WW-4221, 4G LTE/3G HSPA/2G GSM Mini PCIe Card w/ SIM Holder

RoHS Compliant



Overview

WW-4221 PCI Express Mini Card is designed based on Telit/Cinterion 4G LTE technology with seamless fallback to 3G/2G networks.

It supports 4G LTE Cat1, 3G HSPA+, and 2G GSM/GPRS/EDGE wireless WAN technologies. Not only exhibits excellent hardware/radio frequency performance, it also supports rich software for fast product development. Following the PCI Express Mini Card standard, it could be easily applied in devices with PC architecture.

It is an ideal solution for the vast number of M2M and industrial IoT applications that requires speed up to 10Mbps (DL)/ 5Mbps (UL) for LTE cat 1. In addition to LTE networks, it also provides 3G/2G connectivity to ensure complete population and geographic coverage.

Applications

- Financial / Security / Payment / Inventory / Healthcare
- Kiosk /Digital Signage / Intelligent Vending Machine
- POS / Automatic Meter Reading/ Smart Meters
- School Bus / Transit / Taxi / Police
- Tracking & Tracing / Fleets Management
- Mobile Internet Terminal / Fixed Wireless Terminal
- Remote Monitoring / Telematics / eHealth
- Agriculture/ Connected Sensors
- Smart City

Features

- 4G LTE, 3G HSPA, and 2G GSM/GPRS/EDGE support.
- PCI Express Mini Card standard V1.2 compliant
  - Communication via USB
  - Network status indication
  - Airplane mode support
  - Remote host wakeup support
- Powered by Telit Cinterion LE910C1 module, the worldwide band variant is by default used.
  - LTE Cat 1 (MHz)
    - 700 (B12, B13, B14, B28)
    - 800 (B20)
    - 850 (B5, B18, B19, B26)
    - 900 (B8)
    - 1700 (B9)
    - 1800 (B3)
    - 1900 (B2, B25)
    - 2100 (B1, B4)
    - 2600 (B7)
  - HSPA+ (MHz)
    - 850 (B5, B6, B19)
    - 900 (B8)
    - 1900 (B2)
    - 2100 (B1, B4)
  - GSM/GPRS/EDGE (MHz)
    - 850, 900, 1800, 1900
- USB 2.0 High Speed (480Mbit/s) device interface, Full Speed (12Mbit/s) compliant
- Onboard SIM card holder (for Micro-SIM, 3FF)
- Embedded IP stack with IPv4 and IPv6
- Secure connection with SSL/TLS (up to v1.3)
- Internet Services TCP/UDP server/client, DNS, Ping, ,

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FTP, SMTP, HTTP

- **eSIM** support
- Working temperature: -40~85℃

Technical Specifications

Wireless WAN

Frequency bands	4G LTE (MHz) ● 700 (B12, B13, B14, B28) ● 800 (B20) ● 850 (B5, B18, B19, B26) ● 900 (B8) ● 1700 (B9) ● 1800 (B3) ● 1900 (B2, B25) ● 2100 (B1, B4) ● 2600 (B7) 3G HSPA+ (MHz) ● 850 (B5, B6, B19) ● 900 (B8) ● 1900 (B2) ● 2100 (B1, B4) 2G Bands ● 850 (B5) ● 900 (B8) ● 1800 (B3) ● 1900 (B2)
Output power	Class 3 for 4G (0.2W, 23dBm@1RB) Class 3 for 3G WCDMA(0.25W, 24dBm) Class 4 for 2G GSM(2W, 33dBm) Class E2 for 2G EDGE(0.5W, 27dBm)
LTE Feature	DL max. 10 Mbps UL max. 5 Mbps
WCDMA features	WCDMA up to DC HSPA+, Rel.9
GSM/GPRS/ EGPRS	Data transfer GPRS: ● Multi-slot Class 12 ● Full PBCCH support ● Mobile Station Class B ● Coding Scheme 1 – 4 EGPRS: ● Multi-slot Class 12 ● PBCCH support ● Mobile Station Class B ● Downlink coding schemes – MCS 1-9 ● Uplink coding schemes – MCS 1-9
SMS	Point-to-point MT and MO Cell broadcast Text and PDU mode Storage: SIM card plus SMS locations in mobile equipment
AT commands	Hayes 3GPP TS 27.007, TS 27.005, compatible
SIM	Support of 2.85 V and 1.8 V SIM cards
USB	USB 2.0 High Speed (480Mbit/s) device interface. Full Speed (12Mbit/s) compliant

Electrical Data

Power Supply	3.3 ± 0.3 V (VCC)

.Environmental Data

Temperature/	-40 ~ 85℃*+: Temperatures outside of the range –20°C ~ +55°C might slightly deviate from ETSI specifications.

* Occasional deviations from spec may occur

+ Airflow: min. 1 m/s

Mechanical Data (mm) - (full-mini card)

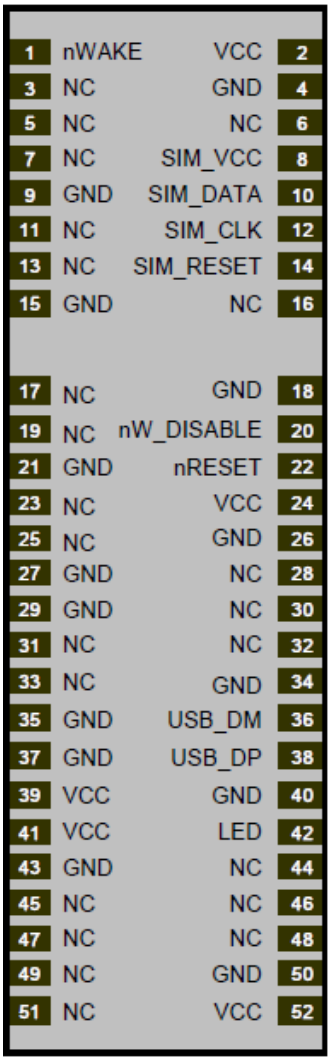
30 x 50.9 x 4.98 (±0.2, w/ SIM holder)

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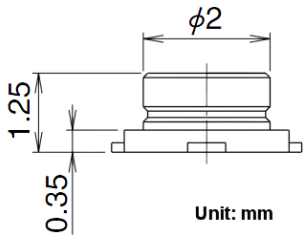
52-Pin Definition

Name	PINs	Function	I/O
VCC	2,24,39,41 ,52	3.3V power supply, Min 3.0V, Max 3.6V	Input
GND	4,9,15,18, 21,26,27,2 9,34,35,37 ,40,43,50	Ground	Input
USB_DM	36	USB data signal minus	I/O
USB_DP	38	USB data signal plus	I/O
LED	42	Open Drain active Low WWAN status indicator;	Output
SIM_VCC	8[!]	Power for SIM card	Output
SIM_DATA	10[!]	SIM data signal	I/O
SIM_CLK	12[!]	SIM clock signal	Output
SIM_RESET	14[!]	SIM reset signal	Output
nWAKE	1	Open drain, active low wakeup signal	Output
nW_DISABLE	20	Active low radio control signal, internal pull-up	Input
nRESET	22	Min 10ms active low reset signal,	Input
NC	Remaining pins	No connection	-

[!] Leave these pins open if they are not used



RF Connector: I-PEX Receptacle



Note. Corresponding plug cable: diameter of 1.13mm

Related Models of WW-422X

Feature \ Model X=	0	1	2	4
LTE Cat	1	1	1	4
UART TTL IO	-	-	3.3V	-
Sim Holder	-	Y	Y	Y
USB	Y	Y	Y	Y

*This document is subject to change without notice.

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