ST25RU3993
UHF RAIN® RFID
High Performance Reader Chip

UHF Rain® RFID Reader IC for EPC Class1 Gen2 ideal for battery operated handheld devices

The ST25RU3993 UHF Rain® RFID reader from ST combines optimal performance with lowest power consumption and follows EPC Class1 Gen2. The ST25RU3993 offers high sensitivity, while being robust against antenna reflections or self-jamming. This is essential for battery powered mobile or embedded applications, where antenna design is challenging and long battery lifetimes are critical.

The ST25RU3993 offers a flexible feature set, being a market proven solution from the handheld consumer up to the industrial reader space.

KEY FEATURES
- High chip sensitivity -90dBm
- DRM compliant
- Carrier cancellation
- Frequency hopping support
- Automatic I/Q selection
- Outstanding read range >10m
- Read Speeds above 760 tags/s
- Detection of 354 unique tags/s
- Two switchable antenna ports:
  - 20 dBm internal power amplifier
  - 0 dBm output for external amplifier
- Protocol support for:
  - ISO 18000-6C (EPC Class1 Gen2)
  - ISO 29143 (Air interface for mobile RFID)
  - ISO 18000-6A/B through direct mode
  - QFN 7x7mm 48pin package

KEY BENEFITS
- Outstanding analog performance
- Fast and painless product design
- Futureproof transparent mode option
- Offers up to 80% longer battery lifetimes than competitors

MAIN APPLICATIONS
- Consumer, industrial and medical applications
- Authentication, Counterfeiting
- Hand-held readers
- Mobile UHF RFID readers
- Stationary readers

www.st.com/st25ru3993
## Device summary

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<th>Part number</th>
<th>Mode</th>
<th>RF interface</th>
<th>Speed performance</th>
<th>Serial interface</th>
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<td>ST25RU3993</td>
<td>Reader/Writer</td>
<td>ISO18000-6c/b</td>
<td>760 tags/s Bulk read: 354 unique tags/s</td>
<td>SPI</td>
<td>Dense Reader Mode, Internal VCO, Linear RSSI &amp; Phase Bit, Automatic PSRR regulation, Auto ACK</td>
<td>0dBm 20dBm</td>
<td>-40 °C to +85 °C</td>
<td>48-pin QFN (7x7 mm)</td>
<td>Retail/Stationary Readers, Industrial PDA’s, Mobile phones/Handheld Consumer, Industrial and Medical Applications Portable Data Capture, Gaming</td>
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### Reference design kits

- ST25RU3993 reader IC evaluation board (order code: ST25RU3993-EVAL)

### Technical support

The ST25RU reader 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, presentations and e-learning. Visit [www.st.com/st25ru](http://www.st.com/st25ru)