EM MICROELECTRONIC - MARIN SA

SWATCH GROUP ELECTRONIC SYSTEMS

512 bit Read/Write Contactless Identification Device

Description

EM4269 is a CMOS integrated circuit intended for use in electronic Read/Write RF transponders. It is compatible to EM4469/4569 family. It is intended for direct connection of coil to big bumps.

Comparing to EM4469/4569 family the changes are the following:

❑ New configuration bit co_{25} which inverts data input to encoder is introduced.
❑ Writing to Protection Word is modified.

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. Commands and EEPROM data updates can be executed by 100% AM modulation of the 125 kHz magnetic field.

There are several data rate and data encoding options available. Options are stored in EEPROM Configuration word. Read and write access to EEPROM can be protected by 32 bit password. All EEPROM words can be write protected by setting lock bits which transform them in read-only.

It contains factory programmed and locked 32 bit UID number, chip type and customer code. The resonant capacitor value is selected by metal mask.
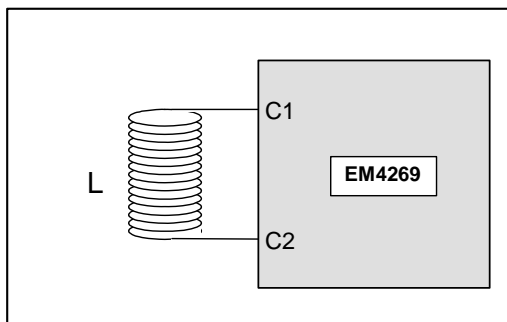
Features

❑ 512 bit EEPROM organised in 16 words of 32 bits
❑ 32 bit Password read and write protection
❑ 32 bit unique identification number (UID)
❑ 10 bit Customer code
❑ ISO 11784 / 11785 Standard Compliant
❑ Lock feature convert EEPROM words in read only
❑ Multi-purpose encoding (Manchester, Biphase, Miller, PSK, FSK)
❑ Multi-purpose data rate from 1 up to 32k baud
❑ 100 to 150kHz frequency range
❑ On-chip rectifier and voltage limiter
❑ No external supply buffer capacitor needed
❑ -40 to +85°C temperature range
❑ Very low Power consumption
❑ Big pads (200 μm x 400 μm) for direct connection of coil using bumps
❑ Resonant capacitor with options 330pF, 250pF and 75pF integrated on chip

Applications

❑ Access Control
❑ Animal Identification according to ISO FDX-B
❑ Material Logistics

Typical Operating Configuration

Fig 1

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