



EM4582 – 125KHZ R/W AES128 Secure Transponder

General Description

The EM4582 is a contactless Read/Write RF transponders built by EM for application requiring high security level.

The module is equipped with an AES encryption unit, customer EEPROM, and 125kHz LF front end for a LF coil antenna, used for communication as well as wireless power supply. The IC is powered by harvesting energy from a continuous 125 kHz magnetic field via an external coil, which together with the integrated capacitor form a resonant circuit. The IC reads out data from its internal EEPROM and sends it out by switching on and off a resistive load in parallel to the coil using a large modulation index. Commands and EEPROM data updates can be executed by AM modulation of the 125 kHz magnetic field. Except for the coil inductor, all components are built in a single transponder with no external parts required.

The product is designed to answer specific applications requiring security control and access of all type and is also automotive compliant for immobilization applications.

Transponder Features

- | AES128 on chip encryption unit
- | Various types of AES authentication including MUTUAL authentication based on ISO9798-2 standard
- | 32 bits of Unique Identifier
- | Approx. 8.5kBits of free USER MEMORY (UM)
- | 32 bit password code and write protection
- | Power check for EEPROM write operation
- | EEPROM data retention of 20 years
- | Transmission rate of 4k bauds
- | FIPS-PUB 140-2 compliant True Random Number Generator (TRNG)
- | Integrated resonance capacitor of 200pF with $\pm 15\%$ tolerance
- | Typical operational temperature from -40°C to $+85^{\circ}\text{C}$
- | Delivery form of sawn Wafer

Applications

- | Car immobilizer
- | Building security access
- | Hotel room access
- | Company badges
- | Parking lot security and access

Ordering Information

The versions below are considered standards and should be readily available. For other versions or other delivery form, please contact EM Microelectronic-Marin S.A.

Part Number	Package Form	Delivery Form
EM4582-H5WS11E-001+	Gold bump	Sawn wafer

Typical Configuration

