

REVISIONS																			
LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED																
E	Add case 2. Change CAGE code to 67268. Add V_{CC} to test conditions for table I. Editorial changes throughout.	1989 MAY 18	<i>M.O. Lye</i>																

CURRENT CAGE CODE 67268

Device type -01AX inactive for new design as of 20 APRIL 1983.

REV																				
SHEET																				
REV																				
SHEET																				
REV STATUS OF SHEETS	REV	E	E	E	E	E	E	E	E	E	E									
	SHEET	1	2	3	4	5	6	7	8	9	10									

PMIC N/A <h3 style="text-align: center;">STANDARDIZED MILITARY DRAWING</h3> <p style="font-size: 8px; text-align: center;">THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE</p> <p style="font-weight: bold;">AMSC N/A</p>	PREPARED BY <i>Charles E. Besore</i> CHECKED BY <i>Wm. Johnson</i> APPROVED BY <i>[Signature]</i> DRAWING APPROVAL DATE 12 APRIL 1979 REVISION LEVEL E	<div style="text-align: center; font-weight: bold;">DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO 45444</div> <div style="text-align: center; font-size: 8px;">MICROCIRCUIT, LINEAR, DUAL DIFFERENTIAL LINE DRIVERS, MONOLITHIC SILICON</div> <table style="width: 100%; border: none;"> <tr> <td style="border: none; text-align: center;">SIZE A</td> <td style="border: none; text-align: center;">CAGE CODE 14933</td> <td style="border: none; text-align: center;">79009</td> </tr> <tr> <td colspan="3" style="border: none; text-align: center;">SHEET 1 OF 10</td> </tr> </table>	SIZE A	CAGE CODE 14933	79009	SHEET 1 OF 10		
SIZE A	CAGE CODE 14933	79009						
SHEET 1 OF 10								

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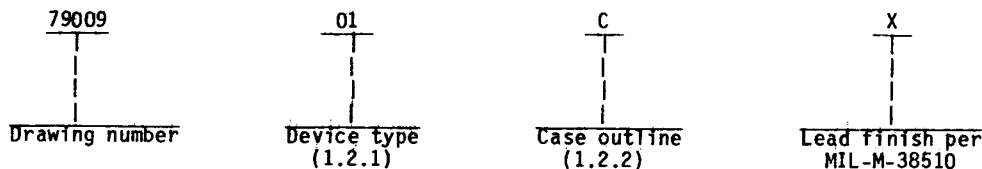
• U.S. GOVERNMENT PRINTING OFFICE: 1987 — 748-129/60912
5962-E583

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

1. SCOPE

1.1 Scope. This drawing describes device requirements for class B microcircuits in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices".

1.2 Part number. The complete part number shall be as shown in the following example:



1.2.1 Device type. The device type shall identify the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>
01	7830, 55183	Dual differential line receiver

1.2.2 Case outlines. The case outlines shall be as designated in appendix C of MIL-M-38510, and as follows:

<u>Outline letter</u>	<u>Case outline</u>
A	F-1 (14-lead, .280" x .260" x .085"), flat package
C	D-1 (14-lead, .785" x .310" x .200"), dual-in-line package
D	F-2 (14-lead, .390" x .260" x .085"), flat package
2	C-2 (20-terminal, .358" x .358" x .100"), square chip carrier package

1.3 Absolute maximum ratings.

Supply voltage (V_{CC})	1/- - - - -	7.0 V dc
Input voltage	- - - - -	5.5 V dc
Output short circuit duration	2/- - - - -	1 second
Lead temperature (soldering, 10 seconds)	- - - - -	+300°C
Storage temperature range	- - - - -	-65°C to +150°C
Power dissipation (P_D)	- - - - -	600 mW 3/ 4/
Thermal resistance, junction-to-case (θ_{JC})	- - - - -	See MIL- M -38510, appendix C
Junction temperature (T_J)	- - - - -	+150°C

1.4 Recommended operating conditions.

Supply voltage (V_{CC})	4.5 V dc to 5.5 V dc
High level output current (I_{OH})	-40 mA maximum
Low level output current (I_{OL})	40 mA maximum
Ambient operating temperature range (T_A)	-55°C to +125°C

- 1/ All voltage values, except differential voltages, are with respect to network ground terminal.
- 2/ At +125°C not more than one output should be shorted to ground at a time.
- 3/ Derate 10.4 mW/°C above $T_A = +90^\circ\text{C}$.
- 4/ Must withstand the added P_D due to short circuit test, e.g., I_{OS} .

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2. APPLICABLE DOCUMENTS

2.1 Government specification and standard. Unless otherwise specified, the following specification and standard of the issue listed in that issue of the Department of Defense Index of Specifications and Standards specified in the solicitation, form a part of this drawing to the extent specified herein.

SPECIFICATION

MILITARY

MIL-M-38510 - Microcircuits, General Specification for.

STANDARD

MILITARY

MIL-STD-883 - Test Methods and Procedures for Microelectronics.

(Copies of the specification and standard required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the test of this drawing shall take precedence.

3. REQUIREMENTS

3.1 Item requirements. The individual item requirements shall be in accordance with 1.2.1 of MIL-STD-883, "Provisions for the use of MIL-STD-883 in conjunction with compliant non-JAN devices" and as specified herein.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-M-38510 and herein.

3.2.1 Terminal connections. The terminal connections shall be as specified on figure 1.

3.2.2 Case outlines. The case outlines shall be in accordance with 1.2.2. herein.

3.2.3 Voltage waveforms and test circuit. The voltage waveforms and test circuit shall be as specified on figure 2.

3.3 Electrical performance characteristics. Unless otherwise specified, the electrical performance characteristics are as specified in table I and apply over the full ambient operating temperature range.

3.4 Marking. Marking shall be in accordance with MIL-STD-883 (see 3.1 herein). The part shall be marked with part number listed in 1.2 herein. In addition, the manufacturer's part number may also be marked as listed in 6.4 herein.

3.5 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to be listed as an approved source of supply in 6.4. The certificate of compliance submitted to DESC-ECS prior to listing as an approved source of supply shall state that the manufacturer's product meets the requirements of MIL-STD-883 (see 3.1 herein) and the requirements herein.

3.6 Certificate of conformance. A certificate of conformance as required in MIL-STD-883 (see 3.1 herein) shall be provided with each lot of microcircuits delivered to this drawing.

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TABLE I. Electrical performance characteristics.

Test	Symbol	CONDITIONS $4.5 \text{ V} \leq V_{CC} \leq 5.5 \text{ V}$ $-55^{\circ}\text{C} \leq T_A \leq +125^{\circ}\text{C}$ unless otherwise specified	Group A subgroups	LIMITS		Unit
				Min	Max	
High level input voltage	V_{IH}		1, 2, 3	2.0		V
Low level input voltage	V_{IL}		1, 2, 3		0.8	V
High level output voltage (Y output)	V_{OH}	$V_{IH} = 2.0 \text{ V}$	1, 2, 3	2.4		V
				1.8		
	$I_{OH} = -0.8 \text{ mA}$	$I_{OH} = -40 \text{ mA}$				
Low level output voltage (Y output)	V_{OL}	$V_{IL} = 0.8 \text{ V}, I_{OL} = 40 \text{ mA}$	1, 2, 3		0.4	V
High level output voltage (Z output)	V_{OH}	$V_{IL} = 0.8 \text{ V}$	1, 2, 3	2.4		V
				1.8		
	$I_{OH} = -0.8 \text{ mA}$	$I_{OH} = -40 \text{ mA}$				
Low level output voltage (Z output)	V_{OL}	$V_{IH} = 2.0 \text{ V}, I_{OL} = 40 \text{ mA}$	1, 2, 3		0.5	V
High level input current	I_{IH}	$V_{IH} = 2.4 \text{ V}$	1, 2, 3		120	μA
		$V_{IH} = 5.5 \text{ V}$			2	mA
Low level input current	I_{IL}	$V_{IL} = 0.4 \text{ V}$	1, 2, 3		-4.8	mA
Short circuit output current	I_{OS}	$V_{CC} = 5 \text{ V}, T_A = +125^{\circ}\text{C}$	2	-40	-120	mA
Supply current (average per driver)	I_{CC}	$V_{CC} = 5 \text{ V}$	1, 2, 3		18	mA

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions 4.5 V < V _{CC} < 5.5 V -55°C < T _A < +125°C unless otherwise specified	Group A subgroups	Limits		Unit
				Min	Max	
Propagation delay time low to high (Y output) <u>1/</u>	tpLH1	C _L = 15 pF, V _{CC} = 5.0 V	9		12	ns
			10,11 <u>2/</u>		17	
Propagation delay time high to low (Y output) <u>1/</u>	tpHL1	C _L = 15 pF, V _{CC} = 5.0 V	9		18	ns
			10,11 <u>2/</u>		25	
Propagation delay time low to high (Z output) <u>1/</u>	tpLH2	C _L = 15 pF, V _{CC} = 5.0 V	9		12	ns
			10,11 <u>2/</u>		17	
Propagation delay time high to low (Z output) <u>1/</u>	tpHL2	C _L = 15 pF, V _{CC} = 5.0 V	9		8	ns
			10,11 <u>2/</u>		11	
Propagation delay time low to high (differential output) <u>1/</u>	tpLH3	R _L = 100Ω, C _L = 5,000 pF (Y output with respect to Z output) T _A = +25°C	9		16	ns
Propagation delay time high to low (differential output) <u>1/</u>	tpHL3	R _L = 100Ω, C _L = 5,000 pF (Y output with respect to Z output) T _A = +25°C	9		16	ns

1/ See figure 2.2/ Guaranteed, if not tested, to the limits specified.

3.7 Notification of change. Notification of change to DESC-ECS shall be required in accordance with MIL-STD-883 (see 3.1 herein).

3.8 Verification and review. DESC, DESC's agent, and the acquiring activity retain the option to review the manufacturer's facility and applicable required documentation. Offshore documentation shall be made available onshore at the option of the reviewer.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with section 4 of MIL-M-38510 to the extent specified in MIL-STD-883 (see 3.1 herein).

STANDARDIZED MILITARY DRAWING

DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO 45444

SIZE
A

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Device type	01	
Case outlines	A, C, and D	2
Terminal number	Terminal symbol	
1	1A	NC
2	1B	1A
3	1C	1B
4	1D	1C
5	1Y	NC
6	1Z	1D
7	GND	NC
8	2Z	1Y
9	2Y	1Z
10	2A	GND
11	2B	NC
12	2C	2Z
13	2D	2Y
14	VCC	2A
15		NC
16		2B
17		NC
18		2C
19		2D
20		VCC

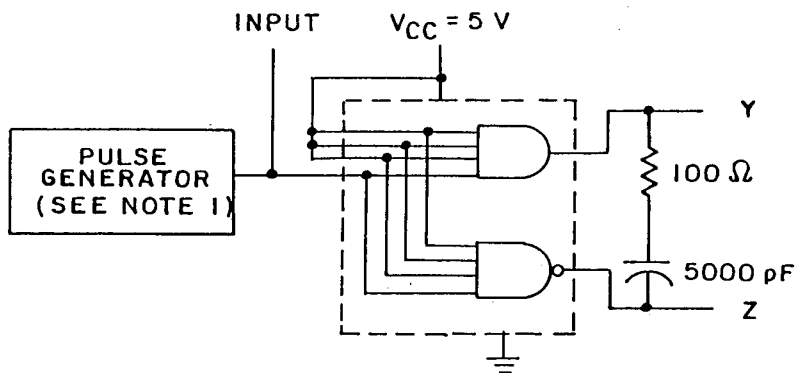
NC = no connection

FIGURE 1. Terminal connections.

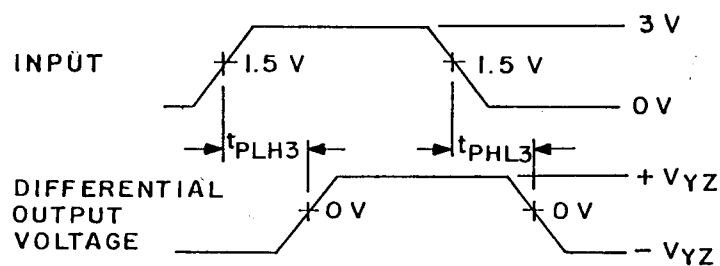
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TEST CIRCUIT



VOLTAGE WAVEFORMS
DIFFERENTIAL OUTPUT

NOTES:

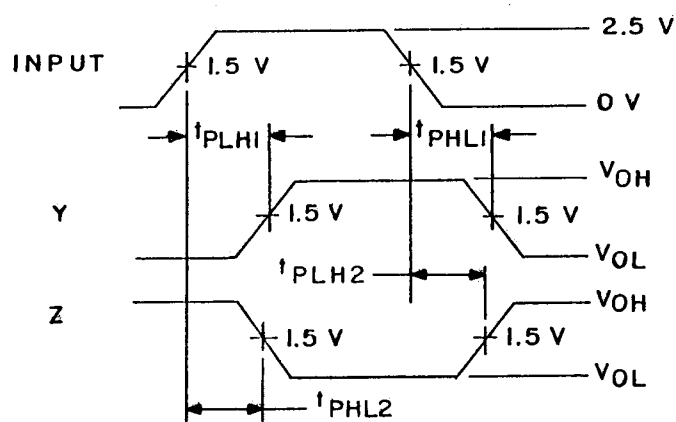
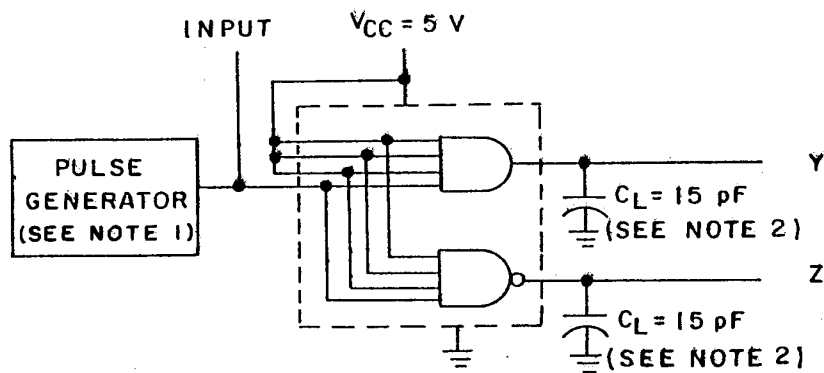
1. The pulse generator has the following characteristics.
 $Z_o = 50\Omega$ $t_f = 10 \text{ ns}$ $\text{PRR} = 1 \text{ MHz}$
 $t_r = 10 \text{ ns}$ $t_w = 0.5 \mu\text{s}$
2. C_L includes probe and jig capacitance.

FIGURE 2. Voltage waveforms and test circuit.

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NOTES:

1. The pulse generator has the following characteristics.

$$Z_o = 50\Omega \quad t_f = 10 \text{ ns} \quad \text{PRR} = 1 \text{ MHz}$$

$$t_r = 10 \text{ ns} \quad t_w = 0.5 \mu\text{s}$$

2. C_L includes probe and jig capacitance.

FIGURE 2. Voltage waveforms and test circuit -continued.

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4.2 Screening. Screening shall be in accordance with method 5004 of MIL-STD-883, and shall be conducted on all devices prior to quality conformance inspection. The following additional criteria shall apply:

a. Burn-in test, method 1015 of MIL-STD-883.

(1) Test condition A, B, C, or D using the circuit submitted with the certificate of compliance (see 3.5 herein).

(2) $T_A = +125^\circ\text{C}$, minimum.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

4.3 Quality conformance inspection. Quality conformance inspection shall be in accordance with method 5005 of MIL-STD-883 including groups A, B, C, and D inspections. The following additional criteria shall apply.

4.3.1 Group A inspection.

a. Tests shall be as specified in table II herein.

b. Subgroups 4, 5, 6, 7, and 8 in table I, method 5005 of MIL-STD-883 shall be omitted.

4.3.2 Groups C and D inspections.

a. End-point electrical parameters shall be as specified in table II herein.

b. Steady-state life test conditions, method 1005 of MIL-STD-883:

(1) Test condition A, B, C, or D using the circuit submitted with the certificate of compliance (see 3.5 herein).

(2) $T_A = +125^\circ\text{C}$, minimum.

(3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.

TABLE II. Electrical test requirements.

MIL-STD-883 test requirements	Subgroups (per method 5005, table I)
Interim electrical parameters (method 5004)	---
Final electrical test parameters (method 5004)	1*, 2, 3, 9
Group A test requirements (method 5005)	1, 2, 3, 9, 10**, 11**
Groups C and D end-point electrical parameters (method 5005)	1, 2, 3

* PDA applies to subgroup 1.

** Subgroups 10 and 11, if not tested, shall be guaranteed to the specified limits in table I.

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5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-M-38510.

6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use when military specifications do not exist and qualified military devices that will perform the required function are not available for OEM application. When a military specification exists and the product covered by this drawing has been qualified for listing on QPL-38510, the device specified herein will be inactivated and will not be used for new design. The QPL-38510 product shall be the preferred item for all applications.

6.2 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.3 Comments. Comments on this drawing should be directed to DESC-ECS, Dayton, OH 45444, or telephone 513-296-5375.

6.4 Approved source of supply. An approved source of supply is listed herein. Additional sources will be added as they become available. The vendor listed herein has agreed to this drawing and a certificate of compliance (see 3.5) has been submitted to DESC-ECS.

Military drawing part number	Vendor CAGE number	Vendor similar part number 1/	Replacement military specification part number
7900901AX	2/	DS7830W	
7900901CX	01295	SNJ55183J	
7900901DX	01295	SNJ55183W	
79009012X	01295	SNJ55183FK	

1/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

2/ Inactive for new design. Unavailable from an approved source of supply.

Vendor CAGE
number

01295

Vendor name
and address

Texas Instruments, Incorporated
P.O. Box 60448
Midland, TX 79711-0448

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