Features

• 2Kbyte integrated FIFO memory
• Automatic Finger Detection (AFD) circuit
• 218 x 8 pixel array (50 µm pitch)
  - 500 DPI image resolution
  - 8-bit A/D converter on-board
• Fast sweep rate of 20 cm/sec (8 in/sec)
• 42-pin FBGA surface mount package
  - Integrated Finger Guide
  - 16.1mm x 6.5mm x 1.2mm

• Bus Interfaces
  - 8-bit MCU interface
  - 20 MHz SPI interface
• Low Power
  - 12 milliamps in Operating Mode
  - 20 microamps in Standby Mode
• Hard Protective Coating
• Programmable Gain Control
• Standard CMOS technology

Description

The MBF310 is a small, capacitive-based fingerprint Sweep Sensor™ that is designed to easily add biometric security to today's mobile devices such as cellular phones, PDAs and other hand-held devices. The MBF310 is optimized to meet the demanding size, power and cost requirements of small, battery-operated devices that contain personal data and/or are connected to private networks.

The MBF310’s on-board 2Kbyte FIFO memory holds image data until the host CPU is available, allowing the MBF310 to work within the processing constraints of mobile devices. The device also contains a sophisticated Automatic Finger Detection (AFD) circuit, which senses the presence of a finger on its surface. The MBF310 can wait in a low-power mode until the finger is detected, saving precious battery power. When a finger is detected, the AFD circuit wakes the MBF310 sensor so that it can grab the fingerprint information and send that data to the host CPU for processing.

The MBF310 has an image area of 218 x 8 pixels with a resolution of 500 dots-per-inch and an on-board 8-bit A/D. The high-resolution scanning capability of the MBF310 ensures that an accurate scan and match of the finger is generated. Data is sent from the sensor to the host CPU by one of its two industry standard interfaces. The 8-bit Microprocessor Bus or MCU interface can support an image rate of over 1000 frames per second. The Serial-Peripheral-Interface (SPI) operates at up to 20 MHz and can sustain an image frame rate
MBF310 Solid-State Fingerprint Sweep Sensor™

of 700 frames per second and requires only 4 wires for connecting to a host CPU.

The MBF310 sensor is based on an array of tiny metal electrodes. Each metal electrode acts as one capacitor plate and the contacting finger acts as the second plate. The value of each capacitor in the array is determined by the contour of the finger ridges and valleys, resulting in an accurate capture of the fingerprint pattern.

The MBF310 fingerprint sensor sets a new milestone for size, cost, power and functionality. The MBF310 enables mobile device manufacturers to add the security and convenience of biometrics with little additional cost. New capabilities such as PIN code replacement, on-screen navigation, personalized function keys and transaction authorization are additional uses of this technology.

Applications

- Integration into: mobile devices, PDAs, keyboards, keyless entry systems.
- Computer peripherals such as biometric enabled mouse, PC cards or other authentic peripherals.
- Physical access systems; controlled access to buildings (home and office), vehicles, or other secured areas.
- Authentication at Point-of-sale (cashier/teller) terminals.
- Transaction security over the Internet for banking and other e-commerce business.
- Replacement of cumbersome personal identification numbers and passwords with ease of fingerprint authentication.

Specifications

- 2Kbyte integrated FIFO memory
- 218 x 8 pixel sensor array (50 µm pitch)
  - 500 DPI image resolution
  - 8-bit A/D converter on-board
- Sweep rate: 20 cm/sec (8 in/sec)
- 42-pin FBGA surface mount package
  - Integrated Finger Guide
  - 16.1mm x 6.5mm x 1.2mm
- Bus Interfaces:
  - 8-bit MCU interface (>1000 frames/sec)
  - 20 MHz SPI interface (>700 frames/sec)
- Current:
  - 12 milliamps in Operating Mode
  - 20 microamps in Standby Mode
- Voltage:
  - 2.7V to 3.6V
- Temperature
  - Operating: -20°C to +85°C
  - Storage: -65°C to +150°C

MBF310 – 42 FBGA

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