



INTEGRATED SILICON SOLUTION, INC.

IS23SC4456 Datasheet



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1 Introduction

IS23SC4456 is targeting at contactless smart card applications such as e-transfer, e-ticket, electronic purse, security access and multi-applications in one-card purposes.

IS23SC4456 offers 8K bytes of STS-ROM, 24K bytes of User-ROM (for user COS debugging purpose, an emulation IC whose user-ROM is replaced with EEPROM can be provided), 256 bytes internal RAM, 768 bytes XRAM, 256 bytes RF-buffer and 8 Kbytes EEPROM, which can be used as both data and program memory. The non-volatile memory consists of high reliability cells to guarantee data integrity. This is especially important when the EEPROM is used as program memory.

IS23SC4456 RF interface conform to ISO/IEC 14443 type A, and fully compliant with S50.



2 Features

2.1 Basic

- 0.18u EEPROM technology
- Conform to ISO14443 type A, and fully compliant with S50
- 8-bit low power Turbo 8051 CPU
- ESD protection greater than 6KV (HBM)
- Support ISO14443-4, and 106Kbps and 212Kbps transmission

2.2 Memory

- 8K bytes EEPROM
- 24K bytes user ROM, 8K bytes STS ROM
- 256 bytes SRAM, and 1K bytes XRAM (768 bytes common XRAM + 256 bytes RF-buffer)
- Flexible EEPROM page mode from 1 to 32 bytes
- Typical EEPROM program time < 5 ms @ 1.8V
- EEPROM data retention minimum 10 years
- EEPROM minimum program cycles: 100,000

2.3 Security feature

- MOVN block from 8K-EEPROM code
- Memory encryption without performance penalty
- Address and data scramble
- Low voltage sensor
- Triple DES
- Cipher stream mechanism
- True random number generator



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3 Pin assignment

Pin Name	Function	Special Note
RF1	Coil connection pin RF1	
RF2	Coil connection pin RF2	



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4 Characteristics

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.
Operating frequency		12.56MHz	13.56MHz	14.56MHz
Input capacitance	22°C, 13.56MHz, 2V	14.40pf	15.90 pf	17.4pf
ESD	HBM	6 kV		
EEPROM write time			3.0ms	5.0ms
EEPROM data retention		10 years		
EEPROM write endurance		100,000 cycles		
Working distance				10.0cm
Resonance frequency			16.0MHz	