NRG™ SLE 66R35x[1]

Features

- Intelligent 1 KB memory chip with NRG™ (ISO/IEC 14443-3 Type A with CRYPTO1) compatibility and
  - 4-byte fixed non-unique identification number
  - 4-byte fixed reused identification number
- Physical interface and anticollision compliant to ISO/IEC 14443-2 and -3 Type A
  - Operation frequency 13.56 MHz; data rate 106 kbit/s
  - Contactless transmission of data and supply energy
  - Anticollision logic: several cards may be operated in the field simultaneously
- Read and write distance up to 10 cm and more (influenced by external circuitry that is reader and inlay design)
- Short transaction times: typical ticketing transaction <100 ms; transaction possible when card is moving

Applications

- Weekly or seasonal cards for automatic fare collection (AFC)
- Event ticketing
- Access Control
- Micropayment

[1] NRG™ SLE 66R35x refers to NRG™ SLE 66R35R 4-byte fixed reused identity number (r-ID) and NRG™ SLE 66R35I 4-byte fixed number, non-unique (FNUID).

1 System overview

The system consists of a host system, which is a contactless Read/Write Device connected to a background system, the antenna and one or more NRG™ SLE 66R35x based tags or other ISO/IEC 14443-3 Type A compliant cards.

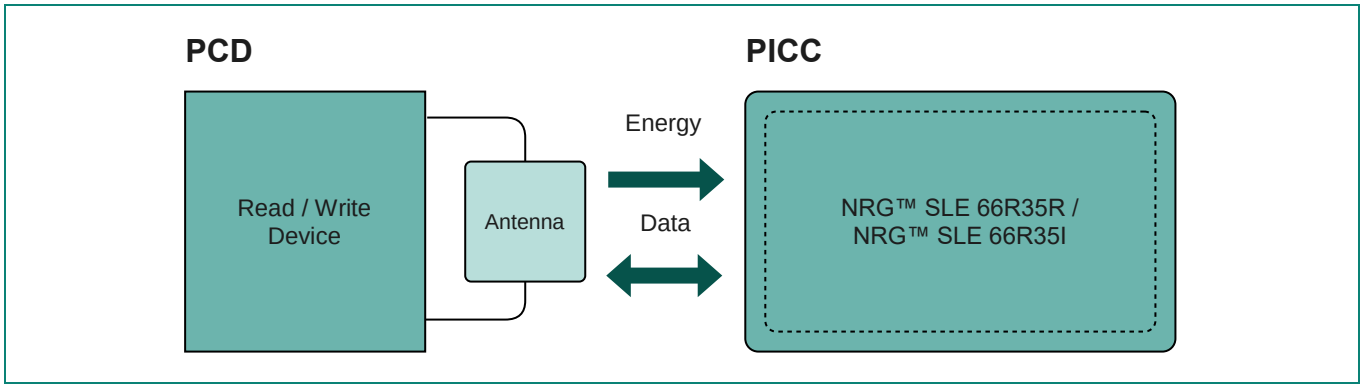


Figure 1 System overview

1.1 Description

The system consists of a smart card and a card reader together with an antenna. The card's antenna consists of a simple coil with a few turns embedded in plastic. The operating distance between card and reader antenna is up to 10 cm and more (influenced by external circuitry i.e. reader-antenna configuration).

The RF communication interface transmits at 106 kbit/s resulting in short transaction times, the effect being that a card user can move freely through a reader gate with minimum disruption. A typical ticketing transaction can be handled in less than 100 ms. Robust contactless transmission means that the card with NRG™ SLE 66R35x may also remain in the wallet of the user even if there are coins in it.

An intelligent anticollision function based on the chip single size identifier (uid0 – uid3) enables more than one card in the field to operate simultaneously. The anticollision algorithm selects each card individually and ensures that the execution of a transaction with a selected card is performed correctly without data corruption resulting from other cards in the field.

The NRG™ SLE 66R35x is designed to operate in an NRG™ (ISO/IEC 14443-3 type A with CRYPTO1) system. Each data transmission is enciphered. Protection from misuse is done by configurable access conditions that are protected by secret keys used for memory operations such as read or write.

Parametrics

Product name	NRG™ SLE 66R35x
Product description	Intelligent 1 KB memory chip with NRG™ (ISO/IEC 14443-3 type A with CRYPTO1) compatibility
Interfaces	ISO/IEC 14443-3 Type A
Symmetrical cryptography	Mutual three-pass authentication between card and reader for basic security
Ambient temperature	-25 to +70°C for the chip
System features	NRG™ (ISO/IEC 14443-3 type A with CRYPTO1)
Delivery forms	Sawn wafer, NiAu bump 20 µm (185 µm wafer thickness) MCC8-2-6
Typical applications	Transport ticketing, access control systems, AFC systems, and other smart card security applications

For further information on technology, delivery forms and conditions please contact your nearest Infineon Technologies sales representative (www.infineon.com)

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