								"	ENC to $8\overline{Q}$	"	"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 $\overline{OC}$	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 $8\overline{Q}$	13 $7\overline{Q}$	14 $6\overline{Q}$	15 $5\overline{Q}$	16 $4\overline{Q}$	17 $3\overline{Q}$	18 $2\overline{Q}$	19 $1\overline{Q}$	20 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
T_C=+25°C	t_{PHL2}	3003 Fig. 5	101	GND	4.5 V								GND	IN									5.0 V	ENC to $1\overline{Q}$	8	21	ns
			102	"		4.5 V							"	"							OUT		"	ENC to $2\overline{Q}$	"	"	"
			103	"			4.5 V						"	"						OUT		OUT	"	ENC to $3\overline{Q}$	"	"	"
			104	"				4.5 V					"	"					OUT				"	ENC to $4\overline{Q}$	"	"	"
			105	"					4.5 V				"	"				OUT					"	ENC to $5\overline{Q}$	"	"	"
			106	"						4.5 V			"	"			OUT						"	ENC to $6\overline{Q}$	"	"	"
			107	"							4.5 V		"	"		OUT							"	ENC to $7\overline{Q}$	"	"	"
			108	"								4.5 V	"	"	OUT								"	ENC to $8\overline{Q}$	"	"	"
	t_{PLH3}	"	109	"	IN								"	"									"	1D to $1\overline{Q}$	3	18	"
		"	110	"		IN							"	"							OUT	OUT	"	2D to $2\overline{Q}$	"	"	"
		"	111	"			IN						"	"						OUT			"	3D to $3\overline{Q}$	"	"	"
		"	112	"				IN					"	"					OUT				"	4D to $4\overline{Q}$	"	"	"
		"	113	"					IN				"	"				OUT					"	5D to $5\overline{Q}$	"	"	"
		"	114	"						IN			"	"			OUT						"	6D to $6\overline{Q}$	"	"	"
		"	115	"							IN		"	"		OUT							"	7D to $7\overline{Q}$	"	"	"
		"	116	"								IN	"	"	OUT								"	8D to $8\overline{Q}$	"	"	"
	t_{PHL3}	"	117	"	IN								"	"									"	1D to $1\overline{Q}$	"	12	"
		"	118	"		IN							"	"							OUT	OUT	"	2D to $2\overline{Q}$	"	"	"
		"	119	"			IN						"	"						OUT			"	3D to $3\overline{Q}$	"	"	"
		"	120	"				IN					"	"					OUT				"	4D to $4\overline{Q}$	"	"	"
		"	121	"					IN				"	"				OUT					"	5D to $5\overline{Q}$	"	"	"
		"	122	"						IN			"	"			OUT						"	6D to $6\overline{Q}$	"	"	"
		"	123	"							IN		"	"		OUT							"	7D to $7\overline{Q}$	"	"	"
		"	124	"								IN	"	"	OUT								"	8D to $8\overline{Q}$	"	"	"
	t_{PZH}	"	125	IN	GND								"	4.5 V									"	$\overline{OC}$ to $1\overline{Q}$	4	18	"
		"	126	"		GND							"	"							OUT	OUT	"	$\overline{OC}$ to $2\overline{Q}$	"	"	"
		"	127	"			GND						"	"						OUT			"	$\overline{OC}$ to $3\overline{Q}$	"	"	"
		"	128	"				GND					"	"					OUT				"	$\overline{OC}$ to $4\overline{Q}$	"	"	"
		"	129	"					GND				"	"				OUT					"	$\overline{OC}$ to $5\overline{Q}$	"	"	"
		"	130	"						GND			"	"			OUT						"	$\overline{OC}$ to $6\overline{Q}$	"	"	"
		"	131	"							GND		"	"		OUT							"	$\overline{OC}$ to $7\overline{Q}$	"	"	"
		"	132	"								GND	"	"	OUT								"	$\overline{OC}$ to $8\overline{Q}$	"	"	"
	t_{PZL}	"	133	"	4.5 V								"	"									"	$\overline{OC}$ to $1\overline{Q}$	"	"	"
		"	134	"		4.5 V							"	"							OUT	OUT	"	$\overline{OC}$ to $2\overline{Q}$	"	"	"
		"	135	"			4.5 V						"	"						OUT			"	$\overline{OC}$ to $3\overline{Q}$	"	"	"
		"	136	"				4.5 V					"	"					OUT				"	$\overline{OC}$ to $4\overline{Q}$	"	"	"
		"	137	"					4.5 V				"	"				OUT					"	$\overline{OC}$ to $5\overline{Q}$	"	"	"
		"	138	"						4.5 V			"	"			OUT						"	$\overline{OC}$ to $6\overline{Q}$	"	"	"
		"	139	"							4.5 V		"	"		OUT							"	$\overline{OC}$ to $7\overline{Q}$	"	"	"
		"	140	"								4.5 V	"	"	OUT								"	$\overline{OC}$ to $8\overline{Q}$	"	"	"
	t_{PHZ}	"	141	"	GND								"	"									"	$\overline{OC}$ to $1\overline{Q}$	2	18	"
		"	142	"		GND							"	"							OUT	OUT	"	$\overline{OC}$ to $2\overline{Q}$	"	"	"
		"	143	"			GND						"	"						OUT			"	$\overline{OC}$ to $3\overline{Q}$	"	"	"
		"	144	"				GND					"	"					OUT				"	$\overline{OC}$ to $4\overline{Q}$	"	"	"
		"	145	"					GND				"	"				OUT					"	$\overline{OC}$ to $5\overline{Q}$	"	"	"
		"	146	"						GND			"	"			OUT						"	$\overline{OC}$ to $6\overline{Q}$	"	"	"
		"	147	"							GND		"	"		OUT							"	$\overline{OC}$ to $7\overline{Q}$	"	"	"
		"	148	"								GND	"	"	OUT								"	$\overline{OC}$ to $8\overline{Q}$	"	"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,2 Test no.	1 $\overline{0C}$	2 1D	3 2D	4 3D	5 4D	6 5D	7 6D	8 7D	9 8D	10 GND	11 ENC	12 $8\overline{Q}$	13 $7\overline{Q}$	14 $6\overline{Q}$	15 $5\overline{Q}$	16 $4\overline{Q}$	17 $3\overline{Q}$	18 $2\overline{Q}$	19 $1\overline{Q}$	20 V_{CC}	Measured terminal	Test limits Min	Max	Unit
9 T_C=+25°C	t_{PLZ}	3003 Fig. 5	149	IN	4.5 V								GND	4.5 V								OUT	5.0 V	0C to 1Q	3	13	ns
		"	150	"		4.5 V							"	"							OUT		"	0C to 2Q	"	"	"
		"	151	"			4.5 V						"	"						OUT			"	0C to 3Q	"	"	"
		"	152	"				4.5 V					"	"					OUT				"	0C to 4Q	"	"	"
		"	153	"					4.5 V				"	"				OUT					"	0C to 5Q	"	"	"
		"	154	"						4.5 V			"	"			OUT						"	0C to 6Q	"	"	"
		"	155	"							4.5 V		"	"		OUT							"	0C to 7Q	"	"	"
		"	156	"								4.5 V	"	"	OUT								"	0C to 8Q	"	"	"
10 T_C=+125°C	t_{PLH2}	Same tests and terminal conditions as for subgroup 9, except T_C = +125°C.																							8	29	"
	t_{PHL2}																								8	22	"
	t_{PLH3}																								3	21	"
	t_{PHL3}																								3	15	"
	t_{PZH}																								4	21	"
	t_{PZL}																								4	21	"
	t_{PHZ}																								2	10	"
	t_{PLZ}																								3	15	"
11 T_C=-55°C	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																										

1/ I_{IL} limits shall be as follows:

Test	Limits in µA for circuit A	B	C
I_{IL}	0/-100	0/-100	0/-200

2/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short-circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short-circuit output current I_{OS}.

3/ I_D limits for circuit C shall be -70 to -110 mA

4/ Tests shall be performed in sequence, attributes data only.

5/ Outputs shall be high ≥1.5 V, low ≤1.5 V.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits		Unit
			Cases K,L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	1$\overline{CLR}$	1$\overline{OC}$	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2$\overline{OC}$	GND	2CLR	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}				
1 T_C = +25°C	V_{OH}	3006	1	2.0 V	0.8 V	2.0 V									GND	2.0 V	2.0 V							-1.0 mA	-1.0 mA	2.0 V	4.5 V	1Q1	2.4		V
			2	"	"		2.0 V								"	"	"						-1.0 mA			"	"	1Q2	"		"
			3	"	"			2.0 V							"	"	"					-1.0 mA				"	"	1Q3	"		"
			4	"	"				2.0 V						"	"	"				-1.0 mA					"	"	1Q4	"		"
			5							2.0 V				0.8 V	"	"	"			-1.0 mA						"	"	2Q1	"		"
			6								2.0 V			"	"	"	"		-1.0 mA							"	"	2Q2	"		"
			7									2.0 V		"	"	"	"	-1.0 mA									"	"	2Q3	"		"
			8										2.0 V	"	"	"	"		-1.0 mA								"	"	2Q4	"		"
	V_{OL}	3007	9	2.0 V	0.8 V	0.8 V								0.8 V		2.0 V	2.0 V								12 mA	12 mA	2.0 V		1Q1		0.4	
			10	"	"		0.8 V							"		"	"							12 mA		"		1Q2		"	
			11	"	"			0.8 V						"		"	"						12 mA			"		1Q3		"	
			12	"	"				0.8 V					"		"	"					12 mA				"		1Q4		"	
			13							0.8 V				0.8 V						12 mA	12 mA							2Q1		"	
			14								0.8 V			"														2Q2		"	
			15									0.8 V		"					12 mA									2Q3		"	
			16										0.8 V	"				12 mA										2Q4		"	
			17	0.8 V	0.8 V											0.8 V	2.0 V							12 mA	12 mA	2.0 V		1Q1		"	
			18	"	"											"	"									"		1Q2		"	
			19	"	"											"	"							12 mA		"		1Q3		"	
			20	"	"											"	"					12 mA						1Q4		"	
			21											0.8 V						12 mA	12 mA							2Q1		"	
			22											"														2Q2		"	
			23											"					12 mA									2Q3		"	
			24											"														2Q4		"	
	V_{IC}		25	-18 mA																										-1.5	
			26		-18 mA																							1$\overline{CLR}$		"	
			27			-18 mA																						1$\overline{OC}$		"	
			28				-18 mA																					1D1		"	
			29					-18 mA																				1D2		"	
			30						-18 mA																			1D3		"	
			31							-18 mA																		1D4		"	
			32								-18 mA																	2D1		"	
			33									-18 mA																2D2		"	
			34										-18 mA															2D3		"	
			35											-18 mA														2D4		"	
			36													-18 mA												2$\overline{OC}$		"	
			37														-18 mA											2CLR		"	
			38																							-18 mA		EN2C		"	
																												EN1C		"	
	I_{IL}	3009	39	0.4 V																							5.5 V	1$\overline{CLR}$	2/	2/	μA
			40		0.4 V																							1$\overline{OC}$	"	"	
			41			0.4 V																						1D1	"	"	
			42				0.4 V																					1D2	"	"	
			43					0.4 V																				1D3	"	"	
			44						0.4 V																			1D4	"	"	
			45							0.4 V																		2D1	"	"	
			46								0.4 V																	2D2	"	"	
			47									0.4 V																2D3	"	"	
			48										0.4 V															2D4	"	"	
			49											0.4 V														2$\overline{OC}$	"	"	
			50													0.4 V												2CLR	"	"	
			51														0.4 V											EN2C	"	"	
			52																							0.4 V		EN1C	"	"	

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/ Cases K, L Test no.	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits Min	Limits Max	Unit
				1	2	3	4	5	6	7	8	9	10	11	12	15	14	15	16	17	18	19	20	21	22	23	24				
				$\overline{1CLR}$	$\overline{1OC}$	1D1	1D2	1D3	1Q4	2D1	2D2	2D3	2Q4	$\overline{2OC}$	GND	$\overline{2CLR}$	2EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	1EN1C	V_{CC}				
1 T_C = +25°C	I_{IH1}	3010	53	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	GND	2.7 V	2.7 V									2.7 V	5.5 V	$1\overline{CLR}$		20	µA
			54												"											$1\overline{OC}$		"	"
			55												"											1D1		"	"
			56												"											1D2		"	"
			57												"											1D3		"	"
			58												"											1Q4		"	"
			59												"											2D1		"	"
			60												"											2D2		"	"
			61												"											2D3		"	"
			62												"											2Q4		"	"
			63												"											$2\overline{OC}$		"	"
			64												"											$2\overline{CLR}$		"	"
			65												"											2EN2C		"	"
			66												"											1EN1C		"	"
	I_{IH2}	"	67	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	"	7.0 V	7.0 V									7.0 V	"	$1\overline{CLR}$		100	"
			68												"											$1\overline{OC}$		"	"
			69												"											1D1		"	"
			70												"											1D2		"	"
			71												"											1D3		"	"
			72												"											1Q4		"	"
			73												"											2D1		"	"
			74												"											2D2		"	"
			75												"											2D3		"	"
			76												"											2Q4		"	"
			77												"											$2\overline{OC}$		"	"
			78												"											$2\overline{CLR}$		"	"
			79												"											2EN2C		"	"
			80												"											1EN1C		"	"
	I_O	3011 3/	81	5.0 V	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	GND	"	5.0 V	5.0 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	5.0 V	"	1Q1	4/ -15	4/ -70	mA
			82	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q2	"	"	"
			83	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q3	"	"	"
			84	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q4	"	"	"
			85	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q1	"	"	"
			86	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q2	"	"	"
			87	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q3	"	"	"
			88	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q4	"	"	"
	I_{OZH}		89	5.0 V	5.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	5.0 V	"	5.0 V	5.0 V									2.7 V	"	1Q1		20	µA
			90	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q2	"	"	"
			91	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q3	"	"	"
			92	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q4	"	"	"
			93	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q1	"	"	"
			94	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q2	"	"	"
			95	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q3	"	"	"
			96	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q4	"	"	"
	I_{OZL}		97	5.0 V	5.0 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	5.0 V	"	5.0 V	5.0 V									0.4 V	"	1Q1		-20	"
			98	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q2	"	"	"
			99	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q3	"	"	"
			100	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	1Q4	"	"	"
			101	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q1	"	"	"
			102	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q2	"	"	"
			103	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q3	"	"	"
			104	"	"	"	"	"	"	"	"	"	"	"	"	"	"										"	2Q4	"	"	"

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	Measured terminal	Limits		Unit
			Cases K,L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	1CLR	1OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2OC	GND	2CLR	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}				
1 T_C = +25°C	I_{CCH}	3005	105	5.0 V	GND	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	GND	GND	5.0 V	5.0 V									5.0 V	5.5 V	V_{CC}		21	mA
	I_{CCL}	"	106	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	"	GND	"									"	"	V_{CC}		29	"
	I_{CCZ}	"	107	"	5.0 V	"	"	"	"	"	"	"	"	5.0 V	"	GND	"									"	"	V_{CC}		31	"
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C and V_{IC} tests are omitted.																															
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C and V_{IC} tests are omitted.																															
7 5/ T_C = +25°C	Truth table tests	3014	108	A	B	A	A	A	A	A	A	A	A	B	GND	A	H	H	H	H	H	H	H	H	H	A	5.0 V	All outputs	6/	6/	
	"	"	109	"	"	B	B	B	B	B	B	B	B	"	"	"	L	L	L	L	L	L	L	L	L	B	"	"	"	"	
	"	"	110	"	"	A	A	A	A	A	A	A	A	"	"	"	H	H	H	H	H	H	H	H	H	A	"	"	"	"	
	"	"	111	"	"	A	A	A	A	A	A	A	A	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	
	"	"	112	"	"	B	B	B	B	B	B	B	B	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	
	"	"	113	"	"	"	"	"	"	"	"	"	"	"	"	"	L	L	L	L	L	L	L	L	B	"	"	"	"	
	"	"	114	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	
	"	"	115	"	"	A	A	A	A	A	A	A	A	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	
	"	"	116	"	"	"	"	"	"	"	"	"	"	"	"	"	H	H	H	H	H	H	H	H	A	"	"	"	"	
	"	"	117	B	"	"	"	"	"	"	"	"	"	"	"	B	L	L	L	L	L	L	L	L	A	"	"	"	"	
	"	"	118	A	"	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	A	"	"	"	"	
	"	"	119	A	"	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	B	"	"	"	"	
	"	"	120	B	"	"	"	"	"	"	"	"	"	"	"	B	L	L	L	L	L	L	L	L	B	"	"	"	"	
	"	"	121	A	"	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	A	"	"	"	"	
	"	"	122	"	"	B	B	B	B	B	B	B	B	"	"	A	L	L	L	L	L	L	L	L	A	"	"	"	"	
	"	"	123	"	"	A	A	A	A	A	A	A	A	"	"	A	H	H	H	H	H	H	H	H	A	"	"	"	"	
	"	"	124	B	"	A	A	A	A	A	A	A	A	"	"	A	L	L	L	L	L	L	L	L	A	"	"	"	"	
8	Same tests, terminal conditions, and limits as for subgroup 7, except T_C = +125°C and -55°C.																															
9 T_C = +25°C	t_{PHL1}	3003 Fig. 5	125	IN	GND	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	GND	GND	IN	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	5.0 V	1CLR to 1Q1	6	24	ns
			126	"	"											"	"												1CLR to 1Q2	"	"	"
			127	"	"											"	"												1CLR to 1Q3	"	"	"
			128	"	"											"	"												1CLR to 1Q4	"	"	"
			129													"	"												2CLK to 2Q1	"	"	"
			130													"	"												2CLK to 2Q2	"	"	"
			131													"	"												2CLR to 2Q3	"	"	"
			132													"	"												2CLK to 2Q4	"	"	"
	t_{PLH2}	"	133	4.5 V	GND	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	GND	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	1EN1C to 1Q1	6	22	"
			134	"	"											"	"												1EN1C to 1Q2	"	"	"
			135	"	"											"	"												1EN1C to 1Q3	"	"	"
			136													"	"												1EN1C to 1Q4	"	"	"
			137													"	"												1EN2C to 2Q1	"	"	"
			138													"	"												1EN2C to 2Q2	"	"	"
			139													"	"												1EN2C to 2Q3	"	"	"
			140													"	"												1EN2C to 2Q4	"	"	"
	t_{PHL2}	"	141	4.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	1EN1C to 1Q1	6	21	"
			142	"	"											"	"												1EN1C to 1Q2	"	"	"
			143	"	"											"	"												1EN1C to 1Q3	"	"	"
			144													"	"												1EN1C to 1Q4	"	"	"
			145													"	"												1EN2C to 2Q1	"	"	"
			146													"	"												1EN2C to 2Q2	"	"	"
			147													"	"												1EN2C to 2Q3	"	"	"
			148													"	"												1EN2C to 2Q4	"	"	"

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/ Cases K, L Test no.	2 1 $\overline{1CLR}$	3 2 $\overline{1OC}$	4 3 1D1	5 4 1D2	6 5 1D3	7 6 1D4	9 7 2D1	10 8 2D2	11 9 2D3	12 10 2D4	13 11 $\overline{2OC}$	14 12 GND	16 13 2CLR	17 14 EN2C	18 15 2Q4	19 16 2Q3	20 17 2Q2	21 18 2Q1	23 19 1Q4	24 20 1Q3	25 21 1Q2	26 22 1Q1	27 23 EN1C	28 24 V_{CC}	Measured terminal	Limits Min	Limits Max	Unit
9 T_C = +25°C	t_{PLH3}	3003 Fig. 5	149	4.5 V	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	5.0 V	1D1 to 1Q1	2	12	ns
			150	"	"									"	"	"	"									"	"	1D2 to 1Q2	"	"	"
			151	"	"									"	"	"	"									"	"	1D3 to 1Q3	"	"	"
			152																									1D4 to 1Q4			
			153																									2D1 to 2Q1			
			154																									2D2 to 2Q2			
			155																									2D3 to 2Q3			
			156																									2D4 to 2Q4			
	t_{PHL3}	"	157	4.5 V	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND	"	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	1D1 to 1Q1	"	"	"
			158	"	"									"		"	"									"	"	1D2 to 1Q2	"	"	"
			159	"	"									"		"	"									"	"	1D3 to 1Q3	"	"	"
			160																									1D4 to 1Q4			
			161																									2D1 to 2Q1			
			162																									2D2 to 2Q2			
			163																									2D3 to 2Q3			
			164																									2D4 to 2Q4			
	t_{PZH}	"	165	4.5 V	IN	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	"	$1\overline{OC}$ to 1Q1	4	18	"
			166	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q2	"	"	"
			167	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q3	"	"	"
			168																									$1\overline{OC}$ to 1Q4			
			169																									$2\overline{OC}$ to 2Q1			
			170																									$2\overline{OC}$ to 2Q2			
			171																									$2\overline{OC}$ to 2Q3			
			172																									$2\overline{OC}$ to 2Q4			
	t_{PZL}	"	173	4.5 V	IN	GND	GND	GND	GND	GND	GND	GND	GND	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	2/	"	$1\overline{OC}$ to 1Q1	3	13	"
			174	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q2	"	"	"
			175	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q3	"	"	"
			176																									$1\overline{OC}$ to 1Q4			
			177																									$2\overline{OC}$ to 2Q1			
			178																									$2\overline{OC}$ to 2Q2			
			179																									$2\overline{OC}$ to 2Q3			
			180																									$2\overline{OC}$ to 2Q4			
	t_{PH2}	"	181	4.5 V	IN	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	2/	"	$1\overline{OC}$ to 1Q1	2	8	"
			182	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q2	"	"	"
			183	"	"									"		"	"									"	"	$1\overline{OC}$ to 1Q3	"	"	"
			184																									$1\overline{OC}$ to 1Q4			
			185																									$2\overline{OC}$ to 2Q1			
			186																									$2\overline{OC}$ to 2Q2			
			187																									$2\overline{OC}$ to 2Q3			
			188																									$2\overline{OC}$ to 2Q4			

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits		Unit
			Cases K,L	1	2	3	4	5	6	7	8	9	10	11	12	15	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	1$\overline{CLR}$	1$\overline{OC}$	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2$\overline{OC}$	GND	2CLR	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}				
9 T_C = +25°C	t_{PLZ}	3003 Fig. 5	189 190 191 192 193 194 195 196	4.5 V " " "	IN " " "	GND	GND	GND	GND	GND	GND	GND	GND	IN " "	GND " " " " " " "	4.5 V " "	4.5 V " "	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V " "	5.0 V "	1OC to 1Q1 1OC to 1Q2 1OC to 1Q3 1OC to 1Q4 2OC to 2Q1 2OC to 2Q2 2OC to 2Q3 2OC to 2Q4	2 " " " " " " "	13 " " " " " " "	ns " " " " " " "
10 T_C= +125°C	t_{PHL1}	Same tests and terminal conditions as for subgroup 9, except T_C = +125°C.																											6	24	"
	t_{PLH2}																												8	29	"
	t_{PHL2}																												8	22	"
	t_{PLH3}																												2	15	"
	t_{PHL3}																												2	15	"
	t_{PZH}																												4	21	"
	t_{PZL}																												4	21	"
	t_{PHZ}																												2	10	"
	t_{PLZ}																												2	15	"
11 T_C= -55°C	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																														

1/ Pins not referenced are N/C.

2/ I_{IL} limits shall be as follows:

Test	Limits in µA for circuit		
	A	B	C
I_{IL}	0/-100	0/-100	0/-200

3/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short-circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short-circuit output current I_{OS}.

4/ I_O limits for circuit C shall be -70 to -110 mA.

5/ Tests shall be performed in sequence, attributes data only.

6/ Outputs shall be high ≥1.5 V, low ≤1.5 V.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/ Cases K,L Test no.	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits Min	Limits Max	Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
				1PRE	1OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2OC	GND	2PRE	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}				
T_C = +25°C 1/	V_{OH}	3006	1	2.0 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	GND	2.0 V	2.0 V	-1.0 mA	-1.0 mA	-1.0 mA	-1.0 mA	-1.0 mA	-1.0 mA	-1.0 mA	-1.0 mA	2.0 V	4.5 V	1Q1	2.4		V
			2	"	"										"	"	"									"	"	1Q2	"		"
			3	"	"		0.8 V								"	"	"							-1.0 mA		"	"	1Q3	"		"
			4	"	"			0.8 V	0.8 V						"	"	"					-1.0 mA				"	1Q4	"		"
			5							0.8 V				0.8 V	"	2.0 V	"				-1.0 mA					"	2Q1	"		"
			6								0.8 V			"	"	"	"			-1.0 mA						"	2Q2	"		"
			7									0.8 V		"	"	"	"		-1.0 mA							"	2Q3	"		"
			8										0.8 V	"	"	"	"	-1.0 mA								"	2Q4	"		"
	V_{OL}	3007	9	2.0 V	0.8 V	2.0 V									"										12 mA	2.0 V	"	1Q1		0.4	"
			10	"	"		2.0 V								"								12 mA		"	"	1Q2		"	"
			11	"	"			2.0 V							"							12 mA				"	1Q3		"	"
			12	"	"				2.0 V						"						12 mA					"	1Q4		"	"
			13							2.0 V				0.8 V	"	2.0 V	"									"	2Q1		"	"
			14								2.0 V			"	"	"	"			12 mA						"	2Q2		"	"
			15									2.0 V		"	"	"	"		12 mA							"	2Q3		"	"
			16										2.0 V	"	"	"	"	12 mA								"	2Q4		"	"
			17	0.8 V	0.8 V																				12 mA	2.0 V	"	1Q1		"	"
			18	"	"																			12 mA		"	"	1Q2		"	"
			19	"	"																	12 mA				"	"	1Q3		"	"
			20	"	"																	12 mA				"	"	1Q4		"	"
			21											0.8 V	"	0.8 V	"				12 mA					"	"	2Q1		"	"
			22											"	"	"	"			12 mA						"	"	2Q2		"	"
			23											"	"	"	"		12 mA							"	"	2Q3		"	"
			24											"	"	"	"	12 mA								"	"	2Q4		"	"
	V_{IC}		25	-18 mA											"												"	1PRE		-1.5	"
			26		-18 mA										"												"	1OC		"	"
			27			-18 mA									"												"	1D1		"	"
			28				-18 mA								"												"	1D2		"	"
			29					-18 mA							"												"	1D3		"	"
			30						-18 mA						"												"	1D4		"	"
			31							-18 mA					"												"	2D1		"	"
			32								-18 mA				"												"	2D2		"	"
			33									-18 mA			"												"	2D3		"	"
			34										-18 mA		"												"	2D4		"	"
			35											-18 mA	"												"	2OC		"	"
			36												"	-18 mA											"	2PRE		"	"
			37												"		-18 mA										"	EN2C		"	"
			38												"											-18 mA	"	EN1C		"	"
	I_{IL}	3009	39	0.4 V											"												5.5 V	1PRE	2/	2/	μA
			40		0.4 V										"												"	1OC	"	"	"
			41			0.4 V									"												"	1D1	"	"	"
			42				0.4 V								"												"	1D2	"	"	"
			43					0.4 V							"												"	1D3	"	"	"
			44						0.4 V						"												"	1D4	"	"	"
			45							0.4 V					"												"	2D1	"	"	"
			46								0.4 V				"												"	2D2	"	"	"
			47									0.4 V			"												"	2D3	"	"	"
			48										0.4 V		"												"	2D4	"	"	"
			49											0.4 V	"												"	2OC	"	"	"
			50												"	0.4 V											"	2PRE	"	"	"
			51												"		0.4 V										"	EN2C	"	"	"
			52												"											0.4 V	"	EN1C	"	"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection, for device type 04 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case outlines K,L	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	22	23	24	25	26	27	28	Measured terminal	Limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			Min	Max	
			Test no.	1PRE	1OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2OC	GND	2PRE	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}					
1 T_C = +25°C	I_{IH1}	3010	53	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	GND	2.7 V	2.7 V										2.7 V	5.5 V	1PRE		20	µA
			54												"												"	1OC		"	"
			55												"												"	1D1		"	"
			56												"												"	1D2		"	"
			57												"												"	1D3		"	"
			58												"												"	1D4		"	"
			59												"												"	2D1		"	"
			60												"												"	2D2		"	"
			61												"												"	2D3		"	"
			62												"												"	2D4		"	"
			63												"												"	2OC		"	"
			64												"												"	2PRE		"	"
			65												"												"	EN2C		"	"
			66												"												"	EN1C		"	"
	I_{IH2}	"	67	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	7.0 V	"	7.0 V	7.0 V										7.0 V	"	1PRE		100	"
		"	68												"												"	1OC		"	"
		"	69												"												"	1D1		"	"
		"	70												"												"	1D2		"	"
		"	71												"												"	1D3		"	"
		"	72												"												"	1D4		"	"
		"	73												"												"	2D1		"	"
		"	74												"												"	2D2		"	"
		"	75												"												"	2D3		"	"
		"	76												"												"	2D4		"	"
		"	77												"												"	2OC		"	"
		"	78												"												"	2PRE		"	"
		"	79												"												"	EN2C		"	"
		"	80												"												"	EN1C		"	"
	I_O	3011 3/	81	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	5.0 V	5.0 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	2.25 V	5.0 V	"	1Q1	-15 4/	-70 4/	mA
		"	82	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Q2	"	"	"
		"	83	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Q3	"	"	"
		"	84																										1Q4			
		"	85																										2Q1			
		"	86																										2Q2			
		"	87																										2Q3			
		"	88																										2Q4			
	I_{OZH}		89	5.0 V	5.0 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	5.0 V	"	5.0 V	5.0 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	2.7 V	5.0 V	"	1Q1		20	µA
			90	"	"									"		"	"										"		1Q2		"	"
			91																										1Q3			
			92																										1Q4			
			93																										2Q1			
			94																										2Q2			
			95																										2Q3			
			96																										2Q4			
	I_{OZL}		97	5.0 V	5.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	5.0 V	"	5.0 V	5.0 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	5.0 V	"	1Q1		-20	"
			98	"	"									"		"	"										"		1Q2		"	"
			99																										1Q3			
			100																										1Q4			
			101																										2Q1			
			102																										2Q2			
			103																										2Q3			
			104																										2Q4			

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/ Cases K,L test no.	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	Measured terminal	Limits Min	Limits Max	Unit
				$1\overline{PRE}$	$1\overline{QC}$	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	$2\overline{QC}$	GND	$2\overline{PRE}$	2NEC	$2\overline{Q_4}$	$2\overline{Q_3}$	$2\overline{Q_2}$	$2\overline{Q_1}$	$1\overline{Q_4}$	$1\overline{Q_3}$	$1\overline{Q_2}$	$1\overline{Q_1}$	1NEC	V_{CC}							
1 T_C = +25°C	I_{CCH}	3005	105	5.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	5.0 V	5.0 V										5.0 V	5.5 V	V_{CC}		21	mA
	I_{CCL}	"	106	GND	"	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V	"	"	GND	"										"	"	V_{CC}		29	"
	I_{CCZ}	"	107	"	5.0 V	"	"	"	"	"	"	"	"	5.0 V	"	"	"										5.0 V	"	V_{CC}		31	"
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C and V_{IC} tests are omitted.																																		
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C and V_{IC} tests are omitted.																																		
7 5/ T_C = +25°C	Truth table tests	3014	108	A	B	B	B	B	B	B	B	B	B	B	B	D	GND	A	A	h	h	h	H	H	H	H	H	A	5.0 V	All outputs	6/	6/	
		"	109	"	"	A	A	A	A	A	A	A	A	A	A	"	"	"	"	L	L	L	L	L	L	L	L	"	"	"	"	"	"	
		"	110	"	"	B	B	B	B	B	B	B	B	B	B	"	"	"	"	H	H	H	H	H	H	H	H	"	"	"	"	"	"	
		"	111	"	"	B	B	B	B	B	B	B	B	B	B	"	"	"	B	"	"	"	"	"	"	"	"	"	"	B	"	"	"	
		"	112	"	"	A	A	A	A	A	A	A	A	A	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	
		"	113	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	L	L	L	L	L	L	L	L	A	"	"	"	"	"	
		"	114	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"	"	"	"	
		"	115	"	"	B	B	B	B	B	B	B	B	B	B	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	
		"	116	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	H	H	H	H	H	H	H	H	A	"	"	"	"	"	
		"	117	B	"	"	"	"	"	"	"	"	"	"	"	"	"	b	"	L	L	L	L	L	L	L	L	"	"	"	"	"	"	
		"	118	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	H	H	H	H	H	H	H	H	"	"	"	"	"	"	
		"	119	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	b	H	H	H	H	H	H	H	H	B	"	"	"	"	"	
		"	120	B	"	"	"	"	"	"	"	"	"	"	"	"	"	B	B	L	L	L	L	L	L	L	L	B	"	"	"	"	"	
		"	121	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	A	H	H	H	H	H	H	H	H	A	"	"	"	"	"	
		"	122	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	H	H	H	H	H	H	H	H	"	"	"	"	"	"	
		"	123	B	"	"	"	"	"	"	"	"	"	"	"	"	"	b	"	L	L	L	L	L	L	L	L	"	"	"	"	"	"	
8 5/	Same tests, terminal conditions, and limits as for subgroup 7, except T_C = +125°C and -55°C.																																		
9 T_C = +25°C	t_{PHL1}	3003 Fig. 5	124	IN	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	IN	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	5.0 V	$1\overline{PRE}$ to $1\overline{Q1}$	6	21	ns
		"	125	"	"											"	"										"	$1\overline{PRE}$ to $1\overline{Q2}$	"	"	"
		"	126	"	"											"	"										"	$1\overline{PRE}$ to $1\overline{Q3}$	"	"	"
		"	127													"	"										"	$1\overline{PRE}$ to $1\overline{Q4}$	"	"	"
		"	128													"	"										"	$2\overline{PRE}$ to 2Q1	"	"	"
		"	129													"	"										"	$2\overline{PRE}$ to 2Q2	"	"	"
		"	130													"	"										"	$2\overline{PRE}$ to 2Q3	"	"	"
		"	131													"	"										"	$2\overline{PRE}$ to 2Q4	"	"	"
	t_{PLH2}	"	132	4.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	1NEC to $1\overline{Q1}$	8	24	"
		"	133	"	"											"	"										"	1NEC to $1\overline{Q2}$	"	"	"
		"	134	"	"											"	"										"	1NEC to $1\overline{Q3}$	"	"	"
		"	135													"	"										"	1NEC to $1\overline{Q4}$	"	"	"
		"	136													"	"										"	2NEC to 2Q1	"	"	"
		"	137													"	"										"	2NEC to 2Q2	"	"	"
		"	138													"	"										"	2NEC to 2Q3	"	"	"
		"	139													"	"										"	2NEC to 2Q4	"	"	"
	t_{PHL2}	"	140	4.5 V	GND	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	1NEC to $1\overline{Q1}$	8	21	"
		"	141	"	"											"	"										"	1NEC to $1\overline{Q2}$	"	"	"
		"	142	"	"											"	"										"	1NEC to $1\overline{Q3}$	"	"	"
		"	143													"	"										"	1NEC to $1\overline{Q4}$	"	"	"
		"	144													"	"										"	2NEC to 2Q1	"	"	"
		"	145													"	"										"	2NEC to 2Q2	"	"	"
		"	146													"	"										"	2NEC to 2Q3	"	"	"
		"	147													"	"										"	2NEC to 2Q4	"	"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits		Unit
			Cases K,L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	$\overline{1PRE}$	$\overline{1OC}$	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	$\overline{2OC}$	GND	$\overline{2PRE}$	$\overline{EN2C}$	$\overline{2Q4}$	$\overline{2Q3}$	$\overline{2Q2}$	$\overline{2Q1}$	$\overline{1Q4}$	$\overline{1Q3}$	$\overline{1Q2}$	$\overline{1Q1}$	$\overline{EN1C}$	V_{CC}				
T_C = +25°C	t_{PLH3}	3003 Fig. 5	148	4.5 V	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND	GND	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	5.0 V	$1D1$ to $1\overline{Q1}$	3	20	ns
		"	149	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D2$ to $1\overline{Q2}$	"	"	"
		"	150	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D3$ to $1\overline{Q3}$	"	"	"
		"	151	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D4$ to $1\overline{Q4}$	"	"	"
		"	152	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D1$ to $2\overline{Q1}$	"	"	"
		"	153	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D2$ to $2\overline{Q2}$	"	"	"
		"	154	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D3$ to $2\overline{Q3}$	"	"	"
		"	155	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D4$ to $2\overline{Q4}$	"	"	"
	t_{PHL3}	"	156	4.5 V	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND	"	4.5 V	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	"	$1D1$ to $1\overline{Q1}$	"	12	"
		"	157	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D2$ to $1\overline{Q2}$	"	"	"
		"	158	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D3$ to $1\overline{Q3}$	"	"	"
		"	159	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D4$ to $1\overline{Q4}$	"	"	"
		"	160	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D1$ to $2\overline{Q1}$	"	"	"
		"	161	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D2$ to $2\overline{Q2}$	"	"	"
		"	162	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D3$ to $2\overline{Q3}$	"	"	"
		"	163	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D4$ to $2\overline{Q4}$	"	"	"
	t_{PZH}	"	164	4.5 V	IN	GND	GND	GND	GND	GND	GND	GND	GND	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	"	$1D1$ to $1\overline{Q1}$	5	18	"
		"	165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D2$ to $1\overline{Q2}$	"	"	"
		"	166	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D3$ to $1\overline{Q3}$	"	"	"
		"	167	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1D4$ to $1\overline{Q4}$	"	"	"
		"	168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D1$ to $2\overline{Q1}$	"	"	"
		"	169	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D2$ to $2\overline{Q2}$	"	"	"
		"	170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D3$ to $2\overline{Q3}$	"	"	"
		"	171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2D4$ to $2\overline{Q4}$	"	"	"
	t_{PZL}	"	172	4.5 V	IN	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	"	$1\overline{OC}$ to $1\overline{Q1}$	5	18	"
		"	173	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q2}$	"	"	"
		"	174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q3}$	"	"	"
		"	175	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q4}$	"	"	"
		"	176	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q1}$	"	"	"
		"	177	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q2}$	"	"	"
		"	178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q3}$	"	"	"
		"	179	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q4}$	"	"	"
	t_{PHZ}	"	180	4.5 V	IN	GND	GND	GND	GND	GND	GND	GND	GND	IN	"	4.5 V	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	4.5 V	"	$1\overline{OC}$ to $1\overline{Q1}$	2	8	"
		"	181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q2}$	"	"	"
		"	182	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q3}$	"	"	"
		"	183	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$1\overline{OC}$ to $1\overline{Q4}$	"	"	"
		"	184	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q1}$	"	"	"
		"	185	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q2}$	"	"	"
		"	186	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q3}$	"	"	"
		"	187	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$2\overline{OC}$ to $2\overline{Q4}$	"	"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be high ≥2.0 V, or low ≤0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Limits		Unit
			Cases K,L	1	2	3	4	5	6	7	8	9	10	11	12	15	14	15	16	17	18	19	20	21	22	23	24		Min	Max	
			Test no.	1PRE	1OC	1D1	1D2	1D3	1D4	2D1	2D2	2D3	2D4	2OC	GND	2PRE	EN2C	2Q4	2Q3	2Q2	2Q1	1Q4	1Q3	1Q2	1Q1	EN1C	V_{CC}				
9 T_C = +25°C	t_{PLZ}	3003 Fig. 5	188	4.5 V	IN	4.5 V									GND													1OC to 1Q1	3	13	ns
			189	"	"		4.5 V								"										OUT	OUT	4.5 V	1OC to 1Q2	"	"	"
			190	"	"			4.5 V							"									OUT				1OC to 1Q3	"	"	"
			191	"	"				4.5 V						"								OUT					1OC to 1Q4	"	"	"
			192	"	"					4.5 V					"							OUT						2OC to 2Q1	"	"	"
			193								4.5 V				"	4.5 V	4.5 V				OUT							2OC to 2Q2	"	"	"
			194									4.5 V			"	"	"			OUT								2OC to 2Q3	"	"	"
			195										4.5 V		"	"	"		OUT									2OC to 2Q4	"	"	"
10 T_C = +125°C	t_{PHL1}	Same tests and terminal conditions as for subgroup 9, except T_C = +125°C.																											6	24	ns
	t_{PLH2}																												8	31	"
	t_{PHL2}																												8	22	"
	t_{PLH3}																												3	23	"
	t_{PHL3}																												3	15	"
	t_{PZH}																												4	21	"
	t_{PZL}																												4	21	"
	t_{PHZ}																												2	10	"
	t_{PLZ}																												3	15	"
11 T_C = -55°C		Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																													

1/ Pins not referenced are N/C.

2/ I_{IL} limits shall be as follows:

Test	Limits in μA for circuit		
	A	B	C
I_{IL}	0/-100	0/-100	0/-200

3/ Method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short-circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short-circuit output current I_{OS}.

4/ I_O limits for circuit C shall be -70 to -110 mA.

5/ Tests shall be performed in sequence, attributes data only.

6/ Outputs shall be high ≥1.5 V, low ≤1.5 V.

6. NOTES

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

6.2 Ordering data. The acquisition document should specify the following:

a. Complete part number (see 1.2).

b. 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.

c. Requirements for certificate of compliance, if applicable.

d. Requirements for notification of change of product or process to the contracting activity in addition to notification to the qualifying activity, if applicable.

e. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.

f. Requirements for product assurance options.

g. Requirements for special carriers, lead lengths, or lead forming, if applicable, these requirements shall not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.

h. Requirements for "JAN" marking.

6.3 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-M-38510, MIL-STD-1331, and as follows:

GND	Ground zero voltage potential.
V_{IN}	Voltage level at an input terminal.
I_{IN}	Current flowing into an input terminal.

6.4 Logistic support. Lead materials and finishes (see 3.3), are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), and lead material and finish C (see 3.3). Longer lead lengths and lead forming shall not affect the part number.

6.5 Substitutability. The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-38510 device types and may have slight physical variations in relation to case size. The presence of this information shall 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-M-38510.

Military device type	Generic-industry type
01	54ALS573
02	54ALS580
03	54ALS873
04	54ALS880

6.6 Manufacturers' designations. Manufacturers' circuits which form a part of this specification are designated with an "X" as shown in table IV herein.

TABLE IV. Manufacturers' designations.

Device type	Circuits		
	A	B	C
	Texas Instruments	Motorola Inc.	National Semi-conductor Corp.
01	X		
02	X		
03	X		
04	X		

Custodians:
Army - ER
Navy - EC
Air Force - 17

Review activities:
Army - AR, MI
Navy - OS, SH, TD
Air Force - 11, 19, 85, 99
DLA - ES

User activities:
Army - SM
Navy - AS, CG, MC

Preparing activity:
Air Force - 17

Agent:
DLA - ES

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