

Am10P88/Am100P88

65,536-Bit (8192 x 8) ECL Bipolar PROM

ADVANCE INFORMATION

DISTINCTIVE CHARACTERISTICS

- Fast Access time (12 ns typ.) — improves system cycle times
- Power dissipation decreases with increasing temperature
- Internally voltage compensated providing flat AC performance
- Open emitter outputs (50 Ω drive), wired-OR capability

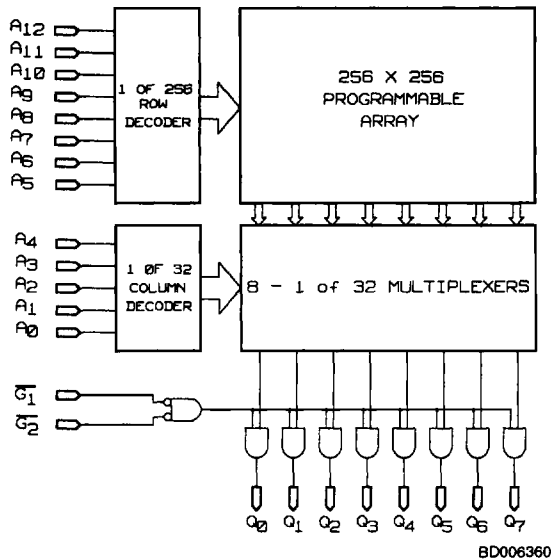
GENERAL DESCRIPTION

The Am10P88 & Am100P88 (8192-words by 8-bits) are Schottky array, ECL Programmable Read-Only Memories (PROMs).

The 10K Versions are compatible with standard voltage-compensated 10K series ECL. The 100K Versions are compatible with standard temperature and voltage-com-

pensated 100K series ECL. Both are capable of satisfying the requirements of a variety of microprogrammable controls, mapping functions, code conversion, or logic replacement. Easy word-depth expansion is provided by active LOW (\overline{G}_1 & \overline{G}_2) output enables and an unterminated emitter follower output capable of wired-OR bus connection.

BLOCK DIAGRAM



PRODUCT SELECTOR GUIDE

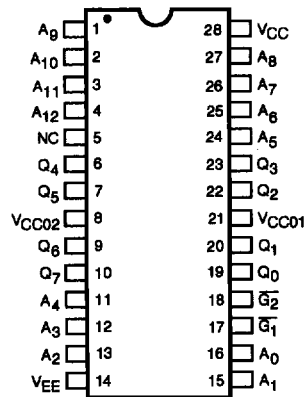
Part Number	Am10P88		Am100P88
Address Access Time (ns)	15 ns	20 ns	15 ns
Operating Range	C	M	C

Am10P88/Am100P88

2

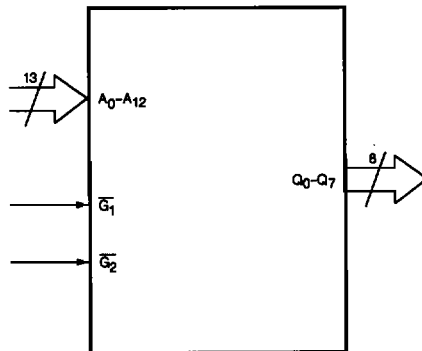
Publication # 08112
Rev. A
Amendment /0
Issue Date: May 1986

CONNECTION DIAGRAM Top View



CD009520

LOGIC SYMBOL



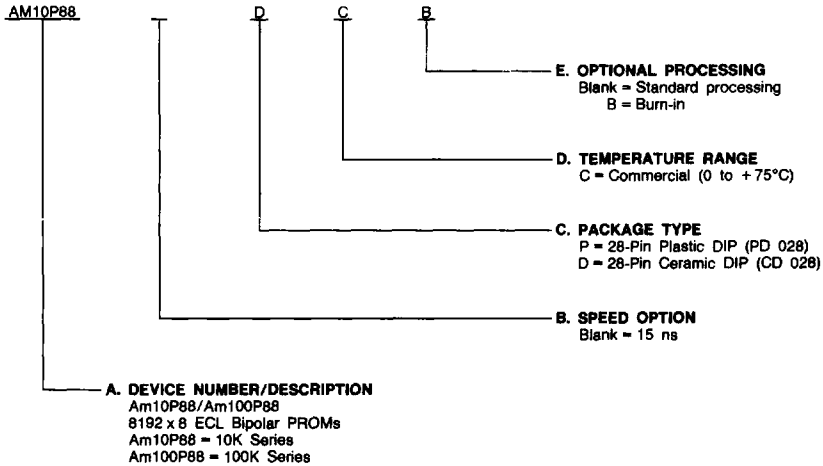
LS002420

ORDERING INFORMATION (Cont'd.)

Standard Products

AMD products are available in several packages and operating ranges. The order number (Valid Combination) is formed by a combination of:

- A. Device Number**
- B. Speed Option** (if applicable)
- C. Package Type**
- D. Temperature Range**
- E. Optional Processing**



Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, to check on newly released valid combinations, and to obtain additional data on AMD's standard military grade products.

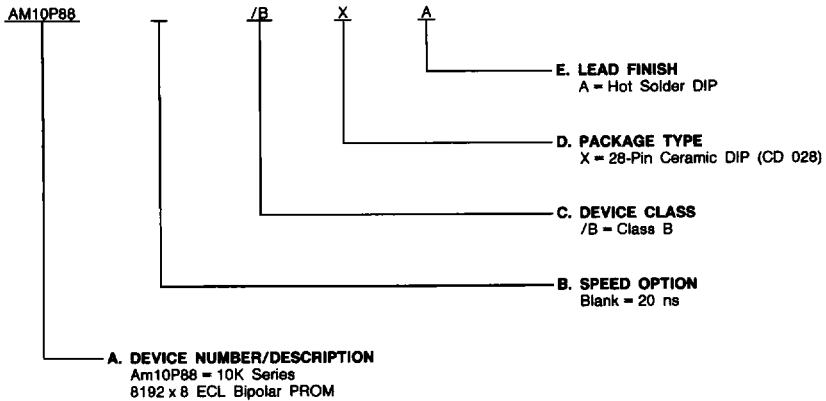
Valid Combinations	
AM10P88	DC, DCB, PC, PCB
AM100P88	

ORDERING INFORMATION

APL Products

AMD products for Aerospace and Defense applications are available in several packages and operating ranges. APL (Approved Products List) products are fully compliant with MIL-STD-883C requirements. CPL (Controlled Products List) products are processed in accordance with MIL-STD-883C, but are inherently non-compliant because of package, solderability, or surface treatment exceptions to those specifications. The order number (Valid Combination) for APL products is formed by a combination of:

- A. Device Number**
- B. Speed Option** (if applicable)
- C. Device Class**
- D. Package type**
- E. Lead Finish**



Valid Combinations

Valid Combinations	
AM10P88	/BXA

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations or to check for newly released valid combinations.

PIN DESCRIPTION

A₀ - A₁₂ Address Inputs

The 13-bit field presented at the address inputs selects one of 8192 memory locations to be read from.

Q₀ - Q₃ Data Output Port

The outputs whose state represents the data read from the selected memory locations.

$\overline{G}_1, \overline{G}_2$ Output Enable

Provides direct control of the Q-output buffers. Outputs disabled forces all outputs to V_{OL}.

$$\text{Enable} = \overline{G}_1 \cdot \overline{G}_2$$

$$\text{Disable} = \overline{G}_1 \cdot \overline{G}_2 = G_1 + G_2$$

V_{CC}, V_{CCO1}, V_{CCO2} Device Power Supply Pins
The most positive of the logic power supply pins.

V_{EE} Device Power Supply Pin
The most negative of the logic power supply pins.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150°C
Ambient Temperature with Power Applied	-55 to +125°C
V _{EE} Pin Potential to V _{CC} /V _{CCO} Pin	-7.0 V to +0.5 V
Input Voltage (DC)	V _{EE} to +0.5 V
DC Voltage Applied to Outputs During Programming	2.2 V
DC Voltage Applied to V _{CCO} During Programming	16 V
Output Current (DC HIGH Output)	-30 mA to +0.1 mA

Stresses above those listed under ABSOLUTE MAXIMUM RATINGS may cause permanent device failure. Functionality at or above these limits is not implied. Exposure to absolute maximum ratings for extended periods may affect device reliability.

OPERATING RANGES

10K Series	
Commercial (C) Devices	
Temperature	0 to +75°C
Supply Voltage	-5.46 V to -4.94 V
Military (M) Devices	
Temperature	-55 to +125°C
Supply Voltage	-5.72 V to -4.68 V
100K Series	
Commercial (C) Devices	
Temperature	0 to +75°C
Supply Voltage	-5.7 V to -4.2 V
Operating ranges define those limits between which the functionality of the device is guaranteed.	
Military products 100% tested at -55°C, +25°C, +125°C	

DC CHARACTERISTICS over operating range unless otherwise specified

100K Series

Parameter Symbol	Parameter Description	Test Conditions	Min.	Max.	Units
V _{OH}	Output Voltage HIGH	V _{IN} = V _{IH} (Max.) or V _{IL} (Min.) Loading is 50 Ω to -2.0 V	-1025	-880	mV
V _{OL}	Output Voltage LOW		-1810	-1620	mV
V _{OHc}	Output Voltage HIGH		-1035		mV
V _{OLc}	Output Voltage LOW			-1610	mV
V _{IH}	Input Voltage HIGH	Guaranteed Input Voltage HIGH (Note 3)	-1165	-880	mV
V _{IL}	Input Voltage LOW	Guaranteed Input Voltage LOW (Note 3)	-1810	-1475	mV
I _{IH}	Input Current HIGH	V _{IN} = V _{IH} (Max.)		220	μA
I _{IL}	Input Current LOW	V _{IN} = V _{IL} (Min.)		170	μA
I _{EE}	Power Supply Current	All Inputs and Outputs Open	-220		mA

10K Series (Commercial)

Parameter Symbol	Parameter Description	Test Conditions		Min.	Max.	Units	
V _{OH}	Output Voltage HIGH	V _{IN} = V _{IH} (Max.) or V _{IL} (Min.)	Loading is 50Ω to -2.0V	T _A = 0°C	-1000	-840	mV
				T _A = +25°C	-960	-810	
				T _A = +75°C	-900	-720	
V _{OL}	Output Voltage LOW			T _A = 0°C	-1870	-1665	mV
				T _A = +25°C	-1850	-1650	
				T _A = +75°C	-1830	-1625	
V _{OHC}	Output Voltage HIGH	V _{IN} = V _{IH} (Min.) or V _{IL} (Max.)	Loading is 50Ω to -2.0V	T _A = 0°C	-1020		mV
				T _A = +25°C	-980		
				T _A = +75°C	-920		
V _{OLC}	Output Voltage LOW			T _A = 0°C		-1645	mV
				T _A = +25°C		-1630	
				T _A = +75°C		-1605	
V _{IH}	Input Voltage HIGH	Guaranteed Input Voltage HIGH (Note 3)		T _A = 0°C	-1145	-840	mV
				T _A = +25°C	-1105	-810	
				T _A = +75°C	-1045	-720	
V _{IL}	Input Voltage LOW	Guaranteed Input Voltage LOW (Note 3)		T _A = 0°C	-1870	-1490	mV
				T _A = +25°C	-1850	-1475	
				T _A = +75°C	-1830	-1450	
I _{IH}	Input Current HIGH	V _{IN} = V _{IH} (Max.)		T _A = 0°C		220	μA
I _{IL}	Input Current LOW	V _{IN} = V _{IL} (Min.)		T _A = 0°C		170	μA
I _{EE}	Power Supply Current	All Inputs and Outputs Open		T _A = 0°C	-265		mA
				T _A = +75°C	-215		

10K Series (Military)

Parameter Symbol	Parameter Description	Test Conditions		Min.	Max.	Units	
V _{OH}	Output Voltage HIGH	V _{IN} = V _{IH} (Max.) or V _{IL} (Min.)	Loading is 50Ω to -2.0V	T _A = -55°C	-1070	-860	mV
				T _A = +125°C	-860	-650	
				T _A = -55°C	-1900	-1690	
V _{OL}	Output Voltage LOW			T _A = +125°C	-1800	-1570	mV
				T _A = -55°C	-1090		
				T _A = +125°C	-880		
V _{OHC}	Output Voltage HIGH	V _{IN} = V _{IH} (Min.) or V _{IL} (Max.)	Loading is 50Ω to -2.0V	T _A = -55°C			mV
				T _A = +125°C			
				T _A = -55°C		-1670	
V _{OLC}	Output Voltage LOW			T _A = +125°C		-1550	mV
				T _A = -55°C	-1215	-860	
				T _A = +125°C	-1005	-650	
V _{IH}	Input Voltage HIGH	Guaranteed Input Voltage HIGH (Note 3)		T _A = -55°C	-1900	-1515	mV
				T _A = +125°C	-1800	-1395	
				T _A = -55°C		250	
V _{IL}	Input Voltage LOW	Guaranteed Input Voltage LOW (Note 3)		T _A = -55°C		170	μA
				T _A = +125°C			
				T _A = -55°C			
I _{IH}	Input Current HIGH	V _{IN} = V _{IH} (Max.)		T _A = -55°C		250	μA
I _{IL}	Input Current LOW	V _{IN} = V _{IL} (Min.)		T _A = -55°C		170	μA
I _{EE}	Power Supply Current	All Inputs and Outputs Open		T _A = -55°C	-280		mA
				T _A = +125°C	-230		

Notes: 1. Guaranteed with transverse air flow exceeding 400 linear feet/minute.

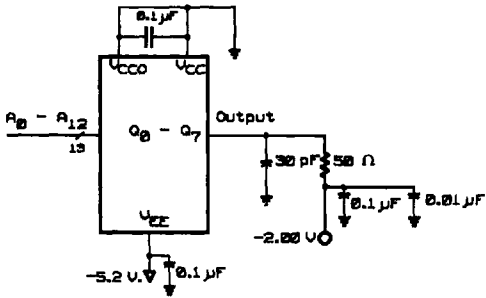
2. The relative values of the specified conditions and limits will be referenced to an algebraic scale. The extremities of the scale are:

"Max." the value closest to positive infinity.

"Min." the value closest to negative infinity.

3. These are absolute voltages with respect to the device ground pin and include all overshoots due to system and/or tester noise. Do not attempt to test these values without suitable equipment and fixturing.

SWITCHING TEST CIRCUIT



TC003591

- Notes: 1. All device test loads should be located within 2" of device output pin.
 2. Decoupling of power supplies should be as close to device pins as possible.
 3. Load capacitance includes all stray and fixture capacitance.

KEY TO SWITCHING WAVEFORMS

WAVEFORM	INPUTS	OUTPUTS
	MUST BE STEADY	WILL BE STEADY
	MAY CHANGE FROM H TO L	WILL BE CHANGING FROM H TO L
	MAY CHANGE FROM L TO H	WILL BE CHANGING FROM L TO H
	DON'T CARE; ANY CHANGE PERMITTED	CHANGING; STATE UNKNOWN
	DOES NOT APPLY	CENTER LINE IS HIGH IMPEDANCE "OFF" STATE

KS000010

2

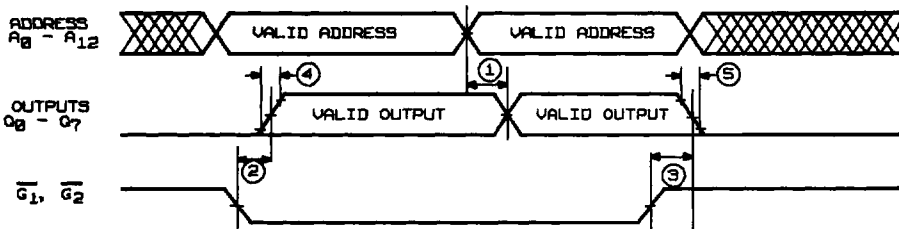
SWITCHING CHARACTERISTICS over operating range unless otherwise specified

No.	Parameter Symbol	Parameter Description	10K Version		100K Version	Units
			COM'L	MIL	COM'L	
			Max.	Max.	Max.	
1	TAVQV	Address Valid to Output Valid Access Time	15	20	15	ns
2	TGVQL	Delay from Output Enable Valid to Output LOW	10	15	10	ns
3	TGVQV	Delay from Output Enable Valid to Output Valid	10	15	10	ns
4	TQLQH	Output Rise Time	5	5	5	ns
5	TQHQL	Output Fall Time	5	5	5	ns

See also Switching Test Circuit and Notes 1, 2, & 3.

- Notes: 1. Tests are performed with 20% to 80% input transition time of 2.5 ns or less and input pulse levels of -1.7 V to -0.9 V using specified Switching test load.
 2. Timing is measured from 50% of input transition to 50% of output transition.
 3. Output rise and fall times are measured from 20% to 80% of output transition.

SWITCHING WAVEFORM



WF021630