Product Profile PCF7941

Security Transponder and RISC Controller, STARC lite

Features

- Compatible with Security Transponder, PCF7936AS.
- RISC Programmable Keyless Entry features
- 384 Bit EEPROM
- 16-Pin SO package

Transponder

- 64/32 bit mutual authentication calculation unit
- 32 bit unique device identification number
- 48 bit Secret Key
- Fast mutual authentication (39 ms)
- EEPROM read/write protection capability
- Excellent sensitivity in read and write mode (3 µT)

RISC Controller

- Advanced 8-bit RISC architecture
- 4 Kbyte ROM, 64 Byte RAM
- On-chip RC oscillator (±10%)
- Short instruction execution time (as fast as 1µs)
- 11 I/O ports, general purpose
- Code hopping based on transponder calculation unit
- Code hopping synchronization via transponder
- Clock input to serve as external data rate reference
- Programmable battery low detection
- Low power consumption (300 µA, PD 300 nA)
- Single battery cell operation (2.1V to 5.5V)
- Device supply can be derived from LF Field

General Description

The PCF7941 is a single chip high performance Security Transponder and Keyless Entry controller, ideally suited for vehicle immobilizer applications that incorporate keyless entry functions.

The transponder circuitry is compatible with the Security Transponder PCF7936AS, for use in mixed systems that employ a STARC and a standard Security Transponder, PCF7936AS, at the same time.

The Transponder circuitry meets the security and performance requirements of modern car immobilizer applications. Excellent device sensitivity and short authentication time ensure outstanding system performance. The Transponder circuitry does not require any battery supply and full operation is granted in a Keyless Entry battery low condition.

The RISC Controller circuitry is powered by an advanced low power 8-Bit RISC. The device features 11 I/O ports including up to four wake-up inputs for command button sensing.

Code hopping generation may employ the transponder Calculation Unit, while telegram transmission characteristics are controlled by the RISC. If the same security algorithm is applied for the Transponder and the Code Hopping function, separate Secret Keys are provided to ensure independent code characteristics. Contactless code hopping synchronization may be accomplished via the conatctless interface.

The system timing is derived from a low tolerant on-chip RC-Oscillator. If desired, an external data rate reference clock may be applied for use with common PLL transmitter devices.

Typical Application