

INCH-POUND

MIL-M-38510/73A
AMENDMENT 3
19 November 1992
SUPERSEDING
AMENDMENT 2
20 October 1987

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, SCHOTTKY TTL,
MULTIPLE NOR GATES, MONOLITHIC SILICON

This amendment forms a part of MIL-M-38510/73A, dated
7 September 1983, and is approved for use by all
Departments and Agencies of the Department of Defense.

PAGE 1

Title: Delete and substitute as shown above.

1.2.3, add the following case outline:

"2 C-2 (20-terminal, .350" x .350") square chip carrier package
X C-2A (20-terminal, .350" x .350") square chip carrier package"

1.3, junction temperature (T_J), delete and substitute:

"Junction temperature (T_J) - - - - - +175°C 2/"

1.3, thermal resistance, junction-to-case (θ_{JC}), delete and substitute the following:

"Thermal resistance, junction-to-case (θ_{JC}):
Cases A, B, C, D, X, and 2 - - - - - (See MIL-M-38510, appendix C)"

After footnote 1/, add:

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

Distribution statement: Add as shown at bottom of this page.

PAGE 2

3.2.3, delete and substitute:

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

The attached insertable replacement pages listed below are replacements for stipulated pages. When the
new pages have been entered in the document, insert the amendment as the cover sheet to the specification.

<u>Replacement page</u>	<u>Page replaced</u>
5	5
6	6

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PAGE 3

TABLE I, Low-level output voltage, minimum limits column: Delete "0.2" and substitute "---".

TABLE I: Delete "High-level supply current per gate" and substitute "High-level supply current".

TABLE I: Delete "Low-level supply current per gate" and substitute "Low-level supply current".

PAGE 4

TABLE II: Delete "Interim electrical parameters (pre burn-in) (method 5004)" and substitute "Interim electrical parameters (method 5004)".

TABLE II, group A test requirements, class B devices: Add "10, 11".

TABLE II, additional electrical subgroups for group C periodic inspections: Delete in its entirety.

3.6, delete and substitute:

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

* 4.2a(1), delete and substitute as follows:

"(1) Test condition D or E, using the circuit shown on figure 3, or equivalent. Test condition A and the applicable test circuit shall be allowed with the approval of the qualifying activity."

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TABLE III, device type 01, terminal designations, delete and substitute the following:

Cases															
X,2 <u>1/</u>	2	3	4	6	8	9	10	12	13	14	16	18	19	20	
A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Test no.	1Y	1A	1B	2Y	2A	2B	GND	3A	3B	3Y	4A	4B	4Y	V _{CC}	

TABLE III, test numbers 5 through 12, minimum limits column: Delete "0.2 and dittos".

PAGE 10

TABLE III, device type 01, terminal designations, delete and substitute the following:

Cases															
X,2 <u>1/</u>	2	3	4	6	8	9	10	12	13	14	16	18	19	20	
A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Test no.	1Y	1A	1B	2Y	2A	2B	GND	3A	3B	3Y	4A	4B	4Y	V _{CC}	

After table III, add footnote 1/ as follows:

"1/ Pins not designated are NC."

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6.1: Delete in its entirety.

NOTE: The margins of this amendment are marked with asterisks to indicate where changes from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

CONCLUDING MATERIAL

Custodians:

Army - ER
Navy - EC
Air Force - 17

Review activities:

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

User activities:

Army - SM
Navy - AS, CG, MC

Preparing activity:
Air Force - 17

Agent:
DLA - ES

(Project 5962-1304)

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- 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. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, 6, 7, and 8 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 3, or equivalent. Test condition A and the applicable test circuit shall be allowed with the approval of the qualifying activity.
 - (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.

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Device type 01

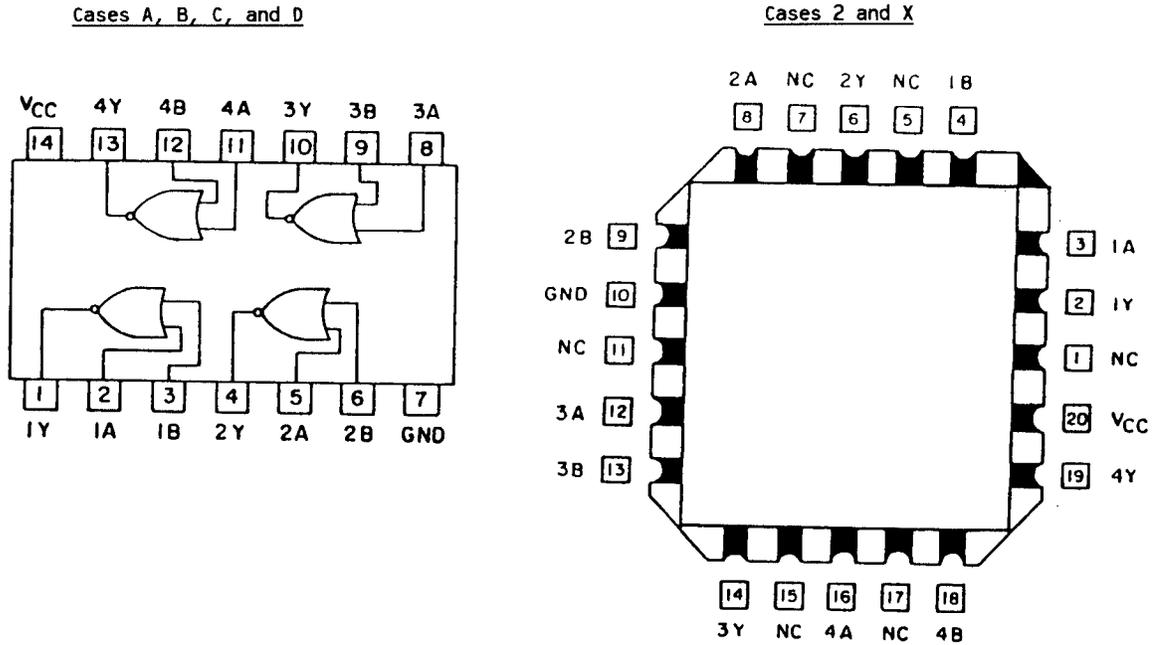


FIGURE 1. Logic diagram and terminal connections (top view).

Truth table (each gate)		
Inputs		Output
A	B	Y
H	X	L
X	H	L
L	L	H

X = Irrelevant
 Positive logic: $Y = A + B$

FIGURE 2. Truth table and logic equation.

Supersedes page 6 of MIL-M-38510/73A
 of 7 September 1983