

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, HIGH SPEED, CMOS,
DECODERS, MONOLITHIC SILICON, POSITIVE LOGIC

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, high speed, CMOS logic microcircuits. Two product assurance classes and a choice of case outlines and lead finishes are provided and are reflected in the complete part number.

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	BCD-to-decimal decoder
02	Single 3- to 8-line decoder
03	Dual 2- to 4-line decoder
04	4- to 16-line decoder/demultiplexer
52	Single 3- to 8-line decoder (TTL compatible)
53	Dual 2- to 4-line decoder (TTL compatible)

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>
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
K	F-6 (24-lead, 3/8" x 5/8") flat package
L	D-9 (24-lead, 1/4" x 1 1/4") dual-in-line package
2	C-2 (20-terminal, .350" x .350") square chip carrier package
3	C-4 (28-terminal, .450" x .450") square chip carrier package

1.3 Absolute maximum ratings.

Supply voltage (V_{CC}) - - - - -	-0.5 V dc to +7.0 V dc
DC input voltage (V_{IN}) - - - - -	-0.5 V dc to V_{CC} +0.5 V dc
DC output voltage (V_{OUT}) - - - - -	-0.5 V dc to V_{CC} +0.5 V dc
Clamp diode current (I_{IK} , I_{OK}) - - - - -	+20 mA
DC output current per pin (I_{OUT}) - - - - -	+25 mA
DC V_{CC} or GND current per pin (I_{OC}) - - - - -	+50 mA
Storage temperature range (T_{STG}) - - - - -	-65°C to +150°C
Maximum power dissipation (P_D) - - - - -	300 mW
Lead temperature (soldering, 10 seconds) - - - - -	+300°C
Thermal resistance, junction-to-case (θ_{JC}):	
Cases E, F, K, and L - - - - -	(See MIL-M-38510, appendix C)
Case 2 - - - - -	60°C/W
Case 3 - - - - -	(TBD)
Junction temperature (T_J) - - - - -	+175°C

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.

Device types 01, 02, 03, and 04:

Supply voltage (V_{CC}) - - - - -	2 V dc to 6 V dc
Input low (V_{IL}) maximum voltage - - - -	0.3 V at $V_{CC} = 2$ V
	0.9 V at $V_{CC} = 4.5$ V
	1.2 V at $V_{CC} = 6$ V
Input high (V_{IH}) minimum voltage - - - -	1.5 V at $V_{CC} = 2$ V
	3.15 V at $V_{CC} = 4.5$ V
	4.2 V at $V_{CC} = 6$ V

Input rise and fall times (t_r, t_f) maximum:

$V_{CC} = 2$ V - - - - -	1,000 ns
$V_{CC} = 4.5$ V - - - - -	500 ns
$V_{CC} = 6$ V - - - - -	400 ns

Device types 52 and 53:

Supply voltage (V_{CC}) - - - - -	4.5 V dc to 5.5 V dc
Input low (V_{IL}) maximum voltage - - - -	0.8 V at $V_{CC} = 4.5$ through 5.5 V
Input high (V_{IH}) minimum voltage - - - -	2.0 V at $V_{CC} = 4.5$ through 5.5 V

Input rise and fall times (t_r, t_f) maximum:

$V_{CC} = 4.5$ V and 5.5 V - - - - -	500 ns
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All devices:

Output voltage - - - - -	0 V dc to V_{CC}
Case operating temperature (T_C) - - - -	-55°C to +125°C

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specification and standard. 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 Logic diagrams. The logic diagrams shall be as specified on figure 2.

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

3.2.4 Schematic circuits. The schematic circuits shall be submitted to the preparing activity prior to inclusion of a manufacturer's device in this specification and shall be submitted to the qualifying activity as a prerequisite for qualification. All qualified manufacturers' schematics shall be maintained and available upon request.

3.2.5 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 and 6.4 herein.

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

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. 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.

3.6.1 Total dose radiation hardness identifier. Total dose radiation hardness identifier shall be in accordance with MIL-M-38510 and 4.5.4 herein.

3.6.2 Serialization. All class S devices shall be serialized in accordance with MIL-M-38510.

3.6.3 Correctness of indexing and marking. All devices shall be subjected to the final electrical tests specified in table II after part number marking to verify that they are correctly indexed and identified by part number. Optionally, an approved electric test may be devised especially for this requirement.

3.7 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 39 (see MIL-M-38510, appendix E).

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. Delete the sequence specified in 3.1.9 through 3.1.13 of method 5004 and substitute lines 1 through 7 of table II herein.

- b. Burn-in (method 1015 of MIL-STD-883).
 - (1) Static tests (test condition A) using circuit shown on figure 4, or equivalent. Ambient temperature (T_A) shall be $+125^\circ\text{C}$ minimum. Test duration for each static test shall be 24 hours minimum for class S devices and in accordance with table I of method 1015 for class B devices.
 - (2) Dynamic test (test condition D) using circuit shown on figure 5, or equivalent. Ambient temperature shall be $+125^\circ\text{C}$ minimum. Test duration shall be in accordance with table I of method 1015.
- c. Interim and final electrical parameters shall be as specified in table II herein.
- d. For class S devices, post dynamic burn-in, or class B devices, post static burn-in, electrical parameter measurements may, at the manufacturer's option, be performed separately or included in the final electrical parameter requirements.

4.2.1 Percent defective allowable (PDA).

- a. The PDA for class S devices shall be 5 percent for static burn-in and 5 percent for dynamic burn-in, based on the exact number of devices submitted to each separate burn-in.
- b. Static burn-in I and II failures shall be cumulative for determining the PDA.
- c. The PDA for class B devices shall be in accordance with MIL-M-38510 for static burn-in. Dynamic burn-in is not required.
- d. Those devices whose measured characteristics, after burn-in, exceed the specified delta (Δ) limits or electrical parameter limits specified in table III, subgroup 1, are defective and shall be removed from the lot. The verified failures divided by the total number of devices in the lot initially submitted to burn-in shall be used to determine the percent defective for the lot and the lot shall be accepted or rejected based on the specified PDA.

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, D, and E inspections (see 4.4.1 through 4.4.5).

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, D, and E inspections (see 4.4.1 through 4.4.5).

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. Tests shall be performed in accordance with table II herein.
- b. Subgroups 5 and 6 of table I of method 5005 of MIL-STD-883 shall be omitted.
- c. Subgroup 4 (C_i measurement) shall be measured only for initial qualification and after process or design changes which may affect input capacitance. Capacitance shall be measured between the designated terminal and V_{SS} at a frequency of 1 MHz.
- d. Subgroups 9 and 11 shall be measured only for initial qualification and after process or design changes which may affect dynamic performance.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $T_C = +125^\circ\text{C}$ unless otherwise specified	Device type 2/	VCC	Limits		Unit
					Min	Max	
High level output voltage	V_{OH1} 3/	$V_{IH} = 1.5 \text{ V}$; $V_{IL} = 0.3 \text{ V}$; $I_{OH} = -20 \mu\text{A}$	01,02, 03,04	2.0 V	1.95		V
	V_{OH2} 3/	$V_{IH} = 3.15 \text{ V}$; $V_{IL} = 0.9 \text{ V}$; $I_{OH} = -20 \mu\text{A}$	01,02, 03,04	4.5 V	4.45		V
	V_{OH3}	$V_{IH} = 4.2 \text{ V}$; $V_{IL} = 1.2 \text{ V}$; $I_{OH} = -20 \mu\text{A}$	01,02, 03,04	6.0 V	5.95		V
	V_{OH4} 3/	$V_{IH} = 3.15 \text{ V}$; $V_{IL} = 0.9 \text{ V}$; $I_{OH} = -4.0 \text{ mA}$	01,02, 03,04	4.5 V	3.7		V
	V_{OH5}	$V_{IH} = 4.2 \text{ V}$; $V_{IL} = 1.2 \text{ V}$; $I_{OH} = -5.2 \text{ mA}$	01,02, 03,04	6.0 V	5.2		V
	V_{OH6}	$V_{IH} = 2.0 \text{ V}$; $V_{IL} = 0.5 \text{ V}$; $I_{OH} = -20 \text{ mA}$	52,53	4.5 V	4.40		V
	V_{OH7}	$V_{IH} = 2.0 \text{ V}$; $V_{IL} = 0.8 \text{ V}$; $I_{OH} = -4.0 \text{ mA}$	52,53	5.5 V	3.70		V
Low level output voltage	V_{OL1} 3/	$V_{IL} = 0.3 \text{ V}$; $V_{IH} = 1.5 \text{ V}$; $I_{OL} = 20 \mu\text{A}$	01,02, 03,04	2.0 V		0.05	V
	V_{OL2} 3/	$V_{IL} = 0.9 \text{ V}$; $V_{IH} = 3.15 \text{ V}$; $I_{OL} = 20 \mu\text{A}$	01,02, 03,04	4.5 V		0.05	V
	V_{OL3}	$V_{IL} = 1.2 \text{ V}$; $V_{IH} = 4.2 \text{ V}$; $I_{OL} = 20 \mu\text{A}$	01,02, 03,04	6.0 V		0.05	V
	V_{OL4} 3/	$V_{IL} = 0.9 \text{ V}$; $V_{IH} = 3.15 \text{ V}$; $I_{OL} = 4.0 \text{ mA}$	01,02, 03,04	4.5 V		0.4	V
	V_{OL5}	$V_{IL} = 1.2 \text{ V}$; $V_{IH} = 4.2 \text{ V}$ $I_{OL} = 5.2 \text{ mA}$	01,02 03,04	6.0 V		0.4	V

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ $T_C = +125^\circ C$ unless otherwise specified	Device type 2/	V _{CC}	Limits		Unit
					Min	Max	
Low level output voltage	V _{OL6}	V _{IL} = 0.8 V; V _{IH} = 2.0 V; I _{OL} = 20 mA	52,53	4.5 V		0.05	V
	V _{OL7}	V _{IL} = 0.8 V; V _{IH} = 2.0 V; I _{OH} = 4.0 mA					
Positive input clamp voltage	V _{IC+}	V _{CC} = GND I _{IN} = 1 mA T _C = +25 °C	A11			1.5	V
Negative input clamp voltage	V _{IC-}	V _{CC} = Open I _{IN} = -1 mA T _C = +25 °C	A11			-1.5	V
Input current low	I _{IL}	V _{IN} = GND	01,02, 03,04	6.0 V		-0.1	μA
Input current high	I _{IH}	V _{IN} = V _{CC}					
Input current low	I _{IL}	V _{IN} = GND	52,53	5.5 V		-0.1	μA
Input current high	I _{IH}	V _{IN} = V _{CC}	52,53	5.5 V		0.1	μA
Short-circuit output current	I _{OS1} 3/	T _C = -55 °C to +125 °C V _O = GND V _I = GND	01,02, 03,04	2.0 V	-2	-50	mA
	I _{OS2} 3/			4.5 V	-15	-150	
	I _{OS3} 3/			6.0 V	-25	-180	
	I _{OS4}			4.0 V	-10	-120	
	I _{OS2} 3/			4.5 V	-15	-150	
	I _{OS5} 3/			5.5 V	-25	-180	
	I _{OS4}			4.0 V	-10	-120	

See footnotes at the end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions $T_C = +125^\circ\text{C}$ unless otherwise specified	Device type 2/	V _{CC}	Limits		Unit
					Min	Max	
Supply current quiescent	I _{CC}	V _I = GND or V _{CC}	A11	6.0 V		20	μA
Additional supply current quiescent per input pin (one unit load)	I _{CCA} 4/	V _{IL} = 0.8 V V _{IH} = 2.4 V Test pin at V _{IN} = 2.4 V Other pins at 0.8 V or 5.5 V; I _O = 0 V	52,53	5.5 V		1.5	mA
Input capacitance	C _I	T _C = +25°C	A11			10	pF
Power dissipation capacitance	C _{PD} 2/ 3/	T _C = +25°C	01			65	pF
			02			85	
			03			75	
			04			90	
			52			85	
			53			75	
Propagation delay times 5/ 6/ Input to output	t _{PHL} t _{TPLH}	C _L = 50 pF ±10%	01	4.5 V	4	35	ns
	t _{TPLH}		02	4.5 V	4	47	
	t _{PHL}				5		
	t _{TPLH} t _{PHL} 4 levels		03	4.5 V	6	51	
	t _{TPLH} t _{PHL} 5 levels				8		
	t _{PHL} t _{TPLH}		04	4.5 V	6	44	
	t _{TPLH}		52	4.5 V	5	47	
	t _{PHL}				6		
	t _{PHL} 4 levels		53	4.5 V	5	41	
	t _{TPLH} 5 levels				7		

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ $T_C = +125^\circ C$ unless otherwise specified	Device type 2/	V_{CC}	Limits		Unit
					Min	Max	
Propagation delay times 5/ 6/ Enable to output	t_{PHL} t_{PLH}	$C_L = 50 \text{ pF} \pm 10\%$	02	4.5 V	4	41	ns
			03	4.5 V	6	41	
			04	4.5 V	6	42	
			52	4.5 V	4	47	
			53	4.5 V	5	47	
Transition delay times 5/ 6/	t_{THL} t_{TLH}		A11	4.5 V	3	20	

1/ Complete terminal conditions and limits shall be as specified in table III.

2/ Power dissipation capacitance (C_{PD}) per decoder/demultiplexer.

3/ Guaranteed but not tested.

4/ Total supply current = $I_{CC} + I_{CCA}$.

5/ Tested at $V_{CC} = 4.5 \text{ V}$ at $+125^\circ C$ for sample testing and $V_{CC} = 4.5 \text{ V}$ at $+25^\circ C$ for screening. Guaranteed at other V_{CC} voltages and temperatures, see table IA and exception in 4.4.1d.

6/ For propagation and transition delay times at $V_{CC} = 2.0 \text{ V}$, increase limit by a factor of 5. For propagation and transition delay times at $V_{CC} = 6.0 \text{ V}$, decrease limit by a factor of .85.

TABLE IA. Calculated dynamic figures at -55 and $+25$ ambient temperatures ($^\circ C$).

V_{CC} 1/	$T_A = (^\circ C)$ 2/	
	$+125$	-55 and $+25$
2.0 V	5 ↑	5×0.75 ↑
4.5 V	1 ↓	0.75 ↓
6.0 V	0.85	0.85×0.75

1/ The 2.0 V and 6.0 V numbers are derived from their 4.5 V integer value. Rounding off according 5/4.

2/ Normalized numbers ($+125^\circ C$ equals 1).

TABLE II. Burn-in and electrical test requirements.

Line no.	Applicable tests and MIL-STD-883 test method	Class S device 1/				Class B device 1/			
		Ref. par.	Table III subgroups 2/ 3/	Table IV delta limits 4/	Test circuit figure	Ref. par.	Table III subgroups 2/ 3/	Table IV delta limits 4/	Test circuit figure
1	Interim electrical parameters (method 5004)		1				1		
2	Static burn-in I (method 1015)	4.2b 4.5.2	Required		3		Not required		
3	Same as line 1		1	Δ					
4	Static burn-in II (method 1015)	4.2b 4.5.2	Required		3	4.2b 4.5.2	Required 5/		3
5	Same as line 1	4.2d	1*	Δ		4.2d	1*	Δ	
6	Dynamic burn-in (method 1015)	4.2b 4.5.2	Required		1/		Not required		
7	Same as line 1	4.2d	1	Δ					
8	Final electrical parameters (method 5004)		1*, 2, 3, 7, 8, 9				1*, 2, 7, 9 5/		
9	Group A test requirements (method 5005)	4.4.1	1, 2, 3, 4, 7, 8, 9, 10, 11			4.4.1	1, 2, 3, 4, 7, 8, 9, 10, 11		
10	Group B end-point electrical parameters (method 5005)	4.4.2	+1, 2, 3, 7, 8, 9, 10, 11	Δ			+1		
11	Group C end-point electrical parameters (method 5005)					4.4.3	1, 2	Δ	
12	Group D end-point electrical parameters (method 5005)	4.4.4	1, 2, 3			4.4.4	1, 2		

1/ Blank spaces indicate tests are not applicable.

2/ * indicates PDA applies to subgroup 1 (see 4.2.1).

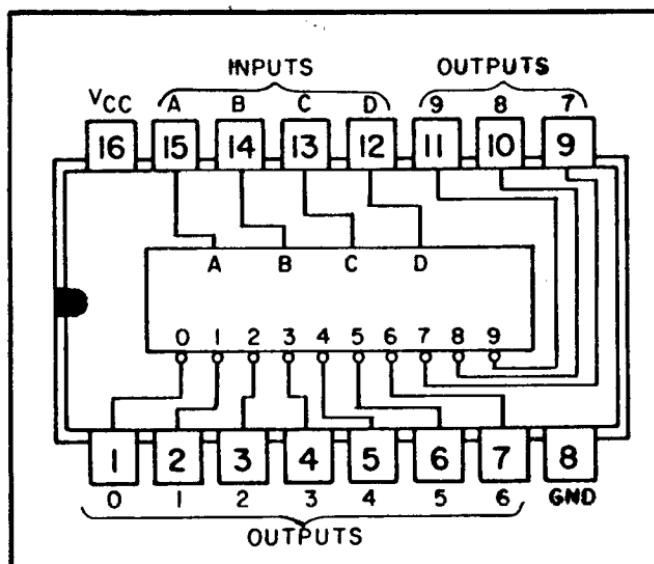
3/ + indicates also applies to electrostatic discharge sensitivity tests.

4/ Δ indicates delta limit shall be required only on table III, subgroup 1, where specified, and the delta values shall be computed with reference to the previous interim electrical parameters (line 1).

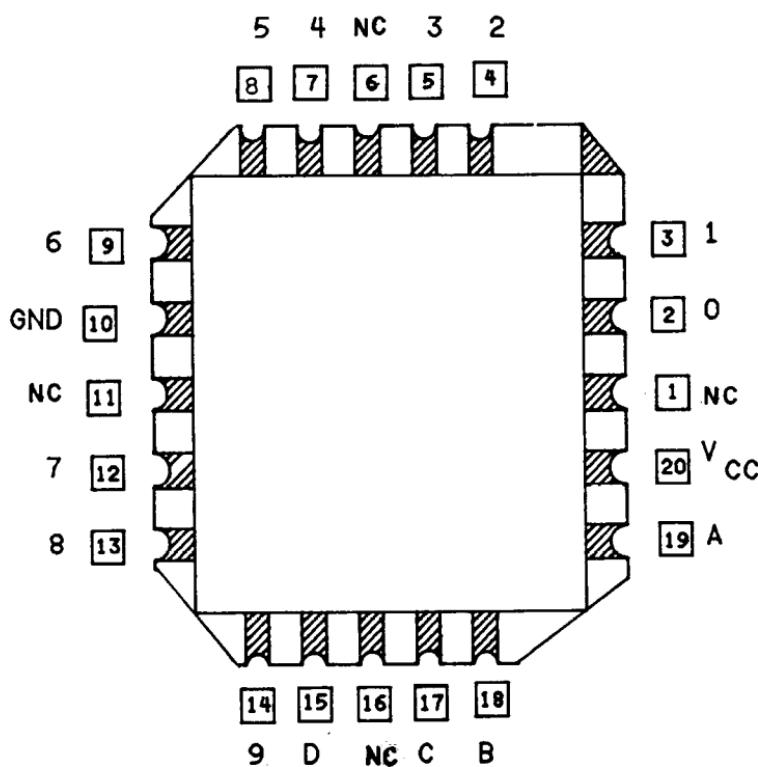
5/ The device manufacturer may at his option either complete subgroup 1 electrical parameter measurements, including delta measurements, within 96 hours after burn-in completion (removal of bias); or may complete subgroup 1 electrical measurements without delta measurements within 24 hours after burn-in completion (removal of bias).

Device type 01

Cases E and F

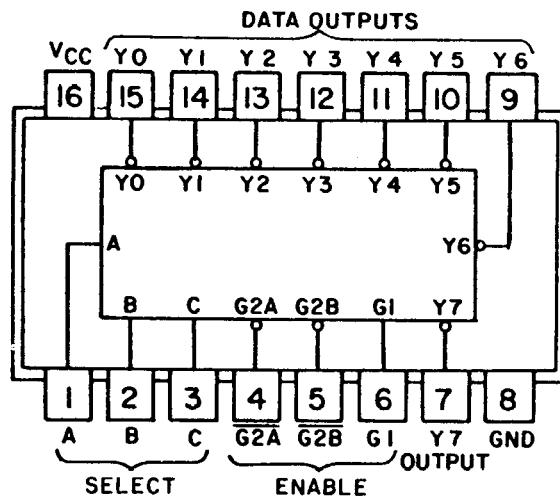
Device type 01

Case 2

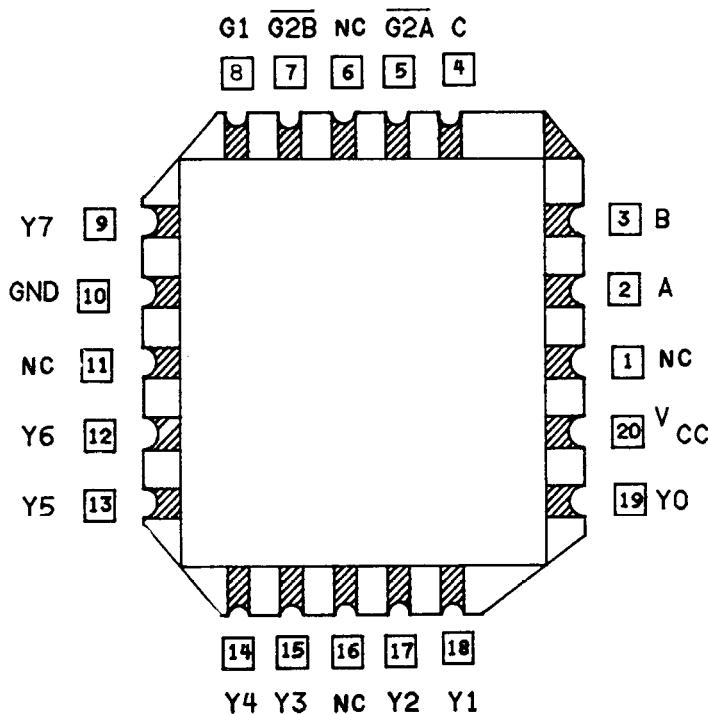
FIGURE 1. Terminal connections (top view).

Device types 02 and 52

Cases E and F

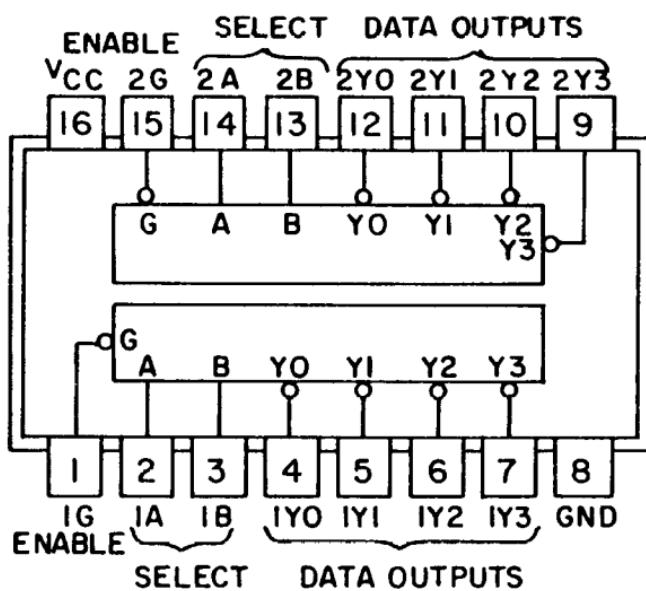
Device types 02 and 52

Case 2

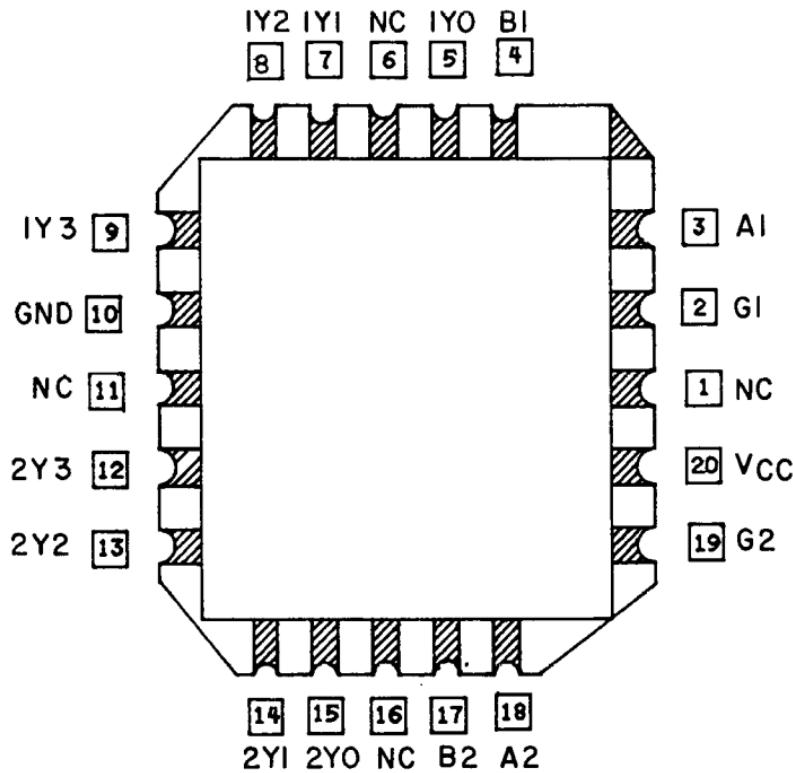
FIGURE 1. Terminal connections (top view) - Continued.

Device types 03 and 53

Cases E and F

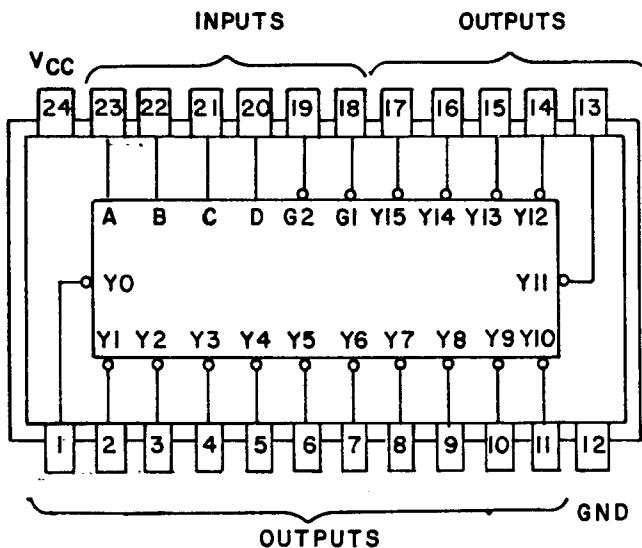
Device types 03 and 53

Case 2

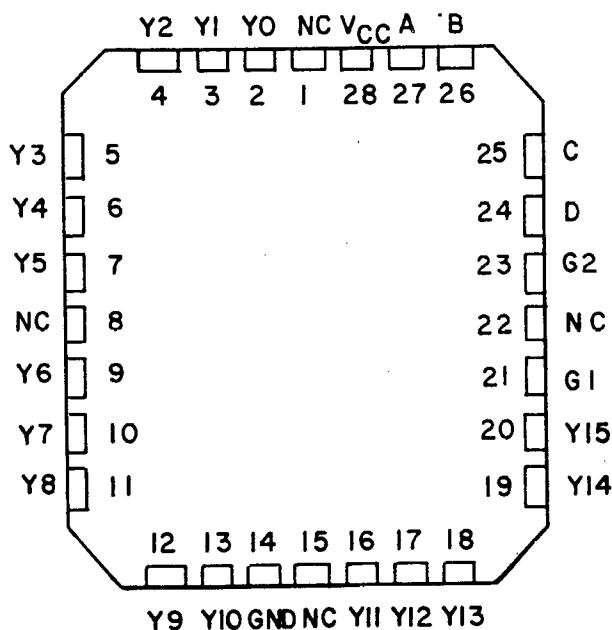
FIGURE 1. Terminal connections (top view) - Continued.

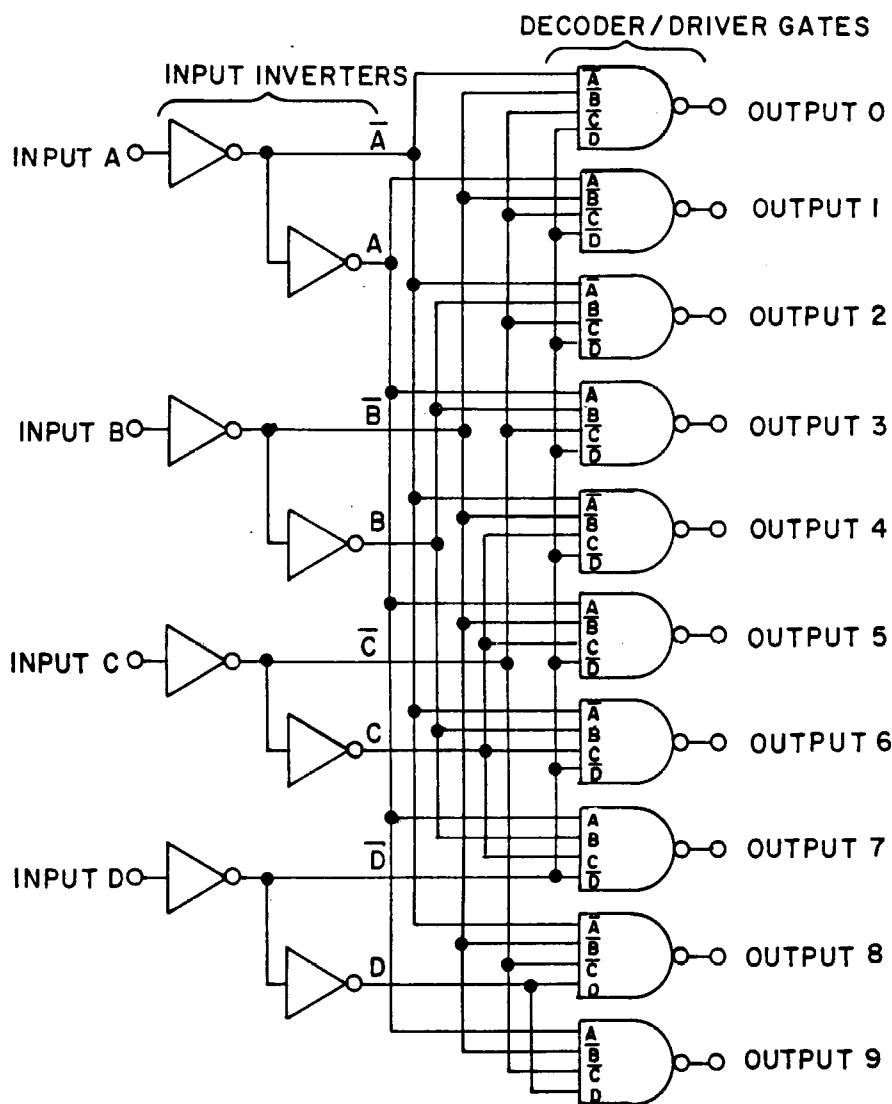
Device type 04

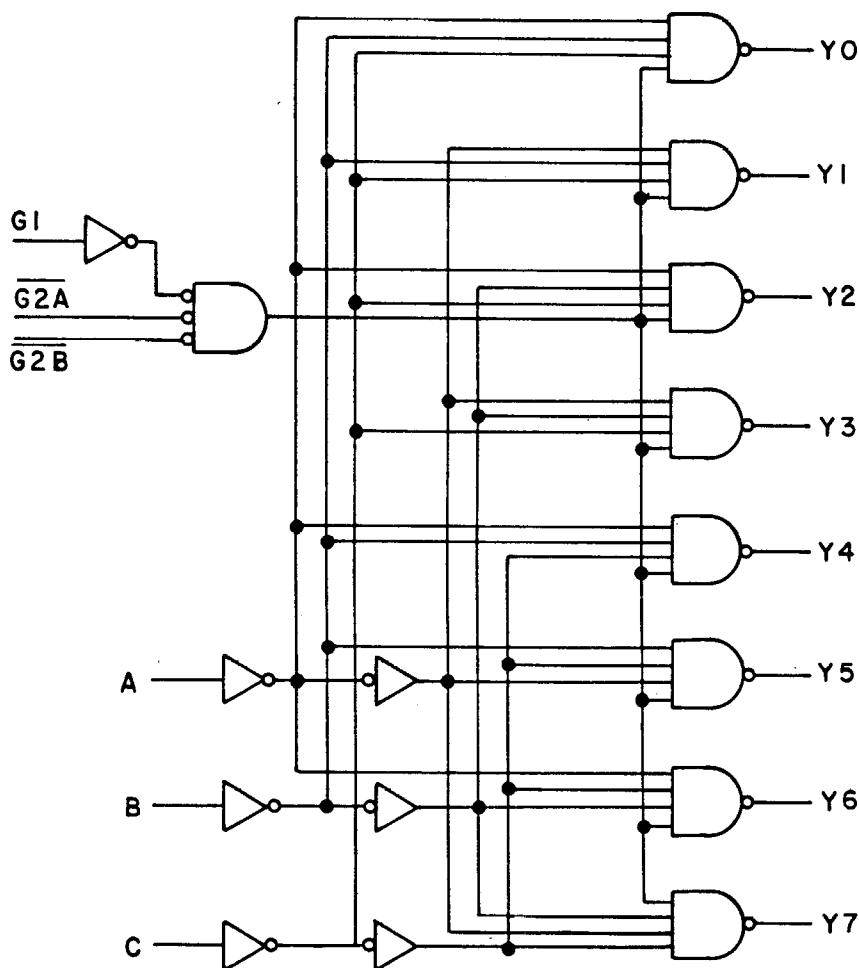
Cases K and L

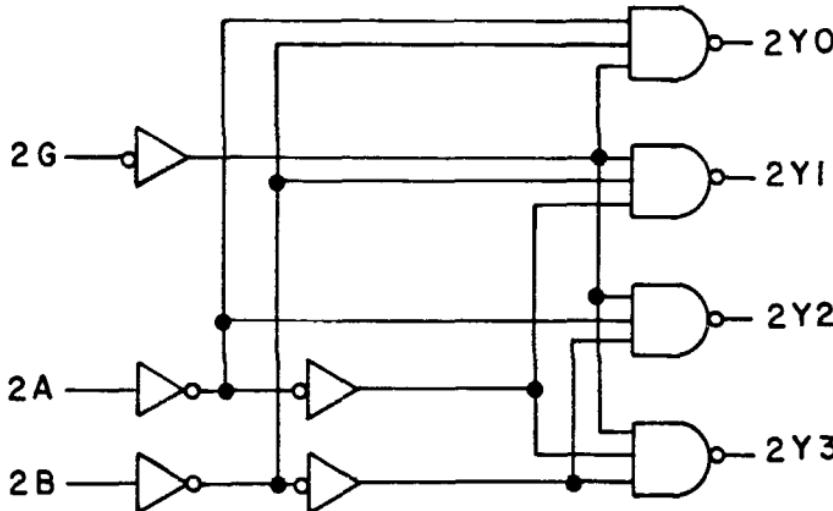
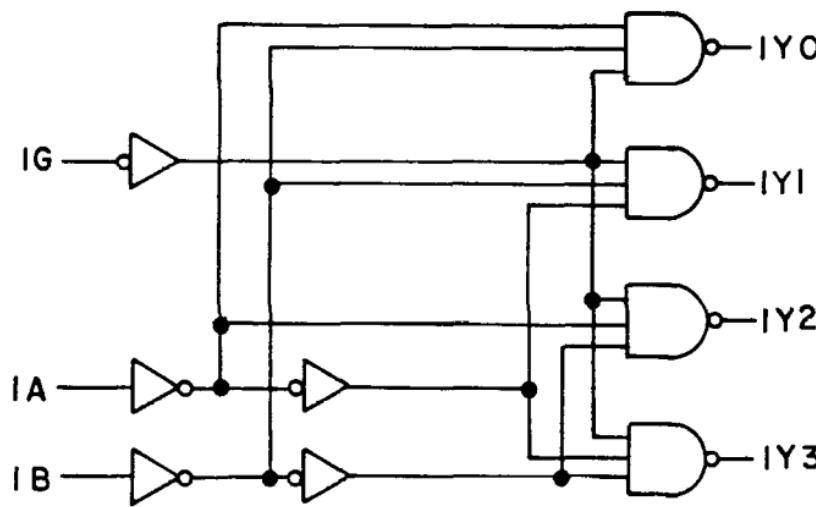
Device type 04

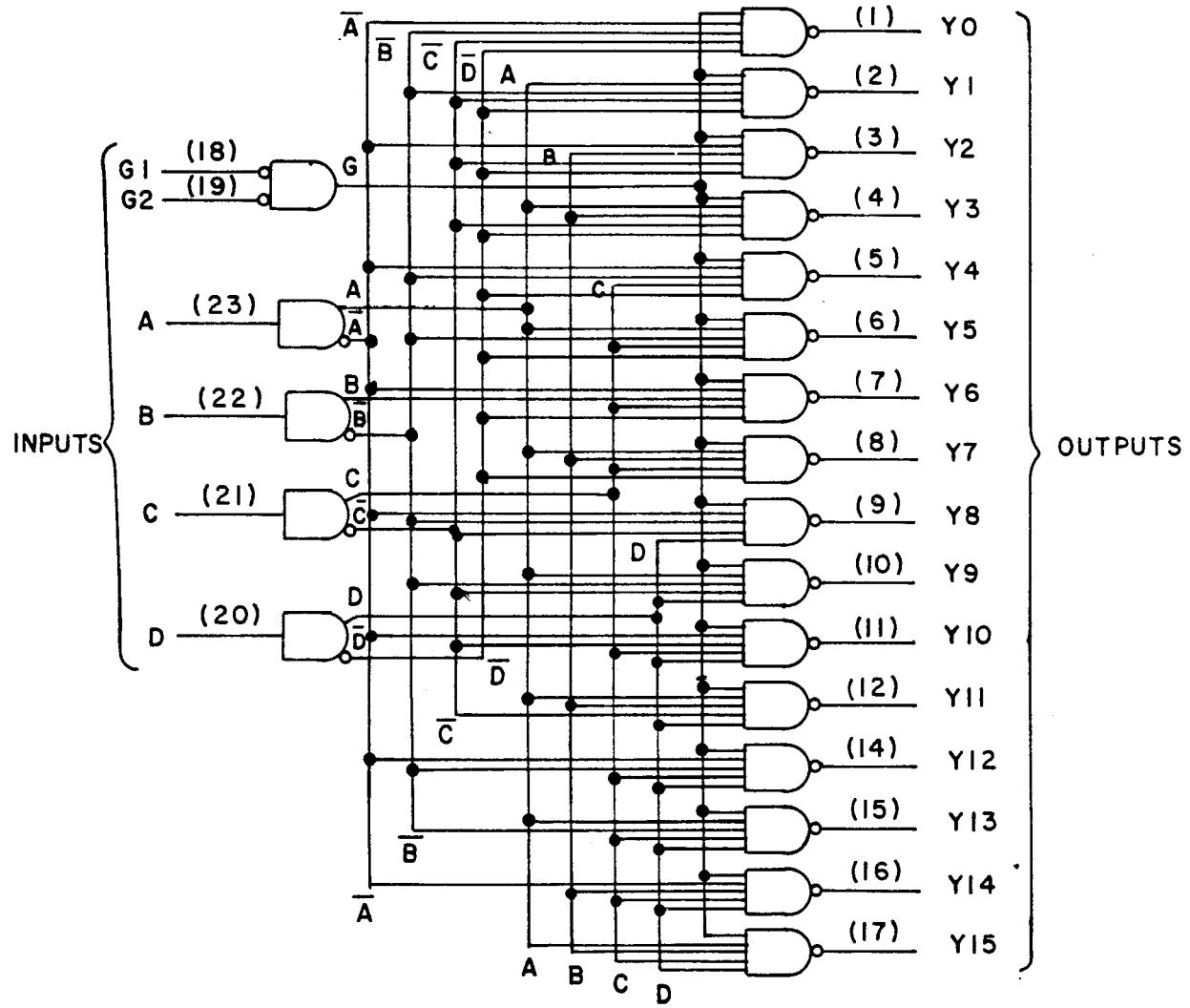
Case 3

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

Device type 01FIGURE 2. Logic diagrams.

Device types 02 and 52FIGURE 2. Logic diagrams - Continued.

Device types 03 and 53FIGURE 2. Logic diagrams - Continued.

Device type 04FIGURE 2. Logic diagrams - Continued.

Device type 01

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

FIGURE 3. Truth tables.

Device types 02 and 52

Inputs				Outputs								
Enable		Select										
G1	$\overline{G2^*}$	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	H	L	H	H	H	H	H	H
H	L	L	H	L	H	H	L	H	H	H	H	H
H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	H	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	L	H	H
H	L	H	H	L	H	H	H	H	H	H	L	H
H	L	H	H	H	H	H	H	H	H	H	H	L

$$*G2 = \overline{G2A} + \overline{G2B}$$

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

Device types 03 and 53

Inputs			Outputs			
Enable		Select	Y0	Y1	Y2	Y3
G	B	A	Y0	Y1	Y2	Y3
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	L	H	H	L	H	H
L	H	L	H	H	L	H
L	H	H	H	H	H	L

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

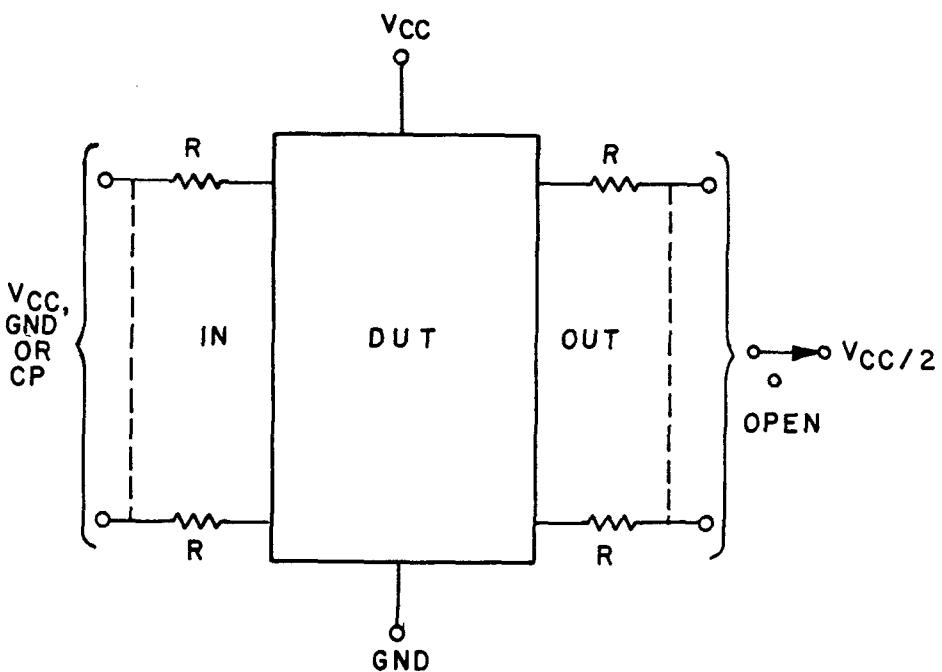
FIGURE 3. Truth tables - Continued.

Device type 04

Inputs						Outputs															
G1	G2	D	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15
L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	L	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	L	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
L	L	L	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H	H
L	L	L	H	H	L	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H	H
L	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H	H
L	L	H	L	L	L	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H	H
L	L	H	L	L	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H	H
L	L	H	L	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H
L	L	H	L	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	H	H	H
L	L	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H
L	L	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	L	H	H	L	H
L	L	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	L	H
L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
L	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	L	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
H	H	X	X	X	X	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H

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

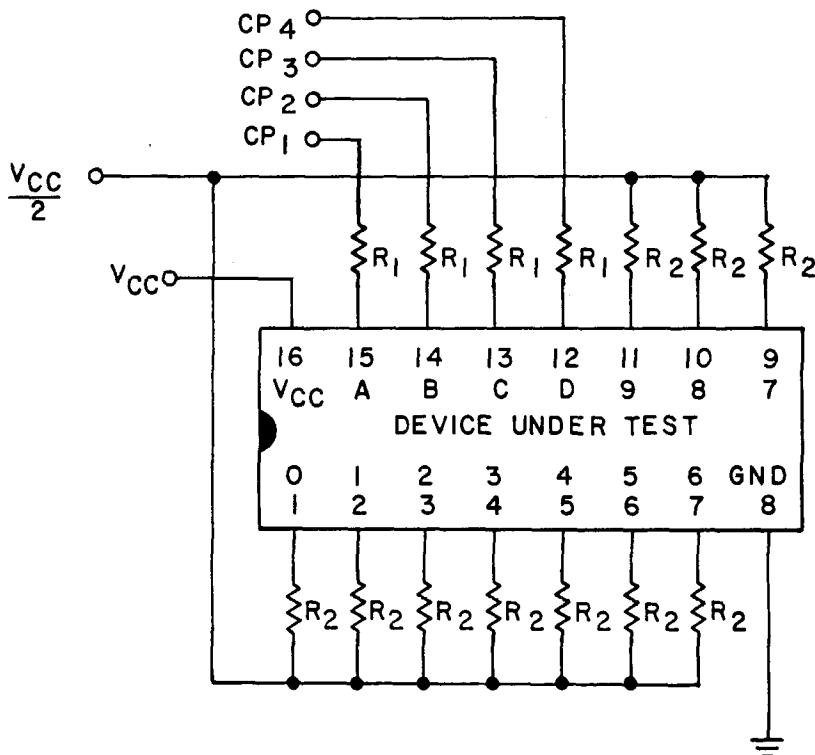
FIGURE 3. Truth tables - Continued.



NOTES:

1. For static burn-in I, all inputs shall be connected to GND. Outputs shall be open or connected to $V_{CC}/2$. Resistors are optional on outputs if open. Resistors are required on inputs, and required on outputs connected to $V_{CC}/2$. $R = 680\Omega$ to $47\text{ k}\Omega$.
2. For static burn-in II, all inputs shall be connected through the resistors to V_{CC} . Outputs shall be open or connected to $V_{CC}/2$. Resistors are optional on outputs if open. Resistors are required on inputs, and required on outputs connected to $V_{CC}/2$. $R = 680\Omega$ to $47\text{ k}\Omega$.
3. $\frac{V_{CC}}{2} = V_{CC} \pm 0.5\text{ V}$
4. $V_{CC} = 6.0\text{ V} \pm 0.5\text{ V}$, for device types 01 through 04.
 $V_{CC} = 5.5\text{ V} \pm 0.5\text{ V}$, for device types 52 and 53.

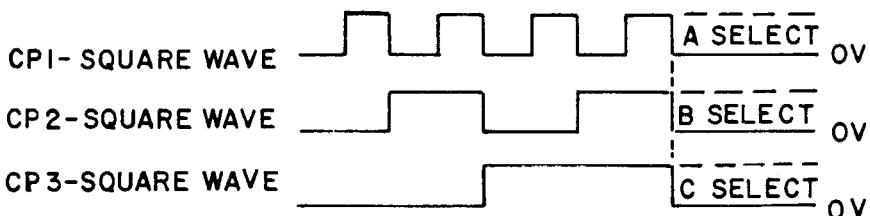
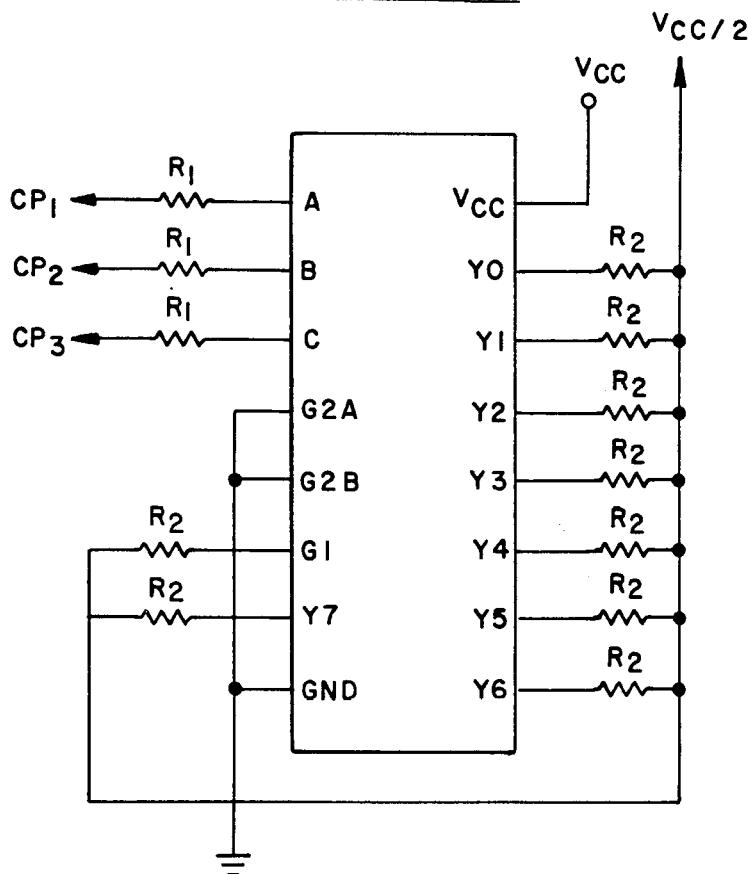
FIGURE 4. Static burn-in test circuits.

Device type 01

NOTES:

1. Input resistors $R_1 = 680\Omega$ to $47\text{ k}\Omega \pm 20\%$.
2. Output resistors $R_2 = 1\text{ k}\Omega \pm 5\%$.
3. $CP_1 = 100\text{ kHz}$, 50% duty cycle; $V_{IH} = 4.5\text{ V}$ to V_{CC} , $V_{IL} = 0 \pm .5\text{ V}$, $t_{t\downarrow} \leq 500\text{ ns}$
 $CP_2 = 50\text{ kHz}$, 50% duty cycle; $V_{IH} = 4.5\text{ V}$ to V_{CC} , $V_{IL} = 0 \pm .5\text{ V}$, $t_{t\downarrow} \leq 500\text{ ns}$
 $CP_3 = 25\text{ kHz}$, 50% duty cycle; $V_{IH} = 4.5\text{ V}$ to V_{CC} , $V_{IL} = 0 \pm .5\text{ V}$, $t_{t\downarrow} \leq 500\text{ ns}$
 $CP_4 = 12.5\text{ kHz}$, 50% duty cycle; $V_{IH} = 4.5\text{ V}$ to V_{CC} , $V_{IL} = 0 \pm .5\text{ V}$, $t_{t\downarrow} \leq 500\text{ ns}$
4. $V_{CC} = 6.0\text{ V} \pm 0.5\text{ V}$.
5. $\frac{V_{CC}}{2} = \frac{V_{CC}}{2} \pm 0.5\text{ V}$.

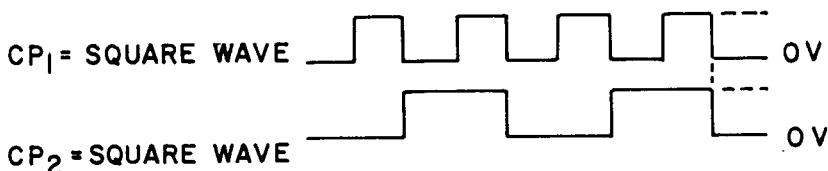
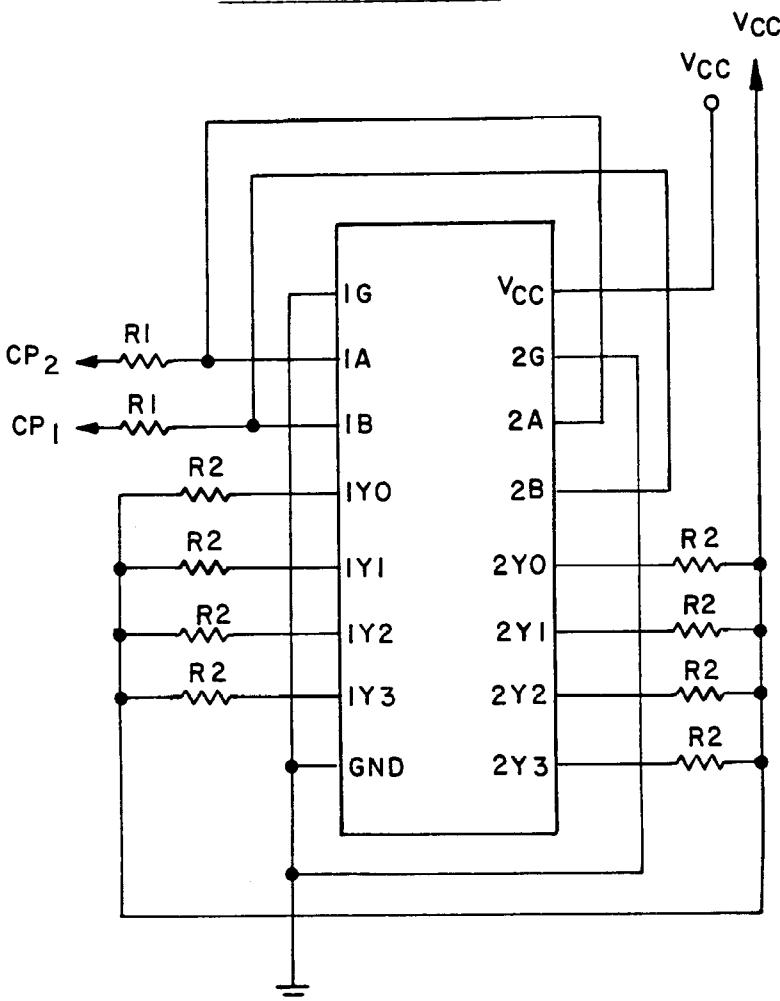
FIGURE 5. Dynamic burn-in and life test circuits.

Device types 02 and 52

NOTES:

1. $R_1 = 680\Omega$ to $47\text{ k}\Omega$; $R_2 1\text{k}\Omega \pm 5\%$.
2. $V_{CC} = 6.0\text{ V} \pm 0.5\text{ V}$ for device type 02; $V_{CC} = 5.5\text{ V} \pm 0.5\text{ V}$ for device type 52.
3. $\frac{V_{CC}}{2} = \frac{V_{CC}}{2} \pm 0.5\text{ V}$.
4. Duty cycle = $50\% \pm 15\%$, $V_{IH} = 4.5\text{ V}$ min to V_{CC} ; $V_{IL} = 0.0\text{ V} \pm 0.5\text{ V}$, $t_{t} < 500\text{ ns}$.
5. $CP_1, CP_2, CP_3 = 25\text{ kHz}$ to 1 MHz ; $CP_3 = \frac{CP_2}{2}$; $CP_2 = \frac{CP_1}{2}$

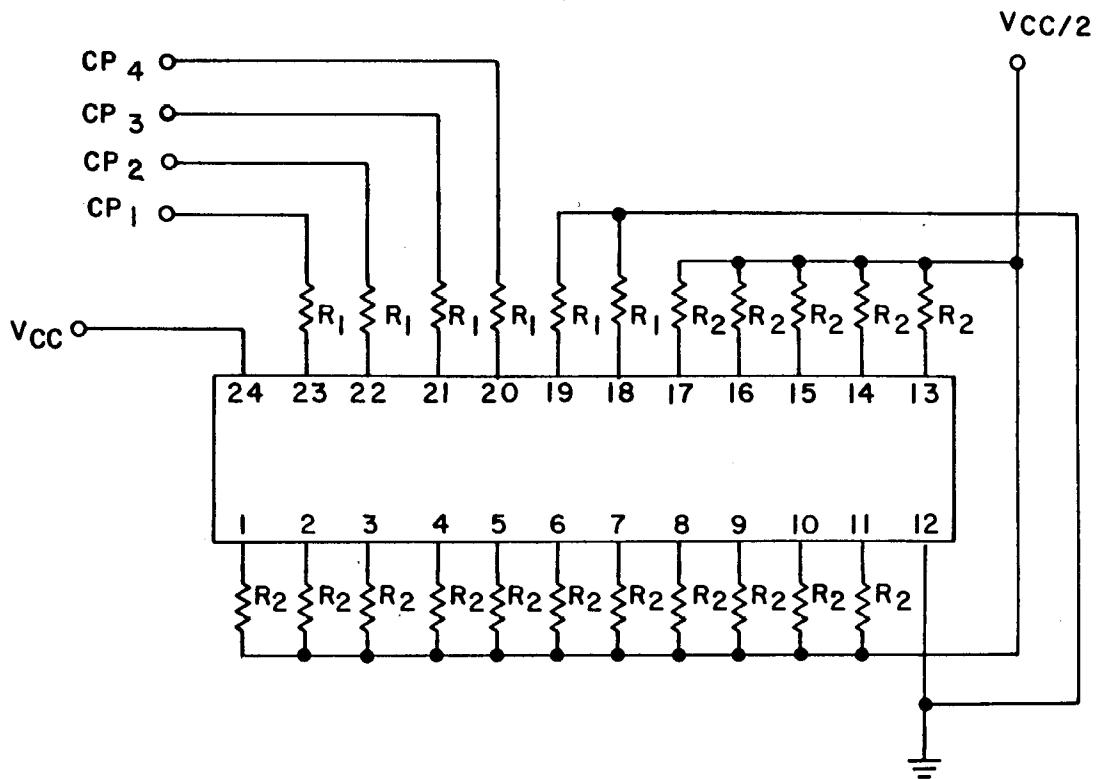
FIGURE 5. Dynamic burn-in and life test circuits - Continued.

Device types 03 and 53

NOTES:

1. Input resistors $R_1 = 680\Omega$ to $47\text{ k}\Omega \pm 20\%$, output resistors $R_2 = 1\text{ k}\Omega \pm 5\%$.
2. $V_{CC} = 6.0\text{ V} \pm 0.5\text{ V}$ for device type 03; $V_{CC} = 5.5\text{ V} \pm 0.5\text{ V}$ for device type 53.
3. $V_{CC} = V_{CC} \pm 0.5\text{ V}$.
4. Duty cycle = $50\% \pm 15\%$, $V_{IH} = 4.5\text{ V}$ min to V_{CC} ; $V_{IL} = 0.0\text{ V} \pm 0.5\text{ V}$, $t_t < 500\text{ ns}$.
5. $CP_1 = 25\text{ kHz}$ to 1 MHz ; $CP_2 = \frac{CP_1}{2}$.

FIGURE 5. Dynamic burn-in and life test circuits - Continued.

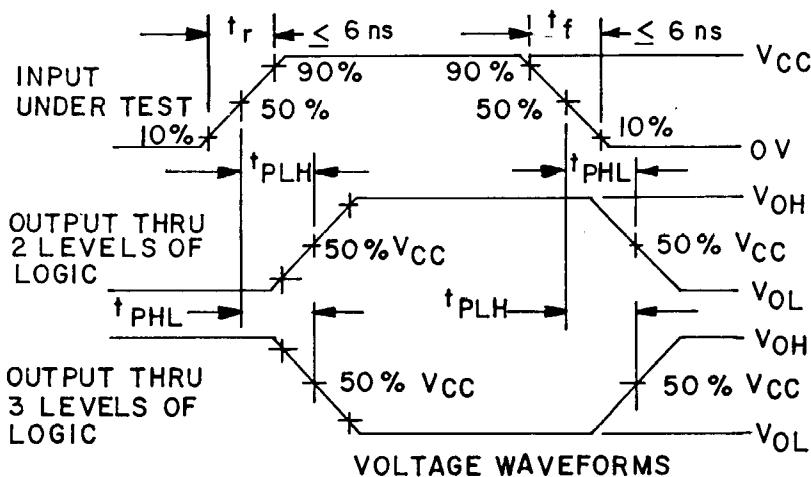
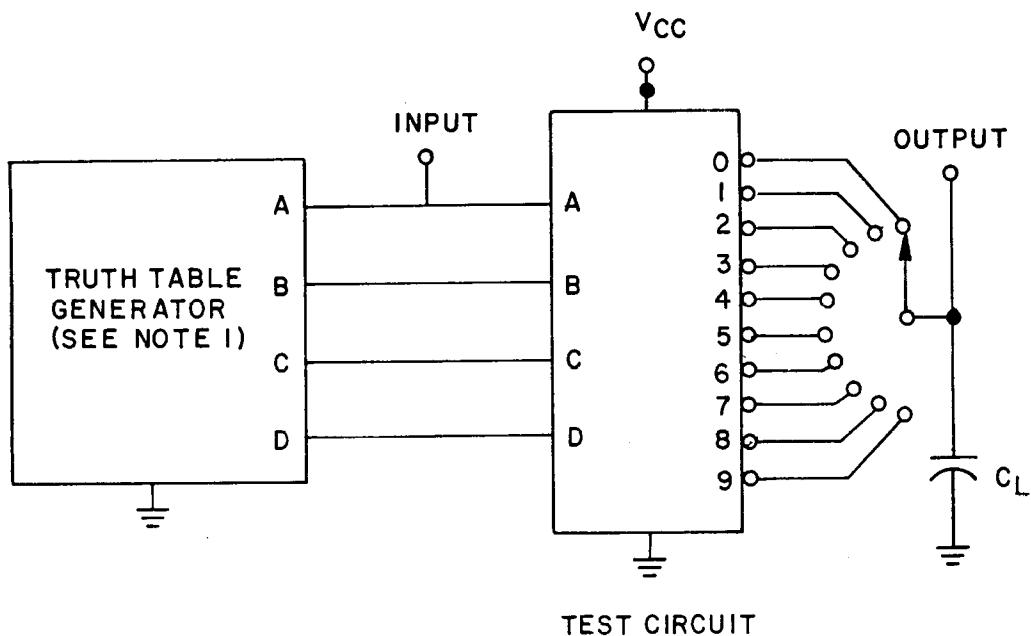
Device type 04

NOTES:

1. Input resistors $R_1 = 680\Omega$ to $47\text{ k}\Omega \pm 20\%$, output resistors $R_2 = 1\text{ k}\Omega \pm 5\%$.
2. $V_{CC} = 6.0\text{ V} \pm 0.5\text{ V}$.
3. $\frac{V_{CC}}{2} = \frac{V_{CC}}{2} \pm 0.5\text{ V}$.
4. Duty cycle = $50\% \pm 15\%$, $V_H = 4.5\text{ V}$ minimum to V_{CC} ; $V_{IL} = 0.0\text{ V} \pm 0.5\text{ V}$; $t_t \leq 500\text{ ns}$.
5. $CP_1, CP_2, CP_3, CP_4 = 25\text{ kHz}$ to 1 MHz ; square wave.

$$CP_2 = \frac{CP_1}{2}; CP_3 = \frac{CP_2}{2}; CP_4 = \frac{CP_3}{2}.$$

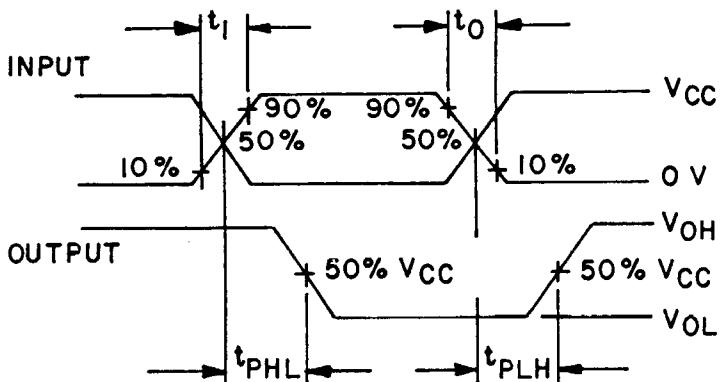
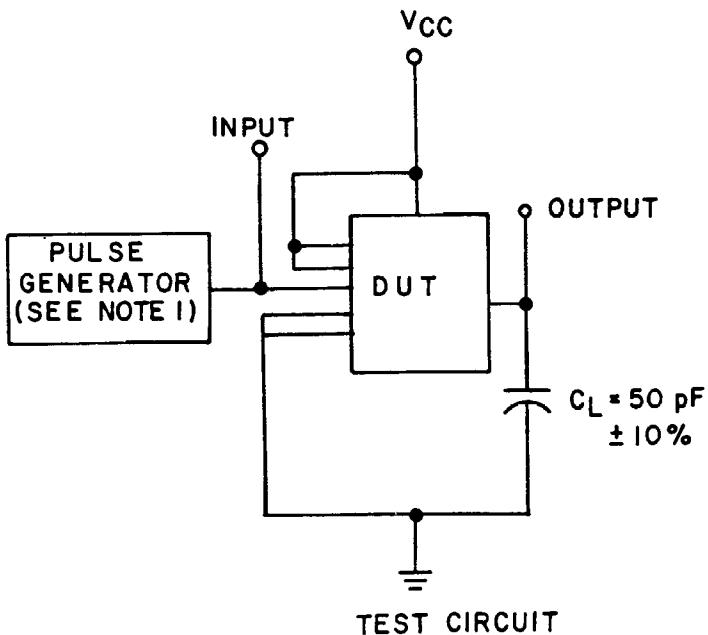
FIGURE 5. Dynamic burn-in and life test circuits - Continued.

Device type 01

NOTES:

1. The truth table generator has the following characteristics: PRR < 1 MHz, 50% duty cycle. Transition of the input under test shall occur simultaneously with or following the transition of the other inputs, $t_r = t_f \leq 6$ ns.
2. $C_L = 50 \text{ pF} \pm 10\%$; includes probe and jig capacitance.

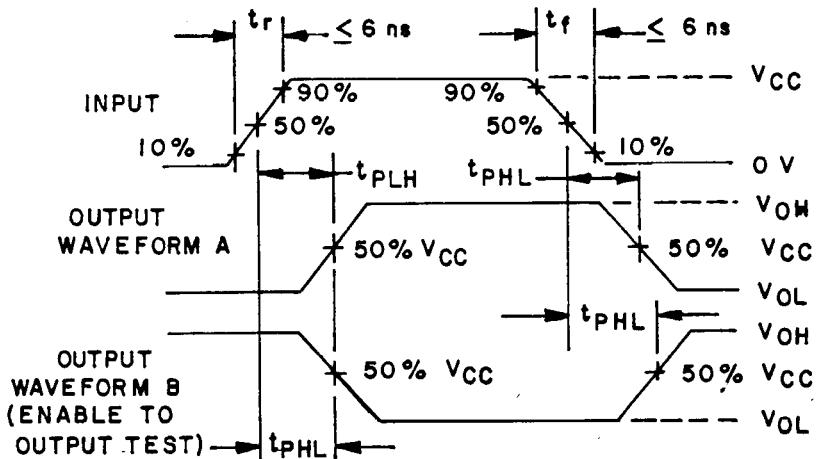
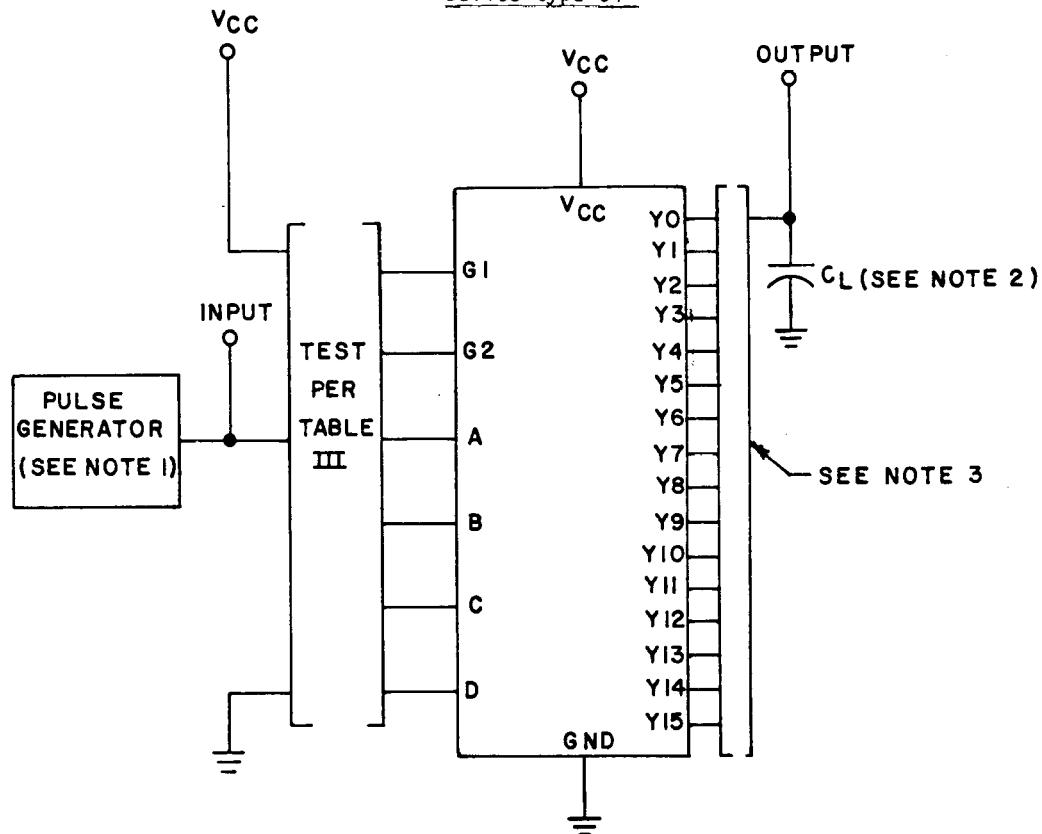
FIGURE 6. Switching time test circuits and waveforms.

Device types 02, 03, 52, and 53

NOTES:

1. Pulse generator has the following characteristics: $t_1 = t_0 \leq 6$ ns; PRR ≤ 1 MHz; duty cycle = 50%.
2. $C_L = 50$ pF $\pm 10\%$ including scope probe, wiring, and stray capacitance, without package in test fixture.
3. Voltage measurements are to be made with respect to network ground terminal.
4. All unused inputs are tied to V_{CC} or ground according to table III.
5. The input signal for HCT device types (52 and 53) will be 0 to 3 volts; however, the 50% V_{CC} measuring point is 1.3 volts for input and output.

FIGURE 6. Switching time test circuits and waveforms - Continued.

Device type 04**NOTES:**

1. The pulse generator has the following characteristics: PRR \leq 1 MHz, duty cycle = 50%, $t_r, t_f \leq 6 \text{ ns}$.
2. $C_L = 50 \text{ pF} \pm 10\% \text{ minimum}$ and includes probe and jig capacitance.
3. Load circuit is applied separately to each output pin under test. All other outputs may be open or loaded.

FIGURE 6. Switching time test circuits and waveforms - Continued.

TABLE III. Group A inspection for device type 01.

Symbol	MIL method	Case	Terminal conditions \underline{V}												Test limits								
			Subgroup 1				Subgroup 2				Subgroup 3				$T_C = +25^\circ\text{C}$		$T_C = +125^\circ\text{C}$		$T_C = -55^\circ\text{C}$				
			Test no.	0	1	2	3	4	5	6	GND	7	8	9	D	C	B	A	V _{CC}	Min	Max	Min	Max
V _{IC(pos)}	1																			1.5			
	2																			-1.5			
	3																						
	4																						
V _{IC(neg)}	5																			5.95			
	6																						
	7																						
	8																						
I _{CC}	3005	9																		0.2			
V _{H13}	3006	10	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	-20 μA	6.0 V	6.0 V	6.0 V	V _{CC}	
	11																			0	5.95		
	12																			1			
	13																			3			
	14																			4			
	15																			5			
	16																			6			
	17																			7			
	18																			8			
	19																			9			
V _{H15}	3006	20	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	0	5.48	5.2	
	21																			1			
	22																			3			
	23																			4			
	24																			5			
	25																			6			
	26																			7			
	27																			8			
	28																			9			
V _{O13}	3007	30	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	20 μA	1.2 V	1.2 V	1.2 V		
	31																			0	0.05		
	32																			1			
	33																			2			
	34																			3			
	35																			4			
	36																			5			
	37																			6			
	38																			7			
	39																			8			
	40																			9			
V _{O15}	3007	41	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	1.2 V	1.2 V	1.2 V	
	42																			0	0.26	0.4	
	43																			1			
	44																			2			
	45																			3			
	46																			4			
	47																			5			
	48																			6			
	49																			7			
	50																			8			
	51																			9			

See footnotes at end of table.

TABLE III. Group A Inspection for device type 01 - continued.

Symbol	Case	Terminal conditions 1/												Test limits		Subgroup 3/					
		Subgroup 1/						Subgroup 2/						TC = +25°C		TC = +125°C					
		TC = -55°C			TC = -55°C			TC = +25°C			TC = +125°C			TC = -55°C		TC = -55°C					
Symbol	MIL-STD-883 method	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
	test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
I _{H4}	3011	50	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND
		51																			
		52																			
		53																			
		54																			
		55																			
		56																			
		57																			
		58																			
		59																			
I _H	3010	60																			
		61																			
		62																			
		63																			
I _T L	3009	64																			
		65																			
		66																			
		67																			
C _i	3012	68																			
		69																			
		70																			
		71																			
Truth table tests 3/	3009	72																			
		73																			
		74																			
		75																			
		76																			
		77																			
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		85																			
		86																			
		87																			

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case no.	Test no.	Terminal conditions V_T												Measured terminal				Test limits				
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
tPML1	(F19. 6)	88	OUT	"	"	"	"	"	"	"	"	"	"	"	"	GND	GND	GND	GND	A to 0	2.6	4	35	4
		89	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 0	"	"	"	"
		90	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 0	"	"	"	"
		91	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 0	"	"	"	"
		92	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 1	"	"	"	"
		93	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 1	"	"	"	"
		94	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 1	"	"	"	"
		95	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 1	"	"	"	"
		96	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 2	"	"	"	"
		97	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 2	"	"	"	"
		98	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 2	"	"	"	"
		99	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 2	"	"	"	"
		100	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 3	"	"	"	"
		101	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 3	"	"	"	"
		102	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 3	"	"	"	"
		103	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 3	"	"	"	"
		104	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 4	"	"	"	"
		105	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 4	"	"	"	"
		106	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 4	"	"	"	"
		107	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 4	"	"	"	"
		108	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 5	"	"	"	"
		109	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 5	"	"	"	"
		110	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 5	"	"	"	"
		111	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 5	"	"	"	"
		112	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	A to 6	"	"	"	"
		113	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	B to 6	"	"	"	"
		114	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	C to 6	"	"	"	"
		115	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	D to 6	"	"	"	"
		116	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	A to 7	"	"	"	"
		117	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	B to 7	"	"	"	"
		118	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	C to 7	"	"	"	"
		119	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	D to 7	"	"	"	"
		120	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	A to 8	"	"	"	"
		121	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	B to 8	"	"	"	"
		122	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	C to 8	"	"	"	"
		123	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	D to 8	"	"	"	"
		124	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	A to 9	"	"	"	"
		125	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	B to 9	"	"	"	"
		126	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	C to 9	"	"	"	"
		127	"	"	"	"	"	"	"	"	"	"	"	"	"	OUT	OUT	"	"	D to 9	"	"	"	"
tPML1	(F19. 6)	128	OUT	"	"	"	"	"	"	"	"	"	"	"	"	GND	GND	"	"	IN	GND	"	"	"
		129	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		130	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		131	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		132	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		133	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		134	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		135	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		136	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		137	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		138	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		139	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		140	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		141	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		142	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"
		143	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	GND	"	"	IN	GND	"	"	"

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case no.	Terminal conditions 1/												Test limits				
			Subgroup 9			Subgroup 10			Subgroup 11			Subgroup 12			Measured terminal				
			TC = +25°C	TC = +125°C	TC = -55°C	TC = +25°C	TC = +125°C	TC = -55°C	TC = +25°C	TC = +125°C	TC = -55°C	TC = +25°C	TC = +125°C	TC = -55°C	Min	Max	Min	Max	
tpHL1	3003 (Fig. 6)	144	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 4	4	26	4	35	4	26	ns	
		145	"	"	"	"	"	"	"	"	B to 4	"	"	"	"	"	"	"	
		146	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 4	"	"	"	"	"	"	"	
		147	"	"	"	"	"	"	"	"	D to 4	"	"	"	"	"	"	"	
		148	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 5	"	"	"	"	"	"	"	
		149	"	"	"	"	"	"	"	"	B to 5	"	"	"	"	"	"	"	
		150	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 5	"	"	"	"	"	"	"	
		151	"	"	"	"	"	"	"	"	D to 5	"	"	"	"	"	"	"	
		152	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 6	"	"	"	"	"	"	"	
		153	"	"	"	"	"	"	"	"	B to 6	"	"	"	"	"	"	"	
		154	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 6	"	"	"	"	"	"	"	
		155	"	"	"	"	"	"	"	"	D to 6	"	"	"	"	"	"	"	
		156	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 7	"	"	"	"	"	"	"	
		157	"	"	"	"	"	"	"	"	B to 7	"	"	"	"	"	"	"	
		158	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 7	"	"	"	"	"	"	"	
		159	"	"	"	"	"	"	"	"	D to 7	"	"	"	"	"	"	"	
		160	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 8	"	"	"	"	"	"	"	
		161	"	"	"	"	"	"	"	"	B to 8	"	"	"	"	"	"	"	
		162	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 8	"	"	"	"	"	"	"	
		163	"	"	"	"	"	"	"	"	D to 8	"	"	"	"	"	"	"	
		164	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	A to 9	"	"	"	"	"	"	"	
		165	"	"	"	"	"	"	"	"	B to 9	"	"	"	"	"	"	"	
		166	OUT	GND	GND	IN	4.5V	GND	IN	4.5V	C to 9	"	"	"	"	"	"	"	
		167	"	"	"	"	"	"	"	"	D to 9	"	"	"	"	"	"	"	
tpHL1	3004 (Fig. 6)	168	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	0	3	15	3	20	3	15	"	
		169	"	"	"	"	"	"	"	"	1	"	"	"	"	"	"	"	
		170	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	2	"	"	"	"	"	"	"	
		171	"	"	"	"	"	"	"	"	3	"	"	"	"	"	"	"	
		172	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	4	"	"	"	"	"	"	"	
		173	"	"	"	"	"	"	"	"	5	"	"	"	"	"	"	"	
		174	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	6	"	"	"	"	"	"	"	
		175	"	"	"	"	"	"	"	"	7	"	"	"	"	"	"	"	
		176	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	8	"	"	"	"	"	"	"	
		177	"	"	"	"	"	"	"	"	9	"	"	"	"	"	"	"	
tpLH	3004 (Fig. 6)	178	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	0	1	2	1	2	3	3	"	
		179	"	"	"	"	"	"	"	"	2	"	"	"	"	"	"	"	
		180	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	4	"	"	"	"	"	"	"	
		181	"	"	"	"	"	"	"	"	5	"	"	"	"	"	"	"	
		182	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	6	"	"	"	"	"	"	"	
		183	"	"	"	"	"	"	"	"	7	"	"	"	"	"	"	"	
		184	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	8	"	"	"	"	"	"	"	
		185	"	"	"	"	"	"	"	"	9	"	"	"	"	"	"	"	
		186	OUT	OUT	OUT	OUT	OUT	GND	IN	4.5V	0	1	2	1	2	3	3	"	
		187	"	"	"	"	"	"	"	"	2	"	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 02.

Symbol	Case	MIL-STD-883 Method	Test no.	Y _{TC} (pos)	terminal conditions 1/										Measured terminal		Test limits						
					Subgroup 1 T _C = +25°C					Subgroup 2 T _C = -125°C					Subgroup 3 T _C = -55°C		Unit						
					2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
E	1	2	3	4	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	
	A	B	C	D	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	
	1	2	3	4	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	
	5	6																					
Y _{1C} (neg)	7	8	9	10	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	
	11	12																					
I _{TC}	3005	13	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	
V _{OH3}	3006	14	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	1.2 V	
	15	16	17	18	19	20	21																
V _{OH5}	3006	22	23	24	25	26	27	28	29														
V _{OL3}	3007	30	31	32	33	34	35	36	37														
V _{OL5}	3007	38	39	40	41	42	43	44	45														

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 - Continued.

Symbol	MIL-STD-883 method	Case	Terminal conditions \underline{Y}												Test limits													
			Subgroup 1						Subgroup 2						Subgroup 3													
			TC = +25°C	TC = +125°C	TC = +125°C	TC = -55°C	TC = +25°C	TC = +125°C	TC = +125°C	TC = -55°C	TC = +25°C	TC = +125°C	TC = +125°C	TC = -55°C	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal					
		Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}										
1054	3011	46	GND	GND	4.0 V	4.0 V	GND											GND	4.0 V	Y0	-10	-120	-10	-120	mA			
		47	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND			Y1	"	"	"	"	"	"	
		48	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y2	"	"	"	"	"	"	"	"
		49	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y3	"	"	"	"	"	"	"	"
		50	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y4	"	"	"	"	"	"	"	"
		51	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y5	"	"	"	"	"	"	"	"
		52	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y6	"	"	"	"	"	"	"	"
		53	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y7	"	"	"	"	"	"	"	"
T1H	3010	54	6.0 V	GND	6.0 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	A	0.05	0.1	"	"	"	"	"	"	
		55	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			C	"	"	"	"	"	"	"	"
		56	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G2A	"	"	"	"	"	"	"	"
		57	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G2B	"	"	"	"	"	"	"	"
		58	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G1	"	"	"	"	"	"	"	"
		59	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"											
T1L	3009	60	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"											
		61	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	A	-0.05	-0.1	"	"	"	"	"	"		
		62	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			C	"	"	"	"	"	"	"	
		63	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G2A	"	"	"	"	"	"	"	
		64	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G2B	"	"	"	"	"	"	"	
		65	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			G1	"	"	"	"	"	"	"	
G1	3012	66	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	GND		A	10	"	"	"	"	"	"	
		67	68	69	70	71														C	"	"	"	"	"	"	"	"
																			G2A	"	"	"	"	"	"	"	"	
																			G2B	"	"	"	"	"	"	"	"	
																			G1	"	"	"	"	"	"	"	"	
Truth Table tests 3/	3014	72	A	A	A	A	A	A	A	A	A	A	A	A	A	A	GND	H	H	H	H	H	H	H	H	H		
		73	B	B	B	B	B	B	B	B	B	B	B	B	B	B		H	H	H	H	H	H	H	H	H		
		74																										
		75																										
		76																										
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		88																										

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 - Continued.

Symbol	Case MIL- STD-883 (Fig. 6)	Test no.	Terminal conditions <u>17</u>												Test limits			
			Subgroup 9 TC = +25°C				Subgroup 10 TC = +125°C				Subgroup 11 TC = -55°C				Subgroup 12 TC = -55°C			
			A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	V _{CC}
tphL1	3003	89	IN	GND	GND	GND	GND	GND	4.5 V	GND								OUT
tphL1	90	91	GND	GND	GND	IN	IN	IN	"	"								
tphL1	92	93	"	"	"	GND	GND	GND	"	"								
tphL2	94	95	IN	IN	IN	GND	GND	GND	4.5 V									
tphL2	96	97	4.5 V	IN	IN	GND	GND	GND	"									
tphL2	98	99	"	"	"	GND	GND	GND	"									
tphL2	100	101	IN	IN	4.5 V	GND	GND	GND	4.5 V									
tphL2	102	103	GND	4.5 V	IN	GND	GND	GND	"									
tphL2	104	105	"	"	"	GND	GND	GND	"									
tphL2	106	107	IN	IN	4.5 V	GND	GND	GND	4.5 V									
tphL1	108	109	4.5 V	IN	4.5 V	IN	IN	IN	"									
tphL1	110	111	"	"	"	GND	GND	GND	"									
tphL1	112	113	IN	IN	4.5 V	GND	GND	GND	4.5 V									
tphL1	114	115	GND	IN	4.5 V	GND	GND	GND	"									
tphL2	116	117	"	"	"	GND	GND	GND	4.5 V									
tphL2	118	119	IN	IN	4.5 V	GND	GND	GND	"									
tphL2	120	121	4.5 V	IN	IN	GND	GND	GND	4.5 V									
tphL1	122	123	"	"	"	GND	GND	GND	4.5 V									
tphL2	124	125	IN	4.5 V	"	GND	GND	GND	"									
tphL2	126	127	GND	4.5 V	IN	"	"	"	"									
tphL1	128	129	"	"	"	GND	GND	GND	4.5 V									
tphL2	130	131	IN	4.5 V	"	GND	GND	GND	"									
tphL1	132	133	4.5 V	IN	4.5 V	IN	IN	IN	"									
tphL1	134	135	"	"	"	GND	GND	GND	4.5 V									
tphL2	136																	

See footnotes at end of table.

TABLE III. Group A inspection for device type 02 - Continued.

Symbol	Case MIL- STD-883 Method	Test no.	Terminal conditions $\frac{V}{I}$												Test limits			
			Test no. 1				Test no. 2				Test no. 3				Test no. 4			
			A	B	C	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	OUT	OUT	OUT
tpLH1	3003 (Fig. 6)	137	IN	GND	GND	GND	GND	4.5 V	GND	GND	GND	GND	GND	GND	4.5 V	A to Y0	4	35
tpLH1		138	GND	GND	GND	IN	"	"	"	"	"	"	"	"	"	B to Y0	"	"
tpLH1		139	"	"	"	GND	GND	GND	GND	GND	GND	GND	GND	GND	"	C to Y0	"	"
tpLH2		140	"	"	"	"	"	"	"	"	"	"	"	"	"	G2A to Y0	"	"
tpLH2		141	"	"	"	"	"	"	"	"	"	"	"	"	"	G2B to Y0	"	"
tpLH2		142	"	"	"	"	"	"	"	"	"	"	"	"	"	G1 to Y0	"	"
tpLH1		143	IN	"	"	"	"	"	"	"	"	"	"	"	"	A to Y1	"	"
tpLH1		144	4.5 V	IN	"	"	"	"	"	"	"	"	"	"	"	B to Y1	"	"
tpLH1		145	"	GND	IN	"	"	"	"	"	"	"	"	"	"	C to Y1	"	"
tpLH2		146	"	GND	IN	"	"	"	"	"	"	"	"	"	"	G2A to Y1	"	"
tpLH2		147	"	"	GND	IN	"	"	"	"	"	"	"	"	"	G2B to Y1	"	"
tpLH2		148	IN	4.5 V	"	"	"	"	"	"	"	"	"	"	"	G1 to Y1	"	"
tpLH1		149	GND	IN	4.5 V	"	"	"	"	"	"	"	"	"	"	A to Y2	"	"
tpLH1		150	"	"	GND	IN	"	"	"	"	"	"	"	"	"	B to Y2	"	"
tpLH1		151	"	"	"	4.5 V	IN	"	"	"	"	"	"	"	"	C to Y2	"	"
tpLH1		152	"	"	"	"	GND	IN	"	"	"	"	"	"	"	G2A to Y2	"	"
tpLH2		153	"	"	"	"	"	GND	IN	"	"	"	"	"	"	G2B to Y2	"	"
tpLH2		154	"	"	"	"	"	"	GND	IN	"	"	"	"	"	G1 to Y2	"	"
tpLH1		155	IN	4.5 V	"	"	"	"	GND	IN	"	"	"	"	"	A to Y3	"	"
tpLH1		156	4.5 V	IN	4.5 V	"	"	"	GND	IN	"	"	"	"	"	B to Y3	"	"
tpLH1		157	"	"	"	"	GND	IN	"	GND	IN	"	"	"	"	C to Y3	"	"
tpLH1		158	"	"	"	"	"	"	"	"	"	"	"	"	"	G2A to Y3	"	"
tpLH2		159	"	"	"	"	"	"	GND	IN	"	"	"	"	"	G2B to Y3	"	"
tpLH2		160	"	"	"	"	"	"	"	GND	IN	"	"	"	"	G1 to Y3	"	"
tpLH1		161	IN	GND	IN	4.5 V	"	"	GND	IN	"	"	"	"	"	A to Y4	"	"
tpLH1		162	GND	IN	4.5 V	"	"	"	GND	IN	"	"	"	"	"	B to Y4	"	"
tpLH1		163	"	"	GND	IN	4.5 V	"	GND	IN	"	"	"	"	"	C to Y4	"	"
tpLH1		164	"	"	"	"	"	4.5 V	IN	"	"	"	"	"	"	G2A to Y4	"	"
tpLH2		165	"	"	"	"	"	"	GND	IN	"	"	"	"	"	G2B to Y4	"	"
tpLH2		166	"	"	"	"	"	"	"	GND	IN	"	"	"	"	G1 to Y4	"	"
tpLH1		167	IN	"	"	"	"	"	GND	IN	"	"	"	"	"	A to Y5	"	"
tpLH1		168	4.5 V	IN	"	"	"	"	GND	IN	"	"	"	"	"	B to Y5	"	"
tpLH1		169	"	"	GND	IN	4.5 V	"	GND	IN	"	"	"	"	"	C to Y5	"	"
tpLH1		170	"	"	"	"	"	4.5 V	IN	"	"	"	"	"	"	G2A to Y5	"	"
tpLH2		171	"	"	"	"	"	"	GND	IN	"	"	"	"	"	G2B to Y5	"	"
tpLH2		172	"	"	"	"	"	"	"	GND	IN	"	"	"	"	G1 to Y5	"	"
tpLH2		173	IN	4.5 V	"	"	"	"	GND	IN	"	"	"	"	"	A to Y6	"	"
tpLH1		174	GND	IN	4.5 V	"	"	"	GND	IN	"	"	"	"	"	B to Y6	"	"
tpLH1		175	"	"	GND	IN	4.5 V	"	GND	IN	"	"	"	"	"	C to Y6	"	"
tpLH2		176	"	"	"	"	"	4.5 V	IN	"	"	"	"	"	"	G2A to Y6	"	"
tpLH2		177	"	"	"	"	"	"	GND	IN	"	"	"	"	"	G2B to Y6	"	"
tpLH2		178	"	"	"	"	"	"	"	GND	IN	"	"	"	"	G1 to Y6	"	"
tpLH1		179	"	"	"	"	"	"	"	"	GND	IN	"	"	"	A to Y7	"	"
tpLH1		180	4.5 V	IN	"	"	"	"	"	GND	IN	"	"	"	"	B to Y7	"	"
tpLH1		181	"	"	4.5 V	IN	"	"	"	GND	IN	"	"	"	"	C to Y7	"	"
tpLH2		182	"	"	"	4.5 V	IN	"	"	GND	IN	"	"	"	"	G2A to Y7	"	"
tpLH2		183	"	"	"	"	4.5 V	IN	"	GND	IN	"	"	"	"	G2B to Y7	"	"
tpLH2		184	"	"	"	"	"	GND	IN	"	"	"	"	"	"	G1 to Y7	"	"

See footnotes at end of table.

TABLE III. Group A Inspection for device type 02 - Continued.

Symbol	Case	Terminal conditions 1/										Test limits					
		MIL-STD-883	2	3	4	5	7	8	9	10	12	13	14	15	17	18	19
Method	E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Test no.	A	B	C	G2A	G2B	G1	Y7	GND	Y6	Y5	Y4	Y3	Y2	Y1	Y0	Vcc	
tTHL	3004 (Fig. 6)	185	GND	GND	GND	GND	IN	GND					OUT	OUT	4.5 V	10	3
	186	4.5 V													Y1	15	ns
	187	GND	4.5 V												Y2	3	
	188	4.5 V	4.5 V												Y3	20	
	189	GND	4.5 V												Y4	3	
	190	4.5 V	GND	4.5 V											Y5	15	
	191	GND	4.5 V	4.5 V											Y6	3	
	192	4.5 V	4.5 V												Y7	15	
tTLH	3004 (Fig. 6)	193	GND	GND	GND	GND		GND					OUT	OUT	OUT	10	
	194	4.5 V													Y1		
	195	GND	4.5 V												Y2		
	196	4.5 V	4.5 V												Y3		
	197	GND	GND	4.5 V											Y4		
	198	4.5 V	GND	4.5 V											Y5		
	199	GND	4.5 V	4.5 V											Y6		
	200	4.5 V	4.5 V												Y7		

See footnotes at end of table.

TABLE III. Group A Inspection for device type 03.

Symbol	Mil-S-883 method	Case	Test no.	Terminal conditions $\frac{V}{I}$												Test 1 limits		Subgroup 1		Subgroup 2		Subgroup 3		Unit TC = -55°C	
				Test 1				Test 2				Test 3				Measured terminal		TC = +25°C		TC = +125°C		TC = -55°C			
				G1	A1	B1	Y0	Y1	Y2	Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	VCC	GND	A1	B1	G2	A2	B2
$V_{IC}(pos)$			1	1 mA	1 mA	1 mA										1 mA	1 mA			1 mA	1 mA		1 mA		
$V_{IC}(neg)$			2	-1 mA	-1 mA	-1 mA										-1 mA	-1 mA			-1 mA	-1 mA		-1 mA		
I_{CC}			3																						
V_{OH3}	3005		4	6.0 V	6.0 V	6.0 V										6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	6.0 V	
V_{OH5}	3006		5	4.2 V	GND	"	-20 μ A	-20 μ A	-20 μ A	-20 μ A	-20 μ A	-20 μ A	-20 μ A												
V_{OL3}	3007		6	4.2 V	"	"	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA	-5.2 mA											
V_{OL5}	3007		7	4.2 V	GND	4.2 V	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A												

See footnotes at end of table.

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

Symbol	MIL-STD-883 method	Case no.	Terminal conditions ^{1/}												Test limits				
			Subgroup 1 $T_C = +25^\circ\text{C}$												Subgroup 2 $T_C = +125^\circ\text{C}$				
			Subgroup 3 $T_C = -55^\circ\text{C}$																
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	
i_{D4}		E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	$T_C = -55^\circ\text{C}$
		61	A1	81	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}		$T_C = -55^\circ\text{C}$
		46	4.0 V	GND	GND	GND	4.0 V	1Y0	-10	-120 mA									
		47	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y1	"	"
		48	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y2	"	"
		49	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y3	"	"
		50	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y0	"	"
		51	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y1	"	"
		52	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y2	"	"
		53	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y3	"	"
i_{IH}		3010	54	6.0 V	GND	GND	GND	6.0 V	G1	.05	0.1 μA								
		55	"	"	GND	"	GND	"	A1	"	"								
		56	"	"	GND	"	GND	"	B1	"	"								
		57	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G2	"	"
		58	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A2	"	"
		59	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2	"	"
i_{IL}		3019	60	GND	6.0 V	6.0 V	GND	GND	GND	6.0 V	G1	-0.1	0.1 μA						
		61	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	6.0 V	GND	GND	6.0 V	A1	"	"
		62	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B1	"	"
		63	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G2	"	"
		64	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A2	"	"
		65	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2	"	"
C_1		3012	66	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$2/$	$T_C = +25^\circ\text{C}$
		67																	$T_C = +125^\circ\text{C}$
		68																	$T_C = -55^\circ\text{C}$
		69																	
		70																	
		71																	
Truth table tests 3/		3014	72	A	A	A	A	H	H	H	H	H	H	A	A	4.5 V	4/		
		73		A	A	A	A	H	H	H	H	H	H	A	A	"	"		
		74		B	B	B	B	H	H	H	H	H	H	B	B	"	"		
		75		B	B	B	B	H	H	H	H	H	H	B	B	"	"		
		76		B	B	B	B	H	H	H	H	H	H	B	B	"	"		
		77		A	A	A	A	H	H	H	H	H	H	A	A	"	"		
		78		A	A	A	A	H	H	H	H	H	H	A	A	"	"		
		79		A	A	A	A	H	H	H	H	H	H	A	A	"	"		

See footnotes at end of table.

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

Symbol	Case	terminal conditions 1/																Test limits											
		Case E				Case 2				Case 3				Case 4				Case 5				Measured terminal		Subgroup 9	Subgroup 10	Subgroup 11	Unit		
MIL-STD-883 method	test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y2	2Y1	2Y0	B2	A2	G2	V _{CC}												
t _{PHL2}	3003 (Fig. 6)	40	IN	GND	GND	OUT			GND					GND	GND	4.5 V		G1 to 1Y0	6	31	6	41	6	31	ns				
t _{PHL1}	81	GND	GND	GND	IN	OUT												A1 to 1Y0		39	ns	51	ns	39					
t _{PHL2}	82	GND	GND	GND	4.5 V													A1 to 1Y1		39	ns	51	ns	39					
t _{PHL1}	83	IN	GND	GND	4.5 V													A1 to 1Y1		31	ns	41	ns	31					
t _{PHL2}	84	GND	GND	GND	4.5 V													A1 to 1Y1		39	ns	51	ns	39					
t _{PHL1}	85	GND	GND	GND	4.5 V	IN	OUT	"										A1 to 1Y2		39	ns	51	ns	39					
t _{PHL2}	86	GND	GND	GND	4.5 V													A1 to 1Y2		39	ns	51	ns	39					
t _{PHL1}	87	GND	GND	GND	4.5 V													A1 to 1Y2		39	ns	51	ns	39					
t _{PHL2}	88	GND	GND	GND	4.5 V													A1 to 1Y2		39	ns	51	ns	39					
t _{PHL1}	89	IN	GND	GND	4.5 V													A1 to 1Y3		31	ns	41	ns	31					
t _{PHL2}	90	GND	GND	GND	4.5 V													A1 to 1Y3		39	ns	51	ns	39					
t _{PHL1}	91	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PHL2}	92	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PHL1}	93	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PHL2}	94	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PHL1}	95	"	GND	GND	4.5 V													A2 to 2Y1		6	31	41	6	31					
t _{PHL2}	96	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PHL1}	97	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PHL2}	98	"	GND	GND	4.5 V													A2 to 2Y2		31	ns	41	ns	31					
t _{PHL1}	99	"	GND	GND	4.5 V													A2 to 2Y2		39	ns	51	ns	39					
t _{PHL2}	100	"	GND	GND	4.5 V													A2 to 2Y2		39	ns	51	ns	39					
t _{PHL1}	101	"	GND	GND	4.5 V													A2 to 2Y3		31	ns	41	ns	31					
t _{PHL2}	102	"	GND	GND	4.5 V													A2 to 2Y3		39	ns	51	ns	39					
t _{PHL1}	103	"	GND	GND	4.5 V													A2 to 2Y3		8	39	51	ns	39					
t _{PHL2}	104	"	GND	GND	4.5 V													A1 to 1Y0		6	41	6	31	31					
t _{PLH1}	105	"	GND	GND	4.5 V													A1 to 1Y0		39	ns	51	ns	39					
t _{PLH2}	106	"	GND	GND	4.5 V													A1 to 1Y0		39	ns	51	ns	39					
t _{PLH1}	107	"	GND	GND	4.5 V													A1 to 1Y1		31	ns	41	ns	31					
t _{PLH2}	108	"	GND	GND	4.5 V													A1 to 1Y1		39	ns	51	ns	39					
t _{PLH1}	109	"	GND	GND	4.5 V													A1 to 1Y1		39	ns	51	ns	39					
t _{PLH2}	110	"	GND	GND	4.5 V													A1 to 1Y2		31	ns	41	ns	31					
t _{PLH1}	111	"	GND	GND	4.5 V													A1 to 1Y2		39	ns	51	ns	39					
t _{PLH2}	112	"	GND	GND	4.5 V													A2 to 2Y1		31	ns	41	ns	31					
t _{PLH1}	113	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PLH2}	114	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PLH1}	115	"	GND	GND	4.5 V													A1 to 1Y3		8	39	51	ns	39					
t _{PLH2}	116	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PLH1}	117	"	GND	GND	4.5 V													A2 to 2Y0		6	31	41	6	31					
t _{PLH2}	118	"	GND	GND	4.5 V													A2 to 2Y0		39	ns	51	ns	39					
t _{PLH1}	119	"	GND	GND	4.5 V													A2 to 2Y1		31	ns	41	ns	31					
t _{PLH2}	120	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PLH1}	121	"	GND	GND	4.5 V													A2 to 2Y1		39	ns	51	ns	39					
t _{PLH2}	122	"	GND	GND	4.5 V													A2 to 2Y2		31	ns	41	ns	31					
t _{PLH1}	123	"	GND	GND	4.5 V													A2 to 2Y2		39	ns	51	ns	39					
t _{PLH2}	124	"	GND	GND	4.5 V													A2 to 2Y3		31	ns	41	ns	31					
t _{PLH1}	125	"	GND	GND	4.5 V													A2 to 2Y3		39	ns	51	ns	39					
t _{PLH2}	126	"	GND	GND	4.5 V													A2 to 2Y3		8	39	51	ns	39					
t _{PLH1}	127	"	GND	GND	4.5 V													A2 to 2Y3		8	39	51	ns	39					
t _{T_{LH}}	3003 (Fig. 6)	128	IN	4.5 V	"	GND	4.5 V	"	GND	4.5 V	"	GND	"	GND	GND	4.5 V		Y0	3	15	3	20	3	15					
t _{T_{LH}}	129	130	131	132	133	134	135	"	GND	4.5 V	"	GND	"	GND	GND	4.5 V		Y1	"	"	"	"	"	"					
t _{T_{LH}}	136	137	138	139	140	141	142	143	"	GND	4.5 V	"	GND	"	GND	4.5 V		Y2	"	"	"	"	"	"					
t _{T_{LH}}	136	137	138	139	140	141	142	143	"	GND	4.5 V	"	GND	"	GND	4.5 V		Y3	"	"	"	"	"	"					

See footnotes at end of table.

TABLE III. Group A inspection for device type 0d.

Symbol	Case no.	MIL-test method	Terminal condition 17												Test limits												Measured terminal	Subgroup 1	Subgroup 2	Subgroup 3	Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
V _{C1} (pos)	1																														
V _{C1} (neg)	2																														
V _{CC}	3																														
V _{OH3}	4																														
V _{OH3}	5																														
V _{OH3}	6																														
V _{OH3}	7																														
V _{OH3}	8																														
V _{OH3}	9																														
V _{OH3}	10																														
V _{OH3}	11																														
V _{OH3}	12																														
V _{OH5}	13																														
V _{OH5}	14																														
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V _{OH5}	39																														
V _{OH5}	40																														
V _{OH5}	41																														
V _{OH5}	42																														
V _{OH5}	43																														
V _{OH5}	44																														
V _{OH5}	45																														

See footnotes at end of table.

TABLE III. Group A inspection for device type 04 - Continued.

Symbol	Case no.	MIL-STD-883 method test	Terminal conditions ΣI_T												Test limits												
			Terminal conditions												Subgroup 1						Subgroup 2						
			case 3	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	
V_{OL3}	3007	46	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	20 μ A	GND	GND	GND	GND	GND	GND	GND	GND	GND	6.0 V	Y0	0.05		
	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	"	"	"	"	"	"	"	"	"	"	"	"
V_{OL5}	3007	62	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	5.2 mA	GND	GND	GND	GND	GND	GND	GND	GND	GND	4.2 V	Y0	0.26	
	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	"	"	"	"	"	"	"	"	"	"	"	"
I_{054}	3011	78	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	4.0 V	Y0	-10	
	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	"	"	"	"	"	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 04 - Continued.

Symbol	MIL-STD-883 Method	Test no.	Case no.	Terminal conditions Σ												Test limits												Measured terminal	Subgroup 1 $T_C = +25^\circ C$	Subgroup 2 $T_C = +125^\circ C$	Subgroup 3 $T_C = -55^\circ C$	Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
I _{1A}	3010	94																														
		96																														
		97																														
		98																														
		99																														
I _{1L}	3009	100																														
		101																														
		102																														
		103																														
		104																														
		105																														
C ₁	3012	106																														
		107																														
		108																														
		109																														
		110																														
		111																														
Subgroup 4 $T_C = +25^\circ C$																																
Truth table 3/ ₁	3014	112	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		113	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		114	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		115	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		116	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		117	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		118	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		119	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		120	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		121	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		122	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		123	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		124	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		125	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H		
		126	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H		
		127	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H	H		
		128	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H	H		
		129	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	H	H	H	H	H	H	H	H	H	H		
		130	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L		

See footnotes at end of table.

TABLE III. Group A Inspection for device type 04 - Continued.

Symbol	MIL-S-863 method	terminal conditions V_T												Test limits												
		Case 3	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28
t _{pH1}	(F19, 6)	131	0UT	GND																						
		132																								
		133																								
		134																								
		135																								
		136																								
		137																								
		138																								
		139																								
		140																								
		141																								
		142																								
		143																								
		144																								
		145																								
t _{pH2}	(F19, 6)	146	0UT																							
		147																								
t _{pL11}	(F19, 6)	148	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT												
		149																								
		150																								
		151																								
		152																								
		153																								
		154																								
		155																								
		156																								
		157																								
		158																								
		159																								
		160																								
		161																								
		162																								
t _{pL11}	(F19, 6)	163	0UT																							
		164																								
t _{pL12}	(F19, 6)	165	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT	0UT												
		166																								
		167																								
		168																								
		169																								
		170																								
		171																								
		172																								
		173																								
		174																								
		175																								
		176																								
		177																								
		178																								
		179																								
		180																								

See footnotes at end of table.

TABLE III. Group A Inspection for device type 04 - Continued.

Symbol	Terminal Conditions /U												Test Limits																											
	Case			Case			Case			Case			Case			Case			Case			Case																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28												
41L-883 mechanical	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28												
61X- 102	10	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	GND	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24	Y25	Y26												
tril	13004 (19, 6)	131	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	GND	132	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT	OUT											
	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160												
	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162												
	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164											
	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166										
	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168									
	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170								
	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172							
	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174						
	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176					
	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178				
	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180			
	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182		
	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	
	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186

See footnotes at end of table.

TABLE III. Group A inspection for device type 52.

Symbol	MIL-STD-883 method	Case no.	Test no.	Terminal conditions \underline{V}	Test limits																
					Subgroup 1				Subgroup 2				Subgroup 3				Unit				
TC = +25°C				TC = -125°C				TC = -55°C													
					Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
$V_{TC(pos)}$		2	1	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	
$V_{TC(neg)}$		3	4	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	
I_{CC}	30005	13	14	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	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	
I_{CCA}		15	16	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V
V_{OH6}	30006	17	18	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V
V_{OH7}		20	21	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
V_{OL6}	30007	25	26	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
V_{OL7}		27	28	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

See footnotes at end of table.

TABLE III. Group A inspection for device type 52 - Continued.

Symbol	Base	Terminal conditions 1/												Test limits												
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Measured terminal	Subgroup 1	Subgroup 2	Subgroup 3	Unit	TC = +25°C	TC = +125°C	TC = -125°C	TC = -55°C	
Test no.	E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Min	Max	Min	Max	Min	Max	Min	Max	
1094	3011	49	GND	GND	GND	4.0 V	4.0 V	GND	"	"	"	"	"	"	"	"	GND	4.0 V	Y0	-10	-120	-10	-120	mA		
		50	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y1	"	"	"	"	"		
		51	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y2	"	"	"	"	"		
		52	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y3	"	"	"	"	"		
		53	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y4	"	"	"	"	"		
		54	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y5	"	"	"	"	"		
		55	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y6	"	"	"	"	"		
		56	"	"	"	"	"	"	"	"	"	"	"	"	"	"			Y7	"	"	"	"	"		
T _H	3010	57	5.5 V	"	GND	5.5 V	"	GND	"	"	"	"	"	"	"	"		5.5 V	A	0.5	0.1	0.1	0.1	μA		
		58	GND	5.5 V	"	GND	5.5 V	"	"	"	"	"	"	"	"	"		C	"	"	"	"	"			
		59	"	GND	5.5 V	"	GND	5.5 V	"	"	"	"	"	"	"	"		G2A	"	"	"	"	"			
		60	"	"	"	"	"	"	"	"	"	"	"	"	"	"		G2B	"	"	"	"	"			
		61	"	"	"	"	"	"	"	"	"	"	"	"	"	"		G1	"	"	"	"	"			
		62	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
I _L	3009	63	"	5.5 V	5.5 V	5.5 V	5.5 V	"	"	"	"	"	"	"	"	"		A	-0.5	-0.1	0	0	0			
		64	5.5 V	GND	5.5 V	"	GND	5.5 V	"	"	"	"	"	"	"	"		C	"	"	"	"	"			
		65	"	"	5.5 V	"	GND	5.5 V	"	"	"	"	"	"	"	"		G2A	"	"	"	"	"			
		66	"	"	"	"	"	5.5 V	"	"	"	"	"	"	"	"		G2B	"	"	"	"	"			
		67	"	"	"	"	"	"	5.5 V	"	"	"	"	"	"	"		G1	"	"	"	"	"			
		68	"	"	"	"	"	"	"	5.5 V	"	"	"	"	"	"										
C _i	3012	59	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/									pF	
		70	71	72	73	74																				
Truth table tests	3014	75	A	A	A	A	A	A	A	A	A	A	A	A	A	A	GND	H	H	H	H	H	4.5 V			
		76	"	"	"	"	"	"	"	"	"	"	"	"	"	"		C	"	"	"	"	"			
		77	"	"	"	"	"	"	"	"	"	"	"	"	"	"		G2A	"	"	"	"	"			
		78	"	"	"	"	"	"	"	"	"	"	"	"	"	"		G2B	"	"	"	"	"			
		79	"	"	"	"	"	"	"	"	"	"	"	"	"	"		G1	"	"	"	"	"			
		80	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		81	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		82	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		83	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		84	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		85	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		86	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		87	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		88	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		89	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		90	"	"	"	"	"	"	"	"	"	"	"	"	"	"										
		91	"	"	"	"	"	"	"	"	"	"	"	"	"	"										

See footnotes at end of table.

TABLE III. Group A inspection for device type 52 - Continued.

Symbol	Case No.	ML- STD-883 method	Terminal conditions 1/																					Test limits 2/								
			Case E				Case A				Case B				Case C				Case GND				Case IN				Case OUT				Measured terminal	
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	14	15	16	17	18	19	20	Min	Max		
tpH1	3003 (Fig. 6)	92	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	4.5 V	A to Y0			
tpH1	93	94	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	35 ns		
tpH1	95	96	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH2	97	98	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH2	99	100	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH1	101	102	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH2	103	104	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH1	105	106	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns		
tpH1	107	108	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	109	110	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH1	111	112	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	113	114	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	115	116	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH1	117	118	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	119	120	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	121	122	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH1	123	124	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	125	126	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	127	128	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH1	129	130	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	131	132	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	133	134	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH1	135	136	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	137	138	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT	6	44 ns			
tpH2	139																									OUT						
tpH1	140	141	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH1	142	143	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH2	144	145	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH1	146	147	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH1	148	149	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH2	150	151	IN	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH2	152	153	4.5 V	GND	GND	GND	GND	GND	GND	GND	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	IN	OUT					
tpH1	154																									C to Y2						

See footnotes at end of table.

TABLE III. Group A inspection for device type 52 - Continued.

See footnotes at end of table.

TABLE III. Group A inspection for device type 53.

Symbol	Case MIL- STD-883 method	Terminal conditions 17												Test limits						
		Test no.						Measured terminal						Subgroup 1 $T_C = +23^\circ C$		Subgroup 2 $T_C = +125^\circ C$		Subgroup 3 $T_C = -55^\circ C$		
E	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	17	18	19	20	Measured terminal
$V_{TC}(\text{pos})$	1	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA	1 mA
$V_{TC}(\text{neg})$	2	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA	-1 mA
I_{CC}	7	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	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V
I_{CCA}	8	13	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
V_{OH6}	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	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V	0.8 V
V_{OL6}	32	0.8 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V	2.0 V
V_{OL7}	40	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	41	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	42	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	43	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	44	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	45	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	46	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA
	47	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA	4.0 mA

See footnotes at end of table.

TABLE III. Group A inspection for device type 53 - Continued.

Symbol	MIL-STD-883 method	Case	Terminal conditions Y												Test limits							
			Measured terminal												Subgroup 1		Subgroup 2					
			$T_C = +23^\circ C$						$T_C = +125^\circ C$						$T_C = -55^\circ C$		$T_C = -55^\circ C$					
Test no.	Test	Y1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
I054	3011	43	4.0 V	GND	5.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	4.0 V	4.0 V	1Y0	-10	-120	-10	-120	mA
		49	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y1	"	"	"	"	"
		50	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y2	"	"	"	"	"
		51	"	"	"	"	"	"	"	"	"	"	"	"	"	"	1Y3	"	"	"	"	"
		52	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y0	"	"	"	"	"
		53	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y1	"	"	"	"	"
		54	"	"	"	"	"	"	"	"	"	"	"	"	"	"	2Y2	"	"	"	"	"
		55	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
I1H	3010	56	5.5 V	GND	5.5 V	GND	GND	GND	GND	GND	GND	GND	GND	GND	5.5 V	5.5 V	G1	0.05	0.1	0.1	0.1	μA
		57	"	"	"	"	"	"	"	"	"	"	"	"	"	"	G1	"	"	"	"	"
		58	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B1	"	"	"	"	"
		59	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q2	"	"	"	"	"
		60	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A2	"	"	"	"	"
		61	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2	"	"	"	"	"
I1L	3009	62	GND	5.5 V	5.5 V	GND	5.5 V	GND	5.5 V	GND	5.5 V	GND	5.5 V	GND	5.5 V	5.5 V	G1	-0.05	-0.1	-0.1	-0.1	μA
		63	5.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	A1	"	"	"	"	"
		64	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B1	"	"	"	"	"
		65	"	"	"	"	"	"	"	"	"	"	"	"	"	"	Q2	"	"	"	"	"
		66	"	"	"	"	"	"	"	"	"	"	"	"	"	"	A2	"	"	"	"	"
		67	"	"	"	"	"	"	"	"	"	"	"	"	"	"	B2	"	"	"	"	"
C ₁	3012	68	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/
Truth table tests	3014	74	A	A	A	A	H	H	H	H	H	H	H	H	A	A	A	A	4.5 V	4.5 V	4.5 V	
		75	"	B	A	B	"	"	"	"	"	"	"	"	B	A	B	A	"	"	"	
		76	"	B	A	B	"	"	"	"	"	"	"	"	B	B	B	B	"	"	"	
		77	"	B	A	B	"	"	"	"	"	"	"	"	B	B	B	B	"	"	"	
		78	B	"	B	"	"	"	"	"	"	"	"	"	L	H	L	H	"	"	"	
		79	"	A	"	A	"	"	"	"	"	"	"	"	L	H	L	H	"	"	"	
		80	"	A	"	A	"	"	"	"	"	"	"	"	A	A	A	A	"	"	"	
		81	"	"	"	"	"	"	"	"	"	"	"	"	L	H	L	H	"	"	"	

See footnotes at end of table.

TABLE III. Group A inspection for device type 53 - Continued.

Symbol	MIL-STD-883 method	Case	Terminal conditions $\frac{V}{T}$												Test limits						
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Subgroup 9 $T_C = +25^\circ C$	Subgroup 10 $T_C = +125^\circ C$	Subgroup 11 $T_C = -55^\circ C$	Unit
Test no.	G1	A1	B1	1Y0	1Y1	1Y2	1Y3	GND	2Y3	2Y1	2Y0	B2	A2	G2	V _{CC}	Min	Max	Min	Max		
tpLH1.2	3003	82	IN	GND	GND	OUT	"	GND	GND	GND	GND	4.5 V	5	35	5	47	5	35	ns	ns	
tpLH1.1	83	GND	GND	IN	GND	GND	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1.1	84	GND	GND	IN	4.5 V	GND	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	85	IN	4.5 V	GND	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	86	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	87	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	88	IN	GND	4.5 V	IN	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	89	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	90	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	91	IN	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	92	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	93	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	94	"	"	GND	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	95	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	96	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	97	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	98	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	99	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	100	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	101	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	102	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	103	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	104	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	105	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	106	"	"	"	"	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	107	GND	IN	GND	IN	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	108	GND	IN	GND	IN	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	109	IN	4.5 V	GND	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	110	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	111	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	112	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	113	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	114	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	115	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH2	116	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	117	GND	4.5 V	IN	GND	"	"	"	"	"	"	4.5 V	5	35	5	41	41	41	31	31	
tpLH1	118	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	119	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	120	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	121	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH2	122	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	123	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	124	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH2	125	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	126	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH2	127	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	128	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	
tpLH1	129	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	

See footnotes at end of table.

TABLE III. Group A inspection for device type 53 - Continued.

Symbol	Case MIL- STD-883 method	Test no.	Terminal conditions \overline{V}	Test limits													
				2	3	4	5	6	7	8	9	10	11	12	13	14	15
t_{THL}	(Fig. 6)	130	IN	GND													
		131	"	4.5 V	GND												
		132	"	GND	4.5 V												
		133	"	4.5 V	GND												
		134	"	GND	4.5 V												
		135	"	GND	"												
		136	"	"	"												
		137	"	"	"												
t_{TLH}	(Fig. 6)	138	IN	"	"												
		139	"	4.5 V	GND												
		140	"	GND	4.5 V												
		141	"	4.5 V	GND												
		142	"	GND	4.5 V												
		143	"	"	"												
		144	"	"	"												
		145	"	"	"												

^{1/} Output pins not designated may be high level logic, low level logic, or open. Input pins not designated may be high level logic or low level logic. Exceptions are as follows:

- a. V_{IC}(pos) tests, the GND terminal shall be open. A minimum limit of 0.4 V applies to tests being performed on equipment not capable of opening the GND pin during test.
- b. V_{IC}(neg) tests, the VCC terminal shall be open.
- c. I_{CC} tests, the output terminal shall be open.

^{2/} See 4.4.1c.

^{3/} Tests shall be performed in sequence. A = 2.4 V; B = 0.4 V for device types 52 and 53; A = 3.7 V; B = 0.4 V for device types 51 through 54.

^{4/} X = indeterminate output voltage. Output shall be H > 2.5 V; L < 2.5 V.

^{5/} See 4.4.1d.

^{6/} The input signal for HGT device types shall be 0 to 3 volts, however the 50 percent V_{CC} measuring point is 1.3 V for input and output signals. The 10 percent and 90 percent V_{CC} points are 0.3 V and 2.7 V respectively for HGT devices.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of method 5005 of MIL-STD-883 and as follows:

- a. Class S steady-state life (accelerated) test circuits shall be submitted to the qualifying activity for approval. When the alternate steady-state life test is used, the circuit on figure 5, or equivalent, shall be used.
- b. Electrostatic Discharge Sensitivity (ESDS) testing shall be performed in accordance with MIL-STD-883, method 3015. The option to categorize devices as ESD sensitive without performing the test is not allowed. Device types categorized as ESD sensitive shall be further tested using method 3015 modified as follows:
 - (1) Test method 3015, table I pin combinations 4(V +(A) to common (B)) and 5(V +(B) to common (A)) shall be deleted.
 - (2) The test sequence specified in 3.b of method 3015 shall be repeated an additional four times instead of two.
 - (3) The category A limits specified in figure 3015-3, ESD sensitivity category, shall be 1,000 V to 2,000 V.
- c. End-point electrical parameters shall be as specified in table II herein. Delta limits shall apply only to subgroup 5 of group B inspection and shall consist of tests specified in table IV 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. Delta limits shall apply only to subgroup 1 of group C inspection and shall consist of tests specified in table IV herein.
- b. Steady-state life test (method 1005 of MIL-STD-883) conditions:
 - (1) Test condition D and as specified in 4.5.2 herein and as shown on figure 5 (note 3), 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.

4.4.5 Group E inspection. Group E inspection is required only for device types intended to be marked as radiation hardened (see 3.6.1). When group E testing is performed it shall be in accordance with table V of method 5005 of MIL-STD-883 and 4.5.4 herein.

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

4.5.1 Voltage and current. Unless otherwise specified, all voltages given are referenced to the microcircuit GND terminal. Currents given are conventional current and positive when flowing into the referenced terminal.

4.5.2 Burn-in and life test cool down procedures. When the burn-in and life tests are completed and prior to removal of bias voltages, the devices under test (DUT) shall be cooled to within 10°C of their power stable conditions at room temperature; then, electrical parameter end-point measurements shall be performed.

TABLE IV. Delta limits at +25°C.

Parameter 1/	All device types
I _{CC}	*30 nA

- 1/ The above parameters shall be recorded before and after the required burn-in and life tests to determine deltas (Δ).

4.5.3 Quiescent supply current (I_{CC} test). When performing quiescent supply current measurements (I_{CC}), the meter shall be placed so that all currents flow through the meter.

4.5.4 Radiation hardness assurance (RHA) testing. The RHA testing shall be performed in accordance with test procedures and sampling specified in table V of method 5005 of MIL-STD-883 and herein:

- a. Before irradiation, selected samples shall be assembled in qualified packages and pass the governing electrical parameters (group A subgroup 1 at +25°C) and also be subjected to the threshold-voltage test in table V in order to calculate the delta threshold (ΔV_T) after irradiation.
- b. The devices shall be subjected to a total radiation dose as specified in MIL-M-38510 for the radiation hardness assurance (RHA) level being tested, and meet the end-point electrical parameters as defined in table VI at +25°C, after exposure. The start and completion of the end-point electrical parameter measurements shall not exceed 2 hours following irradiation.
- c. Threshold-voltage test circuit conditions shall be as specified in table V and figure 7. In situ and remote testing, the tests shall be performed with the devices biased in accordance with table VII and bias may be interrupted for up to 1 minute to remove devices to the remote bias fixture.
- d. After irradiation, the devices shall pass the truth table test as specified in subgroup 7 in table III or if subgroup 7 is not required, then an equivalent truth table test shall be performed.

TABLE V. Threshold-voltage test circuit conditions.

Device type	GND	5 V	V _{TN} measured at -10 μA supply	GND	-5.0 V	V _{TP} measured at 10 μA supply
01	13	12, 16	8, 14, 53	13	8, 14, 15	12, 16
02, 52	2	1, 16	3, 4, 5, 6, 8	2	3, 4, 5, 6, 8	1, 16
03, 53	2	3, 16	1, 8, 13, 14, 15	2	1, 8, 13, 14, 15	3, 16
04	18	19, 24	12, 20, 21, 22, 23	18	12, 20, 21, 22, 23	19, 24

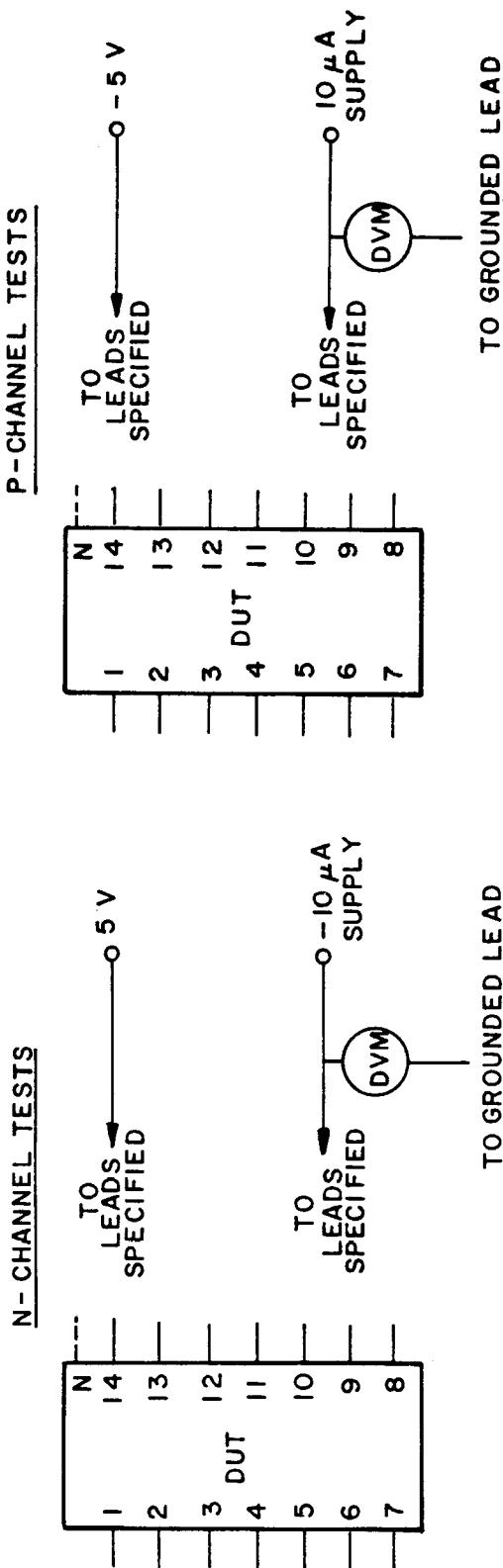


FIGURE 7. Threshold-voltage test circuit.

TABLE VI. Radiation hardening end-point electrical parameters at +25°C.

Parameter	All device types	V_{CC}	
		Device types	
		01, 02, 03, 04	52, 53
V_{TN}	-0.3 V min	5 V	5 V
V_{TP}	2.8 V max	5 V	5 V
ΔV_T	1.0 V max	5 V	5 V
I_{CC}	100 x max limit	6 V	5.5 V
t_{PLH}	1.35 x max limit	4.5 V	4.5 V
t_{PHL}	1.35 x max limit	4.5 V	4.5 V

TABLE VII. Bias during exposure to radiation.

Device type	Pin connections			^{1/} $V_{CC} = 4.5 \text{ V dc}$ (through a 30- to 60-kilohm resistor)
	GND		$V_{CC} = 4.5 \text{ V dc}$	
01	12, 13, 14, 15	8		16
02, 52	1, 2, 3, 4, 5, 6	8		16
03, 53	1, 2, 3, 13, 14, 15	8		16
04	18, 19, 20, 21, 22, 23	12		24

^{1/} Pins not designated are open or connected to 4.5 V dc through a 30- to 60-kilohm resistor.

4.6 Data reporting. When specified in the purchase order or contract, a copy of the following data, as applicable, shall be supplied:

- a. Attributes data for all screening tests (see 4.2) and variables data for all static burn-in, dynamic burn-in, and steady-state life tests (see 3.5).
- b. A copy of each radiograph.
- c. The quality conformance inspection data (see 4.4).
- d. Parameter distribution data on parameters evaluated during burn-in (see 3.5).
- e. Final electrical parameters data (see 4.2c).

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 application 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.
- 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.
- i. Requirements for total dose radiation testing (see 3.6.1 and 4.5.4), if applicable.

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:

C_i	- - - - -	Input terminal-to-GND capacitance.
GND	- - - - -	Ground zero voltage potential.
ICC	- - - - -	Quiescent supply current.
TC	- - - - -	Case temperature.
VCC	- - - - -	Positive supply voltage.

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 S for National Aeronautics and Space Administration or class B for Department of Defense (see 1.2.2), lead 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.

Military device type	Generic-industry type
01	54HC42
02	54HC138
03	54HC139
04	54HC154
52	54HCT138
53	54HCT139

6.6 Handling. MOS devices must be handled with certain precautions to avoid damage due to accumulation of static charge. Input protective devices have been designed in the chip to minimize the effect of this static buildup. However, the following handling practices are recommended:

- a. Devices should be handled on benches with conductive and grounded surface.
- b. Ground test equipment and tools.
- c. Do not handle devices by the leads.
- d. Store devices in conductive foam or carriers.
- e. Avoid use of plastic, rubber, or silk in MOS areas.
- f. Maintain relative humidity above 50 percent, if practical.

Custodians:

Army - ER
Navy - EC
Air Force - 17
NASA - NA

Preparing activity:
Air Force - 17

Agent:
DLA - ES

Review activities:

Army - AR, MI
Air Force - 11, 19, 85, 99
DLA - ES

(Project 5962-0961)

User activities:

Army - SM
Navy - AS, CG, MC, OS, SH