

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED LOW-POWER SCHOTTKY TTL, BUS TRANSCEIVERS WITH THREE-STATE OUTPUTS, MONOLITHIC SILICON

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

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, advanced low-power Schottky TTL, bus transceivers with three-state outputs. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number.

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

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

<u>Device type</u>	<u>Circuit</u>
01	Octal bus transceivers with three-state outputs
02	Octal bus transceivers with open-collector outputs
03	Octal bus transceivers with open-collector outputs
04	Octal bus transceivers with three-state outputs
05	Octal bus transceivers with three-state outputs
06	Quadruple bus transceivers with three-state outputs
07	Quadruple bus transceivers with three-state outputs

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

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

<u>Outline letter</u>	<u>Case outline (see MIL-M-38510, appendix C)</u>
C	D-1 (14-lead, 1/4" x 3/4"), dual-in-line package
D	F-2 (14-lead, 1/4" x 3/8"), flat-package
R	D-8 (20-lead, 1/4" x 1 1/16"), dual-in-line package
S	F-9 (20-lead, 1/4" x 1/2"), flat package
X	C-2A (20-terminal, .350" x .350"), square chip carrier package
Z	C-2 (20-terminal, .350" x .350"), square chip carrier package

1.3 Absolute maximum ratings.

Supply voltage range (V_{CC})	- - - - -	-0.5 V dc to +7.0 V dc
Input voltage range	- - - - -	-1.5 V dc at -18 mA to +5.5 V dc
Storage temperature range	- - - - -	-65°C to +150°C
Maximum power dissipation per device (P_D):	1/	
Device type 01	- - - - -	264 mA
Device type 02	- - - - -	247.5 mA
Device type 03	- - - - -	154 mA
Device type 04	- - - - -	291.5 mA
Device type 05	- - - - -	346.5 mA
Device types 06 and 07	- - - - -	176 mA

1/ Must withstand the added P_D due to short circuit test (e.g., I_0).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Rome Air Development Center (RBE-2), Griffiss AFB, NY 13441-5700, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-M-38510/385A

Lead temperature (soldering, 10 seconds)- +300°C
Thermal resistance, junction-to-case (θ_{JC}):
Cases C, D, R, S, X, and 2- - - - - (See MIL-M-38510, appendix C)
Junction temperature (T_J) 2/ - - - - - +175°C

1.4 Recommended operating conditions.

Supply voltage (V_{CC}) - - - - - 4.5 V dc minimum to 5.5 V dc maximum
Minimum high level input voltage (V_{IH}) - - 2.0 V dc
Maximum low level input voltage (V_{IL}) - - 0.8 V dc
Normalized fanout (each output) 3/ - - - 20 maximum
Case operating temperature range (T_C) - - -55°C to +125°C

2 APPLICABLE DOCUMENTS

2.1 Government documents.

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

SPECIFICATION

MILITARY

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

STANDARD

MILITARY

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

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

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

3. REQUIREMENTS

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

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

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

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

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

2/ Maximum junction temperature shall not be exceeded except for allowable short duration burn-in screening conditions in accordance with method 5004 of MIL-STD-883.

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

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

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

3.4 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.

TABLE 1. 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 _{OH1}	V _{CC} = 4.5 V V _{IN} = 0.8 V or 2.0 V I _{OH} = -3 mA		01,04 05,06 07	2.4		V
	V _{OH2}	V _{CC} = 4.5 V V _{IN} = 0.8 V or 2.0 V I _{OH} = -12 mA		01,04 05,06 07	2.0		V
High level output current	I _{OH}	V _{CC} = 4.5 V V _{OH} = 5.5 V		02,03		100	μA
Low level output voltage	V _{OL}	V _{CC} = 4.5 V V _{IN} = 0.8 V or 2.0 V I _{OL} = 12 mA		All		0.4	V
Input clamp voltage	V _{IC}	V _{CC} = 4.5 V, T _C = +25°C I _I = -18 mA		All		-1.5	V
Low level input current	I _{IL}	V _{CC} = 5.5 V V _{IN} = 0.4 V	DIR and $\overline{G}$ $\overline{G}$ AB and GBA	All	0	-100	μA
High level input current	I _{IH1}	V _{CC} = 5.5 V V _{IN} = 2.7 V	DIR and $\overline{G}$ $\overline{G}$ AB and GBA	All		20	μA
	I _{IH2}	V _{CC} = 5.5 V V _{IN} = 5.5 V	I/O ports	All		100	μA
	I _{IH3}	V _{CC} = 5.5 V V _{IN} = 7.0 V	DIR and $\overline{G}$ $\overline{G}$ AB and GBA	All		100	μA
Output current, high level outputs off	I _{OZH} / I _{IH1}	V _{CC} = 5.5 V V _O = 2.7 V	I/O ports	01,04 05		20	μA
Output current, low level outputs off	I _{OZL} / I _{IL}	V _{CC} = 5.5 V V _O = 0.4 V	I/O ports	01,04 05		-100	μA
Output current <u>1/</u>	I _O	V _{CC} = 5.5 V V _O = 2.25 V		01,04 05	-30	-112	mA

See footnote at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T _C < +125°C unless otherwise specified		Device type	Limits		Unit
					Min	Max	
Supply current	I _{CCH}	V _{CC} = 5.5 V		01		36	mA
				02		37	
				03		15	
				04		41	
				05		48	
				06		20	
				07		25	
Supply current outputs low	I _{CCL}	V _{CC} = 5.5 V		01,02		45	mA
				03		28	
				04		51	
				05		60	
				06		26	
				07		30	
Supply current outputs disabled	I _{CCZ}	V _{CC} = 5.5 V		01		48	mA
				04		53	
				05		63	
				06		27	
				07		32	
Propagation delay time low-to-high level A or B to B or A	t _{PLH1}	V _{CC} = 5.0 V C _L = 50 pF	R ₁ = R ₂ = 500Ω	01,05	2	14	ns
				04,06	3	15	
				07	4	15	
			R _L = 680Ω	02	10	37	
				03	15	50	
Propagation delay time high-to-low level A or B to B or A	t _{PHL1}	V _{CC} = 5.0 V C _L = 50 pF	R ₁ = R ₂ = 500Ω	01,04	2	13	ns
				05	3	13	
				06	2	14	
			R _L = 680Ω	07	4	15	
				02	5	23	
				03	5	25	
Propagation delay time low-to-high level G or DIR to A or B	t _{PLH2}	V _{CC} = 5.0 V C _L = 50 pF R _L = 680Ω		02	13	40	ns
				03	15	45	
Propagation delay time high-to-low level G or DIR to A or B	t _{PHL2}			02	13	40	
				03	15	50	
Propagation delay time disable to high level G to A or B	t _{PZH}	V _{CC} = 5.0 V C _L = 50 pF R ₁ = R ₂ = 500Ω		01	5	25	ns
				04	6	28	
				05,07	3	25	
				06	4	22	
Propagation delay time disable to low level G to A or B	t _{PZL}			01,05	4	27	
				04	8	28	
				06,07	7	25	
Propagation delay time high level to disable G to A or B	t _{PHZ}	V _{CC} = 5.0 V C _L = 50 pF R ₁ = R ₂ = 500Ω		01	3	15	ns
				04	2	17	
				05	3	16	
				06,07	2	16	
Propagation delay time low level to disable G to A or B	t _{PLZ}			01,05	4	18	
				04	4	33	
				06	4	28	
				07	4	30	

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

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

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

3.7 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 9 (see MIL-M-38510, appendix E).

TABLE II. Electrical test requirements.

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

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

4. QUALITY ASSURANCE PROVISIONS

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

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

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

- (1) Test condition D, using the circuit shown on figure 4, or equivalent.
- (2) $T_A = +125^\circ\text{C}$ minimum.

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

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

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

4.4.1 Group A inspection. Group A inspection shall be in accordance with table I of method 5005 of MIL-STD-883 and as follows:

- a. Electrical test requirements shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 of table I of method 5005 of MIL-STD-883 shall be omitted.

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

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

- a. End-point electrical parameters shall be as specified in table II herein.
- b. Steady-state life test (method 1005 of MIL-STD-883) conditions:
 - (1) Test condition D, using the circuit shown on figure 4, or equivalent.
 - (2) $T_A = +125^{\circ}\text{C}$ minimum.
 - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

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

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

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

5. PACKAGING

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

6. NOTES

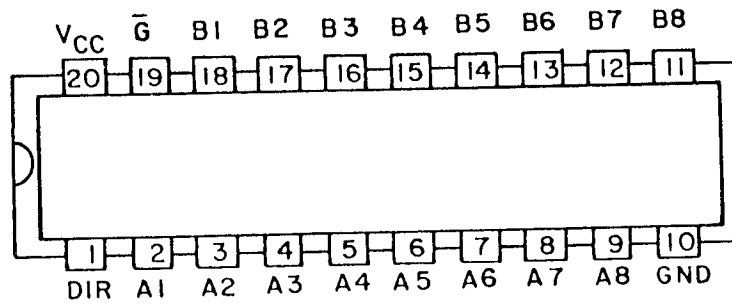
6.1 Intended use. Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

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

- a. Complete part number (see 1.2).
- b. Requirements for delivery of one copy of the quality conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
- c. Requirements for certificate of compliance, if applicable.
- d. Requirements for notification of change of product or process to the contracting activity in addition to notification to the qualifying activity, if applicable.
- e. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action and reporting of results, if applicable.
- f. Requirements for product assurance options.

Text continues on page 49.

Device types 01, 02, 03, 04, and 05
Cases R and S



Device types 01, 02, 03, 04, and 05
Cases 2 and X

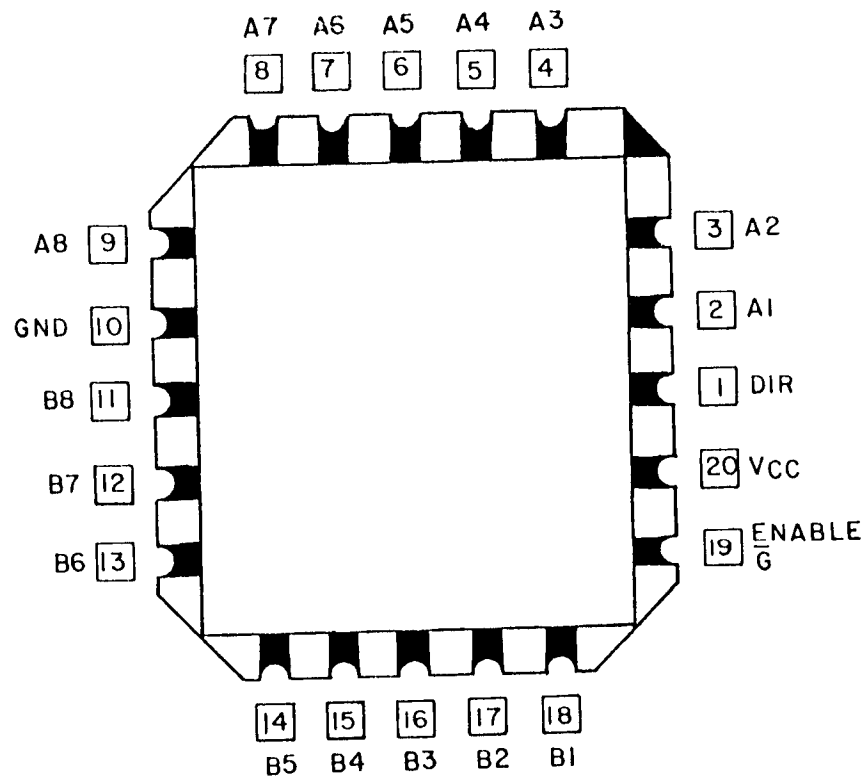
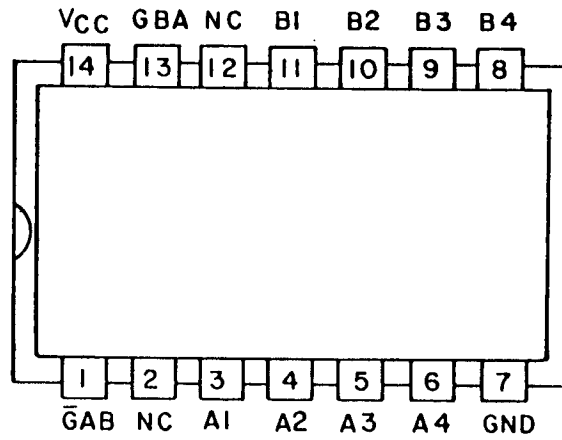


FIGURE 1. Terminal connections (top view).

Device types 06 and 07
Cases C and D



Device types 06 and 07
Cases 2 and X

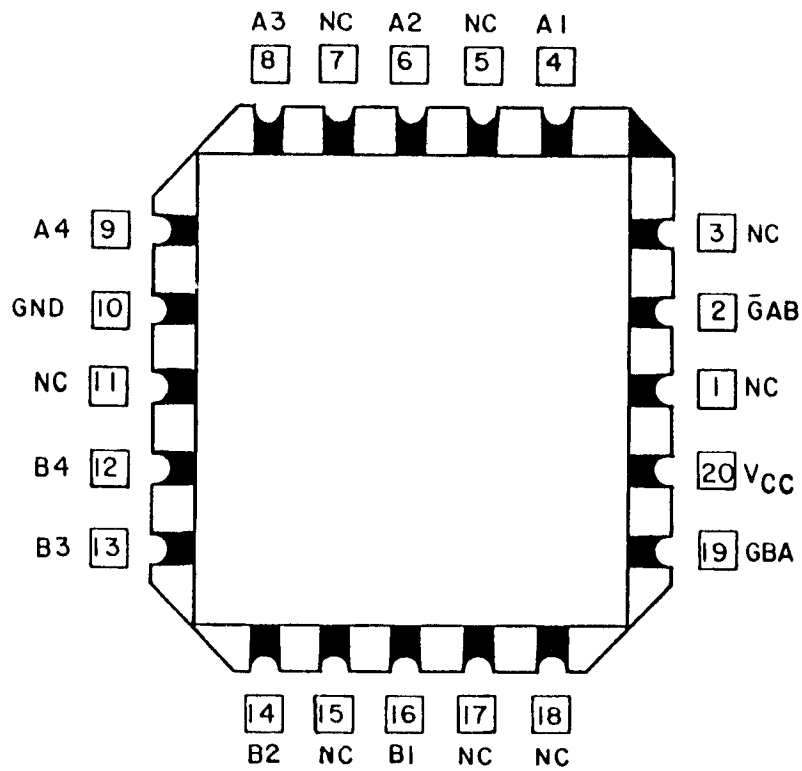
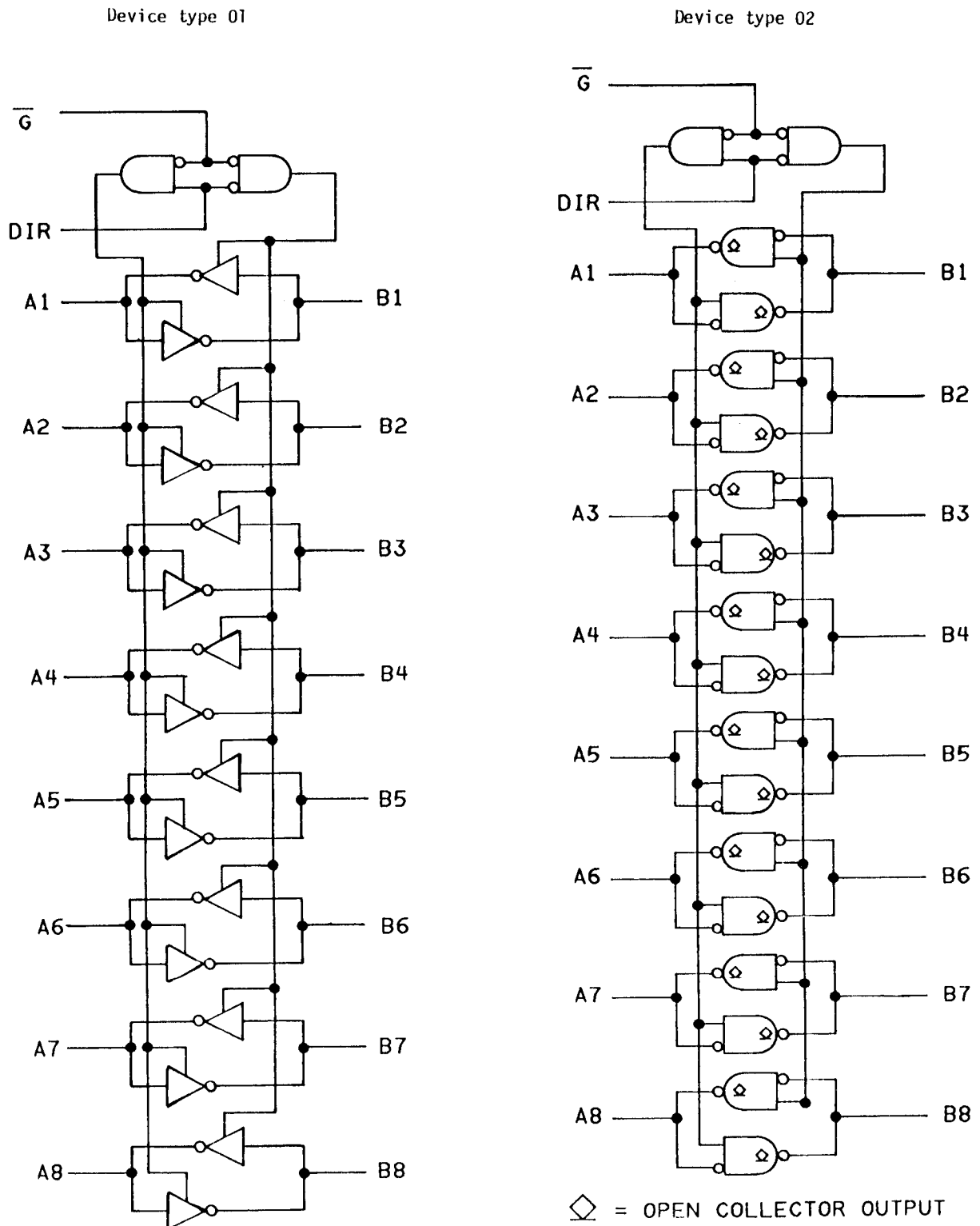


FIGURE 1. Terminal connections (top view) - Continued.

FIGURE 2. Logic diagrams.

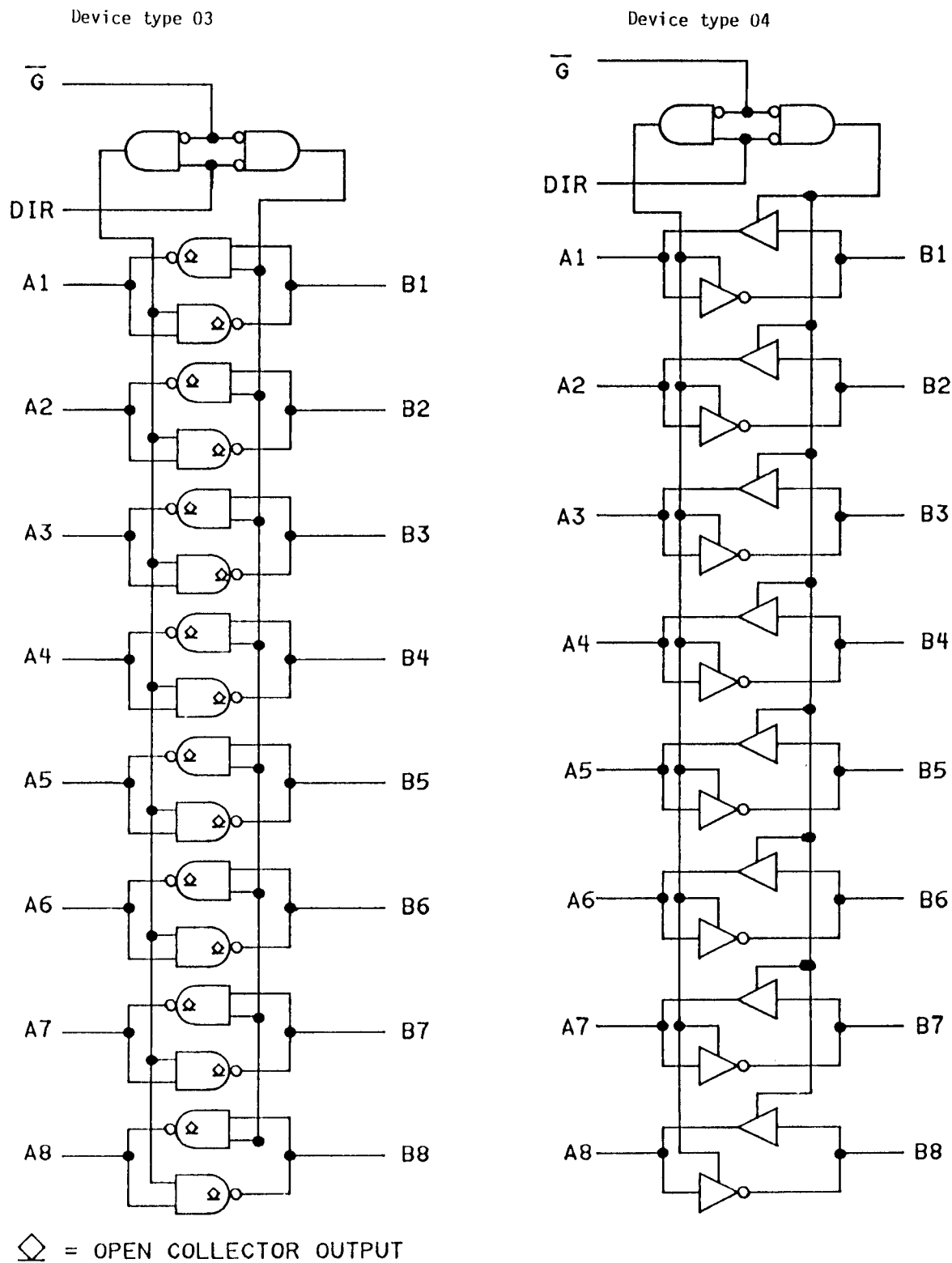
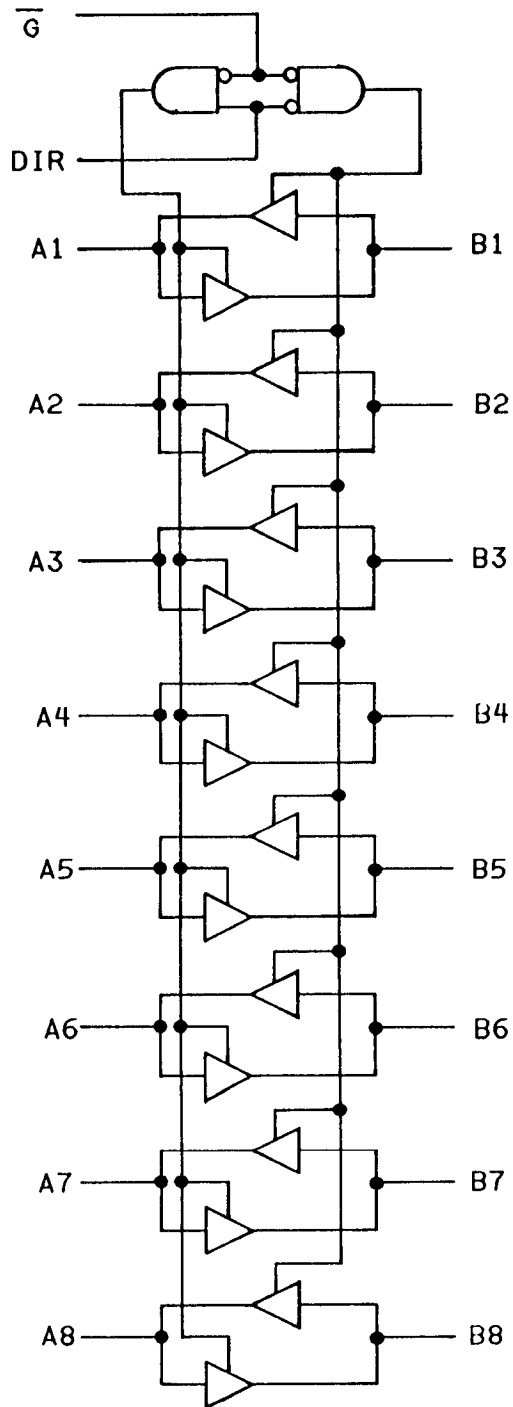
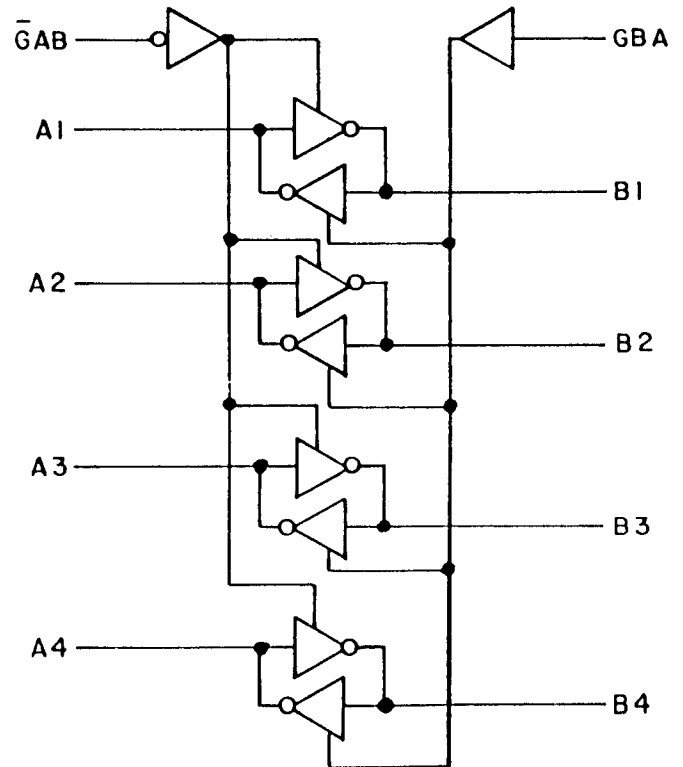


FIGURE 2. Logic diagrams - Continued.



Device type 06

FIGURE 2. Logic diagrams - Continued.

Device type 07

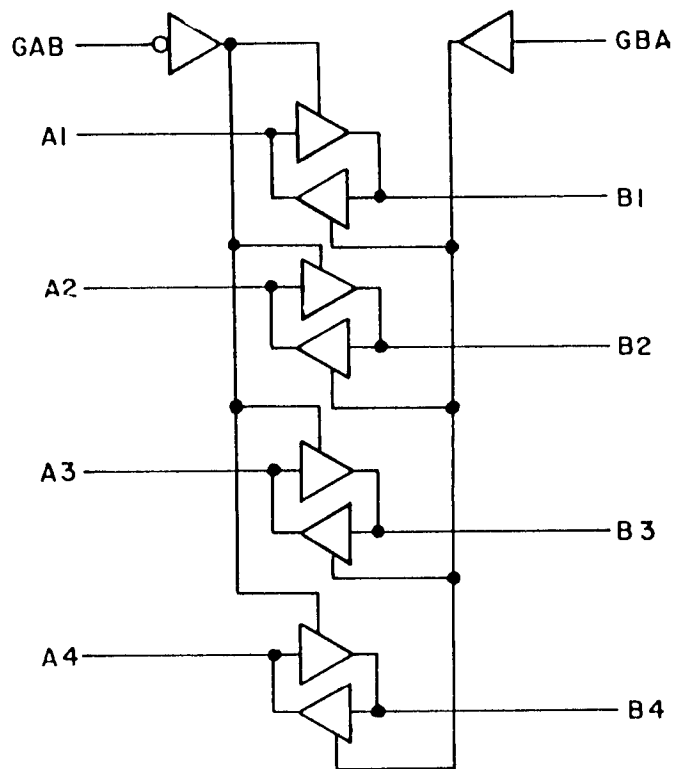


FIGURE 2. Logic diagrams - Continued.

Device types 01 and 03

Enable $\bar{G}$	Direction Control Dir	Operation
L	L	$\bar{B}$ data to A bus
L	H	$\bar{A}$ data to B bus
H	X	Isolation

H = High level, L = Low level, X = Irrelevant

Device types 02 and 05

Enable $\bar{G}$	Direction Control Dir	Operation
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

H = High level, L = Low level, X = Irrelevant

Device type 04

Enable $\bar{G}$	Direction Control Dir	Operation
L	L	B data to A bus
L	H	$\bar{A}$ data to B bus
H	X	Isolation

H = High level, L = Low level, X = Irrelevant

FIGURE 3. Truth tables.

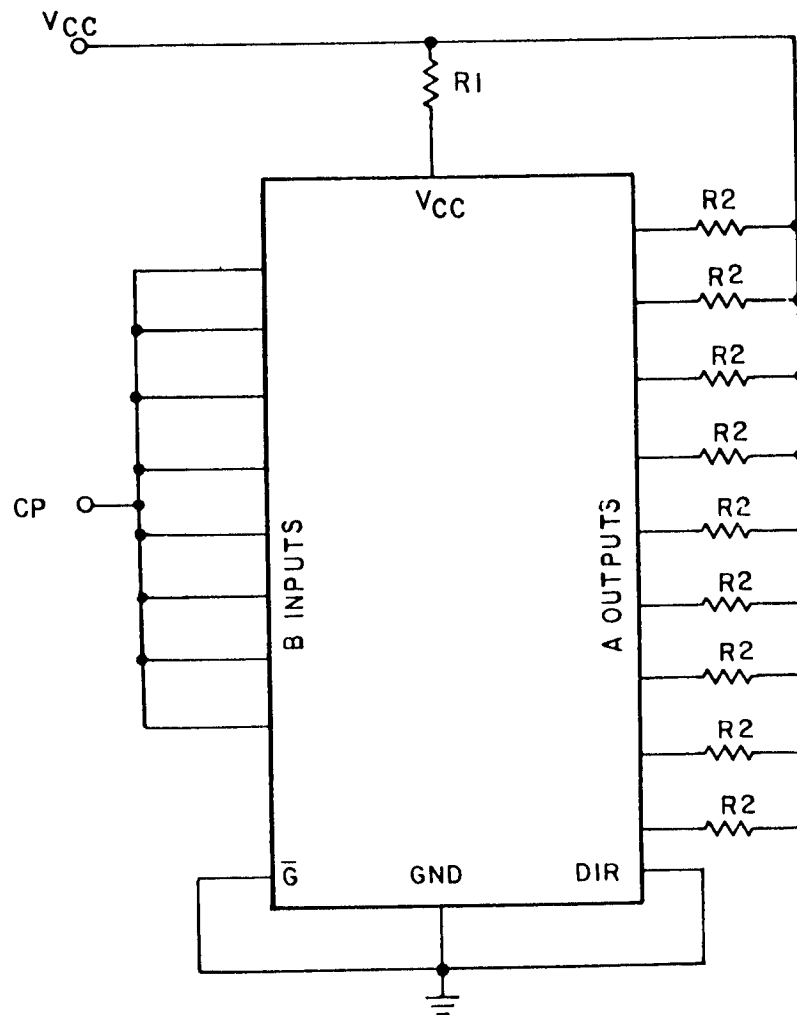
Device type 06

Inputs		Outputs
$\bar{G}AB$	GBA	
L	L	$\bar{A}$ to B
H	H	$\bar{B}$ to A
H	L	Isolation
L	H	Latch A and B (A = $\bar{B}$)

Device type 07

Inputs		Outputs
$\bar{G}AB$	GBA	
L	L	A to B
H	H	B to A
H	L	Isolation
L	H	Latch A and B (A = B)

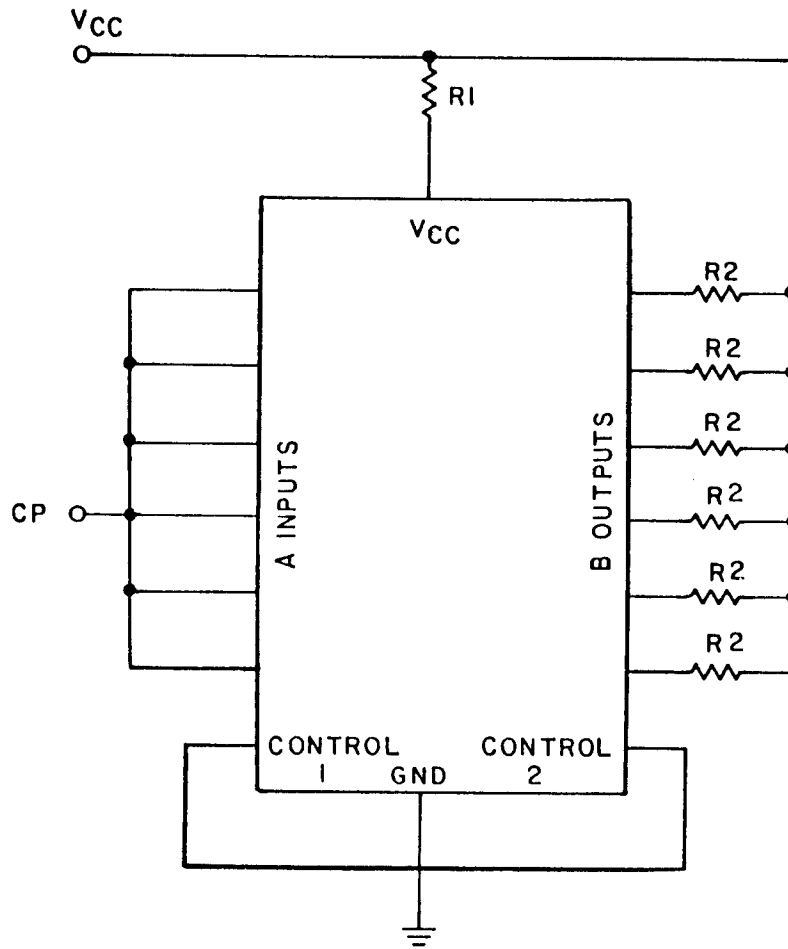
FIGURE 3. Truth tables - Continued.



NOTES:

1. V_{CC} and $R1$ shall be chosen to insure a 5 V minimum at device V_{CC} terminal.
2. $R2 = 470\Omega \pm 5\%$.
3. $CP = 100 \text{ kHz} \pm 50\%$ square wave; duty cycle = $50 \pm 15\%$; $V_{IL} = -0.5 \text{ V to } 0.8 \text{ V}$; $V_{IH} = 2 \text{ V to } 5.5 \text{ V}$.

FIGURE 4. Burn-in and life test circuit.

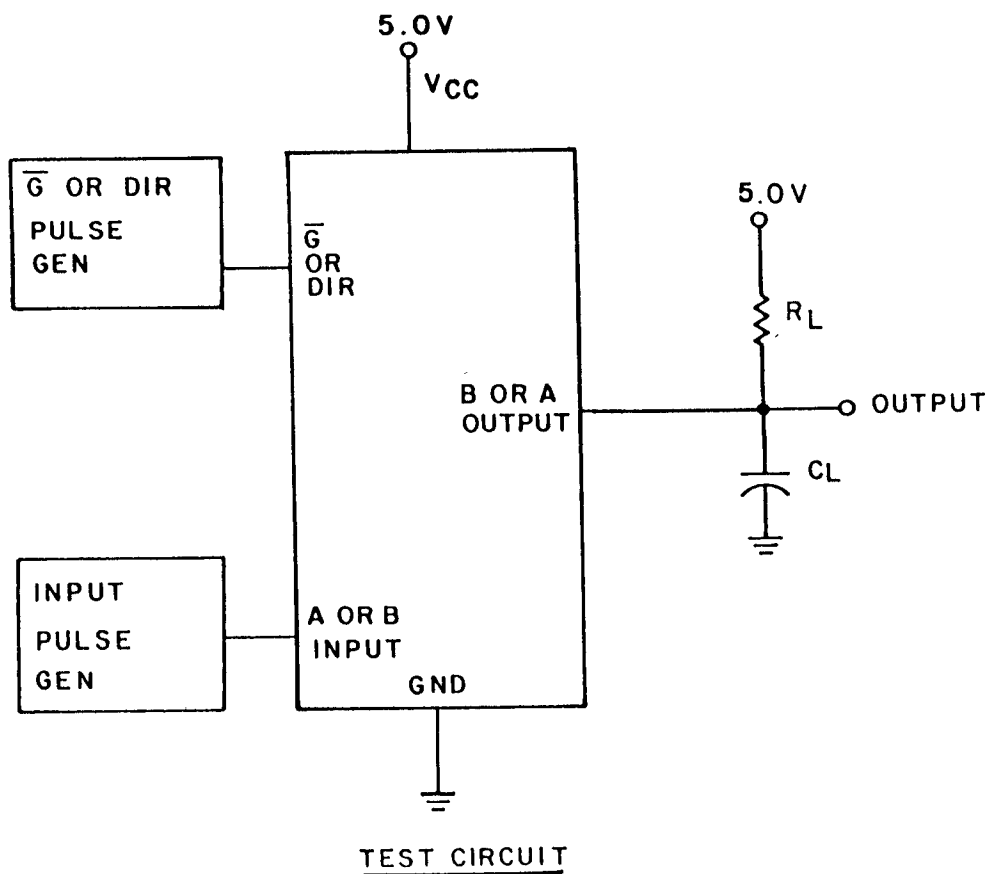


NOTES:

1. V_{CC} and $R1$ shall be chosen to insure a 5 V minimum at device V_{CC} terminal.
2. $R2 = 470\Omega \pm 5\%$.
3. CP = 100 kHz $\pm 50\%$ square wave; duty cycle = 50 $\pm 15\%$; $V_{IL} = -0.5$ V to 0.8 V; $V_{IH} = 2$ V to 5.5 V.

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

Device types 02 and 03

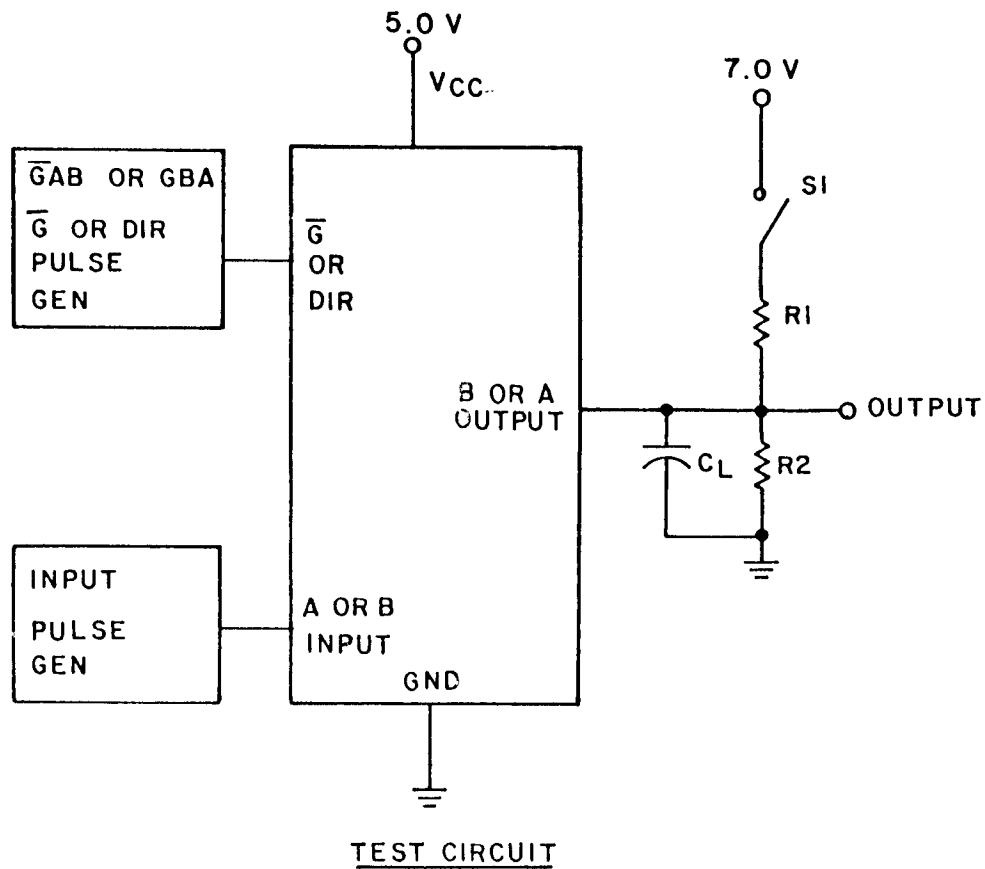


NOTES:

1. The input pulse shall have the following characteristics:
 $t_1 = t_0 = 6 \text{ ns} \pm 1.5 \text{ ns}$; $\text{PRR} \leq 1 \text{ MHz}$.
2. $R_L = 680\Omega \pm 5\%$.
3. $C_L = 50 \text{ pF} \pm 10\%$, including scope probe, wiring, and stray capacitance without package in test fixture.
4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 5. Switching time test circuit - Continued.

Device types 01, 04, 05, 06, and 07



NOTES:

1. The input pulse shall have the following characteristics:
 $t_1 = t_0 = 6 \text{ ns} \pm 1.5 \text{ ns}$; $\text{PRR} \leq 1 \text{ MHz}$.
2. $R1 = R2 = 499\Omega \pm 1\%$.
3. $C_L = 50 \text{ pF} \pm 10\%$, including scope probe, wiring, and stray capacitance without package in test fixture.
4. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 5. Switching time test circuit.

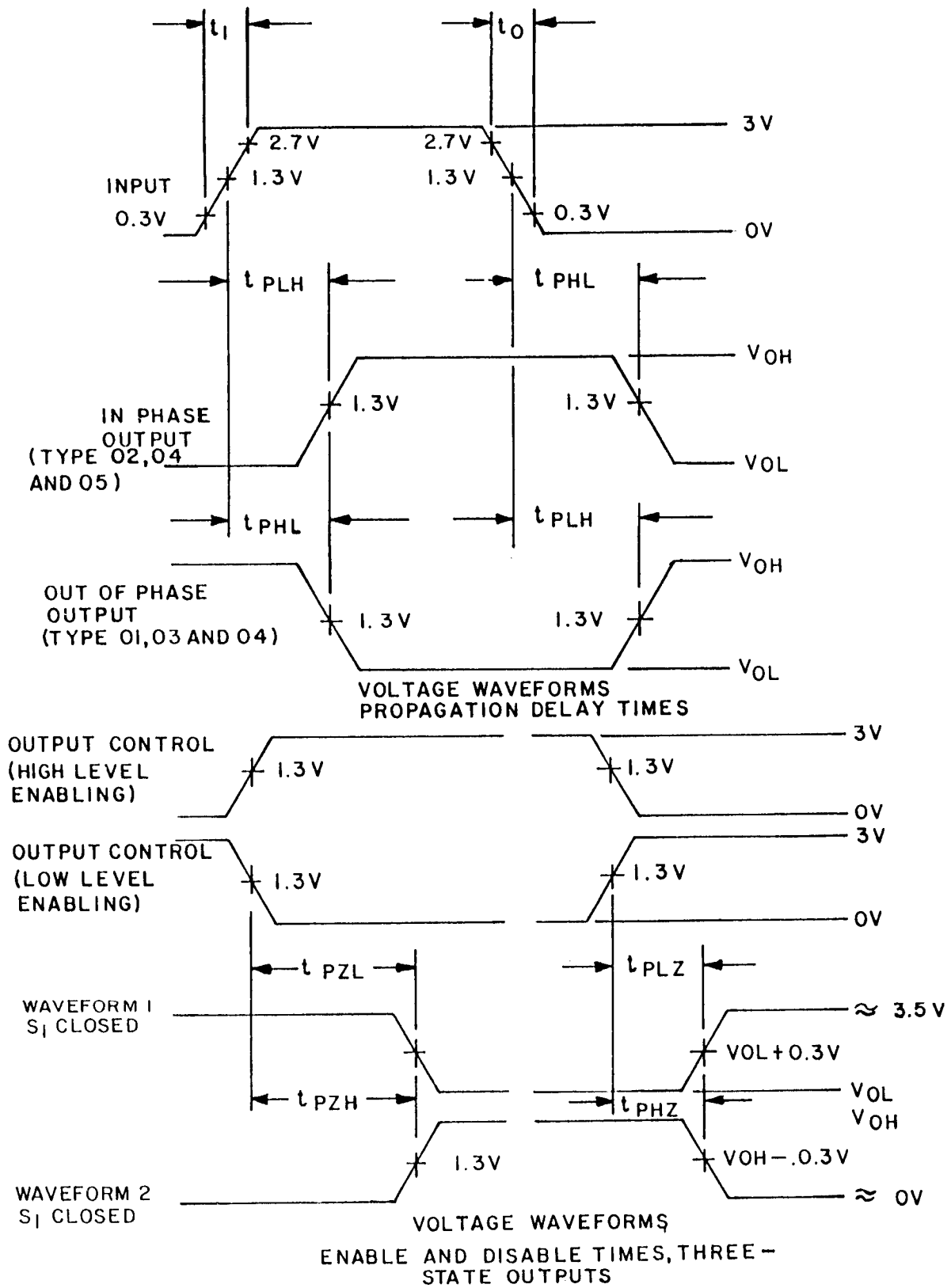


FIGURE 5. Switching time test circuit - Continued.

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883	Test method	Cases 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
$T_C = +25^\circ\text{C}$	I _{IL} / I _{OL}	3009 3009	67 68	DIR 0.4 V																		0.4 V	5.5 V	DIR	0	-100	μA
																						4.5 V		A1			
																								A2			
																								A3			
																								A4			
																								A5			
																								A6			
																								A7			
																								A8			
																								A9			
	I _{IH} / I _{OH}	3010 3010	85 86	12.7 V																					DIR	20	
	I _{IH2}	3010	103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118	15.5 V																							100
	I _{IH3}	3010 3010	119 120	7.0 V																							
	I _{I0}	3011	121 122 123 124 125 126 127 128	4.5 V																							

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883C method	Cases A, S, A, 21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits	Units				
			Test no.	DIR	A1	A2	A3	A4	A5	A6	A7	A8	GND	B8	B7	B6	B5	B4	B3	B2	B1	G	V _{CC}		Min	Max				
1 T _C = +25°C	t _Q	3011	129	GND	2.25 V																			A1	2/	ns				
			130		2.25 V																			A2						
			131																						A3					
			132																						A4					
			133																						A5					
			134																						A6					
2	t _{QCH}	3005	135																					A7						
			136																					A8						
			3005	137	5.5 V	GND	GND	GND	GND	GND	GND	GND	GND												V _{CC}	36	s			
			3005	138	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V												V _{CC}	45	s			
			3005	139	5.5 V																				5.5 V		48			
Same tests, terminal conditions, and limits as subgroup 1, except T _C = +125°C and omit V _{IC} tests.																														
Same tests, terminal conditions, and limits as subgroup 1, except T _C = -55°C and omit V _{IC} tests.																														
7 T _C = +25°C	Truth table tests	3014	140	A 3/	A	A	A	A	A	A	A	A	GND	L	L	L	L	L	L	L	L	L	B	4.5 V	See 4/					
			141	A	B 3/	B	B	B	B	B	B	B		H	H	H	H	H	H	H	H	H								
			142	B	L	L	L	L	L	L	L	L		A	A	A	A	A	A	A	A	A								
			143	B	H	H	H	H	H	H	H	H		B	B	B	B	B	B	B	B	B								
Repeat subgroup 7 at T _C = +125°C and T _C = -55°C.																														
9 T _C = +25°C	t _{PH1}	3003 (fig. 5)	144	4.5 V	IN	IN	IN	IN	IN	IN	IN	IN	GND												A1 to B1	2	11	ns		
			145																						A2 to B2					
			146																						A3 to B3					
			147																						A4 to B4					
			148																						A5 to B5					
			149																						A6 to B6					
			150																						A7 to B7					
			151																						A8 to B8					
			152	GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT													B1 to A1				
			153																							B2 to A2				
			154																							B3 to A3				
			155																							B4 to A4				
			156																								B5 to A5			
			157																								B6 to A6			
			158																								B7 to A7			
			159																								B8 to A8			
9 T _C = +25°C	t _{PH1}	3003 (fig. 5)	160	4.5 V	IN	IN	IN	IN	IN	IN	IN	IN	GND												A1 to B1	10				
			161																						A2 to B2					
			162																						A3 to B3					
			163																						A4 to B4					
			164																						A5 to B5					
			165																						A6 to B6					
			166																						A7 to B7					
			167																						A8 to B8					
			168	GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT													B1 to A1				
			169																							B2 to A2				
			170																							B3 to A3				
			171																							B4 to A4				
			172																							B5 to A5				
			173																							B6 to A6				
			174																							B7 to A7				
			175																							B8 to A8				
9 T _C = +25°C	t _{PH2}	3003 (fig. 5)	176	4.5 V	GND	GND	GND	GND	GND	GND	GND	GND													A1 to B1	5	21	s		
			177																						A2 to B2					
			178																						A3 to B3					
			179																						A4 to B4					
			180																						A5 to B5					
			181																							A6 to B6				
See footnotes at end of device type 01.																														

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

Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).

See footnotes at end of device type 01.

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

Subgroup	Symbol	MIL-STD-883C method	Cases R, S, X, Z																				Measured terminal	Test limits		Unit	
			1	2	3	4	5	6	7	8	9	10	GND	B0	B7	B6	B5	B4	B3	B2	B1	G		VCC	Min		Max
10 $T_C = +125^\circ\text{C}$	t_{PLH1}	3003 (Fig. 5)																						3	14	ns	
	t_{PHL1}																							2	13	"	
	t_{PZH}																							5	25	"	
	t_{PZL}																							8	27	"	
	t_{PHZ}																							3	15	"	
	t_{PLZ}																								4	20	"
11	Same tests, terminal conditions, and limits as subgroup 10 except $T_C = -55^\circ\text{C}$																										

1/ MIL-STD-883, method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true circuit current I_{OS} .

2/ I_O limits for circuit C shall be -30 mA to -110 mA.

3/ A = 3.0 V minimum; B = 0.0 V or GND.

4/ H = 1.5 V; L = 1.5 V.

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

Subgroup	Symbol	MIL-STD-883 method	Cases IR, S, X, Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test limits		Unit			
																									Test no.	A1		A2	A3	A4
T _C = +25°C	I _{OH}			1	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	CHD												81		100	μA		
				2																						82				
				3																						83				
				4																						84				
				5																						85				
				6																						86				
				7																						87				
				8																						88				
				9	0.8 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V											A1			
				10																							A2			
				11																							A3			
				12																							A4			
				13																							A5			
				14																							A6			
				15																							A7			
				16																							A8			
	V _{OL}	3006		17	2.0 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V													81		0.4	V		
				18																						82				
				19																						83				
				20																						84				
				21																							85			
				22																							86			
				23																							87			
				24																							88			
				25	0.8 V	12 mA	12 mA	12 mA	12 mA	12 mA	12 mA	12 mA	12 mA	12 mA	12 mA												A1			
				26																							A2			
				27																							A3			
				28																							A4			
				29																							A5			
				30																							A6			
				31																							A7			
				32																							A8			
	V _{IC}			33	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA	-18 mA													01R		1.5	V		
				34																						A1				
				35																						A2				
				36																						A3				
				37																						A4				
				38																						A5				
				39																						A6				
				40																						A7				
				41																						A8				
				42																						88				
				43																						89				
				44																						90				
				45																						91				
				46																						92				
				47																						93				
				48																						94				
49																						95								
50																						96								
	I _{IL}	3009		51	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V	0.4 V													01R		0	μA		
				52																						A1				
				53																						A2				
				54																						A3				
				55																						A4				
				56																						A5				
				57																						A6				
				58																						A7				
				59																						A8				
				60																						88				
				61																						89				
				62																						90				
				63																						91				
				64																						92				
				65																						93				
				66																						94				

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 - Continued.
Terminal conditions (pins not designated may be high ≥ 0 V, low ≤ 0 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R-S-X-2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test Limits	Unit
			Test no.	DIR	A1	A2	A3	A4	A5	A6	A7	A8	GND	B8	B7	B6	B5	B4	B3	B2	B1	G	V _{CC}	Min	Max	
$T_C = +25^\circ\text{C}$	I_{I1}	3009	67										GND								0.4 V	15.5 V	B1	0	-100	μA
	I_{I1L}	3009	68																		0.4 V	15.5 V	B1	0	-100	μA
	I_{IH1}	3010	69	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	12.7 V	20
			70																							
			71																							
			72																							
			73																							
			74																							
			75																							
			76																							
			77																							
			78																							
			79																							
			80																							
			81																							
			82																							
			83																							
			84																							
			85																							
			86																							
	I_{IH2}	3010	87	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	17.0 V	100
			88																							
			89																							
			90																							
			91																							
			92																							
			93																							
			94																							
			95																							
			96																							
	I_{CCH}	3005	105																							
	I_{CCL}	3005	106																							
			107																							
			108																							
			109																							
			110																							
			111																							
			112																							
			113																							
			114																							
2																										
3																										
7	Truth table tests	3014	107	B 1/1	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	See 2/
			108	B 1/1	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
8																										

See footnotes at end of device type 02.

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

Subgroup	Symbol	MIL-STD-883 Method	Cases R, S, X, Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal		Test limits		Unit			
																								Test no.	DIR	A1	A2		A3	A4	A5
9 T _C = +25°C	t _{PLH1}	3003 (fig. 5)	Test no.	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND								OUT	OUT	GND	5.0 V	A1 to B1	10	30	ns			
																									A2 to B2						
																											A3 to B3				
																												A4 to B4			
																												A5 to B5			
																												A6 to B6			
																												A7 to B7			
																												A8 to B8			
																												B1 to A1			
																												B2 to A2			
																												B3 to A3			
																												B4 to A4			
																												B5 to A5			
																												B6 to A6			
																												B7 to A7			
																												B8 to A8			
																												A1 to B1	5	19	
																												A2 to B2			
																												A3 to B3			
																												A4 to B4			
																												A5 to B5			
																												A6 to B6			
																												A7 to B7			
																												A8 to B8			
																												B1 to A1			
																												B2 to A2			
																								B3 to A3							
																								B4 to A4							
																								B5 to A5							
																								B6 to A6							
																								B7 to A7							
																								B8 to A8							
																								A1 to B1	13	35					
																								A2 to B2							
																								A3 to B3							
																								A4 to B4							
																								A5 to B5							
																								A6 to B6							
																								A7 to B7							
																								A8 to B8							
																								B1 to A1							
																								B2 to A2							
																								B3 to A3							
																								B4 to A4							
																								B5 to A5							
																								B6 to A6							
																								B7 to A7							
																								B8 to A8							
																								A1 to B1							
																								A2 to B2							
																								A3 to B3							
																								A4 to B4							
																								A5 to B5							
																								A6 to B6							
																								A7 to B7							
																								A8 to B8							
																								B1 to A1							
																								B2 to A2							
																								B3 to A3							
																								B4 to A4							
																								B5 to A5							
																								B6 to A6							
																								B7 to A7							
																								B8 to A8							
																								A1 to B1							
																								A2 to B2							
																								A3 to B3							
																								A4 to B4							
																								A5 to B5							
																								A6 to B6							
																								A7 to B7							
																								A8 to B8							
																								B1 to A1							
																								B2 to A2							
																								B3 to A3							
																								B4 to A4							
																								B5 to A5							
																								B6 to A6							
																								B7 to A7							
																								B8 to A8							
																								A1 to B1							
																								A2 to B2							
																								A3 to B3							
																								A4 to B4							
																								A5 to B5							
																								A6 to B6							
																								A7 to B7							
																								A8 to B8							
																								B1 to A1							
																								B2 to A2							
																								B3 to A3							
																								B4 to A4							
																								B5 to A5							
																								B6 to A6							
																								B7 to A7							
																								B8 to A8							
																								A1 to B1							

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

[illegible]

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

 $2/H > 1.5 \text{ V}; L < 1.5 \text{ V}.$

See footnotes at end of device type 03.

[illegible]

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

Subgroup	Symbol	MIL-STD-883 method	Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
1 $T_C = +25^\circ\text{C}$	I_{IL} I_{IL}	3009 3009	67																								
			68																								
	I_{IH1}	3010	69																								
			70																								
			71																								
			72																								
			73																								
			74																								
			75																								
			76																								
			77																								
			78																								
2	I_{IH2}	3010	79																								
			80																								
			81																								
			82																								
			83																								
			84																								
			85																								
			86																								
			87																								
			88																								
3	I_{IHL} I_{IHL}	3010	89																								
			90																								
			91																								
			92																								
			93																								
			94																								
			95																								
			96																								
			97																								
			98																								
7 $T_C = +25^\circ\text{C}$	Truth table tests	3014	107																								
			108																								
			109																								
			110																								
			111																								
			112																								
			113																								
			114																								
			115																								
			116																								
8	Repeat subgroup 7 at $T_C = +125^\circ\text{C}$ and $T_C = -55^\circ\text{C}$.	3014	117																								
			118																								
			119																								
			120																								
			121																								
			122																								
			123																								
			124																								
			125																								
			126																								

See footnotes at end of device type 03.

TABLE III. Group A Inspection for device type U3 - Continued.
Terminal conditions (pins not designated may be high ≥ 0.0 V, low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2.1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Test limits		Unit
																								Min	Max	
9 - $\pm 25^{\circ}\text{C}$	t _{PH1}	3003 (fig. 5)	Test no.	DIR	A1	A2	A3	A4	A5	A6	A7	A8	GND	B8	B7	B6	B5	B4	B3	B2	B1	GND	VCC			
			111	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND		OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5.0 V	15	41	ns
			112																							
			113																							
			114																							
			115																							
			116																							
			117																							
			118																							
			119	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
	t _{PH1}	3003 (fig. 5)	120																							
			121																							
			122																							
			123																							
			124																							
			125																							
			126																							
			127	GND	IN	IN	IN	IN	IN	IN	IN	IN	GND		OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	5	22	
			128																							
			129																							
	t _{PH2}	3003 (fig. 5)	130																							
			131																							
			132																							
			133																							
			134																							
			135	4.5 V	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
			136																							
			137																							
			138																							
			139																							
	t _{PH2}	3003 (fig. 5)	140																							
			141																							
			142																							
			143	IN	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	15	40	
			144																							
			145																							
			146																							
			147																							
			148																							
			149																							
	t _{PH2}	3003 (fig. 5)	150																							
			151																							
			152																							
			153																							
			154																							
			155																							
			156																							
			157																							
			158																							
			159		OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	45	
	t _{PH2}	3003 (fig. 5)	160																							
			161																							
			162																							
			163																							
			164																							
			165																							
			166																							
			167																							
			168																							
			169																							
	t _{PH2}	3003 (fig. 5)	170																							
			171																							
			172																							
			173																							
			174																							
			175																							
			176																							
			177																							
			178																							
			179																							

See footnotes at end of device type 03.

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

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

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

 $2/ \quad H > 1.5 \text{ V}; L < 1.5 \text{ V}.$

TABLE III. Group A inspection for device type U4.
Terminal conditions (pins not designated may be high ≥ 0 V, low ≤ 0.8 V, or open).

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be High ≥ 0 V, Low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R, S, X, Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test Limits	Unit	
		Test no.		D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	B8	B7	B6	B5	B4	B3	B2	B1	G	VCC	Min	Max		
$T_C = +25^{\circ}\text{C}$	I_{IL}	3009	67	10.4 V									GND									10.4 V	15.5 V	0	-100	μA	
		3009	68											GND													
	I_{IL}/I_{OL}	69		10.4 V	0.4 V																		14.5 V				
		70																									
		71																									
		72																									
		73																									
		74																									
		75																									
		76																									
		77																									
		78													0.4 V	10.4 V											
		79																									
		80																									
		81																									
		82																									
83																											
84																											
	I_{IH1}/I_{OH2M}	3010	85	12.7 V																		12.7 V		20			
		3010	86																								
	I_{IH1}/I_{OH2M}	87		12.7 V	2.7 V																		14.5 V				
		88																									
		89																									
		90																									
		91																									
		92																									
		93																									
		94																									
		95																									
		96																									
		97																									
		98																									
		99																									
		100																									
		101																									
		102																									
	I_{IH2}	3010	103	15.5 V	5.5 V																			100			
		104																									
	105																										
	106																										
	107																										
	108																										
	109																										
	110																										
	111																										
	112																										
	113																										
	114																										
	115																										
	116																										
	117																										
	118																										
	I_{IH3}	3010	119	17.0 V																							
		3010	120																								
I_{IO}/I_{OZ}		3011	121	14.5 V	GND	GND	GND	GND	GND	GND	GND	GND															
		122																									
		123																									
		124																									
		125																									
		126																									
		127																									
		128																									

See footnotes at end of device type 04.

Subgroup	Symbol	MIL-STD-883C Method	Cases R.S.X.2.1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test Limits		Unit							
																									Min	Max								
1	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		129
																																		130
																																		131
																																		132
																																		133
																																		134
																																		135
																																		136
																																		137
2	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		138
																																		139
3	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		140
																																		141
4	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		142
																																		143
																																		144
																																		145
																																		146
																																		147
																																		148
																																		149
																																		150
5	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		151
																																		152
																																		153
																																		154
																																		155
																																		156
																																		157
																																		158
																																		159
6	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		160
																																		161
																																		162
																																		163
																																		164
																																		165
																																		166
																																		167
																																		168
7	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		169
																																		170
																																		171
																																		172
																																		173
																																		174
																																		175
																																		176
																																		177
8	I ₀₁	J	D1R	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	A1	A2	A3	A4	A5	A6	A7	A8	mA	
																																		178
																																		179
																																		180
																																		181
																																		182
																																		183
																																		184
																																		185
																																		186
9	I ₀₁																																	

See footnotes at end of device type 04.

TABLE III. Group A Inspection for device type 04 - Continued.
Terminal conditions (pins not designated may be high 5.0 V, low 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 (method no.)	Cases (A, S, X, Z)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits	Unit
9 $T_C = +25^\circ\text{C}$	t _{PZH}	3003 (fig. 5)	DIR	A1	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	GND													
				A2	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A3	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A4	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A5	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A7	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A8	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A9	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A10	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
9 $T_C = +25^\circ\text{C}$	t _{PZL}	3003 (fig. 5)	DIR	A1	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A2	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A3	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A4	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A5	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A7	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A8	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A9	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A10	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
9 $T_C = +25^\circ\text{C}$	t _{PZH}	3003 (fig. 5)	DIR	A1	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A2	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A3	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A4	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A5	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A7	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A8	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A9	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A10	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
9 $T_C = +25^\circ\text{C}$	t _{PZL}	3003 (fig. 5)	DIR	A1	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A2	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A3	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A4	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A5	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A6	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A7	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A8	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A9	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT
				A10	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT

See footnotes at end of device type 04.

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

Terminal conditions (pins not designated)																													
Subgroup	Symbol	MIL-STD-883 method	Cases R, S, X, Z		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test limits		Unit	
			Test no.	DIR																						A1	A2		A3
10	t_{PLH1}	3003 (fig. 5)																									3	15	-
	t_{PHL1}																										2	13	-
	t_{PLH}																										6	28	-
	t_{PLH}																										8	28	-
	t_{PLZ}																										2	17	-
	t_{PLZ}																										4	33	-
11	Same tests, terminal conditions, and limits as subgroup 10 except $T_C = -55^{\circ}\text{C}$																												

Same tests and terminal conditions as subgroup 9, except $T_C = +125^\circ\text{C}$.

1/ MIL-STD-883, method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true circuit current I_{OS} .

2/ I_O limits for circuit C shall be -30 mA to -110 mA.

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

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

TABLE III. Group A inspection for device type 05.

See footnotes at end of device type 05.

[illegible]

See footnotes at end of device type 05.

TABLE III. Group A inspection for device type D5 - Continued.

[illegible]

See footnotes at end of device type 05.

TABLE III. Group A Inspection for device type 05. Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883C (fig. 5)	Cases R, S, X, Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit
																									Min	Max	
9 $T_C = +25^\circ\text{C}$	tpZH	3003 (fig. 5)	Test no.	DIR	A1	A2	A3	A4	A5	A6	A7	A8	GND	B8	B7	B6	B5	B4	B3	B2	B1	G	VCC				
					GND	OUT	OUT	OUT	OUT	OUT	OUT	OUT	GND										5.0 V	G to A1	7	20	ns
																								G to A2			
																								G to A3			
																								G to A4			
																								G to A5			
																								G to A6			
																								G to A7			
																								G to A8			
	tpZL	3003 (fig. 5)	Test no.	4.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	OUT	OUT	OUT				
																								G to B1	10	26	
																								G to B2			
																								G to B3			
																								G to B4			
																								G to B5			
																								G to B6			
																								G to B7			
																								G to B8			
																								G to A1			
	tpHZ	3003 (fig. 5)	Test no.	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	4.5 V	OUT	OUT	OUT				
																								G to B1	3	16	
																								G to B2			
																								G to B3			
																								G to B4			
																								G to B5			
																								G to B6			
																								G to B7			
																								G to B8			
																								G to A1			
	tpLZ	3003 (fig. 5)	Test no.	4.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	OUT	OUT	OUT				
																								G to B1	4	18	
																								G to B2			
																								G to B3			
																								G to B4			
																								G to B5			
																								G to B6			
																								G to B7			
																								G to B8			
																								G to A1			

See footnotes at end of device type 05.

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

Subgroup	Symbol	MIL-STD-883 method	Cases (R, S, X, Z)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured Terminal	Test Limits Min	Test Limits Max	Unit
10	t_{PLH1}	3003 (Fig. 5)	DIR	A1	A2	A3	A4	A5	A6	A7	A8	GND	GND	B8	B7	B6	B5	B4	B3	B2	B1	G	V _{CC}		3	15	ns
	t_{PLH1}																								3	13	"
	t_{PHZ}																								7	25	"
	t_{PLZ}																								10	30	"
	t_{PLH}																								3	18	"
	t_{PLZ}																								4	20	"
11	Same tests, terminal conditions, and limits as subgroup 10, except $T_C = -55^\circ\text{C}$																										

Same tests and terminal conditions as subgroup 9, except $T_C = +125^\circ\text{C}$.

1/ MIL-STD-883, method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short circuit current I_{OS} .

2/ I_{OS} limits for circuit C shall be -30 mA to -110 mA.

3/ A > 3.0 V minimum, B < 0.0 V or GND.

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

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

Subgroup	Symbol	MIL-STD-883C method	Cases V and Z	Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal		Limits		Unit																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
																									GAB	NC	A1	A2		A3	A4	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	G

See footnotes at end of device type 06.

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

Subgroup	Symbol	MIL-STD-883C and D method	Cases 1/ X and Z		2	3	4	6	8	9	10	12	13	14	16	18	19	20	Measured terminal		Limits		Unit											
			Test no.	CAB															MC	A1	A2	A3		A4	GND	B4	B3	B2	B1	MC	GBA	VCC	Min	Max
1 T _C = +25°C	I _{HH2}	3010	55				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	A1			100 μA											
			56				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	A2			"											
			57				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	A3			"											
			58				5.5 V	5.5 V	5.5 V	5.5 V										5.5 V	A4			"										
			59				5.5 V	5.5 V	5.5 V	5.5 V										5.5 V	B4			"										
			60				5.5 V	5.5 V	5.5 V	5.5 V										5.5 V	B3			"										
	I _{HH3}	3010	61				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	B2			"											
			62				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	B1			"											
			63				7.0 V												7.0 V	GAB			"											
			64				7.0 V												7.0 V	GBA			"											
2	I _{Q 2/}	3011	65				GND	GND	GND	GND									GND	B1			3/ -112 mA											
			66				GND	GND	GND	GND									GND	B2			"											
			67				GND	GND	GND	GND									GND	B3			"											
			68				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	B4			"											
			69				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	A1			"											
			70				5.5 V	5.5 V	5.5 V	5.5 V									5.5 V	A2			"											
	I _{CC2}	3005	71				2.25 V	2.25 V	2.25 V	2.25 V									GND	A3			"											
			72				2.25 V	2.25 V	2.25 V	2.25 V									GND	A4			"											
			73				GND	GND	GND	GND									GND	VCC			"											
			74				GND	GND	GND	GND									GND	VCC			"											
3	I _{CC1}	3005	75				5.5 V												GND	VCC			"											
			76				5.5 V												GND	VCC			"											
			77				5.5 V												GND	VCC			"											
			78				5.5 V												GND	VCC			"											
			79				5.5 V												GND	VCC			"											
			80				5.5 V												GND	VCC			"											
	I _{CC2}	3005	81				5.5 V												GND	VCC			"											
			82				5.5 V												GND	VCC			"											
			83				5.5 V												GND	VCC			"											
			84				5.5 V												GND	VCC			"											
4	I _{PH1}	3003 (fig. 5)	85				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A1 to B1			"											
			86				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A2 to B2			"											
			87				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A3 to B3			"											
			88				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A4 to B4			"											
			89				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B1 to A1			"											
			90				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B2 to A2			"											
	I _{PH2}	3003 (fig. 5)	91				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B3 to A3			"											
			92				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B4 to A4			"											
			93				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A1 to B1			"											
			94				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A2 to B2			"											
5	I _{PH1}	3003 (fig. 5)	95				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A3 to B3			"											
			96				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A4 to B4			"											
			97				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B1 to A1			"											
			98				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B2 to A2			"											
			99				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B3 to A3			"											
			100				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	B4 to A4			"											
	I _{PH2}	3003 (fig. 5)	101				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A1 to B1			"											
			102				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A2 to B2			"											
			103				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A3 to B3			"											
			104				4.5 V	4.5 V	4.5 V	4.5 V									4.5 V	A4 to B4			"											

See footnotes at end of device type 06.

TABLE III. Group A inspection for device type D6 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).

[illegible]

1/ Pins not referenced are NC.

1/ PINS NOT REFERENCED ARE NC.

2/ MIL-STD-883, method 3011 shall be used, except the output conditions have been chosen to produce A

— The output conditions have been chosen to produce a

3/ In limits for circuit C shall be -30 mA to -110 mA.

[illegible]

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

 $1/5 \quad H > 1.5 \text{ Y} : L < 1.5 \text{ Y}.$

TABLE III. Group A inspection for device type 07.
Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883C and D method	Cases 1 and 2	Cases 1/2														Measured terminal	Limits		Unit								
				Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13		14	15		16	17	18	19	20	Min	Max	
1 T _C = +25°C	V _{OH1}	3006	CAB	MC	0.8 V	1	2.0 V	A1	A2	A3	A4	GND																	
						2	2.0 V	2.0 V	2.0 V																				
						3																							
						4																							
						5	2.0 V	-3 mA	-3 mA																				
						6																							
						7																							
						8																							
	V _{OH2}	3006			0.5 V	9	2.0 V		2.0 V	2.0 V																			
						10																							
						11																							
						12	2.0 V	-12 mA	-12 mA																				
						13																							
						14																							
						15																							
						16																							
	V _{OL}	3007			0.8 V	17	0.8 V		0.8 V	0.8 V																			
						18																							
						19																							
						20	2.0 V	12 mA	12 mA																				
						21																							
						22																							
						23																							
						24																							
	V _{IC}			-18 mA	25	-18 mA		-18 mA	-18 mA																				
					26																								
					27																								
					28																								
					29																								
					30																								
					31																								
					32																								
	I _{IL} / I _{OL}			4.5 V	37	4.5 V		0.4 V	0.4 V																				
					38																								
					39																								
					40																								
					41																								
					42																								
					43																								
					44																								
	I _{IH1} / I _{OZH}			2.7 V	45	2.7 V																							
					46																								
					47																								
					48																								
					49																								
					50																								
					51																								
					52																								
	I _{IH2}			4.5 V	47	4.5 V		2.7 V	2.7 V																				
					48																								
					49																								
					50																								
					51																								
					52																								
					53																								
					54																								

[illegible]

See footnotes at end of device type 07.

TABLE III. Group A Inspection for device type 07 - Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V, low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883C and D method	Cases 1/ X and Z		2	3	4	6	8	9	10	12	13	14	16	18	19	20	Measured terminal	Limits		Unit		
			Test no.	MC																1	2		Min	Max
9 T _C = +25°C	t _{pZL}	3003 (Fig. 5)	104	IN			GND	GND	A3	A4	GND	B4	B3	B2	B1	NC	GBA	V _{CC}	GND	5.0 V	7	20	ns	
			105																					
			106	4.5 V																				
			107																					
			108																					
10 T _C = +125°C	t _{pLZ}	3003 (Fig. 5)	112	IN			4.5 V	4.5 V													2	14		
			113																					
			114	4.5 V																				
			115																					
			116																					
11 T _C = -55°C	t _{pLH}	3003 (Fig. 5)	120	IN			GND	GND													4	25		
			121																					
			122	4.5 V																				
			123																					
			124																					

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

t _{pLH}	4	15	"
t _{pHL}	4	15	"
t _{pZH}	7	25	"
t _{pZL}	7	25	"
t _{pHZ}	2	16	"
t _{pLZ}	4	30	"

Same tests, terminal conditions, and limits as subgroup 10, except T_C = -55°C.

Same tests and terminal conditions as subgroup 9, except $T_C = +125^\circ\text{C}$.

Same tests, terminal conditions, and limits as subgroup 10, except $T_C = -55^\circ\text{C}$.

1/ Pins not referenced are NC.

2/ MIL-STD-883, method 3011 shall be used, except the output voltage shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one-half of the true short circuit current I_{SC} .

3/ I_Q limits for circuit C shall be -30 mA to -110 mA.

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

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

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

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

GND	- - - - -	Ground zero voltage potential.
V _{IN}	- - - - -	Voltage level at an input terminal.
I _{IN}	- - - - -	Current flowing into an input terminal.
t _{PHZ}	- - - - -	Output disable time (of a three-state output) from high level. The time between the specified reference points on the input and output voltage waveforms with the three-state output changing from the defined high level to a high impedance (off) state.
t _{PLZ}	- - - - -	Output disable time (of a three-state output) from low level. The time between the specified reference points on the input and output voltage waveforms with the three-state output changing from the defined low level to a high-impedance (off) state.
t _{PZH}	- - - - -	Output enable time (of a three-state output) to high level. The time between the specified reference points on the input and output voltage waveforms with the three-state output changing from a high impedance (off) state to the defined high level.
t _{PZL}	- - - - -	Output enable time (of a three-state output) to low level. The time between the specified reference points on the input and output voltage waveforms with the three-state output changing from a high-impedance (off) state to the defined low level.

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

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

<u>Military device type</u>	<u>Generic-industry type</u>
01	54ALS640
02	54ALS641
03	54ALS642
04	54ALS643
05	54ALS645
06	54ALS242
07	54ALS243

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

TABLE IV. Manufacturers' designations.

Device type	Circuits		
	A	B	C
	Texas Instruments	Motorola Incorporated	National Semiconductor Corporation
01	X		
02	X		
03	X		
04	X		
05	X		
06	X		
07	X		

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

Custodians:

Army - ER
Navy - EC
Air Force - 17

Preparing activity:
Air Force - 17

Agent:

DLA - ES

Review activities:

Army - AR, MI
Navy - OS, SH, TD
Air Force - 11, 19, 85, 99

(Project 5962-1106)

User activities:

Army - SM
Navy - AS, CG, MC