

INCH-POUND

MIL-M-38510/348C

6 May 2004

SUPERSEDING

MIL-M-38510/348B

12 May 1988

MILITARY SPECIFICATION

MICROCIRCUITS, DIGITAL, BIPOLAR, ADVANCED SCHOTTKY TTL,
BUS TRANSCEIVERS WITH THREE-STATE OUTPUTS, MONOLITHIC SILICON

Reactivated after 6 May 2004 and may be used for either new or existing design acquisition.

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product herein shall consist of this specification sheet and MIL-PRF 38535

1. SCOPE

1.1 Scope. This specification covers the detail requirements for monolithic silicon, advanced Schottky TTL, bus transceivers, with three state outputs. Two product assurance classes and a choice of case outlines and lead finishes are provided for each type and are reflected in the complete part number. For this product, the requirements of MIL-M-38510 have been superseded by MIL-PRF-38535, (see 6.3).

1.2 Part or Identifying Number (PIN). The PIN is in accordance with MIL-PRF-38535, and as specified herein.

1.2.1 Device types. The device types are as follows:

<u>Device type</u>	<u>Circuit</u>
01	Quad inverting bus transceivers, with three-state outputs
02	Quad noninverting bus transceivers, with three-state outputs
03	Octal noninverting bus transceivers, with three-state outputs
04	Octal noninverting bus transceivers, with three-state outputs

1.2.2 Device class. The device class is the product assurance level as defined in MIL-PRF-38535.

1.2.3 Case outlines. The case outlines are as designated in MIL-STD-1835 and as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
A	GDFP5-F14 or CDFP6-F14	14	Flat pack
B	GDFP4-14	14	Flat pack
C	GDIP1-T14 or CDIP2-T14	14	Dual-in-line
D	GDFP1-F14 or CDFP2-F14	14	Flat pack
R	GDIP1-T20 or CDIP2-T20	20	Dual-in-line
S	GDFP2-F20 or CDFP3-F20	20	Flat pack
X	CQCC2-N20	20	Square leadless chip carrier
2	CQCC1-N20	20	Square leadless chip carrier

Comments, suggestions, or questions on this document should be addressed to: Commander, Defense Supply Center Columbus, ATTN: DSCC-VAS, 3990 East Broad St., Columbus, OH 43216-5000, or emailed to bipolar@dscclia.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil.

1.3 Absolute maximum ratings.

Supply voltage range	-0.5 V to +7.0 V
Input voltage range	-1.2 V dc at -18 mA to +7.0 V dc
Storage temperature range	-65° to +150°C
Maximum power dissipation, per device (P_D) <u>1/</u>	
Device type 01	495 mW
Device type 02	506 mW
Device type 03 and 04	786.5 mW
Lead temperature (soldering, 10 seconds)	+300°C
Thermal resistance, junction to case (θ_{JC})	(See MIL-STD-1835)
Junction temperature (T_J) <u>2/</u>	175°C

1.4 Recommended operating conditions.

Supply voltage (V_{CC})	4.5 V minimum to 5.5 V maximum
Minimum high level input voltage (V_{IH})	2.0 V
Maximum low level input voltage (V_{IL})	0.8 V
Normalized fanout (each output):	
Low logic level	33 maximum
High logic level	50 maximum
Case operating temperature range (T_C)	-55° to +125°C

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, or 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications and Standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-PRF-38535 - Integrated Circuits (Microcircuits) Manufacturing, General Specification for.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-883 - Test Method Standard for Microelectronics.
MIL-STD-1835 - Interface Standard Electronic Component Case Outlines

(Copies of these documents are available online at <http://assist.daps.dla.mil/quicksearch/> or www.dodssp.daps.mil or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

1/ Must withstand the added P_D due to short-circuit test (e.g., I_{OS}).

2/ Maximum junction temperature should not be exceeded except in accordance with allowable short duration burn-in screening condition in accordance with MIL-PRF-38535.

3. REQUIREMENTS

3.1 Qualification. Microcircuits furnished under this specification shall be products that are manufactured by a manufacturer authorized by the qualifying activity for listing on the applicable qualified manufacturers list before contract award (see 4.3 and 6.4).

3.2 Item requirements. The individual item requirements shall be in accordance with MIL-PRF-38535 and as specified herein or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein.

3.3 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38535 and herein.

3.3.1 Logic diagrams and terminal connections. The logic diagrams and terminal connections shall be as specified on figure 1.

3.3.2 Truth tables. The truth tables shall be as specified on figure 2.

3.3.3 Schematic circuits. The schematic circuits shall be maintained by the manufacturer and made available to the qualifying activity and the preparing activity upon request.

3.3.4 Case outlines. The case outlines shall be as specified in 1.2.3.

3.4 Lead material and finish. The lead material and finish shall be in accordance with MIL-PRF-38535 (see 6.6).

3.5 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.

3.6 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.

3.7 Marking. Marking shall be in accordance with MIL-PRF-38535.

3.8 Microcircuit group assignment. The devices covered by this specification shall be in microcircuit group number 9 (see MIL-PRF-38535, appendix A).

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38535 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not effect the form, fit, or function as described herein.

4.2 Screening. Screening shall be in accordance with MIL-PRF-38535 and shall be conducted on all devices prior to qualification and conformance inspection. The following additional criteria shall apply:

- a. The burn-in test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- 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. Additional screening for space level product shall be as specified in MIL-PRF-38535.

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit
				Min	Max	
High level output voltage	V _{OH}	V _{CC} = 4.5 V, V _{IL} = 0.8 V, I _{OH} = -3 mA, V _{IH} = 2.0 V	All	2.4		V
	V _{OH1}	V _{CC} = 4.5 V, V _{IL} = 0.8 V, I _{OH} = -12 mA, V _{IH} = 2.0 V	All	2.0		V
	V _{OH2}	V _{CC} = 4.5 V, V _{IL} = 0.8 V, I _{OH} = -1 mA, V _{IH} = 2.0 V	03, 04	2.5		V
Low level output voltage	V _{OL}	V _{CC} = 4.5 V, I _{OL} = 48 mA, V _{IH} = 2.0 V, V _{IL} = 0.8 V	All		0.55	V
	V _{OL1}	V _{CC} = 4.5 V, I _{OL} = 20 mA, V _{IH} = 2.0 V, V _{IL} = 0.8 V	03, 04		0.5	V
Input clamp voltage	V _{IC}	I _I = -18 mA, T _C = +25°C V _{CC} = 0.0 V or 4.5 V	All		-1.2	V
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} = 7.0 V	All		100	μA
	I _{IH3}	V _{CC} = 5.5 V, V _{IN} = 5.5 V	All		1.0	mA
Low level input current	I _{IL1}	V _{CC} = 5.5 V, V _{IL} = 0.5 V	01	-.03	-1.0	mA
			02	-.03	-1.0	
			03	-0.0	-1.6	
			04	-.04	-1.6	
Low level input current	I _{IL2}	V _{CC} = 5.5 V, V _{IL} = 0.5 V	03	-0.0	-1.2	mA
			04	-.04	-1.2	
Short circuit output current <u>1/</u>	I _{OS}	V _{CC} = 5.5 V, V _{OS} = 0 V	All	-100	-325	mA
	I _{OS1}		03, 04	-60	-150	
Low level input, off-state low output current	I _{OZL}	V _{CC} = 5.5 V, V _{OZL} = 0.5 V	01	-.03	-1.6	mA
			02	-.06	-1.6	
			03	-0.0	-1.2	
			04	-.03	-1.2	
High level input, off-state high output current	I _{OZH}	V _{CC} = 5.5 V, V _{OZH} = 2.7 V	All		70	μA
Supply current	I _{CCH}	V _{CC} = 5.5 V, V _{IN} = 0.0 V	01		60	mA
		V _{CC} = 5.5 V, V _{IN} = 5.5 V	02		80	
			03, 04		110	

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit
				Min	Max	
Supply current	I _{CC} L	V _{CC} = 5.5 V, V _{IN} = 5.5 V	01		90	mA
		V _{CC} = 5.5 V, V _{IN} = 0.0 V	02		92	
			03, 04		130	
Supply current	I _{CC} Z	V _{CC} = 5.5 V, V _{IN} = open	01		90	mA
			02		90	
			03, 04		143	
Propagation delay time low to high level, Bn to An	t _{PLH} 1	V _{CC} = 5.0 V, See figure 3	01	1.0	6.5	ns
			02	1.0	6.5	
			03	1.0	8.0	
			04	1.0	8.0	
Propagation delay time low to high level, An to Bn	t _{PLH} 2		01	1.0	6.5	ns
			02	1.0	6.5	
			03	1.0	8.5	
			04	1.0	8.5	
Propagation delay time high to low level, Bn to An	t _{PHL} 1		01	1.0	8.5	ns
			02	1.0	8.5	
			03	1.0	8.0	
			04	1.0	8.0	
Propagation delay time high to low level, An to Bn	t _{PHL} 2		01	1.0	8.5	ns
			02	1.0	8.5	
			03	1.0	8.5	
			04	1.0	8.5	
Propagation delay time low level to off-state E, $\overline{E}$, $\overline{OE}$ to An	t _{PLZ} 1		01	2.0	9.5	ns
			02	2.0	9.5	
			03	2.0	10.0	
			04	2.0	10.0	
Propagation delay time low level to off-state E, $\overline{E}$, $\overline{OE}$ to Bn	t _{PLZ} 2	01	2.0	9.5	ns	
		02	2.0	9.5		
		03	2.0	10.0		
		04	2.0	10.0		

See footnotes at end of table.

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C ≤ T _C ≤ +125°C unless otherwise specified	Device type	Limits		Unit	
				Min	Max		
Propagation delay time high level to off-state E, $\bar{E}$, $\overline{OE}$ to An	t _{PHZ1}	V _{CC} = 5.0 V, See figure 3	01	2.0	7.5	ns	
			02	2.0	7.5		
			03	2.0	9.0		ns
			04	2.0	9.0		
Propagation delay time high level to off-state E, $\bar{E}$, $\overline{OE}$ to Bn	t _{PHZ2}		01	2.0	7.5	ns	
			02	2.0	7.5		
			03	2.0	9.0		
			04	2.0	9.0		
Propagation delay time off-state to low level E, $\bar{E}$, $\overline{OE}$ to An	t _{PZL1}		01	2.0	10.5	ns	
			02	2.0	10.5		
			03	2.0	13.0		
			04	2.0	13.0		
Propagation delay time off-state to low level E, $\bar{E}$, $\overline{OE}$ to Bn	t _{PZL2}		01	2.0	10.5	ns	
			02	2.0	10.5		
			03	2.0	13.0		
			04	2.0	13.0		
Propagation delay time off-state to high level E, $\bar{E}$, $\overline{OE}$ to An	t _{PZH1}		01	2.0	8.0	ns	
			02	2.0	8.0		
			03	2.0	11.0		
			04	2.0	11.0		
Propagation delay time off-state to high level E, $\bar{E}$, $\overline{OE}$ to Bn	t _{PZH2}		01	2.0	8.0	ns	
			02	2.0	8.0		
			03	2.0	11.0		
			04	2.0	11.0		

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

TABLE II. Electrical test requirements.

MIL-PRF-38535 test requirements	Subgroups (see table III)	
	Class S devices	Class B devices
Interim electrical parameters	1	1
Final electrical test parameters	1*, 2, 3, 7, 9, 10, 11	1*, 2, 3, 7, 9
Group A test requirements	1, 2, 3, 7, 8, 9, 10, 11	1, 2, 3, 7, 8, 9, 10, 11
Group B electrical test parameters when using the method 5005 QCI option	1, 2, 3, 7, 8, 9, 10, 11	N/A
Group C end-point electrical parameters	1, 2, 3, 7, 8, 9, 10, 11	1, 2, 3
Group D end-point electrical parameters	1, 2, 3	1, 2, 3

*PDA applies to subgroup 1.

4.3 Qualification inspection. Qualification inspection shall be in accordance with MIL-PRF-38535.

4.4 Technology Conformance inspection (TCI). Technology conformance inspection shall be in accordance with MIL-PRF-38535 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 III of MIL-PRF-38535 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 4, 5, and 6 shall be omitted.

4.4.2 Group B inspection. Group B inspection shall be in accordance with table II of MIL-PRF-38535.

4.4.3 Group C inspection. Group C inspection shall be in accordance with table IV of MIL-PRF-38535 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. The steady-state life test duration, test condition, and test temperature, or approved alternatives shall be as specified in the device manufacturer's QM plan in accordance with MIL-PRF-38535. The burn-in test circuit shall be maintained under document control by the device manufacturer's Technology Review Board (TRB) in accordance with MIL-PRF-38535 and shall be made available to the acquiring or preparing activity upon request. The test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.

4.4.4 Group D inspection. Group D inspection shall be in accordance with table V of MIL-PRF-38535. 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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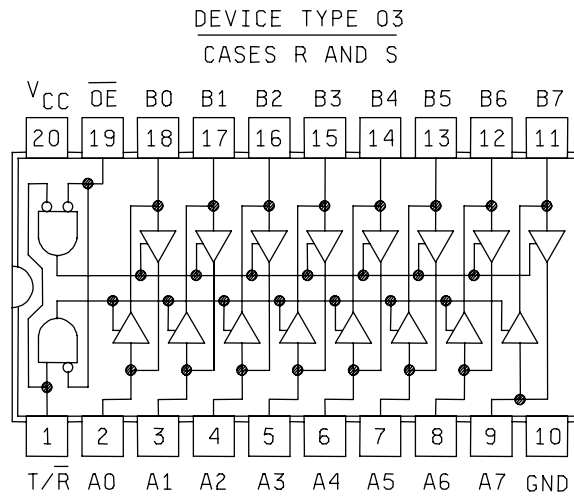
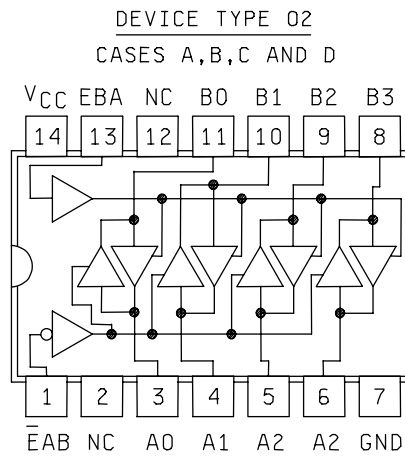
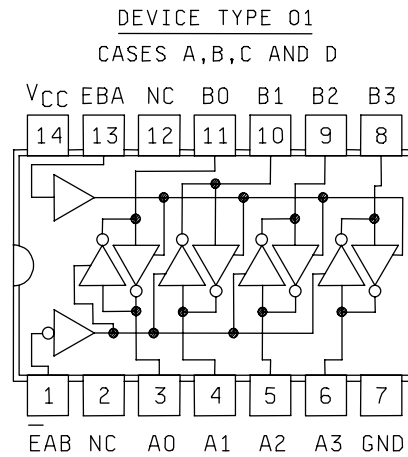


FIGURE 1. Terminal connections and logic diagrams.

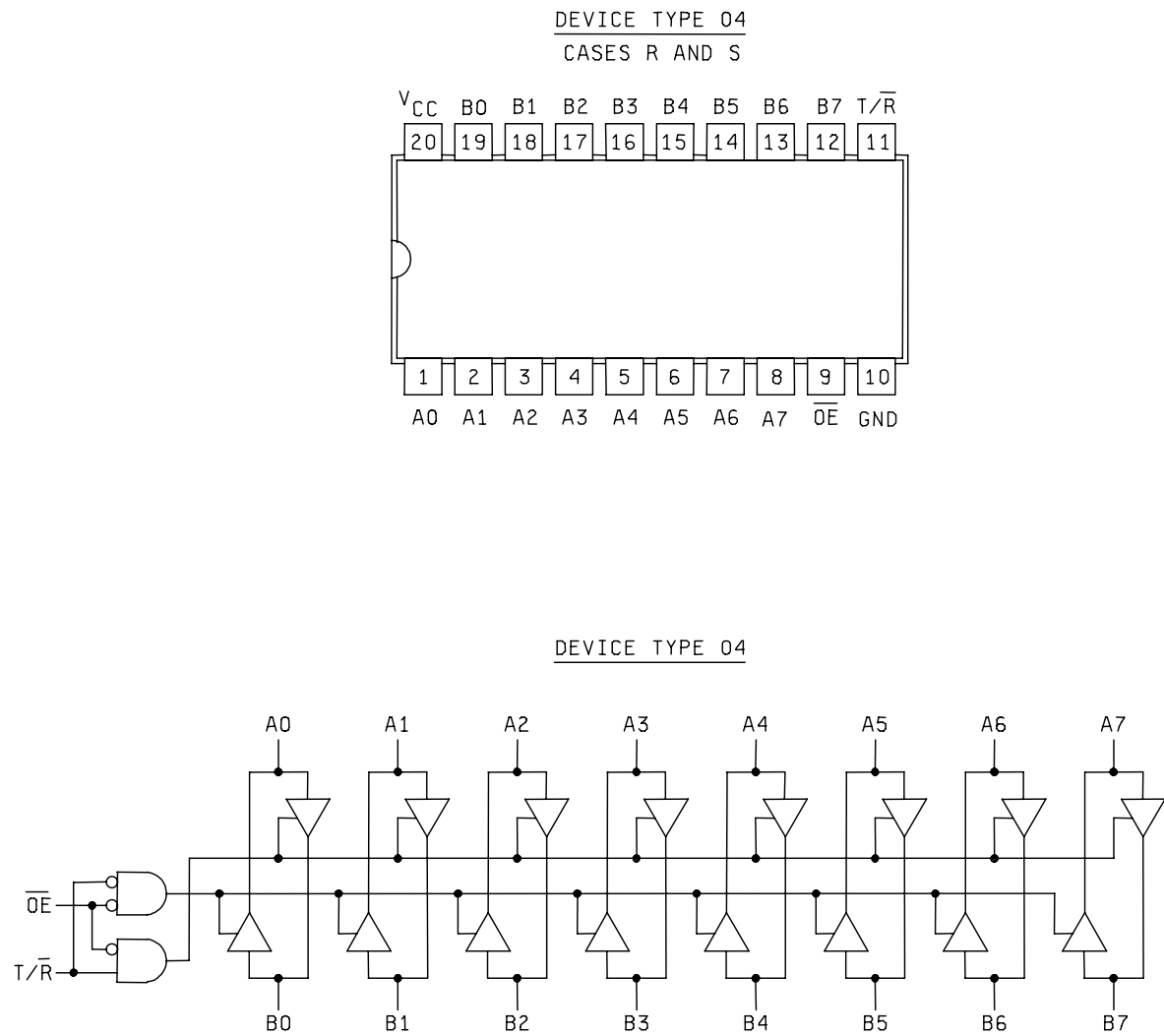


FIGURE 1. Terminal connections and logic diagrams - Continued.

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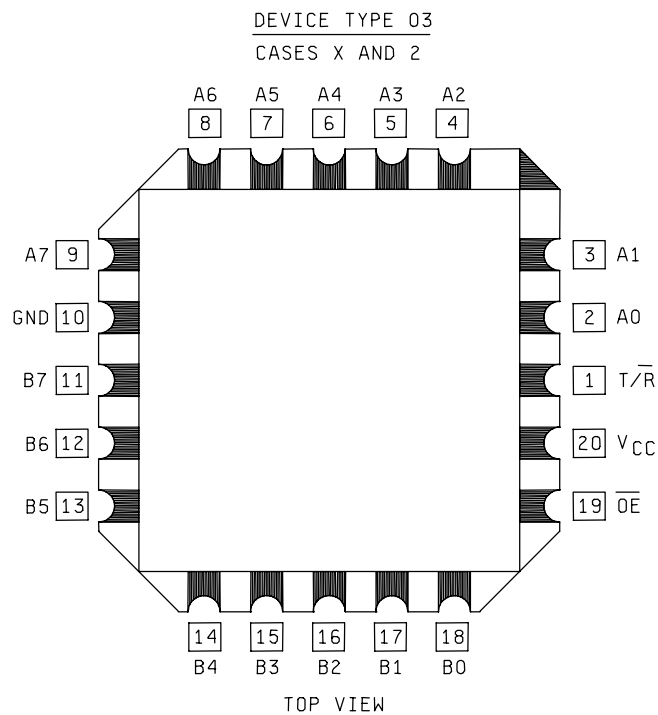
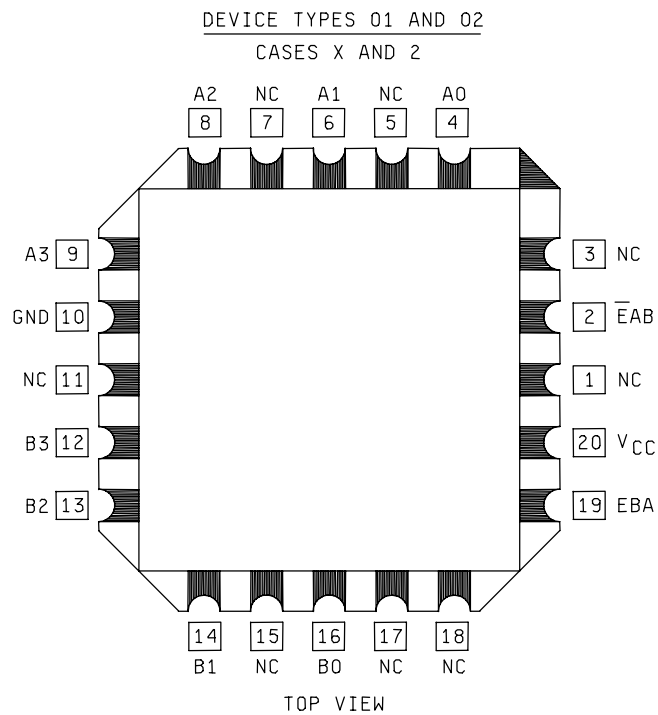


FIGURE 1. Terminal connections and logic diagrams - Continued.

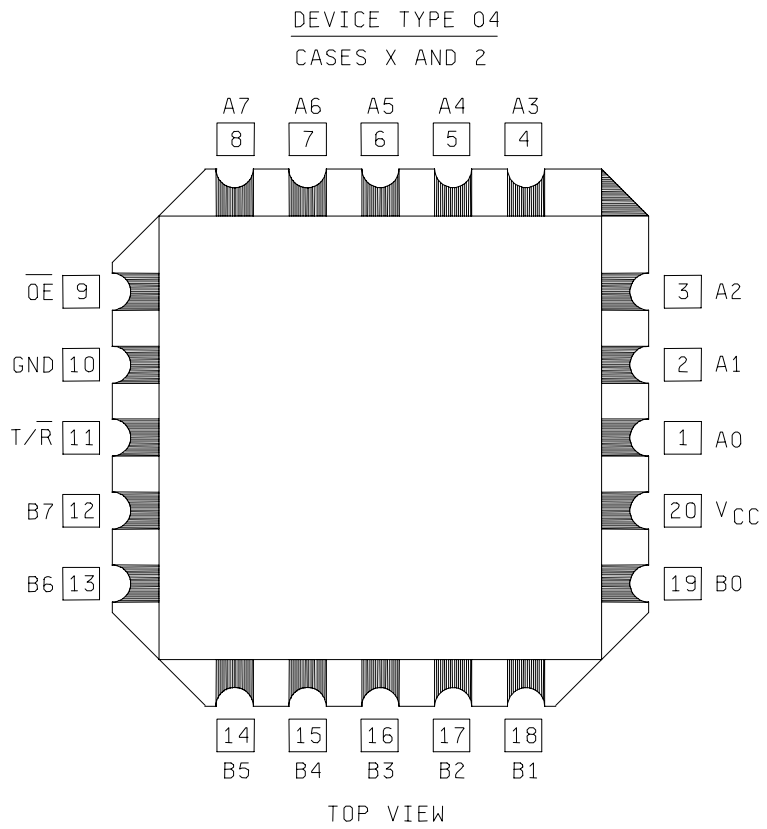


FIGURE 1. Terminal connections and logic diagrams - Continued.

Device type 01

INPUTS				OUTPUTS	
$\overline{E}AB$	EBA	An	Bn	Bn	An
L	L	H	--	L	--
L	L	L	--	H	--
H	H	--	H	--	L
H	H	--	L	--	H
H	L	X	--	Z	--
H	L	--	X	--	Z

Device type 02

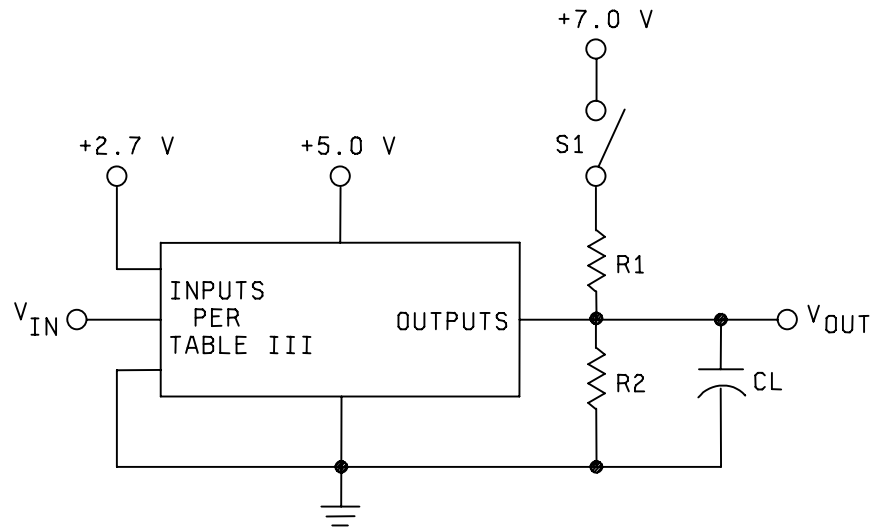
INPUTS				OUTPUTS	
$\overline{E}AB$	EBA	An	Bn	Bn	An
L	L	H	--	H	--
L	L	L	--	L	--
H	H	--	H	--	H
H	H	--	L	--	L
H	L	X	--	Z	--
H	L	--	X	--	Z

Device type 03 and 04

INPUTS				OUTPUTS	
$\overline{OE}$	T/R	An	Bn	Bn	An
L	H	H	--	H	--
L	H	L	--	L	--
L	L	--	H	--	H
L	L	--	L	--	L
H	H	X	--	Z	--
H	L	--	X	--	Z

H = High
 L = Low
 X = Don't Care
 Z = High impedance

FIGURE 2. Truth tables.



TEST TYPE	S1
t_{PLH}	OPEN
t_{PHL}	OPEN
t_{PHZ}	OPEN
t_{PZH}	OPEN
t_{PLZ}	CLOSED
t_{PZL}	CLOSED

NOTES:

1. V_{IN} = input pulse and has the following characteristics: $t_r = t_f \leq 2.5$ ns, $PRR \leq 1$ MHz.
2. $C_L = 50$ pF $\pm 10\%$ including scope, probe, wiring, and stray capacitance without package in test fixture.
3. Voltage measurements are to be made with respect to network ground terminal.
4. $R_1 = R_2 = 500\Omega \pm 5\%$.

FIGURE 3. Switching time test circuit and waveforms.

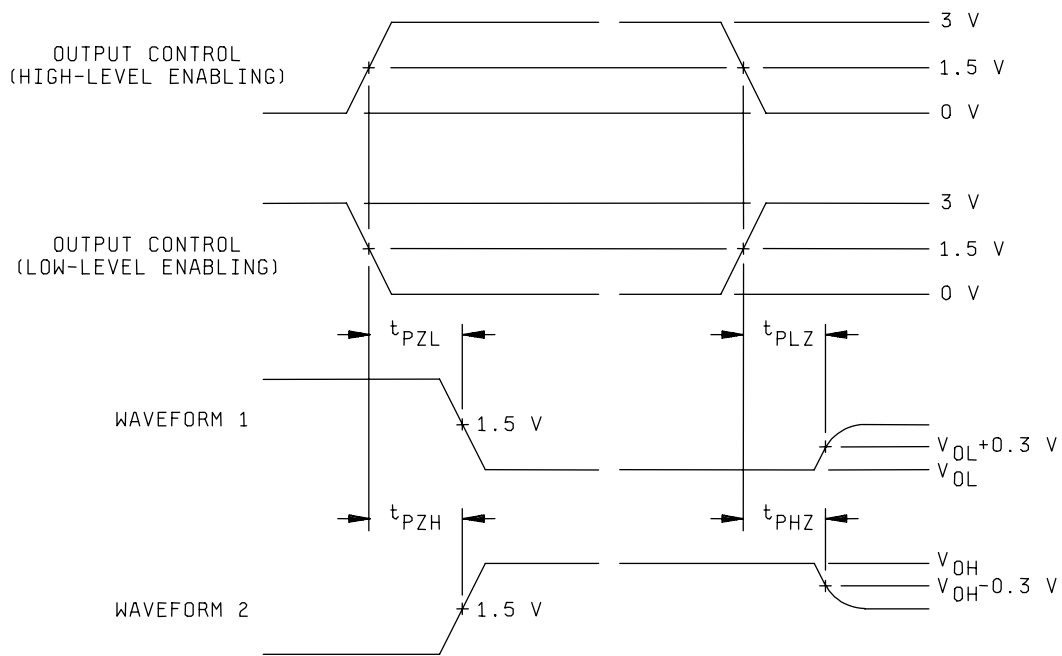
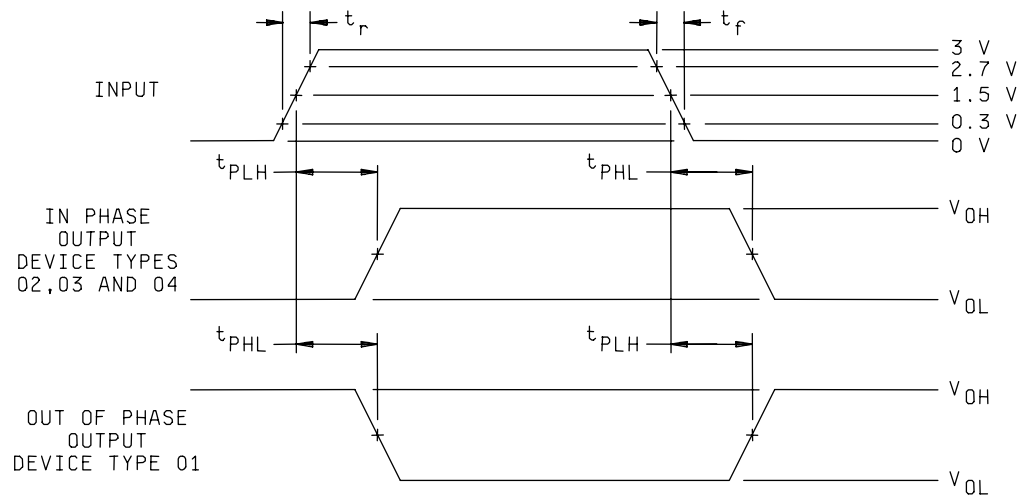
FIGURE 4. Switching time test circuits and waveforms - Continued.

TABLE III. Group A inspection for device type 01.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit																																																																																																																																																																																																																																																																																																																																																																																																																																			
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1 Tc = 25°C	VOH	3006 "	Cases 1/ X, 2	Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A0	2.4	V																																																																																																																																																																																																																																																																																																																																																																																																																																			
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				14	"	"				"				"									"	B2		"																																																																																																																																																																																																																																																																																																																																																																																																																														
				15	"	"				"				"									"	B1		"																																																																																																																																																																																																																																																																																																																																																																																																																														
	16	"	"				0.8 V				"			-12 mA	-12 mA		"	B0		"																																																																																																																																																																																																																																																																																																																																																																																																																																				
	OL	3007 " " " " " " "	3007	Cases 1/ X, 2	17	2.0 V	"	48 mA				"				2.0 V		2.0 V	"	A0		0.55	"																																																																																																																																																																																																																																																																																																																																																																																																																																	
					18	"	"		48 mA		"					2.0 V				"	A1		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					19	"	"			48 mA		"				2.0 V				"	A2		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					20	"	"				48 mA			2.0 V						"	A3		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					21	0.8 V	"			2.0 V		"	48 mA							0.8 V	"	B3		"	"																																																																																																																																																																																																																																																																																																																																																																																																																															
					22	"	"			2.0 V				"		48 mA				"	"	B2		"	"																																																																																																																																																																																																																																																																																																																																																																																																																															
					23	"	"			2.0 V				"			48 mA			"	"	B1		"	"																																																																																																																																																																																																																																																																																																																																																																																																																															
					24	"	"	2.0 V						"				48 mA			"	B0		"	"																																																																																																																																																																																																																																																																																																																																																																																																																															
					25	-18 mA	"							"					48 mA		0.0 V	"	E AB		-1.2	"																																																																																																																																																																																																																																																																																																																																																																																																																														
					26	5.5 V	"	-18 mA						"							"	A0		"	"																																																																																																																																																																																																																																																																																																																																																																																																																															
	IC	3010 " " " " " " "	3010	Cases 1/ X, 2	27	"	"		-18 mA			"						"	A1		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																		
					28	"	"			-18 mA		"								"	A2		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					29	"	"				-18 mA		"							"	A3		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					30	"	"						"	-18 mA						"	B3		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					31	"	"						"		-18 mA					"	B2		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					32	"	"						"							"	B1		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
					33	"	"						"					-18 mA	-18 mA	"	B0		"	"																																																																																																																																																																																																																																																																																																																																																																																																																																
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					35	2.7 V	"						"								-18 mA	"	E AB		20	μA																																																																																																																																																																																																																																																																																																																																																																																																																														
					36	"	"							"							2.7 V	"	EBA		20	"																																																																																																																																																																																																																																																																																																																																																																																																																														
	IH2	"	"	"	37	7.0 V	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits	Unit
				Test no.															Min	Max
1	I_{IL1}	3009	OS	47	EAB	NC	A0	A1	A2	A3	GND	B3	B2	B1	B0	EBA	5.5 V	EAB	1/	1/
				48	0.5 V													EBA	1/	1/
				49	5.5 V		0.0 V								0.0 V			A0	-100	-325
				50	"									0.0 V				A1	"	"
				51	"			0.0 V				0.0 V						A2	"	"
				52	"				0.0 V		0.0 V							A3	"	"
				53	0.0 V			0.0 V			0.0 V					0.0 V		B3	"	"
				54	"			0.0 V										B2	"	"
				55	"									0.0 V				B1	"	"
				56	"		0.0 V								0.0 V			B0	"	"
				57	2.0 V		0.5 V								0.0 V	0.8 V		A0	1/	1/
				58	"				0.5 V					0.0 V				A1	"	"
				59	"			0.5 V				0.0 V						A2	"	"
				60	"					0.5 V	0.0 V							A3	"	"
				61	"						0.5 V							B3	"	"
				62	"			0.0 V				0.5 V						B2	"	"
2	O_{ZL}			63	"									0.5 V				B1	"	"
				64	"		0.0 V								0.5 V			B0	"	"
				65	"		2.7 V								0.5 V			A0	1/	1/
				66	"				0.5 V					5.5 V				A1	"	70
				67	"			2.7 V				5.5 V						A2	"	"
				68	"						5.5 V							A3	"	"
				69	"			5.5 V			2.7 V							B3	"	"
				70	"				5.5 V			2.7 V						B2	"	"
				71	"								2.7 V					B1	"	"
				72	"		5.5 V							2.7 V				B0	"	"
				73	5.5 V						0.0 V	0.0 V		0.0 V		5.5 V		V_{CC}	60	mA
				74	0.0 V		0.0 V	0.0 V								0.0 V		"	60	"
				75	5.5 V			5.5 V			5.5 V	5.5 V		5.5 V				"	90	"
				76	0.0 V		5.5 V	5.5 V								0.0 V		"	"	"
				77	5.5 V											0.0 V		"	"	"
				CCZ														"	"	"
2				Same tests, terminal conditions and limits as for subgroup 1, except $T_C = +125^\circ\text{C}$ and V_{IC} tests are omitted.																
3				Same tests, terminal conditions and limits as for subgroup 1, except $T_C = 55^\circ\text{C}$ and V_{IC} tests are omitted.																
7	Functional tests	3014	A	78	A		L	L	L	GND	A	A	A	A	A	A	3/	All outputs		
				79	A		H	H	H		B	B	B	B	B	B	"	"		
				80	B		A	A	A		L	L	L	L	L	B	"	"		
				81	B		B	B	B		H	H	H	H	H	B	"	"		
8				Repeat subgroup 7 tests at $T_C = +125^\circ\text{C}$ and $T_C = -55^\circ\text{C}$.																

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D Cases 1/ X, 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit
																			Min	Max	
9 $T_c = 25^\circ\text{C}$	t_{PLH1}	3003 Fig. 3 "	Test no.	82	2.7 V	OUT	OUT	A2	A3	GND	B3	B2	B1	B0	NC	2.7 V	5.0 V	B0 to A0	1.5	5.2	ns
				83	"		OUT			GND			IN			"	"	B1 to A1	"	"	"
				84	"			OUT		"		IN				"	"	B2 to A2	"	"	"
				85	"				OUT	"	IN					"	"	B3 to A3	"	"	"
				86	0.0 V	IN				"				OUT		0.0 V	"	A0 to B0	"	"	"
t	t_{PLH2}	"	Test no.	87	"		IN	IN		"		OUT	OUT			"	"	A1 to B1	"	"	"
				88	"				IN	"						"	"	A2 to B2	"	"	"
				89	"					"	OUT					"	"	A3 to B3	"	"	"
				90	2.7 V	OUT	OUT			"			IN			2.7 V	"	B0 to A0	"	"	"
				91	"					"						"	"	B1 to A1	"	"	"
t	t_{PLH1}	"	Test no.	92	"			OUT		"		IN				"	"	B2 to A2	"	"	"
				93	"				OUT	"	IN					"	"	B3 to A3	"	"	"
				94	0.0 V	IN				"			OUT			0.0 V	"	A0 to B0	"	"	"
				95	"		IN			"			OUT			"	"	A1 to B1	"	"	"
				96	"			IN		"		OUT				"	"	A2 to B2	"	"	"
t	t_{PLZ1}	"	Test no.	97	"				IN	"	OUT					"	"	A3 to B3	"	"	"
				98	2.7 V	OUT				"				2.7 V		IN	"	EBA to A0	2.5	6.0	"
				99	"		OUT			"			2.7 V			"	"	EBA to A1	"	"	"
				100	"			OUT		"		2.7 V				"	"	EBA to A2	"	"	"
				101	"				OUT	"	2.7 V					"	"	EBA to A3	"	"	"
t	t_{PLZ2}	"	Test no.	102	IN	2.7 V				"				OUT		0.0 V	"	E AB to B0	"	"	"
				103	"		2.7 V			"			OUT			"	"	E AB to B1	"	"	"
				104	"			2.7 V		"		OUT				"	"	E AB to B2	"	"	"
				105	"				2.7 V	"	OUT					"	"	E AB to B3	"	"	"
				106	2.7 V	OUT				"				0.0 V		IN	"	EBA to A0	"	"	"
t	t_{PHZ1}	"	Test no.	107	"		OUT			"			0.0 V			"	"	EBA to A1	"	"	"
				108	"			OUT		"		0.0 V				"	"	EBA to A2	"	"	"
				109	"				OUT	"	0.0 V					"	"	EBA to A3	"	"	"
				110	IN	0.0 V				"				OUT		0.0 V	"	E AB to B0	"	"	"
				111	"		0.0 V			"			OUT			"	"	E AB to B1	"	"	"
t	t_{PHZ2}	"	Test no.	112	"			0.0 V		"		OUT				"	"	E AB to B2	"	"	"
				113	"				0.0 V	"	OUT					"	"	E AB to B3	"	"	"
				114	2.7 V	OUT				"				2.7 V		IN	"	EBA to A0	"	8.5	"
				115	"		OUT			"			2.7 V			"	"	EBA to A1	"	"	"
				116	"			OUT		"		2.7 V				"	"	EBA to A2	"	"	"
t	t_{PZL1}	"	Test no.	117	"				OUT	"	2.7 V					"	"	EBA to A3	"	"	"

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 01 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D Cases 1/ X, 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit			
				$\bar{E}$ AB Test no.	NC	A0	A1	A2	A3	GND	B3	B2	B1	B0	NC	EBA	V_{cc}		Min	Max				
9 $T_C = 25^{\circ}C$	t_{PZL2}	3003 Fig. 3	118	IN		2.7 V				GND				OUT		0.0 V	5.0 V	$\bar{E}$ AB to B0	2.5	8.5	ns			
			119	"			2.7 V				"		OUT				"	$\bar{E}$ AB to B1	"	"	"			
			120	"				2.7 V			"		OUT				"	$\bar{E}$ AB to B2	"	"	"			
			121	"						2.7 V	"	OUT					"	$\bar{E}$ AB to B3	"	"	"			
			122	2.7 V		OUT					"				0.0 V		IN	"	EBA to A0	"	5.7	"		
	$PZH1$		123	"					OUT			"						"	EBA to A1	"	"	"		
			124	"						OUT		"		0.0 V			"	"	EBA to A2	"	"	"		
			125	"							OUT	"	0.0 V				"	"	EBA to A3	"	"	"		
			126	IN		0.0 V						"				OUT	0.0 V	"	$\bar{E}$ AB to B0	"	"	"		
			127	"				0.0 V				"			OUT			"	$\bar{E}$ AB to B1	"	"	"		
	128		"						0.0 V		"		OUT				"	$\bar{E}$ AB to B2	"	"	"			
	129		"							0.0 V	"	OUT					"	$\bar{E}$ AB to B3	"	"	"			
	10		t_{PLH1}			Same tests and terminal conditions as for subgroup 9, except $T_C = +125^{\circ}C$ and limits as shown.																1.0	6.5	"
			$PLH2$			"	6.5	"																
$PHL1$		"	8.5			"																		
$PHL2$		"	8.5			"																		
$PLZ1$		2.0	9.5			"																		
$PLZ2$		"	9.5			"																		
$PHZ1$		"	7.5			"																		
$PHZ2$		"	7.5			"																		
$PZL1$		"	10.5			"																		
$PZL2$		"	10.5			"																		
11	$PZH1$			Same tests, terminal conditions and limits as for subgroup 10, except $T_C = -55^{\circ}C$, t_{PLZ1} and $t_{PLZ2} = 2.0$ ns minimum and 8.5 ns maximum.																	"	8.0	"	
	$PZH2$			"	8.0	"																		

1/ I_{OZL1} , I_{IL1} limits shall be as follows:

Test	Min/Max limits in (mA) for circuits		
	A	B	C
I_{IL}	-03/-1.0	-03/-1.0	-03/-1.0
I_{OZL}	-06/-1.0	-06/-1.6	-03/-1.0

2/ A = 3.0 V minimum, B = 0.0 V or GND, H > 1.5 V, L < 1.5 V.

3/ Perform function swquence at $V_{CC} = 4.5$ V and repeat at $V_{CC} = 5.5$ V.

TABLE III. Group A inspection for device type 02.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit
																			Min	Max	
1 $T_c = 25^\circ\text{C}$	V_{OH}	3006 " " " " " " " "	Cases 1/ X, 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A0	2.4		V
				2			-3 mA			GND				2.0 V			4.5 V	A1	"		"
				3				-3 mA		"		2.0 V					"	A2	"		"
				4					-3 mA	"	2.0 V						"	A3	"		"
				5					2.0 V	"	-3 mA					0.8 V	"	B3	"		"
				6				2.0 V		"		-3 mA					"	B2	"		"
				7			2.0 V			"							"	B1	"		"
				8			2.0 V			"				-3 mA			"	B0	"		"
	OL	3007 " " " " " " " "		17			48 mA			"				0.8 V		2.0 V	"	A0	0.55		"
				18						"							"	A1			"
				19				48 mA		"		0.8 V					"	A2			"
				20					48 mA	"	0.8 V						"	A3			"
				21					0.8 V	"						0.8 V	"	B3			"
				22				0.8 V		"	48 mA						"	B2			"
				23			0.8 V			"							"	B1			"
				24			0.8 V			"				48 mA			"	B0			"
	OH1	3006 " " " " " " " "		9			-12 mA			"				2.0 V		2.0 V	"	A0	2.0		"
				10						"							"	A1			"
				11				-12 mA		"		2.0 V					"	A2			"
				12					-12 mA	"	2.0 V						"	A3			"
				13					2.0 V	"	-12 mA					0.8 V	"	B3			"
				14						"		-12 mA					"	B2			"
				15			2.0 V			"				-12 mA			"	B1			"
				16						"							"	B0			"
19	IC			25						"						0.0 V	"	E AB	-1.2		"
				26			-18 mA			"							"	A0			"
				27			-18 mA			"							"	A1			"
				28				-18 mA		"							"	A2			"
				29					-18 mA	"							"	A3			"
				30						"	-18 mA						"	B3			"
				31						"		-18 mA					"	B2			"
				32						"				-18 mA			"	B1			"
	IH1	3010 " " " " " " " "		33						"					-18 mA			B0			"
				34						"						-18 mA	"	EBA			"
				35						"							5.5 V	E AB	20		μA
				36						"							"	EBA	20		"
				37						"							"	E AB	100		"
				38						"							"	EBA	100		"
				39			5.5 V			"							"	A0	1.0		mA
				40						"							"	A1			"
	IH2			41				5.5 V		"							"	A2			"
				42					5.5 V	"							"	A3			"
				43						"	5.5 V						"	B3			"
				44						"		5.5 V					"	B2			"
				45						"			5.5 V				"	B1			"
				46						"				5.5 V			"	B0			"

See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.

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See footnotes at end of device type 02.

TABLE III. Group A inspection for device type 02 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D Cases 1/ X, 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit
																			Min	Max	
9 $T_c = 25^\circ\text{C}$	t_{PLH1}	3003 Fig. 3 "	Test no.	82	2.7 V	OUT	OUT											B0 to A0	1.5	5.2	ns
				83	"		OUT						IN					B1 to A1	"	"	"
				84	"			OUT				IN						B2 to A2	"	"	"
				85	"				OUT									B3 to A3	"	"	"
				86	0.0 V	IN								OUT		0.0 V		A0 to B0	"	"	"
t	t_{PLH2}	"	Test no.	87	"		IN					OUT						A1 to B1	"	"	"
				88	"			IN										A2 to B2	"	"	"
				89	"						OUT							A3 to B3	"	"	"
				90	2.7 V	OUT								IN		2.7 V		B0 to A0	"	"	"
				91	"		OUT						IN					B1 to A1	"	"	"
t	t_{PLH1}	"	Test no.	92	"			OUT				IN						B2 to A2	"	"	"
				93	"				OUT									B3 to A3	"	"	"
				94	0.0 V	IN								OUT		0.0 V		A0 to B0	"	"	"
				95	"		IN						OUT					A1 to B1	"	"	"
				96	"			IN				OUT						A2 to B2	"	"	"
t	t_{PLZ1}	"	Test no.	97	"						OUT							A3 to B3	"	"	"
				98	2.7 V	OUT								0.0 V		IN		EBA to A0	2.5	6.0	"
				99	"		OUT						0.0 V					EBA to A1	"	"	"
				100	"			OUT				0.0 V						EBA to A2	"	"	"
				101	"				OUT									EBA to A3	"	"	"
t	t_{PLZ2}	"	Test no.	102	IN		0.0 V							OUT		0.0 V		E AB to B0	"	"	"
				103	"								OUT					E AB to B1	"	"	"
				104	"			0.0 V				OUT						E AB to B2	"	"	"
				105	"				0.0 V									E AB to B3	"	"	"
				106	2.7 V	OUT								2.7 V		IN		EBA to A0	"	"	"
t	t_{PHZ1}	"	Test no.	107	"		OUT						2.7 V					EBA to A1	"	"	"
				108	"			OUT				2.7 V						EBA to A2	"	"	"
				109	"				OUT									EBA to A3	"	"	"
				110	IN		2.7 V				2.7 V			OUT		0.0 V		E AB to B0	"	"	"
				111	"		2.7 V						OUT					E AB to B1	"	"	"
t	t_{PHZ2}	"	Test no.	112	"			2.7 V				OUT						E AB to B2	"	"	"
				113	"				2.7 V		OUT							E AB to B3	"	"	"
				114	2.7 V	OUT								0.0 V		IN		EBA to A0	"	7.5	"
				115	"		OUT						0.0 V					EBA to A1	"	"	"
				116	"			OUT				0.0 V						EBA to A2	"	"	"
t	t_{PZL1}	"	Test no.	117	"				OUT		0.0 V							EBA to A3	"	"	"

See footnotes at end of device type 01.

TABLE III. Group A inspection for device type 02 – Continued.
Terminal conditions (pins not designated may be high ≥ 2.0 V or low ≤ 0.8 V or open).

Subgroup	Symbol	MIL-STD-883 method	Cases A,B,C,D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Measured terminal	Limits		Unit		
				Cases 1/ X, 2	2	3	4	6	8	9	A3	GND	B3	B2	B1	B0	NC		EBA	V _{CC}		Min	Max
9	T _C = 25°C	3003 Fig. 3	Test no.	$\bar{E}$ AB	NC	A0	A1	A2	A3	GND	B3	B2	B1	B0	NC	0.0 V	5.0 V	$\bar{E}$ AB to B0	2.5	7.5	ns		
			118	IN		0.0 V					GND				OUT		"	"	"	"	"		
			119	"			0.0 V				"		OUT				"	"	"	"	"		
			120	"				0.0 V			"						"	"	"	"	"		
			121	"						0.0 V	"	OUT					"	"	"	"	"		
		PZH1	"	122	2.7 V		OUT				"						IN	"	$\bar{E}$ AB to B3	"	5.7	"	
			"	123	"			OUT			"				2.7 V		"	"	EBA to A1	"	"	"	
			"	124	"					OUT	"						"	"	EBA to A2	"	"	"	
			"	125	"						"	2.7 V					"	"	EBA to A3	"	"	"	
			"	126	IN			2.7 V				"				OUT		0.0 V	"	$\bar{E}$ AB to B0	"	"	"
		PZH2	"	127	"				2.7 V		"				OUT		"	"	$\bar{E}$ AB to B1	"	"	"	
			"	128	"					2.7 V	"			OUT			"	"	$\bar{E}$ AB to B2	"	"	"	
			"	129	"						2.7 V	"	OUT				"	"	$\bar{E}$ AB to B3	"	"	"	
			10	Same tests and terminal conditions as for subgroup 9, except T _C = +125°C and limits as shown.	t _{PLH1}									OUT					"	"	1.0	6.5	"
					PLH2															"	"	6.5	"
PHL1																	"	"	8.5	"			
PHL2																	"	"	8.5	"			
PLZ1																			2.0	9.5	"		
PLZ2																		"	"	9.5	"		
PHZ1																		"	"	7.5	"		
PHZ2																		"	"	7.5	"		
PZL1																		"	"	10.5	"		
PZL2																		"	"	10.5	"		
PZH1																		"	"	8.0	"		
PZH2																		"	"	8.0	"		
11	Same tests, terminal conditions and limits as for subgroup 10, except T _C = -55°C, t _{PLH1} and t _{PLH2} = 2.0 ns minimum and 8.5 ns maximum																						

1/ I_{OZL1} , I_{L1} limits shall be as follows:

Test	Min/Max limits in (mA) for circuits		
	A	B	C
I_{IL}	-.42/-1.0	-.03/-1.0	-.03/-1.0
I_{OZL}	-.67/-1.6	-.06/-1.6	-.06/-1.6

2/ A = 3.0 V minimum, B = 0.0 V or GND, H > 1.5 V, L < 1.5 V.

3/ Perform function swquence at $V_{CC} = 4.5$ V and repeat at $V_{CC} = 5.5$ V.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
1 Tc = 25°C	V _{OH}	3006	1	2.0 V	2.0 V																						
			2	"		2.0 V																					
			3	"			2.0 V																				
			4	"				2.0 V																			
			5	"					2.0 V																		
			6	"						2.0 V																	
			7	"							2.0 V																
			8	"								2.0 V															
	OL	3007	9	"	0.8 V																						
			10	"		0.8 V																					
			11	"			0.8 V																				
			12	"				0.8 V																			
			13	"					0.8 V																		
			14	"						0.8 V																	
			15	"							0.8 V																
			16	"								0.8 V															
	OH1	3006	17	"	2.0 V																						
			18	"		2.0 V																					
			19	"			2.0 V																				
			20	"				2.0 V																			
			21	"					2.0 V																		
			22	"						2.0 V																	
			23	"							2.0 V																
			24	"								2.0 V															
	OH2		25	0.8 V	-1 mA																						
			26	"		-1 mA																					
			27	"			-1 mA																				
			28	"				-1 mA																			
			29	"					-1 mA																		
			30	"						-1 mA																	
			31	"							-1 mA																
			32	"								-1 mA															
	OL1	3007	33	"	20 mA																						
			34	"		20 mA																					
			35	"			20 mA																				
			36	"				20 mA																			
			37	"					20 mA																		
			38	"						20 mA																	
			39	"							20 mA																
			40	"								20 mA															
	IC		41	-18 mA									0.8 V														
			42		-18 mA									0.8 V													
			43			-18 mA									-18 mA												
			44				-18 mA																				
			45					-18 mA																			
			46						-18 mA																		
			47							-18 mA																	
			48								-18 mA																
			49									-18 mA															
			50										-18 mA														
			51											-18 mA													
			52													-18 mA											
			53														-18 mA										
			54															-18 mA									
			55																-18 mA								
			56																	-18 mA							
			57																		-18 mA						
			58																			-18 mA					

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit
				T/R	A0	A1	A2	A3	A4	A5	A6	A7	GND	B7	B6	B5	B4	B3	B2	B1	B0	OE	V _{CC}		Min	Max	
1	IH1	3010	59	2.7 V									GND									5.5 V	5.5 V	T/R		20	μ A
			60	5.5 V									"									2.7 V	"	OE		20	"
			61	7.0 V									"									5.5 V	"	T/R		100	"
			62	5.5 V									"									7.0 V	"	OE		100	"
	IH3	"	63	"	5.5 V								"									0.0 V	"	A0		1.0	mA
			64	"		5.5 V							"									"	"	A1		"	"
			65	"			5.5 V						"									"	"	A2		"	"
			66	"				5.5 V					"									"	"	A3		"	"
			67	"					5.5 V				"									"	"	A4		"	"
			68	"						5.5 V			"									"	"	A5		"	"
			69	"							5.5 V		"									"	"	A6		"	"
			70	"								5.5 V	"									"	"	A7		"	"
	IL1	"	71	0.0 V									"	5.5 V								"	"	B7		"	"
			72	"									"		5.5 V							"	"	B6		"	"
			73	"									"			5.5 V						"	"	B5		"	"
			74	"									"				5.5 V					"	"	B4		"	"
			75	"									"					5.5 V				"	"	B3		"	"
			76	"									"						5.5 V			"	"	B2		"	"
			77	"									"							5.5 V		"	"	B1		"	"
			78	"									"								5.5 V	"	"	B0		"	"
OS	IL2	"	79	"									"									0.5 V	"	OE		1/	"
			80	0.5 V									"									0.0 V	"	T/R		1/	"
			81	5.5 V	5.5 V								"									0.0 V	"	B0		-100	mA
			82	"			5.5 V						"									"	"	B1		"	"
	OS1	"	83	"				5.5 V					"							0.0 V		"	"	B2		"	"
			84	"					5.5 V				"						0.0 V			"	"	B3		"	"
			85	"						5.5 V			"									"	"	B4		"	"
			86	"							5.5 V		"									"	"	B5		"	"
			87	"								5.5 V	"									"	"	B6		"	"
			88	"									5.5 V	"								"	"	B7		"	"
			89	0.0 V	0.0 V								"	0.0 V								5.5 V	"	A0		-60	"
			90	"									"									"	"	A1		"	"
OZL	OS2	"	91	"									"									"	"	A2		"	"
			92	"				0.0 V					"						5.5 V			"	"	A3		"	"
			93	"					0.0 V				"									"	"	A4		"	"
			94	"						0.0 V			"									"	"	A5		"	"
	OZL	"	95	"									"									"	"	A6		"	"
			96	"									"	5.5 V								"	"	A7		"	"
			97	5.5 V	5.5 V								"	5.5 V								0.5 V	"	B0		1/	"
			98	"									"									"	"	B1		"	"
			99	"									"							0.5 V		"	"	B2		"	"
			100	"									"									"	"	B3		"	"
			101	"									"						0.5 V			"	"	B4		"	"
			102	"									"									"	"	B5		"	"
			103	"									"		0.5 V							"	"	B6		"	"
	OZL	"	104	"									"	0.5 V								"	"	B7		"	"
			105	0.0 V	0.5 V								"									5.5 V	"	A0		"	"
			106	"									"									"	"	A1		"	"
			107	"									"							5.5 V		"	"	A2		"	"
			108	"									"						5.5 V			"	"	A3		"	"
			109	"									"									"	"	A4		"	"
			110	"									"									"	"	A5		"	"
			111	"									"			5.5 V						"	"	A6		"	"
			112	"									"	5.5 V								"	"	A7		"	"

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
1	I_{OZH}	883	113	0.0 V	2.7 V														0.0 V			0.0 V	A0		70	μ A
			114	"																			A1		"	"
			115	"															0.0 V				A2		"	"
			116	"																			A3		"	"
			117	"																			A4		"	"
			118	"																			A5		"	"
			119	"																			A6		"	"
			120	"																			A7		"	"
			121	5.5 V	0.0 V																		B0		"	"
			122	"																			B1		"	"
			123	"																			B2		"	"
			124	"																			B3		"	"
			125	"																			B4		"	"
2	I_{OZH}	883	126	"																			B5		"	"
			127	"																			B6		"	"
			128	"																			B7		"	"
			129	"																			B8		"	"
			130	0.0 V																			B9		"	"
			131	5.5 V	0.0 V																		B10		"	"
			132	0.0 V																			B11		"	"
			133	5.5 V																			B12		"	"
			134	0.0 V																			B13		"	"
			135	B	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	"
			136	"	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	"
			137	"	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	"
			138	"	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	"
3	I_{OZH}	883	139	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	"
			140	"	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	"
			141	"	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	"
			142	"	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	"
			143	0.0 V	OUT																					"
			144	"																						"
			145	"																						"
			146	"																						"
			147	"																						"
			148	"																						"
			149	"																						"
			150	"																						"
4	I_{OZH}	883	151	2.7 V	IN																					"
			152	"																						"
			153	"																						"
			154	"																						"
			155	"																						"
			156	"																						"
			157	"																						"
			158	"																						"
			159	0.0 V	OUT																					"
			160	"																						"
			161	"																						"
			162	"																						"
			163	"																						"
5	I_{OZH}	883	164	"																						"
			165	"																						"
			166	"																						"
			167	"																						"
			168	"																						"
			169	"																						"
			170	"																						"
			171	"																						"
			172	"																						"
			173	"																						"
			174	"																						"
			175	"																						"
			176	"																						"

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit				
				T/R	A0	A1	A2	A3	A4	A5	A6	A7	GND	B7	B6	B5	B4	B3	B2	B1	B0	OE	V _{cc}		Min	Max					
9 T _c = 25°C	t _{PHL2}	3003	167	"	2.7 V	IN							GND									OUT	0.0 V	5.0 V	A0 to B0	1.5	6.5	ns			
			168	"																						A1 to B1	"	"	"		
			169	"																							A2 to B2	"	"	"	
			170	"																							A3 to B3	"	"	"	
			171	"																								A4 to B4	"	"	"
			172	"																								A5 to B5	"	"	"
			173	"																								A6 to B6	"	"	"
			174	"																								A7 to B7	"	"	"
			175	0.0 V	OUT											OUT							0.0 V	IN	"	OE to A0	2.0	"	"		
			176	"																					"	OE to A1	"	"	"		
177	"																	0.0 V				"	OE to A2	"	"	"					
178	"																	0.0 V				"	OE to A3	"	"	"					
179	"																					"	OE to A4	"	"	"					
180	"																					"	OE to A5	"	"	"					
181	"																					"	OE to A6	"	"	"					
182	"																					"	OE to A7	"	"	"					
PLZ2			183	2.7 V	0.0 V									0.0 V								OUT	"	OE to B0	"	"	"				
			184	"																			"	OE to B1	"	"	"				
			185	"																OUT			"	OE to B2	"	"	"				
			186	"															OUT				"	OE to B3	"	"	"				
			187	"															OUT				"	OE to B4	"	"	"				
			188	"															OUT				"	OE to B5	"	"	"				
			189	"																			"	OE to B6	"	"	"				
			190	"																			"	OE to B7	"	"	"				
			191	0.0 V	OUT																		2.7 V	"	OE to A0	"	"	"			
			192	"																	2.7 V		"	"	OE to A1	"	"	"			
PHZ1			193	"															2.7 V			"	OE to A2	"	"	"					
			194	"														2.7 V				"	OE to A3	"	"	"					
			195	"																			"	OE to A4	"	"	"				
			196	"																			"	OE to A5	"	"	"				
			197	"																			"	OE to A6	"	"	"				
			198	"																			"	OE to A7	"	"	"				

See footnotes at end of device type 03.

TABLE III. Group A inspection for device type 03.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
9	t_{PHZ}	3003	199	2.7 V	2.7 V								GND								OUT	IN	5.0 V	OE to B0	2.0	6.5	ns
		"	200	"		2.7 V							"							OUT		"	"	OE to B1	"	"	"
		"	201	"			2.7 V						"						OUT			"	"	OE to B2	"	"	"
		"	202	"				2.7 V					"					OUT				"	"	OE to B3	"	"	"
		"	203	"					2.7 V				"				OUT					"	"	OE to B4	"	"	"
		"	204	"						2.7 V			"			OUT						"	"	OE to B5	"	"	"
	PZL1	"	205	"							2.7 V		"		OUT							"	"	OE to B6	"	"	"
		"	206	"								2.7 V	"	OUT								"	"	OE to B7	"	"	"
		"	207	0.0 V	OUT								"								0.0 V	"	"	OE to A0	2.5	10.0	"
		"	208	"			OUT						"						0.0 V			"	"	OE to A1	"	"	"
		"	209	"									"					0.0 V				"	"	OE to A2	"	"	"
		"	210	"				OUT					"					0.0 V				"	"	OE to A3	"	"	"
	PZL2	"	211	"					OUT				"				0.0 V					"	"	OE to A4	"	"	"
		"	212	"						OUT			"			0.0 V						"	"	OE to A5	"	"	"
		"	213	"							OUT		"		0.0 V							"	"	OE to A6	"	"	"
		"	214	"								OUT	"	0.0 V								"	"	OE to A7	"	"	"
		"	215	2.7 V	0.0 V								GND								OUT	"	"	OE to B0	"	"	"
		"	216	"									"							OUT		"	"	OE to B1	"	"	"
	PZHL	"	217	"			0.0 V						"						OUT			"	"	OE to B2	"	"	"
		"	218	"				0.0 V					"					OUT				"	"	OE to B3	"	"	"
		"	219	"					0.0 V				"				OUT					"	"	OE to B4	"	"	"
		"	220	"						0.0 V			"			OUT						"	"	OE to B5	"	"	"
		"	221	"							0.0 V		"		OUT							"	"	OE to B6	"	"	"
		"	222	"								0.0 V V	"	OUT								"	"	OE to B7	"	"	"
	PZHL	"	223	0.0 V	OUT								"								2.7 V	"	"	OE to A0	"	8.5	"
		"	224	"									"						2.7 V			"	"	OE to A1	"	"	"
		"	225	"			OUT						"					2.7 V				"	"	OE to A2	"	"	"
		"	226	"				OUT					"				2.7 V					"	"	OE to A3	"	"	"
		"	227	"					OUT				"				2.7 V					"	"	OE to A4	"	"	"
		"	228	"						OUT			"			2.7 V						"	"	OE to A5	"	"	"
		"	229	"							OUT		"		2.7 V							"	"	OE to A6	"	"	"
		"	230	"								OUT	"	2.7 V								"	"	OE to A7	"	"	"

See footnotes at end of device type 03.

[illegible]

3/ Perform function sequence at $V_{CC} = 4.5\text{ V}$ and repeat at $V_{CC} = 5.5\text{ V}$.

Test	Min/max limits in (mA) for circuits			
	A	B	C	D
I_{OL1}	-25/- .65	-.04/-1.2	-0.3/-1.0	0.0/-0.4
I_{IL1}	-.05/-1.2	-.04/-1.2	-.06/-1.6	0.0/-0.4
I_{IL2}	-.05/-1.2	-.04/-1.2	-.09/-1.2	0.0/-0.4

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min Max	Unit
1 Tc = 25°C	V _{OH}	3006	1	2.0 V																						
		"	2		2.0 V																					
		"	3			2.0 V																				
		"	4				2.0 V																			
		"	5					2.0 V																		
		"	6						2.0 V																	
		"	7							2.0 V																
		"	8								2.0 V															
	OL	3007	9	0.8 V																						
		"	10		0.8 V																					
		"	11			0.8 V																				
		"	12				0.8 V																			
		"	13					0.8 V																		
		"	14						0.8 V																	
		"	15							0.8 V																
		"	16								0.8 V															
	OH1	3006	17	2.0 V																						
		"	18		2.0 V																					
		"	19			2.0 V																				
		"	20				2.0 V																			
		"	21					2.0 V																		
		"	22						2.0 V																	
		"	23							2.0 V																
		"	24								2.0 V															
	OH2	"	25	-1 mA																						
		"	26		-1 mA																					
		"	27			-1 mA																				
		"	28				-1 mA																			
		"	29					-1 mA																		
		"	30						-1 mA																	
		"	31							-1 mA																
		"	32								-1 mA															
	OL1	3007	33	20 mA																						
		"	34		20 mA																					
		"	35			20 mA																				
		"	36				20 mA																			
		"	37					20 mA																		
		"	38						20 mA																	
		"	39							20 mA																
		"	40								20 mA															
	IC	"	41									20 mA														
		"	42	-18 mA									-18 mA													
		"	43		-18 mA																					
		"	44			-18 mA																				
		"	45				-18 mA																			
		"	46					-18 mA																		
		"	47						-18 mA																	
		"	48							-18 mA																
		"	49								-18 mA															
		"	50									-18 mA														
		"	51										-18 mA													
		"	52											-18 mA												
		"	53													-18 mA										
		"	54														-18 mA									
		"	55															-18 mA								
		"	56																-18 mA							
		"	57																	-18 mA						
		"	58									-18 mA														
		"																								
		"																								
		"																								
		"																								
		"																								
		"																								

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,X,2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit
				A0	A1	A2	A3	A4	A5	A6	A7	OE	GND	T/R	B7	B6	B5	B4	B3	B2	B1	B0	V _{CC}		Min	Max	
1	IH1	3010	59									5.5 V	GND	2.7 V									5.5 V	T/R		20	μ A
			60									2.7 V	"	5.5 V									"	OE		20	"
			61									5.5 V	"	7.0 V									"	T/R		100	"
			62									7.0 V	"	5.5 V									"	OE		100	"
	IH3	"	63	5.5 V								0.0 V	"	"									"	A0		1.0	mA
			64		5.5 V							"	"	"									"	A1		"	"
			65			5.5 V						"	"	"									"	A2		"	"
			66				5.5 V					"	"	"									"	A3		"	"
	IL1	"	67									"	"	"									"	A4		"	"
			68						5.5 V			"	"	"									"	A5		"	"
			69							5.5 V		"	"	"									"	A6		"	"
			70								5.5 V	"	"	0.0 V	5.5 V								"	A7		"	"
2	IL2	"	71									"	"	"									"	B7		"	"
			72									"	"	"	5.5 V								"	B6		"	"
			73									"	"	"			5.5 V						"	B5		"	"
			74									"	"	"				5.5 V					"	B4		"	"
	OS1	"	75									"	"	"					5.5 V				"	B3		"	"
			76									"	"	"						5.5 V			"	B2		"	"
			77									"	"	"							5.5 V		"	B1		"	"
			78									"	"	"								5.5 V	"	B0		1/	"
	OS2	"	79									0.5 V	"	"									"	OE		1/	"
			80									0.0 V	"	0.5 V									"	T/R		1/	"
			81	5.5 V								"	"	5.5 V									"	B0	-100	-325	mA
			82		5.5 V							"	"	"									"	B1		"	"
3	OS1	"	83			5.5 V						"	"	"						0.0 V			"	B2		"	"
			84				5.5 V					"	"	"				0.0 V					"	B3		"	"
			85					5.5 V				"	"	"			0.0 V						"	B4		"	"
			86						5.5 V			"	"	"									"	B5		"	"
	OS2	"	87							5.5 V		"	"	"		0.0 V							"	B6		"	"
			88								5.5 V	"	"	"									"	B7		"	"
			89	0.0 V								"	"	0.0 V									"	A0	-60	-150	"
			90		0.0 V							"	"	"									"	A1		"	"
	OS2	"	91			0.0 V						"	"	"									"	A2		"	"
			92				0.0 V					"	"	"									"	A3		"	"
			93					0.0 V				"	"	"			5.5 V						"	A4		"	"
			94						0.0 V			"	"	"									"	A5		"	"
4	OS2	"	95							0.0 V		"	"	"									"	A6		"	"
			96								0.0 V	"	"	"		5.5 V							"	A7		"	"
			97	5.5 V								2.0 V	"	5.5 V									"	B0	1/	"	"
			98	"	5.5 V							"	"	"								0.5 V	"	B1		"	"
	OS2	"	99			5.5 V						"	"	"						0.5 V			"	B2		"	"
			100	"			5.5 V					"	"	"									"	B3		"	"
			101	"				5.5 V				"	"	"									"	B4		"	"
			102	"					5.5 V			"	"	"			0.5 V						"	B5		"	"
	OS2	"	103	"						5.5 V		"	"	"		0.5 V							"	B6		"	"
			104	"							5.5 V	"	"	"									"	B7		"	"
			105	0.5 V								"	"	0.0 V								5.5 V	"	A0		"	"
			106		0.5 V							"	"	"								5.5 V	"	A1		"	"
5	OS2	"	107			0.5 V						"	"	"									"	A2		"	"
			108				0.5 V					"	"	"					5.5 V				"	A3		"	"
			109					0.5 V				"	"	"									"	A4		"	"
			110						0.5 V			"	"	"				5.5 V					"	A5		"	"
	OS2	"	111							0.5 V		"	"	"		5.5 V							"	A6		"	"
			112								0.5 V	"	"	"	5.5 V								"	A7		"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Max	Unit
1	t_{DTH}		113	2.7 V	2.7 V																						
			114																								
			115																								
			116																								
			117																								
			118																								
			119																								
			120																								
			121	0.0 V																							
			122		0.0 V																						
			123																								
			124																								
			125																								
2	t_{DTH}		126																								
			127																								
			128																								
			129	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V	5.5 V
			130																								
			131	5.5 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V	0.0 V
			132																								
			133																								
			134																								
			135	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			136	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
			137	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			138	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
			139	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
			140	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
			141	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
			142	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A
3	t_{DTH}		143	OUT	OUT																						
			144																								
			145																								
			146																								
			147																								
			148																								
			149																								
			150																								
			151	IN	IN																						
			152																								
			153																								
			154																								
			155																								
			156																								
			157																								
			158																								
4	t_{DTH}		159	OUT	OUT																						
			160																								
			161																								
			162																								
			163																								
			164																								
			165																								
			166																								
			167																								
			168																								
			169																								
			170																								
			171																								

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R,S,X,2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit	
				A0	A1	A2	A3	A4	A5	A6	A7	OE	GND	T ¹ R	B7	B6	B5	B4	B3	B2	B1	B0	V _{cc}		Min	Max		
9 T _c = 25°C	t _{PHL2}	3003	167	IN								0.0 V	"	2.7 V							OUT	OUT	5.0 V	A0 to B0	1.5	6.5	ns	
			168		IN							"	"	"							OUT		"	A1 to B1	"	"	"	
			169									"	"	"									"	A2 to B2	"	"	"	
			170			IN						"	"	"					OUT					"	A3 to B3	"	"	"
			171				IN					"	"	"					OUT					"	A4 to B4	"	"	"
			172					IN				"	"	"			OUT							"	A5 to B5	"	"	"
			173						IN			"	"	"			OUT							"	A6 to B6	"	"	"
			174									"	"	"			OUT							"	A7 to B7	"	"	"
	PLZ1	175	OUT										IN	"	0.0 V							0.0 V	"	OE to A0	2.0	"	"	
		176		OUT									"	"	"						0.0 V		"	OE to A1	"	"	"	
		177			OUT								"	"	"					0.0 V			"	OE to A2	"	"	"	
		178				OUT							"	"	"				0.0 V				"	OE to A3	"	"	"	
		179					OUT						"	"	"			0.0 V					"	OE to A4	"	"	"	
		180						OUT					"	"	"			0.0 V					"	OE to A5	"	"	"	
		181							OUT				"	"	"		0.0 V						"	OE to A6	"	"	"	
		182									OUT		"	"	"	0.0 V							"	OE to A7	"	"	"	
PLZ2	183	0.0 V										"	"	2.7 V							OUT	"	OE to B0	"	"	"		
	184		0.0 V									"	"	"						OUT		"	OE to B1	"	"	"		
	185			0.0 V								"	"	"					OUT			"	OE to B2	"	"	"		
	186				0.0 V							"	"	"					OUT			"	OE to B3	"	"	"		
	187					0.0 V						"	"	"			OUT					"	OE to B4	"	"	"		
	188						0.0 V					"	"	"			OUT					"	OE to B5	"	"	"		
	189							0.0 V				"	"	"		OUT						"	OE to B6	"	"	"		
	190									0.0 V		"	"	"	OUT							"	OE to B7	"	"	"		
	191	OUT										"	"	0.0 V							2.7 V	"	OE to A0	"	"	"		
	192		OUT									"	"	"						2.7 V		"	OE to A1	"	"	"		
PHZ1	193											"	"	"						2.7 V		"	OE to A2	"	"	"		
	194				OUT							"	"	"				2.7 V					"	OE to A3	"	"	"	
	195					OUT						"	"	"				2.7 V					"	OE to A4	"	"	"	
	196						OUT					"	"	"			2.7 V					"	OE to A5	"	"	"		
	197								OUT			"	"	"								"	OE to A6	"	"	"		
	198									OUT		"	"	"	2.7 V							"	OE to A7	"	"	"		

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 method	Cases R.S.X.2 Test no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits Min	Test limits Max	Unit
9	t_{PHZ}	3003	199	2.7 V								IN	GND	2.7 V								OUT	5.0 V	OE to B0	2.0	6.5	ns
		"	200		2.7 V							"	"	"							OUT		"	OE to B1	"	"	"
		"	201			2.7 V						"	"	"						OUT			"	OE to B2	"	"	"
		"	202				2.7 V					"	"	"					OUT				"	OE to B3	"	"	"
		"	203					2.7 V				"	"	"				OUT					"	OE to B4	"	"	"
		"	204						2.7 V			"	"	"		OUT							"	OE to B5	"	"	"
	PZL1	"	205							2.7 V		"	"	"		OUT							"	OE to B6	"	"	"
		"	206								2.7 V	"	"	"	OUT								"	OE to B7	"	"	"
		"	207	OUT								"	0.0 V									0.0 V	"	OE to A0	2.5	10.0	"
		"	208		OUT							"	"	"							0.0 V		"	OE to A1	"	"	"
		"	209			OUT						"	"	"						0.0 V			"	OE to A2	"	"	"
		"	210				OUT					"	"	"					0.0 V				"	OE to A3	"	"	"
	PZL2	"	211					OUT				"	"	"				0.0 V					"	OE to A4	"	"	"
		"	212						OUT			"	"	"		0.0 V							"	OE to A5	"	"	"
		"	213							OUT		"	"	"		0.0 V							"	OE to A6	"	"	"
		"	214								OUT	"	"	"	0.0 V								"	OE to A7	"	"	"
		"	215	0.0 V								"	2.7 V									OUT	"	OE to B0	"	"	"
		"	216		0.0 V							"	"	"								OUT	"	OE to B1	"	"	"
	PZHL	"	217			0.0 V						"	"	"						OUT			"	OE to B2	"	"	"
		"	218				0.0 V					"	"	"					OUT				"	OE to B3	"	"	"
		"	219					0.0 V				"	"	"				OUT					"	OE to B4	"	"	"
		"	220						0.0 V			"	"	"			OUT						"	OE to B5	"	"	"
		"	221							0.0 V		"	"	"		OUT							"	OE to B6	"	"	"
		"	222								0.0 V	"	"	"	OUT								"	OE to B7	"	"	"
	PZHL	"	223	OUT								"	0.0 V									2.7 V	"	OE to A0	"	8.5	"
		"	224		OUT							"	"	"							2.7 V		"	OE to A1	"	"	"
		"	225			OUT						"	"	"						2.7 V			"	OE to A2	"	"	"
		"	226				OUT					"	"	"					2.7 V				"	OE to A3	"	"	"
		"	227					OUT				"	"	"				2.7 V					"	OE to A4	"	"	"
		"	228						OUT			"	"	"			2.7 V						"	OE to A5	"	"	"
		"	229							OUT		"	"	"		2.7 V							"	OE to A6	"	"	"
		"	230								OUT	"	"	"	2.7 V								"	OE to A7	"	"	"

See footnotes at end of device type 04.

TABLE III. Group A inspection for device type 04.
Terminal conditions (pins not designated may be high ≥ 2.0 V; low ≤ 0.8 V; or open).

Subgroup	Symbol	MIL-STD-883 R,S,X,2 Test no.	Cases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Measured terminal	Test limits		Unit		
																									Min	Max			
9	t_{PZH}	3003	231	2.7 V									IN	GND	2.7 V								OUT	5.0 V	OE to B0	2.5	8.5	ns	
		"	232		2.7 V								"	"	"							OUT	"	OE to B1	"	"	"		
		"	233			2.7 V							"	"	"						OUT		OE to B2	"	"	"			
		"	234				2.7 V						"	"	"					OUT			OE to B3	"	"	"			
		"	235					2.7 V					"	"	"				OUT				"	OE to B4	"	"	"		
		"	236						2.7 V				"	"	"			OUT					"	OE to B5	"	"	"		
		"	237							2.7 V			"	"	"		OUT						"	OE to B6	"	"	"		
		"	238									2.7 V	"	"	"	OUT							"	OE to B7	"	"	"		
10	t_{PH1}																								1.0	8.0	"		
	P_{H2}																								"	8.5	"		
	$PHL1$																								"	8.0	"		
	$PHL2$																								"	8.5	"		
	$PLZ1$																								2.0	10.0	"		
	$PLZ2$																								"	10.0	"		
	$PHZ1$																								"	9.0	"		
	$PHZ2$																								"	9.0	"		
	$PZL1$																								"	13.0	"		
	$PZL2$																								"	13.0	"		
	$PZHL$																								"	11.0	"		
	$PZHZ$																								"	11.0	"		
	11		Same tests as subgroup 10, except $T_c = -55^{\circ}\text{C}$ and use limits from table I.																										
					Same tests and terminal conditions as for subgroup 9, except $T_c = +125^{\circ}\text{C}$ and limits as shown.																								

1/ I_{L1} and I_{OZL} limits shall be as follows:

Test	Min/max limits in (mA) for circuits		
	A	B	C
I_{OZL}	-.25/- .65	-.04/-1.2	-.03/-1.0
I_{L1}	-.05/-1.2	-.04/-1.2	-.06/-1.6
I_{L2}	-.05/-1.2	-.04/-1.2	-.09/-1.2

2/ A = 3.0 V minimum, B = 0.0 V or GND; H > 1.5 V, L < 1.5 V.

3/ Perform function sequence at $V_{CC} = 4.5$ V and repeat at $V_{CC} = 5.5$ V.

5. PACKAGING

5.1 Packaging requirements. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military service's system command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. Microcircuits conforming to this specification are intended for original equipment design applications and logistic support of existing equipment.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. PIN and compliance identifier, if applicable (see 1.2).
- c. Requirements for delivery of one copy of the conformance inspection data pertinent to the device inspection lot to be supplied with each shipment by the device manufacturer, if applicable.
- d. Requirements for certificate of compliance, if applicable.
- e. Requirements for notification of change of product or process to contracting activity in addition to notification to the qualifying activity, if applicable.
- f. Requirements for failure analysis (including required test condition of method 5003 of MIL-STD-883), corrective action, and reporting of results, if applicable.
- g. Requirements for product assurance options.
- h. Requirements for special carriers, lead lengths, or lead forming, if applicable. These requirements should not affect the part number. Unless otherwise specified, these requirements will not apply to direct purchase by or direct shipment to the Government.
- i. Requirements for "JAN" marking.
- j. Packaging requirements (see 5.1).

6.3 Superseding information. The requirements of MIL-M-38510 have been superseded to take advantage of the available Qualified Manufacturer Listing (QML) system provided by MIL-PRF-38535. Previous references to MIL-M-38510 in this document have been replaced by appropriate references to MIL-PRF-38535. All technical requirements now consist of this specification and MIL-PRF-38535. The MIL-M-38510 specification sheet number and PIN have been retained to avoid adversely impacting existing government logistics systems and contractor's parts lists.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Manufacturers List QML-38535 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from DSCC-VQ, 3990 E. Broad Street, Columbus, Ohio 43123-1199.

6.5 Abbreviations, symbols, and definitions. The abbreviations, symbols, and definitions used herein are defined in MIL-PRF-38535, MIL-HDBK-1331, and as follows:

GND Ground zero voltage potential
 I_{IN} Current flowing into an input terminal
 V_{IN} Voltage level at an input terminal

6.6 Logistic support. Lead materials and finishes (see 3.4) are interchangeable. Unless otherwise specified, microcircuits acquired for Government logistic support will be acquired to device class B (see 1.2.2), lead material and finish A (see 3.4). Longer length leads and lead forming should not affect the part number.

6.7 Substitutability. The cross-reference information below is presented for the convenience of users. Microcircuits covered by this specification will functionally replace the listed generic-industry type. Generic-industry microcircuit types may not have equivalent operational performance characteristics across military temperature ranges or reliability factors equivalent to MIL-M-35810 device types and may have slight physical variations in relation to case size. The presence of this information should not be deemed as permitting substitution of generic-industry types for MIL-M-38510 types or as a waiver of any of the provisions of MIL-PRF-38535.

Military device type	Generic-industry type
01	54F242
02	54F243
03	54F245
04	54F545

6.8 Manufacturers' designation. Manufacturers' circuits which form a part of this specification are designated with an "X" as shown in table IV herein.

TABLE IV. Manufacturers' designations.

Device type	Manufacturer's designation			
	Circuit A	Circuit B	Circuit C	Circuit D
	National Semiconductor/ Fairchild Semiconductor	Motorola Inc.	Signetics Corp.	Texas Instruments
01		X		
02		X		
03	X	X	X	X
04	X			

6.9 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5962-2036)

Review activities:

Army - MI, SM
Navy - AS, CG, MC, SH, TD
Air Force - 03, 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.