INCH-POUND
MIL-M-38510/55F
AMENDMENT 3
28 APRIL 1999
SUPERSEDING
AMENDMENT 2
30 September 1988

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, CMOS, BUFFER/CONVERTER,
TRUE/COMPLEMENT BUFFER, MONOLITHIC SILICON

Inactive for new design after 9 August 1996

This amendment forms a part of MIL-M-38510/55F, dated 30 April 1984,
and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

1.2.3, add new case outlines as follows:

"N	F-5A (16-lead, .440" x .285" x .115"), flat package
T	F-2A (14-lead, .390" x .260" x .115"), flat package"

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	Page replaced
5	5
6	6
25	25
26	26
29	29
30	30
33	33
34	34
35	35
36	36

FSC 5962

AMSC N/A
DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

1.3, delete and substitute:

"1.3 Absolute maximum ratings.

Device types 01 and 02

Supply voltage range (V_{DD} – V_{SS}):
$V_{CC} \leq V_{DD}$ ---------- -0.5 V to +15.5 V
Output load capacitance (each output) ---------- 200 pF when V_{CC} > 10 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V)

Device types 51 and 52

Supply voltage range (V_{DD} – V_{SS}):
$V_{CC} \leq V_{DD}$ ---------- -0.5 V to +18.0 V
Output load capacitance (each output) ---------- 200 pF when V_{CC} > 10 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V)
DC output source or sink current per pin ---------- I_{OH} = -4.0 mA
I_{OL} = +12.0 mA
DC supply current, per pin (I_{DD}, I_{CC}) ---------- -25.0 mA
DC ground current (I_{GND}) ---------- +50.0 mA

Device type 03 and 04

Supply voltage range (V_{CC} – V_{SS}) ---------- -0.5 V to +15.5 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V)

Device type 53 and 54

Supply voltage range (V_{CC} – V_{SS}) ---------- -0.5 V to +18.0 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V)
DC output source or sink current per pin ---------- IOH or IOL = ±12.0 mA
DC supply or ground current per pin (I_{CC}, I_{GND}) ---------- ±50 mA

Device type 05

Supply voltage range (V_{DD} – V_{SS}) ---------- -0.5 V to +15.0 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V)

Device type 55

Supply voltage range (V_{DD} – V_{SS}) ---------- -0.5 V to +18.0 V
Input voltage range ---------- (V_{SS} –0.5 V) ≤ VI ≤ (V_{DD} +0.5 V
DC output source or sink current per pin:
True compliment ---------- I_{OH} or I_{OL} = ±12.0 mA
Compliment output ---------- I_{OH} or I_{OL} = ±6.0 mA
DC supply or ground current per pin (I_{DD}, I_{GND}) ---------- ±50 mA

All device types

Input current (each input) ---------- ±10 mA
Storage temperature range ---------- -65°C to +175°C
Maximum power dissipation (P_D) ---------- 200 mW
Lead temperature (soldering, 10 seconds) ---------- +300°C
Thermal resistance, junction-to-case ---------- See MIL-M-38510, appendix C
Junction temperature ---------- TJ = +175°C"

PAGE 4

4.2a: Delete “3.1.9 through 3.1.13” and substitute “initial (pre-burn-in) electrical parameters (3.1.10) through interim (post-burn-in) electrical parameters (3.1.14)”.

PAGE 7

Table I, t_{PHL}, t_{PLH}, t_{THL}, and t_{TLH}, min limits column: Delete all entries and substitute “6”.

PAGE 8

Table II, line 9: Insert “10 and 11” in subgroup column for class B.
Line 12: Delete entire line.
Line 13: Delete “13” and substitute “12”.

PAGE 9

4.4.1, insert 4.4.1d and 4.4.1e as follows:

“d. Subgroups 9 and 11 shall be measured only for initial qualification and after process or design changes which may affect dynamic performance.

e. When the 01 through 03 device types are qualified by extension (see 4.3.1), these device types will be inspected (QCI) according to the 51 through 53 device type requirements respectively.”

PAGES 15 16

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.

PAGE 16

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
*TABLE III, I_{IH1}, Max limits column: change “6” to “600”.
*TABLE III, I_{IH2}, Max limits column: change “1.0” and “45.0” to “100.0” and “100.0” respectively.
*TABLE III, I_{IL1}, Max limits column: change “-6” to “-600.0”.
*TABLE III, I_{IL2}, Max limits column: change “-1.0” and “-45.0” to “-100.0” and “-100.0” respectively.

PAGE17

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
Table III, t_{PHL}, min limits columns: Delete “7/2” throughout and substitute “6”, “9”, “6”, respectively. t_{PLH}, min limits columns: Delete “10/8” throughout and substitute “6”, “9”, “6”, respectively. t_{THL}, min limits columns: Delete “20/5” throughout and substitute “6”, “9”, “6”, respectively. t_{TLH}, min limits columns: Delete “20” throughout and substitute “6”, “9”, “6”, respectively.

PAGE 18

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.

PAGE 19

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
*TABLE III, I_{IH1}, Max limits column: change “6” to “600”.
*TABLE III, I_{IH2}, Max limits column: change “1.0” and “45.0” to “100.0” and “100.0” respectively.
*TABLE III, I_{IL1}, Max limits column: change “-6” to “-600.0”.
*TABLE III, I_{IL2}, Max limits column: change “-1.0” and “-45.0” to “-100.0” and “-100.0” respectively.

PAGE 20

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
Table III, t_{PHL}, min limits columns: Delete “7/11” throughout and substitute “6”, “9”, “6”, respectively. t_{PLH}, min limits columns: Delete “10/17” throughout and substitute “6”, “9”, “6”, respectively. t_{THL}, min limits columns: Delete “20/5” throughout and substitute “6”, “9”, “6”, respectively. t_{TLH}, min limits columns: Delete “20” throughout and substitute “6”, “9”, “6”, respectively.

PAGE 23

Table III, test 112, pin column 11: Delete “OUT”; pin 12: Delete “IN” and substitute “OUT”; pin column 13: Add “IN”.
Table III, t_{PHL}, min limits columns: Delete “8” throughout and substitute “6”, “9”, “6”, respectively. t_{PLH}, min limits columns: Delete “9” throughout and substitute “6”, “9”, “6”, respectively. t_{THL}, min limits columns: Delete “8” throughout and substitute “6”, “9”, “6”, respectively. t_{TLH}, min limits columns: Delete “9” throughout and substitute “6”, “9”, “6”, respectively.

PAGE 27

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
*TABLE III, I_{IH2}, Max limits column: change “1.0” and “45.0” to “100.0” and “100.0” respectively.
*TABLE III, I_{IL1}, Max limits column: change “-6” to “-600.0”.
*TABLE III, I_{IL2}, Max limits column: change “-1.0” and “-45.0” to “-100.0” and “-100.0” respectively.

PAGE 28

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
Table III: t_{PHL}, min limits columns: Delete “5/2”, “7/2”, “5/2” and substitute “6”, “9”, “6”, respectively. t_{PLH}, min limits columns: Delete “7/8”, “10/8”, “7/8” and substitute “6”, “9”, “6”, respectively. t_{THL}, min limits columns: Delete “3/3”, “10/8”, “3/3” and substitute “6”, “9”, “6”, respectively. t_{TLH}, min limits columns: Delete “13”, “20”, “13” and substitute “6”, “9”, “6”, respectively.

PAGE 31

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
*TABLE III, I_{IH2}, Max limits column: change “1.0” and “45.0” to “100.0” and “100.0” respectively.
*TABLE III, I_{IL1}, Max limits column: change “-6” to “-600.0”.
*TABLE III, I_{IL2}, Max limits column: change “-1.0” and “-45.0” to “-100.0” and “-100.0” respectively.

PAGE 32

Table III: Delete “Cases E, F, Z” and substitute “Cases E, F, N, and Z”.
Table III: t_{PHL}, min limits columns: Delete “5/7”, “7/11”, “5/7” and substitute “6”, “9”, “6”, respectively. t_{PLH}, min limits columns: Delete “7/11”, “10/17”, “7/11” and substitute “6”, “9”, “6”, respectively. t_{THL}, min limits columns: Delete “3”, “4/5”, “3” and substitute “6”, “9”, “6”, respectively. t_{TLH}, min limits columns: Delete “13”, “20”, “13” and substitute “6”, “9”, “6”, respectively.

PAGE 37

4.4.3: Delete 4.4.3c and substitute as follows:

> “c. When the 01 through 03 device types are qualified by extension (see 4.3.1), these device types will be inspected (QCI) according to the 51 through 53 device type requirements respectively.”

6.3: Delete "V_{DD}" and substitute "V_{DD} and V_{CC}".
After I_{SS} add:

"I_{DD} and I_{CC} ---------- DC supply current.
I_{GND} ---------- DC ground current."

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convience 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 maginal notations and relationship to the last previous amendment.

CONCLUDING MATERIAL

Custodians:
Army - CR
Navy - EC
Air Force - 11
NASA - NA
DLA – CC

Preparing activity:
DLA - CC

Review activities:
Navy - AS, CG, MC, OS, SH
Army - AR, MI, SM
Air Force - 19, 85, 99

(Project 5962-1838)

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions V_{SS} = 0 V, -55°C ≤ T_C ≤+125°C unless otherwise specified	Device Type 1/	Limits		Unit
				Min	Max	
Positive clamping input to V_{DD} or V_{CC}	$V_{IC(pos)}$	T_C = +25°C, V_{DD} and V_{CC} = GND V_{SS} = Open, Output = Open, I_I = 1 mA	01, 02, 05, 51, 52, 55		+1.5	V dc
Negative clamping input to V_{SS}	$V_{IC(neg)}$	T_C = +25°C, V_{DD} and V_{CC} = GND V_{SS} = Open, Output = Open, I_I = 1 mA	All		-6.0	V dc
Quiescent supply current	I_{SS}	V_{DD} and V_{CC} = 15 V dc, any combination of inputs	01 – 05		-750	nA dc
		V_{DD} and V_{CC} = 15 V dc, any combination of inputs	51 - 55		-750	nA dc
High level output voltage	V_{OH1}	V_{DD} and V_{CC} = 4.5 V dc I_{OH} = -0.1 mA (see table III)	01 - 05	2.50		V dc
	V_{OH2}	V_{DD} and V_{CC} = 5.0 V dc I_{OH} = -0.35 mA (see table III)	01 - 05	4.5		V dc
	V_{OH3}	V_{DD} and V_{CC} = 5.0 V dc I_{OH} = -0.0 mA (see table III)	01 - 05	4.95		V dc
	V_{OH4}	V_{DD} and V_{CC} = 12.5 V dc I_{OH} = -0.0 mA (see table III)	01 - 05	11.25		V dc
	V_{OH5}	V_{DD} and V_{CC} = 15.0 V dc I_{OH} = -0.1 mA (see table III)	51 - 55	14.95		V dc
Low level output voltage	V_{OL1}	V_{DD} and V_{CC} = 5.5 V dc I_{OL} = -0.23 mA (see table III)	01 - 05		0.5	V dc
	V_{OL2}	V_{DD} and V_{CC} = 5.0 V dc I_{OL} = -2.1 mA (see table III)	01 - 05		0.5	V dc
	V_{OL3}	V_{DD} and V_{CC} = 5.0 V dc I_{OL} = -0.0 mA (see table III)	01 - 05		0.05	V dc
	V_{OL4}	V_{DD} and V_{CC} = 12.5 V dc I_{OL} = -0.0 mA (see table III)	01 - 05		1.25	V dc
	V_{OL5}	V_{DD} and V_{CC} = 15.0 V dc I_{OL} = -0.0 mA (see table III)	51 - 55		0.05	V dc

See footnotes at end of table.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions V_{SS} = 0 V, -55°C ≤ T_C ≤+125°C unless otherwise specified		Device Type 1/	Limits		Unit
					Min	Max	
Input high voltage	V_{IH1}	V_{DD} and V_{CC} = 5.0 V dc		1, 53	4.0		V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55	3.5		
	V_{IH2}	V_{DD} and V_{CC} = 10.0 V dc		51, 53	8.0		V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55	7.0		
	V_{IH3}	V_{DD} and V_{CC} = 15.0 V dc		51, 53	12.0		V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55	11.0		
Input low voltage	V_{IL1}	V_{DD} and V_{CC} = 5.0 V dc		51, 53		1.0	V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55		1.5	
	V_{IL2}	V_{DD} and V_{CC} = 10.0 V dc		51, 53		2.0	V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55		3.0	
	V_{IL3}	V_{DD} and V_{CC} = 15.0 V dc		51, 53		2.5	V dc
		V_O = (see table III), $\lvert I_O \rvert \leq 1.0$ µA		52, 54, 55		4.0	
Output low (sink) current	I_{OL1}	V_{DD} and V_{CC} = 5.0 V dc		51 - 54	2.2		mA dc
		V_{IN} = (see table III) V_{OL} = 0.4 V dc	True compliment	55	1.2		
			Compliment output		0.55		
	I_{OL2}	V_{DD} and V_{CC} = 5.0 V dc		51 - 54	17.0		mA dc
		V_{IN} = (see table III) V_{OL} = 0.4 V dc	True compliment	55	8.0		
			Compliment output		3.0		
Output high (sink) current	I_{OH1}	V_{DD} and V_{CC} = 5.0 V dc		51 - 54	2.2		mA dc
		V_{IN} = (see table III) V_{OL} = 0.4 V dc	True compliment	55	1.2		
			Compliment output		0.55		
	I_{OH2}	V_{DD} and V_{CC} = 5.0 V dc		51 - 54	17.0		mA dc
		V_{IN} = (see table III) V_{OL} = 0.4 V dc	True compliment	55	8.0		
			Compliment output		3.0		
*Input leakage current	I_{IH}	V_{DD} and V_{CC} = 15.0 V dc		01 - 05		100.0	nA
		V_{DD} and V_{CC} = 18.0 V dc		51 - 55			
	I_{IL}	V_{DD} and V_{CC} = 15.0 V dc		01 - 05		-100.0	nA
		V_{DD} and V_{CC} = 18.0 V dc		51 - 55			
Input test voltage	V_{ZAP}	C_1 = 100 pF, R_Z = 1.5 kΩ, (see 4.5.3)		All	400		V

See footnote at end of table.

TABLE III. Group A inspection for device types 51 and 53.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/																Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 2/		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	V_{CC}	Y1	A1	Y2	A2	Y3	A3	V_{SS}	A4	Y4	A5	Y5	NC	A6	Y6	V_{DD}		Min	Max	Min	Max	Min	Max	
$V_{IC(POS)}$	3/	1	GND		1 mA													GND	A1		1.5					Vdc
"		2	"				1 mA											"	A2		"					"
"		3	"						1 mA									"	A3		"					"
"		4	"								1 mA							"	A4		"					"
"		5	"										1 mA					"	A5		"					"
"		6	"													1 mA		"	A6		"					"
$V_{IC(NEG)}$		7			-1 mA					GND									A1		-6.0					"
"		8					-1 mA			"									A2		"					"
"		9							-1 mA	"									A3		"					"
"		10								"	-1 mA								A4		"					"
"		11								"			-1 mA						A5		"					"
"		12								"						-1 mA			A6		"					"
I_{SS}	3005 4/	13	18 V		18 V		18 V		18 V	"	18 V		18 V			18 V		18 V	V_{SS}		-75		-750			nAdc
I_{SS}	3005 4/	14	18 V		GND		GND		GND	"	GND		GND			GND		18 V	V_{SS}		-75		-750			"
V_{OH5}	3006	15	15 V		GND					"								15 V	Y1	14.95		14.95		14.95		Vdc
"	"	16	"				GND			"								"	Y2	"		"		"		"
"	"	17	"						GND	"								"	Y3	"		"		"		"
"	"	18	"							"	GND							"	Y4	"		"		"		"
"	"	19	"							"			GND					"	Y5	"		"		"		"
"	"	20	"							"						GND		"	Y6	"		"		"		"
V_{OL5}	3007	21	15 V		15 V					"								"	Y1		0.05		0.05		0.05	"
"	"	22	"				15 V			"								"	Y2		"		"		"	"
"	"	23	"						15 V	"								"	Y3		"		"		"	"
"	"	24	"							"	15 V							"	Y4		"		"		"	"
"	"	25	"							"			15 V					"	Y5		"		"		"	"
"	"	26	"							"						15 V		"	Y6		"		"		"	"
V_{IH1}		27	5 V		4.0 V		GND		GND	"	GND		GND			GND		5 V	Y1		0.5		0.5		0.5	"
"		28	"		GND		4.0 V		GND	"	"		"			"		"	Y2		"		"		"	"
"		29	"		"		GND		4.0 V	"	"		"			"		"	Y3		"		"		"	"
"		30	"		"		"		GND	"	4.0 V		"			"		"	Y4		"		"		"	"
"		31	"		"		"		"	"	GND		4.0 V			"		"	Y5		"		"		"	"
"		32	"		"		"		"	"	"		GND			4.0 V		"	Y6		"		"		"	"
V_{IH2}		33	10 V		8.0 V		"		"	"	"		"			GND		10 V	Y1		1.0		1.0		1.0	"
"		34	"		GND		8.0 V		"	"	"		"			"		"	Y2		"		"		"	"
"		35	"		"		GND		8.0 V	"	"		"			"		"	Y3		"		"		"	"
"		36	"		"		"		GND	"	8.0 V		"			"		"	Y4		"		"		"	"
"		37	"		"		"		"	"	GND		8.0 V			"		"	Y5		"		"		"	"
"		38	"		"		"		"	"	"		GND			8.0 V		"	Y6		"		"		"	"
V_{IH3}		39	15 V		12.5 V		GND		"	"	"		"			GND		15 V	Y1		1.5		1.5		1.5	"
"		40	"		GND		12.5 V		"	"	"		"			"		"	Y2		"		"		"	"
"		41	"		"		GND		12.5 V	"	"		"			"		"	Y3		"		"		"	"
"		42	"		"		"		GND	"	12.5 V		"			"		"	Y4		"		"		"	'
"		43	"		"		"		"	"	GND		12.5 V			"		"	Y5		"		"		"	'
"		44	"		"		"		" "	"	GND		GND			12.5 V		"	Y6		"		"		"	"

See footnotes at end of device type 55 , Supersedes page 25 of MIL-M-38510/55F dated 30 April 1984

TABLE III. Group A inspection for device types 51 and 53 – Continued.

Symbol	MIL-STD-883 method	Cases E, F, Z	For terminal conditions and limits see 1/																Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 2/		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
																				Min	Max	Min	Max	Min	Max	
		Test No.	V_{CC}	Y1	A1	Y2	A2	Y3	A3	V_{SS}	A4	Y4	A5	Y5	NC	A6	Y6	V_{DD}							
V_{IL1}		45	5 V		!.0 V		GND		GND	GND	GND		GND			GND		5 V	Y1	1.0		1.0		1.0		Vdc
"		46	"		GND		!.0 V		GND	"	"		"			"		"	Y2	"		"		"		"
"		47	"		"		GND		!.0 V	"	1.0 V		"			"		"	Y3	"		"		"		"
"		48	"		"		"		GND	"	GND		"			"		"	Y4	"		"		"		"
"		49	"		"		"		"	"	"		1.0 V			1.0 V		"	Y5	"		"		"		"
"		50	"		"		"		"	"	"		GND			"		"	Y6	"		"		"		"
V_{IL2}		51	10 V		2.0 V		"		"	"	"		"			GND		10 V	Y1	2.0		2.0		2.0		"
"		52	"		GND		2.0 V		"	"	"		"			"		"	Y2	"		"		"		"
"		53	"		"		GND		2.0 V	"	2.0 V		"			"		"	Y3	"		"		"		"
"		54	"		"		"		GND	"	GND		"			"		"	Y4	"		"		"		"
"		55	"		"		"		"	"	"		2.0 V			2.0 V		"	Y5	"		"		"		"
"		56	"		"		"		"	"	"		GND			"		"	Y6	"		"		"		"
V_{IL3}		57	15 V		2.5 V		"		"	"	"		"			GND		15 V	Y1	2.5		2.5		2.5		"
"		58	"		GND		2.5 V		"	"	"		"			"		"	Y2	"		"		"		"
"		59	"		"		GND		2.5 V	"	2.5 V		"			"		"	Y3	"		"		"		"
"		60	"		"		"		GND	"	GND		"			"		"	Y4	"		"		"		"
"		61	"		"		"		"	"	"		2.5 V			2.5 V		"	Y5	"		"		"		"
"		62	"		"		"		"	"	"		GND			"		"	Y6	"		"		"		"
I_{OL1}		63	5 V	0.4 V	5 V		"		"	"	"		"			GND		5 V	Y1	3.2		2.2		4.0		mA
"		64	"		GND		5 V		"	"	"		"			"		"	Y2	"		"		"		"
"		65	"		"		GND		5 V	"	5 V		"			"		"	Y3	"		"		"		"
"		66	"		"		"		GND	"	GND		"			"		"	Y4	"		"		"		"
"		67	"		"		"		"	"	"		5 V			5 V		"	Y5	"		"		"		"
"		68	"		"		"		"	"	"		GND			"		"	Y6	"		"		"		"
I_{OL2}		69	15 V	1.5 V	15 V		"		"	"	"		"			GND		15 V	Y1	24.0		17.0		30.0		"
"		70	"		GND		15 V		"	"	"		"			"		"	Y2	"		"		"		"
"		71	"		"		GND		15 V	"	15 V		"			"		"	Y3	"		"		"		"
"		72	"		"		"		GND	"	GND		"			"		"	Y4	"		"		"		"
"		73	"		"		"		"	"	"		15 V			15 V		"	Y5	"		"		"		"
"		74	"		"		"		"	"	"		GND			"		"	Y6	"		"		"		"
I_{OH1}		75	5 V	4.6 V	"		"		"	"	"		"			GND		5 V	Y1	-0.51		-0.36		-0.64		mA
"		76	"		"		"		"	"	"		"			"		"	Y2	"		"		"		"
"		77	"		"		"		"	"	"		"			"		"	Y3	"		"		"		"
"		78	"		"		"		"	"	"		"			"		"	Y4	"		"		"		"
"		79	"		"		"		"	"	"		"			"		"	Y5	"		"		"		"
"		80	"		"		"		"	"	"		"			"		"	Y6	"		"		"		"
I_{OH2}		81	15 V	13.5 V	"		"		"	"	"		"			"		15 V	Y1	-3.4		-2.4		-4.2		"
"		82	"		"		"		"	"	"		"			"		"	Y2	"		"		"		"
"		83	"		"		"		"	"	"		"			"		"	Y3	"		"		"		"
"		84	"		"		"		"	"	"		"			"		"	Y4	"		"		"		"
"		85	"		"		"		"	"	"		"			"		"	Y5	"		"		"		"
"		86	"		"		"		"	"	"		"			"		"	Y6	"		"		"		"
*I_{IH1} 5/	3010	87	18 V		18 V		18 V		18 V	"	18 V		18 V			18 V		18 V	All Inputs together		600					nA

TABLE III. Group A inspection for device types 52 and 54.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/																Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 2/		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	V_{CC}	Y1	A1	Y2	A2	Y3	A3	V_{SS}	A4	Y4	A5	Y5	NC	A6	Y6	V_{DD}		Min	Max	Min	Max	Min	Max	
$V_{IC(POS)}$	3/	1	GND		1 mA													GND	A1		1.5					Vdc
"		2	"				1 mA											"	A2		"					"
"		3	"						1 mA									"	A3		"					"
"		4	"								1 mA							"	A4		"					"
"		5	"										1 mA					"	A5		"					"
"		6	"													1 mA		"	A6		"					"
$V_{IC(NEG)}$		7			-1 mA					GND									A1		-6.0					"
"		8					-1 mA			"									A2		"					"
"		9							-1 mA	"									A3		"					"
"		10								"	-1 mA								A4		"					"
"		11								"			-1 mA						A5		"					"
"		12								"						-1 mA			A6		"					"
I_{SS}	3005 4/	13	18 V		18 V		18 V		18 V	"	18 V		18 V			18 V		18 V	V_{SS}		-75		-750			nAdc
I_{SS}	3005 4/	14	18 V		GND		GND		GND	"	GND		GND			GND		18 V	V_{SS}		-75		-750			
VOH5	3006	15	15 V		15 V					"								15 V	Y1	14.95		14.95		14.95		Vdc
"	"	16	"				15 V			"								"	Y2	"		"		"		"
"	"	17	"						15 V	"								"	Y3	"		"		"		"
"	"	18	"							"	15 V							"	Y4	"		"		"		"
"	"	19	"							"			15 V					"	Y5	"		"		"		"
"	"	20	"							"						15 V		"	Y6	"		"		"		"
VOL5	3007	21	15 V		GND					"								"	Y1		0.05		0.05		0.05	"
"	"	22	"				GND			"								"	Y2		"		"		"	"
"	"	23	"						GND	"								"	Y3		"		"		"	"
"	"	24	"							"	GND							"	Y4		"		"		"	"
"	"	25	"							"			GND					"	Y5		"		"		"	"
"	"	26	"							"						GND		"	Y6		"		"		"	"
VIH1		27	5 V		3.5 V		GND		GND	"	GND		GND			GND		5 V	Y1		4.5		4.5		4.5	"
"		28	"		GND		3.5 V		GND	"	"		"			"		"	Y2		"		"		"	"
"		29	"		"		GND		3.5 V	"	"		"			"		"	Y3		"		"		"	"
"		30	"		"		"		GND	"	3.5 V		"			"		"	Y4		"		"		"	"
"		31	"		"		"		"	"	GND		3.5 V			"		"	Y5		"		"		"	"
"		32	"		"		"		"	"	"		GND			3.5 V		"	Y6		"		"		"	"
VIH2		33	10 V		7.0 V		"		"	"	"		"			GND		10 V	Y1		9.0		9.0		9.0	"
"		34	"		GND		7.0 V		"	"	"		"			"		"	Y2		"		"		"	"
"		35	"		"		GND		7.0 V	"	"		"			"		"	Y3		"		"		"	"
"		36	"		"		"		GND	"	7.0 V		"			"		"	Y4		"		"		"	"
"		37	"		"		"		"	"	GND		7.0 V			"		"	Y5		"		"		"	"
"		38	"		"		"		"	"	"		GND			7.0 V		"	Y6		"		"		"	"
VIH3		39	15 V		11.0 V		GND		"	"	"		"			GND		15 V	Y1		13.5		13.5		13.5	"
"		40	"		GND		11.0 V		"	"	"		"			"		"	Y2		"		"		"	"
"		41	"		"		GND		11.0 V	"	"		"			"		"	Y3		"		"		"	"
"		42	"		"		"		GND	"	11.0 V		"			"		"	Y4		"		"		"	'
"		43	"		"		"		"	"	GND		11.0 V			"		"	Y5		"		"		"	'
"		44	"		"		"		" "	"	GND		GND			11.0 V		"	Y6		"		"		"	"

TABLE III. Group A inspection for device types 52 and 54 – Continued.

Symbol	MIL-STD-883 method	Cases E, F, Z	For terminal conditions and limits see 1/																Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 2/		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
																				Min	Max	Min	Max	Min	Max	
		Test No.	V_{CC}	Y1	A1	Y2	A2	Y3	A3	V_{SS}	A4	Y4	A5	Y5	NC	A6	Y6	V_{DD}							
V_{IL1}		45	5 V		!.5 V		GND		GND	GND	GND		GND			GND		5 V	Y1	0.5		0.5		0.5		Vdc
"		46	"		GND		!.5 V		GND	"	"		"			"		"	Y2	"		"		"		"
"		47	"		"		GND		!.5 V	"	"		"			"		"	Y3	"		"		"		"
"		48	"		"		"		GND	"	1.5 V		"			"		"	Y4	"		"		"		"
"		49	"		"		"		"	"	GND		"			"		"	Y5	"		"		"		"
"		50	"		"		"		"	"	"		1.5 V			1.5 V		"	Y6	"		"		"		"
V_{IL2}		51	10 V		3.0 V		"		"	"	"		"			GND		10 V	Y1	1.0		1.0		1.0		"
"		52	"		GND		3.0 V		"	"	"		"			"		"	Y2	"		"		"		"
"		53	"		"		GND		3.0 V	"	"		"			"		"	Y3	"		"		"		"
"		54	"		"		"		GND	"	3.0 V		"			"		"	Y4	"		"		"		"
"		55	"		"		"		"	"	GND		"			"		"	Y5	"		"		"		"
"		56	"		"		"		"	"	"		3.0 V			3.0 V		"	Y6	"		"		"		"
V_{IL3}		57	15 V		4.0 V		"		"	"	"		"			GND		15 V	Y1	1.5		1.5		1.5		"
"		58	"		GND		4.0 V		"	"	"		"			"		"	Y2	"		"		"		"
"		59	"		"		GND		4.0 V	"	"		"			"		"	Y3	"		"		"		"
"		60	"		"		"		GND	"	4.0 V		"			"		"	Y4	"		"		"		"
"		61	"		"		"		"	"	GND		"			"		"	Y5	"		"		"		"
"		62	"		"		"		"	"	"		4.0 V			4.0 V		"	Y6	"		"		"		"
I_{OL1}		63	5 V	0.4 V	"		"		"	"	"		"			GND		5 V	Y1	3.2		2.2		4.0		mA
"		64	"		"	0.4 V			"	"	"		"			"		"	Y2	"		"		"		"
"		65	"		"		"		"	"	"		"			"		"	Y3	"		"		"		"
"		66	"		"		"	0.4 V		"	"	0.4 V	"			"		"	Y4	"		"		"		"
"		67	"		"		"		"	"	"		"			"		"	Y5	"		"		"		"
"		68	"		"		"		"	"	"		"	0.4 V		"	0.4 V	"	Y6	"		"		"		"
I_{OL2}		69	15 V	1.5 V	"		"		"	"	"		"			GND		15 V	Y1	24.0		17.0		30.0		"
"		70	"		"	1.5 V			"	"	"		"			"		"	Y2	"		"		"		"
"		71	"		"		"		"	"	"		"			"		"	Y3	"		"		"		"
"		72	"		"		"	1.5 V		"	"	1.5 V	"			"		"	Y4	"		"		"		"
"		73	"		"		"		"	"	"		"	1.5 V		"	1.5 V	"	Y5	"		"		"		"
"		74	"		"		"		"	"	"		"			"		"	Y6	"		"		"		"
I_{OH1}		75	5 V	4.6 V	5.0 V		"		"	"	"		"			GND		5 V	Y1	-0.51		-0.36		-0.64		mA
"		76	"		GND	4.6 V			"	"	"		"			"		"	Y2	"		"		"		"
"		77	"		"		5.0 V		5.0 V	"	"		"			"		"	Y3	"		"		"		"
"		78	"		"		GND	4.6 V		"	5.0 V	4.6 V	"			"		"	Y4	"		"		"		"
"		79	"		"		"		GND	"	GND		"	4.6 V		"	4.6 V	"	Y5	"		"		"		"
"		80	"		"		"		"	"	"		5.0 V			5.0 V		"	Y6	"		"		"		"
I_{OH2}		81	15 V	13.5 V	15 V		"		"	"	"		"			GND		15 V	Y1	-3.4		-2.4		-4.2		"
"		82	"		GND	13.5 V			"	"	"		"			"		"	Y2	"		"		"		"
"		83	"		"		15 V		15 V	"	"		"			"		"	Y3	"		"		"		"
"		84	"		"		GND	13.5 V		"	15 V	13.5 V	"			"		"	Y4	"		"		"		"
"		85	"		"		"		GND	"	GND		"	13.5 V		"	13.5 V	"	Y5	"		"		"		"
"		86	"		"		"		"	"	GND		15 V			15 V		"	Y6	"		"		"		"
*I_{IH1} 5/	3010	87	18 V		18 V		18 V		18 V	"	18 V		18 V			18 V		18 V	All Inputs together		600					nA

TABLE III. Group A inspection for device type 55.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/													Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	Y1	$\overline{Y1}$	A1	Y2	$\overline{Y2}$	A2	V_{SS}	Y3	$\overline{Y3}$	A3	Y4	$\overline{Y4}$	A4	V_{DD}		Min	Max	Min	Max	Min	Max	
$V_{IC(POS)}$	3/	1			1 mA			1 mA	GND			1 mA			1 mA	GND	A1	1.5						Vdc
"		2							"							"	A2	"						"
"		3							"							"	A3	"						"
"		4							"							"	A4	"						"
$V_{IC(NEG)}$		5			-1 mA			-1 mA	GND			-1 mA			-1 mA		A1	-6.0						"
"		6							"								A2	"						"
"		7							"								A3	"						"
"		8							"								A4	"						"
I_{SS}	3005 4/	9			15 V			15 V	"			15V			15V	15 V	V_{SS}	-75		-750				nA
I_{SS}	3005 4/	10			GND			GND	"			GND			GND	"	V_{SS}	-75		-750				nA
V_{OH5}	3006	11			15 V			15 V	"			15 V			GND	"	Y1	14.95						Vdc
"	"	12							"							"	Y2	"						"
"	"	13							"							"	Y3	"						"
"	"	14							"							"	$\overline{Y1}$	"						"
"	"	15			GND				"							"	$\overline{Y2}$	"						"
"	"	16							"							"	$\overline{Y3}$	"						"
"	"	17							"							"	$\overline{Y4}$	"						"
"	"	18							"							"								
V_{OL5}	3007	19			GND			GND	"			GND			GND	"	Y1	0.05						"
"	"	20							"							"	Y2	"						"
"	"	21							"							"	Y3	"						"
"	"	22			15 V			15 V	"			15 V			15 V	"	Y4	"						"
"	"	23							"							"	$\overline{Y1}$	"						"
"	"	24							"							"	$\overline{Y2}$	"						"
"	"	25							"							"	$\overline{Y3}$	"						"
"	"	26							"							"	$\overline{Y4}$	"						"
V_{IH1}		27			3.5 V			GND	"			GND			GND	5 V	Y1	4.5			4.5			"
"		28			GND			3.5 V	"			GND			"	"	Y2	"			"			"
"		29			"			GND	"			3.5 V			3.5 V	"	Y3	"			"			"
"		30			"			"	"			GND			GND	"	Y4	"			"			"
"		31			3.5 V			"	"			"			"	"	$\overline{Y1}$	"	0.5	0.5		0.5		"
"		32			GND			3.5 V	"			3.5 V			"	"	$\overline{Y2}$	"	"	"		"		"
"		33			"			GND	"			GND			"	"	$\overline{Y3}$	"	"	"		"		"
"		34			"			GND"	"			GND			"	"	$\overline{Y4}$	"	"	"		"		"
V_{IH2}		35			7.0 V			GND	"			7.0 V			GND	10 V	Y1	9.0			9.0			"
"		36			GND			7 V	"			GND			"	"	Y2	"			"			"
"		37			"			GND	"			"			7.0 V	"	Y3	"			"			"
"		38			"			"	"			"			GND	"	Y4	"			"			"
"		39			7.0 V			7 V	"			"			"	"	$\overline{Y1}$	"	1.0	1.0		1.0		"
"		40			GND			GND	"			"			7.0 V	"	$\overline{Y2}$	"	"	"		"		"
"		41			"			GND	"			"			GND	"	$\overline{Y3}$	"	"	"		"		"
"		42			"			GND	"			"			"	"	$\overline{Y4}$	"	"	"		"		"

TABLE III. Group A inspection for device type 55 – Continued.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/														Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	Y1	$\overline{Y1}$	A1	$\overline{Y2}$	Y2	A2	V_{SS}	Y3	$\overline{Y3}$	A3	Y4	$\overline{Y4}$	A4	V_{DD}		Min	Max	Min	Max	Min	Max	
V_{IH3}		43			11.0 V			GND	GND			GND			GND	15 V	Y1	13.5		13.5		13.5		Vdc
"		44			GND			11.0 V	"			GND			"	"	Y2	"		"		"		"
"		45			"			GND	"			11.0 V			GND	"	Y3	"		"		"		"
"		46			"			"	"			GND			"	"	Y4	"	1.5	"	1.5	"	1.5	"
"		47			11.0 V			"	"			"			"	"	Y1							"
"		48			GND			11.0 V	"			"			"	"	Y2							"
"		49			"			GND	"			"			"	"	Y3							"
"		50			"			"	"			11.0 V			1.1.0 V	"	Y4							"
V_{IL1}		51			1.5 V			GND	GND			GND			GND	5 V	Y1	0.5		0.5		0.5		"
"		52			GND			1.5 V	"			"			"	"	Y2	"		"		"		"
"		53			"			GND	"			1.5 V			GND	"	Y3	"		"		"		"
"		54			"			"	"			GND			"	"	Y4	"		"		"		"
"		55			1.5 V			"	"			"			"	"	Y1							"
"		56			GND			1.5 V	"			"			"	"	Y2							"
"		57			"			GND	"			"			"	"	Y3							"
"		58			"			"	"			1.5 V			1.5 V	"	Y4							"
V_{IL2}		59			3.0 V			GND	GND			GND			GND	10 V	Y1	1.0		1.0		1.0		"
"		60			GND			3.0 V	"			"			"	"	Y2	"		"		"		"
"		61			"			GND	"			3.0 V			GND	"	Y3	"		"		"		"
"		62			"			"	"			GND			"	"	Y4	"		"		"		"
"		63			3.0 V			"	"			"			"	"	Y1							"
"		64			GND			3.0 V	"			"			"	"	Y2							"
"		65			"			GND	"			"			"	"	Y3							"
"		66			"			"	"			3.0 V			3.0 V	"	Y4							"
V_{IL3}		67			4.0 V			GND	GND			GND			GND	15 V"	Y1	1.5		1.5		1.5		"
"		68			GND			4.0 V	"			"			"	"	Y2	"		"		"		"
"		69			"			GND	"			4.0 V			GND	"	Y3	"		"		"		"
"		70			"			"	"			GND			"	"	Y4	"		"		"		"
"		71			4.0 V			"	"			"			"	"	Y1							"
"		72			GND			4.0 V	"			"			"	"	Y2							"
"		73			"			GND	"			"			"	"	Y3							"
"		74			"			"	"			4.0 V			4.0 V	"	Y4							"
I_{OL1}		75	0.4 V		"			"	"			"			GND	5 V	Y1	1.2		1.2		2.1		mA
"		76			"			"	"			"			"	"	Y2	"		"		"		"
"		77			"			"	"			"			"	"	Y3	"		"		"		"
"		78		0.4 V	"			"	"			"			"	"	Y4	"		0.55		1.0		"
"		79			5.0 V			"	"			"			"	"	Y1							"
"		80			GND			5.0 V	"			"			"	"	Y2							"
"		81			"			GND	"			"			"	"	Y3							"
"		82			"			"	"			5.0 V			5.0 V	"	Y4							"
I_{OL2}		83	1.5 V		"			"	"			"			GND	15 V	Y1	12.0		8.0		14.0		"
"		84			"			"	"			"			"	"	Y2	"		"		"		"
"		85			"			"	"			"			"	"	Y3	"		"		"		"
"		86			"			"	"			"			"	"	Y4	"		"		"		"
"		87		1.5 V	15.0 V			15.0 V	"			"			"	"	Y1	4.5		3.0		5.5		"
"		88			GND			GND	"			"			"	"	Y2	"		"		"		"
"		89			"			"	"			15.0 V			15.0 V	"	Y3	"		"		"		"
"		90			"			"	"			GND			"	"	Y4	"		"		"		"

TABLE III. Group A inspection for device type 55 - Continued.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/													Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	Y1	$\overline{Y1}$	A1	Y2	$\overline{Y2}$	A2	V_{SS}	Y3	$\overline{Y3}$	A3	Y4	$\overline{Y4}$	A4	V_{DD}		Min	Max	Min	Max	Min	Max	
I_{OH1}		91	4.6 V		5.0 V	4.6 V		GND	GND	4.6 V		GND	4.6 V		GND	5 0 V	Y1	-1.4		-1.0		-1.75		mA
"		92			GND			5.0 V	"			GND			"	"	Y2	"		"		"		"
"		93			"			"	"			5.0 V			5.0 V	"	Y3	"		"		"		"
"		94			"			"	"			GND			GND	"	Y4	"		"		"		"
"		95		4.6 V	"		4.6 V	"	"			"			"	"	Y1	-0.6		-0.4		-0.75		"
"		96			"			GND	"			"			"	"	Y2	"		"		"		"
"		97			"			"	"			"			"	"	Y3	"		"		"		"
"		98			"			"	"		4.6 V	"		4.6 V	"	"	Y4	"		"		"		"
I_{OH2}		99	13.5 V		15.0 V	13.5 V		"	"	13.5 V		"	13.5 V		"	15.0 V	Y1	-9.0		-6.0		-11.0		"
"		100			GND			15.0 V	"			"			"	"	Y2	"		"		"		"
"		101			"			"	"			15.0 V			15.0 V	"	Y3	"		"		"		"
"		102			"			"	"			GND			GND	"	Y4	"		"		"		"
"		103		13.5 V	"		13.5 V	"	"			"	13.5 V		"	"	Y1	-4.0		-2.7		"		"
"		104			"			"	"			"			"	"	Y2	"		"		"		"
"		105			"			"	"			"			"	"	Y3	"		"		"		"
"		106			"			"	"		13.5 V	"		13.5 V	"	"	Y4	"		"		"		"
$*I_{IH1}$ 5/	3010	107			18.0 V			18.0 V	"			18.0 V			18.0 V	18.0 V	All Inputs together		400				nA
$*I_{IH2}$	"	108			18.0 V			GND	"			GND			GND	"	A1		100		100		"
"	"	109			GND			18.0 V	"			GND			"	"	A2		"		"		"
"	"	110			"			GND	"			18.0 V			"	"	A3		"		"		"
"	"	111			"			"	"			GND			18.0 V	"	A4		"		"		"
$*I_{IL1}$ 5/	3009	112			"			"	"			GND			GND	"	All Inputs together		-400				"
$*I_{IL2}$	"	113			GND			18.0 V	"			18.0 V			18.0 V	"	A1		-100		-100		"
"	"	114			18.0 V			GND	"			GND			"	"	A2		"		"		"
"	"	115			"			18.0 V	"			18.0 V			"	"	A3		"		"		"
"	"	116			"			18.0 V	"			GND			GND	"	A4		"		"		"
Ci	3012	117			A 6/			A 6/				A 6/			A 6/	GND	A1						pF
"	"	118														"	A2						"
"	"	119														"	A3						"
"	"	120														"	A4						"

TABLE III. Group A inspection for device type 55 – Continued.

Symbol	MIL-STD-883 method	Cases E, F, N, And Z	For terminal conditions and limits see 1/													Measured terminal	Test limits						Unit
			1	2	3	4	5	6	7	8	9	10	11	12	13	14		Subgroup 1 TC = 25°C		Subgroup 2 TC = 125°C		Subgroup 3 TC = -55°C		
		Test No.	Y1	$\overline{Y1}$	A1	Y2	$\overline{Y2}$	A2	V_{SS}	Y3	$\overline{Y3}$	A3	Y4	$\overline{Y4}$	A4	V_{DD}		Min	Max	Min	Max	Min	Max	
t_{PHL}	3003 Fig. 5	121	OUT		IN			IN	GND			IN			IN	5.0 V	A1 to Y1	6.0	6.0	9.0	172	6.0	115	ns
"	"	122				OUT			"	OUT			OUT			"	A2 to Y2	"	"	"	"	"	"	"
"	"	123							"							"	A3 to Y3	"	"	"	"	"	"	"
"	"	124							"							"	A4 to Y4	"	"	"	"	"	"	"
"	"	125		OUT	IN				"							"	A1 to $\overline{Y1}$	"	"	"	"	"	"	"
"	"	126					OUT	IN	"			IN			IN	"	A2 to $\overline{Y2}$	"	"	"	"	"	"	"
"	"	127							"		OUT					"	A3 to $\overline{Y3}$	"	"	"	"	"	"	"
"	"	128							"					OUT		"	A4 to Y4	"	"	"	"	"	"	"
t_{PLH}	"	129	OUT		IN			IN	"			IN			IN	"	A1 to Y1	"	125	"	188	"	125	"
"	"	130				OUT			"	OUT			OUT			"	A2 to Y2	"	"	"	"	"	"	"
"	"	131							"							"	A3 to Y3	"	"	"	"	"	"	"
"	"	132							"							"	A4 to Y4	"	"	"	"	"	"	"
"	"	133		OUT	IN				"							"	A1 to $\overline{Y1}$	"	"	"	"	"	"	"
"	"	134					OUT	IN	"			IN			IN	"	A2 to $\overline{Y2}$	"	"	"	"	"	"	"
"	"	135							"		OUT					"	A3 to $\overline{Y3}$	"	"	"	"	"	"	"
"	"	136							"					OUT		"	A4 to Y4	"	"	"	"	"	"	"
t_{THL}	3004 Fig. 5	137	OUT		IN			IN	"			IN			IN	"	A1 to Y1	"	50	"	75	"	50	"
"	"	138				OUT			"	OUT			OUT			"	A2 to Y2	"	"	"	"	"	"	"
"	"	139							"							"	A3 to Y3	"	"	"	"	"	"	"
"	"	140							"							"	A4 to Y4	"	"	"	"	"	"	"
"	"	141		OUT	IN				"							"	A1 to $\overline{Y1}$	"	"	"	"	"	"	"
"	"	142					OUT	IN	"			IN			IN	"	A2 to $\overline{Y2}$	"	"	"	"	"	"	"
"	"	143							"		OUT					"	A3 to $\overline{Y3}$	"	"	"	"	"	"	"
"	"	144							"					OUT		"	A4 to Y4	"	"	"	"	"	"	"
t_{TLH}	"	145	OUT		IN			IN	"			IN			IN	"	A1 to Y1	"	70	"	105	"	70	"
"	"	146				OUT			"	OUT			OUT			"	A2 to Y2	"	"	"	"	"	"	"
"	"	147							"							"	A3 to Y3	"	"	"	"	"	"	"
"	"	148							"							"	A4 to Y4	"	"	"	"	"	"	"
"	"	149		OUT	IN				"							"	A1 to $\overline{Y1}$	"	"	"	"	"	"	"
"	"	150					OUT	IN	"			IN			IN	"	A2 to $\overline{Y2}$	"	"	"	"	"	"	"
"	"	151							"		OUT					"	A3 to $\overline{Y3}$	"	"	"	"	"	"	"
"	"	152							"					OUT		"	A4 to Y4	"	"	"	"	"	"	"

TABLE III. Group A inspection for device type 55 – Continued.

1/ Input pins not designated may be tied to V_{CC} or GND or may be left open provided they do not influence the outcome of the measurement . Output pins not desigated may be tied to the loads or may be left open provided they do not influence the outcome of the measurment.

2/ Terminal 16 is not connected for device types 53 and 54.

3/ Test parameter $V_{IC(pos)}$ does not apply to device types 53 and 54.

4/ When performing quiescent supply measurements (I_{SS}), the meter shall be placed so that all currents flow through the meter.

5/ The device manufacturer may, at his option, measure I_{IL} and I_{IH} at 25°C for each individual input or measure all inputs together.

6/ (A) Capcitance bridge between measured terminal and V_{SS}; frequency = 1 MHz.

7/ Test limits t_{PHL}, t_{PLH}, t_{THL}, and t_{TLH} for device types 51/53 and 52/54 consists of two sets of values and are expressed XXX/XXXX in the limits column. The digits preceding the slash apply to the first device in a set.