Infineon’s Security Solutions Portfolio
Security for the connected world

www.infineon.com/security
In an increasingly connected world, securing interaction and communication between people, electronic devices and infrastructures has become a number one priority. As the leading provider of security solutions, Infineon offers tailored, ready-to-use security solutions serving a wide range of applications from smart cards to new, emerging use cases. Infineon is the partner of choice for countless customers across multiple markets thanks to its outstanding security expertise based on almost 30 years of experience, a steady stream of customer-driven technology innovations, in-depth and holistic system competence and the broadest security solution portfolio in the market.

www.infineon.com/security
## Technologies

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<th><strong>Integrity Guard</strong></th>
<th><strong>NFC</strong> Boosted NFC</th>
<th><strong>SOLID FLASH™</strong></th>
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</thead>
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<tr>
<td><strong>The smartest security concept in the industry</strong>&lt;br&gt; Rely on Integrity Guard’s highly sophisticated digital security architecture, including a fully encrypted data path and self-checking dual CPU core</td>
<td><strong>NFC security solution for smallest form factors</strong>&lt;br&gt; Deliver mobile payment solutions with ultra-low power consumption, small PCB footprints and extraordinary contactless performance</td>
<td><strong>Flexible and robust memory built on a comprehensive security concept</strong>&lt;br&gt; Master your security applications quickly with SOLID FLASH™ – a flexible, non-volatile memory technology</td>
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<th><strong>Mega Memory</strong></th>
<th><strong>Coil on Module</strong></th>
<th><strong>VHBR</strong></th>
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<td><strong>Unrivalled total memory sizes</strong>&lt;br&gt; Enable your next-generation eGovernment documents such as ePassports and multi-application eID cards based on LDS 2.0</td>
<td><strong>Simplified dual-interface card design and manufacturing</strong>&lt;br&gt; Get to market significantly faster than the competition with our award-winning Coil on Module package technology</td>
<td><strong>The fastest contactless performance</strong>&lt;br&gt; Accelerate your applications with support for Very High Bit Rates (VHBR) of up to 6.8 Mbit/s</td>
</tr>
</tbody>
</table>
CIPURSE™ – Open security standard
› Is built on proven standards such as ISO/IEC 7816, AES-128 and ISO/IEC 14443-4
› Provides a single, consistent set of security, personalization, administration and lifecycle management functions
› Includes advanced security mechanisms such as unique cryptographic protocol for inherent protection against differential power analysis (DPA) and differential fault attacks (DFA)
› Offers three distinct development profiles enabling a complete range of products spanning tickets, cards and mobile phones

SECORA™ Pay
SECORA™ Pay is a new family of one-stop security solutions offering card issuers, card manufacturers and personalizers a cost-effective route to fast and agile implementation. Based on a solid chip platform with an integrated Java Card operating system, SECORA™ Pay is highly secure and reliable, also delivering the best price-performance ratio.

SECORA™ Pay enables safe, secure, efficient and streamlined migration to the EMV standard. This solution is designed for fast and efficient payment chip card production. The SECORA™ Pay portfolio comprises the Pay S and Pay X variants.

SECORA™ Pay S is a ready-to-use chip solution optimized for standard payment cards under global schemes such as Visa and Mastercard.

SECORA™ Pay X is a flexible platform to address multi-application payment cards and to address domestic payment schemes. Pay X is an enablement platform supporting EMV-based payment schemes and project-specific requirements in conjunction with Infineon’s ready-to-use reference solutions for Visa, Mastercard and CIPURSE™.

OPTIGA™
The OPTIGA™ security solution family is designed for easy integration into embedded systems to protect the confidentiality, integrity and authenticity of information and devices. These hardware-based security solutions scale from basic authentication chips to sophisticated implementations.

OPTIGA™ Trust includes turnkey products for smaller platforms as well as programmable solutions, supporting individual needs in the field of embedded authentication and brand protection as well as a host of other security applications.

OPTIGA™ TPM (Trusted Platform Module) offers a broad portfolio of standardized security controllers to protect the integrity and authenticity of embedded devices and systems. OPTIGA™ TPM products comply with the Trusted Computing Group (TCG) standards and are ideal for embedded PC, mobile and computing applications.
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<td>Preassembly</td>
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<tr>
<td>Product name</td>
<td>Dual-interface &amp; contactless security controller</td>
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<td>--------------</td>
<td>---------------------------------------------</td>
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<tr>
<td>SLE 77CLFxxx</td>
<td>1) SOLID FLASH™</td>
</tr>
<tr>
<td>SLC 32Pdxxx</td>
<td>SOLID FLASH™</td>
</tr>
<tr>
<td>SLC 32PMxxx</td>
<td>SOLID FLASH™</td>
</tr>
<tr>
<td>SLC 52WMxxx</td>
<td>2) Integrity Guard</td>
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</tbody>
</table>

| Product description | Dual-interface security cryptocontroller for traditional payment use cases | Dual-interface security cryptocontroller for traditional payment use cases | Dual-interface security cryptocontroller for multi-application and wearables payment use cases supporting multi-interface | Active wearable boosted NFC |


| NVM | 136, 156, 184, 200, 240 kByte | 180, 212, 228, 268, 300, 348 kByte | 400, 448 kByte | 448, 800 kByte |

| RAM | 6 kByte | 10 kByte | 12 kByte | 12, 16 kByte |

| CPU | 16-bit | 16-bit | 16-bit | 16-bit |

| Symmetrical cryptography | AES up to 256-bit, DES, 3DES | AES up to 256-bit, DES, 3DES | AES up to 256-bit, DES, 3DES | AES up to 256-bit, DES, 3DES |

| Asymmetrical cryptography | ECC up to 521-bit, RSA up to 4096-bit | ECC up to 521-bit, RSA up to 4096-bit | ECC up to 521-bit, RSA up to 4096-bit | ECC up to 521-bit, RSA up to 4096-bit |

| Ambient temperature | -25°C to +85°C | -25°C to +85°C | -25°C to +85°C | -25°C to +85°C |

| Delivery forms | Coil on Module, sawn wafer, 6/8 pin dual-interface modules and contactless modules | Coil on Module, sawn wafer, 6/8 pin dual-interface modules and contactless modules | Coil on Module, sawn wafer, bumped wafer, 6/8 pin dual-interface modules and contactless modules | Sawn wafer, USON-10-2, UQFN-32 |

| Certifications | CC EAL5+ high, CUP, EMVCo | CC EAL6+ high, CUP, EMVCo | CC EAL6+ high, EMVCo | CC EAL6+ high, EMVCo |

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1) Please note that xxx stands for NVM size, y – input capacity of derivatives, z – different interfaces e.g. Mifare-compatible
## Contact-based security controller

<table>
<thead>
<tr>
<th></th>
<th>SLE 77CFxxx0P</th>
<th>SLC 32PCAxxx</th>
<th>SLE 77CFxxx4P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>Contact-based security cryptocontroller</td>
<td>Contact-based security cryptocontroller</td>
<td>Contact-based security controller</td>
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<tr>
<td><strong>Interfaces</strong></td>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
</tr>
<tr>
<td><strong>NVM</strong></td>
<td>136, 156, 184, 200, 240 kByte</td>
<td>160, 180, 212, 228, 268, 300 kByte</td>
<td>80, 100, 120 kByte</td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>6 kByte</td>
<td>8 kByte</td>
<td>4 kByte</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>16-bit</td>
<td>16-bit</td>
<td>16-bit</td>
</tr>
<tr>
<td><strong>Symmetrical cryptography</strong></td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES, DES</td>
</tr>
<tr>
<td><strong>Asymmetrical cryptography</strong></td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>–</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td><strong>Delivery forms</strong></td>
<td>Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)</td>
<td>Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)</td>
<td>Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
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1) Please note that xxx stands for NVM size, y – input capacity of derivatives, z – different interfaces e.g. Mifare-compatible
<table>
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<tr>
<th><strong>Product variants</strong></th>
<th><strong>SECORA™ Pay S</strong></th>
<th><strong>SECORA™ Pay X</strong></th>
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<tr>
<td></td>
<td>SOLID FLASH™</td>
<td>Coil on Module</td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>Ready-to-use and optimized chip solution portfolio for standard payment cards for global schemes such as Visa and Mastercard.</td>
<td>Flexible platform to address multi-application payment cards and domestic schemes. Pay X is an enablement platform giving the flexibility to address EMV-based payment schemes and local content in combination with Infineon’s ready-to-use reference solutions for Visa, Mastercard and CIPURSE™.</td>
</tr>
<tr>
<td><strong>Operating system</strong></td>
<td>Java Card S GlobalPlatform 2.2.1</td>
<td>Java Card 3.0.4 GlobalPlatform 2.2.1</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>ISO 7816, ISO 14443</td>
<td>ISO 7816, ISO 14443</td>
</tr>
<tr>
<td><strong>Cryptography</strong></td>
<td>SDA/DDA/CDA (RSA, 3DES, SHA1, AES)</td>
<td>SDA/DDA/CDA (RSA, 3DES, SHA1, AES)</td>
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<tr>
<td><strong>Typical applications</strong></td>
<td>Standard payment cards</td>
<td>Multi-application payment cards</td>
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2) For further information on SECORA™ Pay, available products and applets, available configurations, delivery forms, sample availability, support, tools and conditions, please contact your Infineon Technologies sales representative.
# Mobile Communication

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<thead>
<tr>
<th>Product name</th>
<th>SIM &amp; UICCs</th>
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<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>32-bit SIM-card controller 32-bit SIM-card controller 16-bit SIM-card controller 16-bit SIM-card controller</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>ISO 7816 ISO 7816 ISO 7816 ISO 7816</td>
</tr>
<tr>
<td><strong>NVM</strong></td>
<td>256, 288, 312, 340 kByte 384, 420, 480 kByte 256 kByte 296, 320, 344, 360 kByte</td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>10 kByte 12 kByte 9 kByte 9 kByte</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>32-bit 32-bit 16-bit 16-bit</td>
</tr>
<tr>
<td><strong>Symmetrical cryptography</strong></td>
<td>– – – –</td>
</tr>
<tr>
<td><strong>Asymmetrical cryptography</strong></td>
<td>– – – –</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
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<tr>
<td><strong>Delivery forms</strong></td>
<td>FCOS™ module S-MFC5.4 (4FF), sawn wafer FCOS™ module S-MFC5.4 (4FF), sawn wafer FCOS™ module S-MFC5.4 (4FF), sawn wafer FCOS™ module S-MFC5.4 (4FF), sawn wafer</td>
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<tr>
<td><strong>Typical applications</strong></td>
<td>SIM and UICC for mobile communication SIM and UICC for mobile communication SIM and UICC for mobile communication SIM and UICC for mobile communication</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
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3) Please note that xxx in product names stands for NVM size
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<th>SLE 76CF4002P</th>
<th>SLE 76CFxxx0P</th>
<th>SLE 97CNFXxxx0PE</th>
<th>SLE 97CUNFXxxx0PE</th>
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<tbody>
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<td>16-bit</td>
<td>16-bit</td>
<td>32-bit SWP SIM-card security cryptocontroller</td>
<td>32-bit USB and SWP SIM-card security cryptocontroller</td>
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<tr>
<td>SIM-card controller</td>
<td>SIM-card controller</td>
<td>ISO 7816, Mifare-compatible, SWP</td>
<td>ISO 7816, Mifare-compatible, SWP, USB</td>
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<tr>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td>400 kByte, 600, 800 kByte, 1, 1.3, 1.5 MByte</td>
<td>800 kByte, 1 MByte, 1.3, 1.5 MByte</td>
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<tr>
<td>16-bit</td>
<td>16-bit</td>
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<td>12 kByte</td>
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<td>12 kByte</td>
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<tr>
<td>16-bit</td>
<td>16-bit</td>
<td>32-bit</td>
<td>32-bit</td>
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<tr>
<td>--</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
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<tr>
<td>--</td>
<td>--</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
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<td>FCOS™ module S-MFC5.4 (4FF), sawn wafer</td>
<td>FCOS™ module S-MFC5.4 (4FF), sawn wafer</td>
<td>CSP, FCOS™ module, SMD, sawn wafer, wirebond module</td>
<td>CSP, FCOS™ module, SMD, sawn wafer, wirebond module</td>
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<tr>
<td>SIM and UICC for mobile communication</td>
<td>SIM and UICC for mobile communication</td>
<td>SIM and UICC for mobile communication, SWP UICC for NFC</td>
<td>SIM and UICC for mobile communication</td>
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<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
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**Notes:**
- AES up to 256-bit, DES, 3DES
- ECC up to 521-bit, RSA up to 4096-bit
- CC EAL5+ high, EMVCo
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<tr>
<th>Product name</th>
<th>eUICC automotive (V2X)</th>
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<tr>
<td>SLI 76CF3600P SOLID FLASH™</td>
<td>SLI 76CF5120P SOLID FLASH™</td>
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<table>
<thead>
<tr>
<th>Product description</th>
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<th>Security cryptocontroller, optimized for automotive applications (SIM)</th>
<th>Security controller, optimized for automotive applications (eSIM)</th>
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<td>504 kByte</td>
<td>608, 800 kByte, 1 MByte</td>
<td>608, 800 kByte, 1 MByte</td>
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<tr>
<td>RAM</td>
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<td>12 kByte</td>
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<td>32 kByte</td>
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<table>
<thead>
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<th>AES up to 256-bit, DES, 3DES</th>
<th>AES up to 256-bit, DES, 3DES</th>
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<td>MFF2 (VQFN-8-4)</td>
<td>MFF2 (VQFN-8-4)</td>
<td>MFF2 (VQFN-8-4)</td>
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<tr>
<td>Certifications</td>
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3) Please note that xxx in product names stands for NVM size.
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<th>SLI 97CNFx0PE</th>
<th>SLI 97CSFx0PE</th>
<th>SLI 97CSINFx0PE</th>
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</thead>
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<td>Security controller, optimized for automotive applications (eSIM)</td>
<td>Security cryptocontroller, optimized for automotive applications (eSIM)</td>
<td>Security cryptocontroller, optimized for automotive applications (eSIM, V2X)</td>
<td>Security cryptocontroller, optimized for automotive applications (eSIM, V2X)</td>
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<td>ISO 7816, SWP</td>
<td>ISO 7816, SPI</td>
<td>I2C, ISO 7816, SPI, SWP</td>
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<td>608, 800 kByte, 1 MByte</td>
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<td>1 MByte</td>
<td>800 kByte, 1 MByte</td>
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<td>32 kByte</td>
<td>32 kByte</td>
<td>32 kByte</td>
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<td>32-bit</td>
<td>32-bit</td>
<td>32-bit</td>
<td>32-bit</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>-40°C to +105°C</td>
<td>-40°C to +105°C</td>
<td>-40°C to +105°C</td>
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<tr>
<td>MFF2 (VQFN-8-4)</td>
<td>MFF2 (VQFN-8-4)</td>
<td>VQFN-32-13</td>
<td>VQFN-32-13</td>
</tr>
<tr>
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<td>CC EAL5+ high</td>
<td>CC EAL5+ high</td>
<td>CC EAL5+ high</td>
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<tr>
<td>Product name</td>
<td>eUICC industrial (M2M)</td>
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<td></td>
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<tr>
<td>--------------</td>
<td>------------------------</td>
<td></td>
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</tr>
<tr>
<td>SLM 76CFxxx1P</td>
<td>SOLID FLASH™</td>
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<td></td>
</tr>
<tr>
<td>SLM 76CF5120P</td>
<td>SOLID FLASH™</td>
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</tr>
<tr>
<td>SLM 97CFxxx0PE</td>
<td>SOLID FLASH™</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLM 97CFXxxx0PE</td>
<td>SOLID FLASH™</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product description</th>
<th>Security controller, optimized for industrial applications (SIM)</th>
<th>Security controller, optimized for industrial applications (SIM)</th>
<th>Security controller, optimized for industrial applications (eSIM)</th>
<th>Security cryptocontroller, optimized for industrial applications (eSIM)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>ISO 7816</th>
<th>ISO 7816</th>
<th>ISO 7816</th>
<th>ISO 7816</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVM</td>
<td>256, 320, 360 kByte</td>
<td>504 kByte</td>
<td>608, 800 kByte, 1 MByte</td>
<td>608, 800 kByte, 1 MByte</td>
</tr>
<tr>
<td>RAM</td>
<td>8 kByte</td>
<td>12 kByte</td>
<td>32 kByte</td>
<td>32 kByte</td>
</tr>
<tr>
<td>CPU</td>
<td>16-bit</td>
<td>16-bit</td>
<td>32-bit</td>
<td>32-bit</td>
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</tbody>
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| Symmetrical cryptography | AES up to 256-bit, DES, 3DES | AES up to 256-bit, DES, 3DES | – | AES up to 256-bit, DES, 3DES |

| Asymmetrical cryptography | – | – | – | ECC up to 521-bit, RSA up to 4096-bit |

| Ambient temperature | -40°C to +105°C | -40°C to +105°C | -40°C to +105°C | -40°C to +105°C |


| Typical applications | – | – | – | – |

| Certifications | – | – | CC EAL5+ high | CC EAL5+ high |

---

3) Please note that xxx in product names stands for NVM size.
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<thead>
<tr>
<th>SLM 97CNFxxxx0PE</th>
<th>SLM 97CNFXxxxx0PE</th>
<th>SLM 97CSINFxxxx0PE</th>
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</thead>
<tbody>
<tr>
<td><strong>Security controller,</strong> optimized for industrial applications (eSIM, NFC enabled)</td>
<td><strong>Security cryptocontroller,</strong> optimized for industrial applications (eSIM, NFC enabled)</td>
<td><strong>Security cryptocontroller,</strong> optimized for industrial applications</td>
</tr>
<tr>
<td>ISO 7816, SWP</td>
<td>ISO 7816, SWP</td>
<td>I2C, ISO 7816, SPI, SWP</td>
</tr>
<tr>
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<td>608, 800, 1 MByte</td>
<td>800 kByte, 1 MByte</td>
</tr>
<tr>
<td>32 kByte</td>
<td>32 kByte</td>
<td>32 kByte</td>
</tr>
<tr>
<td>32-bit</td>
<td>32-bit</td>
<td>32-bit</td>
</tr>
<tr>
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<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>–</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
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<td>-40°C to +105°C</td>
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</tr>
<tr>
<td>CC EAL5+ high</td>
<td>CC EAL5+ high</td>
<td>CC EAL5+ high</td>
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<tr>
<td>Product name</td>
<td>SWP UICCs</td>
<td>Embedded secure elements (eSE)</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>SLE 97CUNFXxx0PE</td>
<td>SOLID FLASH™</td>
<td></td>
</tr>
<tr>
<td>SLE 97CUNFXxx0PE</td>
<td>SOLID FLASH™</td>
<td></td>
</tr>
<tr>
<td>SLE 97CNFX1M04PE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLE 97CNFX1M54PE</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Product description</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-bit USB and SWP SIM-card security cryptocontroller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32-bit USB and SWP SIM-card security cryptocontroller</td>
<td></td>
<td>32-bit SWP security cryptocontroller for embedded secure element</td>
</tr>
<tr>
<td>32-bit SWP security cryptocontroller for embedded secure element</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
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</thead>
<tbody>
<tr>
<td>ISO 7816, Mifare-compatible, SWP, USB</td>
<td></td>
<td>ISO 7816, Mifare-compatible, SWP</td>
</tr>
<tr>
<td>ISO 7816, Mifare-compatible, SWP, USB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 7816, Mifare-compatible, SWP</td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>NVM</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
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</thead>
<tbody>
<tr>
<td>800 kByte, 1 MByte</td>
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<td>1 MByte</td>
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<td>1.3, 1.5 MByte</td>
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<td>1.5 MByte</td>
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<table>
<thead>
<tr>
<th>RAM</th>
<th>SWP UICCs</th>
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<tr>
<td>32 kByte</td>
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<td>32 kByte</td>
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</table>

<table>
<thead>
<tr>
<th>ROM</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>–</td>
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<td>–</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
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</thead>
<tbody>
<tr>
<td>32-bit</td>
<td></td>
<td>32-bit</td>
</tr>
<tr>
<td>32-bit</td>
<td></td>
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<tr>
<td>32-bit</td>
<td></td>
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<tr>
<td>32-bit</td>
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</table>

<table>
<thead>
<tr>
<th>Symmetrical cryptography</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td></td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Asymmetrical cryptography</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td></td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
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</thead>
<tbody>
<tr>
<td>-25°C to +85°C</td>
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<td>-25°C to +85°C</td>
</tr>
<tr>
<td>-25°C to +85°C</td>
<td></td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>-25°C to +85°C</td>
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<td>-25°C to +85°C</td>
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<td>-25°C to +85°C</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Delivery forms</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSP, FCOS™ module, SMD, VQFN-8, sawn wafer, wirebond module</td>
<td></td>
<td>CSP, SMD, sawn wafer</td>
</tr>
<tr>
<td>CSP, FCOS™ module, S-MFC5.4, S-MFC5.6, S-MFC5.8-8-1, sawn wafer, wirebond module</td>
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<td></td>
</tr>
<tr>
<td>CSP, SMD, sawn wafer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSP, sawn wafer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typical applications</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIM and UICC for mobile communication</td>
<td></td>
<td>NFC embedded secure element - IC</td>
</tr>
<tr>
<td>SIM and UICC for mobile communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC embedded secure element - IC</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Certifications</th>
<th>SWP UICCs</th>
<th>Embedded secure elements (eSE)</th>
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</thead>
<tbody>
<tr>
<td>CC EAL5+ high, EMVCo</td>
<td></td>
<td>CC EAL5+ high, EMVCo</td>
</tr>
<tr>
<td>CC EAL5+ high, EMVCo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC EAL6+ high, EMVCo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC EAL5+ high, EMVCo</td>
<td></td>
<td></td>
</tr>
</tbody>
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3) Please note that xxx in product names stands for NVM size
<table>
<thead>
<tr>
<th>Model</th>
<th>Features and Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLE 97CSNFX1M04PE</td>
<td>32-bit SWP security cryptocontroller for embedded secure element, GPIOs, ISO 7816, Mifare-compatible, SPI, SWP, 1 MByte, 32 kByte, 32-bit AES up to 256-bit, DES, 3DES, ECC up to 521-bit, RSA up to 4096-bit, -25°C to +85°C, CSP, SMD, sawn wafer, NFC embedded secure element - IC, CC EAL5+ high, EMVCo</td>
</tr>
<tr>
<td>SLE 97CSNFX1M54PE</td>
<td>32-bit SWP security cryptocontroller for embedded secure element, GPIOs, ISO 7816, Mifare-compatible, SPI, SWP, 1.5 MByte, 32 kByte, 32-bit AES up to 256-bit, DES, 3DES, ECC up to 521-bit, RSA up to 4096-bit, -25°C to +85°C, CSP, sawn wafer, NFC embedded secure element - IC, CC EAL5+ high, EMVCo</td>
</tr>
<tr>
<td>SLC 37ESAxxx</td>
<td>32-bit SWP security cryptocontroller for embedded secure element, GPIOs, ISO 7816, Mifare-compatible, SPI, SWP, 1.2 MByte, 1.5 MByte, 32-bit AES up to 256-bit, DES, 3DES, ECC up to 521-bit, RSA up to 4096-bit, -25°C to +85°C, CSP, SMD, sawn wafer, NFC embedded secure element - IC, CC EAL6+ high, EMVCo</td>
</tr>
<tr>
<td><strong>New from Jan '18</strong></td>
<td>32-bit SWP security cryptocontroller for embedded secure element, GPIOs, ISO 7816, Mifare-compatible, SPI, SWP, 1.2, 1.5, 2.0 MByte, 48 kByte, 32-bit AES up to 256-bit, DES, 3DES, ECC up to 521-bit, RSA up to 2048-bit, -25°C to +85°C, CSP, SMD, sawn wafer, NFC embedded secure element - IC, CC EAL6+ high, EMVCo</td>
</tr>
</tbody>
</table>
# Boosted NFC Secure Elements

<table>
<thead>
<tr>
<th>Product name</th>
<th>SLE 77CAFX2400P(M)</th>
<th>SLE 78CAFX1M1SPHM</th>
<th>SLE 78CAFX4000P(M)</th>
<th>SLE 78CAFX5xxxSPHM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NFC Optimized</td>
<td>NFC Optimized</td>
<td>NFC Optimized</td>
<td>NFC Optimized</td>
</tr>
<tr>
<td></td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
</tr>
</tbody>
</table>

## Product Description
- Security cryptocontroller designed for boosted NFC
- Boosted NFC secure element (SE)
- Boosted NFC secure element (SE)
- Boosted NFC secure element (SE)

## Interfaces
- ACLB, ISO 7816, Mifare-compatible
- ACLB, I2C, ISO 7816, Mifare-compatible
- ACLB, ISO 7816, Mifare-compatible
- ACLB, GPIOs, ISO 7816, Mifare-compatible, SPI

<table>
<thead>
<tr>
<th>NVM</th>
<th>240 kByte</th>
<th>628 kByte</th>
<th>400 kByte</th>
<th>500 kByte</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>6 kByte</td>
<td>12 kByte</td>
<td>8 kByte</td>
<td>8, 12, 18 kByte</td>
</tr>
<tr>
<td>ROM</td>
<td>–</td>
<td>444 kByte</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>CPU</td>
<td>16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>Symmetrical cryptography</td>
<td>DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES, ECC, RSA</td>
<td>AES up to 256-bit, DES, 3DES, ECC, RSA</td>
<td>AES up to 256-bit, DES, 3DES, ECC, RSA</td>
</tr>
<tr>
<td>Asymmetrical cryptography</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>Delivery forms</td>
<td>Sawn wafer</td>
<td>Sawn wafer</td>
<td>Sawn wafer</td>
<td>Sawn wafer</td>
</tr>
<tr>
<td>Typical applications</td>
<td>Boosted secure element for NFC (Near-Field Communication)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Certifications</td>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
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</tbody>
</table>

Please note that xxx in product names stands for RAM size.
<table>
<thead>
<tr>
<th>SLE 78CAFX628SPHM</th>
<th>SLE 78CAX5xxxSPHM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boosted NFC secure element (SE)</strong></td>
<td>Boosted NFC secure element (SE)</td>
</tr>
<tr>
<td>ACLB, I2C, ISO 7816, Mifare-compatible</td>
<td>ACLB, GPIOs, ISO 7816, Mifare-compatible, SPI</td>
</tr>
<tr>
<td>628 kByte</td>
<td>500 kByte</td>
</tr>
<tr>
<td>12 kByte</td>
<td>8, 12, 18 kByte</td>
</tr>
<tr>
<td>–</td>
<td>182 kByte</td>
</tr>
<tr>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES, ECC, RSA</td>
<td>AES up to 256-bit, DES, 3DES, ECC, RSA</td>
</tr>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>Sawn wafer</td>
<td>Sawn wafer</td>
</tr>
<tr>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
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## NFC tags

<table>
<thead>
<tr>
<th>Product name</th>
<th>SLE 66R01PN</th>
<th>SLE 66R32P</th>
<th>SLE 66R16P</th>
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</thead>
<tbody>
<tr>
<td>NFC Ready</td>
<td>NFC Ready</td>
<td>NFC Ready</td>
<td>NFC Ready</td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>my-d™ move NFC, pre-configured NFC memory</td>
<td>my-d™ NFC, pre-configured NFC memory</td>
<td>my-d™ NFC, pre-configured NFC memory</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
<td>ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
<td>ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
</tr>
<tr>
<td><strong>Memory organization</strong></td>
<td>1 fixed sector, pre-configured NFC memory</td>
<td>1 fixed sector, pre-configured NFC memory</td>
<td>1 fixed sector, pre-configured NFC memory</td>
</tr>
<tr>
<td><strong>Counter</strong></td>
<td>16-bit counter, anti-tearing support</td>
<td>16-bit counter, anti-tearing support</td>
<td>16-bit counter, anti-tearing support</td>
</tr>
<tr>
<td><strong>EEPROM</strong></td>
<td>128 byte (user), 24 byte (admin)</td>
<td>1048 byte (admin), 4072 byte (user)</td>
<td>2024 byte (user), 536 byte (admin)</td>
</tr>
<tr>
<td><strong>Security features</strong></td>
<td>32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter, unique serial number</td>
<td>Individual page locking, unique serial number</td>
<td>Individual page locking, unique serial number</td>
</tr>
<tr>
<td><strong>Distance (read/write)</strong></td>
<td>Typically up to 10 cm and above</td>
<td>Typically up to 10 cm and above</td>
<td>Typically up to 10 cm and above</td>
</tr>
<tr>
<td><strong>Data rate</strong></td>
<td>106 kbit/s to card, 106 kbit/s to reader</td>
<td>106 kbit/s to card, up to 848 kbit/s to reader</td>
<td>106 kbit/s to card, up to 848 kbit/s to reader</td>
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<td><strong>Endurance</strong></td>
<td>10000</td>
<td>100000</td>
<td>100000</td>
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<td><strong>Retention time</strong></td>
<td>&gt;5 years</td>
<td>&gt;10 years</td>
<td>&gt;10 years</td>
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<tr>
<td><strong>Tools</strong></td>
<td>Evaluation kit contactless</td>
<td>Evaluation kit contactless</td>
<td>Evaluation kit contactless</td>
</tr>
<tr>
<td><strong>Delivery forms</strong></td>
<td>NiAu-bump, sawn wafer</td>
<td>MCC2, MCC8, NiAu-bump</td>
<td>MCC2, MCC8, NiAu-bump</td>
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<tr>
<td><strong>Typical applications</strong></td>
<td>Device pairing, smart posters, consumer goods information</td>
<td>Device pairing, smart posters, consumer goods information</td>
<td>Device pairing, smart posters, consumer goods information</td>
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### Government Identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Dual-interface &amp; contactless security controller</th>
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<tbody>
<tr>
<td>SLE 77CLF1001P</td>
<td>Contactless security cryptocontroller with dual-interface</td>
</tr>
<tr>
<td>SLE 77CLFXXX0PH</td>
<td>Contactless security cryptocontroller with dual-interface</td>
</tr>
<tr>
<td>SLE 78CLXXX0P</td>
<td>Contactless security cryptocontroller with dual-interface</td>
</tr>
<tr>
<td>SLE 78CLFXXX0PH</td>
<td>Contactless security cryptocontroller with dual-interface</td>
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#### Product description
- Contactless security controller
- Contactless security cryptocontroller with dual-interface
- Contactless security cryptocontroller with dual-interface
- Contactless security cryptocontroller with dual-interface

#### Interfaces
- ISO 14443 A/B, ISO 18092 passive mode, Mifare-compatible
- ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible
- ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible
- ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible

#### EEPROM
- 36, 80, 128, 144, 160 kByte
- 200, 240 kByte
- 8 kByte
- 8 kByte

#### NVM
- 100 kByte
- 200, 240 kByte
- 240, 300, 404 kByte

#### RAM
- 4 kByte
- 6 kByte
- 8 kByte
- 8 kByte

#### ROM
- 280 kByte

#### CPU
- 16-bit
- 16-bit
- Dual 16-bit
- Dual 16-bit

#### Symmetrical cryptography
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES

#### Asymmetrical cryptography
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit

#### Ambient temperature
- -25°C to +85°C
- -25°C to +85°C
- -25°C to +85°C
- -25°C to +85°C

#### Delivery forms
- Sawn wafer, contactless module
- Sawn wafer, contactless module, dual-interface module
- Sawn wafer, contactless module, dual-interface module
- Sawn wafer, contactless module, dual-interface module

#### Typical applications
- National eID, eHealth card / eSocial card, eDriver’s license, eVehicle registration card / eCar registration
- National eID, eHealth card / eSocial card, eDriver’s license, eVehicle registration card / eCar registration
- National eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
- National eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature

#### Certifications
- CC EAL5+ high
- CC EAL5+ high
- CC EAL5+ high
- CC EAL6+ high, EMVCo

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1) Please note that xxx in product names stands for NVM size
2) Supporting CIPURSE™ for all contactless and NFC applications
<table>
<thead>
<tr>
<th>Product name</th>
<th>SLE 78CLFXxx0PH</th>
<th>SLE 78CLFXxxVPH</th>
<th>SLE 78CLFXxxVPH</th>
<th>SLE 78CLFX1M10PH</th>
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<tr>
<td>Product description</td>
<td>Contactless security cryptocontroller with dual-interface</td>
<td>Contactless security cryptocontroller with dual-interface</td>
<td>Contactless security cryptocontroller with dual-interface</td>
<td>Contactless security cryptocontroller with dual-interface</td>
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<td>EEPROM</td>
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<td>–</td>
<td>–</td>
</tr>
<tr>
<td>NVM</td>
<td>500, 628 kByte</td>
<td>300, 404 kByte</td>
<td>500, 628 kByte</td>
<td>628 kByte</td>
</tr>
<tr>
<td>RAM</td>
<td>12 kByte</td>
<td>8 kByte</td>
<td>12 kByte</td>
<td>12 kByte</td>
</tr>
<tr>
<td>ROM</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>444 kByte</td>
</tr>
<tr>
<td>CPU</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>Symmetrical cryptography</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
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<tr>
<td>Asymmetrical cryptography</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>Ambient temperature</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>Delivery forms</td>
<td>Sawn wafer, contactless module, dual-interface module</td>
<td>Sawn wafer, contactless module, dual-interface module</td>
<td>Sawn wafer, contactless module, dual-interface module</td>
<td>Sawn wafer, contactless module, dual-interface module</td>
</tr>
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<td>Certifications</td>
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<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
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</tbody>
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*Please note that xxx in product names stands for NVM size

*Supporting CIPURSE™ for all contactless and NFC applications
<table>
<thead>
<tr>
<th>Model</th>
<th>Contact-based security controller</th>
<th>Contactless security cryptocontroller with dual-interface</th>
<th>Security controller</th>
<th>Security cryptocontroller</th>
<th>Security cryptocontroller</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLE 78CLFXxxxVPH</td>
<td>Integrity Guard, SOLID FLASH™, VHBR</td>
<td>Contactless security cryptocontroller with dual-interface</td>
<td>Security controller</td>
<td>Security cryptocontroller</td>
<td>Security cryptocontroller</td>
</tr>
<tr>
<td>SLC 52GDAxxx</td>
<td>Integrity Guard, SOLID FLASH™, VHBR</td>
<td>Contactless security cryptocontroller with dual-interface</td>
<td>Security controller</td>
<td>Security cryptocontroller</td>
<td>Security cryptocontroller</td>
</tr>
<tr>
<td>SLE 77CFXxxx0P</td>
<td>SOLID FLASH™</td>
<td>ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
</tr>
<tr>
<td>SLE 78CFXxxx0PH</td>
<td>SOLID FLASH™</td>
<td>ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
</tr>
<tr>
<td>Sawn wafer, contactless module, dual-interface module</td>
<td>Sawn wafer, contactless module, dual-interface module</td>
<td>Sawn wafer, contact-based module</td>
<td>Sawn wafer, contact-based module</td>
<td>Sawn wafer, contact-based module</td>
<td>Sawn wafer, contact-based module</td>
</tr>
<tr>
<td>National eID, ePassport, eHealth card / eSocial card / eCar registration, eSignature</td>
<td>National eID, ePassport, eHealth card / eSocial card / eCar registration, eSignature</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card</td>
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<table>
<thead>
<tr>
<th>Feature</th>
<th>SLE 78CLFXxxxVPH</th>
<th>SLC 52GDAxxx</th>
<th>SLE 77CF1200P</th>
<th>SLE 77CFXxxx0P</th>
<th>SLE 78CFXxxx0PH</th>
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<tbody>
<tr>
<td>CPU</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>16-bit</td>
<td>16-bit</td>
<td>Dual 16-bit</td>
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<tr>
<td>Encryption</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES, DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>ECC</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>-</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>Operating Temperature</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
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<td>Memory Capacity</td>
<td>628 kByte</td>
<td>248, 348, 448 kByte</td>
<td>120 kByte</td>
<td>184, 200, 240 kByte</td>
<td>240, 300, 404 kByte</td>
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<td>Key Size</td>
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<td>12 kByte</td>
<td>4 kByte</td>
<td>6 kByte</td>
<td>8 kByte</td>
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<tr>
<td>Flash Memory Capacity</td>
<td>444 kByte</td>
<td>16-bit</td>
<td>16-bit</td>
<td>-</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>National eID, ePassport, eHealth card / eSocial card / eCar registration, eSignature</td>
<td>National eID, ePassport, eHealth card / eSocial card / eCar registration, eSignature</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card</td>
<td>National eID, eHealth card / eSocial card / eTachograph, eVehicle registration card / eCar registration, eSignature</td>
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<tr>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
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<tr>
<td><strong>Product name</strong></td>
<td><strong>Contact-based security controller</strong></td>
<td><strong>SLE 78CFX1M10PH</strong></td>
<td><strong>SLC 52GCAxxx</strong></td>
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<tr>
<td><strong>Product description</strong></td>
<td>Security cryptocontroller</td>
<td>Security cryptocontroller</td>
<td>Security cryptocontroller</td>
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<td><strong>Interfaces</strong></td>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td>ISO 7816</td>
<td></td>
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<tr>
<td><strong>EEPROM</strong></td>
<td>–</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
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<tr>
<td><strong>NVM</strong></td>
<td>500, 628 kByte</td>
<td>628 kByte</td>
<td>200, 300, 448 kByte</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>12 kByte</td>
<td>12 kByte</td>
<td>12 kByte</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ROM</strong></td>
<td>–</td>
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<td>444 kByte</td>
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<td></td>
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<tr>
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<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
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<tr>
<td><strong>Symmetrical cryptography</strong></td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td></td>
<td></td>
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<tr>
<td><strong>Asymmetrical cryptography</strong></td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<tr>
<td><strong>Ambient temperature</strong></td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
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<tr>
<td><strong>Delivery forms</strong></td>
<td>Sawn wafer, contact-based module</td>
<td>Sawn wafer, contact-based module</td>
<td>Sawn wafer, contact-based module</td>
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<tr>
<td><strong>Typical applications</strong></td>
<td>National eID, eHealth card / eSocial card, eDriver’s license, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
<td>National eID, eHealth card / eSocial card, eDriver’s license, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
<td>National eID, eHealth card / eSocial card, eDriver’s license, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
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<td><strong>Certifications</strong></td>
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<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
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Please note that xxx in product names stands for NVM size.
## Government Identification Solutions

<table>
<thead>
<tr>
<th>Product name 5)</th>
<th>Java Card™ platform on SLE 77</th>
<th>Java Card™ platform on SLE 78</th>
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</thead>
<tbody>
<tr>
<td>Product name</td>
<td>SLJ 32GDA064CL SOLID FLASH™</td>
<td>SLJ 52GCxxxxCL Integrity Guard</td>
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<tr>
<td></td>
<td>SLJ 52GLxxxxCL Integrity Guard</td>
<td>SLJ 52GCxxxxCR SOLID FLASH™</td>
</tr>
<tr>
<td>Product description</td>
<td>Java Card platform</td>
<td>Java Card platform</td>
</tr>
<tr>
<td>Communication interfaces</td>
<td>ISO 14443 A/B, ISO 7816</td>
<td>ISO 7816</td>
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<tr>
<td>ISO 14443 A/B, ISO 7816, Mifare-compatible</td>
<td>ISO 7816</td>
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</tr>
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<td>Supported standards</td>
<td>GP 2.1.1, JC 3.0</td>
<td>GP 2.1.1, JC3.0</td>
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<td>GP 2.2.1, JC3.0</td>
<td>GP 2.2.1, JC3.0</td>
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<tr>
<td>GP 2.2.1, JC3.0</td>
<td>GP 2.2.1, JC3.0</td>
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<td>36, 80, 128, 150 kByte</td>
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<tr>
<td>36, 80, 128, 150 kByte</td>
<td>36, 80, 128 kByte</td>
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<tr>
<td>Operating system</td>
<td>Trusted Logic (jTOP ID flex)</td>
<td>Trusted Logic (jTOP ID)</td>
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<tr>
<td>Trusted Logic (jTOP ID)</td>
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<td>Trusted Logic (jTOP ID)</td>
<td>Oracle (Oracle JCOS I)</td>
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<tr>
<td>Symmetrical cryptography</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
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<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
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<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
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<td>Asymmetrical cryptography</td>
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<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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</tr>
<tr>
<td>Typical applications</td>
<td>All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
<td>All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
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<tr>
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<td>All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
<td>All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver’s license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature</td>
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<td>CC EAL5+ high</td>
</tr>
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<td>CC EAL5+ high</td>
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<tr>
<td>CC EAL5+ high</td>
<td>CC EAL5+ high, FIPS 140-2</td>
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5) Please note that xxx in product names stands for EEPROM size
## Government Identification Solutions

<table>
<thead>
<tr>
<th>Product name</th>
<th>Java Card™ platform on SLE 78</th>
<th>Java Card™ platform on SLE 78 with applet</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLJ 52GCAxxxCC</td>
<td>[New] Integrity Guard</td>
<td>SOLID FLASH™</td>
</tr>
<tr>
<td>SLJ 52GCA080BL</td>
<td>[New] Integrity Guard</td>
<td>SOLID FLASH™</td>
</tr>
</tbody>
</table>

### Product description
- Java Card platform
- Java Card platform
- Java Card platform including eDriver License (eMRTD applet)
- Java Card platform including eDriver License (eMRTD applet)

### Communication interfaces
- ISO 7816
- ISO 14443 A/B VHBR, ISO 7816
- ISO 7816
- ISO 14443 A/B, ISO 7816

### Supported standards
- GP2.2.1, JC3.0
- GP2.2.1, JC3.0
- ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9
- ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9

### EEPROM
- 36, 80, 128 kByte
- 36, 80, 128 kByte
- 80 kByte
- 80 kByte

### Operating system
- Oracle (Oracle JCOS II)
- Oracle (Oracle JCOS II)
- Trusted Logic (jTOP ID)
- Trusted Logic (jTOP ID)

### Symmetrical cryptography
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES

### Asymmetrical cryptography
- ECC up to 521-bit, RSA up to 3072-bit
- ECC up to 521-bit, RSA up to 3072-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit

### Typical applications
- All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
- All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
- eDriver's license
- eDriver's license

### Certifications
- CC EAL5+ high
- CC EAL5+ high
- –
- –

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5) Please note that xxx in product names stands for EEPROM size
<table>
<thead>
<tr>
<th>SLJ 52GCA080BR</th>
<th>SLJ 52GCA080BC</th>
<th>SLJ 52GDA080RC</th>
<th>SLJ 52GDA128AL</th>
<th>SLJ 52GLA080AR</th>
</tr>
</thead>
<tbody>
<tr>
<td>🀅 Integrity Guard</td>
<td>🀅 Integrity Guard</td>
<td>🀅 Integrity Guard</td>
<td>🀅 Integrity Guard</td>
<td>🀅 Integrity Guard</td>
</tr>
<tr>
<td>🂪 SOLID FLASH™</td>
<td>🂪 SOLID FLASH™</td>
<td>🂪 SOLID FLASH™</td>
<td>🂪 SOLID FLASH™</td>
<td>🂪 SOLID FLASH™</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Java Card platform including eDriver License (eMRTD applet)</th>
<th>Java Card platform including eDriver License (eMRTD applet)</th>
<th>Java Card platform including eDriver License (eMRTD applet)</th>
<th>Java Card platform including eMRTD applet</th>
<th>Java Card platform including eMRTD applet</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9</td>
<td>ISO 18013 BAP, EAC, SAC, ISO 7816-4, 8, 9</td>
<td>ISO 18013 BAP, EAC, SAC, ISO 7816-4, 8, 9</td>
<td>ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9</td>
<td>ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9</td>
</tr>
<tr>
<td>80 kByte</td>
<td>80 kByte</td>
<td>80 kByte</td>
<td>128 kByte</td>
<td>80 kByte</td>
</tr>
<tr>
<td>Oracle (Oracle JCOS I)</td>
<td>Oracle (Oracle JCOS II)</td>
<td>Oracle (Oracle JCOS II)</td>
<td>Trusted Logic (jTOP ID)</td>
<td>Oracle (Oracle JCOS I)</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>ECC up to 384-bit, RSA up to 1536-bit</td>
<td>ECC up to 384-bit, RSA up to 1536-bit</td>
<td>ECC up to 384-bit, RSA up to 1536-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 384-bit, RSA up to 1536-bit</td>
</tr>
<tr>
<td>eDriver’s license</td>
<td>eDriver’s license</td>
<td>eDriver’s license</td>
<td>ePassport, eResidence permit, eIdentity card</td>
<td>ePassport, eResidence permit, eIdentity card</td>
</tr>
<tr>
<td>–</td>
<td>–</td>
<td>–</td>
<td>CC EAL4+ high</td>
<td>–</td>
</tr>
</tbody>
</table>
## Government Identification Solutions

<table>
<thead>
<tr>
<th>Product name</th>
<th>Java Card™ platform on SLE 78 with applet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SLJ 52GDA080HC</strong></td>
<td>SOLID FLASH™ Integrity Guard VHBR Coil on Module</td>
</tr>
<tr>
<td><strong>SLJ 52GCA080DC</strong></td>
<td>SOLID FLASH™ Integrity Guard VHBR Coil on Module</td>
</tr>
<tr>
<td><strong>SLJ 52GDA080KC</strong></td>
<td>SOLID FLASH™ Integrity Guard VHBR Coil on Module</td>
</tr>
</tbody>
</table>

### Product description
- **SLJ 52GDA080HC**: Java Card platform including eMRTD applet
- **SLJ 52GCA080DC**: Java Card platform including PKI applet
- **SLJ 52GDA080KC**: Java Card platform including PKI applet

### Communication interfaces
- **ISO 14443 A/B VHBR, ISO 7816**
- **ISO 7816**
- **ISO 14443 A/B VHBR, ISO 7816**

### Supported standards
- ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9
- ICAO EAC, SAC, PKCS#15
- ICAO EAC, SAC, PKCS#15

### EEPROM
- 80 kByte
- 80 kByte
- 80 kByte

### Operating system
- Oracle (Oracle JCOS II)
- Oracle (Oracle JCOS II)
- Oracle (Oracle JCOS II)

### Symmetrical cryptography
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES

### Asymmetrical cryptography
- ECC up to 384-bit, RSA up to 1536-bit
- ECC up to 384-bit, RSA up to 2048-bit
- ECC up to 384-bit, RSA up to 2048-bit

### Typical applications
- ePassport, eResidence permit, eIdentity card
- eAuthentication, eHealthcare, eSignature, eWelfare social security, secured file transfer
- eAuthentication, eHealthcare, eSignature, eWelfare social security, secured file transfer

### Certifications
- CC EAL4+ high
- CC EAL4+ high
- CC EAL4+ high
## Native generic ID platform on SLE 78

<table>
<thead>
<tr>
<th>Product name</th>
<th>SLN 52GCAxxxYM</th>
<th>SLN 52GDAXxxYM</th>
<th>SLN 52GDAXxxK</th>
<th>SLN 52GDAXxxHK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Integrity Guard</td>
<td>Integrity Guard</td>
<td>SOLID FLASH™</td>
<td>SOLID FLASH™</td>
</tr>
</tbody>
</table>

### Product description
- Native generic ID platform including ePass, eDriver’s license and eSign use case
- Native generic ID platform including ePass, eDriver’s license and eSign use case
- Native generic ID platform including ePass, eDriver’s license and eSign use case
- Native generic ID platform including ePass use case

### Communication interfaces
- ISO 7816
- ISO 14443 A/B, ISO 7816
- ISO 14443 A/B VHBR, ISO 7816
- ISO 14443 A/B VHBR, ISO 7816

### Supported standards
- BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15
- BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15
- BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15
- BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA

### EEPROM
- 36, 80, 128 kByte
- 36, 80, 128 kByte
- 36, 80, 128 kByte
- 36, 80, 128 kByte

### Operating system
- Masktech (MTCOS ID 2.2)
- Masktech (MTCOS ID 2.2)
- Masktech (MTCOS ID 2.5)
- Masktech (MTCOS ID 2.5)

### Symmetrical cryptography
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES

### Asymmetrical cryptography
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit

### Typical applications
- eAuthentication, eDriver’s license, eHealthcare, eldentity card, ePassport, eSignature, eWelfare social security, secured file transfer
- eAuthentication, eDriver’s license, eHealthcare, eldentity card, ePassport, eSignature, eWelfare social security, secured file transfer
- eAuthentication, eDriver’s license, eHealthcare, eldentity card, ePassport, eSignature, eWelfare social security, secured file transfer
- eldentity card, ePassport, eResidence permit

### Certifications
- ePass CC EAL5+ high
- ePass CC EAL5+ high
- ePass CC EAL5+ high
- ePass CC EAL5+ high

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6 Please note that xxx in product names stands for EEPROM size, y specifies an application (e.g. eAuthentication, eHealthcare, eSignature, etc.)
<table>
<thead>
<tr>
<th>Product name</th>
<th>USB tokens (16-bit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLE 78CUFXxxx9PH</td>
<td>SLE 78CUFX3000PH</td>
</tr>
<tr>
<td>Product description</td>
<td>USB security cryptocontroller for use in chipcard form factor</td>
</tr>
<tr>
<td>Interfaces</td>
<td>ISO 7816, USB 2.0</td>
</tr>
<tr>
<td>NVM</td>
<td>300, 500 kByte</td>
</tr>
<tr>
<td>RAM</td>
<td>12 kByte</td>
</tr>
<tr>
<td>ROM</td>
<td>–</td>
</tr>
<tr>
<td>CPU</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>Crypto coprocessor symmetrical</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>Crypto coprocessor asymmetrical</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>Delivery forms</td>
<td>Sawn wafer</td>
</tr>
<tr>
<td>Certifications</td>
<td>CC EAL6+ high, EMVCo</td>
</tr>
</tbody>
</table>

[^1] Please note that xxx in product names stands for NVM size
<table>
<thead>
<tr>
<th>SLE 78CLUFX5007PH</th>
<th>SLE 78CLUX5000PH</th>
<th>SLE 78CLUX5007PH</th>
<th>SLE 78CUFX5000PH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-interface USB security cryptocontroller with a contactless interface</td>
<td>Multi-interface USB security cryptocontroller with a contactless interface</td>
<td>Multi-interface USB security cryptocontroller with a contactless interface</td>
<td>Multi-interface USB security cryptocontroller</td>
</tr>
<tr>
<td>12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0, optimized for sub-ID1</td>
<td>12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0</td>
<td>12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0, optimized for sub-ID1</td>
<td>12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0</td>
</tr>
<tr>
<td>500 kByte</td>
<td>500 kByte</td>
<td>500 kByte</td>
<td>500 kByte</td>
</tr>
<tr>
<td>16 kByte</td>
<td>16 kByte</td>
<td>16 kByte</td>
<td>16 kByte</td>
</tr>
<tr>
<td>–</td>
<td>182 kByte</td>
<td>182 kByte</td>
<td>–</td>
</tr>
<tr>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
<td>Dual 16-bit</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td>VQFN-32, sawn wafer</td>
<td>VQFN-32, sawn wafer</td>
<td>VQFN-32, sawn wafer</td>
<td>VQFN-32, sawn wafer</td>
</tr>
<tr>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
<td>CC EAL6+ high, EMVCo</td>
</tr>
</tbody>
</table>
## USB Tokens

<table>
<thead>
<tr>
<th>Product name</th>
<th>USB tokens (32-bit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLE 97CUFX500FPH</td>
<td>SLE 97CUFX5000PH</td>
</tr>
</tbody>
</table>

### Product description
- USB security cryptocontroller for use in chipcard formfactor
- USB security cryptocontroller
- Multi-interface USB security cryptocontroller
- Multi-interface USB security cryptocontroller for industrial use

### Interfaces
- ISO 7816, USB 2.0
- ISO 7816, USB 2.0
- 4 GPIOs, I2C, ISO 7816, SPI, USB 2.0
- 4 GPIOs, I2C, ISO 7816, SPI, USB 2.0

### NVM
- 504 kByte
- 504 kByte
- 1 MByte
- 1 MByte

### RAM
- 20 kByte
- 20 kByte
- 32 kByte
- 32 kByte

### CPU
- 32-bit
- 32-bit
- 32-bit
- 32-bit

### Crypto coprocessor symmetrical
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES
- AES up to 256-bit, DES, 3DES

### Crypto coprocessor asymmetrical
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit
- ECC up to 521-bit, RSA up to 4096-bit

### Ambient temperature
- -25°C to +85°C
- -25°C to +85°C
- -25°C to +85°C
- -40°C to +105°C

### Delivery forms
- Sawn wafer
- Sawn wafer, VQFN-32, VQFN-8, USON 8
- VQFN-32, sawn wafer
- VQFN-32, sawn wafer

### Certifications
- CC EAL5+ high, EMVCo
- CC EAL5+ high, EMVCo
- CC EAL5+ high, EMVCo
- CC EAL5+ high, EMVCo

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*Please note that xxx in product names stands for NVM size*
<table>
<thead>
<tr>
<th>SLE 97CUSIFXxxx0PH</th>
<th>SLM 97CUSIFXxxx0PH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi-interface USB security cryptocontroller</strong></td>
<td><strong>Multi-interface USB security cryptocontroller for industrial use</strong></td>
</tr>
<tr>
<td>4 GPIOs, I2C, ISO 7816, SPI, USB 2.0</td>
<td>4 GPIOs, I2C, ISO 7816, SPI, USB 2.0</td>
</tr>
<tr>
<td>504, 792 kByte</td>
<td>504, 792 kByte</td>
</tr>
<tr>
<td>24 kByte</td>
<td>24 kByte</td>
</tr>
<tr>
<td>32-bit</td>
<td>32-bit</td>
</tr>
<tr>
<td>AES up to 256-bit, DES, 3DES</td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
</tr>
<tr>
<td>-25°C to +85°C</td>
<td>-40°C to +105°C</td>
</tr>
<tr>
<td>VQFN-32, sawn wafer</td>
<td>VQFN-32, sawn wafer</td>
</tr>
<tr>
<td>CC EAL5+ high, EMVCo</td>
<td>CC EAL5+ high, EMVCo</td>
</tr>
<tr>
<td>Security products with integrated CIPURSE™ functionality</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Product name</strong></td>
<td>SLM 10TLC002L</td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>CIPURSE™move</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>ISO 14443 A, NFC Forum Type 4 Tag configurable</td>
</tr>
<tr>
<td><strong>Supported profiles</strong></td>
<td>CIPURSE™L profile</td>
</tr>
<tr>
<td><strong>Capabilities</strong></td>
<td>1 CIPURSE™ application</td>
</tr>
<tr>
<td><strong>EEPROM</strong></td>
<td>304 Byte</td>
</tr>
<tr>
<td><strong>Cryptography</strong></td>
<td>AES 128-bit</td>
</tr>
<tr>
<td><strong>Delivery forms</strong></td>
<td>MCC8, NiAu-bump, sawn wafer</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td>CIPURSE™ development kit</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Public transport, ticketing, access management, micropayment</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>CIPURSE™</td>
</tr>
</tbody>
</table>

5) Please note that xxx in product names stands for EEPROM size
<table>
<thead>
<tr>
<th><strong>Product name</strong>&lt;sup&gt;3)&lt;/sup&gt;</th>
<th>SLE 77CLFxxx1P(M)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>Contactless security controller</td>
</tr>
<tr>
<td><strong>Interfaces</strong></td>
<td>ISO 14443 A/B, ISO 18092 passive mode, Mifare-compatible</td>
</tr>
<tr>
<td><strong>NVM</strong></td>
<td>60, 100 kByte</td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>4 kByte</td>
</tr>
<tr>
<td><strong>CPU</strong></td>
<td>16-bit</td>
</tr>
<tr>
<td><strong>Cryptography</strong></td>
<td>AES up to 256-bit, DES, 3DES</td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
<td>-25°C to +85°C</td>
</tr>
<tr>
<td><strong>Delivery forms</strong></td>
<td>MCC8, NiAu-bump, sawn wafer</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>Public transport, ticketing</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td>CC EAL5+ high</td>
</tr>
</tbody>
</table>

<sup>3</sup> Please note that xxx in product names stands for NVM size
<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th><strong>Contactless memory-based card and ticket products</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>- <em>(E7) = Supporting 7-byte UID, (I) = Supporting 4-byte fixed number, non unique ID, (R) = Supporting 4-byte reused ID, Intelligent 1 kByte EEPROM</em></td>
</tr>
<tr>
<td><strong>Interface</strong></td>
<td>- ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
</tr>
<tr>
<td><strong>Memory organization</strong></td>
<td>- 16 fixed sectors</td>
</tr>
<tr>
<td><strong>Counter</strong></td>
<td>- 16-bit counter, anti-tearing support</td>
</tr>
<tr>
<td><strong>EEPROM</strong></td>
<td>- 768 Byte (user), 256 Byte (admin)</td>
</tr>
<tr>
<td><strong>Security features</strong></td>
<td>- Mutual three-pass authentication with 48-bit keys, transport key</td>
</tr>
<tr>
<td><strong>Distance (read/write)</strong></td>
<td>- Typically up to 10 cm and above</td>
</tr>
<tr>
<td><strong>Data rate</strong></td>
<td>- 106 kbit/s to card, 106 kbit/s to reader</td>
</tr>
<tr>
<td><strong>Endurance</strong></td>
<td>- 100000</td>
</tr>
<tr>
<td><strong>Retention time, minimum</strong></td>
<td>- &gt;10 years</td>
</tr>
<tr>
<td><strong>Delivery forms</strong></td>
<td>- MCC2, MCC8, NiAu-bump, sawn wafer</td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td>- Evaluation kit contactless</td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
<td>- Transport ticketing, access management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SLE 66R35</strong></th>
<th><strong>SLE 66R01L</strong></th>
<th><strong>SLE 66R01P</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>my-d™ move lean</td>
<td>my-d™ move</td>
<td>-</td>
</tr>
<tr>
<td>ISO/IEC 14443-3 Type A</td>
<td>ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
<td>ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation</td>
</tr>
<tr>
<td>1 fixed sector</td>
<td>1 fixed sector</td>
<td>1 fixed sector</td>
</tr>
<tr>
<td>16 fixed sectors</td>
<td>1 fixed sector</td>
<td>1 fixed sector</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>16-bit counter, anti-tearing support</td>
</tr>
<tr>
<td>768 Byte (user), 256 Byte (admin)</td>
<td>48 Byte (user), 16 Byte (admin)</td>
<td>128 Byte (user), 24 Byte (admin)</td>
</tr>
<tr>
<td>Mutual three-pass authentication with 48-bit keys, transport key</td>
<td>Block locking, individual page locking, unique serial number</td>
<td>32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter, unique serial number</td>
</tr>
<tr>
<td>Typically up to 10 cm and above</td>
<td>Typically up to 10 cm and above</td>
<td>Typically up to 10 cm and above</td>
</tr>
<tr>
<td>106 kbit/s to card, 106 kbit/s to reader</td>
<td>106 kbit/s to card, 106 kbit/s to reader</td>
<td>106 kbit/s to card, 106 kbit/s to reader</td>
</tr>
<tr>
<td>100000</td>
<td>10000</td>
<td>10000</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>&gt;5 years</td>
<td>&gt;5 years</td>
</tr>
<tr>
<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
<td>NiAu-bump, sawn wafer</td>
<td>NiAu-bump, sawn wafer</td>
</tr>
<tr>
<td>Evaluation kit contactless</td>
<td>Evaluation kit contactless</td>
<td>Evaluation kit contactless</td>
</tr>
<tr>
<td>Transport ticketing, access management</td>
<td>Transport ticketing, access management</td>
<td>Transport ticketing, access management</td>
</tr>
<tr>
<td><strong>CIPURSE™ components for terminals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td></td>
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</tr>
<tr>
<td><strong>Product name</strong></td>
<td></td>
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<tr>
<td>CIPURSE™SAM (Secure Access Module)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLF 9630</td>
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<tr>
<td><strong>Product description</strong></td>
<td></td>
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<tr>
<td>CIPURSE™ secure access module with Mifare-compatible interface. Enables secured authentication between the reader and CIPURSE™ chip cards or cards using Mifare technology, AES128-based authentication schemes. It features a dedicated key management system including key derivation and key upload.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interface</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 7816</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Memory organization</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fully configurable, multi-application file system</td>
<td></td>
<td></td>
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<tr>
<td><strong>Security features</strong></td>
<td></td>
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<tr>
<td>3DES, AES128, AES192, AES256, CIPURSE™ and Mifare-compatible encryption, online and offline mode, secured key loading</td>
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</tr>
<tr>
<td><strong>Data rate</strong></td>
<td></td>
<td></td>
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<tr>
<td>Subject to the active interface</td>
<td></td>
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<tr>
<td><strong>Delivery forms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID-1/ID-000 card (SIM format), VQFN-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tools</strong></td>
<td></td>
<td></td>
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<tr>
<td>CIPURSE™ development kit</td>
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<tr>
<td><strong>Typical applications</strong></td>
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<td></td>
</tr>
<tr>
<td>Access control, authentication, micropayment, transport ticketing</td>
<td></td>
<td></td>
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<tr>
<td><strong>Certifications</strong></td>
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<tr>
<td>CC EAL6+ high for HW, CIPURSE™</td>
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## Turnkey solution

| Product name                  | OPTIGA™ TRUST P SLJ 52ACA | OPTIGA™ TRUST B SLE 95250 | OPTIGA™ TRUST E SLS 32AI
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<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>Programmable authentication and device security solution</td>
<td>Product authentication and brand protection solution</td>
<td>Enhanced authentication solution for high value goods</td>
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<td><strong>Interfaces</strong></td>
<td>ISO 7816</td>
<td>SWI</td>
<td>I2C</td>
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<tr>
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<td>150 kByte</td>
<td>512 bit</td>
<td>–</td>
</tr>
<tr>
<td><strong>NVM</strong></td>
<td>–</td>
<td>–</td>
<td>3 kByte</td>
</tr>
<tr>
<td><strong>RAM</strong></td>
<td>8 kByte</td>
<td>–</td>
<td>–</td>
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<tr>
<td><strong>CPU</strong></td>
<td>16-bit</td>
<td>State machine</td>
<td>16-bit</td>
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<td>AES up to 256-bit, DES, 3DES</td>
<td>–</td>
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<tr>
<td><strong>Asymmetrical cryptography</strong></td>
<td>ECC up to 521-bit, RSA up to 2048-bit</td>
<td>ECC 131-bit</td>
<td>ECC 256-bit</td>
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<td>-40°C to +85°C</td>
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<td>VQFN-32</td>
<td>TSNP-6</td>
<td>USON-10-2</td>
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<td>USB type-C, PKI networks, smart home, industrial automation, Internet of Things (IoT), authentication of system services and accessories, functionalities and parts in networked systems, M2M communication, smart metering, system configuration management, IP/software protection</td>
<td>Authentication of consumer electronics, accessories, original replacement parts</td>
<td>PKI networks, consumer electronics, smart home, industrial automation, Internet of Things (IoT), authentication of system services and accessories, original replacement parts, smart metering, system configuration management, IP/software protection</td>
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<td>–</td>
<td>–</td>
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<tr>
<td></td>
<td>Contact-based security controller</td>
<td>Pay TV</td>
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<tr>
<td><strong>Product name</strong></td>
<td>SLE 97CIFX1M00PE (SOLID FLASH™)</td>
<td>SLE 97CSFX1M00PE (SOLID FLASH™)</td>
<td>SLE 79CFXXXE (SOLID FLASH™)</td>
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<td>Security cryptocontroller</td>
<td>Security controller</td>
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<td><strong>Interfaces</strong></td>
<td>I2C, ISO 7816</td>
<td>ISO 7816, SPI</td>
<td>ISO 7816</td>
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<td><strong>EEPROM</strong></td>
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<tr>
<td><strong>NVM</strong></td>
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<td>1 MByte</td>
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<td><strong>RAM</strong></td>
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<td>32 kByte</td>
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<td>32-bit</td>
<td>32-bit</td>
<td>Dual 16-bit</td>
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<td>AES up to 256-bit, DES, 3DES</td>
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<td>ECC up to 521-bit, RSA up to 4096-bit</td>
<td>ECC up to 521-bit, RSA up to 4096-bit</td>
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<td>-25°C to +85°C</td>
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<td><strong>Delivery forms</strong></td>
<td>SMD, sawn wafer</td>
<td>SMD, sawn wafer</td>
<td>FCOS™ module, SMD, VQFN-8, sawn wafer, Wirebond module</td>
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<td><strong>Typical applications</strong></td>
<td>Authentication of system services, printers, system configuration management</td>
<td>Authentication of system services, printers, system configuration management</td>
<td>Conditional access</td>
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## OPTIGA™ trusted platform module (TPM)

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<thead>
<tr>
<th>Product name</th>
<th>OPTIGA™ SLB 9645 TT1.2</th>
<th>OPTIGA™ SLB 9645 XQ1.2</th>
<th>OPTIGA™ SLB 9645 XT1.2</th>
<th>OPTIGA™ SLB 9660 TT1.2</th>
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<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>Security cryptocontroller for trusted platform modules</td>
<td>Security cryptocontroller for trusted platform modules</td>
<td>Security cryptocontroller for trusted platform modules</td>
<td>Security cryptocontroller for trusted platform modules</td>
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<td><strong>Interfaces</strong></td>
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<td>LPC</td>
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<td><strong>CPU</strong></td>
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<tr>
<td><strong>Symmetrical cryptography</strong></td>
<td>AES, HMAC, SHA-1</td>
<td>AES, HMAC, SHA-1</td>
<td>AES, HMAC, SHA-1</td>
<td>AES, HMAC, SHA-1</td>
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<tr>
<td><strong>Asymmetrical cryptography</strong></td>
<td>RSA1024, RSA2048</td>
<td>RSA1024, RSA2048</td>
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<td>RSA1024, RSA2048</td>
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<tr>
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<td>-40°C to +85°C</td>
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<tr>
<td><strong>Package</strong></td>
<td>TSSOP-28</td>
<td>VQFN-32</td>
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<td>Embedded TPM</td>
<td>PC TPM</td>
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<td><strong>Certifications</strong></td>
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<td>–</td>
<td>CC EAL4+</td>
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<td>OPTIGA™ SLB 9660 XQ1.2</td>
<td>OPTIGA™ SLB 9660 XT1.2</td>
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<td>16-bit</td>
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<tr>
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<td>AES, HMAC, SHA-1</td>
<td>AES, HMAC, SHA-1</td>
<td>AES, HMAC, SHA-1, SHA-256</td>
<td>AES, HMAC, SHA-1, SHA-256</td>
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<td>RSA1024, RSA2048</td>
<td>RSA1024, RSA2048</td>
<td>RSA1024, RSA2048</td>
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<tr>
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<td>-40°C to +85°C</td>
<td>-40°C to +85°C</td>
<td>-20°C to +85°C</td>
<td>-20°C to +85°C</td>
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<tr>
<td>VQFN-32</td>
<td>VQFN-32</td>
<td>TSSOP-28</td>
<td>TSSOP-28</td>
<td>VQFN-32</td>
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<tr>
<td>PC TPM</td>
<td>PC TPM, embedded TPM</td>
<td>PC TPM, embedded TPM</td>
<td>PC TPM</td>
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<tr>
<td>CC EAL4+</td>
<td>CC EAL4+</td>
<td>CC EAL4+</td>
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<tr>
<td>Version 1.2 Rev. 116</td>
<td>Version 1.2 Rev. 116</td>
<td>Version 1.2 Rev. 116</td>
<td>Version 2.0 Rev. 01.16</td>
<td>Version 2.0 Rev. 01.16</td>
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## Trusted Computing

<table>
<thead>
<tr>
<th>OPTIGA™ trusted platform module (TPM)</th>
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<tbody>
<tr>
<td><strong>Product name</strong></td>
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<tr>
<td><strong>Product description</strong></td>
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<tr>
<td><strong>Interfaces</strong></td>
</tr>
<tr>
<td><strong>CPU</strong></td>
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<tr>
<td><strong>Symmetrical cryptography</strong></td>
</tr>
<tr>
<td><strong>Asymmetrical cryptography</strong></td>
</tr>
<tr>
<td><strong>Ambient temperature</strong></td>
</tr>
<tr>
<td><strong>Package</strong></td>
</tr>
<tr>
<td><strong>Typical applications</strong></td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
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<tr>
<td><strong>Standard</strong></td>
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<td>Security cryptocontroller for trusted platform modules</td>
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<tr>
<td>SPI</td>
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<td>16-bit</td>
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<tr>
<td>AES, HMAC, SHA-1</td>
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<tr>
<td>RSA1024, RSA2048</td>
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<td>-40°C to +85°C</td>
</tr>
<tr>
<td>VQFN-32</td>
</tr>
<tr>
<td>PC TPM, embedded TPM</td>
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<tr>
<td>CC EAL4+</td>
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<td>Version 1.2 Rev. 116</td>
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## Object Identification

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<th>SRF 55V02P HC</th>
<th>my-d™ vicinity secure</th>
<th>SRF 55V02S HC</th>
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<td><strong>Product name</strong></td>
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<td>SRF 55V02S HC</td>
<td>SRF 55V02S</td>
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<tr>
<td><strong>Product description</strong></td>
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<td>my-d™ vicinity, high capacitance</td>
<td>my-d™ vicinity secure, security memory with authentication</td>
<td>my-d™ vicinity secure, security memory with authentication, high capacitance</td>
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<tr>
<td><strong>Interface</strong></td>
<td>ISO/IEC 18000-3 mode 1</td>
<td>ISO/IEC 18000-3 mode 1</td>
<td>ISO/IEC 18000-3 mode 1</td>
<td>ISO/IEC 18000-3 mode 1</td>
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<tr>
<td><strong>Memory organization</strong></td>
<td>1 fixed sector</td>
<td>1 fixed sector</td>
<td>Fully configurable, up to 15 sectors (14 secure, 1 plain)</td>
<td>Fully configurable, up to 15 sectors (14 secure, 1 plain)</td>
</tr>
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<td><strong>Counter</strong></td>
<td>Anti-tearing support, up to 65, 536 units</td>
<td>Anti-tearing support, up to 65, 536 units</td>
<td>Anti-tearing support, up to 65, 536 units</td>
<td>Anti-tearing support, up to 65, 536 units</td>
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<td>224 Byte (user), 64 Byte (admin)</td>
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<td>Individual page locking, unique serial number</td>
<td>Individual page locking, unique serial number</td>
<td>Hierarchical key management, mutual authentication, transport key, unique serial number</td>
<td>Hierarchical key management, mutual authentication, transport key, unique serial number</td>
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<td><strong>Distance (read/write)</strong></td>
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<td>Typically up to 1.5 m</td>
<td>Typically up to 1.5 m</td>
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<td>26.48 kbit/s</td>
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<td>&gt;10 years</td>
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<td><strong>Delivery forms</strong></td>
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<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
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<td><strong>Tools</strong></td>
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<tr>
<td><strong>Typical applications</strong></td>
<td>Inventory control, libraries</td>
<td>CD inlays, laundry</td>
<td>Ticketing, brand protection</td>
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<td>Feature</td>
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<td>my-d™ vicinity, high capacitance</td>
<td>my-d™ vicinity secure, security memory with authentication</td>
<td>my-d™ vicinity secure, security memory with authentication, high capacitance</td>
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<tr>
<td>1 fixed sector</td>
<td>1 fixed sector</td>
<td>Fully configurable, up to 15 sectors (14 secure, 1 plain)</td>
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<td>Anti-tearing support, up to 65, 536 units</td>
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<td>Individual page locking, unique serial number</td>
<td>Individual page locking, unique serial number</td>
<td>Hierarchical key management, mutual authentication, transport key, unique serial number</td>
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<tr>
<td>Typically up to 1.5 m</td>
<td>Typically up to 1.5 m</td>
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<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
<td>MCC2, MCC8, NiAu-bump, sawn wafer</td>
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<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
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<tr>
<td><strong>Product description</strong></td>
<td>Contact-based module for highly demanding applications</td>
<td>Contact-based module, 8 contacts</td>
<td>Contact-based module, 6 contacts</td>
<td>Contact-based module, 6 contacts, FCOS™ technology, transparent PET tape</td>
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<tr>
<td><strong>Pitch</strong></td>
<td>14.25 mm</td>
<td>14.25 mm</td>
<td>9.5 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>13 x 11.8 mm</td>
<td>13 x 11.8 mm</td>
<td>11 x 8.3 mm</td>
<td>10.4 x 7.6 mm or 11 x 8.3 mm</td>
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<tr>
<td><strong>Thickness</strong></td>
<td>max. 420 µm</td>
<td>max. 420 µm</td>
<td>max. 420 µm</td>
<td>max. 420 µm</td>
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<tr>
<td><strong>Contact surface</strong></td>
<td>NiAu</td>
<td>NiAu</td>
<td>NiAu</td>
<td>NiAu</td>
</tr>
<tr>
<td><strong>Derivatives</strong></td>
<td>Au surface, Pd surface</td>
<td>Au surface, Pd surface</td>
<td>Au surface, Pd surface</td>
<td>Au surface</td>
</tr>
<tr>
<td><strong>Delivery form</strong></td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
</tr>
<tr>
<td><strong>Main applications</strong></td>
<td>Authentication, government identification</td>
<td>Payment, government identification</td>
<td>Payment, government identification</td>
<td>Mobile communication</td>
</tr>
<tr>
<td></td>
<td>P-M2M4.7</td>
<td>P-M4.8</td>
<td>T-M4.8</td>
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</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Image</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Contact-based module, 8 contacts, epoxy tape, mold, wire bond</td>
<td>Contact-based module, 8 contacts, epoxy tape, mold, wire bond</td>
<td>Contact-based module, 8 contacts, epoxy tape, wire bond globe top</td>
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</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>14.25 mm</td>
<td>14.25 mm</td>
<td>14.25 mm</td>
<td></td>
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<td></td>
<td>12.8 x 10.8 mm</td>
<td>13 x 11.8 mm</td>
<td>13 x 11.8 mm</td>
<td></td>
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<tr>
<td></td>
<td>max. 600 µm</td>
<td>max. 600 µm</td>
<td>max. 580 µm</td>
<td></td>
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<tr>
<td><strong>Metals</strong></td>
<td>NiAu</td>
<td>NiAu</td>
<td>NiAu</td>
<td></td>
</tr>
<tr>
<td><strong>Surface</strong></td>
<td>Au surface</td>
<td>Au surface, Pd surface</td>
<td>Au surface, Pd surface</td>
<td></td>
</tr>
<tr>
<td><strong>Packaging</strong></td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
<td></td>
</tr>
<tr>
<td><strong>Applications</strong></td>
<td>Payment, government identification</td>
<td>Payment, government identification, Pay TV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Modules

<table>
<thead>
<tr>
<th></th>
<th>Contactless controller &amp; memory modules</th>
<th>Dual-interface modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product name</strong></td>
<td>P-MCS8-2-1</td>
<td>P-MCC8-2-6</td>
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<tr>
<td><strong>Picture</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Product description</strong></td>
<td>Thin contactless module, mold</td>
<td>Standard contactless module, mold</td>
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<tr>
<td></td>
<td></td>
<td>Dual-interface module with inductive coupling for highly demanding applications</td>
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<tr>
<td><strong>Pitch</strong></td>
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<td>9.5 mm</td>
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<td>8.1 x 5.15 mm</td>
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<td><strong>Thickness</strong></td>
<td>max. 250 µm</td>
<td>max. 340 µm</td>
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<td><strong>Contact surface</strong></td>
<td>Ag</td>
<td>Ag</td>
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<tr>
<td><strong>Derivatives</strong></td>
<td>–</td>
<td>–</td>
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<tr>
<td><strong>Delivery form</strong></td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
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<tr>
<td><strong>Main applications</strong></td>
<td>Payment, government identification</td>
<td>Payment, government identification, transport ticketing</td>
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<tr>
<td></td>
<td>S-COM8.6</td>
<td>S-COM8.4</td>
</tr>
<tr>
<td>----------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Description</td>
<td>Dual-interface module, 6 CB contacts, inductive coupling</td>
<td>Dual-interface module, 6 CB contacts, inductive coupling</td>
</tr>
<tr>
<td>Dimensions</td>
<td>14.25 mm</td>
<td>9.5 mm</td>
</tr>
<tr>
<td></td>
<td>13 x 11.8 mm</td>
<td>13 x 11.8 mm</td>
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<tr>
<td>Coating</td>
<td>NiAu</td>
<td>NiAu</td>
</tr>
<tr>
<td>Surface</td>
<td>Au surface, Pd surface</td>
<td>Au surface, Pd surface</td>
</tr>
<tr>
<td>Packaging</td>
<td>Tape on Reel</td>
<td>Tape on Reel</td>
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<tr>
<td>Function</td>
<td>Payment</td>
<td>Payment</td>
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<td><strong>Modules</strong></td>
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<td><strong>SMD packages</strong></td>
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<td><strong>Product name</strong></td>
<td>TSNP-6-9</td>
<td>TSSOP-28-2</td>
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<td><strong>Picture</strong></td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
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<tr>
<td><strong>Product description</strong></td>
<td>Small outline no leads</td>
<td>Thin shrink small outline, gullwing lead</td>
</tr>
<tr>
<td><strong>Pitch</strong></td>
<td>0.5 mm</td>
<td>0.65 mm</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>1.1 x 1.5 mm</td>
<td>9.7 x 4.4 mm</td>
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<td><strong>Thickness</strong></td>
<td>0.375 mm</td>
<td>max. 1.1 mm</td>
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<td><strong>Contact surface</strong></td>
<td>Sn</td>
<td>Sn</td>
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<tr>
<td><strong>ISO reference</strong></td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Derivatives</strong></td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>Delivery form</strong></td>
<td>Tape &amp; Reel</td>
<td>Tape &amp; Reel</td>
</tr>
<tr>
<td><strong>Main applications</strong></td>
<td>Authentication</td>
<td>Trusted Computing</td>
</tr>
<tr>
<td></td>
<td>VQFN-32-13</td>
<td>USON-8-1, -4</td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Quad flat no leads, exposed pad</td>
<td>Small outline no leads, exposed bar pad</td>
<td>Small outline no-leads, exposed pad</td>
</tr>
<tr>
<td>0.5 mm</td>
<td>0.5 mm</td>
<td>1.0 mm</td>
</tr>
<tr>
<td>5 x 5 mm</td>
<td>2.5 x 2.5 mm</td>
<td>4.2 x 4.0 mm</td>
</tr>
<tr>
<td>max. 900 µm</td>
<td>max. 600 µm</td>
<td>max. 600 µm</td>
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<tr>
<td>NiPd-AuAg</td>
<td>NiPd-AuAg</td>
<td>NiPd-AuAg</td>
</tr>
<tr>
<td>−</td>
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<td>−</td>
</tr>
<tr>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>Tape &amp; Reel</td>
<td>Tape &amp; Reel</td>
<td>Tape &amp; Reel</td>
</tr>
<tr>
<td>Embedded secure element, Trusted Computing, USB tokens</td>
<td>Authentication</td>
<td>Authentication</td>
</tr>
</tbody>
</table>
# Modules

| SMD packages |
|------------------|------------------|
| **Product name** | WFWLB-16-3       |

**Picture**

![Image](image158x271to217x313)

**Product description**

Chip scale package, solder ball array

**Pitch**

0.5 mm

**Dimensions**

2.72 x 2.55 mm

**Thickness**

max. 700 µm

**Contact surface**

SnAgCu

**ISO reference**

–

**Derivatives**

–

**Delivery form**

Tape & Reel

**Main applications**

Near-field communication, embedded secure element, authentication
## Preassembly

<table>
<thead>
<tr>
<th>Preassembly</th>
<th>Product name</th>
<th>Product description</th>
<th>Thickness</th>
<th>Mapping</th>
<th>Delivery form</th>
<th>Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bumping NiAu</td>
<td>NiAu bump on the pad</td>
<td>– 55 µm, 150 µm</td>
<td>Based on SEMI</td>
<td>Sawn wafer on UV foil</td>
<td>Specification NiAu Bumping, Chip Delivery Specification for 8” Wafer, General Issue and Product-Specific Issue</td>
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<tr>
<td></td>
<td>Stud Bump</td>
<td>Gold bump on the pad</td>
<td>–</td>
<td>Based on SEMI</td>
<td>Sawn wafer on UV foil</td>
<td>Specification Stud Bumping, Chip Delivery Specification for 8”/12” Wafer, General Issue and Product-Specific Issue</td>
</tr>
<tr>
<td></td>
<td>Wafer Thinning and Dicing</td>
<td>Bare die delivery on UV foil in wafer frame</td>
<td>55 µm, 150 µm other thicknesses on request</td>
<td>Based on SEMI</td>
<td>Sawn wafer on UV foil</td>
<td>Chip Delivery Specification for 8”/12” Wafer, General Issue and Product-Specific Issue</td>
</tr>
</tbody>
</table>
Notes
Notes
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› India .............................. 000 800 4402 951 (English)
› USA .............................. 1-866 951 9519 (English/German)
› Other countries .......... 00* 800 951 951 951 (English/German)
› Direct access .............. +49 89 234-0 (interconnection fee, German/English)

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Order Number: B180-I0041-V3-7600-EU-EC-P
Date: 09/2018

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