

## Features

- **Fast Read Access Time - 120 ns**
- **Automatic Page Write Operation**  
Internal Address and Data Latches for 128 Bytes  
Internal Control Timer
- **Fast Write Cycle Time**  
Page Write Cycle Time - 10 ms maximum  
1 to 128 Byte Page Write Operation
- **Low Power Dissipation**  
80 mA Active Current  
300  $\mu$ A CMOS Standby Current
- **Hardware and Software Data Protection**
- **DATA Polling for End of Write Detection**
- **High Reliability CMOS Technology**  
Endurance:  $10^4$  or  $10^5$  Cycles  
Data Retention: 10 years
- **Single 5 V  $\pm$  10% Supply**
- **CMOS and TTL Compatible Inputs and Outputs**
- **JEDEC Approved Byte-Wide Pinout**
- **Full Military, Commercial and Industrial Temperature Ranges**

**1 Megabit  
(128K x 8)  
Paged  
CMOS  
E<sup>2</sup>PROM**

## Description

The AT28C010 is a high-performance Electrically Erasable and Programmable Read Only Memory. Its one megabit of memory is organized as 131,072 words by 8 bits. Manufactured with Atmel's advanced nonvolatile CMOS technology, the device offers access times to 120 ns with power dissipation of just 440 mW. When the device is deselected, the CMOS standby current is less than 300  $\mu$ A.

The AT28C010 is accessed like a Static RAM for the read or write cycle without the need for external components. The device contains a 128-byte page register to allow writing of up to 128 bytes simultaneously. During a write cycle, the address and 1 to 128 bytes of data are internally latched, freeing the address and data bus for other operations. Following the initiation of a write cycle, the device will automatically write the latched data using an internal control timer. The end of a write cycle can be detected by  $\overline{\text{DATA}}$  polling of I/O7. Once the end of a write cycle has been detected a new access for a read or write can begin.

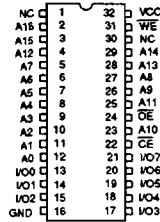
Atmel's 28C010 has additional features to ensure high quality and manufacturability. The device utilizes internal error correction for extended endurance and improved data retention characteristics. An optional software data protection mechanism is available to guard against inadvertent writes. The device also includes an extra 128 bytes of E<sup>2</sup>PROM for device identification or tracking.



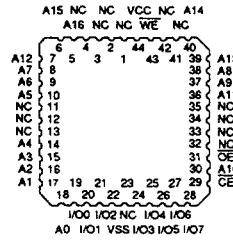
## Pin Configurations

Pin Name	Function
A0 - A16	Addresses
$\overline{CE}$	Chip Enable
$\overline{OE}$	Output Enable
$\overline{WE}$	Write Enable
I/O0 - I/O7	Data Inputs/Outputs
NC	No Connect

32B, 32F

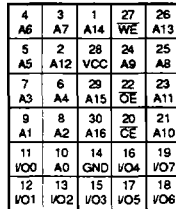


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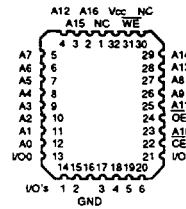


30U

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32L



## Product Selection Guide

AT28C010												
Part Number	Option	Speed	B	E*	Package			Temp Range	Access Time	Operating Temperature Range	Availability	
					F	L**	U	W				
AT28C010	E	-12	•	Q4 '94	•	•			C	120ns	0°C to +70°C	NOW
AT28C010	E	-12	•	Q4 '94	•	•			I	120ns	-40°C to +85°C	NOW
AT28C010	E	-12	•	Q4 '94	•	•			M	120ns	-55°C to +125°C	NOW
AT28C010	E	-12	•	Q4 '94	•	•			M/883	120ns	-55°C to +125°C	NOW
AT28C010	E	-15	•	Q2 '94	•	•	•		C	150ns	0°C to +70°C	NOW
AT28C010	E	-15	•	Q2 '94	•	•	•		I	150ns	-40°C to +85°C	NOW
AT28C010	E	-15	•	Q2 '94	•	•	•		M	150ns	-55°C to +125°C	NOW
AT28C010	E	-15	•	Q2 '94	•	•	•		M/883	150ns	-55°C to +125°C	NOW
AT28C010	E	-20	•	Q2 '94	•	•	•		C	200ns	0°C to +70°C	NOW
AT28C010	E	-20	•	Q2 '94	•	•	•		I	200ns	-40°C to +85°C	NOW
AT28C010	E	-20	•	Q2 '94	•	•	•		M	200ns	-55°C to +125°C	NOW
AT28C010	E	-20	•	Q2 '94	•	•	•		M/883	200ns	-55°C to +125°C	NOW
AT28C010	E	-25	•	Q2 '94	•	•	•	•	C	250ns	0°C to +70°C	NOW
AT28C010	E	-25	•	Q2 '94	•	•	•	•	I	250ns	-40°C to +85°C	NOW
AT28C010	E	-25	•	Q2 '94	•	•	•	•	M	250ns	-55°C to +125°C	NOW
AT28C010	E	-25	•	Q2 '94	•	•	•	•	M/883	250ns	-55°C to +125°C	NOW
<b>SMD Numbers for AT28C010</b>												
5962-3826707	M		•	Q4 '94	•	•			M/883	120ns	-55°C to +125°C	NOW
5962-3826705	M		•	Q2 '94	•	•			M/883	150ns	-55°C to +125°C	NOW
5962-3826703	M		•	Q2 '94	•	•			M/883	200ns	-55°C to +125°C	NOW
5962-3826703	M		•	Q2 '94	•	•			M/883	250ns	-55°C to +125°C	NOW

Package descriptions on page 33.

\* = 32L \*\* = 44L