

A microscopic view of a chip card IC, showing a complex array of circuitry and a grid of contact points. The image is rendered in a blue and white color scheme, highlighting the intricate patterns of the chip.

SRF 55V01P my-d light
Contactless Memories

Chip Card & Security ICs



Never stop thinking

SRF 55V01P Short Product Information**Revision History****Current version: 2005-07-29**

Previous Version: -

Chapter	Subjects (major changes since last revision)

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Edition 2005-07-29

Published by Infineon Technologies AG,
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To our valued customers

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Preliminary

Table of Contents

	Features	1-1
1	Ordering and Packaging Information	1-2
2	my-d light Product Description	1-3
2.1	Memory Organization	1-3
2.2	Contactless Energy and Data Transfer	1-3
2.3	Security Features	1-4
2.4	Data Integrity	1-4
2.5	System Overview	1-4
2.6	Command overview	1-5
2.7	Document References	1-5

Preliminary

Preliminary

Intelligent 576 bit EEPROM

with contactless interface complying to ISO/IEC 18000-3 mode 1

ISO compliant mode

Features

- **576 bit EEPROM**
 - Organized in 13 free user blocks
 - Each block organized in 4 bytes
 - Service area 12 bytes
 - User area 52 bytes
 - Unique chip identification number
- **Each block can be permanently locked against overwriting**
- **Physical interface and Anticollision complying to ISO/IEC 18000-3 mode 1**
 - Carrier frequency: 13.56 MHz
 - Data transfer rate: up to 26.69 kbit/s
 - Anticollision method compliant to ISO/IEC 18000-3 mode 1 with an identification rate of up to 30 tags/s
 - AFI according ISO/IEC 18000-3 mode 1
 - Contactless transmission of data and supply energy
 - Read and write distance of up to 1.5m and more (depending on reader and inlay design)
- **EAS (Electronic Article Surveillance) with use of the AFI byte**
- **EEPROM updating (erase and program) time maximum 4 ms per page**
- **EEPROM endurance minimum 100,000 write/erase cycles¹⁾**
- **Data retention for minimum of 10 years¹⁾**
- **ESD protection minimum 2 kV**
- **Ambient temperature -25...+70°C for chip**

¹⁾ Values are temperature dependent

Preliminary

1 Ordering and Packaging Information

Ordering Information

Type	Package	Remark	Ordering Code
SRF 55V01P NB	Die (on Wafer)	NiAu-Bump, sawn	on request

For more ordering information (wafer thickness and height of NiAu-Bump) please contact your local Infineon sales office.

Pin Description

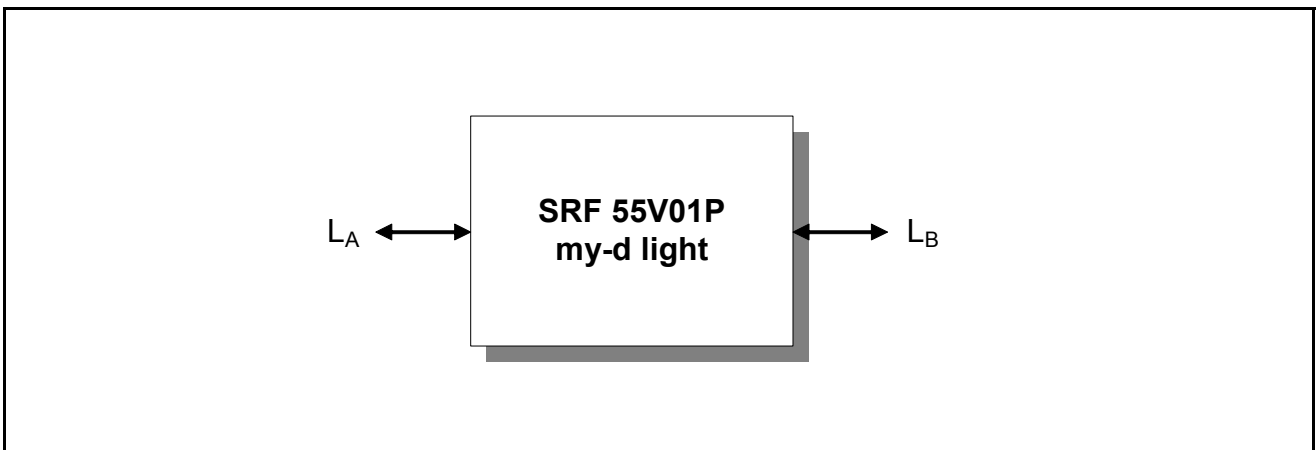


Figure 1-1 Pad Configuration Die

Table 1-1 Pin Definition and Function

Symbol	Function
L_A	Antenna connection
L_B	Antenna connection

2 Product Description

The my-d light is designed to fulfill the increased demand for cost optimized RFID applications. Its design is based on power efficiency and size. The my-d light is part of the my-d product family.

The my-d light is compliant to ISO/IEC 18000-3 mode 1 for optimum compatibility in existing and new solutions. Its standardized command frame easily allows the commencement of new projects using existing RFID reader infrastructure.

In addition to the 64 bit unique identifier (UID), 52 bytes of user memory are free for user data.

Security within my-d light is provided by an unique Identification number, which is issued at manufacturing and cannot be changed afterwards. In addition, each memory block can be separately locked to prevent data being overwritten.

2.1 Memory Organization

The user memory of the SRF 55V01P is organized in 13 blocks starting at address 0. One block consists of 4 bytes (32 bits) each. The UID is located on two blocks and three blocks are reserved for administrative purpose.

2.2 Contactless Energy and Data Transfer

The operating distance between label and reader antenna is typically up to 1.5m depending on reader and inlay design. The label antenna consists of a simple coil with few turns. The SRF 55V01P is a passive label which is powered contactlessly by the reader antenna and operates without a battery.

The RF communication interface enables data exchange up to 26.69 kbit/s as defined in ISO/IEC 18000-3 mode 1. An intelligent anticollision function permits operation of more than one label in the field simultaneously. The anticollision algorithm identifies each label individually and ensures that the execution of a transaction with a selected label is performed correctly. The data integrity is checked using a CRC calculation on the data transmitted to prevent data corruption.

2.3 Security Features

The serial number is unique for each card and cannot be changed. The user memory can be changed freely. Each user memory block can be permanently locked against overwriting.

2.4 Data Integrity

Following data integrity features are implemented

- 16 bit CRC according ISO/IEC 13239
- Channel monitoring

2.5 System Overview

The system consists of a contactless label (chip and antenna) on the one hand and a contactless RFID reader together with an antenna and a background system on the other.

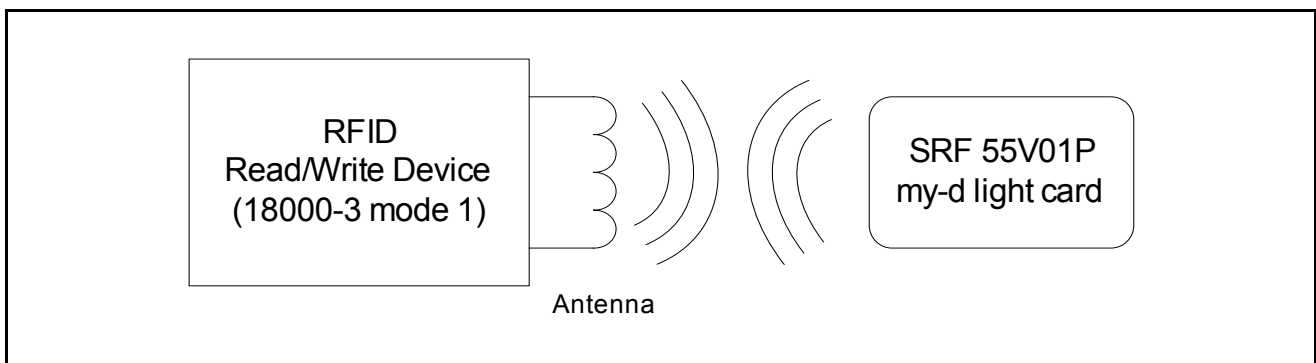


Figure 2-1 Contactless system example

Preliminary

Command overview

2.6 Command overview

Table 2-1 Command overview

Command	Description
Inventory	according ISO/IEC 18000-3 mode 1
Stay Quiet	according ISO/IEC 18000-3 mode 1 ¹⁾
Read Single Block	according ISO/IEC 18000-3 mode 1
Write Single Block	according ISO/IEC 18000-3 mode 1
Select	according ISO/IEC 18000-3 mode 1
Reset to Ready	according ISO/IEC 18000-3 mode 1
Write AFI	according ISO/IEC 18000-3 mode 1
Lock AFI	according ISO/IEC 18000-3 mode 1
Write Byte	my-d vicinity custom command

¹⁾ enhanced

2.7 Document References

- Confidential Data Sheet
- Chip delivery specification for wafer with chip layout (die size, orientation,...)
- ISO/IEC 18000-3 mode 1

<http://www.infineon.com/contactless>