



512 bit Read/Write Contactless Identification Device

Description

EM4205/4305 is a CMOS integrated circuit intended for use in electronic Read/Write RF transponders. It is suitable for low cost solutions like animal tagging applications. The IC communication protocol is compatible with EM4469/4569 family.

The main difference between the EM4205 and EM4305 is that:

- ❑ EM4305 are bumped with enlarged pads for the two coil inputs. The enlarged bumped pads of the EM4305 transponder are intended for direct antenna connection without need of a module support.
- ❑ EM4305 offers a 330pF resonant capacitor version

The IC is powered by picking the energy from a continuous 125 kHz magnetic field via an external coil, which together with the integrated capacitor form a resonant circuit. The IC read 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 100% AM modulation of the 125 kHz magnetic field.

The EM4205/4305 supports several Bi-phase and Manchester data encodings.

The EM4205/4305 operating modes are stored in the EEPROM configuration word. All EEPROM words can be write-protected by setting protection bits.

The IC contains a factory programmed 32 bit UID number.

Features

- ❑ 512 bit EEPROM organised in 16 words of 32 bit
- ❑ 32 bit unique identifier (UID)
- ❑ 32 bit Password read and write protection
- ❑ ISO 11784 / 11785 Standard Compliant
- ❑ Lock feature converts EEPROM words in Read Only
- ❑ Two data encodings: Manchester and Biphase
- ❑ Multi-purpose data rate: 8, 16, 32 and 64 RF clocks
- ❑ Reader Talk First feature
- ❑ Compatible with EM4469 communication protocol
- ❑ 100 to 150 kHz frequency range
- ❑ On-chip rectifier and voltage limiter
- ❑ No external supply buffer capacitor needed
- ❑ -40°C to +85°C temperature range
- ❑ Very low power consumption
- ❑ Enlarged bumped pads (200 µm x 400 µm) for direct connection of coil (EM4305)
- ❑ EM4205: 2 resonant capacitor versions 210pF or 250pF selectable by mask option
- ❑ EM4305: 3 resonant capacitor versions 210pF, 250pF or 330pF selectable by mask option

Applications

- ❑ Animal Identification according to ISO FDX-B
- ❑ Pigeon races standard
- ❑ Waste management standard (BDE)
- ❑ Access Control

Typical Operating Configuration

