

INCH-POUND

MIL-M-38510/341F  
4 May 2004  
SUPERSEDING  
MIL-M-38510/341E  
28 APRIL 1989

## MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED, SCHOTTKY TTL,  
FLIP-FLOPS, CASCADABLE, MONOLITHIC SILICON

Reactivated after 4 May, 2004 and may be used for either new or existing design acquisition.

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

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

### 1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, Advanced Schottky TTL, flip flop microcircuits. Two product assurance classes and a choice of case outlines/lead finish are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).

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

1.2.1 Device types. The device types are as follows:

<u>Device type</u>	<u>Circuit</u>
01	Dual D-type positive edge-triggered flip-flop
02	Dual JK positive edge triggered flip-flop
03	Dual JK negative edge-triggered flip-flop
04	Quad D-type positive edge-triggered flip-flop
05	Octal D-type positive edge-triggered flip-flop with three-state outputs
06	Octal D-type positive edge-triggered flip-flop with three-state inverted outputs
07	Hex D-type positive edge-triggered flip-flop
08	Parallel D-type positive edge-triggered register (with enable)
09	Quad parallel D-type positive edge-triggered register (with enable)
10	Octal D-type positive edge-triggered flip-flop with three-state outputs and bus structured pinouts
11	Octal D-type positive edge-triggered flip-flop with three-state inverted outputs and bus structured pinouts

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

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43216-5000, or emailed to bipolar@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at [www.dodssp.daps.mil](http://www.dodssp.daps.mil).

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

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
A	GDFP5-F14 or CDFP6-F14	14	Flat pack
B	GDFP4-F14	14	Flat pack
C	GDIP1-T14 or CDIP2-T14	14	Dual-in-line
D	GDFP1-F14 or CDFP2-F14	14	Flat pack
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-line
F	GDFP2-F16 or CDFP3-F16	16	Flat pack
R	GDIP1-T20 or CDIP2-T20	20	Dual-in-line package
S	GDFP2-F20 or CDFP3-F20	20	Flat pack
Z	CQCC1-N20	20	Square leadless chip carrier
X	CQCC2-N20	20	Square leadless chip carrier

1.3 Absolute maximum ratings.

Supply voltage range .....	-0.5 V dc to +7.0 V dc
Input voltage range .....	-1.2 V dc at -18 mA to +7.0 V dc
Storage temperature range .....	-65° to +150°C
Maximum power dissipation, (P <sub>D</sub> ) <u>1/</u> :	
Device type 01 .....	88 mW
Device type 02 .....	93.5 mW
Device type 03 .....	105 mW
Device type 04 .....	187 mW
Device types 05, 06, 10, 11 .....	473 mW
Device type 07 .....	247 mW
Device type 08 .....	247 mW
Device type 09 .....	220 mW
Lead temperature (soldering, 10 seconds).....	+300°C
Thermal resistance, junction to case (θ <sub>JC</sub> ): (See MIL-STD-1835)	
Junction temperature (T <sub>J</sub> ) <u>2/</u> .....	175°C

1.4 Recommended operating conditions. 2/

Supply voltage (V <sub>CC</sub> ) .....	4.5 V dc minimum to 5.5 V dc maximum
Minimum high-level input voltage (V <sub>IH</sub> ) .....	2.0 V dc
Maximum low-level input voltage (V <sub>IL</sub> ) .....	0.8 V dc
Case operating temperature range (T <sub>C</sub> ) .....	-55 °C to +125 °C
Width of clock pulse high:	
Device type 01 .....	4.0 ns minimum
Device type 02 .....	4.0 ns minimum
Device type 03 .....	5.0 ns minimum
Device type 04 .....	4.0 ns minimum
Device type 05 .....	8.0 ns minimum
Device type 06, 07 .....	7.0 ns minimum
Device type 08 .....	4.0 ns minimum
Device type 09 .....	4.0 ns minimum
Device types 10, 11 .....	5.0 ns minimum

1/ Must withstand the added P<sub>D</sub> due to short-circuit test (e.g., I<sub>OS</sub>).

2/ Maximum junction temperature should not be exceeded except for allowable short duration burn-in screening conditions in according with MIL-PRF-38535.

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Width of clock pulse low:	
Device type 01 .....	6.0 ns minimum
Device type 02 .....	5.0 ns minimum
Device type 03 .....	5.0 ns minimum
Device type 04 .....	6.0 ns minimum
Device type 05 .....	8.0 ns minimum
Device type 06 .....	6.0 ns minimum
Device type 07 .....	7.5 ns minimum
Device type 08 .....	5.0 ns minimum
Device type 09 .....	5.0 ns minimum
Device types 10, 11.....	5.0 ns minimum
Width of set pulse:	
Device type 01 .....	4.0 ns minimum
Device type 02 .....	4.0 ns minimum
Device type 03 .....	5.0 ns minimum
Width of clear pulse:	
Device type 01 .....	4.0 ns minimum
Device type 02 .....	4.0 ns minimum
Device type 03 .....	5.0 ns minimum
Width of master reset pulse:	
Device type 04 .....	5.0 ns minimum
Device type 07 .....	6.5 ns minimum
Setup time J, K, or D high to clock pulse:	
Device type 01 .....	3.0 ns minimum
Device type 02 .....	3.0 ns minimum
Device type 03 .....	5.0 ns minimum
Device type 04 .....	3.0 ns minimum
Device type 05 .....	2.5 ns minimum
Device type 06 .....	2.0 ns minimum
Device type 07 .....	5.0 ns minimum
Device type 08 .....	4.0 ns minimum
Device type 09 .....	3.0 ns minimum
Device type 10 .....	3.0 ns minimum
Device type 11 .....	2.5 ns minimum
Setup time J, K, or D low to clock pulse:	
Device type 01 .....	4.0 ns minimum
Device type 02 .....	4.0 ns minimum
Device type 03 .....	2.5 ns minimum
Device type 04 .....	4.0 ns minimum
Device type 05 .....	2.0 ns minimum
Device type 06 .....	2.5 ns minimum
Device type 07 .....	5.0 ns minimum
Device type 08 .....	4.0 ns minimum
Device type 09 .....	3.0 ns minimum
Device type 10 .....	2.5 ns minimum
Device type 11 .....	3.0 ns minimum
Hold time J, K, or D high to clock pulse:	
Device type 01 .....	2.0 ns minimum
Device type 02 .....	1.0 ns minimum
Device type 03 .....	2.5 ns minimum
Device type 04 .....	1.0 ns minimum
Device types 05, 06, 07.....	2.0 ns minimum
Device type 08 .....	2.0 ns minimum
Device type 09 .....	1.0 ns minimum
Device types 10, 11.....	2.0 ns minimum

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Hold time J, K, or D low to clock pulse:

Device type 01 .....	2.0 ns minimum
Device type 02 .....	1.0 ns minimum
Device type 03 .....	0.0 ns minimum
Device type 04 .....	2.0 ns minimum
Device types 05, 06.....	2.5 ns minimum
Device type 07, 08 .....	2.0 ns minimum
Device type 09 .....	1.0 ns minimum
Device types 10, 11.....	2.0 ns minimum

Recovery time  $\overline{SD}$ ,  $\overline{CD}$ , or  $\overline{MR}$  to CP:

Device type 01 .....	3.0 ns minimum
Device type 02 .....	2.0 ns minimum
Device type 03 .....	5.0 ns minimum
Device type 04 .....	6.0 ns minimum
Device type 07 .....	6.0 ns minimum

Input clock frequency:

Device type 01 .....	0-80 MHz
Device type 02, 07 .....	0-70 MHz
Device type 03 .....	0-90 MHz
Device type 04 .....	0-80 MHz
Device types 05, 06.....	0-60 MHz
Device type 08 .....	0-90 MHz
Device type 09 .....	0-90 MHz
Device types 10, 11.....	0-60 MHz

## 2. APPLICABLE DOCUMENTS

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

### 2.2 Government documents.

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

#### DEPARTMENT OF DEFENSE SPECIFICATIONS

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

#### DEPARTMENT OF DEFENSE STANDARDS

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

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

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

### 3. REQUIREMENTS

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

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

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

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

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

3.3.3 Schematic circuits. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity (DSCC-VAS) upon request.

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

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

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

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

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

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 10 (see MIL-PRF-38535, appendix A).

### 4. VERIFICATION

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

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

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.
- c. Additional screening for space level product shall be as specified in MIL-PRF-38535, appendix B.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Device types	Limits		Unit	
				Min	Max		
High level output voltage	V <sub>OH</sub>	V <sub>CC</sub> = 4.5 V, I <sub>IH</sub> = -1.0 mA V <sub>IL</sub> = 0.8 V, V <sub>IH</sub> = 2.0 V	All	2.5		V	
Low level output voltage	V <sub>OL</sub>	V <sub>CC</sub> = 4.5 V, I <sub>OL</sub> = 20 mA V <sub>IL</sub> = 0.8 V, V <sub>IH</sub> = 2.0 V	All		0.5	V	
Input clamp voltage	V <sub>IC</sub>	V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -18 mA T <sub>C</sub> = +25°C	All		-1.2	V	
High level input current	I <sub>IH1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 2.7 V	All		20	μA	
	I <sub>IH2</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 7.0 V	All		100	μA	
Low level input current	I <sub>IL1</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IN</sub> = 0.5 V	All	0.0	-0.6	mA	
	I <sub>IL2</sub>		01, 02, 03	0.0	-3.0	mA	
	I <sub>IL3</sub>		03	0.0	-3.0	mA	
	I <sub>IL4</sub>		07	-0.05	-1.2	mA	
Supply current	I <sub>CC</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IL</sub> = 0.0 V	01			16	mA
			02			17	mA
			03			19	mA
			04			34	mA
			07, 08, 09			45	mA
Supply current	I <sub>CCL</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IL</sub> = 0.0 V	10, 11			86	mA
	I <sub>CCZ</sub>	V <sub>CC</sub> = 5.5 V, V <sub>IL</sub> = 0.0 V	05, 06			86	mA
			10, 11			90	
Off-state output leakage current	I <sub>OZH</sub>	V <sub>CC</sub> = 5.5 V, V <sub>ZH</sub> = 2.7 V	05, 06, 10, 11			50	μA
	I <sub>OZL</sub>	V <sub>CC</sub> = 5.5 V, V <sub>ZL</sub> = 0.5 V	05, 06, 10, 11			-50	μA
Short circuit output current	I <sub>OS</sub>	V <sub>CC</sub> = 5.5 V, V <sub>OUT</sub> = 0.0 V <u>1/</u>	All	-60	-150	mA	
Output drive	I <sub>OD</sub>	V <sub>CC</sub> = 4.5 V, V <sub>IN</sub> = 5.5 V, V <sub>OUT</sub> = 2.5 V	01, 02, 03, 04, 07, 08, 09			60	mA
			05, 06			35	mA

See footnotes at end of table.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Device types	Limits		Unit
				Min	Max	
Maximum toggle frequency	f <sub>MAX</sub>		01	80		MHz
			02, 07	70		MHz
			03	90		MHz
			04	80		MHz
			05, 06	60		MHz
			08	60		MHz
			09	70		MHz
			10, 11	60		MHz
Propagation delay time low to high level		V <sub>CC</sub> = 5.0 V, C <sub>L</sub> = 50 pF ±10% See figure 4				
CP to Q output	t <sub>PLH1</sub>		01	3.8	8.5	ns
			02	3.8	9.0	ns
			03	2.5	9.5	ns
			04	3.5	8.5	ns
			05	3.0	10.5	ns
			07	1.0	11.0	ns
			08	2.0	9.5	ns
			09	2.0	8.5	ns
CP to $\bar{Q}$ output	t <sub>PLH2</sub>		01	3.8	8.5	ns
			02	3.8	9.0	ns
			03, 11	2.5	9.5	ns
			04	3.5	8.5	ns
			06	4.0	10.5	ns
			01	3.2	8.0	ns
$\bar{SD}$ , $\bar{CD}$ , to Q, $\bar{Q}$ output (CP high)	t <sub>PLH3</sub>		02	3.2	9.0	ns
			03	2.0	9.0	ns
			01	3.2	8.0	ns
$\bar{SD}$ , $\bar{CD}$ , to Q, $\bar{Q}$ output (CP low)	t <sub>PLH4</sub>		02	3.2	9.0	ns
			03	2.0	9.0	ns
			04	4.0	10.0	ns
$\bar{MR}$ to $\bar{Q}$ output (CP high)	t <sub>PLH5</sub>		04	4.0	10.0	ns
$\bar{MR}$ to $\bar{Q}$ output (CP low)	t <sub>PLH6</sub>		04	4.0	10.0	ns
Propagation delay time, high to low level						

See footnotes at end of table.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T <sub>c</sub> ≤ +125°C unless otherwise specified	Device types	Limits		Unit
				Min	Max	
CP to Q output	t <sub>PHL1</sub>	V <sub>CC</sub> = 5.0 V, C <sub>L</sub> = 50 pF ±10% See figure 4	01	3.8	10.5	ns
			02	3.8	10.5	ns
			03	2.5	9.5	ns
			04	3.5	10.5	ns
			05	3.0	11.5	ns
			07	1.0	13.0	ns
			08	2.5	10.5	ns
			09	2.5	10.5	ns
			10	2.5	9.5	ns
			CP to $\bar{Q}$ output	t <sub>PHL2</sub>		01
02	3.8	10.5				ns
03, 11	2.5	9.5				ns
04	3.5	10.5				ns
06	4.0	11.0				ns
01	3.2	11.5				ns
$\overline{SD}$ , $\overline{CD}$ , to Q, $\bar{Q}$ output (CP high)	t <sub>PHL3</sub>		02	3.2	11.5	ns
			03	2.0	9.5	ns
			01	3.5	11.5	ns
$\overline{SD}$ , $\overline{CD}$ , to Q, $\bar{Q}$ output (CP low)	t <sub>PHL4</sub>		02	3.5	11.5	ns
			03	2.5	9.5	ns
			04	4.5	15.0	ns
$\overline{MR}$ Q, output (CP high)	t <sub>PHL5</sub>		07	1.0	17.0	ns
			04	4.5	15.0	ns
$\overline{MR}$ to Q output (CP low)	t <sub>PHL6</sub>		07	1.0	17.0	ns
Propagation delay time, low level to off-state						
$\overline{OE}$ to Q output	t <sub>PLZ1</sub>		05	1.5	7.5	ns
			10	1.0	7.0	ns
$\overline{OE}$ to $\bar{Q}$ output	t <sub>PLZ2</sub>		06	1.5	7.5	ns
			11	1.5	7.0	ns
Propagation delay time high level to off-state						
$\overline{OE}$ to Q output	t <sub>PHZ1</sub>		05	1.5	8.0	ns
			10	1.0	7.0	ns
$\overline{OE}$ to $\bar{Q}$ output	t <sub>PHZ2</sub>		06	1.5	8.0	ns
			11	1.5	7.0	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 types	Limits		Unit
				Min	Max	
Propagation delay time, Off-state to low level		V <sub>CC</sub> = 5.0 V, C <sub>L</sub> = 50 pF ±10% See figure 4				
$\overline{OE}$ to Q output	t <sub>PZL1</sub>		05	2.0	10.0	ns
			10	2.5	10.5	ns
$\overline{OE}$ to $\overline{Q}$ output	t <sub>PZL2</sub>		06	2.0	10.0	ns
			11	2.5	10.5	ns
Propagation delay time, off-state to high level						
$\overline{OE}$ to Q output	t <sub>PZH1</sub>		05	2.0	14.0	ns
			10	2.0	10.5	ns
$\overline{OE}$ to $\overline{Q}$ output	t <sub>PZH2</sub>		05, 06	2.0	14.0	ns
			11	2.5	10.5	ns

1/ Not more than one output should be shorted at a time.

TABLE II. Electrical test requirements.

MIL-PRF-38535 test requirements	Subgroups (see table III)	
	Class S devices	Class B devices
Interim electrical parameters	1	1
Final electrical test parameters	1*, 2, 3, 7, 9, 10, 11	1*, 2, 3, 7, 9
Group A test requirements	1, 2, 3, 7, 8, 9, 10, 11	1, 2, 3, 7, 8, 9, 10, 11
Group B test when using the method 5005 QCI option	1, 2, 3, 9, 10, 11	N/A
Group C end-point electrical parameters	1, 2, 3, 9, 10, 11	1, 2, 3
Group D end-point electrical parameters	1, 2, 3	1, 2, 3

\*PDA applies to subgroup 1.

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

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

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

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II MIL-PRF-38535.

4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

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

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

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

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Pin number	Device type 01		Device type 02		Device type 03		Device type 04	
	CASES							
	A, B, C, and D	2, X	E, F	2, X	E, F	2, X	E, F	2, X
1	$\overline{CD}_1$	N/C	$\overline{CD}_1$	N/C	$\overline{CP}_1$	N/C	$\overline{MR}$	N/C
2	$D_1$	$\overline{CD}_1$	$J_1$	$\overline{CD}_1$	$K_1$	$\overline{CP}_1$	$Q_0$	$\overline{MR}$
3	$CP_1$	$D_1$	$\overline{K}_1$	$J_1$	$J_1$	$K_1$	$\overline{Q}_0$	$Q_0$
4	$\overline{SD}_1$	$CP_1$	$CP_1$	$\overline{K}_1$	$\overline{SD}_1$	$J_1$	$D_0$	$\overline{Q}_0$
5	$Q_1$	N/C	$\overline{SD}_1$	$CP_1$	$Q_1$	$\overline{SD}_1$	$D_1$	$D_0$
6	$\overline{Q}_1$	$\overline{SD}_1$	$Q_1$	N/C	$\overline{Q}_1$	N/C	$\overline{Q}_1$	N/C
7	GND	N/C	$\overline{Q}_1$	$\overline{SD}_1$	$\overline{Q}_2$	$Q_1$	$Q_1$	$D_1$
8	$\overline{Q}_2$	$Q_1$	GND	$Q_1$	GND	$\overline{Q}_1$	GND	$\overline{Q}_1$
9	$Q_2$	$\overline{Q}_1$	$\overline{Q}_2$	$\overline{Q}_1$	$Q_2$	$\overline{Q}_2$	CP	$Q_1$
10	$\overline{SD}_2$	GND	$Q_2$	GND	$\overline{SD}_2$	GND	$Q_2$	GND
11	$CP_2$	N/C	$\overline{SD}_2$	N/C	$J_2$	N/C	$\overline{Q}_2$	N/C
12	$D_2$	$\overline{Q}_2$	$CP_2$	$\overline{Q}_2$	$K_2$	$Q_2$	$D_2$	CP
13	$\overline{CD}_2$	$Q_2$	$\overline{K}_2$	$Q_2$	$\overline{CP}_2$	$\overline{SD}_2$	$D_3$	$Q_2$
14	$V_{CC}$	$\overline{SD}_2$	$J_2$	$\overline{SD}_2$	$\overline{CD}_2$	$J_2$	$\overline{Q}_3$	$\overline{Q}_2$
15		N/C	$\overline{CD}_2$	$CP_2$	$\overline{CD}_1$	$K_2$	$Q_3$	$D_2$
16		$CP_2$	$V_{CC}$	N/C	$V_{CC}$	N/C	$V_{CC}$	N/C
17		N/C		$\overline{K}_2$		$\overline{CP}_2$		$D_3$
18		$D_2$		$J_2$		$\overline{CD}_2$		$\overline{Q}_3$
19		$\overline{CD}_2$		$\overline{CD}_2$		$\overline{CD}_1$		$Q_3$
20		$V_{CC}$		$V_{CC}$		$V_{CC}$		$V_{CC}$

FIGURE 1. Terminal connections.

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Pin number	Device type 05		Device type 06		Device type 07		Device type 08	
	CASES							
	R, S	2, X	R, S	2, X	E, F	2, X	E, F	2, X
1	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{MR}$	N/C	$\overline{E}$	N/C
2	$Q_0$	$Q_0$	$\overline{Q}_0$	$\overline{Q}_0$	$Q_0$	$\overline{MR}$	$Q_0$	$\overline{E}$
3	$D_0$	$D_0$	$D_0$	$D_0$	$D_0$	$Q_0$	$D_0$	$Q_0$
4	$D_1$	$D_1$	$D_1$	$D_1$	$D_1$	$D_0$	$D_1$	$D_0$
5	$Q_1$	$Q_1$	$\overline{Q}_1$	$\overline{Q}_1$	$Q_1$	$D_1$	$Q_1$	$D_1$
6	$Q_2$	$Q_2$	$\overline{Q}_2$	$\overline{Q}_2$	$D_2$	N/C	$D_2$	N/C
7	$D_2$	$D_2$	$D_2$	$D_2$	$Q_2$	$Q_1$	$Q_2$	$Q_1$
8	$D_3$	$D_3$	$D_3$	$D_3$	GND	$D_2$	GND	$D_2$
9	$Q_3$	$Q_3$	$\overline{Q}_3$	$\overline{Q}_3$	CP	$Q_2$	CP	$Q_2$
10	GND	GND	GND	GND	$Q_3$	GND	$Q_3$	GND
11	CP	CP	CP	CP	$D_3$	N/C	$D_3$	N/C
12	$Q_4$	$Q_4$	$\overline{Q}_4$	$\overline{Q}_4$	$Q_4$	CP	$Q_4$	CP
13	$D_4$	$D_4$	$D_4$	$D_4$	$D_4$	$Q_3$	$D_4$	$Q_3$
14	$D_5$	$D_5$	$D_5$	$D_5$	$D_5$	$D_3$	$D_5$	$D_3$
15	$Q_5$	$Q_5$	$\overline{Q}_5$	$\overline{Q}_5$	$Q_5$	$Q_4$	$Q_5$	$Q_4$
16	$Q_6$	$Q_6$	$\overline{Q}_6$	$\overline{Q}_6$	$V_{CC}$	N/C	$V_{CC}$	N/C
17	$D_6$	$D_6$	$D_6$	$D_6$		$D_4$		$D_4$
18	$D_7$	$D_7$	$D_7$	$D_7$		$D_5$		$D_5$
19	$Q_7$	$Q_7$	$\overline{Q}_7$	$\overline{Q}_7$		$Q_5$		$Q_5$
20	$V_{CC}$	$V_{CC}$	$V_{CC}$	$V_{CC}$		$V_{CC}$		$V_{CC}$

FIGURE 1. Terminal connections - Continued.

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Pin number	Device type 09		Device type 10		Device type 11	
	CASES					
	E, F	2, X	R, S	2, X	R, S	2, X
1	$\overline{E}$	N/C	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$
2	$Q_0$	$\overline{E}$	$D_0$	$D_0$	$D_0$	$D_0$
3	$\overline{Q}_0$	$Q_0$	$D_1$	$D_1$	$D_1$	$D_1$
4	$D_0$	$\overline{Q}_0$	$D_2$	$D_2$	$D_2$	$D_2$
5	$D_1$	$D_0$	$D_3$	$D_3$	$D_3$	$D_3$
6	$\overline{Q}_1$	N/C	$D_4$	$D_4$	$D_4$	$D_4$
7	$Q_1$	$D_1$	$D_5$	$D_5$	$D_5$	$D_5$
8	GND	$\overline{Q}_1$	$D_6$	$D_6$	$D_6$	$D_6$
9	CP	$Q$	$D_7$	$D_7$	$D_7$	$D_7$
10	$Q_2$	GND	GND	GND	GND	GND
11	$\overline{Q}_2$	N/C	CP	CP	CP	CP
12	$D_2$	CP	$Q_7$	$Q_7$	$\overline{Q}_7$	$\overline{Q}_7$
13	$D_3$	$Q_2$	$Q_6$	$Q_6$	$\overline{Q}_6$	$\overline{Q}_6$
14	$\overline{Q}_3$	$\overline{Q}_2$	$Q_5$	$Q_5$	$\overline{Q}_5$	$\overline{Q}_5$
15	$Q_3$	$D_2$	$Q_4$	$Q_4$	$\overline{Q}_4$	$\overline{Q}_4$
16	$V_{CC}$	N/C	$Q_3$	$Q_3$	$\overline{Q}_3$	$\overline{Q}_3$
17		$D_3$	$Q_2$	$Q_2$	$\overline{Q}_2$	$\overline{Q}_2$
18		$\overline{Q}_3$	$Q_1$	$Q_1$	$\overline{Q}_1$	$\overline{Q}_1$
19		$Q_3$	$Q_0$	$Q_0$	$\overline{Q}_0$	$\overline{Q}_0$
20		$V_{CC}$	$V_{CC}$	$V_{CC}$	$V_{CC}$	$V_{CC}$

FIGURE 1. Terminal connections - Continued.



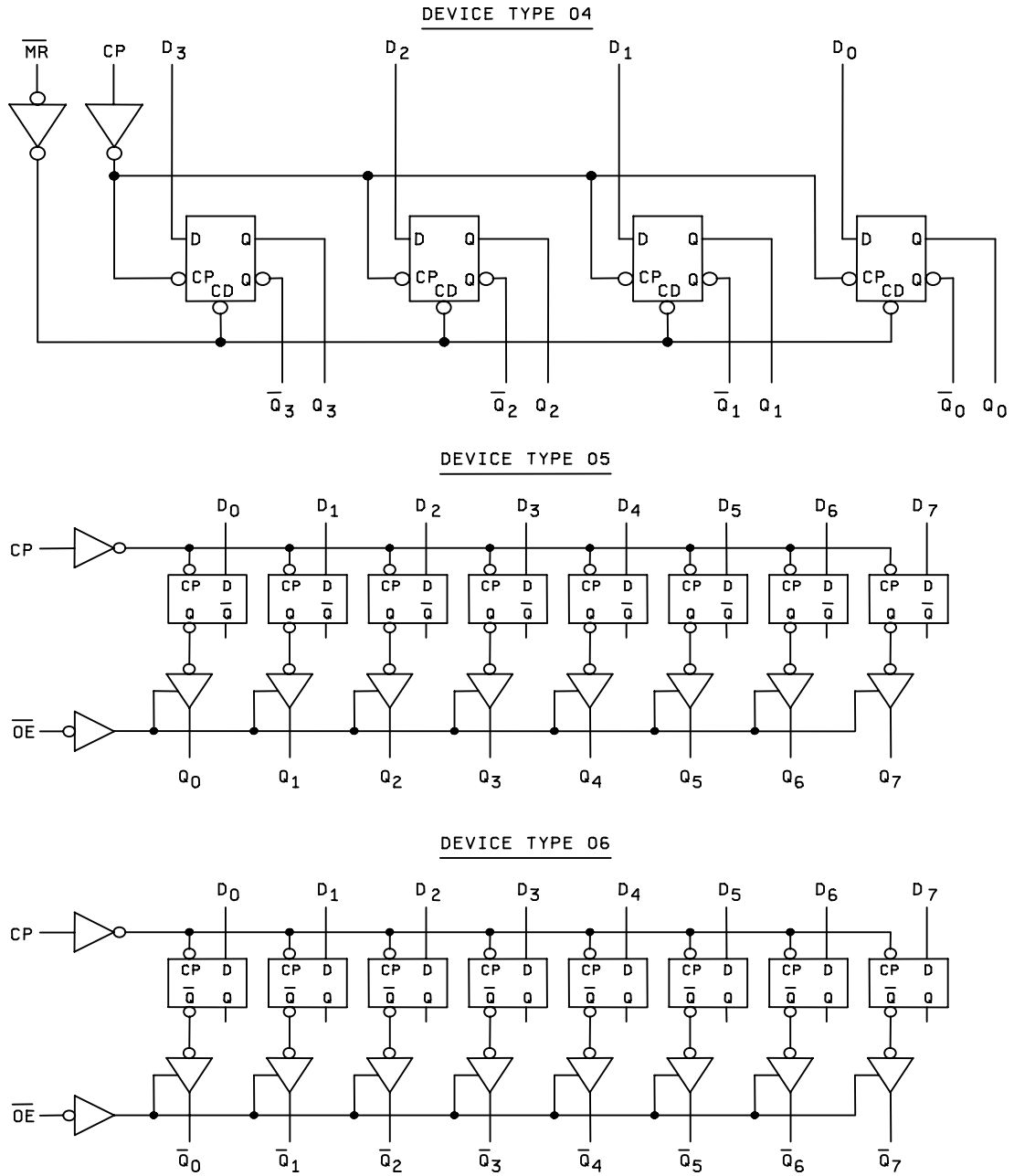


FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 07

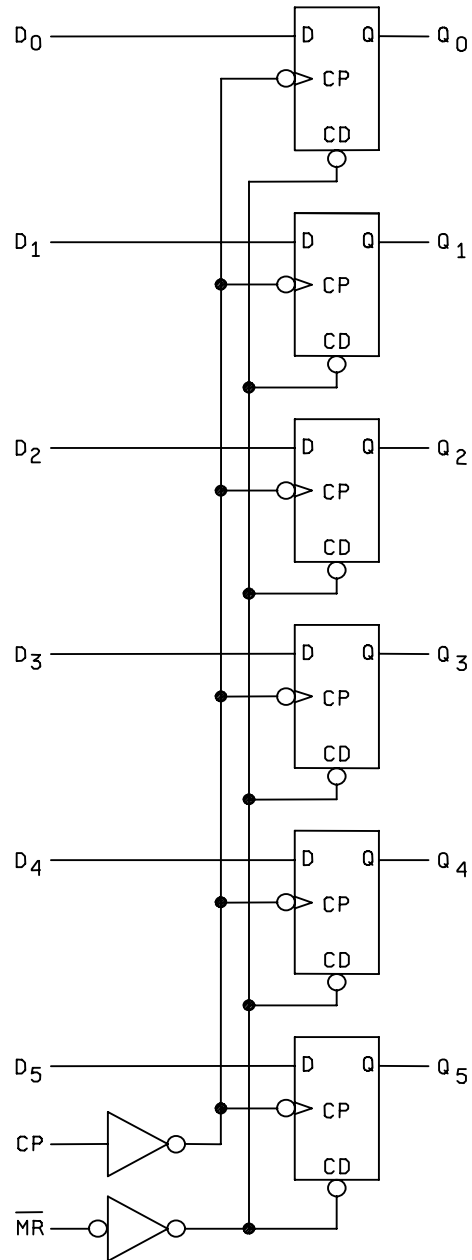
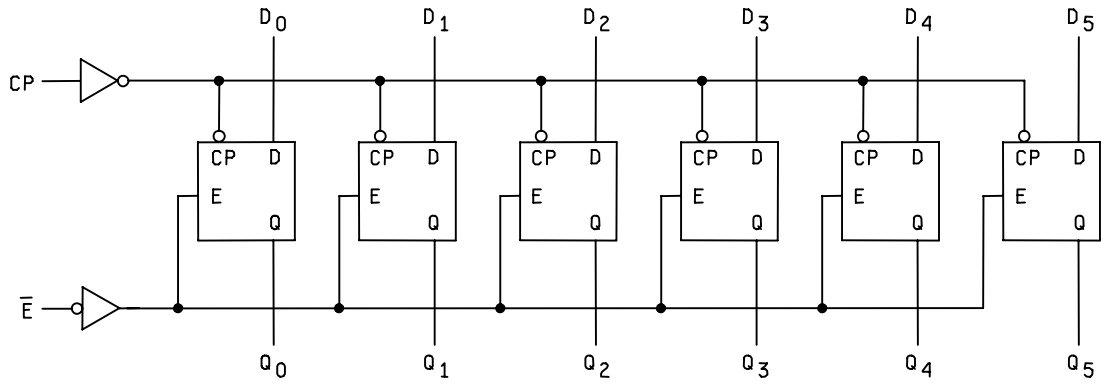


FIGURE 2. Logic diagrams – Continued.



DEVICE TYPE 08



DEVICE TYPE 09

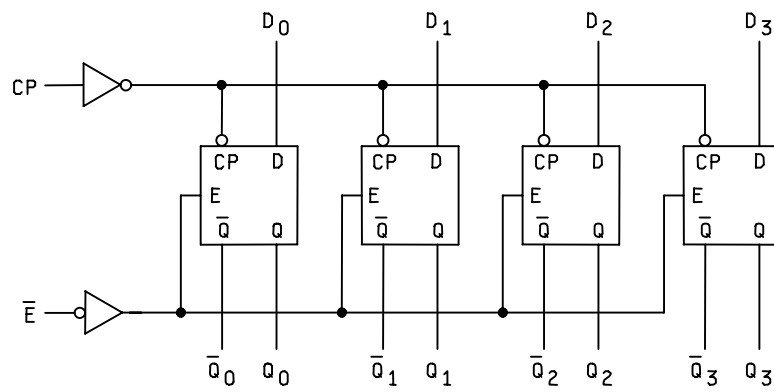
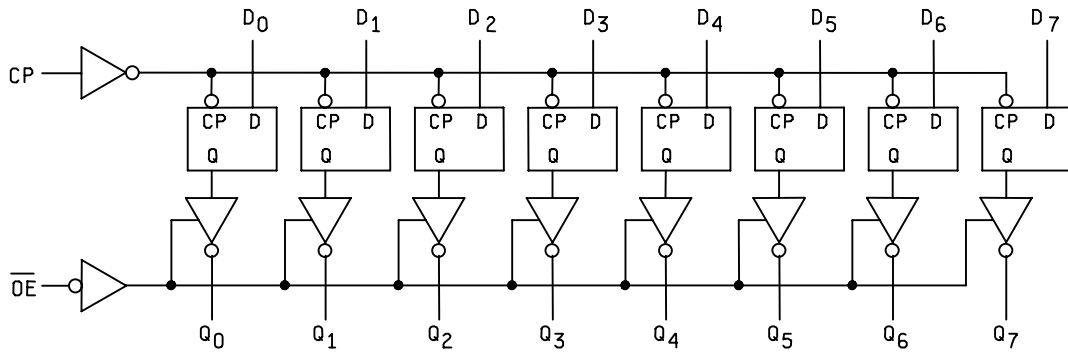


FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 10



DEVICE TYPE 11

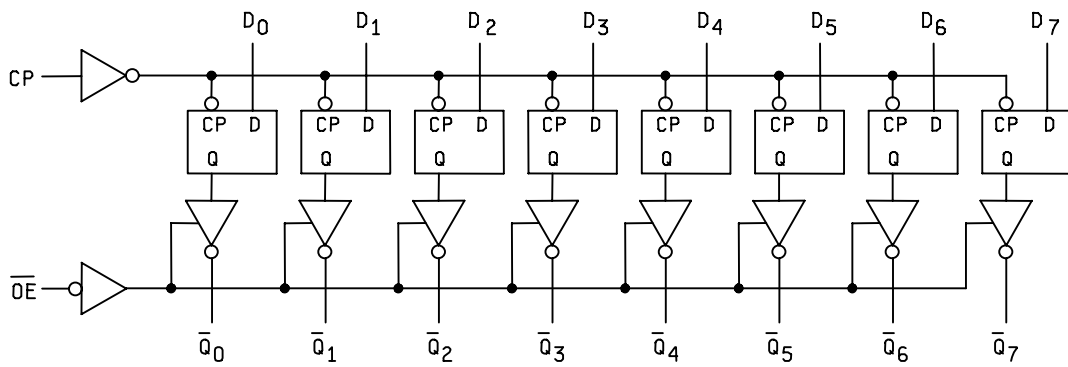


FIGURE 2. Logic diagrams – Continued.

Device type 01

Input		Outputs	
@ t <sub>n</sub>		@ t <sub>n+1</sub>	
D		Q	$\bar{Q}$
L		L	H
H		H	L

Device type 02

Input		Outputs	
@ t <sub>n</sub>		@ t <sub>n+1</sub>	
J	$\bar{K}$	Q	$\bar{Q}$
L	H	No change	
L	L	L	H
H	H	H	L
H	L	Toggles	

Device type 03



Input		Outputs
@ t <sub>n</sub>		@ t <sub>n+1</sub>
J	K	Q
L	L	Q <sub>n</sub>
L	H	L
H	L	H
H	H	$\bar{Q}_n$

Device type 04



Inputs		Outputs	
@ t <sub>n+1</sub> $\bar{MR} = H$		@ t <sub>n+1</sub>	
D <sub>n</sub>		Q <sub>n</sub>	$\bar{Q}_n$
L		L	H
H		H	L

t<sub>n</sub> = Bit time before clock pulse  
t<sub>n+1</sub> = Bit time after clock pulse  
H = High voltage level  
L = Low voltage level

Device type 05

Inputs		Outputs	
D <sub>n</sub>	CP	$\bar{OE}$	Q <sub>n</sub>
H		L	H
L		L	L
X	X	H	Z




Device type 06

Inputs		Outputs	
D <sub>n</sub>	CP	$\bar{OE}$	$\bar{Q}_n$
H		L	L
L		L	H
X	X	H	Z

Device type 07

Inputs			Outputs
$\bar{MR}$	CP	D	Q
L	X	X	L
H	↑	H	H
H	↑	L	L
H	L	X	Q <sub>0</sub>

Device type 08




Inputs			Outputs
$\bar{E}$	CP	D <sub>n</sub>	Q <sub>n</sub>
H		X	No change
L		H	H
L		L	L

H = High voltage level  
L = Low voltage level  
X = Immaterial  
Z = High impedance

↑ = Transition from low to high level  
Q<sub>0</sub> = The level of Q before the indicated steady-state input conditions were established

H = High voltage level  
L = Low voltage level  
X = Immaterial

Device type 09

Inputs			Outputs	
$\bar{E}$	CP	D <sub>n</sub>	Q <sub>n</sub>	$\bar{Q}_n$
H		X	NC	NC
L		H	H	L
L		L	L	H

H = High voltage level      X = Immaterial  
L = Low voltage level      NC = No change

FIGURE 3. Truth tables.

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Device type 10

Inputs			Outputs	Function
$\overline{OE}$	CP	D	Q	
H	H	L	Z	Hold
H	H	H	Z	Hold
H	↑	L	Z	Load
H	↑	H	Z	Load
L	↑	L	L	Data available
L	↑	H	H	Data available
L	H	L	NC	No change in data
L	H	H	NC	No change in data

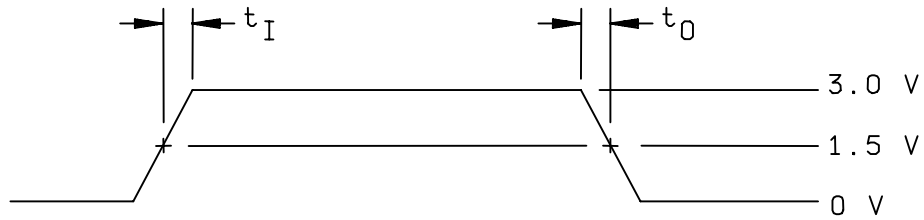
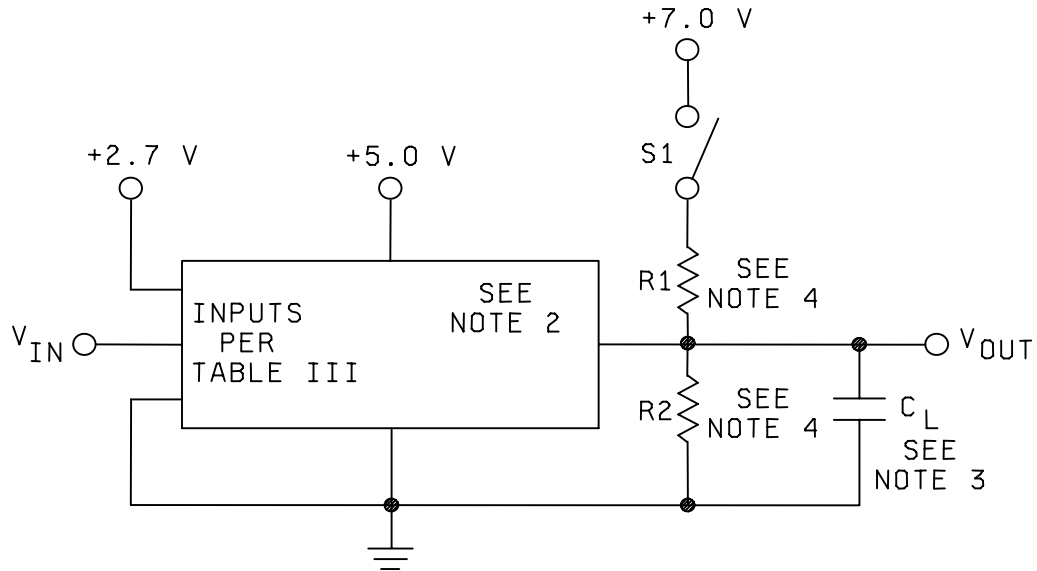
Device type 11

Inputs			Outputs	Function
$\overline{OE}$	CP	D	$\overline{Q}$	
H	H	L	Z	Hold
H	H	H	Z	Hold
H	↑	L	Z	Load
H	↑	H	Z	Load
L	↑	L	H	Data available
L	↑	H	L	Data available
L	H	L	NC	No change in data
L	H	H	NC	No change in data

H = High voltage level  
 L = Low voltage level  
 Z = High impedance  
 ↑ = Transition from low to high level  
 NC = No change

FIGURE 3. Truth tables – Continued.

ALL DEVICE TYPE



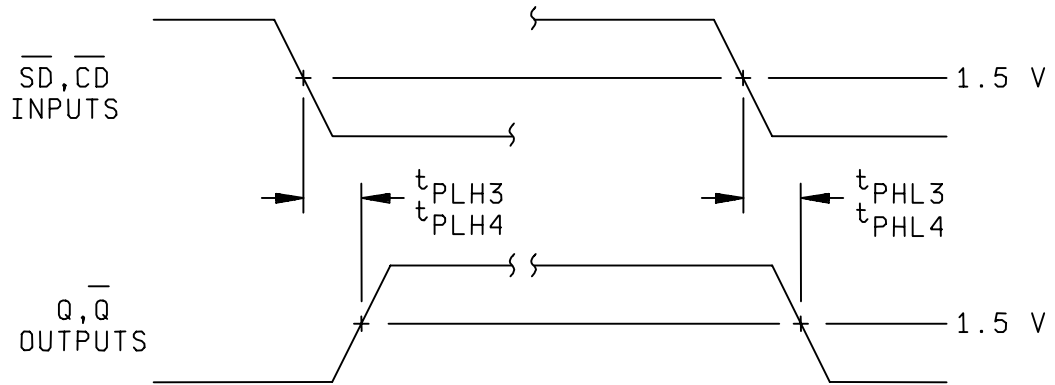
NOTES:

1.  $V_{IN}$  = input pulse and has the following characteristics:  
 $PRR \leq 1 \text{ MHz}$ ,  $t_1 = t_0 \leq 2.5 \text{ ns}$ .
2. Inputs not under test are at ground.
3.  $C_L = 50 \text{ Pf} \pm 10\%$ , including scope probe, wiring, and stray capacitance without package in test fixture.
4.  $R1 = R2 = 499\Omega \pm 1\%$ .
5. Voltage measurements are to be made with respect to network ground terminal.

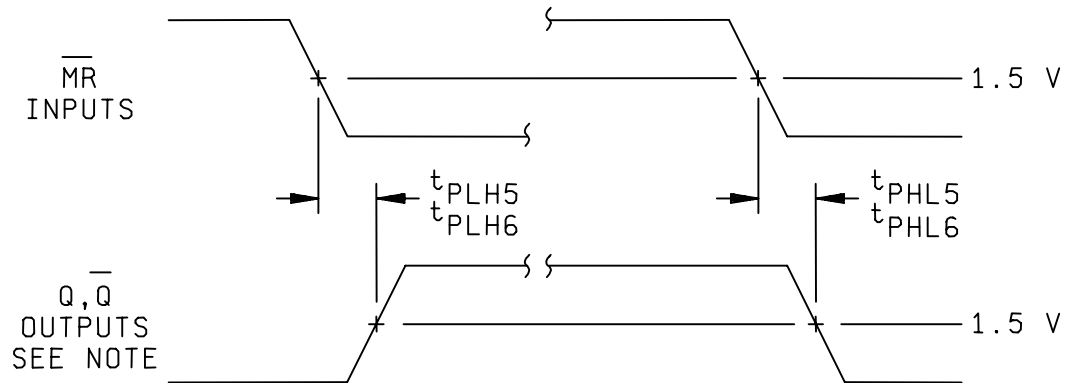
Test type	S1
$t_{PLH}$	Open
$t_{PHL}$	Open
$t_{PHZ}$	Open
$t_{PZH}$	Open
$t_{PLZ}$	Closed
$t_{PZL}$	Closed

FIGURE 4. Switching time waveforms.

DEVICE TYPES 01,02 AND 03



DEVICE TYPES 04 AND 07



NOTE: \* Q output for device type 07.

FIGURE 4. Switching time waveforms – Continued.

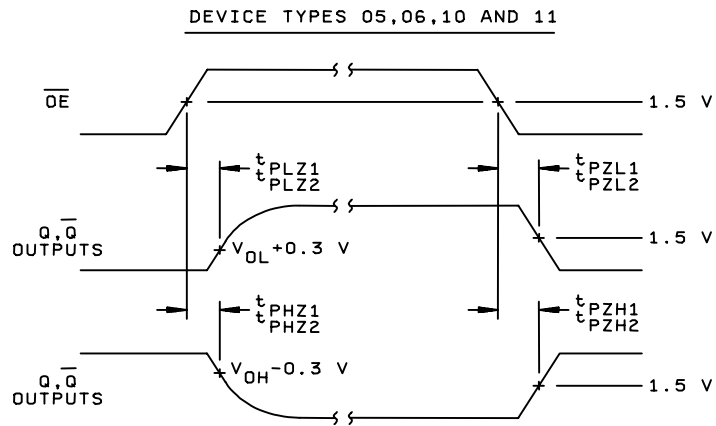
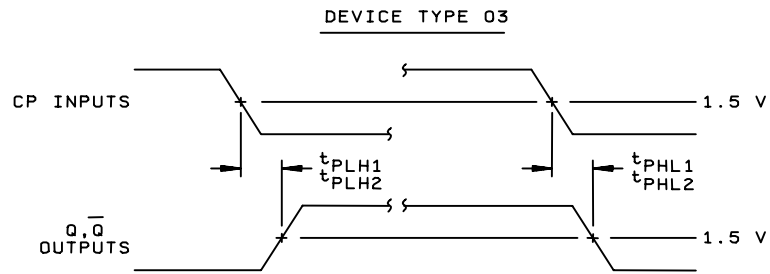
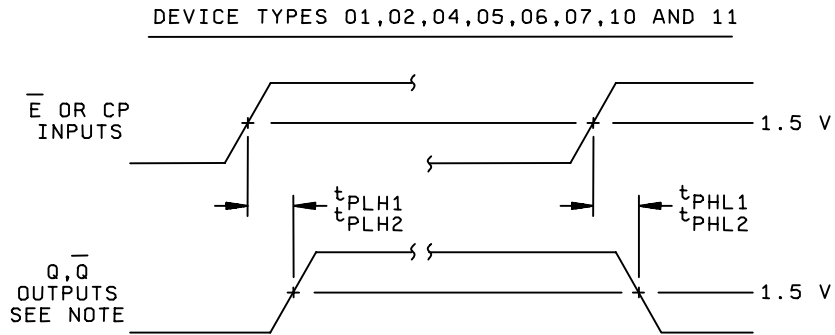
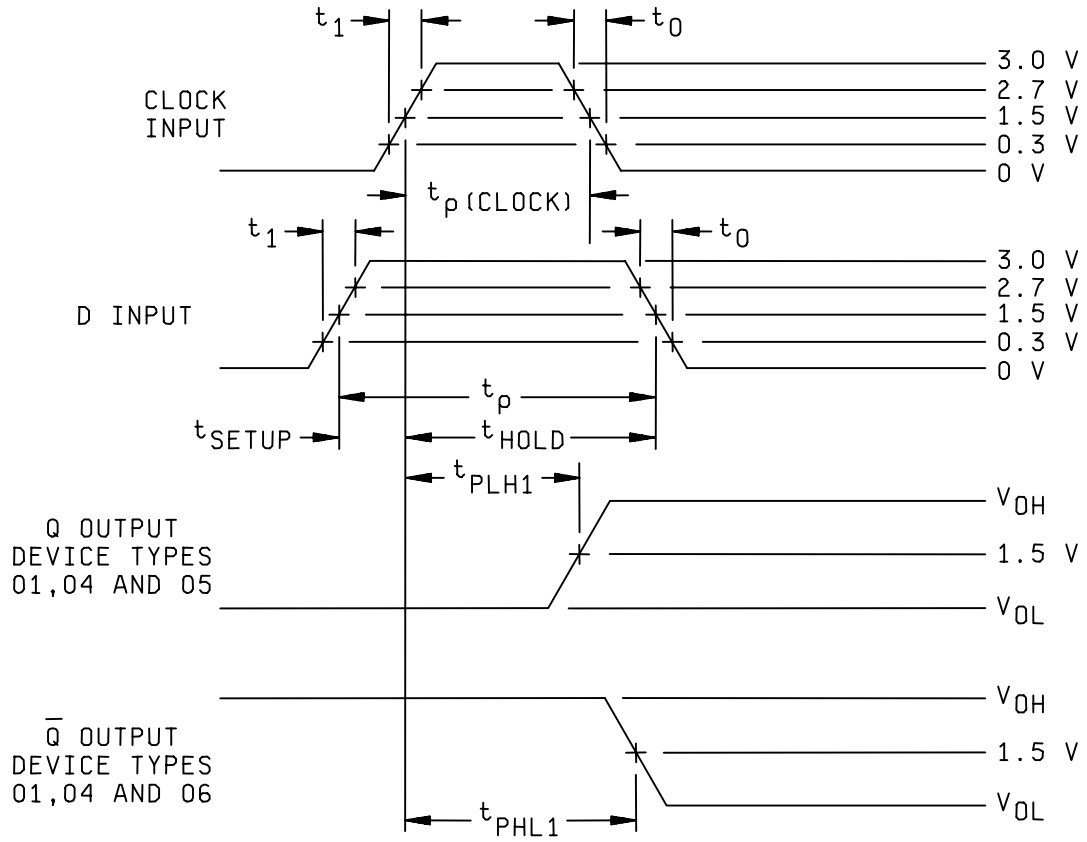


FIGURE 4. Switching time waveforms – Continued.

DEVICE TYPES 01,04,05 AND 06



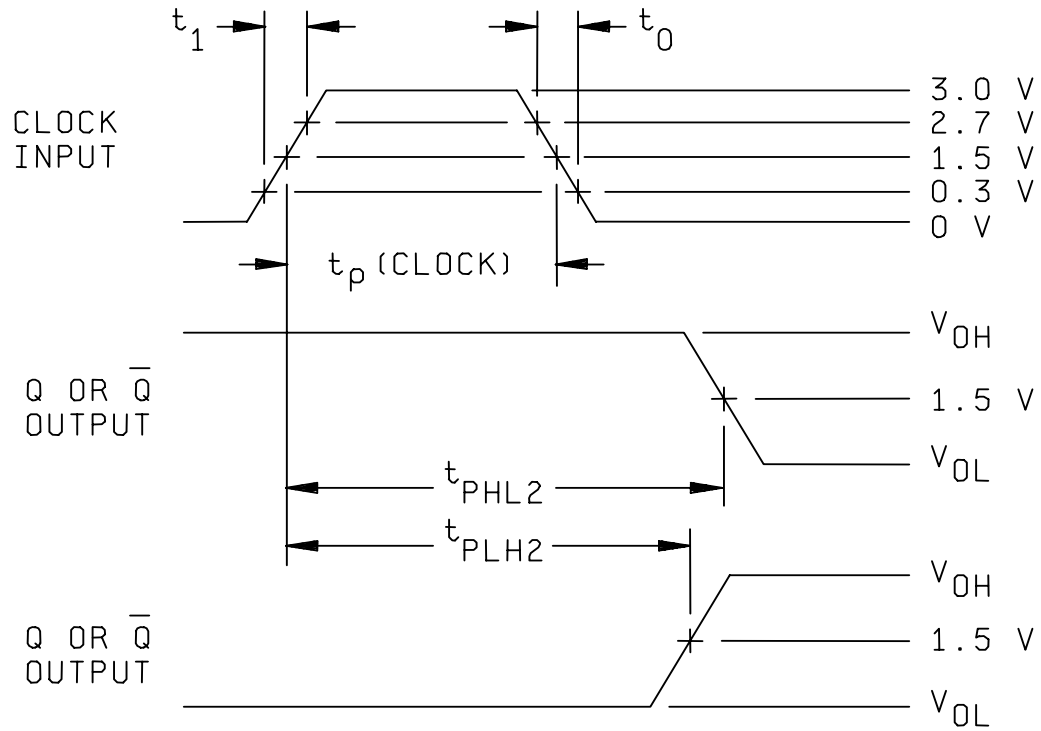
NOTES:

1.  $t_1 = t_0 \leq 2.5$  ns.
2. PRR as in table I and III, duty cycle  $50 \pm 15\%$ .
3. When testing  $f_{MAX}$ , the output frequency shall be  $\frac{1}{2}$  the input frequency.

FIGURE 4. Switching time waveforms – Continued.



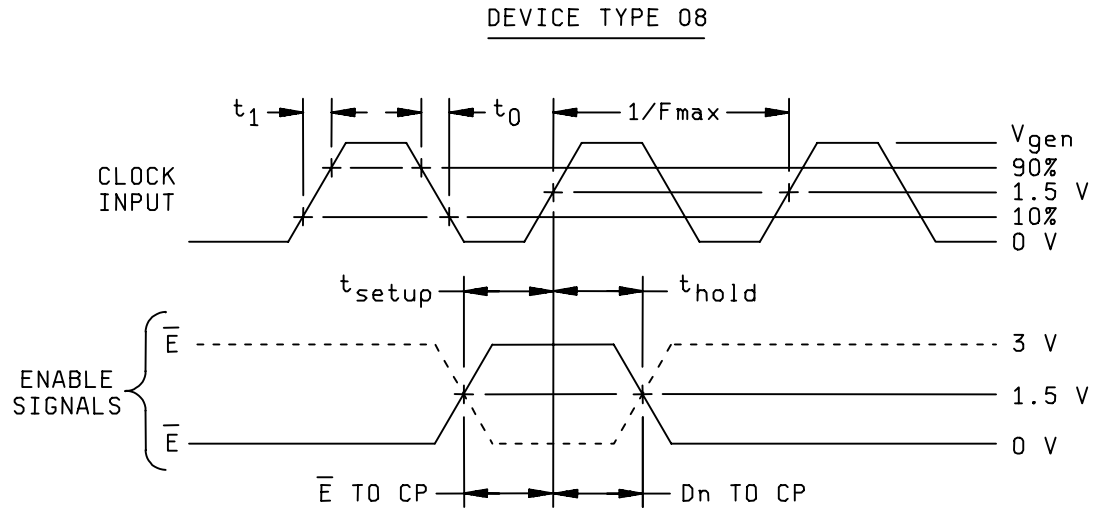
DEVICE TYPE 02



NOTES:

1.  $t_1 = t_0 \leq 2.5$  ns
2. PRR as in table I and III, duty cycle  $50 \pm 15\%$ .
3. When testing  $f_{MAX}$ , the output frequency shall be  $\frac{1}{2}$  the input frequency.

FIGURE 4. Switching time waveforms – Continued.

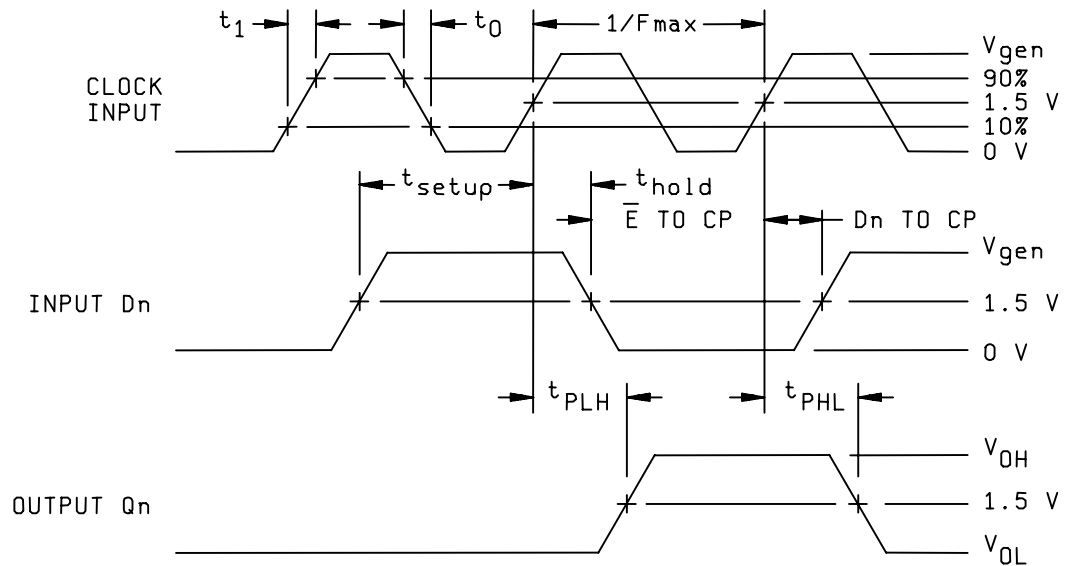


## NOTES:

1. Clock input pulse has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $t_1 = t_0 \leq 2.5$  ns and  $PRR \leq 1$  MHz.
2. Enable characteristics are:  
 $t_{setup} = \bar{E}$  to CP = 6 ns ( $\bar{E} > CP$ )  
 $t_{hold} = D_n$  to CP = 2 ns ( $\bar{E} > CP$ )

FIGURE 4. Switching time waveforms – Continued.

## DEVICE TYPE 08

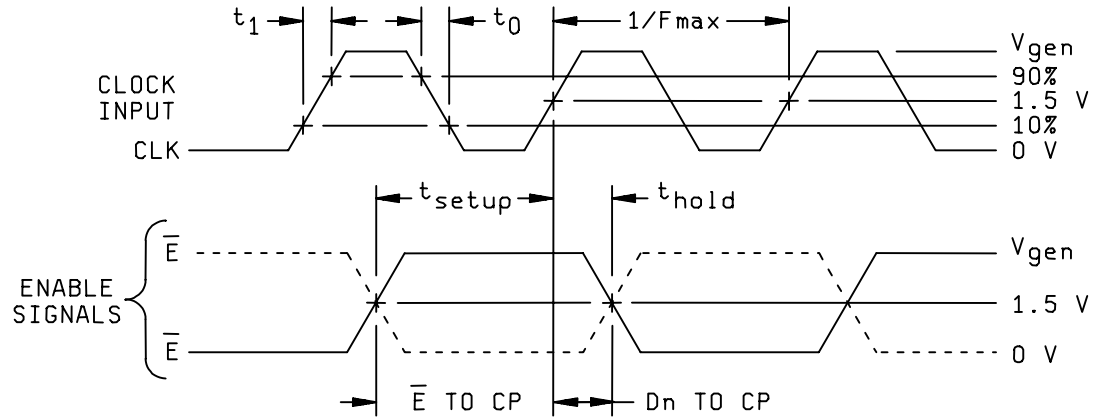


## NOTES:

1. Clock input pulse has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $t_1 = t_0 \leq 2.5$  ns and  $PRR \leq 1$  MHz.
2. D input has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $\bar{E}$  to CP =  $t_{setup} = 3$  ns minimum ( $D_n > CLK$ );  
 $D_n$  to CP =  $t_{hold} = 1$  ns minimum ( $D_n > CLK$ ).
3. For  $f_{MAX}$  testing, see table III.

FIGURE 4. Switching time waveforms – Continued.

## DEVICE TYPE 09

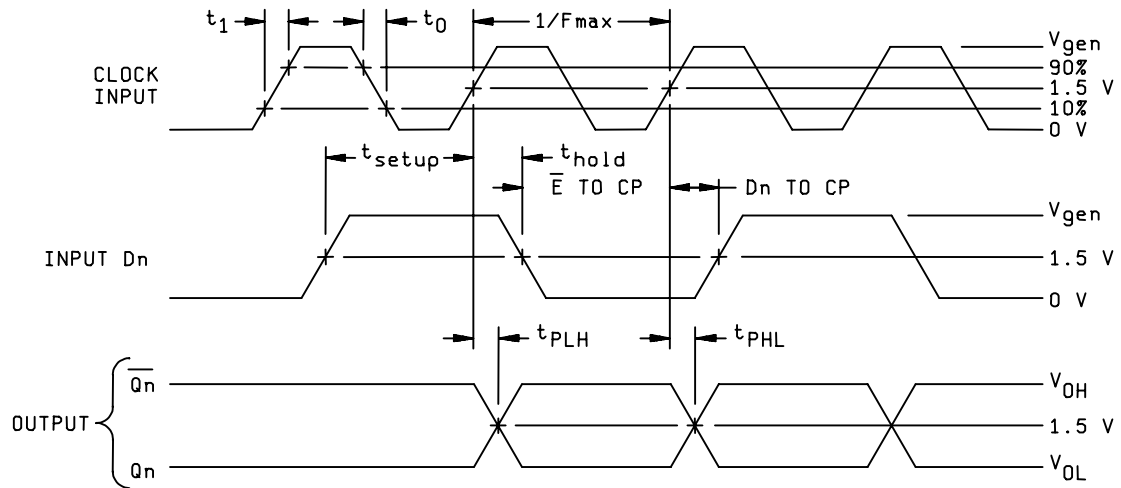


## NOTES:

1. Clock input pulse has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $t_1 = t_0 \leq 2.5$  ns and  $PRR \leq 1$  MHz.
2. Enable characteristics are:  
 $\bar{E} > CP$ ;  $t_{setup} = \bar{E}$  to CP = 6 ns;  
 $t_{hold} = D_n$  to CP = 2 ns
3. For  $f_{MAX}$  testing, see table III.

FIGURE 4. Switching time waveforms – Continued.

## DEVICE TYPE 09



## NOTES:

1. Clock input pulse has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $t_1 \leq 2.5$  ns and  $PRR \leq 1$  MHz.
2. D input has the following characteristics:  
 $V_{gen} = 3 \pm 0.2$  V,  $t_{setup} = 3$  ns minimum,  $t_{hold} = 1$  ns minimum,  
 $\bar{E}$  to CP =  $t_{setup}$  ( $D_n > CLK$ );  $D_n$  to CP =  $t_{hold}$  ( $D_n > CLK$ ).
3. For  $f_{MAX}$  testing, see table III.
4.  $t_{PLH}$  and  $t_{PHL}$  are shown for  $Q_n$  only, ( $CLK > Q_n, \bar{Q}_n$ ). The  $Q_n$  output will have these reversed and are omitted for clarity.

FIGURE 4. Switching time waveforms – Continued.

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

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D																Measured terminal	Limits		Unit	
			Cases 2 1/ and X		1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max		
			Test no.	$\overline{CD}_1$	D <sub>1</sub>	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	D <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>						
1 T <sub>c</sub> = 25°C	V <sub>OL</sub>	3007	1	4.5 V	.8 V	2/	2/	20 mA									4.5 V	Q <sub>1</sub>		.5	V		
			2	.8 V			2.0 V	20 mA											Q <sub>1</sub>				
			3	2.0 V			.8 V		20 mA										Q <sub>1</sub>				
			4								20 mA		.8 V			2.0 V			Q <sub>2</sub>				
			5										20 mA	2.0 V		.8 V			Q <sub>2</sub>				
			6										20 mA	2/	2/	.8 V	4.5 V		Q <sub>2</sub>				
	V <sub>OH</sub>	3006	7	2.0 V			.8 V	-1 mA										Q <sub>1</sub>	2.5				
			8	3/	2.0 V	3/	4.5 V	-1 mA										Q <sub>1</sub>					
			9	.8 V			2.0 V		-1 mA										Q <sub>1</sub>				
			10								-1 mA		2.0 V			.8 V			Q <sub>2</sub>				
			11										-1 mA	.8 V		2.0 V			Q <sub>2</sub>				
			12										-1 mA	4.5 V	3/	2.0 V	3/		Q <sub>2</sub>				
	V <sub>IC</sub>			13	-18 mA														$\overline{CD}_1$		-1.2		
				14		-18 mA														D <sub>1</sub>			
				15			-18 mA													CP <sub>1</sub>			
				16				-18 mA												$\overline{SD}_1$			
				17										-18 mA						$\overline{SD}_2$			
				18											-18 mA					CP <sub>2</sub>			
				19												-18 mA				D <sub>2</sub>			
				20													-18 mA	-18 mA		$\overline{CD}_2$			
I <sub>HH1</sub>	3010		21	2.7 V	0 V	0 V	4.5 V										5.5 V	$\overline{CD}_1$		20	μA		
			22	2.7 V	0 V	4/													$\overline{CD}_1$				
			23	0 V	2.7 V	4.5 V													D <sub>1</sub>				
			24	4.5 V	4.5 V	2.7 V	0 V												CP <sub>1</sub>				
			25	0 V		2.7 V	4.5 V												CP <sub>1</sub>				
			26	4.5 V		4/	2.7 V												$\overline{SD}_1$				
			27											2.7 V	4/	4.5 V	4.5 V		$\overline{SD}_2$				
			28											0 V	2.7 V		4.5 V		CP <sub>2</sub>				
			29											4.5 V	2.7 V		0 V		CP <sub>2</sub>				
			30												4.5 V	2.7 V	0 V		D <sub>2</sub>				
			31												0 V	0 V	2.7 V		$\overline{CD}_2$				
			32												4/	0 V	2.7 V		$\overline{CD}_2$				
I <sub>HH2</sub>	3010		33	7.0 V	0 V	0 V	4.5 V											$\overline{CD}_1$		100			
			34	7.0 V	0 V	4/													$\overline{CD}_1$				
			35	0 V	7.0 V	4.5 V													D <sub>1</sub>				
			36	4.5 V	4.5 V	7.0 V	0 V												CP <sub>1</sub>				
			37	0 V		7.0 V	4.5 V												CP <sub>1</sub>				
			38	4.5 V		4/	7.0 V												$\overline{SD}_1$				
			39											7.0 V	4/	4.5 V	4.5 V		$\overline{SD}_2$				
			40											0 V	7.0 V		4.5 V		CP <sub>2</sub>				
			41											4.5 V	7.0 V		0 V		CP <sub>2</sub>				
			42												4.5 V	7.0 V	0 V		D <sub>2</sub>				
			43												0 V	0 V	7.0 V		$\overline{CD}_2$				
			44												4/	0 V	7.0 V		$\overline{CD}_2$				

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit			
			Cases 2 1/ and X	2	3	4	6	8	9	10	12	13	14	16	18	19	20		Min	Max				
			Test no.	$\overline{CD}_1$	D <sub>1</sub>	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	D <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>							
1 T <sub>C</sub> = 25°C	I <sub>L1</sub>	3009	45	4.5 V	.5 V	4.5 V	0 V			GND								"	D <sub>1</sub>	5/	5/	mA		
			46	4.5 V	0 V	.5 V	0 V			"									"	CP <sub>1</sub>	"	"	"	
			47								"			0 V	.5 V	0 V	4.5 V		"	CP <sub>2</sub>	"	"	"	
			48								"			0 V	4.5 V	.5 V	4.5 V		"	D <sub>2</sub>	"	"	"	
	I <sub>L2</sub>	3009	49	.5 V	4.5 V	4.5 V	0 V			"									"	$\overline{CD}_1$	"	"	"	
			50	0 V	0 V	0 V	.5 V			"									"	$\overline{SD}_1$	"	"	"	
			51							"			.5 V	0 V	0 V	0 V			"	$\overline{SD}_2$	"	"	"	
			52							"			0 V	4.5 V	4.5 V	.5 V			"	$\overline{CD}_2$	"	"	"	
	I <sub>OS</sub>	3011	53				0 V	0 V		"									5.5 V	Q <sub>1</sub>	-60	-150	mA	
			54	0 V					0 V	"									"	$\overline{Q}_1$	"	"	"	
			55							"	0 V							0 V	"	$\overline{Q}_2$	"	"	"	
			56							"		0 V	0 V						"	Q <sub>2</sub>	"	"	"	
	I <sub>OD</sub>		57	0 V			5.5 V	2.5 V		"									4.5 V	Q <sub>1</sub>	60		"	
			58	5.5 V			0 V		2.5 V	"									"	$\overline{Q}_1$	"	"	"	
59									"	2.5 V		0 V				5.5 V		"	$\overline{Q}_2$	"	"	"		
60									"		2.5 V	5.5 V				0 V		"	V <sub>CC</sub>	"	"	"		
I <sub>CC</sub>	3005	61	5.5 V	0 V	0 V	0 V		"				0 V	0 V	0 V	0 V	5.5 V	5.5 V	V <sub>CC</sub>		16	"			
I <sub>CC</sub>	3005	62	0 V	0 V	0 V	5.5 V		"				5.5 V	0 V	0 V	0 V	5.5 V	5.5 V	V <sub>CC</sub>		16	"			
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = 125°C and V <sub>IC</sub> tests are omitted.																							
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																							
7 T <sub>C</sub> = +25°C	Functional tests g/	3014	63	A	B	B	B	H	L	GND	L	H	B	B	B	A	7/	All Outputs						
		"	64	"	B	A	B	"	"	"	"	"	"	B	A	B	"		"					
		"	65	"	A	A	A	"	"	"	"	"	"	A	A	A	"		"					
		"	66	"	A	B	"	"	"	"	"	"	"	"	B	A	"		"					
		"	67	"	B	B	"	"	"	"	"	"	"	"	B	B	"		"					
		"	68	"	"	A	"	L	H	"	H	L	"	A	"	"	"		"					
		"	69	"	"	B	"	"	"	"	"	"	"	B	"	"	"		"					
		"	70	"	A	B	"	"	"	"	"	"	"	"	B	A	"		"					
		"	71	"	"	A	"	H	L	"	L	H	"	A	"	"	"		"					
		"	72	B	"	A	"	L	H	"	H	L	"	A	"	B	"		"					
		"	73	"	"	B	"	"	"	"	"	"	"	"	B	"	"		"					
		"	74	"	"	A	"	"	"	"	"	"	"	"	A	"	"		"					
		"	75	A	"	"	"	"	"	"	"	"	"	"	"	"	A		"	"				
		"	76	A	"	"	B	H	L	"	L	H	B	"	"	"	A		"	"				
"	77	B	"	"	B	H	H	"	H	H	B	"	"	"	B	"	"							
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>C</sub> = +125°C and T <sub>C</sub> = -55°C.																							
9 T <sub>C</sub> = +25°C	f <sub>MAX</sub> g/	3003	78	2.7 V	IN	IN	2.7 V	OUT	GND								5.0 V	Q <sub>1</sub>	100		MHz			
			79	2.7 V	IN	IN	2.7 V		OUT	"								"	$\overline{Q}_1$	"		"		
			80							"	OUT		2.7 V	IN	IN	2.7 V		"	$\overline{Q}_2$	"		"		
			81							"		OUT	2.7 V	IN	IN	2.7 V		"	Q <sub>1</sub>	"		"		

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit		
			Cases 2 1/ and X	2	3	4	6	8	9	10	12	13	14	16	18	19	20		Min	Max			
			Test no.	$\overline{CD}_1$	D <sub>1</sub>	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	D <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>						
9 T <sub>C</sub> = +25°C	t <sub>PLH1</sub>	3003 Fig. 4	82	2.7 V	IN	IN	2.7 V	OUT		GND							5.0 V	CP <sub>1</sub> to Q <sub>1</sub>	3.8	6.8	ns		
	t <sub>PHL1</sub>		83	"	"	"	"	OUT		"								"	CP <sub>1</sub> to Q <sub>1</sub>	4.4	8.0	"	
	t <sub>PLH2</sub>		84	"	"	"	"			OUT	"							"	CP <sub>1</sub> to $\overline{Q}_1$	3.8	6.8	"	
	t <sub>PHL2</sub>		85	"	"	"	"			OUT	"							"	CP <sub>1</sub> to $\overline{Q}_1$	4.4	8.0	"	
	t <sub>PLH1</sub>	3003 Fig. 4	86							GND		OUT	2.7 V	IN	IN	2.7 V	5.0 V	CP <sub>2</sub> to Q <sub>2</sub>	3.8	6.8	ns		
	t <sub>PHL1</sub>		87								"		OUT	"	"	"	"	"	CP <sub>2</sub> to Q <sub>2</sub>	4.4	8.0	"	
	t <sub>PLH2</sub>		88								"	OUT		"	"	"	"	"	CP <sub>2</sub> to $\overline{Q}_2$	3.8	6.8	"	
	t <sub>PHL2</sub>		89								"	OUT		"	"	"	"	"	CP <sub>2</sub> to $\overline{Q}_2$	4.4	8.0	"	
	t <sub>PHL3</sub>		90	IN	2.7 V	2.7 V	IN	OUT			"							"	$\overline{CD}_1$ to Q <sub>1</sub>	3.5	9.0	"	
	t <sub>PHL4</sub>		91	"	"	0 V	"	OUT			"							"	$\overline{CD}_1$ to Q <sub>1</sub>	3.5	9.0	"	
	t <sub>PLH3</sub>		92	"	"	2.7 V	"				OUT	"						"	$\overline{CD}_1$ to $\overline{Q}_1$	3.2	6.1	"	
	t <sub>PLH4</sub>		93	"	"	0 V	"				OUT	"						"	$\overline{CD}_1$ to $\overline{Q}_1$	"	6.1	"	
	t <sub>PLH3</sub>		94	"	"	2.7 V	"	OUT			"							"	$\overline{SD}_1$ to Q <sub>1</sub>	"	6.1	"	
	t <sub>PLH4</sub>		95	"	"	0 V	"	OUT			"							"	$\overline{SD}_1$ to Q <sub>1</sub>	"	6.1	"	
	t <sub>PHL3</sub>		96	"	2.7 V	2.7 V	"			OUT	"							"	$\overline{SD}_1$ to $\overline{Q}_1$	3.5	9.0	"	
	t <sub>PHL4</sub>		97	"	2.7 V	0 V	"			OUT	"							"	$\overline{SD}_1$ to $\overline{Q}_1$	"	9.0	"	
	t <sub>PHL3</sub>		98								"			OUT	IN	2.7 V	2.7 V	IN	"	$\overline{CD}_2$ to Q <sub>2</sub>	"	9.0	"
	t <sub>PHL4</sub>		99								"			OUT	"	0 V	"	"	"	$\overline{CD}_2$ to Q <sub>2</sub>	"	9.0	"
	t <sub>PLH3</sub>		100								"		OUT		"	2.7 V	"	"	"	$\overline{CD}_2$ to $\overline{Q}_2$	3.2	6.1	"
	t <sub>PLH4</sub>		101								"		OUT		"	0 V	"	"	"	$\overline{CD}_2$ to $\overline{Q}_2$	"	6.1	"
t <sub>PLH3</sub>	102								"			OUT	"	2.7 V	"	"	"	$\overline{SD}_2$ to Q <sub>2</sub>	"	6.1	"		
t <sub>PLH4</sub>	103								"			OUT	"	0 V	"	"	"	$\overline{SD}_2$ to Q <sub>2</sub>	"	6.1	"		

See footnotes at end of device type 01.



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

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit
			Cases 2 1/ and X	2	3	4	6	8	9	10	12	13	14	16	18	19	20		Min	Max	
			Test no.	$\overline{CD}_1$	D <sub>1</sub>	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	D <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>				
9	t <sub>PHL3</sub>	3003 Fig. 4	104							GND	OUT		IN	2.7 V	2.7 V	IN	5.0 V	$\overline{SD}_2$ to $\overline{Q}_2$	3.5	9.0	"
T <sub>C</sub> = +25°C	t <sub>PHL4</sub>		105							"	OUT		"	0 V	"	"	"	$\overline{SD}_2$ to $\overline{Q}_2$	3.5	9.0	"
10	Same tests, and terminal conditions as for subgroup 9, except T <sub>C</sub> = +125°C and use limits from table I.																				
11	Same tests, and terminal conditions as for subgroup 9, except T <sub>C</sub> = -55°C and use limits from table I.																				

See footnotes at end of device type 01

- 1/ Cases 2 and X pins not referenced are N/C.
- 2/ Apply all voltages, then apply 4.5 V, 0 V, 4.5 V to  $\overline{SD}$  X, then apply 4.5 V, 0 V, 4.5 V to CPX, then make measurement. Alternate clock:  
Apply all voltages, then apply 4.5 V, 0 V, 4.5 V to  $\overline{SD}$  X, then apply 0 V, 4.5 V, 0 V to CPX, then make measurement.
- 3/ Apply all voltages, then apply 4.5 V, 0 V, 4.5 V to  $\overline{CD}$  X, then apply 4.5 V, 0 V, 4.5 V to CPX, then make measurement. Alternate clock:  
Apply all voltages, then apply 4.5 V, 0 V, 4.5 V to  $\overline{CD}$  X, then apply 0 V, 4.5 V, 0 V, to CPX, then make measurement.
- 4/ Apply all voltages, then apply 0, 4.5 V, 0, to CPX then make measurement.
- 5/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
$I_{IL1}$	-0.25/-0.60	-0.03/-0.60	-0.03/-0.60	-0.03/-0.60
$I_{IL2}$	-0.75/-1.80	-0.09/-1.80	-0.09/-1.80	-0.09/-1.80

- 6/ A = 2.5 V  
B = 0.5 V  
H  $\geq$  1.5 V  
L  $\leq$  1.5 V
- 7/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V.
- 8/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.  $f_{MAX}$  shall be measured only under the conditions of initial qualification and after process or design changes which may affect this parameter. For all other conditions,  $f_{MAX}$  shall be guaranteed, if not tested, to the limits specified in table III, herein.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit				
			Cases 2 1/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max					
			Test no.	$\overline{CD}_1$	$J_1$	$\overline{K}_1$	$CP_1$	$\overline{SD}_1$	$Q_1$	$\overline{Q}_1$	GND	$\overline{Q}_2$	$Q_2$	$\overline{SD}_2$	$CP_2$	$\overline{K}_2$	$J_2$	$\overline{CD}_2$	$V_{CC}$								
1 $T_c = 25^\circ C$	$V_{OL}$	3007	1	.8 V				2.0 V	20 mA		GND								4.5 V	$Q_1$		.5	V				
			2	4.5 V	0 V	.8 V	2/	2/	"	"	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"		
			3	4.5 V	.8 V	0 V	2/	2/	"	"	"	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"	
			4	2.0 V				.8 V				20 mA	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"
			5	3/	2.0 V	4.5 V	3/	4.5 V		"	"	"	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"
			6	3/	4.5 V	2.0 V	3/	4.5 V		"	"	"	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"
			7											20 mA		.8 V				2.0 V	"	"	$Q_2$		"	"	
			8											"	"	4.5 V	3/	4.5 V	2.0 V	3/	"	"	$Q_2$		"	"	
			9											"	"		3/	2.0 V	4.5 V	3/	"	"	$Q_2$		"	"	
			10											"	20 mA	2.0 V				.8 V	"	"	$Q_2$		"	"	
			11											"	"	2/	2/	.8 V	0 V	4.5 V	"	"	$Q_2$		"	"	
			12											"	"	2/	2/	0 V	.8 V	4.5 V	"	"	$Q_2$		"	"	
	$V_{OH}$			13	2.0 V				4/	-1 mA		"	"	"	"	"	"	"	"	"	"	$Q_1$	2.5	"	"		
				14	4/				2.0 V		-1 mA	"	"	"	"	"	"	"	"	"	"	"	$Q_1$		"	"	
				15									-1 mA		2.0 V				4/	"	"	$Q_2$		"	"		
				16										-1 mA	4/			2.0 V	"	"	$Q_2$		"	"			
	$V_{IC}$			17	-18 mA							"	"	"	"	"	"	"	"	"	"	$CD_1$		-1.2	"		
				18		-18 mA							"	"	"	"	"	"	"	"	"	"	$J_1$		"	"	
				19			-18 mA						"	"	"	"	"	"	"	"	"	"	$K_1$		"	"	
				20				-18 mA					"	"	"	"	"	"	"	"	"	"	$CP_1$		"	"	
				21					-18 mA				"	"	"	"	"	"	"	"	"	"	$SD_1$		"	"	
				22									"	"		-18 mA					"	"	$SD_2$		"	"	
				23									"	"			-18 mA				"	"	$CP_2$		"	"	
				24									"	"				-18 mA			"	"	$K_2$		"	"	
				25									"	"					-18 mA		"	"	$J_2$		"	"	
				26									"	"						-18 mA	"	"	$CD_2$		"	"	
	$I_{IH1}$		3010	27	2.7 V	0 V	0 V	4/				"	"	"	"	"	"	"	"	5.5 V	"	$CD_1$		20	$\mu A$		
				28	0 V	2.7 V							"	"	"	"	"	"	"	"	"	"	$J_1$		"	"	
				29	"		2.7 V						"	"	"	"	"	"	"	"	"	"	$K_1$		"	"	
				30	"			2.7 V					"	"	"	"	"	"	"	"	"	"	$CP_1$		"	"	
				31				2.7 V	0 V				"	"	"	"	"	"	"	"	"	"	$CP_1$		"	"	
				32		4.5 V		5/	2.7 V				"	"	"	"	"	"	"	"	"	"	$SD_1$		"	"	
				33									"	"		2.7 V	5/		4.5 V		"	"	$SD_2$		"	"	
				34									"	"		0 V	2.7 V				"	"	$CP_2$		"	"	
				35									"	"			2.7 V				0 V	"	$CP_2$		"	"	
				36									"	"				2.7 V			"	"	$K_2$		"	"	
				37									"	"					2.7 V		"	"	$J_2$		"	"	
				38									"	"				4/	0 V	0 V	2.7 V	"	"	$CD_2$		"	"

See footnotes at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit				
			Cases 2 J/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max					
			Test no.	$\overline{CD}_1$	J <sub>1</sub>	$\overline{K}_1$	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	$\overline{K}_2$	J <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>								
1	I <sub>IH2</sub>	3010	39	7.0 V	0 V	0 V	4/									GND					5.5 V	$\overline{CD}_1$		100	"		
			40	0 V	7.0 V													"					"	J <sub>1</sub>		"	"
			41	"		7.0 V												"					"	$\overline{K}_1$		"	"
			42	"				7.0 V										"					"	CP <sub>1</sub>		"	"
			43					7.0 V	0 V									"					"	CP <sub>1</sub>		"	"
			44		4.5 V			5/	7.0 V									"					"	$\overline{SD}_1$		"	"
			45													7.0 V	5/		4.5				"	$\overline{SD}_2$		"	"
			46													0 V	7.0 V						"	CP <sub>2</sub>		"	"
			47														7.0 V			0 V			"	CP <sub>2</sub>		"	"
			48															7.0 V					"	$\overline{K}_2$		"	"
	49																	7.0 V			"	J <sub>2</sub>		"	"		
	50															4/	0 V	0 V	7.0 V		"	$\overline{CD}_2$		"	"		
	I <sub>IL1</sub>	3009	51	4/	.5 V		0 V															"	J <sub>1</sub>	6/	6/	mA	
			52	4.5 V		.5 V	0 V	0 V															"	K <sub>1</sub>		"	"
			53	4.5 V		0 V	.5 V	0 V															"	CP <sub>1</sub>		"	"
			54												0 V	.5 V	0 V			4.5 V			"	CP <sub>2</sub>		"	"
			55												0 V	0 V	.5 V			4.5 V			"	K <sub>2</sub>		"	"
			56														0 V		.5 V	4/			"	J <sub>2</sub>		"	"
	I <sub>IL2</sub>	3009	57	.5 V	4.5 V	4.5 V	4.5 V	0 V														"	$\overline{CD}_1$		"	"	
			58	0 V	0 V	0 V	.5 V															"	$\overline{SD}_1$		"	"	
			59												.5 V		0 V	0 V	0 V			"	$\overline{SD}_2$		"	"	
			60												0 V	4.5 V	4.5 V	4.5 V	.5 V			"	$\overline{CD}_2$		"	"	
	I <sub>OS</sub>	3011	61				0 V	0 V														"	Q <sub>1</sub>	-60	-150	"	
			62	0 V							0 V											"	$\overline{Q}_1$		"	"	
			63										0 V									"	Q <sub>2</sub>		"	"	
			64											0 V	0 V							"	$\overline{Q}_2$		"	"	
	I <sub>OD</sub>		65	0 V				5.5 V	2.5 V													"	Q <sub>1</sub>	60		"	
			66	5.5 V				0 V		2.5 V												"	$\overline{Q}_1$		"	"	
			67											2.5 V		0 V				5.5 V		"	Q <sub>2</sub>		"	"	
			68												2.5 V	5.5 V				0 V		"	$\overline{Q}_2$		"	"	
I <sub>CC</sub>	3005	69	5.5 V		0 V	0 V	0 V							0 V	0 V	0 V		5.5 V	5.5 V	V <sub>CC</sub>			17	"			
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																										
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																										

See footnotes at end of device types 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
			Cases 2 1/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		All outputs	Min		Max	
			Test no.	$\overline{CD}_1$	J <sub>1</sub>	$\overline{K}_1$	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	$\overline{K}_2$	J <sub>2</sub>	$\overline{CD}_2$	V <sub>cc</sub>						
7 T <sub>c</sub> = +25°C	Functional tests g/	3014	70	A	A	B	A	B	H	L	GND	L	H	B	A	B	A	A	7/						
			71	A	"	"	"	"	A	H	L	"	L	H	A	"	"	"	A	"					
			72	B	"	"	"	"	A	L	H	"	H	L	"	"	"	"	B	"					
			73	A	"	"	"	"	A	L	H	"	H	L	"	"	"	"	A	"					
			74	"	"	"	"	"	B	H	L	"	L	H	B	"	"	"	"	"					
			75	"	"	"	"	"	A	"	"	"	"	"	A	"	"	"	"	"					
			76	"	B	A	"	"	B	"	"	"	"	"	B	"	A	B	"	"					
			77	"	"	A	"	"	A	"	"	"	"	"	A	"	A	"	"	"					
			78	"	"	B	"	"	"	"	"	"	"	"	"	"	B	"	"	"					
			79	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"	"					
			80	"	"	"	"	A	"	L	H	"	H	L	"	A	"	"	"	"					
			81	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"	"					
			82	"	"	"	"	A	"	"	"	"	"	"	"	"	A	"	"	"					
			83	"	"	"	"	A	"	"	"	"	"	"	"	"	"	"	A	"	"				
			84	"	A	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"				
			85	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"	"					
			86	"	"	"	"	A	"	H	L	"	L	H	"	A	"	"	"	"					
			87	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"	"					
			88	"	"	"	"	A	"	"	"	"	"	"	"	"	A	"	"	"					
			89	"	B	"	"	"	B	"	"	"	"	"	"	"	B	"	"	B	"				
			90	"	"	"	"	"	A	"	"	"	"	"	"	"	A	"	"	"					
			91	"	"	"	"	"	B	"	"	"	"	"	"	"	B	"	"	"					
			92	"	"	"	"	"	A	"	"	"	"	"	"	"	"	A	"	"					
93	B	"	"	"	"	"	L	H	"	H	L	"	"	"	"	"	B	"							
94	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"							
95	"	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"								
96	"	"	"	"	"	A	"	"	"	"	"	"	"	"	A	"	"								
97	"	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"							
98	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	B	"								
99	"	"	"	"	"	B	"	"	"	"	"	"	"	"	B	"	"								
100	"	"	"	"	"	A	"	H	L	"	L	H	"	A	"	"	"								
101	"	"	"	"	"	B	"	H	L	"	L	H	"	B	"	"	"								
102	"	"	"	"	"	A	"	L	H	"	H	L	"	A	"	"	"								
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>c</sub> = 125°C and T <sub>c</sub> = -55°C.																								
9 T <sub>c</sub> = +25°C	f <sub>MAX</sub> g/	3003 Fig. 4	103	2.7 V	2.7 V	0	IN	2.7 V	OUT	"	"	"	"	"	"	"	"	"	5.0 V	Q <sub>1</sub>	90		MHz		
			104	2.7 V	2.7 V	0	IN	2.7 V		OUT	"	"	"	"	"	"	"	"	"	"	$\overline{Q}_1$	"		"	
			105								"	OUT		2.7 V	IN	0	2.7 V	2.7 V	"	"	$\overline{Q}_2$	"		"	
			106								"	"	OUT	2.7 V	IN	0	2.7 V	2.7 V	"	"	Q <sub>2</sub>	"		"	
			t <sub>PLH1</sub>	2.7 V	2.7 V	0 V	IN	2.7 V	OUT		"	"	"	OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP <sub>1</sub> to Q <sub>1</sub>	3.8	7.0	ns	
			t <sub>PLH1</sub>								"	"	"	"	OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP <sub>2</sub> to Q <sub>2</sub>	3.8	7.0	"
			t <sub>PHL1</sub>	2.7 V	2.7 V	0	IN	2.7 V	OUT		"	"	"	"	"	"	"	"	"	"	"	CP <sub>1</sub> to Q <sub>1</sub>	4.4	8.0	"
			t <sub>PHL1</sub>								"	"	"	"	OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP <sub>2</sub> to Q <sub>2</sub>	4.4	8.0	"
			t <sub>PLH2</sub>	2.7 V	2.7 V	0	IN	2.7 V		OUT	"	"	"	"	"	"	"	"	"	"	"	CP <sub>1</sub> to $\overline{Q}_1$	3.8	7.0	"
			t <sub>PLH2</sub>								"	"	"	"	OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP <sub>2</sub> to $\overline{Q}_2$	3.8	7.0	"
			t <sub>PHL2</sub>	2.7 V	2.7 V	0	IN	2.7 V		OUT	"	"	"	"	"	"	"	"	"	"	"	CP <sub>1</sub> to $\overline{Q}_1$	4.4	8.0	"
			t <sub>PHL2</sub>								"	"	"	"	OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP <sub>2</sub> to $\overline{Q}_2$	4.4	8.0	"

See footnotes at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 1/ and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
				$\overline{CD}_1$	J <sub>1</sub>	K <sub>1</sub>	CP <sub>1</sub>	$\overline{SD}_1$	Q <sub>1</sub>	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q <sub>2</sub>	$\overline{SD}_2$	CP <sub>2</sub>	K <sub>2</sub>	J <sub>2</sub>	$\overline{CD}_2$	V <sub>CC</sub>						
9 T <sub>C</sub> = +25°C	t <sub>PLH3</sub>	3003 Fig. 4	115	IN	2.7 V	0 V	2.7 V	2.7 V			OUT	"								5.0 V	$\overline{CD}_1$ to $\overline{Q}_1$	3.2	7.0	"	
			116	2.7 V	2.7 V	0 V	2.7 V	IN	OUT				"								"	$\overline{SD}_1$ to Q <sub>1</sub>	"	"	"
			117										"	OUT		2.7 V	2.7 V	0 V	2.7 V	IN	"	$\overline{CD}_2$ to $\overline{Q}_2$	"	"	"
			118										"		OUT	IN	2.7 V	0 V	2.7 V	2.7 V	"	$\overline{SD}_2$ to Q <sub>2</sub>	"	"	"
	t <sub>PHL3</sub>		119	IN	2.7 V	0 V	2.7 V	2.7 V	OUT				"								"	$\overline{CD}_1$ to Q <sub>1</sub>	3.5	9.0	"
			120	2.7 V				IN		OUT			"								"	$\overline{SD}_1$ to $\overline{Q}_1$	"	"	"
			121										"		OUT	2.7 V	2.7 V	0 V	2.7 V	IN	"	$\overline{CD}_2$ to Q <sub>2</sub>	"	"	"
			122										"	OUT		IN				2.7 V	"	$\overline{SD}_2$ to $\overline{Q}_2$	"	"	"
	t <sub>PLH4</sub>		123	IN	2.7 V	0 V	0 V	2.7 V		OUT			"								"	$\overline{CD}_1$ to $\overline{Q}_1$	3.2	7.0	"
			124	2.7 V				IN	OUT				"								"	$\overline{SD}_1$ to Q <sub>1</sub>	"	"	"
			125										"	OUT		2.7 V	0 V	0 V	2.7 V	IN	"	$\overline{CD}_2$ to $\overline{Q}_2$	"	"	"
			126										"		OUT	IN				2.7 V	"	$\overline{SD}_2$ to Q <sub>2</sub>	"	"	"
	t <sub>PHL4</sub>		127	IN	2.7 V	0 V	0 V	2.7 V	OUT				"								"	$\overline{CD}_1$ to Q <sub>1</sub>	3.5	9.0	"
			128	2.7 V				IN		OUT			"								"	$\overline{SD}_1$ to $\overline{Q}_1$	"	"	"
129											"		OUT	2.7 V	0 V	0 V	2.7 V	IN	"	$\overline{CD}_2$ to Q <sub>2</sub>	"	"	"		
130											"	OUT		IN				2.7 V	"	$\overline{SD}_2$ to $\overline{Q}_2$	"	"	"		
10	Same tests, terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = +125°C and use limits from table I.																								
11	Same tests, terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = -55°C and use limits from table I.																								

See footnotes at end of device type 02.

- 1/ Cases 2 and X pins not referenced are N/C.
- 2/ Apply all voltages, then apply 3 V, 0 V, 3 V to  $\overline{SD}$  X, then apply 3 V, 0 V, 3 V to CPX, then make measurement. For circuit C devices, apply all voltages then apply 4.5 V, 0 V, 4.5 V to  $\overline{SD}$  X. then apply 4.5 V, 0 V, 4.5 V to CPX, then make the measurement.
- 3/ Apply all voltages, then apply 3 V, 0 V, 3 V to  $\overline{CD}$  X, then apply 3 V, 0 V, 3 V to CPX, then make measurement. For circuit C devices, apply all voltages then apply 4.5 V, 0 V, 4.5 V to  $\overline{CP}$  X, then make the measurement.
- 4/ Apply all voltages, then apply 0 V, 4.5 V to CPX, CDX, or SDX, then make measurement.
- 5/ Apply all voltages, then apply 0 V, 4.5 V, 0 V to CP<sub>1</sub> test 32 and 44 and CP<sub>2</sub> test 33 and 45 then make measurement.
- 6/ I<sub>IL</sub> limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
I <sub>IL1</sub>	-0.25/-0.60	-0.03/-0.60	-0.03/-0.60	-0.03/-0.60
I <sub>IL2</sub>	-0.75/-1.80	-0.09/-1.80	-0.09/-1.80	-0.09/-1.80

- 7/ Perform function sequence at V<sub>CC</sub> = 4.5 V and repeat at V<sub>CC</sub> = 5.5 V.
- 8/ A = 2.5 V  
B = 0.5 V  
H ≥ 1.5 V  
L ≤ 1.5 V
- 9/ f<sub>MAX</sub> minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.

TABLE III. Group A inspection for device type 03.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F																Measured terminal	Limits		Unit					
			Cases 2 1/ and X																	Min	Max						
			Test no.	CP <sub>1</sub>	K <sub>1</sub>	J <sub>1</sub>	SD <sub>1</sub>	Q <sub>1</sub>	Q <sub>1</sub>	Q <sub>2</sub>	GND	Q <sub>2</sub>	SD <sub>2</sub>	J <sub>2</sub>	K <sub>2</sub>	CP <sub>2</sub>	CD <sub>2</sub>	CD <sub>1</sub>					V <sub>cc</sub>				
1 T <sub>c</sub> = 25°C	V <sub>OH</sub>	3006	1	2/	.8 V	2.0 V	2.0 V	-1 mA			GND							2.0 V	4.5 V	Q <sub>1</sub>	2.5		V				
			2																		Q <sub>2</sub>						
			3	2/	2.0 V	.8 V	2.0 V			-1 mA									2.0 V		Q <sub>1</sub>						
			4																2.0 V		Q <sub>2</sub>						
			5	4.5 V	4.5 V	4.5 V	.8 V	-1 mA											2.0 V		Q <sub>1</sub>						
			6																		Q <sub>2</sub>						
			7	4.5 V	4.5 V	4.5 V	2.0 V			-1 mA											.8 V	Q <sub>1</sub>					
			8																			Q <sub>2</sub>					
	V <sub>OL</sub>	3007	9	2/	.8 V	2.0 V	2.0 V		20 mA										2.0 V		Q <sub>1</sub>		.50				
			10																		Q <sub>2</sub>						
			11	2/	2.0 V	.8 V	2.0 V	20 mA											2.0 V		Q <sub>1</sub>						
			12																		Q <sub>2</sub>						
			13	4.5 V	4.5 V	4.5 V	.8 V		20 mA											2.0 V		Q <sub>1</sub>					
			14																		.8 V	Q <sub>2</sub>					
			15	4.5 V	4.5 V	4.5 V	2.0 V	20 ma													.8 V	Q <sub>1</sub>					
			16																			Q <sub>2</sub>					
	V <sub>IC</sub>		17	-18 mA																	CP <sub>1</sub>		-1.2				
			18		-18 mA																K <sub>1</sub>						
			19			-18 mA															J <sub>1</sub>						
			20				-18 mA															SD <sub>1</sub>					
			21																			SD <sub>2</sub>					
			22																			J <sub>2</sub>					
			23																			K <sub>2</sub>					
			24																			CP <sub>2</sub>					
			25	2.7 V	0 V	0 V	4.5 V															-18 mA	CD <sub>2</sub>				
			26	2.7 V	0 V	4/																	CD <sub>1</sub>				
	I <sub>IL1</sub>	3009	27	4.5 V	.5 V	4.5 V	2/														K <sub>1</sub>	3/	3/	mA			
			28																		K <sub>2</sub>						
			29	4.5 V	4.5 V	.5 V	4.5 V														J <sub>1</sub>						
	I <sub>IL2</sub>	3009	30																		J <sub>2</sub>						
			31	4.5 V	4.5 V	4.5 V	4.5 V														CD <sub>1</sub>						
			32																		CD <sub>2</sub>						
			33	4.5 V	4.5 V	4.5 V	.5 V														SD <sub>1</sub>						
	I <sub>IL3</sub>	3009	34																		SD <sub>2</sub>						
			35	.5 V	4.5 V	4.5 V	4.5 V														CP <sub>1</sub>						
			36																		CP <sub>2</sub>						

See footnotes at end of device type 03.



TABLE III. Group A inspection for device type 03 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit					
				2	3	4	5	7	8	9	10	11	12	13	14	15	16	Min	Max									
				Test no.	$\overline{CP}_1$	$K_1$	$J_1$	$\overline{SD}_1$	$Q_1$	$\overline{Q}_1$	$\overline{Q}_2$	GND	$Q_2$	$\overline{SD}_2$	$J_2$	$\overline{K}_2$	$\overline{CP}_2$	$\overline{CD}_2$	$\overline{CD}_1$		$V_{CC}$							
1 $T_C = 25^\circ C$	$I_{IH1}$	3010	37	GND	2.7 V	4.5 V	GND				GND								4.5 V	5.5 V	$K_1$		20	$\mu A$				
			38												GND	4.5 V	2.7 V	GND	4.5 V			$K_2$						
			39	GND	4.5 V	2.7 V	4.5 V													GND			$J_1$					
			40												4.5 V	2.7 V	4.5 V		GND				$J_2$					
			41	GND	4.5 V	GND	$\overline{2/}$														2.7 V		$\overline{CD}_1$					
			42												$\overline{2/}$	GND	4.5 V		2.7 V				$\overline{CD}_2$					
			43	GND	GND	4.5 V	2.7 V														$\overline{2/}$		$\overline{SD}_1$					
			44												2.7 V	4.5 V	GND		$\overline{2/}$				$\overline{SD}_2$					
			45	2.7 V	GND	GND	GND													GND			$\overline{CP}_1$					
			46													GND	GND	GND	2.7 V	GND			$\overline{CP}_2$					
	$I_{IH2}$	3010	47	GND	7.0 V	4.5 V	GND													4.5 V		$K_1$		100	$\mu A$			
			48												GND	4.5 V	7.0 V	GND	4.5 V			$K_2$						
			49	GND	4.5 V	7.0 V	4.5 V													GND			$J_1$					
			50												4.5 V	7.0 V	4.5 V	GND	GND				$J_2$					
			51	GND	4.5 V	GND	$\overline{2/}$													7.0 V			$\overline{CD}_1$					
			52												$\overline{2/}$	GND	4.5 V	GND	7.0 V				$\overline{CD}_2$					
			53	GND	GND	4.5 V	7.0 V														$\overline{2/}$		$\overline{SD}_1$					
			54												7.0 V	4.5 V	GND	GND	$\overline{2/}$				$\overline{SD}_2$					
			55	7.0 V	GND	GND	GND													GND			$\overline{CP}_1$					
			56													GND	GND	GND	7.0 V	GND			$\overline{CP}_2$					
	$I_{OS}$	3011	57	4.5 V	4.5 V	4.5 V	GND	0 V												4.5 V		$Q_1$	-60	-150	mA			
			58										0 V		GND	4.5 V	4.5 V	4.5 V	4.5 V			$Q_2$						
			59	4.5 V	4.5 V	4.5 V	4.5 V		0 V											GND			$\overline{Q}_1$					
			60										0 V			4.5 V	4.5 V	4.5 V	4.5 V	GND			$\overline{Q}_2$					
	$I_{OD}$		61	5.5 V	5.5 V	5.5 V	5.5 V	2.5 V							5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	0 V	4.5 V	$Q_1$	60					
			62	"	"	"	0 V		2.5 V						5.5 V	"	"	"	"	5.5 V	"		$\overline{Q}_1$					
63			"	"	"	5.5 V						2.5 V			0 V	"	"	"	"	"	"	$\overline{Q}_2$						
64			"	"	"	5.5 V							2.5 V	5.5 V	"	"	"	"	0 V	"	"	$Q_2$						
$I_{CC}$	3005	65	4.5 V	4.5 V	4.5 V	GND							GND	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	5.5 V	$V_{CC}$		19	"				
	3005	66	4.5 V	4.5 V	4.5 V	4.5 V								4.5 V	4.5 V	4.5 V	4.5 V	GND	GND	5.5 V	$V_{CC}$		19	"				
2	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = 125^\circ C$ and $V_{IC}$ tests are omitted.																											
3	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = -55^\circ C$ and $V_{IC}$ tests are omitted.																											

See footnotes at end of device type 03.



TABLE III. Group A inspection for device type 03 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit	
			Cases 2 J/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max		
			Test no.	$\overline{CP}_1$	$K_1$	$J_1$	$\overline{SD}_1$	$Q_1$	$\overline{Q}_1$	$\overline{Q}_2$	GND	$Q_2$	$\overline{SD}_2$	$J_2$	$K_2$	$\overline{CP}_2$	$\overline{CD}_2$	$\overline{CD}_1$	$V_{CC}$					
9 $T_C = +25^\circ\text{C}$	$t_{PHL3}$	3003 Fig. 4	111	2.7 V	2.7 V	2.7 V	IN	OUT			"								IN	"	$\overline{CD}_1$ to $Q_1$	2.5	7.7	"
			112									"	OUT	IN	2.7 V	2.7 V	2.7 V	IN		"	$\overline{CD}_2$ to $Q_2$	"	"	"
			113	2.7 V	2.7 V	2.7 V	IN		OUT			"							IN	"	$\overline{SD}_1$ to $\overline{Q}_1$	"	"	"
			114								OUT	"		IN	2.7 V	2.7 V	2.7 V	IN		"	$\overline{SD}_2$ to $\overline{Q}_2$	"	"	"
	$t_{PLH4}$		115	0 V	2.7 V	2.7 V	IN	OUT				"							IN	"	$\overline{SD}_1$ to $Q_1$	2.0 V	7.0	"
			116									"	OUT	IN	2.7 V	2.7 V	0 V	IN		"	$\overline{SD}_2$ to $Q_2$	"	"	"
			117	0 V	2.7 V	2.7 V	IN		OUT			"							IN	"	$\overline{CD}_1$ to $\overline{Q}_1$	"	"	"
			118									OUT	"		IN	2.7 V	2.7 V	0 V	IN	"	$\overline{CD}_2$ to $\overline{Q}_2$	"	"	"
	$t_{PHL4}$		119	0 V	2.7 V	2.7 V	IN	OUT				"							IN	"	$\overline{CD}_1$ to $Q_1$	2.5	7.7	"
			120									"	OUT	IN	2.7 V	2.7 V	0 V	IN		"	$\overline{CD}_2$ to $Q_2$	"	"	"
			121	0 V	2.7 V	2.7 V	IN		OUT			"							IN	"	$\overline{SD}_1$ to $\overline{Q}_1$	"	"	"
			122									OUT	"		IN	2.7 V	2.7 V	0 V	IN	"	$\overline{SD}_2$ to $\overline{Q}_2$	"	"	"
10	Same tests and terminal conditions as subgroup 9, except $T_C = +125^\circ\text{C}$ and use limits from table I.																							
11	Same tests and terminal conditions as subgroup 9, except $T_C = -55^\circ\text{C}$ and use limits from table I.																							

See footnotes at end of device type 03.

- 1/ Cases 2 and X pins not referenced are N/C.
- 2/ Apply all voltages, then apply 3 V, 0 V, 3 V to CPX,  $\overline{\text{CDX}}$  , or  $\overline{\text{SDX}}$  (as required) then make measurement.
- 3/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
$I_{IL1}$	-.25/-.60	-.03/-.60	-.03/-.60	0.0 mA/-0.6 mA
$I_{IL2}$	-.75/-3.0	-.09/-3.0	-.12/-3.0	0.0 mA/-3.0 mA
$I_{IL3}$	-1.25/-3.0	-.12/-2.40	-.12/-3.0	0.0 mA/-2.4 mA

- 4/ Perform function sequence at  $V_{CC} = 4.5 \text{ V}$  and repeat at  $V_{CC} = 5.5 \text{ V}$ .
- 5/ A = 2.5 V  
B = 0.5 V  
H  $\geq 1.5 \text{ V}$ , L  $\leq 1.5 \text{ V}$ .
- 6/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.

TABLE III. Group A inspection for device type 04 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 1/ and X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
				Test no.	MR	Q <sub>0</sub>	Q <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	Q <sub>1</sub>	Q <sub>1</sub>	GND	CP	Q <sub>2</sub>	Q <sub>2</sub>	D <sub>2</sub>	D <sub>3</sub>	Q <sub>3</sub>	Q <sub>3</sub>					V <sub>CC</sub>	
1 T <sub>c</sub> = 25°C	V <sub>OL</sub>	3007	1	.8 V	20 mA															4.5 V	Q <sub>0</sub>	.5	V		
			2	"									20 mA									"	Q <sub>1</sub>	"	"
			3	"											20 mA							"	Q <sub>2</sub>	"	"
			4	"																20 mA	"	Q <sub>3</sub>	"	"	
			5	2/		20 mA	2.0 V							2/								"	Q <sub>0</sub>	"	"
			6	"					2.0 V	20 mA				"	"							"	Q <sub>1</sub>	"	"
			7	"												20 mA	2.0 V					"	Q <sub>2</sub>	"	"
			8	"														2.0 V	20 mA			"	Q <sub>3</sub>	"	"
	V <sub>OH</sub>	3006	9	"	-1 mA		2.0 V					"	"								"	Q <sub>0</sub>	2.5	"	
			10	"		-1 mA	.8 V					"	"								"	Q <sub>0</sub>	"	"	
			11	"				.8 V	-1 mA			"	"								"	Q <sub>1</sub>	"	"	
			12	"				2.0 V		-1 mA		"	"								"	Q <sub>1</sub>	"	"	
			13	"										-1 mA		2.0 V					"	Q <sub>2</sub>	"	"	
			14	"											-1 mA	.8 V					"	Q <sub>2</sub>	"	"	
	V <sub>IC</sub>		15	"													.8 V	-1 mA			"	Q <sub>3</sub>	"	"	
			16	"													2.0 V		-1 mA		"	Q <sub>3</sub>	"	"	
			17	-18 mA																	"	MR	-1.2	"	
			18				-18 mA														"	D <sub>0</sub>	"	"	
			19					-18 mA													"	D <sub>1</sub>	"	"	
			20									18 mA									"	CP	"	"	
	I <sub>IH1</sub>	3010	21													-18 mA					"	D <sub>2</sub>	"	"	
			22															-18 mA			"	D <sub>3</sub>	"	"	
			23	2.7 V																5.5 V	MR	20	μA		
			24					2.7 V													"	D <sub>0</sub>	"	"	
			25						2.7 V												"	D <sub>1</sub>	"	"	
			26											2.7 V							"	CP	"	"	
			27														2.7 V				"	D <sub>2</sub>	"	"	
			28															2.7 V			"	D <sub>3</sub>	"	"	
	I <sub>IH2</sub>	3010	29	7.0 V																	"	MR	100	"	
			30					7.0 V													"	D <sub>0</sub>	"	"	
			31						7.0 V												"	D <sub>1</sub>	"	"	
			32											7.0 V							"	CP	"	"	
			33														7.0 V				"	D <sub>2</sub>	"	"	
			34															7.0 V			"	D <sub>3</sub>	"	"	
	I <sub>I1</sub>	3009	35	.5 V																	"	MR	3/	3/	mA
			36					.5 V													"	D <sub>0</sub>	"	"	
			37						.5 V												"	D <sub>1</sub>	"	"	
			38											.5 V							"	CP	"	"	
			39														.5 V				"	D <sub>2</sub>	"	"	
			40															.5 V			"	D <sub>3</sub>	"	"	

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit			
			Cases 2 1/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max				
			Test no.	MR	Q <sub>0</sub>	$\bar{Q}_0$	D <sub>0</sub>	D <sub>1</sub>	$\bar{Q}_1$	Q <sub>1</sub>	GND	CP	Q <sub>2</sub>	$\bar{Q}_2$	D <sub>2</sub>	D <sub>3</sub>	$\bar{Q}_3$	Q <sub>3</sub>	V <sub>CC</sub>							
1 T <sub>C</sub> = 25°C	I <sub>OS</sub>	3011	41	2/	0 V		4.5 V				GND	2/								5.5 V	Q <sub>0</sub>	-60	-150	mA		
			42	"				4.5 V			0 V	"	"								"	Q <sub>1</sub>	"	"	"	
			43	"									"	"	0 V		4.5 V					"	Q <sub>2</sub>	"	"	"
			44	"									"	"				4.5 V		0 V		"	Q <sub>3</sub>	"	"	"
			45	0 V		0 V							"	4.5 V								"	Q <sub>0</sub>	"	"	"
			46	"							0 V		"	"								"	Q <sub>1</sub>	"	"	"
			47	"									"	"		0 V						"	Q <sub>2</sub>	"	"	"
			48	"									"	"					0 V			"	Q <sub>3</sub>	"	"	"
	I <sub>OD</sub>	3006	49	0 V	2.5 V							"								4.5 V	Q <sub>0</sub>	60		"		
			50	"							2.5 V	"									"	Q <sub>1</sub>	"	"	"	
			51	"									"		2.5 V						"	Q <sub>2</sub>	"	"	"	
			52	"									"						2.5 V		"	Q <sub>3</sub>	"	"	"	
			53	5.5 V		2.5 V	5.5 V	5.5 V					"	4/			5.5 V	5.5 V				"	Q <sub>0</sub>	"	"	"
			54	"				"	"	2.5 V			"	"			"	"				"	Q <sub>1</sub>	"	"	"
			55	"				"	"				"	"		2.5 V	"	"				"	Q <sub>2</sub>	"	"	"
			56	"				"	"				"	"			"	"	2.5 V			"	Q <sub>3</sub>	"	"	"
	I <sub>CC</sub>	3005	57	4.5 V			4.5 V	4.5 V					"			4.5 V	4.5 V			5.5 V	V <sub>CC</sub>		34	"		
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																									
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																									

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F																	Measured terminal	Limits		Unit		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Min		Max				
			Cases 2 J/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20						
Test no.	$\overline{MR}$	$Q_0$	$\overline{Q}_0$	$D_0$	$D_1$	$\overline{Q}_1$	$Q_1$	GND	CP	$Q_2$	$\overline{Q}_2$	$D_2$	$D_3$	$\overline{Q}_3$	$Q_3$	$V_{CC}$									
7 $T_c = 25^\circ C$	Func-Tional Tests 6/	3014	58	B	L	H	A	A	H	L	"	B	L	H	A	A	H	L	5/	All outputs					
			59	B	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"				
			60	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
			61	"	"	"	"	B	B	"	"	"	"	"	"	"	B	B	"	"	"	"	"		
			62	"	"	"	"	A	A	"	"	"	"	"	"	"	A	A	"	"	"	"	"		
			63	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"		
			64	"	H	L	"	"	L	H	"	"	A	H	L	"	"	"	L	H	"	"			
			65	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"		
			66	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"		
			67	"	"	"	"	B	B	"	"	"	"	"	"	"	B	B	"	"	"	"	"		
			68	"	"	"	"	A	A	"	"	"	"	"	"	"	A	A	"	"	"	"	"		
			69	"	"	"	"	A	A	"	"	"	"	"	"	"	B	"	"	"	"	"	"		
			70	"	"	"	"	B	B	"	"	"	"	"	"	"	B	B	"	"	"	"	"		
			71	"	"	"	"	A	A	"	"	"	"	"	"	"	A	A	"	"	"	"	"		
			72	"	"	"	"	B	B	"	"	"	"	"	"	"	B	B	"	"	"	"	"		
			73	"	L	H	"	"	"	H	L	"	"	A	L	H	"	"	H	L	"	"			
			74	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"		
			75	"	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"		
			76	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"		
			77	"	"	"	"	"	A	A	"	"	"	"	"	"	"	"	A	A	"	"	"		
			78	"	"	"	"	"	B	B	"	"	"	"	"	"	"	"	B	B	"	"	"		
			79	"	"	"	"	"	A	A	"	"	"	"	"	"	"	"	A	A	"	"	"		
			80	"	H	L	"	"	A	A	L	H	"	"	A	H	L	A	A	L	H	"	"		
			81	"	H	L	"	"	B	B	L	H	"	"	"	H	L	B	B	L	H	"	"		
82	B	L	H	"	"	"	"	H	L	"	"	"	L	H	"	"	H	L	"	"					
83	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"					
84	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"					
8	Same tests, terminal conditions, and limits as for subgroup 7, except $T_c = +125^\circ C$ and $T_c = -55^\circ C$ .																								
9/ $T_c = +25^\circ C$	$f_{MAX}$ $Z/$	3003 Fig. 4	85	2.7 V	OUT		IN				GND	IN							5.0 V	$Q_0$	100		MHz		
			86	"		OUT	IN					"	"								$\overline{Q}_0$	"		"	
			87	"				IN	OUT			"	"									$\overline{Q}_1$	"		"
			88	"					IN		OUT	"	"									$Q_1$	"		"
			89	"								"	"	OUT		IN	IN					$Q_2$	"		"
			90	"								"	"		OUT	IN						$\overline{Q}_2$	"		"
			91	"								"	"				IN	OUT				$\overline{Q}_3$	"		"
			92	"								"	"				IN		OUT			$Q_3$	"		"
			93	"	OUT		IN					"	"	IN								CP to $Q_0$	4.0	6.5	ns
			94	"				IN		OUT		"	"									CP to $Q_1$	"	"	"
			95	"								"	"	OUT		IN						CP to $Q_2$	"	"	"
			96	"								"	"			IN		OUT				CP to $Q_2$	"	"	"
			97	"		OUT	IN					"	"									CP to $\overline{Q}_0$	"	"	"
			98	"				IN	OUT			"	"									CP to $\overline{Q}_1$	"	"	"
			99	"								"	"		OUT	IN						CP to $\overline{Q}_2$	"	"	"
			100	"								"	"			IN	OUT					CP to $\overline{Q}_3$	"	"	"
101	"	OUT		IN					"	"									CP to $Q_0$	"	8.5	"			
102	"				IN		OUT		"	"									CP to $Q_1$	"	"	"			
103	"								"	"	OUT		IN						CP to $Q_2$	"	"	"			
104	"								"	"			IN		OUT				CP to $Q_2$	"	"	"			

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 1/ and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
				$\overline{MR}$	$Q_0$	$\overline{Q}_0$	$D_0$	$D_1$	$\overline{Q}_1$	$Q_1$	GND	CP	$Q_2$	$\overline{Q}_2$	$D_2$	$D_3$	$\overline{Q}_3$	$Q_3$	$V_{CC}$						
9/ $T_C = +25^\circ\text{C}$	$t_{PHL2}$	3003 Fig. 4	105	2.7 V		OUT	IN					GND	IN							5.0 V	CP to $\overline{Q}_0$	4.0	8.5	ns	
			106	"					IN	OUT			"	"							"	CP to $\overline{Q}_1$	"	"	"
			107	"												OUT	IN				"	CP to $\overline{Q}_2$	"	"	"
			108	"									"	"				IN	OUT		"	CP to $\overline{Q}_3$	"	"	"
	$t_{PHL5}$	3003 Fig. 4	109	IN	OUT			2.7 V				"	2.7 V								"	$\overline{MR}$ to $Q_0$	4.5	11.5	"
			110	"					2.7 V			OUT	"	"							"	$\overline{MR}$ to $Q_1$	"	"	"
			111	"									"	"	OUT		2.7 V				"	$\overline{MR}$ to $Q_2$	"	"	"
			112	"									"	"				2.7 V		OUT	"	$\overline{MR}$ to $Q_3$	"	"	"
	$t_{PLH5}$		113	"		OUT		2.7 V				"	"								"	$\overline{MR}$ to $\overline{Q}_0$	4.0	8.0	"
			114	"					2.7 V	OUT		"	"								"	$\overline{MR}$ to $\overline{Q}_1$	"	"	"
			115	"									"	"		OUT	2.7 V				"	$\overline{MR}$ to $\overline{Q}_2$	"	"	"
			116	"									"	"				2.7 V	OUT		"	$\overline{MR}$ to $\overline{Q}_3$	"	"	"
	$t_{PHL6}$		117	"	OUT			2.7 V				"	0.0 V								"	$\overline{MR}$ to $Q_0$	4.5	11.5	"
			118	"					2.7 V			OUT	"	"							"	$\overline{MR}$ to $Q_1$	"	"	"
			119	"									"	"	OUT		2.7 V				"	$\overline{MR}$ to $Q_2$	"	"	"
			120	"									"	"				2.7 V		OUT	"	$\overline{MR}$ to $Q_3$	"	"	"
$t_{PLH6}$		121	"		OUT		2.7 V				"	"								"	$\overline{MR}$ to $\overline{Q}_0$	4.0	8.0	"	
		122	"					2.7 V	OUT		"	"								"	$\overline{MR}$ to $\overline{Q}_1$	"	"	"	
		123	"									"	"		OUT	2.7 V				"	$\overline{MR}$ to $\overline{Q}_2$	"	"	"	
		124	"									"	"				2.7 V	OUT		"	$\overline{MR}$ to $\overline{Q}_3$	"	"	"	
10	Same tests and terminal conditions as subgroup 9, except $T_C = +125^\circ\text{C}$ and use limits from table I.																								
11	Same tests and terminal conditions as subgroup 9, except $T_C = -55^\circ\text{C}$ and use limits from table I.																								

See footnotes at end of device type 04.



- 1/ Cases 2 and X pins not referenced are N/C.
- 2/ Apply all voltages, then apply 3 V, 0 V, 3 V to  $\overline{MR}$ , then apply 3 V, 0 V, 3 V to CP, then make measurement.
- 3/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
$I_{IL1}$	- .25/- .60	- .03/- .60	- .03/- .60	0/- .30

- 4/ Apply all voltages, then apply 3 V, 0 V, 3 V to CP then make measurement.
- 5/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V.
- 6/ A = 2.5 V  
B = 0.5 V  
H  $\geq$  1.5 V  
L  $\leq$  1.5 V
- 7/  $f_{MAX}$  shall be measured only under the conditions of initial qualification and after process or design changes which may affect this parameter. For all other conditions,  $f_{MAX}$  shall be guaranteed, if not tested, to the limits specified in table III, herein.

TABLE III. Group A inspection for device type 05.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	
				$\overline{OE}$	$Q_0$	$D_0$	$D_1$	$Q_1$	$Q_2$	$D_2$	$D_3$	$Q_3$	GND	
1 $T_c = 25^\circ\text{C}$	$V_{OH}$	3006	1	-0.8 V	-1 mA	2.0 V								
			2	"			2.0 V	-1 mA						
			3	"						-1 mA	2.0 V			
			4	"								2.0 V	-1 mA	
			5	"										
			6	"										
			7	"										
			8	"										
	$V_{OL}$	3007	9	"	20 mA	.8 V								
			10	"			.8 V	20 mA						
			11	"					20 mA	.8 V				
			12	"								.8 V	20 mA	
			13	"										
			14	"										
			15	"										
			16	"										
	$V_{IC}$		17		-18 mA									
			18			-18 mA								
			19				-18 mA							
			20							-18 mA				
			21								-18 mA			
			22									-18 mA		
			23											
			24											
			25											
			26											
	$I_{IH1}$	3010	27		2.7 V									
			28			2.7 V								
			29				2.7 V							
			30								2.7 V			
			31									2.7 V		
			32											
			33											
			34											
			35											
			36											
	$I_{IH2}$	3010	37		7.0 V									
			38			7.0 V								
			39				7.0 V							
			40								7.0 V			
			41									7.0 V		
			42										7.0 V	
			43											
			44											
			45											
			46											
	$I_{IL1}$	3009	47		.5 V									
			48			.5 V								
			49				.5 V							
			50					.5 V						
			51								.5 V			
			52									.5 V		
			54											
			55											
			56											

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits		V		
			Test no.	CP	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	Q <sub>6</sub>	D <sub>6</sub>	D <sub>7</sub>	Q <sub>7</sub>	V <sub>CC</sub>		Min	Max			
1 T <sub>c</sub> = +25°C	V <sub>OH</sub>	3006	1	1/									4.5 V	Q <sub>0</sub>	2.5				
			2	"										"	Q <sub>1</sub>	"		"	
			3	"											"	Q <sub>2</sub>	"		"
			4	"											"	Q <sub>3</sub>	"		"
			5	"	-1 mA	2.0 V									"	Q <sub>4</sub>	"		"
			6	"			2.0 V	-1 mA							"	Q <sub>5</sub>	"		"
			7	"						-1 mA	2.0 V				"	Q <sub>6</sub>	"		"
			8	"								2.0 V	-1 mA		"	Q <sub>7</sub>	"		"
	V <sub>OL</sub>	3007	9	"										"	Q <sub>0</sub>		.5	"	
			10	"										"	Q <sub>1</sub>		"	"	
			11	"										"	Q <sub>2</sub>		"	"	
			12	"										"	Q <sub>3</sub>		"	"	
			13	"	20 mA	.8 V								"	Q <sub>4</sub>		"	"	
			14	"			.8 V	20 mA						"	Q <sub>5</sub>		"	"	
			15	"					20 mA	.8 V				"	Q <sub>6</sub>		"	"	
			16	"							.8 V	20 mA		"	Q <sub>7</sub>		"	"	
	V <sub>IC</sub>		17											"	OE		-1.2	"	
			18											"	D <sub>0</sub>		"	"	
			19											"	D <sub>1</sub>		"	"	
			20											"	D <sub>2</sub>		"	"	
			21											"	D <sub>3</sub>		"	"	
			22				-18 mA							"	D <sub>4</sub>		"	"	
			23					-18 mA						"	D <sub>5</sub>		"	"	
			24							-18 mA				"	D <sub>6</sub>		"	"	
			25								-18 mA			"	D <sub>7</sub>		"	"	
			26		-18 mA								-18 mA		"	CP		"	"
	I <sub>IH1</sub>	3010	27											5.5 V	OE		20	μA	
			28											"	D <sub>0</sub>		"	"	
			29											"	D <sub>1</sub>		"	"	
			30											"	D <sub>2</sub>		"	"	
			31											"	D <sub>3</sub>		"	"	
			32				2.7 V							"	D <sub>4</sub>		"	"	
			33					2.7 V						"	D <sub>5</sub>		"	"	
			34							2.7 V				"	D <sub>6</sub>		"	"	
			35								2.7 V			"	D <sub>7</sub>		"	"	
			36		2.7 V									"	CP		"	"	
	I <sub>IH2</sub>	3010	37											"	OE		100	"	
			38											"	D <sub>0</sub>		"	"	
			39											"	D <sub>1</sub>		"	"	
			40											"	D <sub>2</sub>		"	"	
			41											"	D <sub>3</sub>		"	"	
			42				7.0 V							"	D <sub>4</sub>		"	"	
			43					7.0 V						"	D <sub>5</sub>		"	"	
			44							7.0 V				"	D <sub>6</sub>		"	"	
			45								7.0 V			"	D <sub>7</sub>		"	"	
			46		7.0 V									"	CP		"	"	
	I <sub>IL1</sub>	3009	47											"	OE	2/	2/	mA	
			48											"	D <sub>0</sub>	"	"	"	
			49											"	D <sub>1</sub>	"	"	"	
			50											"	D <sub>2</sub>	"	"	"	
			51											"	D <sub>3</sub>	"	"	"	
			52				.5 V							"	D <sub>4</sub>	"	"	"	
			53					.5 V						"	D <sub>5</sub>	"	"	"	
			54							.5 V				"	D <sub>6</sub>	"	"	"	
			55								.5 V			"	D <sub>7</sub>	"	"	"	
			56		.5 V									"	CP	"	"	"	

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1	2	3	4	5	6	7	8	9	10			
				$\overline{OE}$	$Q_0$	$D_0$	$D_1$	$Q_1$	$Q_2$	$D_2$	$D_3$	$Q_3$	GND			
1 $T_C = 25^\circ\text{C}$	$I_{OS}$	3011	57	0 V	0 V	4.5 V										
			58	"			4.5 V	0 V								
			59	"						0 V	4.5 V					
			60	"								4.5 V	0 V			
			61	"												
			62	"												
			63	"												
			64	"												
			65	"	2.5 V	0 V										
			66	"				0 V	2.5 V							
			67	"						2.5 V	0 V					
			68	"								0 V	2.5 V			
			69	"												
			70	"												
	71	"														
	72	"														
	$I_{OZH}$	3011	73	2.0 V	2.7 V	0 V										
			74	"			0 V	2.7 V								
			75	"					2.7 V	0 V						
			76	"							0 V	2.7 V				
			77	"												
			78	"												
			79	"												
			80	"												
			$I_{OZL}$	3011	81	"	.5 V	4.5 V								
					82	"			4.5 V	.5 V						
	83	"							.5 V	4.5 V						
	84	"									4.5 V	.5 V				
	85	"														
	86	"														
87	"															
88	"															
$I_{CCZ}$	3011	89	4.5 V		4.5 V	4.5 V			4.5 V	4.5 V						
2	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = +125^\circ\text{C}$ and $V_{IC}$ tests are omitted.															
3	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.															
7 $T_C = +25^\circ\text{C}$	Functional tests 3/	3014	90	B	X	B	B	X	X	B	B	X	"			
			91	"	L	B	B	L	L	B	B	L	"			
			92	"	"	A	A	"	"	A	A	"	"			
			93	"	"	"	"	"	"	"	"	"	"			
			94	"	H	"	"	H	H	"	"	"	H			
			95	"	"	B	B	"	"	B	B	"	"			
			96	"	"	"	"	"	"	"	"	"	"			
			97	"	L	"	"	L	L	"	"	"	L			
			98	"	"	A	A	"	"	A	A	"	"			
			99	"	"	B	B	"	"	B	B	"	"			
			100	"	L	A	A	"	"	A	A	"	"			
			101	"	H	A	A	H	H	A	A	H	"			
			102	"	"	B	B	"	"	B	B	"	"			
			103	"	"	A	A	"	"	A	A	"	"			
8	Same tests, terminal conditions, and limits as for subgroup 7, except $T_C = +125^\circ\text{C}$ and $T_C = -55^\circ\text{C}$ .															

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Case 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits				
				CP	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	Q <sub>6</sub>	D <sub>6</sub>	D <sub>7</sub>	Q <sub>7</sub>	V <sub>CC</sub>		Min	Max			
1 T <sub>C</sub> = +25°C	I <sub>OS</sub>	3011	57	1/									5.5 V	Q <sub>0</sub>	-60	-150	mA		
			58	"										"	Q <sub>1</sub>	"	"	"	
			59	"											"	Q <sub>2</sub>	"	"	"
			60	"											"	Q <sub>3</sub>	"	"	"
			61	"	0 V	4.5 V									"	Q <sub>4</sub>	"	"	"
			62	"			4.5 V	0 V							"	Q <sub>5</sub>	"	"	"
			63	"					0 V	4.5 V					"	Q <sub>6</sub>	"	"	"
			64	"							4.5 V	0 V			"	Q <sub>7</sub>	"	"	"
			65	"									4.5 V		"	Q <sub>0</sub>	35		"
			66	"											"	Q <sub>1</sub>	"	"	"
			67	"											"	Q <sub>2</sub>	"	"	"
			68	"											"	Q <sub>3</sub>	"	"	"
			69	"	2.5 V	0 V									"	Q <sub>4</sub>	"	"	"
			70	"			0 V	2.5							"	Q <sub>5</sub>	"	"	"
	71	"					2.5 V	0 V					"	Q <sub>6</sub>	"	"	"		
	72	"							0 V	2.5 V			"	Q <sub>7</sub>	"	"	"		
	73	"										5.5 V	"	Q <sub>0</sub>		+ 50	μA		
	74	"											"	Q <sub>1</sub>		"	"		
	75	"											"	Q <sub>2</sub>		"	"		
	76	"											"	Q <sub>3</sub>		"	"		
	77	"	2.7 V	0 V									"	Q <sub>4</sub>		"	"		
	78	"			0 V	2.7 V							"	Q <sub>5</sub>		"	"		
	79	"					2.7 V	0 V					"	Q <sub>6</sub>		"	"		
	80	"							0 V	2.7 V			"	Q <sub>7</sub>		"	"		
	81	"											"	Q <sub>0</sub>		-50	"		
	82	"											"	Q <sub>1</sub>		"	"		
	83	"											"	Q <sub>2</sub>		"	"		
	84	"											"	Q <sub>3</sub>		"	"		
	85	"	.5 V	4.5 V									"	Q <sub>4</sub>		"	"		
	86	"			4.5 V	.5 V							"	Q <sub>5</sub>		"	"		
	87	"					.5 V	4.5 V					"	Q <sub>6</sub>		"	"		
	88	"							4.5 V	.5 V			"	Q <sub>7</sub>		"	"		
		I <sub>CCZ</sub>	3011	89	4.5 V		4.5 V	4.5 V			4.5 V	4.5 V		"	V <sub>CC</sub>		86	mA	
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																		
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																		
7 T <sub>C</sub> = +25°C	Func-Tional Tests 3/	3014	90	B	X	B	B	X	X	B	B	X	4/	All outputs					
			91	A	L	B	B	L	L	B	B	L	"						
			92	A	"	A	A	"	"	A	A	"	"						
			93	B	"	"	"	"	"	"	"	"	"						
			94	A	H	"	"	H	H	"	"	H	"						
			95	A	"	B	B	"	"	B	B	"	"						
			96	B	"	"	"	"	"	"	"	"	"						
			97	A	L	"	"	L	L	"	"	L	"						
			98	"	"	A	A	"	"	A	A	"	"						
			99	"	"	B	B	"	"	B	B	"	"						
			100	B	"	A	A	"	"	A	A	"	"						
			101	A	H	A	A	H	H	A	A	H	"						
			102	"	"	B	B	"	"	B	B	"	"						
103	"	"	A	A	"	"	A	A	"	"									
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>C</sub> = +125°C and T <sub>C</sub> = -55°C.																		

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X	1	2	3	4	5	6	7	8	9	10		
			Test no.	$\overline{OE}$	$Q_0$	$D_0$	$D_1$	$Q_1$	$Q_2$	$D_2$	$D_3$	$Q_3$	GND		
9 $T_c = +25^\circ\text{C}$	$f_{MAX}$ 5/	3003 Fig. 4	104	0 V	OUT	IN							"		
			105	"			IN	OUT					"		
			106	"						OUT	IN			"	
			107	"								IN	OUT	"	
			108	"										"	
			109	"										"	
			110	"										"	
			111	"										"	
			112	"	OUT	IN									"
			113	"				IN	OUT						"
			114	"						OUT	IN				"
	115	"								IN	OUT		"		
	116	"											"		
	117	"											"		
	118	"											"		
	119	"											"		
	120	"	OUT	IN									"		
	121	"				IN	OUT						"		
	122	"						OUT	IN				"		
	123	"								IN	OUT		"		
	124	"											"		
	125	"											"		
	126	"											"		
	127	"											"		
	128	"	IN	OUT	0 V								"		
	129	"				0 V	OUT						"		
	130	"						OUT	0 V				"		
	131	"								0 V	OUT		"		
	132	"											"		
	133	"											"		
	134	"											"		
135	"											"			
136	"	OUT	2.7 V									"			
137	"				2.7 V	OUT						"			
138	"						OUT	2.7 V				"			
139	"								2.7 V	OUT		"			
140	"											"			
141	"											"			
142	"											"			
143	"											"			
144	"	OUT	0 V									"			
145	"				0 V	OUT						"			
146	"						OUT	0 V				"			
147	"								0 V	OUT		"			
148	"											"			
149	"											"			
150	"											"			
151	"											"			
152	"	OUT	2.7 V									"			
153	"				2.7 V	OUT						"			
154	"						OUT	2.7 V				"			
155	"								2.7 V	OUT		"			
156	"											"			
157	"											"			
158	"											"			
159	"											"			
10	Same tests, and terminal conditions, as subgroup 9, except $T_c = +125^\circ\text{C}$ and use limits from table I.														
11	Same tests, and terminal conditions, as subgroup 9, except $T_c = -55^\circ\text{C}$ and use limits from table I.														

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits				
				Test no.	CP	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	Q <sub>6</sub>	D <sub>6</sub>	D <sub>7</sub>	Q <sub>7</sub>		V <sub>CC</sub>	Min		Max	MHz
9 T <sub>c</sub> = +25°C	f <sub>MAX</sub> 5/	3003 Fig. 4	104	IN									5.0 V	Q <sub>0</sub>	80		MHz		
			105	"										"	Q <sub>1</sub>	"	"	"	
			106	"										"	Q <sub>2</sub>	"	"	"	
			107	"										"	Q <sub>3</sub>	"	"	"	
			108	"	OUT	IN								"	Q <sub>4</sub>	"	"	"	
			109	"			IN	OUT						"	Q <sub>5</sub>	"	"	"	
			110	"						OUT	IN			"	Q <sub>6</sub>	"	"	"	
			111	"									IN	OUT	"	Q <sub>7</sub>	"	"	"
			112	IN											"	CP to Q <sub>0</sub>	3.0	8.5	ns
			113	"											"	CP to Q <sub>1</sub>	"	"	"
	114		"											"	CP to Q <sub>2</sub>	"	"	"	
	115		"											"	CP to Q <sub>3</sub>	"	"	"	
	116		"	OUT	IN									"	CP to Q <sub>4</sub>	"	"	"	
	117		"			IN	OUT							"	CP to Q <sub>5</sub>	"	"	"	
	118		"							OUT	IN			"	CP to Q <sub>6</sub>	"	"	"	
	119		"									IN	OUT	"	CP to Q <sub>7</sub>	"	"	"	
	120		IN											"	CP to Q <sub>0</sub>	"	"	"	
	121		"											"	CP to Q <sub>1</sub>	"	"	"	
	122		"											"	CP to Q <sub>2</sub>	"	"	"	
	123		"											"	CP to Q <sub>3</sub>	"	"	"	
	124		"	OUT	IN									"	CP to Q <sub>4</sub>	"	"	"	
	125		"			IN	OUT							"	CP to Q <sub>5</sub>	"	"	"	
	126		"							OUT	IN			"	CP to Q <sub>6</sub>	"	"	"	
	127		"									IN	OUT	"	CP to Q <sub>7</sub>	"	"	"	
	128		1/											"	OE to Q <sub>0</sub>	1.5	6.5	"	
	129		"											"	OE to Q <sub>1</sub>	"	"	"	
	130		"											"	OE to Q <sub>2</sub>	"	"	"	
	131		"											"	OE to Q <sub>3</sub>	"	"	"	
	132		"	OUT	0 V									"	OE to Q <sub>4</sub>	"	"	"	
	133		"			0 V	OUT							"	OE to Q <sub>5</sub>	"	"	"	
	134		"							OUT	0 V			"	OE to Q <sub>6</sub>	"	"	"	
	135		"									0 V	OUT	"	OE to Q <sub>7</sub>	"	"	"	
	136		"											"	OE to Q <sub>0</sub>	"	7.5	"	
	137		"											"	OE to Q <sub>1</sub>	"	"	"	
	138		"											"	OE to Q <sub>2</sub>	"	"	"	
	139		"											"	OE to Q <sub>3</sub>	"	"	"	
	140		"	OUT	2.7 V									"	OE to Q <sub>4</sub>	"	"	"	
	141		"			2.7 V	OUT							"	OE to Q <sub>5</sub>	"	"	"	
	142		"							OUT	2.7 V			"	OE to Q <sub>6</sub>	"	"	"	
	143		"									2.7 V	OUT	"	OE to Q <sub>7</sub>	"	"	"	

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type 05 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits				
				CP	Q <sub>4</sub>	D <sub>3</sub>	D <sub>5</sub>	Q <sub>5</sub>	Q <sub>6</sub>	D <sub>6</sub>	D <sub>7</sub>	Q <sub>7</sub>	V <sub>CC</sub>		Min	Max			
9	t <sub>PZL1</sub>	3003 Fig. 4	144	1/									5.5 V	$\overline{\text{OE}}$ to Q <sub>0</sub>	2.0	7.5	ns		
			145	"										"	$\overline{\text{OE}}$ to Q <sub>1</sub>	"	"	"	
			146	"										"	$\overline{\text{OE}}$ to Q <sub>2</sub>	"	"	"	
			147	"										"	$\overline{\text{OE}}$ to Q <sub>3</sub>	"	"	"	
			148	"	OUT	0 V								"	$\overline{\text{OE}}$ to Q <sub>4</sub>	"	"	"	
			149	"			0 V	OUT						"	$\overline{\text{OE}}$ to Q <sub>5</sub>	"	"	"	
			150	"						OUT	0 V			"	$\overline{\text{OE}}$ to Q <sub>6</sub>	"	"	"	
			151	"								0 V	OUT	"	$\overline{\text{OE}}$ to Q <sub>7</sub>	"	"	"	
			152	t <sub>PZH1</sub>											"	$\overline{\text{OE}}$ to Q <sub>0</sub>	"	11.5	"
	153		"										"	$\overline{\text{OE}}$ to Q <sub>1</sub>	"	"	"		
	154		"										"	$\overline{\text{OE}}$ to Q <sub>2</sub>	"	"	"		
	155		"										"	$\overline{\text{OE}}$ to Q <sub>3</sub>	"	"	"		
	156		"		OUT	2.7 V							"	$\overline{\text{OE}}$ to Q <sub>4</sub>	"	"	"		
	157		"				2.7 V	OUT					"	$\overline{\text{OE}}$ to Q <sub>5</sub>	"	"	"		
	158		"							OUT	2.7 V		"	$\overline{\text{OE}}$ to Q <sub>6</sub>	"	"	"		
	159		"									2.7 V	OUT	"	$\overline{\text{OE}}$ to Q <sub>7</sub>	"	"	"	
	10		Same tests, terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = +125°C and use limits from table I.																
	11		Same tests, terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = -55°C and use limits from table I.																

See footnotes at end of device type 05.



1/ Apply all voltages, then apply 3 V, 0 V, 3 V to CP, then make measurement.

2/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
$I_{IL1}$	- .25/- .60	- .03/- .60	- .03/- .60	0/- .30

3/ A = 2.5 V  
B = 0.5 V  
H  $\geq$  1.5 V  
L  $\leq$  1.5 V

4/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V

5/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.  
 $f_{MAX}$  shall be measured only under the conditions of initial qualification and after process or design changes which may affect this parameter.  
For all other conditions,  $f_{MAX}$  shall be guaranteed, if not tested, to the limits specified in table III, herein.

TABLE III. Group A inspection for device type 06.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X	1	2	3	4	5	6	7	8	9	10		
			Test no.	$\overline{OE}$	$\overline{Q}_0$	$D_0$	$D_1$	$\overline{Q}_1$	$\overline{Q}_2$	$D_2$	$D_3$	$\overline{Q}_3$	GND		
1 Tc = +25°C	V <sub>OH</sub>	3006	1	.8 V	-1 mA	.8 V							"		
			2				.8 V	-1 mA					"		
			3							-1 mA	.8 V			"	
			4									.8 V	-1 mA	"	
			5											"	
			6											"	
			7											"	
			8												"
	V <sub>OL</sub>	3007	9	.8 V	20 mA	2.0 V								"	
			10				2.0 V	20 mA						"	
			11						20 mA	2.0 V				"	
			12								2.0 V	20 mA		"	
			13											"	
			14											"	
			15											"	
			16												"
	V <sub>IC</sub>		17	-18 mA										"	
			18			-18 mA								"	
			19				-18 mA							"	
			20							-18 mA				"	
			21								-18 mA			"	
			22									-18 mA		"	
			23											"	
			24											"	
			25											"	
			26											"	
	I <sub>IH1</sub>	3010	27	2.7 V										"	
			28			2.7 V								"	
			29				2.7 V							"	
			30					2.7 V						"	
			31							2.7 V				"	
			32								2.7 V			"	
			33									2.7 V		"	
			34										2.7 V	"	
			35											2.7 V	"
			36												"
	I <sub>IH2</sub>	3010	37	7.0 V										"	
			38			7.0 V								"	
			39				7.0 V							"	
			40					7.0 V						"	
			41							7.0 V				"	
			42								7.0 V			"	
			43									7.0 V		"	
			44										7.0 V	"	
			45											7.0 V	"
			46												"
	I <sub>IL1</sub>	3009	47	.5 V										"	
			48			.5 V								"	
			49				.5 V							"	
			50					.5 V						"	
			51						.5 V					"	
			52							.5 V				"	
			53								.5 V			"	
			54									.5 V		"	
			55										.5 V	"	
			56											.5 V	"

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits				
				CP	$\bar{Q}_4$	D <sub>4</sub>	D <sub>5</sub>	$\bar{Q}_5$	$\bar{Q}_6$	D <sub>6</sub>	D <sub>7</sub>	$\bar{Q}_7$	V <sub>CC</sub>		Min	Max			
1 T <sub>c</sub> = +25°C	V <sub>OH</sub>	3006	1	1/									4.5 V	$\bar{Q}_0$	2.5		V		
			2	"										"	$\bar{Q}_1$	"		"	
			3	"											"	$\bar{Q}_2$	"		"
			4	"											"	$\bar{Q}_3$	"		"
			5	"	-1 mA	.8 V									"	$\bar{Q}_4$	"		"
			6	"				.8 V	-1 mA						"	$\bar{Q}_5$	"		"
			7	"						-1mA	.8 V				"	$\bar{Q}_6$	"		"
			8	"								.8 V	-1 mA		"	$\bar{Q}_7$	"		"
	V <sub>OL</sub>	3007	9	"										"	$\bar{Q}_0$		-5	"	
			10	"										"	$\bar{Q}_1$		"	"	
			11	"										"	$\bar{Q}_2$		"	"	
			12	"										"	$\bar{Q}_3$		"	"	
			13	"	20 mA	2.0 V								"	$\bar{Q}_4$		"	"	
			14	"				2.0 V	20 mA					"	$\bar{Q}_5$		"	"	
			15	"						20 mA	2.0 V			"	$\bar{Q}_6$		"	"	
			16	"								2.0 V	20 mA	"	$\bar{Q}_7$		"	"	
	V <sub>IC</sub>			17										"	OE		-1.2	"	
				18										"	D <sub>0</sub>		"	"	
				19										"	D <sub>1</sub>		"	"	
				20										"	D <sub>2</sub>		"	"	
				21										"	D <sub>3</sub>		"	"	
				22			-18 mA							"	D <sub>4</sub>		"	"	
				23				-18 mA						"	D <sub>5</sub>		"	"	
				24							-18 mA			"	D <sub>6</sub>		"	"	
				25								-18 mA		"	D <sub>7</sub>		"	"	
				26	-18 mA									"	CP		"	"	
	I <sub>IH1</sub>	3010	27											5.5 V	OE		20	μA	
			28											"	D <sub>0</sub>		"	"	
			29											"	D <sub>1</sub>		"	"	
			30											"	D <sub>2</sub>		"	"	
			31											"	D <sub>3</sub>		"	"	
			32				2.7 V							"	D <sub>4</sub>		"	"	
			33					2.7 V						"	D <sub>5</sub>		"	"	
			34								2.7 V			"	D <sub>6</sub>		"	"	
			35									2.7 V		"	D <sub>7</sub>		"	"	
			36	2.7 V										"	CP		"	"	
	I <sub>IH2</sub>	3010	37												OE		100	"	
			38											"	D <sub>0</sub>		"	"	
			39											"	D <sub>1</sub>		"	"	
			40											"	D <sub>2</sub>		"	"	
			41											"	D <sub>3</sub>		"	"	
			42				7.0 V							"	D <sub>4</sub>		"	"	
			43					7.0 V						"	D <sub>5</sub>		"	"	
			44								7.0 V			"	D <sub>6</sub>		"	"	
			45									7.0 V		"	D <sub>7</sub>		"	"	
			46	7.0 V										"	CP		"	"	

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
 Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits				
			Test no.	CP	$\bar{Q}_4$	D <sub>4</sub>	D <sub>5</sub>	$\bar{Q}_5$	$\bar{Q}_6$	D <sub>6</sub>	D <sub>7</sub>	$\bar{Q}_7$	V <sub>CC</sub>		Min	Max			
1 T <sub>c</sub> = +25°C	I <sub>IL1</sub>	3009	47										5.5 V	$\bar{OE}$	$\bar{2/}$	$\bar{2/}$	mA		
			48											"	D <sub>0</sub>	"	"	"	
			49												"	D <sub>1</sub>	"	"	"
			50												"	D <sub>2</sub>	"	"	"
			51												"	D <sub>3</sub>	"	"	"
			52				.5 V								"	D <sub>4</sub>	"	"	"
			53					.5 V							"	D <sub>5</sub>	"	"	"
			54								.5 V				"	D <sub>6</sub>	"	"	"
			55										.5 V		"	D <sub>7</sub>	"	"	"
			56			.5 V									"	CP	"	"	"

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X	1	2	3	4	5	6	7	8	9	10	
			Test no.	$\overline{OE}$	$\overline{Q}_0$	$D_0$	$D_1$	$\overline{Q}_1$	$\overline{Q}_2$	$D_2$	$D_3$	$\overline{Q}_3$	GND	
1 $T_C = +25^\circ\text{C}$	$I_{OS}$	3011	57	0 V	0 V	0 V								
			58	"			0 V	0 V						
			59	"						0 V	0 V			
			60	"								0 V	0 V	
			61	"										
			62	"										
			63	"										
			64	"										
	$I_{OD}$	3011	65	0 V	2.5 V	5.5 V								
			66	"			5.5 V	2.5 V						
			67	"					2.5 V	5.5 V				
			68	"							5.5 V	2.5 V		
			69	"										
			70	"										
			71	"										
			72	"										
	$I_{OZH}$	3011	73	2.0 V	2.7 V	4.5 V								
			74	"			4.5 V	2.7 V						
			75	"					2.7 V	4.5 V				
			76	"							4.5 V	2.7 V		
			77	"										
			78	"										
			79	"										
			80	"										
	$I_{OZL}$	3011	81	"	.5 V	0 V								
			82	"			0 V	.5 V						
			83	"					.5 V	0 V				
			84	"							0 V	.5 V		
85			"											
86			"											
87			"											
88			"											
$I_{CCZ}$	3011	89	4.5 V		4.5 V	4.5 V			4.5 V	4.5 V				
2	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = +125^\circ\text{C}$ and $V_{IC}$ tests are omitted.													
3	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.													

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits					
				CP	$\bar{Q}_4$	$D_4$	$D_5$	$\bar{Q}_5$	$\bar{Q}_6$	$D_6$	$D_7$	$\bar{Q}_7$	$V_{CC}$		Min	Max				
1 $T_C = +25^\circ\text{C}$	$I_{OS}$	3011	57	1/									5.5 V	$\bar{Q}_0$	-60	-150	mA			
			58	"										"	$\bar{Q}_1$	"	"	"		
			59	"											"	$\bar{Q}_2$	"	"	"	
			60	"											"	$\bar{Q}_3$	"	"	"	
			61	"	0 V	0 V									"	$\bar{Q}_4$	"	"	"	
			62	"			0 V	0 V							"	$\bar{Q}_5$	"	"	"	
			63	"					0 V	0 V					"	$\bar{Q}_6$	"	"	"	
			64	"							0 V	0 V			"	$\bar{Q}_7$	"	"	"	
	$I_{OD}$		3011	65	"									4.5 V	$\bar{Q}_0$	35		"		
				66	"										"	$\bar{Q}_1$	"	"	"	
				67	"											"	$\bar{Q}_2$	"	"	"
				68	"											"	$\bar{Q}_3$	"	"	"
				69	"	2.5 V	5.5 V									"	$\bar{Q}_4$	"	"	"
				70	"			5.5 V	2.5 V							"	$\bar{Q}_5$	"	"	"
				71	"					2.5 V	5.5 V					"	$\bar{Q}_6$	"	"	"
				72	"							5.5 V	2.5 V			"	$\bar{Q}_7$	"	"	"
	$I_{OZH}$		3011	73	"									5.5 V	$\bar{Q}_0$		+50	$\mu\text{A}$		
				74	"										"	$\bar{Q}_1$	"	"	"	
				75	"											"	$\bar{Q}_2$	"	"	"
				76	"											"	$\bar{Q}_3$	"	"	"
				77	"	2.7 V	4.5 V									"	$\bar{Q}_4$	"	"	"
				78	"			4.5 V	2.7 V							"	$\bar{Q}_5$	"	"	"
				79	"					2.7 V	4.5 V					"	$\bar{Q}_6$	"	"	"
				80	"							4.5 V	2.7 V			"	$\bar{Q}_7$	"	"	"
	$I_{OZL}$		3011	81	"										$\bar{Q}_0$		-50	"		
				82	"										"	$\bar{Q}_1$	"	"	"	
				83	"											"	$\bar{Q}_2$	"	"	"
				84	"											"	$\bar{Q}_3$	"	"	"
85				"	.5 V	0 V									"	$\bar{Q}_4$	"	"	"	
86				"			0 V	2.5 V							"	$\bar{Q}_5$	"	"	"	
87				"					.5 V	0 V					"	$\bar{Q}_6$	"	"	"	
88				"							0 V	.5 V			"	$\bar{Q}_7$	"	"	"	
2	$I_{CCZ}$	3011	89	4.5 V		4.5 V	4.5 V			4.5 V	4.5 V		"	$V_{CC}$		86	mA			
			90																	
3	Same tests, terminal conditions, and limits as subgroup 1, except $T_C = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.																			

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10
				$\overline{OE}$	$\overline{Q}_0$	$D_0$	$D_1$	$\overline{Q}_1$	$\overline{Q}_2$	$D_2$	$D_3$	$\overline{Q}_3$	GND
7 $T_C = +25^\circ\text{C}$	Functional 3/	3014	90.1	B	X	A	A	X	X	B	A	X	GND
			90.2	"	L	A	A	L	H	B	A	L	"
			90.3	"	L	A	B	L	H	B	A	L	"
			90.4	"	L	A	B	H	H	B	A	L	"
			90.5	"	L	A	B	H	H	A	A	L	"
			90.6	"	L	A	B	H	L	A	A	L	"
			90.7	"	L	A	B	H	L	A	B	L	"
			90.8	"	L	A	B	H	L	A	B	H	"
			90.9	"	L	A	B	H	L	A	B	H	"
			90.10	"	L	A	B	H	L	A	B	H	"
			90.11	"	L	A	B	H	L	A	B	H	"
			90.12	"	L	A	B	H	L	A	B	H	"
			90.13	"	L	A	B	H	L	A	B	H	"
			90.14	"	L	A	B	H	L	A	B	H	"
			90.15	"	L	A	B	H	L	A	B	H	"
			90.16	"	L	A	B	H	L	A	B	H	"
			90.17	"	L	B	A	H	L	A	B	H	"
			90.18	"	H	B	A	L	L	A	B	H	"
			90.19	"	H	B	A	L	L	A	B	H	"
			90.20	"	H	B	A	L	L	A	B	H	"
			90.21	"	H	B	A	L	L	B	B	H	"
			90.22	"	H	B	A	L	H	B	B	H	"
			90.23	"	H	B	A	L	H	B	A	H	"
			90.24	"	H	B	A	L	H	B	A	L	"
			90.25	"	H	B	A	L	H	B	A	L	"
			90.26	"	H	B	A	L	H	B	A	L	"
			90.27	"	H	B	A	L	H	B	A	L	"
			90.28	"	H	B	A	L	H	B	A	L	"
			90.29	"	H	B	A	L	H	B	A	L	"
			90.30	"	H	B	A	L	H	B	A	L	"
			90.31	"	H	B	A	L	H	B	A	L	"
			90.32	"	H	B	A	L	H	B	A	L	"
8	Same tests, terminal conditions, and limits as for subgroup 7, except $T_C = +125^\circ\text{C}$ and $-55^\circ\text{C}$ .												

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X	11	12	13	14	15	16	17	18	19	20	Measured terminal
			Test no.	CP	$\overline{Q}_4$	D <sub>4</sub>	D <sub>5</sub>	$\overline{Q}_5$	$\overline{Q}_6$	D <sub>6</sub>	D <sub>7</sub>	$\overline{Q}_7$	V <sub>CC</sub>	
7 T <sub>c</sub> = +25°C	Functional 3/	3014	90.1	B	X	B	A	X	X	B	A	X	4/	All outputs
			90.2	A	H	B	A	L	H	B	A	L	"	"
			90.3	B	H	B	A	L	H	B	A	L	"	"
			90.4	A	H	B	A	L	H	B	A	L	"	"
			90.5	B	H	B	A	L	H	B	A	L	"	"
			90.6	A	H	B	A	L	H	B	A	L	"	"
			90.7	B	H	B	A	L	H	B	A	L	"	"
			90.8	A	H	B	A	L	H	B	A	L	"	"
			90.9	B	H	A	A	L	H	B	A	L	"	"
			90.10	A	L	A	A	L	H	B	A	L	"	"
			90.11	B	L	A	B	L	H	B	A	L	"	"
			90.12	A	L	A	B	H	H	B	A	L	"	"
			90.13	B	L	A	B	H	H	A	A	L	"	"
			90.14	A	L	A	B	H	L	A	A	L	"	"
			90.15	B	L	A	B	H	L	A	B	L	"	"
			90.16	A	L	A	B	H	L	A	B	H	"	"
			90.17	B	L	A	B	H	L	A	B	H	"	"
			90.18	A	L	A	B	H	L	A	B	H	"	"
			90.19	B	L	A	B	H	L	A	B	H	"	"
			90.20	A	L	A	B	H	L	A	B	H	"	"
			90.21	B	L	A	B	H	L	A	B	H	"	"
			90.22	A	L	A	B	H	L	A	B	H	"	"
			90.23	B	L	A	B	H	L	A	B	H	"	"
			90.24	A	L	A	B	H	L	A	B	H	"	"
			90.25	B	L	B	B	H	L	A	B	H	"	"
			90.26	A	H	B	B	H	L	A	B	H	"	"
			90.27	B	H	B	A	H	L	A	B	H	"	"
			90.28	A	H	B	A	L	L	A	B	H	"	"
			90.29	B	H	B	A	L	L	B	B	H	"	"
			90.30	A	H	B	A	L	H	B	B	H	"	"
			90.31	B	H	B	A	L	H	B	A	H	"	"
			90.32	A	H	B	A	L	H	B	A	L	"	"
8	Same tests, terminal conditions, and limits as subgroup 7, except T <sub>c</sub> = +125°C and -55°C.													

See footnotes at end of device type 06.



TABLE III. Group A inspection for device type 06 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X	1	2	3	4	5	6	7	8	9	10			
			Test no.	OE	$\bar{Q}_0$	$D_0$	$D_1$	$\bar{Q}_1$	$\bar{Q}_2$	$D_2$	$D_3$	$\bar{Q}_3$	GND			
9 Tc = +25°C	f <sub>MAX</sub> 5/	3003 Fig. 4	103	0 V	OUT	IN							GND			
			104	"			IN	OUT					"			
			105	"						OUT	IN			"		
			106	"								IN	OUT	"		
			107	"										"		
			108	"										"		
			109	"										"		
			110	"										"		
			111	"		OUT	IN								"	
			112	"					IN	OUT					"	
	113	"							OUT	IN			"			
	114	"									IN	OUT	"			
	115	"											"			
	116	"											"			
	117	"											"			
	118	"											"			
	119	"		OUT	IN								"			
	t <sub>PLH2</sub>	t <sub>PHL2</sub>	3003 Fig. 4	120	"			IN	OUT					"		
				121	"						OUT	IN		"		
				122	"								IN	OUT	"	
				123	"										"	
				124	"										"	
				125	"										"	
				126	"										"	
				127	"	IN	OUT	2.7 V								"
				128	"				2.7 V	OUT						"
				129	"						OUT	2.7 V				"
	t <sub>PLZ2</sub>	t <sub>PHZ2</sub>	3003 Fig. 4	130	"							2.7 V	OUT	"		
				131	"									"		
				132	"									"		
				133	"									"		
				134	"									"		
				135	"	OUT	0 V								"	
				136	"				0 V	OUT					"	
137				"						OUT	0 V			"		
138				"								0 V	OUT	"		
139				"										"		
t <sub>PZL2</sub>	t <sub>PZH2</sub>	3003 Fig. 4	140	"									"			
			141	"									"			
			142	"									"			
			143	"	OUT	2.7 V								"		
			144	"				2.7 V	OUT					"		
			145	"						OUT	2.7 V			"		
			146	"								2.7 V	OUT	"		
			147	"										"		
			148	"										"		
			149	"										"		
t <sub>PZH2</sub>	t <sub>PZH2</sub>	3003 Fig. 4	150	"									"			
			151	"	OUT	0 V							"			
			152	"				0 V	OUT				"			
			153	"						OUT	0 V		"			
			154	"								0 V	OUT	"		
			155	"									"			
			156	"									"			
			157	"									"			
			158	"									"			

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit			
				CP	$\overline{Q}_4$	$D_4$	$D_5$	$\overline{Q}_5$	$\overline{Q}_6$	$D_6$	$D_7$	$\overline{Q}_7$	$V_{CC}$		Min	Max				
9 $T_c = +25^\circ\text{C}$	$f_{MAX}$ $\underline{5/}$	3005 Fig. 4	103	IN									5.0 V	$\overline{Q}_0$	80		MHz			
			104	"										"	$\overline{Q}_1$	"	"	"		
			105	"											"	$\overline{Q}_2$	"	"	"	
			106	"											"	$\overline{Q}_3$	"	"	"	
			107	"	OUT	IN									"	$\overline{Q}_4$	"	"	"	
			108	"				IN	OUT						"	$\overline{Q}_5$	"	"	"	
			109	"						OUT	IN				"	$\overline{Q}_6$	"	"	"	
			110	"									IN	OUT	"	$\overline{Q}_7$	"	"	"	
			$t_{PLH2}$			111	"									"	CP to $\overline{Q}_0$	4.0	8.5	ns
						112	"										"	CP to $\overline{Q}_1$	"	"
	113	"														"	CP to $\overline{Q}_2$	"	"	"
	114	"														"	CP to $\overline{Q}_3$	"	"	"
	115	"				OUT	IN									"	CP to $\overline{Q}_4$	"	"	"
	116	"							IN	OUT						"	CP to $\overline{Q}_5$	"	"	"
	117	"									OUT	IN				"	CP to $\overline{Q}_6$	"	"	"
	118	"												IN	OUT	"	CP to $\overline{Q}_7$	"	"	"
	$t_{PHL2}$		3011	119	"									"	CP to $\overline{Q}_0$	"	"	"		
				120	"										"	CP to $\overline{Q}_1$	"	"	"	
				121	"											"	CP to $\overline{Q}_2$	"	"	"
				122	"											"	CP to $\overline{Q}_3$	"	"	"
				123	"	OUT	IN									"	CP to $\overline{Q}_4$	"	"	"
				124	"				IN	OUT						"	CP to $\overline{Q}_5$	"	"	"
				125	"						OUT	IN				"	CP to $\overline{Q}_6$	"	"	"
				126	"									IN	OUT	"	CP to $\overline{Q}_7$	"	"	"
	$t_{PLZ2}$		3011	127	$\underline{1/}$									"	$\overline{OE}$ to $\overline{Q}_0$	1.5	5.5	"		
				128	"										"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"	
				129	"											"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"
				130	"											"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"
				131	"	OUT	2.7 V									"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"
				132	"				2.7 V	OUT						"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"
				133	"						OUT	2.7 V				"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"
				134	"									2.7 V	OUT	"	$\overline{OE}$ to $\overline{Q}_7$	"	"	"

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit			
				CP	$\overline{Q}_4$	D <sub>4</sub>	D <sub>5</sub>	$\overline{Q}_5$	$\overline{Q}_6$	D <sub>6</sub>	D <sub>7</sub>	$\overline{Q}_7$	V <sub>CC</sub>		Min	Max				
9 Tc = +25°C	t <sub>PHZ2</sub>	3005 Fig. 4	135	1/									5.0 V	$\overline{OE}$ to $\overline{Q}_0$	1.5	7.0	ns			
			136	"										"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"		
			137	"											"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"	
			138	"											"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"	
			139	"	OUT	0 V									"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"	
			140	"			0 V	OUT							"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"	
			141	"						OUT	0 V				"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"	
			142	"								0 V	OUT		"	$\overline{OE}$ to $\overline{Q}_7$	"	"	"	
	t <sub>PZL2</sub>		143	"											"	$\overline{OE}$ to $\overline{Q}_0$	2.0	7.5	"	
			144	"											"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"	
			145	"											"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"	
			146	"											"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"	
			147	"	OUT	2.7 V									"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"	
			148	"			2.7 V	OUT							"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"	
			149	"						OUT	2.7 V				"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"	
			150	"								2.7 V	OUT		"	$\overline{OE}$ to $\overline{Q}_7$	"	"	"	
			t <sub>PZH2</sub>	151	"											"	$\overline{OE}$ to $\overline{Q}_0$	"	11.5	"
				152	"											"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"
153	"												"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"			
154	"												"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"			
155	"	OUT		0 V									"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"			
156	"				0 V	OUT							"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"			
157	"								OUT	0 V			"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"			
158	"										0 V	OUT	"	$\overline{OE}$ to $\overline{Q}_7$	"	"	"			

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
 Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X	1	2	3	4	5	6	7	8	9	10
			Test no.	$\overline{OE}$	$\overline{Q}_0$	D <sub>0</sub>	D <sub>1</sub>	$\overline{Q}_1$	$\overline{Q}_2$	D <sub>2</sub>	D <sub>3</sub>	$\overline{Q}_3$	GND
10	Same tests, and terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = +125°C and use limits from table I.												
11	Same tests, and terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = -55°C and use limits from table I.												

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11	12	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit
				CP	$\bar{Q}_4$	D <sub>4</sub>	D <sub>5</sub>	$\bar{Q}_5$	$\bar{Q}_6$	D <sub>6</sub>	D <sub>7</sub>	$\bar{Q}_7$	V <sub>CC</sub>		Min	Max	
10	Same tests, and terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = +125°C and use limits from table I.																
11	Same tests, and terminal conditions, and limits as subgroup 9, except T <sub>C</sub> = -55°C and use limits from table I.																

1/ Apply all voltages, then apply 3 V, 0 V, 3 V to CP, then make measurement.

2/ I<sub>IL</sub> limits (mA) min/max values for circuits shown:

Parameter	Circuits		
	A	B	C
I <sub>IL1</sub>	- .25/- .60	- .03/- .60	- .03/- .60

3/ Output voltage shall be either:

- A = 2.5 V
- B = 0.5 V
- H  $\geq$  1.5 V
- L  $\leq$  1.5 V
- X = Don't care

4/ Perform function sequence at V<sub>CC</sub> = 4.5 V and repeat at V<sub>CC</sub> = 5.5 V.

5/ f<sub>MAX</sub> minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency. f<sub>MAX</sub> shall be measured only under the conditions of initial qualification and after process or design changes which may affect this parameter. For all other conditions, f<sub>MAX</sub> shall be guaranteed, if not tested, to the limits specified in table III, herein.

TABLE III. Group A inspection for device type 07 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit			
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max				
				Test no.	MR	Q <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	Q <sub>1</sub>	D <sub>2</sub>	Q <sub>2</sub>	GND	CP	Q <sub>3</sub>	D <sub>3</sub>	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>					V <sub>CC</sub>		
1 T <sub>c</sub> = 25°C	V <sub>OH</sub>	3006	1	0.0 V																4.5 V	Setup		V			
			2	5.5 V	-1 mA	2.0 V	2.0 V		2.0 V						2.0 V		2.0 V	2.0 V				Q <sub>0</sub>	2.5			
			3	"		"	"		-1 mA	"					0.0 V	"	"	"	"	"	"		Q <sub>1</sub>	"	"	"
			4	"		"	"		"						-1 mA	"	"	"	"	"	"		Q <sub>2</sub>	"	"	"
			5	"		"	"		"						"								Q <sub>3</sub>	"	"	"
			6	"		"	"		"						"								Q <sub>4</sub>	"	"	"
			7	"		"	"		"						"								Q <sub>5</sub>	"	"	"
			8	"		"	5.5 V	5.5 V		5.5 V					2/	5.5 V		5.5 V	5.5 V				Setup			
			9	2.0 V	-1 mA											"							Q <sub>0</sub>	2.5		V
			10	"		"	"			-1 mA	"					"							Q <sub>1</sub>	"	"	"
			11	"		"	"			"						"							Q <sub>2</sub>	"	"	"
			12	"		"	"			"						-1 mA	"						Q <sub>3</sub>	"	"	"
			13	"		"	"			"						"							Q <sub>4</sub>	"	"	"
			14	"		"	"			"						"							Q <sub>5</sub>	"	"	"
	V <sub>OL</sub>	3007	15	5.5 V																		Setup				
			16	"	20 mA	0.8 V	0.8 V		0.8 V							0.8 V		0.8 V	0.8 V				Q <sub>0</sub>	0.5	V	
			17	"		"	"		20 mA						0.0 V								Q <sub>1</sub>	"	"	"
			18	"		"	"		"						20 mA								Q <sub>2</sub>	"	"	"
			19	"		"	"		"						20 mA								Q <sub>3</sub>	"	"	"
			20	"		"	"		"						"		20 mA						Q <sub>4</sub>	"	"	"
			21	"		"	"		"						"		"						Q <sub>5</sub>	"	"	"
			22	"		"	5.5 V	5.5 V		5.5 V					2/	5.5 V		5.5 V	5.5 V				Setup			
			23	0.8 V	20 mA											"							Q <sub>0</sub>	0.5	V	
			24	"		"	"			20 mA						"							Q <sub>1</sub>	"	"	"
			25	"		"	"			"						"							Q <sub>2</sub>	"	"	"
			26	"		"	"			"						20 mA							Q <sub>3</sub>	"	"	"
			27	"		"	"			"						"							Q <sub>4</sub>	"	"	"
			28	"		"	"			"						"		20 mA					Q <sub>5</sub>	"	"	"
	V <sub>IC</sub>		29	-18 mA																		MR	-1.2	"		
			30			-18 mA																	D <sub>0</sub>	"	"	"
			31				-18 mA																D <sub>1</sub>	"	"	"
			32					-18 mA															D <sub>2</sub>	"	"	"
33								-18 mA														CP	"	"	"	
34																						D <sub>3</sub>	"	"	"	
35																						D <sub>4</sub>	"	"	"	
36																						D <sub>5</sub>	"	"	"	
I <sub>IL1</sub>	3009	37																			D <sub>5</sub>	3/	3/	mA		
		38																				D <sub>4</sub>	"	"	"	
		39																				D <sub>3</sub>	"	"	"	
		40																				D <sub>2</sub>	"	"	"	
		41																				D <sub>1</sub>	"	"	"	
		42																				D <sub>0</sub>	"	"	"	
I <sub>IL4</sub>	3009	43	0.5 V																		MR	"	"	"		
		44																				CP	"	"	"	
I <sub>IH1</sub>	3010	45	2.7 V																		MR	20	μA			
		46																				D <sub>0</sub>	"	"	"	
		47																				D <sub>1</sub>	"	"	"	
		48																				D <sub>2</sub>	"	"	"	
		49																				CP	"	"	"	
		50																				D <sub>3</sub>	"	"	"	
		51																				D <sub>4</sub>	"	"	"	
		52																				D <sub>5</sub>	"	"	"	

See footnotes at end of device type 07.

TABLE III. Group A inspection for device type 07 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F																	Measured terminal	Limits		Unit				
			Cases 2 and X 1/																		Min	Max					
			Test no.	MR	Q <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	Q <sub>1</sub>	D <sub>2</sub>	Q <sub>2</sub>	GND	CP	Q <sub>3</sub>	D <sub>3</sub>	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	V <sub>CC</sub>								
1 T <sub>C</sub> = +25°C	I <sub>IH2</sub>	3010	53																7.0 V		5.5 V	D <sub>5</sub>		100	μA		
			54																	7.0 V			D <sub>4</sub>				
			55																	7.0 V			D <sub>3</sub>				
			56																				CP				
			57																					D <sub>2</sub>			
			58																					D <sub>1</sub>			
			59																					D <sub>0</sub>			
	60	7.0 V																					MR				
	I <sub>OS</sub>	3011	61	4.5 V	GND	4.5 V																		Q <sub>0</sub>	-60	-150	mA
			62																					Q <sub>1</sub>			
			63																					Q <sub>2</sub>			
			64																					Q <sub>3</sub>			
			65																					Q <sub>4</sub>			
			66																					Q <sub>5</sub>			
	I <sub>OD</sub>		67	0.0 V	2.5 V																			Q <sub>0</sub>	60		
			68																					Q <sub>1</sub>			
			69																					Q <sub>2</sub>			
			70																					Q <sub>3</sub>			
			71																					Q <sub>4</sub>			
			72																					Q <sub>5</sub>			
	I <sub>CC</sub>	3005	73	5.5 V		5.5 V	5.5 V		5.5 V						5.5 V		5.5 V	5.5 V			5.5 V	V <sub>CC</sub>		45			
2	Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																										
3	Same tests, terminal conditions, and limits as subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																										
7 5/ T <sub>C</sub> = +25°C	Truth Table tests	3014	74	B	L	A	A	L	A	L	GND	A	L	A	L	A	A	L	6/	All outputs							
			75																								
			76																								
			77	A																							
			78																								
			79		H				H		H			A	H		H			H							
			80			B	B		B					A		B		B	B								
			81											B													
			82		L				L		L			A	L		L			L							
			83		L	A	A	L	A	L	A	L		B	L	A		A	A	L							
84		H				H		H			A	H		H			H										
85		H				H		H			B	H		H			H										
86	B	L				L		L			B	L		L			L										
8	Repeat subgroup 7 at T <sub>C</sub> = +125°C and T <sub>C</sub> = -55°C.																										
9 T <sub>C</sub> = +25°C	f <sub>MAX</sub> Z/		87	2.7 V	OUT	IN					GND	IN									5.0 V	Q <sub>1</sub>	90		MHz		
			88																				Q <sub>2</sub>				
			89																					Q <sub>3</sub>			
			90																					Q <sub>4</sub>			
			91																					Q <sub>5</sub>			
	92																					Q <sub>6</sub>					
	t <sub>PLH1</sub>	3003	93		OUT	IN							IN										CP to Q <sub>0</sub>	1.5	9.0	ns	
			94																				CP to Q <sub>1</sub>				
			95																				CP to Q <sub>2</sub>				
			96																				CP to Q <sub>3</sub>				
97																						CP to Q <sub>4</sub>					
98																					CP to Q <sub>5</sub>						

See footnotes at end of device type 07.

TABLE III. Group A inspection for device type 07.- Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit			
			Cases 2 and X 1/	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max				
			Test no.	MR	Q <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	Q <sub>1</sub>	D <sub>2</sub>	Q <sub>2</sub>	GND	CP	Q <sub>3</sub>	D <sub>3</sub>	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	V <sub>CC</sub>							
9 T <sub>C</sub> = +25°C	t <sub>PHL1</sub>	3003	99	2.7 V									GND	IN				IN	OUT	5.0 V	CP to Q <sub>5</sub>	1.5 V	11.0	ns		
			100	"												OUT	IN					CP to Q <sub>4</sub>	"	"	"	
			101	"																			CP to Q <sub>3</sub>	"	"	"
			102	"							IN	OUT	"	"	OUT	IN							CP to Q <sub>2</sub>	"	"	"
			103	"					IN	OUT			"	"									CP to Q <sub>1</sub>	"	"	"
			104	"	OUT	IN							"	"									CP to Q <sub>0</sub>	"	"	"
	t <sub>PHL5</sub>		105	IN										2.7 V					2.7 V	OUT		MR to Q <sub>5</sub>	"	15.0	"	
			106	"													OUT	2.7 V				MR to Q <sub>4</sub>	"	"	"	
			107	"											OUT	2.7 V						MR to Q <sub>3</sub>	"	"	"	
			108	"							2.7 V	OUT	"	"								MR to Q <sub>2</sub>	"	"	"	
			109	"					2.7 V	OUT			"	"								MR to Q <sub>1</sub>	"	"	"	
			110	"	OUT	2.7 V							"	"								MR to Q <sub>0</sub>	"	"	"	
	t <sub>PHL6</sub>		111	IN										0.0 V					2.7 V	OUT	5.0 V	MR to Q <sub>5</sub>	1.0	15.0	ns	
			112	"														OUT	2.7 V			MR to Q <sub>4</sub>	"	"	"	
			113	"											OUT	2.7 V						MR to Q <sub>3</sub>	"	"	"	
			114	"							2.7 V	OUT	"	"								MR to Q <sub>2</sub>	"	"	"	
115		"					2.7 V	OUT			"	"								MR to Q <sub>1</sub>	"	"	"			
116		"	OUT	2.7 V							"	"								MR to Q <sub>0</sub>	"	"	"			
10	f <sub>MAX</sub> Z/		Same tests and terminal conditions as for subgroup 9, except T <sub>C</sub> = +125°C, and limits as shown.																		70		MHz			
	t <sub>PLH1</sub>		"	11.0	ns																					
	t <sub>PHL1</sub>		"	13.0	"																					
	t <sub>PHL5</sub>		"	17.0	"																					
t <sub>PHL6</sub>	"	17.0	"																							
11	Same tests, terminal conditions, and limits as for subgroup 10, except T <sub>C</sub> = -55°C.																									

See footnotes at end of device type 07.



1/ Cases 2 and X pins not referenced are N/C.

2/ Apply all voltages, then apply 0 V, 3 V, 0 V to CP, then make measurement.

3/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits		
	A	B	C
$I_{IL1}$	-.25/-.60	-.03/-.60	-.03/-.60
$I_{IL4}$	-.25/-.60	-.06/-1.2	-.06/-1.2

4/ Apply all voltages, then apply 3 V, 0 V, 3 V to CP, then make measurement:

5/ A = 2.5 V  
B = 0.5 V  
H  $\geq$  1.5 V  
L  $\leq$  1.5 V

6/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V

7/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.  
 $f_{MAX}$  shall be measured only under the conditions of initial qualification and after process or design changes which may affect this parameter.  
For all other conditions,  $f_{MAX}$  shall be guaranteed, if not tested, to the limits specified in table III, herein.

TABLE III. Group A inspection for device type 08.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit			
			Cases 2 and X 1/	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max				
			Test no.	E	Q <sub>0</sub>	D <sub>0</sub>	D <sub>1</sub>	Q <sub>1</sub>	D <sub>2</sub>	Q <sub>2</sub>	GND	CP	Q <sub>3</sub>	D <sub>3</sub>	Q <sub>4</sub>	D <sub>4</sub>	D <sub>5</sub>	Q <sub>5</sub>	V <sub>CC</sub>							
1 T <sub>c</sub> = +25°C	V <sub>OL</sub>	3007	1	.8 V	20 mA	.8 V	.8 V		.8 V		GND	2/		.8 V		.8 V	.8 V		4.5 V	Q <sub>0</sub>		.5	V			
			2	"	"	"	"	20 mA	"	"	"	"	"	"	"	"	"	"	"	"	Q <sub>1</sub>		"	"		
			3	"	"	"	"	"	"	20 mA	"	"	"	"	"	"	"	"	"	"	"	Q <sub>2</sub>		"	"	
			4	"	"	"	"	"	"	"	"	20 mA	"	"	"	"	"	"	"	"	"	Q <sub>3</sub>		"	"	
			5	"	"	"	"	"	"	"	"	"	"	20 mA	"	"	"	"	"	"	"	Q <sub>4</sub>		"	"	
			6	"	"	"	"	"	"	"	"	"	"	"	"	"	"	20 mA	"	"	"	Q <sub>5</sub>		"	"	
	V <sub>OH</sub>	3006	7	.8 V	-1 mA	2.0 V	2.0 V		2.0 V		"	"	"	2.0 V		2.0 V	2.0 V			"	Q <sub>0</sub>	2.5 V		"		
			8	"	"	"	"	-1 mA	"	"	"	"	"	"	"	"	"	"	"	"	Q <sub>1</sub>		"	"		
			9	"	"	"	"	"	"	-1 mA	"	"	"	"	"	"	"	"	"	"	"	Q <sub>2</sub>		"	"	
			10	"	"	"	"	"	"	"	"	"	"	-1 mA	"	"	"	"	"	"	"	Q <sub>3</sub>		"	"	
			11	"	"	"	"	"	"	"	"	"	"	"	"	-1 mA	"	"	"	"	"	Q <sub>4</sub>		"	"	
			12	"	"	"	"	"	"	"	"	"	"	"	"	"	-1 mA	"	"	-1 mA	"	Q <sub>5</sub>		"	"	
	V <sub>IC</sub>		13	-18 mA																	E		-1.2	"		
			14			-18 mA															"	D <sub>0</sub>		"	"	
			15				-18 mA														"	D <sub>1</sub>		"	"	
			16					-18 mA													"	D <sub>2</sub>		"	"	
			17						-18 mA												"	CP		"	"	
			18													-18 mA					"	D <sub>3</sub>		"	"	
	I <sub>IH1</sub>		19														-18 mA				"	D <sub>4</sub>		"	"	
			20															-18 mA			"	D <sub>5</sub>		"	"	
			21	2.7 V																5.5 V	E		20	μA		
			22			2.7 V															"	D <sub>0</sub>		"	"	
			23				2.7 V														"	D <sub>1</sub>		"	"	
			24					2.7 V													"	D <sub>2</sub>		"	"	
	I <sub>IH2</sub>	3010	25						2.7 V												"	CP		"	"	
			26													2.7 V					"	D <sub>3</sub>		"	"	
			27															2.7 V			"	D <sub>4</sub>		"	"	
			28																2.7 V		"	D <sub>5</sub>		"	"	
			29	7.0 V																	"	E		100	"	
			30			7.0 V															"	D <sub>0</sub>		"	"	
	I <sub>IL1</sub>	3009	31			7.0 V		7.0 V													"	D <sub>1</sub>		"	"	
			32							7.0 V											"	D <sub>2</sub>		"	"	
			33											7.0 V							"	CP		"	"	
			34																		"	D <sub>3</sub>		"	"	
			35																		"	D <sub>4</sub>		"	"	
			36																		"	D <sub>5</sub>		"	"	
	I <sub>IL2</sub>	3011	37	.5 V																	"	E	3/	3/	mA	
			38			.5 V															"	D <sub>0</sub>		"	"	
			39				.5 V														"	D <sub>1</sub>		"	"	
			40					.5 V													"	D <sub>2</sub>		"	"	
			41						.5 V												"	CP		"	"	
			42														.5 V				"	D <sub>3</sub>		"	"	
	I <sub>OS</sub>	3011	43														.5 V				"	D <sub>4</sub>		"	"	
			44															.5 V			"	D <sub>5</sub>		"	"	
			45	GND	GND	4.5 V	4.5 V		4.5 V			2/		4.5 V		4.5 V	4.5 V				"	Q <sub>0</sub>	-60	-150	"	
			46	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q <sub>1</sub>	"	"	"
			47	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	Q <sub>2</sub>	"	"	"
			48	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	Q <sub>3</sub>	"	"	"
			49	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	Q <sub>4</sub>	"	"	"
			50	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	Q <sub>5</sub>	"	"	"

See footnotes at end of device type 08.

TABLE III. Group A inspection for device type 08 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 and X 1/ Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit				
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max					
				$\bar{E}$	$Q_0$	$D_0$	$D_1$	$Q_1$	$D_2$	$Q_2$	GND	CP	$Q_3$	$D_3$	$Q_4$	$D_4$	$D_5$	$Q_5$	$V_{CC}$								
1 $T_C = +25^\circ\text{C}$	$I_{OD}$		51	GND	2.5 V	GND	GND		GND		GND	$\bar{2}$		GND		GND	GND		4.5 V	$Q_0$	60		mA				
			52	"		"	"		2.5 V	"		"		"		"	"		"	$Q_1$	"		"				
			53	"		"	"		"		2.5 V	"		"		"	"		"	$Q_2$	"		"				
			54	"		"	"		"		"		2.5 V	"		"	"		"	$Q_3$	"		"				
			55	"		"	"		"		"		"		2.5 V	"	"		"	$Q_4$	"		"				
	56	"		"	"		"		"		"		"		"		2.5 V	"	$Q_5$	"		"					
	$I_{CC}$	3005	57	"		"	"	"	"	"	"	"	"	"	"	"	"	5.5 V	$V_{CC}$		45	"					
2	Same tests, terminal conditions, and limits as subgroup 1, except $T_C = +125^\circ\text{C}$ and $V_{IC}$ tests are omitted.																										
3	Same tests, terminal conditions, and limits as subgroup 1, except $T_C = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.																										
7 $T_C = +25^\circ\text{C}$	Truth table tests 4/	3014	58	B	L	B	B	L	B	L	GND	A	L	B	L	B	B	L	5/	All outputs							
			59	"	"	"	B	"	"	B	"	"	B	"	"	"	B	"	"		"						
			60	"	"	"	A	"	"	"	"	"	A	"	"	"	"	"	"		"						
			61	"	"	H	"	"	"	"	"	"	"	"	"	"	H	"	"		"	"					
			62	"	"	"	"	"	A	"	"	"	"	A	"	"	A	"	"		"	"					
			63	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"		"	"					
			64	"	"	"	"	"	"	H	"	"	"	A	H	"	"	"	"		"	H					
			65	A	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"		"	"					
			66	A	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"		"	"					
			67	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"	"					
			68	"	"	"	B	"	"	"	"	"	"	"	"	"	"	"	B		"	"					
			69	"	"	L	"	"	"	"	"	"	"	A	"	"	"	L	"		"	"					
			70	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"		"	"					
			71	"	"	"	"	"	"	"	"	"	"	B	"	"	B	"	"		"	B					
			72	"	"	"	"	"	B	L	"	"	"	A	L	"	"	"	"		"	L					
			73	A	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		"	"					
			74	"	"	"	A	A	"	"	"	"	"	"	"	"	A	"	"		"	A	A				
			75	"	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"		"	"	"				
			76	"	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"		"	"	"				
			77	B	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"		"	"	"				
			78	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"		"	"	"				
79	"	"	H	"	"	"	H	"	"	"	A	H	"	"	H	"	"	"	H								
80	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"								
81	"	"	"	"	B	B	"	"	"	"	"	"	"	"	B	"	"	B	B								
82	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
83	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"								
84	"	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"								
85	B	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"								
86	"	"	L	"	"	"	"	L	"	"	"	"	"	A	L	"	"	L	"	"	"	"	"				
87	"	"	"	"	A	A	"	"	"	"	A	"	"	"	A	"	"	A	A	"							
88	"	"	"	"	A	A	"	"	"	"	A	"	"	"	A	"	"	A	A	"							
8	Same tests, terminal conditions, for as subgroup 7, except $T_C = +125^\circ\text{C}$ and $-55^\circ\text{C}$ .																										
9 $T_C = +25^\circ\text{C}$	$f_{MAX}$ 6/	3003	89	GND	OUT	IN					GND	IN							5.0 V	$Q_0$	80		MHz				
			90	"				IN	OUT			"	"						"	$Q_1$	"		"				
			91	"						IN	OUT		"	"						"	$Q_2$	"		"			
			92	"									"	"	OUT	IN				"	$Q_3$	"		"			
			93	"									"	"			OUT	IN		"	$Q_4$	"		"			
94	"									"	"				IN	OUT	"	$Q_5$	"		"	"					

See footnotes at end of device type 08.

TABLE III. Group A inspection for device type 08 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 and X 1/ Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit	
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max		
				$\bar{E}$	$Q_0$	$D_0$	$D_1$	$Q_1$	$D_2$	$Q_2$	GND	CP	$Q_3$	$D_3$	$Q_4$	$D_4$	$D_5$	$Q_5$	$V_{CC}$					
9 $T_C = +25^\circ\text{C}$	$t_{PHL1}$	3003	95	GND	OUT	IN						GND	IN						5.0 V	$Q_0$	3.0	8.5	ns	
			96	"			IN	OUT				"	"							"	$Q_1$	"	"	"
			97	"							IN	OUT	"	"						"	$Q_2$	"	"	"
			98	"											OUT	IN				"	$Q_3$	"	"	"
			99	"									"	"			OUT	IN		"	$Q_4$	"	"	"
	100	"									"	"				IN	OUT	"	$Q_5$	"	"	"		
	$t_{PLH1}$	3003	101	"	OUT	IN						"	"						5.0 V	$Q_0$	2.5	7.5	"	
			102	"			IN	OUT				"	"						"	$Q_1$	"	"	"	
			103	"						IN	OUT	"	"						"	$Q_2$	"	"	"	
			104	"									"	"	OUT	IN				"	$Q_3$	"	"	"
105			"									"	"			OUT	IN		"	$Q_4$	"	"	"	
106			"									"	"				IN	OUT	"	$Q_5$	"	"	"	
10	$f_{MAX} \text{ ⑤/}$	Same tests and terminal conditions as for subgroup 9, except $T_C = +125^\circ\text{C}$ .																			60		MHz	
	$t_{PHL1}$																				2.5	10.5	ns	
	$t_{PLH1}$																				2.0	9.5		
11	Same tests and terminal conditions as for subgroup 10, except $T_C = -55^\circ\text{C}$ .																							

- 1/ Cases 2 and X pins not referenced are N/C.  
 2/ Apply all voltages, then apply 0 V, 3 V, 0 V to clock pulse, then make measurement.  
 3/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits		
	A	B	C
$I_{IL1}$	-.25/- .60	-.03/- .60	

- 4/ Inputs A = 2.5 V  
 B = 0.5 V  
 Outputs H  $\geq 1.5$  V  
 L  $\leq 1.5$  V
- 5/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V
- 6/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.

TABLE III. Group A inspection for device type 09.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
			Cases 2 and X 1/	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
			Test no.	$\bar{E}$	$Q_0$	$\bar{Q}_0$	$D_0$	$D_1$	$\bar{Q}_1$	$Q_1$	GND	CP	$Q_2$	$\bar{Q}_2$	$D_2$	$D_3$	$\bar{Q}_3$	$Q_3$	$V_{CC}$						
1 $T_C = +25^\circ C$	$V_{OH}$	3007	1	.8 V	20 mA		.8 V	.8 V					GND	2/		.8 V	.8 V			4.5 V	$Q_0$	.5	V		
			2	"			"	"			20 mA	"	"		"	"	"	"			"	$Q_1$	"	"	
			3	"				"	"					20 mA	"	"	"	"			"	$Q_2$	"	"	
			4	"				"	"					"	"	"	"	"	20 mA	"	"	$Q_3$	"	"	
			5	"			20 mA	2.0 V	2.0 V					"	"	"	2.0 V	2.0 V			"	$\bar{Q}_0$	"	"	
			6	"				"	"		20 mA	"	"	"	"	"	"	"			"	$\bar{Q}_1$	"	"	
			7	"				"	"					"	"	20 mA	"	"			"	$\bar{Q}_2$	"	"	
			8	"				"	"					"	"	"	"	"	20 mA	"	"	$\bar{Q}_3$	"	"	
	$V_{OH}$	3006		9	.8 V	-1 mA		2.0 V	2.0 V								2.0 V	2.0 V			"	$Q_0$	2.5	"	
				10	"			"	"			-1 mA	"	"				"	"			"	$Q_1$	"	"
				11	"				"	"					-1 mA	"	"	"	"			"	$Q_2$	"	"
				12	"				"	"					"	"	"	"	"		-1 mA	"	$Q_3$	"	"
				13	"			-1 mA	.8 V	.8 V					"	"	"	.8 V	.8 V			"	$\bar{Q}_0$	"	"
				14	"				"	"		-1 mA	"	"	"	"	"	"	"			"	$\bar{Q}_1$	"	"
				15	"				"	"					"	"	-1 mA	"	"			"	$\bar{Q}_2$	"	"
				16	"				"	"					"	"	"	"	"	-1 mA	"	"	$\bar{Q}_3$	"	"
	$V_{IC}$			17	-18 mA																"	$\bar{E}$	-1.2	"	
				18				-18 mA														"	$D_0$	"	"
				19					-18 mA													"	$D_1$	"	"
				20											-18 mA							"	CP	"	"
				21														-18 mA				"	$D_2$	"	"
				22															-18 mA			"	$D_3$	"	"
	$I_{IH1}$	3010		23	2.7 V																5.5 V	$\bar{E}$	20	$\mu A$	
				24				2.7 V														"	$D_0$	"	"
				25					2.7 V													"	$D_1$	"	"
				26											2.7 V							"	CP	"	"
				27														2.7 V				"	$D_2$	"	"
				28															2.7 V			"	$D_3$	"	"
$I_{IH2}$	3010		29	7.0 V																"	$\bar{E}$	100	"		
			30				7.0 V														"	$D_0$	"	"	
			31					7.0 V													"	$D_1$	"	"	
			32											7.0 V							"	CP	"	"	
			33														7.0 V				"	$D_2$	"	"	
			34															7.0 V			"	$D_3$	"	"	
$I_{IL1}$	3009		35	.5 V																"	$\bar{E}$	4/	4/	mA	
			36				.5 V														"	$D_0$	"	"	
			37					.5 V													"	$D_1$	"	"	
			38											.5 V							"	CP	"	"	
			39														.5 V				"	$D_2$	"	"	
			40															.5 V			"	$D_3$	"	"	
$I_{OS}$	3011		41	GND	GND		4.5 V	4.5 V					5/			4.5 V	4.5 V			"	$Q_0$	-60	-150		
			42	"			"	"			GND	"	"			"	"	"			"	$Q_1$	"	"	
			43	"			"	"				"	"	GND		"	"	"			"	$Q_2$	"	"	
			44	"				"	"								"	"	GND		"	$Q_3$	"	"	
			45	"		GND	GND	GND									GND	GND			"	$\bar{Q}_0$	"	"	
			46	"			"	"		GND							"	"			"	$\bar{Q}_1$	"	"	
			47	"			"	"							GND		"	"			"	$\bar{Q}_2$	"	"	
			48	"			"	"									"	"	GND		"	$\bar{Q}_3$	"	"	

See footnotes at end of device type 09.

TABLE III. Group A inspection for device type 09 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 and X 1/ Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
				$\bar{E}$	$Q_0$	$\bar{Q}_0$	$D_0$	$D_1$	$\bar{Q}_1$	$Q_1$	GND	CP	$Q_2$	$\bar{Q}_2$	$D_2$	$D_3$	$\bar{Q}_3$	$Q_3$	$V_{CC}$						
1 $T_c = +25^\circ\text{C}$	$I_{OO}$		49	GND	2.5 V		GND	GND					GND	2/			GND	GND		4.5 V	$Q_0$	60	mA		
			50	"			"	"				2.5 V	"	"			"	"		"	"	$Q_1$	"	"	
			51	"			"	"					"	"	2.5 V		"	"		"	"	$Q_2$	"	"	
			52	"			"	"					"	"			"	"		2.5 V	"	$Q_3$	"	"	
			53	"		2.5 V	4.5 V	4.5 V					"	"			4.5 V	4.5 V		"	"	$\bar{Q}_0$	"	"	
			54	"			"	"	2.5 V				"	"			"	"		"	"	$\bar{Q}_1$	"	"	
			55	"			"	"					"	"		2.5 V	"	"		"	"	$\bar{Q}_2$	"	"	
			56	"			"	"					"	"			"	"		"	"	$\bar{Q}_3$	"	"	
	$I_{CC}$	3005	57	"			GND	GND			"	5/			GND	GND			5.5 V	$V_{CC}$	40	"			
2	Same tests, terminal conditions, and limits as for subgroup 1, except $T_c = +125^\circ\text{C}$ and $V_{IC}$ tests are omitted.																								
3	Same tests, terminal conditions, and limits as for subgroup 1, except $T_c = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.																								
7 $T_c = +25^\circ\text{C}$	Truth table tests 6/	3014	58	B	L	H	B	B	H	L	GND	A	L	H	B	B	H	L	7/	All outputs					
			59	"	"	"	B	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"			
			60	"	"	"	A	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			61	"	H	L	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"	"	"		
			62	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			63	"	"	"	B	A	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			64	"	L	H	"	A	L	H	"	"	A	"	"	"	"	"	"	"	"	"	"		
			65	"	"	"	"	B	L	H	"	"	B	"	"	"	"	A	"	"	"	"	"		
			66	"	"	"	"	"	H	L	"	"	A	H	L	"	"	"	"	"	"	"	"		
			67	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			68	"	"	"	"	"	"	"	"	"	B	"	"	"	"	B	A	"	"	"	"		
			69	"	"	"	"	"	"	"	"	"	A	L	H	"	"	"	"	L	H	"	"		
			70	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			71	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	B	"	"	"	"		
			72	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	B	H	L	"	"		
			73	"	"	"	A	A	"	"	"	"	A	"	"	"	"	A	A	"	"	"	"		
			74	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			75	"	H	L	"	"	L	H	"	"	A	H	L	"	"	"	"	L	H	"	"		
			76	"	"	"	B	B	"	"	"	"	A	"	"	"	"	B	B	"	"	"	"		
			77	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			78	"	L	H	"	"	H	L	"	"	A	L	H	"	"	"	"	H	L	"	"		
			79	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			80	A	"	"	A	A	"	"	"	"	B	"	"	"	"	A	A	"	"	"	"		
			81	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"	"	"		
			82	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"		
			83	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			84	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
85	"	H	L	"	"	L	H	"	"	A	H	L	"	"	"	"	L	H	"	"					
86	A	"	"	B	B	"	"	"	"	A	"	"	"	"	B	B	"	"	"	"					
87	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"					
88	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"	"	"					
89	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"					
90	B	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"					
91	B	L	H	"	"	H	L	"	"	A	L	H	"	"	"	"	H	L	"	"					
92	A	"	"	A	A	"	"	"	"	A	"	"	"	"	A	A	"	"	"	"					
93	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"					
94	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"	"	"					
95	B	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"	"					
96	B	H	L	"	"	L	H	"	"	A	H	L	"	"	"	"	L	H	"	"					
8	Same test and terminal conditions as for subgroup 7, except $T_c = +125^\circ\text{C} = -55^\circ\text{C}$ .																								

See footnotes at end of device type 09.

TABLE III. Group A inspection for device type 09 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E and F Cases 2 and X 1/ Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Limits		Unit		
				2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max			
				$\bar{E}$	$Q_0$	$\bar{Q}_0$	$D_0$	$D_1$	$\bar{Q}_1$	$Q_1$	GND	CP	$Q_2$	$\bar{Q}_2$	$D_2$	$D_3$	$\bar{Q}_3$	$Q_3$	$V_{CC}$		$Q_0$	$Q_1$		$Q_2$	$Q_3$
9 $T_c = +25^\circ\text{C}$	$f_{MAX}$ $\bar{g}/$	3003	97	GND	OUT		IN					GND	IN							5.0 V	$Q_0$	90		MHz	
			98	"				IN				OUT									"	$Q_1$	"		"
			99	"										"	"	OUT		IN			"	$Q_2$	"		"
			100	"										"	"			IN		OUT	"	$Q_3$	"		"
			101	"			OUT	IN					"	"							"	$\bar{Q}_0$	"		"
			102	"					IN	OUT			"	"							"	$\bar{Q}_1$	"		"
			103	"									"	"		OUT	IN				"	$\bar{Q}_2$	"		"
			104	"									"	"				IN	OUT		"	$\bar{Q}_3$	"		"
	$t_{PHL1}$	3003	105	"	OUT		IN					GND	IN							"	$Q_0$	3.0	9.0	ns	
			106	"					IN			OUT	"	"						"	$Q_1$	"	"	"	
			107	"									"	"	OUT		IN			"	$Q_2$	"	"	"	
			108	"									"	"				IN		OUT	"	$Q_3$	"	"	"
			109	"			OUT	IN					"	"							"	$\bar{Q}_0$	"	"	"
			110	"					IN	OUT			"	"							"	$\bar{Q}_1$	"	"	"
			111	"									"	"		OUT	IN				"	$\bar{Q}_2$	"	"	"
			112	"									"	"				IN	OUT		"	$\bar{Q}_3$	"	"	"
	$t_{PLH1}$	3003	113	"	OUT		IN					"	IN							"	$D_0$	2.5	6.5	"	
			114	"					IN			OUT	"	"						"	$Q_1$	"	"	"	
			115	"									"	"	OUT		IN			"	$Q_2$	"	"	"	
			116	"									"	"				IN		OUT	"	$Q_3$	"	"	"
117			"			OUT	IN					"	"							"	$\bar{Q}_0$	"	"	"	
118			"					IN	OUT			"	"							"	$\bar{Q}_1$	"	"	"	
119			"									"	"		OUT	IN				"	$\bar{Q}_2$	"	"	"	
120			"									"	"				IN	OUT		"	$\bar{Q}_3$	"	"	"	
10	$f_{MAX}$ $\bar{g}/$	Same tests and terminal conditions as subgroup 9, except $T_c = +125^\circ\text{C}$ .																			70		MHz		
	$t_{PHL1}$																				2.5	10.5	ns		
	$t_{PLH1}$																				2.0	8.5	ns		
11		Same tests, terminal conditions, and limits, as subgroup 10, except $T_c = -55^\circ\text{C}$ .																							

See footnotes at end of device type 09.

- 1/ Cases 2 and X pins not referenced are N/C.
- 2/ Apply all voltages, then apply 0 V, 3 V, 0 V to clock pulse, then make measurement.
- 3/ Apply all voltages, then apply 3 V, 0 V, 3 V to clock pulse, then make measurement.
- 4/  $I_{IL}$  limits (mA) min/max values for circuits shown:

Parameter	Circuits		
	A	B	C
$I_{IL1}$	-.25/-.60	-.03/-.60	

- 5/ Apply all voltages, then apply 0 V, 3 V to clock pulse, then make measurement.
- 6/ Inputs A = 2.5 V  
B = 0.5 V  
Outputs H  $\geq$  1.5 V  
L  $\leq$  1.5 V
- 5/ Perform function sequence at  $V_{CC} = 4.5$  V and repeat at  $V_{CC} = 5.5$  V
- 6/  $f_{MAX}$  minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.



TABLE III. Group A inspection for device type 10 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12		
				$\overline{OE}$	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	Q <sub>7</sub>		
1 T <sub>c</sub> = +25°C	V <sub>OH</sub>	3006	1	0.8 V	2.0 V									"	1/		
			2	"		2.0 V								"	"		
			3	"				2.0 V							"	"	
			4	"					2.0 V						"	"	
			5	"						2.0 V					"	"	
			6	"							2.0 V				"	"	
			7	"								2.0 V			"	"	
			8	"									2.0 V		"	"	
	V <sub>OL</sub>	3007	9	"	0.8 V									2.0 V	"	"	-1.0 mA
			10	"		0.8 V								"	"		
			11	"			0.8 V							"	"		
			12	"				0.8 V						"	"		
			13	"					0.8 V					"	"		
			14	"						0.8 V				"	"		
			15	"							0.8 V			"	"		
			16	"								0.8 V		"	"	20 mA	
	V <sub>IC</sub>		17	-18 mA										"	"		
			18		-18 mA									"	"		
			19			-18 mA								"	"		
			20				-18 mA							"	"		
			21					-18 mA						"	"		
			22						-18 mA					"	"		
			23							-18 mA				"	"		
			24								-18 mA			"	"		
			25									-18 mA		"	"		
			26										-18 mA	"	"		
	I <sub>IH1</sub>	3010	27	2.7 V										"	"	-18 mA	
			28		2.7 V									"	"		
			29			2.7 V								"	"		
			30				2.7 V							"	"		
			31					2.7 V						"	"		
			32						2.7 V					"	"		
			33							2.7 V				"	"		
			34								2.7 V			"	"		
			35									2.7 V		"	"		
			36										2.7 V	"	"	2.7 V	
	I <sub>IH2</sub>	3010	37	7.0 V										"	"		
			38		7.0 V									"	"		
			39			7.0 V								"	"		
			40				7.0 V							"	"		
			41					7.0 V						"	"		
			42						7.0 V					"	"		
			43							7.0 V				"	"		
			44								7.0 V			"	"		
			45									7.0 V		"	"		
			46										7.0 V	"	"	7.0 V	
	I <sub>IL</sub>	3009	47	0.5 V										"	"		
			48		0.5 V									"	"		
			49			0.5 V								"	"		
			50				0.5 V							"	"		
			51					0.5 V						"	"		
			52						0.5 V					"	"		
			53							0.5 V				"	"		
			54								0.5 V			"	"		
			55									0.5 V		"	"		
			56										0.5 V	"	"	0.5 V	

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X	13	14	15	16	17	18	19	20	Measured terminal	Limits					
			Test no.	Q <sub>8</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max	Unit			
1 T <sub>c</sub> = +25°C	V <sub>OH</sub>	3006	1								-1.0 mA	4.5 V	Q <sub>0</sub>	2.5		V		
			2							-1.0 mA				Q <sub>1</sub>				
			3							-1.0 mA					Q <sub>2</sub>			
			4					-1.0 mA							Q <sub>3</sub>			
			5				-1.0 mA								Q <sub>4</sub>			
			6			-1.0 mA									Q <sub>5</sub>			
			7	-1.0 mA											Q <sub>6</sub>			
			8												Q <sub>7</sub>			
	V <sub>OL</sub>	3007	9								20 mA			Q <sub>0</sub>		0.5		
			10							20 mA				Q <sub>1</sub>				
			11						20 mA					Q <sub>2</sub>				
			12				20 mA							Q <sub>3</sub>				
			13				20 mA							Q <sub>4</sub>				
			14		20 mA									Q <sub>5</sub>				
			15	20 mA										Q <sub>6</sub>				
			16											Q <sub>7</sub>				
	V <sub>IC</sub>		17											OE		-1.2		
			18											D <sub>0</sub>				
			19											D <sub>1</sub>				
			20											D <sub>2</sub>				
			21											D <sub>3</sub>				
			22											D <sub>4</sub>				
			23											D <sub>5</sub>				
			24											D <sub>6</sub>				
			25											D <sub>7</sub>				
			26											CP				
	I <sub>IH1</sub>	3010	27									5.5 V	OE		20	μA		
			28											D <sub>0</sub>				
			29											D <sub>1</sub>				
			30											D <sub>2</sub>				
			31											D <sub>3</sub>				
			32											D <sub>4</sub>				
			33											D <sub>5</sub>				
			34											D <sub>6</sub>				
			35											D <sub>7</sub>				
			36											CP				
	I <sub>IH2</sub>	3010	37										OE		100			
			38											D <sub>0</sub>				
			39											D <sub>1</sub>				
			40											D <sub>2</sub>				
			41											D <sub>3</sub>				
			42											D <sub>4</sub>				
			43											D <sub>5</sub>				
			44											D <sub>6</sub>				
			45											D <sub>7</sub>				
			46											CP				
	I <sub>IL</sub>	3009	47										OE	2/	2/	mA		
			48											D <sub>0</sub>				
			49											D <sub>1</sub>				
			50											D <sub>2</sub>				
			51											D <sub>3</sub>				
			52											D <sub>4</sub>				
			53											D <sub>5</sub>				
			54											D <sub>6</sub>				
			55											D <sub>7</sub>				
			56											CP				

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12			
				$\overline{OE}$	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	Q <sub>7</sub>			
1 T <sub>C</sub> = +25°C	I <sub>OS</sub>	3011	57	0.0 V	5.5 V									GND	1/			
			58	"		5.5 V								"	"			
			59	"			5.5 V								"	"		
			60	"				5.5 V							"	"		
			61	"					5.5 V						"	"		
			62	"						5.5 V					"	"		
			63	"							5.5 V				"	"		
			64	"								5.5 V			"	"		0.0 V
	I <sub>OZH</sub>	3011	65	2.0 V	0.0 V										"	"		
			66	"		0.0 V									"	"		
			67	"			0.0 V								"	"		
			68	"				0.0 V							"	"		
			69	"					0.0 V						"	"		
			70	"						0.0 V					"	"		
			71	"							0.0 V				"	"		
			72	"								0.0 V		0.0 V	"	"		2.7 V
	I <sub>OZL</sub>	3011	73	"	5.5 V										"	"		
			74	"		5.5 V									"	"		
			75	"			5.5 V								"	"		
			76	"				5.5 V							"	"		
77			"					5.5 V						"	"			
78			"						5.5 V					"	"			
79			"							5.5 V				"	"			
80			"								5.5 V		5.5 V	"	"		0.5 V	
I <sub>CCZ</sub>	3011	81	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	"	"				
I <sub>CCL</sub>	3011	82	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	"	"				
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																	
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																	
7 T <sub>C</sub> = +25°C	Functional 3/	3014	83	B	A	B	A	B	A	B	A	B	A	B	GND	1/	L	
			84	"	B	A	B	A	B	A	B	A	B	A	"	A	L	
			85	"	B	A	B	A	B	A	B	A	B	A	"	B	L	
			86	"	A	B	A	B	A	B	A	B	A	B	"	B	L	
			87	"	B	A	B	A	B	A	B	A	B	A	"	B	L	
			88	"	B	A	B	A	B	A	B	A	B	A	"	1/	H	
			89	"	A	B	A	B	A	B	A	B	A	B	"	A	H	
			90	"	A	B	A	B	A	B	A	B	A	B	"	B	H	
			91	"	B	A	B	A	B	A	B	A	B	A	"	B	H	
			92	"	A	B	A	B	A	B	A	B	A	B	"	B	H	
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>C</sub> = +125°C and T <sub>C</sub> = -55°C.																	

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				Q <sub>8</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max			
1 T <sub>C</sub> = +25°C	I <sub>OS</sub>	3011	57								0.0 V	5.5 V	Q <sub>0</sub>	-60	-150	mA	
			58						0.0 V				Q <sub>1</sub>	"	"	"	
			59					0.0 V					Q <sub>2</sub>	"	"	"	
			60				0.0 V						Q <sub>3</sub>	"	"	"	
			61			0.0 V							Q <sub>4</sub>	"	"	"	
			62		0.0 V								Q <sub>5</sub>	"	"	"	
			63	0.0 V									Q <sub>6</sub>	"	"	"	
	I <sub>OZH</sub>	3011	64										Q <sub>7</sub>	"	"	"	
			65							2.7 V	2.7 V		Q <sub>0</sub>		50	μA	
			66						2.7 V				Q <sub>1</sub>		"	"	
			67										Q <sub>2</sub>		"	"	
			68				2.7 V						Q <sub>3</sub>		"	"	
			69			2.7 V							Q <sub>4</sub>		"	"	
			70		2.7 V								Q <sub>5</sub>		"	"	
	I <sub>OZL</sub>	3011	71	2.7 V									Q <sub>6</sub>		"	"	
			72										Q <sub>7</sub>		"	"	
			73							0.5 V	0.5 V		Q <sub>0</sub>		-50	"	
			74							0.5 V			Q <sub>1</sub>		"	"	
			75										Q <sub>2</sub>		"	"	
			76				0.5 V						Q <sub>3</sub>		"	"	
77					0.5 V							Q <sub>4</sub>		"	"		
I <sub>CCZ</sub>	3011	78		0.5 V								Q <sub>5</sub>		"	"		
		79	0.5 V									Q <sub>6</sub>		"	"		
		80										Q <sub>7</sub>		"	"		
I <sub>OCL</sub>	3011	81									V <sub>CC</sub>		90	mA			
		3011	82									V <sub>CC</sub>		86	mA		
2	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = +125°C and V <sub>IC</sub> tests are omitted.																
3	Same tests, terminal conditions, and limits as for subgroup 1, except T <sub>C</sub> = -55°C and V <sub>IC</sub> tests are omitted.																
7 T <sub>C</sub> = +25°C	Functional 3/	3014	83	H	L	H	L	H	L	H	L	4/	All outputs				
			84	H	L	H	L	H	L	H	L	H	"	"			
			85	H	L	H	L	H	L	H	L	H	"	"			
			86	H	L	H	L	H	L	H	L	H	"	"			
			87	H	L	H	L	H	L	H	L	H	"	"			
			88	L	H	L	H	L	H	L	H	L	"	"			
			89	L	H	L	H	L	H	L	H	L	"	"			
			90	L	H	L	H	L	H	L	H	L	"	"			
			91	L	H	L	H	L	H	L	H	L	"	"			
			92	L	H	L	H	L	H	L	H	L	"	"			
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>C</sub> = +125°C and -55°C.																

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12		
				$\overline{OE}$	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	Q <sub>7</sub>		
9 T <sub>c</sub> = +25°C	f <sub>MAX</sub> 5/	3003 Fig. 4	93	0.0 V	IN								GND	IN			
			94	"		IN							"	"			
			95	"			IN						"	"			
			96	"				IN					"	"			
			97	"					IN				"	"			
			98	"						IN			"	"			
			99	"							IN		"	"			
			100	"									IN	"	"	OUT	
			101	"		IN								IN	"	"	
			102	"			IN								"	"	
	103	"				IN							"	"			
	104	"					IN						"	"			
	105	"						IN					"	"			
	106	"							IN				"	"			
	107	"								IN			IN	"	"		
	108	"											IN	"	"	OUT	
	109	"			IN									"	"		
	110	"				IN								"	"		
	111	"					IN							"	"		
	112	"						IN						"	"		
	113	"							IN					"	"		
	114	"								IN				"	"		
	115	"									IN			"	"		
	116	"										IN		IN	"	"	OUT
	117	"			IN	2.7 V									"	"	
	118	"					2.7 V								"	"	
	119	"						2.7 V							"	"	
	120	"							2.7 V						"	"	
	121	"								2.7 V					"	"	
	122	"									2.7 V				"	"	
	123	"										2.7 V			"	"	
	124	"											2.7 V		"	"	OUT
	125	"				0.0 V									"	"	
	126	"					0.0 V								"	"	
	127	"						0.0 V							"	"	
	128	"							0.0 V						"	"	
	129	"								0.0 V					"	"	
	130	"									0.0 V				"	"	
	131	"										0.0 V			"	"	
	132	"											0.0 V		"	"	OUT
133	"				2.7 V									"	"		
134	"					2.7 V								"	"		
135	"						2.7 V							"	"		
136	"							2.7 V						"	"		
137	"								2.7 V					"	"		
138	"									2.7 V				"	"		
139	"										2.7 V			"	"		
140	"											2.7 V		"	"	OUT	

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit			
				Q <sub>6</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max				
9 T <sub>c</sub> = +25°C	f <sub>MAX</sub> 5/	3003 Fig. 4	93								OUT	Q <sub>0</sub>	100		MHz			
			94						OUT			Q <sub>1</sub>						
			95					OUT					Q <sub>2</sub>					
			96				OUT						Q <sub>3</sub>					
			97			OUT							Q <sub>4</sub>					
			98		OUT								Q <sub>5</sub>					
			99	OUT									Q <sub>6</sub>					
			100										Q <sub>7</sub>					
			t <sub>PLH1</sub>	3003 Fig. 4	101							OUT			CP to Q <sub>0</sub>	2.5	8.5	ns
					102						OUT				CP to Q <sub>1</sub>			
	103							OUT					CP to Q <sub>2</sub>					
	104						OUT						CP to Q <sub>3</sub>					
	105					OUT							CP to Q <sub>4</sub>					
	106				OUT								CP to Q <sub>5</sub>					
	107	OUT											CP to Q <sub>6</sub>					
	108												CP to Q <sub>7</sub>					
	t <sub>PHL1</sub>	3003 Fig. 4	109							OUT			CP to Q <sub>0</sub>					
			110						OUT				CP to Q <sub>1</sub>					
			111					OUT					CP to Q <sub>2</sub>					
			112				OUT						CP to Q <sub>3</sub>					
			113			OUT							CP to Q <sub>4</sub>					
			114		OUT								CP to Q <sub>5</sub>					
			115	OUT									CP to Q <sub>6</sub>					
			116										CP to Q <sub>7</sub>					
	t <sub>PHZ1</sub>	3003 Fig. 4	117								OUT		OE to Q <sub>0</sub>	1.0	6.0			
			118						OUT				OE to Q <sub>1</sub>					
			119					OUT					OE to Q <sub>2</sub>					
			120				OUT						OE to Q <sub>3</sub>					
			121			OUT							OE to Q <sub>4</sub>					
			122		OUT								OE to Q <sub>5</sub>					
			123	OUT									OE to Q <sub>6</sub>					
			124										OE to Q <sub>7</sub>					
t <sub>PLZ1</sub>	3003 Fig. 4	125								OUT		OE to Q <sub>0</sub>		5.5				
		126						OUT				OE to Q <sub>1</sub>						
		127					OUT					OE to Q <sub>2</sub>						
		128				OUT						OE to Q <sub>3</sub>						
		129			OUT							OE to Q <sub>4</sub>						
		130		OUT								OE to Q <sub>5</sub>						
		131	OUT									OE to Q <sub>6</sub>						
		132										OE to Q <sub>7</sub>						

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit	
				Q <sub>6</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max		
9 T <sub>c</sub> = +25°C	t <sub>PZH1</sub>	3003 Fig. 4	133								OUT	"	OE to Q <sub>0</sub>	2.5	9.0	"
			134						OUT			"	OE to Q <sub>1</sub>	"	"	"
			135					OUT				"	OE to Q <sub>2</sub>	"	"	"
			136				OUT					"	OE to Q <sub>3</sub>	"	"	"
			137			OUT						"	OE to Q <sub>4</sub>	"	"	"
			138		OUT							"	OE to Q <sub>5</sub>	"	"	"
			139	OUT								"	OE to Q <sub>6</sub>	"	"	"
			140									"	OE to Q <sub>7</sub>	"	"	"

See footnotes at end of device type 10.

TABLE III. Group A inspection for device type 10 – Continued.  
 Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12		
				$\overline{OE}$	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	Q <sub>7</sub>		
9 T <sub>c</sub> = +25°C	t <sub>pZL1</sub>	3003	141	IN	0.0 V								GND	IN			
			142	"		0.0 V								"	"		
			143	"				0.0 V							"	"	
			144	"					0.0 V						"	"	
			145	"						0.0 V					"	"	
			146	"								0.0 V			"	"	
			147	"									0.0 V		"	"	
			148	"										0.0 V	"	"	OUT
10	Same tests as subgroup 9 except T <sub>c</sub> = +125°C, use limits from table I.																
11	Same tests as subgroup 10 except T <sub>c</sub> = -55°C, use limits from table I.																

See footnotes at end of device type 10.



TABLE III. Group A inspection for device type 10 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits			
				Q <sub>6</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max	Unit	
9 T <sub>C</sub> = +25°C	t <sub>PZL1</sub>	3003	141							OUT	5.0 V	$\overline{OE}$ to Q <sub>0</sub>	3.0	9.0	ns	
			142						OUT		"	$\overline{OE}$ to Q <sub>1</sub>	"	"	"	
			143					OUT				"	$\overline{OE}$ to Q <sub>2</sub>	"	"	"
			144				OUT					"	$\overline{OE}$ to Q <sub>3</sub>	"	"	"
			145			OUT						"	$\overline{OE}$ to Q <sub>4</sub>	"	"	"
			146		OUT							"	$\overline{OE}$ to Q <sub>5</sub>	"	"	"
			147	OUT								"	$\overline{OE}$ to Q <sub>6</sub>	"	"	"
			148									"	$\overline{OE}$ to Q <sub>7</sub>	"	"	"
10	Same tests, as subgroup 9 except T <sub>C</sub> = +125°C, use limits from table I.															
11	Same tests as subgroup 10 except T <sub>C</sub> = -55°C, use limits from table I.															

1/ Apply all voltages then apply 3 V, 0, 3 V to CP then make measurement.

2/ I<sub>IL</sub> limits (mA) min/max values for circuits shown:

Parameter	Circuit A
I <sub>IL1</sub>	-.25/-.60

3/ A = 3.0 V minimum; B = 0.0 V or GND, H  $\geq 2.5$  V, L  $\leq 0.5$  V.

4/ Perform function sequence at V<sub>CC</sub> = 4.5 V and repeat at V<sub>CC</sub> = 5.5 V.

5/ f<sub>MAX</sub> minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.

TABLE III. Group A inspection for device type 11 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12	
				OE	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	$\overline{Q}_7$	
1 T <sub>c</sub> = +25°C	V <sub>OH</sub>	3006	1	0.8 V	0.8 V								GND	1/		
			2	"		0.8 V								"	"	
			3	"			0.8 V							"	"	
			4	"				0.8 V						"	"	
			5	"					0.8 V					"	"	
			6	"						0.8 V				"	"	
			7	"							0.8 V			"	"	
			8	"								0.8 V		"	"	
	V <sub>OL</sub>	3007	9	"	2.0 V								0.8 V	"	"	-1.0 mA
			10	"		2.0 V							"	"		
			11	"			2.0 V						"	"		
			12	"				2.0 V					"	"		
			13	"					2.0 V				"	"		
			14	"						2.0 V			"	"		
			15	"							2.0 V		"	"		
			16	"								2.0 V	"	"	20 mA	
	V <sub>IC</sub>		17	-18 mA										"	"	
			18		-18 mA									"	"	
			19			-18 mA								"	"	
			20				-18 mA							"	"	
			21					-18 mA						"	"	
			22						-18 mA					"	"	
			23							-18 mA				"	"	
			24								-18 mA			"	"	
			25									-18 mA		"	"	
			26										-18 mA	"	"	
	I <sub>IH1</sub>	3010	27	2.7 V										"	"	
			28		2.7 V									"	"	
			29			2.7 V								"	"	
			30				2.7 V							"	"	
			31					2.7 V						"	"	
			32						2.7 V					"	"	
			33							2.7 V				"	"	
			34								2.7 V			"	"	
			35									2.7 V		"	"	
			36										2.7 V	"	"	
	I <sub>IH2</sub>	3010	37	7.0 V										"	"	
			38		7.0 V									"	"	
			39			7.0 V								"	"	
			40				7.0 V							"	"	
			41					7.0 V						"	"	
			42						7.0 V					"	"	
			43							7.0 V				"	"	
			44								7.0 V			"	"	
			45									7.0 V		"	"	
			46										7.0 V	"	"	
	I <sub>IL</sub>	3009	47	0.5 V										"	"	
			48		0.5 V									"	"	
			49			0.5 V								"	"	
			50				0.5 V							"	"	
			51					0.5 V						"	"	
			52						0.5 V					"	"	
			53							0.5 V				"	"	
			54								0.5 V			"	"	
			55									0.5 V		"	"	
			56										0.5 V	"	"	0.5 V

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				$\bar{Q}_6$	$\bar{Q}_5$	$\bar{Q}_4$	$\bar{Q}_3$	$\bar{Q}_2$	$\bar{Q}_1$	$\bar{Q}_0$	V <sub>CC</sub>		Min	Max			
1 T <sub>C</sub> = +25°C	V <sub>OH</sub>	3006	1							-1.0 mA	4.5 V	$\bar{Q}_0$	2.5		V		
			2						-1.0 mA				$\bar{Q}_1$				
			3					-1.0 mA						$\bar{Q}_2$			
			4				-1.0 mA							$\bar{Q}_3$			
			5			-1.0 mA								$\bar{Q}_4$			
			6		-1.0 mA									$\bar{Q}_5$			
			7	-1.0 mA										$\bar{Q}_6$			
			8											$\bar{Q}_7$			
	V <sub>OL</sub>	3007	9								20 mA		$\bar{Q}_0$		0.5		
			10							20 mA			$\bar{Q}_1$				
			11					20 mA					$\bar{Q}_2$				
			12				20 mA						$\bar{Q}_3$				
			13			20 mA							$\bar{Q}_4$				
			14		20 mA								$\bar{Q}_5$				
			15	20 mA									$\bar{Q}_6$				
			16										$\bar{Q}_7$				
	V <sub>IC</sub>		17										OE		-1.2		
			18										D <sub>0</sub>				
			19										D <sub>1</sub>				
			20										D <sub>2</sub>				
			21										D <sub>3</sub>				
			22										D <sub>4</sub>				
			23										D <sub>5</sub>				
			24										D <sub>6</sub>				
			25										D <sub>7</sub>				
			26										CP				
		I <sub>IH1</sub>	3010	27								5.5 V	OE		20	μA	
28												D <sub>0</sub>					
29												D <sub>1</sub>					
30												D <sub>2</sub>					
31												D <sub>3</sub>					
32												D <sub>4</sub>					
33												D <sub>5</sub>					
34												D <sub>6</sub>					
35												D <sub>7</sub>					
36												CP					
	I <sub>IH2</sub>	3010	37									OE		100			
			38									D <sub>0</sub>					
			39									D <sub>1</sub>					
			40									D <sub>2</sub>					
			41									D <sub>3</sub>					
			42									D <sub>4</sub>					
			43									D <sub>5</sub>					
			44									D <sub>6</sub>					
			45									D <sub>7</sub>					
			46									CP					

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 - Continued.  
 Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				$\bar{Q}_6$	$\bar{Q}_5$	$\bar{Q}_4$	$\bar{Q}_3$	$\bar{Q}_2$	$\bar{Q}_1$	$\bar{Q}_0$	$V_{CC}$		Min	Max			
1 Tc = +25°C	$I_{IL}$	3009	47								4.5 V	$\overline{OE}$	$\underline{2/}$	$\underline{2/}$	mA		
			48									"	D <sub>0</sub>	"	"	"	
			49										"	D <sub>1</sub>	"	"	"
			50										"	D <sub>2</sub>	"	"	"
			51										"	D <sub>3</sub>	"	"	"
			52										"	D <sub>4</sub>	"	"	"
			53										"	D <sub>5</sub>	"	"	"
			54										"	D <sub>6</sub>	"	"	"
			55										"	D <sub>7</sub>	"	"	"
			56										"	CP	"	"	"

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12		
				OE	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	$\overline{Q}_7$		
1 T <sub>c</sub> = +25°C	I <sub>OS</sub>	3011	57	0.0 V	0.0 V									"	1/		
			58	"		0.0 V									"	"	
			59	"			0.0 V								"	"	
			60	"				0.0 V							"	"	
			61	"					0.0 V						"	"	
			62	"						0.0 V					"	"	
			63	"							0.0 V				"	"	
			64	"								0.0 V			"	"	
			65	"		2.0 V	0.0 V							0.0 V	"	"	0.0 V
			66	"			0.0 V								"	"	
			67	"				0.0 V							"	"	
			68	"					0.0 V						"	"	
			69	"						0.0 V					"	"	
			70	"							0.0 V				"	"	
	71	"								0.0 V			"	"			
	72	"									0.0 V		0.0 V	"	"	2.7 V	
	I <sub>OZL</sub>	3011	73	"	5.5 V									"	"		
			74	"		5.5 V								"	"		
			75	"			5.5 V							"	"		
			76	"				5.5 V						"	"		
77			"					5.5 V					"	"			
78			"						5.5 V				"	"			
79			"								5.5 V		"	"			
80			"									5.5 V	5.5 V	"	"	0.5 V	
I <sub>CCZ</sub>	3011	81	5.5 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	"	"			
I <sub>CCL</sub>	3011	82	0.0 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	"	"			
2	Same tests, terminal conditions, and limits as subgroup 1, except T <sub>c</sub> = +125°C and V <sub>IC</sub> tests are omitted.																
3	Same tests, terminal conditions, and limits as subgroup 1, except T <sub>c</sub> = -55°C and V <sub>IC</sub> tests are omitted.																
7 T <sub>c</sub> = +25°C	Functional 3/	3014	83	B	B	A	B	A	B	A	B	A	GND	1/	L		
			84	B	A	B	A	B	A	B	A	B	"	A	L		
			85	B	A	B	A	B	A	B	A	B	"	B	L		
			86	B	B	A	B	A	B	A	B	A	"	B	L		
			87	B	A	B	A	B	A	B	A	B	"	B	L		
			88	B	A	B	A	B	A	B	A	B	"	1/	H		
			89	B	B	A	B	A	B	A	B	A	"	A	H		
			90	B	B	A	B	A	B	A	B	A	"	B	H		
			91	B	A	B	A	B	A	B	A	B	"	B	H		
			92	B	B	A	B	A	B	A	B	A	"	B	H		
8	Same tests, terminal conditions, and limits as for subgroup 7, except T <sub>c</sub> = +125°C and -55°C.																

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				$\bar{Q}_6$	$\bar{Q}_5$	$\bar{Q}_4$	$\bar{Q}_3$	$\bar{Q}_2$	$\bar{Q}_1$	$\bar{Q}_0$	$V_{CC}$		Min	Max			
1 $T_C = +25^\circ\text{C}$	$I_{OS}$	3011	57							0.0 V	5.5 V	$\bar{Q}_0$	-60	-150	mA		
			58						0.0 V				$\bar{Q}_1$	"	"	"	
			59					0.0 V						$\bar{Q}_2$	"	"	"
			60				0.0 V							$\bar{Q}_3$	"	"	"
			61			0.0 V								$\bar{Q}_4$	"	"	"
			62		0.0 V									$\bar{Q}_5$	"	"	"
			63	0.0 V										$\bar{Q}_6$	"	"	"
			64											$\bar{Q}_7$	"	"	"
	$I_{OZH}$	3011	65								2.7 V	"	$\bar{Q}_0$		50	$\mu\text{A}$	
			66							2.7 V				$\bar{Q}_1$		"	"
			67					2.7 V						$\bar{Q}_2$		"	"
			68				2.7 V							$\bar{Q}_3$		"	"
			69			2.7 V								$\bar{Q}_4$		"	"
			70		2.7 V									$\bar{Q}_5$		"	"
			71	2.7 V										$\bar{Q}_6$		"	"
			72											$\bar{Q}_7$		"	"
	$I_{OZL}$	3011	73								0.5	"	$\bar{Q}_0$		-50	"	
			74							0.5				$\bar{Q}_1$		"	"
			75					0.5						$\bar{Q}_2$		"	"
			76				0.5							$\bar{Q}_3$		"	"
			77			0.5								$\bar{Q}_4$		"	"
			78		0.5									$\bar{Q}_5$		"	"
			79	0.5										$\bar{Q}_6$		"	"
			80											$\bar{Q}_7$		"	"
	$I_{CCZ}$ $I_{CCL}$	3011	81									"	$V_{CC}$		86	mA	
		3011	82									"	$V_{CC}$		86	mA	
	2	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = +125^\circ\text{C}$ and $V_{IC}$ tests are omitted.															
	3	Same tests, terminal conditions, and limits as for subgroup 1, except $T_C = -55^\circ\text{C}$ and $V_{IC}$ tests are omitted.															
7 $T_C = +25^\circ\text{C}$	Functional 3/	3014	83	H	L	H	L	H	L	H	L	4/	All outputs				
			84	H	L	H	L	H	L	H	L	H	"	"			
			85	H	L	H	L	H	L	H	L	H	"	"			
			86	H	L	H	L	H	L	H	L	H	"	"			
			87	H	L	H	L	H	L	H	L	H	"	"			
			88	L	H	L	H	L	H	L	H	L	"	"			
			89	L	H	L	H	L	H	L	H	L	"	"			
			90	L	H	L	H	L	H	L	H	L	"	"			
			91	L	H	L	H	L	H	L	H	L	"	"			
			92	L	H	L	H	L	H	L	H	L	"	"			
			8	Same tests, terminal conditions, and limits as for subgroup 7, except $T_C = +125^\circ\text{C}$ and $-55^\circ\text{C}$ .													

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 – Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12	
				OE	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	$\bar{Q}_7$	
9 T <sub>c</sub> = +25°C	t <sub>MAX</sub> 5/	3003 Fig. 4	93	0.0 V	IN								GND	IN		
			94	"		IN							"	"		
			95	"			IN							"	"	
			96	"				IN						"	"	
			97	"					IN					"	"	
			98	"						IN				"	"	
			99	"							IN			"	"	
			100	"									IN	"	"	OUT
			101	"		IN								"	"	
			102	"			IN							"	"	
	103	"				IN						"	"			
	104	"					IN					"	"			
	105	"						IN				"	"			
	106	"							IN			"	"			
	107	"								IN		"	"			
	108	"									IN	"	"	OUT		
	109	"		IN								"	"			
	110	"			IN							"	"			
	111	"				IN						"	"			
	112	"					IN					"	"			
	113	"						IN				"	"			
	114	"							IN			"	"			
	115	"								IN		"	"			
	116	"									IN	"	"	OUT		
	117	"		IN	0.0 V							"	"			
	118	"				0.0 V						"	"			
	119	"					0.0 V					"	"			
	120	"						0.0 V				"	"			
	121	"							0.0 V			"	"			
	122	"								0.0 V		"	"			
	123	"									0.0 V	"	"			
	124	"										0.0 V	"	"	OUT	
	125	"			2.7 V								"	"		
	126	"				2.7 V							"	"		
	127	"					2.7 V						"	"		
	128	"						2.7 V					"	"		
	129	"							2.7 V				"	"		
	130	"								2.7 V			"	"		
	131	"									2.7 V		"	"		
	132	"										2.7 V	"	"	OUT	
133	"			0.0 V								"	"			
134	"				0.0 V							"	"			
135	"					0.0 V						"	"			
136	"						0.0 V					"	"			
137	"							0.0 V				"	"			
138	"								0.0 V			"	"			
139	"									0.0 V		"	"			
140	"										0.0 V	"	"	OUT		

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit			
				$\overline{Q}_6$	$\overline{Q}_5$	$\overline{Q}_4$	$\overline{Q}_3$	$\overline{Q}_2$	$\overline{Q}_1$	$\overline{Q}_0$	V <sub>CC</sub>		Min	Max				
9 Tc = +25°C	f <sub>MAX</sub> 5/	3003 Fig. 4	93								OUT	5.0 V	$\overline{Q}_0$	100		MHz		
			94						OUT				$\overline{Q}_1$					
			95						OUT					$\overline{Q}_2$				
			96				OUT							$\overline{Q}_3$				
			97			OUT								$\overline{Q}_4$				
			98		OUT									$\overline{Q}_5$				
			99	OUT										$\overline{Q}_6$				
			100											$\overline{Q}_7$				
			t <sub>PLH2</sub>	3003 Fig. 4	101								OUT		CP to $\overline{Q}_0$	2.5	8.5	ns
					102							OUT			CP to $\overline{Q}_1$			
	103								OUT				CP to $\overline{Q}_2$					
	104						OUT						CP to $\overline{Q}_3$					
	105					OUT							CP to $\overline{Q}_4$					
	106				OUT								CP to $\overline{Q}_5$					
	107	OUT											CP to $\overline{Q}_6$					
	108												CP to $\overline{Q}_7$					
	t <sub>PHL2</sub>	3003 Fig. 4	109								OUT		CP to $\overline{Q}_0$					
			110							OUT			CP to $\overline{Q}_1$					
			111						OUT				CP to $\overline{Q}_2$					
			112				OUT						CP to $\overline{Q}_3$					
			113			OUT							CP to $\overline{Q}_4$					
			114		OUT								CP to $\overline{Q}_5$					
			115	OUT									CP to $\overline{Q}_6$					
			116										CP to $\overline{Q}_7$					
t <sub>PHZ2</sub>	3003 Fig. 4	117								OUT		$\overline{OE}$ to $\overline{Q}_0$	1.5	5.5				
		118							OUT			$\overline{OE}$ to $\overline{Q}_1$						
		119						OUT				$\overline{OE}$ to $\overline{Q}_2$						
		120				OUT						$\overline{OE}$ to $\overline{Q}_3$						
		121			OUT							$\overline{OE}$ to $\overline{Q}_4$						
		122		OUT								$\overline{OE}$ to $\overline{Q}_5$						
		123	OUT									$\overline{OE}$ to $\overline{Q}_6$						
		124										$\overline{OE}$ to $\overline{Q}_7$						

See footnotes at end of device type 11.



TABLE III. Group A inspection for device type 11 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				$\bar{Q}_6$	$\bar{Q}_5$	$\bar{Q}_4$	$\bar{Q}_3$	$\bar{Q}_2$	$\bar{Q}_1$	$\bar{Q}_0$	V <sub>CC</sub>		Min	Max			
9 Tc = +25°C	t <sub>PLZ2</sub>	3003 Fig. 4	125								OUT	5.0 V	$\bar{OE}$ to $\bar{Q}_0$	1.5	5.5	ns	
			126						OUT				"	$\bar{OE}$ to $\bar{Q}_1$	"	"	"
			127					OUT					"	$\bar{OE}$ to $\bar{Q}_2$	"	"	"
			128				OUT						"	$\bar{OE}$ to $\bar{Q}_3$	"	"	"
			129			OUT							"	$\bar{OE}$ to $\bar{Q}_4$	"	"	"
			130		OUT								"	$\bar{OE}$ to $\bar{Q}_5$	"	"	"
			131	OUT									"	$\bar{OE}$ to $\bar{Q}_6$	"	"	"
			132										"	$\bar{OE}$ to $\bar{Q}_7$	"	"	"
	t <sub>PZH2</sub>	3003 Fig. 4	133								OUT	"	$\bar{OE}$ to $\bar{Q}_0$	3.0	9.0	"	
			134						OUT			"	$\bar{OE}$ to $\bar{Q}_1$	"	"	"	
			135					OUT				"	$\bar{OE}$ to $\bar{Q}_2$	"	"	"	
			136				OUT					"	$\bar{OE}$ to $\bar{Q}_3$	"	"	"	
			137			OUT						"	$\bar{OE}$ to $\bar{Q}_4$	"	"	"	
			138		OUT							"	$\bar{OE}$ to $\bar{Q}_5$	"	"	"	
139	OUT								"	$\bar{OE}$ to $\bar{Q}_6$	"	"	"				
140									"	$\bar{OE}$ to $\bar{Q}_7$	"	"	"				

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 – Continued.  
 Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12		
				$\overline{OE}$	D <sub>0</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	GND	CP	$\overline{Q}_7$		
9 T <sub>C</sub> = +25°C	f <sub>PZL2</sub>	3003	141	IN	2.7 V								GND	IN			
			142	"		2.7 V								"	"		
			143	"				2.7 V							"	"	
			144	"					2.7 V						"	"	
			145	"						2.7 V					"	"	
			146	"							2.7 V				"	"	
			147	"									2.7 V		"	"	
			148	"										2.7 V	"	"	OUT
10	Same tests as subgroup 9 except T <sub>C</sub> = +125°C, use limits from table I.																
11	Same tests as subgroup 10 except T <sub>C</sub> = -55°C, use limits from table I.																

See footnotes at end of device type 11.

TABLE III. Group A inspection for device type 11 - Continued.  
Terminal conditions (pins not designated may be high  $\geq 2.0$  V; or low  $\leq 0.8$  V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	13	14	15	16	17	18	19	20	Measured terminal	Limits		Unit		
				Q <sub>6</sub>	Q <sub>5</sub>	Q <sub>4</sub>	Q <sub>3</sub>	Q <sub>2</sub>	Q <sub>1</sub>	Q <sub>0</sub>	V <sub>CC</sub>		Min	Max			
9 T <sub>C</sub> = +25°C	t <sub>PZL2</sub>	3003	141								OUT	5.0 V	OE to Q <sub>0</sub>	3.0	9.0	ns	
			142							OUT				OE to Q <sub>1</sub>	"	"	"
			143						OUT					OE to Q <sub>2</sub>	"	"	"
			144				OUT							OE to Q <sub>3</sub>	"	"	"
			145			OUT								OE to Q <sub>4</sub>	"	"	"
			146		OUT									OE to Q <sub>5</sub>	"	"	"
			147	OUT										OE to Q <sub>6</sub>	"	"	"
			148												OE to Q <sub>7</sub>	"	"
10	Same tests as subgroup 9 except T <sub>C</sub> = +125°C, and use limits from table I.																
11	Same tests as subgroup 10 except T <sub>C</sub> = -55°C, and use limits from table I.																

1/ Apply all voltages then apply 3 V, 0, 3 V to CP then make measurement.

2/ I<sub>IL</sub> limits (mA) min/max values for circuits shown:

Parameter	Circuit A
I <sub>IL1</sub>	-.25/-.60

3/ A = 3.0 V minimum; B = 0.0 V or GND, H  $\geq 2.5$  V, L  $\leq 0.5$  V.

4/ Perform function sequence at V<sub>CC</sub> = 4.5 V and repeat at V<sub>CC</sub> = 5.5 V.

5/ f<sub>MAX</sub> minimum limit specified is the frequency of the input pulse. The output frequency shall be one-half of the input frequency.

## 5. PACKAGING

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

## 6. NOTES

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

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

6.2 Acquisition requirements. Acquisition documents should specify the following:

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

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

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

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

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

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

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

<u>Military device type</u>	<u>Generic-industry type</u>
01	54F074
02	54F109
03	54F112
04	54F175
05	54F374
06	54F534
07	54F174
08	54F378
09	54F379
10	54F574
11	54F564

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

TABLE IV. Manufacturers' designation.

Device type	Circuit A	Circuit B	Circuit C	Circuit D
	National Semiconductor	Motorola	Signetics	Texas Instruments
01	X	X	X	X
02	X	X	X	X
03	X		X	X
04	X	X	X	X
05	X	X	X	X
06	X	X		
07	X	X		
08	X	X		
09	X	X		
10	X			
11	X			

6.9 Change from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodians:

Army - CR  
Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:

DLA - CC

Review activities:

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

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