Highly Integrated Solution with Ranging
The nanoLOC TRX Transceiver is a highly integrated mixed signal chip offering robust wireless communication and ranging capabilities. It utilizes Chirp Spread Spectrum (CSS), a unique wireless communication technology standard (IEEE 802.15.4a) developed by Nanotron for the 2.4 GHz ISM band.

Ranging and Robust Wireless Communication
With its unique ranging capability, nanoLOC measures the link distance between two wireless nodes. As ranging is done during regular data communication, additional infrastructure, power, and/or bandwidth is not required.

Adjustable Center Frequencies Supported
nanoLOC supports a freely adjustable center frequency with three non-overlapping frequency channels. This enables multiple physically independent networks and coexistence with existing 2.4 GHz wireless technologies.

Few External Components Required
To minimize software and microcontroller requirements, the chip provides scrambling, automatic address matching, packet retransmission, and hardware acknowledgements. A sophisticated MAC controller in the chip supports FDMA, CSMA/CA, TDMA, Forward Error Correction, and 128 bit hardware encryption. Support for an external amplifier is provided.

Key Features
- Ranging ................... 2 m indoors / 1 m outdoors
- Supply voltage .................. 2.3 V to 2.7 V
- Output power .................... -33 dBm to 0 dBm
- Data rates ....................... 125 kbps to 2 Mbps
- Receiver sensitivity (FEC on) .......... up to -97 dBm
- Current consumption TX .......... 30 mA @ 0 dBm
- Current consumption RX .......... starts at 33 mA
- SPI interface .................. 27 Mbps, slave mode only
- RSSI sensitivity ...................... -95 dBm
Applications
The nanoLOC TRX Transceiver is the ideal choice for Loss Protection Solutions and Real Time Location Systems (RTLS):

- Smart RF devices for proximity detection.
- Tags for scalable position monitoring solutions leveraging nanotron’s sea of anchor technology.
- Location-aware IOT sensor nodes.

nanoLOC nTRX Driver
The nanoLOC nTRX Driver gives convenient access to chip functions including chip-specific settings and performance criteria and can be adapted to a wide range of microcontrollers.

Ordering Information

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<td>NLSG0501A</td>
<td>nanoLOC TRX Transceiver</td>
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Footprint, Package & Pinout

![nanoLOC TRX Transceiver pin description](image)

About Nanotron Technologies GmbH
Nanotron is a leading provider of electronic location awareness solutions. If knowing what, where and when is mission-critical to your business, rely on nanotron with Location Running. Nanotron’s solutions deliver precise position data augmented by context information in real-time. Location Running means, reliably offering improved safety and increased productivity, 24 hours a day, 7 days per week: Location-Awareness for the Internet of Things (IoT).

Further Information
For more information about products from nanotron Technologies GmbH, contact a sales representative at the following address:

nanotron Technologies GmbH
Alt-Moabit 60
10555 Berlin, Germany
Phone: +49 30 399 954 – 0
Fax: +49 30 399 954 – 188
Email: sales@nanotron.com
Internet: www.nanotron.com