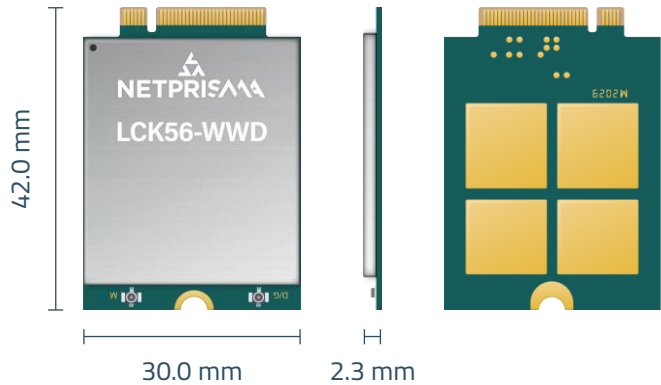


LCK56-WWD

LTE-A Cat 12
M.2 module



Product features

- > LTE-A Cat 12 module in M.2 form factor
- > DL 3 carrier aggregation and 256QAM supported
- > Worldwide LTE-A and UMTS/HSPA+ coverage
- > Built-in eSIM (optional), DSSS
- > Low power mode
- > Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- > MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

LCK56-WWD is an LTE Advanced category 12 module. Adopting 3GPP Release 12 technology, the module supports a theoretical peak downlink data rate of 600 Mbps and a theoretical peak uplink data rate of 150 Mbps.

LCK56-WWD is designed for the global market and covers nearly all of the mainstream carriers worldwide. The module is embedded with a multi-constellation and high-sensitivity GNSS (GPS, GLONASS, BDS, Galileo and QZSS) receiver for positioning. The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows, Linux, Android/ optional built-in eSIM) extend the suitability of the module to a wide range of applications such as industrial routers, home gateways, set-top boxes, industrial laptops, consumer laptops, industrial PDAs, rugged tablet PCs, and digital signage.

4G Max. 600 Mbps (DL)
Max. 150 Mbps (UL)

3G Max. 42 Mbps (DL)
Max. 5.76 Mbps (UL)

M.2 M.2 form factor

Protocols Abundant protocols embedded

PCIe PCIe Gen2 interface

GNSS Multi-constellation GNSS (optional)

USB USB 2.0/ 3.0 interface

AT Enhanced AT commands

Version: 1.0.0
Status: Preliminary

LCK56-WWD

Mechanical data

| | |
|-----------------|-------------------|
| Region/operator | Global |
| Dimensions (mm) | 30.0 × 42.0 × 2.3 |

Temperature range

| | |
|-----------------------|------------------|
| Operating temperature | -25 °C to +75 °C |
| Extended temperature | -40 °C to +85 °C |

Frequency bands

| | |
|-----------------|---|
| LTE | LTE-FDD: B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 29 ¹ / 30/ 32 ¹ / 66/ 71 LTE-TDD: B34/ 38/ 39/ 40/ 41/ 42/ 43 LAA: B46 ¹ CBRS: B48 |
| UMTS | WCDMA: B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19 |
| GNSS (optional) | GPS/ GLONASS/ BDS/ Galileo/ QZSS |

Data transmission

| | |
|------|---|
| LTE | Max. 600 Mbps (DL) / Max. 150 Mbps (UL) |
| | DC-HSDPA Max. 42 Mbps (DL) |
| UMTS | HSUPA Max. 5.76 Mbps (UL) |
| | WCDMA Max. 384 kbps (DL) / Max. 384 kbps (UL) |

Interfaces

| | |
|------------------------------------|---|
| (U)SIM (1.8/ 3.0 V) | × 2 |
| USB 2.0/ 3.0 | × 1 |
| PCIe (optional) | × 1 (RC mode*: PCIe Gen 2, for Wi-Fi, ethernet functions) |
| PCM* | × 1 |
| SPI (optional) | × 1 |
| Control and indication interfaces* | × 6 (Airplane mode control, GNSS control, wake-up control, RF status indication, dynamic power reduction and self protection of QLN control.) |
| Cellular/ WLAN COEX interface* | × 1 |
| Antenna tuner control interfaces* | × 2 |
| Configuration pins | × 4 |
| Antenna interfaces | × 2 (Main, Rx-diversity/ GNSS) |

Enhanced features

| | |
|------------------------------------|---|
| MIMO: DL 2 × 2 | ● |
| (U)SIM card detection | ● |
| Built-in eSIM | ○ |
| DSSS: Dual SIM, Single Standby | ● |
| DFOTA: Delta Firmware Over-the-Air | ● |
| Embedded GNSS | ○ |

SMS

| | |
|-----------------------------|---|
| Point-to-point MO and MT | ● |
| SMS cell broadcast | ● |
| Text and PDU mode | ● |
| 3GPP | ● |
| Windows OS SMS push feature | ● |

Software features

| | |
|------------|--|
| 3GPP | 3GPP E-UTRA Release 12 |
| AT command | 3GPP TS 27.007; Enhanced AT commands |
| Protocols | QMI/ MBIM/ NITZ/ HTTP/ HTTPS/ FTP/ LwM2M*/ PING* |

Certifications

| | |
|------------|---|
| Carrier | America: Verizon/ AT&T/ T-Mobile Japan: NTT DOCOMO/ KDDI/ SoftBank* Australia: Telstra |
| Regulatory | Global: GCF Europe: CE North America: PTCRB America: FCC Canada: IC Taiwan, China: NCC Japan: JATE/ TELEC Australia/New Zealand: RCM |
| Others | WHQL |

Electrical features

| | |
|-------------------------------|---------------------------------|
| Supply voltage (V) | 3.315–4.4, typ. 3.7 |
| Transmitting power (USB mode) | LTE-FDD: Class 3 (23 dBm ±2 dB) |
| | LTE-TDD: Class 3 (23 dBm ±2 dB) |
| | WCDMA: Class 3 (23 dBm ±2 dB) |
| Power consumption (USB mode) | Power down: 0.061 mA |
| | Sleep: 2.58 mA |
| | Idle: 17.35 mA |

¹: LTE-FDD B29/ 32 and LTE-TDD B46 support Rx only and are only for secondary component carrier.
*: Under development/planning.
●: Supported; ○: Optional.