M24LR series
Dynamic NFC/RFID tags
ISO15693 & I²C EEPROM

Dynamic NFC/RFID tags with I²C and 13.56 MHz ISO 15693 RF interfaces and a new, innovative function – energy harvesting

ST’s innovative family of Dynamic NFC/RFID tags provides new features and capabilities. The EEPROM memory bank can be accessed either by a low-power I²C interface or by an ISO 15693 RF interface operating at 13.56 MHz. It also features an energy harvesting and an RF status function. In addition, the family features a 32-bit password protection mechanism.

KEY FEATURES
- Industry standard interfaces:
  - I²C: 400 kHz, from 1.8 to 5.5 V
  - ISO 15693: 53 Kbit/s data rate, up to 1 m remote access range
- 4-Kbit, 16-Kbit and 64-Kbit EEPROM user memory
- 64-bit unique identifier
- 32-bit password protection
- 13.56 MHz carrier frequency
- RF status output
  - Energy harvesting output
  - RF status digital output

TWO WORLDS CONNECTED
The ability to program or read a memory using either an RF or a wired interface allows new functions and capabilities for your products.

Potential applications include:
- medical equipment
- industrial equipment
- computers and peripherals
- consumer electronics

KEY BENEFITS
- Most flexible solution for parameter and firmware updates
- Enables batteryless designs
- High reliability EEPROM
- Flexible password protection scheme
- Simple and cost effective
- New functions and capabilities for device calibration, product activation, traceability information management, asset tracking, and identification

www.st.com/nfc-rfid
DEVICe SUMMARY

<table>
<thead>
<tr>
<th>Part number</th>
<th>RF interface</th>
<th>Serial interface</th>
<th>Memory size (Kbit)</th>
<th>Clock frequency (kHz)</th>
<th>Password</th>
<th>Supply (V)</th>
<th>Package</th>
<th>RF status output</th>
<th>Energy harvesting output</th>
</tr>
</thead>
<tbody>
<tr>
<td>M24LR04E-R</td>
<td>ISO 15693</td>
<td>PC</td>
<td>4</td>
<td>400</td>
<td>Yes</td>
<td>1.8 to 5.5</td>
<td>SO8, TSSOP8, UFDFPN8</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>M24LR16E-R</td>
<td>ISO 15693</td>
<td>PC</td>
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<td>400</td>
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<td>1.8 to 5.5</td>
<td>SO8, TSSOP8, UFDFPN8</td>
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<td>Yes</td>
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<tr>
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<td>PC</td>
<td>64</td>
<td>400</td>
<td>Yes</td>
<td>1.8 to 5.5</td>
<td>SO8, TSSOP8, UFDFPN8</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

DYNAMIC NFC/RFID TAGS TOOLS

- Discovery kit for M24LR04E dynamic NFC/RFID tags with energy harvesting (order code: M24LR-DISCOVERY)
- Development kit: extensive tools to support product integration (order code: DEVKIT-M24LR-A)
- Demonstration kits can be used to run simple demonstrations, and to evaluate the Dynamic NFC/RFID tags's performance and capabilities (order code: DEMOKIT-M24LR-A)

REFERENCE DESIGNS

- M24LR04E-R antenna evaluation board (order code: FLEX-M24LR04E)
- 128-Kbit and 256-Kbit multi-bank antenna evaluation boards (order codes respectively: ANT4-M24LR-A and ANT5-M24LR-A)
- Data logger evaluation board with NFC Android application: Dual Interface EEPROM (order code: STEVAL-IPR002V1)
- Multi-sensor evaluation board with NFC Android application: DatalogV3 (order code: STEVAL-IPR002V1)
- High-end smartplug systems to measure and control AC (order code: STEVAL-IHP004V1)
- Autonomous battery-powered energy metering with NFC Android application: Metering (order code: STEVAL-IPE020V1)

TECHNICAL SUPPORT

The dynamic NFC/RFID tags family offers a simple and cost-effective implementation. ST can provide supporting material for integrating the antenna into your application: application notes, reference designs, antenna computation tools, e-presentations and e-learning.

Visit www.st.com/nfc-rfid

Note: An NFC enabled Android phone supporting ISO/IEC 15693 protocol is required