Embedded Wisely, Embedded Widely

eMemory's Solution for Fingerprint Sensor Application

Embedded NVM IP for Fingerprint Sensor Application

eMemory's embedded non-volatile memories (eNVMs), NeoBit and NeoEE, have been extensively used in not only capacitive fingerprint sensor, but also optical fingerprint sensor manufactured by CMOS image sensor process. The main functions of eNVM in fingerprint sensor are

- ❖ Parameters Trimming
- ❖ Product ID Storage
- ❖ Secret key Storage
- ❖ Firmware Storage

eMemory offers eNVM solutions for fingerprint IC sensor with the superior features of

- ❖ High Air Discharge Immunity
- ❖ Single Power Operation
- ❖ No Additional Mask
- ❖ In-field Programmability

High Air Discharge Immunity

eMemory's NVM IP for fingerprint sensor enjoyed the characteristic of high air discharge immunity. Customers can minimize the risk caused by air discharge during ESD test and end-user's daily usage of fingerprint sensor by using ememory's eNVM IP which had passed +/- 15KV air discharge test (IEC 61000-4-2, level4, air discharge).

Single Power Operation

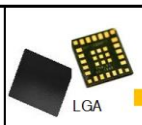
eMemory's eNVM solutions can support 1.8V single power operation. Compared to dual power operation, 1.8V single power operation not only can help to integrate with customer's fingerprint sensor IC more easily and more flexibly but also can save more power consumption.

No Additional Mask

eMemory's logic eNVM solutions fabricated in logic compatible process with no additional mask. Because of this characteristic, customer can easily integrate fingerprint sensor IC modules with eNVM function to save time and cost.

In-field Programmability

eMemory's NVM solutions with the built-in charge pump function facilitate customer to write ID and product information into eNVM even after packaging. This feature of in-field programmability for trimming and ID storage enhances the flexibility during fabrication. Multiple trimming is also available to improve yield at not only CP stage but also at every stage of fabrication.

Stage	 Design House	 Module Assembling	 End-Product Maker
Purpose / Feature	• Write ID • Trim Parameters (Improve CP yield) • Store secret key • 1.8V write	• Write ID • Trim Parameters (Improve module yield) • Store secret key • 1.8V write	• Write ID • Trim Parameters • Store secret key • 1.8V write

OTP/MTP Portfolio in Logic Platform

eMemory's eNVM solutions are comprehensively implemented in worldwide foundries and have been widely used by fingerprint sensor IC makers. By the end of 2017, over 12 fingerprint sensor IC makers fabricated their products with eMemory's eNVM solutions and over 50 fingerprint products including capacitive and optical types embedded NeoBit or NeoEE IPs.

