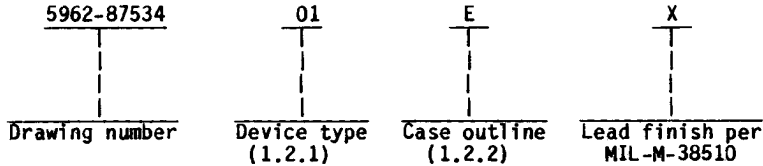


1. SCOPE

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 types. The device types shall identify the circuit function as follows:

Device type	Generic number	Circuit function
01	26S12	Quad bus transceiver
02	26S12A	Quad bus transceiver

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

Outline letter	Case outline
E	D-2 (16-lead, 1/4" x 7/8") dual-in-line package
F	F-5 (16-lead, 1/4" x 3/8") flat package
2	C-2 (20-terminal, .350" x .350") square chip carrier package

1.3 Absolute maximum ratings.

Supply voltage range - - - - -	-0.5 V to +7.0 V
Input voltage range - - - - -	-1.5 V to +7.0 V
Storage temperature range - - - - -	-65°C to +150°C
Maximum power dissipation (P _D) 1/ - - - - -	0.7 W
Lead temperature (soldering, 10 seconds) - - - - -	+300°C
Thermal resistance, junction-to-case (θ _{JC}):	
Case E - - - - -	25°C/W
Case F - - - - -	20°C/W
Case 2 - - - - -	20°C/W
Junction temperature (T _J) - - - - -	+150°C
DC input current - - - - -	-30 mA to +5.0 mA
DC output current into output receiver - - - - -	+30 mA
DC output current into bus - - - - -	200 mA

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

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE		DWG NO.
	A		5962-87534
	REV		PAGE 2

1.4 Recommended operating conditions.

Supply voltage (V_{CC}) - - - - - +4.5 V to +5.5 V
 Ambient operating temperature range (T_A) - - - - -55°C to +125°C
 Driver characteristics:
 Min high level input voltage (V_{IH}) - - - - - 2.0 V
 Max low level input voltage (V_{IL}) - - - - - 0.8 V
 Receiver characteristics:
 Device type 01
 Min high level input voltage (V_{IH}) - - - - - 1.8 V
 Max low level input voltage (V_{IL}) - - - - - 1.6 V
 Device type 02
 Min high level input voltage (V_{IH}) - - - - - 2.05 V
 Max low level input voltage (V_{IL}) - - - - - 1.4 V

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 text 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 Truth table. The truth table shall be as specified on figure 2.

3.2.3 Logic diagram. The logic diagram shall be as specified on figure 3.

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

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

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE		DWG NO
	A		5962-87534
		REV	PAGE 3

DESC FORM 193A
 FEB 86

TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C < T _A < +125°C 4.5 V < V _{CC} < 5.5 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Power supply current	I _{CC}	V _{CC} = +5.5 V	1, 2, 3	A11		70	mA
Bus leakage current	I _{BUS}	V _{CC} = +5.5 V or 0 V	1, 2, 3	A11		100	μA
DRIVER CHARACTERISTICS							
Low level output voltage	V _{OL}	V _{CC} = +4.5 V	1, 2, 3	A11		0.7	V
		1/ I _{OL} = 100 mA V _{IN} = 2.2 V				0.85	V
Minimum high level input voltage	V _{IH}	2/	1, 2, 3	A11	2.0		V
Minimum low level input voltage	V _{IL}	2/	1, 2, 3	A11		0.8	V
Input clamp voltage	V _{IC}	V _{CC} = +4.5 V I _{IN} = -18 mA	1, 2, 3	A11		-1.2	V
High level input current	I _{IH1}	V _{CC} = +5.5 V V _{IN} = 5.5 V	1, 2, 3	A11		1.0	mA
	I _{IH2}	V _{CC} = 5.5 V V _{IN} = 2.4 V	1, 2, 3	A11		40	μA
Low level input current	I _{IL}	V _{CC} = 5.5 V V _{IN} = 0.4 V	1, 2, 3	A11		-1.6	mA

See footnotes at end of table.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE		DWG NO.	
	A		5962-87534	
	REV		PAGE	4

DESC FORM 193A
FEB 86

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T _A < +125°C 4.5 V < V _{CC} < 5.5 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit	
					Min	Max		
RECEIVER CHARACTERISTICS								
High level output voltage	V _{OH}	V _{CC} = +4.5 V V _{IN} = V _{IL} I _{OH} = -800 μA (receiver)	1, 2, 3	A11	2.4		V	
Low level output voltage	V _{OL}	V _{CC} = +4.5 V V _{IN} = V _{IH} I _{OL} = 20 mA (receiver)	1, 2, 3	A11		0.5	V	
Minimum high level input voltage	V _{IH}	E = 0.0 V I _i = 0.0 V	1, 2, 3	01	1.8	2.2	V	
				02	2.05	2.45	V	
Maximum low level input voltage	V _{IL}			01	1.2	1.6	V	
				02	1.0	1.4	V	
Input threshold margin	V _{TM}			A11	0.4		V	
Output short circuit current	I _{OS}	V _{CC} = 5.5 V V _{OUT} = 0.0 V 3/	1, 2, 3	A11	-20	-55	mA	
Turn off delay input to bus	t _{PLH1}	R _L = 100Ω C _L = 15 pF See figure 4	4/	9	A11		11	ns
			5/	9, 10, 11			20	ns
Turn on delay input to bus	t _{PHL1}	R _L = 500Ω C _L = 300 pF See figure 4	4/	9	A11		21	ns
			5/	9, 10, 11			32	ns

See footnotes at end of table.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE		DWG NO.	
	A		5962-87534	
	REV	B	PAGE	5

DESC FORM 193A
FEB 86

TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T _A < +125°C 4.5 V < V _{CC} < 5.5 V unless otherwise specified	Group A subgroups	Device type	Limits		Unit
					Min	Max	
Turn off delay enable to bus	t _{PLH2}	R _L = 50Ω C _L = 15 pF See figure 4	4/	9	01	17	ns
					02	15	ns
			5/	9, 10, 11	01	28	ns
					02	25	ns
Turn on delay enable to bus	t _{PHL2}	R _L = 50Ω C _L = 15 pF See figure 4	4/	9	A11	15	ns
			5/	9, 10, 11		25	ns
Turn off delay bus to output	t _{PLH3}	C _L = 15 pF See figure 4	4/	9	A11	26	ns
			5/	9, 10, 11		30	ns
Turn on delay bus to output	t _{PHL3}	C _L = 15 pF See figure 4	4/	9	A11	26	ns
			5/	9, 10, 11		30	ns

- 1/ For case F, the output current must be limited to 60 mA or the maximum ambient temperature limited to +125°C for correct operation.
- 2/ Input thresholds are tested during dc tests and may be done in combination with testing of other dc parameters.
- 3/ Not more than one output should be shorted at a time and the duration of the short circuit test should not exceed 1 second.
- 4/ V_{CC} = 5.0 V dc.
- 5/ V_{CC} = 4.5 V to 5.5 V dc.

MILITARY DRAWING

DEFENSE ELECTRONICS SUPPLY CENTER
DAYTON, OHIO

SIZE

A

DWG NO

5962-87534

REV

PAGE 6

3.4 Marking. Marking shall be in accordance with MIL-STD-883 (see 3.1 herein). The part shall be marked with the 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.

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).

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, and 6 in table I, method 5005 of MIL-STD-883 shall be omitted.

c. Subgroups 7 and 8 tests shall verify the truth table.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE		DWG NO
	A		5962-87534
		REV	PAGE 7

DESC FORM 193A
FEB 86

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 (method 1005 of MIL-STD-883) conditions:
 - (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 appendix B of MIL-M-38510 and 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, 7, 8, 9, 10, 11
Group A test requirements (method 5005)	1, 2, 3, 7, 8, 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.

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, Ohio 45444, or telephone 513-296-5375.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	DWG NO. 5962-87534
	REV B	PAGE 8

DESC FORM 193A
FEB 86

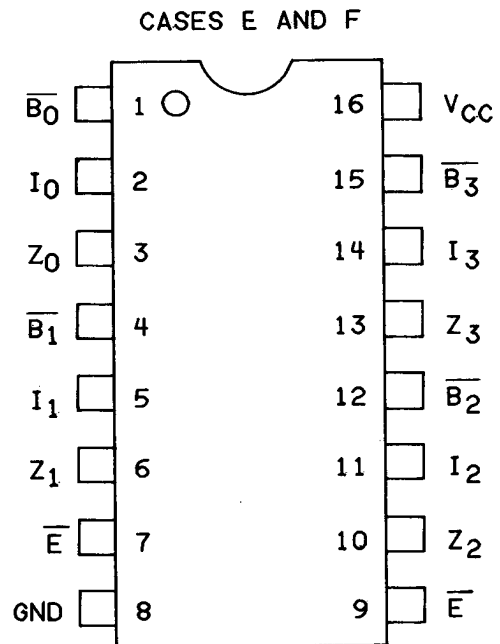
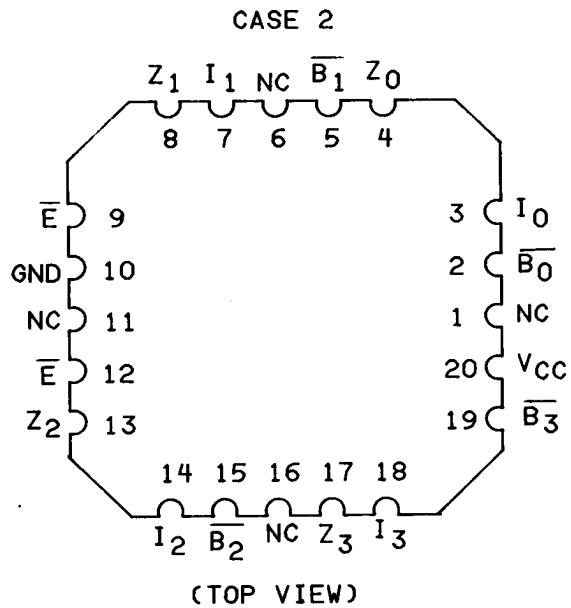


FIGURE 1. Terminal connections.

Inputs		Outputs	
\bar{E}	I	\bar{B}	Z
L	L	H	L
L	H	L	H
H	X	Y	\bar{Y}

H = HIGH voltage level
 L = LOW voltage level
 X = Don't care
 Y = Voltage level of bus

FIGURE 2. Truth table.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	DWG NO. 5962-87534
	REV A	PAGE 9

DESC FORM 193A
 FEB 86

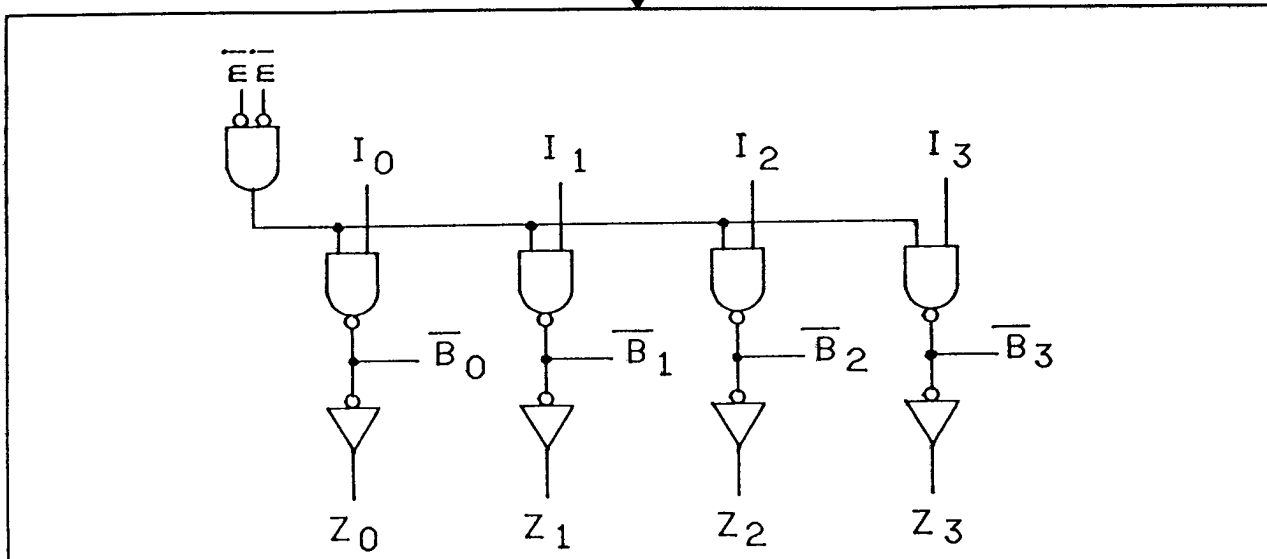
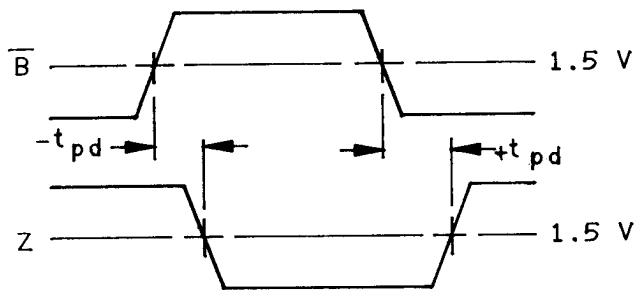
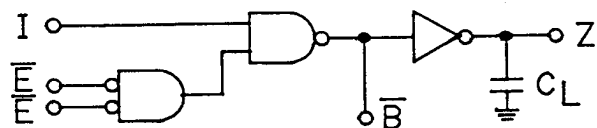


FIGURE 3. Logic diagram.

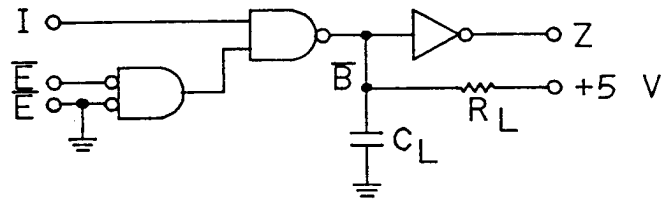


RECEIVER PROPAGATION DELAYS

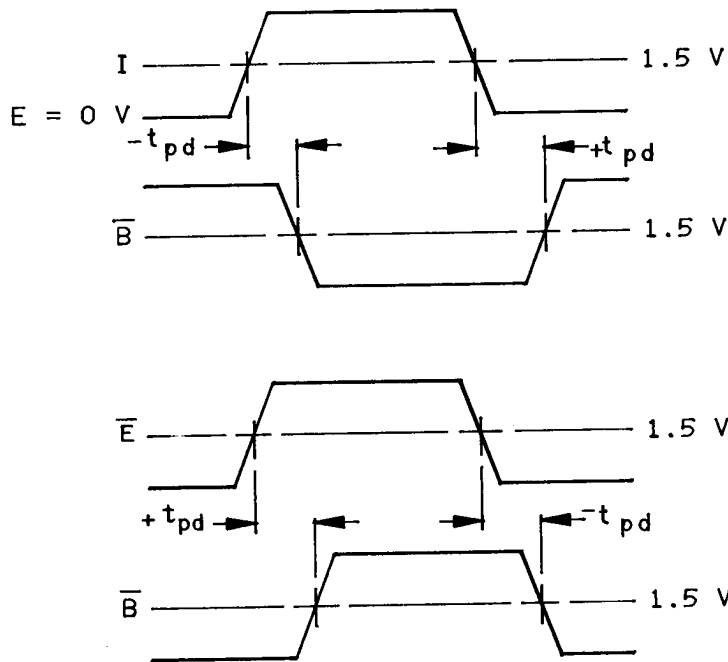
FIGURE 4. Switching circuits and waveforms.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	DWG NO. 5962-87534
	REV B	PAGE 10

DESC FORM 193A
FEB 86



FREQUENCY = 1 MHz
 $t_r = t_f = 2 \text{ ns}$
 MEASURED BETWEEN
 1 V TO 2 V LEVELS



BUS PROPAGATION DELAYS

FIGURE 4. Switching circuits and waveforms - Continued.

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE A	DWG NO. 5962-87534
	REV B	PAGE 11

DESC FORM 193A
 FEB 86

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 herein) has been submitted to DESC-ECS.

Military drawing part number	Vendor CAGE number	Vendor similar part number <u>1/</u>
5962-8753401EX	34335	AM26S12/BEA
5962-8753401FX	34335	AM26S12/BFA
5962-87534012X	34335	AM26S12/B2C
5962-8753402EX	34335	AM26S12A/BEA
5962-8753402FX	34335	AM26S12A/BFA
5962-87534022X	34335	AM26S12A/B2C

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

Vendor CAGE number

34335

Vendor name and address

Advanced Micro Devices, Incorporated
 901 Thompson Place
 P.O. Box 3453
 Sunnyvale, CA 94088

MILITARY DRAWING DEFENSE ELECTRONICS SUPPLY CENTER DAYTON, OHIO	SIZE	DWG NO
	A	5962-87534
	REV	PAGE 12

DESC FORM 193A
 FEB 86

011899 _ _ _