

FINGERPRINT SENSOR FACT SHEET

MBF200 SOLID-STATE
FINGERPRINT SENSOR**Description**

The Fujitsu MBF200 solid-state Fingerprint Sensor (see diagram on following page) is a rugged, super thin, silicon-based, direct contact, fingerprint acquisition device.

Fingerprint authentication provides a reliable, quick, and user-friendly alternative to password inefficiency which requires the user to recall and enter cumbersome and often numerous code combinations. One advantage of the MBF200 fingerprint sensor is its ease of integration into portable electronic systems such as laptops, personal digital assistants (PDAs), and cellular phones. Other advantages include: durable construction, high performance, exceptional image clarity, small size,

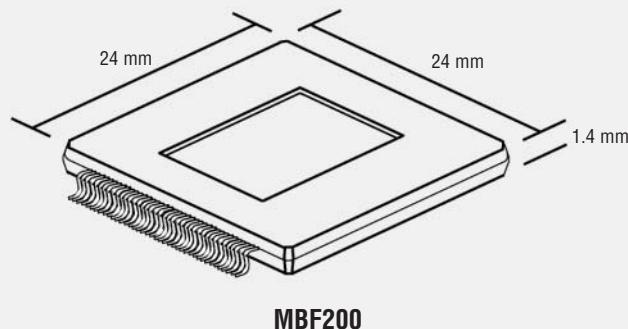
low power consumption, and lower unit cost than optical scanners.

The MBF200 sensor consists of a 256 x 300 column and row configuration of tiny metal electrodes. Every column is linked to a pair of sample-and-hold circuits. The fingerprint image is recorded in sequence row by row. Each metal electrode acts as one capacitor plate and the contacting finger acts as the second plate. A passivation layer on the surface of the device forms the dielectric between these two plates. A finger-press on the sensor creates varying capacitor values across the array which are then converted into an image of the fingerprint. The values of the array are determined by the contour (ridges and valleys) of the

fingerprint. In under one second, the sensor quickly captures several images of the fingerprint and selects the highest quality image. Skin moisture (damp or dry) is accounted for, thus making the sensor ideal in a wide range of climates. Once the fingerprint has been scanned, it is verified against the stored template of the individual's fingerprint.

The MBF200 is manufactured in standard CMOS technology. The 256 x 300 sensor array yields a clear, high quality 500dpi image. An integrated 8 bit analogue-to-digital converter is used to digitise the output of the sensor array.

Each MBF200 chip supports three different industry-standard bus



interfaces and is the first fingerprint sensor device to incorporate this technology. The USB core circuitry is integrated into the chip and is capable of supporting an image rate of 13 frames per second. The enhanced 8 bit Microprocessor Bus or MCU can support an image rate of 30 frames (maximum) per second. The MBF200 SPI sustains an image rate of 10 frames per second and requires only 6 wires for connection to a microprocessor that supports the SPI standard.

Features

- Rugged, super thin (1.4mm) design
- Ultra hard protective coating
- Low Power Operation:
 - 20mA in operating mode
 - 20µA in standby mode
- 256 x 300 pixel sensor array producing clear 500 dots-per-inch (dpi) resolution images

- 12.8 x 15mm sensor area
- Standard CMOS technology
- Three bus interfaces:
 - Universal Serial Bus (USB) V1-1
 - Enhanced 8 bit microprocessor bus interface
 - Serial Peripheral Interface (SPI)
- Integrated 8 bit analogue to digital converter
- 80-pin surface mount package
- Accurate and rapid fingerprint image capture
- Ease of integration
- Automatic finger detection
- Programmable gain control

Applications

- Integration into: laptops, workstations, PDAs, keyboards, cellular phones.
- 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

- Frames per second:
 - 30 with MCU interface
 - 13 with USB interface
 - 10 with SPI interface
- Operating temperature:
 - 20 to +85°C
- Storage temperature:
 - 65 to +150°C
- Resolution: 500dpi

