



# 13.56MHz CRYPTO ISO15693 Compliant Contactless Identification Device

### General Description

The EM4035 is a CMOS integrated circuit intended for use in contactless Read/Write transponders. The EM4035 is completely ISO15693 compliant and is a member of ISO 15693 standard passive Read/Write RF tags operating at 13.56MHz.

The Chip contains an implementation of a crypto-algorithm with 96 bit of user configurable secret-Keys contained in EEPROM.

The 3.2k bit EEPROM memory contained in the chip is organized in 50 words of 64 bits, each word can be irreversibly locked. The memory contains a unique 64-bit serial number (UID).

An ISO 15693 anticollision algorithm allows operating more tags in the field simultaneously.

The 64bits UID as defined in ISO15693 standard is factory programmed and locked. It includes a 6 bits chip type and a 10 bits customer code made specific on request.

The resonant capacitor value is selected by metal mask.

### Applications

- High security hands-free access Control
- Anti-counterfeiting
- Ticketing
- Asset management

### Features

- ISO15693 Standard: Fully Compliant
- Operating Frequency: 13.56MHz ± 7KHz
- 64-bit Unique Identifier (UID)
- 3.2K bit EEPROM organised in 50 words of 64 bits
- Support Application Field Identifier (AFI)
- Smart Electronic Article Surveillance (EAS)
- On Chip Crypto-Algorithm
- Mutual authentication using symmetrical challenge / response exchange
- Power-check for EEPROM write operation
- Resonant capacitor integrated on chip 28pF or 95pF (selectable by mask option)
- No external supply buffer capacitor needed
- Very low Power consumption (no battery needed)
- 40 to +85°C Temperature range
- Bonding pads optimised for flip-chip assembly

### Typical Operating Configuration

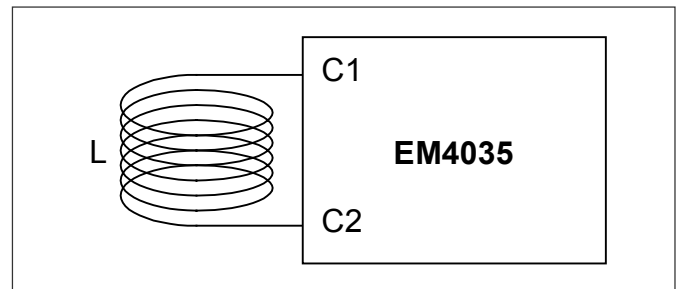


Figure 1.

### Block Diagram

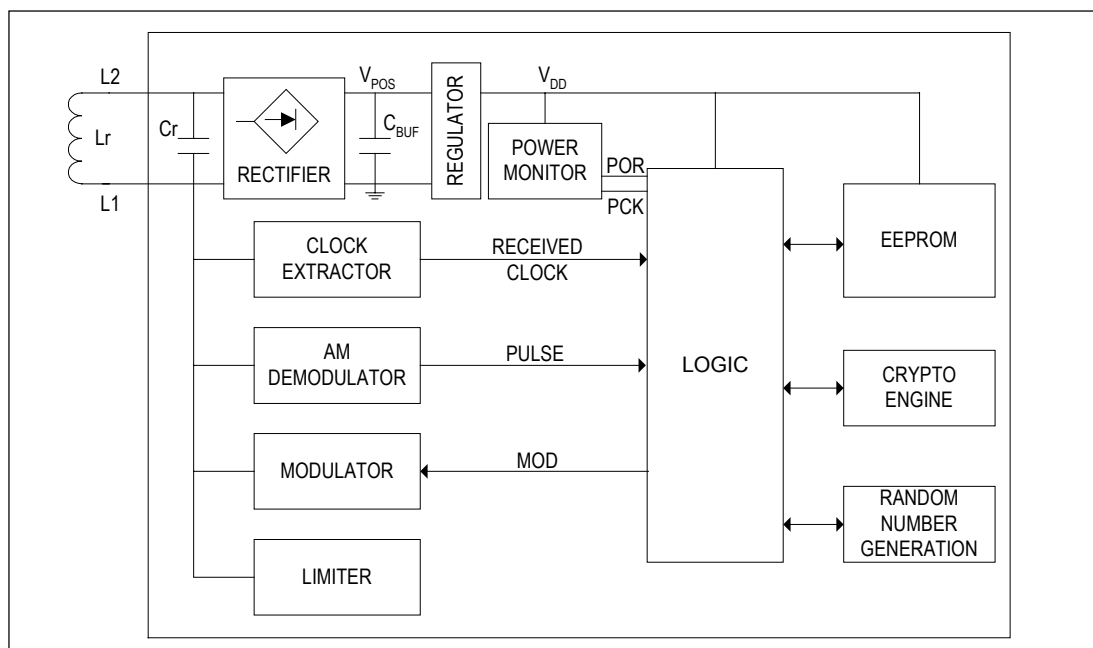


Figure 2.