

# Simple, scalable, secure authentication for IoT devices and accessories



This ready-to-use, Common Criteria (CC) EAL6+ certified secure authenticator has an I<sup>2</sup>C target for easy connection to MCUs/MPUs and scales quickly to high volumes so manufacturers can quickly deliver IoT devices and accessories.

## Target applications

- Industrial
- Batteries and chargers
- Gaming accessories and peripherals
- Streaming boxes
- Gateways, routers
- Computer components
- Server components
- Medical accessories

As part of NXP's widely trusted family of EdgeLock discrete solutions, the EdgeLock A30 includes advanced security mechanisms, including AVA\_VAN.5, with symmetric and asymmetric crypto. It meets the need for secure accessory and device authentication in a range of markets, including gaming, computing, smart home and medical/

healthcare, while also satisfying new and upcoming regulatory requirements for security, protection, and sustainability.

## Key features

- Asymmetric authentication
- Key management and key provisioning via PKI
- Support for multiple crypto primitives
  - RNG (NIST SP800-90B)
  - SHA-256/384, HMAC and HKDF (RFC5869)
  - AES-128/256 (ECB, CBC, CMAC, CCM and GCM)
  - ECDSA, and ECDH over NIST P-256 and Brainpool P256r1
- CC EAL6+ AVA\_VAN.5 certified
- EdgeLock 2GO support for certificate generation and certificate delivery
- Companion chip to standard MCU or MPU
- 16 kB NVM memory
- I<sup>2</sup>C target (100kHz, 400 kHz or 1MHz)
- Two configurable GPIOs
- Extended temperature range (-40° C to +105° C)
- Available in WLCSP and HVQFN20 packages

## Key benefits

- Easy-to-use companion chip for standard MCUs/MPUs
- Quick design-in with dedicated product support package, including EdgeLock NX middleware
- Ready-to-use example code
- Scalable trust anchor for authentication devices

Device and accessory manufacturers are increasingly aware of the importance of secure authentication, and the ways it can help ensure brand protection, consumer safety, and product traceability, fostering trust and shielding from physical damage. By choosing an off-the-shelf, fully certified solution for secure authentication, developers get the added advantage of freeing up time so they can focus on innovation.

New and upcoming regulatory requirements, which emphasize device protection and sustainability as well as security, are another reason to use ready-made solutions for secure authentication. The EU's Batteries Regulation 2023/1542, for example, will require the use of a Digital Product Passport (DPP), digital record containing key information about a product's composition, origin and lifecycle, by 2027. A readily available, quickly scalable solution for secure authentication makes it easier to meet these new requirements.

The EdgeLock A30 supports multiple authentication use cases – device to device, device to cloud, counterfeit protection, and storage/protection of device identity – so developers can enable these functionalities in a variety of devices and accessories with a single solution.

## Device-to-cloud

For device-to-cloud authentication, the EdgeLock A30 offers an easy and secure way to identify and register devices to a service platform. It can store and protect keys and certificates of the connected object, and supports the TLS protocol used by the majority of cloud providers. NXP's secure infrastructure can be used to pre-inject credentials at the point of production of the devices or once objects are deployed in the field.

## Device-to-device

For device-to-device authentication, the EdgeLock A30 offers secure storage of device identity, confirms originality, and ensures trust. This makes it easier to license third-party devices, and provides assurance that communication channels between devices have been properly authenticated. These features apply to a very wide range of consumer, industrial and healthcare devices, and support use cases in everything from home appliances and

streaming devices to gaming accessories/devices, tablets, laptops, computer peripherals, server components, medical devices, IoT accessories, chargers and batteries.

## Digital product passports

When used to meet EU regulations for DPPs, the EdgeLock A30 simplifies development. In the case of batteries, for instance, the IC can be used to check the authenticity of the battery pack, leveraging a pre-provisioned OEM certificate stored in secure authenticator memory, thereby preventing clones and counterfeits from being used. Secure authenticator memory can also be used to store trusted battery passport data, and lifecycle data, relating to remanufacturing, reparability, re-use/re-sale/second life, and recyclability, can be added to memory, too.

## Flexible design-in

Designed as a companion chip, intended for use with widely available microcontrollers and microprocessors, the EdgeLock A30 includes an I<sup>2</sup>C target, offers 16 kB of memory, is available in small, lightweight WLCSP and HVQFN20 packages, and supports an extended temperature range of -40° C to +105° C.

## Secure operation

Offering a dedicated, safe environment for the secure storage for credentials, the IC complies with the latest security standards, is CC EAL6+ certified (including AVA\_VAN.5), and implements cryptography as specified in the current NIST and FIPS standards.

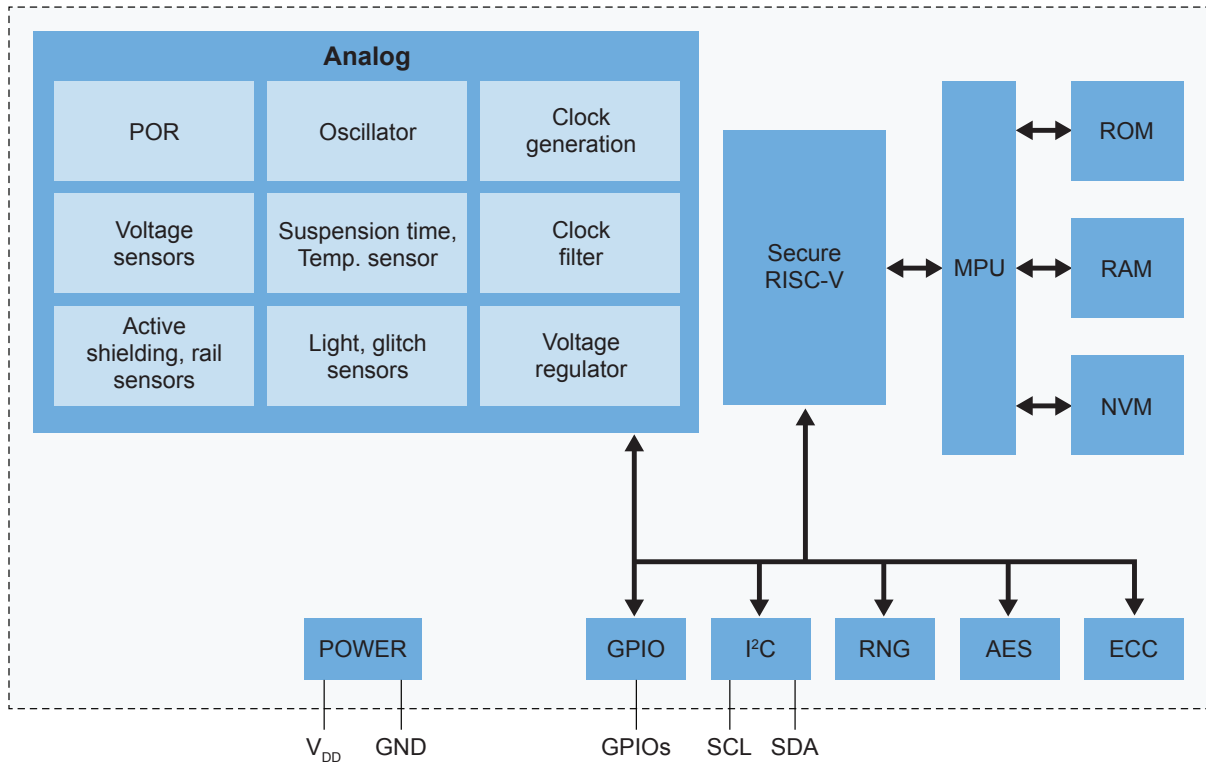
## Quick deployment

Asymmetric authentication simplifies key management and key provisioning using PKI (ECC p256), while secure credential delivery (UID list and certificates) and the EdgeLock 2GO cloud service for certificate generation and certificate delivery, simplifies deployment.

## Extensive support

A complete support package, including the EdgeLock NX middleware and EdgeLock A30 development kit accompanied by sample code, helps developers save time while adding secure authentication to their designs.

## EdgeLock A30 block diagram



 NXP technology

## Ordering information

Item	Orderable part number	Description	Temperature range	12NC
EdgeLock A30	A30LDJUK/2003J7	EdgeLock A30 in WLCSP package	-40° C to +105° C	9354 644 63019
EdgeLock A30 development kit	A30-EVAL	EdgeLock A30 development boards to connect to the host	-40° C to +105° C	9355 050 94598

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Document Number: EDGELCKA30FSA4 REV 2