

INCH-POUND

MIL-M-38510/14E
21 March 2005
SUPERSEDING
MIL-M-38510/14D
2 August 1982

MILITARY SPECIFICATION
MICROCIRCUITS, DIGITAL, TTL, DATA SELECTORS/MULTIPLEXERS,
MONOLITHIC SILICON

Inactive for new design after 7 September 1995.

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, TTL, data selectors/multiplexers, logic microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.4).

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	Sixteen-input data selector/multiplexer, with enable
02, 06	Eight-input data selector/multiplexer, with enable
03	Dual, four-input data selector/multiplexer, with enable
04	Dual, four-input data selector/multiplexer, without enable
05	Quad, two-input data selector/multiplexer, with enable

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

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

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
E	GDIP1-T16 or CDIP2-T16	16	Dual-in-line
F	GDFP2-F16 or CDFP3-F16	16	Flat-pack
J	GDIP1-T24 or CDIP2-T24	24	Dual-in-line
K	GDFP2-F24 or CDFP3-F24	24	Flat-pack
Z	GDFP7-F24 or CDFP8-F24	24	Flat-pack

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, P. O. Box 3990, Columbus, OH 43218-3990, 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 <http://assist.daps.dla.mil>.

1.3 Absolute maximum ratings.

Supply voltage range	-0.5 V to +7.0 V
Input voltage range	-1.5 V at -12 mA to +5.5 V
Storage temperature range	-65°C to +150°C
Maximum power dissipation per gate, (P_D) <u>1/</u>	
Device type 01	375 mW
Device types 02 and 06	268 mW
Device type 03	286 mW
Device type 04	248 mW
Device type 05	275 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.

Supply voltage (V_{CC})	4.5 V minimum to 5.5 V maximum
Minimum high level input voltage (V_{IH})	2.0 V dc
Maximum low level input voltage (V_{IL})	0.8 V dc
Maximum low level output current (I_{OL})	16 mA
Normalized fanout (each output) <u>3/</u>	
Low logic level	10 maximum
High logic level	20 maximum
Case operating temperature range (T_C)	-55°C to 125°C

2.0 APPLICABLE DOCUMENT

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 <http://assist.daps.dla.mil> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

1/ Must withstand the added P_D due to short circuit condition (e.g. I_{OS} test).

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

3/ Device will fanout in both high and low levels to the specified number of inputs of the same device type as that being tested.

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 6.3).

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 Logic diagrams and terminal connections. The logic diagrams and terminal connections shall be as specified on figure 1 and 2.

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

3.3.4 Schematic circuit. The schematic circuit shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.

3.3.5 Case outlines. Case outlines shall be as specified in 1.2.3.

3.4 Lead material and finish. 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 1 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 4 (see MIL-PRF-38535, appendix A).

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit
				Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.5 V I _{OH} = -8 mA	All	2.4		V
Low level output voltage	V _{OL}	V _{CC} = 4.5 V I _{OL} = 16 mA	All		0.4	V
Input clamp voltage	V _{IC}	V _{CC} = 4.5 V I _{IN} = -12 mA	All		-1.5	V
Low level input current	I _{IL}	V _{CC} = 5.5 V V _{IN} = 0.4 V	02, 03, 04 05, 06	-0.7	-1.6	mA
			01	-0.6	-1.6	
High-level input current	I _{IH1}	V _{CC} = 5.5 V V _{IN} = 2.5 V	All		40	μA
High-level input current	I _{IH2}	V _{CC} = V _{IN} = 5.5 V	All		100	μA
Short circuit output current	I _{OS}	V _{CC} = 5.5 V V _{OUT} = 0 V ^{1/}	01, 03, 06	-20	-55	mA
			02, 04, 05	-20	-120	mA
Supply current	I _{CC}	V _{CC} = 5.5 V	01		68	mA
			02,06		48	mA
			04		45	mA
			03		52	mA
			05		50	mA
Propagation delay time high-to-low level output from A, B, C or D to W	t _{PHL1}	R _L = 390Ω ±5%, C _L = 50 pF minimum (figure 4)	01	8	40	ns
Propagation delay time low-to-high level output from A, B, C or D to W	t _{PLH1}		01	8	43	ns
Propagation delay time high-to-low level output from strobe to W	t _{PHL2}		01	6	37	ns
Propagation delay time low-to-high level output from strobe to W	t _{PLH2}		01	6	32	ns
Propagation delay time high-to-low level output from E ₀ -E ₁₅ to W	t _{PHL3}		01	3	23	ns
Propagation delay time low-to-high level output from E ₀ -E ₁₅ to W	t _{PLH3}		01	3	30	ns

^{1/} Not more than one should be shorted at one time.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Propagation delay time, high-to-low level output from A, B, or C to W	t _{PHL1}	R _L = 390Ω ±5%, C _L = 50 pF minimum (figure 4)	02	6	40	ns
			06	6	48	
Propagation delay time, low-to-high level output from A, B, or C to W	t _{PLH1}		02	6	38	ns
			06	6	43	
Propagation delay time, high-to-low level output from A, B, or C to Y	t _{PHL2}		02	8	49	ns
			06	8	60	
Propagation delay time, low-to-high level output from A, B, or C to Y	t _{PLH2}		02	8	45	ns
			06	8	58	
Propagation delay time, high-to-low level output from strobe to W	t _{PHL3}		02	6	37	ns
			06	6	38	
Propagation delay time, low-to-high level output from strobe to W	t _{PLH3}		02, 06	6	35	ns
Propagation delay time, high-to-low level output from strobe to Y	t _{PHL4}		02	8	46	ns
			06	8	52	
Propagation delay time, low-to-high level output from strobe to Y	t _{PLH4}		02	8	42	ns
			06	8	52	
Propagation delay time, high-to-low level output from D ₀ -D ₇ to W	t _{PHL5}		02, 06	3	32	ns
Propagation delay time, low-to-high level output from D ₀ -D ₇ to W	t _{PLH5}		02, 06	3	26	ns
Propagation delay time, high-to-low level output from D ₀ -D ₇ to Y	t _{PHL6}		02	6	41	ns
			06	6	44	
Propagation delay time, low-to-high level output from D ₀ -D ₇ to Y	t _{PLH6}		02	6	33	ns
		06	6	36		
Propagation delay time, high-to-low level output from data to Y	t _{PHL1}	R _L = 390Ω ±5%, C _L = 50 pF minimum (figure 5)	03	3	29	ns
Propagation delay time, low-to-high level output from data to Y	t _{PLH1}		03	3	28	ns
Propagation delay time, high-to-low level output from A or B to Y	t _{PHL2}		03	6	44	ns
Propagation delay time, low-to-high level output from A or B to Y	t _{PLH2}		03	6	42	ns
Propagation delay time, high-to-low level output from strobe to Y	t _{PHL3}		03	6	32	ns
Propagation delay time, low-to-high level output from strobe to Y	t _{PLH3}		03	6	42	ns

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Propagation delay time high-to-low level output from data to Y	t _{PHL1}	R _L = 390Ω ±5%, C _L = 50 pF minimum (figure 5)	04	3	41	ns
Propagation delay time low-to-high level output from data to Y	t _{PLH1}		04	3	39	ns
Propagation delay time high-to-low level output from data to W	t _{PHL2}		04	3	25	ns
Propagation delay time low-to-high level output from data to W	t _{PLH2}		04	3	24	ns
Propagation delay time high-to-low level output from A or B to Y	t _{PHL3}		04	6	51	ns
Propagation delay time low-to-high level output from A or B to Y	t _{PLH3}		04	6	51	ns
Propagation delay time high-to-low level output from A or B to W	t _{PHL4}		04	6	39	ns
Propagation delay time low-to-high level output from A or B to W	t _{PLH4}		04	6	34	ns
Propagation delay time high-to-low level output from A to Y	t _{PHL1}	R _L = 390Ω ±5%, C _L = 50 pF minimum (figure 6)	05	6	49	ns
Propagation delay time low-to-high level output from A to Y	t _{PLH1}		05	6	41	ns
Propagation delay time high-to-low level output from strobe to Y	t _{PHL2}		05	3	39	ns
Propagation delay time low-to-high level output from strobe to Y	t _{PLH2}		05	3	33	ns
Propagation delay time high-to-low level output from data to Y	t _{PHL3}		05	3	25	ns
Propagation delay time low-to-high level output from data to Y	t _{PLH3}		05	3	35	ns

TABLE II. Electrical test requirements.

MIL-PRF-38535 Test requirement	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 electrical test parameters when using the method 5005 QCI option	1, 2, 3	N/A
Groups C end point electrical parameters	1, 2, 3	1, 2, 3
Group D end point electrical parameters	1, 2, 3	1, 2, 3

*PDA applies to subgroup 1.

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 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.

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 of MIL-PRF-38535.

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

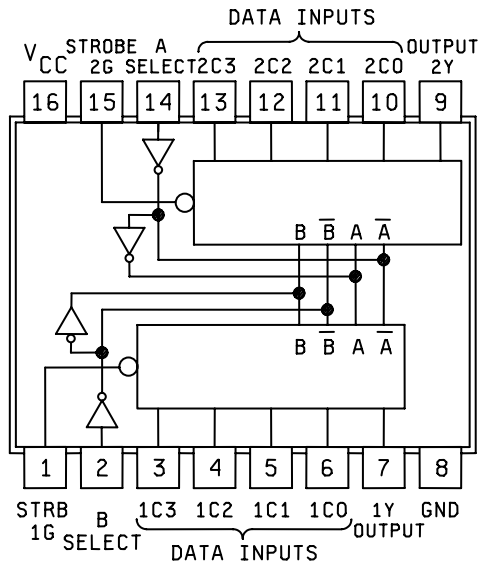
- a. End point electrical parameters shall be as specified in table II herein.
- b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit 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 in the appropriate tables and as follows:

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

DEVICE TYPE 03
CASES E AND F



DEVICE TYPE 04
CASES E AND F

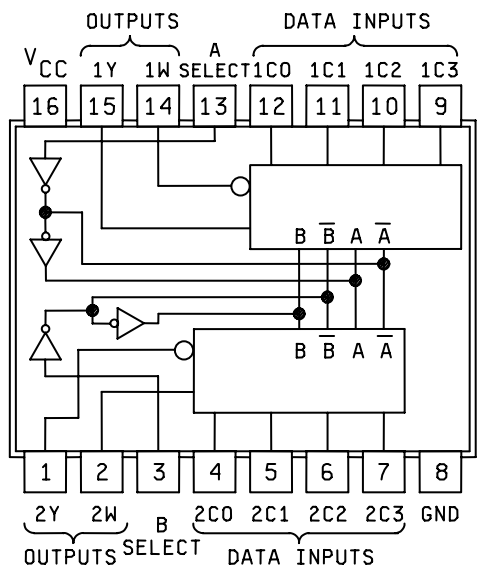
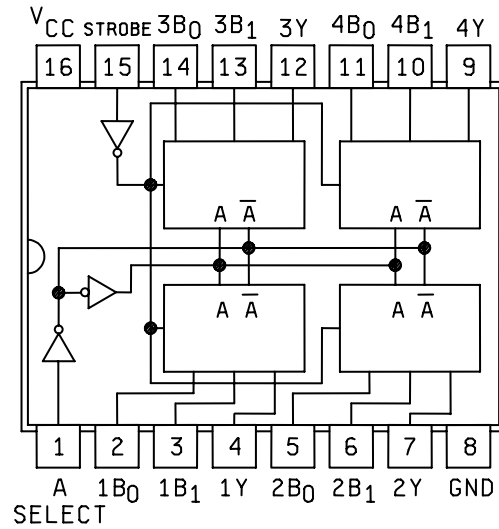


Figure 1. Terminal connections (top view) - Continued.

DEVICE TYPE 05
CASES E AND F



DEVICE TYPE 06
CASES E AND F

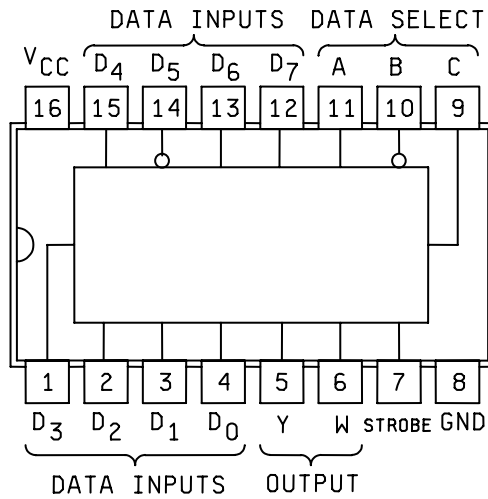


Figure 1. Terminal connections (top view) - Continued.

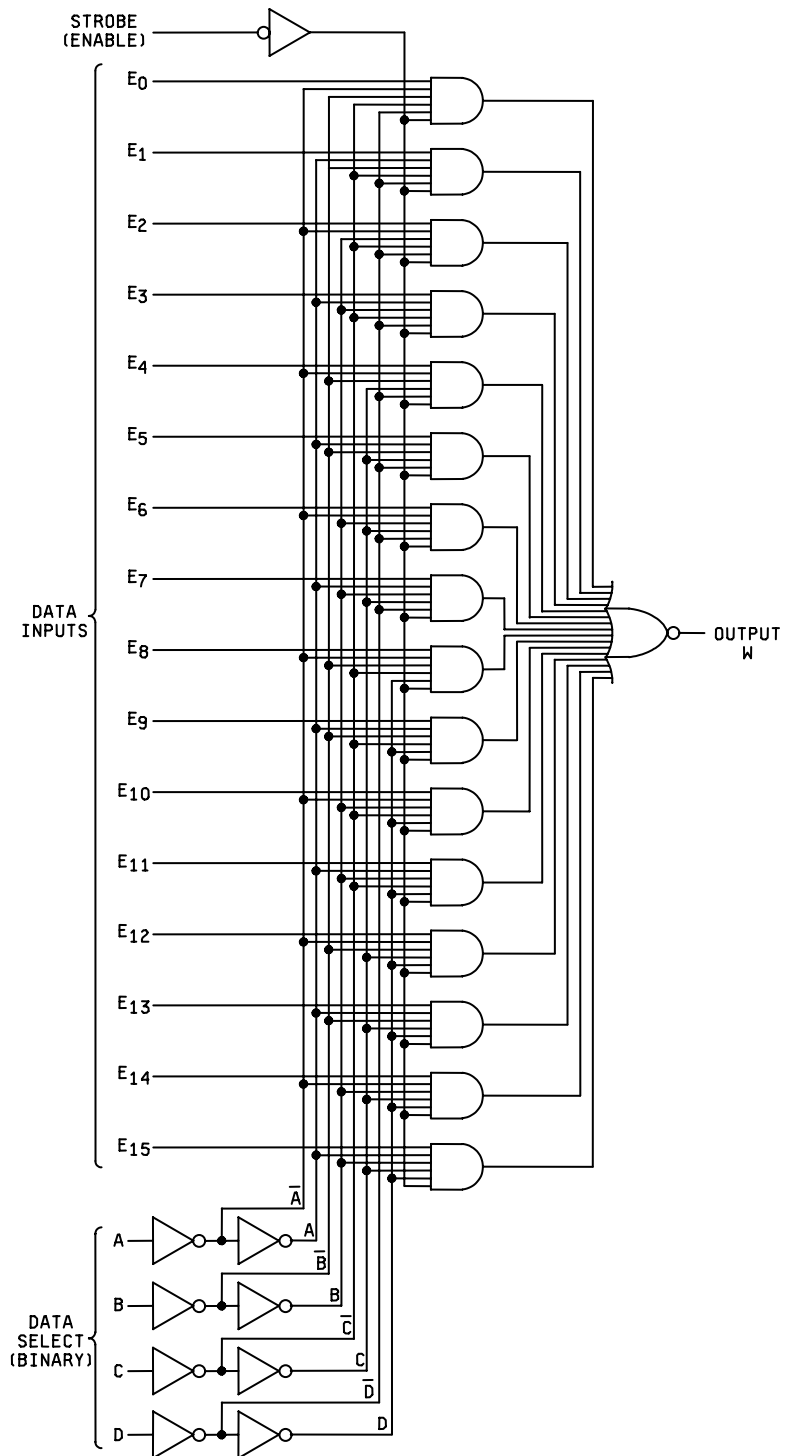


Figure 2. Logic diagrams.

DEVICE TYPES 02 AND 06

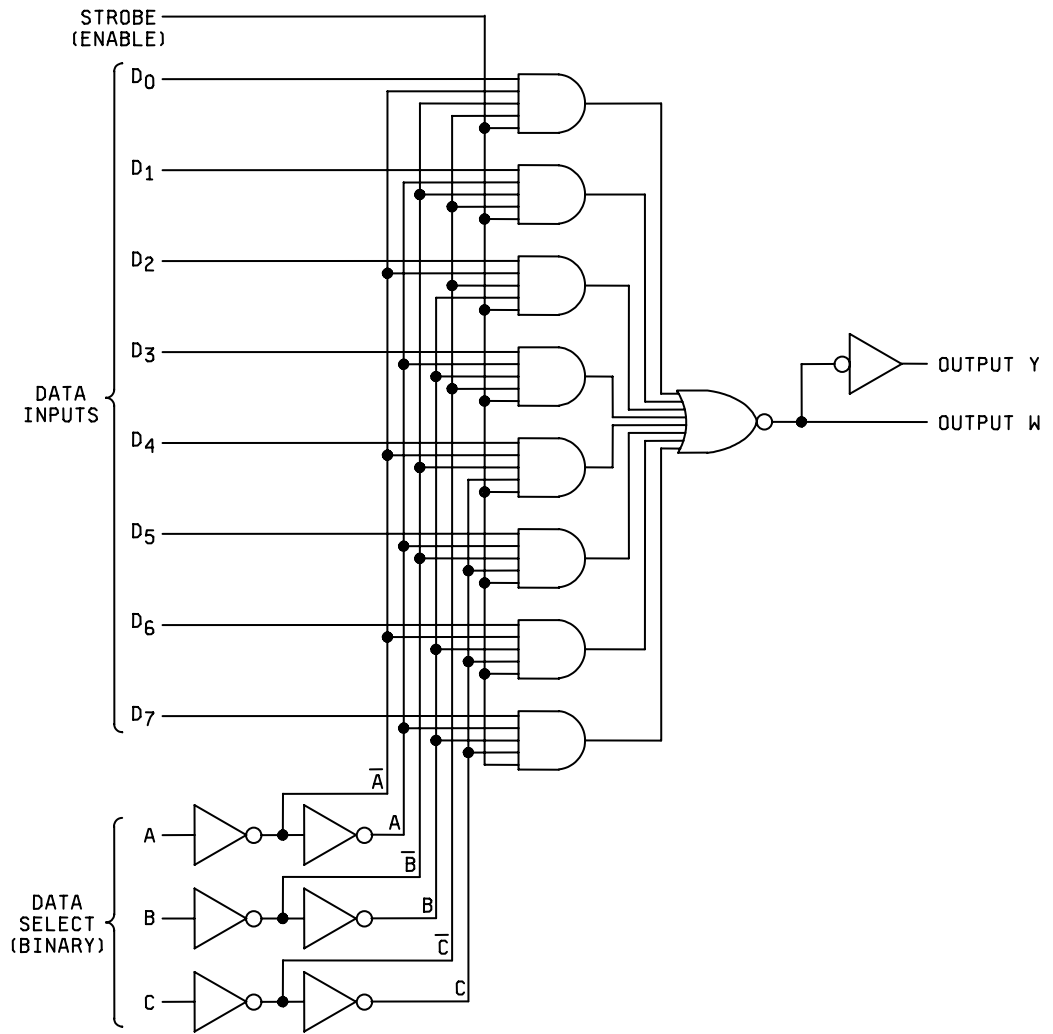


Figure 2. Logic diagrams – Continued.

DEVICE TYPE 03

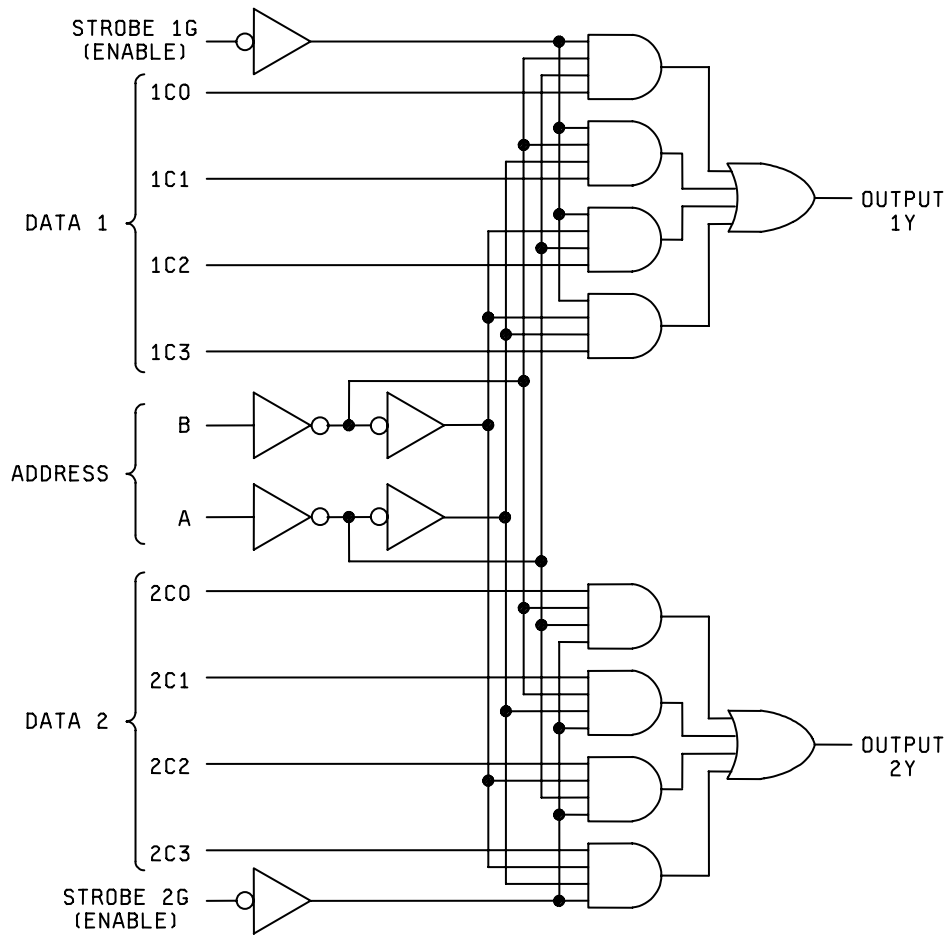


Figure 2. Logic diagrams – Continued.

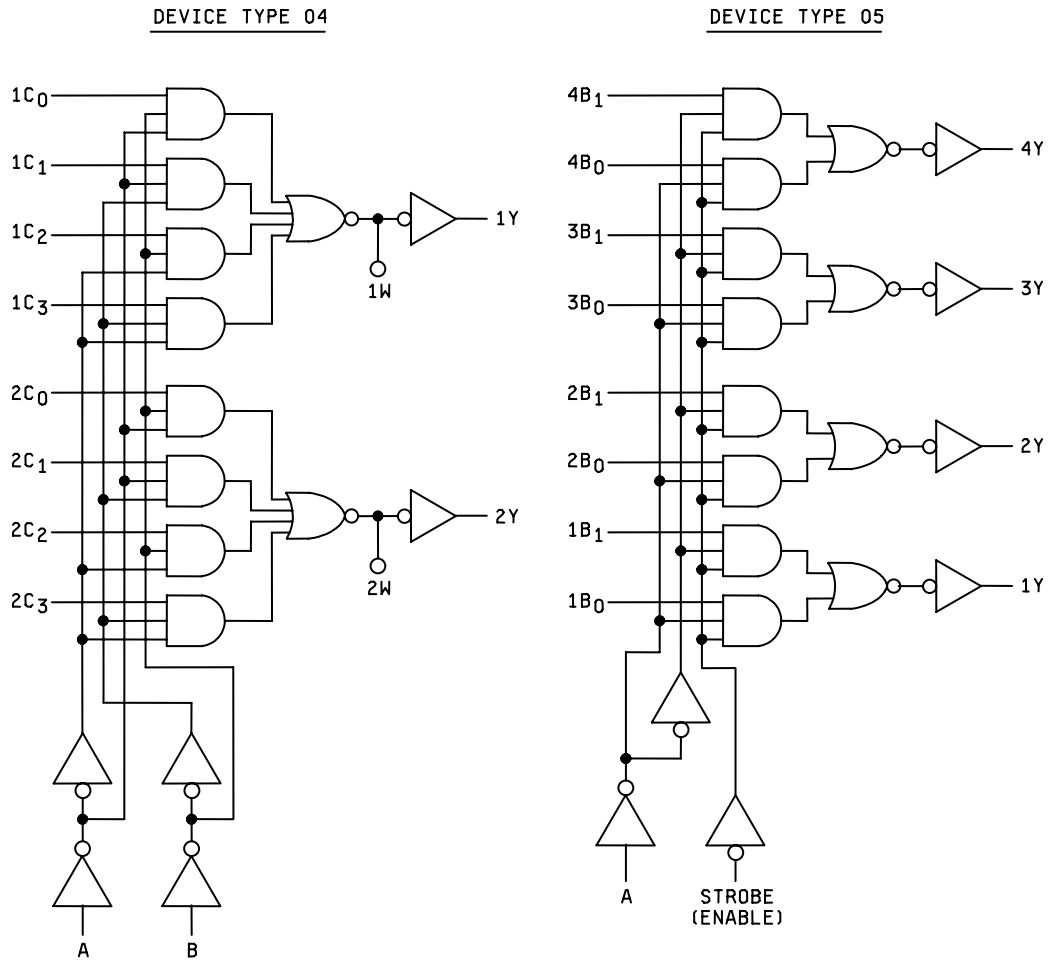


Figure 2. Logic diagrams – Continued.

Device type 01

INPUTS																						OUTPUT
D	C	B	A	STROBE	E ₀	E ₁	E ₂	E ₃	E ₄	E ₅	E ₆	E ₇	E ₈	E ₉	E ₁₀	E ₁₁	E ₁₂	E ₁₃	E ₁₄	E ₁₅	W	
X	X	X	X	H	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	H	
L	L	L	L	L	L	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	H	
L	L	L	L	L	H	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	L	
L	L	L	H	L	x	L	x	x	x	x	x	x	x	x	x	x	x	x	x	x	H	
L	L	L	H	L	x	H	x	x	x	x	x	x	x	x	x	x	x	x	x	x	L	
L	L	H	L	L	x	x	L	x	x	x	x	x	x	x	x	x	x	x	x	x	H	
L	L	H	L	L	x	x	H	x	x	x	x	x	x	x	x	x	x	x	x	x	L	
L	L	H	H	L	x	x	x	L	x	x	x	x	x	x	x	x	x	x	x	x	H	
L	L	H	H	L	x	x	x	H	x	x	x	x	x	x	x	x	x	x	x	x	L	
L	H	L	L	L	x	x	x	x	L	x	x	x	x	x	x	x	x	x	x	x	H	
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L	H	L	H	L	x	x	x	x	x	L	x	x	x	x	x	x	x	x	x	x	H	
L	H	L	H	L	x	x	x	x	x	H	x	x	x	x	x	x	x	x	x	x	L	
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H	L	L	L	L	x	x	x	x	x	x	x	x	H	x	x	x	x	x	x	x	L	
H	L	L	H	L	x	x	x	x	x	x	x	x	L	x	x	x	x	x	x	x	H	
H	L	L	H	L	x	x	x	x	x	x	x	x	H	x	x	x	x	x	x	x	L	
H	L	L	H	L	x	x	x	x	x	x	x	x	x	L	x	x	x	x	x	x	H	
H	L	H	L	L	x	x	x	x	x	x	x	x	x	x	L	x	x	x	x	x	L	
H	L	H	L	L	x	x	x	x	x	x	x	x	x	H	x	x	x	x	x	x	L	
H	L	H	H	L	x	x	x	x	x	x	x	x	x	x	L	x	x	x	x	x	H	
H	L	H	H	L	x	x	x	x	x	x	x	x	x	H	x	x	x	x	x	x	L	
H	H	L	L	L	x	x	x	x	x	x	x	x	x	x	x	L	x	x	x	x	H	
H	H	L	L	L	x	x	x	x	x	x	x	x	x	x	H	x	x	x	x	x	L	
H	H	L	H	L	x	x	x	x	x	x	x	x	x	x	x	L	x	x	x	x	H	
H	H	L	H	L	x	x	x	x	x	x	x	x	x	x	x	H	x	x	x	x	L	
H	H	H	L	L	x	x	x	x	x	x	x	x	x	x	x	x	L	x	x	x	H	
H	H	H	L	L	x	x	x	x	x	x	x	x	x	x	x	H	x	x	x	x	L	
H	H	H	H	L	x	x	x	x	x	x	x	x	x	x	x	x	L	x	x	x	H	
H	H	H	H	L	x	x	x	x	x	x	x	x	x	x	x	x	H	x	x	x	L	

When used to indicate an input condition, X = High logic level or low logic level.

Figure 3. Truth tables.

Device types 02 and 06

INPUTS												OUTPUTS	
C	B	A	STROBE	D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	Y	W
X	X	X	H	x	x	x	x	x	x	x	x	L	H
L	L	L	L	L	x	x	x	x	x	x	x	L	H
L	L	L	L	H	x	x	x	x	x	x	x	H	L
L	L	H	L	x	L	x	x	x	x	x	x	L	H
L	L	H	L	x	H	x	x	x	x	x	x	H	L
L	H	L	L	x	x	L	x	x	x	x	x	L	H
L	H	L	L	x	x	H	x	x	x	x	x	H	L
L	H	H	L	x	x	x	L	x	x	x	x	L	H
L	H	H	L	x	x	x	H	x	x	x	x	H	L
H	L	L	L	x	x	x	x	L	x	x	x	L	H
H	L	L	L	x	x	x	x	H	x	x	x	H	L
H	L	H	L	x	x	x	x	x	L	x	x	L	H
H	L	H	L	x	x	x	x	x	H	x	x	H	L
H	H	L	L	x	x	x	x	x	x	L	x	L	H
H	H	L	L	x	x	x	x	x	x	H	x	H	L
H	H	H	L	x	x	x	x	x	x	x	L	L	H
H	H	H	L	x	x	x	x	x	x	x	H	H	L

When used to indicate an input, X = Irrelevant.
H = High level, L = Low level.

ADDRESS INPUTS		DATA INPUTS				STROBE	OUTPUT
B	A	C ₀	C ₁	C ₂	C ₃	G	Y
X	X	x	x	x	x	H	L
L	L	L	x	x	x	L	L
L	L	H	x	x	x	L	H
L	H	x	L	x	x	L	L
L	H	x	H	x	x	L	H
H	L	x	x	L	x	L	L
H	L	x	x	H	x	L	H
H	H	x	x	x	L	L	L
H	H	x	x	x	H	L	H

Address inputs A and B are common to both sections.
H = high level, L = low level, X = irrelevant.

Figure 3. Truth tables – Continued.

Device type 04

Address inputs		Data inputs				Outputs	
B	A	C ₀	C ₁	C ₂	C ₃	Y	W
L	L	L	X	X	X	L	H
L	L	H	X	X	X	H	L
L	H	X	L	X	X	L	H
L	H	X	H	X	X	H	L
H	L	X	X	L	X	L	H
H	L	X	X	H	X	H	L
H	H	X	X	X	L	L	H
H	H	X	X	X	H	H	L

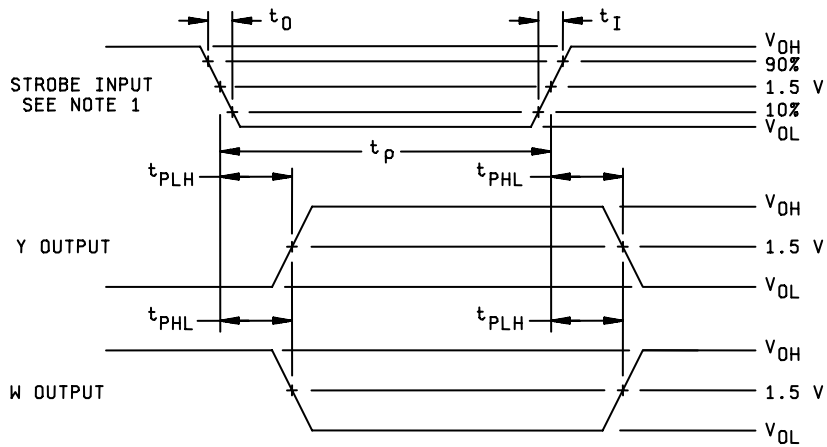
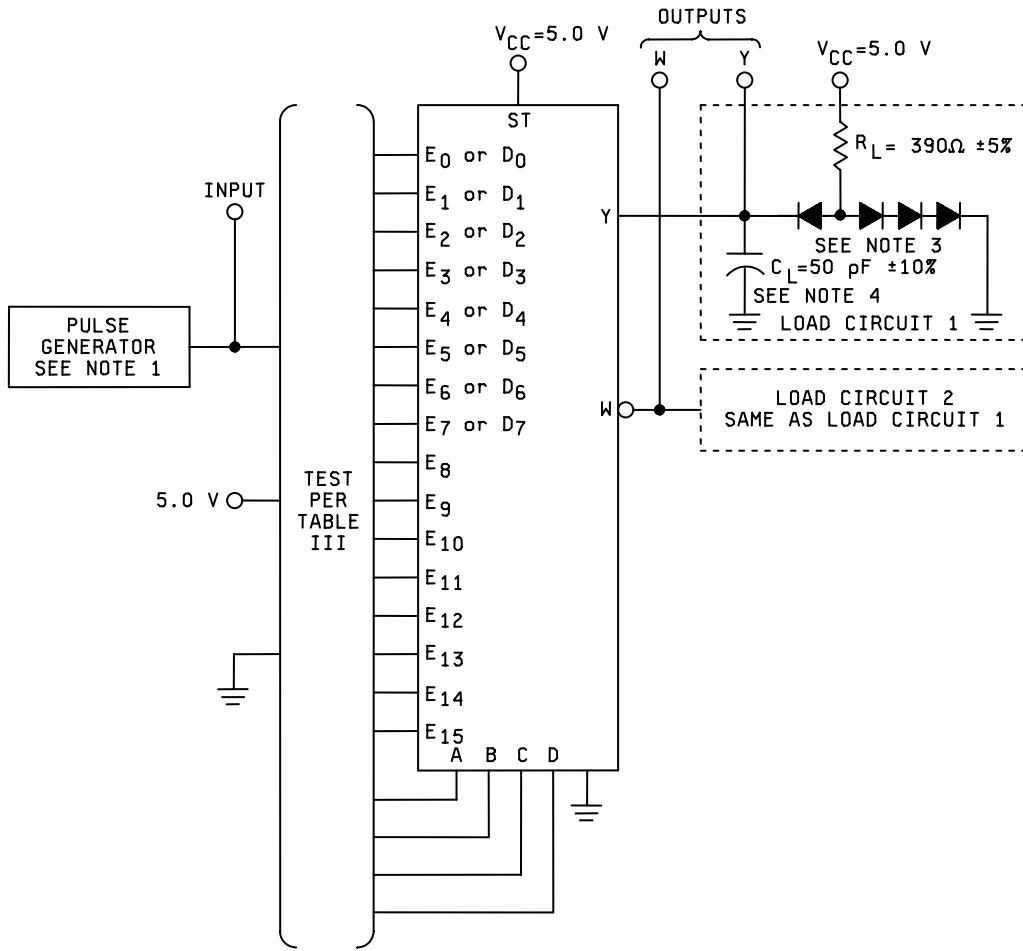
Address inputs A and B are common to both sections.
H = High level, L = Low level, X = Irrelevant.

Device type 05

Strobe (enable)	Select input	Data inputs		Output
G	A	B ₀	B ₁	Y
H	X	X	X	L
L	H	X	L	L
L	H	X	H	H
L	L	L	X	L
L	L	H	X	H

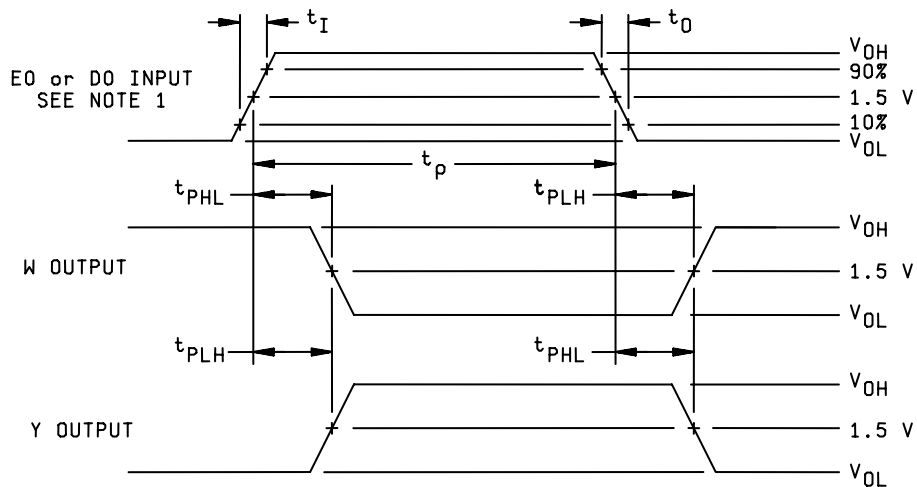
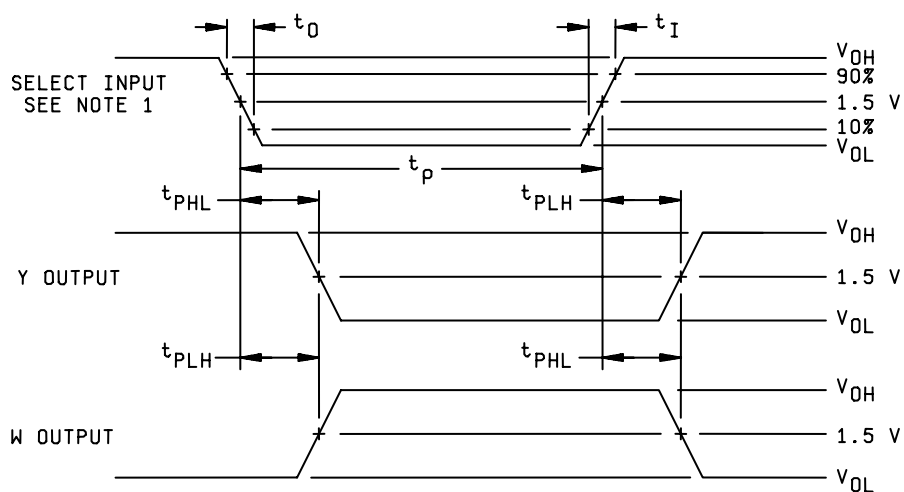
Address A and strobe G are common to all sections.
H = High level, L = Low level, X = Irrelevant.

FIGURE 3. Truth tables – Continued.



STROBE TO OUTPUT VOLTAGE WAVEFORM

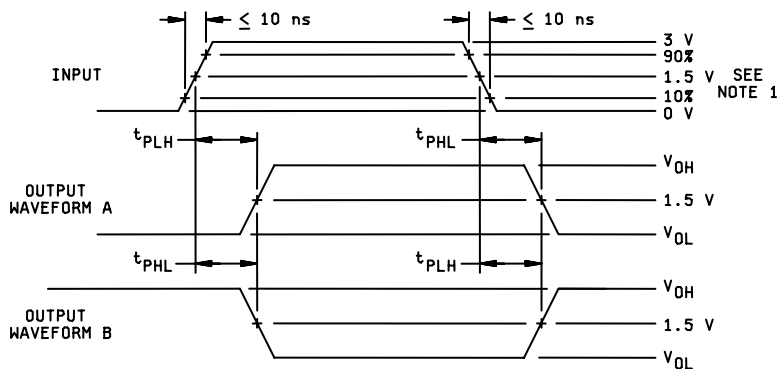
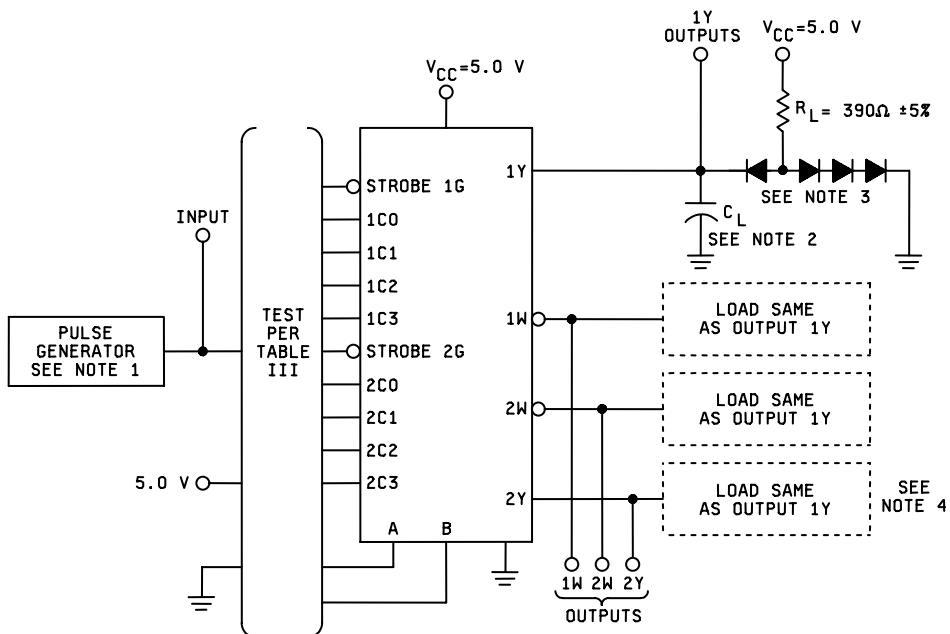
FIGURE 4. Switching test for device types 01, 02, and 06.



NOTES:

1. The input pulse has the following characteristics: $V_{OH} = 3\text{ V}$, $V_{OL} = 0\text{ V}$, $t_1 = t_0 = 10\text{ ns}$, $t_p = 500\text{ ns}$, $\text{PRR} \leq 1\text{ MHz}$, duty cycle = $50\% \pm 15\%$, and generator $Z_{out} \approx 50\Omega$.
2. C_L includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 4. Switching test for device types 01, 02, and 06 - Continued.



VOLTAGE WAVEFORMS

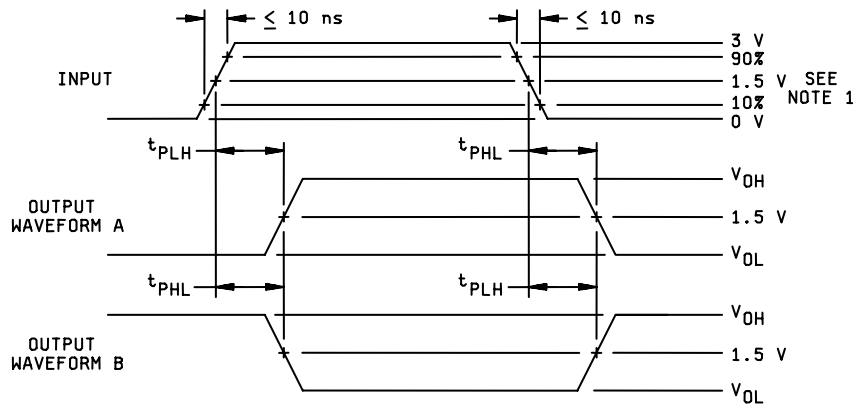
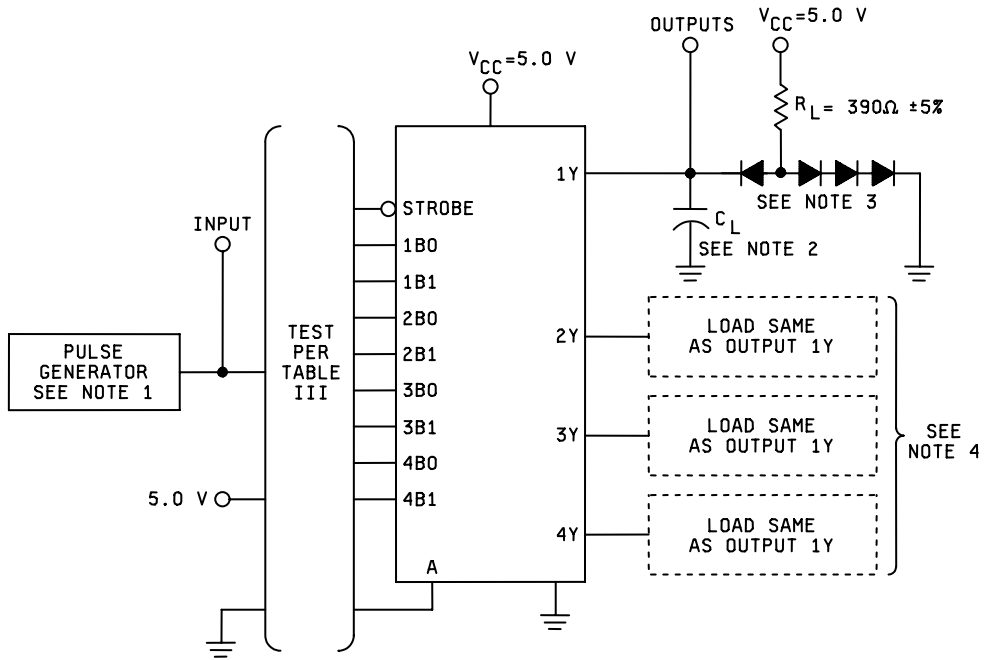
Switching time	Output waveform
CN to Y (types 03 and 04)	A
CN to W (type 04 only)	B
A or B to Y (types 03 and 04)	A
A or B to W (type 04 only)	B
G to Y (type 03 only)	B

NOTES:

1. The pulse generator has the following characteristics: $PRR \leq 1$ MHz, duty cycle = $50\% \pm 15\%$ and $Z_{out} \approx 50\Omega$.
2. $C_L = 50$ pF $\pm 10\%$ and includes probe and jig capacitance.
3. All diodes are 1N3064, or equivalent.
4. Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 5. Switching test for device types 03 and 04.

MIL-M-38510/14E



VOLTAGE WAVEFORMS

Input	Output waveform
A to Y	A
B to Y	A
S to Y	B

NOTES:

1. The pulse generator has the following characteristics: $PRR \leq 1 \text{ MHz}$, duty cycle = $50\% \pm 15\%$ and $Z_{out} \approx 50\Omega$.
2. $C_L = 50 \text{ pF} \pm 10\%$ and includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuits on a given output are only required where the specific test given in table III indicates "OUT" on that output. Load circuits may otherwise be omitted.

FIGURE 6. Switching test for device type 05.

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Meas. terminal
			Test No.	E ₇	E ₆	E ₅	E ₄	E ₃	E ₂	E ₁	E ₀	G	W	D	GND	
1	V _{OH}	3006	1									2.0 V	-8mA		GND	W
	V _{OL}	3007	2								2.0 V	0.8 V	16mA	GND		W
"	V _{IC}		3													A
"	"		4													B
"	"		5													C
"	"		6													D
"	"		7													G
"	"		8								-12mA	-12mA				E ₀
"	"		9							-12mA						E ₁
"	"		10						-12mA							E ₂
"	"		11					-12mA								E ₃
"	"		12				-12mA									E ₄
"	"		13			-12mA										E ₅
"	"		14	-12mA	-12mA											E ₆
"	"		15													E ₇
"	"		16													E ₈
"	"		17													E ₉
"	"		18													E ₁₀
"	"		19													E ₁₁
"	"		20													E ₁₂
"	"		21													E ₁₃
"	"		22													E ₁₄
"	"		23													E ₁₅
"	I _{IL}	3009	24							0.4 V	0.4 V	GND		GND		E ₀
"	"	"	25							0.4 V						E ₁
"	"	"	26													E ₂
"	"	"	27					0.4 V								E ₃
"	"	"	28				0.4 V									E ₄
"	"	"	29			0.4 V										E ₅
"	"	"	30		0.4 V											E ₆
"	"	"	31	0.4 V												E ₇
"	"	"	32													E ₈
"	"	"	33											5.5 V		E ₉
"	"	"	34													E ₁₀
"	"	"	35													E ₁₁
"	"	"	36													E ₁₂
"	"	"	37													E ₁₃
"	"	"	38													E ₁₄
"	"	"	39													E ₁₅
"	"	"	40								0.4 V					G
"	"	"	41													A
"	"	"	42													B
"	"	"	43													C
"	"	"	44										0.4 V			D

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Meas. terminal
			Test No.	C	B	A	E ₁₅	E ₁₄	E ₁₃	E ₁₂	E ₁₁	E ₁₀	E ₉	E ₈	V _{CC}	
1	V _{OH}	3006	1												4.5 V	W
T _C = 25°C	V _{OL}	3007	2	GND	GND	GND									"	W
"	V _{IC}		3			-12mA									"	A
"	"		4		-12mA										"	B
"	"		5	-12mA											"	C
"	"		6												"	D
"	"		7												"	G
"	"		8												"	E ₀
"	"		9												"	E ₁
"	"		10												"	E ₂
"	"		11												"	E ₃
"	"		12												"	E ₄
"	"		13												"	E ₅
"	"		14												"	E ₆
"	"		15												"	E ₇
"	"		16											-12mA	"	E ₈
"	"		17										-12mA		"	E ₉
"	"		18									-12mA			"	E ₁₀
"	"		19								-12mA				"	E ₁₁
"	"		20						-12mA						"	E ₁₂
"	"		21					-12mA							"	E ₁₃
"	"		22					-12mA							"	E ₁₄
"	"		23				-12mA								"	E ₁₅
"	I _{IL}	3009	24	GND	GND	GND									5.5 V	E ₀
"	"	"	25	"	GND	5.5 V									"	E ₁
"	"	"	26	"	5.5 V	GND									"	E ₂
"	"	"	27	"	5.5 V	5.5 V									"	E ₃
"	"	"	28	5.5 V	GND	GND									"	E ₄
"	"	"	29	"	GND	5.5 V									"	E ₅
"	"	"	30	"	5.5 V	GND									"	E ₆
"	"	"	31	"	5.5 V	5.5 V									"	E ₇
"	"	"	32	GND	GND	GND									"	E ₈
"	"	"	33	"	GND	5.5 V									"	E ₉
"	"	"	34	"	5.5 V	GND									"	E ₁₀
"	"	"	35	"	5.5 V	5.5 V									"	E ₁₁
"	"	"	36	5.5 V	GND	GND				0.4 V					"	E ₁₂
"	"	"	37	"	GND	5.5 V			0.4 V						"	E ₁₃
"	"	"	38	"	5.5 V	GND			0.4 V						"	E ₁₄
"	"	"	39	"	5.5 V	5.5 V	0.4 V		0.4 V						"	E ₁₅
"	"	"	40												"	G
"	"	"	41			0.4 V									"	A
"	"	"	42		0.4 V										"	B
"	"	"	43	0.4 V											"	C
"	"	"	44												"	D

See note at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Meas. terminal	
			Test No.	E ₇	E ₆	E ₅	E ₄	E ₃	E ₂	E ₁	E ₀	G	W	D	GND		
1 T _C = 25°C	I _{IH1}	3010	45									2.4 V			GND	G	
		"	46												GND	"	
		"	47												GND	"	
		"	48												GND	"	
		"	49												GND	"	
		"	50										5.5 V		2.4 V	"	
		"	51									2.4 V			5.5 V	"	
		"	52													"	
		"	53							2.4 V						"	
		"	54					2.4 V								"	
		"	55				2.4 V									"	
		"	56		2.4 V	2.4 V										"	
		"	57													"	
		"	58												GND	"	
		"	59													"	
	"	60													"		
	"	61													"		
	"	62													"		
	"	63													"		
	"	64													"		
	"	65													"		
	"	I _{IH2}	"	66												GND	"
			"	67												GND	"
			"	68												GND	"
			"	69												GND	"
			"	70												5.5 V	"
			"	71													"
			"	72													"
			"	73													"
			"	74													"
"			75													"	
"			75													"	
"			77													"	
"			78		5.5 V	5.5 V										"	
"			79													GND	
"			80													"	
"	81													"			
"	82													"			
"	83													"			
"	84													"			
"	85													"			
"	86													"			
"	I _{OS}	3011	87								GND	GND	GND	GND	"		
"	I _{CC}	3005	88									5.5 V		5.5 V	"		
2	Same tests, terminal conditions and limits as subgroup 1, except T _C = 125°C and V _{IC} are omitted.																
3	Same tests, terminal conditions and limits as subgroup 1, except T _C = -55°C and V _{IC} are omitted.																

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be $H \geq 2.0\text{ V}$, or $L \leq 0.8\text{ V}$, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Meas. terminal					
			Test No.	C	B	A	E ₁₅	E ₁₄	E ₁₃	E ₁₂	E ₁₁	E ₁₀	E ₉	E ₈	V _{CC}						
1 $T_C = 25^\circ\text{C}$	I_{IH1}	3010	45												5.5 V	G					
			46	GND	GND	2.4 V											"	A			
			47	GND	2.4 V	GND	GND											"	B		
			48	2.4 V	GND	GND	GND											"	C		
			49	GND	GND	GND	GND											"	D		
			50	5.5 V	5.5 V	5.5 V	5.5 V											"	E ₀		
			51	"	5.5 V	GND												"	E ₁		
			52	"	GND	5.5 V												"	E ₂		
			53	"	GND	GND												"	E ₃		
			54	GND	5.5 V	5.5 V												"	E ₄		
			55	"	5.5 V	GND												"	E ₅		
			56	"	GND	5.5 V												"	E ₆		
			57	"	GND	GND												"	E ₇		
			58	5.5 V	5.5 V	5.5 V											2.4 V	"	E ₈		
			59	"	5.5 V	GND									2.4 V	2.4 V		"	E ₉		
			60	"	GND	5.5 V								2.4 V				"	E ₁₀		
			61	"	GND	GND							2.4 V					"	E ₁₁		
			62	GND	5.5 V	5.5 V						2.4 V	2.4 V					"	E ₁₂		
			63	"	5.5 V	GND					2.4 V							"	E ₁₃		
			64	"	GND	5.5 V				2.4 V								"	E ₁₄		
			65	"	GND	GND			2.4 V									"	E ₁₅		
				I_{IH2}		66	GND	GND											"	G	
						67	GND	GND	5.5 V											"	A
						68	GND	5.5 V	GND	GND										"	B
						69	5.5 V	GND	GND	GND										"	C
						70	GND	GND	GND	GND										"	D
						71	5.5 V	5.5 V	5.5 V	5.5 V										"	E ₀
						72	"	5.5 V	GND											"	E ₁
						73	"	GND	5.5 V											"	E ₂
						74	"	GND	GND											"	E ₃
						75	GND	5.5 V	5.5 V											"	E ₄
75	"	5.5 V				GND											"	E ₅			
77	"	GND				5.5 V											"	E ₆			
78	"	GND	GND											"	E ₇						
79	5.5 V	5.5 V	5.5 V											5.5 V	"	E ₈					
80	"	5.5 V	GND									5.5 V	5.5 V		"	E ₉					
81	"	GND	5.5 V								5.5 V				"	E ₁₀					
82	"	GND	GND							5.5 V					"	E ₁₁					
83	GND	5.5 V	5.5 V						5.5 V						"	E ₁₂					
84	"	5.5 V	GND					5.5 V							"	E ₁₃					
85	"	GND	5.5 V				5.5 V								"	E ₁₄					
86	"	GND	GND			5.5 V									"	E ₁₅					
	I_{OS}	3011	87	GND	GND	GND									"	W					
	I_{CC}	3005	88	5.5 V	5.5 V	5.5 V									"	V _{CC}					
2	Same tests, terminal conditions and limits as subgroup 1, except $T_C = 125^\circ\text{C}$ and V_{IC} are omitted.																				
3	Same tests, terminal conditions and limits as subgroup 1, except $T_C = -55^\circ\text{C}$ and V_{IC} are omitted.																				

See note at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Meas. terminal		
			Test No.	E ₇	E ₆	E ₅	E ₄	E ₃	E ₂	E ₁	E ₀	G	W	D	GND			
7 T _C = 25°C	Truth table test	3014	89									A 2/ B	H 3/ H	B	GND	}		
			90								B		L	"	"			
			91									B		L	"		"	
			92											L	"		"	
			93											L	"		"	
			94											L	"		"	
			95								B			L	"		"	
			96								B	A			L		"	"
			97								B				L		"	"
			98												L		"	"
			99							B					L		"	"
			100						B						L		"	"
			101												L		"	"
			102					B							L		"	"
			103					B							L		"	"
			104				B								L		"	"
			105												L		"	"
			106												L		A	"
			107												L		"	"
			108												L		"	"
			109												L		"	"
110												L	"	"				
111												L	"	"				
112												L	"	"				
113												L	"	"				
114												L	"	"				
115												L	"	"				
116												L	"	"				
117												L	"	"				
118												L	"	"				
119												L	"	"				
120												L	"	"				
121												L	"	"				
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																	
9 T _C = 25°C	t _{PHL1}	3003 (Fig 4)	122						5.0 V	5.0 V	GND	GND	OUT	GND	GND	A to W		
	"		123					5.0 V	5.0 V	"	"	"	"	"	"	B to W		
	"		124				5.0 V			"	"	"	"	"	"	"	C to W	
	"		125							"	"	"	"	IN	"	"	D to W	
	"	t _{PLH1}	"	126						5.0 V	GND	GND	OUT	GND	GND	A to W		
	"	"	"	127						5.0 V	"	"	"	"	"	"	B to W	
	"	"	"	128			5.0 V			"	"	"	"	"	"	"	C to W	
	"	"	"	129						"	"	"	"	IN	"	"	D to W	
	"	t _{PHL2}	"	130							5.0 V	IN	OUT	GND	"	"	G to W	
"	t _{PLH2}	"	131							5.0 V	IN	OUT	GND	"	"	G to W		

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Meas. terminal		
			Test No.	C	B	A	E ₁₅	E ₁₄	E ₁₃	E ₁₂	E ₁₁	E ₁₀	E ₉	E ₈	V _{CC}			
7 T _C = 25°C	Truth table test	3014	89												4.5 V	}		
			90	B	B	B												
			91	"	"	B												
			92	"	"	A												
			93	"	"	A												
			94	"	A	B												
			95	"	"	B												
			96	"	"	A												
			97	"	"	A												
			98	A	B	B												
			99	"	"	B												
			100	"	"	A												
			101	"	"	A												
			102	"	A	B												
			103	"	"	B												
			104	"	"	A												
			105	"	"	A												
			106	B	B	B									B			
			107	"	"	B									A			
			108	"	"	A									B		A	
			109	"	"	A									A			
110	"	"	"		A	B					B	A						
111	"	"	"		"	B					"	"						
112	"	"	"		"	A				B	A							
113	"	"	"		"	A				A								
114	A	B	B			B				B	A							
115	"	"	B			B				A								
116	"	"	"			A												
117	"	"	"			A			B	A								
118	"	"	A			B		B	A									
119	"	"	"			B		A										
120	"	"	"			A	B	A										
121	"	"	"			A	A											
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																	
9 T _C = 25°C	t _{PHL1}	3003 (Fig 4)	122	GND	GND	IN									5.0 V	A to W		
	"		123	GND	IN	GND									"	B to W		
	"		124	IN	GND	"										"	C to W	
	"		125	GND	GND	"								5.0 V		"	D to W	
	"		126	GND	GND	IN										5.0 V	A to W	
	"	127	GND	IN	GND											"	B to W	
	"	128	IN	GND	"											"	C to W	
	"	129	GND	GND	"									5.0 V		"	D to W	
	"	t _{PHL2}	"	130	GND	GND	GND									"	G to W	
	"	t _{PLH2}		131	GND	GND	GND									"	G to W	

See note at end of device type 01

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Meas. terminal		
			Test No.	E ₇	E ₆	E ₅	E ₄	E ₃	E ₂	E ₁	E ₀	G	W	D	GND			
9 T _C = 25°C	t _{PHL3}	3003 (Fig 4)	132													E ₀ to W		
			133														E ₁ to W	
			134															E ₂ to W
			135															E ₃ to W
			136															E ₄ to W
			137															E ₅ to W
			138															E ₆ to W
			139															E ₇ to W
			140															E ₈ to W
			141															E ₉ to W
			142															E ₁₀ to W
			143															E ₁₁ to W
			144															E ₁₂ to W
			145															E ₁₃ to W
	146															E ₁₄ to W		
	147															E ₁₅ to W		
	"	t _{PLH3}	"	148													E ₀ to W	
				149														E ₁ to W
				150														E ₂ to W
				151														E ₃ to W
				152														E ₄ to W
				153														E ₅ to W
				154														E ₆ to W
				155														E ₇ to W
				156														E ₈ to W
				157														E ₉ to W
				158														E ₁₀ to W
				159														E ₁₁ to W
160																	E ₁₂ to W	
161																	E ₁₃ to W	
162														E ₁₄ to W				
163														E ₁₅ to W				
10 T _C = 125°C	t _{PHL1}	"	164													A to W		
			165													B to W		
			166													C to W		
			167													D to W		
	"	t _{PLH1}	"	168													A to W	
				169													B to W	
				170													C to W	
				171													D to W	
	"	t _{PHL2}	"	172													G to W	
				173													G to W	

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Meas. terminal				
			Test No.	C	B	A	E ₁₅	E ₁₄	E ₁₃	E ₁₂	E ₁₁	E ₁₀	E ₉	E ₈	V _{CC}					
9 T _C = 25°C	t _{PHL3}	3003 (Fig 4)	132	GND	GND	GND									5.0 V	E ₀ to W				
			133	"	GND	5.0 V									"	"	E ₁ to W			
			134	"	5.0 V	GND										"	"	E ₂ to W		
			135	"	5.0 V	5.0 V										"	"	E ₃ to W		
			136	5.0 V	GND	GND										"	"	E ₄ to W		
			137	"	GND	5.0 V										"	"	E ₅ to W		
			138	"	5.0 V	GND										"	"	E ₆ to W		
			139	"	5.0 V	5.0 V										"	"	E ₇ to W		
			140	GND	GND	GND												"	E ₈ to W	
			141	"	GND	5.0 V										IN		"	E ₉ to W	
			142	"	5.0 V	GND								IN				"	E ₁₀ to W	
			143	"	5.0 V	5.0 V							IN					"	E ₁₁ to W	
			144	5.0 V	GND	GND												"	E ₁₂ to W	
			145	"	GND	5.0 V						IN	IN					"	E ₁₃ to W	
	146	"	5.0 V	GND												"	E ₁₄ to W			
	147	"	5.0 V	5.0 V				IN	IN							"	E ₁₅ to W			
	"	t _{PLH3}	"	148	GND	GND	GND										"	E ₀ to W		
				149	"	GND	5.0 V										"	"	E ₁ to W	
				150	"	5.0 V	GND										"	"	E ₂ to W	
				151	"	5.0 V	5.0 V										"	"	E ₃ to W	
				152	5.0 V	GND	GND										"	"	E ₄ to W	
				153	"	GND	5.0 V										"	"	E ₅ to W	
				154	"	5.0 V	GND										"	"	E ₆ to W	
				155	"	5.0 V	5.0 V										"	"	E ₇ to W	
				156	GND	GND	GND												"	E ₈ to W
				157	"	GND	5.0 V												"	E ₉ to W
				158	"	5.0 V	GND								IN				"	E ₁₀ to W
159				"	5.0 V	5.0 V							IN					"	E ₁₁ to W	
160				5.0 V	GND	GND												"	E ₁₂ to W	
161	"	GND	5.0 V							IN					"	E ₁₃ to W				
162	"	5.0 V	GND												"	E ₁₄ to W				
163	"	5.0 V	5.0 V				IN	IN							"	E ₁₅ to W				
10 T _C = 125°C	t _{PHL1}	"	164	GND	GND	IN										"	A to W			
			165	GND	IN	GND										"	B to W			
			166	IN	GND	GND											"	C to W		
			167	GND	GND	GND									5.0 V		"	D to W		
	"	t _{PLH1}	"	168	GND	GND	IN										"	A to W		
				169	GND	IN	GND										"	B to W		
				170	IN	GND	GND										"	C to W		
	"	t _{PHL2}	"	171	GND	GND	GND										"	D to W		
				172	GND	GND	GND											"	G to W	
				173	GND	GND	GND											"	G to W	

See note at end of device type 01

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	1	2	3	4	5	6	7	8	9	10	11	12	Meas. terminal				
			Test No.	E ₇	E ₆	E ₅	E ₄	E ₃	E ₂	E ₁	E ₀	G	W	D	GND					
10 T _C = 125°C	t _{PHL3}	3003 (Fig 4)	174								IN	GND	OUT	GND	GND	E ₀ to W				
			175														E ₁ to W			
			176								IN							E ₂ to W		
			177															E ₃ to W		
			178					IN										E ₄ to W		
			179				IN											E ₅ to W		
			180					IN										E ₆ to W		
			181	IN	IN														E ₇ to W	
			182													5.0 V			E ₈ to W	
			183																E ₉ to W	
			184																E ₁₀ to W	
			185																E ₁₁ to W	
			186																E ₁₂ to W	
			187																E ₁₃ to W	
			188																E ₁₄ to W	
			189																E ₁₅ to W	
			"	t _{PLH3}	"	190								IN			GND			E ₀ to W
						191														E ₁ to W
						192								IN						
	193																		E ₃ to W	
	194								IN										E ₄ to W	
	195							IN												E ₅ to W
	"	"	"	196		IN												E ₆ to W		
				197	IN														E ₇ to W	
				198												5.0 V				E ₈ to W
199																			E ₉ to W	
200																			E ₁₀ to W	
201																			E ₁₁ to W	
"	"	"	202														E ₁₂ to W			
			203															E ₁₃ to W		
			204															E ₁₄ to W		
			205															E ₁₅ to W		
11	Same tests, terminal conditions and limits as subgroup 10 except T _C = -55°C.																			

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

Subgroup	Symbol	MIL-STD-883 method	Cases J, K, Z	13	14	15	16	17	18	19	20	21	22	23	24	Meas. terminal				
			Test No.	C	B	A	E15	E14	E13	E12	E11	E10	E9	E8	V _{CC}					
10 $T_C = 125^\circ\text{C}$	t_{PHL3}	3003 (Fig 4)	174	GND	GND	GND									5.0 V	E ₀ to W				
			175	"	GND	5.0 V										"	E ₁ to W			
			176	"	5.0 V	GND											"	E ₂ to W		
			177	"	5.0 V	5.0 V											"	E ₃ to W		
			178	5.0 V	GND	GND											"	E ₄ to W		
			179	"	GND	5.0 V											"	E ₅ to W		
			180	"	5.0 V	GND											"	E ₆ to W		
			181	"	5.0 V	5.0 V											"	E ₇ to W		
			182	GND	GND	GND											"	E ₈ to W		
			183	"	GND	5.0 V											"	E ₉ to W		
			184	"	5.0 V	GND								IN	IN		"	E ₁₀ to W		
			185	"	5.0 V	5.0 V							IN				"	E ₁₁ to W		
			186	5.0 V	GND	GND						IN					"	E ₁₂ to W		
			187	"	GND	5.0 V					IN						"	E ₁₃ to W		
			188	"	5.0 V	GND											"	E ₁₄ to W		
			189	"	5.0 V	5.0 V				IN	IN						"	E ₁₅ to W		
			"	t_{PLH3}	"	190	GND	GND	GND									"	E ₀ to W	
						191	"	GND	5.0 V										"	E ₁ to W
						192	"	5.0 V	GND										"	E ₂ to W
	193	"				5.0 V	5.0 V										"	E ₃ to W		
	194	5.0 V				GND	GND										"	E ₄ to W		
	195	"				GND	5.0 V											"	E ₅ to W	
	"	"	"	196	"	5.0 V	GND									"	E ₆ to W			
				197	"	5.0 V	5.0 V									"	E ₇ to W			
				198	GND	GND	GND										"	E ₈ to W		
199				"	GND	5.0 V										"	E ₉ to W			
200				"	5.0 V	GND								IN	IN	"	E ₁₀ to W			
201				"	5.0 V	5.0 V						IN				"	E ₁₁ to W			
202				5.0 V	GND	GND					IN					"	E ₁₂ to W			
203				"	GND	5.0 V					IN					"	E ₁₃ to W			
204				"	5.0 V	GND						IN				"	E ₁₄ to W			
205				"	5.0 V	5.0 V				IN	IN					"	E ₁₅ to W			
11	Same tests, terminal conditions and limits as subgroup 10 except $T_C = -55^\circ\text{C}$.																			

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- 1/ I_{IL} minimum limit for CKT E is -0.6 mA.
 - 2/ A = 3.0 V minimum, B = 0.0 V or GND.
 - 3/ $H > 1.5$ V; $L < 1.5$ V.
- Only attributes data is required for subgroups 7 and 8.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	GND	D ₇	G	A	B	C	W	Y	V _{CC}	
1 T _C = 25°C	V _{OH}	3006	1	2.0 V							GND		0.8 V	0.8 V	0.8 V	0.8 V		-0.8 mA	-0.8 mA	4.5 V
	V _{OH}	3006	2										2.0 V	2.0 V	2.0 V	2.0 V				
	V _{OL}	3007	3										2.0 V	2.0 V	2.0 V	2.0 V			16 mA	
	V _{OL}	3007	4	2.0 V									0.8 V	0.8 V	0.8 V	0.8 V	16 mA			
	V _{IC}		5	-12 mA																
	"	"	6		-12 mA															
	"	"	7			-12 mA														
	"	"	8				-12 mA													
	"	"	9					-12 mA												
	"	"	10						-12 mA											
	"	"	11							-12 mA										
	"	"	12								-12 mA									
	"	"	13									-12 mA								
	"	"	14										-12 mA							
	"	"	15											-12 mA						
	"	"	16												-12 mA		-12 mA			
"	I _{I/L}	3009	17										0.4 V	5.5 V	5.5 V	5.5 V				5.5 V
"	"	"	18										GND	0.4 V	5.5 V	"				"
"	"	"	19										"	5.5 V	0.4 V	"				"
"	"	"	20										"	5.5 V	5.5 V	0.4 V				"
"	"	"	21	0.4 V									"	GND	GND	GND				"
"	"	"	22		0.4 V								"	5.5 V	GND	"				"
"	"	"	23			0.4 V							"	GND	5.5 V	"				"
"	"	"	24				0.4 V						"	5.5 V	5.5 V	"				"
"	"	"	25					0.4 V					"	GND	GND	5.5 V				"
"	"	"	26						0.4 V				"	5.5 V	GND	"				"
"	"	"	27							0.4 V			"	GND	5.5 V	"				"
"	"	"	28								0.4 V		"	5.5 V	5.5 V	"				"
"	I _{I/H1}	3010	29										2.4 V	GND	GND	GND				"
"	"	"	30										5.5 V	2.4 V	GND	GND				"
"	"	"	31										"	GND	2.4 V	GND				"
"	"	"	32										"	GND	GND	2.4 V				"
"	"	"	33	2.4 V									"	5.5 V	5.5 V	5.5 V				"
"	"	"	34		2.4 V								"	GND	5.5 V	"				"
"	"	"	35			2.4 V							"	5.5 V	GND	"				"
"	"	"	36				2.4 V						"	GND	GND	"				"
"	"	"	37					2.4 V					"	5.5 V	5.5 V	GND				"
"	"	"	38						2.4 V				"	GND	5.5 V	"				"
"	"	"	39							2.4 V			"	5.5 V	GND	"				"
"	"	"	40								2.4 V		"	GND	GND	"				"

See note at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
				D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	GND	D ₇	G	A	B	C	W	Y	V _{IC}				
1 T _C = 25°C	I _{IH2}	3010	41								GND		5.5 V	GND	GND	GND				5.5 V			
			42											GND	5.5 V	GND	"				"		
			43												GND	5.5 V	"					"	
			44												GND	GND	5.5 V					"	
			45	5.5 V											5.5 V	5.5 V	"					"	
			46		5.5 V										GND	5.5 V	"					"	
			47			5.5 V									5.5 V	GND	"					"	
			48				5.5 V									GND	GND	"				"	
			49					5.5 V			5.5 V					5.5 V	5.5 V	GND					"
			50									5.5 V				GND	5.5 V	"					"
			51										5.5 V			5.5 V	GND	"					"
			52												5.5 V	GND	"	"					"
			"	I _{OS}	3011	53	GND	GND	GND	GND	GND	GND	GND	"	GND	5.5 V	"	"	"	GND			"
"	I _{OS}	3011	54	5.5 V	"	"	"	"	"	"	"	"	GND	"	"	"			GND	"			
"	I _{CC}	3005	55	5.5 V	"	"	"	"	"	"	"	"	GND	"	"	"				"			
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	Truth table test		56									GND		A 1/							4.5		
			57	B											B	B	B	B	H 2/	L	L	"	
			58	A											"	B	"	"	L	H	L	"	
			59		B										"	A	"	"	H	L	L	"	
			60		A										"	A	"	"	L	H	L	"	
			61			B									"	B	A	"	H	L	L	"	
			62			A									"	B	"	"	L	H	L	"	
			63				B								"	A	"	"	H	L	L	"	
			64					B							"	A	"	"	L	H	L	"	
			65						B						"	B	B	A	H	L	L	"	
			66						A						"	B	"	"	L	H	L	"	
67							B					"	A	"	"	H	L	L	"				
68								B				"	A	"	"	L	H	L	"				
69									B			"	B	A	"	H	L	L	"				
70										B		"	B	"	"	L	H	L	"				
71											B	"	A	"	"	H	L	L	"				
72												A	"	"	"	L	H	L	"				
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																						

See note at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	GND	D ₇	G	A	B	C	W	Y	V _{CC}	
9 T _C = 25°C	t _{PHL1}	3003 (Fig 4)	73	GND	5.0 V						GND		GND	IN	GND	GND	OUT		5.0 V	
	"		74	"		5.0 V					"		"	GND	IN	GND	"		"	
	"		75	"					5.0 V			"		"	GND	IN	"		"	
	"	t _{PLH1}	"	76	"	5.0 V						"		"	IN	GND	GND	"		"
	"	"		77	"		5.0 V					"		"	GND	IN	GND	"		"
	"	"		78	"					5.0 V		"		"	GND	IN	"		"	
	"	t _{PHL2}	"	79	"	5.0 V						"		"	IN	GND	GND		OUT	"
	"	"		80	"		5.0 V					"		"	GND	IN	GND	"	"	"
	"	"		81	"					5.0 V		"		"	GND	IN	"		"	
	"	t _{PLH2}	"	82	"	5.0 V						"		"	IN	GND	GND		"	"
	"	"		83	"		5.0 V					"		"	GND	IN	GND	"	"	"
	"	"		84	"					5.0 V		"		"	GND	IN	"		"	
	"	t _{PHL3}	"	85	5.0 V							"		IN	GND	GND	GND	OUT		"
	"	t _{PLH3}		86	"							"		"	"	"	"	OUT		"
	"	t _{PHL4}		87	"							"		"	"	"	"		OUT	"
	"	t _{PLH4}		88	"							"		"	"	"	"		OUT	"
	"	t _{PHL5}	"	89	IN							"		GND	GND	GND	GND	OUT		"
	"	"		90		IN						"		"	5.0 V	GND	"	"	"	"
	"	"		91			IN					"		"	GND	5.0 V	"	"	"	"
	"	"		92				IN				"		"	5.0 V	5.0 V	"	"	"	"
"	"	93						IN			"		"	GND	GND	5.0 V	"	"	"	
"	"	94							IN	IN	"		"	5.0 V	GND	"	"	"	"	
"	"	95									IN	IN	"	GND	5.0 V	"	"	"	"	
"	"	96										IN	5.0 V	5.0 V	"	"	"	"		
"	t _{PLH5}	"	97	IN							"		"	GND	GND	GND	"		"	
"	"		98		IN						"		"	5.0 V	GND	"	"	"	"	
"	"		99			IN					"		"	GND	5.0 V	"	"	"	"	
"	"		100				IN				"		"	5.0 V	5.0 V	"	"	"	"	
"	"		101					IN			"		"	GND	GND	5.0 V	"	"	"	
"	"	102						IN	IN	"		"	5.0 V	GND	"	"	"	"		
"	"	103								IN	IN	"	GND	5.0 V	"	"	"	"		
"	"	104										IN	5.0 V	5.0 V	"	"	"	"		

See note at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
				D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	GND	D ₇	G	A	B	C	W	Y	V		
9 T _C = 25°C	t _{PHL6}	3003 (Fig 4)	105	IN									GND	GND	GND	GND		OUT	5.0 V		
	"		106		IN									"	5.0 V	GND	"		"	"	
	"		107				IN							"	GND	5.0 V	"		"	"	
	"		108					IN						"	5.0 V	5.0 V	"		"	"	
	"		109						IN					"	GND	GND	5.0 V		"	"	
	"		110							IN				"	5.0 V	GND	"		"	"	
	"		111									IN		"	GND	5.0 V	"		"	"	
	"		112										IN	"	5.0 V	5.0 V	"		"	"	
	"		t _{PLH6}	"	113	IN								"	GND	GND	GND		"	"	"
	"		"	"	114		IN							"	5.0 V	GND	"		"	"	"
	"		"	"	115			IN						"	GND	5.0 V	"		"	"	"
	"		"	"	116				IN					"	5.0 V	5.0 V	"		"	"	"
	"	"	"	117					IN				"	GND	GND	5.0 V		"	"	"	
	"	"	"	118						IN			"	5.0 V	GND	"		"	"	"	
	"	"	"	119							IN		"	GND	5.0 V	"		"	"	"	
	"	"	"	120								IN	"	5.0 V	5.0 V	"		"	"	"	
	10 T _C = 125°C	t _{PHL1}	"	121	GND	5.0 V								"	IN	GND	GND	OUT		"	
		"	"	122	"		5.0 V							"	GND	IN	GND	"		"	
		"	"	123	"				5.0 V					"	GND	GND	IN	"		"	
		"	t _{PLH1}	"	124	"	5.0 V							"	IN	GND	GND	"		"	
"		"	"	125	"		5.0 V						"	GND	IN	GND	"		"		
"		"	"	126	"				5.0 V				"	GND	GND	IN	"		"		
"		t _{PHL2}	"	127	"	5.0 V							"	IN	GND	GND		OUT	"		
"		"	"	128	"		5.0 V						"	GND	IN	GND		"	"		
"		"	"	129	"				5.0 V				"	GND	GND	IN		"	"		
"		t _{PLH2}	"	130	"	5.0 V							"	IN	GND	GND		"	"		
"		"	"	131	"		5.0 V						"	GND	IN	GND		"	"		
"		"	"	132	"				5.0 V				"	GND	GND	IN		"	"		
"		t _{PHL3}	"	133	5.0 V								"	IN	GND	GND	OUT		"		
"		t _{PLH3}	"	134	"								"	"	"	"	OUT		"		
"		t _{PHL4}	"	135	"								"	"	"	"		OUT	"		
"		t _{PLH4}	"	136	"								"	"	"	"		OUT	"		
"		t _{PHL5}	"	137	IN									GND	GND	GND	OUT		"		
"		"	"	138		IN								"	5.0 V	GND	"		"		
"		"	"	139			IN							"	GND	5.0 V	"		"		
"		"	"	140				IN						"	5.0 V	5.0 V	"		"		
"	"	"	141					IN					"	5.0 V	GND	5.0 V		"			
"	"	"	142						IN				"	GND	GND	"		"			
"	"	"	143							IN			"	5.0 V	GND	"		"			
"	"	"	144								IN		"	5.0 V	5.0 V	"		"			

See note at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
				D ₀	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	GND	D ₇	G	A	B	C	W	Y	V _C			
10 T _C = 125°C	t _{PLH5}	3003 (Fig 4)	145	IN							GND		GND	GND	GND	GND	OUT		5.0			
			146		IN							"		"	5.0 V	GND	"	"		"		
			147			IN							"		"	GND	5.0 V	"	"		"	
			148				IN						"		"	5.0 V	5.0 V	"	"		"	
			149					IN					"		"	GND	GND	5.0 V	"		"	
			150						IN				"		"	5.0 V	GND	"	"		"	
				151					IN			"		"	GND	5.0 V	"	"		"		
				152						IN		"	IN	"	5.0 V	5.0 V	"	"		"		
		t _{PHL6}	"	153	IN							"		"	GND	GND	GND		OUT	"		
	154				IN							"		"	5.0 V	GND	"	"		"		
	155					IN							"		"	GND	5.0 V	"	"		"	
	156						IN						"		"	5.0 V	5.0 V	"	"		"	
	157							IN					"		"	GND	GND	5.0 V	"	"		"
	158								IN			IN		"		"	5.0 V	GND	"	"		"
				159							IN		"	"	GND	5.0 V	"	"		"		
				160								"	IN	"	5.0 V	5.0 V	"	"		"		
		t _{PLH6}	"	161	IN							"		"	GND	GND	GND		"	"		
	162				IN							"		"	5.0 V	GND	"	"		"		
163					IN							"		"	GND	5.0 V	"	"		"		
164						IN						"		"	5.0 V	5.0 V	"	"		"		
165							IN				IN		"		"	GND	GND	5.0 V	"	"		
166								IN				IN	"		"	5.0 V	GND	"	"		"	
			167							IN		"	"	GND	5.0 V	"	"		"			
			168								"	IN	"	5.0 V	5.0 V	"	"		"			
11	Same tests, terminal conditions and limits as subgroup 10, except T _A = -55°C.																					

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ H > 1.5 V; L < 1.5 V.

Only attributes data is required for subgroups 7 and 8.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be $H \geq 2.0\text{ V}$, or $L \leq 0.8\text{ V}$, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			Test No.	1G	B	1C ₃	1C ₂	1C ₁	1C ₀	1Y	GND	2Y	2C ₀	2C ₁	2C ₂	2C ₃	A	2G	V _{CC}
1 T _C = 25°C	V _{OH}	3006	1	0.8 V	0.8 V				2.0 V	-8 mA	GND						0.8 V		4.5 V
	V _{OH}	3006	2		0.8 V							-8 mA	2.0 V				0.8 V	0.8 V	
	V _{OL}	3007	3	2.0 V						16 mA									
	V _{OL}	3007	4									16 mA						2.0 V	
	V _{IC}		5														-12 mA		
	"	"	6		-12 mA														
	"	"	7						-12 mA										
	"	"	8						-12 mA										
	"	"	9				-12 mA												
	"	"	10			-12 mA													
	"	"	11	-12 mA															
	"	"	12										-12 mA						
	"	"	13											-12 mA					
	"	"	14												-12 mA				
	"	"	15													-12 mA			
	"	"	16														-12 mA		-12 mA
"	I _{IL}	3009	17														0.4 V		5.5 V
"	"	"	18		0.4 V														
"	"	"	19	0.4 V															
"	"	"	20															0.4 V	
"	"	"	21	GND	GND				0.4 V								GND		
"	"	"	22	"	GND			0.4 V									5.5 V		
"	"	"	23	"	5.5 V		0.4 V										GND		
"	"	"	24	"	5.5 V	0.4 V											5.5 V		
"	"	"	25		GND							0.4 V					GND	GND	
"	"	"	26		GND								0.4 V				5.5 V	"	
"	"	"	27		5.5 V									0.4 V	0.4 V		GND	"	
"	"	"	28		5.5 V											0.4 V	5.5 V	"	
"	I _{IH1}	3010	29														2.4 V		
"	"	"	30		2.4 V														
"	"	"	31	2.4 V															
"	"	"	32															2.4 V	
"	"	"	33	5.5 V	5.5 V				2.4 V								5.5 V		
"	"	"	34	"	5.5 V			2.4 V									GND		
"	"	"	35	"	GND		2.4 V										5.5 V		
"	"	"	36	"	GND	2.4 V											GND		
"	"	"	37		5.5 V							2.4 V					5.5 V	5.5 V	
"	"	"	38		5.5 V								2.4 V				GND	"	
"	"	"	39		GND									2.4 V	2.4 V		5.5 V	"	
"	"	"	40		GND											2.4 V	GND	"	

See notes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	1G	B	1C ₃	1C ₂	1C ₁	1C ₀	1Y	GND	2Y	2C ₀	2C ₁	2C ₂	2C ₃	A	2G	V _{CC}	
1 T _C = 25°C	I _{IH2}	3010	41								GND						5.5 V		5.5 V	
	"	"	42		5.5 V						"								"	
	"	"	43	5.5 V							"								"	
	"	"	44								"								5.5 V	"
	"	"	45	5.5 V	5.5 V					5.5 V	"							5.5 V		"
	"	"	46		5.5 V				5.5 V		"							GND		"
	"	"	47		GND		5.5 V				"							5.5 V		"
	"	"	48		GND		5.5 V				"							GND		"
	"	"	49		5.5 V						"		5.5 V					5.5 V	5.5 V	"
	"	"	50		5.5 V						"			5.5 V				GND		"
	"	"	51		GND						"				5.5 V			5.5 V		"
	"	"	52		"						"					5.5 V		GND		"
"	I _{OS}	3011	53	GND	"	GND	GND	GND	5.5 V	GND	"						"		"	
"	I _{OS}	3011	54	"	"	GND	GND	GND			"	GND	5.5 V	GND	GND	GND	"	GND	"	
"	I _{CC}	3005	55	"	"	GND	GND	GND	GND		"		GND	GND	GND	GND	"	GND	"	
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	Truth table		56	A 1/						L 2/	GND	L						A	4.5 V	
	"		57	B	B				B	A	"	L	B				B	B	"	
	"	test	58	"	B				A		"	H	A				B	"	"	
	"	"	59	"	B			B			"	L		B			A	"	"	
	"	"	60	"	B			A			"	H		A			A	"	"	
	"	"	61	"	A		B				"	L			B		B	"	"	
	"	"	62	"	A		A				"	H			A		B	"	"	
"	"	63	"	A	B					"	L				B	A	"	"		
"	"	64	"	A	A					"	H				A		A	"	"	
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																			
9 T _C = 25°C	t _{PHL1}	3003	65	GND	GND				IN	IN	OUT	GND					GND		5.0 V	
	"	(Fig 5)	66	"	GND			IN			"	"					5.0 V		"	
	"	"	67	"	5.0 V						"	"					GND		"	
	"	"	68	"	5.0 V	IN	IN				"	"					5.0 V		"	
	"	"	69	"	GND						"	OUT	IN				GND	GND	"	
	"	"	70	"	GND						"	"		IN			5.0 V	"	"	
	"	"	71	"	5.0 V						"	"			IN		GND	"	"	
"	"	72	"	5.0 V						"	"			IN	IN	5.0 V	"	"		

See notes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
			Test No.	1G	B	1C ₃	1C ₂	1C ₁	1C ₀	1Y	GND	2Y	2C ₀	2C ₁	2C ₂	2C ₃	A	2G	V _{CC}				
9 T _C = 25°C	t _{PLH1}	3003 (Fig 5)	73	GND	GND				IN		OUT	GND					GND		5.0 V				
			74	"	GND				IN		"	"						5.0 V		"			
			75	"	5.0 V		IN				"	"							GND		"		
			76	"	5.0 V			IN			"	"							5.0 V		"		
			77	"	GND						"	OUT		IN					GND	GND	"		
			78	"	GND						"	"			IN				5.0 V		"		
			79	"	5.0 V						"	"				IN			GND		"		
			80	"	5.0 V						"	"					IN		5.0 V		"		
	t _{PHL2}	"	"	81	GND	GND			5.0 V	GND	OUT	"						IN		"			
				82	GND	IN		5.0 V		GND	OUT	"							GND		"		
				83	"	GND						"	OUT	GND	5.0 V				IN	GND	"		
				84	"	IN						"	OUT	GND		5.0 V	5.0 V		GND	GND	"		
	t _{PLH2}	"	"	85	GND	GND			5.0 V	GND	OUT	GND						IN		5.0 V			
				86	GND	IN		5.0 V		GND	OUT	"							GND		"		
				87	"	GND						"	OUT	GND	5.0 V				IN	GND	"		
				88	"	IN						"	OUT	GND		5.0 V	5.0 V		GND	GND	"		
	t _{PHL3}	"	"	89	IN	GND				5.0 V	OUT	"						GND		"			
				90	"	GND						"	OUT	5.0 V					GND	IN	"		
	t _{PLH3}	"	"	91	IN	GND				5.0 V	OUT	"						GND		"			
				92	"	GND						"	OUT	5.0 V					GND	IN	"		
10 T _C = 125°C	t _{PHL1}	"	93	GND	GND				IN		OUT	"						GND		"			
			94	"	GND				IN		"	"							5.0 V		"		
			95	"	5.0 V		IN	IN			"	"							GND		"		
			96	"	5.0 V						"	"								5.0 V		"	
			97	"	GND						"	OUT		IN					GND	GND	"		
			98	"	GND						"	"			IN				5.0 V		"		
			99	"	5.0 V						"	"				IN			GND		"		
			100	"	5.0 V						"	"					IN		5.0 V		"		
			t _{PLH1}	"	"	101	GND	GND				IN		OUT	"						GND		"
						102	"	GND				IN		"	"							5.0 V	
	103	"				5.0 V						"	"							GND		"	
	104	"				5.0 V		IN	IN			"	"							5.0 V		"	
	105	"				GND						"	OUT		IN					GND	GND	"	
	106	"				GND						"	"			IN				5.0 V		"	
	t _{PHL3}	"	"	107	"	5.0 V					"	"						GND		"			
				108	"	5.0 V						"	"				IN		5.0 V		"		

See notes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	1G	B	1C ₃	1C ₂	1C ₁	1C ₀	1Y	GND	2Y	2C ₀	2C ₁	2C ₂	2C ₃	A	2G	V _{CC}	
10 $T_C = 125^\circ\text{C}$	t _{PHL2}	3003 (Fig 5)	109	GND	GND			5.0 V	GND	OUT	GND						IN		5.0 V	
	"		110	GND	IN		5.0 V		GND	OUT	"						GND		"	
	"		111			GND					"	OUT	GND	5.0 V			IN	GND	"	
	"		112			IN					"	OUT	GND		5.0 V		GND	GND	"	
	"	t _{PLH2}	"	113	GND	GND			5.0 V	GND	OUT	"						IN		"
	"	114		GND	IN		5.0 V		GND	OUT	"						GND		"	
	"	115				GND					"	OUT	GND	5.0 V			IN	GND	"	
	"	116				IN					"	OUT	GND		5.0 V		GND	GND	"	
	"	t _{PHL3}	"	117	IN	GND				5.0 V	OUT	"						GND		"
	"	t _{PHL3}		118		GND					"	OUT	5.0 V					GND	IN	"
	"	t _{PLH3}	"	119	IN	GND				5.0 V	OUT	"						GND		"
	"	t _{PLH3}		120		GND					"	OUT	5.0 V					GND	IN	"
11	Same tests, terminal conditions and limits as subgroup 10, except $T_C = -55^\circ\text{C}$.																			

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ $H > 1.5$ V; $L < 1.5$ V.

Only attributes data is required for subgroups 7 and 8.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be $H \geq 2.0$ V, or $L \leq 0.8$ V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1 2Y	2 2W	3 B	4 2C ₀	5 2C ₁	6 2C ₂	7 2C ₃	8 GND	9 1C ₃	10 1C ₂	11 1C ₁	12 1C ₀	13 A	14 1W	15 1Y	16 V _{CC}		
1 T _C = 25°C	V _{OH}	3006	1			0.8 V					GND				2.0 V	0.8 V	-0.8 mA	-0.8 mA	4.5 V		
			2			"					"					0.8 V	"			"	
			3	-0.8 mA			"	2.0 V				"					"				"
			4		-0.8 mA		"	0.8 V				"					"				"
	V _{OL}	3007	5			"						"				2.0 V	"	16 mA	16 mA	"	
			6			"						"				0.8 V	"			"	
			7	16 mA	16 mA	"	2.0 V					"				"				"	
			8	16 mA		"	0.8 V					"					"				"
	V _{IC}		9									"									
			10			-12 mA						"									
			11									"									
			12									"			-12 mA						
			13									"									
			14									"									
			15					-12 mA				"	-12 mA								
			16						-12 mA	-12 mA		"									
			17								-12 mA	"									
			18									"									
	I _{IL}	3009	19									"								5.5 V	
			20				0.4 V					"								"	
			21				GND					"					0.4 V	GND			
			22				GND					"				0.4 V	0.4 V	5.5 V			
			23				5.5 V					"						GND			
			24				5.5 V					"	0.4 V					5.5 V			
			25				GND	0.4 V				"						GND			
			26				GND		0.4 V			"						5.5 V			
			27				5.5 V				0.4 V	"						GND			
			28				5.5 V					"						5.5 V			
	I _{IH1}	3010	29									"								2.4 V	
			30				2.4 V					"								"	
			31				5.5 V					"					2.4 V	5.5 V			
			32				5.5 V					"						GND			
			33				GND					"						5.5 V			
			34				GND					"	2.4 V					GND			
			35				5.5 V	2.4 V				"						5.5 V			
			36				5.5 V		2.4 V			"						GND			
			37				GND			2.4 V		"						5.5 V			
			38				GND				2.4 V	"						GND			

See note at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	M ter		
			Test No.	2Y	2W	B	2C ₀	2C ₁	2C ₂	2C ₃	GND	1C ₃	1C ₂	1C ₁	1C ₀	A	1W	1Y	V _{CC}			
1 T _C = 25°C	I _{IH2}	3010	39								GND					5.5 V			5.5 V			
	"	"	40			5.5 V					"					"			"			
	"	"	41			"					"					"			"			
	"	"	42			"					"					"			"			
	"	"	43			GND					"					"			"			
	"	"	44			GND					"					"			"			
	"	"	45			5.5 V	5.5 V				"		5.5 V	5.5 V		"			"			
	"	"	46			5.5 V		5.5 V			"					"			"			
	"	"	47			GND			5.5 V		"					"			"			
	"	"	48			"					"					"			"			
"	I _{OS}	3011	49			"					"	GND	GND	GND	GND	"	GND		"			
			50		GND	"					"	GND	GND	GND	5.5 V	"		GND	"			
			51			"	GND	GND	GND	GND	"	"	"	"	"	"	"	"	"	"	"	
			52	GND		"	5.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
"	I _{CC}	3005	53			"	5.5 V	"	"	"	"	GND	GND	GND	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	Truth table test		54	L 2/	H	B 1/	B				GND				B	B	H	L	4.5 V			
			55	H	L	"	A				"				B	B	L	H	"			
			56	L	H	"		B			"				B	A	A	H	L	"		
			57	H	L	"		A			"				B	A	A	L	H	"		
			58	L	H	A			B		"			B		B	H	L	"			
			59	H	L	"			A		"			B		B	L	H	"			
			60	L	H	"				B	"		B			A	A	H	L	"		
61	H	L	"				A	"		A			A	A	L	H	"					
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																					
9 T _C = 25°C	t _{PHL1}	3003 (Fig 5)	62			GND					GND				IN	GND		OUT	5.0 V	1C		
			63			GND					"				IN	5.0 V	"	"	"	1C		
			64			5.0 V					"				IN	GND	"	"	"	"	1C	
			65			5.0 V					"	IN				5.0 V	"	"	"	"	"	1C
			66	OUT		GND	IN				"					GND	"	"	"	"	"	2C
			67	"		GND		IN			"					5.0 V	"	"	"	"	"	2C
			68	"		5.0 V			IN		"	IN				GND	"	"	"	"	"	2C
69	"		5.0 V				IN	"		IN			5.0 V	"	"	"	"	"	"	2C		

See note at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	t			
			Test No.	2Y	2W	B	2C ₀	2C ₁	2C ₂	2C ₃	GND	1C ₃	1C ₂	1C ₁	1C ₀	A	1W	1Y	V _{CC}					
9 T _C = 25°C	t _{PLH1}	3003 (Fig 5)	70			GND						GND							OUT	5.0 V	10			
			71			GND																10		
			72			5.0 V																	10	
			73			5.0 V																	10	
			74	OUT			GND	IN						IN									20	
			75				GND			IN													20	
			76				5.0 V					IN											20	
	77				5.0 V						IN										20			
	t _{PHL2}			78			GND													OUT		10		
				79			GND																10	
				80			5.0 V																	10
				81			5.0 V								IN									10
				82		OUT	GND	IN																20
				83			GND				IN													20
				84			5.0 V						IN											20
				85			5.0 V							IN										20
	t _{PLH2}			86			GND													OUT		10		
				87			GND																10	
				88			5.0 V																	10
				89			5.0 V																	10
				90		OUT	GND	IN							IN									20
				91			GND				IN													20
				92			5.0 V						IN											20
	93			5.0 V																	20			
	t _{PHL3}			94			GND									5.0 V	GND	IN		OUT		A		
95				OUT		GND	GND	5.0 V									IN					A		
96						IN									5.0 V		GND	GND		OUT			E	
97				OUT		IN	GND		5.0 V								GND	GND					E	
t _{PLH3}			98			GND									5.0 V	GND	IN		OUT		A			
			99	OUT		GND	GND	5.0 V									IN					A		
			100			IN										5.0 V		GND	GND		OUT		E	
101	OUT		IN	GND		5.0 V									GND	GND				E				
t _{PHL4}			102			GND									5.0 V	GND	IN		OUT		A			
			103		OUT	GND	GND	5.0 V										IN				A		
			104			IN										5.0 V		GND	GND		OUT		E	
			105		OUT	IN	GND		5.0 V										GND				E	

See note at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			Test No.	2Y	2W	B	2C ₀	2C ₁	2C ₂	2C ₃	GND	1C ₃	1C ₂	1C ₁	1C ₀	A	1W	1Y	V _{CC}	
9 T _C = 25°C	t _{PLH4}	3003 (Fig 5)	106			GND						GND			5.0 V	GND	IN	OUT		5.0 V
	"	"	107		OUT	GND		GND	5.0 V			"					IN			"
	"	"	108			IN						"		5.0 V		GND	IN	OUT		"
	"	"	109		OUT	IN		GND		5.0 V		"					GND			"
10 T _C = 125°C	t _{PHL1}	"	110			GND						"				IN			OUT	"
	"	"	111			GND						"			IN		5.0 V		"	"
	"	"	112			5.0 V						"		IN			GND		"	"
	"	"	113			5.0 V						"	IN				5.0 V		"	"
	"	"	114	OUT		GND		IN				"					GND			"
	"	"	115	"		GND			IN			"					5.0 V			"
	"	"	116	"		5.0 V				IN		"					GND			"
	"	"	117	"		5.0 V					IN	"					5.0 V			"
	"	t _{PLH1}	"	118		GND						"				IN			OUT	"
	"	"	"	119		GND						"				IN		5.0 V		"
	"	"	"	120		5.0 V						"			IN		GND		"	"
	"	"	"	121		5.0 V						"		IN			5.0 V		"	"
	"	"	"	122	OUT	GND		IN				"					GND			"
	"	"	"	123	"	GND			IN			"					5.0 V			"
	"	"	"	124	"	5.0 V				IN		"					GND			"
	"	"	"	125	"	5.0 V					IN	"					5.0 V			"
	"	t _{PHL2}	"	126		GND						"				IN		GND	OUT	"
	"	"	"	127		GND						"				IN		5.0 V	"	"
	"	"	"	128		5.0 V						"			IN			GND	"	"
	"	"	"	129		5.0 V						"		IN				5.0 V	"	"
	"	"	"	130		OUT		IN				"						GND		"
	"	"	"	131		"			IN			"						5.0 V		"
	"	"	"	132		"				IN		"						GND		"
	"	"	"	133		"					IN	"						5.0 V		"
	"	t _{PLH2}	"	134		GND						"				IN		GND	OUT	"
"	"	"	135		GND						"				IN		5.0 V	"	"	
"	"	"	136		5.0 V						"			IN			GND	"	"	
"	"	"	137		5.0 V						"						5.0 V	"	"	
"	"	"	138		OUT		IN				"		IN				GND		"	
"	"	"	139		"			IN			"						5.0 V		"	
"	"	"	140		"				IN		"						GND		"	
"	"	"	141		"					IN	"						5.0 V		"	

See note at end of device type 04.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	2Y	2W	B	2C ₀	2C ₁	2C ₂	2C ₃	GND	1C ₃	1C ₂	1C ₁	1C ₀	A	1W	1Y	V _{CC}	
10 T _C = 125°C	t _{PHL3}	3003 (Fig 5)	142			GND					GND			5.0 V	GND	IN		OUT	5.0 V	
	"		143	OUT		GND	GND	5.0 V			"					IN				"
	"		144			IN					"		5.0 V		GND	GND			OUT	"
	"		145	OUT		IN	GND			5.0 V	"					GND				"
	t _{PLH3}	"	146			GND					"			5.0 V	GND	IN		OUT	"	
	"		147	OUT		GND	GND	5.0 V			"					IN				"
	"		148			IN					"		5.0 V		GND	GND			OUT	"
	"		149	OUT		IN	GND			5.0 V	"					GND				"
	t _{PHL4}	"	150			GND					"			5.0 V	GND	IN	OUT			"
	"		151		OUT	GND	GND	5.0 V			"					IN				"
	"		152			IN					"		5.0 V		GND	GND	OUT			"
	"		153		OUT	IN	GND			5.0 V	"					GND				"
	t _{PLH4}	"	154			GND					"			5.0 V	GND	IN	OUT			"
	"		155		OUT	GND	GND	5.0 V			"					IN				"
	"		156			IN					"		5.0 V		GND	GND	OUT			"
	"		157		OUT	IN	GND			5.0 V	"					GND				"
	11	Same tests, terminal conditions and limits as subgroup 10, except T _C = -55°C.																		

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ H > 1.5 V; L < 1.5 V.

Only attributes data is required for subgroups 7 and 8.

TABLE III. Group A inspection for device type 05.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	A	1B ₀	1B ₁	1Y	2B ₀	2B ₁	2Y	GND	4Y	4B ₁	4B ₀	3Y	3B ₁	3B ₀	G	V _{CC}		
1 T _C = 25°C	V _{OH}	3006	1	2.0 V		2.0 V	-8 mA			2.0 V	-8 mA	GND							0.8 V	4.5 V	
	"	"	2	"								"				-8 mA	2.0 V		"	"	
	"	"	3	"								"	-8 mA	2.0 V					"	"	
	"	"	4	"								"							"	"	
	"	V _{OL}	3007	5				16 mA				"								2.0 V	"
	"	"	"	6							16 mA	"								"	"
	"	"	"	7								"			16 mA					"	"
	"	"	"	8								"	16 mA							"	"
	"	V _{IC}		9	-12 mA							"									"
	"	"		10		-12 mA						"									"
	"	"		11			-12 mA					"									"
	"	"		12					-12 mA			"									"
	"	"		13						-12 mA		"									"
	"	"		14								"		-12 mA							"
	"	"		15								"			-12 mA						"
	"	"		16								"					-12 mA				"
	"	"		17								"						-12 mA			"
	"	"		18								"							-12 mA		"
	"	I _{IL}	3009	19								"								0.4 V	5.5 V
	"	"	"	20	0.4 V							"								GND	"
	"	"	"	21	GND	0.4 V						"								"	"
	"	"	"	22	5.5 V		0.4 V					"								"	"
	"	"	"	23	GND				0.4 V			"								"	"
	"	"	"	24	5.5 V					0.4 V		"								"	"
	"	"	"	25	5.5 V						0.4 V	"			0.4 V					"	"
	"	"	"	26	GND							"				0.4 V				"	"
	"	"	"	27	5.5 V							"					0.4 V			"	"
	"	"	"	28	GND							"						0.4 V		"	"
	"	I _{IH1}	3010	29								"								2.4 V	"
	"	"	"	30	2.4 V							"								5.5 V	"
	"	"	"	31	5.5 V	2.4 V						"								"	"
	"	"	"	32	GND			2.4 V				"								"	"
	"	"	"	33	5.5 V				2.4 V			"								"	"
	"	"	"	34	GND					2.4 V		"								"	"
	"	"	"	35	GND						2.4 V	"								"	"
	"	"	"	36	5.5 V							"		2.4 V						"	"
	"	"	"	37	GND							"			2.4 V					"	"
	"	"	"	38	5.5 V							"					2.4 V			"	"

See notes at end of device type 05.

TABLE III. Group A inspection for device type 05 – Continued.
Terminal conditions (pins not designated may be $H \geq 2.0$ V, or $L \leq 0.8$ V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1 A	2 1B ₀	3 1B ₁	4 1Y	5 2B ₀	6 2B ₁	7 2Y	8 GND	9 4Y	10 4B ₁	11 4B ₀	12 3Y	13 3B ₁	14 3B ₀	15 G	16 V _{CC}	
1 T _C = 25°C	I _{IH2}	3010	39								GND							5.5 V	5.5 V	
	"	"	40	5.5 V							"							"	"	
	"	"	41	5.5 V	5.5 V						"							"	"	
	"	"	42	GND		5.5 V					"							"	"	
	"	"	43	5.5 V				5.5 V			"							"	"	
	"	"	44	GND					5.5 V		"							"	"	
	"	"	45	GND						5.5 V	"							"	"	
	"	"	46	5.5 V							"		5.5 V					"	"	
	"	"	47	GND							"			5.5 V			5.5 V		"	"
	"	"	48	5.5 V							"						5.5 V		"	"
	"	I _{OS}	3011	49	5.5 V	5.5 V	5.5 V	GND				"							GND	"
	"	"	"	50	"				5.5 V	5.5 V	GND	"							"	"
	"	"	"	51	"							"	GND	5.5 V	5.5 V				"	"
"	"	"	52	"							"				GND	5.5 V	5.5 V	"	"	
"	I _{CC}	3005	53	GND	GND	GND		GND	GND		"		GND	GND		GND	GND	GND	"	
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	Truth table		54				L 2/ L			L	GND	L			L			A	4.5 V	
	test		55	A 1/ A		B A	L H		B A	L H	"	L H	B A		L H	B A		B A	"	"
	"		56	A		A	H		A	H	"	H	A		H	A		A	"	"
	"		57	B	B		L	B			L	"	L		L		B	B	"	"
"			58	B	A		H	A		H	"	H		H		A	A	"	"	
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																			
9 T _C = 25°C	t _{PHL1}	3003 (Fig 6)	59	IN	GND	5.0 V	OUT			OUT	GND							GND	5.0 V	
	"	"	60	"				GND	5.0 V	OUT	"							"	"	
	"	"	61	"							"				OUT	5.0 V	GND	"	"	
	"	"	62	"							"	OUT	5.0 V	GND				"	"	
	"	t _{PLH1}	"	63	"	GND	5.0 V	OUT				"							"	"
	"	"	"	64	"				GND	5.0 V	OUT	"							"	"
	"	"	"	65	"							"			OUT	5.0 V	GND	"	"	
"	"	"	66	"							"	OUT	5.0 V	GND				"	"	

See notes at end of device type 05.

TABLE III. Group A inspection for device type 05 – Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
			Test No.	A	1B ₀	1B ₁	1Y	2B ₀	2B ₁	2Y	GND	4Y	4B ₁	4B ₀	3Y	3B ₁	3B ₀	G	V _{CC}				
9 T _C = 25°C	t _{PHL2}	3003 (Fig 6)	67	5.0 V		5.0 V	OUT			5.0 V	OUT	GND				OUT	5.0 V		IN	5.0 V			
			68	"																"	"		
			69	"													OUT	5.0 V		"	"		
			70	"											OUT	5.0 V				"	"		
	t _{PLH2}	"	"	71	"		5.0 V	OUT			5.0 V	OUT	"							"	"		
				72	"													OUT	5.0 V		"	"	
				73	"													OUT	5.0 V		"	"	
				74	"											OUT	5.0 V				"	"	
	t _{PHL3}	"	"	75	GND	IN		OUT	OUT				"							GND	"		
				76	5.0 V		IN				IN			"							"	"	
				77	GND								IN									"	"
				78	5.0 V								IN									"	"
				79	GND													OUT	OUT	IN	IN	"	"
				80	5.0 V													OUT	OUT	IN	IN	"	"
				81	GND												OUT	OUT	IN	IN	"	"	
				82	5.0 V												OUT	OUT	IN	IN	"	"	
	t _{PLH3}	"	"	83	GND	IN		OUT	OUT				"								"	"	
				84	5.0 V		IN				IN			"							"	"	
				85	GND								IN									"	"
				86	5.0 V								IN									"	"
87				GND														OUT	OUT	IN	IN	"	"
88				5.0 V														OUT	OUT	IN	IN	"	"
89				GND													OUT	OUT	IN	IN	"	"	
90				5.0 V													OUT	OUT	IN	IN	"	"	
10 T _C = 125°C	t _{PHL1}	3003 (Fig 6)	91	IN	GND	5.0 V	OUT					"							"	"			
			92	"					GND	5.0 V	OUT	"					OUT	5.0 V	GND	"	"		
			93	"								"					OUT	5.0 V	GND	"	"		
			94	"								"		OUT	5.0 V	GND				"	"		
	t _{PLH1}	"	"	95	"	GND	5.0 V	OUT				"								"	"		
				96	"					GND	5.0 V	OUT	"								"	"	
				97	"								"					OUT	5.0 V	GND	"	"	
				98	"								"		OUT	5.0 V	GND				"	"	
	t _{PHL2}	"	"	99	5.0 V		5.0 V	OUT				"								IN	"		
				100	"							5.0 V	OUT	"							"	"	
				101	"									"				OUT	5.0 V		"	"	
				102	"									"		OUT	5.0 V				"	"	

See notes at end of device type 05.

TABLE III. Group A inspection for device type 05 – Continued.
Terminal conditions (pins not designated may be $H \geq 2.0$ V, or $L \leq 0.8$ V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	A	1B ₀	1B ₁	1Y	2B ₀	2B ₁	2Y	GND	4Y	4B ₁	4B ₀	3Y	3B ₁	3B ₀	G	V _{CC}	
10 T _C = 125°C	t _{PLH2}	3003 (Fig 6)	103	5.0 V		5.0 V	OUT				GND							IN	5.0 V	
	"		104	"						5.0 V	OUT	"							"	"
	"		105	"								"			OUT	5.0 V			"	"
	"		106	"								"	OUT	5.0 V					"	"
	"	t _{PHL3}	"	107	GND	IN		OUT				"							GND	"
	"	"	"	108	5.0 V		IN	OUT				"							"	"
	"	"	"	109	GND				IN		OUT	"							"	"
	"	"	"	110	5.0 V					IN	OUT	"							"	"
	"	"	"	111	GND							"			OUT			IN	"	"
	"	"	"	112	5.0 V							"			OUT		IN		"	"
	"	"	"	113	GND							"	OUT						"	"
	"	"	"	114	5.0 V							"	OUT	IN					"	"
	"	t _{PLH3}	"	115	GND	IN		OUT				"							"	"
	"	"	"	116	5.0 V		IN	OUT				"							"	"
	"	"	"	117	GND				IN		OUT	"							"	"
	"	"	"	118	5.0 V					IN	OUT	"							"	"
	"	"	"	119	GND							"			OUT			IN	"	"
	"	"	"	120	5.0 V							"			OUT		IN		"	"
"	"	"	121	GND							"	OUT						"	"	
"	"	"	122	5.0 V							"	OUT	IN					"	"	
11	Same tests, terminal conditions and limits as subgroup 10, except T _C = -55°C.																			

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ H > 1.5 V; L < 1.5 V.

Only attributes data is required for subgroups 7 and 8.

TABLE III. Group A inspection for device type 06.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F																
			Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			D ₃	D ₂	D ₁	D ₀	Y	W	G	GND	C	B	A	D ₇	D ₆	D ₅	D ₄	V _{CC}	
1 T _C = 25°C	V _{OH}	3006	1				2.0 V	-0.8 mA		0.8 V	GND	0.8 V	0.8 V	0.8 V					4.5 V
	V _{OH}	3006	2						-0.8 mA	2.0 V	"	2.0 V	2.0 V	2.0 V					"
	V _{OL}	3007	3					16 mA		2.0 V	"	2.0 V	2.0 V	2.0 V					"
	V _{OL}	3007	4				2.0 V		16 mA	0.8 V	"	0.8 V	0.8 V	0.8 V					"
	V _{IC}		5					-12 mA			"								"
	"	"	6			-12 mA					"								"
	"	"	7		-12 mA						"								"
	"	"	8	-12 mA							"								"
	"	"	9								"								"
	"	"	10								"							-12 mA	-12 mA
	"	"	11								"								"
	"	"	12								"				-12 mA				"
	"	"	13								"	-12 mA							"
	"	"	14								"								"
	"	"	15								"			-12 mA					"
	"	"	16								"								"
"	I _{IH1}	3009	17							0.4 V	"	5.5 V	5.5 V	5.5 V					5.5 V
	"	"	18							GND	"	5.5 V	5.5 V	0.4 V					"
	"	"	19							"	"	5.5 V	0.4 V	5.5 V					"
	"	"	20							"	"	0.4 V	5.5 V	5.5 V					"
	"	"	21				0.4 V			"	"	GND	GND	GND					"
	"	"	22			0.4 V				"	"	"	GND	5.5 V					"
	"	"	23							"	"	"	5.5 V	GND					"
	"	"	24	0.4 V		0.4 V				"	"	"	5.5 V	5.5 V					"
	"	"	25							"	"	5.5 V	GND	GND					"
	"	"	26							"	"	"	GND	5.5 V			0.4 V	0.4 V	"
	"	"	27							"	"	"	5.5 V	GND	0.4 V	0.4 V			"
	"	"	28							"	"	"	5.5 V	5.5 V	0.4 V				"
"	I _{IH1}	3010	29							2.4 V	"	GND	GND	GND					"
	"	"	30							5.5 V	"	GND	GND	2.4 V					"
	"	"	31							"	"	GND	2.4 V	GND					"
	"	"	32							"	"	2.4 V	GND	GND					"
	"	"	33				2.4 V			"	"	5.5 V	5.5 V	5.5 V					"
	"	"	34			2.4 V				"	"	"	5.5 V	GND					"
	"	"	35							"	"	"	GND	5.5 V					"
	"	"	36	2.4 V		2.4 V				"	"	"	GND	GND				2.4 V	"
	"	"	37							"	"	GND	5.5 V	5.5 V					"
	"	"	38							"	"	"	5.5 V	GND			2.4 V	2.4 V	"
	"	"	39							"	"	"	GND	5.5 V					"
	"	"	40							"	"	"	"	GND	2.4 V	2.4 V			"

See note at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				D ₃	D ₂	D ₁	D ₀	Y	W	G	GND	C	B	A	D ₇	D ₆	D ₅	D ₄	V _{IC}
1 T _C = 25°C	I _{IH2}	3010	41							5.5 V	GND	GND	GND	GND					
	"	"	42							"	"	"	GND	5.5 V					
	"	"	43							"	"	"	5.5 V	GND					
	"	"	44							"	"	5.5 V	GND	GND					
	"	"	45				5.5 V			"	"	"	5.5 V	5.5 V					
	"	"	46							"	"	"	5.5 V	GND					
	"	"	47		5.5 V		5.5 V			"	"	"	GND	5.5 V					
	"	"	48	5.5 V						"	"	"	GND	GND					
	"	"	49							"	"	GND	5.5 V	5.5 V					5.5 V
	"	"	50							"	"	"	5.5 V	GND				5.5 V	
	"	"	51							"	"	"	GND	5.5 V					
	"	"	52							"	"	"	"	GND	5.5 V				
"	I _{OS}	3011	53	GND	GND	GND	GND		GND	"	"	"	"	"	GND	GND	GND	GND	
"	I _{OS}	3011	54	"	"	"	5.5 V	GND		GND	"	"	"	"	"	"	"	"	
"	I _{CC}	3005	55	"	"	"	5.5 V			GND	"	"	"	"	"	"	"	"	
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	Truth table test		56				1/ B A	L 2/ L H	H H	A B	GND "		B B	B B					
	"		57					L L	H L	B "	"	"	"	"					
	"		58					L L	H L	"	"	"	"	"	B A				
	"		59			B A		L L	H L	"	"	"	"	"	A B				
	"		60					L L	H L	"	"	"	"	"	B B				
	"		61		B A			L L	H L	"	"	"	"	"	A B				
	"		62					L L	H L	"	"	"	"	"	B B				
	"		63	B A				L L	H L	"	"	"	"	"	A B				
	"		64					L L	H L	"	"	"	"	"	B B				
	"		65					L L	H L	"	"	A	"	B	B B				B A
	"		66					L L	H L	"	"	"	"	"	B B				B A
"		67					L L	H L	"	"	"	"	"	A B			B A		
"		68					L L	H L	"	"	"	"	"	B B		B A			
"		69					L L	H L	"	"	"	"	A	B B					
"		70					L L	H L	"	"	"	"	"	A B					
"		71					L L	H L	"	"	"	"	"	B B		B A			
"		72					L L	H L	"	"	"	"	"	A B	B A				
8	Repeat subgroup 7 at T _C = 125°C and T _C = -55°C.																		

See notes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	D ₃	D ₂	D ₁	D ₀	Y	W	G	GND	C	B	A	D ₇	D ₆	D ₅	D ₄	V _{CC}	
9 T _C = 25°C	t _{PHL1}	3003 (Fig 4)	73			5.0 V	GND		OUT	GND	GND	GND	GND	IN					5.0 V	
	"		74		5.0 V		"		"	"	"	GND	IN	GND					"	
	"		75					"		"	"	"	IN	GND	GND				5.0 V	"
	"	t _{PLH1}	"	76		5.0 V		"		"	"	"	GND	GND	IN					"
	"	"		77		5.0 V		"		"	"	"	GND	IN	GND					"
	"	"		78				"		"	"	"	IN	GND	GND				5.0 V	"
	"	t _{PHL2}	"	79		5.0 V		"	OUT		"	"	GND	GND	IN					"
	"	"		80		5.0 V		"	"	"	"	"	GND	IN	GND					"
	"	"		81				"	"	"	"	"	IN	GND	GND				5.0 V	"
	"	t _{PLH2}	"	82		5.0 V		"	"		"	"	GND	GND	IN					"
	"	"		83		5.0 V		"	"	"	"	"	GND	IN	GND					"
	"	"		84				"	"	"	"	"	IN	GND	"				5.0 V	"
	"	t _{PHL3}	"	85				5.0 V		OUT	IN	"	GND	"	"					"
	"	t _{PLH3}		86				"		OUT	"	"	"	"	"					"
	"	t _{PHL4}	"	87				"	OUT		"	"	"	"	"					"
	"	t _{PLH4}		88				"	OUT		"	"	"	"	"					"
	"	t _{PHL5}	"	89				IN		OUT	GND	"	"	"	"					"
	"	"		90						"	"	"	"	"	5.0 V	5.0 V				
	"	"		91		IN		IN		"	"	"	"	"	5.0 V	GND				
	"	"		92	IN					"	"	"	"	"	5.0 V	5.0 V				
"	t _{PHL5}	"	93						OUT	GND	"	5.0 V	GND	GND						
"	"		94						"	"	"	"	GND	5.0 V	5.0 V			IN	IN	
"	"		95						"	"	"	"	5.0 V	GND	GND		IN			
"	"		96						"	"	"	"	5.0 V	5.0 V	5.0 V	IN				
"	t _{PLH5}	"	97				IN		"	"	"	GND	GND	GND					"	
"	"		98						"	"	"	"	GND	5.0 V	5.0 V					
"	"		99		IN		IN		"	"	"	"	5.0 V	GND	GND					
"	"		100	IN					"	"	"	"	5.0 V	5.0 V	5.0 V					
"	"	"	101					"	"	"	"	5.0 V	GND	GND					IN	
"	"		102						"	"	"	"	GND	5.0 V	5.0 V					
"	"		103						"	"	"	"	5.0 V	GND	GND		IN		IN	
"	"		104						"	"	"	"	5.0 V	5.0 V	5.0 V	IN				

See notes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
			Test No.	D ₃	D ₂	D ₁	D ₀	Y	W	G	GND	C	B	A	D ₇	D ₆	D ₅	D ₄	V _{CC}	
9 T _C = 25°C	t _{PHL6}	3003 (Fig 4)	105			IN	IN	OUT		GND	GND	GND	GND	GND					5.0	
	"		106					"		"	"	GND	5.0 V	5.0 V					"	
	"		107		IN	IN			"		"	"	5.0 V	GND	5.0 V					"
	"		108		IN				"		"	"	5.0 V	5.0 V	5.0 V					"
	"		109						"		"	"	5.0 V	GND	GND			IN	IN	"
	"		110						"		"	"	GND	5.0 V	5.0 V					"
	"	111						"		"	"	5.0 V	GND	GND	IN	IN			"	
	"	112						"		"	"	5.0 V	5.0 V	5.0 V	IN	IN			"	
	"	t _{PLH6}	"	113			IN	IN	"		"	"	GND	GND	GND					"
	"	"	"	114					"		"	"	GND	5.0 V	5.0 V					"
	"	"	"	115		IN	IN		"		"	"	5.0 V	GND	GND					"
	"	"	"	116	IN				"		"	"	5.0 V	5.0 V	5.0 V			IN	IN	"
"	"	"	117					"		"	"	5.0 V	GND	GND					"	
"	"	"	118					"		"	"	GND	5.0 V	5.0 V			IN	IN	"	
"	"	"	119					"		"	"	5.0 V	GND	GND	IN	IN			"	
"	"	"	120					"		"	"	5.0 V	5.0 V	5.0 V	IN	IN			"	
10 T _C = 125°C	t _{PHL1}	"	121			5.0 V	GND		OUT	"	"	GND	GND	IN					"	
	"	"	122		5.0 V		"		"	"	"	GND	IN	GND					"	
	"	"	123				"		"	"	"	IN	GND	GND				5.0 V	"	
	"	t _{PLH1}	"	124		5.0 V			"	"	"	GND	GND	IN					"	
	"	"	"	125		5.0 V			"	"	"	GND	IN	GND					"	
	"	"	"	126				"		"	"	IN	GND	GND				5.0 V	"	
	"	t _{PHL2}	"	127		5.0 V		OUT		"	"	GND	GND	IN					"	
	"	"	"	128		5.0 V		"		"	"	GND	IN	GND					"	
	"	"	"	129				"	"	"	"	IN	GND	GND				5.0 V	"	
	"	t _{PLH2}	"	130		5.0 V		"		"	"	GND	GND	IN					"	
	"	"	"	131		5.0 V		"		"	"	GND	IN	GND					"	
	"	"	"	132				"		"	"	IN	GND	"				5.0 V	"	
"	t _{PHL3}	"	133			5.0 V		OUT	IN	"	GND	"	"					"		
"	t _{PLH3}	"	134					OUT	"	"	"	"	"					"		
"	t _{PHL4}	"	135				OUT	OUT	"	"	"	"	"					"		
"	t _{PLH4}	"	136				OUT	OUT	"	"	"	"	"					"		
"	t _{PHL5}	"	137			IN	IN		OUT	GND	"	"	"					"		
"	"	"	138		IN	IN			"	"	"	"	5.0 V	5.0 V				"		
"	"	"	139						"	"	"	"	GND	GND				"		
"	"	"	140	IN					"	"	"	5.0 V	5.0 V	5.0 V				"		

See notes at end of device type 06.

TABLE III. Group A inspection for device type 06 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V, or L ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases E, F Test No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
				D ₃	D ₂	D ₁	D ₀	Y	W	G	GND	C	B	A	D ₇	D ₆	D ₅	D ₄	V _{CC}				
10 T _C = 125°C	t _{PHL5}	3003 (Fig 4)	141						OUT	GND	GND	5.0 V	GND	GND				IN	IN	5.0 V			
			142							"	"	"	"	GND	5.0 V			IN			"		
			143								"	"	"	"	5.0 V	GND	IN	IN				"	
			144								"	"	"	"	5.0 V	5.0 V	IN					"	
	t _{PLH5}	"	"	145				IN		"	"	"	GND	GND	GND						"		
				146		IN	IN			"	"	"	"	GND	5.0 V							"	
				147						"	"	"	"	"	5.0 V	GND							"
				148	IN	IN	IN			"	"	"	"	"	5.0 V	5.0 V	5.0 V						"
				149						"	"	"	"	5.0 V	GND	GND	GND				IN	IN	"
				150						"	"	"	"	"	GND	5.0 V	5.0 V			IN			"
				151						"	"	"	"	"	5.0 V	GND	IN	IN					"
				152						"	"	"	"	"	5.0 V	5.0 V	IN						"
	t _{PHL6}	"	"	153				IN	OUT		"	"	GND	GND	GND						"		
				154					"	"	"	"	"	GND	5.0 V							"	
				155		IN	IN			"	"	"	"	"	5.0 V	GND							"
				156	IN	IN	IN			"	"	"	"	"	5.0 V	5.0 V	5.0 V				IN		"
				157						"	"	"	"	"	5.0 V	GND	GND						"
				158						"	"	"	"	"	"	5.0 V	5.0 V			IN	IN		"
				159						"	"	"	"	"	"	GND	GND	IN	IN				"
				160						"	"	"	"	"	"	5.0 V	5.0 V	IN					"
t _{PLH6}	"	"	161				IN	"		"	"	GND	GND	GND						"			
			162					"	"	"	"	"	"	GND	5.0 V						"		
			163		IN	IN			"	"	"	"	"	5.0 V	GND							"	
			164	IN	IN	IN			"	"	"	"	"	5.0 V	5.0 V	5.0 V						"	
			165						"	"	"	"	"	5.0 V	GND	GND				IN	IN	"	
			166						"	"	"	"	"	"	GND	5.0 V			IN			"	
			167						"	"	"	"	"	"	5.0 V	GND	IN	IN				"	
			168						"	"	"	"	"	"	5.0 V	5.0 V	IN					"	
11	Same tests, terminal conditions and limits as subgroup 10, except T _C = -55°C.																						

1/ A = 3.0 V minimum, B = 0.0 V or GND.

2/ H > 1.5 V; L < 1.5 V.

Only attributes data is required for subgroups 7 and 8.

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 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 that may be helpful, but it 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. Requirement for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to acquiring activity in addition to notification to the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of method 5003), corrective action and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for carriers, special 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 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.

6.4 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.

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

- GND Ground zero voltage potential
- V_{IN} Voltage level at an input terminal
- V_{IC} Input clamp voltage
- I_{IN} Current-flowing into an input terminal

6.6 Logistic support. Lead materials and finishes (see 3.3) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer lead lengths and lead forming shall 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-35810 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	54150
02	9312
03	54153
04	9309
05	9322, 54157
06	54151

6.8 Manufacturers designation. Manufacturer circuits included in this specification are designated as shown in table IV herein.

TABLE IV. Substitutability and manufacturers designator.

Device Types	Motorola	Signetics	Fairchild	Texas Instruments	National	Advanced Micro Device
	A	B	C	D	E	F
01	X	X			X	
02	X	X			X	X
03	X	X	X		X	
04	X	X	X		X	X
05	X	X	X	X	X	X
06	X	X	X	X	X	

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

Custodians:

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

Preparing activity:
DLA - CC

(Project 5962-2103)

Review activities:

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

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

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[NLVHCT4851ADTR2G](#) [PI3B33X257BE](#) [M74HCT4052ADTR2G](#) [M74VHC1GT04DFT3G](#) [TC74AC138P\(F\)](#) [MC74LVX4051MNTWG](#)
[HMC855LC5TR](#) [NLV14028BDR2G](#) [NLV14051BDR2G](#) [NLV74HC238ADTR2G](#) [715428X](#) [COMX-CAR-210](#) [5962-8607001EA](#) [5962-8756601EA](#) [MAX3783UCM+D](#) [PI5C3253QEX](#) [8CA3052APGGI8](#) [TC74HC4051AF\(EL,F\)](#) [TC74VHC138F\(EL,K,F\)](#) [PI3B3251LE](#)
[PI5C3309UEX](#) [PI5C3251QEX](#) [PI3B3251QE](#) [74VHC4052AFT\(BJ\)](#) [PI3PCIE3415AZHEX](#) [NLV74HC4851AMNTWG](#) [MC74LVX257DG](#)
[M74HC151YRM13TR](#) [M74HC151YTTR](#) [PI5USB31213XEAEX](#) [M74HCT4851ADWR2G](#) [XD74LS154](#) [AP4373AW5-7-01](#) [QS3VH251QG8](#)
[QS4A201QG](#) [HCS301T-ISN](#) [HCS500-I/SM](#) [MC74HC151ADTG](#) [TC4066BP\(N,F\)](#) [74ACT11139PWR](#) [HMC728LC3CTR](#) [74VHC238FT\(BJ\)](#)
[74VHC4066AFT\(BJ\)](#) [74VHCT138AFT\(BJ\)](#)