

GT23SC4455 Datasheet
(4K bytes EEPROM)

1 Introduction

GT23SC4455 is targeting at contactless smart card applications such as e-transfer, e-ticket, electronic purse, security access and multi-applications in one-card purposes.

GT23SC4455 offers 32K 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 4 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.

GT23SC4455 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,212Kbps and 424Kbps transmission

2.2 Memory

- 4K bytes EEPROM
- 32K bytes user 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 < 2 ms @ 1.8V
- EEPROM data retention minimum 10 years
- EEPROM minimum program cycles: 100,000

2.3 Security feature

- MOVC block from 4K-EEPROM code
- Memory encryption without performance penalty
- Address and data scramble
- High/Low voltage sensor
- DES/Triple DES
- Cipher stream mechanism
- True random number generator
- DPA/SPA

3 Pin assignment

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

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			2.0ms	3.0ms
EEPROM data retention		10 years		
EEPROM write endurance		100,000 cycles		
Working distance				10.0cm
Resonance frequency			16.0MHz	