Features

- **Serial Peripheral Interface (SPI) Compatible**
- **Supports SPI Modes 0 and 3**
- **Low Voltage and Standard Voltage Operation**
    - **5.0 (V_{CC} = 4.5V to 5.5V)**
    - **2.7 (V_{CC} = 2.7V to 5.5V)**
    - **1.8 (V_{CC} = 1.8V to 3.6V)**
- **2 MHz Clock Rate**
- **32-Byte Page Mode**
- **Block Write Protection**
    - **Protect 1/4, 1/2, or Entire Array**
- **Write Protect (WP) Pin and Write Disable Instructions for Both Hardware and Software Data Protection**
- **Self-Timed Write Cycle (10 ms Max)**
- **High Reliability**
    - **Endurance: 1 Million Cycles**
    - **Data Retention: 100 Years**
- **Automotive Grade and Extended Temperature Devices Available**
- **8-Pin PDIP and JEDEC SOIC Packages**
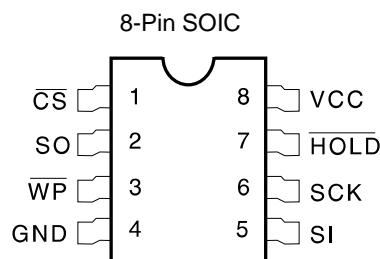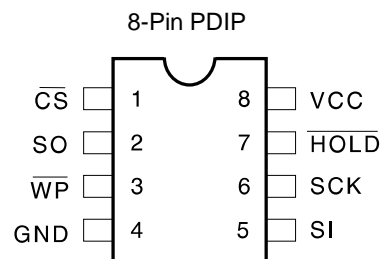
Description

The AT25320/640 provides 32768/65536 bits of serial electrically erasable programmable read only memory (EEPROM) organized as 4096/8192 words of 8 bits each. The device is optimized for use in many industrial and commercial applications where low power and low voltage operation are essential. The AT25320/640 is available in space saving 8-pin PDIP and 8-pin JEDEC (SOIC) packages.

The AT25320/640 is enabled through the Chip Select pin ($\overline{CS}$) and accessed via a 4-wire interface consisting of Serial Data Input (SI), Serial Data Output (SO), and Serial Clock (SCK). All programming cycles are completely self-timed, and no separate ERASE cycle is required before WRITE.

(continued)

**SPI
Serial CMOS
E^{2}PROMs**

32K (4096 x 8)

64K (8192 x 8)

**Advance
Information**

Pin Configurations

Pin Name	Function
$\overline{CS}$	Chip Select
SCK	Serial Data Clock
SI	Serial Data Input
SO	Serial Data Output
GND	Ground
V_{CC}	Power Supply
$\overline{WP}$	Write Protect
$\overline{HOLD}$	Suspends Serial Input

8-Pin PDIP


```
CS  [ 1    8 ]  VCC
SO  [ 2    7 ]  HOLD
WP  [ 3    6 ]  SCK
GND [ 4    5 ]  SI
```

8-Pin SOIC


```
CS  [ 1    8 ]  VCC
SO  [ 2    7 ]  HOLD
WP  [ 3    6 ]  SCK
GND [ 4    5 ]  SI
```

0639A

Description (Continued)

BLOCK WRITE protection is enabled by programming the status register with one of four blocks of write protection. Separate program enable and program disable instructions are provided for additional data protection. Hardware data protection is provided via the $\overline{WP}$ pin to protect against inadvertent write attempts to the status register. The $\overline{HOLD}$ pin may be used to suspend any serial communication without resetting the serial sequence.

Absolute Maximum Ratings*

Operating Temperature.................... -55°C to +125°C

Storage Temperature....................... -65°C to +150°C

Voltage on Any Pin
with Respect to Ground .... -1.0V to +7.0V

Maximum Operating Voltage 6.25V

DC Output Current .... 5.0 mA

*NOTICE: Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Block Diagram

AT25320/640