

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, ADVANCED LOW POWER SCHOTTKY TTL, UNIVERSAL MULTIPLEXER WITH THREE-STATE OUTPUTS, MONOLITHIC SILICON

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

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, advanced low power Schottky TTL, universal multiplexer (three-state) logic microcircuits. Two product assurance classes and a choice of case outlines/lead finishes are provided for each type and are reflected in the complete part number.

1.2 Part number. The part number shall be in accordance with MIL-M-38510.

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

<u>Device type</u>	<u>Circuit</u>
01	Hex, two input universal multiplexer with 3-state outputs

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

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

<u>Outline letter</u>	<u>MIL-M-38510, appendix C, case outline</u>
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
3	C-4 (28 terminal, .450" x .450"), square chip carrier package

1.3 Absolute maximum ratings:

Supply voltage range - - - - -	-0.5 V dc to 7.0 V dc
Input voltage range- - - - -	-1.5 V dc at -18 mA to 7.0 V dc
Storage temperature range- - - - -	-65°C to 150°C
Maximum power dissipation, (P _D) per device 1/-	198 mW
Lead temperature (soldering, 10 seconds) - -	300°C
Thermal resistance, junction to case (θ _{JC}):	
Case K - - - - -	(See MIL-M-38510, appendix C)
Case L - - - - -	
Case 3 - - - - -	60°C/W 3/
Junction temperature (T _J) 2/ - - - - -	175°C

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

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

3/ When a thermal resistance value is included in MIL-M-38510, appendix C, it shall supersede the value stated herein.

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

1.4 Recommended operating conditions:

Supply voltage- - - - -	4.5 V dc minimum to 5.5 V dc maximum
Minimum high level input voltage (V_{IH})- - -	2.0 V dc
Maximum low level input voltage (V_{IL})- - -	0.8 V dc
Normalized fanout (each output) <u>4/-</u> - - -	10 maximum at low logic level
	20 maximum at high logic level
Case operating temperature range (T_C)- - -	-55°C to 125°C

2. APPLICABLE DOCUMENTS

2.1 Government specifications and standards. Unless otherwise specified, the following specifications and standards, of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

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

STANDARDS

MILITARY

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

(Copies of specifications, standards, handbooks, drawings, and publications required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

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

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

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

3.2.4 Schematic circuits. 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 and agent activity (DESC-ECS) as a prerequisite for qualification. All manufacturers schematics shall be maintained by the agent activity and will be available upon request.

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

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

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$	Device type	Limits		Unit
				Min	Max	
High level output voltage	V_{OH}	$V_{CC} = 4.5 \text{ V}$, $V_{IH} = 2.0 \text{ V}$, $I_{OH} = -1.0 \text{ mA}$, $V_{IL} = 0.8 \text{ V}$	01	2.4	---	Vdc
Low level output voltage	V_{OL}	$V_{CC} = 4.5 \text{ V}$, $V_{IH} = 2.0 \text{ V}$, $I_{OL} = +12 \text{ mA}$, $V_{IL} = 0.8 \text{ V}$	01	---	0.4	Vdc
Input clamp voltage	V_{IC}	$V_{CC} = 4.5 \text{ V}$, $I_{IN} = -18 \text{ mA}$, $T_C = 25^{\circ}\text{C}$	01	---	-1.5	Vdc
Low level input current	I_{IL}	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0.4 \text{ V}$	01	0	-200	μA
High level input current	I_{IH1}	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 2.7 \text{ V}$	01	---	20	μA
	I_{IH2}	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 7.0 \text{ V}$	01	---	100	μA
Off-state output current, high level voltage applied	I_{OZH}	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.7 \text{ V}$	01	---	20	μA
Off-state output current, low level voltage applied	I_{OZL}	$V_{CC} = 5.5 \text{ V}$, $V_O = 0.4 \text{ V}$	01	---	-20	μA
Output current $\frac{1}{2}$	I_O	$V_{CC} = 5.5 \text{ V}$, $V_O = 2.25 \text{ V}$	01	-15	-110	mA
Supply current outputs high	I_{CCH}	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 4.5 \text{ V}$	01	---	24	mA
Supply current outputs low	I_{CCL}	$V_{CC} = 5.5 \text{ V}$, $V_{IN} = 0.0 \text{ V}$	01	---	33	mA
Supply current outputs disabled	I_{CCZ}	$V_{CC} = 5.5 \text{ V}$	01	---	36	mA
Propagation delay time low to high level output from A or B inverting	t_{PLH1}	$V_{CC} = 5.0 \text{ V}$, $C_L = 50 \text{ pF} \pm 10\%$ $R_L = R_1 = 500 \Omega$	01	4	21	ns
Propagation delay time high to low level output from A or B inverting	t_{PHL1}		01	4	21	ns

See footnote at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C	Device type	Limits		Unit
				Min	Max	
Propagation delay time low to high level output from A or B noninverting	tPLH2	V _{CC} = 5.0 V, C _L = 50 pF ±10% R _L = R ₁ = 500 Ω	01	4	28	ns
Propagation delay time high to low level output from A or B noninverting	tPHL2		01	4	28	ns
Propagation delay time low to high level output from S0	tPLH3		01	7	37	ns
Propagation delay time high to low level output from S0	tPHL3		01	7	37	ns
Propagation delay time low to high level output from S1	tPLH4		01	7	37	ns
Propagation delay time high to low level output from S1	tPHL4		01	7	37	ns
Propagation delay time low to high level output from COMP	tPLH5		01	6	22	ns
Propagation delay time high to low level output from COMP	tPHL5		01	6	22	ns
Propagation delay time low to high level OP = 0 from A	tPLH6		01	5	45	ns
Propagation delay time high to low level OP = 0 from A	tPHL6		01	5	45	ns
Propagation delay time low to high level OP = 0 from B	tPLH7		01	5	45	ns

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$	Device type	Limits		Unit
				Min	Max	
Propagation delay time high to low level OP = 0 from B	t _{PHL7}	$V_{CC} = 5.0 \text{ V}, C_L = 50 \text{ pF} \pm 10\%$ $R_L = R_1 = 500 \Omega$	01	5	45	ns
Propagation delay time low to high level OP = 0 from S0	t _{PLH8}		01	5	30	ns
Propagation delay time high to low level OP = 0 from S0	t _{PHL8}		01	5	30	ns
Propagation delay time low to high level OP = 0 from S1	t _{PLH9}		01	5	30	ns
Propagation delay time high to low level OP = 0 from S1	t _{PHL9}		01	5	30	ns
Enable time to high level output from S0	t _{PZH3}		01	7	38	ns
Enable time to high level output from S1	t _{PZH4}		01	7	38	ns
Enable time to high level OP = 0 from S1	t _{PZH9}		01	7	28	ns
Enable time to low level output from S0	t _{PZL3}		01	7	38	ns
Enable time to low level output from S1	t _{PZL4}		01	7	38	ns
Enable time to low level output from COMP	t _{PZL5}		01	8	27	ns
Enable time to low level OP = 0 from S0	t _{PZL8}		01	6	24	ns
Enable time to low level OP = 0 from S1	t _{PZL9}		01	6	28	ns
Enable time to low level OP = 0 from COMP.	t _{PZL10}		01	9	30	ns

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$	Device type	Limits		Unit
				Min	Max	
Disable time from high level output from S0	t_{PHZ3}	$V_{CC} = 5.0 \text{ V}$, $C_L = 50 \text{ pF} \pm 10\%$ $R_L = R_1 = 500 \Omega$	01	2	29	ns
Disable time from high level output from S1	t_{PHZ4}		01	2	29	ns
Disable time from high level OP = 0 from S1	t_{PHZ9}		01	3	23	ns
Disable time from low level output from S0	t_{PLZ3}		01	2	29	ns
Disable time from low level output from S1	t_{PLZ4}		01	2	29	ns
Disable time from low level output from COMP	t_{PLZ5}		01	6	27	ns
Disable time from low level OP = 0 from S0	t_{PLZ8}		01	11	34	ns
Disable time from low level OP = 0 from S1	t_{PLZ9}		01	3	23	ns
Disable time from low level OP = 0 from COMP	t_{PLZ10}		01	6	24	ns

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

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

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

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

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

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (see table III)	
	Class S devices	Class B devices
Interim electrical parameters (pre burn-in) (method 5004)	1	1
Final electrical test parameters (method 5004)	1*,2,3,7, 9,10,11	1*,2,3,7,9
Group A test requirements (method 5005)	1,2,3,7,8, 9,10,11	1,2,3,7,8, 9,10,11
Group B test requirements (method 5005) subgroup 5	1,2,3,7,8, 9,10,11	N/A
Group C end point electrical parameters (method 5005)	N/A	1,2,3
Additional electrical subgroups for group C periodic inspections	N/A	None
Group D end point electrical parameters (method 5005)	1,2,3	1,2,3

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

4. QUALITY ASSURANCE PROVISIONS

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

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

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

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

2. $T_A = +125^{\circ}\text{C}$, minimum.

- b. Interim and final electrical test parameters shall be as specified in table II, except interim electrical parameters test prior to burn-in is optional at the discretion of the manufacturer.

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

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

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

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

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

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

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

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

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

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

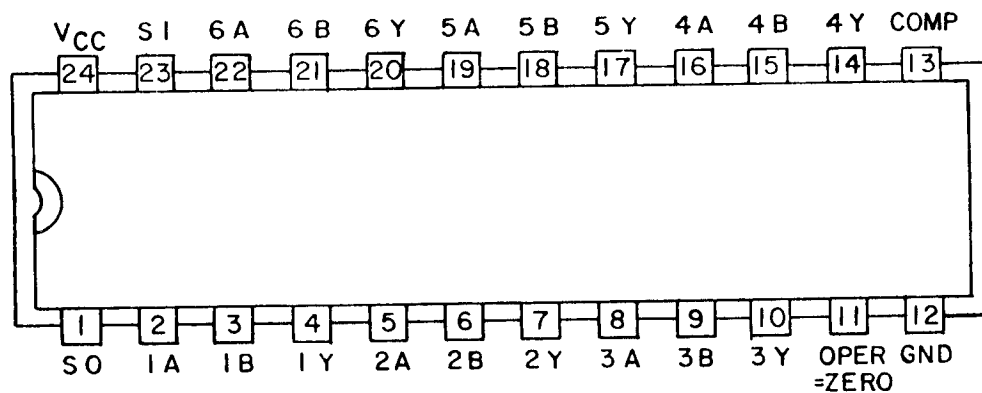
5. PACKAGING

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

6. NOTES

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

Device type 01
Cases K and L



Device type 01
Case 3

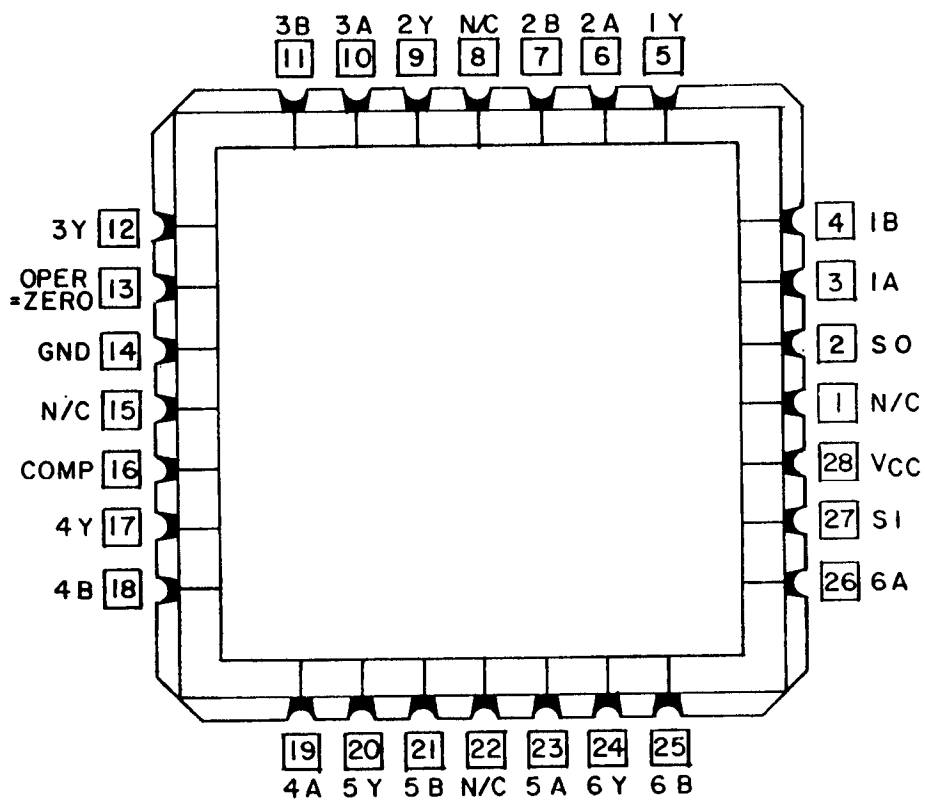
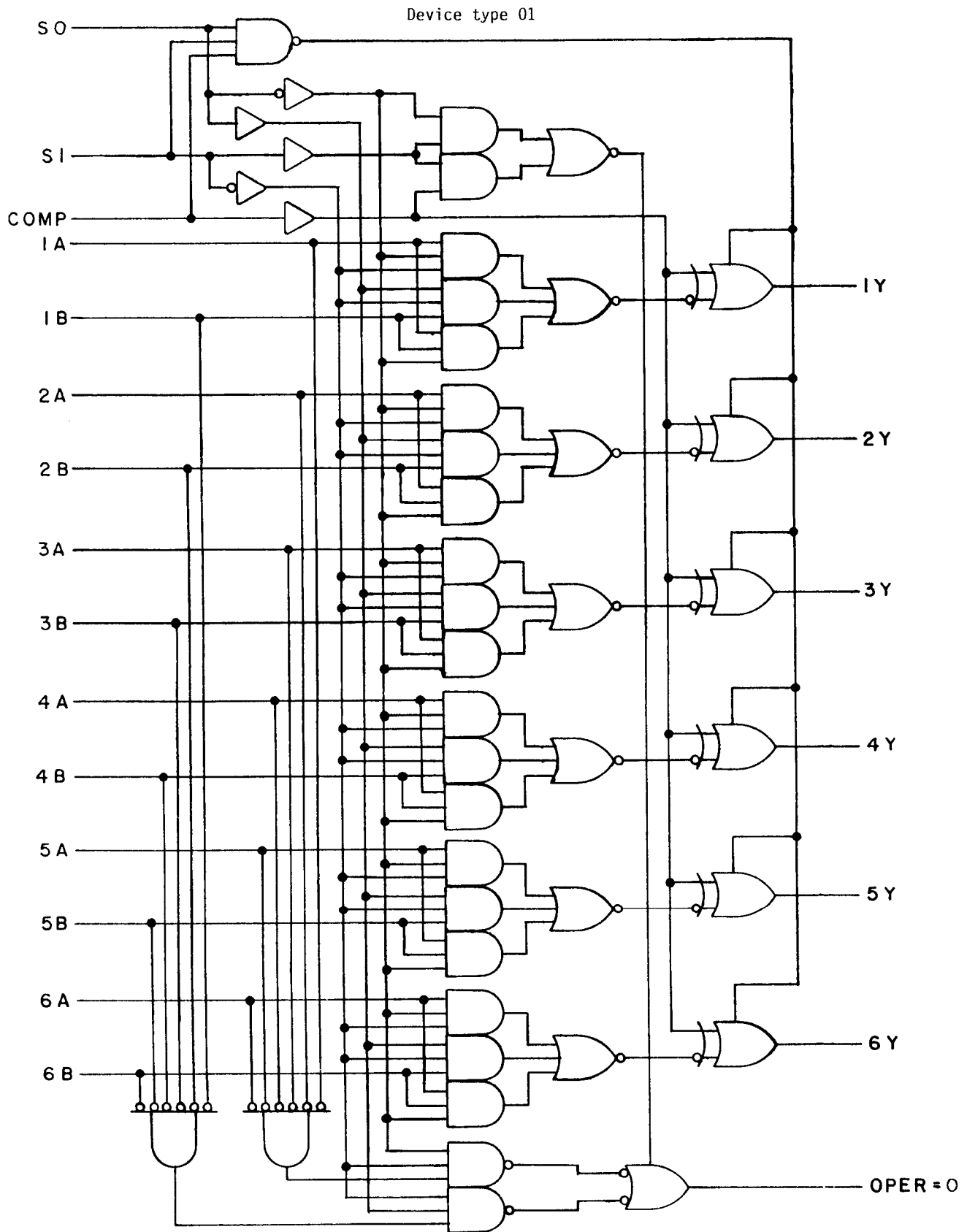


FIGURE 1. Terminal connections.

FIGURE 2. Logic diagram.

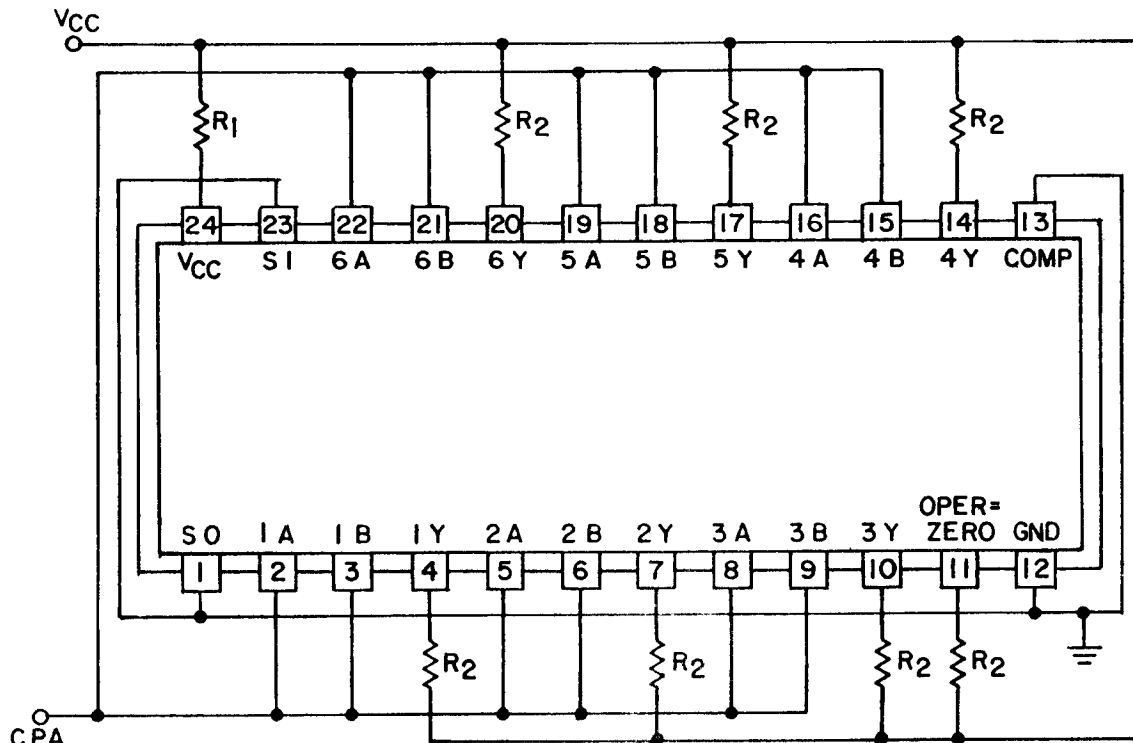
Device type 01

Comp	S ₁	S ₀	A	B	Y	Oper =Zero
L ↓	L ↓	L ↓	L L H H	L H L H	L L H H	H H L L
L ↓	L ↓	H ↓	L L H H	L H L H	L H L H	H L H L
L ↓	H ↓	L ↓	L L H H	L H L H	L L L H	Z Z Z Z
L ↓	H ↓	H ↓	X X X X	X X X X	L L L L	L L L L
H ↓	L ↓	L ↓	L L H H	L H L H	H H L L	H H L L
H ↓	L ↓	H ↓	L L H H	L H L H	H L H L	H L H L
H ↓	H ↓	L ↓	L L H H	L H L H	H H H L	Z Z Z Z
H ↓	H ↓	H ↓	X X X X	X X X X	Z Z Z Z	Z Z Z Z

H = high level
 L = low level
 X = irrelevant
 Z = high impedance state

FIGURE 3. Truth table.

Device type 01

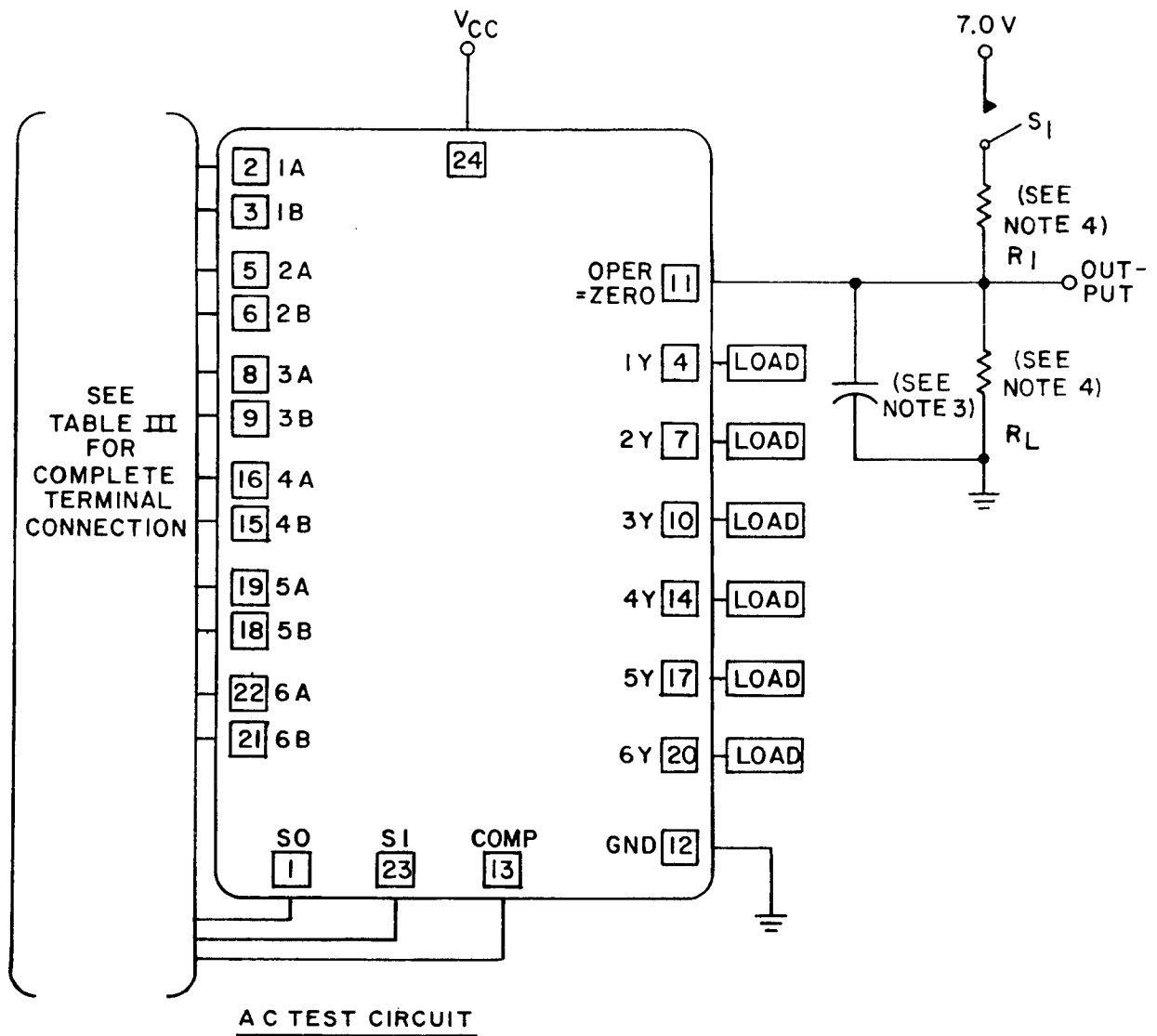


NOTES:

1. CPA = 100 kHz $\pm$ 50% square wave; duty cycle = 50 $\pm$ 15%; V_{IL} = -0.5 V minimum to +0.8 V maximum; V_{IH} = 2.0 V minimum to 5.5 v maximum.
2. R2 = 470 k Ω $\pm$ 5%.
3. V_{CC} and R1 shall be chosen to insure 5.0 V minimum is present at device V_{CC} terminal.

FIGURE 4. Burn-in and life test circuit.

Device type 01



NOTES:

1. Input pulse has the following characteristics:
 $t_1 = t_0 = 6 \pm 1.5$ ns, $PRR \leq 1$ MHz, $Z_{OUT} \geq 50\Omega$.
2. Inputs not under test are at ground.
3. $C_L = 50$ pF $\pm 10\%$, including scope probe, wiring and stray capacitance.
4. $R_L = R_1 = 499\Omega \pm 1\%$.
5. Voltage measurements are to be made with respect to network ground terminal.

FIGURE 5. Test circuit.

Device type 01

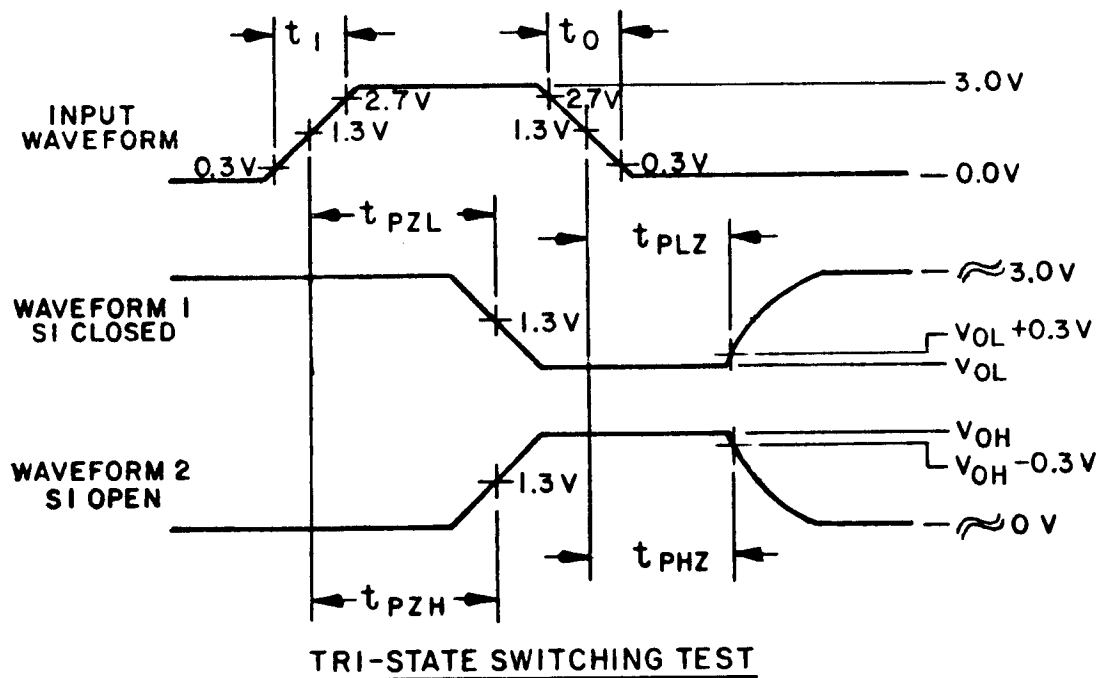
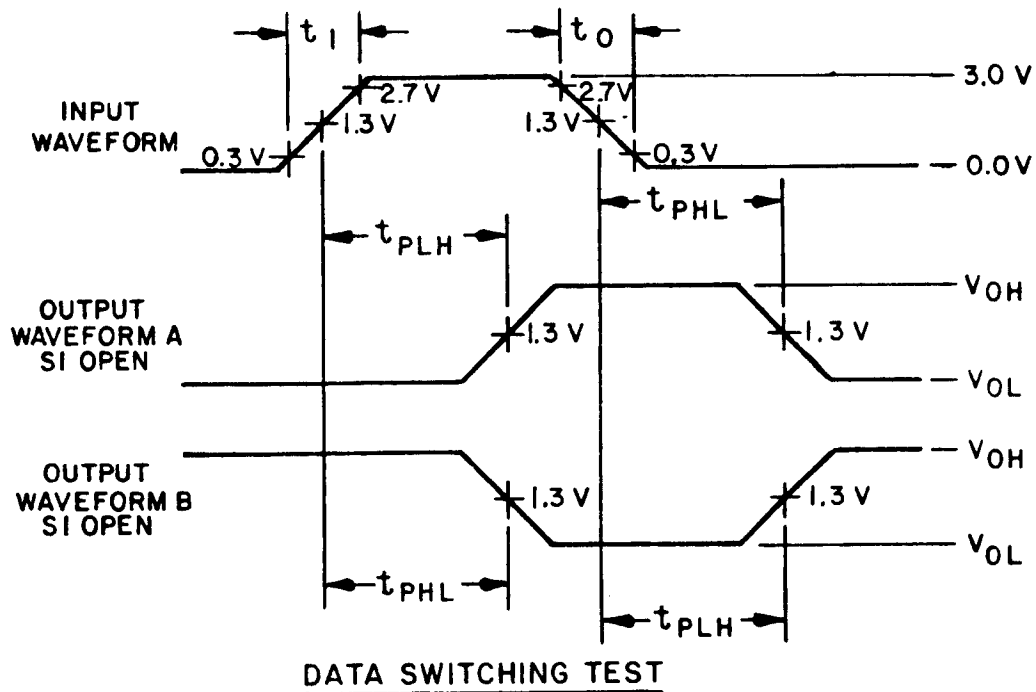


FIGURE 6. Data and tri-state wave shapes.

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

Subgroup	Symbol	MIL-STD-883 method	Case 3 I/K																									Test limits	Unit																													
I _T = 25°C	V _{OH}	3006	1	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Min	Max																												
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			30	1A	1B	1C	1D	1E	1F	1G	1H	1I	1J	1K	1L	1M	1N	1O	1P	1Q	1R	1S	1T	1U	1V	1W	1X				1Y	1Z																										
			I _T = 25°C	V _{OL}	3007	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29				30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51						
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
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8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
8	9	10				11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51												
I _T = 25°C	V _{IC}	3009	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
			15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51																			
I _T = 25°C	I _{IHL}	3010	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
			45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
			45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
			45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	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 D1 - Continued.
Terminal conditions (pins not designated may be high ± 2.0 V, low ± 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 31/	Terminal conditions (pins not designated may be high ± 2.0 V, low ± 0.8 V, or open)														Measured terminal	Test limits		Unit
				1	2	3	4	5	6	7	8	9	10	11	12	13	14		Min	Max	
1 T ₀ = 15°C	1PH1	3010	K, L	1	50	1A	1B	1V	2A	2B	2V	3A	3B	3V	3V	3V	3V	COMP			20 μ A
				52														4B			
				53														4C			
				54														4D			
				55														4E			
				56														4F			
				57														4G			
				58														4H			
				59														4I			
																		4J			
11	11H2			60	7.0 V	7.0 V	7.0 V											50			100
				61														51			
				62														52			
				63														53			
				64														54			
				65														55			
				66														56			
				67														57			
				68														58			
				69														59			
10Z	10ZH			70														60			
				71														61			
				72														62			
				73														63			
				74														64			
				75	4.5 V			2.7 V										65			
				76														66			
				77														67			
				78														68			
				79														69			
10ZL	10ZL			80														70			
				81														71			
				82														72			
				83														73			
				84														74			
				85														75			
				86														76			
				87														77			
				88														78			
				89														79			
10Z/	10Z/	3011		90	GND	GND	GND	2.25 V	GND	GND	GND	GND	GND	GND	2.25 V	2.25 V		80			
				91														81			
				92														82			
				93														83			
				94														84			
				95														85			
				96														86			
				97														87			
				98														88			
				99														89			
10Z/	10Z/	3005		100														90			
				101														91			
				102														92			
				103														93			
				104														94			
				105														95			
				106														96			
				107														97			
				108														98			
				109														99			

See footnotes at end of table.

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

Subgroup	Symbol	MIL-STD-883 method	Case 31/	Test limits																								Measured terminal	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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
test	SV	1A	1B	1Y	2A	2B	2Y	3A	3B	3Y	4A	4B	4Y	5A	5B	5Y	6A	6B	6Y	7A	7B	7Y	8A	8B	8Y	9A	9B	9Y	10A	10B	10Y	11A	11B	11Y	12A	12B	12Y	13A	13B	13Y	14A	14B	14Y	15A	15B	15Y	16A	16B	16Y	17A	17B	17Y	18A	18B	18Y	19A	19B	19Y	20A	20B	20Y	21A	21B	21Y	22A	22B	22Y	23A	23B	23Y	24A	24B	24Y	25A	25B	25Y	26A	26B	26Y	27A	27B	27Y	28A	28B	28Y	29A	29B	29Y	30A	30B	30Y	31A	31B	31Y	32A	32B	32Y	33A	33B	33Y	34A	34B	34Y	35A	35B	35Y	36A	36B	36Y	37A	37B	37Y	38A	38B	38Y	39A	39B	39Y	40A	40B	40Y	41A	41B	41Y	42A	42B	42Y	43A	43B	43Y	44A	44B	44Y	45A	45B	45Y	46A	46B	46Y	47A	47B	47Y	48A	48B	48Y	49A	49B	49Y	50A	50B	50Y	51A	51B	51Y	52A	52B	52Y	53A	53B	53Y	54A	54B	54Y	55A	55B	55Y	56A	56B	56Y	57A	57B	57Y	58A	58B	58Y	59A	59B	59Y	60A	60B	60Y	61A	61B	61Y	62A	62B	62Y	63A	63B	63Y	64A	64B	64Y	65A	65B	65Y	66A	66B	66Y	67A	67B	67Y	68A	68B	68Y	69A	69B	69Y	70A	70B	70Y	71A	71B	71Y	72A	72B	72Y	73A	73B	73Y	74A	74B	74Y	75A	75B	75Y	76A	76B	76Y	77A	77B	77Y	78A	78B	78Y	79A	79B	79Y	80A	80B	80Y	81A	81B	81Y	82A	82B	82Y	83A	83B	83Y	84A	84B	84Y	85A	85B	85Y	86A	86B	86Y	87A	87B	87Y	88A	88B	88Y	89A	89B	89Y	90A	90B	90Y	91A	91B	91Y	92A	92B	92Y	93A	93B	93Y	94A	94B	94Y	95A	95B	95Y	96A	96B	96Y	97A	97B	97Y	98A	98B	98Y	99A	99B	99Y	100A	100B	100Y	101A	101B	101Y	102A	102B	102Y	103A	103B	103Y	104A	104B	104Y	105A	105B	105Y	106A	106B	106Y	107A	107B	107Y	108A	108B	108Y	109A	109B	109Y	110A	110B	110Y	111A	111B	111Y	112A	112B	112Y	113A	113B	113Y	114A	114B	114Y	115A	115B	115Y	116A	116B	116Y	117A	117B	117Y	118A	118B	118Y	119A	119B	119Y	120A	120B	120Y	121A	121B	121Y	122A	122B	122Y	123A	123B	123Y	124A	124B	124Y	125A	125B	125Y	126A	126B	126Y	127A	127B	127Y	128A	128B	128Y	129A	129B	129Y	130A	130B	130Y	131A	131B	131Y	132A	132B	132Y	133A	133B	133Y	134A	134B	134Y	135A	135B	135Y	136A	136B	136Y	137A	137B	137Y	138A	138B	138Y	139A	139B	139Y	140A	140B	140Y	141A	141B	141Y	142A	142B	142Y	143A	143B	143Y	144A	144B	144Y	145A	145B	145Y	146A	146B	146Y	147A	147B	147Y	148A	148B	148Y	149A	149B	149Y	150A	150B	150Y	151A	151B	151Y	152A	152B	152Y	153A	153B	153Y	154A	154B	154Y	155A	155B	155Y	156A	156B	156Y	157A	157B	157Y	158A	158B	158Y	159A	159B	159Y	160A	160B	160Y	161A	161B	161Y	162A	162B	162Y	163A	163B	163Y	164A	164B	164Y	165A	165B	165Y	166A	166B	166Y	167A	167B	167Y	168A	168B	168Y	169A	169B	169Y	170A	170B	170Y	171A	171B	171Y	172A	172B	172Y	173A	173B	173Y	174A	174B	174Y	175A	175B	175Y	176A	176B	176Y	177A	177B	177Y	178A	178B	178Y	179A	179B	179Y	180A	180B	180Y	181A	181B	181Y	182A	182B	182Y	183A	183B	183Y	184A	184B	184Y	185A	185B	185Y	186A	186B	186Y	187A	187B	187Y	188A	188B	188Y	189A	189B	189Y	190A	190B	190Y	191A	191B	191Y	192A	192B	192Y	193A	193B	193Y	194A	194B	194Y	195A	195B	195Y	196A	196B	196Y	197A	197B	197Y	198A	198B	198Y	199A	199B	199Y	200A	200B	200Y	201A	201B	201Y	202A	202B	202Y	203A	203B	203Y	204A	204B	204Y	205A	205B	205Y	206A	206B	206Y	207A	207B	207Y	208A	208B	208Y	209A	209B	209Y	210A	210B	210Y	211A	211B	211Y	212A	212B	212Y	213A	213B	213Y	214A	214B	214Y	215A	215B	215Y	216A	216B	216Y	217A	217B	217Y	218A	218B	218Y	219A	219B	219Y	220A	220B	220Y	221A	221B	221Y	222A	222B	222Y	223A	223B	223Y	224A	224B	224Y	225A	225B	225Y	226A	226B	226Y	227A	227B	227Y	228A	228B	228Y	229A	229B	229Y	230A	230B	230Y	231A	231B	231Y	232A	232B	232Y	233A	233B	233Y	234A	234B	234Y	235A	235B	235Y	236A	236B	236Y	237A	237B	237Y	238A	238B	238Y	239A	239B	239Y	240A	240B	240Y	241A	241B	241Y	242A	242B	242Y	243A	243B	243Y	244A	244B	244Y	245A	245B	245Y	246A	246B	246Y	247A	247B	247Y	248A	248B	248Y	249A	249B	249Y	250A	250B	250Y	251A	251B	251Y	252A	252B	252Y	253A	253B	253Y	254A	254B	254Y	255A	255B	255Y	256A	256B	256Y	257A	257B	257Y	258A	258B	258Y	259A	259B	259Y	260A	260B	260Y	261A	261B	261Y	262A	262B	262Y	263A	263B	263Y	264A	264B	264Y	265A	265B	265Y	266A	266B	266Y	267A	267B	267Y	268A	268B	268Y	269A	269B	269Y	270A	270B	270Y	271A	271B	271Y	272A	272B	272Y	273A	273B	273Y	274A	274B	274Y	275A	275B	275Y	276A	276B	276Y	277A	277B	277Y	278A	278B	278Y	279A	279B	279Y	280A	280B	280Y	281A	281B	281Y	282A	282B	282Y	283A	283B	283Y	284A	284B	284Y	285A	285B	285Y	286A	286B	286Y	287A	287B	287Y	288A	288B	288Y	289A	289B	289Y	290A	290B	290Y	291A	291B	291Y	292A	292B	292Y	293A	293B	293Y	294A	294B	294Y	295A	295B	295Y	296A	296B	296Y	297A	297B	297Y	298A	298B	298Y	299A	299B	299Y	300A	300B	300Y	301A	301B	301Y	302A	302B	302Y	303A	303B	303Y	304A	304B	304Y	305A	305B	305Y	306A	306B	306Y	307A	307B	307Y	308A	308B	308Y	309A	309B	309Y	310A	310B	310Y	311A	311B	311Y	312A	312B	312Y	313A	313B	313Y	314A	314B	314Y	315A	315B	315Y	316A	316B	316Y	317A	317B	317Y	318A	318B	318Y	319A	319B	319Y	320A	320B	320Y	321A	321B	321Y	322A	322B	322Y	323A	323B	323Y	324A	324B	324Y	325A	325B	325Y	326A	326B	326Y	327A	327B	327Y	328A	328B	328Y	329A	329B	329Y	330A	330B	330Y	331A	331B	331Y	332A	332B	332Y	333A	333B	333Y	334A	334B	334Y	335A	335B	335Y	336A	336B	336Y	337A	337B	337Y	338A	338B	338Y	339A	339B	339Y	340A	340B	340Y	341A	341B	341Y	342A	342B	342Y	343A	343B	343Y	344A	344B	344Y	345A	345B	345Y	346A	346B	346Y	347A	347B	347Y	348A	348B	348Y	349A	349B	349Y	350A	350B	350Y	351A	351B	351Y	352A	352B	352Y	353A	353B	353Y	354A	354B	354Y	355A	355B	355Y	356A	356B	356Y	357A	357B	357Y	358A	358B	358Y	359A	359B	359Y	360A	360B	360Y	361A	361B	361Y	362A	362B	362Y	363A	363B	363Y	364A	364B	364Y	365A	365B	365Y	366A	366B	366Y	367A	367B	367Y	368A	368B	368Y	369A	369B	369Y	370A	370B	370Y	371A	371B	371Y	372A	372B	372Y	373A	373B	373Y	374A	374B	374Y	375A	375B	375Y	376A	376B	376Y	377A	377B	377Y	378A	378B	378Y	379A	379B	379Y	380A	380B	380Y	381A	381B	381Y	382A	382B	382Y	383A	383B	383Y	384A	384B	384Y	385A	385B	385Y	386A	386B	386Y	387A	387B	387Y	388A	388B	388Y	389A	389B	389Y	390A	390B	390Y	391A	391B	391Y	392A	392B	392Y	393A	393B	393Y	394A	394B	394Y	395A	395B	395Y	396A	396B	396Y	397A	397B	397Y	398A	398B	398Y	399A	399B	399Y	400A	400B	400Y	401A	401B	401Y	402A	402B	402Y	403A	403B	403Y	404A	404B	404Y	405A	405B	405Y	406A	406B	406Y	407A	407B	407Y	408A	408B	408Y	409A	409B	409Y	410A	410B	410Y	411A</

TABLE III. Group A inspection for device type 01 - Continued.
Terminal conditions (pins not designated may be high ≥ 0 V, low ≤ 0.8 V, or open).

Subgroup	Symbol	MIL-STD-883 method	Case 3 I/J	Terminal conditions																Test limits		Unit													
				1	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20		21	23	24	25	26	27	28	Measured terminal					
																															Min	Max			
9 T _C = 25°C	tPHL1	3003 (Fig 6)	139	GND	IN	4.5 V	OUT	IN	4.5 V	OUT	IN	4.5 V	OUT	GND	GND	OUT	4.5 V	IN	OUT	4.5 V	IN	OUT	4.5 V	IN	OUT	4.5 V	IN	4.5 V	IN	4.5 V	5.0 V	1A to 1V 2A to 2V 3A to 3V 4A to 4V 5A to 5V 6A to 6V 1B to 1V 2B to 2V 3B to 3V 4B to 4V 5B to 5V 6B to 6V	4	18	ns
			140	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			141	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			142	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			143	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			144	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			145	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			146	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			147	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			148	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			150	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
	tPHL2		151	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			152	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			153	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			154	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			155	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			156	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			157	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			158	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			159	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			160	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			162	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
	tPHL2		163	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			164	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			165	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			166	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			167	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			168	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			169	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			170	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			171	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			172	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			174	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
	tPHL3		175	IN	GND	4.5 V	OUT	GND	4.5 V	OUT	GND	4.5 V	OUT	GND	GND	OUT	4.5 V	GND	OUT	GND	4.5 V	OUT	4.5 V	IN	4.5 V	IN	4.5 V	IN	4.5 V	IN	4.5 V	50 to 1V 50 to 2V 50 to 3V 50 to 4V 50 to 5V 50 to 6V	7	33	"
			177	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			178	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			179	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			180	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
	tPHL3		181	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			182	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"			
			183	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			184	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		
			185	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"		

See footnotes at end of table.

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

Subgroup	Symbol	MIL-STD-883 method	Case 3 1/1 K.L.	2	3	4	5	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Test limits		Unit		
																												Measured terminal	Min		Max	
9 T _C = 25°C	t _{PLH7}	3003 (Fig. 6)	223	4.5 V	4.5 V	IN		4.5 V	IN		4.5 V	IN		OUT	GND	GND		IN	4.5 V		IN	4.5 V										
			224	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			225	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			226	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			227	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
	228	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V												
	t _{PHL7}	"	229	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			230	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			231	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
			232	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V										
233			"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V											
234	"	"	"		4.5 V	IN		4.5 V	IN		"	"	"		IN	4.5 V		IN	4.5 V													
t _{PLH8}	"	"	IN	GND	4.5 V		GND	4.5 V		GND	4.5 V		"	"	4.5 V		4.5 V	"		4.5 V	GND		4.5 V	GND	"	"	50 to 0-V	5	23	"		
t _{PHL8}	"	"	IN	"	4.5 V		"	4.5 V		"	4.5 V		"	"	4.5 V		4.5 V	"		4.5 V	"	"	"	"	"	50 to 0-V	5	23	"			
t _{PLH9}	"	"	4.5 V	"	GND		"	GND		"	GND		"	"	GND		GND	"		GND	"	"	"	"	"	51 to 0-V	5	23	"			
t _{PHL9}	"	"	4.5 V	"	"		"	GND		"	GND		"	"	GND		GND	"		GND	"	"	"	"	"	51 to 0-V	5	23	"			
t _{PZH3}	"	"	IN	"	"		OUT	GND		OUT	GND		OUT	"	"	4.5 V			GND		GND					50 to 1V	7	35	"			
t _{PZH4}	"	240	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND					50 to 2V	"	"	"	"	
		241	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND				50 to 3V	"	"	"	"	"	
		242	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND				50 to 4V	"	"	"	"	"	
		243	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND				50 to 5V	"	"	"	"	"	
		244	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND				50 to 6V	"	"	"	"	"	
		245	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND					50 to 6V	"	"	"	"	"
246	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND					50 to 6V	"	"	"	"	"		
247	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND					50 to 6V	"	"	"	"	"		
248	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND					50 to 6V	"	"	"	"	"		
249	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND						50 to 6V	"	"	"	"	"	
250	"	"	"		GND	GND		OUT	GND		OUT	"	"	"		OUT	GND		OUT	GND						50 to 6V	"	"	"	"	"	

See footnotes at end of table.

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

Subgroup	Symbol	MIL-STD-883 method	Case 3 / Test cases K.L.	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	28	Measured terminal	Test limits		Unit																																																																																											
																														Min	Max																																																																																												
9 T _C = 25°C	t _{PLZ3}	3003 (F19.6)	Test no.	S0	1A	1B	1Y	2A	2B	2Y	3A	3B	3Y	4A	4B	4Y	5A	5B	5Y	6A	6B	6Y	7A	7B	7Y	8A	8B	8Y	9A	9B	9Y	ns																																																																																											
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
	t _{PLZ4}	292	Test no.	IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
				IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																								
t _{PLZ5}	298	Test no.	IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
t _{PLZ8}	304	Test no.	IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
			IN	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	4.5 V	4.5 V	OUT	ns																																																																																									
t _{PLZ9}	305	Test no.	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																										
			GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																									
			GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																								
			GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																								
			GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	GND	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																								
t _{PLZ10}	306	Test no.	4.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																										
			4.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																									
			4.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																									
			4.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																									
			4.5 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	IN	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"																																																																																									
10 T _C = +125°C	t _{PLH1}																																																																																																																										

See footnotes at end of table.

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

See footnotes at end of table.

4. The output current shall be as specified herein, and the output current shall be operating rather than short circuit current. The output conditions have been chosen to produce a current that closely approximates one half of the true short circuit current I_{SC}.

3/ Output voltages shall be either:

- a. $H = 2.5$ V minimum and $L = 0.4$ V maximum when using a high speed checker double comparator, or
 - b. $H \geq 1.5$ V and $L \leq 1.5$ V when using a high speed checker single comparator.
- 4/ $A \geq 2.5$ V and ≤ 0.8 V. Tests shall be performed in sequence, attributes data only. r - Irrelevant
- 5/ ILL limits in A as follows:

	Circuit	
Test	A	B C
IRL	9/-200	9/-100 10/-100

6/ I_Q min/max limit for circuit C shall be: -30/-110 mA.

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. Requirement 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. Requirement for "JAN" marking.

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

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

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

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

<u>Military device type</u>	<u>Generic-industry type</u>
01	54ALS857A

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

TABLE IV. Manufacturer's designations.

Device type	Circuits		
	A	B	C
	Texas Instruments	Motorola	National
01	X		

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

Custodian:
Army - ER
Navy - EC
Air Force - 17

Preparing activity:
Air Force - 17

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

(Project 5962-0785)

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

Agent:
DLA - ES