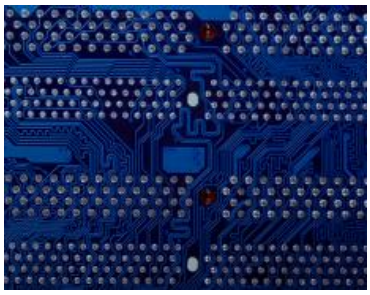
Anti-counterfeiting and anti-piracy technology guide

https://euipo.europa.eu/anti-counterfeiting-and-anti-piracy-technology-guide

Physical Unclonable Function (PUF)

Every RFID tag contains a chip. Every chip is unique, thanks to random, uncontrollable microscopic imperfections in the molecular structure of the material used to produce the chip. This uniqueness can be used to prove authenticity. PUF technology generates unique identifiers from the microscopic imperfections in chips. These identifiers can be stored in a secure database, where they are cross-checked to authenticate originals and detect cloned chips. PUF technology can be used with the chips on RFID tags in order to enhance the protections these tags offer against counterfeiting.



Used for

- Authentication
- Tracking/Tracing

Suitable for

- Very small products
- Small products
- Medium-sized products
- Large products

Goes on

- Product
- Packaging

Can be used for

- Physical products

Visibility

- Invisible

Reading device needed

- Yes

Connection to server

- Yes

Description

PUF technology is a new approach to unique chip identification, authentication and the generation of ‘on-chip’ keys (cryptographic keys for secure information exchange). There are several different types of PUF, but the most suitable for identifying and authenticating the chips embedded in RFID tags is silicon-based PUF technology. It generates wholly random unique identification codes for the chips based on their intrinsic physical variations. These codes represent a unique signature, enabling the chips to be subsequently identified and verified.

Uses

PUF technology is applied to the chip in an RFID tag. Therefore, it can be used in the same situations and for the same purposes as the particular type of RFID tag (passive, active, semi-passive) it is identifying and authenticating.

Implementation

Any changes that need to be made to the production process to implement this technology will depend on how you choose to attach the tag to the product.

Cost

The costs associated with PUF technology reflect those of the RFID tags (passive, active, semi-passive) it is used on.

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