1KBIT Read/Write Contactless Identification Device with anticollision

Description

The EM4055 is a CMOS integrated circuit for passive read/write RF-transponders operating in the low frequency range (125kHz typically). The chip contains 1kbit of EEPROM which can be configured by the user allowing write inhibited words, read protected words and read area output continuously at power-on**.** The memory can be secured by using the 32-bit password for all write and read protected operations. The password can be updated but never read. The fixed code anticollision ID and device identification are programmed once, and then locked. The chip can be configured to start at power on in QUIET mode, or in Standard read mode. The EM4055 will transmit data to the reader by modulating the amplitude of the magnetic field, and receive data and commands by 100% modulation induced by the reader. Simple commands allow writing to EEPROM, updating the password, read a specific memory area, perform the anticollision procedure, and reset the logic. The coil and capacitor of the tuned LC circuit are the only external components required.

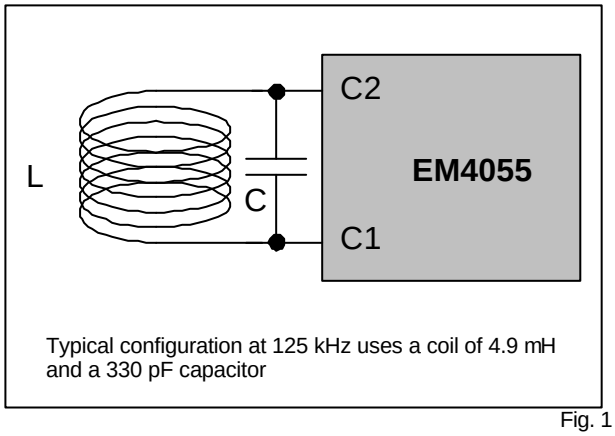
Applications

- Ticketing
- Hands free Access control
- Inventory Control
- Prepayment devices
- Manufacturing automation with portable database
- Industrial logistics

Features

- 1k bit EEPROM (32 words of 32 bit each)
- User defined Read memory area as default output
- User defined Write protected words
- User defined Read protected words
- Power-check before EEPROM Write operation
- 32 bits WORM anticollision ID
- 32 bits WORM device identification
- Fast Anticollision Protocol for a large number of Transponders
- Detection of Tag entering the field
- Data transmission performed by amplitude modulation Reader to transponder : ASK 100%, Transponder to Reader : ASK
- User selectable data-rate : RF/64 or RF/32
- 100kHz to 150kHz field frequency range
- On-chip rectifier and voltage limitation
- On-chip supply buffer capacitor
- Power-on Reset
- -40 to +85°C operating temperature range

Typical Operating Configuration



Typical configuration at 125 kHz uses a coil of 4.9 mH and a 330 pF capacitor

Fig. 1

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