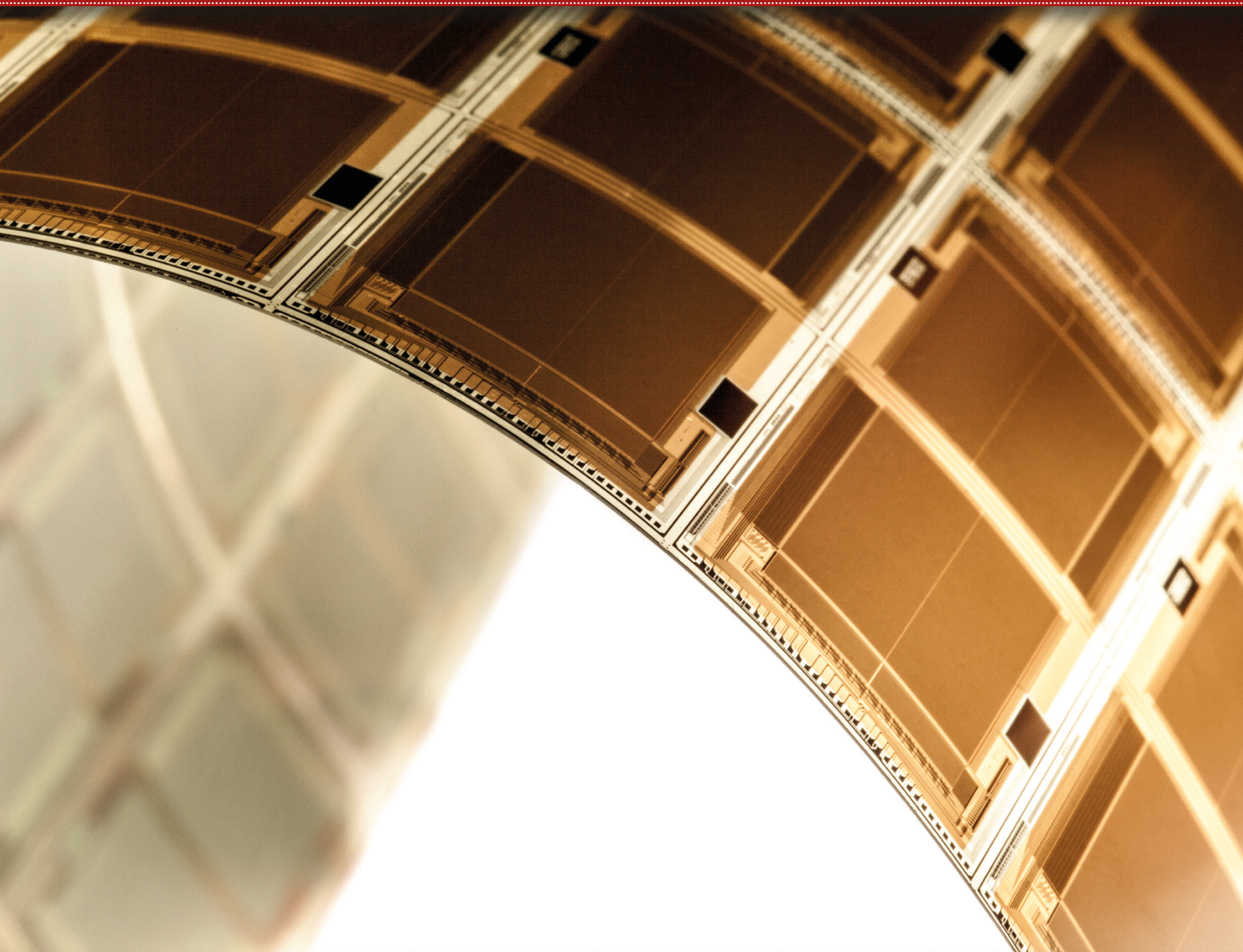
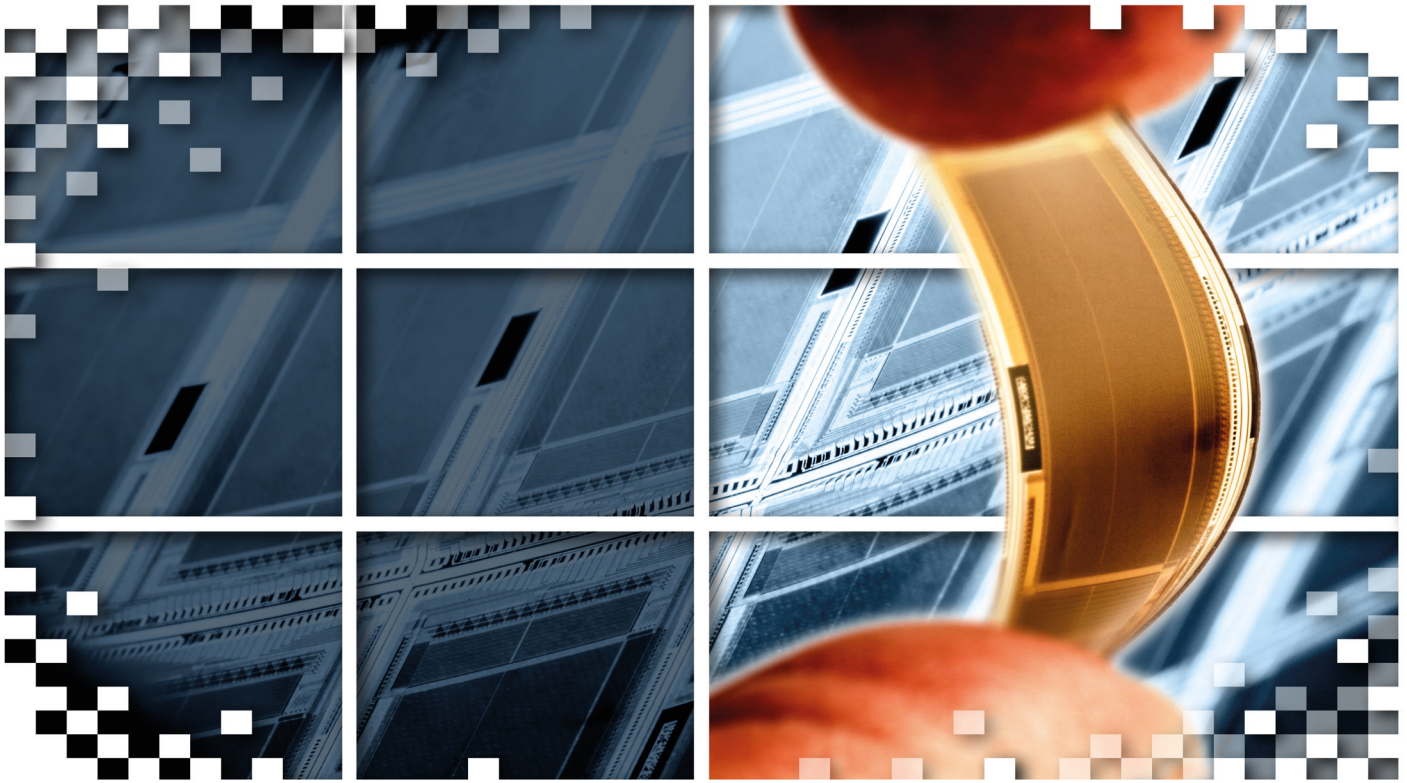




TECHNOLOGY AND PRODUCTS





> THE NEXT TECHNOLOGY ADVANTAGE

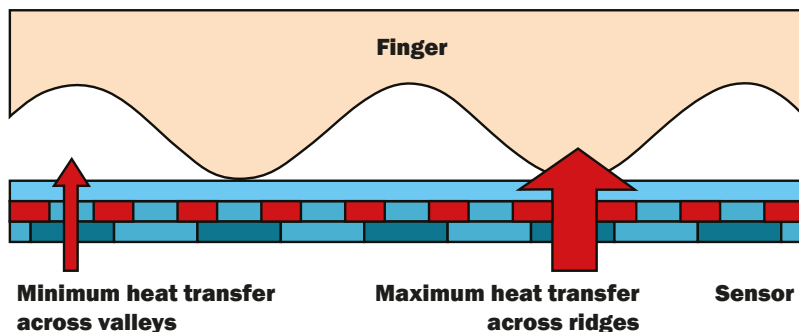
SENSING PRINCIPLE

NEXT Biometrics fingerprint sensor is based on patented NEXT Active Thermal™ sensing principle. The sensor measures heat conductivity. A low power heat pulse is applied to each sensor pixel over a short period of time and a response is measured. This response is different for pixels in proximity to a finger's ridge or valley.

Our custom ASIC is capable of reading, processing and communicating these signals in a high quality image to the host system. All this is done in a short period of time and without the user feeling any heat.



cross-section of fingerprint / sensor interface



PRODUCTION PROCESS

The highly robust analog signal created by our sensors and the simplicity of our pixel designs allow for a unique fit with LTPS Thin Film Transistors and Devices (LTPS: Low Temperature Poly Silicon) process. NEXT now mass produces its sensors in the same production lines used for high-end displays in world brand name smartphones, tablets and PC's.

COST ADVANTAGE OF LTPS (POLYSILICON) PRODUCTION PROCESS

The use of polysilicon process allows for great cost efficiency.

Large-sized display glass sheet is used as a substrate material on which the actual polysilicon sensors are being deposited.

This greatly reduces the cost per area when compared to common semi-conductor processes used to manufacture traditional silicon fingerprint sensors.

FLEXIBLE SENSOR OPPORTUNITIES

Another core advantage of the LTPS process is compatibility producing on flexible substrate as used e.g. in flexible displays.

NEXT has created a fully flexible sensor relying on the NEXT Active Thermal™ technology. It is designed to enable Biometric System-on-Card solutions compliant with ISO/IEC 17839.



> FOCUS ON NO-COMPROMISE LARGE SIZE FINGERPRINT SENSORS

AS FINGERPRINTING IS AN ANALOGUE APPLICATION, THE LAWS OF PHYSICS DICTATE THAT IF YOU REDUCE SENSOR SIZE, YOU SACRIFICE SECURITY OR CONVENIENCE.

FUNDAMENTALS

A fingerprint system captures our prints and locates a number of unique features (minutiae points or other characteristic patterns). From the locations of these points or patterns and their interrelations, the system assesses the probability that a finger presented to the sensor actually belongs to the rightful user of the system.

REAL LIFE CHALLENGES OF FINGERPRINT RECOGNITION

Fingerprinting in the lab differs from real life. In real life, a variety of challenges are present. These include non-uniform finger placements and varying finger environmental conditions (e.g. fingers become wet, dry, cut, dirty or worn). All of these conditions represent lost or false unique features in user's print. Sensors need to be large enough to compensate for these variations in finger condition; a fault tolerant system must include enough buffer capability to operate in a reliable fashion.



Universidad
Carlos III de Madrid

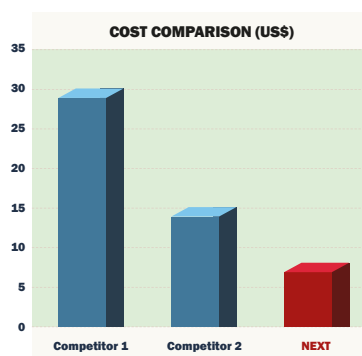
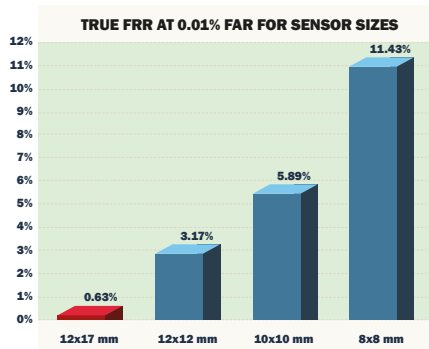
"THE MADRID REPORT"

Real life, comparative test of the world's leading quality finger area sensors.

- 180 000 fingerprints collected.
- 300 million comparisons computed.
- ISO best practices methodology applied.

NEXT sensors perform in line with much more expensive competitor quality finger area sensors.

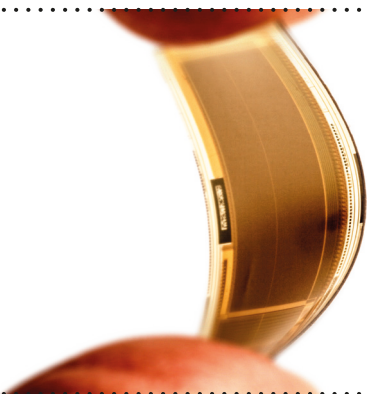
Using small area sensors has a dramatic impact on biometric performance.



NEXT FOCUS

At NEXT, we are focused at developing sensor solutions with large active area. This way, our sensors will work for a very high percentage of a population and enable very high level of user adoption.

> PRODUCT OFFERING FOR A WIDE RANGE OF APPLICATIONS

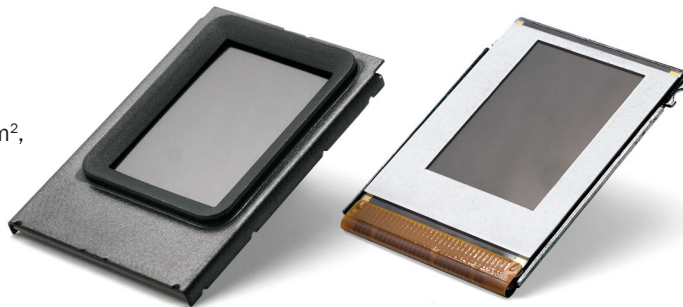


FOR SMARTCARD INTEGRATION

NB-0610-S flexible chipset is designed for integration into ISO/IEC 7810:2003 ID-1 compliant smart cards. It consists of two components: fully flexible fingerprint area sensor NB-S610-P2 and NB-A510-S Data Capture ASIC for digital processing of fingerprint data. The active capture area of 11.9 x 16.9 mm² meets and exceeds the ISO 17839-2:2015 requirements. Power consumption is below 40mA (including the NEXT Data Capture ASIC) and thus suitable for class B smart card readers. When integrated into smart cards, the chipset has been designed to withstand dynamic and torsional bending as per ISO/IEC 10373-1:2006.

FOR NOTEBOOKS, TABLETS AND OTHER HIGH VOLUME CONSUMER APPLICATIONS

NB-202x is a line of sensor products offering high quality fingerprint area sensors with active area of 11.9 x 11.9 mm² and 11.9 x 16.9 mm², yet with compact sensor dimensions. NB-202x modules connect to host system via a flex cable with either SPI or USB interface. NB-202x family is ready for Windows Biometric Framework (WBF) and Windows Hello. Drivers and SDKs for Android, Linux and embedded platforms are available.



FOR ACCESS CONTROL

NB-2023-S2-V and NB-2023-U2-V is a family of SPI and USB sensors designed for access control and point of sale (POS) applications. Sensors come with 11.9 x 16.9 mm² active capture area and compact dimensions. Sensor surface is equipped with a protective tape that enables IP55 rating in end products. This product line has been qualified for operating temperature range of -20° C to +60° C, UV light resistance and more than 2 million touches.

NB-3023-U2: DESKTOP USB SINGLE FINGERPRINT SCANNER

NB-3023-U2 is an ergonomic USB fingerprint reader. Thanks to its large active capture area of 11.9 x 16.9 mm² and robust design with added weight, it guarantees reliable, accurate fingerprint capture and intuitive user operation. It comes with a detachable USB cable and a micro USB receptacle to facilitate connectivity into variety of devices such as PCs and tablets. It is ideally suited for applications such as Windows logon, Single Sign-On (SSO), ID verification or time & attendance.

NB-3010-U2 comes with out of the box support of Windows Biometric Framework (WBF) and Windows Hello through Microsoft Windows Update service. Drivers and SDKs for Android and Linux are available.



Visit **www.nextbiometrics.com** or contact us:

NEXT BIOMETRICS AS c/o Regus Business Center, Filipstad Brygge 1, 0250 Oslo, Norway.

Europe, Middle East and Africa: +420 776018552, **China, India and Korea:** +86 21-5135-5878

Japan, Taiwan and South East Asia: +886 2 6600 9628, **Americas:** +1 510-918-6868

Copyright© 2016 NEXT BIOMETRICS GROUP ASA, all rights reserved. Specifications are subject to change without notice.

The NEXT Biometrics logo and NEXT Active Thermal are trademarks of NEXT BIOMETRICS GROUP ASA in Norway and other countries.

All other brand and product names are trademarks or registered trademarks of their respective owners. Document version: V1.0

