Giantec Semiconductor Inc.

GT23SC4458 Datasheet
(16K bytes EEPROM)

1 Introduction

GT23SC4458 is targeting at contactless smart card applications such as e-transfer, e-ticket, electronic purse, security access and multi-applications in one-card purposes.

GT23SC4458, 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, 2048 bytes XRAM and 16 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.

GT23SC4458 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

- 16K bytes EEPROM
- 32K bytes user ROM
- 256 bytes SRAM, and 2048 bytes XRAM
- 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 16K-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	