DISTINCTIVE CHARACTERISTICS

- High-speed (35 ns)/Low-Power (90 mA) CMOS EPROM Technology
- Direct plug-in replacement for Bipolar PROMs — JEDEC-approved pinout
- 5-Volt ±10% power supplies for both Commercial and Military

- UV-erasable and reprogrammable provides exceptionally high programming yields (Typ. > 99.9%)
- ESD Immunity > 2000 V

GENERAL DESCRIPTION

The Am27C49 (8192 words by 8 bits) is a high-speed CMOS programmable read-only memory (PROM).

This device has three-state outputs compatible with low-power Schottky bus standards capable of satisfying the requirements of a variety of microprogrammable controls. This device utilizes proven floating-gate EPROM technology to ensure high reliability, ease of programming, and exceptionally high programming yields.
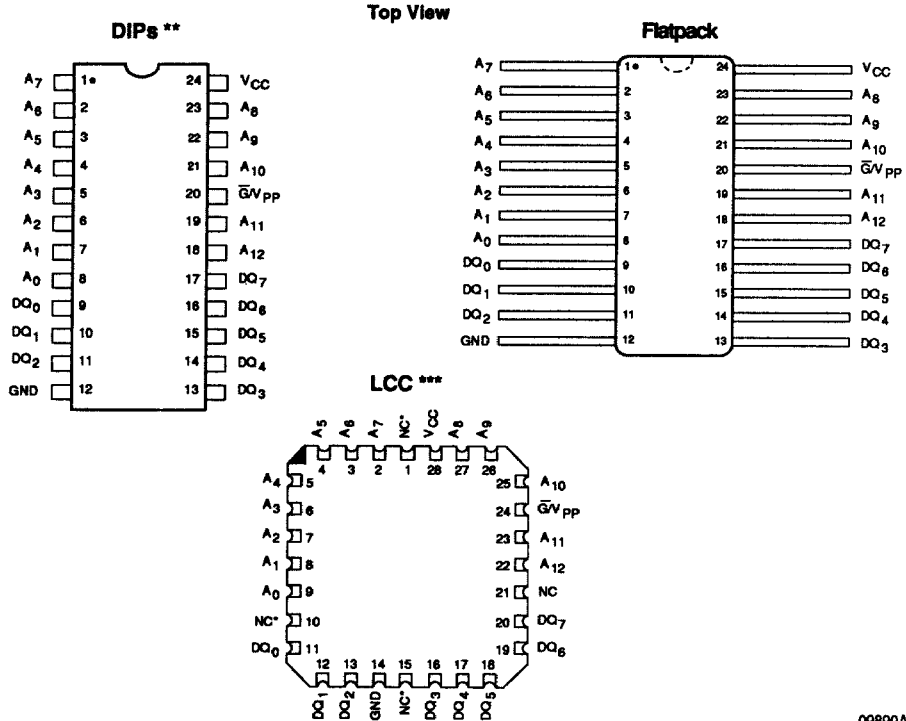
BLOCK DIAGRAM
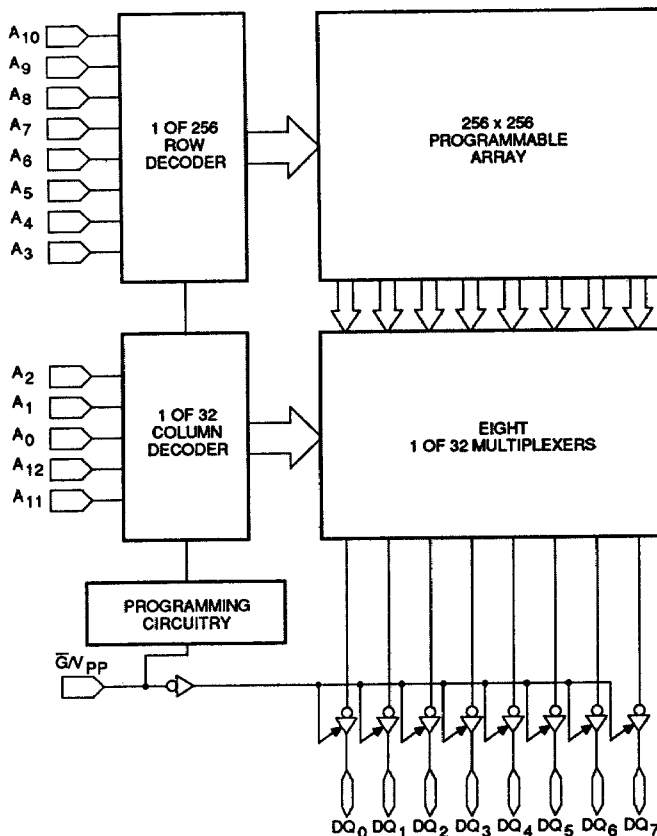
09890A-1

PRODUCT SELECTOR GUIDE

Part Number	Am27C49-35	Am27C49-45	Am27C49-55
Address Access Time	35 ns	45 ns	55 ns
Operating Range	COM'L	COM'L/MIL*	COM'L/MIL*

* Advance Information—Military Products Only.

CONNECTION DIAGRAMS
Top View

DIPs **

A_7	1	24	V_{CC}
A_6	2	23	A_8
A_5	3	22	A_9
A_4	4	21	A_{10}
A_3	5	20	$\overline{G}/V_{PP}$
A_2	6	19	A_{11}
A_1	7	18	A_{12}
A_0	8	17	DQ_7
DQ_0	9	16	DQ_6
DQ_1	10	15	DQ_5
DQ_2	11	14	DQ_4
GND	12	13	DQ_3

Flatpack

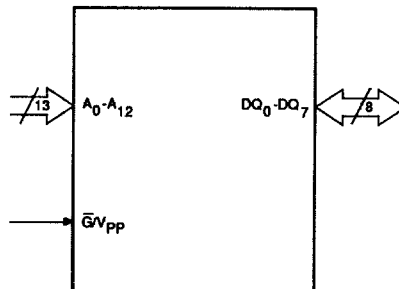|			
A_7	1	24	V_{CC}
A_6	2	23	A_8
A_5	3	22	A_9
A_4	4	21	A_{10}
A_3	5	20	$\overline{G}/V_{PP}$
A_2	6	19	A_{11}
A_1	7	18	A_{12}
A_0	8	17	DQ_7
DQ_0	9	16	DQ_6
DQ_1	10	15	DQ_5
DQ_2	11	14	DQ_4
GND	12	13	DQ_3

LCC ***

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*NC = No Connection

Note: Pin 1 is marked for orientation.

** Also available in a 24-Pin ceramic windowed DIP. Pinout identical to DIPs.

*** Also available in a 28-Pin ceramic windowed LCC. Pinout identical to LCC.
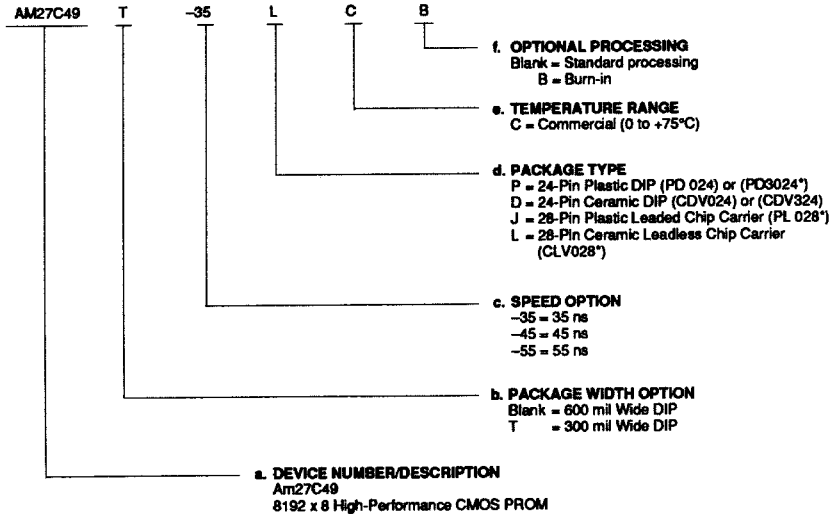
LOGIC SYMBOL

09890A-3

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The order number (Valid Combination) is formed
by a combination of:
a. Device Number
b. Package Width Option
c. Speed Option
d. Package Type
e. Temperature Range
f. Optional Processing

```
AM27C49    T    -35    L    C    B
```

f. OPTIONAL PROCESSING
Blank = Standard processing
B = Burn-in

e. TEMPERATURE RANGE
C = Commercial (0 to +75°C)

d. PACKAGE TYPE
P = 24-Pin Plastic DIP (PD 024) or (PD3024*)
D = 24-Pin Ceramic DIP (CDV024) or (CDV324)
J = 28-Pin Plastic Leaded Chip Carrier (PL 028*)
L = 28-Pin Ceramic Leadless Chip Carrier
(CLV028*)

c. SPEED OPTION
-35 = 35 ns
-45 = 45 ns
-55 = 55 ns

b. PACKAGE WIDTH OPTION
Blank = 600 mil Wide DIP
T = 300 mil Wide DIP

a. DEVICE NUMBER/DESCRIPTION
Am27C49
8192 x 8 High-Performance CMOS PROM

* Product version in Development,
contact HPP Product Marketing.

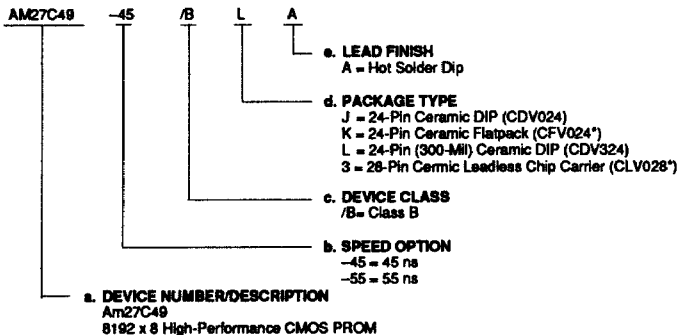| Valid Combinations	
AM27C49-35	PC, PCB, DC,
AM27C49-45	DCB, LC, LCB
AM27C49-55	JC, JCB
AM27C49T-35	
AM27C49T-45	PC, PCB, DC, DCB
AM27C49T-55	

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 combinations, and to obtain
additional data on AMD's standard military grade products.

MILITARY 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. The order number (Valid Combination) for APL products is formed by a combination of:

    a. **Device Number**
    b. **Speed Option**
    c. **Device Class**
    d. **Package Type**
    e. **Lead Finish**

```
AM27C49   -45   /B   L   A
```

e. LEAD FINISH
A = Hot Solder Dip

d. PACKAGE TYPE
J = 24-Pin Ceramic DIP (CDV024)
K = 24-Pin Ceramic Flatpack (CFV024*)
L = 24-Pin (300-Mil) Ceramic DIP (CDV324)
3 = 28-Pin Cermic Leadless Chip Carrier (CLV028*)

c. DEVICE CLASS
/B = Class B

b. SPEED OPTION
-45 = 45 ns
-55 = 55 ns

a. DEVICE NUMBER/DESCRIPTION
Am27C49
8192 x 8 High-Performance CMOS PROM

Valid Combinations	
AM27C49-45	/BJA, /BLA,
AM27C49-55	/BKA, /B3A

*Preliminary; Package in Development.

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 or to check on newly released valid combinations.

Group A Tests

Group A tests consist of Subgroups 1, 2, 3, 7, 8, 9, 10, 11.

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MILITARY BURN-IN

Military burn-in is in accordance with the current revision of MIL-STD-883, Test Method 1015, Conditions A through E. Test conditions are selected at AMD's option.

PIN DESCRIPTION

A_0-A_{12} Address Lines (Inputs)

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

DQ_0-DQ_7 Data Port (Input/Outputs; Three State)

The outputs whose state represents the data read from the selected memory locations. These outputs are three-state buffers which, when disabled, are in a floating or high-impedance state. These pins provide the data input for programming the memory array.

$\overline{G}/V_{pp}$ Output Enable/Programming Power

Provides direct control of the DQ output three-state buffers. When raised to a voltage > 12.0 V, this pin provides the programming power to program the memory array.

ABSOLUTE MAXIMUM RATINGS

Storage Temperature ....–65 to +150°C
Ambient Temperature with Power Applied ....–55 to +125°C
Supply Voltage ....–0.5 V to +7.0 V
DC Voltage Applied to Outputs in
   High-Impedance State ....–0.5 V to +7.0 V
DC Programming Voltage (V_{PP}) .... 14 V
DC Input Voltage ....–0.5 V to +7.0 V
Electrostatic Discharge Protection
   (per MIL-STD-883 Method 3015.2) ....> 2000 V

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

Commercial (C) Devices
   Ambient Temperature (T_A) ....0 to +75°C
   Supply Voltage (V_{CC}) ....+4.5 V to +5.5 V

Military (M) Devices*
   Case Temperature (T_C) ....-55 to +125°C
   Supply Voltage (V_{CC}) ....+4.5 V to +5.5 V

Operating ranges define those limits between which the functionality of the device is guaranteed.

* *Military Product 100% tested at T_c = +25°C, +125°C, and –55°C.*

DC CHARACTERISTICS over operating ranges unless otherwise specified (for APL Products, Group A, Subgroups 1, 2, 3 are tested unless otherwise noted)

Parameter Symbol	Parameter Description	Test Conditions		Min.	Max.	Unit
V_{IH}	Input HIGH Voltage	Guaranteed Input HIGH Voltage (Note 1)		2.0		V
V_{IL}	Input LOW Voltage	Guaranteed Input LOW Voltage (Note 1)			0.8	V
V_{OH}	Output HIGH Voltage	V_{CC} = Min., I_{OH} = –4.0 mA V_{IN} = V_{IH} or V_{IL}		2.4		V
V_{OL}	Output LOW Voltage	V_{CC} = Min., I_{OL} = 16 mA V_{IN} = V_{IH} or V_{IL}			0.4	V
V_{OL}	Input Clamp Diode Voltage	V_{CC} = Min., I_{IN} = –18 mA		–1.2		V
I_{IH}	Input HIGH Current	V_{CC} = Max., V_{IN} = 5.5 V			10	µA
I_{IL}	Input LOW Current	V_{CC} = Max., V_{IN} = 0.0 V			–10	µA
I_{SC}	Output Short-Circuit Current	V_{CC} = Max. V_{OUT} = 0.0 V (Note 2)		–20	–90	mA
I_{CEX}	Output Leakage Current	V_{CC} = Max., V_G = 2.4 V	V_{OUT} = 5.5 V		40	µA
			V_{OUT} = 0.4 V		–40	µA
I_{CC}	Operating Supply Current	V_{CC} = Max. (Note 3)	All Inputs = V_{IH}		90	mA
			All Inputs = V_{IL}			

Notes: 1. V_{IL} and V_{IH} are input conditions of output tests and are not themselves directly tested. V_{IL} and V_{IH} are absolute voltages with respect to device ground and include all overshoots due to system and/or tester noise. Do not attempt to test these values without suitable equipment.

   2. Not more than one output should be shorted at a time. Duration of the short-circuit test should not exceed one second.

   3. Operating I_{CC} is measured with all inputs except $\overline{G}$ switching between V_{IL} and V_{IH} at a timing interval equal to TAVDQV. The outputs are disabled via $\overline{G}$ held at 3.0 V.