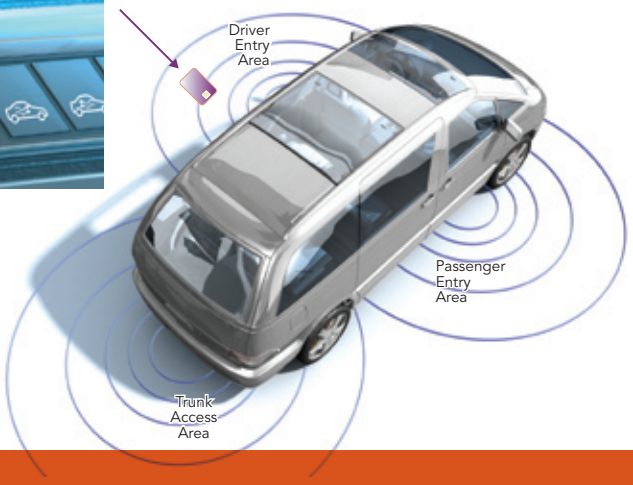


Passive Keyless Entry (PKE) solutions

Secure access that does not need the touch of a button

Passive Keyless Entry systems are the next step in automotive security and access. Offering the same high level of secure access that NXP Semiconductors' complete RF ID portfolio provides across all markets, our dedicated PKE chipset provides the security drivers demand while also enabling a range of convenience features such as one-touch ignition.

Features

- Single chip 3D LF and RISC controller chip
- NXP's product family compatible transponder operation
- Low power RISC programmable device operation
- Excellent LF sensitivity on the 3D LF channel
- Programmable and sophisticated LF wake-up detection
- LF RSSI feature for indoor/outdoor detection
- Proven solution with several design-ins

Benefits

- Low power consumption
- Highly integrated – minimum board space required
- Cost-efficient solution with low Bill of Materials
- Fully aligned with NXP's product family
- Easy application

Convenient vehicle security is often a primary consideration for both drivers and the automotive industry. RF Identification technology has been providing the security aspect with immobilization systems for some time, and now with the latest developments in Passive Keyless Entry controlled access could not be more convenient. PKE systems allow drivers to enter their vehicles without any explicit action to unlock them, as authorization is granted simply by carrying the appropriate ID device, or tag.

Passive Keyless Entry in action

As the driver enters the operating area of the PKE system and places their hand on the door handle, the ID device receives a low-frequency signal from the vehicle and if this signal matches the data stored the ID device is 'woken up'. This procedure ensures random noise or another signal cannot wake the device while also extending battery lifetime, and a 3 dimensional antenna input circuit guarantees the device can detect the wake-up signal no matter what its orientation.

NXP founded by Philips

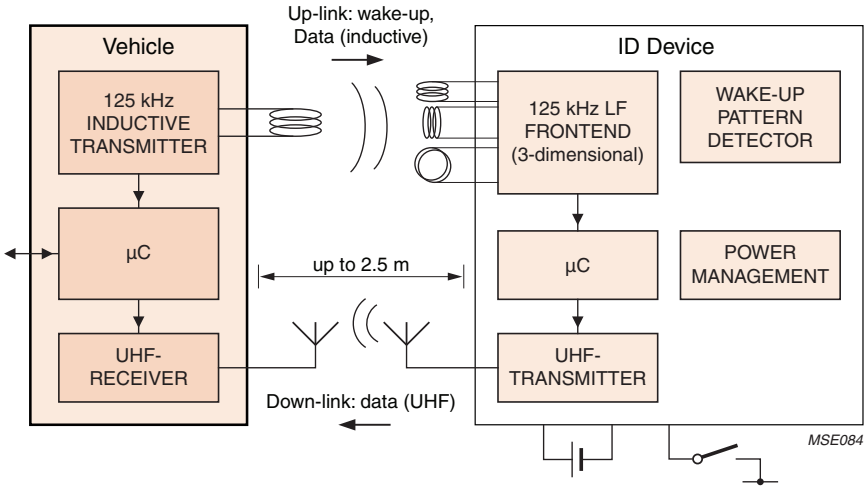
Once woken, the ID device analyzes the 'challenge' signal from the vehicle and sends back a 'response' signal, encrypted to increase security.
The vehicle then compares the response with internally stored information and, if authentication is successful, unlocks the door. As the entire process, from wake up to unlocking the door takes only a few milliseconds, drivers do not notice any delay between touching the handle and opening the door.

Once inside the car, the engine can be started by simply pressing the start button. The system first checks that the ID device is inside the car and not on the roof for example, then the same authentication procedure takes place and the engine is started. After leaving the vehicle, it can be locked by simply pressing the door handle – an inside/outside check is performed followed by authentication, before the vehicle is locked.

A lithium cell within the ID device provides power for wake up and the UHF response signal. The combination of LF challenge and UHF response gives a low power consumption and long battery life. A back-up mode enables the use of the PKE system even when the battery is low, with power being supplied to the ID device via the LF signal;
the device's response is then transmitted by modulation of the vehicles own LF signal. When being used in this back-up mode, the ID device must be placed close to the door antenna for entry and exit, or in a special area on the dashboard to start the vehicle.

Dedicated chipset for the securest solution

Drawing upon our world-class contactless ID transponder knowledge, NXP has developed a low power, highly integrated PKE solution with a well-defined operating range and minimal interference on other systems. This dedicated PKE chip incorporates a highly sensitive 3D LF front-end, sophisticated wake-up processor, immobilizer and Keyless Entry microcontroller. Based on our field proven 8-bit MICRO RISC KERNAL (MRK II) architecture, the PCF7952 features a hardware immobilizer security algorithm and supports the use of Receive Signal Strength Indication (RSSI) to determine the position of the ID device. Due to its high level of integration it reduces costs and making PKE systems an option for all model ranges.



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