Read-only UHF RFID IC

Description

The chip is used in passive UHF read-only transponder applications. It is powered up by an RF beam transmitted by the reader, which is received and rectified to generate a supply voltage for the chip. A pre-programmed code is transmitted to the reader by varying the amount of energy that is reflected back to the reader. It implements a robust and fast anti-collision protocol. The chip is frequency independent and can be used for RF coupled applications where reading ranges in excess of 10 m and reading rates of 120 tags per second at 256 kbit/s can be attained.
The chip is backscattering data using load modulation. Therefore the reader should be able to detect ASK and PSK modulated carrier.

Typical Applications

The chip is ideal for applications where long range, high-speed item identification is required:

- Supply chain management
- Tracking and tracing
- Access control
- Asset control
- Licensing
- Auto-tolling
- Animal tagging
- Sports event timing

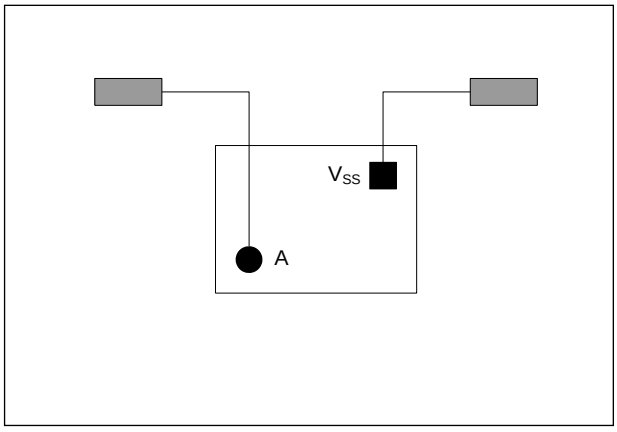
Benefits

- Anti-collision suited for fast moving objects
- Very low current consumption, long range solution
- Easy to use, only pure CW RFID reader needed (No dense reader mode issue)
- Protocol and coding backward compatible with EM4122 and EM4222
- Low cost solutions

Features

- Factory programmed 64 bit ID number
- High data rate: Up to 256 kbit/s
- Frequency independent: Typically used at 869 MHz, 902 - 960 MHz (versions 001 to 099)
- On-chip oscillator
- On-chip rectifier
- Low voltage operation - down to 1.0 V at ambient temperature
- Tag Talk Only protocol (TTO)
- Low power consumption
- -40° to +85° C operating temperature range

Typical Configuration



UHF transponders can be implemented using an EM4123 chip and an open dipole antenna.

Ordering Information

The versions below are considered standards and should be readily available. For the other delivery form, please contact EM Microelectronic-Marin S.A. Please make sure to give the complete part number when ordering.

Part Number	Version Number	Package/Die Form	Delivery form/Bumping
EM4123V002WW11	V002	Unsawn wafer	No bumps
EM4123V002WS7E	V002	Sawn wafer	Gold bumps
EM4123V004WW11	V004	Unsawn wafer	No bumps
EM4123V004WS7E	V004	Sawn wafer	Gold bumps
EM4123V005WS11E	V005	Sawn wafer	Gold bumps

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