

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 Block diagram. The block diagram shall be as specified on figure 2.

3.2.3 Waveforms. The waveforms 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 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 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.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions -55°C ≤ T _A ≤ +125°C +4.75 V ≤ V _{CC} ≤ +5.5 V -4.75 V ≤ V _{EE} ≤ -5.5 V unless otherwise specified 1/	Group A subgroups	Limits		Unit	
				Min	Max		
High level output voltage	V _{OH}	R _L = ∞ 2/	V _{IH} = 2.4 V	1, 2, 3	4.0	6.0	V
Low level output voltage	V _{OL}	V _{CC} = V _{EE} = 4.75 V	V _{IL} = 0.4 V		-4.0	-6.0	
Output voltage 3/	V _T	R _L = 450Ω	V _{IN} = 2.4 V	1, 2, 3	3.6		V
	V _T	V _{CC} = V _{EE} = 4.75 V	V _{IN} = 0.4 V		-3.6		
Output unbalance 3/	$\frac{ V_{T+} - V_{T-} }{ V_{T+} + V_{T-} }$	R _L = 450Ω V _{CC} = V _{EE}		1, 2, 3		0.4	V
Output leakage power off	I _{X+}	V _{CC} = V _{EE} = 0 V	V _{OUT} = 10.0 V	1, 2, 3		100	μA
	I _{X-}		V _{OUT} = -10.0 V			-100	
Output short circuit current 4/	I _{OS+}	V _{OUT} = 0 V	V _{IN} = 2.4 V	1, 2, 3	-20	-150	mA
	I _{OS-}	V _{CC} = V _{EE} = 5.5 V	V _{IN} = 0.4 V		20	150	
Off-state output current (high impedance)	I _{O+}	V _{CC} = V _{EE} = 5.5 V	V _{OUT} = 10.0 V	1, 2, 3		100	μA
	I _{O-}		V _{OUT} = -10.0 V			-100	
Positive supply current	I _{CC}	V _{IN} = 0.4 V R _L = ∞ V _{CC} = V _{EE} = 5.5 V		1, 2, 3		30	mA

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T _A < +125°C +4.75 V < V _{CC} < +5.5 V -4.75 V < V _{EE} < -5.5 V unless otherwise specified 1/	Group A subgroups	Limits		Unit
				Min	Max	
Negative supply current	I _{EE}	V _{IN} = 0.4 V, R _L = ∞ V _{CC} = V _{EE} = 5.5 V	1, 2, 3		-22	mA
Input high current	I _{IH}	V _{CC} = V _{EE} = 5.5 V, V _{IN} = 2.4 V	1, 2, 3		40	μA
		V _{CC} = 5.5 V, V _{EE} = -5.0 V, V _{IN} = 15 V			100	
Input low current	I _{IL}	V _{CC} = V _{EE} = 5.5 V, V _{IN} = 0.4 V	1, 2, 3		-200	μA
Input clamp voltage	V _{IC}	I _{IN} = -12 mA, V _{CC} = 4.75 V, V _{EE} = -4.75 V	1, 2, 3		-1.5	V
Rise time	t _R	R _L = 450Ω, C _L = 500 pF, See rise time control, figure 3 C _C = 0 pF	9 5/		300	ns
			10,11		450	ns
Fall time	t _F	R _L = 450Ω, C _L = 500 pF, See rise time control, figure 3 C _C = 0 pF	9 5/		300	ns
			10,11		450	ns
Output high propagation delay	t _{PDH}	R _L = 450Ω, C _L = 500 pF, See rise time control, figure 3 C _C = 0 pF	9 5/		300	ns
			10,11		450	ns
Output low propagation delay	t _{PDL}	R _L = 450Ω, C _L = 500 pF, See rise time control, figure 3 C _C = 0 pF	9 5/		300	ns
			10,11		450	ns

See footnotes at end of table.

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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions -55°C < T _A < +125°C +4.75 V < V _{CC} < +5.5 V -4.75 V < V _{EE} < -5.5 V unless otherwise specified 1/	Group A subgroups	Limits		Unit
				Min	Max	
Output enable to output delay	t _{LZ}	R _L = 100Ω, C _L = 500 pF, C _C = 0 pF	9 5/		300	ns
			10,11		400	ns
	t _{HZ}		9 5/		350	ns
			10,11		400	ns
	t _{ZL}		9 5/		350	ns
			10,11		400	ns
	t _{ZH}		9 5/		300	ns
			10,11		400	ns

- 1/ Symbols and definition correspond to EIA RS-423 where applicable.
- 2/ Output voltage is +3.9 V minimum for V_{OH} and -3.9 V minimum for V_{OL} at -55°C.
- 3/ This parameter is tested by forcing an equivalent current.
- 4/ Not more than one output should be shorted at a time and the duration of the short circuit condition should not exceed one second.
- 5/ Supply voltage V_{CC} = 5.0 V, supply voltage V_{EE} = -5.0 V.

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Cases E and F

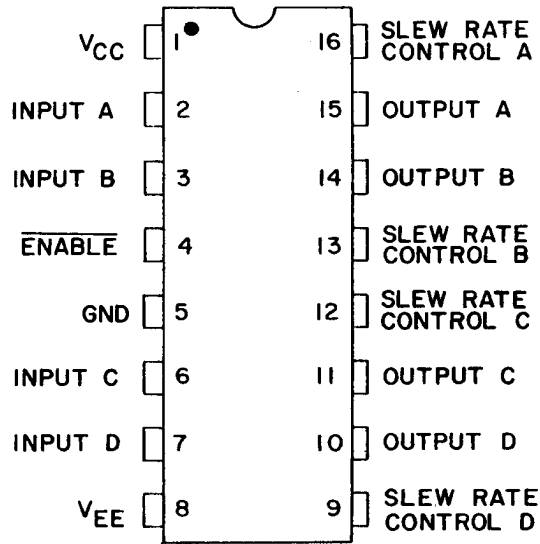


FIGURE 1. Terminal connections.

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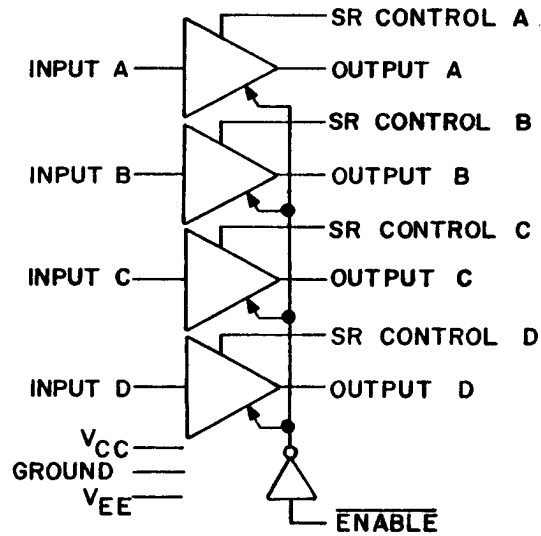


FIGURE 2. Block diagram.

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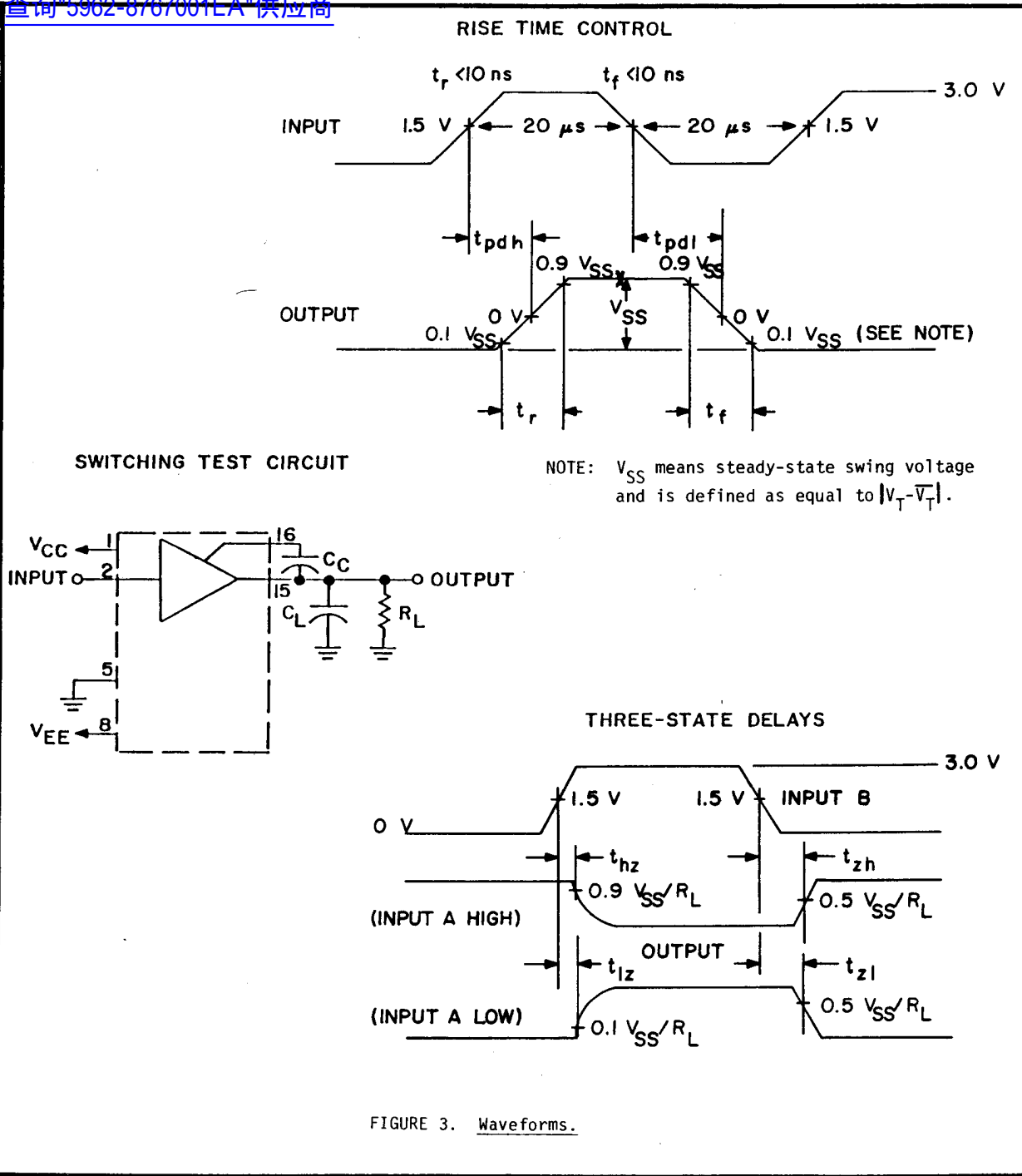


FIGURE 3. Waveforms.

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

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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 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, 9, 10**, 11**
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 limits specified 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.

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6.3 Comments. Comments on this drawing should be directed to DESC-ECS, Dayton, Ohio 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 herein) has been submitted to DESC-ECS.

Military drawing part number	Vendor CAGE number	Vendor similar part number ^{1/}	Replacement military specification part number
5962-8767001EX	34335	Am26LS29/BEA	---
5962-8767001FX	34335	Am26LS29/BFA	---

^{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

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