

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, HIGH SPEED, CMOS,  
COUNTERS, 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, high speed, CMOS, logic microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number.

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

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

<u>Device type</u>	<u>Circuit</u>
01	BCD decade counter, asynchronous reset, synchronous load
02	4-bit binary counter, asynchronous reset, synchronous load
03	BCD decade counter, synchronous reset and load
04	4-bit binary counter, synchronous reset and load
05	Synchronous 4-bit binary up/down counter, asynchronous load
06	Synchronous BCD decade up/down counter, asynchronous reset and load
07	Synchronous 4-bit binary up/down counter, asynchronous reset and load
08	Synchronous dual 4-bit decade counter, asynchronous reset
09	Synchronous dual 4-bit binary counter, asynchronous reset
10	Decade counter/divider, 10 decoded outputs, asynchronous reset
11	14-stage ripple-carry binary counter, asynchronous reset
12	7-stage ripple-carry binary counter, asynchronous reset
13	12-stage ripple-carry binary counter, asynchronous reset

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:

<u>Outline letter</u>	<u>Case outline (see MIL-M-38510, appendix C)</u>
C	D-1 (14-lead, 1/4" x 3/4"), dual-in-line package
D	F-2 (14-lead, 1/4" x 3/8"), flat package (configuration one only)
E	D-2 (16-lead, 1/4" x 7/8"), dual-in-line package
F	F-5 (16-lead, 1/4" x 3/8"), flat package (configuration one only)
X	C-1 (16-terminal, .300" x .300"), square chip carrier package
2	C-2 (20-terminal, .350" x .350"), square chip carrier package

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 13441-5700, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

**1.3 Absolute maximum ratings.**

Supply voltage ( $V_{CC}$ ) - - - - -	-0.5 V dc to +7.0 V dc
DC input voltage ( $V_{IN}$ ) - - - - -	-0.5 V dc to $V_{CC} + 0.5$ V dc
DC output voltage ( $V_{OUT}$ ) - - - - -	-0.5 V dc to $V_{CC} + 0.5$ V dc
Clamp diode current ( $I_{IK}$ , $I_{OK}$ ) - - - - -	±20 mA
DC output current per pin ( $I_{OUT}$ ) - - - - -	±25 mA
DC $V_{CC}$ or GND current per pin ( $I_{OC}$ ) - - - - -	±50 mA
Storage temperature range ( $T_{STG}$ ) - - - - -	-65°C to +150°C
Maximum power dissipation ( $P_D$ ) - - - - -	300 mW
Lead temperature (soldering, 10 seconds) - - - - -	+300°C
Thermal resistance, junction-to-case ( $\theta_{JC}$ ):	
Cases C, D, E, and F - - - - -	(See MIL-M-38510, appendix C)
Case X - - - - -	53°C/W
Case 2 - - - - -	60°C/W
Junction temperature ( $T_J$ ) - - - - -	+175°C

**1.4 Recommended operating conditions.**

Input low ( $V_{IL}$ ) maximum voltage - - - - -	0.3 V at $V_{CC} = 2.0$ V
	0.9 V at $V_{CC} = 4.5$ V
	1.2 V at $V_{CC} = 6.0$ V
	1.5 V at $V_{CC} = 3.0$ V
Input high ( $V_{IH}$ ) minimum voltage - - - - -	3.15 V at $V_{CC} = 4.5$ V
	4.2 V at $V_{CC} = 6.0$ V

**All devices:**

Supply voltage ( $V_{CC}$ ) - - - - -	2.0 V dc to 6.0 V dc
Output voltage - - - - -	0 V dc to $V_{CC}$
Operating temperature - - - - -	-55°C to +125°C
Input rise and fall times ( $t_r$ , $t_f$ ) maximum:	
$V_{CC} = 2.0$ V - - - - -	1,000 ns
$V_{CC} = 4.5$ V - - - - -	500 ns
$V_{CC} = 6.0$ V - - - - -	400 ns
Setup time Toad before clock ( $t_{su}$ ):	
Device types 01-04 (Toad to CLK) - - - - -	45 ns (minimum)
Device type 05 (U/D to CLK) - - - - -	62 ns (minimum)
Device types 03 and 04 (CLR to CLK) - - - - -	45 ns (minimum)
Device types 01-04 (ENP, ENT) - - - - -	60 ns (minimum)
Device type 05 (ENG to CLK) - - - - -	62 ns (minimum)
Device type 10 (CE to CLK) - - - - -	23 ns (minimum)
Device types 06 and 07 (A, B, C, and D to Toad) - - - - -	33 ns (minimum)
Device type 05 (A, B, C, and D to Toad) - - - - -	45 ns (minimum)
Hold time ( $t_H$ ):	
Device types 01-04 (CLK to A, B, C, and D) - - - - -	15 ns (minimum)
Device types 01-04 (CLK to Toad) - - - - -	8 ns (minimum)
Device types 03 and 04 (CLK to CLR) - - - - -	8 ns (minimum)
Device type 05 (CLK to U/D) - - - - -	8 ns (minimum)
Device types 05-07 (Toad to A, B, C, and D) - - - - -	8 ns (minimum)
Device type 10 (CLK to CE) - - - - -	23 ns (minimum)
Device type 05 (CLK to ENG) - - - - -	8 ns (minimum)
Clock pulse width ( $t_p(clock)$ ):	
Device types 01-04, 10 - - - - -	30 ns (minimum)
Device type 05 - - - - -	38 ns (minimum)
Device type 08 - - - - -	26 ns (minimum)
Device type 09 - - - - -	24 ns (minimum)
Device types 11-13 - - - - -	27 ns (minimum)
Device types 06-07 - - - - -	45 ns (minimum)
Reset pulse width ( $t_p(clear)$ ):	
Device types 01, 02, 10-13 - - - - -	24 ns (minimum)
Device type 06 - - - - -	78 ns (minimum)
Device type 07 - - - - -	39 ns (minimum)
Device types 08 and 09 - - - - -	38 ns (minimum)
Clock enable pulse width ( $t_p(CE)$ ):	
Device type 10 - - - - -	30 ns (minimum)

Load pulse width ( $t_{P(10\%d)}$ ):	
Device types 05 and 07	- - - - -
Device type 06	- - - - -
trem (load, CLR to CLK):	
Device types 01 and 02	- - - - -
Device type 05	- - - - -
Device types 06 and 07	- - - - -
Device type 08	- - - - -
Device type 09	- - - - -
Device types 10-13	- - - - -
	30 ns (minimum)
	78 ns (minimum)
	38 ns (minimum)
	45 ns (minimum)
	33 ns (minimum)
	23 ns (minimum)
	15 ns (minimum)
	30 ns (minimum)

## 2. APPLICABLE DOCUMENTS

### 2.1 Government documents.

2.1.1 Specifications and standards. The following specification and standard, form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Defense Index of Specifications and Standards and supplement thereto, cited in the solicitation.

#### 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 contractors 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 Logic diagrams and terminal connections. The logic diagrams and terminal connections shall be as specified on figures 1 and 2.

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

3.2.3 Schematic circuits. The schematic circuits shall be submitted to the preparing activity prior to inclusion of a manufacturer's device in this specification and shall be submitted to the qualifying activity as a prerequisite for qualification. All qualified manufacturers' schematics shall be maintained and available upon request.

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

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

3.4 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.

3.5 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.

3.6 Marking. Marking shall be in accordance with MIL-M-38510. At the option of the manufacturer, marking of the country of origin may be omitted from the body of the microcircuit, but shall be retained on the initial container.

3.6.1 Serialization. All class S devices shall be serialized in accordance with MIL-M-38510.

3.6.2 Correctness of indexing and marking. All devices shall be subjected to the final electrical tests specified in table II after part number marking to verify that they are correctly indexed and identified by part number. Optionally, an approved electrical test may be devised especially for this requirement.

3.7 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 40 (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 methods 5005 and 5007, as applicable, of MIL-STD-883, 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. Delete the sequence specified in 3.1.10 through 3.1.14 of method 5004 and substitute lines 1 through 7 of table II herein.
- b. Burn-in (method 1015 of MIL-STD-883).
  - (1) Static test (test condition A) using circuit shown on figure 4, or equivalent. Ambient temperature ( $T_A$ ) shall be  $+125^{\circ}\text{C}$  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.
  - (2) Dynamic test (test condition D) using circuit shown on figure 5, or equivalent. Ambient temperature shall be  $+125^{\circ}\text{C}$  minimum. Test duration shall be in accordance with table I of method 1015.
- c. Interim and final electrical parameters shall be as specified in table II herein.
- d. For class S devices, post dynamic burn-in, or class B devices, post static burn-in, electrical parameter measurements may, at the manufacturer's option, be performed separately or included in the final electrical parameter requirements.

##### 4.2.1 Percent defective allowable (PDA).

- a. The PDA for class S devices shall be 5 percent for static burn-in and 5 percent for dynamic burn-in, based on the exact number of devices submitted to each separate burn-in.
- b. Static burn-in I and II failures shall be cumulative for determining the PDA.
- c. The PDA for class B devices shall be in accordance with MIL-M-38510 for static burn-in. Dynamic burn-in is not required.

- d. Those devices whose measured characteristics, after burn-in, exceed the specified delta ( $\Delta$ ) 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-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 performed in accordance with table II herein.
- b. Subgroups 5 and 6 of table I of method 5005 of MIL-STD-883 shall be omitted.
- c. Subgroup 4 ( $C_I$  and  $C_C$  measurements) shall be measured only for initial qualification and after process or design changes which may affect input capacitance. Capacitance shall be measured between the designated terminal and GND at a frequency of 1 MHz.
- d. Subgroups 9 and 11 shall be measured only for initial qualification and after process or design changes which may affect dynamic performance.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of method 5005 of MIL-STD-883 and as follows:

- a. Class S steady-state life (accelerated) test circuits shall be submitted to the qualifying activity for approval. When the alternate steady-state life test is used, the circuit on figure 5, or equivalent, shall be used.
- b. Electrostatic discharge sensitivity (ESDS) testing shall be performed in accordance with MIL-STD-883, method 3015. The option to categorize devices as ESD sensitive without performing the test is not allowed. Device types categorized as ESD sensitive shall be further tested using method 3015 modified as follows:
  - (1) Test method 3015, table I pin combinations 4(V+(A) to common (B)) and 5(V+(B) to common (A)) shall be deleted.
  - (2) The test sequence specified in method 3015 shall be repeated an additional four times instead of two.
  - (3) The category A limits specified on figure 3015-3, ESD sensitivity category, shall be 1,000 V to 2,000 V.
- c. End-point electrical parameters shall be as specified in table II herein. Delta limits shall apply only to subgroup 5 of group B inspections and shall consist of tests specified in table IV herein.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <sup>1/</sup> -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Device type	V <sub>CC</sub>	Limits		Unit
					Min	Max	
High level output voltage	V <sub>OH1</sub> 2/	V <sub>IH</sub> = 1.5 V V <sub>IL</sub> = 0.3 V I <sub>OH</sub> = -20 μA	A11	2.0 V	1.95		V
	V <sub>OH2</sub> 2/	V <sub>IH</sub> = 3.15 V V <sub>IL</sub> = 0.9 V I <sub>OH</sub> = -20 μA	A11	4.5 V	4.45		V
	V <sub>OH3</sub>	V <sub>IH</sub> = 4.2 V V <sub>IL</sub> = 1.2 V I <sub>OH</sub> = -20 μA	A11	6.0 V	5.95		V
	V <sub>OH4</sub> 2/	V <sub>IH</sub> = 3.15 V V <sub>IL</sub> = 0.9 V I <sub>OH</sub> = -4.0 mA	A11	4.5 V	3.7		V
	V <sub>OH5</sub>	V <sub>IH</sub> = 4.2 V V <sub>IL</sub> = 1.2 V I <sub>OH</sub> = -5.2 mA	A11	6.0 V	5.2		V
Low level output voltage	V <sub>OL1</sub> 2/	V <sub>IH</sub> = 1.5 V V <sub>IL</sub> = 0.3 V I <sub>OH</sub> = 20 μA	A11	2.0 V		0.05	V
	V <sub>OL2</sub> 2/	V <sub>IH</sub> = 3.15 V V <sub>IL</sub> = 0.9 V I <sub>OH</sub> = 20 μA	A11	4.5 V		0.05	V
	V <sub>OL3</sub>	V <sub>IH</sub> = 4.2 V V <sub>IL</sub> = 1.2 V I <sub>OH</sub> = 20 μA	A11	6.0 V		0.05	V
	V <sub>OL4</sub> 2/	V <sub>IH</sub> = 3.15 V V <sub>IL</sub> = 0.9 V I <sub>OH</sub> = 4.0 mA	A11	4.5 V		0.4	V
	V <sub>OL5</sub>	V <sub>IH</sub> = 4.2 V V <sub>IL</sub> = 1.2 V I <sub>OH</sub> = 5.2 mA	A11	6.0 V		0.4	V
Positive input clamp voltage	V <sub>IC+</sub>	V <sub>CC</sub> = GND I <sub>IN</sub> = 1 mA T <sub>C</sub> = +25°C	A11			1.5	V
Negative input clamp voltage	V <sub>IC-</sub>	V <sub>CC</sub> = open I <sub>IN</sub> = -1 mA T <sub>C</sub> = +25°C	A11			-1.5	V
Input current low	I <sub>IL</sub>	V <sub>IN</sub> = GND	A11	6.0 V		-0.1	μA

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ -55°C < T <sub>C</sub> < +125°C unless otherwise specified	Device type	V <sub>CC</sub>	Limits		Unit
					Min	Max	
Input current high	I <sub>IH</sub>	V <sub>IN</sub> = V <sub>CC</sub>	A11	6.0 V		0.1	μA
Short circuit output current	I <sub>OS1</sub> 2/	V <sub>O</sub> = GND V <sub>I</sub> = GND	A11	2.0 V	-2	-50	mA
	I <sub>OS2</sub> 2/		A11	4.5 V	-15	-150	
	I <sub>OS3</sub> 2/		A11	6.0 V	-25	-180	
	I <sub>OS4</sub>		A11	4.0 V	-10	-120	
Supply current quiescent	I <sub>ICCH</sub> I <sub>CCL</sub>	V <sub>I</sub> = 6.0 V, GND	A11	6.0 V		20	μA
Input capacitance	C <sub>IN</sub>	T <sub>C</sub> = +25°C	01-07			10	pF
Clock, control capacitance	C <sub>C</sub>		A11			15	pF
Device equivalent capacitance	C <sub>PD</sub> 2/	No load, T <sub>A</sub> = +25°C	01-04	4.5 V		90	pF
			05-07	4.5 V		100	pF
			08,09	4.5 V		55	pF
			10	4.5 V		110	pF
			11,13	4.5 V		88	pF
			12	4.5 V		55	pF
Propagation delay clock to outputs	t <sub>PLH1</sub> t <sub>PHL1</sub>	C <sub>L</sub> = 50 pF ±10%	01-04	4.5 V	8	48	ns
CLK to Q			05	4.5 V	7	52	ns
U or D to Q			06,07	4.5 V	11	64	ns
CLK A to QA			08	4.5 V	4	34	ns
CLK A to QC			08	4.5 V	9	68	ns
CLK B to QB			08	4.5 V	4	36	ns
CLK B to QC			08	4.5 V	5	49	ns
CLK B to QD			08	4.5 V	4	36	ns
CLK to QA			09	4.5 V	4	32	ns
CLK to QB			09	4.5 V	6	45	ns
CLK to QC			09	4.5 V	8	56	ns
CLK to QD			09	4.5 V	9	73	ns

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T <sub>C</sub> < +125°C unless otherwise specified	Device type	V <sub>CC</sub>	Limits		Unit	
					Min	Max		
Propagation delay CLK to N - carry out  CLK to Q <sub>N</sub>	t <sub>PHL1</sub> t <sub>PLH1</sub>	$C_L = 50 \text{ pF} \pm 10\%$	10  11,12,13  12,13  12,13  11,12,13  11,13  11	4.5 V	6	54	ns	
					5	49	ns	
					10	98	ns	
					15	147	ns	
					20	196	ns	
					25	245	ns	
					30	294	ns	
					35	343	ns	
					40	392	ns	
					45	441	ns	
					50	490	ns	
					55	539	ns	
					60	588	ns	
Propagation delay clock to carry out CLK to RCO  U/D to RCO	t <sub>PLH2</sub> t <sub>PHL2</sub>		11	4.5 V	65	637	ns	
					70	686	ns	
					01-04	8	50	ns
					05	5	35	ns
Propagation delay CLK to min/max	t <sub>PLH3</sub> t <sub>PHL3</sub>		06,07	4.5 V	4	39	ns	
					05	8	60	ns
Propagation delay ENT to RCO CE to carry-out	t <sub>PLH4</sub> t <sub>PHL4</sub>		01-04	4.5 V	7	46	ns	
					10	6	54	ns
					05	6	47	ns
Propagation delay Load to Q	t <sub>PLH5</sub> t <sub>PHL5</sub>		05	4.5 V	8	68	ns	
					06,07	12	68	ns
Propagation delay A, B, C, and D to Q	t <sub>PLH6</sub> t <sub>PHL6</sub>		05	4.5 V	7	56	ns	

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T <sub>C</sub> ≤ +125°C unless otherwise specified	Device type	V <sub>CC</sub>	Limits		Unit
					Min	Max	
Propagation delay U/D to min/max	t <sub>PLH7</sub> t <sub>PHL7</sub>	C <sub>L</sub> = 50 pF ±10%	05	4.5 V	6	44	ns
Propagation delay U/D to RCO	t <sub>PLH8</sub> t <sub>PHL8</sub>		05	4.5 V	8	54	ns
Propagation delay CLR to Q	t <sub>PHL9</sub>		01,02	4.5 V	8	53	ns
Propagation delay CLR to Q <sub>N</sub>	t <sub>PHL9</sub>		06,07	4.5 V	11	62	ns
			08,09	4.5 V	5	39	ns
			11-13	4.5 V	6	56	ns
			12	4.5 V	5	49	ns
Propagation delay CLR to N - carry out	t <sub>PHL9</sub> t <sub>PLH9</sub>		10	4.5 V	6	54	ns
Propagation delay CLR to RCO	t <sub>PHL10</sub>		01,02	4.5 V	8	51	ns
Propagation delay Q <sub>n</sub> to Q <sub>n+1</sub>	t <sub>PHL11</sub> t <sub>PLH11</sub>		11-13	4.5 V	4	29	ns
Output transition time	t <sub>TLH</sub> t <sub>THL</sub>		A11	4.5 V	3	20	ns
Maximum frequency test	f <sub>MAX</sub>	C <sub>L</sub> = 50 pF ±10% 50% duty cycle	01-04, 09	4.5 V	21		MHz
			05	4.5 V	17		MHz
			06,07	4.5 V	14		MHz
			08	4.5 V	23		MHz
			10	4.5 V	17		MHz
			11-13	4.5 V	21		MHz

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

2/ Guaranteed but not tested.

3/ Tested at V<sub>CC</sub> = 4.5 V at +125°C for sample testing and V<sub>CC</sub> = 4.5 V at +25°C for screening.Guaranteed at other V<sub>CC</sub> voltages and temperatures, see table IA and IB as appropriate and the exception in 4.4.1d.

4/ See the formulae for determining switching times and maximum frequencies shown in tables IA and IB respectively.

TABLE IA. Calculated dynamic figures at -55/+25 ambient temperature ( $^{\circ}\text{C}$ ).

$V_{CC}$	$T_A = ({}^{\circ}\text{C})$	
	+125	-55/+25
2.0 V 1/	5.00 X	5.00 Y
4.5 V	X = 1	0.75 X = Y
6.0 V 1/	0.85 X	0.85 Y

Normalized numbers  
(+125 $^{\circ}\text{C}$  equals 1)

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

TABLE IB. Calculated  $f_{MAX}$  figures at -55/+25 ambient temperature ( $^{\circ}\text{C}$ ).

$V_{CC}$	$T_A = ({}^{\circ}\text{C})$	
	+125	-55/+25
2.0 V 1/	0.2 X	0.2 Y
4.5 V	X = 1	1.33 X = Y
6.0 V 1/	1.18 X	1.18 Y

Normalized numbers  
(+125 $^{\circ}\text{C}$  equals 1)

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

TABLE II. Burn-in and electrical test requirements.

Line no.	Applicable tests and MIL-STD-883 test method	Class S device				Class B device			
		Reference paragraph	Table III subgroups 2/	Table IV delta limits 3/	Test circuit figure	Reference paragraph	Table III subgroups 2/	Table IV delta limits 3/	Test circuit figure
1	Interim electrical parameters (method 5004)		1				1		
2	Static burn-in I (method 1015)	4.2b 4.5.2	Required		3		Not required		
3	Same as Line 1		1	Δ					
4	Static burn-in II (method 1015)	4.2b 4.5.2	Required		3	4.2b 4.5.2	4/ Required		3
5	Same as Line 1	4.2d	1*	Δ		4.2d	1*	Δ	
6	Dynamic burn-in (method 1015)	4.2b 4.5.2	Required				Not required		
7	Same as Line 1	4.2d	1	Δ					
8	Final electrical parameters (method 5004)		1*,2,3, 7,8,9				1*,2,7, 9 4/		
9	Group A test requirements (method 5005)	4.4.1	1,2,3,4, 7,8,9,10, 11			4.4.1	1,2,3,4, 7,8,9,10, 11		
10	Group B end-point electrical parameters (method 5005)	4.4.2	+1,2,3,7, 8,9,10,11 5/	Δ			+1 5/		
11	Group C end-point electrical parameters (method 5005)					4.4.3	1, 2	Δ	
12	Group D end-point electrical parameters (method 5005)	4.4.4	1,2,3			4.4.4	1, 2		

1/ Blank spaces indicate tests are not applicable.

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

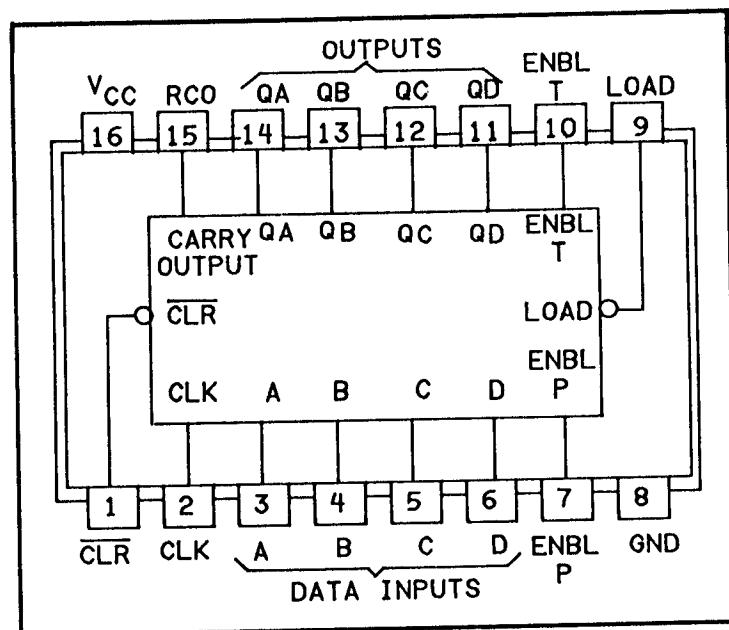
3/ Δ indicates delta limit shall be required only on table III, subgroup 1, where specified, and the delta values shall be computed with references to the previous interim electrical parameters (line 1).

4/ The device manufacturer may at his option, either complete subgroup 1 electrical parameter measurements, including delta measurements, within 96 hours after burn-in completion (removal of bias); or may complete subgroup 1 electrical measurements without delta measurements within 24 hours after burn-in completion (removal of bias).

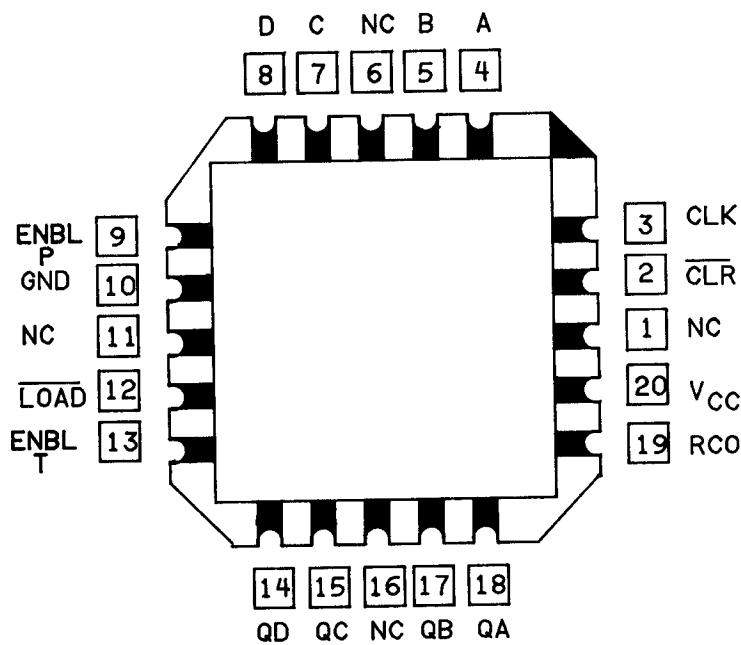
5/ + indicates also applies to electrostatic discharge sensitivity tests.

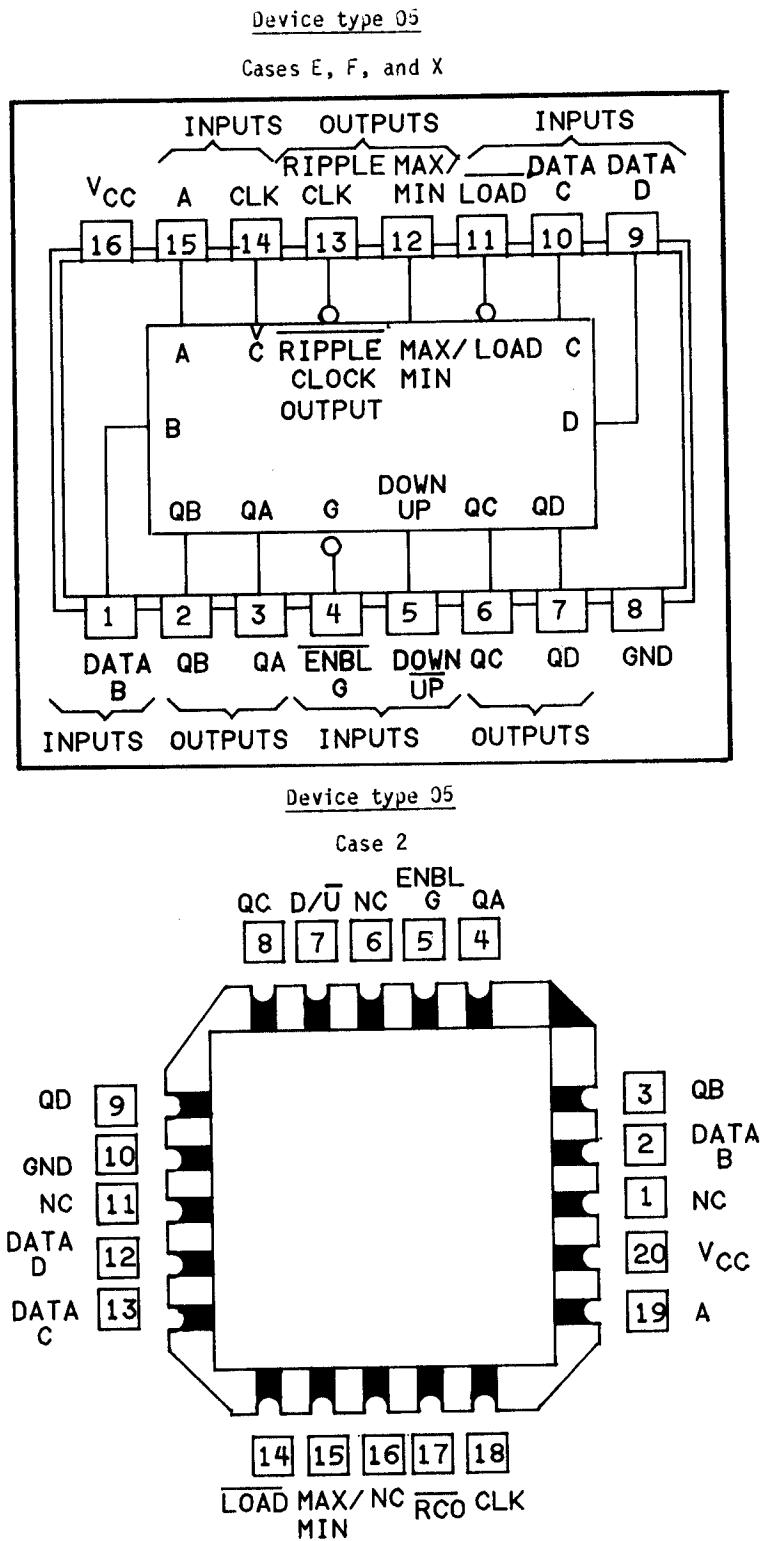
Device types 01, 02, 03, and 04

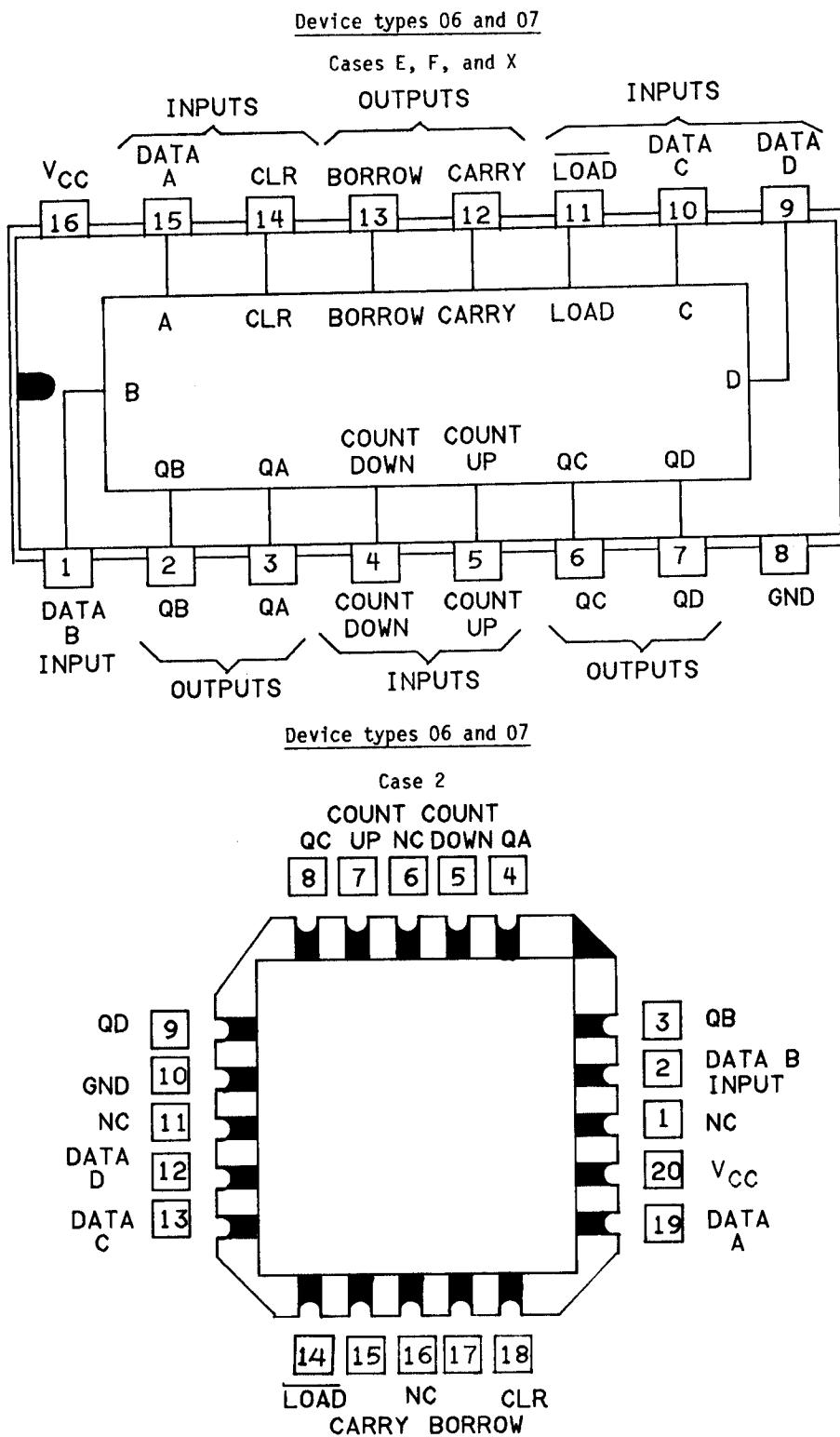
Cases E, F, and X

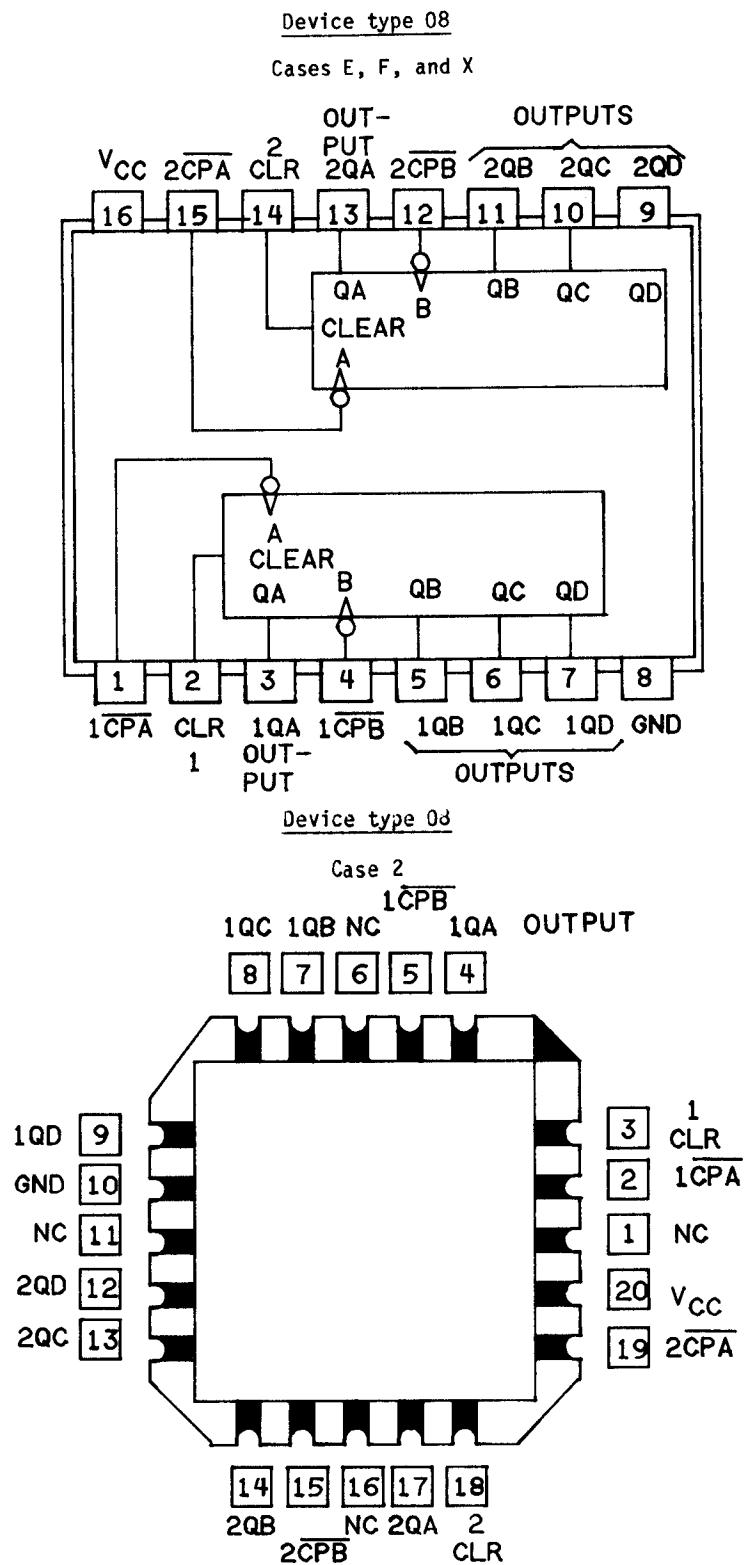
Device types 01, 02, 03, and 04

Case 2

FIGURE 1. Terminal connections.

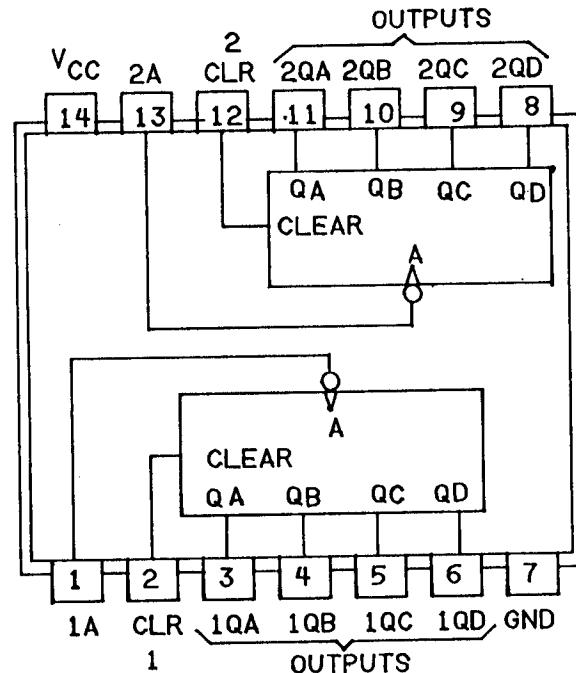
FIGURE 1. Terminal connections - Continued.

FIGURE 1. Terminal connections - Continued.

FIGURE 1. Terminal connections - Continued.

### Devices type 09

### Cases C and D



Device type 09

### Case 2

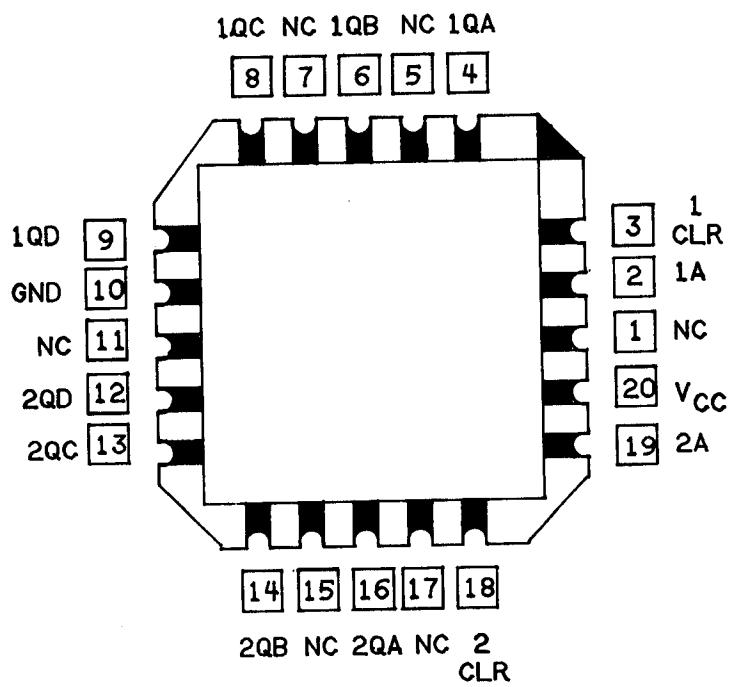
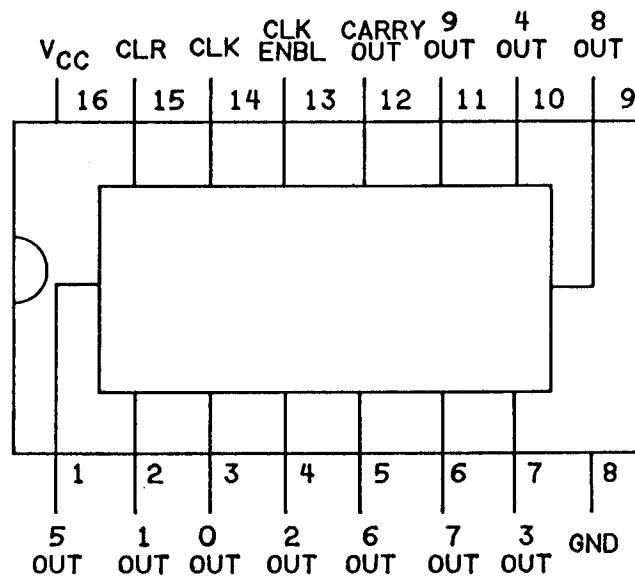


FIGURE 1. Terminal connections - Continued.

Device type 10

Cases E, F, and X



Device type 10

Case 2

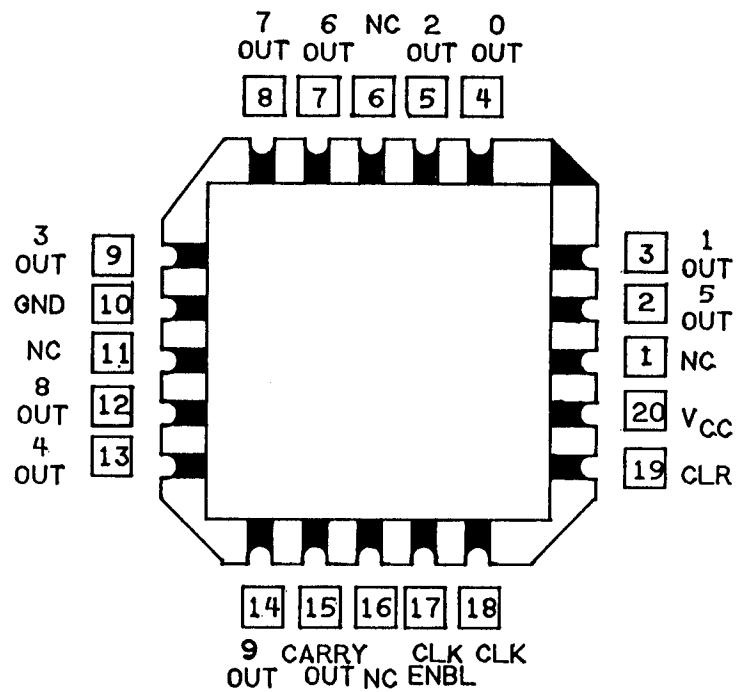
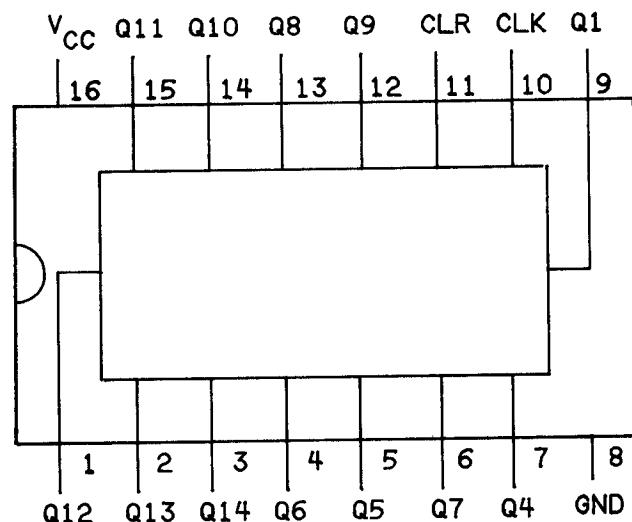


FIGURE 1. Terminal connections - Continued.

Device type 11

Cases E, F, and X



Device type 11

Case 2

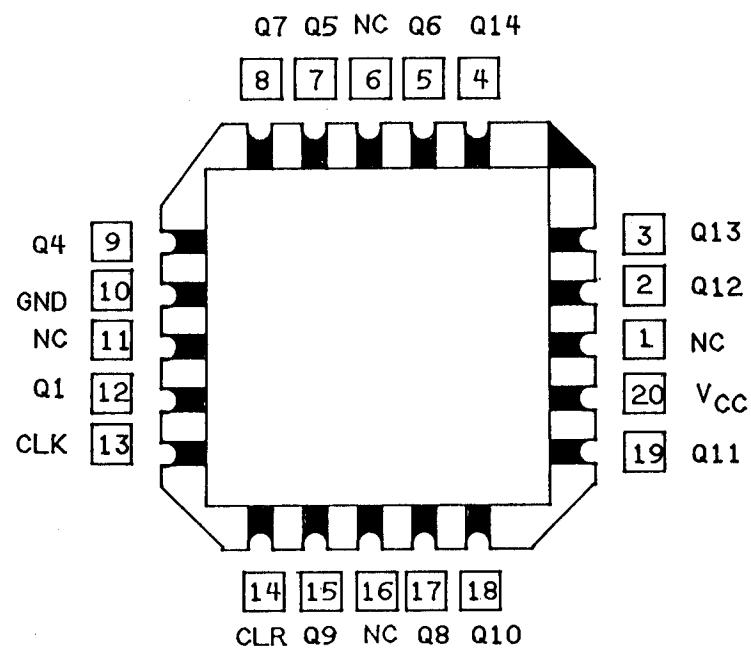
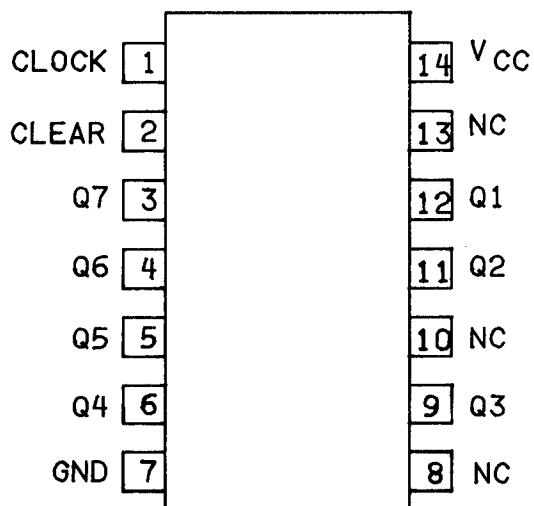


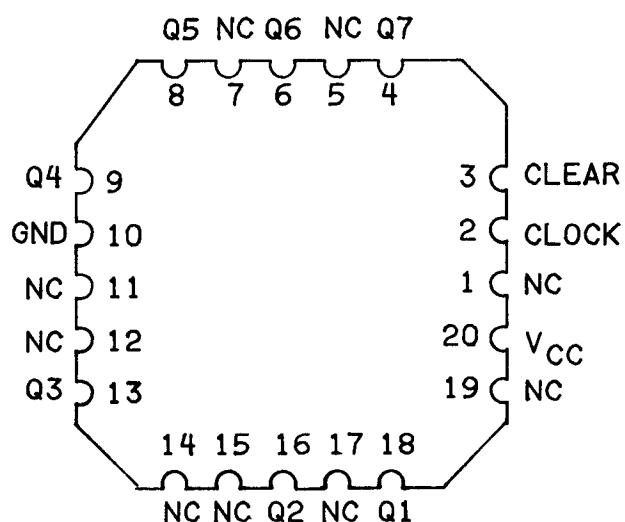
FIGURE 1. Terminal connections - Continued.

Device type 12

Cases C and D

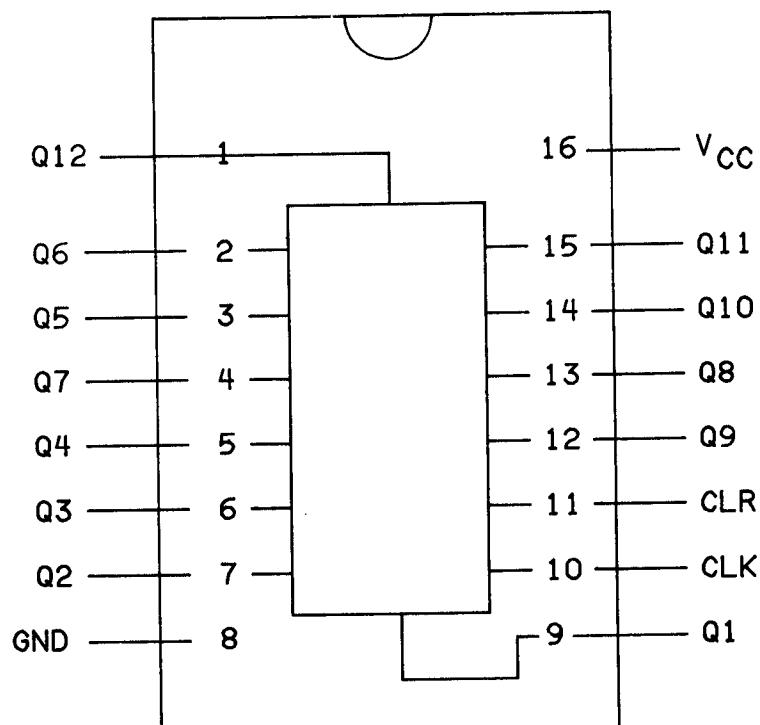
Device type 12

Case 2

FIGURE 1. Terminal connections - Continued.

Device type 13

Cases E, F, and X



Device type 13

Case 2

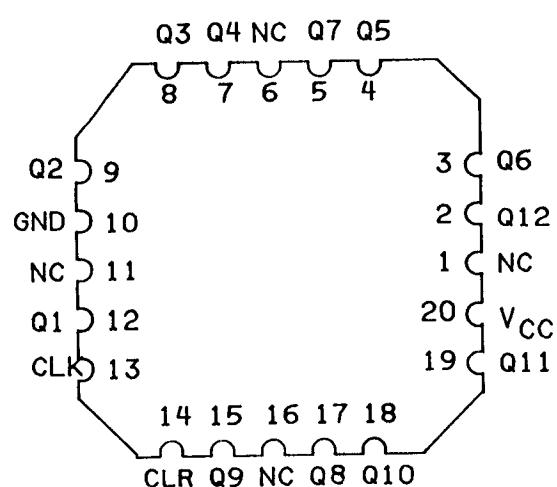


FIGURE 1. Terminal connections - Continued.

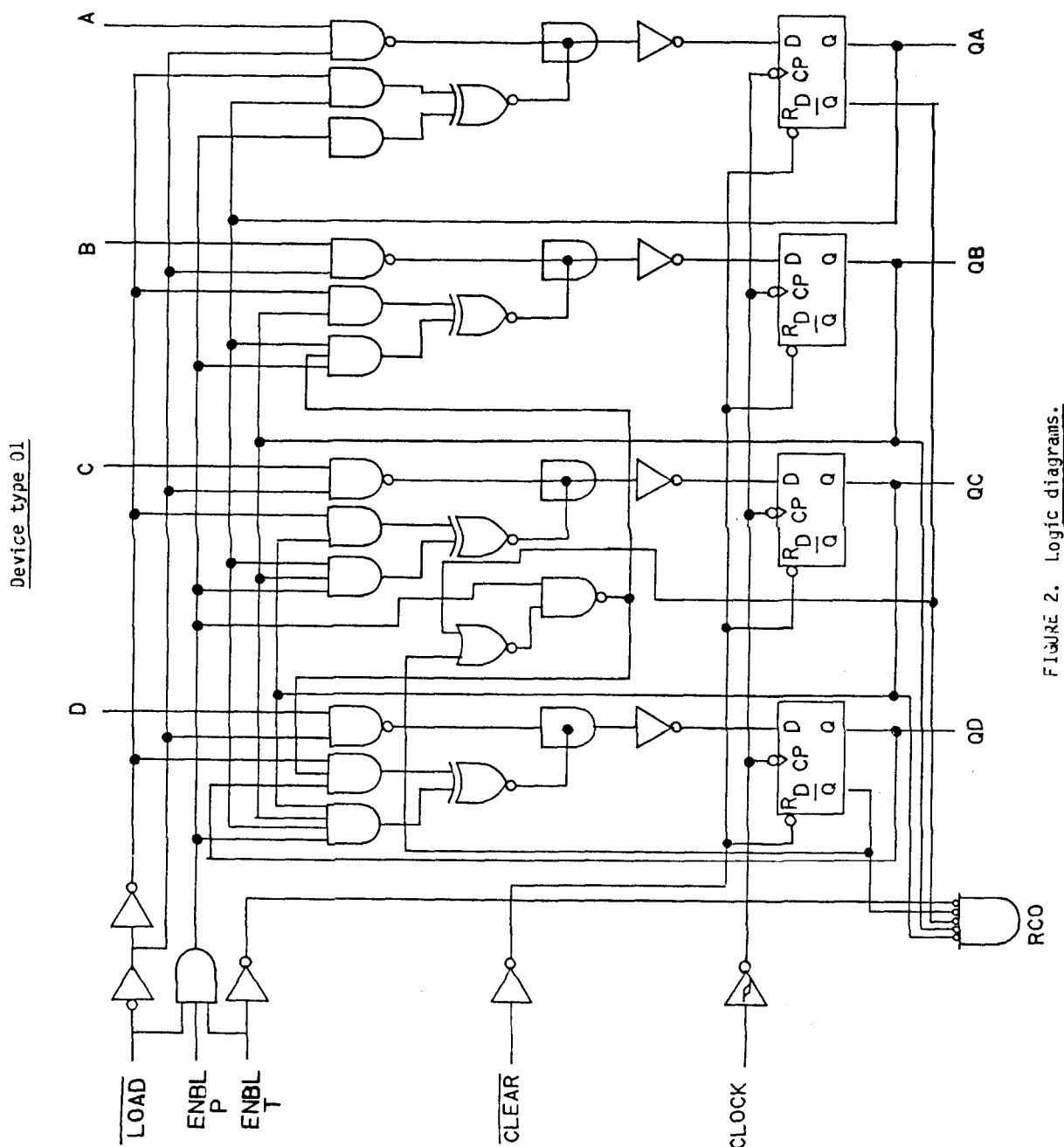
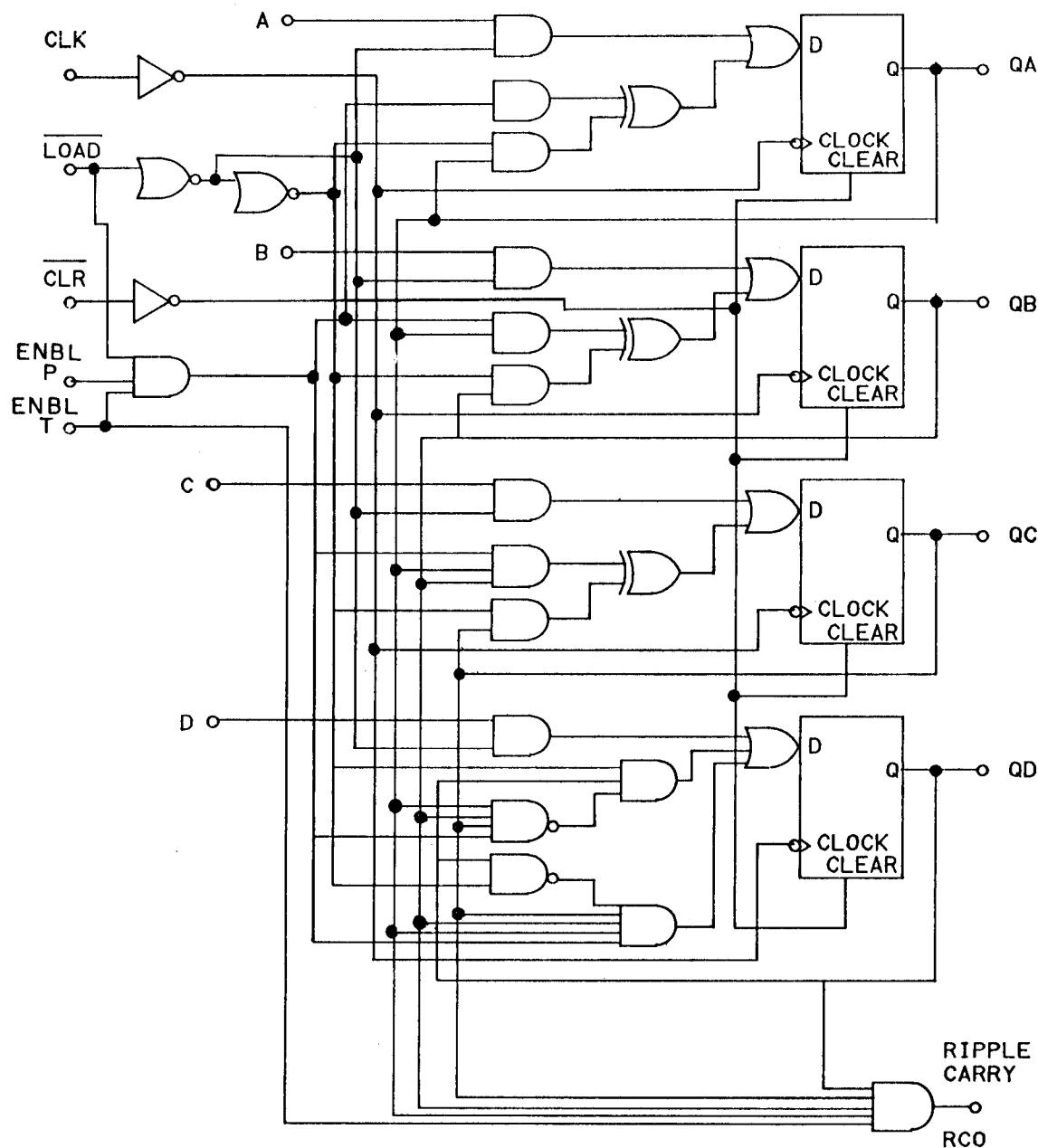
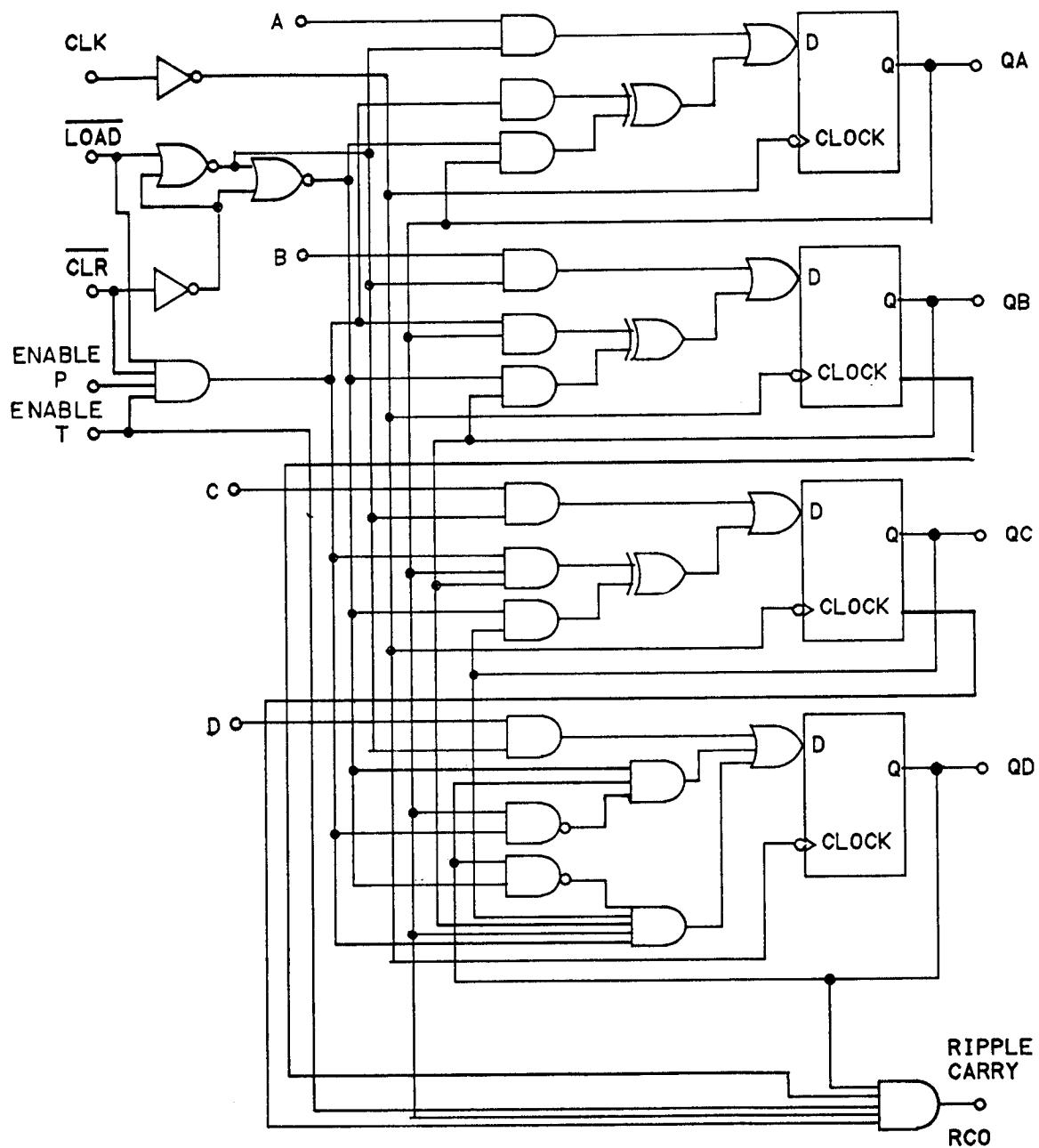


FIGURE 2. Logic diagrams.

Device type 02FIGURE 2. Logic diagrams - Continued.

Device type 03FIGURE 2. Logic diagrams - Continued.

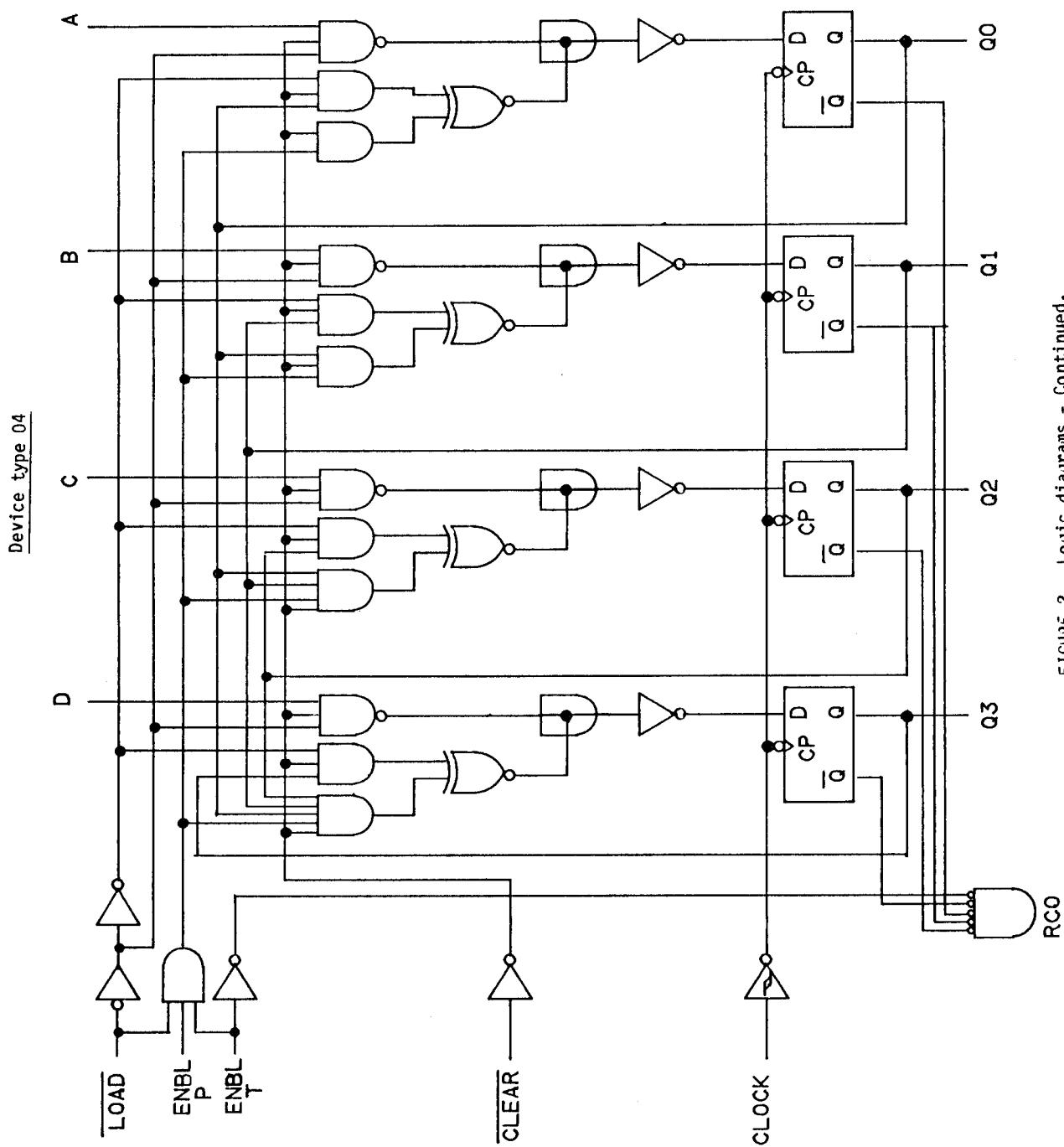
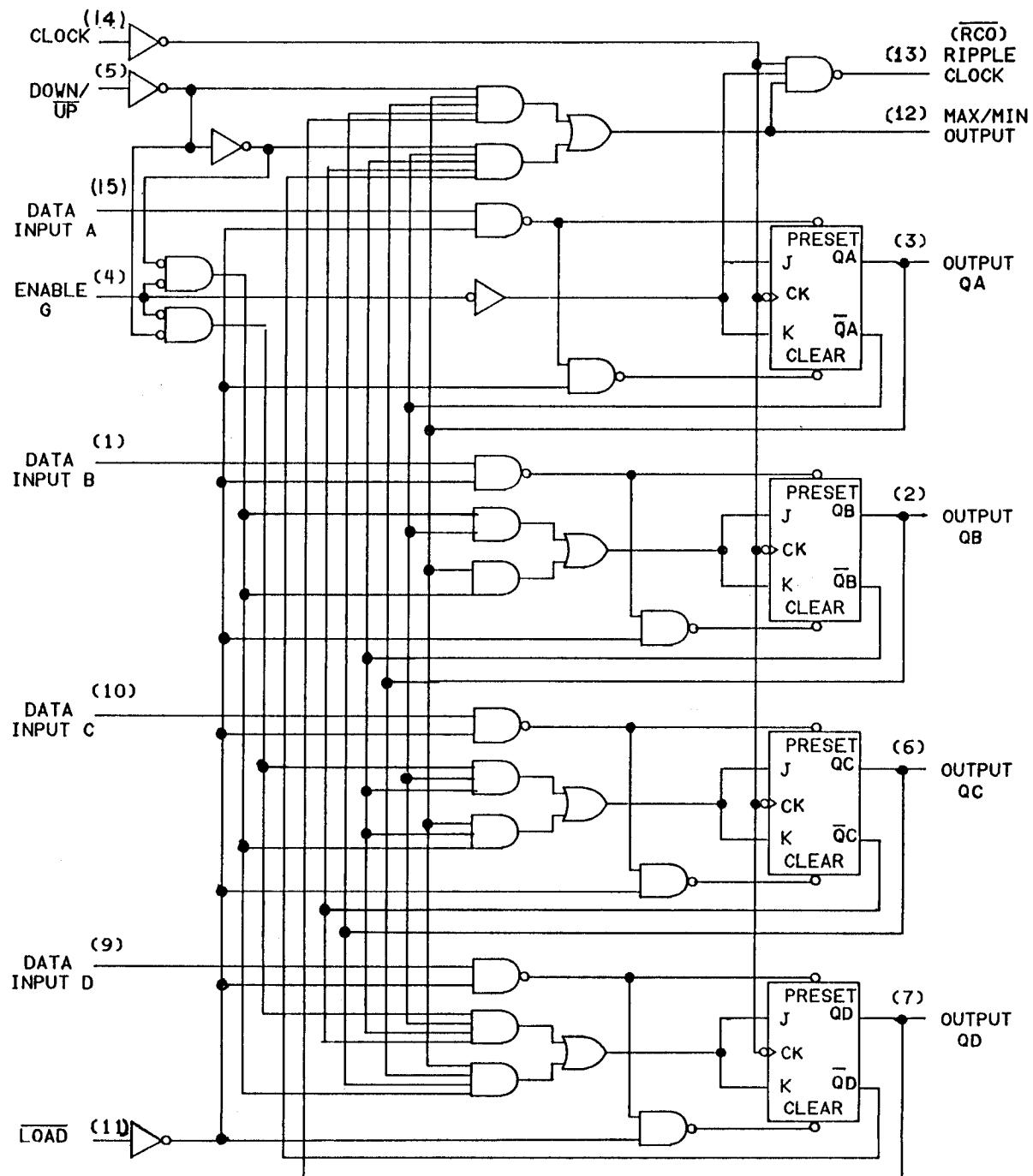


FIGURE 2. Logic diagrams - Continued.

RCO

Device type 05FIGURE 2. Logic diagrams - Continued.

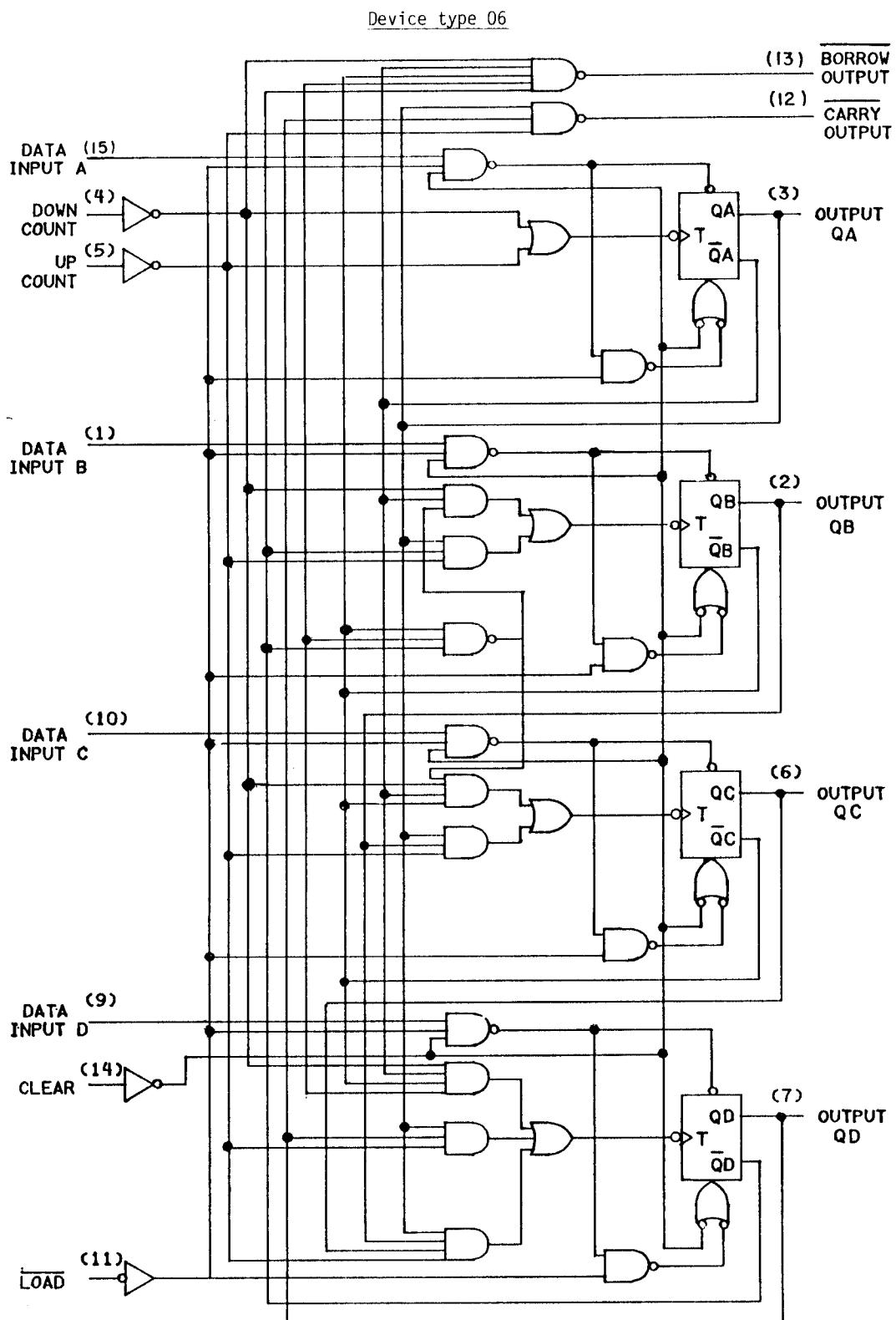
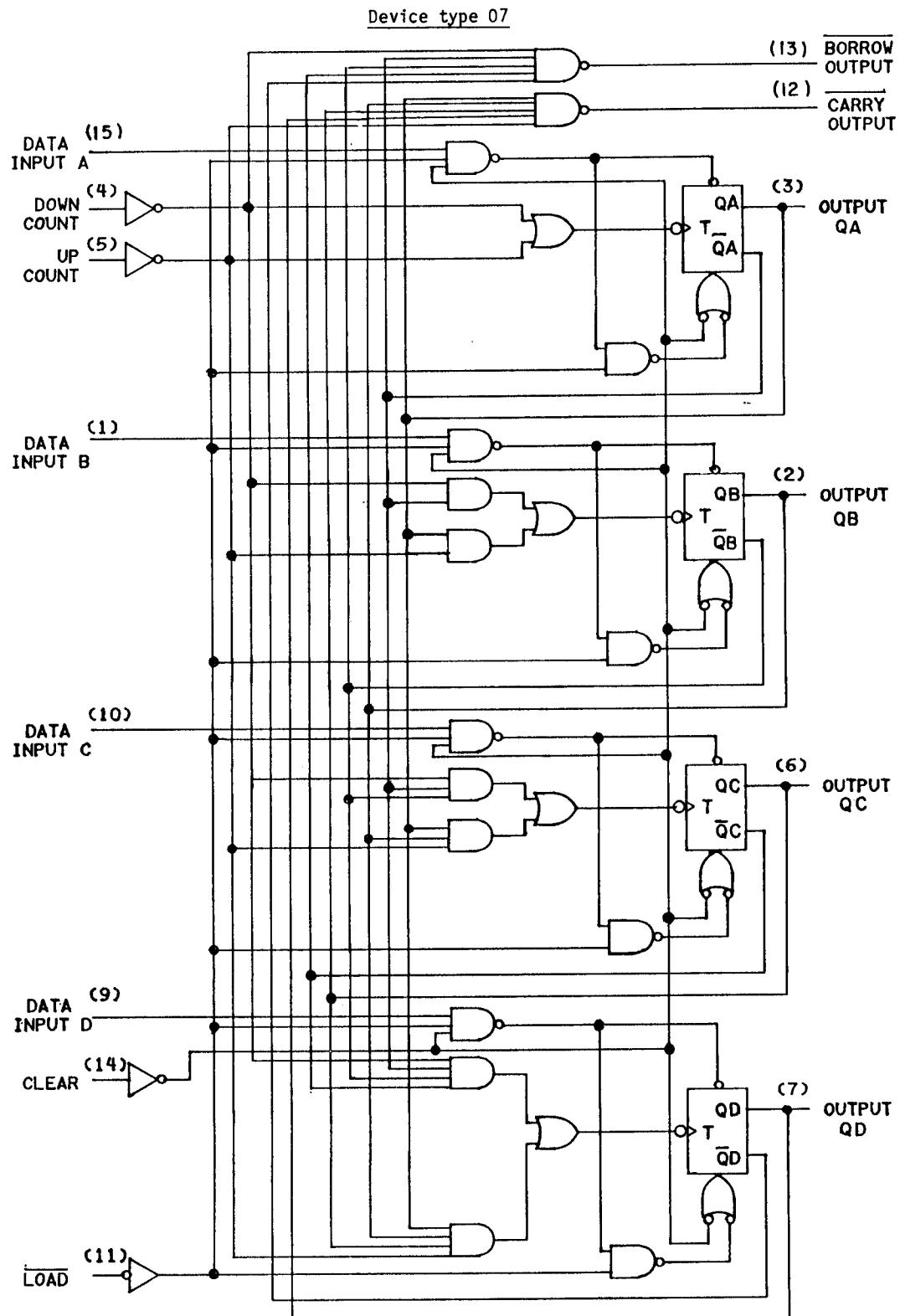
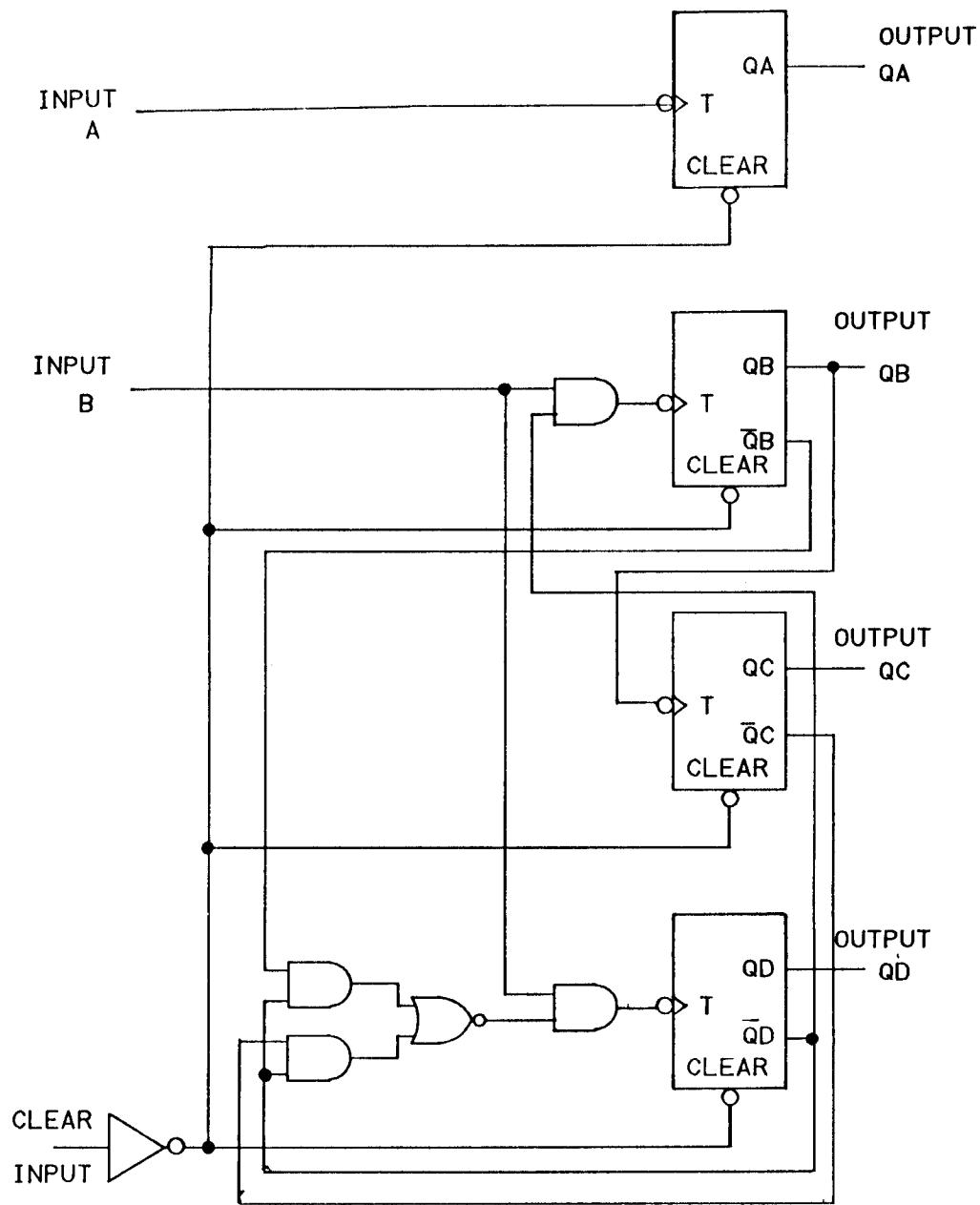
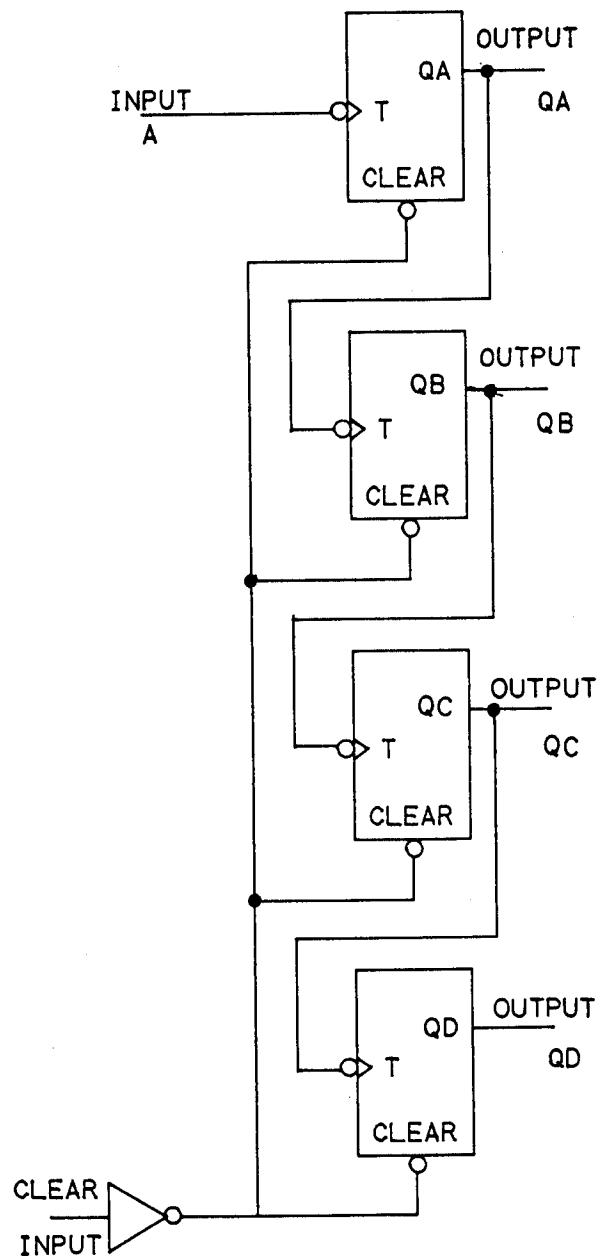


FIGURE 2. Logic diagrams - Continued.

FIGURE 2. Logic diagrams - Continued.

Device type 08FIGURE 2. Logic diagrams - Continued.

Device type 09FIGURE 2. Logic diagrams - Continued.

Device type 10

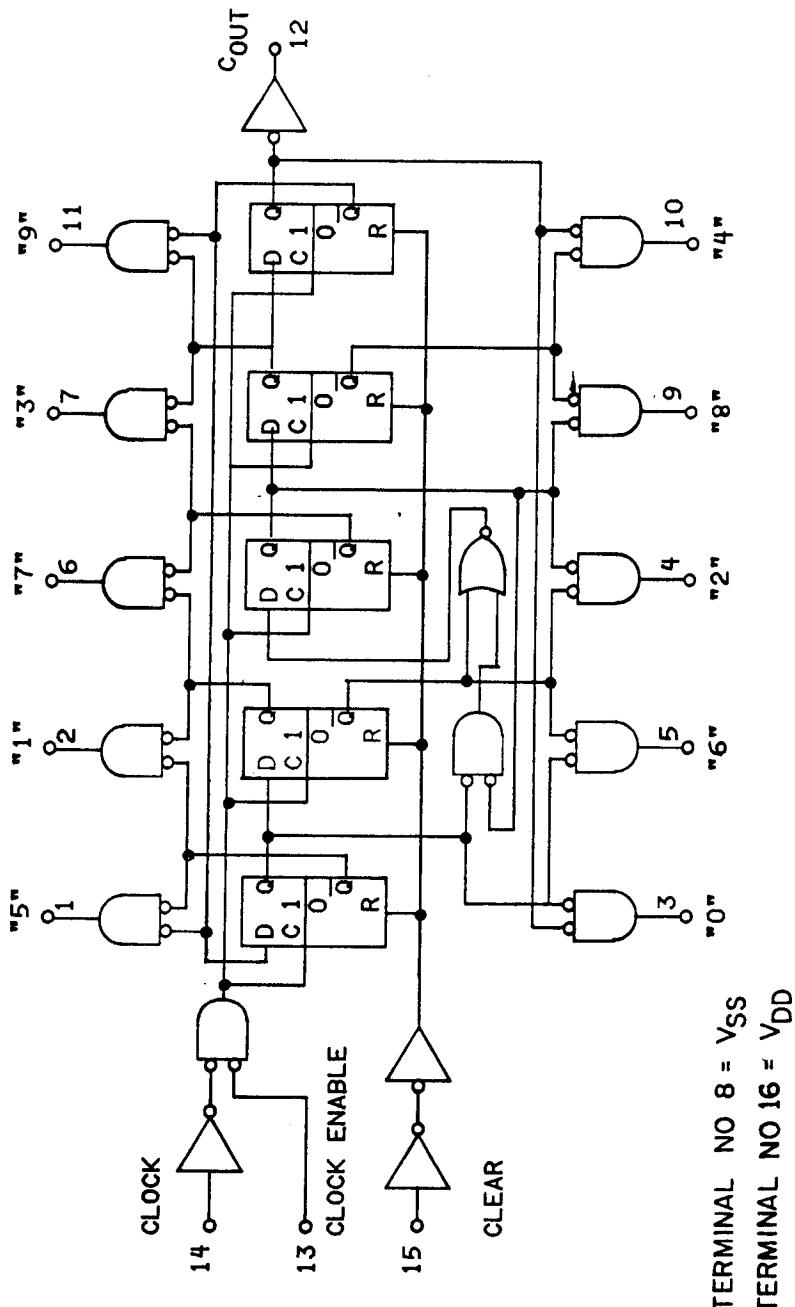
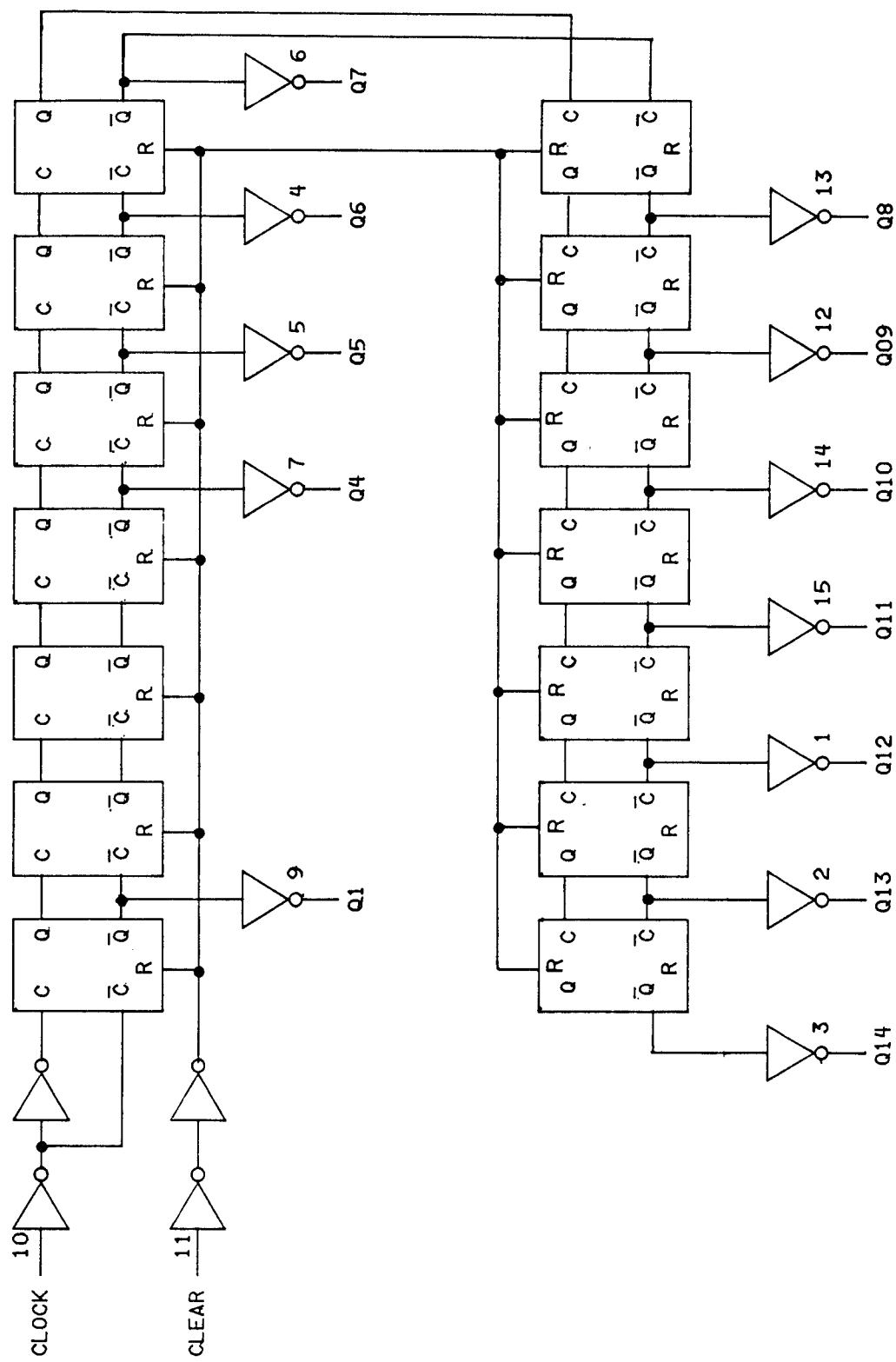


FIGURE 2. Logic diagrams - Continued.

Device type 11FIGURE 2. Logic diagrams - Continued.

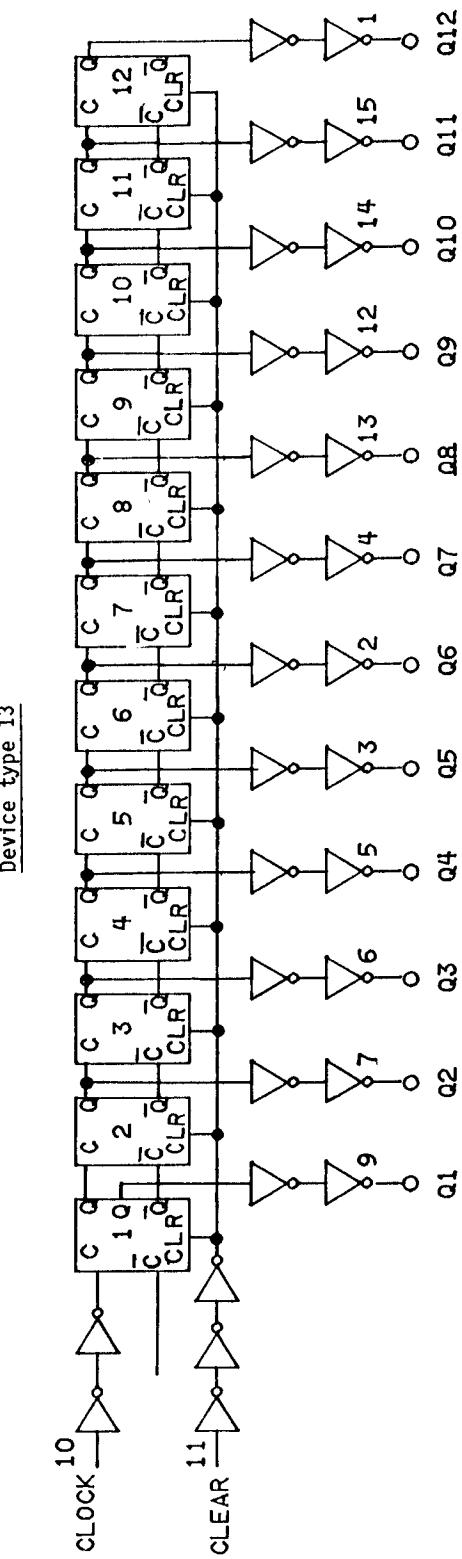
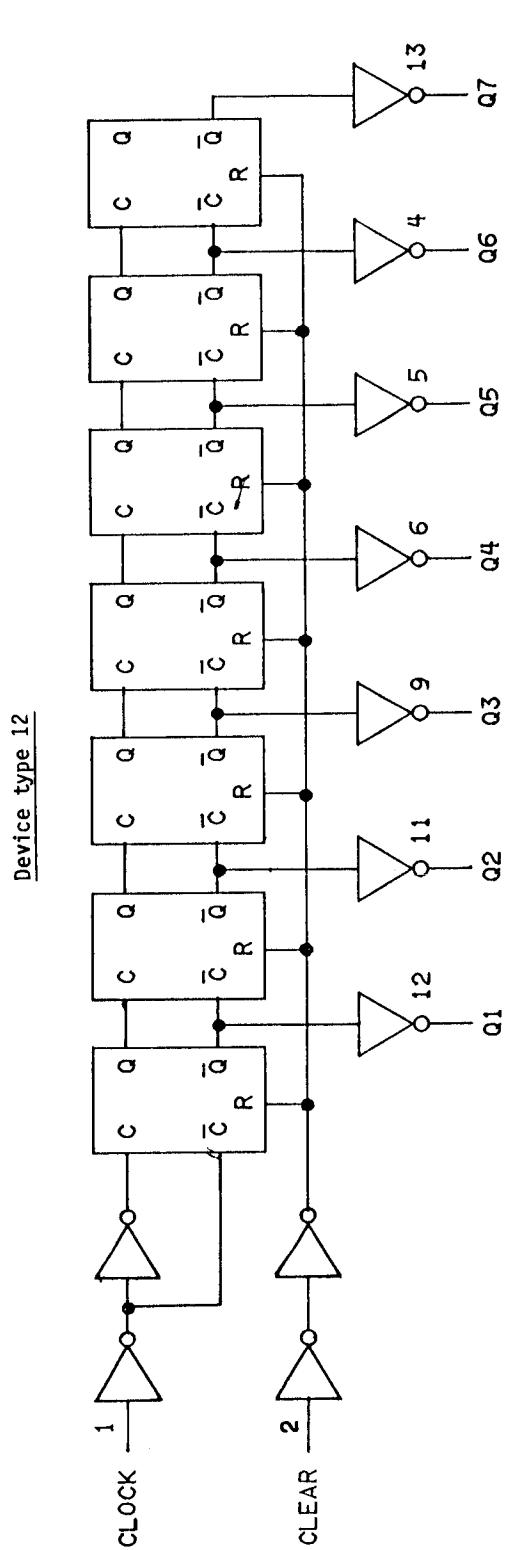


FIGURE 2. Logic diagrams - Continued.

Device type 01

## Synchronous truth table

Inputs at time $t_n$										Outputs at time $t_{n+1}$				
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO	
CP	L	X	H	X	X	X	X	H	NC	NC	NC	NC	NC	
CP	X	L	H	X	X	X	X	H	NC	NC	NC	NC	L	
CP	H	H	H	X	X	X	X	H	Previous count plus 1 (See note 1)				H if count = 9 L if count < 9	
CP	X	H	L	X	X	X	X	H	A	B	C	D	H if count = 9 L if count < 9	
CP	X	L	L	X	X	X	X	H	A	B	C	D	L	
X	X	X	X	X	X	X	X	L	L	L	L	L	L	

Device type 01

## Asynchronous truth table

Inputs at time $t_n$										Outputs at time $t_{n+1}$				
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO	
X	X	X	X	X	X	X	X	L	L	L	L	L	L	

FIGURE 3. Truth tables.

Device type 01

Up count sequence table

QA (LSB)	QB	QC	QD (MSB)
L	L	L	L
H	L	L	L
L	H	L	L
H	H	L	L
L	L	H	L
H	L	H	L
L	H	H	L
H	H	H	L
L	L	L	H
H	L	L	H

## NOTES:

1. See up count sequence table.
2. L =  $V_{IL}$  for inputs,  $V_{OL}$  for outputs.
3. H =  $V_{IH}$  for inputs,  $V_{OH}$  for outputs.
4. X =  $V_{IH}$  or  $V_{IL}$ .
5. CP = Clock pulse.
6. NC = No change.

FIGURE 3. Truth tables - Continued.

Device type 02

## Synchronous truth table

Inputs at time $t_n$								Outputs at time $t_{n+1}$					
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO
CP	L	X	H	X	X	X	X	H	NC	NC	NC	NC	NC
CP	X	L	H	X	X	X	X	H	NC	NC	NC	NC	L
CP	H	H	H	X	X	X	X	H	Previous count plus 1 (See note 1)			H if count = 15 L if count < 15	
CP	X	H	L	X	X	X	X	H	A	B	C	D	H if count = 15 L if count < 15
CP	X	L	L	X	X	X	X	H	A	B	C	D	L
X	X	X	X	X	X	X	X	L	L	L	L	L	L

Device type 02

## Asynchronous truth table

Inputs at time $t_n$								Outputs at time $t_{n+1}$					
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO
X	X	X	X	X	X	X	X	L	L	L	L	L	L

FIGURE 3. Truth tables - Continued.

Device type 02

Up count sequence table

QA (LSB)	QB	QD (MSB)	
L	L	L	L
H	L	L	L
L	H	L	L
H	H	L	L
L	L	H	L
H	L	H	L
L	H	H	L
H	H	H	L
L	L	L	H
H	L	L	H
L	H	L	H
H	H	L	H
L	L	H	H
H	L	H	H
L	H	H	H
H	H	H	H

## NOTES:

1. See up count sequence table.
2. L =  $V_{IL}$  for inputs,  $V_{OL}$  for outputs.
3. H =  $V_{IH}$  for inputs,  $V_{OH}$  for outputs.
4. X =  $V_{IH}$  or  $V_{IL}$ .
5. CP = Clock pulse.
6. NC = No change.

FIGURE 3. Truth tables - Continued.

Device type 03

## Synchronous truth table

Inputs at time $t_n$										Outputs at time $t_{n+1}$				
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO	
CP	L	X	H	X	X	X	X	H	NC	NC	NC	NC	NC	
CP	X	L	H	X	X	X	X	H	NC	NC	NC	NC	L	
CP	H	H	H	X	X	X	X	H	Previous count plus 1 (See note 1)				H if count = 9 L if count < 9	
CP	X	H	L	X	X	X	X	H	A	B	C	D	H if count = 9 L if count < 9	
CP	X	L	L	X	X	X	X	H	A	B	C	D	L	
CP	X	X	X	X	X	X	X	L	L	L	L	L	L	

Up count sequence table

QA (LSB)	QB	QC	QD (MSB)
L	L	L	L
H	L	L	L
L	H	L	L
H	H	L	L
L	L	H	L
H	L	H	L
L	H	H	L
H	H	H	L
L	L	L	H
H	L	L	H

## NOTES:

1. See up count sequence table.
2. L =  $V_{IL}$  for inputs,  $V_{OL}$  for outputs.
3. H =  $V_{IH}$  for inputs,  $V_{OH}$  for outputs.
4. X =  $V_{IH}$  or  $V_{IL}$ .
5. CP = Clock pulse.
6. NC = No change.

FIGURE 3. Truth tables - Continued.

Device type 04

## Synchronous truth table

Inputs at time $t_n$									Outputs at time $t_{n+1}$				
CLOCK	ENABLE P	ENABLE T	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QD	RCO
CP	L	X	H	X	X	X	X	H	NC	NC	NC	NC	NC
CP	X	L	H	X	X	X	X	H	NC	NC	NC	NC	L
CP	H	H	H	X	X	X	X	H	Previous count plus 1 (See note 1)				
CP	X	H	L	X	X	X	X	H	A	B	C	D	H if count = 15 L if count < 15
CP	X	L	L	X	X	X	X	H	A	B	C	D	L
CP	X	X	X	X	X	X	X	L	L	L	L	L	L

FIGURE 3. Truth tables - Continued.

Device type 04

Up count sequence table

QA (LSB)	QB	QC	QD (MSB)
L	L	L	L
H	L	L	L
L	H	L	L
H	H	L	L
L	L	H	L
H	L	H	L
L	H	H	L
H	H	H	L
L	L	L	H
H	L	L	H
L	H	L	H
H	H	L	H
L	L	H	H
H	L	H	H
L	H	H	H
H	H	H	H

## NOTES:

1. See up count sequence table.
2. L =  $V_{IL}$  for inputs,  $V_{OL}$  for outputs.
3. H =  $V_{IH}$  for inputs,  $V_{OH}$  for outputs.
4. X =  $V_{IH}$  or  $V_{IL}$ .
5. CP = Clock pulse.
6. NC = No change.

FIGURE 3. Truth tables - Continued.

Device type 05

Mode select table

Inputs				Mode
LOAD	ENABLE G	U/D	CLK	
H	L	L		Count up
H	L	H		Count down
L	X	X	X	Preset (Asyn)
H	H	X	X	No change (Hold)

Ripple carry truth table

Inputs		Outputs	
ENABLE G	CLK	Max/Min	RCO
L		H	
H	X	X	H
X	X	L	H

L = Low voltage level

H = High voltage level

X = Don't care

= Low-to-high clock transition

= Negative going clock pulse

NOTE: The up count and down count sequence for device type 05 is identical as that for device type 07.

FIGURE 3. Truth tables - Continued.

Device type 06

		Inputs at time $t_n$								Outputs at time $t_{n+1}$					
Count up	Count down	LOAD	A	B	C	D	CLEAR	QA	QB	QC	QB	CARRY	BORROW		
H	H	H	X	X	X	X	L	NC	NC	NC	NC		H		
X	X	X	X	X	X	X	H	L	L	L	L		H		
X	X	L	X	X	X	X	L	A	B	C	D		H		
P	H	H	X	X	X	X	L	Previous count plus 1 (See note 1)		Previous count minus 1 (See note 2)			H		
H	P	H	X	X	X	X	L	Previous count plus 1 (See note 1)		Previous count minus 1 (See note 2)			H		
N	H	H	X	X	X	X	L	NC	NC	NC	NC	N if count = 9 H if count $\neq$ 9			
H	N	H	X	X	X	X	L	NC	NC	NC	NC	N if count = 0 H if count $\neq$ 0			

## NOTES:

1. See up count sequence table.
2. See down count sequence table.
3. L = V<sub>IL</sub> for inputs, V<sub>OL</sub> for outputs.
4. H = V<sub>IH</sub> for inputs, V<sub>OH</sub> for outputs.
5. X = V<sub>IH</sub> or V<sub>IL</sub>.
6. NC = No change.
7. NA = Not applicable.
8. P = Positive going pulse.
9. N = Negative going pulse.

FIGURE 3. Truth tables - Continued.

Device type 06

Up count sequence table

QA (LSB)	QB	QC	QD (MSB)	CARRY
L	L	L	L	H
H	L	L	L	H
L	H	L	L	H
H	H	L	L	H
L	L	H	L	H
H	L	H	L	H
L	H	H	L	H
H	H	H	L	H
L	L	L	H	H
H	L	L	H	L

Down count sequence table

QA (LSB)	QB	QC	QD (MSB)	BORROW
H	L	L	H	H
L	L	L	H	H
H	H	H	L	H
L	H	H	L	H
H	L	H	L	H
L	L	H	L	H
H	H	L	L	H
L	H	L	L	H
H	L	L	L	H
L	L	L	L	L

FIGURE 3. Truth tables - Continued.

		Inputs at time $t_n$				Outputs at time $t_{n+1}$					
Count up	Count down	LOAD		CLEAR		QA	QB	QC	QD	CARRY	BORROW
		A	B	C	D						
H	H	H	X	X	X	L	NC	NC	NC	H	H
X	X	X	X	X	X	H	L	L	L	H	H
X	X	L	X	X	X	L	A	B	C	D	H
P	H	H	X	X	X	X	Previous count plus 1 (See note 1)				H
H	P	H	X	X	X	X	Previous count minus (See note 2)				H
N	H	H	X	X	X	X	L	NC	NC	NC	N if count = 15 H if count $\neq$ 15
H	N	H	X	X	X	X	L	NC	NC	NC	N if count = 0 H if count $\neq$ 0

## NOTES:

1. See up count sequence table.
2. See down count sequence table.
3. L = V<sub>IL</sub> for inputs, V<sub>OL</sub> for outputs.
4. H = V<sub>IH</sub> for inputs, V<sub>OH</sub> for outputs.
5. X = V<sub>IH</sub> or V<sub>IL</sub>.
6. NC = No change.
7. NA = Not applicable.
8. P = Positive going pulse.
9. N = Negative going pulse.

FIGURE 3. Truth tables - Continued.

Device type 07

Up count sequence table

QA (LSB) (LSB)	QB	QC	QD (MSB)	CARRY
L	L	L	L	H
H	L	L	L	H
L	H	L	L	H
H	H	L	L	H
L	L	H	L	H
H	L	H	L	H
L	H	H	L	H
H	H	H	L	H
L	L	L	H	H
H	L	L	H	H
L	H	L	H	H
H	H	L	H	H
L	L	H	H	H
H	L	H	H	H
L	H	H	H	H
H	H	H	H	L

Down count sequence table

QA (LSB)	QB	QC	QD (MSB)	BORROW
H	H	H	H	H
L	H	H	H	H
H	L	H	H	H
L	L	H	H	H
H	H	L	H	H
L	H	L	H	H
H	L	L	H	H
L	L	L	H	H
H	H	H	L	H
L	H	H	L	H
H	L	H	L	H
L	L	H	L	H
H	H	L	L	H
L	H	L	L	H
H	L	L	L	H
L	L	L	L	L

FIGURE 3. Truth tables - Continued.

Device type 08				Device type 09			
Each counter				Each counter			
BCD count sequence (See note 1)				Bi-quinary (5-2) (See note 2)			
Count				Count			
Output				Output			
QD QC QB QA				QA QD QC QB			
0 L L L L				0 L L L L			
1 L L L H				1 L L L H			
2 L L H L				2 L L H L			
3 L L H H				3 L L H H			
4 L H L L				4 L H L L			
5 L H L H				5 H L L L			
6 L H H L				6 H L L H			
7 L H H H				7 H L H L			
8 H L L L				8 H L H H			
9 H L L H				9 H H L L			

Device type 10

Inputs			Outputs				
CLOCK	CLOCK ENABLE	CLEAR	D <sub>n-1</sub>	Q <sub>n</sub>	N <sub>n</sub>	"0 <sub>n</sub>	
X	H	L	X	Q <sub>n-1</sub>	N <sub>n-1</sub>	"0 <sub>n-1</sub>	(No change)
X	X	H	X	L	L	H	
[waveform]	X	L	X	Q <sub>n-1</sub>	N <sub>n-1</sub>	"0 <sub>n-1</sub>	(No change)
[waveform]	L	L	L	L	N-1 <sub>n-1</sub>	"9 <sub>n-1</sub>	
[waveform]	L	L	H	H	N-1 <sub>n-1</sub>	"9 <sub>n-1</sub>	

On chip

Device type 11

CLOCK	CLEAR	Output state
[waveform]	L	No change
[waveform]	L	Advance to next stage
X	H	All outputs are low

Device type 12

CLOCK	CLEAR	Output state
[waveform]	L	No change
[waveform]	L	Advance to next stage
X	H	All outputs are low

Device type 13

CLOCK	CLEAR	Output state
[waveform]	L	No change
[waveform]	L	Advance to next stage
X	H	All outputs are low

H = high level (steady-state)  
L = low level (steady-state)  
X = don't care

FIGURE 3. Truth tables - Continued.

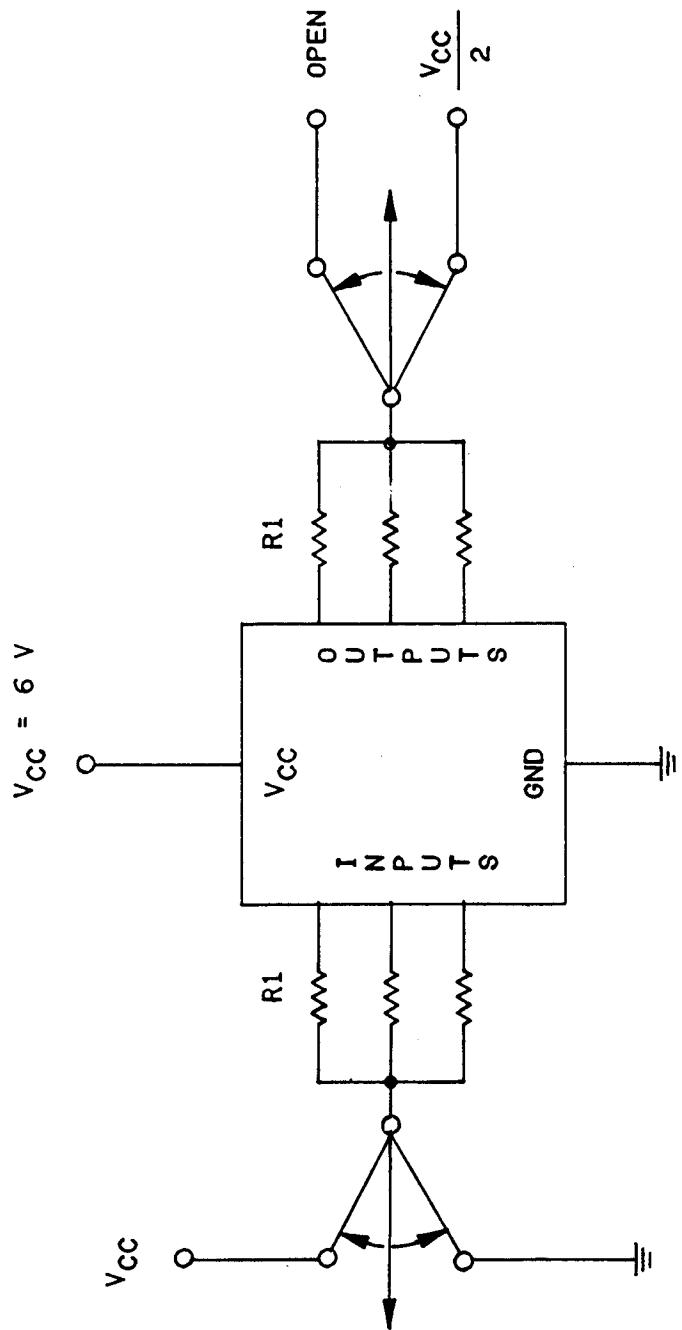


FIGURE 4. Static burn-test circuits.

Device types 01, 02, 03, and 04

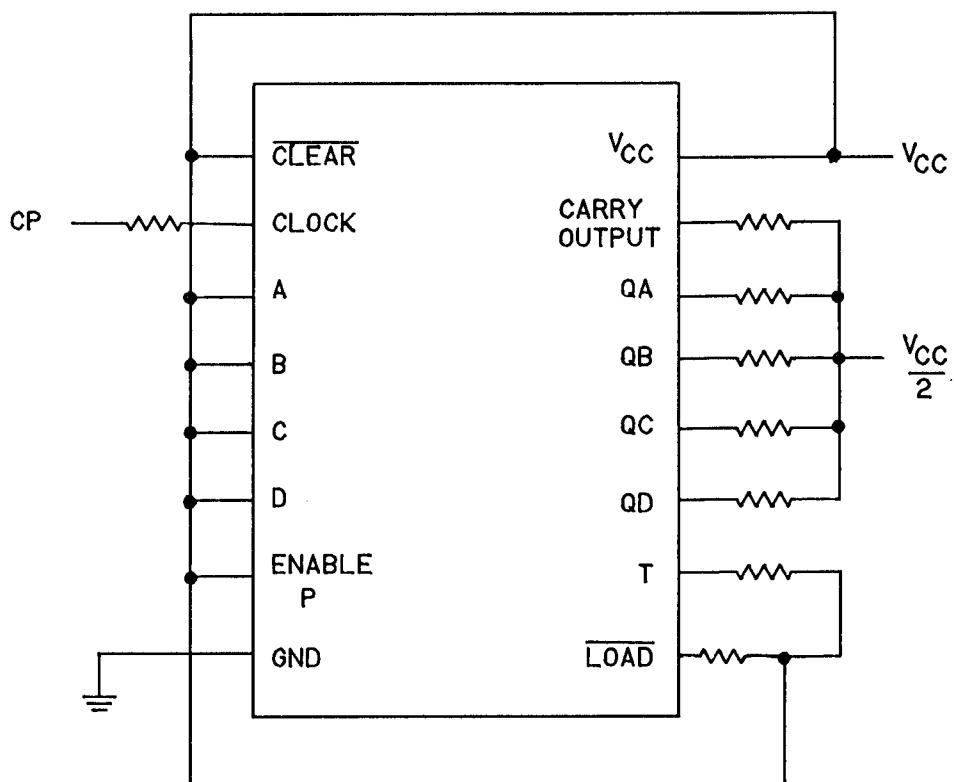


FIGURE 5. Dynamic burn-in and life test circuits.

Device type 05

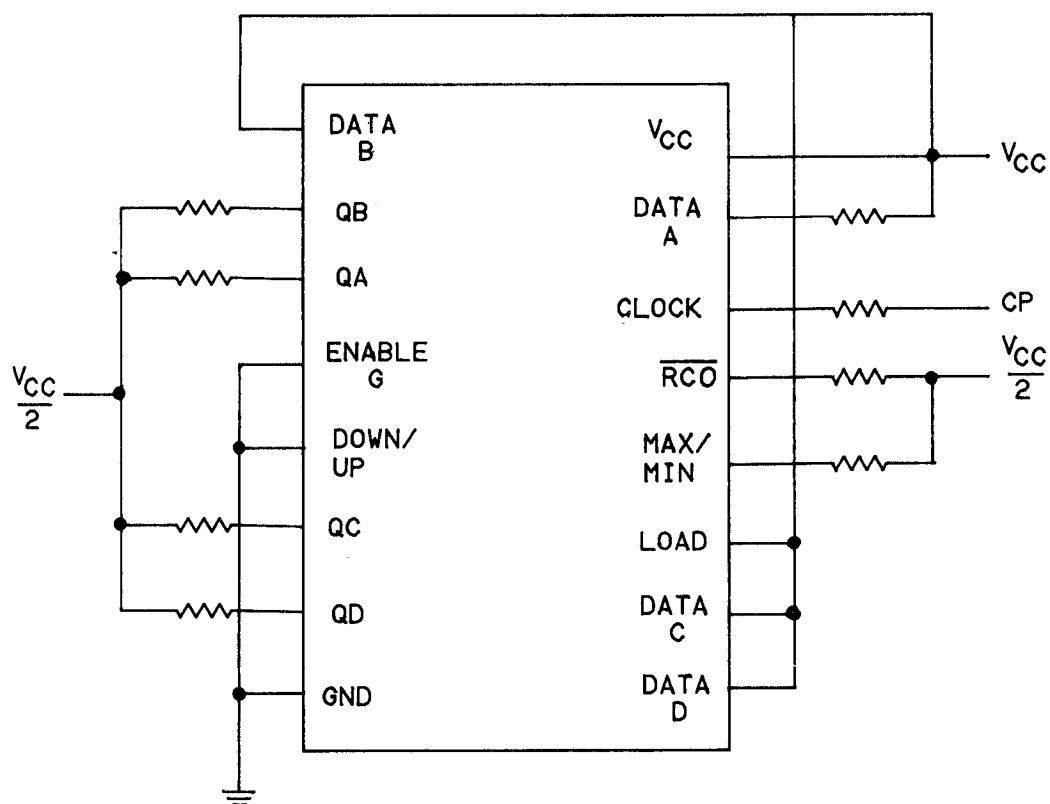
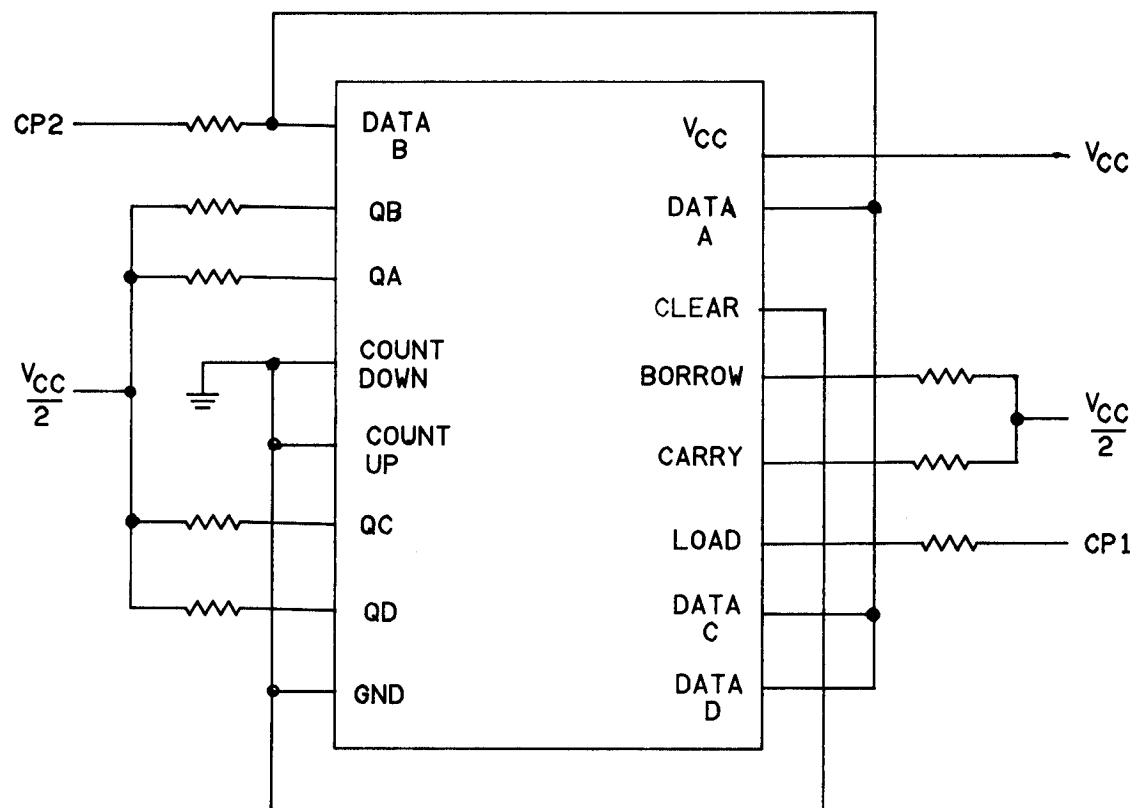
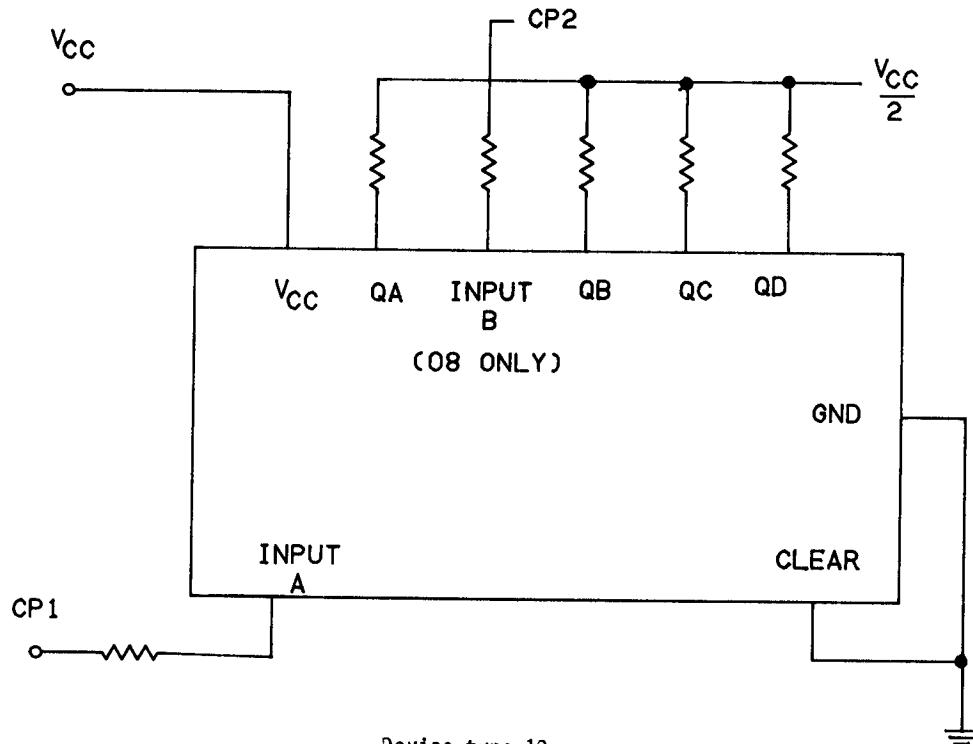
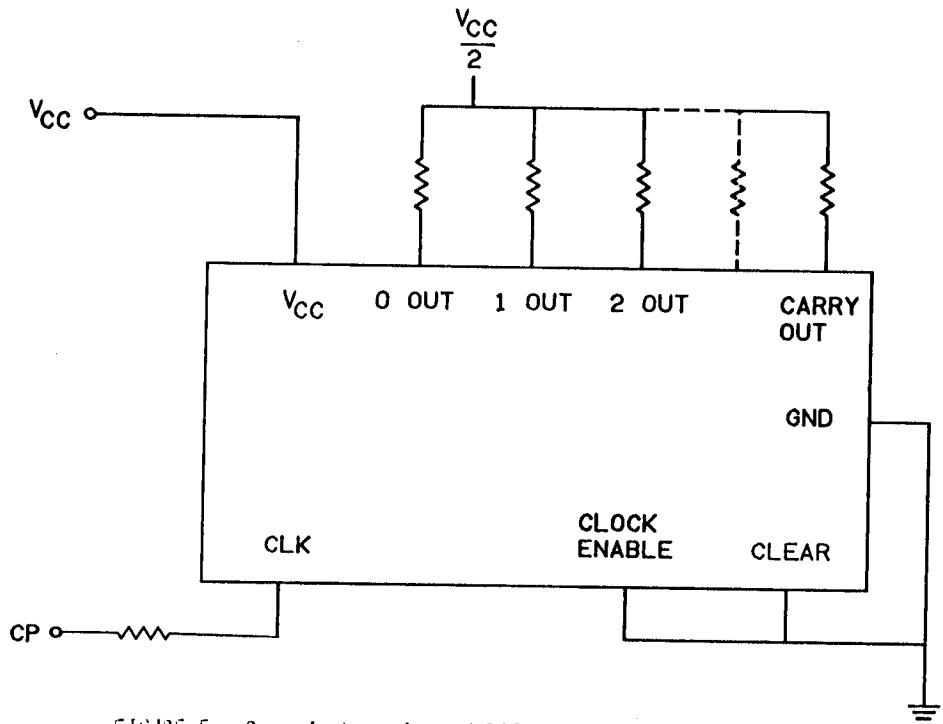
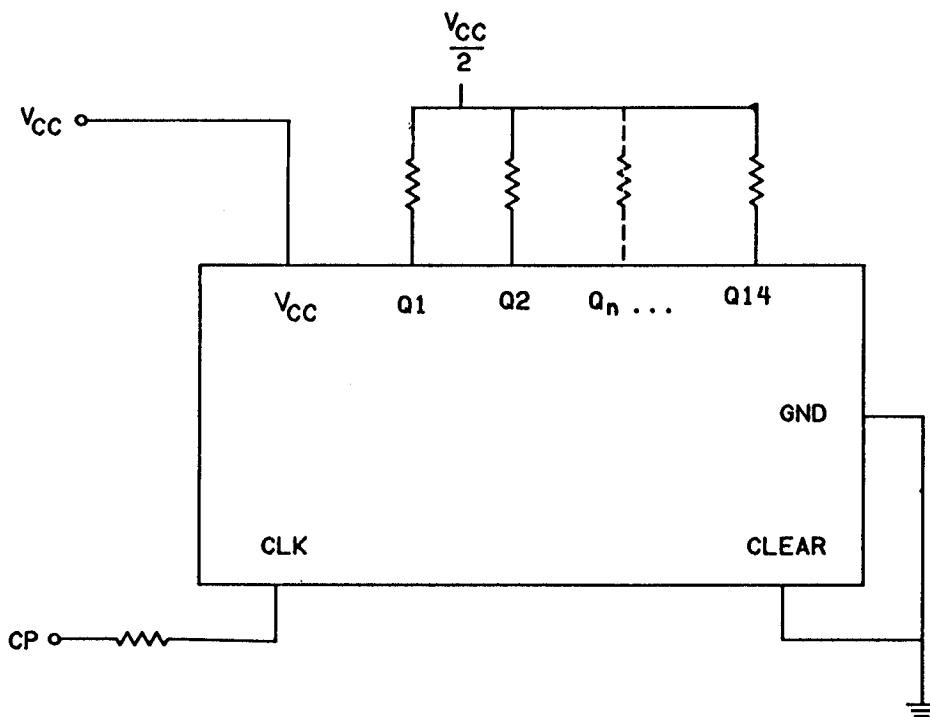


FIGURE 5. Dynamic burn-in and life test circuits - Continued.

Device types 06 and 07FIGURE 5. Dynamic burn-in and life test circuits - Continued.

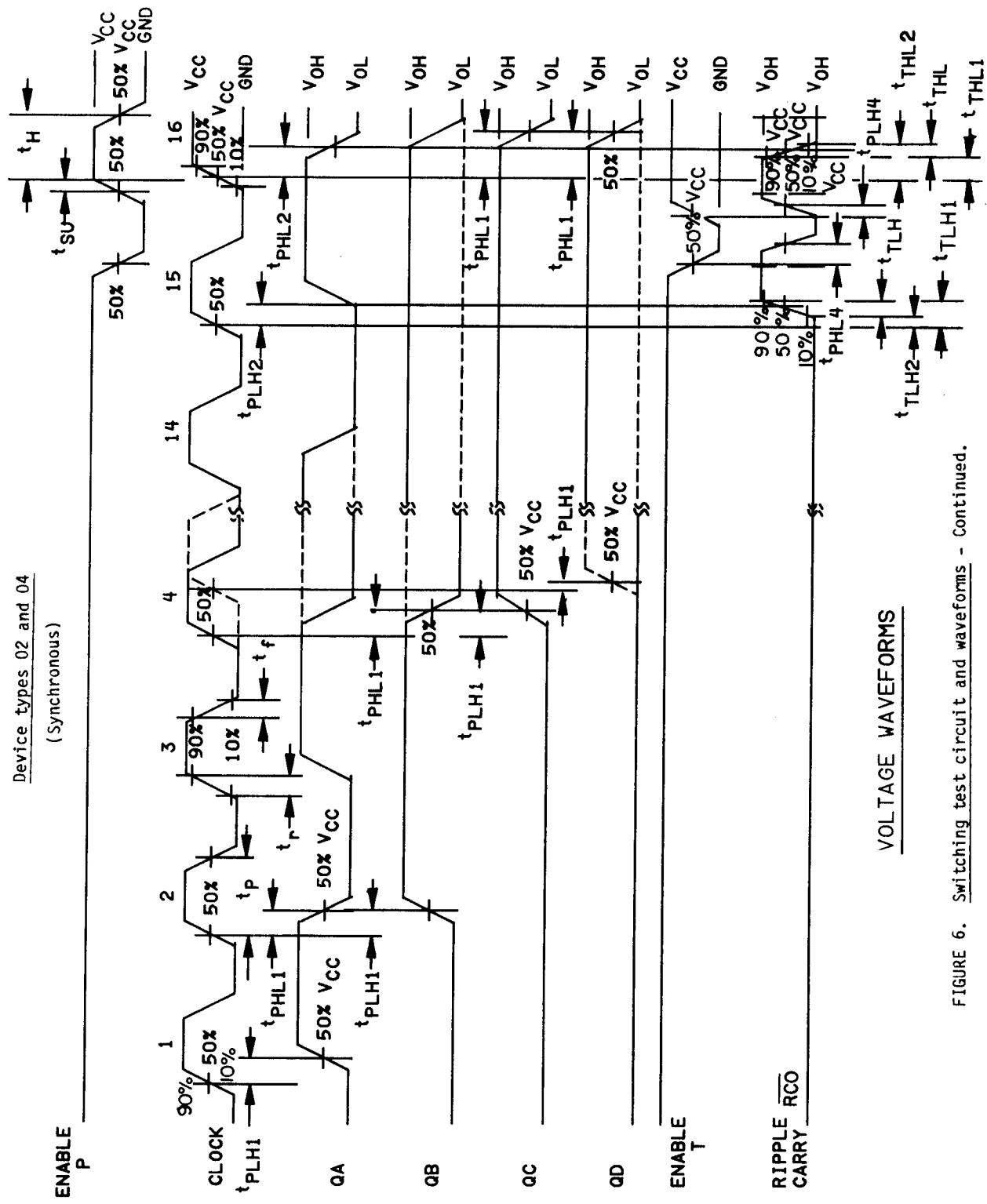
Device type 08 and 09Device type 10FIGURE 5. Dynamic burn-in and life test circuits - Continued.

Device types 11 through 13

## NOTES:

1. Input resistors =  $470\Omega$  to  $47\text{ k}\Omega \pm 20$  percent.
2. Output resistors =  $1\text{ k}\Omega \pm 5$  percent.
3. V<sub>CC</sub> = 6.0 V  $\pm 0.5$  V.
4.  $\frac{V_{CC}}{2} = V_{CC} \pm 0.5$  V.
5. CP = CP<sub>1</sub>, CP<sub>2</sub> =  $\frac{CP_1}{2}$ , CP = 25 kHz to 1 MHz  $\pm 50$  percent square wave; duty cycle = 50  $\pm 15$  percent, V<sub>IH</sub> = 4.5 minimum to V<sub>CC</sub> volts maximum; V<sub>IL</sub> = 0 V  $\pm .5$  V; t<sub>THL</sub>, t<sub>TLH</sub>,  $\leq 500$  ns.

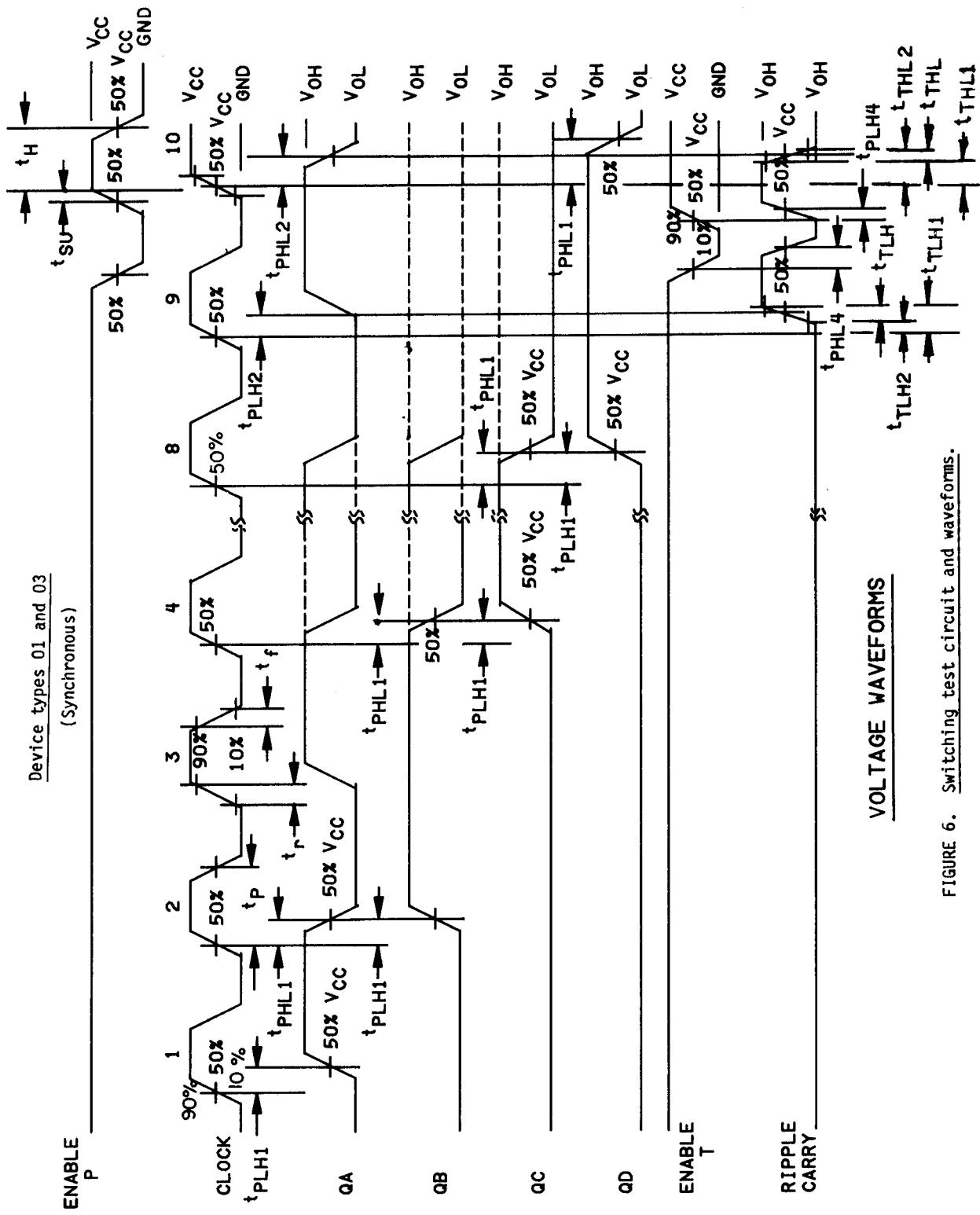
FIGURE 5. Dynamic burn-in and life test circuits - Continued.

FIGURE 6. Switching test circuit and waveforms - Continued.

NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (clock)  $< 30$  ns.
2. ENABLE input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (ENABLE T) =  $t_p$  (ENABLE P)  $\leq 68$  ns;  $t_{SETUP} \leq 60$  ns;  $t_{HOLD} \leq 8$  ns;
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f < 6$  ns;  $t_p$  (clock)  $< 30$  ns; PRR  $> 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jig capacitance).
5. Voltage measurements are to be made with respect to network ground terminal.
6.  $t_{TLH} = t_{TLH1} - t_{TLH2}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .

FIGURE 6. Switching test circuit and waveforms - Continued.



**FIGURE 6.** Switching test circuit and waveforms.

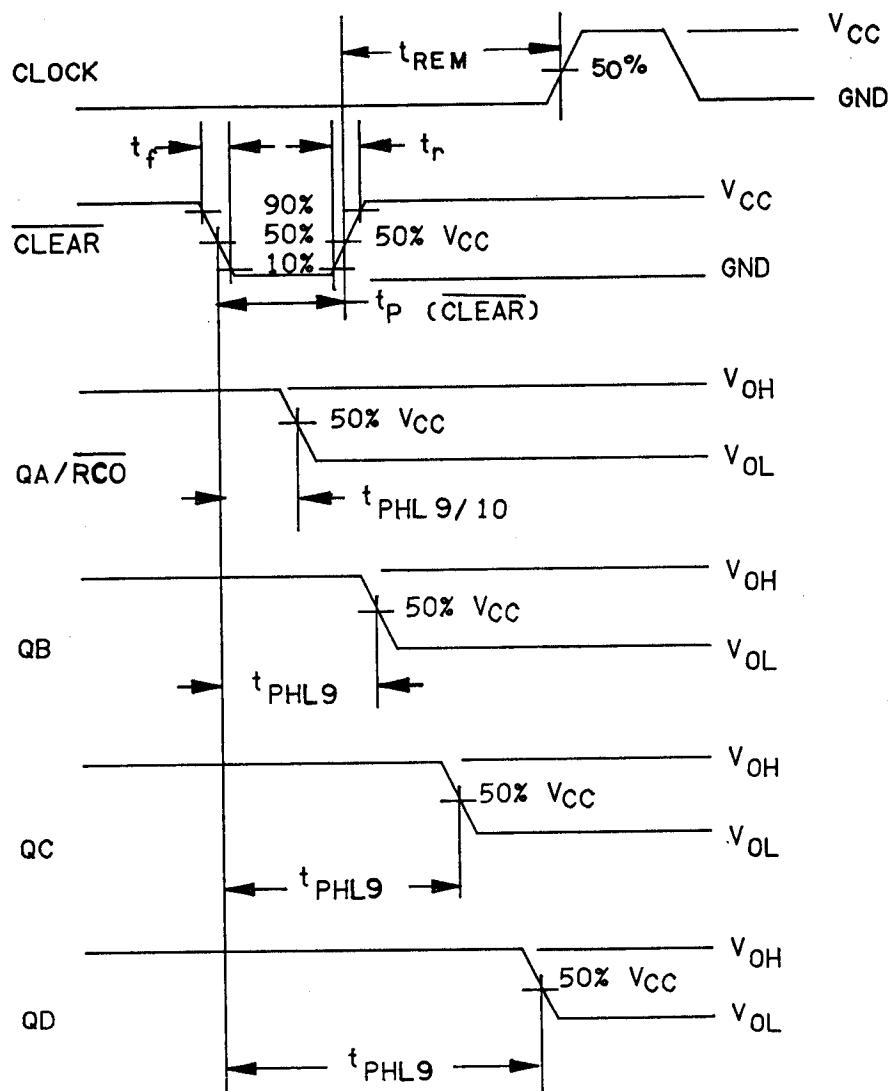
NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns.  
 $t_p$  (clock)  $\leq 30$  ns.
2. ENABLE input pulse characteristics:  $t_r = t_f \leq 6$  ns.  
 $t_p$  (ENABLE T) =  $t_p$  (ENABLE P)  $\leq 68$  ns;  $t_{SETUP} \leq 60$  ns;  $t_{HOLD} \leq 8$  ns;
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f < 6$  ns;  $t_p$  (clock)  $< 30$  ns; PRR  $> 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jig capacitance).
5. Voltage measurements are to be made with respect to network ground terminal.
6.  $t_{TLH} = t_{TLH1} - t_{TLH2}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .

FIGURE 6. Switching test circuit and waveforms - Continued.

Device types 01 and 02

(CLEAR)



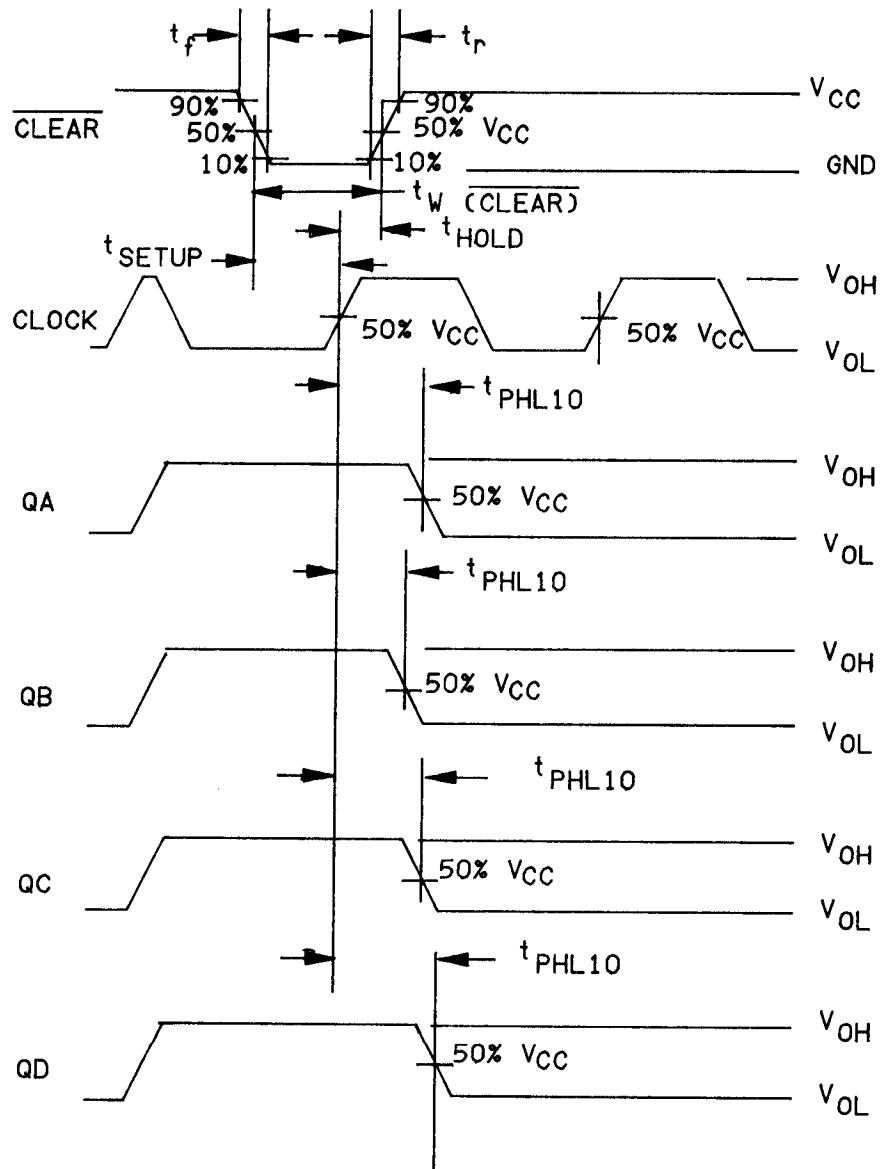
## NOTES:

1. CLEAR device types 01 and 02 (asynchronous) pulses are active low and dominates regardless of the state of the clock.
2. CLEAR input pulse characteristics are as follows:  $t_r = t_f \leq 6$  ns; clear  $t_p$  (CLR)  $\leq 24$  ns;  $t_p$  (CLK)  $\leq 30$  ns;  $t_{REM} \leq 38$  ns;
3.  $C_L = 50$  pF  $\pm 10$  percent (including probe and jig capacitance).
4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.

Device types 03 and 04

(CLEAR)



## NOTES:

1. CLEAR device types 03 and 04 (synchronous) pulses are active low and dominates regardless of the state of the clock.
2. CLEAR input pulse characteristics are as follows:  $t_r = t_f \leq 6$  ns;  $t_p$  (CLR)  $< 56$  ns;  $t_r < 8$  ns;  $t_{SU} \leq 48$  ns; PRR  $< 1$  MHz.
3.  $C_L = 50$  pF  $\pm 10$  percent (including probe and jig capacitance).
4.  $t_p$  (CLK)  $< 30$  ns; PRR  $< 1$  MHz.
5. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.

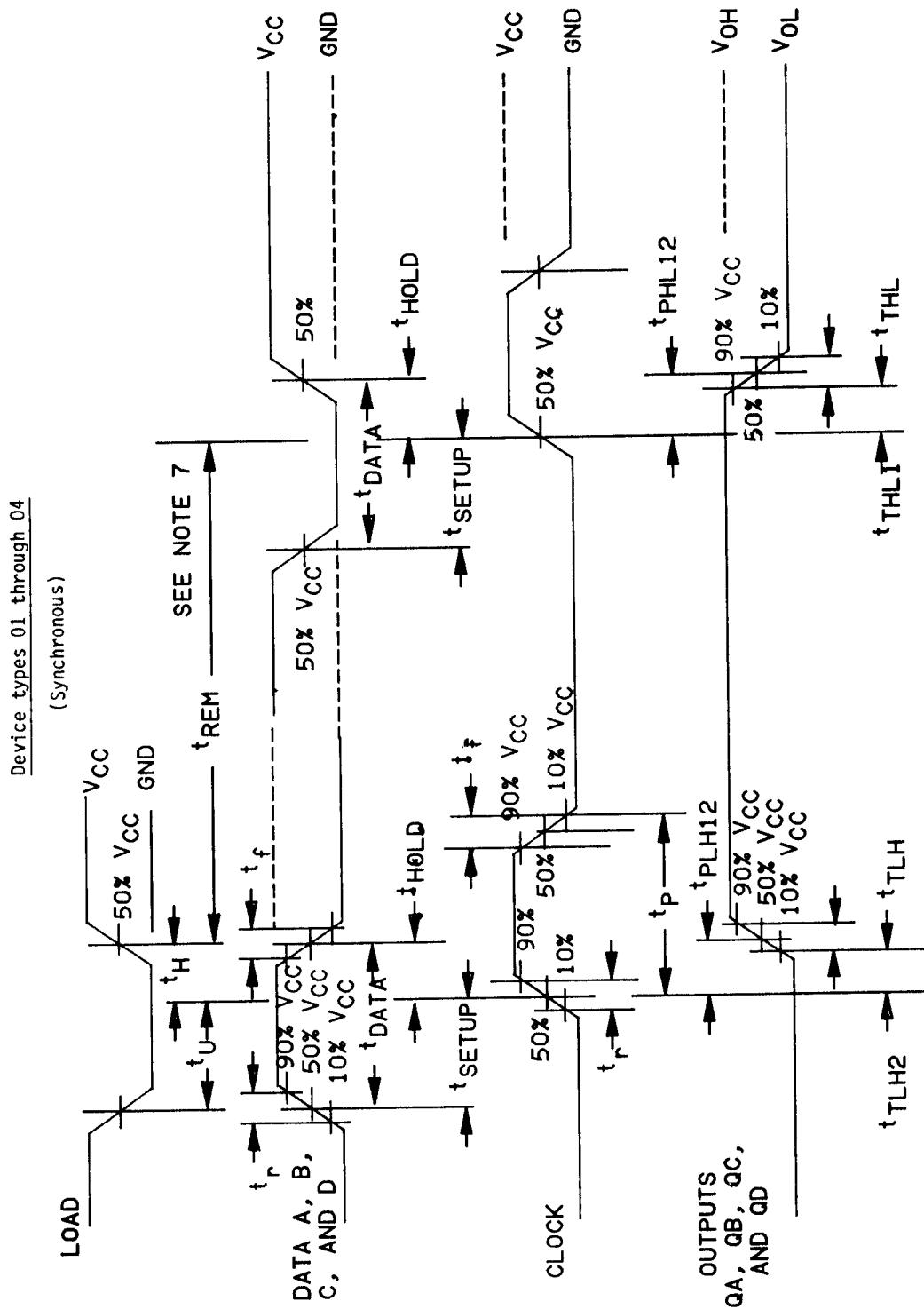
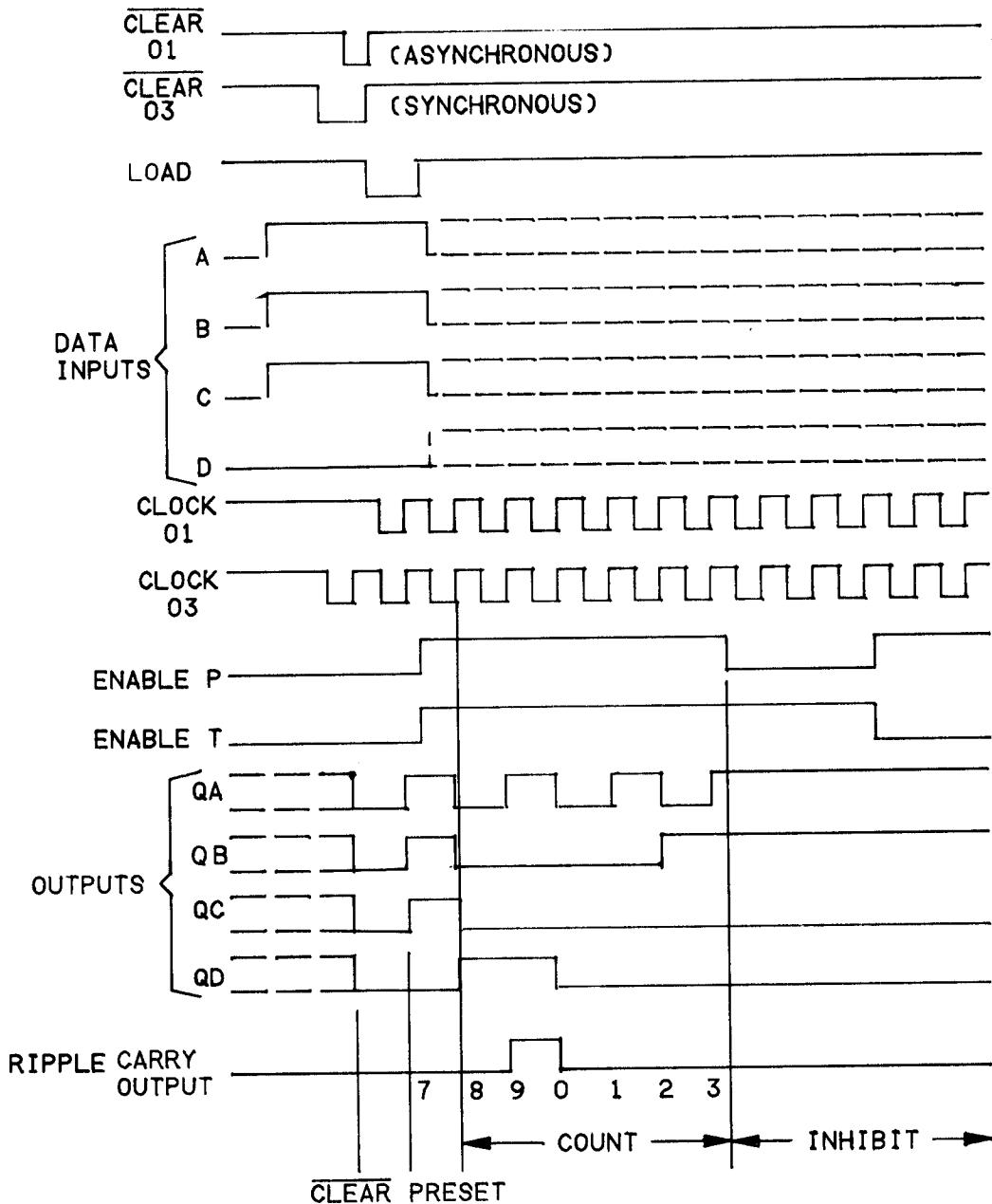


FIGURE 6. Switching test circuit and waveforms - Continued.

NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns.  
 $t_p$  (clock)  $< 30$  ns.
2. Data input pulse characteristics:  $t_r = t_f < 6$  ns,  
 $t_p$  (data)  $< 60$  ns;  $t_{SETUP} \leq 45$  ns;  $t_{HOLD} \leq 15$  ns,
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f < 6$  ns;  $t_p$  (clock)  $< 24$  ns; PRR  $\geq 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jig capacitance).
5. Voltage measurements are to be made with respect to network ground terminal.
6.  $t_{TLH} = t_{TLH1} - t_{TLH2}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .
7. Device types 01 and 02  $t_{REM} \leq 38$  ns; Load input characteristics:  
 $t_r = t_f \leq 6$  ns;  $t_p$  (load)  $\leq 53$  ns;  $t_{SU} \leq 45$  ns;  $t_H \leq 8$  ns;

FIGURE 6. Switching test circuit and waveforms - Continued.

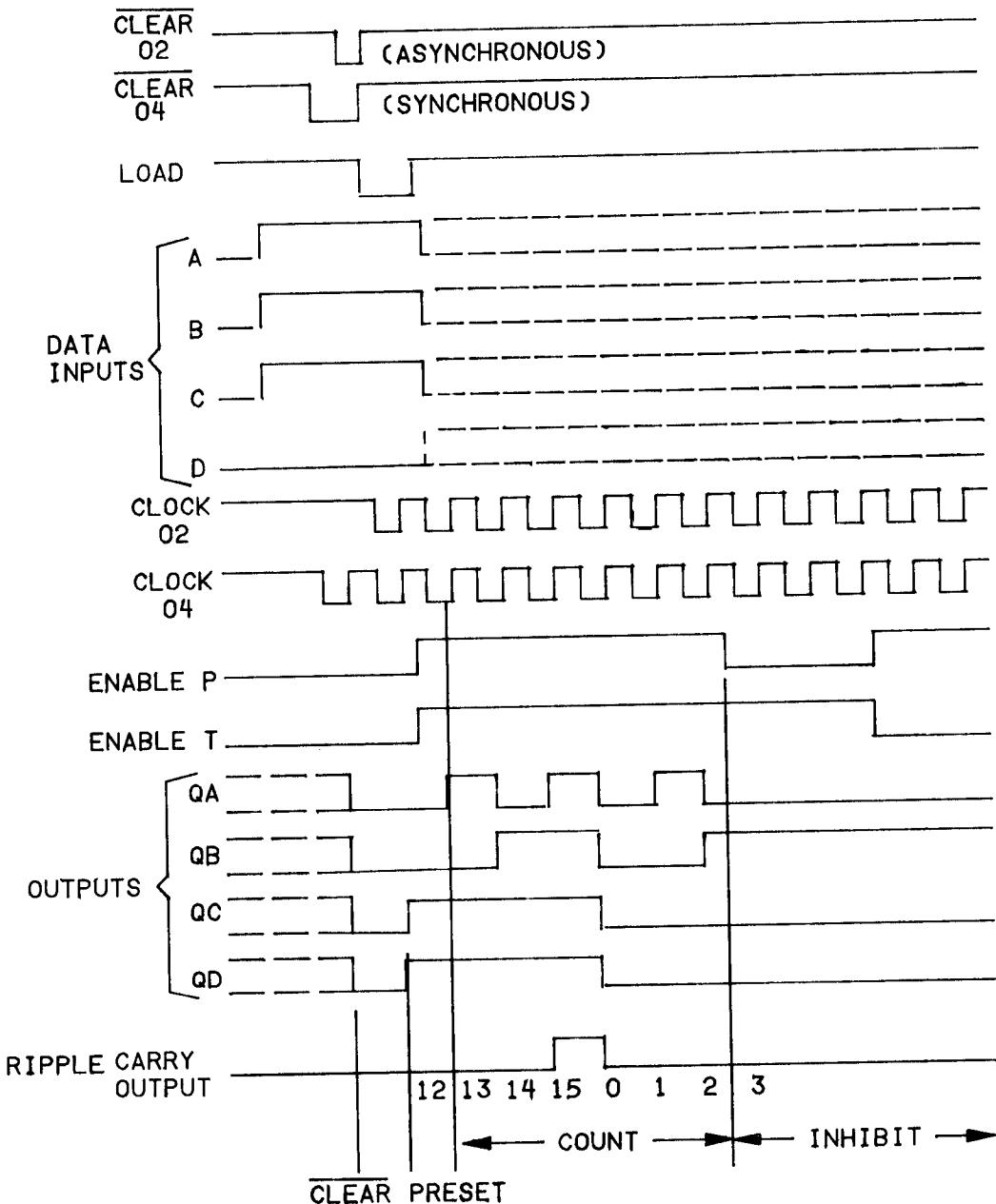
Device types 01 and 03SYNCHRONOUS DECADE COUNTERS TYPICAL CLEAR, PRESET,  
COUNT AND INHIBIT SEQUENCESSequence:

1. CLEAR outputs to zero.
2. Preset BCO seven.
3. Count to eight, nine, zero, one, two and three.
4. Inhibit.

FIGURE 6. Switching test circuit and waveforms - Continued.

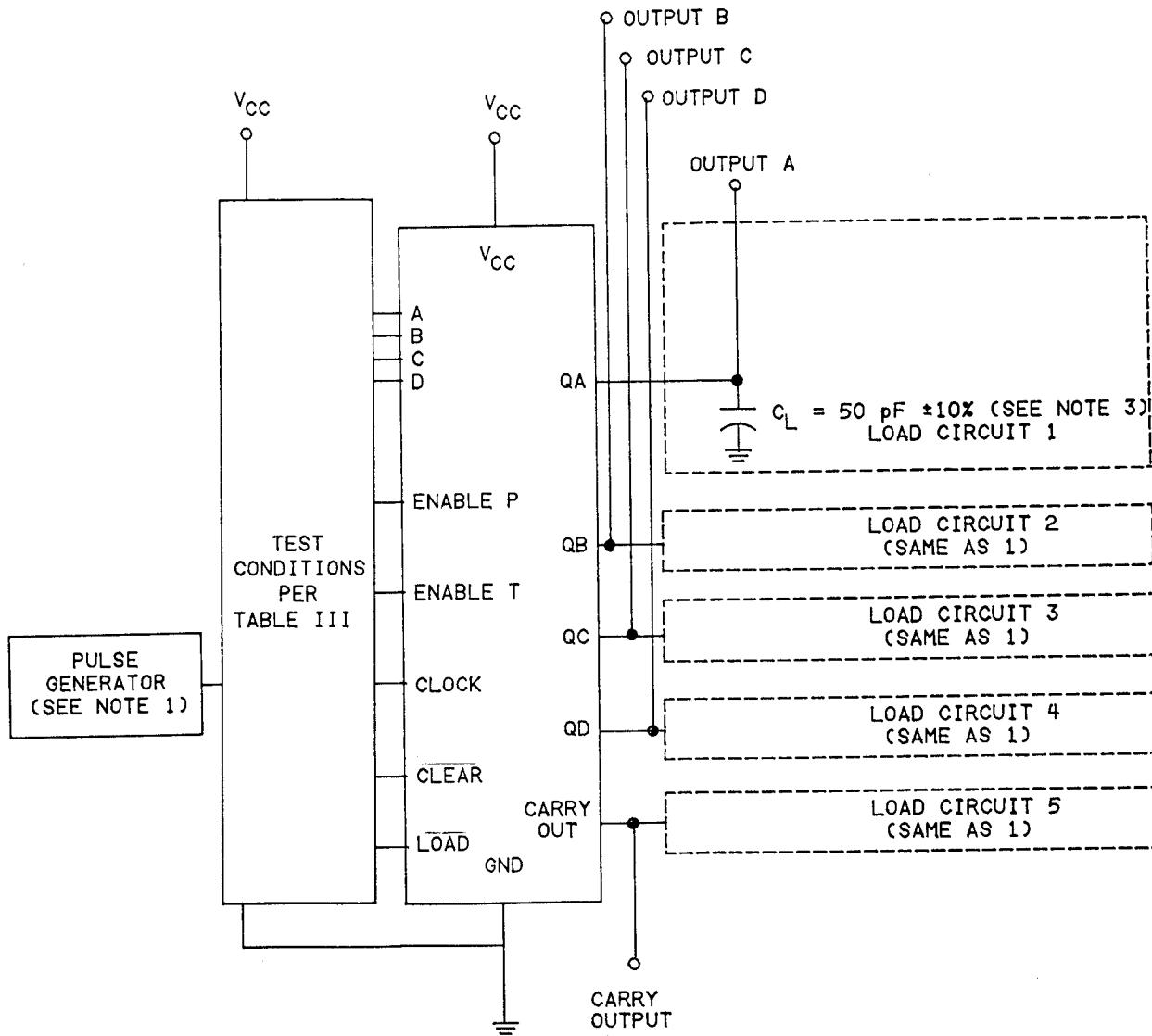
Device types 02 and 04

SYNCHRONOUS BINARY COUNTERS TYPICAL CLEAR, PRESET,  
COUNT AND INHIBIT SEQUENCES

**Sequence:**

1. **CLEAR** outputs to zero.
2. Preset to binary.
3. Count to thirteen, fourteen, fifteen zero, one, and two.
4. Inhibit.

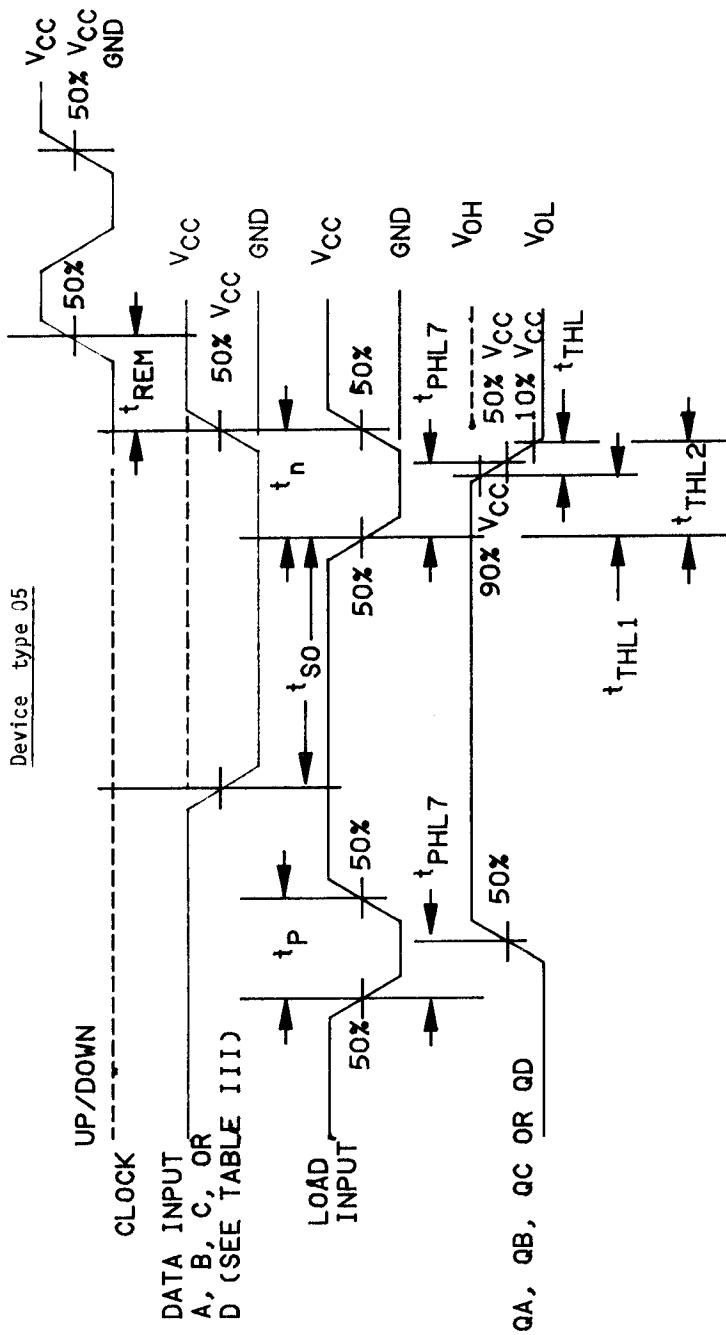
FIGURE 6. Switching test circuit and waveforms - Continued.

Device types 01, 02, 03, and 04

## NOTES:

1. The pulse generator has the following characteristics:  $V_{gen} = V_{CC}$   $t_r \leq 6 \text{ ns}$ ,  $t_f < 6 \text{ ns}$ ,  $PRR < 1 \text{ MHz}$ .
2.  $C_L$  includes probe and jig capacitance.
3. Voltage values are with respect to ground terminal.
4.  $f_{MAX}$ :  $t_r = t_f \leq 6 \text{ ns}$ .

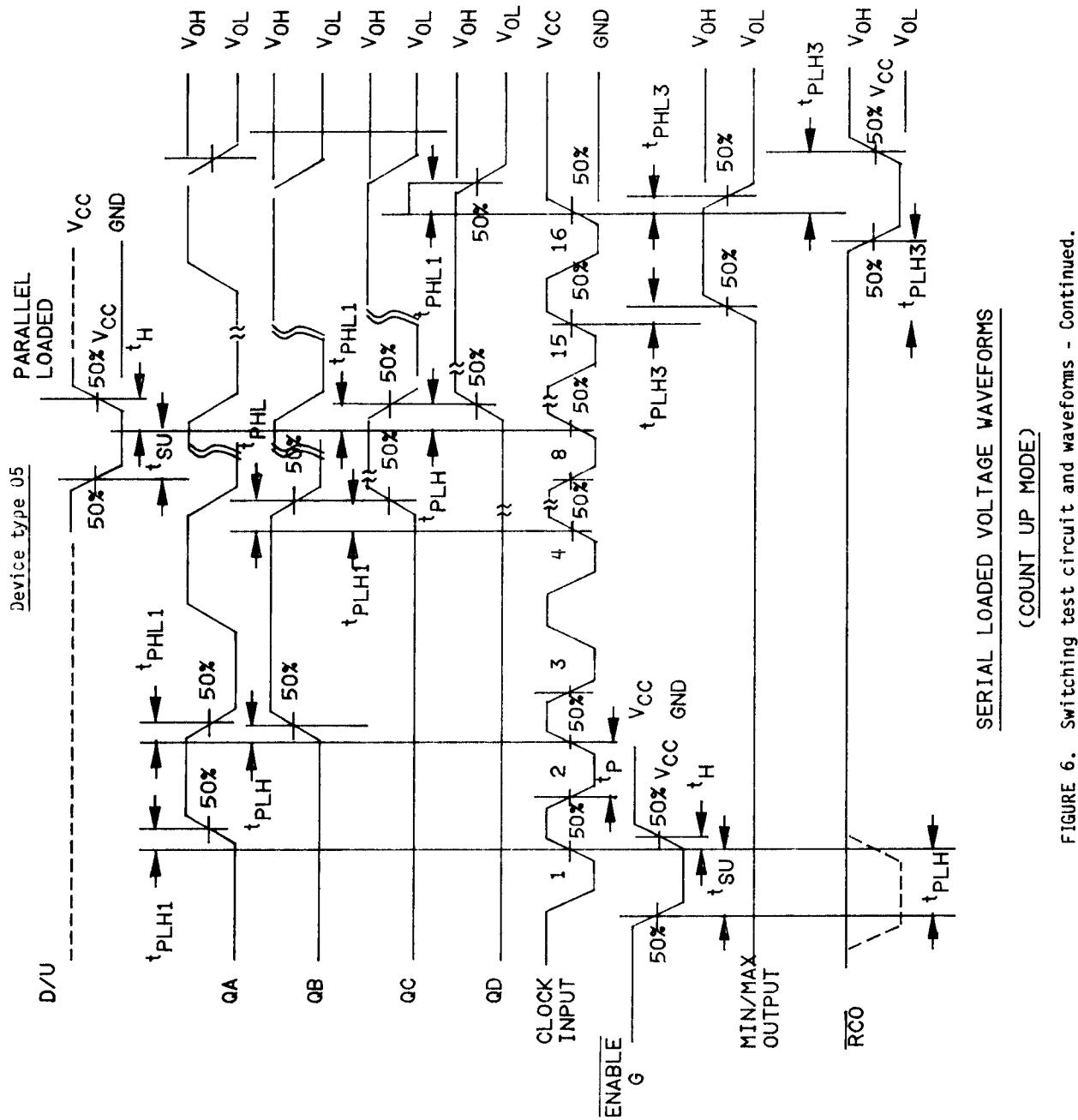
FIGURE 6. Switching test circuit and waveforms - Continued.



## NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns,  
 $t_p(\text{clock}) < 30$  ns.
2. Data input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p(\text{data}) < 5$  ns;  $t_{SETUP} \leq 45$  ns;  $t_{HOLD} \leq \frac{3}{8}$  ns;
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f \leq 6$  ns;  $t_p(\text{clock}) < 29$  ns;  $f_{RR} > 17$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jy capacitance).
5.  $t_{THL} = t_{THL2} - t_{THL1}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .
6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.



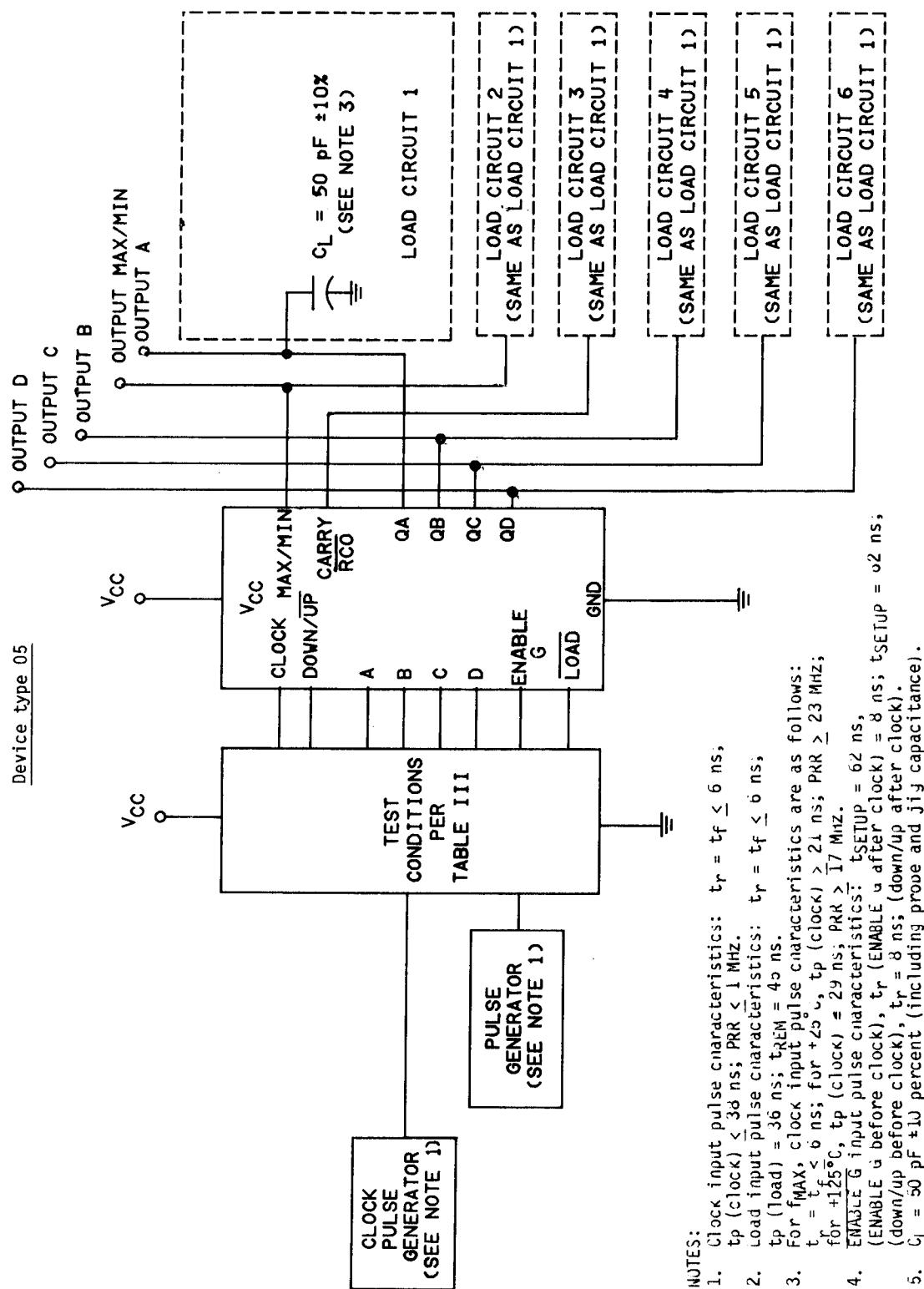
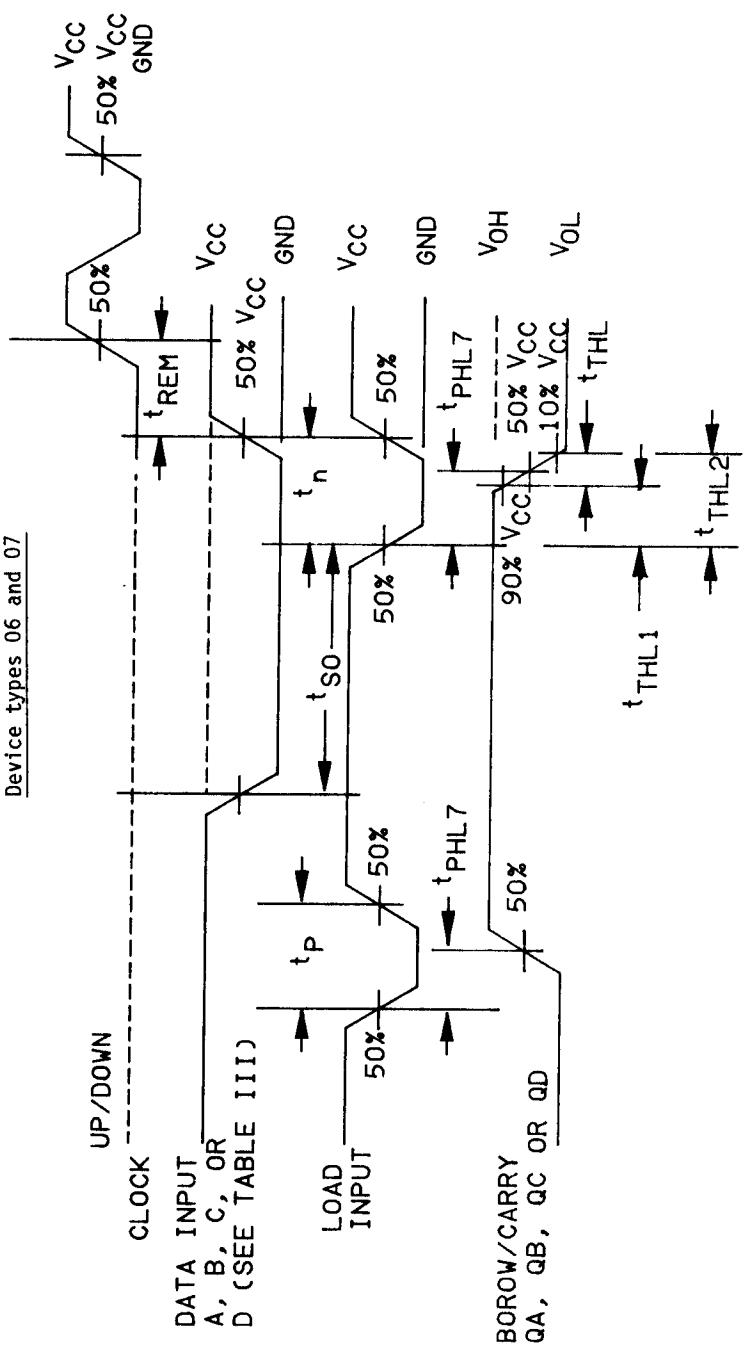


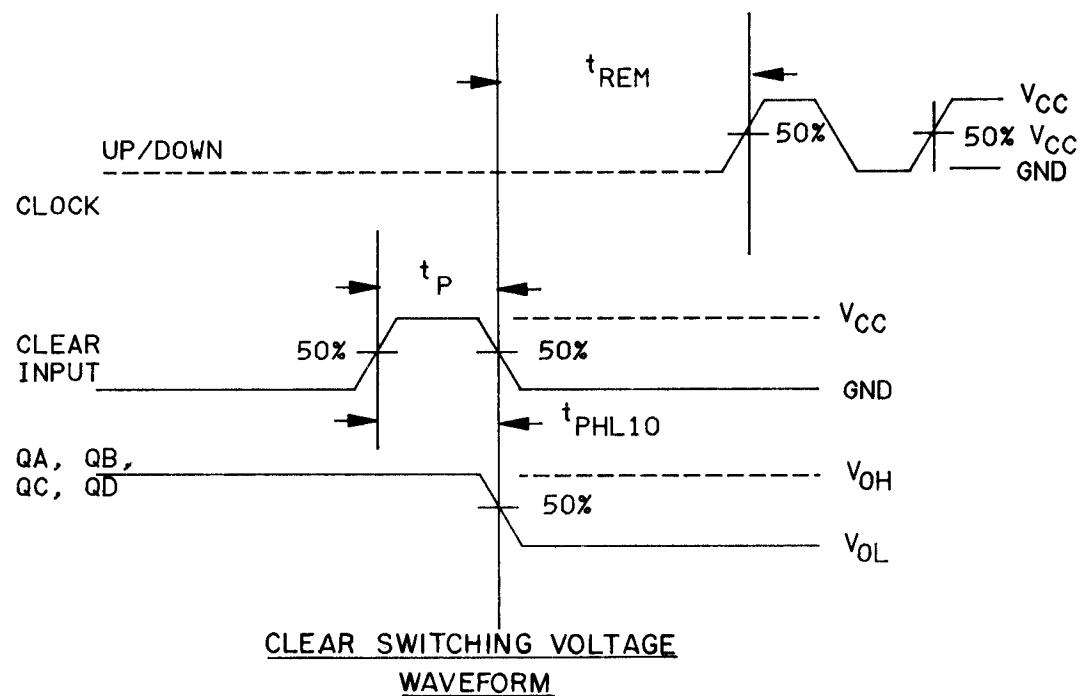
FIGURE 6. Switching test circuit and waveforms - Continued.

Device types 06 and 07

## NOTES:

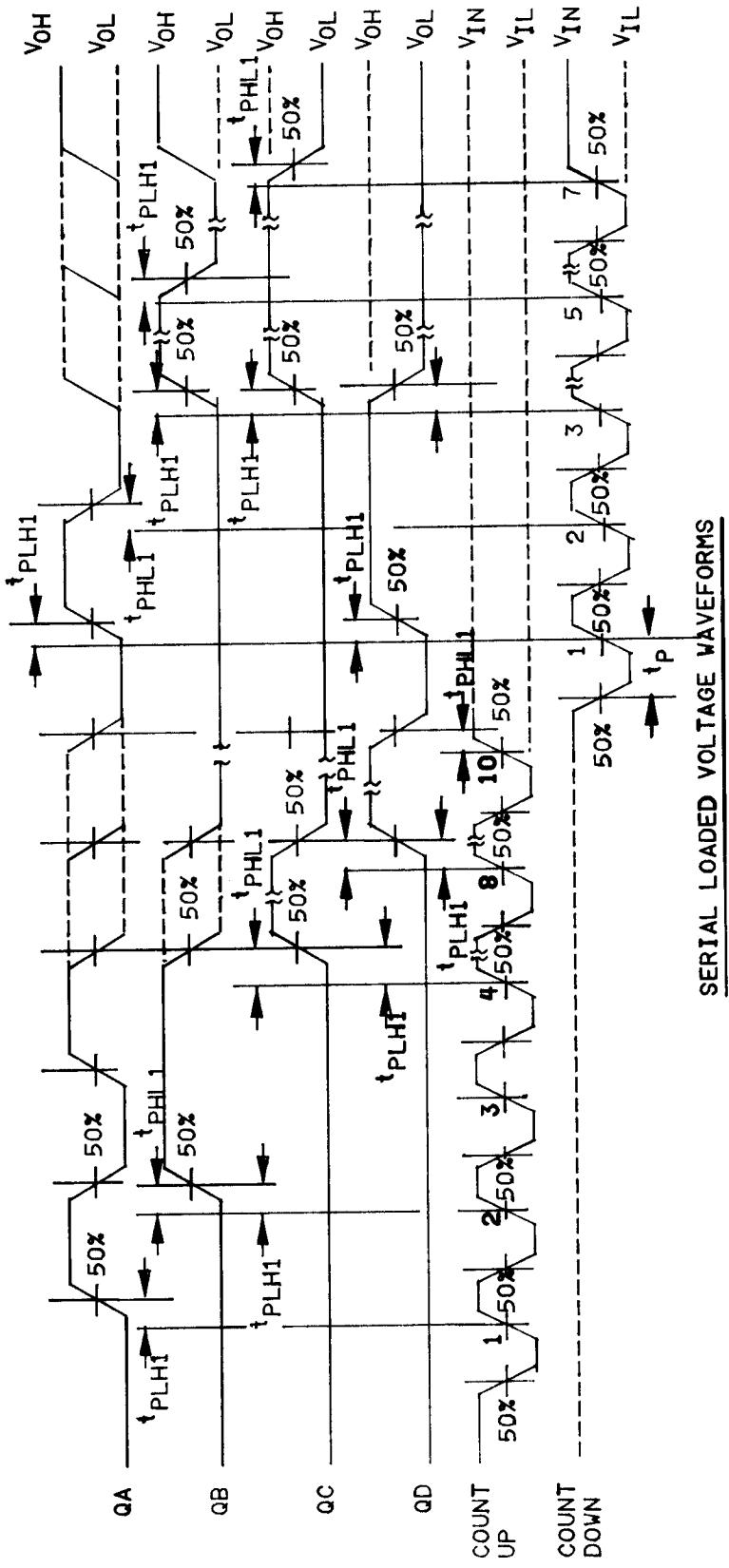
1. Clock input pulse characteristics:  $t_r = t_f \leq 6 \text{ ns}$ ;  $t_p(\text{clock}) \leq 45 \text{ ns}$ .
2. Data input pulse characteristics:  $t_r = t_f \leq 6 \text{ ns}$ ;  $t_p(\text{data}) \leq 41 \text{ ns}$ ;  $t_{SETUP} \leq 33 \text{ ns}$ ;  $t_{HOLD} \leq \frac{3}{8} \text{ ns}$ ;  $t_{MAX}$  are as follows:
3. The clock input characteristics for  $f_{MAX}$  are as follows:
4.  $t_r = t_f \leq 6 \text{ ns}$ ;  $t_p(\text{clock}) < 36 \text{ ns}$ ;  $f_{CR} > 14 \text{ MHz}$ .
5. Voltage measurements are to be made with respect to network ground terminal.
6.  $t_{TLH} = t_{TTLH_1} - t_{TTLH_2}$ ;  $t_{TTL} = t_{TTLH_2} - t_{TTLH_1}$ .

FIGURE 6. Switching test circuit and waveforms - Continued.

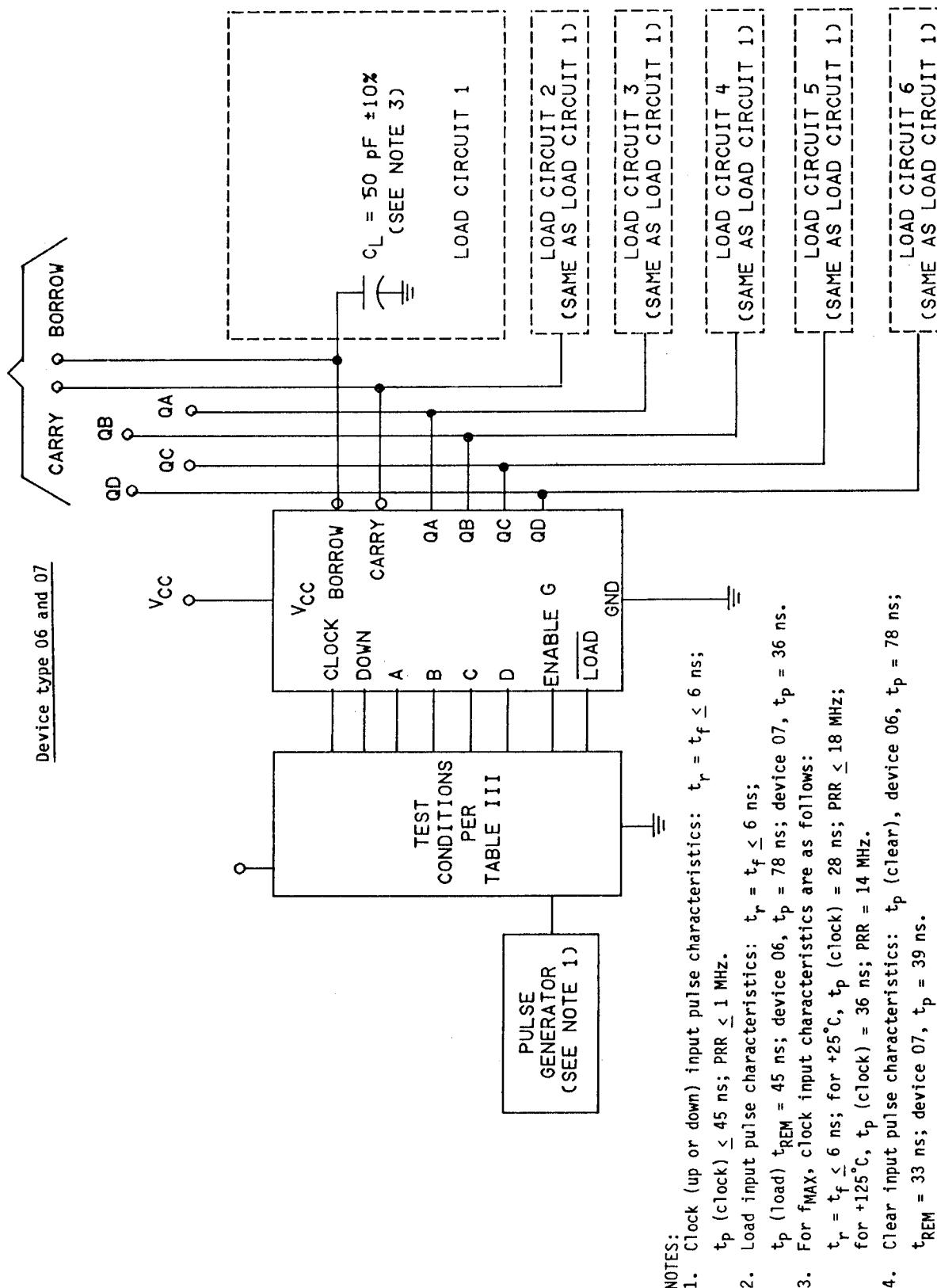
Device types 06 and 07FIGURE 6. Switching test circuit and waveforms - Continued.

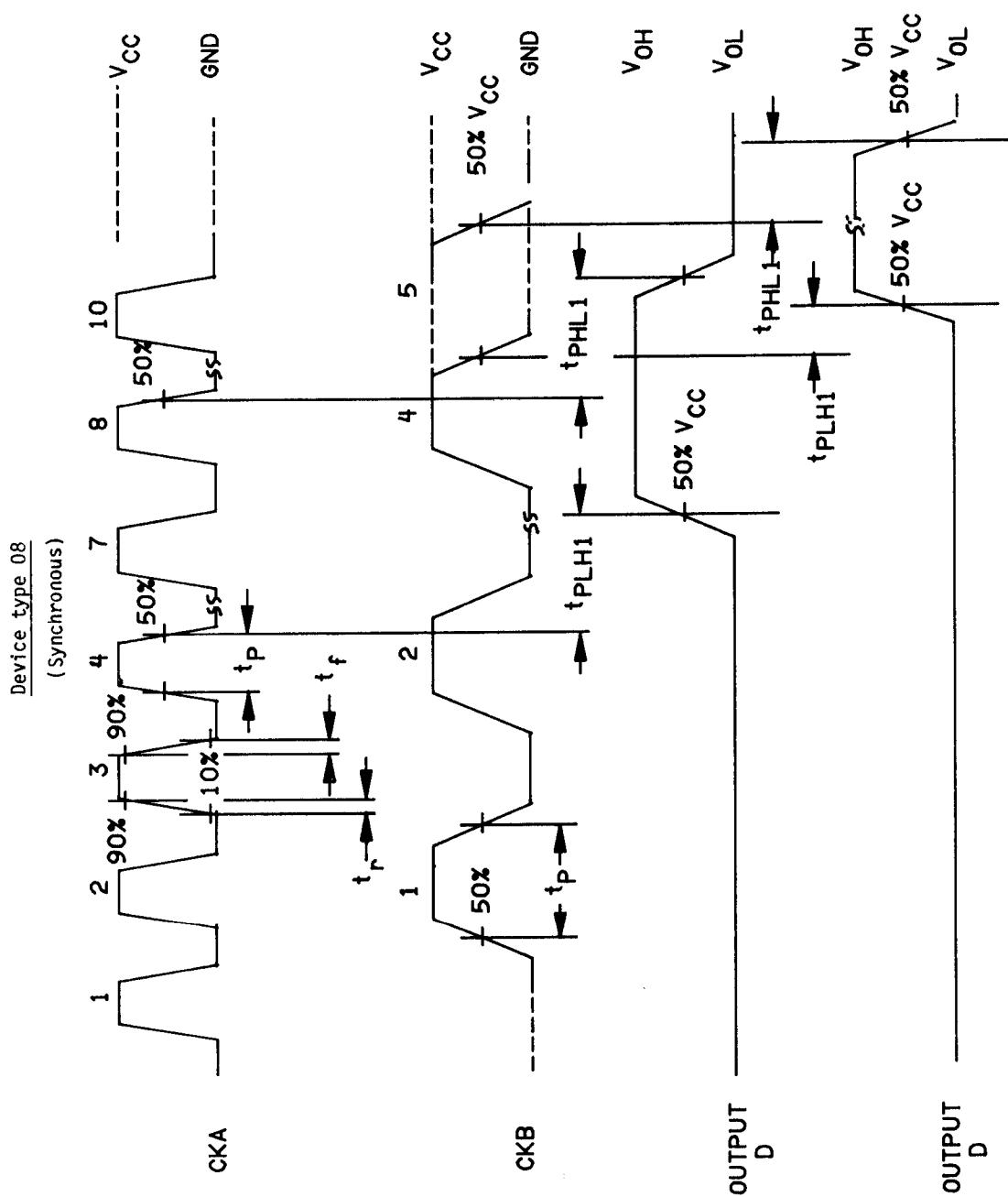
MIL-M-38510/663

Device types 06 and 07



**FIGURE 6.** Switching test circuit and waveforms - Continued.

FIGURE 6. Switching test circuit and waveforms - Continued.



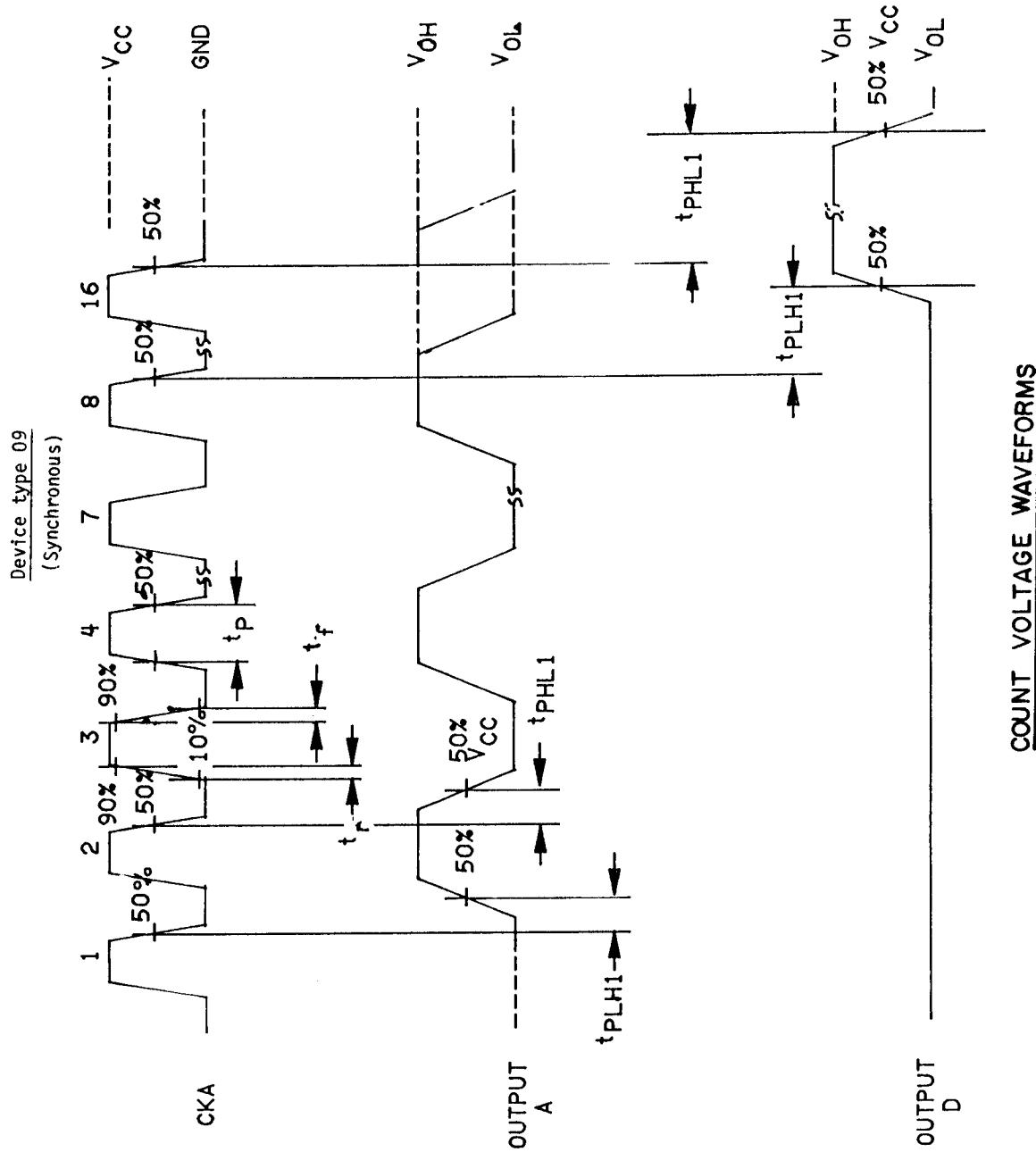
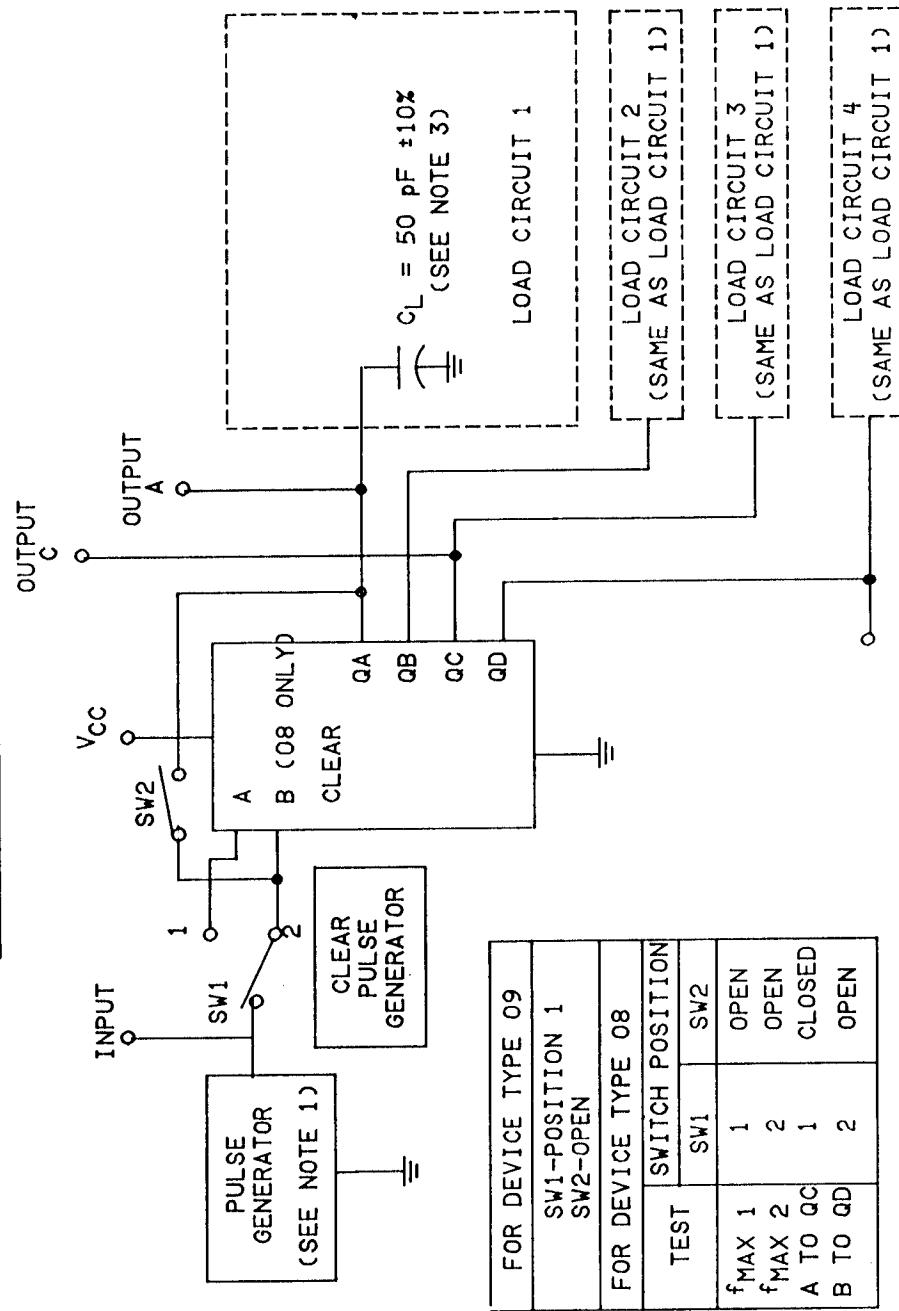


FIGURE 6. Switching test circuit and waveforms - Continued.

Device type 08 and 09

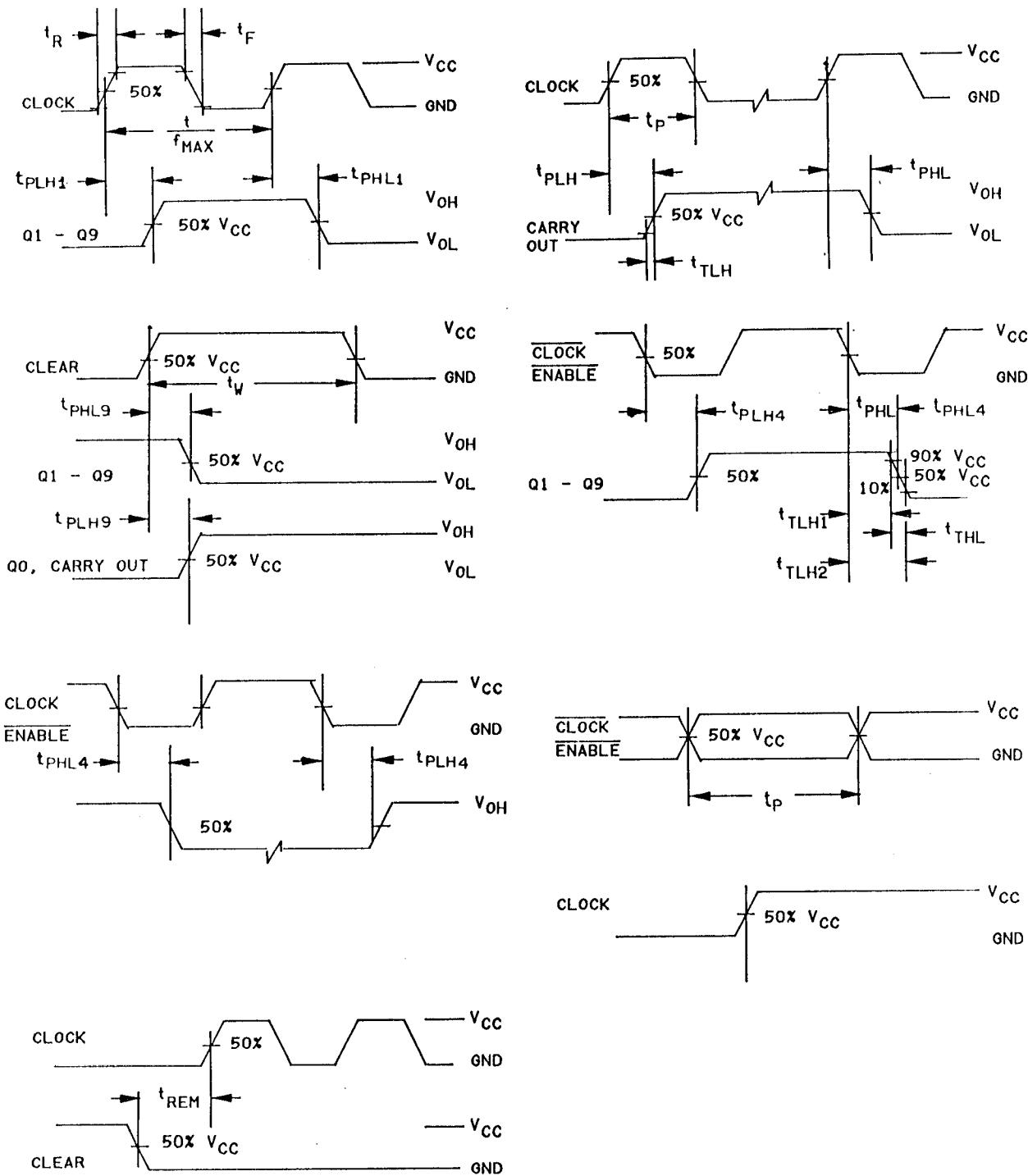
## NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns;  $\overline{PRR} \leq 1$  MHz. Device type 08,  $t_p(\text{clock}) \leq 20$  ns; device type 09,  $t_p(\text{clock}) \leq 24$  ns.
2. For  $f_{MAX}$ , clock input pulse characteristics are as follows:  
 $t_r = t_f \leq 6$  ns; device type 08,  $t_p(\text{clock}) \leq 22$  ns;  $\overline{PRR} \geq 23$  MHz;  
device type 09,  $t_p(\text{clock}) \leq 24$  ns;  $\overline{PRR} \geq 21$  MHz.
3. Clear input pulse characteristics:  $t_p(\text{clear}) \leq 38$  ns; device type 08,  
 $t_{REM} \leq 33$  ns; device type 09,  $t_{REM} \leq 15$  ns.
4.  $C_L = 50$  pF  $\pm 10$  percent (including probe and jig capacitance).

FIGURE 6. Switching test circuit and waveforms - Continued.

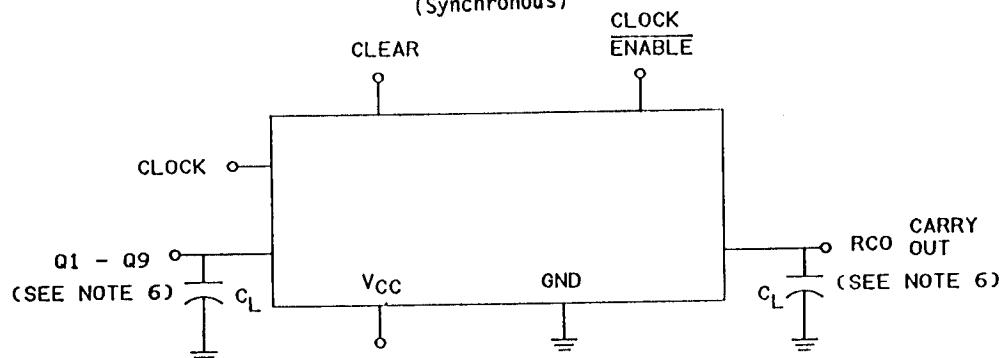
Device type 10

(Synchronous)

FIGURE 6. Switching test circuit and waveforms - Continued.

### Device type 10

(Synchronous)



## TEST CIRCUIT

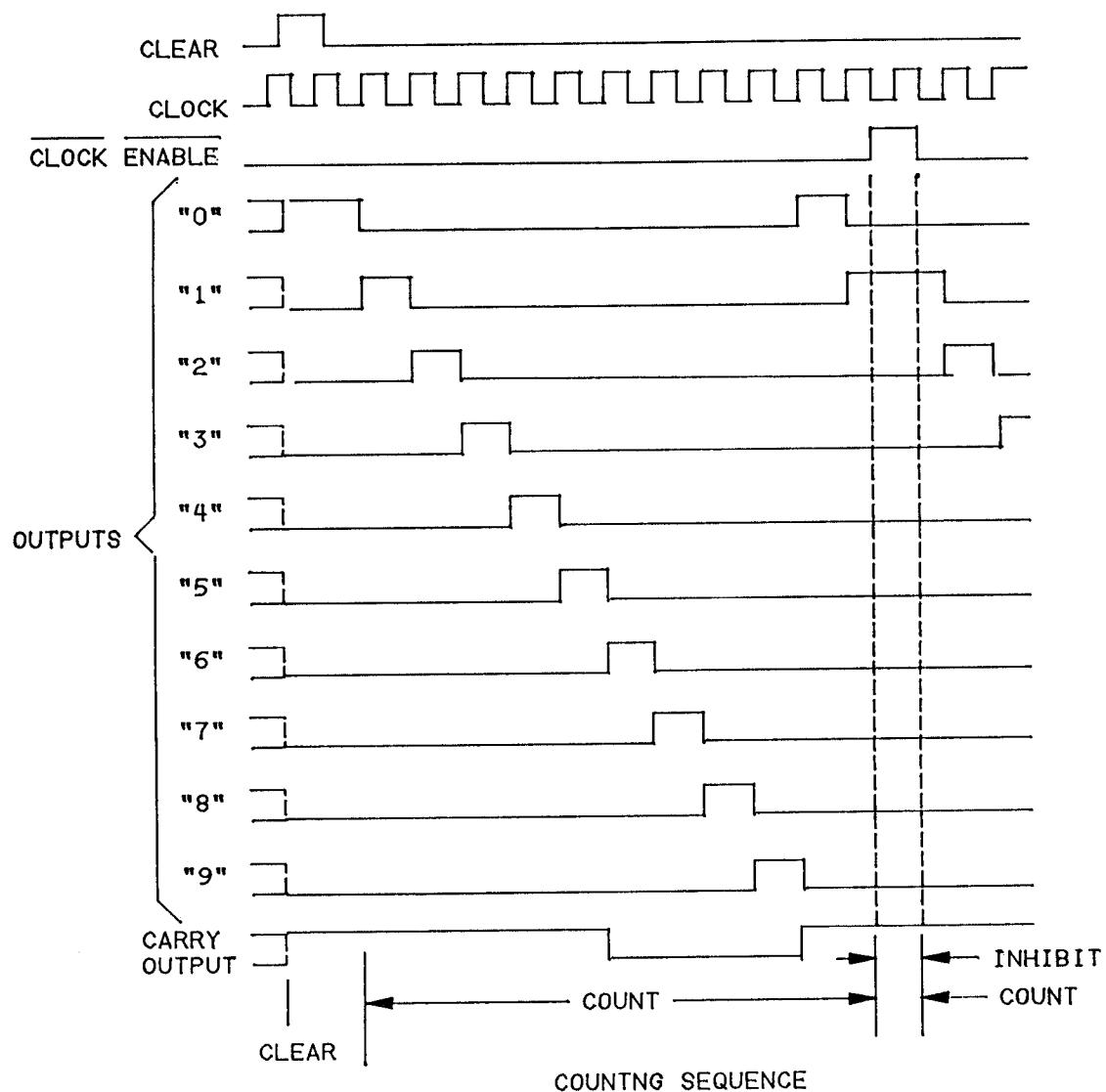
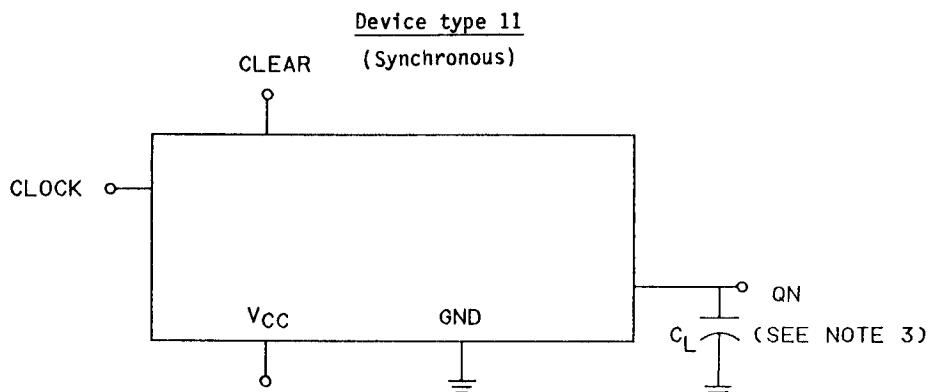
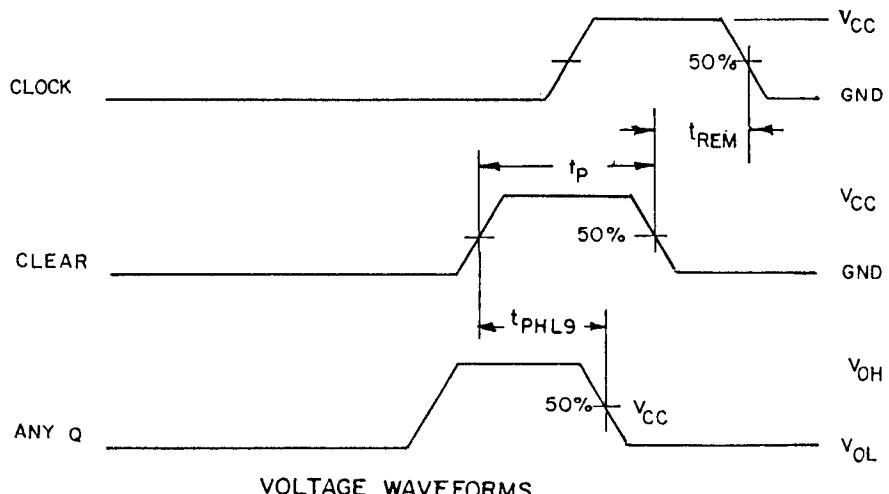
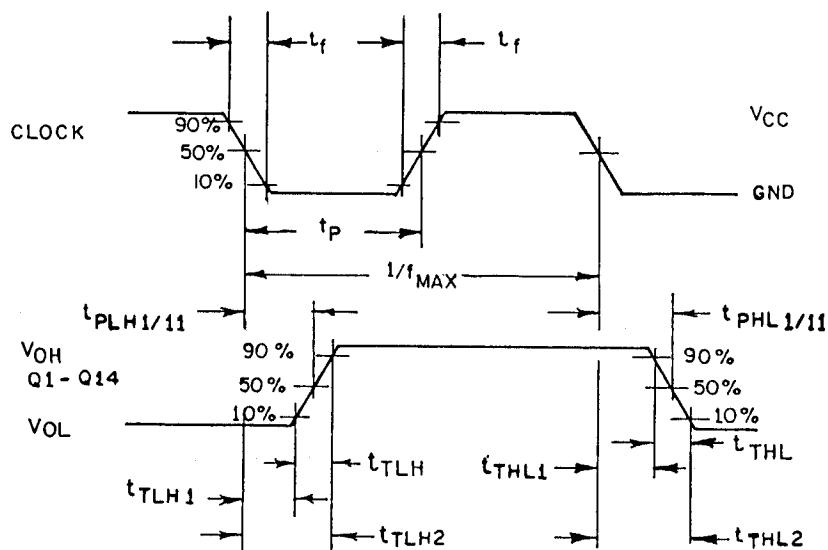


FIGURE 6. Switching test circuit and waveforms - Continued.

Device type 10NOTES:

1. Clock enable pulse is active low and dominates regardless of the state of the clock.
2. Clear input pulse characteristics are as follows:  $t_r = t_f \leq 6$  ns;  $tp(\text{clear}) < 24$  ns; PRR < 1 MHz,  $t_{REM} \leq 30$  ns;
3. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns;  $tp(\text{clock}) \leq 30$  ns; PRR = < 1 MHz.
4. Clock enable pulse characteristics are as follows:  $t_r = t_f \leq 6$  ns;  $tp(\text{enable}) \leq 30$  ns; PRR < 1 MHz,
5. The clock input characteristics for  $f_{MAX}$  are as follows:  $t_r = t_f < 6$  ns;  $tp(\text{clock}) < 29$  ns; PRR < 17 MHz.
6.  $C_L = 50$  pF ±10 percent (including probe and jig capacitance).
7. Voltage measurements are to be made with respect to network ground terminal.
8.  $t_{TLH} = t_{TLH1} - t_{TLH2}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .

FIGURE 6. Switching test circuit and waveforms - Continued.

TEST CIRCUITVOLTAGE WAVEFORMSFIGURE 6. Switching test circuit and waveforms - Continued.

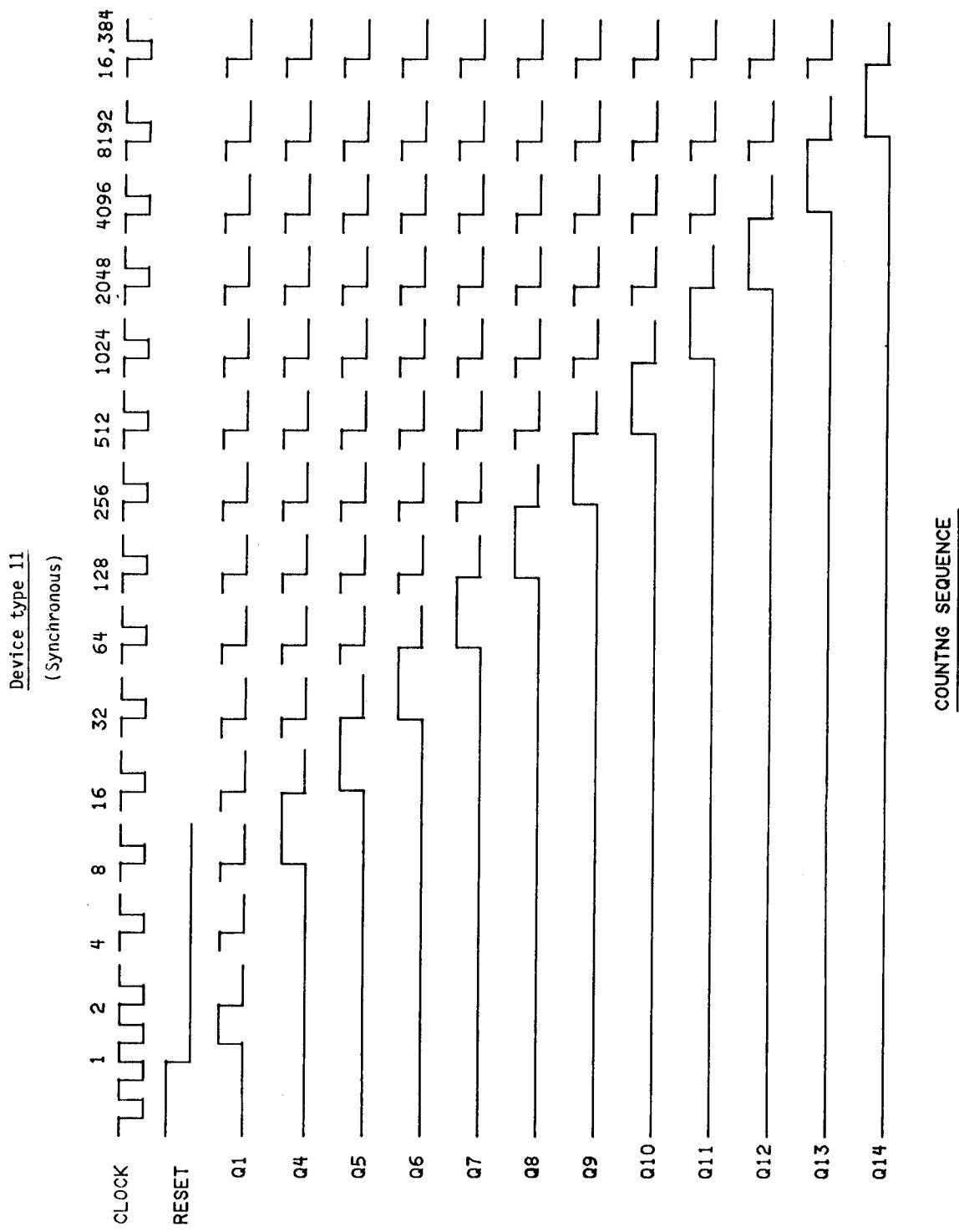


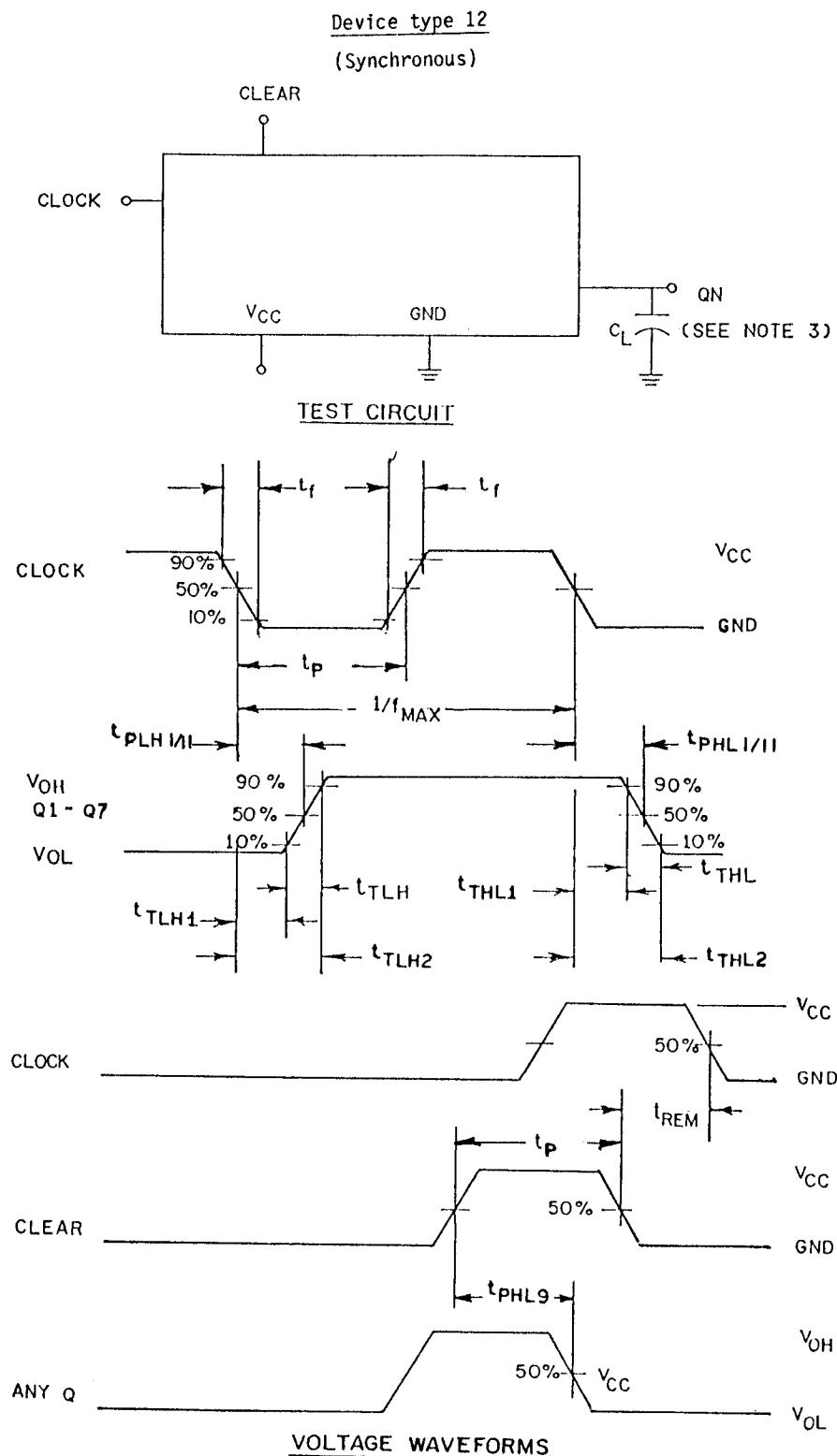
FIGURE 6. Switching test circuit and waveforms - Continued.

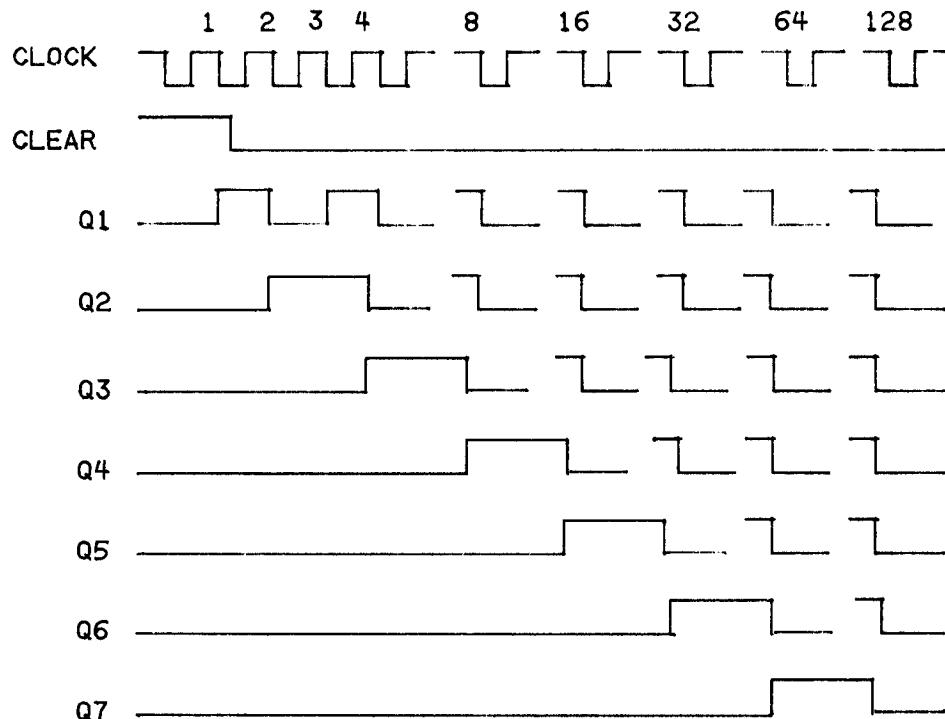
Device type 11

NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (clock)  $\leq 27$  ns.
2. Clear input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (clear)  $\leq 24$  ns;  $t_{REM} < 30$  ns.
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f \leq 6$  ns;  $t_p$  (clock)  $< 24$  ns;  $PRR > 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jig capacitance).
5.  $t_{TLH} = t_{TLH2} - t_{TLH1}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .
6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.

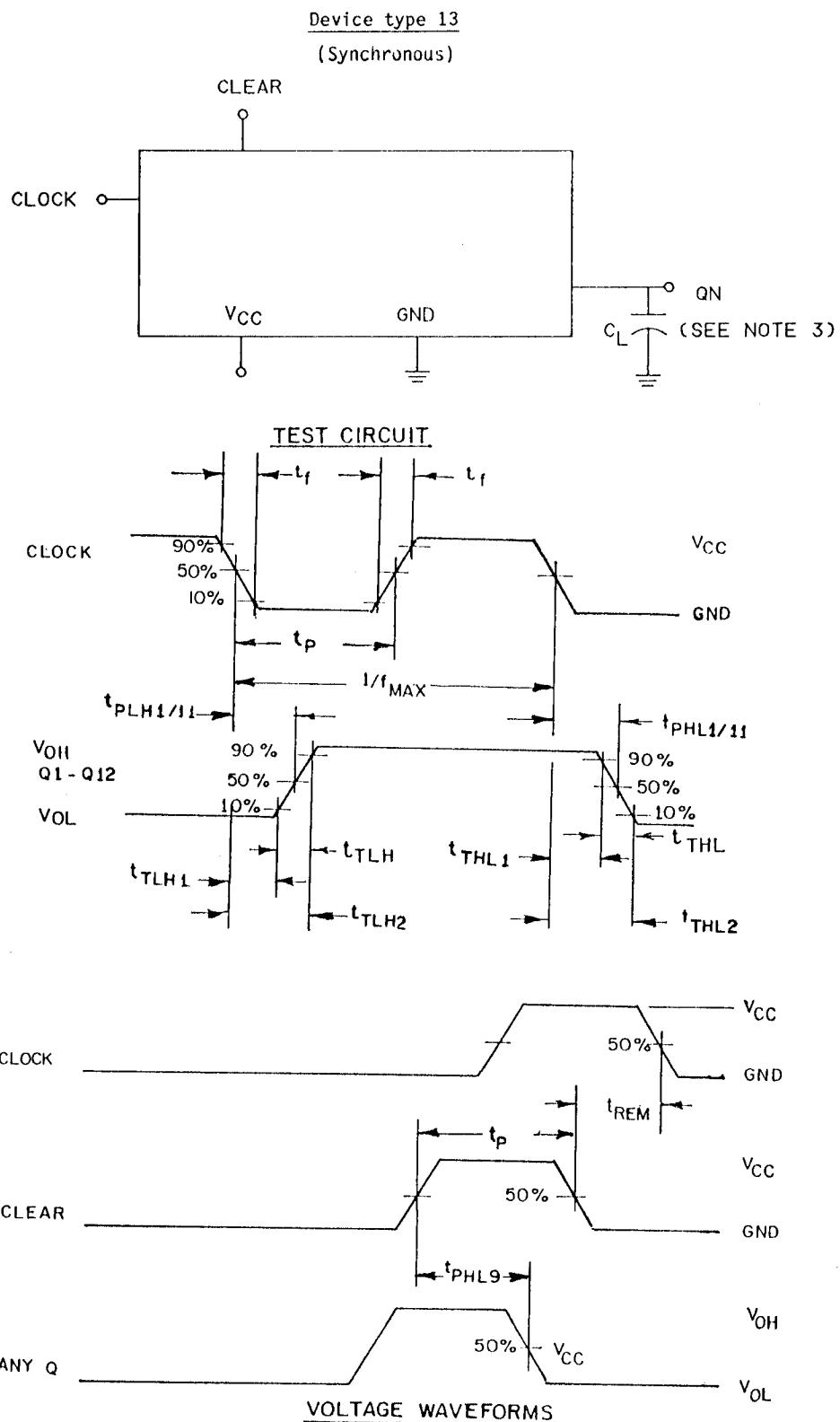
FIGURE 6. Switching test circuit and waveforms - Continued.

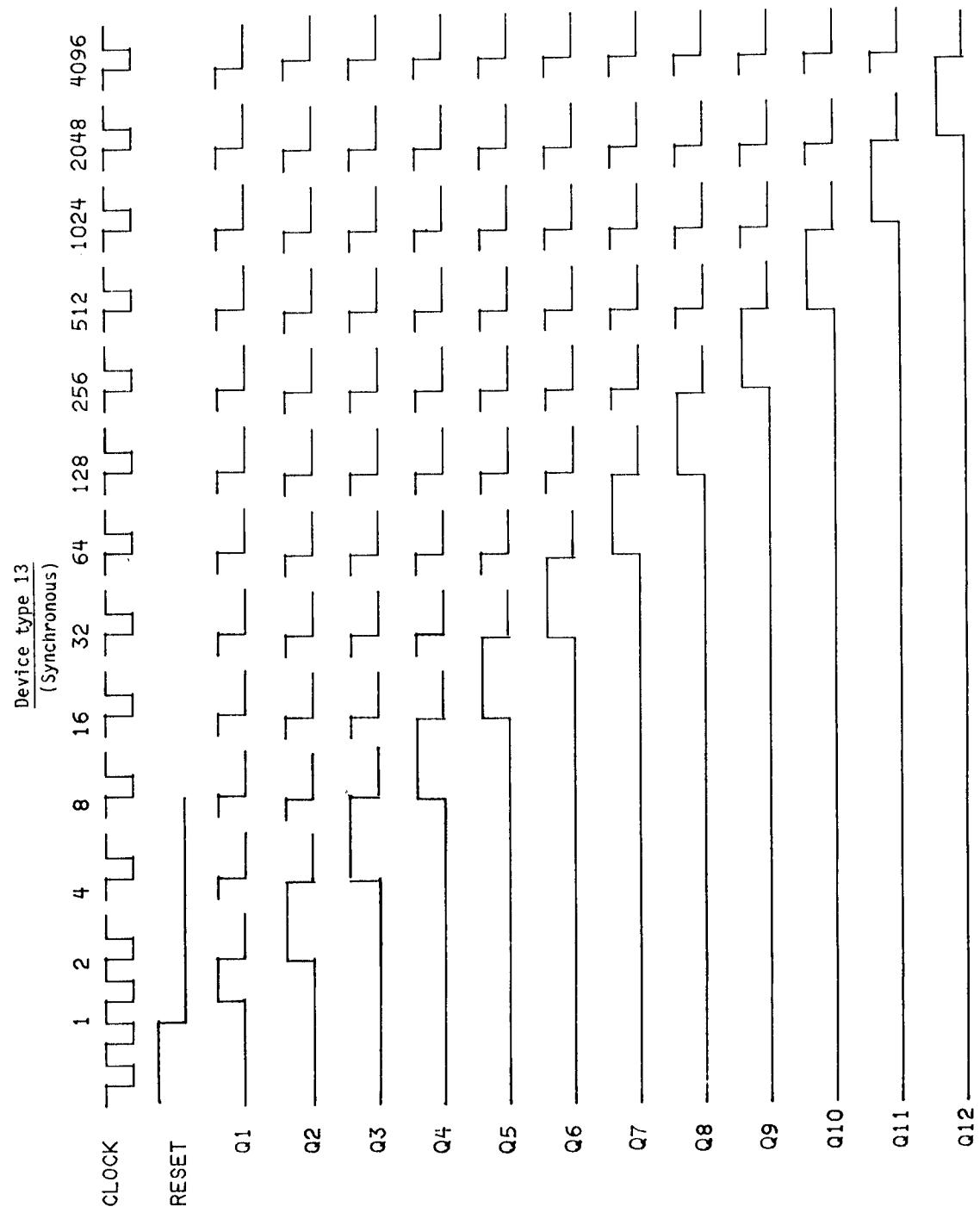
Device type 12COUNTNG SEQUENCE

## NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (clock)  $\leq 27$  ns.
2. Clear input pulse characteristics:  $t_r = t_f \leq 6$  ns;  
 $t_p$  (clear)  $\leq 24$  ns;  $t_{REM} \leq 30$  ns.
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f \leq 6$  ns;  $t_p$  (clock)  $\leq 24$  ns; PRR  $> 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10\%$  percent (including probe and jig capacitance).
5.  $t_{TLH} = t_{TLH2} - t_{TLH1}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .
6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.

FIGURE 6. Switching test circuit and waveforms - Continued.



COUNTING SEQUENCE

FIGURE 6. Switching test circuit and waveforms - Continued.

Device type 13

NOTES:

1. Clock input pulse characteristics:  $t_r = t_f \leq 6$  ns,  
 $t_p$  (clock)  $\leq 27$  ns.
2. Clear input pulse characteristics:  $t_r = t_f \leq 6$  ns,  
 $t_p$  (clear)  $< 24$  ns;  $t_{REM} < 30$  ns.
3. The clock input characteristics for  $f_{MAX}$  are as follows:  
 $t_r = t_f < 6$  ns;  $t_p$  (clock)  $< 24$  ns; PRK  $> 21$  MHz.
4.  $C_L = 50 \text{ pF} \pm 10$  percent (including probe and jig capacitance).
5.  $t_{TLH} = t_{TLH2} - t_{TLH1}$ ;  $t_{THL} = t_{THL2} - t_{THL1}$ .
6. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 6. Switching test circuit and waveforms - Continued.

TABLE III. Group A inspection for device type 01.

Symbol	Case Method No.	MIL- STD-883 E.E.T. Test No.	Measured Terminal conditions												Test limits				
			Subgroup 1 TC = 25°C				Subgroup 2 TC = -125°C				Subgroup 3 TC = -55°C				Unit				
			CLK	A	S	C	ENABLE P	GND	LOAD	ENABLE T	OC	08	QA	RCO	V <sub>CC</sub>	Min	Max	Min	Max
V <sub>TC</sub> (pos) 1/	1	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	-1.5	-1.5	-1.5	-1.5
	2	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	3	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	4	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	5	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	6	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	7	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	8	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
	9	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	0	0	0	0
V <sub>IC</sub> (neg)	10	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1.5	-1.5	-1.5	-1.5
	11	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	12	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	13	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	14	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	15	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	16	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	17	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
	18	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	0	0	0	0
I <sub>CCH</sub>	19	6.0 V	GND	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	0.2	0.2	0.2	0.2
I <sub>CDL</sub>	20	6.0 V	GND	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	0.2	0.2	0.2	0.2
I <sub>DR3</sub>	21	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.95	5.95	5.95	5.95
I <sub>DR3</sub>	22	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.95	5.95	5.95	5.95
I <sub>DR3</sub>	23	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.95	5.95	5.95	5.95
I <sub>DR3</sub>	24	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.95	5.95	5.95	5.95
I <sub>DR3</sub>	25	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.95	5.95	5.95	5.95
I <sub>DR5</sub>	26	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48	5.48	5.48
I <sub>DR5</sub>	27	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48	5.48	5.48
I <sub>DR5</sub>	28	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48	5.48	5.48
I <sub>DR5</sub>	29	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48	5.48	5.48
I <sub>DR5</sub>	30	4.2 V	GND	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48	5.48	5.48
I <sub>DR3</sub>	31	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR3</sub>	32	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR3</sub>	33	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR3</sub>	34	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR3</sub>	35	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR3</sub>	36	1.2 V	GND	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A	20 $\mu$ A
I <sub>DR5</sub>	37	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	38	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	39	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	40	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	41	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	42	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	43	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	44	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DR5</sub>	45	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	0.05	0.05	0.05	0.05
I <sub>DS4</sub>	3011	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	-120	-120	-120	-120
I <sub>DS4</sub>	3012	4.0 V	GND	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	-120	-120	-120	-120

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 01 - Continued.

Case No. S/N Ref.	Test No.	Test CLK	A	B	C	D	Terminal conditions										Test limits			
							ENABE P	GND	LOAD	ENABLE T	QD	QC	QA	RCD	Vcc	Min	Max	Min	Max	
IIN	3010	46	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	47	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	48	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	49	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	50	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	51	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	52	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	53	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
	54	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1	A	
IIL	3009	55	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B					
	56	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	57	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	58	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	59	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	60	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	61	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	62	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
	63	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-0.05	-0.1	B	
CC	3012	64	8V	8V					GND		8V	8V				GND	15			
	65	8V	8V								8V	8V								
	66	8V	8V								8V	8V								
	67	8V	8V								8V	8V								
	68	8V	8V								8V	8V								
CIN	3012	69	8V	8V																
	70	8V	8V																	
	71	8V	8V																	
	72	8V	8V																	
Truth table tests 1/1	3014	73	8	A	A	A	A	A	A	A	A	A	A	A	4.5 V outputs 12/13	Subgroup 7 TC = +25 C				
	74	8	A	A	A	A	A	A	A	A	A	A	A	A						
	75	8	A	A	A	A	A	A	A	A	A	A	A	A						
	76	8	A	A	A	A	A	A	A	A	A	A	A	A						
	77	8	A	A	A	A	A	A	A	A	A	A	A	A						
	78	8	A	A	A	A	A	A	A	A	A	A	A	A						
	79	8	A	A	A	A	A	A	A	A	A	A	A	A						
	80	8	A	A	A	A	A	A	A	A	A	A	A	A						
	81	8	A	A	A	A	A	A	A	A	A	A	A	A						
	82	8	A	A	A	A	A	A	A	A	A	A	A	A						
	83	8	A	A	A	A	A	A	A	A	A	A	A	A						
	84	8	A	A	A	A	A	A	A	A	A	A	A	A						
	85	8	A	A	A	A	A	A	A	A	A	A	A	A						
	86	8	A	A	A	A	A	A	A	A	A	A	A	A						
	87	8	A	A	A	A	A	A	A	A	A	A	A	A						
	88	8	A	A	A	A	A	A	A	A	A	A	A	A						
	89	8	A	A	A	A	A	A	A	A	A	A	A	A						
	90	8	A	A	A	A	A	A	A	A	A	A	A	A						
	91	8	A	A	A	A	A	A	A	A	A	A	A	A						
	92	8	A	A	A	A	A	A	A	A	A	A	A	A						
	93	8	A	A	A	A	A	A	A	A	A	A	A	A						
	94	8	A	A	A	A	A	A	A	A	A	A	A	A						
	95	8	A	A	A	A	A	A	A	A	A	A	A	A						
	96	8	A	A	A	A	A	A	A	A	A	A	A	A						

See Footnotes at end of table III.

TABLE III. Group A Inspection for device type 01 - Continued.

Symbol	Date MIL-STD-883 E/F/X method	Test no.	TCK	CLK	A	B	C	D	ENABLE P	GND	TEST	ENABLE T	DD	QC	QA	RCO	VCC	Test limits					
																		Terminal conditions					
																		Measured terminal	Subgroup 7 TC = +25°C	Subgroup 7 TC = +55°C	Subgroup 8 TC = -55°C	Unit	
Truth table tests 10/ 11/	3014	97	A	A	A	A	A	A	A	A	A	A	A	A	A	A	L	4.5 V	.....	.....	.....	.....	
		98	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		99	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		100	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		101	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		102	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		103	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		104	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		105	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		106	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		107	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		108	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		109	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		110	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		111	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		112	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		113	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		114	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		115	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		116	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		117	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		118	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		119	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		120	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		121	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		122	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		123	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		124	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		125	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		126	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		127	B	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		128	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		129	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		130	B	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		131	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		132	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		133	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		134	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		135	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		136	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		137	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		138	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		139	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		140	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		141	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		142	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		143	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		144	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		145	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		146	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		147	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		148	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		149	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		150	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		151	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		152	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		153	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		154	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		155	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		156	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		157	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		158	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		159	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		160	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		161	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		162	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		163	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		164	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		165	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		166	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	
		167	A	A	A	A	A	A	A	A	A	A	A	A	A	A	H	.....	.....	.....	.....	.....	

See footnotes at end of table III.

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

Symbol	Case	$\underline{U}$												Test limits													
		MIL-S-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 10 $T_C = 125^\circ C$	Subgroup 9 $T_C = 125^\circ C$	Subgroup 11 $T_C = 55^\circ C$	Unit				
method	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	terminal	$T_C = 125^\circ C$	$T_C = 125^\circ C$	$T_C = 55^\circ C$	$14^\circ C$						
Test no.	CTR	CLK	A	3	C	D	ENABLE P	GND	ENBL T	QD	QC	QA	RCD	V <sub>CC</sub>			Min	Max	Min	Max	Min	Max	Min	Max			
$t_{PHL15}^{MAX}$	3003	168	4.5 V	IN			4.5 V	GND	4.5 V	4.5 V			4.5 V	QA		28		21		28				MHz			
$t_{PHL1}$	3003	169	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	170	*	*	*	*	*	*	*	*	*	*	*														
	F19..7	171	*	*	*	*	*	*	*	*	*	*	*														
	F19..172	172	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL1}$	3003	173	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	174	*	*	*	*	*	*	*	*	*	*	*														
	F19..175	175	*	*	*	*	*	*	*	*	*	*	*														
	F19..176	176	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL2}$	3003	177	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	177	*	*	*	*	*	*	*	*	*	*	*														
	F19..177	177	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL2}$	3003	178	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	178	*	*	*	*	*	*	*	*	*	*	*														
	F19..178	178	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL4}$	3003	179	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	179	*	*	*	*	*	*	*	*	*	*	*														
	F19..179	179	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL4}$	3003	180	*	*	*	*	*	*	*	*	*	*	*														
	F19..6	180	*	*	*	*	*	*	*	*	*	*	*														
	F19..180	180	*	*	*	*	*	*	*	*	*	*	*														
$t_{PHL9}$	3003	181	N	$\frac{1}{2}V$	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	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	4.5 V	4.5 V	4.5 V			
	F19..6	181	N	$\frac{1}{2}V$	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	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	4.5 V	4.5 V	4.5 V	4.5 V		
	F19..181	181	N	$\frac{1}{2}V$	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	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	4.5 V	4.5 V	4.5 V	4.5 V		
$t_{PHL10}$	3003	185	*	*	$\frac{1}{2}I$	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	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	4.5 V	4.5 V	4.5 V	
	F19..6	185	*	*	$\frac{1}{2}I$	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	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	4.5 V	4.5 V	4.5 V	
	F19..185	185	*	*	$\frac{1}{2}I$	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	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	4.5 V	4.5 V	4.5 V	
$t_{PHL11}$	3003	186	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..6	186	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..186	186	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..187	187	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..188	188	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..189	189	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..190	190	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..191	191	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..192	192	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..193	193	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..194	194	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V
	F19..195	195	4.5 V	$\frac{1}{2}I$	GND	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	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	4.5 V	4.5 V	4.5 V

TABLE III. Group A inspection for device type 02.

Symbol	Case STD 883 E,F,X method	Test limits														Unit	
		Measured terminal conditions															
		Subgroup 1 TC = -25°C	Subgroup 2 TC = 15°C	Subgroup 3 TC = 55°C													
Test no.	Test no.	CLK	A	B	C	D	ENABLE P	GND	ENABLE T	QD	QG	QA	QD	QG	QA	Min	Max
YIC <sub>1</sub> /Y <sub>1</sub>	1	1 mA	1 mA	1 mA	1 mA	1 mA	-	-	-	-	-	-	-	-	-	1.5	1.5
YIC <sub>1</sub> /Y <sub>2</sub>	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20	20
YIC <sub>1</sub> /Y <sub>3</sub>	3	5	7	8	9	10	12	13	14	15	17	18	19	20			
YIC <sub>1</sub> /Y <sub>4</sub>	4	6	8	10	12	13	14	15	17	18	19	20					
YIC <sub>1</sub> /Y <sub>5</sub>	5	7	9	11	13	14	15	17	18	19	20						
YIC <sub>1</sub> /Y <sub>6</sub>	6	8	10	12	13	14	15	17	18	19	20						
YIC <sub>1</sub> /Y <sub>7</sub>	7	9	11	13	14	15	17	18	19	20							
YIC <sub>1</sub> /Y <sub>8</sub>	8	10	12	13	14	15	17	18	19	20							
YIC <sub>1</sub> /Y <sub>9</sub>	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
YIC <sub>1</sub> /Y <sub>10</sub>	10	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1.5	-1.5
YIC <sub>1</sub> /Y <sub>11</sub>	11	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-	-
YIC <sub>1</sub> /Y <sub>12</sub>	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>13</sub>	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>14</sub>	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>15</sub>	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>16</sub>	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>17</sub>	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YIC <sub>1</sub> /Y <sub>18</sub>	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YCC <sub>H</sub>	3005	19	6.0 V	GND	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V
YCC <sub>L</sub>	3005	20	GND	6.0 V	6.0 V	6.0 V	6.0 V	GND	*	6.0 V	GND	6.0 V	*	*	*	0.2	20
YOR <sub>3</sub>	3006	21	6.0 V	IN	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	0.95	5.95
YOR <sub>3</sub>	2/	22	6.0 V	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>3</sub>	23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>3</sub>	24	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>3</sub>	25	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>5</sub>	3006	26	*	*	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5.48	5.48
YOR <sub>5</sub>	2/	27	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>5</sub>	28	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>5</sub>	29	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOR <sub>5</sub>	30	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>3</sub>	3007	31	*	*	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	0.05	0.05
YOL <sub>3</sub>	4/	32	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>3</sub>	33	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>3</sub>	34	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>3</sub>	35	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>5</sub>	3007	36	*	*	*	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	0.26	0.26
YOL <sub>5</sub>	4/	37	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>5</sub>	38	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>5</sub>	39	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
YOL <sub>5</sub>	40	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I034	3011	41	4.0 V	*	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	4.0 V	-10	-10
I034	4/	42	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I034	43	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I034	44	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
I034	45	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

See footnotes at end of table III.

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

Symbol	Case	Test limits															
		MIL-STD-883 E/F/X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20
No.	Test	CLK	CLK	A	B	C	D	ENABLE PI	GND	LOAD	ENABLE TI	QD	QB	QA	RD	VCC	
I <sub>TH</sub>	3010	46	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND	GND				6.0 V	CLK	Measured terminal
	47	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK A	Subgroup 1 TC = 25°C
	48	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK B	Subgroup 2 TC = 125°C
	49	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK C	Subgroup 3 TC = -55°C
	50	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	51	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	52	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	53	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	54	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
I <sub>TL</sub>	3009	55	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND	GND				6.0 V	CLK D	
	56	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	57	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	58	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	59	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	60	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	61	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	62	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
	63	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	GND				6.0 V	CLK D	
C <sub>c</sub>	3012	64	8V	8V					GND								Measured terminal
	65	8V	8V						GND								Subgroup 1 TC = 25°C
	66	8V	8V						GND								Subgroup 2 TC = 125°C
	67	8V	8V						GND								Subgroup 3 TC = -55°C
C <sub>IN</sub>	3012	68	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	Measured terminal
	69	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	Subgroup 4 TC = 25°C
	70	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	Subgroup 5 TC = 125°C
	71	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	Subgroup 6 TC = -55°C
	72	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	
T <sub>trig</sub> edge on 11/	3014	73	8	A	A	A	A	A	GND	A	A	A	A	A	A	A	Measured terminal
	74	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	Subgroup 7 TC = 25°C
	75	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	Subgroup 8 TC = 125°C
	76	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	77	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	78	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	79	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	80	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	81	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	82	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	83	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	84	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	85	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	86	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	87	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	88	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	89	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	90	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	91	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	92	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	93	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	94	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	95	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	96	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	97	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	98	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	99	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	100	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	101	8	A	A	A	A	A	A	A	A	A	A	A	A	A	A	

See footnotes at end of table III.

TABLE III. Group A inspection for device type 02 - continued.

Symbol	Case	Terminal conditions												Test limits						Measured current g) 17
		MIL-STD-883 E/F/X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Subgroup 8 TC = -55°C	Subgroup 8 TC = +125°C
Test No.	CEW	CLX	A	B	C	D	ENABLE P	GND	TEN#	ENABLE T	QD	QC	QA	FCO	Vcc	Min	Max	Min	Max	Max
Touch tests	102	A	B	A	A	A	A	A	A	A	A	A	A	L	L	L	L	4.5 V	All outputs 12/13/	
103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123
107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	
108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	
109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	
110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	
111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	
113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	
114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	
115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	
116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	
117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	
118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	
119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	
120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	
122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	
123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	
124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	
125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	
126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	
127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	
129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	
130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	
131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	
132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	
133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	
134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	
135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	
136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	
137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	
138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	
139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	
140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	
142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	
143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	
145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	
146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	
147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	
148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	
149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	
150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	
151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	
152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	
153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	
154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	

See footnotes at end of table III.

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

Symbol	Case	MIL-STD-883 E,F,X	Terminal conditions												Test limits											
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9	Subgroup 10	Subgroup 11	Unit			
Test method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	$T_c = +25^\circ C / T_c = +125^\circ C$	$T_c = +25^\circ C / T_c = +125^\circ C$	$T_c = +25^\circ C / T_c = +125^\circ C$	$T_c = -55^\circ C / T_c = +140^\circ C$					
no.	CEX	CLK	A	B	C	D	ENABLE P	GND	TEST	ENABLE I	TEST	ENABLE T	TEST	RCO	RCO	RCO	RCO	Min	Max	Min	Max	Min	Max			
74HXL-25Y	F19..6	3003	174	4.5 V	IN													4.5 V	DA	28	21	28	MHz			
74PHL	F19..6	3003	175	*	*	*	*	*	*	*	*	*	*	*	*	*	*	OUT	OUT	OUT	OUT	OUT				
74PHL	F19..6	3003	176	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QA	*	36	8	49	8			
74PHL	F19..6	3003	177	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QB	*	*	6	16	16			
74PHL	F19..6	3003	178	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QC	*	*	6	16	16			
74PHL	F19..6	3003	179	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QD	*	*	6	16	16			
74PHL	F19..6	3003	180	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QE	*	*	6	16	16			
74PHL	F19..6	3003	181	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QF	*	*	6	16	16			
74PHL	F19..6	3003	182	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QG	*	*	6	16	16			
74PHL	F19..6	3003	183	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QH	*	*	6	16	16			
74PHL	F19..6	3003	184	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QI	*	*	6	16	16			
74PHL	F19..6	3003	185	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QJ	*	*	6	16	16			
74PHL	F19..6	3003	186	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QK	*	*	6	16	16			
74PHL	F19..6	3003	187	IN	16/	4.5 V	4.5 V	4.5 V	*	*	*	*	*	*	*	*	*	CLK to QL	*	36	*	50	*			
74PHL	F19..6	3003	188	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QM	*	38	*	50	*			
74PHL	F19..6	3003	189	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QN	*	38	*	50	*			
74PHL	F19..6	3003	190	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QO	*	38	*	50	*			
74PHL	F19..6	3003	191	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QP	*	38	*	51	*			
74PHL	F19..6	3003	192	4.5 V	18/	GND	GND	GND	4.5 V	*	*	*	*	*	*	*	*	CLK to QR	*	38	*	51	*			
74PHL	F19..6	3003	193	4.5 V	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QS	*	38	*	51	*			
74PHL	F19..6	3003	194	4.5 V	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QT	*	38	*	51	*			
74PHL	F19..6	3003	195	4.5 V	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QU	*	38	*	51	*			
74PHL	F19..6	3003	196	4.5 V	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QV	*	38	*	51	*			
74PHL	F19..6	3003	197	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QW	*	38	*	51	*			
74PHL	F19..6	3003	198	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QX	*	38	*	51	*			
74PHL	F19..6	3003	199	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QY	*	38	*	51	*			
74PHL	F19..6	3003	200	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QZ	*	38	*	51	*			
74PHL	F19..6	3003	201	*	*	*	*	*	*	*	*	*	*	*	*	*	*	CLK to QAA	*	38	*	51	*			

TABLE III. Group A inspection for device type 03.

Symbol	Case No.	ML-STD-883 E.F. X Test No.	Test conditions												Test limits									
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 1 TC = +25°C	Subgroup 2 TC = +125°C	Subgroup 3 TC = -55°C	Unit	
	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20							
	Test No.	CLK	CLK	A	B	C	D	ENABLE P	ENB	ENABE T	00	00	0A	0A	0C	0D	0D							
V <sub>IC(pos)</sub>	1	2	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA		GND	T <sub>TX</sub> CLK	1.5	1.5	Y	
	3	4	5	6	7	8	9												A	B	C	D		
	5	6	7	8	9														ENABLE P	ENABLE T	ENABLE P	ENABLE T		
V <sub>IC(neg)</sub>	10	11	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA		T <sub>TX</sub> CLK	1.5	1.5	1.5		
	12	13	14	15	16	17	18												A	B	C	D		
	15	16	17	18															ENABLE P	ENABLE T	ENABLE P	ENABLE T		
V <sub>CC</sub>	19	20	21	22	23	24	25																	
	20	21	22	23	24	25																		
I <sub>CCL</sub>	3005	3005	3006	3006	3006	3006	3006																	
	2/	2/	2/	2/	2/	2/	2/																	
V <sub>oh3</sub>	26	27	28	29	30																			
	27	28	29	30																				
V <sub>oh5</sub>	3007	31	32	33	34	35																		
	31	32	33	34	35																			
V <sub>oh3</sub>	3007	31	32	33	34	35																		
	31	32	33	34	35																			
V <sub>oh5</sub>	3007	36	37	38	39	40																		
	36	37	38	39	40																			
V <sub>oh3</sub>	3011	41	42	43	44	45																		
	41	42	43	44	45																			
V <sub>oh5</sub>	3011	41	42	43	44	45																		
	41	42	43	44	45																			

See footnotes at end of table III.

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

Symbol	Case	Test conditions												Test limits								
		MIL-STD-883 E,F,I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Subgroup 1 TC = 25°C	Subgroup 2 TC = 125°C	Subgroup 3 TC = -55°C	Unit
Test No.	CCLK	A	B	C	D	ENABLE P	GND	GND	GND	GND	Min	Max	Min	Max								
LIN	3010	46	6.0 V	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	CLK	0.05	0.1		
	47	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	48	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	49	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	50	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	51	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	52	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	53	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
	54	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	CLK	-----	-----	-----		
LIL	3009	55	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	56	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	57	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	58	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	59	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	60	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	61	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	62	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
	63	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	CLK	-----	-----	-----	
<u>L</u>																						
C <sub>C</sub>	3012	64	8V	8V														GND	CLK	15		
	65	8V	8V															CLK	-----	-----	-----	
	66	8V	8V															CLK	-----	-----	-----	
I <sub>CIN</sub>	3012	69	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V	8V
	70	71	72																			
<u>I<sub>CIN</sub></u>																						
Truth table tests	3014	73	B	B	B	B	B	B	B	B	B	B	B	B	B	B	All outputs 12/13					
	74	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	75	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	76	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	77	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	78	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	79	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	80	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	81	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	82	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	83	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	84	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	85	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	86	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	87	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	88	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	89	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	90	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	91	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	92	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	93	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	94	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	95	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	96	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	97	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	98	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	99	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
	101	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
<u>I<sub>O</sub></u>																						
See footnotes at end of table III.																						

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

Symbol	Case MIL- STD-883C method	Test no.	Truth table tests [D] [L]	Terminal conditions												Test limits								
				17				18				19				Subgroup 7		Subgroup 8		Subgroup 8		ITC = -55°C		
				TCR	CLK	A	B	C	D	ENABLE P	GND	ENABLT	ENABLP	QD	QC	QA	RCD	VCC	Min	Max	Min	Max	Min	Max
3014	102	A	103	A	A	A	A	A	A	A	GND	A	A	L	H	L	4.5 V	All outputs [D] [L]						
	104	A	105	A	A	A	A	A	A	A	B	A	A	L	H	L								
	106	A	107	A	A	A	A	A	A	A	B	A	A	L	H	L								
	108	A	109	A	A	A	A	A	A	A	B	A	A	L	H	L								
	110	A	111	A	A	A	A	A	A	A	B	A	A	L	H	L								
	112	A	113	A	A	A	A	A	A	A	B	A	A	L	H	L								
	114	A	115	A	A	A	A	A	A	A	B	A	A	L	H	L								
	116	A	117	A	A	A	A	A	A	A	B	A	A	L	H	L								
	118	A	119	A	A	A	A	A	A	A	B	A	A	L	H	L								
	120	A	121	A	A	A	A	A	A	A	B	A	A	L	H	L								
	122	A	123	A	A	A	A	A	A	A	B	A	A	L	H	L								
	124	A	125	A	A	A	A	A	A	A	B	A	A	L	H	L								
	126	A	127	A	A	A	A	A	A	A	B	A	A	L	H	L								
	128	A	129	A	A	A	A	A	A	A	B	A	A	L	H	L								
	130	A	131	A	A	A	A	A	A	A	B	A	A	L	H	L								
	132	A	133	A	A	A	A	A	A	A	B	A	A	L	H	L								
	134	A	135	A	A	A	A	A	A	A	B	A	A	L	H	L								
	136	A	137	A	A	A	A	A	A	A	B	A	A	L	H	L								
	138	A	139	A	A	A	A	A	A	A	B	A	A	L	H	L								
	140	A	141	A	A	A	A	A	A	A	B	A	A	L	H	L								
	142	A	143	A	A	A	A	A	A	A	B	A	A	L	H	L								
	144	A	145	A	A	A	A	A	A	A	B	A	A	L	H	L								
	146	A	147	A	A	A	A	A	A	A	B	A	A	L	H	L								
	148	A	149	A	A	A	A	A	A	A	B	A	A	L	H	L								
	150	A	151	A	A	A	A	A	A	A	B	A	A	L	H	L								
	152	A	153	A	A	A	A	A	A	A	B	A	A	L	H	L								
	154	A	155	A	A	A	A	A	A	A	B	A	A	L	H	L								
	156	A	157	A	A	A	A	A	A	A	B	A	A	L	H	L								
	158	A	159	A	A	A	A	A	A	A	B	A	A	L	H	L								
	160	A	161	A	A	A	A	A	A	A	B	A	A	L	H	L								
	162	A	163	A	A	A	A	A	A	A	B	A	A	L	H	L								
	164	A	165	A	A	A	A	A	A	A	B	A	A	L	H	L								
	166	A	167	A	A	A	A	A	A	A	B	A	A	L	H	L								
	168	A	169	A	A	A	A	A	A	A	B	A	A	L	H	L								
	170	A																						

See footnotes at end of table III.

TABLE III. Group A Inspection for Device Type 03 - Continued.

Symbol	Case	Test Conditions														Test Limits								
		J7							J8							Measured		Subgroup 9		Subgroup 10		Subgroup 11		
		Test No.	CEP	CLK	A	B	C	D	ENABLE PI	GND	CONTACT	ENABLE TI	QD	QC	QA	ACD	VCC	Min	Max	Min	Max	Min	Max	
I <sub>MAX</sub>	3003	171	4.5 V	IN					4.5 V	GND	4.5 V					OUT	4.5 V	QA	28	21	28	28	MHz	
I <sub>MAX</sub>	F19, 6																							
I <sub>PLH1</sub>	3003	172	1.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>	F19, 6	173	1.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>		174	1.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>		175	1.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>	3003	176	4.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>	F19, 6	177	4.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>		178	4.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH1</sub>		179	4.5 V													OUT		CLK to QD	8	36	8	49	8	36
I <sub>PLH2</sub>	3003	180														OUT		CLK to RCD	-	38	*	50	*	38
I <sub>PLH2</sub>	F19, 6															OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH2</sub>	3003	181														OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH2</sub>	F19, 6															OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	3003	182														OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	F19, 6															OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	3003	183														OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	F19, 6															OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	3003	184	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	F19, 6	185	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		186	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		187	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		188	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		189	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>	F19, 6	190	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		191	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		192	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38
I <sub>PLH4</sub>		193	4.5 V	19/	GND	GND	GND	GND	4.5 V	GND	4.5 V					OUT		CLK to RCD	*	38	*	50	*	38

TABLE III. Group A inspection for device type 04.

<sup>25</sup> See footnotes 11 and 16 above.

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

See footnotes at end of table III.

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

Symbol	Case MIL- STD-883C S.E.X	Test no.	Test CIN	CLK	A	B	C	D	ENABLE P	GND	TOUT	EMBLE T	QD	OC	QA	RCD	YCC	Test limits						
																		I						
																		Measured terminal 9/ 2/	Subgroup 7 $T_C = +25^\circ C$	Subgroup 8 $T_C = +125^\circ C$	Subgroup 8 $T_C = -55^\circ C$	Min	Max	
Truth table 10/11/	3014	102	A	B	A	A	A	A	A	GND	A	A	L	L	L	L	4.5 V	All outputs 12/13/						
	103	105																						
	107	108																						
	109	110																						
	111	112																						
	113	114																						
	115	116																						
	117	118																						
	119	120																						
	121	122																						
	123	124																						
	125	126																						
	127	128																						
	129	130																						
	131	132																						
	133	134																						
	135	136																						
	137	138																						
	139	140																						
	141	142																						
	143	144																						
	145	146																						
	147	148																						
	149	150																						
	151	152																						
	153	154																						
	155	156																						
	157	158																						
	159	160																						
	161	162																						
	163	164																						
	165	166																						
	167	168																						
	169	170																						

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 04 - Continued.

Symbol	Case	Terminal conditions												Test results				Measured terminal g/		Subgroup 7		Subgroup 8		
		MIL-STD-883 E/F/X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TC = +25°C	TC = +125°C	TC = -125°C	TC = -55°C	Unit	
		Test no.	CLK	CLK	A	B	C	D	ENABLE P	GND	COND	ENABLE T	Q0	Q1	Q2	Q3	RCO	VCC	Min	Max	Min	Max	Min	Max
Truth table tests	3014	171	A	A	B	A	B	A	GND	A	A	L	L	L	L	4.5V								
10/11/	172	A	B	A	A	B	A	A																
	173	A	A	A	A	B	A	A																
	174	A	A	A	A	B	A	A																
	175	A	A	A	A	B	A	A																
	176	A	A	A	A	B	A	A																
	177	A	A	A	A	B	A	A																
	178	A	A	A	A	B	A	A																
	179	A	A	A	A	B	A	A																
	180	A	A	A	A	B	A	A																
	181	A	A	A	A	B	A	A																
	182	A	A	A	A	B	A	A																
	183	A	A	A	A	B	A	A																
	184	A	A	A	A	B	A	A																
	185	A	A	A	A	B	A	A																
	186	A	A	A	A	B	A	A																
	187	A	A	A	A	B	A	A																
	188	A	A	A	A	B	A	A																
	189	A	A	A	A	B	A	A																
	190	A	A	A	A	B	A	A																
	191	A	A	A	A	B	A	A																
	192	A	A	A	A	B	A	A																
	193	A	A	A	A	B	A	A																
	194	A	A	A	A	B	A	A																
	195	A	A	A	A	B	A	A																
	196	A	A	A	A	B	A	A																
	197	A	A	A	A	B	A	A																
	198	A	A	A	A	B	A	A																
	199	A	A	A	A	B	A	A																
	200	A	A	A	A	B	A	A																
	201	A	A	A	A	B	A	A																
	202	A	A	A	A	B	A	A																
	203	A	A	A	A	B	A	A																
	204	A	A	A	A	B	A	A																
	205	A	A	A	A	B	A	A																
	206	A	A	A	A	B	A	A																
	207	A	A	A	A	B	A	A																
	208	A	A	A	A	B	A	A																

See footnotes at end of table III.

TABLE III. Group A inspection for device type 05.

Symbol	Case	Terminal conditions																Test limits						
		MIL-STD-883 F, F <sub>1</sub> , X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 1	Subgroup 2	Subgroup 3	Unit	
	Method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	T <sub>C</sub> = +25°C	T <sub>C</sub> = +125°C	T <sub>C</sub> = -55°C			
Test No.	DATA B	Q8	Q4	ENABLE/F <sub>5</sub>	U/D	OC	OP	GND	DATA D	DATA C	LUND	Max/Min	RCD	CLK	DATA A	V <sub>CC</sub>	GND	DATA B ENABLE/F <sub>5</sub>	DATA D U/D	DATA C OC	DATA CLK RCD	DATA A RCD		
Y <sub>1</sub> (top)	1	1 mA																						
	2																							
	3																							
	4																							
	5																							
	6																							
	7																							
	8																							
Y <sub>1</sub> (bottom)	9	-1 mA																						
	10																							
	11																							
	12																							
	13																							
	14																							
	15																							
	16																							
I <sub>1</sub> (CH)	3005	17	6.0 V					GND	6.0 V															
I <sub>1</sub> (CL)	3005	18	GND					GND	GND															
Y <sub>0</sub> (N3)	3006	19	4.2 V	-20 μA																				
	20																							
	21																							
	22																							
	23																							
	24																							
	25																							
Y <sub>0</sub> (S5)	3006	25	4.2 V	-5.2 mA	-5.2 mA				-5.2 mA	4.2 V														
	26																							
	27																							
	28																							
	29																							
	30																							
I <sub>0</sub> (L3)	3007	31	1.2 V	20 μA	20 μA				20 μA	1.2 V														
	32																							
	33																							
	34																							
	35																							
	36																							
	37																							
Y <sub>0</sub> (L5)	3007	37	1.2 mA	5.2 mA	5.2 V				5.2 mA	1.2 V														
	38																							
	39																							
	40																							
	41																							
	42																							
I <sub>0</sub> (A4)	3011	43	4.0 V	GND	GND																			
	44																							
	45																							
	46																							
	47																							
	48																							

See footnotes at end of table III.

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

See footnotes at end of table III

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

See footnotes at end of table III.

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

Symbol	Case no.	Terminal conditions																Test limits					
		MIL-STD-883 E,F,J	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9	Subgroup 10	Subgroup 11	Unit	
tMAX <sub>15/1</sub>	3003 Fig. 6	173	OUT	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL5	3003 Fig. 6	174	OUT	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL5	3003 Fig. 6	175	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL5	3003 Fig. 6	176	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL5	3003 Fig. 6	177	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	178	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	179	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	180	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	181	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	182	GND	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz
tpHL1	3003 Fig. 6	183	GND	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz
tpHL1	3003 Fig. 6	184	GND	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz
tpHL1	3003 Fig. 6	185	GND	GND	DATA B	QA	TEMPERATURE	QD	7/0	QC	00	GND	DATA C	13/0	DATA D	14/0	IN	4.5 V	CLK to QA	23	17	23	MHz
tpHL1	3003 Fig. 6	186	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	187	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	188	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL1	3003 Fig. 6	189	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL6	3003 Fig. 6	190	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL6	3003 Fig. 6	191	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL6	3003 Fig. 6	192	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL6	3003 Fig. 6	193	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL3	3003 Fig. 6	194	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL3	3003 Fig. 6	195	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL2	3003 Fig. 6	196	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL2	3003 Fig. 6	197	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL4	3003 Fig. 6	198	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL4	3003 Fig. 6	199	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL7	3003 Fig. 6	200	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL7	3003 Fig. 6	201	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL8	3003 Fig. 6	202	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	
tpHL8	3003 Fig. 6	203	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	4.5 V	CLK to QA	23	17	23	MHz	

See footnotes at end of table III.

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

Symbol	Case MIL-STD-883C, F. X method	Test conditions																Test limits								
		I								II								Measured terminal terminal		Subgroup 9 TC = +25°C		Subgroup 10 TC = +25°C		Subgroup 11 TC = +55°C		
		Test no.	DATA A	Q8	QA	TERMOLE E1	T70	QC	QD	DATA D	DATA C	DATA B	DATA A	VCC	CLK	DATA A	VCC	Min	Max	Min	Max	Min	Max	Min	Max	
FTHL	3003	204	4.5 V	OUT	OUT	GND	GND	OUT	OUT	GND	GND	GND	GND	4.5 V	4.5 V	4.5 V	4.5 V	3	15	3	20	3	15	ns	ns	
FTHL	3003	205	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-	
FTHL	3003	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	
FTHL	3003	207	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Max Min	-	-	-	-	-	-	-	
FTHL	3003	208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Max Min	-	-	-	-	-	-	-	
FTHL	3003	209	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Max Min	-	-	-	-	-	-	-	
FTHL	3003	210	4.5 V	OUT	OUT	-	-	-	-	-	-	-	-	-	-	-	-	29/	4.5 V	-	-	-	-	-	-	-
FTHL	3003	211	4.5 V	OUT	OUT	-	-	-	-	-	-	-	-	-	-	-	-	29/	4.5 V	-	-	-	-	-	-	-
FTHL	3003	212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5 V	-	-	-	-	-	-	-	
FTHL	3003	213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5 V	-	-	-	-	-	-	-	
FTHL	3003	214	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5 V	-	-	-	-	-	-	-	
FTHL	3003	215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5 V	-	-	-	-	-	-	-	

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 06.

Symbol	Case no.	MIL-STD-883 E/F-X	Test conditions												Test limits							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 1	Subgroup 2	Subgroup 3
method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	T <sub>C</sub> = +25°C	T <sub>C</sub> = +125°C	T <sub>C</sub> = -55°C		
Test no.	DATA B	QA	QA	QA	QA	QA	QA	QA	GND	DATA C	DATA C	CARRY	BORROW	CLR	DATA A	V <sub>CC</sub>		Min	Max	Min	Max	
V <sub>I</sub> (pos)	2	1 mA																				
V <sub>I</sub> (neg)	9	-1 mA																				
	10																					
	11																					
	12																					
	13																					
	14																					
	15																					
	16																					
I <sub>CH</sub>	3005	17	6.0 V																			
I <sub>CLL</sub>	3005	18	GND																			
V <sub>OH</sub>	3006	19	4.2 V	-20 μA	-20 μA					-20 μA	-20 μA											
	20																					
	21																					
	22																					
	23																					
	24																					
V <sub>OH5</sub>	3006	25	4.2 V	5.2 mA	-5.2 mA					-5.2 mA	-5.2 mA											
	26																					
	27																					
	28																					
	29																					
	30																					
V <sub>OL3</sub>	3007	31	1.2 V	20 μA	20 μA					20 μA	20 μA											
	32																					
	33																					
	34																					
	35																					
	36																					
V <sub>OL5</sub>	3007	37	1.2 V	5.2 mA	5.2 mA					5.2 mA	5.2 mA											
	38																					
	39																					
	40																					
	41																					
	42																					
I <sub>OS4</sub>	3011	43	4.0 V	GND	GND					4.0 V	4.0 V											
	44																					
	45																					
	46																					
	47																					
	48																					

See footnotes at end of table III.

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

Symbol	Case	MIL method	Terminal conditions												Test limits				Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
L1H	3010	49	6.0 V	GND	GND	GND	GND	µA											
	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
L1L	3010	57	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	µA
	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CIN	3012	65	B/																%
	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CC	3012	69		B/															%
	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Truth table cases (10/11)	3014	73	A																
	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	82	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table III.

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

See footnotes at end of table III.

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

Symbol	Case	Terminal conditions												Test limits				
		MIL-STD-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
tpLHS	3003 F19, 6	Test no.	DATA B	08	QA	CLK count up	QC	00	SDI	DATA D	DATA C	DATA B	CARRY	REGROW	CLR	DATA A	V <sub>CC</sub>	
MAX <sub>15</sub> /	137					4.5 V	IN	*								4.5 V		
	138					OUT IN	4.5 V	*										
tpLHS	3003 F19, 6	139	4.5 V	OUT	OUT											4.5 V		
	140																	
	141																	
	142																	
tpLHS	3003 F19, 6	143	GND	OUT	OUT													
	144																	
	145																	
	146																	
tpHL1	3003 F19, 6	147	OUT	OUT	4.5 V	IN	*									4.5 V		
	148																	
	149																	
	150																	
	151																	
	152																	
	153																	
	154																	
tpHL1	3003 F19, 6	155	OUT	OUT	4.5 V	IN	*									4.5 V		
	156																	
	157																	
	158																	
	159																	
	160																	
	161																	
	162																	
tpHL3	3003 F19, 6	163	4.5 V	OUT	OUT											4.5 V		
	164																	
	165																	
	166																	
tpHL4	3003 F19, 6	167				4.5 V	IN	*								4.5 V		
	168						4.5 V											
	169																	
	170																	

See footnotes at end of table III.

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

Symbol	Case	<u>U</u>														Test limits						Subgroup 9		Subgroup 10		Subgroup 11		
		Terminal conditions														Measured terminals		Subgroup 9		Subgroup 10		Subgroup 11		TC = 25°C		TC = 15°C		TC = -55°C
Test no.	DATA B	Q8	QA	CLK count	CLK count	QC	QC	DATA D	DATA C	DATA A	CARRY	BORROW	CLR	Y <sub>CC</sub>	Y <sub>CC</sub>	Min	Max	Min	Max	Min	Max	TC = 25°C	TC = 15°C	TC = -55°C	TC = 10°C	Unit		
TLH Fig. 6	171 172 173 174 175 176	4.5 V GND GND GND GND GND	OUT OUT OUT OUT OUT OUT	0.0V 4.5 V <u>20/</u> 4.5 V 0.0V 0.0V	0.0V 4.5 V <u>20/</u> 4.5 V 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	20/ 19 19 19 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	21/ 19 19 19 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	35 35 35 35 0.0V 0.0V	35 35 35 35 0.0V 0.0V	3 3 3 3 0.0V 0.0V	20 20 20 20 0.0V 0.0V	3 3 3 3 0.0V 0.0V	15 15 15 15 0.0V 0.0V	15 15 15 15 0.0V 0.0V	3 3 3 3 0.0V 0.0V	15 15 15 15 0.0V 0.0V	ns				
TLH Fig. 6	177 178 179 180 181 182	4.5 V GND GND GND GND GND	OUT OUT OUT OUT OUT OUT	0.0V 4.5 V <u>20/</u> 4.5 V 0.0V 0.0V	0.0V 4.5 V <u>20/</u> 4.5 V 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	19 19 19 19 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	21/ 19 19 19 0.0V 0.0V	GND GND GND GND GND GND	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	4.5 V 4.5 V 4.5 V 4.5 V 0.0V 0.0V	35 35 35 35 0.0V 0.0V	35 35 35 35 0.0V 0.0V	3 3 3 3 0.0V 0.0V	20 20 20 20 0.0V 0.0V	3 3 3 3 0.0V 0.0V	15 15 15 15 0.0V 0.0V	15 15 15 15 0.0V 0.0V	ns						

TABLE III. Group A Inspection for device type 07.

Symbol	Case	Test conditions												Test limits				
		MIL-STD-883 E/F/X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	
Test no.	DATA B	Q8	QA	Q9	Q10	DATA C	Q11	Q12	Q13	CARRY	TURBO	CLR	DATA A	VCC				
Y <sub>1</sub> (pos) <sub>1</sub>	1	1 mA																
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
	8																	
Y <sub>1</sub> (neg)	9	-1 mA																
	10																	
	11																	
	12																	
	13																	
	14																	
	15																	
	15																	
I <sub>TCB</sub>	17	6.0 V																
	3005																	
I <sub>CDL</sub>	3005	18	GND															
Y <sub>0</sub> <sub>3</sub> <sub>2</sub> <sub>1</sub>	19	4.2 V	-20 $\mu$ A	-20 $\mu$ A														
	20																	
	22																	
	23																	
	24																	
Y <sub>0</sub> <sub>5</sub> <sub>4</sub> <sub>3</sub> <sub>2</sub> <sub>1</sub>	25	4.2 V	-5.2 mA	-5.2 mA														
	26																	
	27																	
	28																	
	29																	
	30																	
Y <sub>0</sub> <sub>3</sub> <sub>2</sub> <sub>1</sub>	31	1.2 V	20 $\mu$ A	20 $\mu$ A														
	32																	
	33																	
	34																	
	35																	
	36																	
Y <sub>0</sub> <sub>5</sub> <sub>4</sub> <sub>3</sub> <sub>2</sub> <sub>1</sub>	37	1.2 V	5.2 mA	5.2 mA														
	38																	
	39																	
	40																	
	41																	
	42																	
I <sub>OP</sub> <sub>4</sub> <sub>3</sub> <sub>2</sub> <sub>1</sub>	43	4.0 V	GND	GND														
	44																	
	45																	
	46																	
	47																	
	48																	

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 01 - Continued.

Symbol	Case	Terminal conditions												Test limits									
		Test 1						Test 2						Measured terminal			Subgroup 1			Subgroup 2			
		STD-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Unit
LIN	3010	49	6.0 V	GND				GND	GND	GND	GND	GND	GND	GND	GND	GND	0.05V	0.1				mA	
	50		GND																				
	51																						
	52																						
	53																						
	54																						
	55																						
	56																						
LIL	3009	57	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	0.05V	-0.1				
	58		GND																				
	59																						
	60																						
	61																						
	62																						
	63																						
	64																						
CIN	3012	65	8V															10					
	66																						
	67																						
	68																						
IC	3012	69																					
	70																						
	71																						
	72																						
Truth table tests	3014	73	B	A	A	A	A	A	A	A	A	A	A	A	A	A	4.5 V	A1					
	74																						
	75																						
	76																						
	77																						
	78																						
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	96																						

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 012 - Continued.

Symbol	Case	MIL-STD-883 E,F,X	Terminal conditions												Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Subgroup 7 TC = 25°C	Subgroup 8 TC = -55°C	
Method	2		2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20			
	Test no.	DATA A	DATA B	DATA C	DATA D	DATA E	DATA F	DATA G	DATA H	DATA I	DATA J	DATA K	DATA L	DATA M	DATA N	DATA O	DATA P	DATA Q	Subgroup 9 TC = -125°C		
Truth table tests	3014	97	B																		
10/ 11/		98																			
		100																			
		101																			
		102																			
		103																			
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		168																			
		169																			

See footnotes at end of table III.

TABLE III. Group A inspection for device type 07 - continued.

Symbol	Case	Terminal conditions														Test limits												
		I							II							Measured terminal			Subgroup 9									
		MIL-STD-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TC = +25°C	TC = +125°C	TC = -55°C	TC = 140°C						
Truth table tests	Method	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	20											
	Test no.	DATA B	Q8	QA	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	CLR	DATA A	Vcc	Min	Max	Min	Max					
Truth table tests	10/11/	3014	170	A	L	A	L	A	L	GND	A	A	H	H	A	A	4.5 V	All outputs										
		171																										
		172																										
		173																										
		174																										
		175																										
		176																										
		177																										
		178																										
		179																										
		180																										
		181																										
tPHL1	3003	182	OUT	4.5 V	IN					GND								GND	4.5 V	CLK count	11	48	11	64	11	48	ns	
	F19, 6	183		0UT																up to Q8	-	-	-	-	-	-	-	
		184																		CLK count	-	-	-	-	-	-	-	
		185																		up to Q9	-	-	-	-	-	-	-	
		186																		CLK count	-	-	-	-	-	-	-	
		187																		up to Q10	-	-	-	-	-	-	-	
		188																		down to Q8	-	-	-	-	-	-	-	
		189																		down to Q9	-	-	-	-	-	-	-	
tPHL9	3003	190	4.5 V	OUT	OUT					0UT									19/	IN	4.5 V	CLR to Q8	47	-	62	-	47	-
	F19, 6	191																		CLR to Q9	-	-	-	-	-	-	-	
		193																		CLR to Q10	-	-	-	-	-	-	-	
																				CLR to Q11	-	-	-	-	-	-	-	
tPHL2	3003	194	4.5 V	IN	4.5 V	IN	4.5 V	IN	4.5 V	*	OUT	*	OUT	*	OUT	*	OUT	*	GND	4.5 V	CLK count	4	29	4	39	4	29	*
	F19, 6	195																		up to Q11	-	-	-	-	-	-	-	
																				up to Q12	-	-	-	-	-	-	-	
																				down to Q11	-	-	-	-	-	-	-	
tPHL2	3003	196	4.5 V	IN	4.5 V	IN	4.5 V	IN	4.5 V	*	OUT	*	OUT	*	OUT	*	OUT	*	GND	4.5 V	CLK count	*	*	*	*	*	*	*
	F19, 6	197																		up to Q12	*	*	*	*	*	*	*	
																				down to Q12	*	*	*	*	*	*	*	
																				down to Q13	*	*	*	*	*	*	*	
tPHL5	3003	198	OUT	4.5 V	IN	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	*	4.5 V	*	4.5 V	*	4.5 V
	F19, 6	199																										
		200																										
		201																										
		203																										
tPHL5	3003	204	GND	OUT	OUT					OUT	OUT								GND									
	F19, 6	205																										
		207																										

TABLE III. Group A Inspection for device type 07 - Continued.

Symbol	Case	Test Conditions												Test Limits							
		MIL-STD-883 E,F,I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 10	Subgroup 11
	Method	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	T <sub>C</sub> = +25°C	T <sub>C</sub> = +125°C	T <sub>C</sub> = -55°C	/A/
1st	DATA B	08	QA	CLK count up	06	00	GND	DATA 0	DATA C	LOAD	CARRY	BUSOUT	CLR	DATA A	YCC						
1st	0003	208	DUT	4.5 V	IN		GND		4.5 V		GND		4.5 V								
1st	Fig. 6	209	OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	210		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	211		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	212		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	213		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	214		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	215		OUT	-	-	-	OUT	-	-	-	-	-	-	-	-	-	-	CLK count up to 100	CLK count up to 100	CLK count up to 100	
1st	2003	216	4.5 V	OUT			OUT											15	3	20	*
1st	Fig. 6	217	4.5 V	OUT			OUT											35	35	35	
1st	218		OUT				OUT											35	35	35	
1st	219		4.5 V				4.5 V											35	35	35	
1st	220		4.5 V				20/	4.5 V										35	35	35	
1st	221		GND				GND											35	35	35	
1st	2003	222	4.5 V	OUT			OUT											21/	4.5 V	4.5 V	
1st	Fig. 6	223	4.5 V	OUT			OUT											35	35	35	
1st	224		OUT				OUT											35	35	35	
1st	225		4.5 V				4.5 V											35	35	35	
1st	226		4.5 V				20/	4.5 V										35	35	35	
1st	227		GND				GND											35	35	35	

See footnotes at end of table III.

TABLE III. Group A inspection for device type 08.

Symbol	Case STD-883 method	Test 1 results											
		Measured terminal conditions						Measured terminal conditions					
		Subgroup 1 TC = 25°C			Subgroup 2 TC = 125°C			Subgroup 3 TC = -55°C			Subgroup 4 TC = -125°C		
Symbol	Case STD-883 method	Test 1A	Test 1B	Test 1C	Test 1D	Test 1E	Test 1F	Test 2A	Test 2B	Test 2C	Test 2D	Test 2E	Test 2F
Symbol	Case STD-883 method	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Y <sub>101</sub>	Y <sub>101</sub> (pos)	1	2	3	4	5	6	7	8	9	10	11	12
Y <sub>101</sub>	Y <sub>101</sub> (neg)	9	10	11	12	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA
Y <sub>102</sub>	Y <sub>102</sub>	13	14	15	16	17	18	19	20	21	22	23	24
Y <sub>103</sub>	Y <sub>103</sub>	17	18	19	20	21	22	23	24	25	26	27	28
Y <sub>104</sub>	Y <sub>104</sub>	29	30	31	32	33	34	35	36	37	38	39	40
Y <sub>105</sub>	Y <sub>105</sub>	41	42	43	44	45	46	47	48	49	50	51	52
Y <sub>106</sub>	Y <sub>106</sub>	53	54	55	56	57	58	59	60	61	62	63	64

See footnotes at end of table III.

TABLE III. Group A inspection for device type 08 - Continued.

See footnotes at end of table III.

TABLE III. Group A Inspection for Device Type 08 - Continued.

Symbol	Case	Terminal conditions												Test limits									
		MIL-STD-883 E,F,X				MIL-STD-883 E,F,X				MIL-STD-883 E,F,X				Measured terminal			Subgroup 9			Subgroup 10			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TC = 25°C	TC = 100°C	TC = 125°C	TC = 150°C	TC = 175°C	TC = 200°C
t <sub>MAX</sub>	3003 Fig. 6	93	IN	GND	OUT	IN	GND	OUT	IN	GND	OUT	IN	GND	OUT	IN	4.5 V	TC = 1A to 10A TC = 2A to 20A TC = 5A to 100A TC = 10A to 200A	31	23	31	31	31	31
t <sub>MAX</sub>	92	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	3003 Fig. 6	93	IN	GND	OUT	IN	GND	OUT	IN	GND	OUT	IN	GND	OUT	IN	4.5 V	TC = 1A to 10A TC = 2A to 20A TC = 5A to 100A TC = 10A to 200A	31	23	31	31	31	31
t <sub>PHL1</sub>	96	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	97	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	98	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	99	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	100	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	102	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	103	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	105	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	106	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	107	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	108	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	109	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	110	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	111	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	112	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	113	28/	IN	OUT	28/	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	5V	TC = 1A to 10A TC = 2A to 20A TC = 5A to 100A TC = 10A to 200A	31	23	31	31	31	31
t <sub>PHL1</sub>	114	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	115	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	116	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	117	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	118	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	119	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	120	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	121	23/	GND	OUT	23/	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	5V	TC = 1A to 10A TC = 2A to 20A TC = 5A to 100A TC = 10A to 200A	31	23	31	31	31	31
t <sub>PHL1</sub>	122	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	123	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	124	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	125	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	126	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	127	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	128	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	129	5/	IN	OUT	5/	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	IN	5V	TC = 1A to 10A TC = 2A to 20A TC = 5A to 100A TC = 10A to 200A	31	23	31	31	31	31
t <sub>PHL1</sub>	130	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	131	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	132	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	133	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	134	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	135	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
t <sub>PHL1</sub>	136	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

TABLE III. Group A Inspection for device type 09.

Symbol	Case No.	MIL-STD-883J C, D	Test conditions												Measured terminal				
			$\frac{V}{I}$												Subgroup 1				
			method	2	3	4	5	6	7	8	9	10	11	12	13	$T_C = -25^\circ\text{C}$	$T_C = 125^\circ\text{C}$	$T_C = -55^\circ\text{C}$	
$V_{IC(\text{pos})}$	1	1 mA	Test	CK 1A	CL 1A	1B	1C	1D	2B	2C	2D	2A	CL 2A	CK 2A	GND	CK 1A	1.5	Y	
	2	1 mA													CL 2A	1 mA	1 mA		
	3	1 mA													CL 2A	1 mA	1 mA		
	4	1 mA													CL 2A	1 mA	1 mA		
$V_{IC(\text{neg})}$	5	-1 mA													CL 2A	1 mA	1 mA		
	6	-1 mA													CL 2A	1 mA	1 mA		
	7	-1 mA													CL 2A	1 mA	1 mA		
	8	-1 mA													CL 2A	1 mA	1 mA		
$I_{CCM}$	3005	9	$\frac{V}{I}$														0.2	20	$\mu\text{A}$
$I_{CLL}$	3005	10	GND	$\underline{\frac{V}{I}}$													0.2	20	$\mu\text{A}$
$I_{OH3}$	3006	11	$\frac{V}{I}$	$\underline{25}/$	-20 $\mu\text{A}$														
	12	•																	
	13	•																	
	14	•																	
	15	•																	
	16	•																	
	17	•																	
	18	•																	
$I_{OHS}$	3006	19	$\frac{V}{I}$	$\underline{25}/$	5.2 mA														
	20	•																	
	21	•																	
	22	•																	
	23	•																	
	24	•																	
	25	•																	
	26	•																	
$I_{OL3}$	3007	27	$\frac{V}{I}$	$\underline{34}/$	1.2 V	20 $\mu\text{A}$													
	28	29	•																
	30	31	•																
	32	33	•																
	34	•																	
$I_{OL5}$	3007	35	•	1.2 V	5.2 mA														
	36	37	•																
	38	39	•																
	40	41	•																
	42	•																	
$I_{OS4}$	3011	43	$\frac{V}{I}$	$\underline{14}/$	1K	GND													
	44	45	•																
	46	47	•																
	48	49	•																
	50	51	•																

See footnotes at end of table III.

TABLE III. Group A inspection for device type 09 - Continued.

Symbol	Case	Terminal conditions												Measured				Test lists				Unit	
		MIL-STD-883C, D method	1	2	3	4	5	6	7	8	9	10	11	12	13	14	terminal	Subgroup 1	Subgroup 2	Subgroup 3	TC = -55°C		
	Test no.	TCR 1A	CLR 1	10A	10B	10C	10D	20A	20B	20C	20D	CLR 2	CTK 2A	VCC		TC = +25°C	TC = +125°C	TC = -55°C					
I <sub>H</sub>	3010	51	6.0 V	GND	6.0 V			GND						6.0 V	GND	6.0 V	TCR 1A	CLR 1A	CLR 2A	TCR 2A			
I <sub>H</sub>	52	53	54												6.0 V	GND	6.0 V	TCR 1A	CLR 1A	CLR 2A	TCR 2A		
I <sub>L</sub>	3009	55	56	57	58	6.0 V	6.0 V	GND						6.0 V	GND	6.0 V	TCR 1A	CLR 1A	CLR 2A	TCR 2A			
I <sub>L</sub>														6.0 V	GND	6.0 V	TCR 1A	CLR 1A	CLR 2A	TCR 2A			
Subgroup 4																							
I <sub>C</sub>	3012	59	60	61	62	6/											CLR 1A	CLR 2A	TCR 1A	TCR 2A			
I <sub>C</sub>																							
Subgroup 5																							
I <sub>C</sub>	3014	63	A	B	B	B	B										CLR 1A	CLR 2A	TCR 1A	TCR 2A			
I <sub>C</sub>																							
Subgroup 6																							
I <sub>C</sub>	64	65	66	67	68	69	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	
I <sub>C</sub>																							
Subgroup 7																							
I <sub>C</sub>	85	86	87	88	89	90	91	92	93	94	95	96											
I <sub>C</sub>																							
Subgroup 8																							
I <sub>C</sub>	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	
I <sub>C</sub>																							

See footnotes at end of table III.

TABLE III. Group A inspection for device type 09 - Continued.

Symbol	Case	MIL-STD-883C, ID method	Test 111111												Unit		
			I						II								
			Subgroup 9 Tc = +25°C			Subgroup 10 Tc = +125°C			Subgroup 11 Tc = -55°C			Subgroup 12 Tc = -55°C					
Test No.	Test	IC1 IC2 IC3 IC4 IC5 IC6	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	MHz		
t <sub>PHL</sub>	3003 97 98	IN IN OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	28		
t <sub>PHL</sub>	3003 99	IN IN OUT	GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	NH2		
t <sub>PHL</sub>	F19, 6 100	IN IN OUT	GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	NH2		
t <sub>PHL</sub>	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	102	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	103	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	104	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	105	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	106	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	3003 107 108	IN IN OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	28		
t <sub>PHL</sub>	109	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	110	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	111	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	112	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	113	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	3003 115 F19, 6 116	IN IN OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	29		
t <sub>PHL</sub>	117	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	118	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	119	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	122	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	3003 123 F19, 6 124	IN IN GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	15		
t <sub>PHL</sub>	125	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	126	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	127	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	129	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	3003 131 F19, 6 132	IN IN OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	29		
t <sub>PHL</sub>	133	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	135	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	136	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	137	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
t <sub>PHL</sub>	138	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

See footnotes at end of table III.

TABLE III. Group A inspection for device type 10.

Symbol	Case	Terminal conditions														Test limits					
		MIL-STD-883 E/F, X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured current	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C
method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Test no.	5 OUT	1 OUT	0 OUT	2 OUT	6 OUT	7 OUT	3 OUT	8 OUT	4 OUT	9 OUT	CARRY OUT	CLX	CLX	CLX	CLX	CLX	CLX	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
V <sub>IC</sub> (pos)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C	
V <sub>IC</sub> (neg)	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
I <sub>CH</sub>	3005	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
I <sub>CC</sub>	29/	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
I <sub>CD</sub>	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Y013	3006	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Y015	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Y016	3006	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Y017	3007	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C
Y018	3007	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	terminal	Subgroup 1 TC = 23°C	Subgroup 2 TC = 115°C	Subgroup 3 TC = -55°C

See footnotes at end of table III.

TABLE III. Group A inspection for device type 10 - Continued.

Symbol	Case	Test limits																
		Terminal conditions								Measured terminal								
MIL-STD-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Unit	
method	2	2	3	4	5	7	6	9	10	12	13	14	15	17	18	19	Subgroup 3 TC = -55°C	
Test no.	5 OUT	1 OUT	0 OUT	2 OUT	6 OUT	7 OUT	3 OUT	CND	8 OUT	4 OUT	9 OUT	CARRY OUT	CLK ENABE	CLK	Y <sub>CC</sub>	Y <sub>CC</sub>	Subgroup 2 TC = -125°C	
I <sub>IN</sub>	3010	55	56	57									GND	6.0 V	6.0 V	CLR	0.05	Subgroup 1 TC = 25°C
I <sub>IL</sub>	3009	58	59	60									GND	6.0 V	6.0 V	CLR	-0.1	Subgroup 3 TC = -55°C
I <sub>OS4</sub>	3011	61	62	63	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	6.0 V	CLR	-0.05	Subgroup 4 TC = 25°C
I <sub>OS4</sub>	3011	64	65	66	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	6.0 V	CLR	-0.1	Subgroup 4 TC = 25°C
I <sub>CC</sub>	3012	73	74															Subgroup 5 TC = -55°C
Truth table tests	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 6 TC = -55°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 7 TC = +25°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 8 TC = +125°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 9 TC = +55°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 10 TC = +125°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 11 TC = +55°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 12 TC = +25°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 13 TC = 0°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 14 TC = -25°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 15 TC = -50°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 16 TC = -75°C	
I <sub>CC</sub>	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	Subgroup 17 TC = -100°C	

See footnotes at end of table III.

TABLE III. Group A inspection for device type 10 - Continued.

Symbol	Case no.	MIL-TD-883 E,F,X method	Terminal conditions												Test limits						Unit		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9 TC = +25°C 14/TC = 125°C	Subgroup 10 TC = +25°C 14/TC = 125°C	Subgroup 11 TC = -55°C 14/TC = 125°C	
tpHL1	3003	101	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	102	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	103	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	104	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	105	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	106	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	107	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	108	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	109	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	110	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	111	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
tpLH1	3003	112	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	113	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	114	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	115	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	116	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	117	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	118	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	119	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	120	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	121	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	122	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
tpLH9	3003	123	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	124	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	125	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	126	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	127	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	128	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	129	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	130	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	131	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	132	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	133	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	134	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	135	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	136	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	137	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	138	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	139	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	140	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	141	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	142	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	143	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>
	144	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	40	6	55	m <sup>2</sup>

See footnotes at end of table III.

TABLE III. Group A Inspection for Device Type 10 - Continued.

Symbol	ML STD-833 method	Case No.	ML Ref.X	Terminal conditions $\frac{V}{I}$																Test limits				
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9 $T_C = +25^\circ C$	Subgroup 10 $T_C = +125^\circ C$	Subgroup 11 $T_C = -55^\circ C$	Unit
I <sub>PL4</sub>	3003	145	Fig. 6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	0 OUT	7	44	7	44
		146																		0 OUT	7	3	7	7
		147																		0 OUT	7	3	7	7
		148																		0 OUT	7	3	7	7
		149																		0 OUT	7	3	7	7
		150																		0 OUT	7	3	7	7
		151																		0 OUT	7	3	7	7
		152																		0 OUT	7	3	7	7
		153																		0 OUT	7	3	7	7
		154																		0 OUT	7	3	7	7
		155																		0 OUT	7	3	7	7
I <sub>PL4</sub>	3004	156	Fig. 6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	0 OUT	7	3	7	7
		157																		0 OUT	7	3	7	7
		158																		0 OUT	7	3	7	7
		159																		0 OUT	7	3	7	7
		160																		0 OUT	7	3	7	7
		161																		0 OUT	7	3	7	7
		162																		0 OUT	7	3	7	7
		163																		0 OUT	7	3	7	7
		164																		0 OUT	7	3	7	7
		165																		0 OUT	7	3	7	7
		166																		0 OUT	7	3	7	7
fu <sub>KA</sub> 157	3003	167	Fig. 6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	0 OUT	7	23	17	23
		168																		0 OUT	3	15	3	15
I <sub>PL</sub>	3004	169	Fig. 6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	1 OUT	2	2	2	2
		170																		1 OUT	2	2	2	2
		171																		1 OUT	2	2	2	2
		172																		1 OUT	2	2	2	2
		173																		1 OUT	2	2	2	2
		174																		1 OUT	2	2	2	2
		175																		1 OUT	2	2	2	2
		176																		1 OUT	2	2	2	2
		177																		1 OUT	2	2	2	2
		178																		1 OUT	2	2	2	2
I <sub>TLH</sub>	3004	179	Fig. 6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	0 OUT	1	2	3	2
		180																		0 OUT	1	2	3	2
		181																		0 OUT	1	2	3	2
		182																		0 OUT	1	2	3	2
		183																		0 OUT	1	2	3	2
		184																		0 OUT	1	2	3	2
		185																		0 OUT	1	2	3	2
		186																		0 OUT	1	2	3	2
		187																		0 OUT	1	2	3	2
		188																		0 OUT	1	2	3	2
		189																		0 OUT	1	2	3	2
		190																		0 OUT	1	2	3	2

TABLE III. Group A Inspection for device type 11.

Symbol	Case MIL-STD-883C, E.E.X. no.	Test no.	$V_{IC}(pos)$	$V_{IC}(neg)$	Terminal conditions												Measured terminal unit	Test limits		
					$I_{V}$						$I_{GND}$						$I_{VCC}$			
					1	2	3	4	5	6	7	8	9	10	11	12	1.5	-1.5		
I <sub>CH</sub>	3005	5			0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.2	0.2	20	20
I <sub>CLL</sub>		6															None	None	0.2	0.2
I <sub>CC</sub>		7															Y <sub>CC</sub>	Y <sub>CC</sub>	0.2	20
I <sub>CC</sub>		8															None	None	0.2	20
I <sub>CH</sub>		9															Y <sub>CC</sub>	Y <sub>CC</sub>	0.2	20
I <sub>CH</sub>		10															Y <sub>CC</sub>	Y <sub>CC</sub>	0.2	20
Y <sub>H3</sub>	3006	11															0.1	0.4	5.95	5.95
Y <sub>H3</sub>	2/	12															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		13															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		14															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		15															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		16															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		17															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		18															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		19															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		20															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		21															0.05	0.05	5.95	5.95
Y <sub>H3</sub>		22															0.05	0.05	5.95	5.95
Y <sub>OL3</sub>	3007	23															0.1	0.4	5.48	5.48
Y <sub>OL3</sub>	2/	24															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		25															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		26															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		27															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		28															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		29															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		30															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		31															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		32															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		33															0.05	0.05	5.48	5.48
Y <sub>OL3</sub>		34															0.05	0.05	5.48	5.48
Y <sub>H5</sub>	3007	35															0.1	0.4	5.48	5.48
Y <sub>H5</sub>	2/	36															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		37															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		38															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		39															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		40															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		41															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		42															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		43															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		44															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		45															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		46															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		47															0.05	0.05	5.48	5.48
Y <sub>H5</sub>	2/	48															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		49															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		50															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		51															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		52															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		53															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		54															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		55															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		56															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		57															0.05	0.05	5.48	5.48
Y <sub>H5</sub>		58															0.05	0.05	5.48	5.48

See footnotes at end of table III.

TABLE III. Group A inspection for device type 11 - continued.

Test lists																
Symbol	Case	Terminal conditions										Measured terminal TC = 25°C	Subgroup 1 TC = 25°C	Subgroup 2 TC = 125°C	Subgroup 3 TC = -55°C	
		MIL-STD-883C method	1	2	3	4	5	6	7	8	9					
TST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TST	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19
TST	3	11H	12	13	14	15	16	17	18	19	20					
TST	4	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
TST	5	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78
TST	6	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
TST	7	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
TST	8	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123
TST	9	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138
TST	10	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153
TST	11	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168
TST	12	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183
TST	13	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198
TST	14	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213
TST	15	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228
TST	16	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243
TST	17	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258
TST	18	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273
TST	19	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288
TST	20	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303
TST	21	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318
TST	22	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333
TST	23	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348
TST	24	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363
TST	25	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378
TST	26	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393
TST	27	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408
TST	28	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423
TST	29	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438
TST	30	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453
TST	31	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468
TST	32	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488
TST	33	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503
TST	34	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518
TST	35	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533
TST	36	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548
TST	37	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563
TST	38	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578
TST	39	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593
TST	40	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608
TST	41	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623
TST	42	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638
TST	43	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653
TST	44	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668
TST	45	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683
TST	46	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698
TST	47	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713
TST	48	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728
TST	49	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743
TST	50	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758
TST	51	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773
TST	52	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788
TST	53	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803
TST	54	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818
TST	55	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833
TST	56	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848
TST	57	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863
TST	58	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878
TST	59	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893
TST	60	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908
TST	61	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923
TST	62	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938
TST	63	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953
TST	64	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968
TST	65	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983
TST	66	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988
TST	67	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993
TST	68	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	69	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	70	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	71	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	72	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	73	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	74	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	75	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	76	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	77	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	78	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	79	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	80	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	81	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	82	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	83	999	990	991	992	993	994	995	996	997	998	999	990	991	992	993
TST	84	994	995	996	997	998	999	990	991	992	993	994	995	996	997	998
TST	85	999	990	991	992	993</td										

See footnotes at end of table III.

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

See footnotes at end of table III.

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

TABLE III. Group A inspection for device type 12.

Symbol	Case STD-883 C, D	$V_{CC}$														$V_{DD}$																				
		Terminal conditions							Test limits							Measured terminal							Subgroup 2							Subgroup 3						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	TC = +25°C	TC = +125°C	TC = -55°C	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx				
$V_{CC}$ (pos)	1	1 mA	1 mA																																	
$V_{CC}$ (neg)	2	-1 mA	-1 mA																																	
$V_{CC}$ (pos)	3	1 mA	1 mA																																	
$V_{CC}$ (neg)	4	-1 mA	-1 mA																																	
$I_{CCN}$	3005	5	GND	6.0 V																																
$I_{CCN}$	3006	6	GND	6.0 V																																
$I_{CCN}$	3007	7	GND	6.0 V																																
$I_{CCN}$	3008	8	GND	6.0 V																																
$I_{CCN}$	3009	9	GND	6.0 V																																
$I_{CCN}$	3010	10	GND	6.0 V																																
$V_{DD}$	11	14	14																																	
$V_{DD}$	12	14	14																																	
$V_{DD}$	13	14	14																																	
$V_{DD}$	14	14	14																																	
$V_{DD}$	15	14	14																																	
$V_{DD}$	16	14	14																																	
$V_{DD}$	17	14	14																																	
$I_{DD}$	3006	18																																		
$I_{DD}$	3007	19																																		
$I_{DD}$	3008	20																																		
$I_{DD}$	3009	21																																		
$I_{DD}$	3010	22																																		
$I_{DD}$	3011	23																																		
$I_{DD}$	3012	24																																		
$V_{OL}$	3007	25																																		
$V_{OL}$	3008	26																																		
$V_{OL}$	3009	27																																		
$V_{OL}$	3010	28																																		
$V_{OL}$	3011	29																																		
$V_{OL}$	3012	30																																		
$V_{OL}$	3013	31																																		
$I_{OL}$	3007	32																																		
$I_{OL}$	3008	33																																		
$I_{OL}$	3009	34																																		
$I_{OL}$	3010	35																																		
$I_{OL}$	3011	36																																		
$I_{OL}$	3012	37																																		
$I_{OL}$	3013	38																																		
$I_{OL}$	3014	39																																		
$I_{OL}$	3015	40																																		
$I_{OL}$	3016	41																																		
$I_{OL}$	3017	42																																		
$I_{OL}$	3018	43																																		
$I_{OL}$	3019	44																																		
$I_{OL}$	3020	45																																		
$I_{OL}$	3021	46																																		
$I_{OL}$	3022	47																																		
$I_{OL}$	3023	48																																		
$I_{OL}$	3024	49																																		

See footnotes at end of table III.

TABLE III. Group A inspection for device type 12 - Continued.

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 12 - Continued.

Symbol	Base STD 83 C, D	Test 11618												Unit	
		1	2	3	4	5	6	7	8	9	10	11	12	13	
Symbol	Method	2	2	3	4	6	8	9	10	11	13	14	16	18	20
	Test No.	CLK	CLK	CLR	07	06	05	04	END	NC	03	NC	02	Q1	NC
t <sub>POL1</sub>	3003	85	IN	END					END				OUT		
	F19, 6	86													
		87													
		88													
		89													
		90													
		91													
t <sub>POL11</sub>	3003	92											OUT		
	F19, 6	93													
		95													
		97													
		98													
t <sub>POL111</sub>	3003	99											OUT		
	F19, 6	100											IN		
		101											OUT		
		102											IN		
		103													
		104													
t <sub>PLH111</sub>	3003	105							OUT				OUT		
	F19, 6	106							IN				IN		
		107													
		108													
		109													
		110													
t <sub>PLH9</sub>	3003	111							IN				OUT		
	F19, 6	112													
		113													
		114													
		115													
		116													
		117													
t <sub>PLH</sub>	3004	118							END				OUT		
	F19, 6	119													
		120													
		121													
		122													
		123													
		124													
t <sub>TLH</sub>	3004	125											OUT		
	F19, 6	126													
		127													
		128													
		129													
		130													
		131													
t <sub>TLH</sub>	3003	132											OUT		
	F19, 6														

See footnotes at end of table III.

TABLE III. Group A inspection for device type 13.

Symbol	Case	MIL-STD-883 E,F,X	Test limits																Unit		
			Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
I <sub>ICL</sub>	3005	5	Test	Q12	06	05	07	04	03	02	01	00	08	010	011	V <sub>CC</sub>	GND	Subgroup 1 TC = +25°C	Subgroup 2 TC = +125°C	Subgroup 3 TC = -55°C	
I <sub>ICL</sub> (pos)	1															GND	CLK	Min	Max	Min	Max
I <sub>ICL</sub> (neg)	2															GND	CLK	1.5	1.5	0.2	0.2
I <sub>ICL</sub> (neg)	3															GND	CLK	-1.5	-1.5	0	0
I <sub>ICL</sub>	3006	6														GND	5.0 V	6.0 V	Y	Y	Y
I <sub>ICL</sub>	3006	7														GND	5.0 V	5.0 V	0.2	0.2	0.2
I <sub>ICL</sub>	3006	8														GND	5.0 V	5.0 V	0.2	0.2	0.2
I <sub>ICL</sub>	3006	9														GND	5.0 V	5.0 V	0.2	0.2	0.2
I <sub>ICL</sub>	3006	10														GND	5.0 V	5.0 V	0.2	0.2	0.2
I <sub>OR3</sub>	3006	11														I <sub>N</sub>	0.1	0.35	0.95	0.95	0.95
I <sub>OR3</sub>	3006	12														I <sub>N</sub>	0.2	0.3	0.4	0.4	0.4
I <sub>OR3</sub>	3006	13														I <sub>N</sub>	0.3	0.4	0.5	0.5	0.5
I <sub>OR3</sub>	3006	14														I <sub>N</sub>	0.4	0.5	0.6	0.6	0.6
I <sub>OR3</sub>	3006	15														I <sub>N</sub>	0.5	0.6	0.7	0.7	0.7
I <sub>OR3</sub>	3006	16														I <sub>N</sub>	0.6	0.7	0.8	0.8	0.8
I <sub>OR3</sub>	3006	17														I <sub>N</sub>	0.7	0.8	0.9	0.9	0.9
I <sub>OR3</sub>	3006	18														I <sub>N</sub>	0.8	0.9	1.0	1.0	1.0
I <sub>OR3</sub>	3006	19														I <sub>N</sub>	0.9	1.0	1.1	1.1	1.1
I <sub>OR3</sub>	3006	20														I <sub>N</sub>	1.0	1.1	1.2	1.2	1.2
I <sub>OR3</sub>	3006	21														I <sub>N</sub>	1.1	1.2	1.3	1.3	1.3
I <sub>OR3</sub>	3006	22														I <sub>N</sub>	1.2	1.3	1.4	1.4	1.4
I <sub>OR5</sub>	3006	23														I <sub>N</sub>	0.1	0.2	0.3	0.3	0.3
I <sub>OR5</sub>	3006	24														I <sub>N</sub>	0.2	0.3	0.4	0.4	0.4
I <sub>OR5</sub>	3006	25														I <sub>N</sub>	0.3	0.4	0.5	0.5	0.5
I <sub>OR5</sub>	3006	26														I <sub>N</sub>	0.4	0.5	0.6	0.6	0.6
I <sub>OR5</sub>	3006	27														I <sub>N</sub>	0.5	0.6	0.7	0.7	0.7
I <sub>OR5</sub>	3006	28														I <sub>N</sub>	0.6	0.7	0.8	0.8	0.8
I <sub>OR5</sub>	3006	29														I <sub>N</sub>	0.7	0.8	0.9	0.9	0.9
I <sub>OR5</sub>	3006	30														I <sub>N</sub>	0.8	0.9	1.0	1.0	1.0
I <sub>OR5</sub>	3006	31														I <sub>N</sub>	0.9	1.0	1.1	1.1	1.1
I <sub>OR5</sub>	3006	32														I <sub>N</sub>	1.0	1.1	1.2	1.2	1.2
I <sub>OR5</sub>	3006	33														I <sub>N</sub>	1.1	1.2	1.3	1.3	1.3
I <sub>OR5</sub>	3006	34														I <sub>N</sub>	1.2	1.3	1.4	1.4	1.4
I <sub>OR5</sub>	3006	35														I <sub>N</sub>	0.1	0.05	0.05	0.05	0.05
I <sub>OR5</sub>	3006	36														I <sub>N</sub>	0.2	0.3	0.4	0.4	0.4
I <sub>OR5</sub>	3006	37														I <sub>N</sub>	0.3	0.4	0.5	0.5	0.5
I <sub>OR5</sub>	3006	38														I <sub>N</sub>	0.4	0.5	0.6	0.6	0.6
I <sub>OR5</sub>	3006	39														I <sub>N</sub>	0.5	0.6	0.7	0.7	0.7
I <sub>OR5</sub>	3006	40														I <sub>N</sub>	0.6	0.7	0.8	0.8	0.8
I <sub>OR5</sub>	3006	41														I <sub>N</sub>	0.7	0.8	0.9	0.9	0.9
I <sub>OR5</sub>	3006	42														I <sub>N</sub>	0.8	0.9	1.0	1.0	1.0
I <sub>OR5</sub>	3006	43														I <sub>N</sub>	0.9	1.0	1.1	1.1	1.1
I <sub>OR5</sub>	3006	44														I <sub>N</sub>	1.0	1.1	1.2	1.2	1.2
I <sub>OR5</sub>	3006	45														I <sub>N</sub>	1.1	1.2	1.3	1.3	1.3
I <sub>OR5</sub>	3006	46														I <sub>N</sub>	1.2	1.3	1.4	1.4	1.4
I <sub>OR5</sub>	3007	47														I <sub>N</sub>	0.1	0.2	0.3	0.3	0.3
I <sub>OR5</sub>	3007	48														I <sub>N</sub>	0.2	0.3	0.4	0.4	0.4
I <sub>OR5</sub>	3007	49														I <sub>N</sub>	0.3	0.4	0.5	0.5	0.5
I <sub>OR5</sub>	3007	50														I <sub>N</sub>	0.4	0.5	0.6	0.6	0.6
I <sub>OR5</sub>	3007	51														I <sub>N</sub>	0.5	0.6	0.7	0.7	0.7
I <sub>OR5</sub>	3007	52														I <sub>N</sub>	0.6	0.7	0.8	0.8	0.8
I <sub>OR5</sub>	3007	53														I <sub>N</sub>	0.7	0.8	0.9	0.9	0.9
I <sub>OR5</sub>	3007	54														I <sub>N</sub>	0.8	0.9	1.0	1.0	1.0
I <sub>OR5</sub>	3007	55														I <sub>N</sub>	0.9	1.0	1.1	1.1	1.1
I <sub>OR5</sub>	3007	56														I <sub>N</sub>	1.0	1.1	1.2	1.2	1.2
I <sub>OR5</sub>	3007	57														I <sub>N</sub>	1.1	1.2	1.3	1.3	1.3
I <sub>OR5</sub>	3007	58														I <sub>N</sub>	1.2	1.3	1.4	1.4	1.4

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 13 - Continued.

Symbol	Case	Test 1 limits																			
		Terminal conditions								Measured terminal											
MIL-STD-883 E,F,X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Subgroup 1 TC = +25°C	Subgroup 2 TC = +125°C	Subgroup 3 TC = -55°C		
Test no.	012	06	05	07	04	03	02	01	CLK	CLR	09	Q8	Q10	Q11	V <sub>CC</sub>	Min	Max	Min	Max	Min	Max
IIN	3010	59							GND	6.0 V	GND	6.0 V		6.0 V	CLK	0.05	0.1				
IIL	3010	60							GND	6.0 V	GND	6.0 V		6.0 V	CLR	0.05	0.1				
IIS	3010	61							GND	6.0 V	GND	6.0 V		6.0 V	CLX	-0.05	-0.1				
IIS	3010	62							GND	6.0 V	GND	6.0 V		6.0 V	CLX	-0.05	-0.1				
Ios4	3011	63							GND	IN	GND	IN		4.0 V	Q1	-10	-120	-10	-120	-10	-120
Ios4	3011	64							GND	IN	GND	IN		4.0 V	Q2	-10	-120	-10	-120	-10	-120
Ios4	3011	65							GND	IN	GND	IN		4.0 V	Q3	-10	-120	-10	-120	-10	-120
Ios4	3011	66							GND	IN	GND	IN		4.0 V	Q4	-10	-120	-10	-120	-10	-120
Ios4	3011	67							GND	IN	GND	IN		4.0 V	Q5	-10	-120	-10	-120	-10	-120
Ios4	3011	68							GND	IN	GND	IN		4.0 V	Q6	-10	-120	-10	-120	-10	-120
Ios4	3011	69							GND	IN	GND	IN		4.0 V	Q7	-10	-120	-10	-120	-10	-120
Ios4	3011	70							GND	IN	GND	IN		4.0 V	Q8	-10	-120	-10	-120	-10	-120
Ios4	3011	71							GND	IN	GND	IN		4.0 V	Q9	-10	-120	-10	-120	-10	-120
Ios4	3011	72							GND	IN	GND	IN		4.0 V	Q10	-10	-120	-10	-120	-10	-120
Ios4	3011	73							GND	IN	GND	IN		4.0 V	Q11	-10	-120	-10	-120	-10	-120
Ios4	3011	74							GND	IN	GND	IN		4.0 V	Q12	-10	-120	-10	-120	-10	-120
Subgroup 4 TC = +25°C																					
C <sub>C</sub>	3012	75							GND	GND	GND	GND		GND	Q13	15					
Subgroup 7 TC = +25°C																					
Truth table tests	3014	77							GND	4.5 V	GND	4.5 V		4.5 V	Q14	15					
29/	79								GND	4.5 V	GND	4.5 V		4.5 V	Q15	15					
	80								GND	4.5 V	GND	4.5 V		4.5 V	Q16	15					
	81								GND	4.5 V	GND	4.5 V		4.5 V	Q17	15					
	82								GND	4.5 V	GND	4.5 V		4.5 V	Q18	15					
	83								GND	4.5 V	GND	4.5 V		4.5 V	Q19	15					
	84								GND	4.5 V	GND	4.5 V		4.5 V	Q20	15					
	85								GND	4.5 V	GND	4.5 V		4.5 V	Q21	15					
	86								GND	4.5 V	GND	4.5 V		4.5 V	Q22	15					
	87								GND	4.5 V	GND	4.5 V		4.5 V	Q23	15					
	88								GND	4.5 V	GND	4.5 V		4.5 V	Q24	15					
	89								GND	4.5 V	GND	4.5 V		4.5 V	Q25	15					
	90								GND	4.5 V	GND	4.5 V		4.5 V	Q26	15					
	91								GND	4.5 V	GND	4.5 V		4.5 V	Q27	15					
	92								GND	4.5 V	GND	4.5 V		4.5 V	Q28	15					
	93								GND	4.5 V	GND	4.5 V		4.5 V	Q29	15					
	94								GND	4.5 V	GND	4.5 V		4.5 V	Q30	15					
	95								GND	4.5 V	GND	4.5 V		4.5 V	Q31	15					
	96								GND	4.5 V	GND	4.5 V		4.5 V	Q32	15					
	97								GND	4.5 V	GND	4.5 V		4.5 V	Q33	15					
	98								GND	4.5 V	GND	4.5 V		4.5 V	Q34	15					
	99								GND	4.5 V	GND	4.5 V		4.5 V	Q35	15					
	100								GND	4.5 V	GND	4.5 V		4.5 V	Q36	15					
	101								GND	4.5 V	GND	4.5 V		4.5 V	Q37	15					
	102								GND	4.5 V	GND	4.5 V		4.5 V	Q38	15					
	103								GND	4.5 V	GND	4.5 V		4.5 V	Q39	15					
	104								GND	4.5 V	GND	4.5 V		4.5 V	Q40	15					
Subgroup 8 TC = +125°C																					
	91								GND	4.5 V	GND	4.5 V		4.5 V	Q41	15					
	92								GND	4.5 V	GND	4.5 V		4.5 V	Q42	15					
	93								GND	4.5 V	GND	4.5 V		4.5 V	Q43	15					
	94								GND	4.5 V	GND	4.5 V		4.5 V	Q44	15					
	95								GND	4.5 V	GND	4.5 V		4.5 V	Q45	15					
	96								GND	4.5 V	GND	4.5 V		4.5 V	Q46	15					
	97								GND	4.5 V	GND	4.5 V		4.5 V	Q47	15					
	98								GND	4.5 V	GND	4.5 V		4.5 V	Q48	15					
	99								GND	4.5 V	GND	4.5 V		4.5 V	Q49	15					
	100								GND	4.5 V	GND	4.5 V		4.5 V	Q50	15					
	101								GND	4.5 V	GND	4.5 V		4.5 V	Q51	15					
	102								GND	4.5 V	GND	4.5 V		4.5 V	Q52	15					
	103								GND	4.5 V	GND	4.5 V		4.5 V	Q53	15					
	104								GND	4.5 V	GND	4.5 V		4.5 V	Q54	15					
Subgroup 9 TC = -55°C																					
	91								GND	4.5 V	GND	4.5 V		4.5 V	Q55	15					
	92								GND	4.5 V	GND	4.5 V		4.5 V	Q56	15					
	93								GND	4.5 V	GND	4.5 V		4.5 V	Q57	15					
	94								GND	4.5 V	GND	4.5 V		4.5 V	Q58	15					
	95								GND	4.5 V	GND	4.5 V		4.5 V	Q59	15					
	96								GND	4.5 V	GND	4.5 V		4.5 V	Q60	15					
	97								GND	4.5 V	GND	4.5 V		4.5 V	Q61	15					
	98								GND	4.5 V	GND	4.5 V		4.5 V	Q62	15					
	99								GND	4.5 V	GND	4.5 V		4.5 V	Q63	15					
	100								GND	4.5 V	GND	4.5 V		4.5 V	Q64	15					
	101								GND	4.5 V	GND	4.5 V		4.5 V	Q65	15					
	102								GND	4.5 V	GND	4.5 V		4.5 V	Q66	15					
	103								GND	4.5 V	GND	4.5 V		4.5 V	Q67	15					
	104								GND	4.5 V	GND	4.5 V		4.5 V	Q68	15					

See footnotes at end of table III.

TABLE III. Group A inspection for device type 13 - Continued.

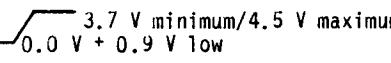
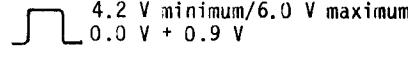
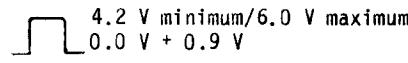
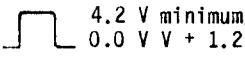
Symbol	Case	<u>T</u>																Test limits																			
		MIL-STD-883 E,F,I	1	2	3	4	5	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9	Subgroup 10	Subgroup 11	Unit	TC = 25°C	TC = 125°C	TC = -55°C	TC = -55°C											
Method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	TC = 25°C	TC = 125°C	TC = -55°C	TC = -55°C																
Truth table tests	Test	Q12	Q6	Q5	Q7	Q4	Q3	Q2	GND	Q1	CLK	CLR	Q9	Q8	Q10	Q11	VCC	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max				
Truth table tests	105	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V	Each output																			
Truth table tests	106	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	107	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																				
Truth table tests	108	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	109	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	110	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																				
Truth table tests	111	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	112	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	113	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	114	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	115	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	116	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	117	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	118	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	119	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	120	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	121	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	122	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
Truth table tests	123	L	H	L	H	H	H	H	GND	H	4.5 V	GND	H	H	L	L	4.5 V																				
tpM1	3003	124																																			
tpM1	F19, 6	125																																			
tpM1	F19, 6	126																																			
tpM1	F19, 6	127																																			
tpM1	F19, 6	128																																			
tpM1	F19, 6	129																																			
tpM1	F19, 6	130																																			
tpM1	F19, 6	131																																			
tpM1	F19, 6	132																																			
tpM1	F19, 6	133																																			
tpM1	F19, 6	134																																			
tpM1	F19, 6	135																																			
tpM1	3003	136																																			
tpM1	F19, 6	137																																			
tpM1	F19, 6	138																																			
tpM1	F19, 6	139																																			
tpM1	F19, 6	140																																			
tpM1	F19, 6	141																																			
tpM1	F19, 6	142																																			
tpM1	F19, 6	143																																			
tpM1	F19, 6	144																																			
tpM1	F19, 6	145																																			
tpM1	F19, 6	146																																			
tpM1	F19, 6	147																																			
tpM1	3003	148																																			
tpM1	F19, 6	149																																			
tpM1	F19, 6	150																																			
tpM1	F19, 6	151																																			
tpM1	F19, 6	152																																			
tpM1	F19, 6	153																																			
tpM1	F19, 6	154																																			
tpM1	F19, 6	155																																			
tpM1	F19, 6	156																																			
tpM1	F19, 6	157																																			
tpM1	F19, 6	158																																			

See footnotes at end of table III.

TABLE III. Group A Inspection for device type 13 - Continued.

Symbol	Case	Terminal conditions														Test limits						Unit			
		MIL-STD-883 E,F,I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 9	Subgroup 10	Subgroup 11	Unit		
Method	2	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	$T_c = +25^\circ C$	$T_c = -125^\circ C$	$T_c = -55^\circ C$	$T_c = -55^\circ C$	Max	Max		
Test	Q12	Q6	Q5	Q7	Q4	Q3	Q2	Q1	Q0	CLK	CLR	Q9	Q8	Q10	Q11	V <sub>CC</sub>	Min	Max	Min	Max	Min	Max	Min	Max	
Q13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5 V	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
tPLH11	3003 F19, 6	159 160 161 162 163 164 165 166 167 168 169								OUT IN	OUT IN						4.5 V	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
																		Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
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- 1/ Input pins not designated shall be "high" level logic or "low" level logic, or may be left open provided they do not influence the outcome of the measurement. Output pins not designated shall be tied to the loads or left open provided they do not influence the outcome of the measurement. Exceptions are as follows:
- $V_{IC(pos)}$  tests, the GND terminal shall be open and the minimum limit of 0.4 V applies only where test equipment limitations do not allow for the GND pin to be open during test.
  - $V_{IC(neg)}$  tests, the  $V_{CC}$  terminal shall be open.
  - $I_{CC}$  tests, the output terminals shall be open.
- 2/ Apply sufficient clock pulses (see 28/) to set outputs 'high'.
- 3/ Apply 1.2 V for device types 01 and 03; apply 4.2 V for device types 02 and 04.
- 4/ Apply sufficient  3.7 V minimum/6.0 V maximum pulses to set outputs 'low' prior to test.
- 5/ Apply sufficient  3.15 V minimum/4.0 V maximum pulses to set outputs 'high' prior to test.
- 6/ Apply GND for device types 01 and 03; apply 4.0 V for device types 02 and 04.
- 7/ For device types 01 and 03 set outputs to count of nine ( $QA = 1$ ,  $QD = 1$ ,  $QB = 0$ ,  $QC = 0$ ) prior to measurement. For device types 02 and 04, set outputs to count of fifteen ( $QA = QB = QC = QD = 1$ ) prior to test.
- 8/ See 4.4.1c.
- 9/ Only summary attributes data is required.
- 10/ Tests performed in sequence.
- 11/  $A = 3.7 \text{ V}$ ;  $B = 0.4 \text{ V}$ .
- 12/  $X = \text{indeterminate output voltage}$ .
- 13/ Output shall be: high  $\geq 2.5 \text{ V}$ ; low  $< 2.5 \text{ V}$ ;  $|I_{OUT}| = 20 \mu\text{A}$ .
- 14/ See 4.4.1d.
- 15/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half the input frequency. The  $f_{MAX}$  requirement is considered met if proper output state changes occur with the pulse repetition period set to that given in the limits column.
- 16/ For device types 01 and 02, apply one clock pulse prior to test. For device types 03 and 04, apply one clock pulse prior to test and another clock pulse during test.
- 17/ Apply a positive going pulse,  4.2 V minimum/6.0 V maximum
- 18/ Apply  3.15 V minimum/4.5 V maximum 0.0 V + 0.9 V low one pulse while load is 'low' and another pulse after load has gone 'high' (during test).
- 19/ Apply  3.15 V minimum/4.5 V maximum 0.0 V + 0.9 V low pulse prior to test.
- 20/ Apply  3.15 V minimum/4.5 V maximum 0.0 V + 0.9 V low pulse during test.
- 21/ Apply  3.15 V minimum/4.5 V maximum 0.0 V + 0.9 V low pulse during test.

- 22/ Apply a positive going pulse,  prior to test after clear pulse.
- 23/ Apply sufficient pulses (see 5/) to cause output to transition.
- 24/ Apply  prior to test after clear pulse.
- 25/ Apply  pulse prior to test.
- 26/ Apply 2 pulses prior to test after clear pulse (see 24/).
- 27/ Apply 4 pulses prior to test after clear pulse (see 24/).
- 28/ Apply sufficient  pulses to set output 'high' prior to test.
- 29/ This  $I_{CC}$  and functional tests shall be performed in the test number sequence shown with no intervening changes to terminal conditions. During the functional test, input terminals designated "PA", "PB", etc., shall have applied thereto a specified number of single pulses with the following parameters: Pulse amplitude =  $V_{CC}$  maximum to  $V_{CC}$ , 4 percent minimum. For  $I_{CC}$  tests, input terminal is as designated. These pulses are enumerated as follows:

Symbol	Pulses	Symbol	Pulses	Symbol	Pulses	Symbol	Pulses
PA	1	PF	7	PK	85	PS	2047
PB	2	PG	15	PL	127	PT	4095
PC	3	PH	31	PM	255	PU	5461
PD	4	PI	42	PN	511	PV	8191
PE	5	PJ	63	PR	1023	PY	10922

During the functional tests, device output voltages are: don't care "X", high "H", or low "L" as specified in the terminal conditions columns. The output voltage limits over the specified temperature range are "H" > 2.5 V; "L" < 2.5 V  $|I_{OUT}|$  = 20  $\mu$ A maximum. Only a summary of attribute data is required.

- 30/  $f_{MAX}$  minimum limits specified are the frequency at the inputs. The output frequency shall be one-half the input frequency when measured at  $Q_A$ . The output frequency shall be one-fifth the input frequency when measured at  $Q_D$ .
- 31/ Apply input test parameters such that  $t_{SU}$ ,  $t_{hold}$ ,  $t_{rem}$ , and  $t_w$  values are not greater than the recommended operating minimums (see 1.4). Preset outputs to required state if necessary, prior to test.

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. Delta limits shall apply only to subgroup 1 of group C inspection and shall consist of tests specified in table IV herein.
- b. Steady-state life test (method 1005 of MIL-STD-883) conditions:
  - (1) Test condition D and as specified in 4.5.2 herein and as shown on figure 3 (note 3), or equivalent.
  - (2)  $T_A = +125^\circ\text{C}$  minimum.
  - (3) Test duration, 1,000 hours, except as permitted by 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 parameters 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. Unless otherwise specified, all voltages given are referenced to the microcircuit GND terminal. Currents given are conventional current and positive when flowing into the referenced terminal.

4.5.2 Burn-in and life test cool down procedures. When the burn-in and life tests are completed and prior to removal of bias voltages, the devices under test (DUT) shall be cooled to within  $+10^\circ\text{C}$  of their power stable condition at room temperature; then, electrical parameter end-point measurements shall be performed.

TABLE IV. Delta limits at  $+25^\circ\text{C}$ .

Parameter	Device types
	A11
$I_{CC}$	$\pm 30 \text{ nA}$

1/ The above parameters shall be recorded before and after the required burn-in and life tests to determine deltas ( $\Delta$ ).

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

4.6 Data reporting. When specified in the purchase order or contract, a copy of the following data, as applicable, shall be applied.

- 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 3.5).
- b. A copy of each radiograph.
- c. The quality conformance inspection data (see 4.4).
- d. Parameter distribution data on parameters evaluated during burn-in (see 3.5).
- e. Final electrical parameters data (see 4.2c).

## 5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-M-38510.

## 6. NOTES

6.1 Intended use. Microcircuits conforming to this specification are intended for original equipment design application 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 shall not apply to direct purchase by or direct shipment to the Government.
- h. Requirements for "JAN" marking.
- i. Requirements for total dose radiation testing (see 3.6.1 and 4.5.4), if applicable.

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:

C <sub>IN</sub>	- - - - -	Input terminal-to-GND capacitance.
GND	- - - - -	Ground zero voltage potential.
I <sub>CC</sub>	- - - - -	Quiescent supply current.
T <sub>A</sub>	- - - - -	Free air temperature.
V <sub>CC</sub>	- - - - -	Positive supply voltage.

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 S for National Aeronautics and Space Administration or class B for Department of Defense (see 1.2.2), lead finish C (see 3.3). Longer length leads 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	54HC160
02	54HC161
03	54HC162
04	54HC163
05	54HC191
06	54HC192
07	54HC193
08	54HC390
09	54HC393
10	54HC4017
11	54HC4020
12	54HC4024
13	54HC4040

**6.6 Handling.** MOS devices must be handled with certain precautions to avoid damage due to accumulation of static charge. Input protective devices have been designed in the chip to minimize the effect of this static buildup. However, the following handling practices are recommended.

- a. Devices should be handled on benches with conductive and grounded surface.
- b. Ground test equipment, tools, and operator.
- c. Do not handle devices by the leads.
- d. Store devices in conductive foam or carriers.
- e. Avoid use of plastic, rubber, or silk in MOS areas.
- f. Maintain relative humidity above 50 percent, if practical.

Custodians:

Army - ER  
Navy - EC  
Air Force - 17  
NASA - NA

Preparing activity:  
Air Force - 17

Agent:  
DLA - ES

(Project 5962-0846)

Review activities:

Army - AR, MI  
Air Force - 11, 19, 85, 99  
DLA - ES

User activities:

Army - SM  
Navy - AS, CG, MC, OC, SH