

MILITARY SPECIFICATION

Inactive for new design as of 8 January 1996

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED LOW-POWER SCHOTTKY TTL,  
OCTAL BUFFER GATES WITH THREE-STATE OUTPUTS, MONOLITHIC SILICON

This amendment forms a part of MIL-M-38510/383A, dated  
11 February 1988 and is approved for use by all Depart-  
ments and Agencies of the Department of Defense.

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TABLE III, device type 01, truth table tests, test number 101, pin 19: Delete "A" and substitute "B".

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TABLE III, device type 01, footnote ~~3~~, delete in its entirety and substitute: "~~3~~ I<sub>O</sub> limits shall be  
-20 mA min/-112 mA max for circuit A and -30 mA min/-110 mA max for circuit C".

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TABLE III, device types 02 and 03, subgroup 2, delete in its entirety and substitute: "Same tests,  
terminal conditions and limits as subgroup 1 except T<sub>C</sub> = +125°C, V<sub>IC</sub> tests are omitted, and V<sub>IL</sub> = +0.7 V."

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TABLE III, device types 02 and 03, t<sub>PLH1</sub>, test numbers 102 through 109, maximum limits column: Delete  
~~"13"~~ and substitute "11".

TABLE III, device types 02 and 03, t<sub>PHL1</sub>, test numbers 110 through 117, maximum limits column: Delete  
"10" and substitute "12".

TABLE III, device types 02 and 03, t<sub>PHL1</sub>, test numbers 114 and 115, pin 19: Add "~~Z~~".

TABLE III, device types 02 and 03, t<sub>PZ1</sub>, test numbers 118 through 125, minimum and maximum limits columns:  
Delete "7" and "~~14~~" and substitute "~~13~~" and "15", respectively.

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>
* 3	3
* 4	4

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TABLE III, device types 02 and 03,  $t_{pZH}$ , test numbers 126 through 133, minimum and maximum limits columns: Delete "7" and "15/" and substitute "5" and "15", respectively.

TABLE III, device types 02 and 03,  $t_{pLZ}$ , test numbers 134 through 141, minimum and maximum limits columns: Delete "3" and "11" and substitute "2" and "10", respectively.

\*TABLE III, device type 03 only,  $t_{pLH1}$ , delete "3 ns min" and substitute "2 ns min".

\*TABLE III, device type 03 only,  $t_{pZH}$ , delete "5 ns min" and substitute "2 ns min".

\*TABLE III, device type 03 only,  $t_{pZL}$ , delete "13/ min" and substitute "2 ns min".

\*TABLE III, device type 03 only,  $t_{pLZ}$ , delete "2 ns min" and substitute "1 ns min".

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TABLE III, device types 02 and 03,  $t_{pLH1}$ , maximum limits column: Delete "16/" and substitute "13".

TABLE III, device types 02 and 03,  $t_{pHL1}$ , maximum limits column: Delete "13" and substitute "14/".

TABLE III, device types 02 and 03,  $t_{pZL}$ , minimum and maximum limits columns: Delete "7" and "25" and substitute "13/" and "18", respectively.

TABLE III, device types 02 and 03,  $t_{pZH}$ , minimum and maximum limits columns: Delete "7" and "25" and substitute "5" and "18", respectively.

TABLE III, device types 02 and 03,  $t_{pLZ}$ , minimum and maximum limits columns: Delete "3" and "17/" and substitute "2" and "12", respectively.

TABLE III, device types 02 and 03, footnote 6/, delete in its entirety and substitute: "6/  $I_0$  limits shall be -20 mA min/-112 mA max for circuit A and -30 mA min/-110 mA max for circuit C".

TABLE III, device types 02 and 03, footnote 7/, delete in its entirety and substitute: "7/ Apply 3.0 V min/5.5 V max for device type 02; apply GND for device type 03."

\*TABLE III, footnote 9/, device type 03 delete "15" and substitute "18", delete "24" and substitute "25", delete "27" and substitute "29".

TABLE III, device types 02 and 03, footnote 13/, delete in its entirety and substitute: "13/ 5 ns for device type 02 and 4 ns for device type 03."

TABLE III, device types 02 and 03, footnote 14/, delete in its entirety and substitute: "14/ 14 ns for device type 02 and 16 ns for device type 03."

TABLE III, device types 02 and 03, footnote 15/: Delete in its entirety.

TABLE III, device types 02 and 03, footnote 16/: Delete in its entirety.

TABLE III, device types 02 and 03, footnote 17/: Delete in its entirety.

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CONCLUDING MATERIAL

The margins of this amendment are marked with asterisks to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as 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.

Custodians:

Army - ER  
Navy - EC  
Air Force - 17

Review activities:

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

Preparing activity:

Air Force - 17

Agent:

DLA - ES

(Project 5962-1590)

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AMENDMENT 2

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions $-55^{\circ}\text{C} \leq T_C \leq +125^{\circ}\text{C}$ unless otherwise specified	Device type	Limits		Unit
				Min	Max	
High level output voltage	$V_{OH1}$	$V_{CC} = 4.5\text{ V}$ , $V_{IL} = 0.8\text{ V}$ , $I_{OH} = -3\text{ mA}$ $V_{IH} = 2.0\text{ V}$ (02, 03 only) $T_C = 125^{\circ}\text{C}$ , $V_{IL} = 0.7\text{ V}$	All	2.4		V
High level output voltage	$V_{OH2}$	$V_{CC} = 4.5\text{ V}$ , $V_{IL} = 0.8\text{ V}$ , $I_{OH} = -12\text{ mA}$ $V_{IH} = 2.0\text{ V}$ (02, 03 only) $T_C = 125^{\circ}\text{C}$ , $V_{IL} = 0.7\text{ V}$	All	2.0		V
Low level output voltage	$V_{OL1}$	$V_{CC} = 4.5\text{ V}$ , $I_{OL} = 12\text{ mA}$ , $V_{IH} = 2.0\text{ V}$ , $V_{IL} = 0.8\text{ V}$ $T_C = 125^{\circ}\text{C}$ , $V_{IL} = 0.7\text{ V}$	All		0.4	V
Low level output voltage	$V_{OL2}$	$V_{CC} = 4.5\text{ V}$ , $I_{OL} = 18\text{ mA}$ , $V_{IH} = 2.0\text{ V}$ , $V_{IL} = 0.8\text{ V}$ $T_C = 125^{\circ}\text{C}$ , $V_{IL} = 0.7\text{ V}$	All		0.45	V
Off-state (high- impedance state) output current	$I_{OZH}$	$V_{CC} = 5.5\text{ V}$ , $V_{OUT} = 2.7\text{ V}$ , $V_{IH} = 2.0\text{ V}$	All		20	$\mu\text{A}$
Off-state (low- impedance state) output current	$I_{OZL}$	$V_{CC} = 5.5\text{ V}$ , $V_{OUT} = 0.4\text{ V}$ , $V_{IH} = 2.0\text{ V}$	All		-20	$\mu\text{A}$
Low level input current (all inputs)	$I_{IL}$	$V_{CC} = 5.5\text{ V}$ , $V_{IN} = 0.4\text{ V}$	All	0	-100	$\mu\text{A}$
High level input current (all inputs)	$I_{IH1}$	$V_{CC} = 5.5\text{ V}$ , $V_{IN} = 2.7\text{ V}$	All		20	$\mu\text{A}$
High level input current (all inputs)	$I_{IH2}$	$V_{CC} = 5.5\text{ V}$ , $V_{IN} = 7.0\text{ V}$	All		100	$\mu\text{A}$
Output current $I_O$	$I_O$	$V_{CC} = 5.5\text{ V}$ , $V_{OUT} = 2.25\text{ V}$	All	-20	-112	mA
*Supply current	$I_{CCH}$	$V_{CC} = 5.5\text{ V}$	Outputs high	01	10	mA
				02	17	
				03	18	
	$I_{CCL}$		Outputs low	01	23	
				02	28	
				03	25	
	$I_{CCZ}$		All outputs disabled	01	25	
				02	32	
				03	29	

See footnote at end of table.

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TABLE I. Electrical performance characteristics - Continued

Test	Symbol	Conditions -55°C ≤ T <sub>C</sub> ≤ +125°C unless otherwise specified	Device type	Limits		Unit	
				Min	Max		
Input clamp voltage	V <sub>IC</sub>	V <sub>CC</sub> = 4.5 V, I <sub>IN</sub> = -18 mA, T <sub>C</sub> = +25°C	All		-1.5	V	
*Propagation delay time (low-to-high level)	t <sub>PLH1</sub>	C <sub>L</sub> = 50 pF, R <sub>L</sub> = 500Ω, V <sub>CC</sub> = 5.0 V	01	3	12	ns	
			02	3	13		
			03	2	13		
Propagation delay time (high-to-low level)	t <sub>PHL1</sub>			01	2	11	ns
				02	3	14	
				03	3	16	
*Output enable time to low level	t <sub>PZL</sub>			01	5	20	ns
				02	5	18	
				03	2	18	
*Output enable time to high level	t <sub>PZH</sub>			01	5	15	ns
				02	5	18	
				03	2	18	
*Output disable time from low level	t <sub>PLZ</sub>		01	3	18	ns	
			02	2	12		
			03	1	12		
Output disable time from high level	t <sub>PHZ</sub>		01,02, 03	2	12	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<sub>OS</sub>.

3.3 Lead material and finish. The lead material and finish shall be in accordance with MIL-M-38510 (see 6.5).

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

Supersedes page 4 of MIL-M-38510/383A  
of 11 February 1988