

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, N-CHANNEL, SILICON GATE
MONOLITHIC 8 BIT MICROPROCESSOR (FIXED INSTRUCTION)

This amendment forms a part of MIL-M-38510/420A, dated 26 October 1984, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 9

- * TABLE II, delete and substitute new table II as printed on page 2 of this amendment.

PAGE 10

- * 4.4.1c, first sentence, delete and substitute:
"Subgroup 12 shall be performed only during initial qualification and after process or design changes which may effect capacitance."

PAGE 11

6.1, delete and substitute:

"Test vector table. Table V, test vectors, which forms a part of this detail specification, is not printed herein due to its extreme length and complexity. Table V is a software control program of the sequence of vectors needed for driving the devices represented in this detail sheet as part of the inspection required by table II herein. Table V is only generated when a qualified source exists for this specification. When a qualified source exists, a single hard copy printout of table V is maintained for reference purposes only by the Defense Electronic Supply Center (DESC)."

PAGE 15

- * FIGURE 3, note 2, delete and substitute:
"2. Power supply voltages are indicated in order of power-up sequence:
V_{BB} = -5 V ±10%
V_{CC} = +5 V ±10%
V_{DD} = +12 V ±10%

PAGE 16

- * FIGURE 3, delete and substitute new figure 3 as printed on page 3 of this amendment.

PAGES 35, 36, AND 37

- * TABLE III, delete and substitute as printed on pages 4, 5, and 6 of this amendment.

MIL-M-38510/420A
AMENDMENT 2

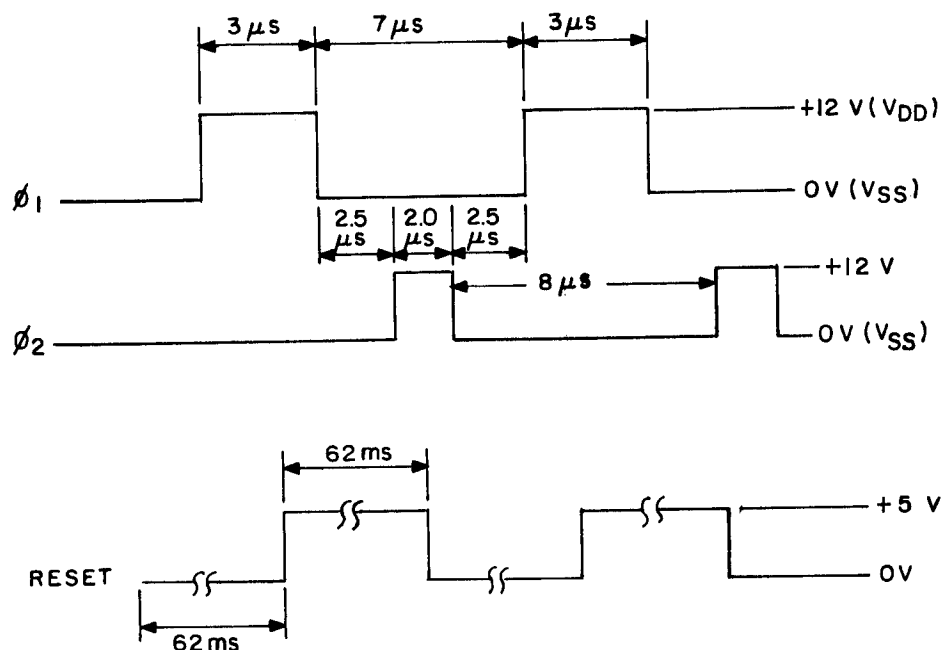
TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (see table IIIC) unless otherwise stated	
	Class S devices	Class B devices
Interim electrical parameters (method 5004)	1,2,3,7	1,2,3,7
Final electrical test parameters (method 5004)	*1,2,3,*7,8	*1,2,3,*7,8
Group A test requirements (method 5005)	*1,2,3,4*** 7,8,**12	*1,2,3,4*** 7,8,**12
Group B test requirements	4.5.2	4.5.2
Group C, and D end-point elec- trical parameters (method 5005)	1,2,3,7,8	2,8 (125°C)

* PDA applies to subgroups tests 1 thru 72 only (see 4.3b)

** Subgroup 12 is defined - table III tests 188 thru 267 and is used for initial qualification only.

***Test numbers 152 through 187 constitute subgroup 4 and are used for initial qualification only (see 4.4.1).



NOTES:

- RESET is not synchronized with ϕ_1 and ϕ_2 .
- Waveform transition times, t_{TLH} and t_{THL} , are measured from 1.0 V to 8.0 V for clocks and from 0.5 V to 4.5 V for the RESET input. All measurements are with the device under test connected.
 - ϕ_1 : $t_{TLH} = t_{THL} = 450\text{ ns}$ maximum.
 - ϕ_2 : $t_{TLH} = t_{THL} = 750\text{ ns}$ maximum.
 - RESET: $t_{TLH} = 600\text{ ns}$ maximum.
 - $t_{THL} = 675\text{ ns}$ maximum.
- ϕ_1 and ϕ_2 are synchronized with each other.
- Signal tolerance shall be $\pm 10\%$.

FIGURE 3. Burn-in and operating life test (input waveform) - Continued.

MIL-M-38510/420A
AMENDMENT 2

TABLE III. Group A. inspection - Continued.

Symbol	Test number	MIL-STD-883 method	Waveform figure	Measured terminal	Test limits				Unit
					Subgroup 12 T _C = +25 °C		Subgroup 12 T _C = +125 °C		
					Min	Max	Min	Max	
V _{OL}	240	3007		39				0.45	V
	241	3014		36				"	"
	242	"		16				"	"
	243	"		17				"	"
	244	"		18				"	"
	245	"		19				"	"
	246	"		21				"	"
	247	"		24				"	"
t _{PLH1} t _{PHL1} t _{PZH1} t _{PZL1}	248	3003 3014	13	3-10				200	ns
t _{PHZ1} t _{PLZ1}	249		12	3-10				150	ns
t _{PLZ2} t _{PHZ2}	250		9	3-10				150	ns
t _{PLZ2} t _{PHZ2}	251		9	1, 25-27, 29-40				130	ns
t _{PLH3} t _{PHL3}	252		12	17			25	150	ns
t _{PLZ3} t _{PHZ3}	253 Data		9, 11	3-10			<u>4</u> /		ns
t _{PLZ3} t _{PHZ3}	254 Address		9, 11	1, 25-27, 29-40			<u>4</u> /		ns
t _{PLH4} t _{PHL4}	255	3003 3014	12	19				140	ns

MIL-M-38510/420A
AMENDMENT 2

TABLE III. Group A. inspection - Continued.

Symbol	Test number	MIL-STD-883 method	Waveform figure	Measured terminal	Test limits				Unit
					Subgroup 12 T _C = +25°C		Subgroup 12 T _C = +125°C		
					Min	Max	Min	Max	
t _{PLH4} t _{PHL4}	256		13	18				140	ns
t _{PLH4} t _{PHL4}	257		12	24				140	ns
t _{PLH4} t _{PHL4}	258		9	21				140	ns
t _{PLZ4} t _{PHZ4}	259 Data		9	3-10			<u>5</u> /		ns
t _{PLZ4} t _{PHZ4}	260 Address		9	1, 25-27, 29-40			<u>5</u> /		ns
t _{PHL5} t _{PLH5}	261		7, 16	16				200	ns
t _{PLZ5} t _{PHZ5}	262		11	1, 25-27, 29, 40			-20		ns
t _{PLH6} t _{PHL6}	263		12	1, 25-27, 29, 40				200	ns
t _{PLH7} t _{PHL7}	264		13	3-10			<u>6</u> /		ns
t _{PLH8} t _{PHL8}	265		13	1, 25-27, 29-40			<u>7</u> /		ns
t _{PLH9} t _{PHL9}	266 Data		13	3-10			<u>8</u> /		ns
t _{PLH9} t _{PHL9}	267 Address		13	1, 25-27, 29-40			<u>8</u> /		ns

MIL-M-38510/420A
AMENDMENT 2

Notes for table III, subgroup 12.

- 1/ Where propagation delay tests for subgroup 12 indicate a group of pins and where two or more propagation delays are specified for a test, only the reading for the pin with the worst delay requires recording. In some cases this will be a maximum reading while for others it will be a minimum reading as indicated in the table.
- 2/ The table IV functional tests (subgroup 7) shall be repeated for input test conditions of table IIIA when making measurements for test conditions 256 through 275. Wherever valid throughout the functional tests, outputs shall be monitored.
- 3/ Tests 196-255 may be performed during the functional tests of subgroup 7. If the functional tests are used, the measurements may be completed at any convenient spot where the outputs are at the proper logic levels. The tests are performed with the device placed in the "wait" state. Power supply voltages for these measurements are as follows:

$$V_{BB} = -5.50 \text{ V}$$

$$V_{CC} = +4.50 \text{ V}$$

$$V_{DD} = +10.8 \text{ V}$$

The following tabulation indicates possible measurement locations for these tests.

a. V_{OH}

Measurement Location			Measurement Location		
Symbol	Measured terminal	Vector no. in table V	Symbol	Measured terminal	Vector no. in table V
V_{OH}	10	140	V_{OH}	33	547
	9	5		34	"
	8	140		35	"
	7	140		1	"
	3	177		40	"
	4	5		37	"
	5	140		38	"
	6	5		39	"
	25	547		36	"
	26	"		16	1118
	27	"		17	547
	29	"		18	547
	30	"		19	5
	31	"		21	37
	32	"		24	17

MIL-M-38510/420A
AMENDMENT 2

Notes for table III, subgroup 12 - Continued.

4/ t_{PHZ3} and $t_{PLZ3} = t_{SLH7} + t_{TLH02} - 50 \text{ ns.}$

5/ t_{PHZ4} and $t_{PLZ4} = t_{SLH7} = t_{TLH02} - 10 \text{ ns.}$

6/ t_{PHL7} and $t_{PLH7} = t_{\text{period}(\text{clock})} - t_{SLH7} - t_{TLH02} - 170 \text{ ns.}$

7/ t_{PHL8} and $t_{PLH8} = 2t_{\text{period}(\text{clock})} - t_{SLH7} - t_{TLH02} - 140 \text{ ns.}$

8/ t_{PHL9} and $t_{PLH9} = t_{SLH7} + t_{TLH02} + 10 \text{ ns.}$

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 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.

Custodians:

Army - ER

Navy - EC

Air Force - 17

Review activities:

Army - AR, MI

Navy - OS, SH, TD

Air Force - 11, 19, 85, 99

DLA-ES

User activities:

Army - SM

Navy - AS, CG, MC

Preparing activity:

Air Force - 17

Agent:

DLA - ES

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