



FPS200

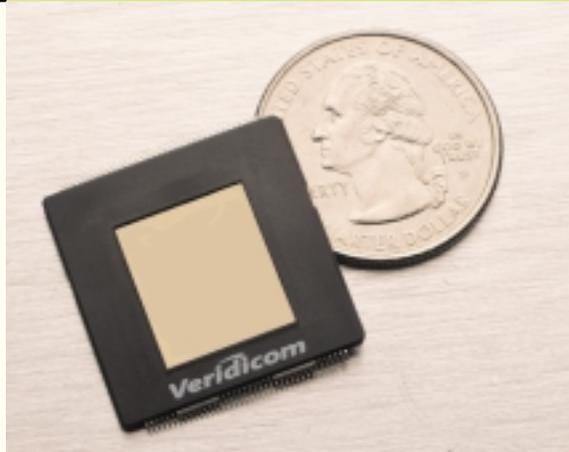
Silicon Fingerprint Sensor

Veridicom

Veridicom delivers a revolutionary line of fingerprint authentication products and services for e-business

Applications

- Portable fingerprint authentication
- Secure access to laptops, PDAs and other portable devices
- Secure access for networks, workstations, and databases
- Transaction security for e-commerce, Internet banking, and point-of-sale
- Access control and monitoring for home, auto, and office
- Powerful complement for smartcards
- Enhanced security for PKI
- Cellular phone-based security access (m-commerce)



Veridicom's robust FPS200 solid-state fingerprint sensor is an ideal direct-contact fingerprint acquisition device. Designed for embedded devices, this high-performance, low-power, low-cost capacitive sensor is easy to integrate into Internet appliances such as laptops, personal digital assistants (PDAs), and mobile phones. This means you, your customers, and your employees can now forget your passwords—all of them—and replace them with fast, reliable, user-friendly, fingerprint authentication. Just have your users touch the FPS200 sensor with their fingertip. It's that easy.

The FPS200 is the third generation silicon fingerprint sensor from Veridicom. This device incorporates new features and capabilities based on knowledge gained by extensive field deployment of our FPS100 and FPS110 sensors. It sets a new standard in performance, size and ease of integration.

Captures hard-to-read Fingerprints

The sensor's ImageSeek™ function takes several images of a finger and selects the best image in a fraction of a second while changing the capacitive array bias levels. It also provides you with high quality fingerprint images from all types of skin—dry to moist—in a wide range of climactic conditions, even hot and humid. This widens the application range of the sensor while dramatically reducing the false acceptance rate (FAR) and false rejection rate (FRR).

Rugged Sensor Chip

The FPS200's surface is treated with Veridicom's unique process, making it virtually scratch proof. This increases productivity and saves money by reducing field failures, and creating a more positive user experience. Its electrostatic discharge (ESD) tolerance is now in excess of 8kV. This allows the application of FPS200 in a variety of harsh environments.

Easy to Integrate

The FPS200 is the first fingerprint-sensing device to incorporate three modes of communication: universal serial bus (USB), micro-controller unit (MCU), and serial peripheral interface (SPI). This makes the sensor easy to integrate into different types of devices without requiring external interface devices.

It also has built-in electronics that simplify the software needed to support the chip. The chip's 256 x 300 array and new thin package provide you with a space saving, cost-effective image area that exposes more sensor array to the fingerprint contact area.

Conserves Power

The FPS200 operates at less than 20 microAmps in stand-by mode. This reduces processing overhead and saves battery life in mobile devices. The FPS200 has an integrated automatic finger detection (AFD) circuit that sends an interrupt signal to the host microprocessor when a finger is placed on the sensor. AFD eliminates the requirement imposed on the host microprocessor to continually "poll" the fingerprint sensor to determine whether a finger is present. This feature allows the host microprocessor to remain in stand-by mode unless a finger is placed on the sensor.

High Resolution

- 256 x 300 sensor array
- 1.28cm x 1.50cm sensor area
- 500 DPI resolution

Fast Image Capture

- 30 frames/sec in MCU mode
- 13 frames/sec in USB mode
- 10 frames/sec in SPI mode

Rugged

- Exceptionally hard protective coating
- ESD tolerance > 8kV

Easy to Integrate

- Capacitive solid-state device
- Standard CMOS technology
- Three bus interfaces for USB, MCU and SPI

Low Powered

- Operating Mode:
35 milliAmps
- Standby Mode:
20 microAmps

Chip Operation

The FPS200's sensor array has 256 columns and 300 rows of capacitive sensor plates. Two sample-and-hold circuits are associated with each column, and fingerprint images are sensed, or captured, one row at a time. The capacitance value of a sensor cell is obtained by measuring the difference between the precharged plate voltages and the discharged plate voltages. After the row capture, the capacitance values measured for the cells within the row are ready to be digitized. The FPS200's sensitivity is easily adjusted by changing the discharge current and discharge time.

Interfaces

Three operationally exclusive bus interfaces are directly supported on the FPS200 chip:

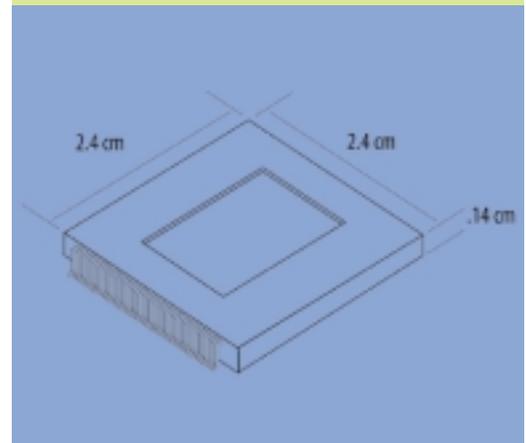
Universal Serial Bus (USB). Core circuitry for a high-speed USB interface is integrated directly into the FPS200, eliminating the need for an external USB controller, and allowing the FPS200 to be qualified as a low-power USB device. The sensor can support an image rate of 13 frames per second in USB mode.

Microprocessor Bus. The performance of the standard 8-bit microprocessor bus interface has been enhanced by adding automatic incrementing of column and address registers, and path optimization for analog to digital conversion. These improvements translate to an image rate of up to 30 frames per second, allowing for nearly instantaneous fingerprint image capture and image matching.

Serial Peripheral Interface (SPI). The integrated SPI on the FPS200 requires minimal hardware support, needing only 6 wires for connection to a SPI-capable microprocessor. The FPS200 can support an image rate of 10 frames per second in SPI mode.

Key Features and Benefits

- Thin package for easier design into portable devices
- ImageSeek technology for high accuracy regardless if fingers are wet or dry
- Integrates USB core, MCU mode and ISP mode communications, reducing system integration costs
- Hard protective coating with high resistance to tapping, abrasion, and chemicals
- Auto finger detect "wakes up" the CPU, saving power
- Integrated 8-bit analog to digital converter, reduces power consumption by up to 75%



The FPS200 is packaged in a super thin 1.4mm (.14cm) plastic body for Internet appliances, laptops and mobile phones.