## NFC Tag IC Solutions

### NFC Forum compliance
- Type 2 Tag
- Type 2 Tag
- Type 2 Tag
- Type 4 Tag
- Type 5 Tag
- ISO/IEC standard compliance
- ISO/IEC 14443-3A
- ISO/IEC 14443-3A
- ISO/IEC 14443-3A
- ISO/IEC 14443-4A
- ISO/IEC 15693

### Input capacitance [pF]
- 50
- 50
- 50
- 70
- 23.5

### NFC tag type baudrate [kbit/s]
- 106
- 106
- 106
- 106
- 26.5 (up to 53)

### PRODUCT
- **NTAG\*\**
- **NTAG F**
- **NTAG PC plus**
- **NTAG 413 DNA**
- **ICODE**

#### Product description
- Passive NFC tag for smart inlays, labels and tags
- Passive NFC tag with field-detection output signal
- Passive NFC tag with PC interface, energy harvesting, password protection, originality check and high-pass-through mode
- Passive NFC tag with AES authentication and SUN feature
- Passive NFC tag for smart inlays, labels and tags

#### User memory [Bytes]
- 144/504/888
- 144/888
- 888/1912
- 160
- 316

#### SRAM [Bytes]
- -
- -
- 64
- -
- -

#### Operating distance up to [mm]
- (1) 100
- 100
- 100
- 100
- 1500

#### Temperature range [°C]
- -25 to +70
- -25 to +70
- -40 to +105
- -25 to +70
- -40 to +85

#### Energy harvesting [mW]
- -
- -
- up to 15
- -
- -

#### Field-detection signal output
- -
- Yes
- -
- -
- -

#### Pass-through mode using SRAM
- -
- -
- Yes
- -
- -

#### Host interface
- -
- -
- I²C
- -
- -

#### Clock frequency [kHz]
- -
- -
- 100/400
- -
- -

#### Supply voltage host interface [V]
- -
- -
- 1.67 to 3.6
- -
- -

#### Security features
- UID ASCII mirror & NFC counter ASCII mirror
- Authentication via ECC
- Field-detection signal output
- Pass-through mode using SRAM
- Host interface
- Clock frequency [kHz]
- Supply voltage host interface [V]

#### Product longevity program
- 15 years

### Development boards
- **NFCPC**
- **NFCPCLED**

### Software
- Android™ NFC TagsInfo, TapLinx
- iOS: NFC TagsInfo by NXP PC Taglayer
- Binaries and source code for Windows® and Android® applications, Peak & Poke GUI, LPCpresso controller FW examples, NXP KW41Z, TapLinx, Android™ app.
- Android™ NFC TagsInfo, TapLinx

### Samples and demo boards
- Samples and demo boards are available on request, please contact a local NXP distributor.

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**For the complete portfolio of NFC Tag ICs please visit www.nxp.com/nfc**

**For samples and development boards and kits available by request, please contact a local NXP distributor. Please also note, this linecard provides an overview of NFC focus products. The complete NFC portfolio can be found on www.nxp.com/nfc.**

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<table>
<thead>
<tr>
<th>Overall annotations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Depending on antenna, coil size, tuning, and environment</td>
</tr>
<tr>
<td>(2) No software available for NFC tag type 2 and 3 emulation</td>
</tr>
<tr>
<td>(3) 160 for ISO/IEC 15693</td>
</tr>
<tr>
<td>(4) Please search for the product on <a href="http://www.nxp.com">www.nxp.com</a> to find the latest ordering part numbers. Ordering part numbers can change due to regular firmware updates.</td>
</tr>
<tr>
<td>(5) Can reach up to 500mA depending on design</td>
</tr>
<tr>
<td>(6) The integrated limiter can be disabled by a FW configuration. The maximum current is then 250mA</td>
</tr>
<tr>
<td>(7) Low power card detection current consumption strongly depends on polling cycle and detection distance</td>
</tr>
<tr>
<td>Product</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>NFC Forum certification</td>
</tr>
<tr>
<td>NFC Forum tag type support</td>
</tr>
<tr>
<td>Power-down mode with RF level detector on [μA]</td>
</tr>
<tr>
<td>RF transmitter supply voltage [V]</td>
</tr>
<tr>
<td>Temperature range [°C]</td>
</tr>
<tr>
<td>Power-down mode with RF level detector on [μA]</td>
</tr>
<tr>
<td>Standby mode current, typ [μA]</td>
</tr>
<tr>
<td>Power-down mode with RF level detector on [μA]</td>
</tr>
<tr>
<td>NFC tag type emulation</td>
</tr>
<tr>
<td>NFC tag type support</td>
</tr>
</tbody>
</table>

Overall annotations:
(1) Depending on antenna, coil size, tuning, and environment
(2) No software available for NFC tag type 2 and 3 emulation
(3) Will for ISO/IEC 18092
(4) Please check the product on semiconductor.com to find the latest ordering part numbers. Ordering part numbers can change due to regular firmware updates.
(5) Can reach up to 500 kbit/s depending on design.
(6) The integrated booster can be disabled by a FW configuration. The maximum current is then 200mA.
(7) Low-power card detection current consumption strongly depends on polling cycle and detection distance.

Samples and development boards and kits are available by request, please contact a local NXP distributor.
<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>PN7120</th>
<th>PN7150</th>
<th>PN7360AU</th>
<th>PN7362AU</th>
<th>PN7462AU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product description</strong></td>
<td>NFC controller, supporting all NFC Forum modes, with integrated firmware and NFC interface</td>
<td>High-performance NFC controller, supporting all NFC Forum modes, with integrated firmware and NFC interface</td>
<td>Full NFC open microcontroller - Cortex M0 - with 80KB Flash for user's application</td>
<td>Full NFC open microcontroller - Cortex M0 with 16KB Flash for user's application</td>
<td>Full NFC open microcontroller - Cortex M0 with contact smartcard interface and 16KB Flash for user's application</td>
</tr>
<tr>
<td><strong>Contactless/NFC functionality</strong></td>
<td>-</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Microcontroller features</strong></td>
<td>NFC reader/writer, FIP, card emulation</td>
<td>NFC reader/writer, FIP, card emulation</td>
<td>NFC reader/writer, FIP, card emulation</td>
<td>NFC reader/writer, FIP, card emulation</td>
<td>NFC reader/writer, FIP, card emulation</td>
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<tr>
<td><strong>Master interface</strong></td>
<td>IIC</td>
<td>IIC</td>
<td>SPI, IIC</td>
<td>SPI, IIC</td>
<td>SPI, IIC</td>
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<tr>
<td><strong>Contact interface</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Class A, B, C</td>
<td>-</td>
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<tr>
<td><strong>Available memory (kB)</strong></td>
<td>16</td>
<td>16</td>
<td>16</td>
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<tr>
<td><strong>Carrier frequency (MHz)</strong></td>
<td>13.56</td>
<td>13.56</td>
<td>13.56</td>
<td>13.56</td>
<td>13.56</td>
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<tr>
<td><strong>NFC tag type support</strong></td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
</tr>
<tr>
<td><strong>NFC Reader Library, NFC Cockpit, examples for all interfaces and protocols, EMVCo L1 compliant; EMVCo Loopback application, SAM management example, CCID example</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td><strong>Carrier frequency (MHz)</strong></td>
<td>13.56</td>
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<td>13.56</td>
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<tr>
<td><strong>NFC tag type support</strong></td>
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</tr>
<tr>
<td><strong>NFC Reader Library, NFC Cockpit, examples for all interfaces and protocols, EMVCo L1 compliant; EMVCo Loopback application, SAM management example, CCID example</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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**Overall annotations:**
(1) Depending on antenna, coil size, tuning, and environment.
(2) No software available for NFC tag type 2 and 3 emulation.
(3) No software available for NFC tag type 2 and 3 emulation.
(4) Please search for the product on www.nxp.com to find the latest ordering part numbers.
(5) Operating current may vary depending on configuration. The maximum current is then 250mA.
(6) Operating current may vary depending on configuration. The maximum current is then 250mA.
(7) Operating current may vary depending on configuration. The maximum current is then 250mA.
(8) Operating current may vary depending on configuration. The maximum current is then 250mA.
(9) Operating current may vary depending on configuration. The maximum current is then 250mA.
(10) Operating current may vary depending on configuration. The maximum current is then 250mA.
(11) Operating current may vary depending on configuration. The maximum current is then 250mA.
(12) Operating current may vary depending on configuration. The maximum current is then 250mA.
(13) Operating current may vary depending on configuration. The maximum current is then 250mA.
(14) Operating current may vary depending on configuration. The maximum current is then 250mA.
(15) Operating current may vary depending on configuration. The maximum current is then 250mA.
(16) Operating current may vary depending on configuration. The maximum current is then 250mA.
(17) Operating current may vary depending on configuration. The maximum current is then 250mA.
(18) Operating current may vary depending on configuration. The maximum current is then 250mA.
(19) Operating current may vary depending on configuration. The maximum current is then 250mA.
# NXP NFC and Contactless Reader Solutions

## DEVELOPMENT BOARDS

<table>
<thead>
<tr>
<th>Name</th>
<th>CONNECTED NFC TAGS</th>
<th>NFC FRONTENDS</th>
<th>NFC CONTROLLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OM27462CDKP</td>
<td>PN5170 NFC Controller SBC® Kit for BeagleBone® Black</td>
<td>PN5170 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5170 NFC Controller SBC® Kit for Raspberry Pi®</td>
</tr>
<tr>
<td>OM5569/NT322ER</td>
<td>PN5170 NFC Controller SBC® Kit for BeagleBone® Black</td>
<td>PN5170 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5170 NFC Controller SBC® Kit for Raspberry Pi®</td>
</tr>
<tr>
<td>OM5574/PN7150ARD</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
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<tr>
<td>OM5577/PN7150ARD</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
<td>PN5750 NFC Controller SBC® Kit for Raspberry Pi®</td>
</tr>
</tbody>
</table>

### Ordering number
- OM27462CDKP
- OM5569/NT322ER
- OM5574/PN7150ARD
- OM5577/PN7150ARD

### NFC Frontends
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit

### NFC Controllers
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit
- PN5170 NFC Controller SBC® Kit

### Key Features
- Support for any boards featuring an Industry®-compatible reader, including LPCXpresso, Kitex, and MBA boards
- Full compliance with all standards relevant to NFC, contactless applications, and EMVCo
- Onboard dynamic power control (DPC)
- Active load modulation
- Low-power card detection
- Artifical damping of the RF field in the middle of the antenna exciting real conditions
- NFC Forum compliant board
- Full NFC-compliant reader, full NFC interface board, and contact software
- NFC Forum compliant board
- Full NFC-compliant expansion board for Raspberry Pi® platforms
- Compliance with reader mode, RFID mode, and card emulation mode standards
- Configured high-performance RF antenna

### Certification
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC
- CE, FCC, IC

### Software and tools
- Windows® IoT driver
- Android driver support
- Linux® driver support
- LINX® driver support
- Complete with reader mode, RFID mode, and card emulation mode standards
- Supports full development environment of NFC Forum platforms
- Supports Android® and Windows® IoT platforms
- Supports NFC Forum compliant board
- Supports kit supported NFC with full development environment
- Supports NFC Forum compliant board
- Supports Windows® IoT driver support
- Supports Linux® driver support
- Supports Android driver support
- Supports LINX® driver support
- Supports Linux® driver support
- Supports Android driver support
- Supports LINX® driver support
- Supports Windows® IoT driver support
- Supports Linux® driver support
- Supports Android driver support
- Supports LINX® driver support

### Target applications
- NFC pairing, industrial calibration, smart meters, logistics, IoT, healthcare, consumer electronics, smart media
- NFC pairing, industrial calibration, smart meters, logistics, IoT, healthcare, consumer electronics, smart media
- NFC pairing, industrial calibration, smart meters, logistics, IoT, healthcare, consumer electronics, smart media
- NFC pairing, industrial calibration, smart meters, logistics, IoT, healthcare, consumer electronics, smart media

### Sample cards and tags
- Sample cards and tags
- Sample cards and tags
- Sample cards and tags
- Sample cards and tags

### Notes
- All development kits come with quick start guides and user manuals.
- Please go to www.nxp.com and find community discussions, videos, and a rich set of documentation on the dedicated development kit page.
- Sample cards and tags are available on request, please contact local NXP distributor.
### CONTACT SMARTCARD READER ICs

<table>
<thead>
<tr>
<th>Product features</th>
<th>TDA8023TT</th>
<th>TDA8024T</th>
<th>TDA8024ET</th>
<th>TDA8024HN</th>
<th>TDA8024YT</th>
<th>TDA8025HN</th>
<th>TDA8025T</th>
<th>TDA8029HL</th>
<th>P07412</th>
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</thead>
<tbody>
<tr>
<td>Analog interfaces</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ISO/IEC 7816-1 UART</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ISO/IEC 7816-4 dedicated timers</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Microcontroller core</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ROM (Byte) / RAM (Byte)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Host interface</td>
<td>I²C</td>
<td>I²C lines</td>
<td>I²C</td>
<td>I²C lines</td>
<td>I²C lines</td>
<td>I²C lines</td>
<td>I²C lines</td>
<td>Serial UART</td>
<td>PCIe</td>
</tr>
<tr>
<td>ESD protection on ISO/IEC 7816 pins [kV]</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Auxiliary protected lines for C4 and C8 contacts</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
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<tr>
<td>VCC card power supply [V]</td>
<td>1.8, 3, and 5</td>
<td>1.8, 3, and 5</td>
<td>1.8, 3, and 5</td>
<td>1.8, 3, and 5</td>
<td>1.8, 3, and 5</td>
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<td>1.8, 3, and 5</td>
<td>1.8, 3, and 5</td>
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<tr>
<td>Card supply current @ 5 V VCC [mA]</td>
<td>55</td>
<td>80</td>
<td>55</td>
<td>65</td>
<td>65</td>
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<td>Card supply current @ 3 V VCC [mA]</td>
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<td>55</td>
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<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>65</td>
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<tr>
<td>Card supply current @ 1.8 V VCC [mA]</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
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<tr>
<td>Card activation time max. [μs]</td>
<td>20</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
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<tr>
<td>Card deactivation time max. [μs]</td>
<td>20</td>
<td>26</td>
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<tr>
<td>Protocol support</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Security features</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Contact smartcard reader ICs</td>
<td>Analog, UART, and CPU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</table>

### MIFARE® SAMs FOR READER SYSTEMS

<table>
<thead>
<tr>
<th>Product features</th>
<th>MIFARE® SAM AV2</th>
<th>MIFARE® SAM AV2.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>Write endurance [cycles]</td>
<td>100,000</td>
</tr>
<tr>
<td>Data retention [μs]</td>
<td>10</td>
<td></td>
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<tr>
<td>Secure key storage</td>
<td>Up to 128 key entries</td>
<td></td>
</tr>
<tr>
<td>SAM interface</td>
<td>ISO/IEC 7816-1/3</td>
<td></td>
</tr>
<tr>
<td>Frequency [MHz]</td>
<td>1 to 10</td>
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<tr>
<td>Baudrate (kbaud)</td>
<td>9.6 to 1500</td>
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<tr>
<td>Reader IC support (5nicside)</td>
<td>MIFAREsec; family</td>
<td></td>
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<td>Security</td>
<td>CLRC4 family</td>
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### Packaging

<table>
<thead>
<tr>
<th>Package</th>
<th>PCM1.1 module</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM1.1</td>
<td>P5DF081X0/T1AD2060S</td>
</tr>
<tr>
<td>HVQFN32</td>
<td>P5DF081X1/T1AD2060N</td>
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</tbody>
</table>

### Product support and ordering information

<table>
<thead>
<tr>
<th>Product type</th>
<th>MIFARE SAM AV2</th>
<th>MIFARE SAM AV2.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product type</td>
<td>MIFARE SAM AV2</td>
<td>MIFARE SAM AV2.6</td>
</tr>
<tr>
<td>Product code</td>
<td>MIFARE SAM AV2</td>
<td>MIFARE SAM AV2.6</td>
</tr>
<tr>
<td>Package code</td>
<td>9352 931 19005</td>
<td>9352 953 67005</td>
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<td>Package code</td>
<td>9352 931 25118</td>
<td>9352 968 31918</td>
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<td>Package code</td>
<td>9352 931 21118</td>
<td>9352 968 33151</td>
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<tr>
<td>Development boards</td>
<td>MFEV710</td>
<td>CLRD710</td>
</tr>
</tbody>
</table>

### Software support

Samples and demo boards are available on request, please contact local NXP distributor.