512 Kbit / 1 Mbit / 2 Mbit / 4 Mbit SPI Serial Flash

SST25VF512 / SST25VF010 / SST25VF020 / SST25VF040

Advance Information

FEATURES:

- **Single 2.7-3.6V Read and Write Operations**
- **Serial Interface Architecture**
  - SPI Compatible: Mode 0 and Mode 3
- **20 MHz Max Clock Frequency**
- **Superior Reliability**
  - Endurance: 100,000 Cycles (typical)
  - Greater than 100 years Data Retention
- **Low Power Consumption:**
  - Active Read Current: 10 mA (typical)
  - Standby Current: 10 µA (typical)
- **Flexible Erase Capability**
  - Uniform 4 KByte sectors
  - Uniform 32 KByte overlay blocks
- **Fast Erase and Byte-Program:**
  - Chip-Erase Time: 70 ms (typical)
  - Sector- or Block-Erase Time: 18 ms (typical)
  - Byte-Program Time: 14 µs (typical)
- **Auto Address Increment (AAI) Programming**
  - Chip Programming Time (typical)
    SST25VF512: 1 second
    SST25VF010: 3 seconds
    SST25VF020: 5 seconds
    SST25VF040: 9 seconds
- **End-of-Write Detection**
  - Software Status
- **Hold Pin (HOLD#)**
  - Suspends a serial sequence to the memory without resetting the device
- **Hardware Write Protection**
  - Protects and unprotects the device from Write operation through WP# pin
- **Software Write Protection**
  - Write protection through Block-Protection bits in status register
- **Packages Available**
  - 8-lead SOIC (4.9mm x 6mm) (SST25VF512/010/020 only)
  - 8-contact WSON

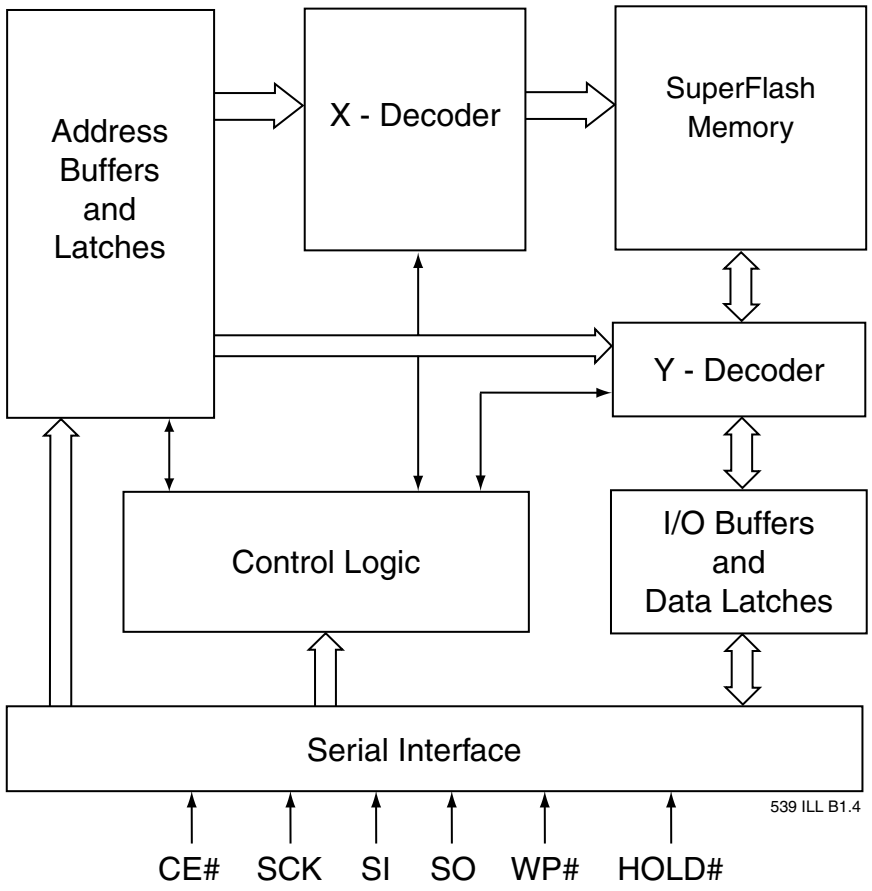
PRODUCT DESCRIPTION

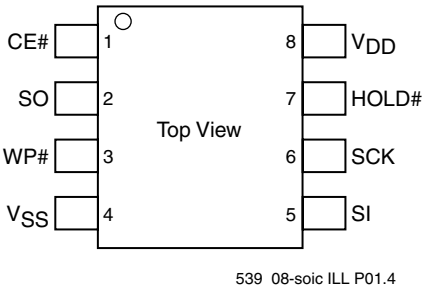
SST25VFxxx SPI Serial Flash memories are manufactured with SST's proprietary, high performance CMOS SuperFlash technology. The split-gate cell design and thick oxide tunneling injector attain better reliability and manufacturability compared with alternate approaches. The SST25VFxxx devices significantly improve performance and reliability, while lowering power consumption. The SST25VFxxx devices write (Program or Erase) with a single 2.7-3.6V power supply. They use less energy during Erase and Program than alternative flash memory technologies. The total energy consumed is a function of the applied voltage, current and time of application. Since for any given voltage range, the SuperFlash technology uses less current to program and has a shorter erase time, the total energy consumed during any Erase or Program operation is less than alternative flash memory technologies.

The SPI interface consist of four control lines; Chip Enable (CE#) is used to select the device, and data is accessed through the Serial Data Input (SI), Serial Data Output (SO), and Serial Clock (SCK). The Write Protect pin (WP#), when low, protects the device from any Write operations. Hold pin (HOLD#) temporarily suspends a serial sequence under-way without resetting the device.

The SST25VF512/010/020 devices are offered in the 8-lead SOIC package. All densities are offered in the 8-contact WSON package. See Figure 1 for the pin assignments.

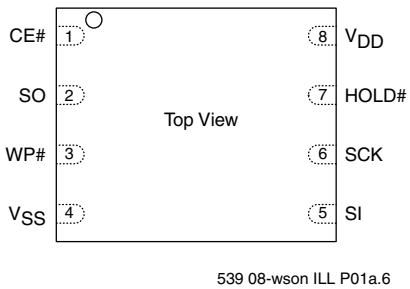
FUNCTIONAL BLOCK DIAGRAM





8-LEAD SOIC

(SST25VF512/010/020 only)



8-CONTACT WSON

FIGURE 1: PIN ASSIGNMENTS

TABLE 1: PIN DESCRIPTION

Symbol	Pin Name	Functions
SCK	Serial Clock	To provide the timing of the serial interface. Commands, addresses, or input data are latched on the rising edge of the clock input, while output data is shifted out on the falling edge of the clock input.
SI	Serial Data Input	To transfer commands, addresses, or data serially into the device. Inputs are latched on the rising edge of the serial clock.
SO	Serial Data Output	To transfer data serially out of the device. Data is shifted out on the falling edge of the serial clock.
CE#	Chip Enable	The device is enabled by a high to low transition on CE#.
WP#	Write Protect	The Write Protect (WP#) pin is used to activate Hardware protection mode and prohibit any Write operations.
HOLD#	Hold	To temporarily stop serial communication with SPI Flash memory without resetting the device.
V_{DD}	Power Supply	To provide power supply (2.7-3.6V).
V_{SS}	Ground	

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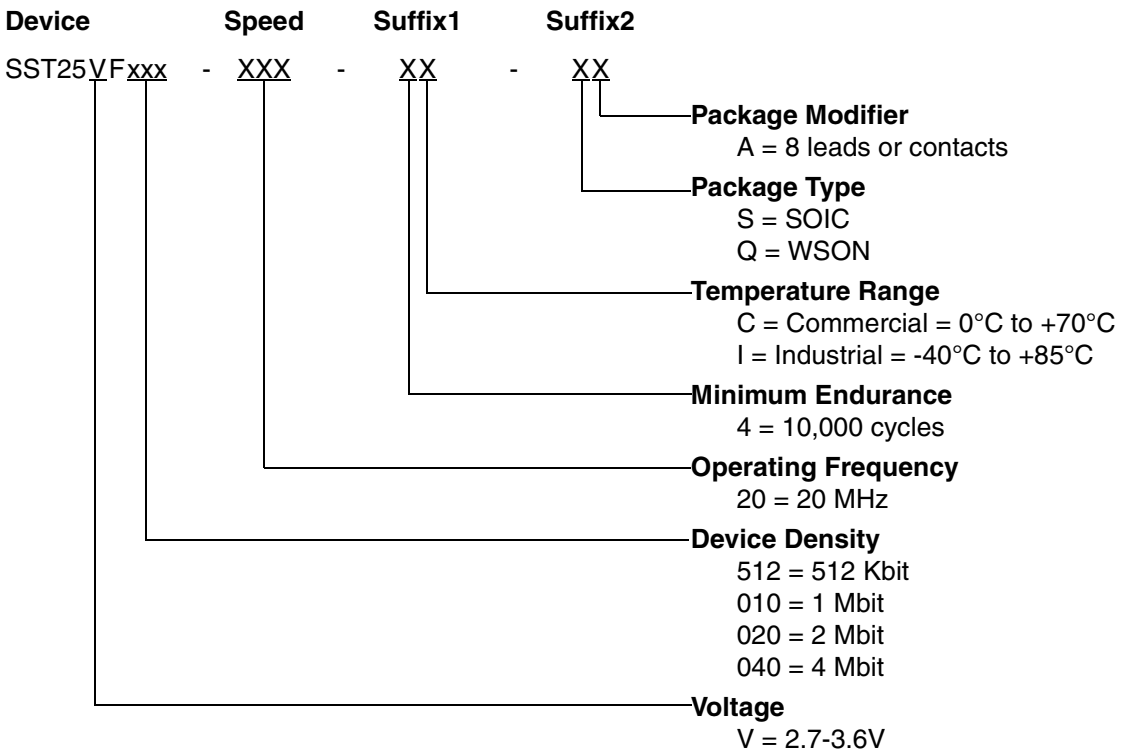
Advance Information

PRODUCT ORDERING INFORMATION



Valid combinations for SST25VF512

SST25VF512-20-4C-SA SST25VF512-20-4C-QA

Valid combinations for SST25VF010

SST25VF010-20-4C-SA SST25VF010-20-4C-QA

Valid combinations for SST25VF020

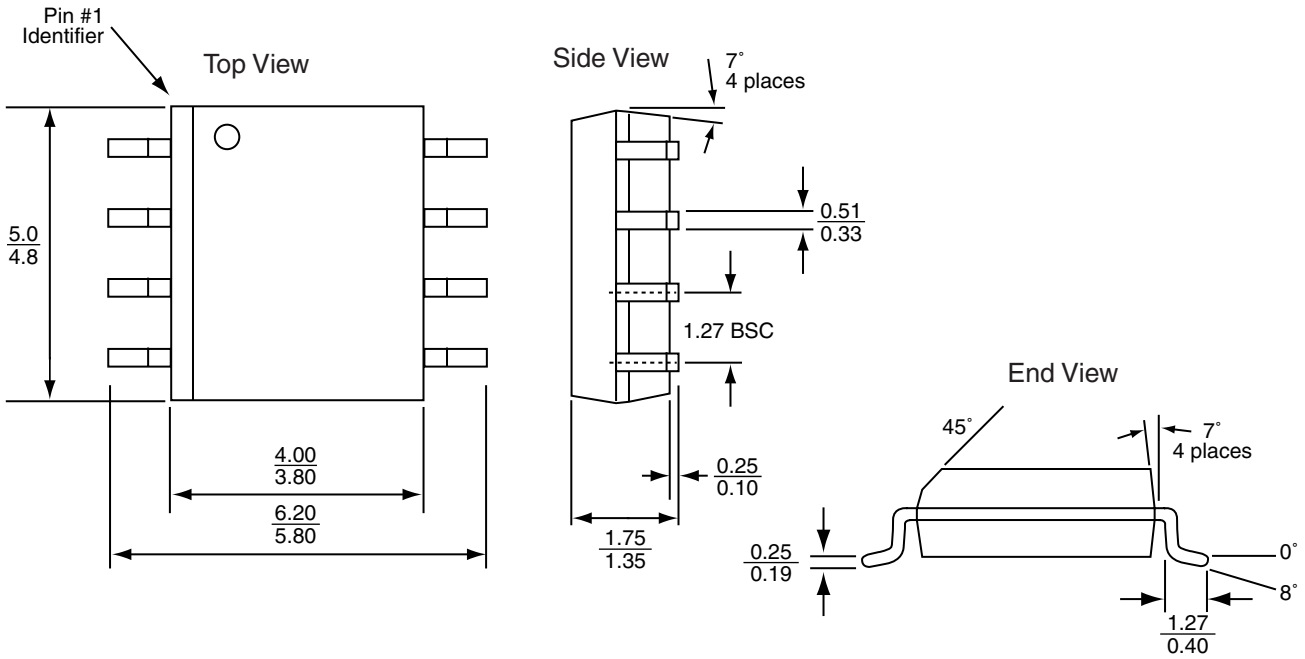
SST25VF020-20-4C-SA SST25VF020-20-4C-QA

Valid combinations for SST25VF040

SST25VF040-20-4C-QA

Note: Valid combinations are those products in mass production or will be in mass production. Consult your SST sales representative to confirm availability of valid combinations and to determine availability of new combinations.

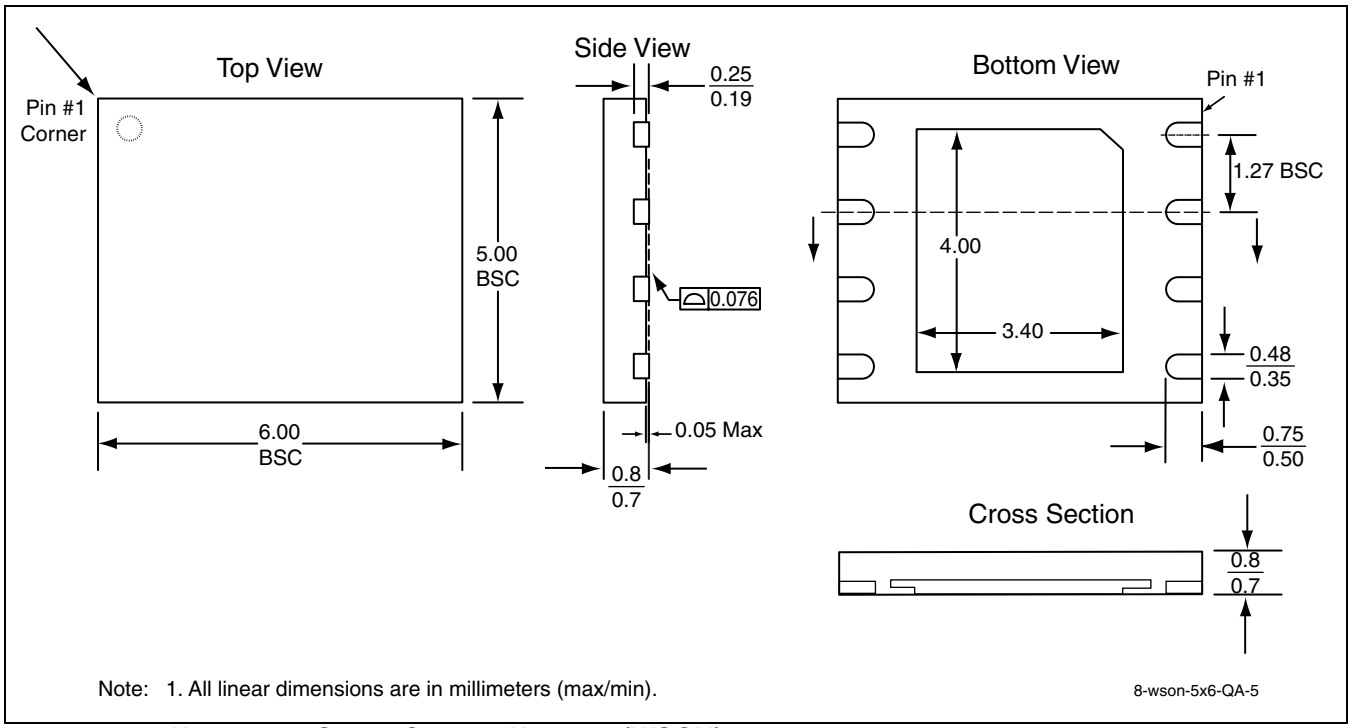
PACKAGING DIAGRAMS



Note: 1. Complies with JEDEC publication 95 MS-012 AA dimensions, although some dimensions may be more stringent.
2. All linear dimensions are in millimeters (max/min).
3. Coplanarity: 0.1 mm
4. Maximum allowable mold flash is 0.15 mm at the package ends and 0.25 mm between leads.

08-soic-5x6-SA-7

8-LEAD SMALL OUTLINE INTEGRATED CIRCUIT (SOIC)
SST PACKAGE CODE: SA



8-CONTACT ULTRA-THIN SMALL OUTLINE NO-LEAD (WSON)
SST PACKAGE CODE: QA