SIEMENS

ICs for Chip Cards

Intelligent 221-Bit EEPROM Counter
for > 20000 Units with Security Logic and
High Security Authentication

SLE 553x Eurochip II

Short Product Information 08.96

SLE 553x Eurochip II **Revision History: Original Version**	
Previous Releases:	
Page	Subjects (changes since last revision)

Important:	For further information please contact: Siemens Semiconductor Group in Munich, Germany, Key Account Service Chip Card ICs The supply of this component does not include a licence for its use in smart card applications. This licence is due to: INNOVATRON Patents 137 Boulevard de Sébastopol, 75002 Paris, France, Fax + 33 1 40 13 39 09

Edition 08.96

This edition was realized using the software system FrameMaker®.

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Balanstraße 73, 81541 München

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The information describes the type of component and shall not be considered as assured characteristics.

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For questions on technology, delivery and prices please contact the Semiconductor Group Offices in Germany or the Siemens Companies and Representatives worldwide (see address list).

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Siemens Office, Semiconductor Group.

Siemens AG is an approved CECC manufacturer.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport.

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2 Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.

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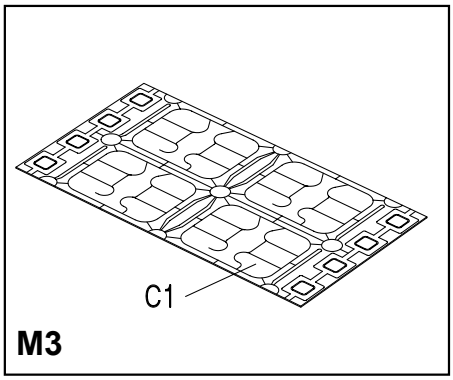
Features



M3

- **221 bit EEPROM and 16 bit mask-programmable ROM**
  104 bit user memory fully compatible with SLE 4406
  - 64 bit Identification Area
  - 40 bit Counter Area including 1 bit for personalization

  133 bit additional memory for advanced features
  - 4 bit Counter Backup (anti-tearing flags)
  - 1 bit Initiation Flag for Authentication Key 2
  - 16 bit Data Area 1 for free user access
  - 48 bit Authentication Key 1
  - either 64 bit Data Area 2 for user defined data
  - or 48 bit Authentication Key 2
- **Counter with up to 33352 count units fully compatible with SLE 4406**
  - Due to testing purposes a maximum of 21064 count units is guaranteed
- **Counter tearing protection**
  - Backup feature activated at choice
- **High security authentication unit**
  - Random number as challenge
  - Individual secret Authentication Key 1
  - Optional individual secret Authentication Key 2
  - Calculation of up to 16 bit response

  Optional activation of
  - Response calculation with cipher block chaining
  - Certification of the counter value
- **Transport Code protection for delivery**
- **Chip layout of security relevant areas protected against physical/electrical signal analysis**
- **Supply voltage 5 V $\pm$ 10 %**
- **Supply current < 5 mA**
- **EEPROM programming time 5 ms**
- **ESD protection typical 4000 V**
- **Endurance minimum of 10^5 write/erase cycles per bit** [1)]
- **Data retention for minimum of 10 years** [1)]
- **Contact configuration and serial interface according to ISO standard 7816 (synchronous transmission)**

1) Values are temperature dependent, for further information please refer to your Siemens Sales Office

Type	Ordering Code	Package
SLE 553x M3.2	on request	Wire-Bonded Module M3.2
SLE 553x C	on request	Chip

1 Pin Configuration

(top view)

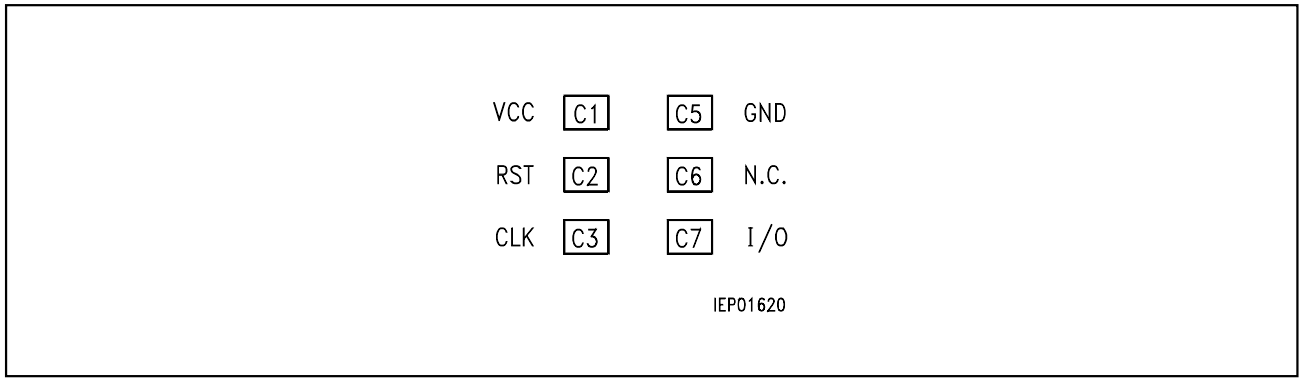


Figure 1

Pin Definitions and Functions

Parameter	Symbol	Test Condition
C1	VCC	Supply voltage
C2	RST	Control input (reset signal)
C3	CLK	Clock input
C5	GND	Ground
C6	N.C.	Not connected
C7	I/O	Bidirectional data line (open drain)

SLE 553x is available as a M 3 wire-bonded module for embedding in plastic cards and as a die for customer packaging.