



Infineon Chip Card and Security ICs Portfolio

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Contactless memories

	my-d™ light	my-d™ vicinity plain			
Product name	SRF 55V01P	SRF 55V02P	SRF 55V02P HC	SRF 55V10P	SRF 55V10P HC
Product description	Plain memory, 576-bit EEPROM	Plain memory, 2.5kbit EEPROM	Plain memory, 2.5kbit EEPROM	Plain memory, 10kbit EEPROM	Plain memory, 10kbit EEPROM
Interface	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1
Memory organization	1 fixed sector	1 fixed sector	1 fixed sector	1 fixed sector	1 fixed sector
Counter	–	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing
Operating frequency	13.56MHz	13.56MHz	13.56MHz	13.56MHz	13.56MHz
EEPROM – user	52Byte	224Byte	224Byte	992Byte	992Byte
EEPROM – administration	20Byte	64Byte	64Byte	256Byte	256Byte
Security features	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking
Distance (read/write)	Typically up to 1.5m ¹⁾	Typically up to 1.5m ¹⁾	Typically up to 1.5m ¹⁾	Typically up to 1.5m ¹⁾	Typically up to 1.5m ¹⁾
Data rate	26.48kbit/s	26.48kbit/s	26.48kbit/s	26.48kbit/s	26.48kbit/s
Anti-collision	Yes	Yes	Yes	Yes	Yes
Ambient temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
Read/write cycles	100,000	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years	10 years
Delivery forms	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8
Tools	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™
Typical applications	Libraries, Supply Chain Management	Libraries, Inventory Control	Laundry, CD Inlays	Libraries, Inventory Control	Factory Automation, Inventory Control

1) Depending on reader system and tag antenna configuration

2) NFC compatible. This product is compliant with ISO/IEC and ECMA standards as stated in the respective product specifications, allowing for building NFC devices as defined by the NFC Forum.

PJM StackTag® and PJM ItemTag® are registered trademarks of Magellan Technology Pty Ltd. Corp.

my-d™ vicinity secure				PJM ItemTag® and PJM StackTag®	
SRF 55V02S	SRF 55V02S HC ^{new}	SRF 55V10S	SRF 55V10S HC ^{new}	SRF 66V10 IT	SRF 66V10 ST
Security memory with authentication, 2.5kbit EEPROM	Security memory with authentication, 2.5kbit EEPROM	Security memory with authentication, 10kbit EEPROM	Security memory with authentication, 10kbit EEPROM	Plain memory, 10kbit EEPROM	Plain memory, zero separation stackability, 10kbit EEPROM
ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 2	ISO/IEC 18000-3 mode 2
Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	1 fixed sector	1 fixed sector
Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	–	–
13.56MHz	13.56MHz	13.56MHz	13.56MHz	13.56MHz	13.56MHz
224Byte	224Byte	992Byte	992Byte	1,016Byte	1,016Byte
64Byte	64Byte	256Byte	256Byte	14Byte	14Byte
Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Unique serial number, lock pointer, 48-bit write password	Unique serial number, lock pointer, 48-bit write password
Typically up to 1.5m ⁻¹	Typically up to 1.5m ⁻¹	Typically up to 1.5m ⁻¹	Typically up to 1.5m ⁻¹	Typically up to 1m ⁻¹	Typically up to 1m ⁻¹
26.48kbit/s	26.48kbit/s	26.48kbit/s	26.48kbit/s	423.75kbit/s to card, 105.94kbit/s to reader @ 8 channels	423.75kbit/s to card, 105.94kbit/s to reader @ 8 channels
Yes	Yes	Yes	Yes	Yes	Yes
-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
100,000	100,000	100,000	100,000	100,000	100,000
10 years	10 years	10 years	10 years	10 years	10 years
Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump, module MCC2, MCC8	Wafer, NiAu-bump	Wafer, NiAu-bump
Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit PJM	Evaluation Kit PJM
Ticketing, Brand Protection	Ticketing, Brand Protection	Ticketing, Brand Protection	Ticketing, Brand Protection	Factory Automation, Production Control	Pharmaceuticals, Document Logistics

Contactless memories

	PJM Light	my-d™ NFC		
Product name	SRF 66V01 ST	SLE 66R04P	SLE 66R16P	SLE 66R32P
Product description	Plain memory, zero separation stackability, 1kbit EEPROM	Plain memory, 770Byte EEPROM	Plain memory, 2,560Byte EEPROM	Plain memory, 5,120Byte EEPROM
Interface	ISO/IEC 18000-3 mode 2	ISO/IEC 14443-3 type A	ISO/IEC 14443-3 type A NFC Forum type 2 tag operation	ISO/IEC 14443-3 type A NFC Forum type 2 tag operation
Memory organization	1 fixed sector	1 fixed sector	1 fixed sector TT2 sector (up to 1Kbyte)	1 fixed sector TT2 sector (up to 2Kbyte)
Counter	–	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing
Operating frequency	13.56MHz	13.56MHz	13.56MHz	13.56MHz
EEPROM – user	114Byte	592Byte	2,024Byte	4,072Byte
EEPROM – administration	14Byte	178Byte	536Byte	1,048Byte
Security features	Unique serial number, lock pointer, individual locking 48-bit write password, cover coding	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking
Distance (read/write)	Typically up to 0.5m ¹⁾	Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾
Data rate	423.75kbit/s to card, 105.94kbit/s to reader @ 8 channels, or 423.75kbit/s to reader @ 1 channel	105.94kbit/s to card up to 848kbit/s to reader	105.94kbit/s to card up to 848kbit/s to reader	105.94kbit/s to card up to 848kbit/s to reader
Anti-collision	Yes	Yes	Yes	Yes
Ambient temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
Read/write cycles	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	Wafer, NiAu-bump	Wafer, NiAu-bump, module MCC8, MCC2	Wafer, NiAu-bump, module MCC8, MCC2	Wafer, NiAu-bump, module MCC8, MCC2
Tools	Evaluation Kit PJM	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™
Typical applications	Document Logistics, Healthcare Mangament	“Smart” Posters, Consumer Goods Information	“Smart” Posters, Consumer Goods Information	“Smart” Posters, Consumer Goods Information

1) Depending on reader system and tag antenna configuration

2) NFC compatible. This product is compliant with ISO/IEC and ECMA standards as stated in the respective product specifications, allowing for building NFC devices as defined by the NFC Forum.

Mifare™ is a trademark of NXP B.V.

my-d™ proximity 2 ³⁾			my-d™ move	SLE 66R35
SLE 66R04S	SLE 66R16S	SLE 66R32S	SLE 66R01P new	SLE 66R35
Security memory with authentication, 770Byte EEPROM	Security memory with authentication, 2,560Byte EEPROM	Security memory with authentication, 5,120Byte EEPROM	Intelligent 1,216-bit EEPROM	Intelligent 1kByte EEPROM using Mifare™ technology
ISO/IEC 14443-3 type A	ISO/IEC 14443-3 type A	ISO/IEC 14443-3 type A	ISO/IEC 14443-3 type A NFC Forum type 2 tag operation	ISO/IEC 14443-3 type A
Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	1 fixed sector	16 fixed sectors
Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	16-bit counter with anti-tearing support	–
13.56MHz	13.56MHz	13.56MHz	13.56MHz	13.56MHz
576Byte	2,008Byte	4,056Byte	128Byte	768Byte
194Byte	552Byte	1,064Byte	24Byte	256Byte
Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Transport key, unique serial number, mutual authentication with 64-bit keys, hierarchical key management	Unique serial number, individual page locking, block locking, 32-bit password protection for read and/or write access, password retry counter	Transport code, unique serial number, mutual three pass authentication with 48-bit keys
Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾	Typically up to 10cm and above ¹⁾
105.94kbit/s to card up to 848kbit/s to reader	105.94kbit/s to card up to 848kbit/s to reader	105.94kbit/s to card up to 848kbit/s to reader	105.94kbit/s to card	106kbit/s
Yes	Yes	Yes	Yes	Yes
-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
100,000	100,000	100,000	10,000	100,000
10 years	10 years	10 years	5 years	10 years
Wafer, NiAu-bump, module MCC8, MCC2	Wafer, NiAu-bump, module MCC8, MCC2	Wafer, NiAu-bump, module MCC8, MCC2	Wafer, NiAu-bump	Wafer, NiAu-bump, module MCC8, MCC2
Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit my-d™	Evaluation Kit proximity light
Transport, Event Ticketing	Transport, Event Ticketing	Transport, Event Ticketing	Transport, Event Ticketing	Transport, Access Control

Dual-interface/contactless Controller

SLE 66CLxxxPE

Product name	SLE 66CL41PE ¹⁾	SLE 66CL80PE (M/S) ¹⁾	SLE 66CL81PE (M) ¹⁾
Product description	Pure contactless security controller	Dual-interface security controller	Pure contactless security controller
RF Interface	ISO/IEC 14443 type B & A	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A Mifare™ compatible interface
Baud rate (kbit/s)	Up to 848kbit/s	Up to 848kbit/s	Up to 848kbit/s
User-ROM	92kByte	92kByte (88kByte) ²⁾	92kByte (88kByte) ²⁾
EEPROM	4kByte	8kByte (+ 1kByte for M) ²⁾	8kByte (+ 1kByte for M) ²⁾
RAM	2kByte XRAM, 256Byte IRAM	2kByte XRAM, 256Byte IRAM	2kByte XRAM, 256Byte IRAM
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	–	–	–
Clock (int.)	1–30MHz	1–30MHz	1–30MHz
Clock (ext.)	–	1–7.5MHz	–
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. sleep mode current (typ.)	100µA	100µA	100µA
Ambient temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C
EEPROM Programming Time @ contactless operation	< 2.3ms (typ.)	< 2.3ms (typ.)	< 2.3ms (typ.)
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 64Byte
Security features	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	CRC, PLL	CRC, PLL, UART DF 8	CRC, PLL
Delivery forms	Contactless module MCC8, die, bumped wafer	Module M8.4, die, bumped wafer	Contactless module MCC8, die, bumped wafer
Typical applications	Payment, PayPass Magstripe, VISA MSD, EMV SDA, ePurse, Loyalty, Access Control, Driver's License, Transport	Payment, EMV SDA, ePurse, Loyalty, Access Control, Driver's License, Transport	Payment, EMV SDA, ePurse, Loyalty, Access Control, Driver's License, Transport
Tools	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

1) For sub ID1 dedicated products

2) If Mifare™ compatible interface is used

SLE 66CL180PE (M/S) ¹⁾	SLE 66CLX126PE (M/S) ¹⁾	SLE 66CLX206PE (M/S) ¹⁾	SLE 66CLX360PE (M/S)
Dual-interface and contactless security controller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	iSO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface
Up to 848kbit/s	Up to 848kbit/s	Up to 848kbit/s	Up to 848kbit/s
92kByte (88kByte) ²⁾	156kByte (152kByte) ²⁾	196kByte (192kByte) ²⁾	240kByte (236kByte) ²⁾
18kByte (16kByte + 1kByte for M) ²⁾	12kByte (12kByte + 1kByte for M) ²⁾	20kByte (18kByte + 1kByte for M) ²⁾	36kByte (36kByte + 1kByte for M) ²⁾
2kByte XRAM, 256Byte IRAM	4kByte XRAM, 700Byte Crypto, 256Byte IRAM	6kByte XRAM, 700Byte Crypto, 256Byte IRAM	6kByte XRAM, 700Byte Crypto, 256Byte IRAM
8-bit/16-bit	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
3DES	3DES	3DES	3DES
–	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
1–30MHz	1–30MHz	1–30MHz	1–30MHz
1–7.5MHz	1–7.5MHz	1–7.5MHz	1–7.5MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V	1.62–5.5V
100µA	100µA	100µA	100µA
-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +70°C
< 2.3ms (typ.)	< 2.3ms (typ.)	< 2.3ms (typ.)	< 2.3ms (typ.)
1 to 64Byte	1 to 64Byte	1 to 64Byte	1 to 64Byte
EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
CRC, PLL, UART DF 8	CRC, PLL, UART DF 8	CRC, PLL, UART DF 8	CRC, PLL, UART DF 8
Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer
Payment, EMV SDA, ePurse, Loyalty, Access Control, Driver's License, Transport	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, Open Platform, Transport	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, Open Platform, Transport	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM
EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

Dual-interface/contactless Controller

SLE 66CLxxxPE

Product name	SLE 66CLX800PE (M/S)	SLE 66CLX1280PE (M/S)	SLE 66CLX1440PE (M/S)
Product description	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
RF Interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface
Baud rate (kbit/s)	Up to 848kbit/s	Up to 848kbit/s	Up to 848kbit/s
User-ROM	240kByte (236kByte) ²⁾	240kByte (236kByte) ²⁾	240kByte (236kByte) ²⁾
EEPROM	80kByte (78kByte + 1kByte for M) ²⁾	128kByte (128kByte + 1kByte for M) ²⁾	144kByte (144kByte + 1kByte for M) ²⁾
RAM	6kByte XRAM, 700Byte Crypto, 256Byte IRAM	6kByte XRAM, 700Byte Crypto, 256Byte IRAM	6kByte XRAM, 700Byte Crypto, 256Byte IRAM
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–30MHz	1–30MHz	1–30MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. sleep mode current (typ.)	100µA	100µA	100µA
Ambient temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C
EEPROM Programming Time @ contactless operation	< 2.3ms (typ.)	< 2.3ms (typ.)	< 2.3ms (typ.)
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 64Byte
Security features	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	CRC, PLL, UART DF 8	CRC, PLL, UART DF 8	CRC, PLL, UART DF 8
Delivery forms	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer
Typical applications	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Dual SIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Dual SIM
Tools	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo





1) For sub ID1 dedicated products

2) If Mifare™ compatible interface is used

SLE 78CLX360P ⁽¹⁾  	SLE 78CLX480P ⁽¹⁾  	SLE 78CLX800P ⁽¹⁾  
Dual-interface and contactless security cryptocontroller designed for high-security applications	Dual-interface and contactless security cryptocontroller designed for high-security applications	Dual-interface and contactless security cryptocontroller designed for high-security applications
ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface
Up to 848kbit/s	Up to 848kbit/s	Up to 848kbit/s
224kByte	224kByte	288kByte
36kByte	48kByte	80kByte
8kByte	8kByte	8kByte
Dual 16-bit	Dual 16-bit	Dual 16-bit
3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit
1–33MHz	1–33MHz	1–33MHz
1–10MHz	1–10MHz	1–10MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V
100µA	100µA	100µA
-25 to +85°C	-25 to +85°C	-25 to +85°C
< 2.3ms	< 2.3ms	< 2.3ms
1 to 128Byte	1 to 128Byte	1 to 128Byte
Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)
ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8
Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer
Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM
EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo



Dual-interface/contactless Controller


SLE 78CLxxxP

Product name	SLE 78CLX802P ¹⁾  	SLE 78CLX1280P ¹⁾  
Product description	Dual-interface and contactless security cryptocontroller designed for high-security applications	Dual-interface and contactless security cryptocontroller designed for high-security applications
RF Interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface
Baud rate (kbit/s)	Up to 848kbit/s	Up to 848kbit/s
User-ROM	224kByte	288kByte
EEPROM	80kByte	128kByte
RAM	8kByte	8kByte
CPU	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–33MHz
Clock (ext.)	1–10MHz	1–10MHz
Operating voltage	1.62–5.5V	1.62–5.5V
Max. sleep mode current (typ.)	100µA	100µA
Ambient temperature	-25 to +85°C	-25 to +85°C
EEPROM Programming Time @ contactless operation	< 2.3ms	< 2.3ms
EEPROM page programming	1 to 128Byte	1 to 128Byte
Security features	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)
Peripherals	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8
Delivery forms	Module M8.4, contactless module MCC8, die, bumped wafer	Module M8.4, contactless module MCC8, die, bumped wafer
Typical applications	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Transport, Dual SIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Dual SIM
Tools	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

1) For sub ID1 dedicated products

Components for contactless terminals

 	
SLE 78CLX1440P¹	
Dual-interface and contactless security cryptocontroller designed for high-security applications	
ISO/IEC 14443 type B & A ISO/IEC 18092 passive mode Mifare™ compatible interface	
Up to 848kbit/s	
288kByte	
144kByte	
8kByte	
Dual 16-bit	
3DES, AES up to 256-bit	
RSA up to 4,096-bit, ECC up to 521-bit	
1–33MHz	
1–10MHz	
1.62–5.5V	
100µA	
-25 to +85°C	
< 2.3ms	
1 to 128Byte	
Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	
ICU/PEC, CRC, PLL, UART DF 8	
Module M8.4, contactless module MCC8, die, bumped wafer	
Payment, EMV DDA, ePurse, Loyalty, Access Control, Digital Signature, ePassport, Open Platform, Dual SIM	
EKP (Evaluation Kit Proximity) ROK (Reader Optimization Kit)	
CC EAL5+ high, EMVCo	

EasySAM	
Product name	SLF 9620 
Product description	Security access module for Mifare™ compatible interface, my-d™ algorithm, 3DES and AES128
Interface	ISO/IEC 7816 and fast contactless interface
Memory organization	Enables security authentication between the reader and my-d™ chip cards or cards using Mifare™ technology, 3DES or AES128 authentication schemes. It features a dedicated key management system including key derivation and key upload.
Operating frequency	–
Security features	Mifare™ compatible encryption, my-d™ encryption schemes, 3DES and AES128, Asymmetric cryptographic algorithms (e.g. RSA, ECC), online and offline modes, secure key loading
Data rate	115kbit/s up to 848kbit/s in contactless mode
Anti-collision	–
Ambient temperature	-25 to +75°C
Delivery forms	ID-000/ID1, M5.3
Typical applications	Security applications with key-based authentication, Transport, Access Control, Electronic Ticketing

Contact-based security memories

	Classic	Eurochip 66	DataCarrier	
Product name	SLE 4406SP	SLE 6636	SLE 5532	SLE 5542
Product description	Intelligent 128-bit EEPROM counter with security logic	Intelligent 237-bit EEPROM counter with security logic and high-security authentication	Intelligent 256Byte EEPROM with Write Protection Function	Intelligent 256Byte EEPROM with Write Protection Function and Programmable Security Code
Counter	> 20,000 count units	> 20,000 count units, support of anti-tearing	–	–
ROM	24-bit	24-bit	–	–
PROM	72-bit	177-bit	32-bit	32-bit
EEPROM	32-bit	36-bit	256Byte	256Byte
Security features	Security logic, irreversible chip coding, transport code, advanced CMOS technology	Authentication for basic security with 1 or 2 keys, optional cipher block chaining, security logic, irreversible chip coding, transport code, dedicated advanced CMOS technology	EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Byte protection, irreversible chip coding, advanced CMOS technology	EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Programmable Security Code, Byte protection, irreversible chip coding, transport code, advanced CMOS technology
Min. write/erase time	3ms / 3ms	3ms / 3ms	2.5ms / 2.5ms	2.5ms / 2.5ms
Operating voltage	5V	5V	5V	5V
Max. supply current	1mA	1mA (typ. 400µA)	3mA	3mA
Ambient temperature	-40 to +80°C	-40 to +80°C	-40 to +80°C	-40 to +80°C
Read/write cycles	100,000	100,000	100,000	100,000
Retention time, minimum	30 years	30 years	10 years	10 years
Delivery forms	Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die
Tools	EVA-kit	EVA-kit	EVA-kit	EVA-kit
Typical applications	Prepaid Phone Card, Vending	Prepaid Phone Card, Vending, Brand Protection, Metering	Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control	Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control

SLE 5552	SLE 5518	SLE 5528	SLE 5538
Intelligent 256Byte EEPROM with Write and Read-Out Protection Function and Programmable Security Code	Intelligent 1,024Byte EEPROM with Write Protection Function	Intelligent 1,024Byte EEPROM with Write Protection Function and Programmable Security Code	Intelligent 1,024Byte EEPROM with Write and Read-Out Protection Function and Programmable Security Code
–	–	–	–
–	–	–	–
32-bit	1,024-bit	1,024-bit	1,024-bit
256Byte	1,024Byte	1,024Byte	1,024Byte
EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Programmable Security Code, Byte protection, irreversible chip coding, transport code; advanced CMOS technology	EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Byte protection, irreversible chip coding, advanced CMOS technology	EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Programmable Security Code, Byte protection, irreversible chip coding, transport code; advanced CMOS technology	EEPROM-cells protected by shield, shielding of deeper layers via metal, sensory- and logical security functions, Programmable Security Code, Byte protection, irreversible chip coding, transport code; advanced CMOS technology
2.5ms / 2.5ms	5ms / 5ms	5ms / 5ms	5 ms / 5 ms
5V	5V	5V	5V
3mA	1mA	1mA	1mA
-40 to +80°C	-40 to +100°C	-40 to +100°C	-40 to +100°C
100,000	100,000	100,000	100,000
10 years	10 years	10 years	10 years
Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die	Module M3, MFC 3.1 (FCOS™), die
EVA-kit	EVA-kit	EVA-kit	EVA-kit
Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control	Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control	Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control	Healthcare and Health Insurance Card, Member Card, Electronic Ticketing, Loyalty Card, Access Control

Security controller overview by EEPROM sizes

EEPROM	2KB	4KB	8KB
Product name	SLE 66C24PE Secure µSlim EEPROM	SLE 66C44PE/ SLE 66C46PE Secure µSlim EEPROM	SLE 66C84PE/ SLE 66C86PE Secure µSlim EEPROM
Product description	Security controller	Security controller	Security controller
User-ROM	68kByte	68kByte	68kByte
EEPROM	2kByte	4kByte	8kByte
RAM	2kByte	2kByte	2kByte
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	–	–	–
Clock (int.)	1–33MHz	1–33MHz	1–33MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100µA	100µA	100µA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	2ms (typ.)	2ms (typ.)	2ms (typ.)
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 64Byte
Security features	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16
Delivery forms	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Typical applications	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

≥ 16KB

SLE 66CX80PE Secure μSlim EEPROM	SLE 66C161PE Secure μSlim EEPROM	SLE 66C166PE Secure μSlim EEPROM	SLE 66C168PE Secure μSlim EEPROM
Security controller	Security controller	Security controller	Security controller
96kByte	48kByte	96kByte	68kByte
8kByte	16kByte	16kByte	16kByte
4kByte + 700Byte Crypto	2kByte	2kByte	2kByte
8-bit/16-bit	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
3DES	3DES	3DES	3DES
RSA up to 2,048-bit, ECC up to 521-bit	–	–	–
1–33MHz	1–33MHz	1–33MHz	1–33MHz
1–7.5MHz	1–7.5MHz	1–7.5MHz	1–7.5MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V	1.62–5.5V
10mA	10mA	10mA	10mA
100μA	100μA	100μA	100μA
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
2ms (typ.)	2ms (typ.)	2ms (typ.)	2ms (typ.)
1 to 64Byte	1 to 64Byte	1 to 64Byte	1 to 64Byte
EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16
Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M4.8, MFC5.x, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	GSM	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security
CC EAL5+ high, EMVCo	–	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

Security controller overview by EEPROM sizes

EEPROM	≥ 16KB		
Product name	SLE 66CX162PE Secure μSlim EEPROM	SLE 66CX182PE Secure μSlim EEPROM	SLE 66CX186PE Secure μSlim EEPROM
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
User-ROM	96kByte	136kByte	150kByte
EEPROM	16kByte	18kByte	18kByte
RAM	4kByte + 700Byte Crypto	4kByte + 700Byte Crypto	4kByte + 700Byte Crypto
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–33MHz	1–33MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	2ms (typ.)	2ms (typ.)	2ms (typ.)
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 64Byte
Security features	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16
Delivery forms	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Typical applications	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

≥ 32KB

SLE 66CX206PE Secure μSlim EEPROM	SLE 50C363PE Secure μSlim EEPROM	SLE 66C327PE Secure μSlim EEPROM	SLE 66C360PE Secure μSlim EEPROM
Security cryptocontroller	Security controller	Security controller	Security controller
196kByte	96kByte	136kByte	196kByte
20kByte	36kByte	32kByte	36kByte
6kByte + 700Byte Crypto	4kByte	4kByte	4kByte
8-bit/16-bit	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
3DES	–	3DES	3DES
RSA up to 2,048-bit, ECC up to 521-bit	–	–	–
1–33MHz	1–33MHz	1–33MHz	1–33MHz
1–7.5MHz	1–7.5MHz	1–7.5MHz	1–7.5MHz
1.62–5.5V	1.62–5.5V	2.7–5.5V	1.62–5.5V
10mA	10mA	10mA	10mA
100μA	100μA	100μA	100μA
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
2ms (typ.)	2ms (typ.)	2ms (typ.)	2ms (typ.)
1 to 64Byte	1 to 64Byte	1 to 64Byte	1 to 64Byte
EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	Memory- and Bus-Encryption, MMU, Basic Countermeasures against DPA/SPA, Threshold Sensors, Chip ID, RNG	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16
Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M4.8, MFC5.x, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Payment, EMV DDA, ePurchase, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	GSM	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security	GSM, UICC
CC EAL5+ high, EMVCo	–	EMVCo	–

Security controller overview by EEPROM sizes

EEPROM	≥ 32KB		
Product name	SLE 66C367PE Secure μSlim EEPROM	SLE 66CX360PE/ SLE 66CX366PE Secure μSlim EEPROM	SLE 66CX482PE Secure μSlim EEPROM
Product description	Security controller	Security cryptocontroller	Security cryptocontroller
User-ROM	196kByte	196kByte	196kByte
EEPROM	36kByte	36kByte	48kByte
RAM	4kByte	6kByte + 700Byte Crypto	6kByte + 700Byte Crypto
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	–	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–33MHz	1–33 MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5 MHz
Operating voltage	2.7–5.5V	1.62–5.5V	1.62–5.5 V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10 mA
Max. sleep mode current (typical)	100 μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	2ms (typ.)	2ms (typ.)	2ms (typ.)
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 64Byte
Security features	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR- Encryption, Active Shield, MMU, DPA/SPA, DEMA/ SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16
Delivery forms	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Typical applications	Payment, EMV SDA, Loyalty, Access Control, Health/Social Security	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV
Certifications	EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo



SLE 66CX480PE Secure μSlim EEPROM	SLE 78CX360P Secure μSlim EEPROM 	SLE 78CX480P Secure μSlim EEPROM 
Security cryptocontroller	Security cryptocontroller designed for high-security applications	Security cryptocontroller designed for high-security applications
240kByte	224kByte	224kByte
48kByte	36kByte	48kByte
6kByte + 700Byte Crypto	8kByte + 844Byte Crypto	8kByte + 844Byte Crypto
8-bit/16-bit	Dual 16-bit	Dual 16-bit
3DES	3DES, AES up to 256-bit	3DES, AES up to 256-bit
RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit
1–33MHz	1–33MHz	1–33MHz
1–7.5MHz	1–10MHz	1–10MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V
10mA	10mA	10mA
100μA	100μA	100μA
-25 to +85°C	-25 to +85°C	-25 to +85°C
2ms (typ.)	< 2.3ms	< 2.3ms
1 to 64Byte	1 to 128Byte	1 to 128Byte
EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)
CRC, PLL, UART DF 16	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8
Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

Security controller overview by EEPROM sizes

EEPROM	≥ 64KB		
Product name	SLE 50C683PE Secure μSlim EEPROM	SLE 66C682PE Secure μSlim EEPROM	SLE 76CF2561P Secure μSlim Flash/EEPROM
Product description	Security controller	Security controller	Security controller
User-ROM	136kByte	196kByte	–
EEPROM	68Byte	68kByte	256kByte
RAM	4kByte	4kByte	8kByte
CPU	8-bit/16-bit	8-bit/16-bit	16-bit
Crypto coprocessor symmetrical	–	3DES	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	–	–	–
Clock (int.)	1–33MHz	1–33MHz	1–33MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	3ms (typ.)	2ms (typ.)	< 2.3ms
EEPROM page programming	1 to 64Byte	1 to 64Byte	1 to 128Byte
Security features	Memory- and Bus-Encryption, MMU, Basic Countermeasures against DPA/SPA, Threshold Sensors, Chip ID, RNG	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG
Peripherals	CRC, PLL, UART DF 16	CRC, PLL, UART DF 16	ICU/PEC, CRC, PLL, UART DF 8
Delivery forms	Module M4.8, MFC5.x, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M4.8, M5.1, MFC5.x, die
Typical applications	GSM	GSM, UICC	GSM, UICC
Certifications	–	–	–

SLE 76CF2562P Secure µSlim Flash/EEPROM	SLE 76CF3201P Secure µSlim Flash/EEPROM	SLE 76CF3601P Secure µSlim Flash/EEPROM	SLE 66CX680PE Secure µSlim EEPROM
Security controller	Security controller	Security controller	Security cryptocontroller
–	–	–	244kByte
256kByte	320kByte	360kByte	68kByte
8kByte	8kByte	8kByte	6kByte + 700Byte Crypto
16-bit	16-bit	16-bit	8-bit/16-bit
–	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES
–	–	–	RSA up to 2,048-bit, ECC up to 521-bit
1–33MHz	1–33MHz	1–33MHz	1–33MHz
1–7.5MHz	1–7.5MHz	1–7.5MHz	1–7.5MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V	1.62–5.5V
10mA	10mA	10mA	10mA
100µA	100µA	100µA	100µA
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
< 2.3ms	< 2.3ms	< 2.3ms	2ms (typ.)
1 to 128Byte	1 to 128Byte	1 to 128Byte	1 to 64Byte
Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8	CRC, PLL, UART DF 16
Module M4.8, M5.1, MFC5.x, die	Module M4.8, M5.1, MFC5.x, die	Module M4.8, M5.1, MFC5.x, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
GSM, UICC	GSM, UICC	GSM, UICC	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV, GSM, UICC
–	–	–	CC EAL5+ high, EMVCo



Security controller overview by EEPROM sizes

EEPROM	≥ 64KB		
Product name	SLE 78CX802P Secure μSlim EEPROM 	SLE 78CX800P Secure μSlim EEPROM 	SLE 88CFX2920P Secure μSlim Flash/EEPROM
Product description	Security cryptocontroller designed for high-security applications	Security cryptocontroller designed for high-security applications	Security cryptocontroller
User-ROM	224kByte	288kByte	–
EEPROM	80kByte	80kByte	292kByte
RAM	8kByte + 844Byte Crypto	8kByte + 844Byte Crypto	16kByte + 880Byte Crypto
CPU	Dual 16-bit	Dual 16-bit	32-bit RISC
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES
Crypto coprocessor asymmetrical	RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–33MHz	1–66MHz
Clock (ext.)	1–10MHz	1–10MHz	1–10MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	< 2.3ms	< 2.3ms	< 2.3ms
EEPROM page programming	1 to 128Byte	1 to 128Byte	1 to 128Byte
Security features	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Delivery forms	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die
Typical applications	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, GSM, UICC	GSM, UICC, Digital Signature
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high

SLE 88CFX2921P Secure µSlim Flash/EEPROM	SLE 88CFX3520P Secure µSlim Flash/EEPROM	SLE 88CFX3521P Secure µSlim Flash/EEPROM	SLE 76CF4000P Secure µSlim Flash/EEPROM
Security cryptocontroller designed for high-security applications	Security cryptocontroller	Security cryptocontroller designed for high-security applications	Security controller
–	–	–	–
292kByte	352kByte	352kByte	400kByte
16kByte + 880Byte Crypto	16kByte + 880Byte Crypto	16kByte + 880Byte Crypto	12kByte
32-bit RISC	32-bit RISC	32-bit RISC	16-bit
3DES	3DES	3DES	3DES, AES up to 256-bit
RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	–
1–66MHz	1–66MHz	1–66MHz	1–33MHz
1–10MHz	1–10MHz	1–10MHz	1–10MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V	1.62–5.5V
10mA	10mA	10 mA	10mA
100 µA	100µA	100µA	100µA
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
< 2.3ms	< 2.3ms	< 2.3ms	< 2.3ms
1 to 128Byte	1 to 128Byte	1 to 128Byte	1 to 128Byte
Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG
UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	ICU/PEC, CRC, PLL, UART DF 8
Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M4.8, M5.1, MFC5.x, die
High Secure Applications, Pay-TV, Access Control, Digital Signature	GSM, UICC, Digital Signature	High Secure Applications, Pay-TV, Access Control, Digital Signature	GSM, UICC
CC EAL5+ high	CC EAL5+ high	CC EAL5+ high	–

Security controller overview by EEPROM sizes

EEPROM	≥ 128KB		
Product name	SLE 76CF4480P Secure μSlim Flash/EEPROM	SLE 88CF4000P Secure μSlim Flash/EEPROM	SLE 66CX1280PE Secure μSlim EEPROM
Product description	Security controller	Security controller	Security cryptocontroller
User-ROM	–	–	240kByte
EEPROM	448kByte	400kByte	128kByte
RAM	12kByte	16kByte	6kByte + 700Byte Crypto
CPU	16-bit	32-bit RISC	8-bit/16-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES	3DES
Crypto coprocessor asymmetrical	–	–	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–66MHz	1–33MHz
Clock (ext.)	1–10MHz	1–10MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	< 2.3ms	< 2.3ms	2ms (typ.)
EEPROM page programming	1 to 128Byte	1 to 128Byte	1 to 64Byte
Security features	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	ICU/PEC, CRC, PLL, UART DF 8	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	ICU/PEC, CRC, PLL, UART DF 8
Delivery forms	Module M4.8, M5.1, MFC5.x, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die
Typical applications	GSM, UICC	GSM, UICC, R-UIM	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV, GSM, UICC
Certifications	–	CC EAL5+ high	CC EAL5+ high, EMVCo

SLE 66CX1440PE Secure µSlim EEPROM	SLE 78CX1280P Secure µSlim EEPROM	 Integrity Guard	SLE 78CX1440P Secure µSlim EEPROM	 Integrity Guard	SLE 88CFX4000P Secure µSlim Flash/EEPROM
Security cryptocontroller	Security cryptocontroller designed for high-security applications		Security cryptocontroller designed for high-security applications		Security cryptocontroller
240kByte	288kByte		288kByte		–
144kByte	128kByte		144kByte		400kByte
6kByte + 700Byte Crypto	8kByte + 844Byte Crypto		8kByte + 844Byte Crypto		16kByte + 880Byte Crypto
8-bit/16-bit	Dual 16-bit		Dual 16-bit		32-bit RISC
3DES	3DES, AES up to 256-bit		3DES, AES up to 256-bit		3DES
RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 4,096-bit, ECC up to 521-bit		RSA up to 4,096-bit, ECC up to 521-bit		RSA up to 2,048-bit, ECC up to 521-bit
1–33MHz	1–33MHz		1–33MHz		1–66MHz
1–7.5MHz	1–10MHz		1–10MHz		1–10MHz
1.62–5.5V	1.62–5.5V		1.62–5.5V		1.62–5.5V
10mA	10mA		10mA		10mA
100µA	100µA		100µA		100µA
-25 to +85°C	-25 to +85°C		-25 to +85°C		-25 to +85°C
2ms (typ.)	< 2.3ms		< 2.3ms		< 2.3ms
1 to 64Byte	1 to 128Byte		1 to 128Byte		1 to 128Byte
EEPROM Error Detection, Memory-, Bus- and SFR-Encryption, Active Shield, MMU, DPA/SPA, DEMA/SEMA Countermeasures, Security Sensors: V, f, Light, Temperature, Glitch, Chip ID, True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)		Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temperature; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)		Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8		ICU/PEC, CRC, PLL, UART DF 8		UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Module M5.1, MFC5.x, DSO-8, VQFN-8, die	Module M5.1, MFC5.x, DSO-8, VQFN-8, die		Module M5.1, MFC5.x, DSO-8, VQFN-8, die		Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die
Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, Pay-TV, GSM, UICC	Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, GSM, UICC		Payment, EMV DDA, ePurse, Loyalty, Access Control, Health/Social Security, Digital Signature, ID-Card, GSM, UICC		GSM, UICC, Digital Signature
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo		CC EAL5+ high, EMVCo		CC EAL5+ high

Security controller overview by EEPROM sizes

EEPROM	≥ 128KB	≥ 256KB	
Product name	SLE 88CFX4001P Secure μ Slim Flash/EEPROM	SLE 76CF5120P Secure μ Slim Flash/EEPROM	SLE 88CF4002P Secure μ Slim Flash/EEPROM
Product description	Security cryptocontroller designed for high-security applications	Security controller	Security controller
User-ROM	–	–	160kByte
EEPROM	400kByte	504kByte	400kByte
RAM	16kByte + 880Byte Crypto	12kByte	16kByte
CPU	32-bit RISC	16-bit	32-bit RISC
Crypto coprocessor symmetrical	3DES	3DES, AES up to 256-bit	3DES
Crypto coprocessor asymmetrical	RSA up to 2,048-bit, ECC up to 521-bit	–	–
Clock (int.)	1–66MHz	1–33MHz	1–66MHz
Clock (ext.)	1–10MHz	1–10MHz	1–10MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100 μ A	100 μ A	100 μ A
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	< 2.3ms	< 2.3ms	< 2.3ms
EEPROM page programming	1 to 128Byte	1 to 128Byte	1 to 128Byte
Security features	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	ICU/PEC, CRC, PLL, UART DF 8	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Delivery forms	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M4.8, M5.1, MFC5.x, VQFN-8, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die
Typical applications	High Secure Applications, Pay-TV, Access Control, Digital Signature	GSM, UICC	GSM, UICC, R-UIM
Certifications	CC EAL5+ high	–	CC EAL5+ high






SLE 88CFX4002P Secure µSlim Flash/EEPROM	SLE 88CFX4003P Secure µSlim Flash/EEPROM	SLE 88CFX5400P Secure µSlim Flash/EEPROM	SLE 88CNFX5400PM Secure µSlim Flash/EEPROM
Security cryptocontroller	Security cryptocontroller designed for high-security applications	Security cryptocontroller	Security cryptocontroller designed for SWP applications
160kByte	Up to 168kByte	–	–
400kByte	400kByte	540kByte	540kByte
16kByte + 880Byte Crypto	16kByte + 880Byte Crypto	32kByte + 880Byte Crypto	32kByte + 880Byte Crypto
32-bit RISC	32-bit RISC	32-bit RISC	32-bit RISC
3DES	3DES	3DES	3DES
RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
1–66MHz	1–66MHz	1–33MHz	1–33MHz
1–10MHz	1–10MHz	1–10MHz	1–10MHz
1.62–5.5V	1.62–5.5V	1.62–5.5V	1.62–5.5V
10mA	10mA	10mA	10mA
100µA	100µA	100µA	100µA
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
< 2.3ms	< 2.3ms	< 2.3ms	< 2.3ms
1 to 128Byte	1 to 128Byte	1 to 128Byte	1 to 128Byte
Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
UART DF 16, RNG, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	UART DF 16, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	UART DF 8, CRC, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	SWP, Mifare™ compatible interface (multiple footprint), CRC, UART DF8, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M5.1, MFC5.x, VQFN-10, SSOP-20, DSO-20, die	Module M5.3, MFC5.3, die	Module M5.3, MFC5.3, die
GSM, UICC, Digital Signature	High Secure Applications, Pay-TV, Access Control, Digital Signature	GSM, UICC, Digital Signature	Mobile NFC (Payment, Transport, Loyalty, Access Control), GSM, UICC, Digital Signature
CC EAL5+ high	CC EAL5+ high	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo





Security controller overview by EEPROM sizes

EEPROM	≥ 256KB	≥ 384KB	≥ 384KB
Product name	SLE 88CFX6600P Secure μSlim Flash/EEPROM	SLE 88CNFX6600PM Secure μSlim Flash/EEPROM	SLE 88CFX6602P Secure μSlim Flash/EEPROM
Product description	Security cryptocontroller	Security cryptocontroller designed for SWP applications	Security cryptocontroller
User-ROM	–	–	Up to 160kByte
EEPROM	660kByte	660kByte	660kByte
RAM	32kByte + 880Byte Crypto	32kByte + 880Byte Crypto	32kByte + 880Byte Crypto
CPU	32-bit RISC	32-bit RISC	32-bit RISC
Crypto coprocessor symmetrical	3DES	3DES	3DES
Crypto coprocessor asymmetrical	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–33MHz	1–33MHz	1–33MHz
Clock (ext.)	1–10MHz	1–10MHz	1–10MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current (at 5MHz, 5V)	10mA	10mA	10mA
Max. sleep mode current (typical)	100μA	100μA	100μA
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Write/erase time	< 2.3ms	< 2.3ms	< 2.3ms
EEPROM page programming	1 to 128Byte	1 to 128Byte	1 to 128Byte
Security features	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)	Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
Peripherals	UART DF8, CRC, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	SWP, Mifare™ compatible interface (multiple footprint), CRC, UART DF8, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C	UART DF8, CRC, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Delivery forms	Module M5.3, MFC5.3, die	Module M5.3, MFC5.3, die	Module M5.3, MFC5.3, die
Typical applications	GSM, UICC, Digital Signature	Mobile NFC (Payment, Transport, Loyalty, Access Control), GSM, UICC, Digital Signature	GSM, UICC, Digital Signature
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

SLE 88CNFX6602PM Secure µSlim Flash/EEPROM
Security cryptocontroller designed for SWP applications
Up to 160kByte
660kByte
32kByte + 880Byte Crypto
32-bit RISC
3DES
RSA up to 2,048-bit, ECC up to 521-bit
1–33MHz
1–10MHz
1.62–5.5V
10mA
100µA
-25 to +85°C
< 2.3ms
1 to 128Byte
Memory and CPU Error Detection, Memory-, Bus- and SFR-Encryption, MMU with Level Concept, DPA/SPA, DEMA/SEMA Countermeasures incl. Dual Rail Logic, Security Sensors: V, f, Light, Temperature, Glitch, Active Shield, Chip ID, True RNG (AIS31, FIPS-140)
SWP, Mifare™ compatible interface (multiple footprint), CRC, UART DF8, 3 x 16-bit autoreload timers, Interrupt, Trap System, Intelligent Power Manager for Classes A,B,C
Module M5.3, MFC5.3, die
Mobile NFC (Payment, Transport, Loyalty, Access Control), GSM, UICC, Digital Signature
CC EAL5+ high, EMVCo

Embedded Security Controller

	Basic Authentication	Authentication	
Product name	SLE 95050 ORIGATM 	SLB 78CIX800P Secure μSlim EEPROM  	SLB 78CIFX800P Secure μSlim Flash/EEPROM  
Product description	Original Product Authentication and Brand Protection Solution	Security cryptocontroller for embedded applications	Security cryptocontroller for embedded applications
User-ROM	Up to 192bit protected	288kByte	–
EEPROM	512bit unprotected	80kByte	80kByte
RAM	–	8kByte	8kByte
CPU	Statemachine	Dual 16-bit	Dual 16-bit
Crypto coprocessors	–	–	–
Symmetrical Cryptography	–	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Asymmetrical Cryptography	–	RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit
Clock (int.)	1–16MHz	1–33MHz	1–33MHz
Clock (ext.)	1–4MHz	1–10MHz	1–10MHz
Operating voltage	2.0–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current	0.8–1.3mA (at 2V)	10mA (at 5MHz, 5V)	10mA (at 5MHz, 5V)
Max. sleep mode current (typical)	≤ 1μA	100μA	100μA
Ambient temperature	-40 to +110°C	0 to +70°C	0 to +70°C
Write/erase time	4ms	< 2.3ms	< 2.3ms
EEPROM page programming	64-bit	1 to 128Byte	1 to 128Byte
MMU	–	Yes	Yes
Security features	Elliptic Curve Cryptography (ECC); External temperature sensing -25 to 85°C; Decrease-only Counter/Lifespan indicator	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temp; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temp; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)
Peripherals	Single-Wire Interface (SWI) protocol supports: Uni-cast, Multi-cast and Broadcast communication; 12-bit ADC	I ² C, ICU/PEC, CRC, PLL	I ² C, ICU/PEC, CRC, PLL
Delivery forms	WQFN-6	VQFN-8, die	VQFN-8, die
Typical applications	Batteries, Printer Cartridges, Accessories, Original Replacement Parts, Medical Equipment & Diagnostic Supplies, Authentication of System Services, Functionalities and Parts in Networked Systems	Network Security, Consumer (Printer, Gaming), Specialized Electronic Equipment	Network Security, Consumer (Printer, Gaming), Specialized Electronic Equipment
Certifications	–	CC EAL5+ high	CC EAL5+ high

 SLB 78C1FX1280P Secure μ Slim Flash/EEPROM 	 SLB 78C1FX1600P Secure μ Slim Flash/EEPROM 	SLB 9635 TT 1.2 TPM
Security cryptocontroller for embedded applications	Security cryptocontroller for embedded applications	Security cryptocontroller for Trusted Platform Modules
–	–	–
128kByte	160kByte	–
8kByte	8kByte	–
Dual 16-bit	Dual 16-bit	16-bit
–	–	–
3DES, AES up to 256-bit	3DES, AES up to 256-bit	acc. to TCG standard
RSA up to 2,048-bit, ECC up to 521-bit	RSA up to 2,048-bit, ECC up to 521-bit	acc. to TCG standard
1–33MHz	1–33MHz	1–33MHz
1–10MHz	1–10MHz	1–33MHz
1.62–5.5V	1.62–5.5V	3.0–3.3V
10mA (at 5MHz, 5V)	10mA (at 5MHz, 5V)	25mA
100 μ A	100 μ A	0.5mA
0 to +70°C	0 to +70°C	0 to +70°C
< 2.3ms	< 2.3ms	–
1 to 128Byte	1 to 128Byte	–
Yes	Yes	–
Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temp; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Integrity Guard Security System: Digital Full Error/Fault/DFA Detection; Full CPU-, Memory-, Bus- and Cache-Encryption; Dual encrypted-calculation CPU; Active I ² -Shield; MMU with Level Concept; DPA/SPA, DEMA/SEMA Countermeasures; Threshold Sensors: V, f, Light, Temp; Intelligent Watchdog with Program Flow Check; Chip ID; True RNG (AIS31, FIPS-140)	Platform Integrity Measurement, Secure Key and Certificate Storage, Integrated PKI Infrastructure, Hardware: PC Chipset Interoperability, full implementation of the TCG standard Security; Physical Protection: Active Shield, Active Attack Detection, Cock Interruption Detection, SPA and DPA Protection
I ² C, ICU/PEC, CRC, PLL	I ² C, ICU/PEC, CRC, PLL	LPC Bus
VQFN-8, die	VQFN-8, die	TSSOP-28
Network Security, Consumer (Printer, Gaming), Specialized Electronic Equipment	Network Security, Consumer (Printer, Gaming), Specialized Electronic Equipment	Trusted Platform Module (TPM)
CC EAL5+ high	CC EAL5+ high	CC EAL4+ moderate, TCG certified

Embedded Security Controller

	M2M		
Product name	SLM 76CF2561P Secure μ Slim Flash/EEPROM	SLM 76CF2562P Secure μ Slim Flash/EEPROM	SLM 76CF3201P Secure μ Slim Flash/EEPROM
Product description	Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications
User-ROM	–	–	–
EEPROM	256kByte	256kByte	320kByte
RAM	8kByte	8kByte	8kByte
CPU	16-bit	16-bit	16-bit
Crypto coprocessors	–	–	–
Symmetrical Cryptography	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Asymmetrical Cryptography	–	–	–
Clock (int.)	1–33MHz	1–33MHz	1–33MHz
Clock (ext.)	1–7.5MHz	1–7.5MHz	1–7.5MHz
Operating voltage	1.62–5.5V	1.62–5.5V	1.62–5.5V
Max. supply current	10mA	10mA	10mA
Max. sleep mode current (typical)	100 μ A	100 μ A	100 μ A
Ambient temperature	-40 to +105°C	-40 to +105°C	-40 to +105°C
Write/erase time	< 2.3ms	< 2.3ms	< 2.3ms
EEPROM page programming	1 to 128Byte	1 to 128Byte	1 to 128Byte
MMU	Yes	Yes	Yes
Security features	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG
Peripherals	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8
Delivery forms	VQFN-8, die	VQFN-8, die	VQFN-8, die
Typical applications	Industrial and Consumer Machine-to-Machine Applications	Industrial and Consumer Machine-to-Machine Applications	Industrial and Consumer Machine-to-Machine Applications
Certifications	–	–	–

SLM 76CF3601P Secure µSlim Flash/EEPROM	SLM 76CF5120P Secure µSlim Flash/EEPROM
Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications
–	–
360kByte	504kByte
8kByte	12kByte
16-bit	16-bit
–	–
3DES, AES up to 256-bit	3DES, AES up to 256-bit
–	–
1–33MHz	1–33MHz
1–7.5MHz	1–7.5MHz
1.62–5.5V	1.62–5.5V
10mA	10mA
100µA	100µA
-40 to +105°C	-40 to +105°C
< 2.3 ms	< 2.3ms
1 to 128Byte	1 to 128Byte
Yes	Yes
Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG	Memory- and Bus-Encryption, MMU with Level Concept, Basic Countermeasures against DPA/SPA and Fault Attacks, Threshold Sensors, Intelligent Watchdog with Program Flow Check, Chip ID, Pseudo RNG
ICU/PEC, CRC, PLL, UART DF 8	ICU/PEC, CRC, PLL, UART DF 8
VQFN-8, die	VQFN-8, die
Industrial and Consumer Machine-to-Machine Applications	Industrial and Consumer Machine-to-Machine Applications
–	–

Modules and Preassembly

Contact-based Controller Modules

Product name	S-MFC5.8	S-MFC5.6	P-M5.1	T-M5.1
Picture				
Product description	Contact-based module 8 Contacts FCOS™ technology PET Tape Flip Chip	Contact-based module 6 Contacts FCOS™ technology PET Tape Flip Chip	Contact-based module 8 Contacts Epoxy Tape Wire Bond Mold	Contact-based module 8 Contacts Epoxy Tape Wire Bond Glob Top
Typical applications	Payment, GSM	Payment, GSM	Payment, Government Identification	Payment, Government Identification, GSM
Pitch	14.25mm	9.5mm	14.25mm	14.25mm
Dimensions	13 x 11.8mm	11 x 8.3mm	13 x 11.8mm	13 x 11.8mm
Thickness	max. 538µm	max. 538µm	max. 600µm	max. 580µm
Contact surface	NiAu	NiAu	CIN+	CIN+
Delivery form	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm
ISO-reference	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3
Derivatives	S-MFC5.8-8-1, Au surface S-MFC5.8-8-3, Pd surface	S-MFC5.6-6-1, Au surface S-MFC5.6-6-3, Pd surface S-MFC1.6-6-1, Ni coating	–	T-M5.1-8-1, Au surface T-M5.1-8-2, Pd surface

Contact-based Memory Modules




T-M5.3	T-M4.9	T-M4.8	S-MFC3.1	T-M3.2
				
Contact-based module 8 Contacts Epoxy Tape Wire Bond Glob Top	Contact-based module 8 Contacts Epoxy Tape Wire Bond Glob Top	Contact-based module 8 Contacts Epoxy Tape Chip Cavity Wire Bond Glob Top	Contact-based module 6 Contacts FCOS™ technology PET Tape Flip Chip	Contact-based module 6 Contacts Epoxy Tape Chip Cavity Wire Bond Glob Top
Pay TV	Payment, Government Identification	GSM	Healthcare/Social Security Card, Ticketing, Loyalty, Access Control	Healthcare/Social Security Card, Ticketing, Loyalty, Access Control
14.25mm	14.25mm	14.25mm	9.5mm	9.5mm
13 x 11.8mm	13 x 11.8mm	13 x 11.8mm	11 x 8.3mm	11 x 8.3mm
max. 580µm	max. 580µm	max. 580µm	max. 538µm	max. 580µm
CIN+	CIN	CIN	NiAu	CIN
Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm
ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3
–	T-M4.9-8-1, Au surface T-M4.9-8-2, Pd surface	–	S-MFC3.1-6-1, Au surface S-MFC1.6-6-1, Ni coating	–

Modules and Preassembly

	Contactless Controller & Memory Modules			Dual Interface Modules	
Product name	P-MCC8-2-3	P-MCC2-2-1	P-FTM8-2-1 new	T-M8.4	P-M8.4
Picture					
Product description	2 Antenna Contacts Wire Bond + Mold + Leadframe	2 Antenna Contacts Wire Bond + Mold + Leadframe	2 Antenna Contacts Wire Bond + Mold + Epoxy Tape Controller only	Dual Interface Module 8 Contacts CB 2 Antenna Contacts Epoxy Tape Wire Bond Glob Top	Dual Interface Module 8 Contacts CB 2 Antenna Contacts Epoxy Tape Wire Bond Mold
Typical applications	Payment, Access Control, e-Passport, Driver's License, Transport, Identifica- tion, Ticketing	Transport, Access Control	e-Passport, Driver's License	Payment, EMV SDA/DDA, ePurse, Loyalty, Access Control, Driver's License, Transport, Ticketing	Payment, e-Passport
Pitch	9.5mm	4.75mm	9.5mm	14.25mm	14.25mm
Dimensions	8.1 x 5.15mm	10.3 x 2.9mm	8.2 x 5.7mm	13 x 11.8mm	13 x 11.8mm
Thickness	max. 340µm	max. 340µm	max. 260µm	max. 580µm	max. 620µm
Contact surface	Ag	Ag	NiAu	NiAu/NiAuPd	NiAu
Delivery form	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm
ISO-reference	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3	ISO/IEC 7810 ISO/IEC 7816-1 ISO/IEC 10373-1/-3
Derivatives	-	-	-	T-M8.4-8-1, Au surface T-M8.4-8-2, Pd surface T-M8.4-8-8, La/Lb to C4/C8	-

DSO-20	TSSOP-28	VQFN-8	VQFN-10	WQFN-6
				
Surface Mount Device Lead	Surface Mount Device Lead	Surface Mount Device Small Outline No-Lead Exposed pad	Surface Mount Device Small Outline No-Lead Exposed pad	Surface Mount Device Small Outline No-Lead Exposed pad
Embedded Security Authentication Inegrity	Embedded Security Trusted Platform Module	Embedded Security Authentication Inegrity	Embedded Security Authentication Inegrity	Embedded Security Authentication
1.27mm	0.65 mm	1.27mm	1.27 mm	0.65 mm
12.8 x 7.6mm	9.7 x 4.4 mm	5 x 6 mm	6 x 5 mm	2.5 x 2.5 mm
max. 2.64mm	max. 1.1mm	max. 900µm	max. 900µm	max. 800µm
Sn	Sn	NiPdAuAg	NiPdAuAg	Sn
Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm	Tape on Reel Reel diameter 330mm
-	-	-	-	-
-	-	-	-	-

Modules and Preassembly

Preassembly				
Product name	Bumping NiAu	Stud Bump	Wafer Thinning	Wafer Dicing
Picture				
Product description	NiAu bump on the pad height: – 20µm – 30µm	Gold bump on the pad height: – 30µm	Standard thinning and etching or DBG (Dicing Before Grinding) - necessary for thicknesses less than 150µm	Chip separation
Delivery form	Wafer unsawn or sawn: – < 150µm thickness only sawn on Frame – any thickness sawn only on wafer frame	Wafer unsawn or sawn: – < 150µm thickness only sawn on Frame – any thickness sawn only on wafer frame	Wafer unsawn or sawn: – < 150µm thickness only sawn on Frame – any thickness sawn only on wafer frame	Wafer Frame
Thicknesses	55µm (on request), 150µm, 185µm, 330µm	55µm (on request), 150µm, 185µm, 330µm	55µm (on request), 150µm, 185µm, 330µm	55µm (on request), 150µm, 185µm, 330µm
Inking	Available	Available	Available	Available
Mapping	Available/preferred	Available/preferred	Available/preferred	Available/preferred
Documents	<ul style="list-style-type: none"> – Chip Delivery Specification for 6"/8" Wafer – General Issue – NiAu-Bumping-Specification – Product Specific Issue 	<ul style="list-style-type: none"> – Chip Delivery Specification for 6"/8" Wafer – General Issue – Stud-Bumping-Specification – Product Specific Issue 	<ul style="list-style-type: none"> – Chip Delivery Specification for 6"/8" Wafer – General Issue – Product Specific Issue 	<ul style="list-style-type: none"> – Chip Delivery Specification for 6"/8" Wafer – General Issue – Product Specific Issue

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