The Versatile Natural ID™ Fingerprint Identification Solution for Mobile Devices

The Synaptics® Natural ID™ VFS6100 family of fingerprint identification solutions protects the user's identity, while simplifying the user experience of electronic devices.

By replacing cumbersome, complex passwords with the swipe of a finger, they deliver an intuitive way to unlock devices and quickly access online services such as banking, retail, and social media.

The VFS6100 family enables OEMs to deliver the most compelling, differentiated, high-performance mobile devices to market at the lowest, most competitive costs.

VFS6100 Family Optimized for Mobile Phones

The Synaptics VFS6100 LiveFlex™ family of SPI Dual-Line-Imager (DLI) fingerprint sensors provides the ultimate in design flexibility, high performance, and low cost identification solutions for mobile phones and other portable devices.

The VFS6100 physically separates the ASIC and the fingerprint imaging functions — resulting in a larger sensing area for better usability and advanced security, while minimizing the ASIC size for lowest cost. Using a high frequency RF transceiver, the sensor captures the unique features of the user's fingerprint. Proprietary image processing and matching algorithms deliver superior Failure to Enroll (FTE), False Acceptance Rate (FAR), and False Reject Rate (FRR) performance.

The VFS6100 family includes encapsulated BGA and ultra slim COF button modules for mobile devices. Small-footprint packages allow integration into tight, challenging areas. VFS6100 family is also optimized for minimal power consumption.

The VFS6100 family portfolio continues the Synaptics tradition of driving innovation, supporting sleek industrial designs, and ease-of-integration across platforms and operating systems, including Android® and Microsoft® Windows®.

Features and Benefits

High-Performance Sensor

Synaptics' proprietary image processing and matching algorithms ensure industry-leading False Acceptance Rates (FAR) and False Rejection Rates (FRR) performance. The VFS6100 family is also optimized for minimal power consumption to maximize battery life.

LiveFlex™ Technology

Separates the fingerprint sensing element from the fingerprint controller IC to deliver more system design options for the size, shape, and placement of a fingerprint sensing module.

Superior Durability

The VFS6100 family delivers the highest performance, most rugged, durable sensors at competitively low prices. Since the user never touches the ASIC, the parts are resistant to electrical discharge (ESD), abrasion, liquids, and chemicals as well as industry-leading resistance to impact damage.

Integration Options

The versatile VFS6100 family can be used in many form factors, such home screen buttons and power buttons for smartphones. Low-profile, small-footprint packages, and flexible LiveFlex™ sensors, support integration into the tightest, most challenging spaces.

Improved Usability and Ergonomics

To acquire the fingerprint image, the user swipes a finger over a durable sensor surface. Bi-directional swiping is supported.

Advanced OS Support

Fully compliant with leading operating systems such as Android® and Microsoft Windows® Biometric Framework (WBF). Synaptics' open system architecture enables easy integration with industry leading biometric security software applications.

Online-Transaction Ready

Natural ID™ sensors are compliant with Fast Identity Online Alliance (FIDO), the industry-standard for online transactions. FIDO-compliant websites and web applications interact seamlessly with the fingerprint sensor to replace cumbersome, hard-to-remember passwords.

Proven Technology

The Natural ID™ product portfolio is backed by Synaptics' deep system integration expertise, user experience design capabilities, and the ability to reliably meet the fingerprint authentication needs of top-tier OEMs and high-volume programs. Synaptics' VFS6100 family of sensors is used in over one hundred million devices.

Key Specifications

Item	Specification
Sensor Type	Swipe
Sensor Size	8 mm wide (114 pixels)
Package Size	4 x 10.5 mm BGA 2.5 x 10.5 mm COF
Interface	SPI
Power Supplies	3.3V analog, 1.8V or 3.3V digital
Supply Current	1 µA sleep; 30 µA wake on finger; 19 mA imaging
Operating Temperature	-10°C to +75°C

Key Software Specifications

Item	Specification
OS Support	Android®, Microsoft® Windows®
FRR/FAR Performance	FRR ~ 1% @ 1:50K FAR
mPayment Compatibility	FIDO and AliPay

Reference Documents

505-000405-01　　　VFS6100-Family SPI Fingerprint Sensor Datasheet

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