Fully integrated remote keyless entry solutions

Ideal for today's advanced vehicle access applications, the PCF7961 security transponder, microcontroller and radio transmitter IC fits compact key designs and ensures cost-effective solutions.

Features
- Single-chip security transponder and keyless entry solution with on-chip UHF transmitter
- PCF7936/37 or PCF7938 (96-bit) family compatible transponder operation
- Low-power RISC programmable device operation
- On-chip, PLL-based UHF transmitter (315/434 MHz)
- Programmable ASK/FSK modulation characteristics
- Up to seven command button inputs
- On-chip memory
  - 8/16 Kbytes of E-ROM
  - 512 bytes of EEPROM, 192 bytes of RAM
- Single lithium cell operation (2.1 to 3.6 V)
- Package: TSSOP20 or LSP

Benefits
- Highly integrated for minimum board space and low bill of materials
- Easy application
- Low power consumption

Today's car buyers expect the convenience of a remote keyless entry system. NXP continues to reduce system cost for keyless entry and immobilization systems with the highly integrated PCF7961 family. Combining a security transponder, a RISC controller and a UHF transmitter, this family delivers a true single-chip solution. Based on NXP's low-power 8-bit microcontroller core, the family performs command button scanning and data framing according to application requirements. RISC timing is derived from an on-chip, low-tolerance RC oscillator with a programmable system clock as fast as 2 MHz. Generation of “keyless entry code hoping” can employ the hard-wired transponder calculation unit or any software-based algorithm, while synchronization can be achieved via the contactless transponder interface.

With the exception of a reference crystal and loop-antenna matching circuitry, the on-chip UHF transmitter requires no other external components. The RISC controller directly controls the UHF transmitter and supports ASK and FSK modulation with data rates up to 20 kbits/s (Manchester).
Powered by an external, single-cell lithium battery, the device features a power-down mode, which minimizes quiescent current.

The programmable power amplifier stabilizes the output power to minimize carrier, over-temperature and battery-voltage variations. Security transponder operation is compatible with the PCF7936/37 & PCF7938 families, for simple system upgrades. The transponder requires no battery supply, so full operation is guaranteed, even when the battery is low.

A complete suite of on-chip memory is available. For customer application software, up to 16 Kbyte of EROM are provided. For extended data storage, the device offers 512 bytes of on-chip EEPROM, with access control defined by the application.

PCF7961 block diagram