

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 For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).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.

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_D) <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_{JC}): (See MIL-STD-1835)	
Junction temperature (T_J) <u>2/</u>	175°C

1.4 Recommended operating conditions. 2/

Supply voltage (V_{CC})	4.5 V dc minimum to 5.5 V dc maximum
Minimum high-level input voltage (V_{IH})	2.0 V dc
Maximum low-level input voltage (V_{IL})	0.8 V dc
Case operating temperature range (T_C)	-55 °C to +125 °C
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_D due to short-circuit test (e.g., I_{OS}).

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 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.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device types	Limits		Unit
				Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.5 V, I _{IH} = -1.0 mA V _{IL} = 0.8 V, V _{IH} = 2.0 V	All	2.5		V
Low level output voltage	V _{OL}	V _{CC} = 4.5 V, I _{OL} = 20 mA V _{IL} = 0.8 V, V _{IH} = 2.0 V	All		0.5	V
Input clamp voltage	V _{IC}	V _{CC} = 4.5 V, I _{IN} = -18 mA T _C = +25°C	All		-1.2	V
High level input current	I _{IH1}	V _{CC} = 5.5 V, V _{IN} = 2.7 V	All		20	μA
	I _{IH2}	V _{CC} = 5.5 V, V _{IN} = 7.0 V	All		100	μA
Low level input current	I _{IL1}	V _{CC} = 5.5 V, V _{IN} = 0.5 V	All	0.0	-0.6	mA
	I _{IL2}		01, 02, 03	0.0	-3.0	mA
	I _{IL3}		03	0.0	-3.0	mA
	I _{IL4}		07	-0.05	-1.2	mA
Supply current	I _{CC}	V _{CC} = 5.5 V, V _{IL} = 0.0 V	01		16	mA
			02		17	mA
			03		19	mA
			04		34	mA
			07, 08 09		45	mA
Supply current	I _{CC1}	V _{CC} = 5.5 V, V _{IL} = 0.0 V	10, 11		86	mA
	I _{CC2}	V _{CC} = 5.5 V, V _{IL} = 0.0 V	05, 06		86	mA
			10, 11		90	
Off-state output leakage current	I _{OZH}	V _{CC} = 5.5 V, V _{ZH} = 2.7 V	05, 06, 10, 11		50	μA
	I _{OZL}	V _{CC} = 5.5 V, V _{ZL} = 0.5 V	05, 06, 10, 11		-50	μA
Short circuit output current	I _{OS}	V _{CC} = 5.5 V, V _{OUT} = 0.0 V <u>1</u> /	All	-60	-150	mA
Output drive	I _{OD}	V _{CC} = 4.5 V, V _{IN} = 5.5 V, V _{OUT} = 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 _C ≤ +125°C unless otherwise specified	Device types	Limits		Unit
				Min	Max	
Maximum toggle frequency	f _{MAX}		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 _{CC} = 5.0 V, C _L = 50 pF ±10% See figure 4				
CP to Q output	t _{PLH1}		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 $\overline{Q}$ output	t _{PLH2}		10	2.5	9.5	ns
			01	3.8	8.5	ns
			02	3.8	9.0	ns
			03, 11	2.5	9.5	ns
$\overline{SD}$, $\overline{CD}$, to Q, $\overline{Q}$ output (CP high)	t _{PLH3}		04	3.5	8.5	ns
			06	4.0	10.5	ns
			01	3.2	8.0	ns
$\overline{SD}$, $\overline{CD}$, to Q, $\overline{Q}$ output (CP low)	t _{PLH4}		02	3.2	9.0	ns
			03	2.0	9.0	ns
			01	3.2	8.0	ns
$\overline{MR}$ to $\overline{Q}$ output (CP high)	t _{PLH5}		02	3.2	9.0	ns
			03	2.0	9.0	ns
			04	4.0	10.0	ns
$\overline{MR}$ to $\overline{Q}$ output (CP low)	t _{PLH6}	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 _C ≤ +125°C unless otherwise specified	Device types	Limits		Unit
				Min	Max	
CP to Q output	t _{PHL1}	V _{CC} = 5.0 V, C _L = 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 $\overline{Q}$ output	t _{PHL2}	01	3.8
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
$\overline{SD}$, $\overline{CD}$, to Q, $\overline{Q}$ output (CP high)	t _{PHL3}		01	3.2	11.5	ns
			02	3.2	11.5	ns
			03	2.0	9.5	ns
$\overline{SD}$, $\overline{CD}$, to Q, $\overline{Q}$ output (CP low)	t _{PHL4}		01	3.5	11.5	ns
			02	3.5	11.5	ns
			03	2.5	9.5	ns
$\overline{MR}$ Q, output (CP high)	t _{PHL5}	04	4.5	15.0	ns	
		07	1.0	17.0	ns	
$\overline{MR}$ to Q output (CP low)	t _{PHL6}	04	4.5	15.0	ns	
		07	1.0	17.0	ns	
Propagation delay time, low level to off-state						
$\overline{OE}$ to Q output	t _{PLZ1}	05	1.5	7.5	ns	
		10	1.0	7.0	ns	
$\overline{OE}$ to $\overline{Q}$ output	t _{PLZ2}	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 _{PHZ1}	05	1.5	8.0	ns	
		10	1.0	7.0	ns	
$\overline{OE}$ to $\overline{Q}$ output	t _{PHZ2}	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 $-55^{\circ}\text{C} \leq T_{\text{C}} \leq +125^{\circ}\text{C}$ unless otherwise specified	Device types	Limits		Unit
				Min	Max	
Propagation delay time, Off-state to low level		$V_{\text{CC}} = 5.0 \text{ V}$, $C_{\text{L}} = 50 \text{ pF} \pm 10\%$ See figure 4				
$\overline{\text{OE}}$ to Q output	t_{PZL1}		05	2.0	10.0	ns
			10	2.5	10.5	ns
$\overline{\text{OE}}$ to $\overline{\text{Q}}$ output	t_{PZL2}		06	2.0	10.0	ns
			11	2.5	10.5	ns
Propagation delay time, off-state to high level						
$\overline{\text{OE}}$ to Q output	t_{PZH1}		05	2.0	14.0	ns
			10	2.0	10.5	ns
$\overline{\text{OE}}$ to $\overline{\text{Q}}$ output	t_{PZH2}		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.

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.

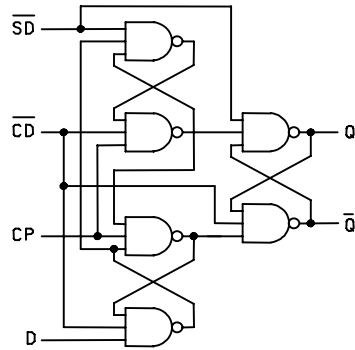
Pin number	Device type 05		Device type 06		Device type 07		Device type 08	
	CASES							
	R, S	2, X	R, S	2, X	E, F	2, X	E, F	2, X
1	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{MR}$	N/C	$\overline{E}$	N/C
2	Q_0	Q_0	$\overline{Q}_0$	$\overline{Q}_0$	Q_0	$\overline{MR}$	Q_0	$\overline{E}$
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.

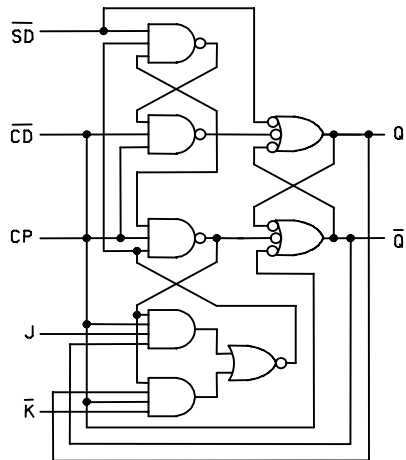
Pin number	Device type 09		Device type 10		Device type 11	
	CASES					
	E, F	2, X	R, S	2, X	R, S	2, X
1	$\overline{E}$	N/C	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$	$\overline{OE}$
2	Q_0	$\overline{E}$	D_0	D_0	D_0	D_0
3	$\overline{Q}_0$	Q_0	D_1	D_1	D_1	D_1
4	D_0	$\overline{Q}_0$	D_2	D_2	D_2	D_2
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.

DEVICE TYPE 01 (1/2 SHOWN)



DEVICE TYPE 02 (1/2 SHOWN)



DEVICE TYPE 03 (1/2 SHOWN)

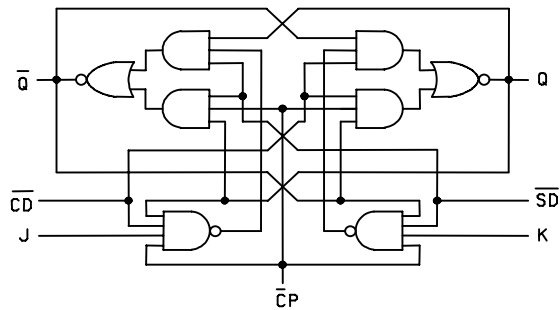
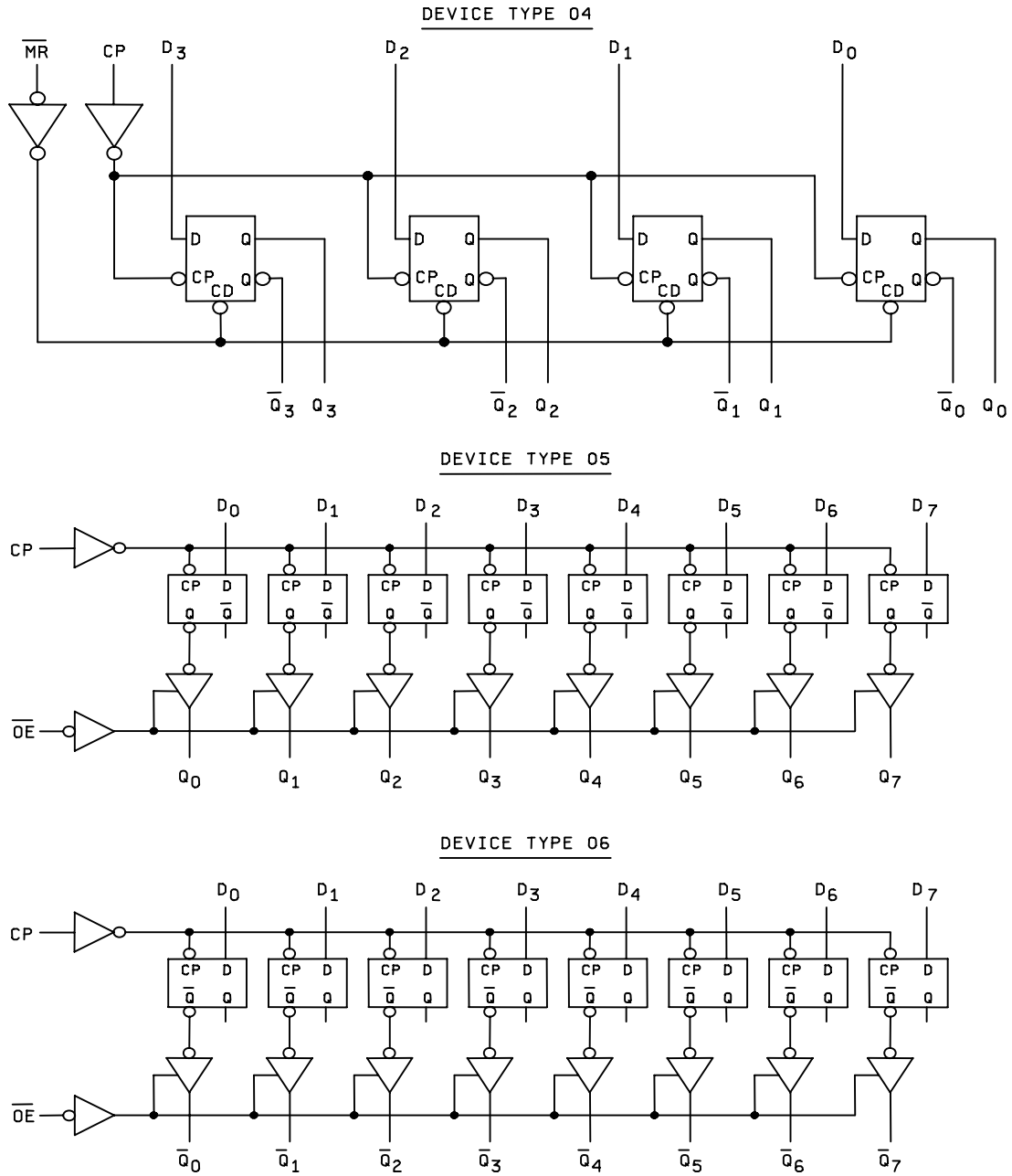
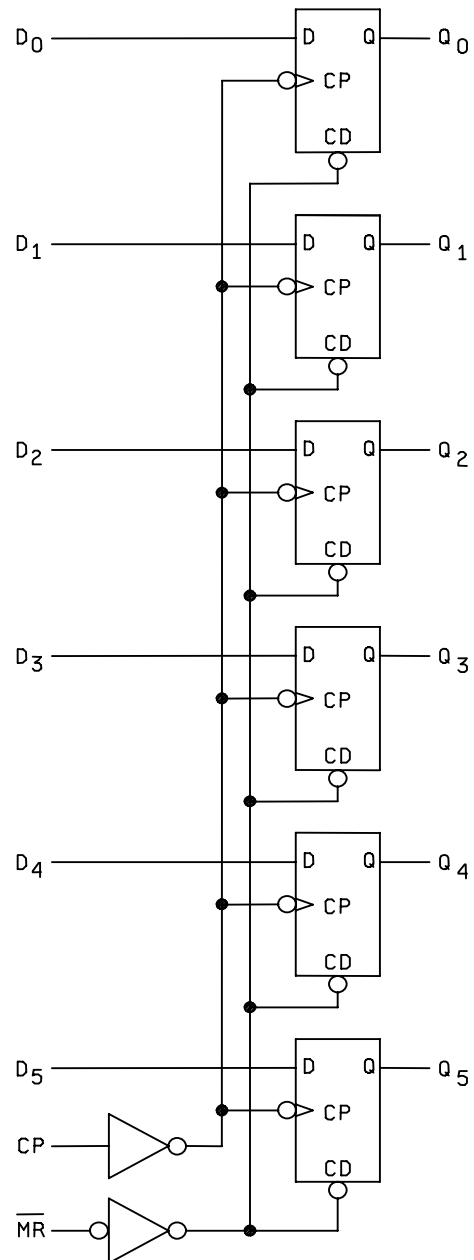
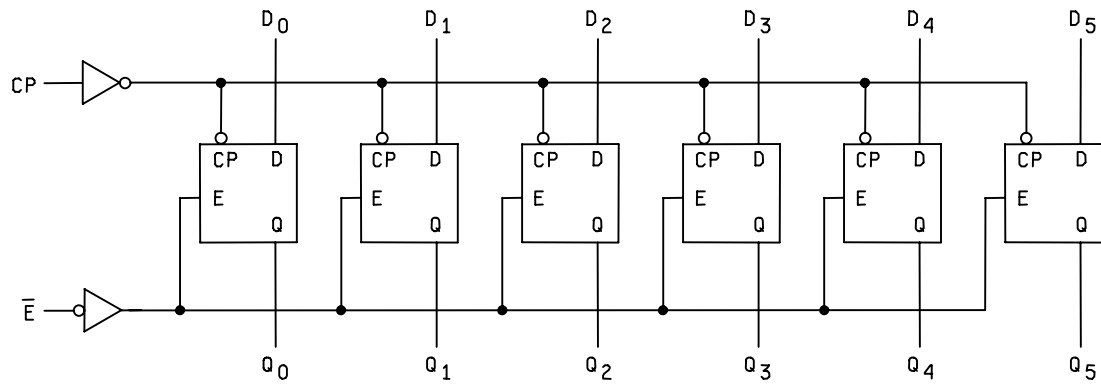
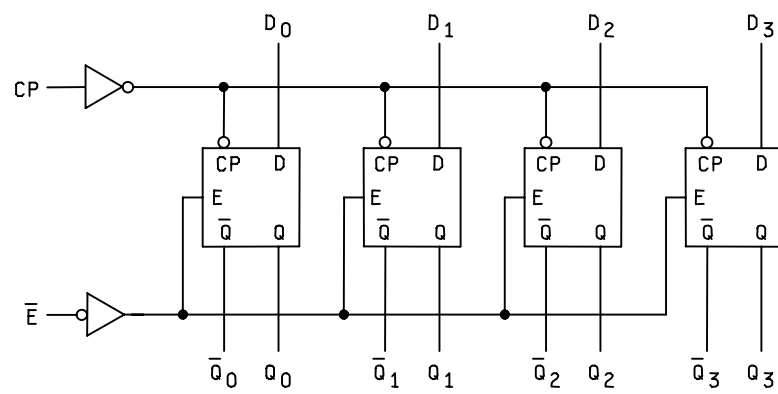
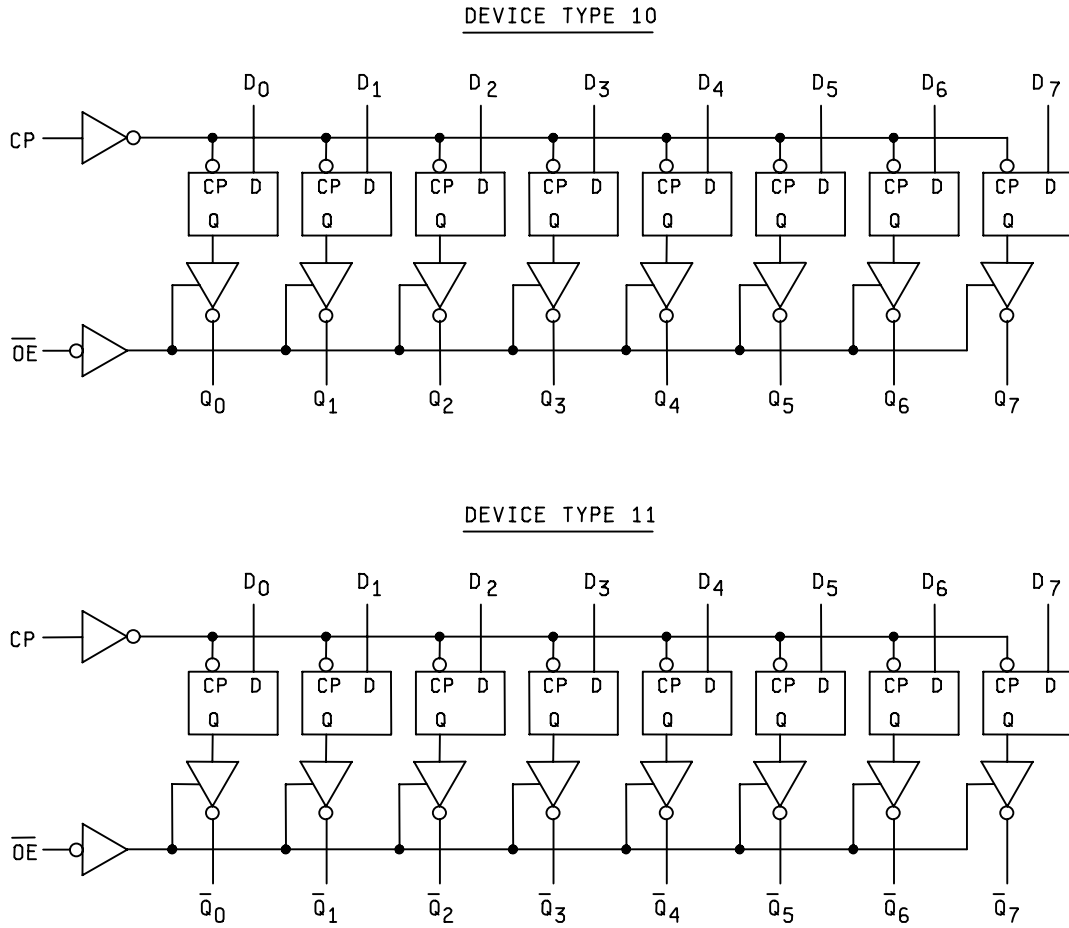


FIGURE 2. Logic diagrams

FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 07FIGURE 2. Logic diagrams – Continued.

DEVICE TYPE 08DEVICE TYPE 09FIGURE 2. Logic diagrams – Continued.

FIGURE 2. Logic diagrams – Continued.

Device type 01

Input	Outputs	
@ t_n	@ $t_n + 1$	
D	Q	$\bar{Q}$
L	L	H
H	H	L

Device type 02

Input		Outputs	
@ t_n		@ $t_n + 1$	
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_n		@ $t_n + 1$
J	K	Q
L	L	Q _n
L	H	L
H	L	H
H	H	$\bar{Q}_n$

Device type 04

Inputs	Outputs	
@ t_n $\overline{MR} = H$	@ $t_n + 1$	
D _n	Q _n	$\bar{Q}_n$
L	L	H
H	H	L

t_n = Bit time before clock pulse
 $t_n + 1$ = Bit time after clock pulse
 H = High voltage level
 L = Low voltage level

Device type 05

Inputs		Outputs	
D _n	CP	$\overline{OE}$	Q _n
H		L	H
L		L	L
X	X	H	Z

Device type 06

Inputs		Outputs	
D _n	CP	$\overline{OE}$	$\bar{Q}_n$
H		L	L
L		L	H
X	X	H	Z

Device type 07

Inputs			Outputs
$\overline{MR}$	CP	D	Q
L	X	X	L
H	↑	H	H
H	↑	L	L
H	L	X	Q ₀

Device type 08

Inputs			Outputs
$\bar{E}$	CP	D _n	Q _n
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

Q₀ = 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 _n	Q _n	$\bar{Q}_n$
H		X	NC	NC
L		H	H	L
L		L	L	H

H = High voltage level

L = Low voltage level

X = Immaterial

NC = No change

FIGURE 3. Truth tables.

Device type 10

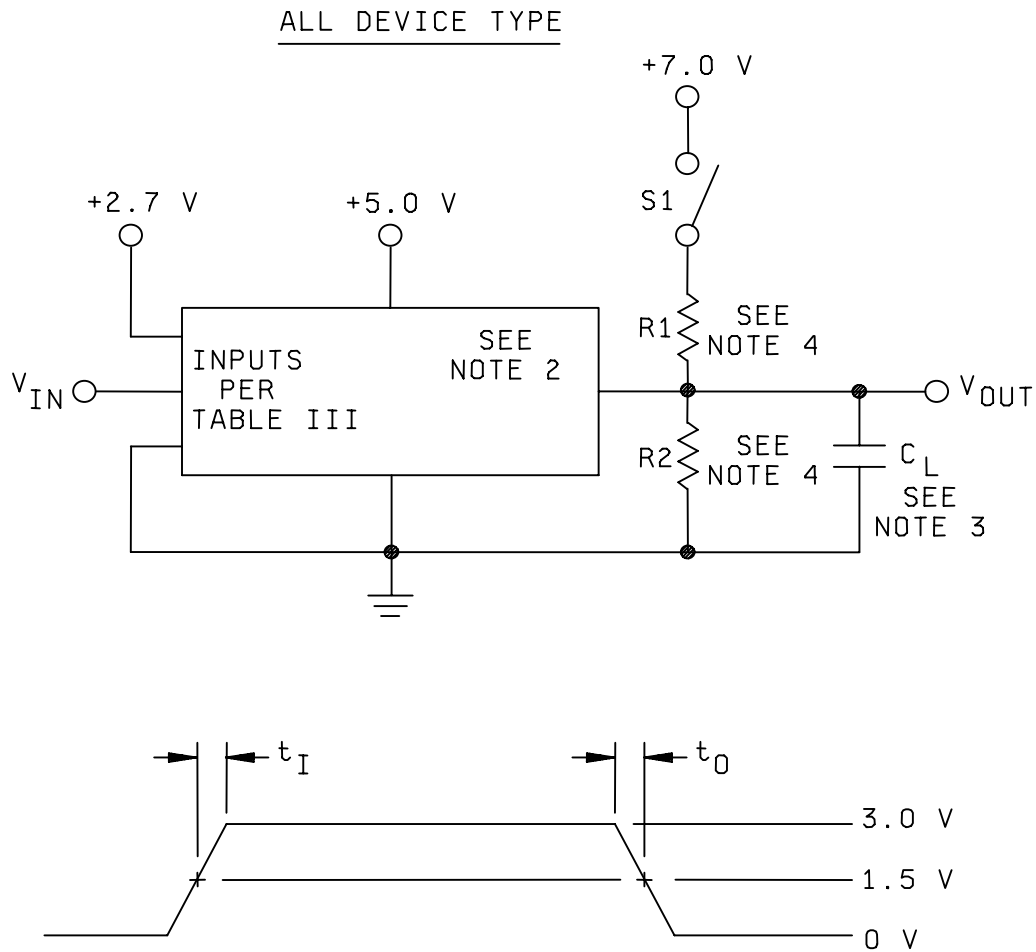
Inputs			Outputs	Function
$\overline{\text{OE}}$	CP	D	Q	
H	H	L	Z	Hold
H	H	H	Z	Hold
H	↑	L	Z	Load
H	↑	H	Z	Load
L	↑	L	L	Data available
L	↑	H	H	Data available
L	H	L	NC	No change in data
L	H	H	NC	No change in data

Device type 11

Inputs			Outputs	Function
$\overline{\text{OE}}$	CP	D	$\overline{\text{Q}}$	
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.

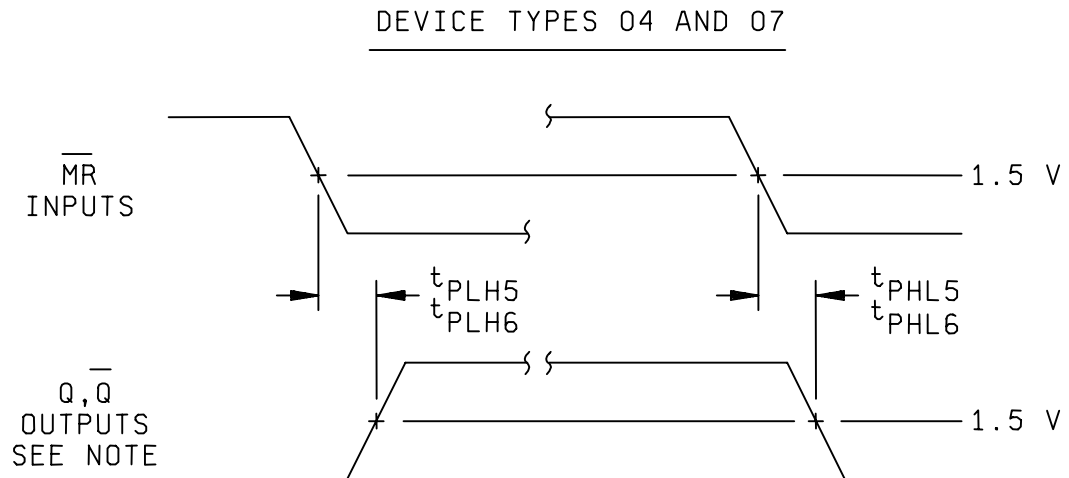
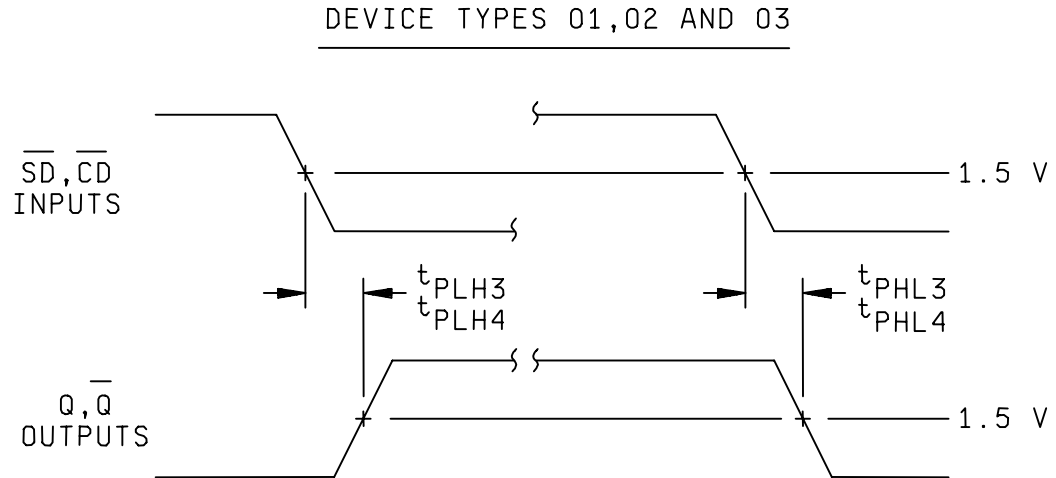


NOTES:

1. V_{IN} = input pulse and has the following characteristics:
 $PRR \leq 1\text{ MHz}$, $t_I = t_O \leq 2.5\text{ ns}$.
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.

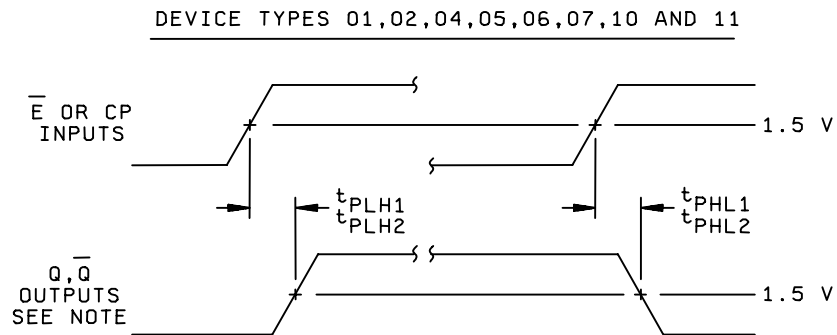
Test type	S1
t_{PLH}	Open
t_{PHL}	Open
t_{PHZ}	Open
t_{PZH}	Open
t_{PLZ}	Closed
t_{PZL}	Closed

FIGURE 4. Switching time waveforms.



NOTE: * Q output for device type 07.

FIGURE 4. Switching time waveforms – Continued.



NOTE: *Q output for device types 05 and 07.

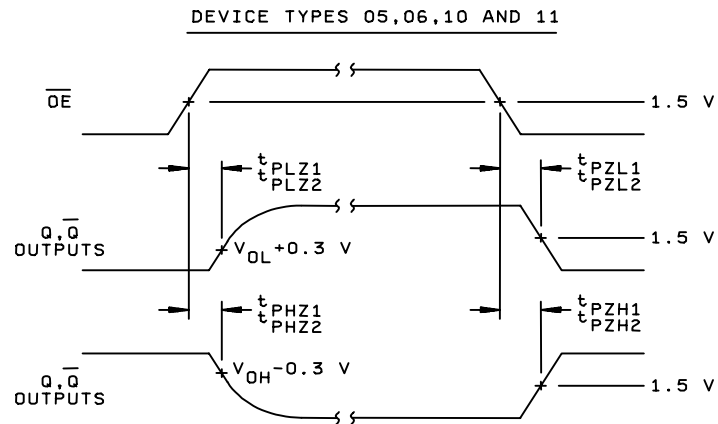
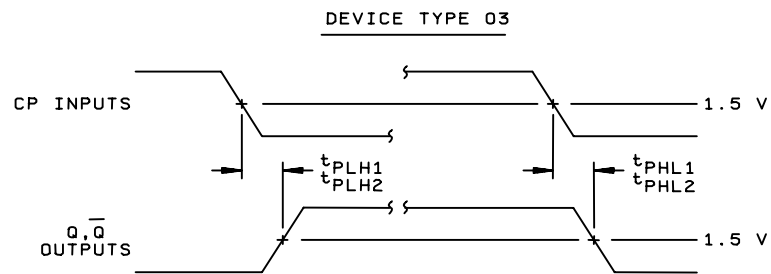
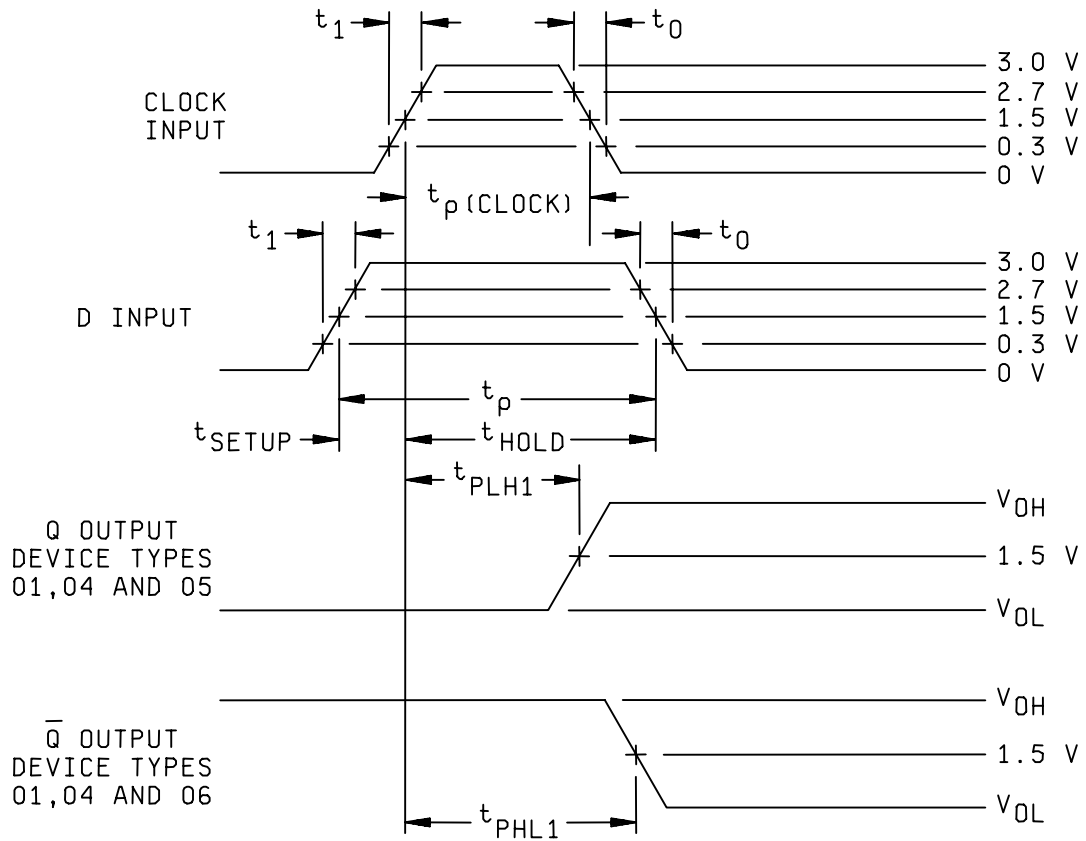


FIGURE 4. Switching time waveforms – Continued.

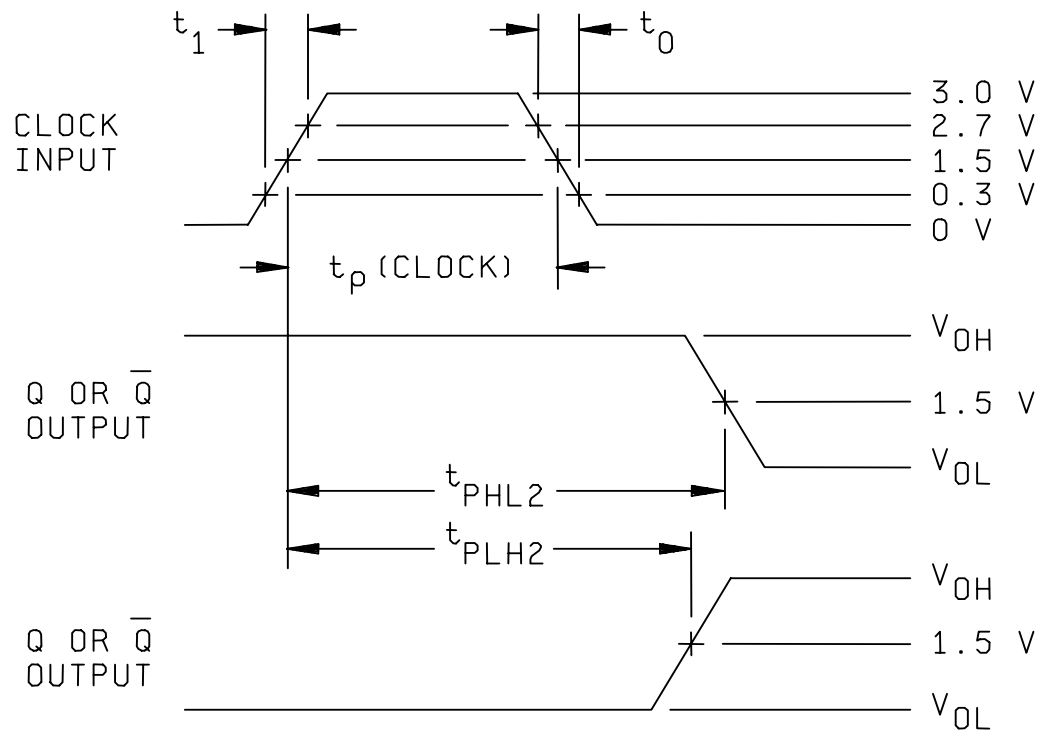
DEVICE TYPES 01,04,05 AND 06



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.

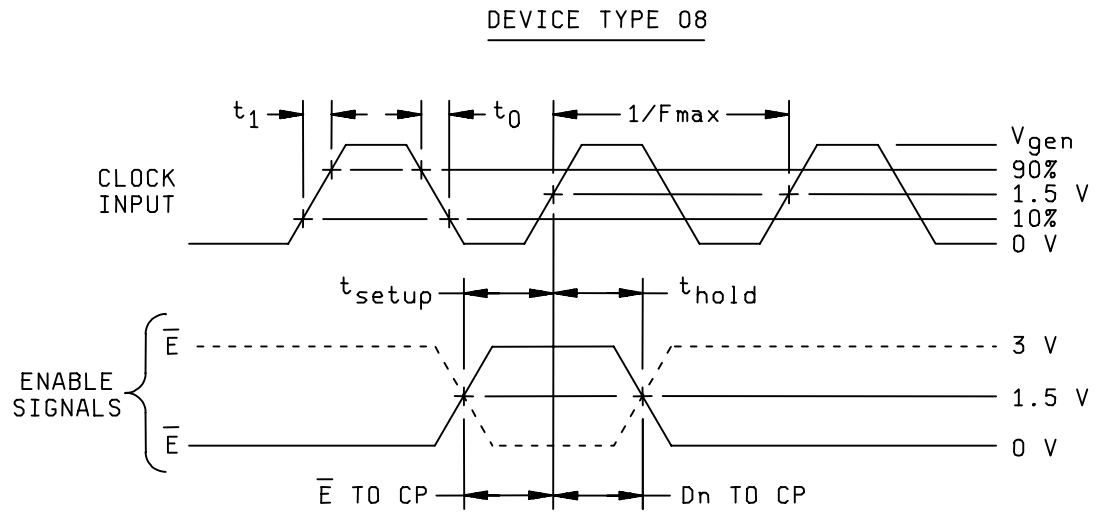
FIGURE 4. Switching time waveforms – Continued.

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.

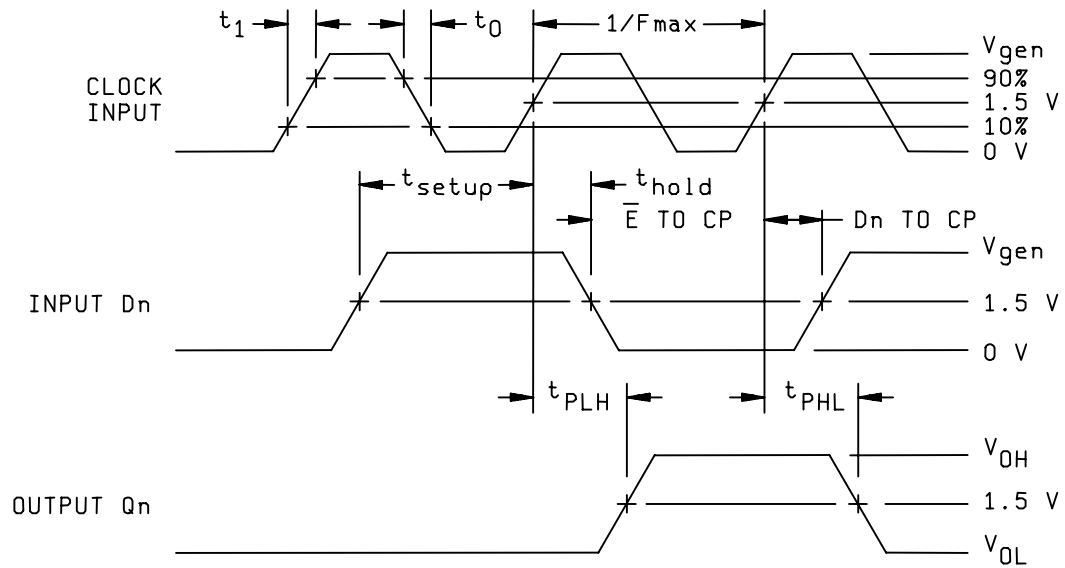


NOTES:

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

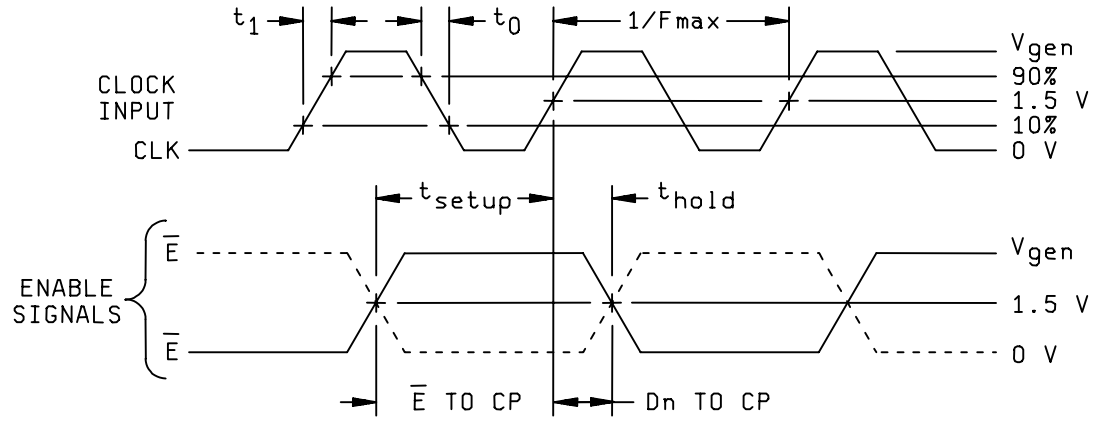


NOTES:

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

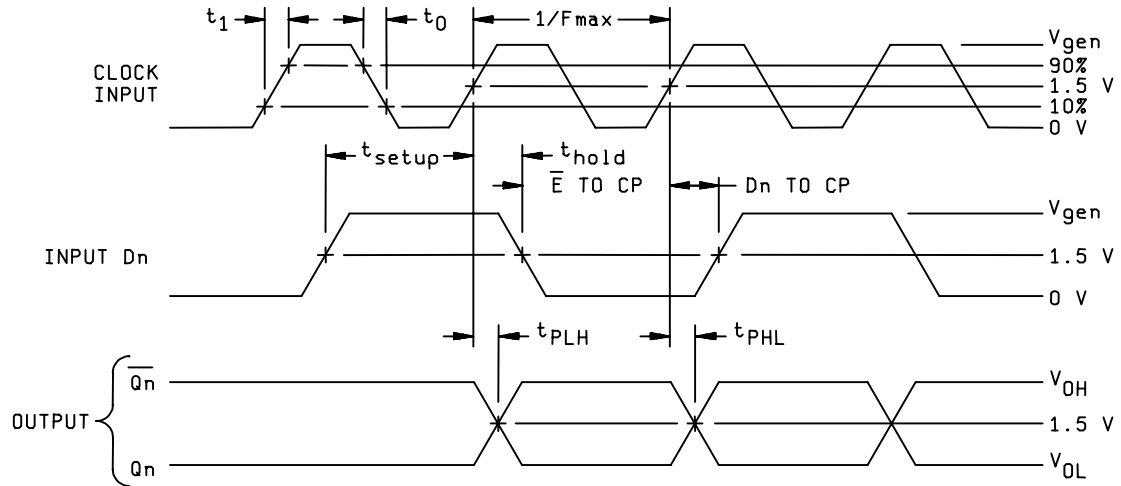


NOTES:

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,
 $\overline{E}$ 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, ($CLK > Q_n$, $\overline{Q_n}$). 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 ≥ 2.0 V; or low ≤ 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_1	CP_1	$\overline{SD}_1$	Q_1	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q_2	$\overline{SD}_2$	CP_2	D_2	$\overline{CD}_2$	V_{CC}				
1 $T_c = 25^\circ C$	V_{OL}	3007	1	4.5 V	.8 V	2/	2/	20 mA		"							4.5 V	Q_1		.5	V
			2	.8 V			2.0 V	20 mA										Q_1		"	"
			3	2.0 V			.8 V		20 mA	"								$\overline{Q}_1$		"	"
			4							"	20 mA		.8 V			2.0 V		$\overline{Q}_2$		"	"
			5							"		20 mA	2.0 V		.8 V			Q_2		"	"
			6							"		20 mA	2/	2/	.8 V	4.5 V		Q_2		"	"
	V_{OH}	3006	7	2.0 V			.8 V	-1 mA		"								Q_1	2.5		"
			8	3/	2.0 V	3/	4.5 V	-1 mA		"								Q_1	"		"
			9	.8 V			2.0 V		-1 mA	"								$\overline{Q}_1$	"		"
			10							"	-1 mA		2.0 V			.8 V		$\overline{Q}_2$	"		"
			11							"		-1 mA	.8 V			2.0 V		Q_2	"		"
			12							"		-1 mA	4.5 V	3/	2.0 V	3/		Q_2	"		"
	V_{IC}		13	-18 mA						"								$\overline{CD}_1$		-1.2	"
			14		-18 mA					"								D_1		"	"
			15			-18 mA				"								CP_1		"	"
			16				-18 mA			"								$\overline{SD}_1$		"	"
			17							"			-18 mA					$\overline{SD}_2$		"	"
			18							"				-18 mA				CP_2		"	"
	I_{IH1}	3010	19							"					-18 mA			D_2		"	"
			20							"						-18 mA		$\overline{CD}_2$		"	"
			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_1		"	"
			24	4.5 V	4.5 V	2.7 V	0 V			"								CP_1		"	"
			25	0 V	"	2.7 V	4.5 V			"								CP_1		"	"
			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_2		"	"
			29							"			4.5 V	2.7 V	"	0 V		CP_2		"	"
			30							"			"	4.5 V	2.7 V	0 V		D_2		"	"
	I_{IH2}	3010	31							"			"	0 V	0 V	2.7 V		$\overline{CD}_2$		"	"
			32							"			"	4/	0 V	2.7 V		$\overline{CD}_2$		"	"
			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_1		"	"
			36	4.5 V	4.5 V	7.0 V	0 V			"								CP_1		"	"
			37	0 V	"	7.0 V	4.5 V			"								CP_1		"	"
			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_2		"	"
			41							"			4.5 V	7.0 V	"	0 V		CP_2		"	"
			42							"			"	4.5 V	7.0 V	0 V		D_2		"	"
			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 ≥ 2.0 V; or low ≤ 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.	CD ₁	D ₁	CP ₁	SD ₁	Q ₁	Q ₁	GND	Q ₂	Q ₂	SD ₂	CP ₂	D ₂	CD ₂	V _{CC}				
1 T _C = 25°C	I _{IL1}	3009	45	4.5 V	.5 V	4.5 V	0 V			GND							"	D ₁	5/	5/	mA
			46	4.5 V	0 V	.5 V	0 V			"							"	CP ₁	"	"	"
		47								"			0 V	.5 V	0 V	4.5 V	"	CP ₂	"	"	"
			48							"			0 V	4.5 V	.5 V	4.5 V	"	D ₂	"	"	"
	I _{IL2}	3009	49	.5 V	4.5 V	4.5 V	0 V			"							"	CD ₁	"	"	"
			50	0 V	0 V	0 V	.5 V			"							"	SD ₁	"	"	"
		51							"			.5 V	0 V	0 V	0 V	"	SD ₂	"	"	"	
			52							"			0 V	4.5 V	4.5 V	.5 V	"	CD ₂	"	"	"
	I _{OS}	3011	53				0 V	0 V		"							5.5 V	Q ₁	-60	-150	mA
			54	0 V					0 V	"							"	Q ₁	"	"	"
		55							"	0 V					0 V	"	Q ₂	"	"	"	
			56							"		0 V	0 V			"	Q ₂	"	"	"	
	I _{OD}		57	0 V			5.5 V	2.5 V									4.5 V	Q ₁	60		"
			58	5.5 V			0 V		2.5 V	"						"	Q ₁	"		"	
			59							"	2.5 V		0 V			5.5 V	"	Q ₂	"		"
			60							"		2.5 V	5.5 V			0 V	"	Q ₂	"		"
	I _{CC}	3005	61	5.5 V	0 V	0 V	0 V			"			0 V	0 V	0 V	5.5 V	5.5 V	V _{CC}		16	"
	I _{CC}	3005	62	0 V	0 V	0 V	5.5 V			"			5.5 V	0 V	0 V	0 V	5.5 V	V _{CC}		16	"
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = 125°C and V _{IC} tests are omitted.																				
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																				
7 T _C = +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 _C = +125°C and T _C = -55°C.																				
9 T _C = +25°C	f _{MAX} g/	3003	78	2.7 V	IN	IN	2.7 V	OUT		GND							5.0 V	Q ₁	100		MHz
			79	2.7 V	IN	IN	2.7 V		OUT	"							"	Q ₁	"		"
			80							"	OUT		2.7 V	IN	IN	2.7 V	"	Q ₂	"		"
			81							"		OUT	2.7 V	IN	IN	2.7 V	"	Q 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 ≥ 2.0 V or low ≤ 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 J/ and X	2	3	4	6	8	9	10	12	13	14	16	18	19	20		Min	Max	
			Test no.	$\overline{CD}_1$	D ₁	CP ₁	$\overline{SD}_1$	Q ₁	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q ₂	$\overline{SD}_2$	CP ₂	D ₂	$\overline{CD}_2$	V _{CC}				
9 T _C = +25°C	t _{PLH1}	3003 Fig. 4	82	2.7 V	IN	IN	2.7 V	OUT		GND							5.0 V	CP ₁ to Q ₁	3.8	6.8	ns
	t _{PHL1}		83	"	"	"	"	OUT		"							"	CP ₁ to Q ₁	4.4	8.0	"
	t _{PLH2}		84	"	"	"	"		OUT	"							"	CP ₁ to $\overline{Q}_1$	3.8	6.8	"
	t _{PHL2}		85	"	"	"	"		OUT	"							"	CP ₁ to $\overline{Q}_1$	4.4	8.0	"
	t _{PLH1}	3003 Fig. 4	86							GND		OUT	2.7 V	IN	IN	2.7 V	5.0 V	CP ₂ to Q ₂	3.8	6.8	ns
	t _{PHL1}		87							"		OUT	"	"	"	"	"	CP ₂ to Q ₂	4.4	8.0	"
	t _{PLH2}		88							"	OUT		"	"	"	"	"	CP ₂ to $\overline{Q}_2$	3.8	6.8	"
	t _{PHL2}		89							"	OUT		"	"	"	"	"	CP ₂ to $\overline{Q}_2$	4.4	8.0	"
	t _{PLH3}		90	IN	2.7 V	2.7 V	IN	OUT		"							"	$\overline{CD}_1$ to Q ₁	3.5	9.0	"
	t _{PHL4}		91	"	"	0 V	"	OUT		"							"	$\overline{CD}_1$ to Q ₁	3.5	9.0	"
	t _{PLH3}		92	"	"	2.7 V	"		OUT	"							"	$\overline{CD}_1$ to $\overline{Q}_1$	3.2	6.1	"
	t _{PLH4}		93	"	"	0 V	"		OUT	"							"	$\overline{CD}_1$ to $\overline{Q}_1$	"	6.1	"
	t _{PLH3}		94	"	"	2.7 V	"	OUT		"							"	$\overline{SD}_1$ to Q ₁	"	6.1	"
	t _{PLH4}		95	"	"	0 V	"	OUT		"							"	$\overline{SD}_1$ to Q ₁	"	6.1	"
	t _{PHL3}		96	"	2.7 V	2.7 V	"		OUT	"							"	$\overline{SD}_1$ to $\overline{Q}_1$	3.5	9.0	"
	t _{PHL4}		97	"	2.7 V	0 V	"		OUT	"							"	$\overline{SD}_1$ to $\overline{Q}_1$	"	9.0	"
	t _{PHL3}		98							"		OUT	IN	2.7 V	2.7 V	IN	"	$\overline{CD}_2$ to Q ₂	"	9.0	"
	t _{PHL4}		99							"		OUT	"	0 V	"	"	"	$\overline{CD}_2$ to Q ₂	"	9.0	"
	t _{PLH3}		100							"	OUT		"	2.7 V	"	"	"	$\overline{CD}_2$ to $\overline{Q}_2$	3.2	6.1	"
	t _{PLH4}		101							"	OUT		"	0 V	"	"	"	$\overline{CD}_2$ to $\overline{Q}_2$	"	6.1	"
	t _{PLH3}		102							"		OUT	"	2.7 V	"	"	"	$\overline{SD}_2$ to Q ₂	"	6.1	"
	t _{PLH4}		103							"		OUT	"	0 V	"	"	"	$\overline{SD}_2$ to Q ₂	"	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 ≥ 2.0 V; or low ≤ 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 ₁	CP ₁	$\overline{SD}_1$	Q ₁	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q ₂	$\overline{SD}_2$	CP ₂	D ₂	$\overline{CD}_2$	V _{CC}				
9	t _{PHL3}	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 _C = +25°C	t _{PHL4}		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 _C = +125°C and use limits from table I.																				
11	Same tests, and terminal conditions as for subgroup 9, except T _C = -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}	-.25/- .60	-.03/- .60	-.03/- .60	-.03/- .60
I_{IL2}	-.75/-1.80	-.09/-1.80	-.09/-1.80	-.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 ≥ 2.0 V; or low ≤ 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 $\overline{1}$ 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 Tc = 25°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	"									"	$\overline{Q}_1$		"	"
			5	3/	2.0 V	4.5 V	3/	4.5 V		"	"								"	$\overline{Q}_1$		"	"	
			6	3/	4.5 V	2.0 V	3/	4.5 V		"	"								"	$\overline{Q}_1$		"	"	
			7								"	20 mA		.8 V				2.0 V	"	$\overline{Q}_2$		"	"	
			8								"	"		4.5 V	3/	4.5 V	2.0 V	3/	"	$\overline{Q}_2$		"	"	
			9								"	"			3/	2.0 V	4.5 V	3/	"	$\overline{Q}_2$		"	"	
			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	"								"	$\overline{Q}_1$			"	
			15								"	-1 mA		2.0 V				4/	"	$\overline{Q}_2$			"	
			16								"		-1 mA	4/			2.0 V	"	Q_2			"		
	V _{IC}		17	-18 mA							"								"	$\overline{CD}_1$		-1.2	"	
			18		-18 mA						"								"	J_1		"	"	
			19			-18 mA					"								"	K_1		"	"	
			20				-18 mA				"								"	CP_1		"	"	
			21					-18 mA			"								"	$\overline{SD}_1$		"	"	
			22								"			-18 mA					"	$\overline{SD}_2$		"	"	
			23								"				-18 mA				"	CP_2		"	"	
			24								"					-18 mA			"	$\overline{K}_2$		"	"	
			25								"						-18 mA		"	J_2		"	"	
			26								"							-18 mA	"	$\overline{CD}_2$		"	"	
	I _{IH1}	3010	27	2.7 V	0 V	0 V	4/				"								5.5 V	$\overline{CD}_1$		20	μA	
			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			"								"	$\overline{SD}_1$		"	"	
			33								"			2.7 V	5/		4.5 V		"	$\overline{SD}_2$		"	"	
			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	"	$\overline{CD}_2$		"	"	

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 ≥ 2.0 V; or low ≤ 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	Limits			Unit	
			Cases 2 J/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20	terminal	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°C	I _{IH2}	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 ₁		"	"	
			41	"		7.0 V					"								"	$\overline{K}_1$		"	"	
			42	"				7.0 V											"	CP ₁		"	"	
			43					7.0 V	0 V										"	CP ₁		"	"	
			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 ₂		"	"	
			47												7.0 V			0 V	"	CP ₂		"	"	
			48														7.0 V		"	K ₂		"	"	
	49															7.0 V	"	J ₂		"	"			
	50													4/	0 V	0 V	7.0 V	"	$\overline{CD}_2$		"	"		
	I _{IL1}	3009	51	4/	.5 V		0 V													"	J ₁	6/	6/	mA
			52	4.5 V		.5 V	0 V	0 V											"	$\overline{K}_1$	"	"	"	
			53	4.5 V		0 V	.5 V	0 V											"	CP ₁	"	"	"	
			54											0 V	.5 V	0 V		4.5 V	"	CP ₂	"	"	"	
			55												0 V	0 V	.5 V	4.5 V	"	K ₂	"	"	"	
	I _{IL2}	3009	56													0 V		.5 V	4/	"	J ₂	"	"	"
			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	"	$\overline{SD}_2$	"	"	"	
	I _{OS}	3011	60												0 V	4.5 V	4.5 V	4.5 V	.5 V	"	$\overline{CD}_2$	"	"	"
			61					0 V	0 V											"	Q ₁	-60	-150	"
			62	0 V							0 V									"	$\overline{Q}_1$	"	"	"
			63											0 V					0 V	"	$\overline{Q}_2$	"	"	"
	I _{OD}		64											0 V	0 V					"	Q ₂	"	"	"
			65	0 V				5.5 V	2.5 V										4.5 V	Q ₁	60		"	
			66	5.5 V				0 V		2.5 V										"	$\overline{Q}_1$	"		"
			67										2.5 V		0 V				5.5 V	"	$\overline{Q}_2$	"		"
	I _{CC}	3005	68											2.5 V	5.5 V				0 V	"	Q ₂	"		"
69			5.5 V		0 V	0 V	0 V							0 V	0 V	0 V		5.5 V	5.5 V	V _{CC}		17	"	
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																							
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																							

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 ≥ 2.0 V; or low ≤ 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 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}				
7 T _C = +25°C	Functional tests g/	3014	70	A	A	B	A	B	H	L	GND	L	H	B	A	B	A	A	7/	All outputs			
			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 _C = 125°C and T _C = -55°C.																						
9 T _C = +25°C	f _{MAX} g/	3003 Fig. 4	103	2.7 V	2.7 V	0	IN	2.7 V	OUT	"									5.0 V	Q ₁	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 ₂	"		"
			107	2.7 V	2.7 V	0 V	IN	2.7 V	OUT		"								"	CP ₁ to Q ₁	3.8	7.0	ns
			108								"		OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP ₂ to Q ₂	3.8	7.0	"
			109	2.7 V	2.7 V	0	IN	2.7 V	OUT		"								"	CP ₁ to Q ₁	4.4	8.0	"
			110								"		OUT	2.7 V	IN	0 V	2.7 V	2.7 V	"	CP ₂ to Q ₂	4.4	8.0	"
			111	2.7 V	2.7 V	0	IN	2.7 V		OUT	"								"	CP ₁ to $\overline{Q}_1$	3.8	7.0	"
			112								"	OUT		2.7 V	IN	0 V	2.7 V	2.7 V	"	CP ₂ to $\overline{Q}_2$	3.8	7.0	"
			113	2.7 V	2.7 V	0	IN	2.7 V		OUT	"								"	CP ₁ to $\overline{Q}_1$	4.4	8.0	"
			114								"	OUT		2.7 V	IN	0 V	2.7 V	2.7 V	"	CP ₂ 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 ≥ 2.0 V; or low ≤ 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 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	K ₁	CP ₁	$\overline{SD}_1$	Q ₁	$\overline{Q}_1$	GND	$\overline{Q}_2$	Q ₂	$\overline{SD}_2$	CP ₂	K ₂	J ₂	$\overline{CD}_2$	V _{CC}					
9 T _C = +25°C	t _{PLH3}	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 ₁	"	"	"	
			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 ₂	"	"	"	
	t _{PHL3}		119	IN	2.7 V	0 V	2.7 V	2.7 V	OUT		"								"	$\overline{CD}_1$ to Q ₁	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 ₂	"	"	"
			122									"	OUT		IN				2.7 V	"	$\overline{SD}_2$ to $\overline{Q}_2$	"	"	"
	t _{PLH4}		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 ₁	"	"	"
			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 ₂	"	"	"
	t _{PHL4}		127	IN	2.7 V	0 V	0 V	2.7 V	OUT		"									"	$\overline{CD}_1$ to Q ₁	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 ₂	"	"	"
			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 _C = +125°C and use limits from table I.																							
11	Same tests, terminal conditions, and limits as subgroup 9, except T _C = -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 $\overline{\text{SD}}$ 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 $\overline{\text{SD}}$ 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 $\overline{\text{CD}}$ 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 $\overline{\text{CP}}$ 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 CP₁ test 32 and 44 and CP₂ test 33 and 45 then make measurement.
- 6/ I_{IL} limits (mA) min/max values for circuits shown:

Parameter	Circuits			
	A	B	C	D
I _{IL1}	-.25/- .60	-.03/- .60	-.03/- .60	-.03/- .60
I _{IL2}	-.75/-1.80	-.09/-1.80	-.09/-1.80	-.09/-1.80

- 7/ Perform function sequence at V_{CC} = 4.5 V and repeat at V_{CC} = 5.5 V.
- 8/ A = 2.5 V
B = 0.5 V
H ≥ 1.5 V
L ≤ 1.5 V
- 9/ 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 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	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	$\overline{K}_2$	$\overline{CP}_2$	$\overline{CD}_2$	$\overline{CD}_1$	V_{CC}				
1 Tc = 25°C	V _{OH}	3006	1	2/	.8 V	2.0 V	2.0 V	-1 mA			GND							2.0 V	4.5 V	Q_1	2.5		V
			2									-1mA	2.0 V	2.0 V	.8 V	2/	2.0 V			Q_2	"		"
			3	2/	2.0 V	.8 V	2.0 V		-1 mA		"							2.0 V	"	$\overline{Q}_1$	"		"
			4							-1 mA	"		2.0 V	.8 V	2.0 V	2/	2.0 V		"	$\overline{Q}_2$	"		"
			5	4.5 V	4.5 V	4.5 V	.8 V	-1 mA			"							2.0 V	"	Q_1	"		"
			6								"	-1 mA	.8 V	4.5 V	4.5 V	4.5 V	2.0 V			Q_2	"		"
			7	4.5 V	4.5 V	4.5 V	2.0 V		-1 mA		"							.8 V	"	Q_1	"		"
			8							-1 mA	"		2.0 V	4.5 V	4.5 V	4.5 V	.8 V		"	$\overline{Q}_2$	"		"
	V _{OL}	3007	9	2/	.8 V	2.0 V	2.0 V		20 mA		"							2.0 V	"	$\overline{Q}_1$		.50	"
			10							20 mA	"		2.0 V	2.0 V	.8 V	2/	2.0 V		"	$\overline{Q}_2$		"	"
			11	2/	2.0 V	.8 V	2.0 V	20 mA			"							2.0 V	"	Q_1		"	"
			12								"	20 mA	2.0 V	.8 V	2.0 V	2/	2.0 V		"	Q_2		"	"
			13	4.5 V	4.5 V	4.5 V	.8 V		20 mA		"							2.0 V	"	Q_1		"	"
			14							20 mA	"		.8 V	4.5 V	4.5 V	4.5 V	2.0 V		"	$\overline{Q}_2$		"	"
			15	4.5 V	4.5 V	4.5 V	2.0 V	20 ma			"							.8 V	"	Q_1		"	"
			16								"	20 mA	2.0 V	4.5 V	4.5 V	4.5 V	.8 V		"	Q_2		"	"
	V _{IC}		17	-18 mA							"								"	$\overline{CP}_1$		-1.2	"
			18		-18 mA						"								"	K_1		"	"
			19			-18 mA					"								"	J_1		"	"
			20				-18 mA				"								"	$\overline{SD}_1$		"	"
			21								"		-18 mA						"	$\overline{SD}_2$		"	"
			22								"			-18 mA					"	J_2		"	"
			23								"				-18 mA				"	K_2		"	"
			24								"					-18 mA			"	$\overline{CP}_2$		"	"
			25	2.7 V	0 V	0 V	4.5 V				"						-18 mA		"	$\overline{CD}_2$		"	"
			26	2.7 V	0 V	4/	"				"							-18 mA	"	$\overline{CD}_1$		"	"
	I _{IL1}	3009	27	4.5 V	.5 V	4.5 V	2/				"							4.5 V	5.5 V	K_1	3/	3/	mA
			28								"		2/	4.5 V	.5 V	4.5 V	4.5 V		"	K_2	"	"	"
	I _{IL2}	3009	29	4.5 V	4.5 V	.5 V	4.5 V				"							2/	"	J_1	"	"	"
			30								"		4.5 V	.5 V	4.5 V	4.5 V	2/		"	J_2	"	"	"
			31	4.5 V	4.5 V	4.5 V	4.5 V				"							.5 V	"	$\overline{CD}_1$	"	"	"
			32								"		4.5 V	4.5 V	4.5 V	4.5 V	.5 V		"	$\overline{CD}_2$	"	"	"
	I _{IL3}	3009	33	4.5 V	4.5 V	4.5 V	.5 V				"							4.5 V	"	$\overline{SD}_1$	"	"	"
			34								"		.5 V	4.5 V	4.5 V	4.5 V	4.5 V		"	$\overline{SD}_2$	"	"	"
			35	.5 V	4.5 V	4.5 V	4.5 V				"							2/	"	$\overline{CP}_1$	"	"	"
			36								"		4.5 V	4.5 V	4.5 V	.5 V	2/		"	$\overline{CP}_2$	"	"	"

See footnotes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	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.	$\overline{CP}_1$	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 $T_C = 25^\circ\text{C}$	I_{IH1}	3010	37	GND	2.7 V	4.5 V	GND				GND							4.5 V	5.5 V	K_1		20	μA
			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																	J_2			
			41	GND	4.5 V	GND	$\overline{2/}$						4.5 V	2.7 V	4.5 V			GND		$\overline{CD}_1$			
			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	μA
			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																	J_2			
			51	GND	4.5 V	GND	$\overline{2/}$						4.5 V	7.0 V	4.5 V	GND	GND			$\overline{CD}_1$			
			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	5.5 V	V_{CC}		19	"
	I_{CC}	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 $T_C = 125^\circ\text{C}$ 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 03.

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

Subgroup	Symbol	MIL-STD-883 method	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}							
7 T _C = 25°C	Functional tests 5/	3006	67	B	B	A	A	L	H	H	GND	L	A	A	B	B	B	B	4/	All outputs						
			68	A	"	"	"	"	"	"	"	"	"	"	"	A	"	"	"		"					
			69	B	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"		"	"				
			70	B	A	B	B	H	L	L	"	H	B	B	A	B	A	A	A		"					
			71	A	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"		"	"				
			72	B	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"		"	"				
			73	"	B	"	A	L	H	H	"	L	A	"	B	"	B	B	B		"					
			74	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	A		A	"				
			75	A	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"		"	"				
			76	B	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"		"	"				
			77	"	"	"	B	H	L	L	"	H	B	"	"	"	"	"	"		"	"				
			78	"	"	"	A	"	"	"	"	"	A	"	"	"	"	"	"		"	"				
			79	A	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"		"	"				
			80	B	"	"	"	"	"	"	"	"	"	"	"	"	B	"	"		"	"				
			81	"	"	A	"	L	H	H	"	L	"	A	"	"	"	B	B		B	"				
			82	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A	A		A	"				
			83	A	"	"	"	"	"	"	"	"	"	"	"	"	A	"	"		"	"				
			84	B	"	"	"	"	H	L	L	"	H	"	"	"	B	"	"		"	"				
			85	"	A	B	B	"	"	"	"	"	B	B	A	"	"	"	"		"	"				
			86	"	"	"	A	"	"	"	"	"	"	A	"	"	"	"	"		"	"				
			87	A	"	"	"	"	"	"	"	"	"	A	"	"	A	"	"		"	"				
			88	B	"	"	"	"	L	H	H	"	L	A	"	"	B	"	"		"	"				
			89	B	"	"	"	A	L	H	H	"	"	"	"	"	"	"	B		B	"				
			90	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A		A	A	"			
			91	A	"	A	"	"	"	"	"	"	"	"	"	A	"	A	"		"	"	"			
			92	B	"	A	"	"	H	L	L	"	H	"	A	"	B	"	"		"	"	"			
			93	A	"	"	"	"	H	L	L	"	H	"	"	"	"	A	"		"	"	"			
			94	B	"	"	"	"	L	H	H	"	L	"	"	"	"	B	"		"	"	"			
8	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = +125°C and T _C = -55°C.																									
9 T _C = +25°C	f _{MAX} 6/	3003 Fig. 4	95	IN	2.7 V	2.7 V	2.7 V	OUT			GND							2.7 V	5.0 V	Q ₁	90		MHz			
			96	IN	2.7 V	2.7 V	2.7 V		OUT		"							2.7 V	"	$\overline{Q}_1$	"		"			
	97								OUT	"		2.7 V	2.7 V	2.7 V	IN	2.7 V		"	$\overline{Q}_2$	"		"				
	98									"	OUT		2.7 V	2.7 V	IN	2.7 V		"	Q ₁	"		"				
	99		IN	2.7 V	2.7 V	2.7 V	OUT			GND						IN	5.0 V	$\overline{CP}_1$ to Q ₁	3.3	7.7	ns					
	100									"	OUT	2.7 V	2.7 V	2.7 V	IN	IN		"	$\overline{CP}_2$ to Q ₂	"		"				
	101		IN	2.7 V	2.7 V	IN		OUT		"						2.7 V	"	$\overline{CP}_1$ to $\overline{Q}_1$	"		"					
	102								OUT	"		IN	2.7 V	2.7 V	IN	2.7 V		"	$\overline{CP}_2$ to $\overline{Q}_2$	"		"				
	103		IN	2.7 V	2.7 V	IN	OUT			"						2.7 V	"	$\overline{CP}_1$ to Q ₁	"		"					
	104									"	OUT	IN	2.7 V	2.7 V	IN	2.7 V		"	$\overline{CP}_2$ to Q ₂	"		"				
	105		IN	2.7 V	2.7 V	2.7 V		OUT		"						IN	"	$\overline{CP}_1$ to $\overline{Q}_1$	"		"					
	106										OUT	"		2.7 V	2.7 V	2.7 V	IN	IN	"	$\overline{CP}_2$ to $\overline{Q}_2$	"		"			
107	2.7 V	2.7 V	2.7 V	IN	OUT				"						IN	"	$\overline{SD}_1$ to Q ₁	2.0	7.0	"						
108									"	OUT	IN	2.7 V	2.7 V	2.7 V	IN		"	$\overline{SD}_2$ to Q ₂	"		"					
109	2.7 V	2.7 V	2.7 V	IN		OUT			"						IN	"	$\overline{CD}_1$ to $\overline{Q}_1$	"		"						
										OUT	"		IN	2.7 V	2.7 V	2.7 V	IN		$\overline{CD}_2$ to $\overline{Q}_2$	"		"				

See footnotes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	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°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°C and use limits from table I.																								
11	Same tests and terminal conditions as subgroup 9, except T _C = -55°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 ≥ 2.0 V; or low ≤ 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	Limits		Unit	
			Cases 2 1/ and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		terminal	Min		Max
			Test no.	MR	Q ₀	Q ₀	D ₀	D ₁	Q ₁	GND	CP	Q ₂	Q ₂	D ₂	D ₃	Q ₃	Q ₃	V _{CC}						
1 Tc = 25°C	V _{OL}	3007	1	.8 V	20 mA							GND							4.5 V	Q ₀		.5	V	
			2	"						20 mA	"								"	Q ₁		"	"	
			3	"							"		20 mA						"	Q ₂		"	"	
			4	"							"						20 mA		"	Q ₃		"	"	
			5	2/		20 mA	2.0 V				"	2/							20 mA	"	Q ₀		"	"
			6	"				2.0 V	20 mA		"	"								"	Q ₁		"	"
			7	"							"	"		20 mA	2.0 V					"	Q ₂		"	"
			8	"							"	"				2.0 V	20 mA			"	Q ₃		"	"
	V _{OH}	3006	9	"	-1 mA		2.0 V					"	"							"	Q ₀	2.5	"	"
			10	"		-1 mA	.8 V					"	"							"	Q ₀		"	"
			11	"				.8 V	-1 mA			"	"							"	Q ₁		"	"
			12	"				2.0 V		-1 mA	"	"								"	Q ₁		"	"
			13	"							"	"	-1 mA		2.0 V					"	Q ₂		"	"
			14	"							"	"		-1 mA	.8 V					"	Q ₂		"	"
			15	"							"	"				.8 V	-1 mA			"	Q ₃		"	"
			16	"							"	"				2.0 V		-1 mA		"	Q ₃		"	"
	V _{IC}		17	-18 mA								"								"	MR		-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	MR		20	μA	
			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								"								"	MR		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 _{I1}	3009	35	.5 V								"								"	MR	3/	3/	mA
			36				.5 V				"									"	D ₀		"	"
			37					.5 V			"									"	D ₁		"	"
			38								"	.5 V								"	CP		"	"
			39								"				.5 V					"	D ₂		"	"
			40								"					.5 V		.5 V		"	D ₃		"	"

See footnotes at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	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 ₀	Q ₀	D ₀	D ₁	Q ₁	Q ₁	GND	CP	Q ₂	Q ₂	D ₂	D ₃	Q ₃	Q ₃	V _{CC}				
1 T _C = 25°C	I _{OS}	3011	41	2/	0 V		4.5 V				GND	2/							5.5 V	Q ₀	-60	-150	mA
			42	"				4.5 V		0 V	"	"							"	Q ₁	"	"	"
			43	"							"	"	0 V		4.5 V				"	Q ₂	"	"	"
			44	"							"	"				4.5 V		0 V	"	Q ₃	"	"	"
			45	0 V		0 V					"	4.5 V							"	Q ₀	"	"	"
			46	"					0 V		"	"							"	Q ₁	"	"	"
			47	"							"	"		0 V					"	Q ₂	"	"	"
			48	"							"	"					0 V		"	Q ₃	"	"	"
	I _{OD}	3006	49	0 V	2.5 V						"								4.5 V	Q ₀	60		"
			50	"						2.5 V	"								"	Q ₁	"		"
			51	"							"		2.5 V						"	Q ₂	"		"
			52	"							"							2.5 V	"	Q ₃	"		"
			53	5.5 V		2.5 V	5.5 V	5.5 V			"	4/			5.5 V	5.5 V			"	Q ₀	"		"
			54	"			"	"	2.5 V		"	"			"	"			"	Q ₁	"		"
			55	"			"	"			"	"		2.5 V	"	"			"	Q ₂	"		"
			56	"			"	"			"	"			"	"	2.5 V		"	Q ₃	"		"
	I _{CC}	3005	57	4.5 V			4.5 V	4.5 V				"			4.5 V	4.5 V			5.5 V	V _{CC}		34	"
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																						
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																						

See footnotes at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	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.	$\overline{MR}$	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°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	"	A	A	"	"	"			
			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	"	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"	"			
			84	"	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"	"			
8	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = +125°C and T _C = -55°C.																								
9/ T _C = +25°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					Q ₂	"		"		
			91	"								"	"				IN	OUT		Q ₃	"		"		
			92	"								"	"				IN		OUT	Q ₃	"		"		
			93	"	OUT		IN				OUT	"	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 ≥ 2.0 V; or low ≤ 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 <u>1</u> and X	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		Min	Max	
			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}				
$\frac{9}{T_C = +25^\circ C}$	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		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		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 $T_C = +125^\circ C$ and use limits from table I.																						
11	Same tests and terminal conditions as subgroup 9, except $T_C = -55^\circ C$ 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 $V_{CC} = 4.5\text{ V}$ and repeat at $V_{CC} = 5.5\text{ V}$.
- 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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 $\overline{OE}$	2 Q_0	3 D_0	4 D_1	5 Q_1	6 Q_2	7 D_2	8 D_3	9 Q_3	10 GND
1 $T_c = 25^\circ\text{C}$	V_{OH}	3006	1	-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										"
			43										"
			44										"
			45										"
			46										"
	I_{IL1}	3009	47	.5 V									"
			48			.5 V							"
			49				.5 V						"
			50							.5 V			"
			51								.5 V		"
			52										"
			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 ≥ 2.0 V; or low ≤ 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 ₄	D ₄	D ₅	Q ₅	Q ₆	D ₆	D ₇	Q ₇	V _{CC}		Min	Max	V
1 T _c = +25°C	V _{OH}	3006	1	1/									4.5 V	Q ₀	2.5		
			2	"									"	Q ₁	"		"
			3	"									"	Q ₂	"		"
			4	"									"	Q ₃	"		"
			5	"	-1 mA	2.0 V							"	Q ₄	"		"
			6	"			2.0 V	-1 mA					"	Q ₅	"		"
			7	"					-1 mA	2.0 V			"	Q ₆	"		"
			8	"							2.0 V	-1 mA	"	Q ₇	"		"
	V _{OL}	3007	9	"									"	Q ₀		.5	"
			10	"									"	Q ₁		"	"
			11	"									"	Q ₂		"	"
			12	"									"	Q ₃		"	"
			13	"	20 mA	.8 V							"	Q ₄		"	"
			14	"			.8 V	20 mA					"	Q ₅		"	"
			15	"					20 mA	.8 V			"	Q ₆		"	"
			16	"							.8 V	20 mA	"	Q ₇		"	"
	V _{IC}		17										"	OE		-1.2	"
			18										"	D ₀		"	"
			19										"	D ₁		"	"
			20										"	D ₂		"	"
			21										"	D ₃		"	"
			22			-18 mA							"	D ₄		"	"
			23				-18 mA						"	D ₅		"	"
			24						-18 mA				"	D ₆		"	"
			25							-18 mA			"	D ₇		"	"
			26	-18 mA									"	CP		"	"
	I _{IH1}	3010	27										5.5 V	OE		20	μA
			28										"	D ₀		"	"
			29										"	D ₁		"	"
			30										"	D ₂		"	"
			31										"	D ₃		"	"
			32			2.7 V							"	D ₄		"	"
			33				2.7 V						"	D ₅		"	"
			34							2.7 V			"	D ₆		"	"
			35								2.7 V		"	D ₇		"	"
			36	2.7 V									"	CP		"	"
	I _{IH2}	3010	37										"	OE		100	"
			38										"	D ₀		"	"
			39										"	D ₁		"	"
			40										"	D ₂		"	"
			41										"	D ₃		"	"
			42			7.0 V							"	D ₄		"	"
			43				7.0 V						"	D ₅		"	"
			44							7.0 V			"	D ₆		"	"
			45								7.0 V		"	D ₇		"	"
			46	7.0 V									"	CP		"	"
	I _{IL1}	3009	47										"	OE	2/	2/	mA
			48										"	D ₀	"	"	"
			49										"	D ₁	"	"	"
			50										"	D ₂	"	"	"
			51										"	D ₃	"	"	"
			52			.5 V							"	D ₄	"	"	"
			53				.5 V						"	D ₅	"	"	"
			54							.5 V			"	D ₆	"	"	"
			55								.5 V		"	D ₇	"	"	"
			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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 $\overline{\text{OE}}$	2 Q_0	3 D_0	4 D_1	5 Q_1	6 Q_2	7 D_2	8 D_3	9 Q_3	10 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	"									"	
	I_{OD}		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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Case 2, R, S, and X Test no.	11 CP	12 Q ₄	13 D ₄	14 D ₅	15 Q ₅	16 Q ₆	17 D ₆	18 D ₇	19 Q ₇	20 V _{CC}	Measured terminal	Limits				
1 T _C = +25°C	I _{OS}	3011	57	1/									5.5 V	Q ₀	-60	-150	mA		
			58	"									"	Q ₁	"	"	"		
			59	"										"	Q ₂	"	"	"	
			60	"										"	Q ₃	"	"	"	
			61	"	0 V	4.5 V								"	Q ₄	"	"	"	
			62	"			4.5 V	0 V						"	Q ₅	"	"	"	
			63	"					0 V	4.5 V				"	Q ₆	"	"	"	
			64	"							4.5 V	0 V		"	Q ₇	"	"	"	
			65	"									4.5 V	Q ₀	35		"		
			66	"										Q ₁	"	"	"		
			67	"										Q ₂	"	"	"		
			68	"										Q ₃	"	"	"		
	I _{OD}		69	"	2.5 V	0 V								Q ₄	"	"	"		
			70	"			0 V	2.5						Q ₅	"	"	"		
			71	"					2.5 V	0 V				Q ₆	"	"	"		
			72	"							0 V	2.5 V	"	Q ₇	"	"	"		
			73	"									5.5 V	Q ₀		+ 50	μA		
			74	"										Q ₁		"	"		
			75	"										Q ₂		"	"		
			76	"										Q ₃		"	"		
			77	"	2.7 V	0 V								Q ₄		"	"		
			78	"			0 V	2.7 V						Q ₅		"	"		
			79	"					2.7 V	0 V				Q ₆		"	"		
			80	"							0 V	2.7 V	"	Q ₇		"	"		
	I _{OZH}	3011	81	"								0 V	2.7 V	Q ₀		-50	"		
			82	"										Q ₁		"	"		
			83	"										Q ₂		"	"		
			84	"										Q ₃		"	"		
			85	"	.5 V	4.5 V								Q ₄		"	"		
			86	"			4.5 V	.5 V						Q ₅		"	"		
			87	"					.5 V	4.5 V				Q ₆		"	"		
			88	"							4.5 V	.5 V	"	Q ₇		"	"		
	I _{CCZ}	3011	89	4.5 V		4.5 V	4.5 V			4.5 V	4.5 V		"	V _{CC}		86	mA		
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																		
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																		
7 T _C = +25°C	Functional 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 _C = +125°C and T _C = -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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 OE	2 Q ₀	3 D ₀	4 D ₁	5 Q ₁	6 Q ₂	7 D ₂	8 D ₃	9 Q ₃	10 GND		
9 T _C = +25°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			"		
	t _{PLH1}		115	"								IN	OUT	"	
			116	"										"	
			117	"										"	
			118	"										"	
			119	"										"	
			120	"	OUT	IN								"	
			121	"			IN	OUT						"	
			122	"					OUT	IN				"	
			123	"							IN	OUT		"	
			124	"										"	
			125	"										"	
	t _{PHL1}		126	"										"	
			127	"										"	
			128	IN	OUT	0 V								"	
			129	"			0 V	OUT						"	
			130	"					OUT	0 V				"	
			131	"							0 V	OUT		"	
			132	"										"	
			133	"										"	
			134	"										"	
			135	"										"	
			t _{PLZ1}	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				"	
	t _{PHZ1}		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°C and use limits from table I.												
	11		Same tests, and terminal conditions, as subgroup 9, except T _C = -55°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 ≥ 2.0 V; or low ≤ 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	Limits				
			Test no.	CP	Q ₄	D ₄	D ₅	Q ₅	Q ₆	D ₆	D ₇	Q ₇	V _{CC}	terminal	Min	Max	MHz		
9 Tc = +25°C	t _{MAX} 5/	3003 Fig. 4	104	IN									5.0 V	Q ₀	80			MHz	
			105	"									"	Q ₁	"			"	
			106	"										"	Q ₂	"			"
			107	"										"	Q ₃	"			"
			108	"	OUT	IN								"	Q ₄	"			"
			109	"			IN	OUT						"	Q ₅	"			"
			110	"					OUT	IN				"	Q ₆	"			"
			111	"							IN	OUT		"	Q ₇	"			"
			112	IN										"	CP to Q ₀	3.0	8.5	ns	
			113	"										"	CP to Q ₁	"			"
	t _{PLH1}		114	"										"	CP to Q ₂	"			"
			115	"										"	CP to Q ₃	"			"
			116	"	OUT	IN								"	CP to Q ₄	"			"
			117	"			IN	OUT						"	CP to Q ₅	"			"
			118	"					OUT	IN				"	CP to Q ₆	"			"
			119	"							IN	OUT		"	CP to Q ₇	"			"
			120	IN										"	CP to Q ₀	"			"
			121	"										"	CP to Q ₁	"			"
			122	"										"	CP to Q ₂	"			"
			123	"										"	CP to Q ₃	"			"
	t _{PHL1}		124	"	OUT	IN								"	CP to Q ₄	"			"
			125	"			IN	OUT						"	CP to Q ₅	"			"
			126	"					OUT	IN				"	CP to Q ₆	"			"
			127	"							IN	OUT		"	CP to Q ₇	"			"
			128	1/										"	OE to Q ₀	1.5	6.5	"	
			129	"										"	OE to Q ₁	"			"
			130	"										"	OE to Q ₂	"			"
			131	"										"	OE to Q ₃	"			"
			132	"	OUT	0 V								"	OE to Q ₄	"			"
			133	"			0 V	OUT						"	OE to Q ₅	"			"
	t _{PLZ1}		134	"					OUT	0 V				"	OE to Q ₆	"			"
			135	"							0 V	OUT		"	OE to Q ₇	"			"
			136	"										"	OE to Q ₀	"	7.5	"	
			137	"										"	OE to Q ₁	"			"
			138	"										"	OE to Q ₂	"			"
			139	"										"	OE to Q ₃	"			"
			140	"	OUT	2.7 V								"	OE to Q ₄	"			"
			141	"			2.7 V	OUT						"	OE to Q ₅	"			"
			142	"					OUT	2.7 V				"	OE to Q ₆	"			"
			143	"							2.7 V	OUT		"	OE to Q ₇	"			"
	t _{PHZ1}											2.7 V	OUT	"	OE to Q ₇	"			"

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 ≥ 2.0 V; or low ≤ 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 ₄	D ₄	D ₅	Q ₅	Q ₆	D ₆	D ₇	Q ₇	V _{CC}		Min	Max		
9 T _C = +25°C	t _{PZL1}	3003 Fig. 4	144	1/									5.5 V	$\overline{OE}$ to Q ₀	2.0	7.5	ns	
			145	"									"	$\overline{OE}$ to Q ₁	"	"	"	
			146	"									"	$\overline{OE}$ to Q ₂	"	"	"	
			147	"									"	$\overline{OE}$ to Q ₃	"	"	"	
			148	"	OUT	0 V							"	$\overline{OE}$ to Q ₄	"	"	"	
			149	"			0 V	OUT					"	$\overline{OE}$ to Q ₅	"	"	"	
			150	"					OUT	0 V			"	$\overline{OE}$ to Q ₆	"	"	"	
	151		"							0 V	OUT	"	$\overline{OE}$ to Q ₇	"	"	"		
	t _{PZH1}		152	"									"	$\overline{OE}$ to Q ₀	"	11.5	"	
			153	"									"	$\overline{OE}$ to Q ₁	"	"	"	
			154	"									"	$\overline{OE}$ to Q ₂	"	"	"	
			155	"									"	$\overline{OE}$ to Q ₃	"	"	"	
			156	"	OUT	2.7 V							"	$\overline{OE}$ to Q ₄	"	"	"	
			157	"			2.7 V	OUT					"	$\overline{OE}$ to Q ₅	"	"	"	
			158	"					OUT	2.7 V			"	$\overline{OE}$ to Q ₆	"	"	"	
			159	"							2.7 V	OUT	"	$\overline{OE}$ to Q ₇	"	"	"	
10		Same tests, terminal conditions, and limits as subgroup 9, except T _C = +125°C and use limits from table I.																
11	Same tests, terminal conditions, and limits as subgroup 9, except T _C = -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 ≥ 1.5 V
L ≤ 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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

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

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 ≥ 2.0 V; or low ≤ 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	$\overline{Q}_4$	D_4	D_5	$\overline{Q}_5$	$\overline{Q}_6$	D_6	D_7	$\overline{Q}_7$	V_{CC}		Min	Max	
1 $T_c = +25^\circ\text{C}$	V_{OH}	3006	1	1/									4.5 V	$\overline{Q}_0$	2.5		V
			2	"									"	$\overline{Q}_1$	"		"
			3	"									"	$\overline{Q}_2$	"		"
			4	"									"	$\overline{Q}_3$	"		"
			5	"	-1 mA	.8 V							"	$\overline{Q}_4$	"		"
			6	"			.8 V	-1 mA					"	$\overline{Q}_5$	"		"
			7	"					-1mA	.8 V			"	$\overline{Q}_6$	"		"
			8	"							.8 V	-1 mA	"	$\overline{Q}_7$	"		"
	V_{OL}	3007	9	"									"	$\overline{Q}_0$		-.5	"
			10	"									"	$\overline{Q}_1$		"	"
			11	"									"	$\overline{Q}_2$		"	"
			12	"									"	$\overline{Q}_3$		"	"
			13	"	20 mA	2.0 V							"	$\overline{Q}_4$		"	"
			14	"			2.0 V	20 mA					"	$\overline{Q}_5$		"	"
			15	"					20 mA	2.0 V			"	$\overline{Q}_6$		"	"
			16	"							2.0 V	20 mA	"	$\overline{Q}_7$		"	"
	V_{IC}		17										"	OE		-1.2	"
			18										"	D_0		"	"
			19										"	D_1		"	"
			20										"	D_2		"	"
			21										"	D_3		"	"
			22			-18 mA							"	D_4		"	"
			23				-18 mA						"	D_5		"	"
			24							-18 mA			"	D_6		"	"
			25								-18 mA		"	D_7		"	"
			26	-18 mA									"	CP		"	"
	I_{IH1}	3010	27										5.5 V	OE		20	μA
			28										"	D_0		"	"
			29										"	D_1		"	"
			30										"	D_2		"	"
			31										"	D_3		"	"
			32			2.7 V							"	D_4		"	"
			33				2.7 V						"	D_5		"	"
			34							2.7 V			"	D_6		"	"
			35								2.7 V		"	D_7		"	"
			36	2.7 V									"	CP		"	"
	I_{IH2}	3010	37											OE		100	"
			38											D_0		"	"
			39											D_1		"	"
			40											D_2		"	"
			41											D_3		"	"
			42			7.0 V								D_4		"	"
			43				7.0 V							D_5		"	"
			44							7.0 V				D_6		"	"
			45								7.0 V			D_7		"	"
			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 ≥ 2.0 V; or low ≤ 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	$\overline{Q}_4$	D ₄	D ₅	$\overline{Q}_5$	$\overline{Q}_6$	D ₆	D ₇	$\overline{Q}_7$	V _{CC}		Min	Max	
1 T _c = +25°C	I _{IL1}	3009	47										5.5 V	$\overline{OE}$	$\frac{2}{/}$	$\frac{2}{/}$	mA
			48										"	D ₀	"	"	"
			49										"	D ₁	"	"	"
			50										"	D ₂	"	"	"
			51										"	D ₃	"	"	"
			52			.5 V							"	D ₄	"	"	"
			53				.5 V						"	D ₅	"	"	"
			54							.5 V			"	D ₆	"	"	"
			55								.5 V		"	D ₇	"	"	"
			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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1 $\overline{OE}$	2 $\overline{Q}_0$	3 D_0	4 D_1	5 $\overline{Q}_1$	6 $\overline{Q}_2$	7 D_2	8 D_3	9 $\overline{Q}_3$	10 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}		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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

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

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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 $\overline{OE}$	2 $\overline{Q}_0$	3 D ₀	4 D ₁	5 $\overline{Q}_1$	6 $\overline{Q}_2$	7 D ₂	8 D ₃	9 $\overline{Q}_3$	10 GND
7 T _C = +25°C	Functional <u>3/</u>	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°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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2, R, S, and X Test no.	11 CP	12 $\overline{Q}_4$	13 D_4	14 D_5	15 $\overline{Q}_5$	16 $\overline{Q}_6$	17 D_6	18 D_7	19 $\overline{Q}_7$	20 V_{CC}	Measured terminal
7 T _C = +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 _C = +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 ≥ 2.0 V; or low ≤ 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	$\overline{Q}_0$	D ₀	D ₁	$\overline{Q}_1$	$\overline{Q}_2$	D ₂	D ₃	$\overline{Q}_3$	GND			
9 Tc = +25°C	f _{MAX} 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						"		
	t _{PLH2}		113	"							OUT	IN			"	
			114	"									IN	OUT	"	
			115	"											"	
			116	"											"	
			117	"											"	
			118	"											"	
			119	"	OUT	IN									"	
			120	"			IN	OUT							"	
			121	"							OUT	IN			"	
			122	"									IN	OUT	"	
	t _{PHL2}		123	"											"	
			124	"											"	
			125	"											"	
			126	"											"	
			127	IN	OUT	2.7 V									"	
			128	"			2.7 V	OUT							"	
			129	"						OUT	2.7 V				"	
			130	"								2.7 V	OUT		"	
			131	"											"	
			132	"											"	
	t _{PLZ2}		133	"											"	
			134	"											"	
			135	"	OUT	0 V									"	
			136	"			0 V	OUT							"	
			137	"						OUT	0 V				"	
			138	"								0 V	OUT		"	
			139	"											"	
			140	"											"	
			141	"											"	
			142	"											"	
	t _{PZL2}		143	"	OUT	2.7 V									"	
			144	"			2.7 V	OUT							"	
			145	"							OUT	2.7 V			"	
			146	"									2.7 V	OUT	"	
			147	"											"	
			148	"											"	
			149	"											"	
			150	"											"	
			t _{PZH2}	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 ≥ 2.0 V; or low ≤ 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		Unit
			Test no.	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 Tc = +25°C	f _{MAX} 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	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 ≥ 2.0 V; or low ≤ 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		Unit	
			Test no.	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 Tc = +25°C	t _{PHZ2}	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 _{PZL2}		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 _{PZH2}		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 ≥ 2.0 V; or low ≤ 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
10	Same tests, and terminal conditions, and limits as subgroup 9, except $T_C = +125^{\circ}\text{C}$ and use limits from table I.												
11	Same tests, and terminal conditions, and limits as subgroup 9, except $T_C = -55^{\circ}\text{C}$ 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 ≥ 2.0 V; or low ≤ 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		Unit	
			Test no.	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		
10	Same tests, and terminal conditions, and limits as subgroup 9, except T _C = +125°C and use limits from table I.																	
11	Same tests, and terminal conditions, and limits as subgroup 9, except T _C = -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_{IL} limits (mA) min/max values for circuits shown:

Parameter	Circuits		
	A	B	C
I_{IL1}	-.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 $V_{CC} = 4.5$ 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 07 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	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.	MR	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°C	V _{OH}	3006	1	0.0 V							GND	0.0 V							4.5 V	Setup			V
			2	5.5 V	-1 mA	2.0 V	2.0 V		2.0 V			2/		2.0 V		2.0 V	2.0 V			Q ₀	2.5		"
			3	"		"	"	-1 mA	"		"	0.0 V	"	"		"	"		"	Q ₁	"		"
			4	"			"			-1 mA	"		"		"	"	"		"	Q ₂	"		"
			5	"		"	"		"		"		-1 mA	"	"	"	"		"	Q ₃	"		"
			6	"		"	"		"		"		"	-1 mA	"	"	"		"	Q ₄	"		"
			7	"		"	"		"		"		"		"	"	-1 mA	"	"	Q ₅	"		"
			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 ₀	2.5		V
			10	"		"	"	-1 mA	"		"		"		"	"	"		"	Q ₁	"		"
			11	"		"	"		"	-1 mA	"		"		"	"	"		"	Q ₂	"		"
			12	"		"	"		"		"	-1 mA	"		"	"	"		"	Q ₃	"		"
			13	"		"	"		"		"		"	-1 mA	"	"	"		"	Q ₄	"		"
			14	"		"	"		"		"		"		"	"	-1 mA	"	"	Q ₅	"		"
	V _{OL}	3007	15	5.5 V		"	"		"		"		"		"	"		-1 mA	"	Setup			"
			16	"	20 mA	0.8 V	0.8 V		0.8 V		"			0.8 V		0.8 V	0.8 V		"	Q ₀		0.5	V
			17	"		"	"	20 mA	"		"	0.0 V				"	"		"	Q ₁	"		"
			18	"		"	"		"	20 mA	"		"		"	"	"		"	Q ₂	"		"
			19	"		"	"		"		"		20 mA	"		"	"		"	Q ₃	"		"
			20	"		"	"		"		"		"	20 mA	"	"	"		"	Q ₄	"		"
			21	"		"	"		"		"		"			"	"	20 mA	"	Q ₅	"		"
			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 ₀		0.5	V
			24	"		"	"	20 mA	"		"		"		"	"	"		"	Q ₁	"		"
			25	"		"	"		"	20 mA	"		"		"	"	"		"	Q ₂	"		"
			26	"		"	"		"		"		20 mA	"		"	"		"	Q ₃	"		"
			27	"		"	"		"		"		"		20 mA	"	"		"	Q ₄	"		"
			28	"		"	"		"		"		"		"	"	"	20 mA	"	Q ₅	"		"
	V _{IC}		29	-18 mA															"	MR		-1.2	"
			30			-18 mA					"								"	D ₀	"		"
			31				-18 mA				"								"	D ₁	"		"
			32						-18 mA		"								"	D ₂	"		"
			33								"	-18 mA							"	CP	"		"
			34								"			-18 mA					"	D ₃	"		"
			35								"					-18 mA			"	D ₄	"		"
			36								"						-18 mA		"	D ₅	"		"
	I _{IL1}	3009	37								"						0.5 V		5.5 V	D ₅	3/	3/	mA
			38								"					0.5 V			"	D ₄	"		"
			39								"			0.5 V					"	D ₃	"		"
			40						0.5 V		"								"	D ₂	"		"
			41				0.5 V				"								"	D ₁	"		"
	I _{IL4}	3009	42			0.5 V					"								"	D ₀	"		"
			43	0.5 V							"								"	MR	"		"
	I _{IH1}	3010	44								"	0.5 V							"	CP	"		"
			45	2.7 V							"								"	MR		20	μA
			46			2.7 V					"								"	D ₀	"		"
			47				2.7 V				"								"	D ₁	"		"
			48						2.7 V		"								"	D ₂	"		"
			49								"	2.7 V							"	CP	"		"
			50								"			2.7 V					"	D ₃	"		"
			51								"					2.7 V			"	D ₄	"		"
			52								"						2.7 V		"	D ₅	"		"

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 ≥ 2.0 V; or low ≤ 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 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°C	I _{IH2}	3010	53														7.0 V		5.5 V	D ₅		100	μA			
			54													7.0 V				D ₄						
			55												7.0 V						D ₃					
			56									7.0 V									CP					
			57						7.0 V												D ₂					
			58					7.0 V													D ₁					
			59				7.0 V														D ₀					
			60	7.0 V																	MR					
			I _{OS}	3011	61	4.5 V	GND	4.5 V							4/								Q ₀	-60	-150	mA
					62				4.5 V	GND													Q ₁			
	63								4.5 V	GND											Q ₂					
	64										4.5 V	GND			GND	4.5 V					Q ₃					
	65															GND	4.5 V				Q ₄					
	66																4.5 V	GND			Q ₅					
	I _{OD}				67	0.0 V	2.5 V															4.5 V	Q ₀	60		
			68					2.5 V													Q ₁					
			69							2.5 V											Q ₂					
			70											2.5 V							Q ₃					
			71												2.5 V						Q ₄					
			72															2.5 V			Q ₅					
	I _{CC}	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 _{CC}		45				
2	Same tests, terminal conditions, and limits as subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																									
3	Same tests, terminal conditions, and limits as subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																									
7 5/ T _C = +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										B													
			76										A													
			77	A									A													
			78										B													
			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		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 _C = +125°C and T _C = -55°C.																									
9 T _C = +25°C	f _{MAX} Z/		87	2.7 V	OUT	IN					GND	IN							5.0 V	Q ₁	90		MHz			
			88				IN	OUT													Q ₂					
			89						IN	OUT											Q ₃					
			90											OUT	IN						Q ₄					
			91													OUT	IN				Q ₅					
			92															IN	OUT		Q ₆					
	t _{PLH1}	3003	93		OUT	IN							IN								CP to Q ₀	1.5	9.0	ns		
			94				IN	OUT													CP to Q ₁					
			95						IN	OUT											CP to Q ₂					
			96											OUT	IN						CP to Q ₃					
			97													OUT	IN				CP to Q ₄					
			98															IN	OUT		CP to Q ₅					

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 ≥ 2.0 V; or low ≤ 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 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°C	t _{PHL1}	3003	99	2.7 V							GND	IN					IN	OUT	5.0 V	CP to Q ₅	1.5 V	11.0	ns	
			100	"								"	"			OUT	IN			"	CP to Q ₄	"	"	"
			101	"								"	"	OUT	IN					"	CP to Q ₃	"	"	"
			102	"					IN	OUT		"	"							"	CP to Q ₂	"	"	"
			103	"				IN	OUT			"	"							"	CP to Q ₁	"	"	"
			104	"	OUT	IN						"	"							"	CP to Q ₀	"	"	"
	t _{PHL5}		105	IN								"	2.7 V					2.7 V	OUT	"	MR to Q ₅	"	15.0	"
			106	"								"	"			OUT	2.7 V			"	MR to Q ₄	"	"	"
			107	"								"	"	OUT	2.7 V					"	MR to Q ₃	"	"	"
			108	"						2.7 V	OUT	"	"							"	MR to Q ₂	"	"	"
			109	"				2.7 V	OUT			"	"							"	MR to Q ₁	"	"	"
			110	"	OUT	2.7 V						"	"							"	MR to Q ₀	"	"	"
	t _{PHL6}		111	IN								"	0.0 V					2.7 V	OUT	5.0 V	MR to Q ₅	1.0	15.0	ns
			112	"								"	"			OUT	2.7 V			"	MR to Q ₄	"	"	"
			113	"								"	"	OUT	2.7 V					"	MR to Q ₃	"	"	"
			114	"						2.7 V	OUT	"	"							"	MR to Q ₂	"	"	"
			115	"				2.7 V	OUT			"	"							"	MR to Q ₁	"	"	"
			116	"	OUT	2.7 V						"	"							"	MR to Q ₀	"	"	"
10	f _{MAX} $\overline{Z}$ /		Same tests and terminal conditions as for subgroup 9, except T _C = +125°C, and limits as shown.																		70		MHz	
	t _{PLH1}			1.0	11.0	ns																		
	t _{PHL1}			"	13.0	"																		
	t _{PHL5}			"	17.0	"																		
	t _{PHL6}			"	17.0	"																		
11	Same tests, terminal conditions, and limits as for subgroup 10, except T _C = -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 ≥ 2.0 V; or low ≤ 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	Limits		Unit	
			Cases 2 and X 1/	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		terminal	Min		Max
			Test no.	$\bar{E}$	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 Tc = +25°C	V _{OL}	3007	1	.8 V	20 mA	.8 V	.8 V		.8 V		GND	2/		.8 V		.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		"	"		"	Q_4		"	"	
			6	"		"	"		"		"	"	"	"	20 mA		"	"	20 mA	"	Q_5		"	"
	V _{OH}	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_0	2.5 V		"	
			8	"		"	"	-1 mA	"	"	"	"		"		"	"		"	Q_1			"	
			9	"		"	"		-1 mA	"	"	-1 mA	"	"		"	"		"	Q_2	"		"	
			10	"		"	"		"	"	"	"	-1 mA		"	"	"		"	Q_3	"		"	
			11	"		"	"		"	"	"	"	"	-1 mA	"	"	"		"	Q_4	"		"	
			12	"		"	"		"		"	"	"	"	"	"	"	-1 mA	"	Q_5	"		"	
	V _{IC}		13	-18 mA							"									"	$\bar{E}$		-1.2	"
			14			-18 mA					"									"	D_0		"	"
			15				-18 mA				"									"	D_1		"	"
			16					-18 mA			"									"	D_2		"	"
			17						-18 mA		"	-18 mA								"	CP		"	"
			18								"		-18 mA							"	D_3		"	"
			19								"				-18 mA				"	D_4		"	"	
			20								"					-18 mA			"	D_5		"	"	
	I _{IH1}		21	2.7 V							"							-18 mA		5.5 V	$\bar{E}$		20	μA
			22			2.7 V					"									"	D_0		"	"
			23				2.7 V				"									"	D_1		"	"
			24					2.7 V			"									"	D_2		"	"
			25						2.7 V		"		2.7 V							"	CP		"	"
			26								"				2.7 V					"	D_3		"	"
			27								"					2.7 V				"	D_4		"	"
			28								"						2.7 V			"	D_5		"	"
	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		"									"	D_2		"	"	
33										"	7.0 V								"	CP		"	"	
34										"			7.0 V						"	D_3		"	"	
35										"				7.0 V					"	D_4		"	"	
36										"					7.0 V				"	D_5		"	"	
I _{IL1}	3009	37	.5 V							"									"	$\bar{E}$	3/	3/	mA	
		38			.5 V					"									"	D_0	"	"	"	
		39				.5 V				"									"	D_1	"	"	"	
		40					.5 V			"									"	D_2	"	"	"	
		41						.5 V		"	.5 V								"	CP	"	"	"	
		42								"			.5 V						"	D_3	"	"	"	
		43								"				.5 V					"	D_4	"	"	"	
		44								"					.5 V	.5 V			"	D_5	"	"	"	
I _{OS}	3011	45	GND	GND	4.5 V	4.5 V		4.5 V		"	2/		4.5 V		4.5 V	4.5 V		"	Q_0	-60	-150	"		
		46	"		"	"	GND	"	"	"	"		"		"	"		"	Q_1	"	"	"		
		47	"		"	"		"	GND	"	"	"	"		"	"		"	Q_2	"	"	"		
		48	"		"	"		"		"	"	"	GND	"	"	"		"	Q_3	"	"	"		
		49	"		"	"		"		"	"	"		GND	"	"		"	Q_4	"	"	"		
		50	"		"	"		"		"	"	"			GND	"	"	GND	"	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 ≥ 2.0 V; or low ≤ 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	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 $T_C = +25^{\circ}C$	I_{OD}		51	GND	2.5 V	GND	GND		GND		GND	2/		GND		GND	GND		4.5 V	Q_0	60		mA	
			52	"		"	"	2.5 V	"		"	"		"		"	"		"	Q_1	"		"	
			53	"		"	"	"		2.5 V	"	"		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 $T_C = +125^{\circ}C$ and V_{IC} tests are omitted.																							
3	Same tests, terminal conditions, and limits as subgroup 1, except $T_C = -55^{\circ}C$ and V_{IC} tests are omitted.																							
7 $T_C = +25^{\circ}C$	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	"	"	B	"	"	"	"	A	"	"		"			
			61	"	H	"	"	"	"	H	"	A	"	"	"	H	"	"	"		"			
			62	"	"	"	A	"	"	"	"	A	"	A	"	A	"	"	"		"			
			63	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"		"			
			64	"	"	"	"	"	H	"	"	A	H	"	"	"	"	"	H		"			
			65	A	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"		"			
			66	A	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"		"			
			67	B	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		"			
			68	"	"	B	"	"	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	A	"		"			
			75	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"		"			
			76	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"		"			
			77	B	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"		"			
			78	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"		"			
79	"	H	"	"	"	H	"	H	A	H	"	H	"	"	"	H	"							
80	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"							
81	"	"	B	B	"	B	"	"	"	"	"	B	"	B	B	"	"							
82	A	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"							
83	"	"	"	"	"	"	"	"	A	"	"	"	"	"	"	"	"							
84	"	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"							
85	B	"	"	"	"	"	"	"	B	"	"	"	"	"	"	"	"							
86	"	L	"	"	"	L	"	"	A	L	"	"	"	"	"	"	"							
87	"	"	A	A	"	A	"	"	A	"	"	A	"	A	A	"	"							
88	"	"	A	A	"	A	"	"	B	"	"	A	"	A	A	"	"							
8	Same tests, terminal conditions, for as subgroup 7, except $T_C = +125^{\circ}C$ and $-55^{\circ}C$.																							
9 $T_C = +25^{\circ}C$	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 ≥ 2.0 V; or low ≤ 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.	$\overline{E}$	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 Tc = +25°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	t _{MAX} 5/	Same tests and terminal conditions as for subgroup 9, except T _C = +125°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°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 ≥ 1.5 V
L ≤ 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 ≥ 2.0 V; or low ≤ 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			"	3/			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	μA
			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 ≥ 2.0 V; or low ≤ 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	Limits		Unit	
			Cases 2 and X 1/	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19	20		terminal	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}	Q_0			60	
1 $T_C = +25^{\circ}C$	I_{OD}		49	GND	2.5 V		GND	GND			GND	2/			GND	GND			4.5 V	Q_0				
			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 $T_C = +125^{\circ}C$ 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.																							
7 $T_C = +25^{\circ}C$	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 $T_C = +125^{\circ}C = -55^{\circ}C$.																							

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 ≥ 2.0 V; or low ≤ 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}				
9 $T_C = +25^\circ\text{C}$	f_{MAX} 8/	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			OUT	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} 6/	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 $A = 2.5\text{ V}$
 $B = 0.5\text{ V}$
Outputs $H \geq 1.5\text{ V}$
 $L \leq 1.5\text{ V}$
- 5/ Perform function sequence at $V_{CC} = 4.5\text{ V}$ and repeat at $V_{CC} = 5.5\text{ V}$
- 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 10 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇
1 T _C = +25°C	V _{OH}	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	"	"	-1.0 mA
	V _{OL}	3007	9	"	0.8 V								"	"	
			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 _{IC}		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 _{IH1}	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 _{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							7.0 V			"	"	
			44								7.0 V		"	"	
			45									7.0 V	"	"	
			46										"	7.0 V	
	I _{IL}	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	

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 ≥ 2.0 V; or low ≤ 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		Unit
			Test no.	Q ₈	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}		Min	Max	
1 T _c = +25°C	V _{OH}	3006	1							-1.0 mA	4.5 V	Q ₀	2.5		V
			2						-1.0 mA			Q ₁			
			3					-1.0 mA				Q ₂			
			4				-1.0 mA					Q ₃			
			5			-1.0 mA						Q ₄			
			6		-1.0 mA							Q ₅			
			7	-1.0 mA								Q ₆			
			8									Q ₇			
	V _{OL}	3007	9							20 mA		Q ₀		0.5	
			10						20 mA			Q ₁			
			11					20 mA				Q ₂			
			12				20 mA					Q ₃			
			13			20 mA						Q ₄			
			14		20 mA							Q ₅			
			15	20 mA								Q ₆			
			16									Q ₇			
	V _{IC}		17									OE		-1.2	
			18									D ₀			
			19									D ₁			
			20									D ₂			
			21									D ₃			
			22									D ₄			
			23									D ₅			
			24									D ₆			
			25									D ₇			
			26									CP			
	I _{IH1}	3010	27								5.5 V	OE		20	μA
			28									D ₀			
			29									D ₁			
			30									D ₂			
			31									D ₃			
			32									D ₄			
			33									D ₅			
			34									D ₆			
			35									D ₇			
			36									CP			
	I _{IH2}	3010	37									OE		100	
			38									D ₀			
			39									D ₁			
			40									D ₂			
			41									D ₃			
			42									D ₄			
			43									D ₅			
			44									D ₆			
			45									D ₇			
			46									CP			
	I _{IL}	3009	47									OE	2/	2/	mA
			48									D ₀			
			49									D ₁			
			50									D ₂			
			51									D ₃			
			52									D ₄			
			53									D ₅			
			54									D ₆			
			55									D ₇			
			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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Terminal conditions (pins not designated may be high ≥ 2.0 V, or low ≤ 0.0 V, or open).																	
Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 $\overline{OE}$	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇		
1 T _C = +25°C	I _{OS}	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 _{OZH}	3011	65	2.0 V	0.0 V								5.5 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	"	"	2.7 V		
	I _{OZL}	3011	73	"	5.5 V									0.0 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	"	"	0.5 V	
	I _{CCZ}	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	"	"			
	I _{CCL}	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	"	"			
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																
7 T _C = +25°C	Functional 3/	3014	83	B	A	B	A	B	A	B	A	B	A	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 _C = +125°C and T _C = -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 ≥ 2.0 V; or low ≤ 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 ₈	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}		Min	Max	Unit	
1 T _C = +25°C	I _{OS}	3011	57							0.0 V	5.5 V	Q ₀	-60	-150	mA	
			58						0.0 V			Q ₁				
			59					0.0 V				Q ₂				
			60				0.0 V					Q ₃				
			61			0.0 V						Q ₄				
			62		0.0 V							Q ₅				
			63	0.0 V								Q ₆				
			64									Q ₇				
	I _{OZH}	3011	65								2.7 V		Q ₀		50	μA
			66						2.7 V			Q ₁				
			67					2.7 V				Q ₂				
			68				2.7 V					Q ₃				
			69			2.7 V						Q ₄				
			70		2.7 V							Q ₅				
			71	2.7 V								Q ₆				
			72									Q ₇				
	I _{OZL}	3011	73								0.5 V		Q ₀		-50	
			74						0.5 V			Q ₁				
			75					0.5 V				Q ₂				
			76				0.5 V					Q ₃				
			77			0.5 V						Q ₄				
			78		0.5 V							Q ₅				
			79	0.5 V								Q ₆				
			80									Q ₇				
	I _{CCZ}	3011	81									V _{CC}		90	mA	
	I _{CCL}	3011	82									V _{CC}		86	mA	
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.															
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.															
7 T _C = +25°C	Functional 3/	3014	83	H	L	H	L	H	L	H	4/	All outputs				
			84	H	L	H	L	H	L	H						
			85	H	L	H	L	H	L	H						
			86	H	L	H	L	H	L	H						
			87	H	L	H	L	H	L	H						
			88	L	H	L	H	L	H	L						
			89	L	H	L	H	L	H	L						
			90	L	H	L	H	L	H	L						
			91	L	H	L	H	L	H	L						
			92	L	H	L	H	L	H	L						
8	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = +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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇
9 T _c = +25°C	f _{MAX} 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							"	"	
	t _{PLH1}	3003	103	"			IN						"	"	
			104	"				IN					"	"	
			105	"					IN				"	"	
			106	"						IN			"	"	
			107	"							IN		"	"	
			108	"								IN	"	"	OUT
			109	"	IN								"	"	
			110	"		IN							"	"	
	t _{PHL1}	3003	111	"			IN						"	"	
			112	"				IN					"	"	
			113	"					IN				"	"	
			114	"						IN			"	"	
			115	"							IN		"	"	
			116	"								IN	"	"	OUT
			117	IN	2.7 V								"	"	
			118	"		2.7 V							"	"	
	t _{PHZ1}	3003	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							"	"	
	t _{PLZ1}	3003	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							"	"	
	t _{PZH1}	3003	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 ≥ 2.0 V; or low ≤ 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 ₆	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}		Min	Max	Unit		
9 T _C = +25°C	f _{MAX} 5/	3003 Fig. 4	93								OUT	5.0 V	Q ₀	100		MHz	
			94						OUT	OUT			Q ₁				
			95						OUT				Q ₂				
			96					OUT					Q ₃				
			97				OUT						Q ₄				
			98			OUT							Q ₅				
			99	OUT									Q ₆				
			100										Q ₇				
			101									OUT		CP to Q ₀	2.5	8.5	ns
			102								OUT			CP to Q ₁			
	t _{PLH1}	3003 Fig. 4	103						OUT				CP to Q ₂				
			104					OUT					CP to Q ₃				
			105				OUT						CP to Q ₄				
			106			OUT							CP to Q ₅				
			107	OUT									CP to Q ₆				
			108										CP to Q ₇				
			109									OUT		CP to Q ₀			
			110								OUT			CP to Q ₁			
	t _{PHL1}	3003 Fig. 4	111						OUT				CP to Q ₂				
			112					OUT					CP to Q ₃				
			113				OUT						CP to Q ₄				
			114			OUT							CP to Q ₅				
			115	OUT									CP to Q ₆				
			116										CP to Q ₇				
			117									OUT		OE to Q ₀	1.0	6.0	
			118								OUT			OE to Q ₁			
	t _{PHZ1}	3003 Fig. 4	119						OUT				OE to Q ₂				
			120					OUT					OE to Q ₃				
			121				OUT						OE to Q ₄				
			122			OUT							OE to Q ₅				
			123	OUT									OE to Q ₆				
			124										OE to Q ₇				
			125									OUT		OE to Q ₀		5.5	
			126								OUT			OE to Q ₁			
	t _{PLZ1}	3003 Fig. 4	127						OUT				OE to Q ₂				
			128					OUT					OE to Q ₃				
			129				OUT						OE to Q ₄				
			130			OUT							OE to Q ₅				
			131	OUT									OE to Q ₆				
			132										OE to Q ₇				

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 ≥ 2.0 V; or low ≤ 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		Unit
			Test no.	Q ₆	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}		Min	Max	
9 Tc = +25°C	t _{PZH1}	3003 Fig. 4	133							OUT	"	OE to Q ₀	2.5	9.0	"
			134						OUT		"	OE to Q ₁	"	"	"
			135					OUT			"	OE to Q ₂	"	"	"
			136				OUT				"	OE to Q ₃	"	"	"
			137			OUT					"	OE to Q ₄	"	"	"
			138		OUT						"	OE to Q ₅	"	"	"
			139	OUT							"	OE to Q ₆	"	"	"
			140								"	OE to Q ₇	"	"	"

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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇
9 T _C = +25°C	t _{PZL1}	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 _C = +125°C, use limits from table I.														
11	Same tests as subgroup 10 except T _C = -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 ≥ 2.0 V; or low ≤ 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	Limits		Unit
			Test no.	Q ₆	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}	terminal	Min	Max	
9 T _C = +25°C	t _{PZL1}	3003	141							OUT	5.0 V	OE to Q ₀	3.0	9.0	ns
			142						OUT		"	OE to Q ₁	"	"	"
			143					OUT			"	OE to Q ₂	"	"	"
			144				OUT				"	OE to Q ₃	"	"	"
			145			OUT					"	OE to Q ₄	"	"	"
			146		OUT						"	OE to Q ₅	"	"	"
			147	OUT							"	OE to Q ₆	"	"	"
			148								"	OE to Q ₇	"	"	"
10	Same tests, as subgroup 9 except T _C = +125°C, use limits from table I.														
11	Same tests as subgroup 10 except T _C = -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_{IL} limits (mA) min/max values for circuits shown:

Parameter	Circuit A
I _{IL1}	-.25/-60

3/ A = 3.0 V minimum; B = 0.0 V or GND, H ≥ 2.5 V, L ≤ 0.5 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.

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

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1	2	3	4	5	6	7	8	9	10	11	12
				OE	D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	GND	CP	$\overline{Q}_7$
1 T _c = +25°C	V _{OH}	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	"	"	-1.0 mA
	V _{OL}	3007	9	"	2.0 V								"	"	
			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 _{IC}		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 _{IH1}	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 _{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							7.0 V			"	"	
			44								7.0 V		"	"	
			45									7.0 V	"	"	
			46										"	7.0 V	
	I _{IL}	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	

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 ≥ 2.0 V; or low ≤ 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		Unit
			Test no.	$\bar{Q}_6$	$\bar{Q}_5$	$\bar{Q}_4$	$\bar{Q}_3$	$\bar{Q}_2$	$\bar{Q}_1$	$\bar{Q}_0$	V _{CC}		Min	Max	
1 T _C = +25°C	V _{OH}	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 _{OL}	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 _{IC}		17								"	OE		-1.2	"
			18								"	D ₀			"
			19								"	D ₁			"
			20								"	D ₂			"
			21								"	D ₃			"
			22								"	D ₄			"
			23								"	D ₅			"
			24								"	D ₆			"
			25								"	D ₇			"
			26								"	CP			"
	I _{IH1}	3010	27								5.5 V	OE		20	μA
			28								"	D ₀			"
			29								"	D ₁			"
			30								"	D ₂			"
			31								"	D ₃			"
			32								"	D ₄			"
			33								"	D ₅			"
			34								"	D ₆			"
			35								"	D ₇			"
			36								"	CP			"
	I _{IH2}	3010	37								"	OE		100	"
			38								"	D ₀			"
			39								"	D ₁			"
			40								"	D ₂			"
			41								"	D ₃			"
			42								"	D ₄			"
			43								"	D ₅			"
			44								"	D ₆			"
			45								"	D ₇			"
			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 ≥ 2.0 V; or low ≤ 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		Unit
			Test no.	$\overline{Q}_6$	$\overline{Q}_5$	$\overline{Q}_4$	$\overline{Q}_3$	$\overline{Q}_2$	$\overline{Q}_1$	$\overline{Q}_0$	V_{CC}		Min	Max	
1 Tc = +25°C	I_{IL}	3009	47								4.5 V	$\overline{OE}$	2/	2/	mA
			48								"	D ₀	"	"	"
			49								"	D ₁	"	"	"
			50								"	D ₂	"	"	"
			51								"	D ₃	"	"	"
			52								"	D ₄	"	"	"
			53								"	D ₅	"	"	"
			54								"	D ₆	"	"	"
			55								"	D ₇	"	"	"
			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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇		
1 T _C = +25°C	I _{OS}	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	"	"	0.0 V		
	I _{OZH}	3011	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 _{OZL}	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 _{CCZ}	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	"	"			
	I _{CCL}	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	"	"			
2	Same tests, terminal conditions, and limits as subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.																
3	Same tests, terminal conditions, and limits as subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.																
7 T _C = +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 _C = +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 ≥ 2.0 V; or low ≤ 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		Unit	
			Test no.	$\overline{Q}_6$	$\overline{Q}_5$	$\overline{Q}_4$	$\overline{Q}_3$	$\overline{Q}_2$	$\overline{Q}_1$	$\overline{Q}_0$	V_{CC}		Min	Max		
1 Tc = +25°C	I _{OS}	3011	57								0.0 V	5.5 V	$\overline{Q}_0$	-60	-150	mA
			58						0.0 V			$\overline{Q}_1$				
			59					0.0 V				$\overline{Q}_2$				
			60				0.0 V					$\overline{Q}_3$				
			61			0.0 V						$\overline{Q}_4$				
			62		0.0 V							$\overline{Q}_5$				
			63	0.0 V								$\overline{Q}_6$				
			64									$\overline{Q}_7$				
	I _{OZH}	3011	65								2.7 V		$\overline{Q}_0$		50	μA
			66							2.7 V			$\overline{Q}_1$			
			67						2.7 V				$\overline{Q}_2$			
			68					2.7 V					$\overline{Q}_3$			
			69				2.7 V						$\overline{Q}_4$			
			70			2.7 V							$\overline{Q}_5$			
			71	2.7 V									$\overline{Q}_6$			
			72										$\overline{Q}_7$			
	I _{OZL}	3011	73								0.5		$\overline{Q}_0$		-50	
			74							0.5			$\overline{Q}_1$			
			75						0.5				$\overline{Q}_2$			
			76					0.5					$\overline{Q}_3$			
			77				0.5						$\overline{Q}_4$			
			78			0.5							$\overline{Q}_5$			
			79	0.5									$\overline{Q}_6$			
			80										$\overline{Q}_7$			
	I _{CCZ}	3011	81									V _{CC}		86	mA	
	I _{CCL}	3011	82									V _{CC}		86	mA	
2	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = +125°C and V _{IC} tests are omitted.															
3	Same tests, terminal conditions, and limits as for subgroup 1, except T _C = -55°C and V _{IC} tests are omitted.															
7 Tc = +25°C	Functional 3/	3014	83	H	L	H	L	H	L	H	4/	All outputs				
			84	H	L	H	L	H	L	H		"				
			85	H	L	H	L	H	L	H		"				
			86	H	L	H	L	H	L	H		"				
			87	H	L	H	L	H	L	H		"				
			88	L	H	L	H	L	H	L		"				
			89	L	H	L	H	L	H	L		"				
			90	L	H	L	H	L	H	L		"				
			91	L	H	L	H	L	H	L		"				
			92	L	H	L	H	L	H	L		"				
8	Same tests, terminal conditions, and limits as for subgroup 7, except T _C = +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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R,S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 $\overline{Q}_7$
9 T _c = +25°C	t _{MAX} 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							"	"	
	t _{PLH2}	3003	103	"			IN						"	"	
			104	"				IN					"	"	
			105	"					IN				"	"	
			106	"						IN			"	"	
			107	"							IN		"	"	
			108	"								IN	"	"	OUT
			109	"	IN								"	"	
			110	"		IN							"	"	
	t _{PHL2}	3003	111	"			IN						"	"	
			112	"				IN					"	"	
			113	"					IN				"	"	
			114	"						IN			"	"	
			115	"							IN		"	"	
			116	"								IN	"	"	OUT
			117	IN	0.0 V								"	"	
			118	"		0.0 V							"	"	
	t _{PHZ2}	3003	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							"	"	
	t _{PLZ2}	3003	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							"	"	
	t _{PZH2}	3003	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 ≥ 2.0 V; or low ≤ 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_{CC}		Min	Max	
9 Tc = +25°C	t_{MAX} 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_{PLH2}	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_{PHL2}	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_{PHZ2}	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 ≥ 2.0 V; or low ≤ 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_{CC}		Min	Max	
9 Tc = +25°C	t _{PLZ2}	3003 Fig. 4	125							OUT	5.0 V	$\overline{OE}$ to $\overline{Q}_0$	1.5	5.5	ns
			126						OUT		"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"
			127					OUT			"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"
			128				OUT				"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"
			129			OUT					"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"
			130		OUT						"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"
			131	OUT							"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"
			132								"	$\overline{OE}$ to $\overline{Q}_7$	"	"	"
	t _{PZH2}	3003 Fig. 4	133							OUT	"	$\overline{OE}$ to $\overline{Q}_0$	3.0	9.0	"
			134						OUT		"	$\overline{OE}$ to $\overline{Q}_1$	"	"	"
			135					OUT			"	$\overline{OE}$ to $\overline{Q}_2$	"	"	"
			136				OUT				"	$\overline{OE}$ to $\overline{Q}_3$	"	"	"
			137			OUT					"	$\overline{OE}$ to $\overline{Q}_4$	"	"	"
			138		OUT						"	$\overline{OE}$ to $\overline{Q}_5$	"	"	"
			139	OUT							"	$\overline{OE}$ to $\overline{Q}_6$	"	"	"
			140								"	$\overline{OE}$ 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 ≥ 2.0 V; or low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases 2,R, S, and X Test no.	1 OE	2 D ₀	3 D ₁	4 D ₂	5 D ₃	6 D ₄	7 D ₅	8 D ₆	9 D ₇	10 GND	11 CP	12 Q ₇
9 T _C = +25°C	t _{PZL2}	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 _C = +125°C, use limits from table I.														
11	Same tests as subgroup 10 except T _C = -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 ≥ 2.0 V; or low ≤ 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	Limits		
			Test no.	Q ₆	Q ₅	Q ₄	Q ₃	Q ₂	Q ₁	Q ₀	V _{CC}	terminal	Min	Max	Units
9 T _C = +25°C	t _{PZL2}	3003	141							OUT	5.0 V	OE to Q ₀	3.0	9.0	ns
			142						OUT		"	OE to Q ₁	"	"	"
			143					OUT			"	OE to Q ₂	"	"	"
			144				OUT				"	OE to Q ₃	"	"	"
			145			OUT					"	OE to Q ₄	"	"	"
			146		OUT						"	OE to Q ₅	"	"	"
			147	OUT							"	OE to Q ₆	"	"	"
			148								"	OE to Q ₇	"	"	"
10	Same tests as subgroup 9 except T _C = +125°C, and use limits from table I.														
11	Same tests as subgroup 10 except T _C = -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_{IL} limits (mA) min/max values for circuits shown:
- | | |
|------------------|-----------|
| Parameter | Circuit A |
| I _{IL1} | -.25/-.60 |
- 3/ A = 3.0 V minimum; B = 0.0 V or GND, H ≥ 2.5 V, L ≤ 0.5 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.

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.
- i. Requirements for "JAN" marking.
- j. Packaging Requirements (see 5.1)

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

MIL-M-38510/341F

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

(Project 5962-2023)

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.