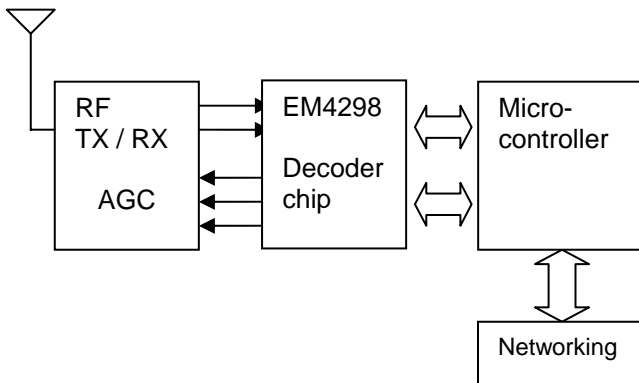# RFID UHF Reader Decoder Chip

Description

The EM4298 is a single chip decoder which enables a fast and cost-effective RFID UHF reader design. It supports all the air interfaces of the EM UHF RFID tags product range.

The total RFID UHF reader is built using the EM4298, an analog RF front-end with its antenna and a microcontroller for the supervision of the operation of the reader and its interconnection with the network.

The microcontroller's function is to remain a gateway to the upper level of the application:

- interface to the networking level,
- configure macro-functions in the decoder chip such as Inventory, Masked Inventory, Addressed Write, Addressed Read memory, Addressed Kill (chip permitting), Security functions and demand the macro-functions execution.

Chip Interfaces

- Analog RF front-end
  RX: 2 pins I and Q demodulator input (digital)
  TX: 1 pin modulator output
  RF ON / OFF
  TX ACTIVE
- Microcontroller
  8 bit asynchronous Data Bus bi-directional
  4 bit address Bus
  3 bit control bus – csn, rdn, wen
  1 bit interrupt
- External 16MHz or 20MHz or 24MHz clock
- Power supply 3.0 to 3.6V

Typical Applications

- Wireless communication
- Low cost multi-protocol UHF RFID reader devices
- Hand-held RFID reader devices

Package

- TSSOP28

Features

- Supports all EM RFID UHF tags air interfaces:
  - EM4122 (iP-X RO)
  - EM4444 (iP-X RW)
  - EM4223 (ISO18000-6A ; FST)
  - EM4324 (ISO18000-6C)

- ISO18000-6 type A, B and C (EPC C1G2) communication standard compliant
- Requires only the addition of RF front-end and a cheap uC supervision
- Software configuration of the forward and return link data-rates
- Buffer one word up to 552 bits
- Reset command on the Command bus
- Cost effective
- -40°C to +85°C operating temperature range

Benefits

- Low cost single chip decoder solution to build RFID UHF reader
- Air interface selectable by microcontroller
- Development kit available
- Anticollision algorithm supported
- ePC C1G2 bit rate upto 640kbps supported
- Statistics of errors on reception

Copyright © 2007, EM Microelectronic-Marin SA
Subject to change without notice
Rev. A, 11/07

Phone: +41.32.755-5111, Fax: +41.32.755-5403
www.emmicroelectronic.com
info@emmicroelectronic.com