General 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 the 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 avoiding the need of a module.
- EM4305 offers a 330pF resonant capacitor version

The IC is powered by picking up 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 100% AM modulation of the 125 kHz magnetic field.

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

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

Typical Configuration

Features
- 512 bit EEPROM organized 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 into Read Only
- Two data encodings: Manchester and Bi-phase
- Multi-purpose data rate: 8, 16, 32, 40 and 64 RF clocks
- Reader Talk First feature
- Compatible with EM4469/EM4569 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. The resonant capacitor can be trimmed, at factory level, to offer accuracy on the tolerance of 3%.

EM4305: 3 resonant capacitor versions 210pF, 250pF or 330pF selectable by mask option

Available in plastic extremely thin small outline package; 2 terminals; body 1.1 * 1.4 * 0.46 mm

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.

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