Atmel AT27C2048

2Mb (128K x 16) One-time Programmable, Read-only Memory

Features

• Fast read access time – 55ns

• Low-power CMOS operation

– 100µA max standby

– 35mA max active at 5MHz

• JEDEC standard packages

– 44-lead PLCC

• Direct upgrade from 512Kbit and 1Mbit (Atmel® AT27C516 and AT27C1024)

EPROMs

• 5V ± 10% supply

• High-reliability CMOS technology

– 2,000V ESD protection

– 200mA latchup immunity

• Rapid programming algorithm – 50µs/word (typical)

• CMOS- and TTL-compatible inputs and outputs

• Integrated product identification code

• Industrial temperature range

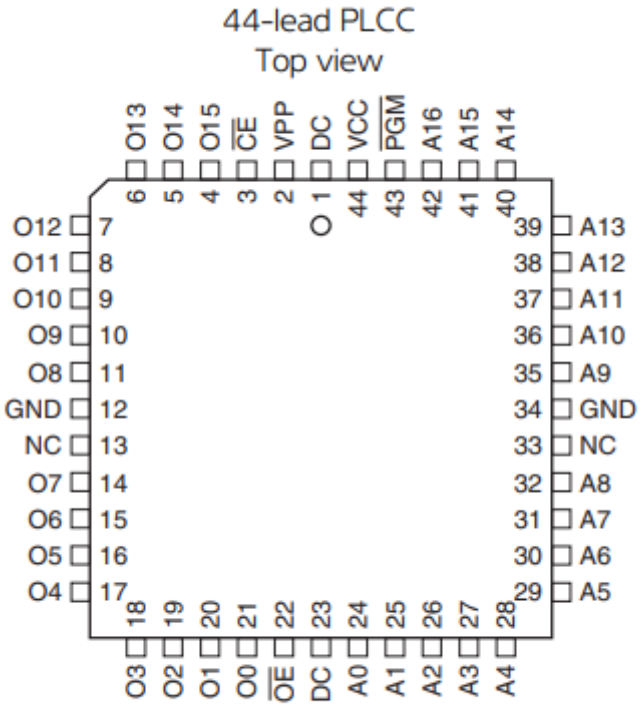
Description

The Atmel AT27C2048 is a low-power, high-performance 2,097,152-bit, one-time programmable, read-only memory (OTP EPROM) organized as 128K by 16 bits. It requires a single 5V power supply in normal read mode operation. Any word can be accessed in less than 55 ns, eliminating the need for speed-reducing WAIT states. The x16 organization makes this part ideal for high-performance, 16- and 32-bit microprocessor systems. In read mode, the AT27C2048 typically consumes 15mA.

Standby mode supply current is typically less than 10µA. The AT27C2048 is available in an industry-standard, JEDEC-approved, one-time program mable (OTP) PLCC package. The device features two-line control (CE, OE) to eliminate bus contention in high-speed systems. With high-density, 128K word storage capability, the AT27C2048 allows firmware to be stored reliably and to be accessed by the system without the delays of mass storage media.

The AT27C2048 has additional features that ensure high quality and efficient production use. The rapid programming algorithm reduces the time required to program the part and guarantees reliable programming. Programming time is typically only 50 µs/word. The Inte□grated product identification code electronically identifies the device and manufacturer. This feature is used by industry-standard programming equipment to select the proper programming algorithms and voltages.

Pin configuration



Note: PLCC package pins 1 and 23 are "don't connect."

Pin configurations

Pin name	Function
A0 - A16	Addresses
O0 - O15	Outputs
$\overline{CE}$	Chip enable
$\overline{OE}$	Output enable
$\overline{PGM}$	Program strobe
NC	No connect
DC	Don't connect

Note: Both GND pins must be connected.

Applications

The Atmel AT27C2048 is a 2 Megabit (256K x 8) UV EPROM (Ultraviolet Erasable Programmable Read-Only Memory). It is commonly used in various applications due to its non-volatile storage capabilities. Here are some typical applications:

1. **Embedded Systems**: The AT27C2048 is often used in embedded systems to store firmware or bootloader code. It provides reliable storage for critical software that needs to be preserved even when the system is powered off.
2. **Microcontroller Programs**: Many microcontroller-based projects use this EPROM to store program code. The non-volatile nature ensures that the program remains intact between power cycles.
3. **Game Consoles**: Older game consoles and arcade machines often use EPROMs like the AT27C2048 to store game software. The ability to reprogram these chips allows for updates or changes to the game code.
4. **Industrial Automation**: In industrial applications, the AT27C2048 can store control algorithms, calibration data, or configuration settings. Its reliability and durability are crucial in harsh industrial environments.
5. **Telecommunications**: The EPROM can be used in telecom equipment to store firmware, configuration data, or lookup tables necessary for the device's operation.
6. **Networking Equipment**: Routers, switches, and other networking devices can use the AT27C2048 to store firmware and configuration settings that need to persist even when the device is powered off.
7. **Medical Devices**: Certain medical equipment may use this EPROM to store critical software or configuration data, ensuring consistent performance and reliability.
8. **Automotive**: In automotive electronics, the AT27C2048 can be used to store firmware for various control units, providing reliable and non-volatile storage.

The key advantages of the AT27C2048 include its high data retention, reliability, and the ability to be erased and reprogrammed using ultraviolet light, making it versatile for a range of applications.