MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, LOW-POWER SCHOTTKY TTL, FLIP-FLOPS, CASCADABLE, MONOLITHIC SILICON

This amendment forms a part of MIL-M-38510/331A, dated 4 November 1985, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 5

4.2a(1): Add test condition F.

4.2b: Delete "Initial" and substitute "Interim" (two places).

4.4.3c(1): Add test condition F.

4.4.3c(3): Delete "method 5005" and substitute "method 1005".

PAGE 12

TABLE III, test numbers 40-46, min/max limits column: Add dittos.

PAGE 14

TABLE III, footnote 4/, delete and substitute:

"4/ Input voltages shown are: A = 2.5 V and B = 0.4 V".

TABLE III, footnote 8/, delete and substitute:

"8/ I_{IL} limits (μA) min/max values for circuits shown:

Parameter	A	B
I_{IL1}	-75/-320	-160/-400
I_{IL2}	-120/-360	-160/-400
I_{IL3}	-120/-360	-150/-380

"

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.

Replacement page	Pages replaced
3	3
4	4

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PAGE 15

TABLE III, test numbers 43-48, min/max limits column: Delete and substitute "8/".

PAGE 17

TABLE III, footnote 4/, delete and substitute:

"4/ Input voltages shown are: A = 2.5 V and B = 0.4 V".

TABLE III, footnote 8/, delete and substitute:

"9/ I_{IL} limits (μA) min/max values for circuits shown:

Parameter	A	B
I_{IL1}	-75/-320	-160/-400
I_{IL2}	-135/-400	-160/-400
I_{IL3}	-85/-340	-105/-345

"

PAGE 19

6.6, TABLE IV, delete and substitute:

TABLE IV. Manufacturers designation.

"

Device type	Manufacturers	
	A	B
	Texas Instruments	Motorola Incorporated
06	X	X
07	X	X

"

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

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

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

Preparing activity:
Air Force - 17

Agent:
DLA - ES

(Project 5962-0952)

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

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions 1/ $-55^\circ C \leq T_C \leq +125^\circ C$	Device type	Limits Min	Limits Max	Unit
High-level output voltage	V_{OH}	V_{CC} = 4.5 V; I_{OH} = -0.4 mA	All	2.5	---	V
Low-level output voltage	V_{OL1}	V_{CC} = 4.5 V, I_{OL} = 4 mA	All	---	0.4	V
	V_{OL2}	V_{CC} = 4.5 V, I_{OL} = 8 mA,	All	---	0.45	
Input clamp voltage	V_{IC}	V_{CC} = 4.5 V; I_{OL} = -18 mA; T_C = 25°C	All	---	-1.5	V
Low-level input current at D input	I_{IL1}	V_{CC} = 5.5 V; V_{IN} = 0.4 V	All	-75	-400	µA
Low-level input current at CLK	I_{IL2}	V_{CC} = 5.5 V; V_{IN} = 0.4 V	06	-115	-400	µA
			07	-120	-400	
Low-level input current at CLR	I_{IL3}	V_{CC} = 5.5 V; V_{IN} = 0.4 V	06	-115	-380	µA
			07	-100	-360	
High-level input current	I_{IH1}	V_{CC} = 5.5 V; V_{IN} = 2.7 V	All	---	20	µA
	I_{IH2}	V_{CC} = 5.5 V; V_{IN} = 5.5 V	All	---	100	µA
Short-circuit output current	I_{OS}	V_{CC} = 5.5 V; 2/ V_{IN} = 0 V	All	-15	-100	mA
Supply current	I_{CC}	V_{CC} = 5.5 V; V_{IN} = 5 V	06	---	26	mA
			07	---	18	mA
Maximum clock frequency	f_{MAX}	V_{CC} = 5 V; C_L = 50 pF ±10%; R_L = 2 kΩ ±5%	All	25	---	MHz
Propagation delay to high logic level (clear to output)	t_{PLH1}		07	5	39	ns
Propagation delay to low logic level (clear to output)	t_{PHL1}		06	5	45	ns
			07	5	45	ns

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 1/ $-55^{\circ}C \leq T_C \leq +125^{\circ}C$	Device type	Limits Min	Limits Max	Unit
Propagation delay to high logic level (clock to output)	t_{PLH2}	V_{CC} = 5 V; C_L = 50 pF ±10%; R_L = 2kΩ ±5%	06	5	32	ns
			07	5	31	ns
Propagation delay to low logic level (clock to output)	t_{PHL2}		06	5	36	ns
			07	5	33	ns

1/ See table III for complete terminal conditions.

2/ Not more than one output should be shorted at a time.

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 10 (see MIL-M-38510, appendix E).

TABLE II. Electrical test requirements.

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

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