Product summary

SARA-N3 series

Multi-band NB-IoT modules

Globally configurable NB-IoT modules ready for 3GPP Rel 14 and 5G

- Broad feature set enabling new IoT applications
- Ultra-low power consumption delivering 10+ years battery life
- Critical firmware updates delivered via uFOTA with LwM2M
- Easy migration between u-blox LTE-M and 2G modules
- Professional grade manufacturing (ISO/TS16949); qualified according to ISO 16750

Product description

SARA-N3 NB-IoT multi-band modules support a selected set of features based on 3GPP Release 14. The products will be able to receive additional features and ultimately become Release 14 and 5G compliant via subsequent firmware upgrades.

SARA-N3 modules introduce several new firmware features and internet protocols for NB-IoT products, including TCP, CoAP, DTLS, LwM2M, MQTT-SN, SSL/TLS and HTTP(S). They enable a diverse and broad set of new IoT applications and simplify customer migration to NB-IoT from other legacy cellular or unlicensed technologies. With u-blox nested design, easy migration between u-blox LTE-M, LTE Cat 1 and 2G modules is guaranteed, while enabling future-proof, seamless mechanical scalability across technologies.

SARA-N3 is a power optimized product that delivers 10+ years of battery life on a single cell primary battery, thus reducing maintenance costs. Critical firmware updates can be delivered over the air using the u-blox uFOTA client/server solution with LwM2M, which is a more lightweight solution compared to OMA-DM. LwM2M-configurable objects allow device makers to develop customized features.

The SARA-N3 series is manufactured to professional grade standards with 100% automatic x-ray and optical inspection on modules, as well as 100% outgoing test, product traceability, PCN process, failure analysis and product qualification according to ISO 16750. This level of quality is paramount for highly reliable products intended for long term use in the field.
SARA-N3 series

Features

LTE NB-IoT 3GPP Release 13 LTE Cat NB1 fully compliant 3GPP Release 14 LTE Cat NB2 support of:
- Mobility enhancement, E-Cell ID, larger TB size, two HARQ processes, multi-carrier enhancement, single-tone and multi-tone uplink
- Data rate: up to 125 kbit/s DL, 140 kbit/s UL

FDD bands Configurable multi-band:
- SARA-N300: bands 3, 5, 8
- SARA-N310: bands 3, 5, 8, 20, 28, (1, 2, 4, 12, 13, 18, 19, 26, 66, 71, 85) ¹

Data transfer Non-IP based Small Data over NAS (SDoNAS)
- IP based SDoNAS
- MT/MO SMS PDU / Text mode

Network
- Rel 13 (e)DRX
- Rel 12 LTE Power Save Mode (PSM)

Software features

Protocols Dual stack IPv4 and IPv6
- Embedded TCP/IP, UDP/IP, FTP, HTTP, PPP, DNS
- Embedded MQTT-SN, CoAP/DTLS
- Embedded HTTPS, TLS, SSL
- SARA-N310: MQTT, Radio policy manager
- SARA-N310: SIM provisionning (BIP) ¹

Device management
- SARA-N310: LwM2M-configurable objects

IoT platforms
- SARA-N300: CTCC Tianyi
- SARA-N300: CMCC OneNET

Security
- Jamming detection

Firmware upgrade
- Via UART
- SARA-N300: FOTA according to CTCC/CMCC
- SARA-N310: uFOTA client/server solution via LwM2M

Interfaces

Serial
- 4-wire UART (with flow control) and ring indication for data
- 2-wire UART for debug

GPIO
- Up to 6 GPIOs, configurable
- (RI / RTS / CTS can also be configured as general purpose input/output)

ADC
- Up to 2 10-bit ADC

USIM
- Supports 1.8 V and 3.0 V
- SARA-N310: SIM toolkit and Bearer Independent Protocol (BIP) ¹

1 = Considered for future FW version

Package

96 pin LGA: 16.0 x 26.0 x 2.4 mm, < 3 g

Environmental data, quality & reliability

- Operating temperature: -40 °C to +85 °C
- RoHS compliant (lead-free)
- Qualification according to ISO 16750
- Manufactured in ISO/TS 16949 certified production sites

Electrical data

- Power supply: 3.8 V nominal, range 2.6 V to 4.2 V
- Power consumption:
  - PSM deep-sleep mode: 3 μA
  - eDRX: 230 μA
  - Rx mode: 23 mA
  - Tx mode at maximum power: 275 mA

Certifications and approvals

- SARA-N300: CCC, SRRC, CMCC ², CTCC ², CUCC ²
- SARA-N310: RED, RCM, ATEX/IECEx, GCF, NCC, IMDA, NBTC, Vodafone, Deutsche Telekom

² = Planned certifications

Support products

- EVK-N300 Evaluation kit for SARA-N300
- EVK-N310 Evaluation kit for SARA-N310

Product variants

- SARA-N300: u-blox NB-IoT multi-band module for China
- SARA-N310: u-blox NB-IoT multi-band global module

Further information

For contact information, see www.u-blox.com/contact-us.
For more product details and ordering information, see the product data sheet.

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