QUALIFICATION REQUIREMENTS REMOVED

MIL-M-38510/156B
21 JULY 1986
SUPERSEDING
MIL-M-38510/156A
1 March 1985

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, TTL, DATA ENCODERS,

MONOLITHIC SILICON

INACTIVE FOR NEW DESIGN AFTER DATE OF THIS REVISION.

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, TTL, data encoder microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number.

1.2 Part number. The part number shall be in accordance with MIL-M-38510, with the exception that the "JAN" or "J" certification shall not be used.

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

Device type	Circuit
01	Ten line to four line data encoder, without enable.
02	Eight line to three line data encoder, with enable.
03	Eight-input priority encoder.

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

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

Outline letter	Case outline (see MIL-M-38510, appendix C)
E	D-2 (16-lead, 1/4" x 7/8"), dual-in-line package
F	F-5 (16-lead, 1/4" x 3/8"), flat package

1.3 Absolute maximum ratings.

Supply voltage range	-0.5 V dc to +7.0 V dc
Input voltage range	-1.5 V dc at -12 mA to +5.5 V dc
Storage temperature range	-65°C to +150°C
Maximum power dissipation (P_D) 1/:	
Device type 01	385 mW
Device type 02	330 mW
Device type 03	424 mW
Lead temperature (soldering, 10 seconds)	+300°C
Thermal resistance, junction-to-case (θ_{JC}):	
Cases E, F	(see MIL-M-38510, appendix C)
Junction temperature (T_J) 2/	+175°C

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

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

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

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
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 (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

MILITARY

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

STANDARD

MILITARY

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

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

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

3. REQUIREMENTS

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

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

3.2.1 Terminal connections. The terminal connections shall be as specified on figure 1.

3.2.2 Truth tables. The truth tables shall be as specified on figure 2.

3.2.3 Logic diagrams. The logic diagrams shall be as specified on figure 3.

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 I, and apply over the full recommended case operating temperature range, unless otherwise specified.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55°C \leq T_C \leq +125°C$	Device type	Limit Min	Limit Max	Units
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	01	-0.7	-1.6	mA
Low level input current at all inputs except 0	I_{IL1}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	02	-1.2	-3.2	mA
Low level input current at 0	I_{IL2}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	02	-0.7	-1.6	mA
Low level input current at $\overline{0}$ and $\overline{E}_I$	I_{IL1}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	03	-0.7	-1.6	mA
Low level input current at all other inputs	I_{IL2}	V_{CC} = 5.5 V, V_{IN} = 0.4 V	03	-1.4	-3.2	mA
High level input current	I_{IH1}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	01		40	µA
	I_{IH2}	V_{CC} = 5.5 V, V_{IN} = 5.5 V	01		100	µA
High level input current at all inputs except 0	I_{IH1}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	02		80	µA
	I_{IH2}	V_{CC} = 5.5 V, V_{IN} = 5.5 V	02		200	µA
High level input current at 0	I_{IH3}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	02		40	µA
	I_{IH4}	V_{CC} = 5.5 V, V_{IN} = 5.5 V	02		100	µA
High level input current at all inputs except $\overline{0}$	I_{IH1}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	03		80	µA
	I_{IH2}	V_{CC} = 5.5 V, V_{IN} = 5.5 V	03		200	µA
High level input current at $\overline{0}$	I_{IH3}	V_{CC} = 5.5 V, V_{IN} = 2.4 V	03		40	µA
	I_{IH4}	V_{CC} = 5.5 V, V_{IN} = 5.5 V	03		100	µA
Short circuit output current	I_{OS}	V_{CC} = 5.5 V, V_{OUT} = 0 V 1/	01, 02	-35	-85	mA
			03	-20	-80	mA
High level supply current	I_{CCH}	V_{CC} = 5.5 V	01	---	62	mA
			02	---	55	mA

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

TABLE I. Electrical performance characteristics - Continued

Test	Symbol	Conditions $-55°C \leq T_C \leq +125°C$	Device type	Limit Min	Limit Max	Units
Low level supply current	I_{CCL}	V_{CC} = 5.5 V	01	---	70	mA
			02	---	60	mA
Supply current	I_{CC}	V_{CC} = 5.5 V	03	---	77	mA
Propagation delay time, high-to-low level; any input to any output (in-phase output)	t_{PHL1}	V_{CC} = 5.0 V C_L = 50 pF min R_L = 390Ω ±5% (Figure 4)	01	3	21	ns
Propagation delay time, low-to-high level; any input to any output (in-phase output)	t_{PLH1}		01	3	25	ns
Propagation delay time, high-to-low level; any input to any output (out-of-phase output)	t_{PHL2}		01	3	26	ns
Propagation delay time, low-to-high level; any input to any output (out-of-phase)	t_{PLH2}		01	3	31	ns
Propagation delay time, high-to-low level output at GS from 0 thru 7 (in-phase output)	t_{PHL1}	V_{CC} = 5.0 V C_L = 50 pF min R_L = 390Ω ±5% (Figure 5)	02	3	30	ns
Propagation delay time, low-to-high level output at GS from 0 thru 7 (in-phase output)	t_{PLH1}		02	3	34	ns
Propagation delay time, high-to-low level output at A_0, A_1, or A_2 from 0 thru 7 (in-phase output)	t_{PHL2}		02	3	25	ns
Propagation delay time, low-to-high level output at A_0, A_1, or A_2 from 0 thru 7 (in-phase output)	t_{PLH2}		02	3	26	ns
Propagation delay time, high-to-low level output at E_O from E_I	t_{PHL3}		02	3	25	ns

TABLE I. Electrical performance characteristics - Continued

Test	Symbol	Conditions $-55°C \leq T_C \leq +125°C$	Device type	Limit		Units
				Min	Max	
Propagation delay time, low-to-high level output at E_O from E_I	t_{PLH3}	V_{CC} = 5.0 V C_L = 50 pF min R_L = 390Ω ±5% (Figure 5)	02	3	24	ns
Propagation delay time, high-to-low level output at E_O from 0 thru 7	t_{PHL4}		02	3	25	ns
Propagation delay time, low-to-high level output at E_O from 0 thru 7	t_{PLH4}		02	3	20	ns
Propagation delay time, high-to-low level output at A_0, A_1, or A_2 from 0 thru 7 (out-of-phase output)	t_{PHL5}		02	3	26	ns
Propagation delay time, low-to-high level output at A_0, A_1, or A_2 from 0 thru 7 (out-of-phase output)	t_{PLH5}		02	3	26	ns
Propagation delay time, low-to-high level; data input to enable output	t_{PLH1}	V_{CC} = 5.0 V C_L = 50 pF min R_L = 390Ω ±5% (Figure 6)	03	6	22	ns
Propagation delay time, high-to-low level; data input to enable output	t_{PHL1}		03	9	43	ns
Propagation delay time, low-to-high level; enable input to group signal	t_{PLH2}		03	9	32	ns
Propagation delay time, high-to-low level; enable input to group signal	t_{PHL2}		03	9	38	ns
Propagation delay time, low-to-high level; enable input to enable output	t_{PLH3}		03	9	32	ns
Propagation delay time, high-to-low level; enable input to enable output	t_{PHL3}		03	9	48	ns

TABLE I. Electrical performance characteristics - Continued

Test	Symbol	Conditions $-55°C \leq T_C \leq +125°C$	Device type	Limit		Units
				Min	Max	
Propagation delay time, low-to-high level; enable input to data output	t_{PLH4}	V_{CC} = 5.0 V C_L = 50 pF min R_L = 390Ω ±5% (Figure 6)	03	9	37	ns
Propagation delay time, high-to-low level; enable input to data output	t_{PHL4}		03	9	38	ns
Propagation delay time, low-to-high level; data input to group signal	t_{PLH5}		03	15	56	ns
Propagation delay time, high-to-low level; data input to group signal	t_{PHL5}		03	9	34	ns
Propagation delay time, low-to-high level; data input to data output	t_{PLH6}		03	12	52	ns
Propagation delay time, high-to-low level; data input to data output	t_{PHL6}		03	9	52	ns

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.

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
Additional electrical subgroups for group C periodic inspections	N/A	None
Group D end point electrical parameters (method 5005)	1,2,3	1,2,3

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

3.6 Marking. Marking shall be in accordance with MIL-M-38510 and 1.2 herein. At the option of the manufacturer, marking of the country of origin may be omitted from the body of the microcircuit, but shall be retained on the initial container. The "JAN" or "J" certification mark shall not be used.

3.7 Manufacturer eligibility. To be eligible to supply microcircuits to this specification, a manufacturer shall have a manufacturer certification in accordance with MIL-M-38510 for at least one line, not necessarily the line producing the device type described herein.

3.8 Certification. Certification in accordance with MIL-M-38510 is not required for this device.

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.

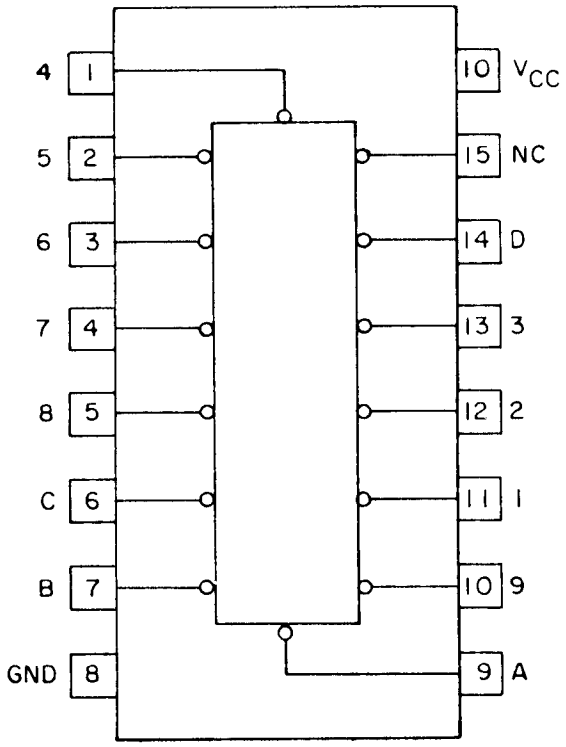
4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to qualification and quality conformance inspection. The following additional criteria shall apply:

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

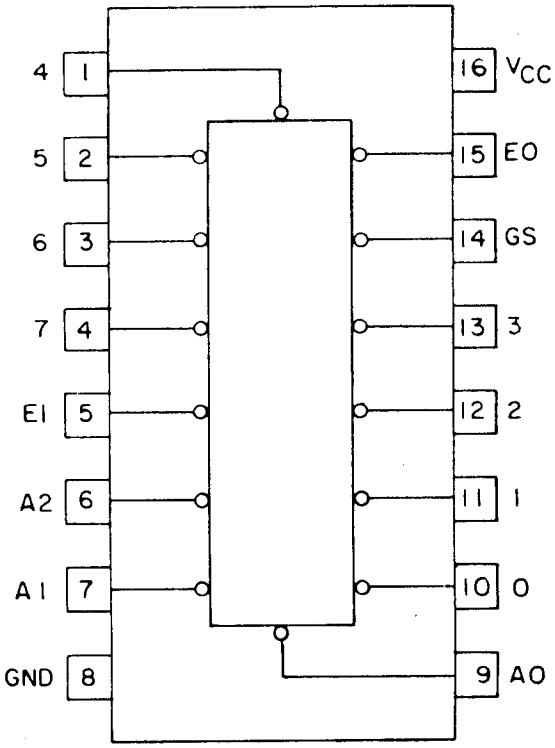
(1) Test condition D, E, or F using the circuit shown on figure 7, or equivalent.

(2) T_A = +125°C minimum.

Device type 01



Device type 02



Device type 03

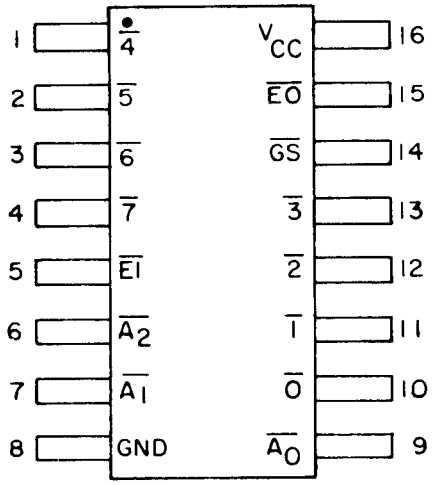


FIGURE 1. Terminal connections (top view).

Device type 01

Inputs									Outputs			
1	2	3	4	5	6	7	8	9	D	C	B	A
H	H	H	H	H	H	H	H	H	H	H	H	H
X	X	X	X	X	X	X	X	L	L	H	H	L
X	X	X	X	X	X	X	L	H	L	H	H	H
X	X	X	X	X	X	L	H	H	H	L	L	L
X	X	X	X	X	L	H	H	H	H	L	L	H
X	X	X	X	L	H	H	H	H	H	L	H	L
X	X	X	L	H	H	H	H	H	H	L	H	H
X	X	L	H	H	H	H	H	H	H	H	L	L
X	L	H	H	H	H	H	H	H	H	H	L	H
L	H	H	H	H	H	H	H	H	H	H	H	L

H = high logic level, L = low logic level,
X = irrelevant.

Device type 02

Inputs									Outputs				
E1	0	1	2	3	4	5	6	7	A2	A1	A0	GS	EO
H	X	X	X	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	L	L	H	L	H
L	X	X	X	X	X	L	H	H	L	H	L	L	H
L	X	X	X	X	L	H	H	H	L	H	H	L	H
L	X	X	X	L	H	H	H	H	H	L	L	L	H
L	X	X	L	H	H	H	H	H	H	L	H	L	H
L	X	L	H	H	H	H	H	H	H	H	L	L	H
L	L	H	H	H	H	H	H	H	H	H	H	L	H

Device type 03

Inputs									Outputs				
$\overline{E1}$	$\overline{0}$	$\overline{1}$	$\overline{2}$	$\overline{3}$	$\overline{4}$	$\overline{5}$	$\overline{6}$	$\overline{7}$	$\overline{GS}$	$\overline{A_0}$	$\overline{A_1}$	$\overline{A_2}$	$\overline{EO}$
H	X	X	X	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	X	X	X	L	L	L	L	L	H
L	X	X	X	X	X	X	L	H	L	H	L	L	H
L	X	X	X	X	X	L	H	H	L	L	H	L	H
L	X	X	X	X	L	H	H	H	L	H	H	L	H
L	X	X	X	L	H	H	H	H	L	L	L	H	H
L	X	X	L	H	H	H	H	H	L	H	L	H	H
L	X	L	H	H	H	H	H	H	L	L	H	H	H
L	H	H	H	H	H	H	H	H	L	H	H	H	H

FIGURE 2. Truth tables.

Device type 01

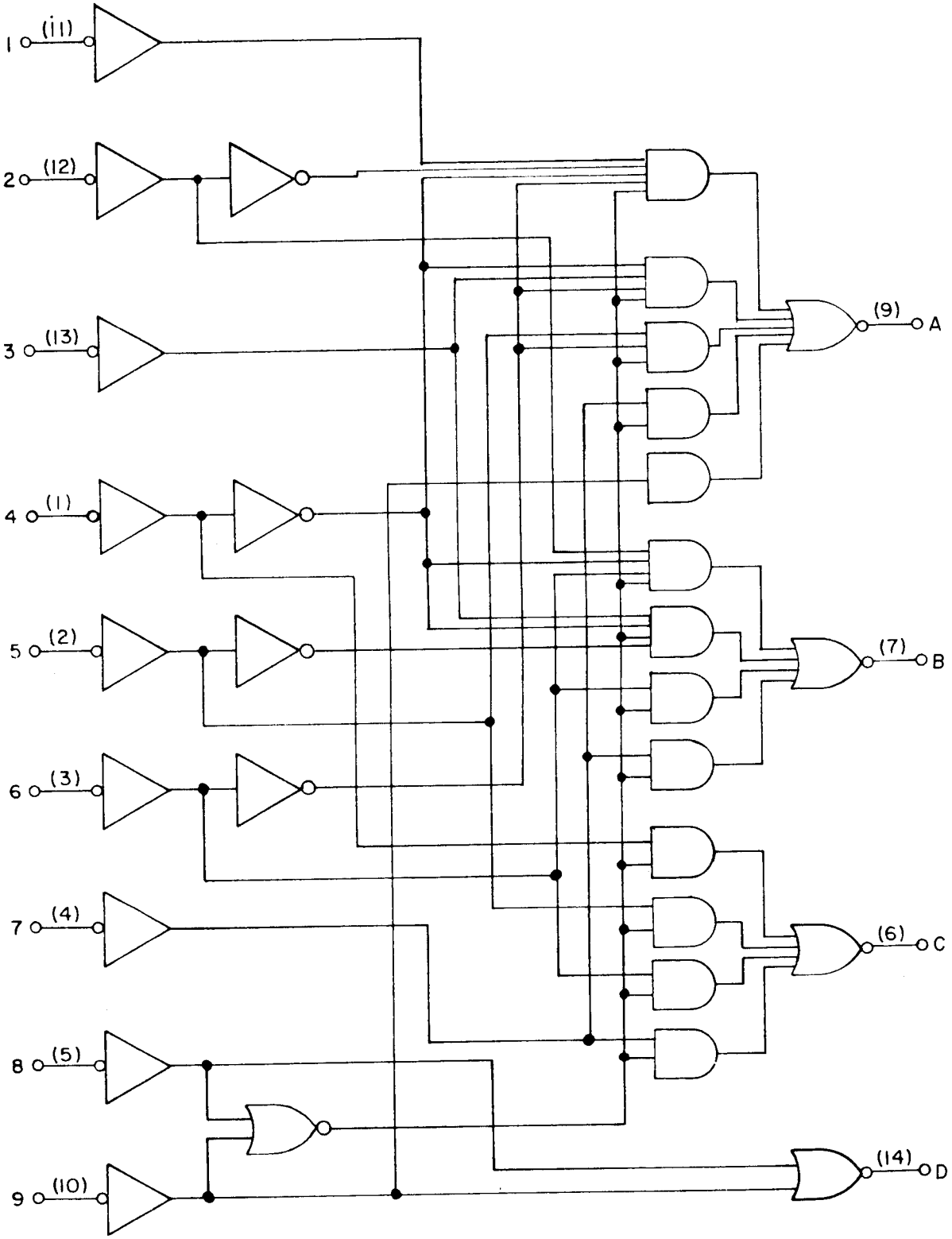


FIGURE 3. Logic diagrams.

Device type 02

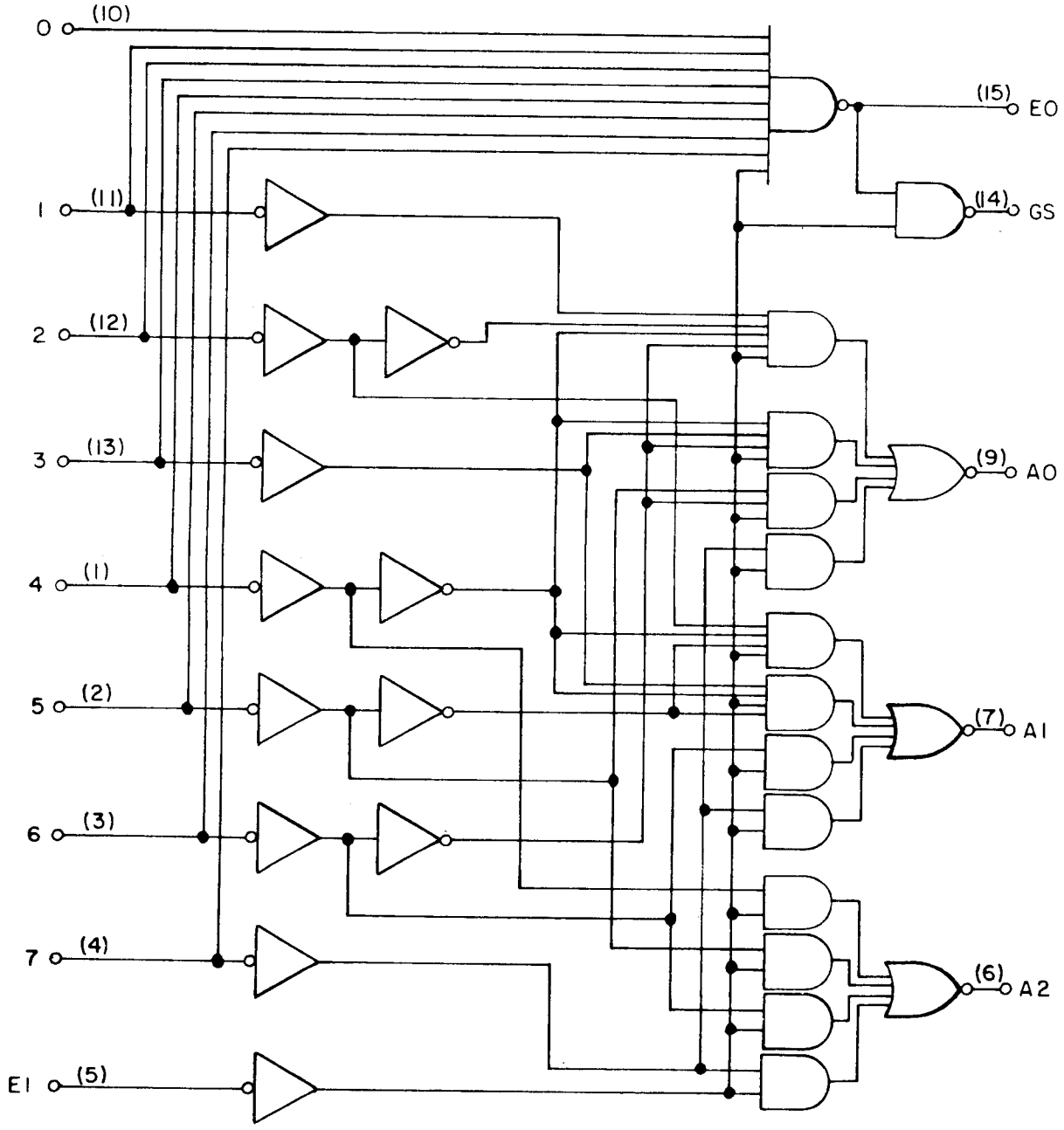


FIGURE 3. Logic diagrams - Continued.

Device type 03

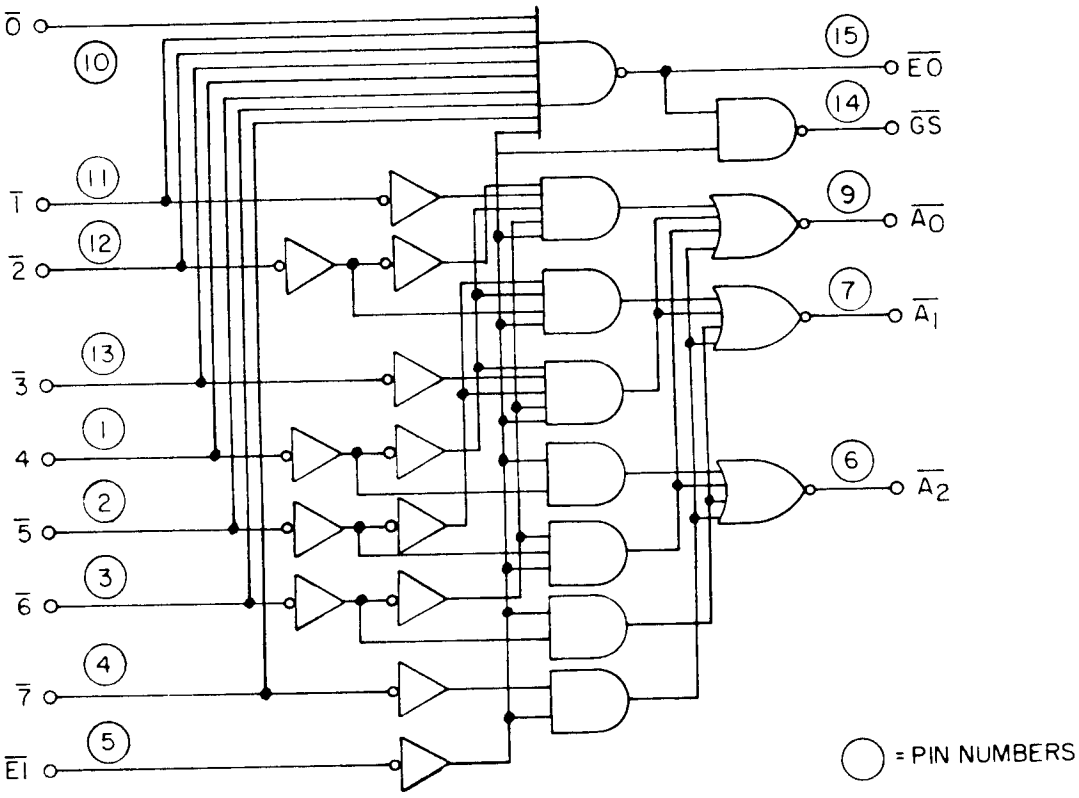
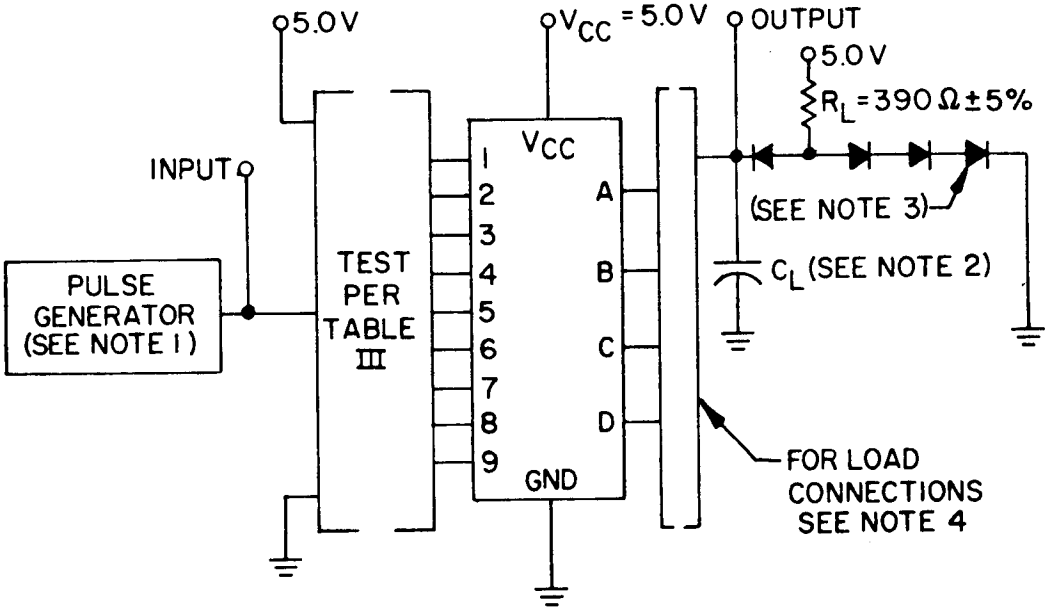
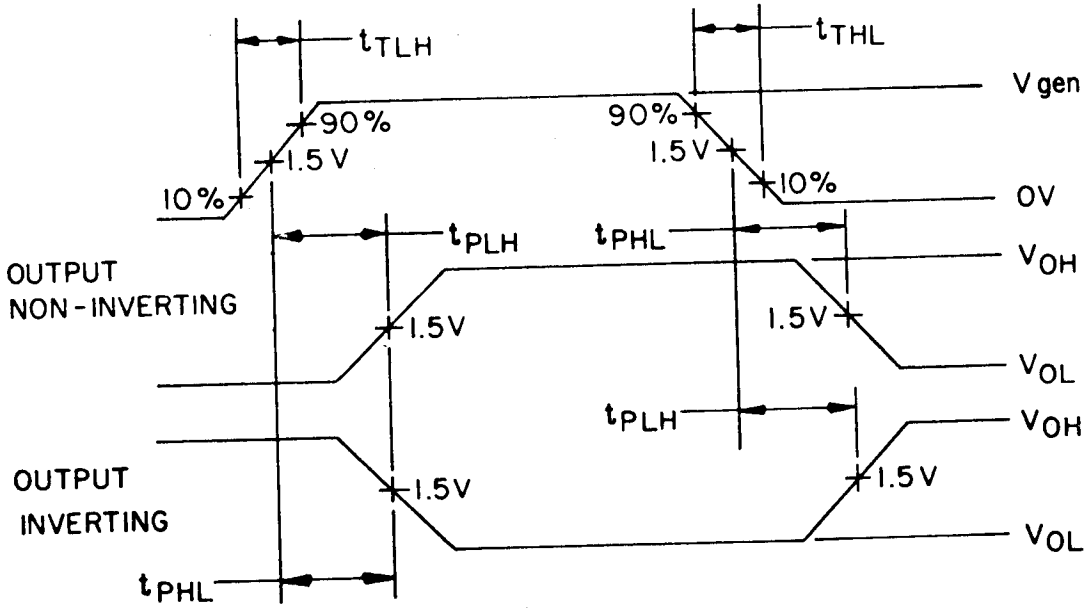


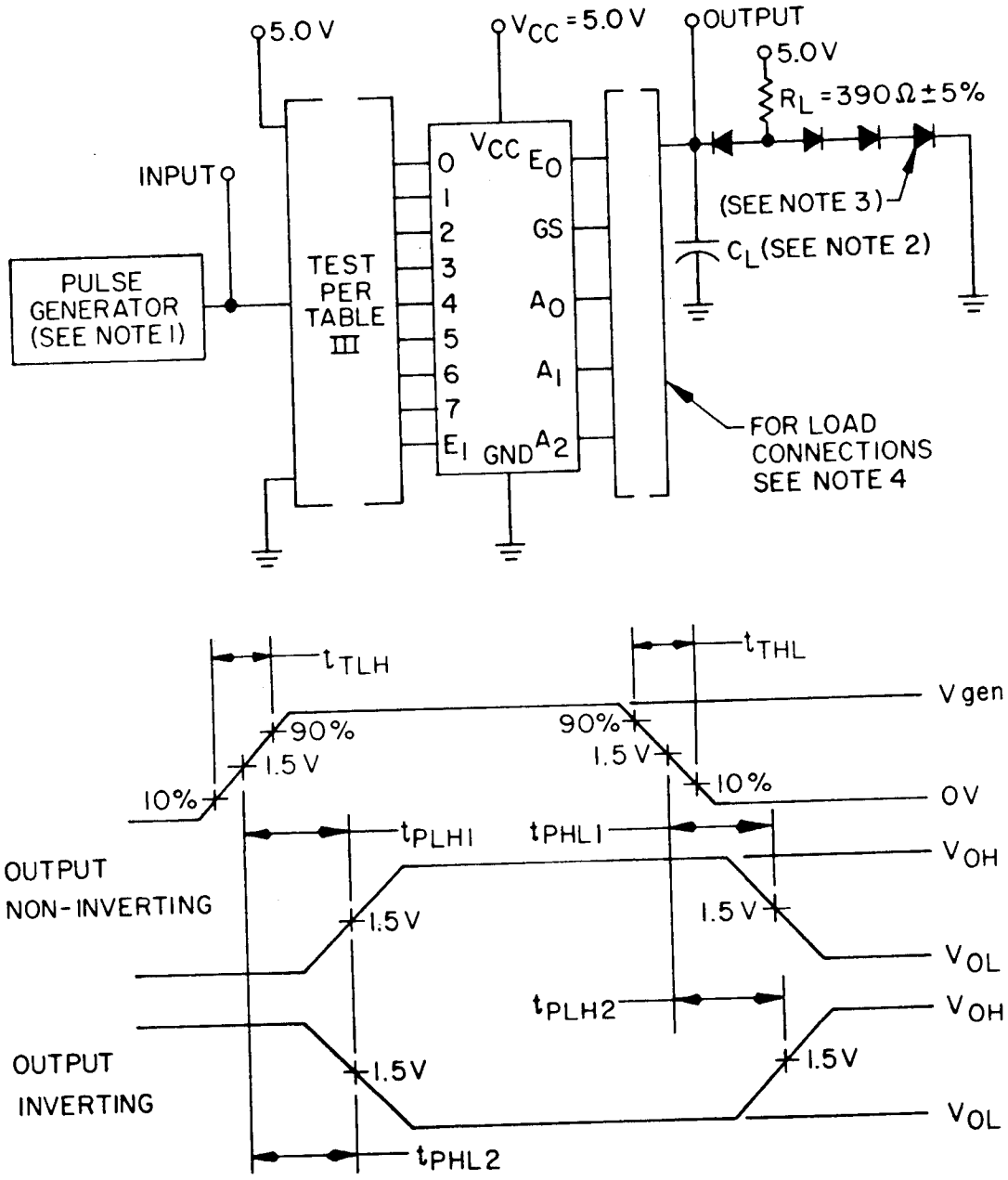
FIGURE 3. Logic diagrams - Continued.





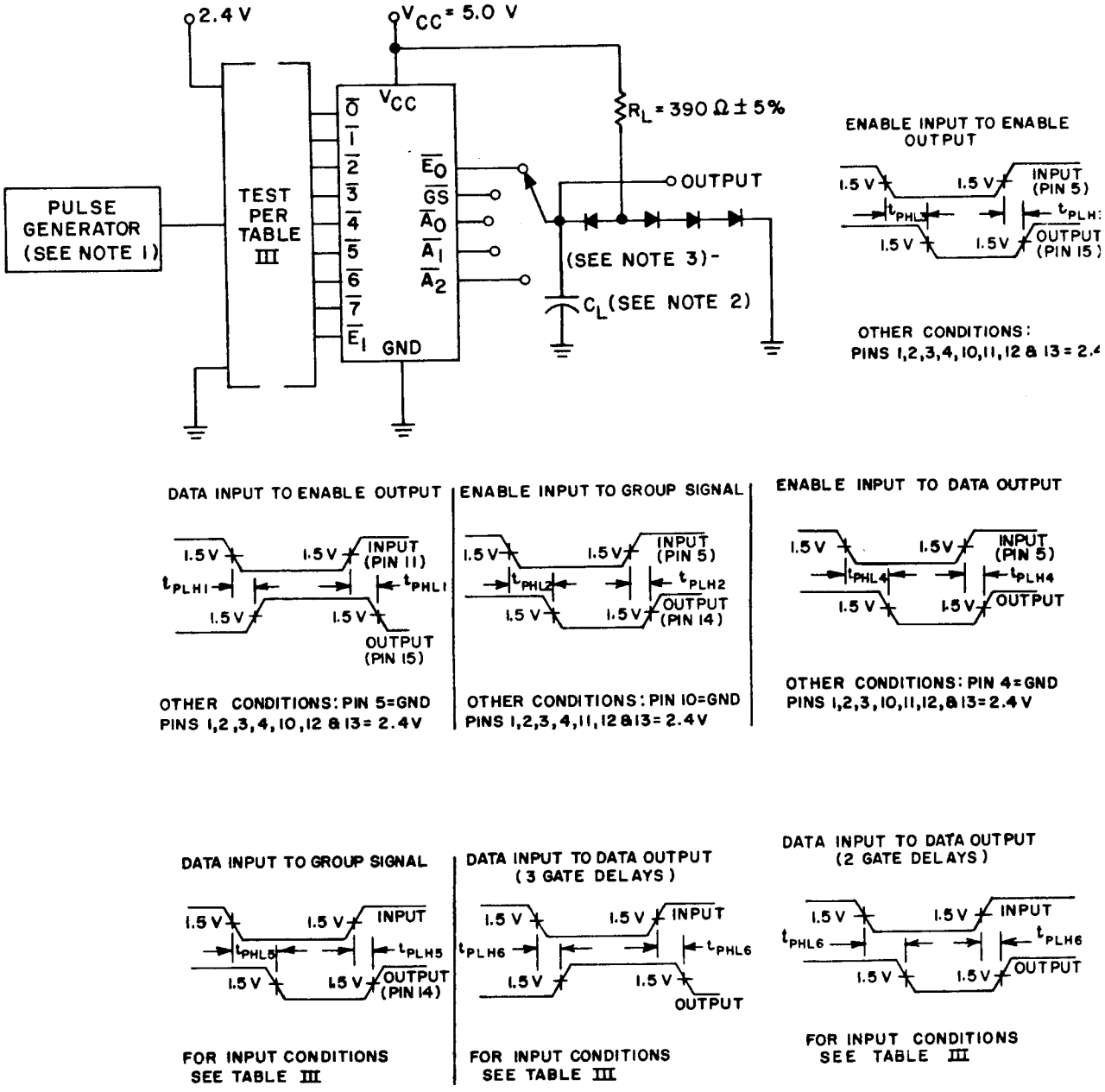
NOTES:
1. The pulse generator has the following characteristics: V_{gen} = 3.0 V, PRR ≤ 1 MHz, t_p = 500 ns, $t_{THL} = t_{TLH} \leq 7$ ns, and $Z_{out} \approx 50\Omega$.
2. C_L = 50 pF minimum and includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuit is applied separately to each output pin under test. All other outputs may be open or loaded.

FIGURE 4. Switching time test circuit and waveforms for device type 01.



NOTES:
1. The pulse generator has the following characteristics: V_{gen} = 3.0 V, PRR ≤ 1 MHz, t_p = 500 ns, $t_{THL} = t_{TLH} \leq 7$ ns and $Z_{out} \approx 50\Omega$.
2. C_L = 50 pF minimum and includes probe and jig capacitance.
3. All diodes are 1N3064 or equivalent.
4. Load circuit is applied separately to each output pin under test. All other outputs may be open or loaded.

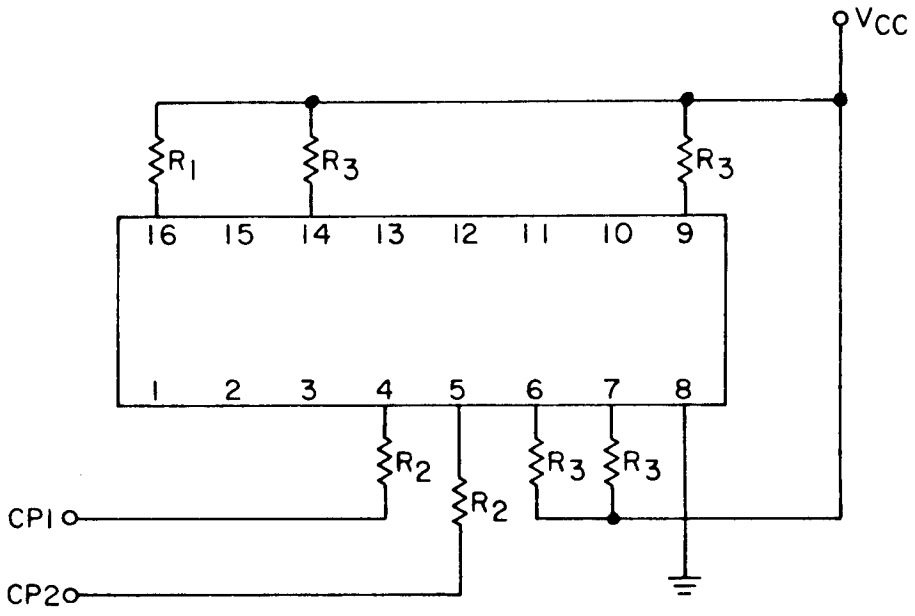
FIGURE 5. Switching time test circuit and waveforms for device type 02.



NOTES:
1. The pulse generator has the following characteristics: V_{gen} = 3 volts, rise and fall ≤ 10 ns, Z_{out} = 50Ω, PRR = ≤ 1 MHz, PW = 100 ns.
2. C_L = 50 pF minimum and includes probe and jig capacitance.
3. All diodes are 1N3064, or equivalent.

FIGURE 6. Switching test for device type 03.

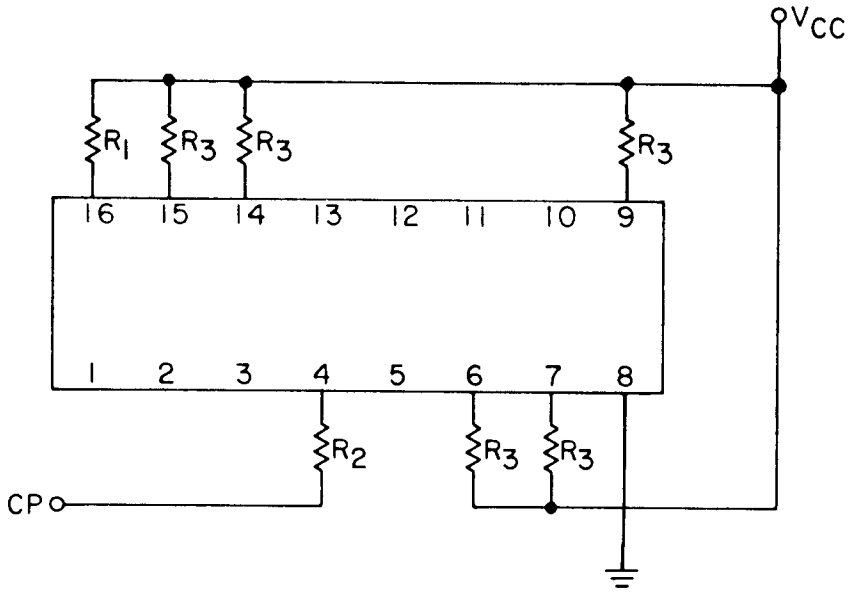
Device type 01



NOTES:
1. R_1 and V_{CC} shall be chosen so that there is 5.0 V minimum at the device terminal.
2. R_2 = 27Ω ±5%; R_3 = 270Ω ±5%.
3. CP1 = 100 kHz ±50% square wave; duty cycle = 50 ±15%; V_{IH} = 2.0 V to 5.5 V; V_{IL} = -0.5 V to 0.7 V.
4. CP2 = Same as CP1 except that frequency = 1/2 frequency of CP1.

FIGURE 7. Burn-in and life test circuit.

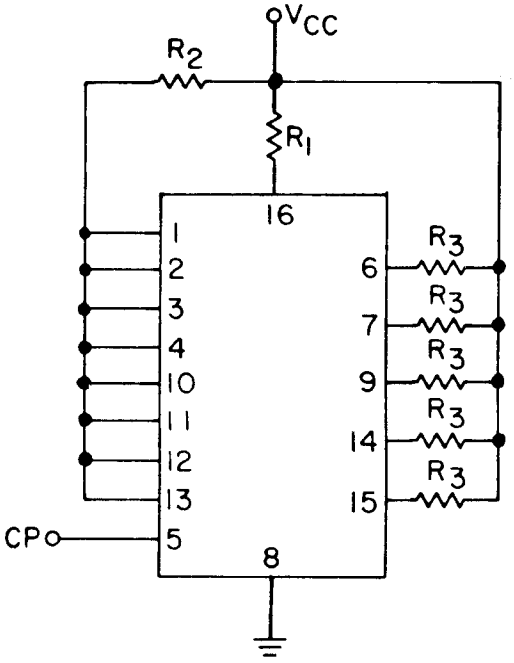
Device type 02



NOTES:
1. R_1 and V_{CC} shall be chosen so that there is 5.0 V minimum at the device terminal.
2. R_2 = 27Ω ±5%; R_3 = 270Ω ±5%.
3. CP = 100 kHz ±50% square wave; duty cycle = 50 ±15%; V_{IH} = 2.0 V to 5.5 V; V_{IL} = -0.5 V to 0.7 V.

FIGURE 7. Burn-in and life test circuit-continued.

Device type 03



NOTES:
1. R_1 and V_{CC} shall be chosen so that there is 5.0 V minimum at the device terminal.
2. R_2 = 4 kΩ ±10%; R_3 = 270Ω ±5%.
3. CP = 1 MHz ±50% square wave; duty cycle = 50 ±15%; V_{IH} = 2.0 V to 5.5 V; V_{IL} = -0.5 V to 0.7 V.

FIGURE 7. Burn-in and life test circuit-continued.

TABLE III. Group A inspection for device type 01.
Terminal conditions (pins not designated may be H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Test limits Max	Unit
				4	5	6	7	8	C	B	GND	A	9	1	2	3	D	NC	V_{CC}				
1 T_C = +25°C	V_{OH}	3006	1	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V		-.8 mA	GND	-.8 mA	2.0 V	2.0 V	2.0 V	2.0 V			4.5 V	A	2.4		V dc
		"	2	"	"	"	"	"	-.8 mA		"		"	"	"	"			"	B	"		"
		"	3	"	"	"	"	"			"		"	"	"	"	-.8 mA		"	C	"		"
		"	4	"	"	"	"	"			"		"	"	"	"			"	D	"		"
	V_{OL}	3007	5	"	"	"	"	"		16 mA	"	16 mA	"	0.8 V	"	"			"	A		0.4	"
		"	6	"	"	"	"	"			"		"	2.0 V	0.8 V	"			"	B		"	"
		"	7	0.8 V	"	"	"	"	16 mA		"		"	"	2.0 V	"			"	C		"	"
		"	8	2.0 V	"	"	"	0.8 V			"		"	"	2.0 V	"	16 mA		"	D		"	"
	V_{IC}		9								"			-12 mA					"	1		-1.5	"
			10								"			"	-12 mA				"	2		"	"
			11								"			"	"	-12 mA			"	3		"	"
			12	-12 mA							"			"	"	"			"	4		"	"
			13		-12 mA						"			"	"	"			"	5		"	"
			14			-12 mA					"			"	"	"			"	6		"	"
			15				-12 mA				"			"	"	"			"	7		"	"
			16					-12 mA			"			"	"	"			"	8		"	"
			17								"		-12 mA	"	"	"			"	9		"	"
	I_{IL}	3009	18								"			0.4 V					5.5 V	1	-0.7	-1.6	mA
		"	19								"			"	0.4 V				"	2	"	"	"
		"	20								"			"	"	0.4 V			"	3	"	"	"
		"	21	0.4 V							"			"	"	"			"	4	"	"	"
		"	22		0.4 V						"			"	"	"			"	5	"	"	"
		"	23			0.4 V					"			"	"	"			"	6	"	"	"
		"	24				0.4 V				"			"	"	"			"	7	"	"	"
		"	25					0.4 V			"			"	"	"			"	8	"	"	"
		"	26								"		0.4 V	"	"	"			"	9	"	"	"
	I_{IH1}	3010	27								"			2.4 V					"	1		40	µA
		"	28								"			"	2.4 V				"	2		"	"
		"	29								"			"	"	2.4 V			"	3		"	"
		"	30	2.4 V							"			"	"	"			"	4		"	"
		"	31		2.4 V						"			"	"	"			"	5		"	"
		"	32			2.4 V					"			"	"	"			"	6		"	"
		"	33				2.4 V				"			"	"	"			"	7		"	"
		"	34					2.4 V			"			"	"	"			"	8		"	"
		"	35								"		2.4 V	"	"	"			"	9		"	"
	I_{IH2}	"	36								"			5.5 V					"	1		100	"
		"	37								"			"	5.5 V				"	2		"	"
		"	38								"			"	"	5.5 V			"	3		"	"
		"	39	5.5 V							"			"	"	"			"	4		"	"
		"	40		5.5 V						"			"	"	"			"	5		"	"
		"	41			5.5 V					"			"	"	"			"	6		"	"
		"	42				5.5 V				"			"	"	"			"	7		"	"
		"	43					5.5 V			"			"	"	"			"	8		"	"
		"	44								"		5.5 V	"	"	"			"	9		"	"
	I_{OS}	3011	45	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			"	A	-35	-85	mA
		"	46	"	"	"	"	"			"		"	"	"	"			"	B	"	"	"
		"	47	"	"	"	"	"	GND	GND	"	GND	"	"	"	"	GND		"	C	"	"	"
		"	48	"	"	"	"	"			"		"	"	"	"			"	D	"	"	"
	I_{CCL}	3005	49				GND				"								"	V_{CC}	"	70	mA
	I_{CCH}	3005	50								"								"	V_{CC}	"	62	mA
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C, and V_{IC} tests are omitted.																						
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C, and V_{IC} tests are omitted.																						

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 H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Test limits Max	Unit
				4	5	6	7	8	C	B	GND	A	9	1	2	3	D	NC	V_{CC}				
7 1/, T_C = +25°C		3014	51	A	A	A	A	A	H	H	GND	H	A	A	A	A	H		5.0 V				
		"	52	"	"	"	A	A	H	H	"	L	B	"	"	"	L		"				
		"	53	"	"	"	A	B	H	H	"	H	A	"	"	"	L		"				
		"	54	"	"	"	B	A	L	L	"	L	"	"	"	"	H		"				
		"	55	"	"	B	A	"	"	L	"	H	"	"	"	"	"		"				
		"	56	"	B	A	"	"	"	H	"	L	"	"	"	"	"		"			2/	
		"	57	B	A	"	"	"	"	H	"	H	"	"	"	"	"		"				
		"	58	A	"	"	"	"	H	L	"	L	"	"	"	B	"		"				
		"	59	"	"	"	"	"	"	L	"	H	"	"	B	A	"		"				
		"	60	"	"	"	"	"	"	H	"	L	"	B	A	A	"		"				
		"	61	"	"	"	"	"	"	H	"	H	"	A	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)	62	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			GND	OUT	5.0 V	IN	5.0 V	5.0 V			5.0 V	1 to A	3	16	ns
		"	63	"	"	"	"	"		OUT	"		"	5.0 V	IN	5.0 V			"	2 to B	"	"	"
		"	64	"	"	"	"	"		OUT	"		"	"	5.0 V	IN			"	3 to B	"	"	"
		"	65	IN	"	"	"	"	OUT		"		"	"	"	5.0 V			"	4 to C	"	"	"
		"	66	5.0 V	IN	"	"	"			"	OUT	"	"	"	"			"	5 to A	"	"	"
		"	67	"	5.0 V	IN	"	"	OUT		"		"	"	"	"			"	6 to C	"	"	"
		"	68	"	"	5.0 V	IN	"	OUT		"		"	"	"	"			"	7 to C	"	"	"
		"	69	"	"	"	5.0 V	IN			"		"	"	"	"	OUT		"	8 to D	"	"	"
		"	70	"	"	"	5.0 V	5.0 V			"	OUT	IN	"	"	"			"	9 to A	"	"	"
	t_{PHL2}	"	71	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	GND	IN	5.0 V			"	2 to A	"	20	"
		"	72	IN	5.0 V	"	"	"		OUT	"		"	"	GND	"			"	4 to B	"	"	"
		"	73	5.0 V	IN	"	"	"		OUT	"		"	"	"	"			"	5 to B	"	"	"
		"	74	"	GND	IN	"	"			"	OUT	"	5.0 V	"	"			"	6 to A	"	"	"
		"	75	"	"	5.0 V	"	IN		OUT	"		"	"	"	"			"	8 to B	"	"	"
		"	76	"	"	5.0 V	GND	5.0 V	OUT		"		IN	"	"	"			"	9 to C	"	"	"
	t_{PLH1}	"	77	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	IN	5.0 V	5.0 V			"	1 to A	"	19	"
		"	78	"	"	"	"	"		OUT	"		"	"	IN	5.0 V			"	2 to B	"	"	"
		"	79	"	"	"	"	"		OUT	"		"	"	"	IN			"	3 to B	"	"	"
		"	80	IN	"	"	"	"	OUT		"		"	"	"	"			"	4 to C	"	"	"
		"	81	5.0 V	IN	"	"	"			"	OUT	"	"	"	"			"	5 to A	"	"	"
		"	82	"	5.0 V	IN	"	"	OUT		"		"	"	"	"			"	6 to C	"	"	"
		"	83	"	"	5.0 V	IN	"	OUT		"		"	"	"	"			"	7 to C	"	"	"
		"	84	"	"	"	5.0 V	IN			"		"	"	"	"	OUT		"	8 to D	"	"	"
		"	85	"	"	"	5.0 V	5.0 V			"	OUT	IN	"	"	"			"	9 to A	"	"	"
	t_{PLH2}	"	86	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	GND	IN	5.0 V			"	2 to A	"	24	"
		"	87	IN	5.0 V	"	"	"		OUT	"		"	"	GND	"			"	4 to B	"	"	"
		"	88	5.0 V	IN	"	"	"		OUT	"		"	"	"	"			"	5 to B	"	"	"
		"	89	"	GND	IN	"	"			"	OUT	"	5.0 V	"	"			"	6 to A	"	"	"
		"	90	"	"	5.0 V	"	IN		OUT	"		"	"	"	"			"	8 to B	"	"	"
		"	91	"	"	5.0 V	GND	5.0 V	OUT		"		IN	"	"	"			"	9 to C	"	"	"
10 T_C =+125°C	t_{PHL1}	3003 (Fig. 4)	92	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	IN	5.0 V	5.0 V			"	1 to A	"	21	"
		"	93	"	"	"	"	"		OUT	"		"	5.0 V	IN	5.0 V			"	2 to B	"	"	"
		"	94	"	"	"	"	"		OUT	"		"	"	"	IN			"	3 to B	"	"	"
		"	95	IN	"	"	"	"	OUT		"		"	"	"	5.0 V			"	4 to C	"	"	"
		"	96	5.0 V	IN	"	"	"			"	OUT	"	"	"	"			"	5 to A	"	"	"
		"	97	"	5.0 V	IN	"	"	OUT		"		"	"	"	"			"	6 to C	"	"	"
		"	98	"	"	5.0 V	IN	"	OUT		"		"	"	"	"			"	7 to C	"	"	"
		"	99	"	"	"	5.0 V	IN			"		"	"	"	"	OUT		"	8 to D	"	"	"
		"	100	"	"	"	5.0 V	5.0 V			"	OUT	IN	"	"	"			"	9 to A	"	"	"
	t_{PHL2}	"	101	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	GND	IN	5.0 V			"	2 to A	"	26	"
		"	102	IN	5.0 V	"	"	"		OUT	"		"	"	GND	"			"	4 to B	"	"	"
		"	103	5.0 V	IN	"	"	"		OUT	"		"	"	"	"			"	5 to B	"	"	"
		"	104	"	GND	IN	"	"			"	OUT	"	5.0 V	"	"			"	6 to A	"	"	"
		"	105	"	"	5.0 V	"	IN		OUT	"		"	"	"	"			"	8 to B	"	"	"
		"	106	"	"	5.0 V	GND	5.0 V	OUT		"		IN	"	"	"			"	9 to C	"	"	"

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 H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Test limits Max	Unit
				4	5	6	7	8	C	B	GND	A	9	1	2	3	D	NC	V_{CC}				
10 T_C = +125°C	t_{PLH1}	3003 (Fig. 4)	107	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			GND	OUT	5.0 V	IN	5.0 V	5.0 V			5.0 V	1 to A	3	25	ns
		"	108	"	"	"	"	"		OUT	"		"	5.0 V	IN	5.0 V			"	2 to B	"	"	"
		"	109	"	"	"	"	"		OUT	"		"	"	5.0 V	IN			"	3 to B	"	"	"
		"	110	IN	"	"	"	"	OUT		"		"	"	"	5.0 V			"	4 to C	"	"	"
		"	111	5.0 V	IN	"	"	"			"	OUT	"	"	"	"			"	5 to A	"	"	"
		"	112	"	5.0 V	IN	"	"	OUT		"		"	"	"	"			"	6 to C	"	"	"
		"	113	"	"	5.0 V	IN	"	OUT		"		"	"	"	"			"	7 to C	"	"	"
		"	114	"	"	"	5.0 V	IN			"		"	"	"	"	OUT		"	8 to D	"	"	"
		"	115	"	"	"	5.0 V	5.0 V			"	OUT	IN	"	"	"			"	9 to A	"	"	"
	t_{PLH2}	"	116	5.0 V	5.0 V	5.0 V	5.0 V	5.0 V			"	OUT	5.0 V	GND	IN	5.0 V			"	2 to A	"	31	"
		"	117	IN	5.0 V	"	"	"		OUT	"		"	"	GND	"			"	4 to B	"	"	"
		"	118	5.0 V	IN	"	"	"		OUT	"		"	"	"	"			"	5 to B	"	"	"
		"	119	"	GND	IN	"	"			"	OUT	"	5.0 V	"	"			"	6 to A	"	"	"
		"	120	"	"	5.0 V	"	IN		OUT	"		"	"	"	"			"	8 to B	"	"	"
		"	121	"	"	5.0 V	GND	5.0 V	OUT		"		IN	"	"	"			"	9 to C	"	"	"
11	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																						

1/ Input voltages shown are: A = 2.4 V minimum and B = 0.8 V maximum.

2/ Output voltages shall be either: H ≥ 1.5 V, L ≤ 1.5 V.

TABLE III. Group A inspection for device type 02.
Terminal conditions (pins not designated may be H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C = +25°C	V_{OH}	3006	1					2.0 V			GND	-.8 mA							4.5 V	A_0	2.4		V dc
	"	"	2					"		-.8 mA	"								"	A_1	"		"
	"	"	3					"	-.8 mA		"								"	A_2	"		"
	"	"	4					"			"						-.8 mA		"	$\overline{GS}$	"		"
	"	"	5					"			"							-.8 mA	"	E_0	"		"
	V_{OL}	3007	6				0.8 V	0.8 V			"	16 mA							"	A_0		0.4	"
	"	"	7				"	"		16 mA	"								"	A_1		"	"
	"	"	8				"	"	16 mA		"								"	A_2		"	"
	"	"	9				"	"			"						16 mA		"	$\overline{GS}$		"	"
	"	"	10	2.0 V	2.0 V	2.0 V	2.0 V	"			"							16 mA	"	E_0		"	"
	V_{IC}		11								"		-12 mA						"	0		-1.5	"
			12								"			-12 mA					"	1		"	"
			13								"				-12 mA				"	2		"	"
			14								"					-12 mA			"	3		"	"
			15	-12 mA							"								"	4		"	"
			16		-12 mA						"								"	5		"	"
			17			-12 mA					"								"	6		"	"
			18				-12 mA				"								"	7		"	"
			19					-12 mA			"								"	E_1		"	"
	I_{IL1}	3009	20					GND			"			0.4 V					5.5 V	1	1/	1/	mA
	"	"	21								"				0.4 V				"	2	"	"	"
	"	"	22								"					0.4 V			"	3	"	"	"
	"	"	23	0.4 V							"								"	4	"	"	"
	"	"	24		0.4 V						"								"	5	"	"	"
	"	"	25			0.4 V					"								"	6	"	"	"
	"	"	26				0.4 V				"								"	7	"	"	"
	"	"	27					0.4 V			"								"	E_1	"	"	"
	I_{IL2}	"	28					GND			"		0.4 V						"	0	-.7	-1.6	"
	I_{IH1}	3010	29								"			2.4 V					"	1		80	µA
	"	"	30								"				2.4 V				"	2		"	"
	"	"	31								"					2.4 V			"	3		"	"
	"	"	32	2.4 V							"								"	4		"	"
	"	"	33		2.4 V						"								"	5		"	"
	"	"	34			2.4 V					"								"	6		"	"
	"	"	35				2.4 V				"								"	7		"	"
	"	"	36					2.4 V			"								"	E_1		"	"
	I_{IH2}	"	37								"			5.5 V					"	1		200	"
	"	"	38								"				5.5 V				"	2		"	"
	"	"	39								"					5.5 V			"	3		"	"
	"	"	40	5.5 V							"								"	4		"	"
	"	"	41		5.5 V						"								"	5		"	"
	"	"	42			5.5 V					"								"	6		"	"
	"	"	43				5.5 V				"								"	7		"	"
	"	"	44					5.5 V			"								"	E_1		"	"
	I_{IH3}	"	45	GND	GND	GND	GND	GND			"		2.4 V	GND	GND	GND			"	0		40	"
	I_{IH4}	"	46	GND	GND	GND	GND	GND			"		5.5 V	GND	GND	GND			"	0		100	"
	I_{OS}	3011	47								"	GND							"	A_0	-35	-85	mA
	"	"	48							GND	"								"	A_1	"	"	"
	"	"	49						GND		"								"	A_2	"	"	"
	"	"	50								"						GND		"	$\overline{GS}$	"	"	"
	"	"	51								"							GND	"	E_0	"	"	"
	I_{CCL}	3005	52				GND	GND			"								"	V_{CC}		60	"
	I_{CCH}	3005	53								"								"	V_{CC}		55	"

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 H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Max	Unit
				4	5	6	7	E_1	A_2	A_1	GND	A_0	0	1	2	3	GS	E_0	V_{CC}				
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C, and V_{IC} tests are omitted.																						
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C, and V_{IC} tests are omitted.																						
7 2/ T_C = +25°C		3014	54	A	A	A	A	A	H	H	GND	H	A	A	A	A	H	H	5.0 V				
		"	55	"	"	"	A	B	H	H	"	H	"	"	"	"	H	L	"				
		"	56	"	"	"	B	"	L	L	"	L	"	"	"	"	L	H	"				
		"	57	"	"	B	A	"	"	L	"	H	"	"	"	"	"	"	"				
		"	58	"	B	A	"	"	"	H	"	L	"	"	"	"	"	"	"				
		"	59	B	A	"	"	"	"	H	"	H	"	"	"	"	"	"	"			3/	
		"	60	A	"	"	"	"	H	L	"	L	"	"	"	B	"	"	"				
		"	61	"	"	"	"	"	"	L	"	H	"	"	B	A	"	"	"				
		"	52	"	"	"	"	"	"	H	"	L	"	B	A	"	"	"	"				
		"	63	"	"	"	"	"	"	"	"	H	B	A	"	"	"	"	"				
		"	64	"	"	"	"	A	"	"	"	H	B	A	"	"	H	"	"				
8	Repeat subgroup 7 at T_C = +125°C and T_C = -55°C.																						
9 T_C = +25°C	t_{PHL1}	3003	65	5.0 V	5.0 V	5.0 V	5.0 V	GND			GND		IN	5.0 V	5.0 V	5.0 V	OUT		5.0 V	0 to GS	3	23	ns
	t_{PHL2}	(Fig. 5)	66	"	"	"	"	"			"	OUT		IN	5.0 V	"			"	1 to A_0	19	"	"
		"	67	"	"	"	"	"		OUT	"				IN	"			"	2 to A_1	"	"	"
		"	68	"	"	"	"	"		OUT	"					IN			"	3 to A_1	"	"	"
		"	69	IN	"	"	"	"	OUT		"								"	4 to A_2	"	"	"
		"	70		IN	"	"	"			"	OUT							"	5 to A_0	"	"	"
		"	71			IN	"	"	OUT		"								"	6 to A_2	"	"	"
		"	72				IN	"	OUT		"								"	7 to A_2	"	"	"
	t_{PHL3}	"	73					IN			"							OUT	"	E_1 to E_0	"	"	"
	t_{PHL4}	"	74	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V		OUT	"	0 to E_0	"	"	"
	t_{PHL5}	"	75	5.0 V	"	"	"	"			"	OUT		GND	IN	"			"	2 to A_0	20	"	"
		"	76	IN	"	"	"	"		OUT	"			"	GND	"			"	4 to A_1	"	"	"
		"	77	5.0 V	IN	"	"	"		OUT	"			"	"	GND			"	5 to A_1	"	"	"
		"	78	GND	GND	IN	"	"			"	OUT		"	"	GND			"	6 to A_0	"	"	"
	t_{PHL6}	"	79					IN			"						OUT		"	E_1 to GS	"	"	"
	t_{PHL7}	"	80					"			"	OUT							"	E_1 to A_0	"	"	"
		"	81					"		OUT	"								"	E_1 to A_1	"	"	"
		"	82					"	OUT		"								"	E_1 to A_2	"	"	"
	t_{PLH1}	"	83	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V	OUT		"	0 to GS	"	30	"
	t_{PLH2}	"	84	"	"	"	"	"			"	OUT		IN	5.0 V	"			"	1 to A_0	25	"	"
		"	85	"	"	"	"	"		OUT	"				IN	"			"	2 to A_1	"	"	"
		"	86	"	"	"	"	"		OUT	"					IN			"	3 to A_1	"	"	"
		"	87	IN	"	"	"	"	OUT		"								"	4 to A_2	"	"	"
		"	88		IN	"	"	"			"	OUT							"	5 to A_0	"	"	"
		"	89			IN	"	"	OUT		"								"	6 to A_2	"	"	"
		"	90				IN	"	OUT		"								"	7 to A_2	"	"	"
	t_{PLH3}	"	91					IN			"							OUT	"	E_1 to E_0	"	"	"
	t_{PLH4}	"	92	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V		OUT	"	0 to E_0	"	"	"
	t_{PLH5}	"	93	5.0 V	"	"	"	"			"	OUT		GND	IN	"			"	2 to A_0	26	"	"
		"	94	IN	"	"	"	"		OUT	"			"	GND	"			"	4 to A_1	"	"	"
		"	95	5.0 V	IN	"	"	"		OUT	"			"	"	GND			"	5 to A_1	"	"	"
		"	96	GND	GND	IN	"	"			"	OUT		"	"	GND			"	6 to A_0	"	"	"
	t_{PLH6}	"	97					IN			"						OUT		"	E_1 to GS	"	17	"
	t_{PLH7}	"	98					"			"	OUT							"	E_1 to A_0	"	20	"
		"	99					"		OUT	"								"	E_1 to A_1	"	"	"
		"	100					"	OUT		"								"	E_1 to A_2	"	"	"
10 T_C =+125°C	t_{PHL1}	3003	101	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V	OUT		"	0 to GS	"	30	"
	t_{PHL2}	(Fig 5)	102	"	"	"	"	"			"	OUT		IN	5.0 V	"			"	1 to A_0	25	"	"
		"	103	"	"	"	"	"		OUT	"				IN	"			"	2 to A_1	"	"	"
		"	104	"	"	"	"	"		OUT	"					IN			"	3 to A_1	"	"	"
		"	105	IN	"	"	"	"	OUT		"								"	4 to A_2	"	"	"
		"	106		IN	"	"	"			"	OUT							"	5 to A_0	"	"	"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 - Continued.
Terminal conditions (pins not designated may be H ≥ 2.0 V; 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	Measured terminal	Test limits Min	Test limits Max	Unit
				4	5	6	7	E_1	A_2	A_1	GND	A_0	0	1	2	3	GS	E_0	V_{CC}				
10 T_C =+125°C	t_{PHL2}	3003 (Fig. 5)	107			IN	5.0 V	GND	OUT		GND								5.0 V	6 to A_2	3	25	ns
		"	108				IN	GND	OUT		"								"	7 to A_2	"	"	"
	t_{PHL3}	"	109					IN			"							OUT	"	E_1 to E_0	"	"	"
	t_{PHL4}	"	110	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V		OUT	"	0 to E_0	"	"	"
	t_{PHL5}	"	111	5.0 V	"	"	"	"			"	OUT		GND	IN	"			"	2 to A_0	"	26	"
		"	112	IN	"	"	"	"		OUT	"			"	GND	"			"	4 to A_1	"	"	"
		"	113	5.0 V	IN	"	"	"		OUT	"			"	"	GND			"	5 to A_1	"	"	"
		"	114	GND	GND	IN	"	"			"	OUT		"	"	GND			"	6 to A_0	"	"	"
	t_{PHL6}	"	115					IN			"						OUT		"	E_1 to GS	"	28	"
	t_{PHL7}	"	116					"			"	OUT							"	E_1 to A_0	"	"	"
		"	117					"		OUT	"								"	E_1 to A_1	"	"	"
		"	118					"	OUT		"								"	E_1 to A_2	"	"	"
	t_{PLH1}	"	119	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V	OUT		"	0 to GS	"	34	"
	t_{PLH2}	"	120	"	"	"	"	"			"	OUT		IN	5.0 V	"			"	1 to A_0	"	26	"
		"	121	"	"	"	"	"		OUT	"				IN	"			"	2 to A_1	"	"	"
		"	122	"	"	"	"	"		OUT	"					IN			"	3 to A_1	"	"	"
		"	123	IN	"	"	"	"	OUT		"								"	4 to A_2	"	"	"
		"	124		IN	"	"	"			"	OUT							"	5 to A_0	"	"	"
		"	125			IN	"	"	OUT		"								"	6 to A_2	"	"	"
		"	126				IN	"	OUT		"								"	7 to A_2	"	"	"
	t_{PLH3}	"	127					IN			"							OUT	"	E_1 to E_0	"	24	"
	t_{PLH4}	"	128	5.0 V	5.0 V	5.0 V	5.0 V	GND			"		IN	5.0 V	5.0 V	5.0 V		OUT	"	0 to E_0	"	20	"
	t_{PLH5}	"	129	5.0 V	"	"	"	"			"	OUT		GND	IN	"			"	2 to A_0	"	26	"
		"	130	IN	"	"	"	"		OUT	"			"	GND	"			"	4 to A_1	"	"	"
		"	131	5.0 V	IN	"	"	"		OUT	"			"	"	GND			"	5 to A_1	"	"	"
		"	132	GND	GND	IN	"	"			"	OUT		"	"	GND			"	6 to A_0	"	"	"
	t_{PLH6}	"	133					IN			"						OUT		"	E_1 to GS	"	24	"
	t_{PLH7}	"	134					"			"	OUT							"	E_1 to A_0	"	28	"
		"	135					"		OUT	"								"	E_1 to A_1	"	"	"
		"	136					"	OUT		"								"	E_1 to A_2	"	"	"
11	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																						

1/ I_{IL1} limits for National are -1.2/-2.8 mA.

2/ Input voltages shown are: A = 2.4 V minimum and B = 0.8 V maximum.

3/ Output voltages shall be either: H ≥ 1.5 V, L ≤ 1.5 V.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F Test no.	1 $\overline{4}$	2 $\overline{5}$	3 $\overline{6}$	4 $\overline{7}$	5 $\overline{E}_1$	6 $\overline{A}_2$	7 $\overline{A}_1$	8 GND	9 $\overline{A}_0$	10 $\overline{0}$	11 $\overline{1}$	12 $\overline{2}$	13 $\overline{3}$	14 $\overline{GS}$	15 $\overline{E}_0$	16 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
1 T_C = +25°C	V_{OH}	3006	1	4.5 V	4.5 V	4.5 V	4.5 V	2.0 V			GND		4.5 V	4.5 V	4.5 V	4.5 V		-.8 mA	4.5 V	$\overline{E}_0$	2.4		V dc
		"	2	"	"	"	4.5 V	"			"		GND	"	4.5 V	4.5 V	-.8 mA		"	$\overline{GS}$	"		"
		"	3	"	"	"	GND	"			"	-.8 mA	4.5 V	"	GND	GND			"	$\overline{A}_0$	"		"
		"	4	"	"	GND	"	"		-.8 mA	"		4.5 V	"	4.5 V	GND			"	$\overline{A}_1$	"		"
		"	5	GND	GND	GND	"	"	-.8 mA		"		2.0 V	2.0 V	2.0 V	2.0 V			"	$\overline{A}_2$	"		"
	V_{OL}	3007	6	2.0 V	2.0 V	2.0 V	2.0 V	0.8 V			"		2.0 V	2.0 V	2.0 V	2.0 V		16 mA	"	$\overline{E}_0$		0.4	"
		"	7	"	"	"	"	"			"		0.8 V	2.0 V	"	"	16 mA		"	$\overline{GS}$		"	"
		"	8	"	"	"	"	"			"	16 mA	2.0 V	0.8 V	"	"			"	$\overline{A}_0$		"	"
		"	9	"	"	"	"	"			"	"	"	2.0 V	"	0.8 V			"	$\overline{A}_0$		"	"
		"	10	"	"	"	0.8 V	"			"	"	"	"	"	2.0 V			"	$\overline{A}_0$		"	"
		"	11	"	"	"	2.0 V	"		16 mA	"		"	"	0.8 V	"			"	$\overline{A}_1$		"	"
		"	12	"	"	0.8 V	"	"		16 mA	"		"	"	2.0 V	"			"	$\overline{A}_1$		"	"
		"	13	0.8 V	"	2.0 V	"	"	16 mA		"		"	"	"	"			"	$\overline{A}_2$		"	"
		"	14	2.0 V	0.8 V	2.0 V	"	"	16 mA		"		"	"	"	"			"	$\overline{A}_2$		"	"
	I_{IH1}	3010	15	2.4 V	GND	GND	GND	4.5 V			"		GND	GND	GND	GND			5.5 V	$\overline{4}$		80	uA
		"	16	GND	2.4 V	GND	"	"			"		"	"	"	"			"	$\overline{5}$		"	"
		"	17	"	GND	2.4 V	"	"			"		"	"	"	"			"	$\overline{6}$		"	"
		"	18	"	"	GND	2.4 V	"			"		"	"	"	"			"	$\overline{7}$		"	"
		"	19	"	"	"	GND	2.4 V			"		"	"	"	"			"	$\overline{E}_1$		"	"
		"	20	"	"	"	"	4.5 V			"		"	2.4 V	"	"			"	0		"	"
		"	21	"	"	"	"	"			"		"	GND	2.4 V	"			"	1		"	"
		"	22	"	"	"	"	"			"		"	"	GND	2.4 V			"	2		"	"
	I_{IH3}	"	23	"	"	"	"	"			"		2.4 V	"	"	GND			"	3		40	"
	I_{IH2}	"	24	5.5 V	"	"	"	"			"		GND	"	"	"			"	4		200	"
		"	25	GND	5.5 V	"	"	"			"		"	"	"	"			"	5		"	"
		"	26	"	GND	5.5 V	"	"			"		"	"	"	"			"	6		"	"
		"	27	"	"	GND	5.5 V	"			"		"	"	"	"			"	7		"	"
		"	28	"	"	"	GND	5.5 V			"		"	"	"	"			"	$\overline{E}_1$		"	"
		"	29	"	"	"	"	4.5 V			"		"	5.5 V	"	"			"	1		"	"
		"	30	"	"	"	"	"			"		"	GND	5.5 V	"			"	2		"	"
		"	31	"	"	"	"	"			"		"	"	GND	5.5 V			"	3		"	"
	I_{IH4}	"	32	"	"	"	"	"			"		5.5 V	"	"	GND			"	0		100	"
	I_{IL1}	3009	33	4.5 V	4.5 V	4.5 V	4.5 V	GND			"		0.4 V	4.5 V	4.5 V	4.5 V			"	$\overline{0}$	-.7	-1.6	mA
		"	34					0.4 V			"								"	$\overline{E}_1$	-.7	-1.6	"
	I_{IL2}	"	35	0.4 V	4.5 V	4.5 V	4.5 V	GND			"		4.5 V	4.5 V	4.5 V	4.5 V			"	4	-1.4	-3.2	"
		"	36	4.5 V	0.4 V	"	"	"			"		"	"	"	"			"	5	"	"	"
		"	37	"	4.5 V	0.4 V	"	"			"		"	"	"	"			"	6	"	"	"
		"	38	"	"	4.5 V	0.4 V	"			"		"	"	"	"			"	7	"	"	"
		"	39	"	"	"	4.5 V	"			"		"	0.4 V	"	"			"	$\overline{E}_1$	"	"	"
		"	40	"	"	"	"	"			"		"	4.5 V	0.4 V	"			"	1	"	"	"
		"	41	"	"	"	"	"			"		"	"	4.5 V	0.4 V			"	2	"	"	"
	I_{OS}	3011	42					4.5 V			"							GND	"	$\overline{E}_0$	-20	-80	"
		"	43					"			"						GND		"	$\overline{GS}$	"	"	"
		"	44					"			"	GND							"	$\overline{A}_0$	"	"	"
		"	45					"		GND	"								"	$\overline{A}_1$	"	"	"
		"	46					"	GND		"								"	$\overline{A}_2$	"	"	"
	V_{IC}		47	-12 mA							"								4.5 V	4		-1.5	V dc
			48		-12 mA						"								"	5		"	"
			49			-12 mA					"								"	6		"	"
			50				-12 mA				"								"	7		"	"
			51					-12 mA			"								"	$\overline{E}_1$		"	"
			52								"		-12 mA						"	0		"	"
			53								"			-12 mA					"	1		"	"
			54								"				-12 mA				"	2		"	"
			55								"					-12 mA			"	3		"	"
	I_{CCC}	3005	56			GND	GND				"								5.5 V	V_{CC}		70	mA

See footnotes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F Test no.	1 $\overline{4}$	2 $\overline{5}$	3 $\overline{6}$	4 $\overline{7}$	5 E_1	6 A_2	7 A_1	8 GND	9 A_0	10 $\overline{0}$	11 $\overline{1}$	12 $\overline{2}$	13 $\overline{3}$	14 $\overline{GS}$	15 E_0	16 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
2	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = +125°C, and V_{IC} tests are omitted.																						
3	Same tests, terminal conditions, and limits as for subgroup 1, except T_C = -55°C, and V_{IC} tests are omitted.																						
7 1/ T_C = +25°C		3014	57	B	B	B	B	A	H	H	GND	H	B	B	B	B	H	H	5.0 V				
		"	58	A	A	A	A	B	H	H	"	H	A	A	A	A	H	L	"				
		"	59	"	"	B	B	"	L	L	"	L	"	"	"	"	L	H	"				
		"	60	"	"	B	A	"	L	L	"	H	"	"	"	"	"	"	"				
		"	61	"	B	A	"	"	"	H	"	L	"	"	"	"	"	"	"				
		"	62	B	A	"	"	"	"	H	"	H	"	"	"	"	"	"	"			2/	
		"	63	A	"	"	"	"	H	L	"	L	"	"	"	B	"	"	"				
		"	64	"	"	"	"	"	"	L	"	H	"	"	B	A	"	"	"				
		"	65	"	"	"	"	"	"	H	"	L	"	B	A	A	"	"	"				
		"	66	"	"	"	"	"	"	H	"	H	B	A	A	A	"	"	"				
8	Repeat subgroup 7 at T_C = +125°C and T_C = -55°C.																						
9 T_C = +25°C	t_{PLH1}	3003	67	2.4 V	2.4 V	2.4 V	2.4 V	GND			GND		IN	2.4 V	2.4 V	2.4 V		OUT	5.0 V	$\overline{0}$ - $\overline{E_0}$	6	15	ns
	t_{PHL1}	(Fig. 6)	68	"	"	"	"	GND			"		IN	"	"	"		OUT	"	$\overline{0}$ - E_0	9	33	"
	t_{PLH2}	"	69	"	"	"	"	IN			"		GND	"	"	"	OUT		"	E_1 - $\overline{GS}$	"	23	"
	t_{PHL2}	"	70	"	"	"	"	"			"		GND	"	"	"	OUT		"	E_1 - GS	"	34	"
	t_{PLH3}	"	71	"	"	"	"	"			"		2.4 V	"	"	"		OUT	"	E_1 - $\overline{E_0}$	"	24	"
	t_{PHL3}	"	72	"	"	"	"	"			"		"	"	"	"		OUT	"	E_1 - E_0	"	43	"
	t_{PLH4}	"	73	"	"	"	GND	"			"	OUT	"	"	"	"			"	E_1 - A_0	"	25	"
		"	74	"	"	"	"	"		OUT	"		"	"	"	"			"	E_1 - A_1	"	25	"
		"	75	"	"	"	"	"	OUT		"		"	"	"	"			"	E_1 - A_2	"	25	"
	t_{PHL4}	"	76	"	"	"	"	"			"	OUT	"	"	"	"			"	E_1 - A_0	"	30	"
		"	77	"	"	"	"	"		OUT	"		"	"	"	"			"	E_1 - A_1	"	30	"
		"	78	"	"	"	"	"	OUT		"		"	"	"	"			"	E_1 - A_2	"	30	"
	t_{PLH5}	"	79	"	"	"	2.4 V	GND			"		IN	"	"	"		OUT	"	$\overline{0}$ - $\overline{GS}$	15	45	"
	t_{PHL5}	"	80	"	"	"	"	"			"		IN	"	"	"		OUT	"	$\overline{0}$ - GS	9	29	"
	t_{PLH6}	"	81 3/	"	"	"	"	"			"	OUT	2.4 V	IN	"	"			"	$\overline{1}$ - $\overline{A_0}$	"	"	"
		"	82 4/	"	"	"	"	"			"	OUT	"	GND	IN	"			"	$\overline{2}$ - $\overline{A_0}$	"	"	"
		"	83 3/	"	"	"	"	"		OUT	"		"	2.4 V	IN	"			"	$\overline{2}$ - $\overline{A_1}$	"	"	"
		"	84 3/	"	"	"	"	"			"	OUT	"	"	2.4 V	IN			"	$\overline{3}$ - $\overline{A_0}$	"	"	"
		"	85 3/	"	"	"	"	"		OUT	"		"	"	"	IN			"	$\overline{3}$ - $\overline{A_1}$	"	"	"
		"	86 4/	IN	"	"	"	"			"	OUT	"	"	"	GND			"	$\overline{4}$ - $\overline{A_0}$	"	"	"
		"	87 3/	IN	"	"	"	"	OUT		"		"	"	"	2.4 V			"	$\overline{4}$ - $\overline{A_2}$	"	"	"
		"	88 3/	2.4 V	IN	"	"	"			"	OUT	"	"	"	"			"	$\overline{5}$ - $\overline{A_0}$	"	"	"
		"	89 4/	"	IN	"	"	"		OUT	"		"	"	GND	"			"	$\overline{5}$ - $\overline{A_1}$	"	"	"
		"	90 4/	"	2.4 V	IN	"	"			"	OUT	"	GND	2.4 V	"			"	$\overline{6}$ - $\overline{A_0}$	"	"	"
		"	91 3/	"	"	IN	"	"		OUT	"		"	2.4 V	"	"			"	$\overline{5}$ - $\overline{A_1}$	"	"	"
		"	92 3/	"	"	IN	"	"	OUT		"		"	"	"	"			"	$\overline{6}$ - $\overline{A_2}$	"	"	"
		"	93 3/	"	"	2.4 V	IN	"			"	OUT	"	"	"	"			"	$\overline{7}$ - $\overline{A_0}$	"	"	"
		"	94 3/	"	"	"	IN	"		OUT	"		"	"	"	"			"	$\overline{7}$ - $\overline{A_1}$	"	"	"
		"	95 3/	"	"	"	IN	"	OUT		"		"	"	"	"			"	$\overline{7}$ - $\overline{A_2}$	"	"	"
	t_{PHL6}	"	96 3/	"	"	"	2.4 V	"			"	OUT	"	IN	"	"			"	$\overline{1}$ - $\overline{A_0}$	"	"	"
		"	97 4/	"	"	"	"	"			"	OUT	"	GND	IN	"			"	$\overline{2}$ - $\overline{A_0}$	"	"	"
		"	98 3/	"	"	"	"	"		OUT	"		"	2.4 V	IN	"			"	$\overline{2}$ - $\overline{A_1}$	"	"	"
		"	99 3/	"	"	"	"	"			"	OUT	"	"	2.4 V	IN			"	$\overline{3}$ - $\overline{A_0}$	"	"	"
		"	100 3/	"	"	"	"	"		OUT	"		"	"	"	IN			"	$\overline{3}$ - $\overline{A_1}$	"	"	"
		"	101 4/	IN	"	"	"	"			"	OUT	"	"	"	GND			"	$\overline{4}$ - $\overline{A_0}$	"	"	"
		"	102 3/	IN	"	"	"	"	OUT		"		"	"	"	2.4 V			"	$\overline{4}$ - $\overline{A_2}$	"	"	"
		"	103 3/	2.4 V	IN	"	"	"			"	OUT	"	"	"	"			"	$\overline{5}$ - $\overline{A_0}$	"	"	"
		"	104 4/	"	IN	"	"	"		OUT	"		"	"	GND	"			"	$\overline{5}$ - $\overline{A_1}$	"	"	"
		"	105 4/	"	2.4 V	IN	"	"			"	OUT	"	GND	2.4 V	"			"	$\overline{6}$ - $\overline{A_0}$	"	"	"
		"	106 3/	"	"	IN	"	"		OUT	"		"	2.4 V	"	"			"	$\overline{5}$ - $\overline{A_1}$	"	"	"
		"	107 3/	"	"	IN	"	"	OUT		"		"	"	"	"			"	$\overline{6}$ - $\overline{A_2}$	"	"	"
		"	108 3/	"	"	2.4 V	IN	"			"	OUT	"	"	"	"			"	$\overline{7}$ - $\overline{A_0}$	"	"	"
		"	109 3/	"	"	"	IN	"		OUT	"		"	"	"	"			"	$\overline{7}$ - $\overline{A_1}$	"	"	"
		"	110 3/	"	"	"	IN	"	OUT		"		"	"	"	"			"	$\overline{7}$ - $\overline{A_2}$	"	"	"

See footnotes at end of device type 03.

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

Subgroup	Symbol	MIL-STD-883 method	Cases E,F Test no.	1 $\overline{4}$	2 $\overline{5}$	3 $\overline{6}$	4 $\overline{7}$	5 E_1	6 A_2	7 A_1	8 GND	9 A_0	10 $\overline{0}$	11 $\overline{1}$	12 $\overline{2}$	13 $\overline{3}$	14 $\overline{GS}$	15 E_0	16 V_{CC}	Measured terminal	Test limits Min	Test limits Max	Unit
10 T_C =+125°C	t_{PLH1}	3003	111	2.4 V	2.4 V	2.4 V	2.4 V	GND			GND		IN	2.4 V	2.4 V	2.4 V		OUT	5.0 V	$\overline{0}$ - E_0	6	22	ns
	t_{PHL1}	(Fig. 6)	112	"	"	"	"	GND			"		IN	"	"	"		OUT	"	$\overline{0}$ - E_0	9	43	"
	t_{PLH2}	"	113	"	"	"	"	IN			"		GND	"	"	"	OUT		"	E_1 - $\overline{GS}$	"	32	"
	t_{PHL2}	"	114	"	"	"	"	IN			"		GND	"	"	"	OUT		"	E_1 - $\overline{GS}$	"	38	"
	t_{PLH3}	"	115	"	"	"	"	IN			"		2.4 V	"	"	"		OUT	"	E_1 - E_0	"	32	"
	t_{PHL3}	"	116	"	"	"	"	"			"		"	"	"	"		OUT	"	E_1 - E_0	"	48	"
	t_{PLH4}	"	117	"	"	"	GND	"			"	OUT	"	"	"	"			"	E_1 - A_0	"	37	"
		"	118	"	"	"	"	"		OUT	"		"	"	"	"			"	E_1 - A_1	"	37	"
		"	119	"	"	"	"	"	OUT		"		"	"	"	"			"	E_1 - A_2	"	37	"
	t_{PHL4}	"	120	"	"	"	"	"			"	OUT	"	"	"	"			"	E_1 - A_0	"	38	"
		"	121	"	"	"	"	"		OUT	"		"	"	"	"			"	E_1 - A_1	"	38	"
		"	122	"	"	"	"	"	OUT		"		"	"	"	"			"	E_1 - A_2	"	38	"
	t_{PLH5}	"	123	"	"	"	2.4 V	GND			"		IN	"	"	"	OUT		"	$\overline{0}$ - $\overline{GS}$	15	56	"
	t_{PHL5}	"	124	"	"	"	"	"			"		IN	"	"	"	OUT		"	$\overline{0}$ - $\overline{GS}$	9	34	"
	t_{PLH6}	"	125 3/	"	"	"	"	"			"	OUT	2.4 V	IN	"	"			"	$\overline{1}$ - A_0	"	52	"
		"	126 4/	"	"	"	"	"			"	OUT	"	GND	IN	"			"	$\overline{2}$ - A_0	"	"	"
		"	127 3/	"	"	"	"	"		OUT	"		"	2.4 V	IN	"			"	$\overline{2}$ - A_1	"	"	"
		"	128 3/	"	"	"	"	"			"	OUT	"	"	2.4 V	IN			"	$\overline{3}$ - A_0	"	"	"
		"	129 3/	"	"	"	"	"		OUT	"		"	"	"	IN			"	$\overline{3}$ - A_1	"	"	"
		"	130 4/	IN	"	"	"	"			"	OUT	"	"	"	GND			"	$\overline{4}$ - A_0	"	"	"
		"	131 3/	IN	"	"	"	"	OUT		"		"	"	"	2.4 V			"	$\overline{4}$ - A_2	"	"	"
		"	132 3/	2.4 V	IN	"	"	"			"	OUT	"	"	"	"			"	$\overline{5}$ - A_0	"	"	"
		"	133 4/	"	IN	"	"	"		OUT	"		"	"	GND	"			"	$\overline{5}$ - A_1	"	"	"
		"	134 4/	"	2.4 V	IN	"	"			"	OUT	"	GND	2.4 V	"			"	$\overline{6}$ - A_0	"	"	"
		"	135 3/	"	"	IN	"	"		OUT	"		"	2.4 V	"	"			"	$\overline{6}$ - A_1	"	"	"
		"	136 3/	"	"	IN	"	"	OUT		"		"	"	"	"			"	$\overline{6}$ - A_2	"	"	"
		"	137 3/	"	"	2.4 V	IN	"			"	OUT	"	"	"	"			"	$\overline{7}$ - A_0	"	"	"
		"	138 3/	"	"	"	IN	"		OUT	"		"	"	"	"			"	$\overline{7}$ - A_1	"	"	"
		"	139 3/	"	"	"	IN	"	OUT		"		"	"	"	"			"	$\overline{7}$ - A_2	"	"	"
	t_{PHL6}	"	140 3/	"	"	"	2.4 V	"			"	OUT	"	IN	"	"			"	$\overline{1}$ - A_0	"	"	"
		"	141 4/	"	"	"	"	"			"	OUT	"	GND	IN	"			"	$\overline{2}$ - A_0	"	"	"
		"	142 3/	"	"	"	"	"		OUT	"		"	2.4 V	IN	"			"	$\overline{2}$ - A_1	"	"	"
		"	143 3/	"	"	"	"	"			"	OUT	"	"	2.4 V	IN			"	$\overline{3}$ - A_0	"	"	"
		"	144 3/	"	"	"	"	"		OUT	"		"	"	"	IN			"	$\overline{3}$ - A_1	"	"	"
		"	145 4/	IN	"	"	"	"			"	OUT	"	"	"	GND			"	$\overline{4}$ - A_0	"	"	"
		"	146 3/	IN	"	"	"	"	OUT		"		"	"	"	2.4 V			"	$\overline{4}$ - A_2	"	"	"
		"	147 3/	2.4 V	IN	"	"	"			"	OUT	"	"	"	"			"	$\overline{5}$ - A_0	"	"	"
		"	148 4/	"	IN	"	"	"		OUT	"		"	"	GND	"			"	$\overline{5}$ - A_1	"	"	"
		"	149 4/	"	2.4 V	IN	"	"			"	OUT	"	GND	2.4 V	"			"	$\overline{6}$ - A_0	"	"	"
		"	150 3/	"	"	IN	"	"		OUT	"		"	2.4 V	"	"			"	$\overline{6}$ - A_1	"	"	"
		"	151 3/	"	"	IN	"	"	OUT		"		"	"	"	"			"	$\overline{6}$ - A_2	"	"	"
		"	152 3/	"	"	2.4 V	IN	"			"	OUT	"	"	"	"			"	$\overline{7}$ - A_0	"	"	"
		"	153 3/	"	"	"	IN	"		OUT	"		"	"	"	"			"	$\overline{7}$ - A_1	"	"	"
		"	154 3/	"	"	"	IN	"	OUT		"		"	"	"	"			"	$\overline{7}$ - A_2	"	"	"
11	Same tests, terminal conditions, and limits as for subgroup 10, except T_C = -55°C.																						

1/ Input voltages shown are A = 2.4 V minimum and V = 0.8 V maximum.

2/ Output voltages shall be H ≥ 1.5 V, L ≤ 1.5 V.

3/ 2 gate delay.

4/ 3 gate delay.

b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical tests prior to burn-in are 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 is not required.

4.4 Quality conformance inspection. Quality conformance inspection shall be in accordance with MIL-M-38510, and as specified herein. Inspections to be performed shall be those specified in method 5005 of MIL-STD-883 and herein for groups A, B, C, and D inspections (see 4.4.1 through 4.4.4). Generic test data (see 6.5) may be used to satisfy the requirements for groups C and D inspections. Quality conformance inspection shall be completed on the specific devices covered by this specification before they are shipped.

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 parameters 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 tests shall be as specified in table II herein.

b. Steady-state life test (method 1005 of MIL-STD-883) conditions:

(1) Test condition D, E, or F using the circuit shown on figure 4, or equivalent.

(2) T_A = +125°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 referenced 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 logisitic 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, if applicable.

e. Requirements for packaging and packing.

f. 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.

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.
I_{IN}	Current flowing into an input terminal.
V_{IN}	Voltage level at an input terminal.

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 Generic test data. Generic test data may be used to satisfy the requirements of 4.4.3. Group C generic test data shall be on date codes no more than one year old and on a die in the same microcircuit group (see appendix E of MIL-M-38510) with the same material, design and process and from the same plant as the die represented. Group D (see 4.4.4) generic data shall be on date codes no more than one year old and on the same package type (see terms, definitions, and symbols of MIL-M-38510) and from the same plant as the package represented. The vendor is required to retain the generic data for a period of not less than 36 months from the date of shipment.

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

Military device type	Generic-industry type
01	54147
02	54148
03	9318

6.7 Ordering guidance. Since the qualification and certification requirements have been removed from the specification, orders may be placed immediately.

6.8 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

Review activities:
Army - AR, MI
Navy - OS, SH, TD
Air Force - 11, 19, 85, 99
DLA - ES

User activities:
Army - SM
Navy - AS, CG, MC

Preparing activity:
Air Force - 17

Agent:
DLA - ES

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