**Features**

- ISO 14443B and ISO 15693 with auto-detection, optional ISO 14443A
- Operating range up to 1.5 m
- Communication speed up to 424 kbps
- 32k, 16k or 2k bits of EEPROM versions
- Write-once memory space for personalization data protection
- Multi-application mapping: up to 16 applications of 2k bits
- Independent credit and debit secret keys for each application
- Authentication using INSIDE’s proprietary cryptographic algorithm
- PowerGuard® anti-tearing function
- Fast anti-collision management: up to 100 chips/second
- Compliant with other PicoTag™ family
- Personalization kits available

**Product characteristics**

**PicoPass™** is a family of dual-standard contactless memory chips compliant with both ISO 14443B and ISO 15693 standards. Dual standard enables to obtain higher communication speed at proximity distances using ISO 14443B or extended communication range in case data exchange speed is less important.

An optional PicoPass/A version enables the chip to communicate using ISO 14443A standard only.

**Benefits**

**PicoPass** offers the following benefits for both smart cards and RFID applications

**Multi-standard** capability allows the implementation of applications using vicinity for tracking or hands free operation and proximity communication distances for high speed payment or biometric identification.

**Multi-application:** PicoPass enables coexistence of several independent applications (up to 16) while maintaining fully separate security conditions.

**Memory capacity** can be used to store large amounts of data such as high quality ID photos, data records and biometric templates.

**Security:** PicoPass state-of-the-art cryptographic authentication prevents from chip memory reading and modification by an unauthorized person and from chip cloning or simulation.

**ISO 14443A option:** PicoPass can be easily integrated within applications using Mifare® technology.

**Typical applications**

- Multi-application cards
- Access control
- Mass transit
- ID cards, passports
- Border control
- Company cards
- Biometrics
- Payment
- Health cards
- City cards
- Loyalty cards
The photographs and information contained in this document are not contractual and may be changed without notice. Brand and product names may be registered trademarks of their respective holders.

**Kits offer**

**Product**
- Personalization Kit

**Description**
The Personalization Kit is used to personalize secure areas of PicoPass™ chips.

**Key technical data of PicoPass™ chip family**

<table>
<thead>
<tr>
<th>Features</th>
<th>PicoPass™ 2 KS</th>
<th>PicoPass™ 16 KS</th>
<th>PicoPass™ 32 KS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier frequency</td>
<td>13.56 MHz</td>
<td>26 kbps - ISO 15693, 106 kbps - ISO 14443B or 424 kbps - ISO 14443B</td>
<td></td>
</tr>
<tr>
<td>Baud rate</td>
<td>13.56 MHz</td>
<td>26 kbps - ISO 15693, 106 kbps - ISO 14443B or 424 kbps - ISO 14443B</td>
<td></td>
</tr>
<tr>
<td>Anti collision</td>
<td>50 chips/s for ISO 15693, 100 chips/s for ISO 14443B</td>
<td>50 chips/s for ISO 15693, 100 chips/s for ISO 14443B</td>
<td></td>
</tr>
<tr>
<td>Unique serial number</td>
<td>64 bits</td>
<td>64 bits</td>
<td>64 bits</td>
</tr>
<tr>
<td>EEPROM memory size</td>
<td>2 kbit</td>
<td>16 kbit or 8x2 kbit</td>
<td>16x2 kbit or 2x16 kbit</td>
</tr>
<tr>
<td>Memory organization</td>
<td>8 bytes block</td>
<td>8 bytes block</td>
<td>8 bytes block</td>
</tr>
<tr>
<td>Secure stored value area</td>
<td>65534 units</td>
<td>65534 units</td>
<td>65534 units</td>
</tr>
<tr>
<td>Recharging counter</td>
<td>65535 times</td>
<td>65535 times</td>
<td>65535 times</td>
</tr>
<tr>
<td>Cryptographic Authentication</td>
<td>64 bits key length</td>
<td>64 bits key length</td>
<td>64 bits key length</td>
</tr>
<tr>
<td>Key area</td>
<td>Credit and Debit keys for secure pages</td>
<td>Credit and Debit keys for secure pages</td>
<td>Credit and Debit keys for secure pages</td>
</tr>
<tr>
<td>Read/Write protection with Authentication</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Write-once area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>EEPROM cycle</td>
<td>Over 100K cycles</td>
<td>Over 100K cycles</td>
<td>Over 100K cycles</td>
</tr>
<tr>
<td>EEPROM data retention</td>
<td>10 years</td>
<td>10 years</td>
<td>10 years</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 to 70°C</td>
<td>-40 to 70°C</td>
<td>-40 to 70°C</td>
</tr>
</tbody>
</table>

**PicoPass™ chips family mapping**

**PicoPass™ 2KS**
- 2 kbit

**PicoPass™ 16KS: 8x2 kbit**
- Transport
- Access
- Picture-ID
- Picture-ID
- 2 kbit

**PicoPass™ 16KS: 1x16 kbit**
- Transport
- Access
- Picture-ID
- Picture-ID
- 16 kbit

**PicoPass™ 32KS: 16x2 kbit**
- Transport
- Access
- Finger Print
- Finger Print
- 2 kbit

**PicoPass™ 32KS: 2x16 kbit**
- Transport
- Access
- Picture-ID
- Picture-ID
- 16 kbit