LOKAWIZ

Smart Tracking Devices

Smart LocATe Boards

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Smart devices and smart solutions
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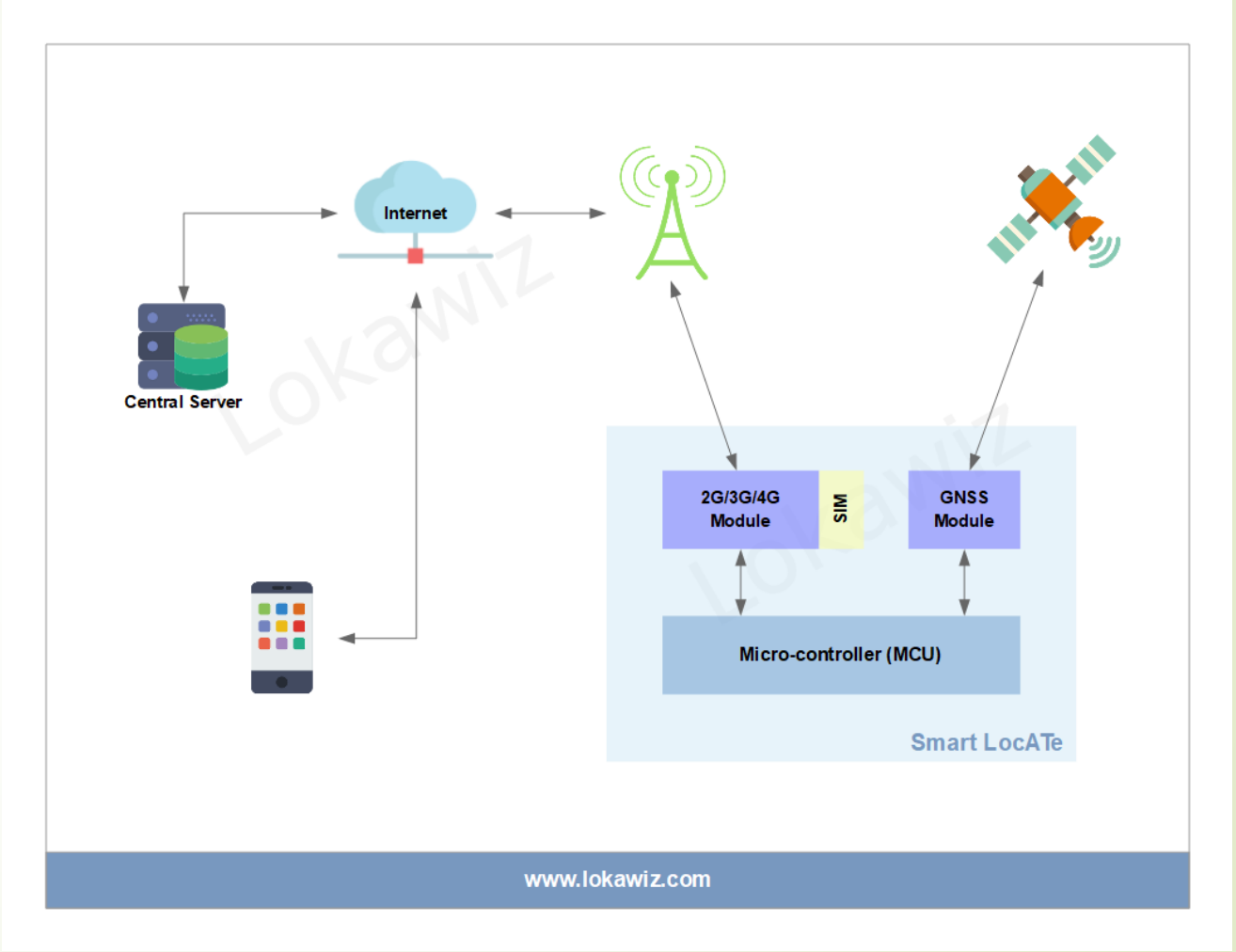
Introduction

Smart LocATe

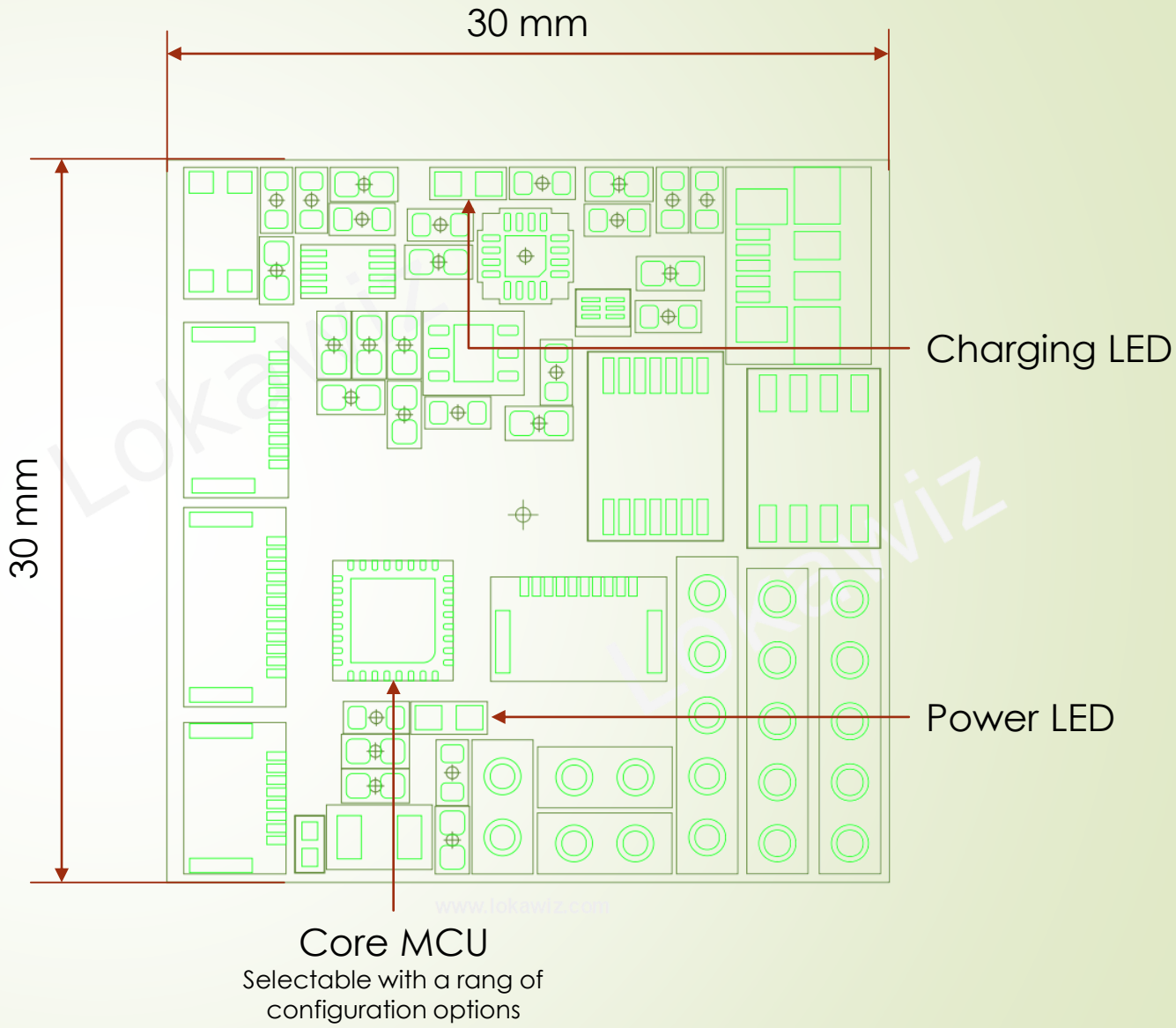
- Core Board with MCU
  - 5V USB input power; Both rechargeable and one time battery option
  - Rich interfaces for external peripherals and sensors
- Integrated communication and location tracking module
  - 2G available, upgradable to 3G/4G
- Additional NFC/RFID board for add on NFC capability
- Suitable for most tracking and monitoring applications



Core
Modules

Features

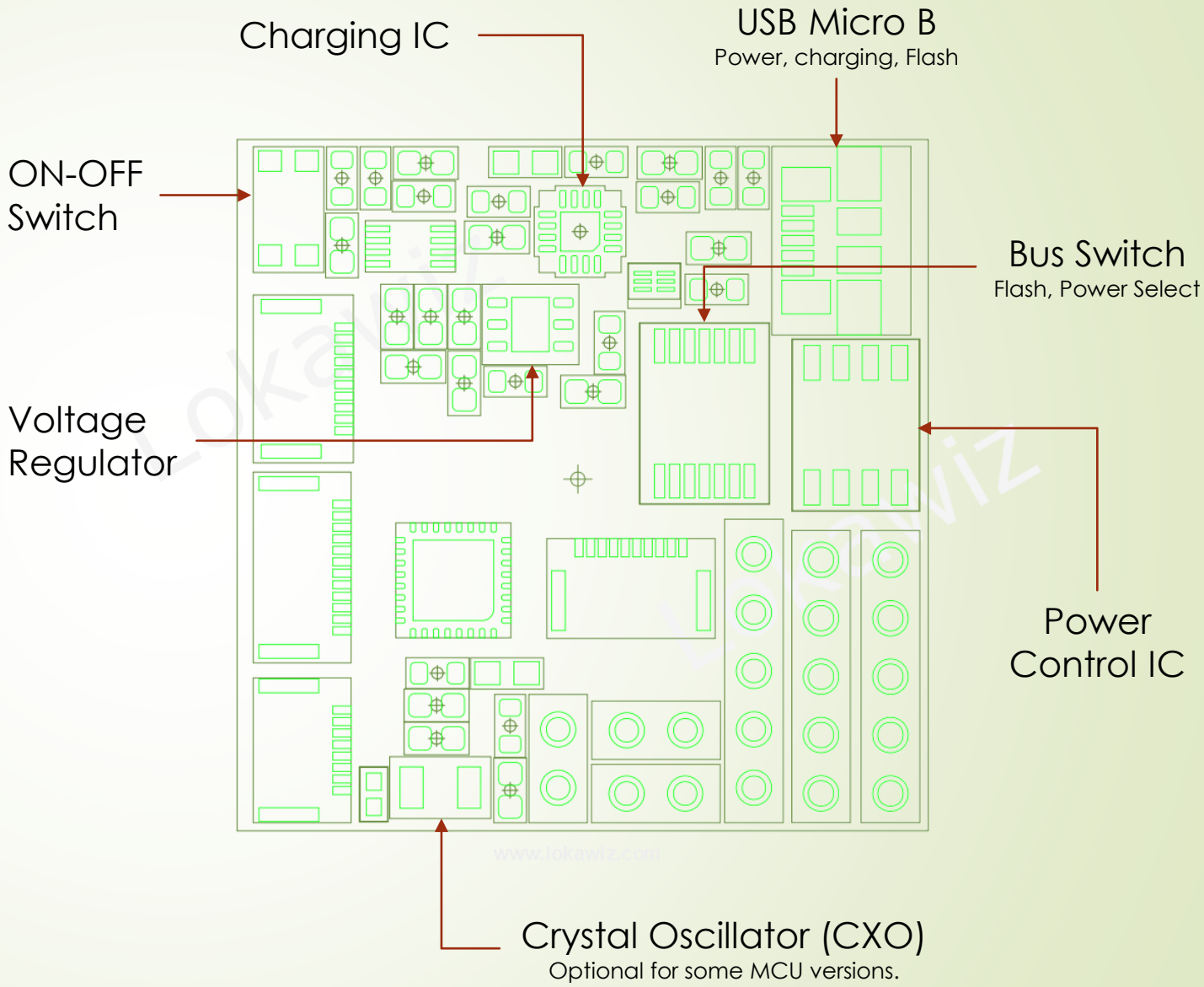
- Compact Size: 30x30 mm^2
- Power ON indication
- Charging indication
- Selectable MCU version
  - Arm Cortex-M0 & M4, Normal/Low Power, 3.3 V
  - Speed: 30–176 MHz, Flash: 2 – 256 KB, RAM: 4–64 KB
  - Timers, A/D, Comparators, Temperature Sensor
  - DMA, Serial IFs – I2C, UART, SPI
  - AES encryption (select MCUs)
- ARM based development



Core
Modules

Features

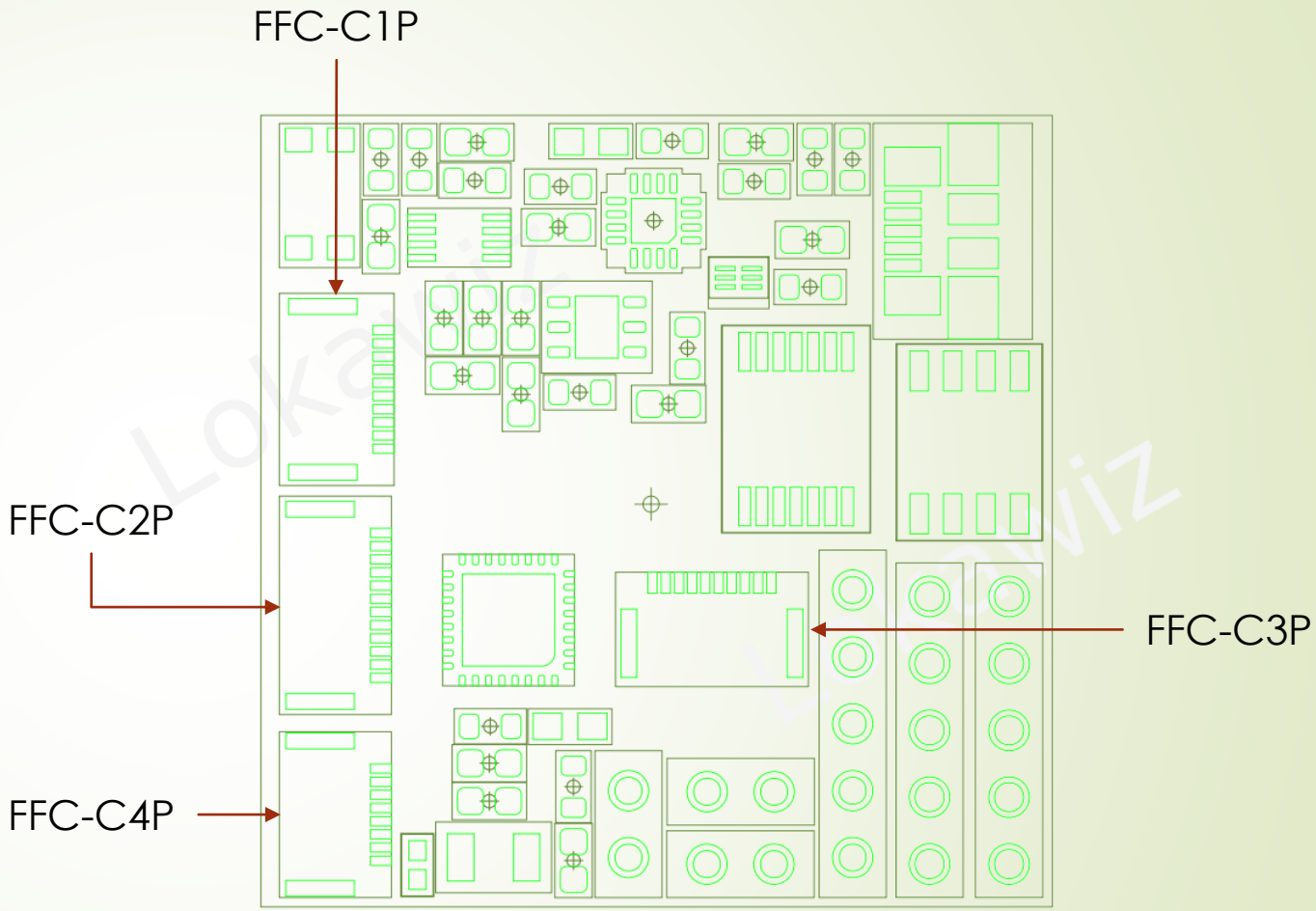
- Press ON - Hold OFF Switch, accidental OFF protection
- Power Options
  - Supply via 5V USB Micro B
  - By 3.6V normal or 3.7V rechargeable battery
- Charging module safe for 630+mAh rechargeable battery
- Programming Options
  - UART Flash by USB to TTL
  - USB Micro B Flash
- 500 mA voltage regulator for stable power to peripherals



Core
Connectors

Interfaces

- 100/400/1000 Kbps IF speeds
- FFC-C1P (10-pin)
  - Low Power UART with 2GPIOs or Timers I/O
- FFC-C2P (12-pin)
  - UART+SPI; or USART+3GPIOs
- FFC-C3P (10-pin)
  - SPI+2GPIOs or Low Power UART (without CTS, RTS)
- FFC-C4P (8-pin)
  - SMB I2C+Comparator or ADC IN; or Non-SMB I2C+2GPIOs
- Timers, RTC, A/D, Comparators

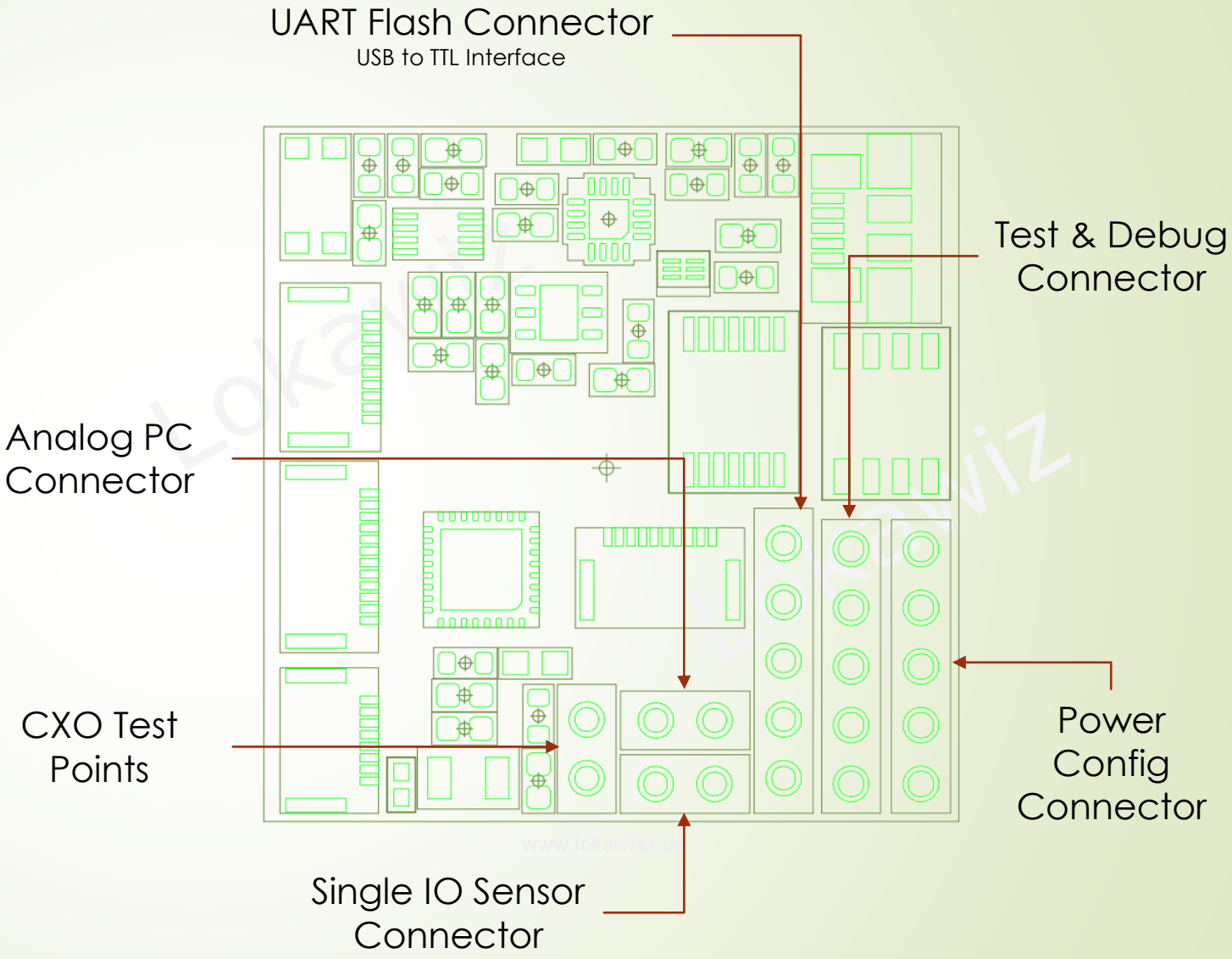


FFC: Flat Flex Connector, Used with flex cable.
C#P: Core x to Peripheral, # = 1, 2, 3, 4

Core
Connectors

Interfaces

- UART Programming Interface, USB to TTL (Additional to USB)
- MCU Debug register and Reset test and debug interface
- Re-chargeable and single use battery & power configuration
- Analog Power Config (PC)
  - For low power, remove MCU Analog power if not needed
- Crystal Oscillator test points
- Interface to connect single I/O sensors e.g. proximity, hall, etc.

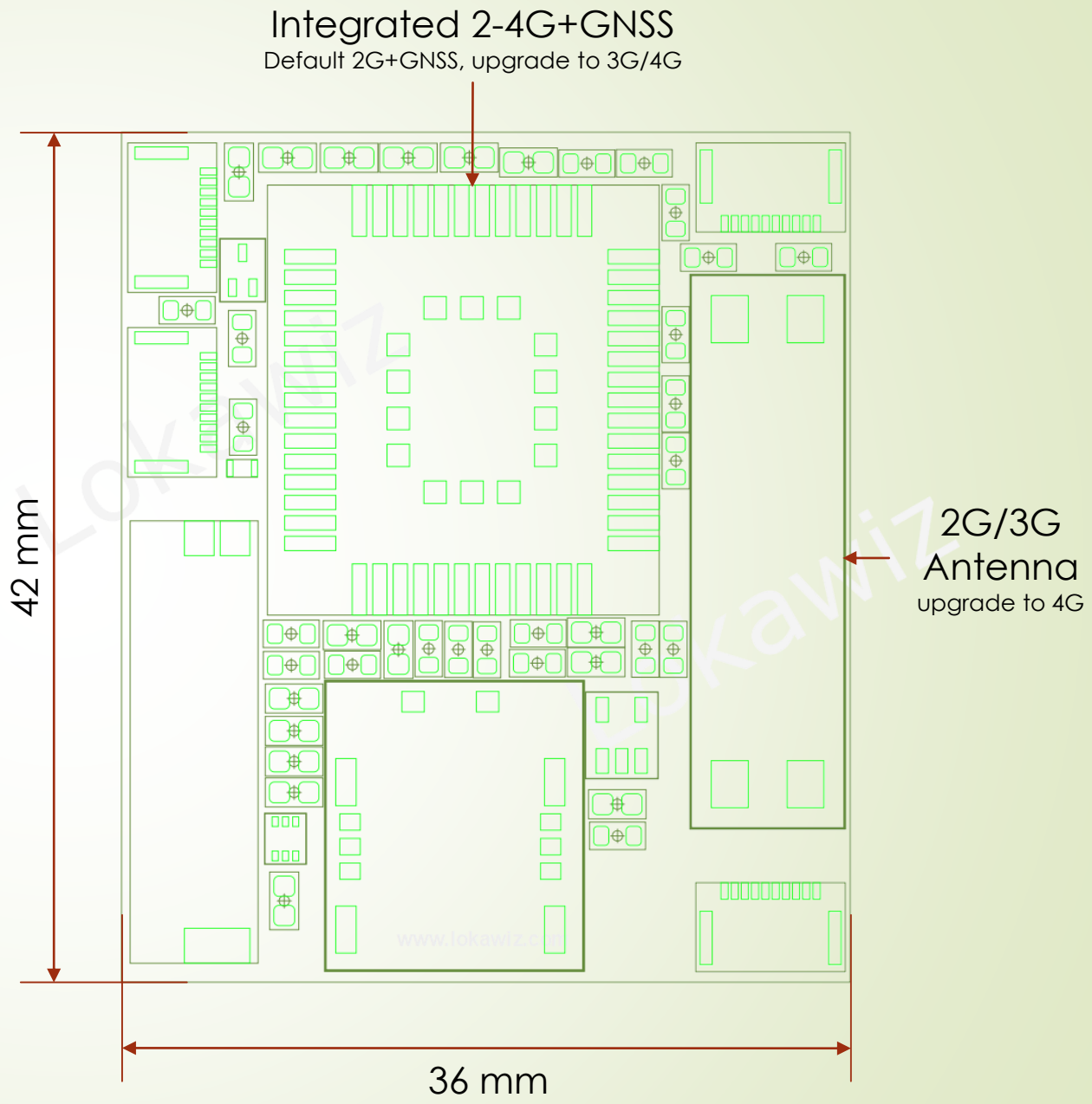


2-4G+GNSS

Modules

Features

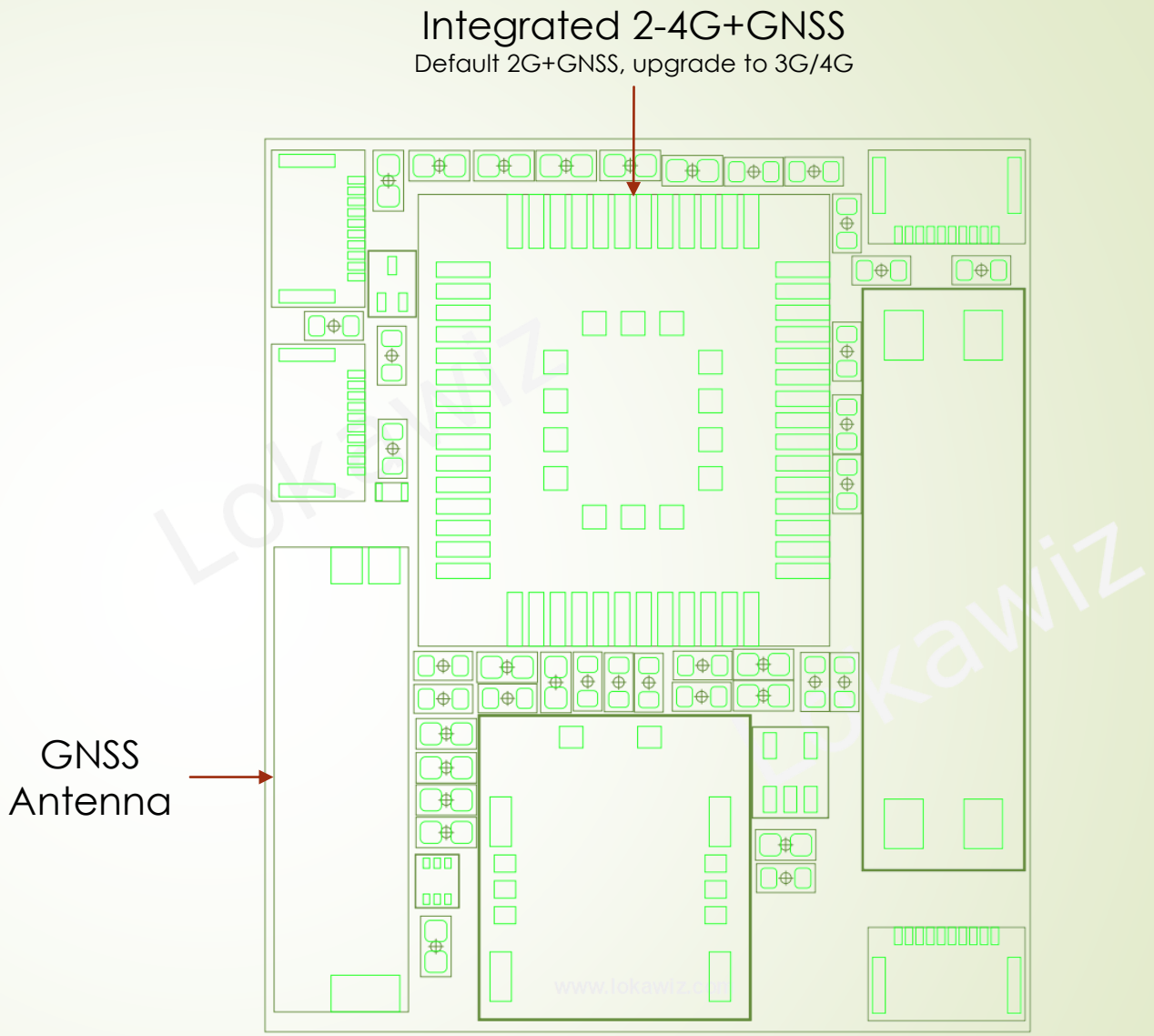
- Small size: 36x42 mm^2 (2G)
- Compatible with Core board
  - Connect with 10-pin flex cable
- Integrated 2-4G+GNSS module with small CPU for light apps
- 2G default, upgrade to 3G/4G
  - Quad-band GSM module 850/ 900/ 1800/ 1900MHz
  - TCP/ UDP/ PPP/ HTTP/ FTP/ SSL
- Onboard 2G/3G Antenna
  - Gain up to 5.25 dBi, VSWR < 2



2-4G+GNSS
Modules

Features

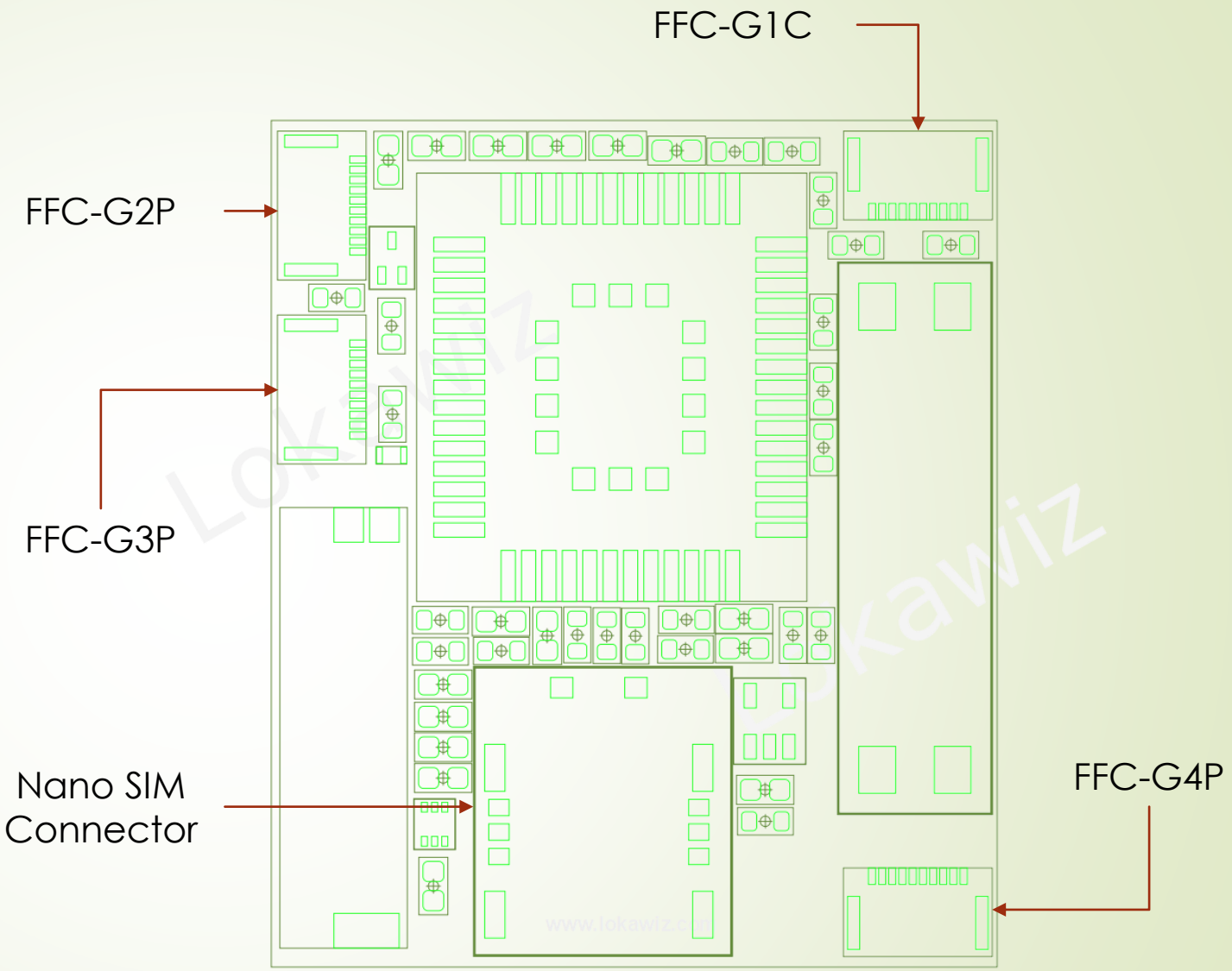
- GNSS features
  - GPS, GLONASS, QZSS
  - 99 acquisition /33 tracking channels
  - Powerful AGPS functions: Autonomous, Offline, Online
  - High sensitivity (-167dBm)
  - Location accuracy < 5m
- On board GNSS antenna
  - Band: 1.560~1.610
  - Gain up to 4 dBi, VSWR ≤ 1.6



2-4G+GNSS
Connectors

Interfaces

- Core and Peripheral Interfaces
- FFC-G1C (10-pin)
  - Interface to Core FFC-C1P
- FFC-G2P (10-pin)
  - Speaker, Mic & Loudspeaker
- FFC-G3P (10-pin)
  - SD or dual SIM interface
  - ADC & Pulse/second
- FFC-G4P (10-pin)
  - Debug probes and PCM interfaces
- Nano-SIM connector

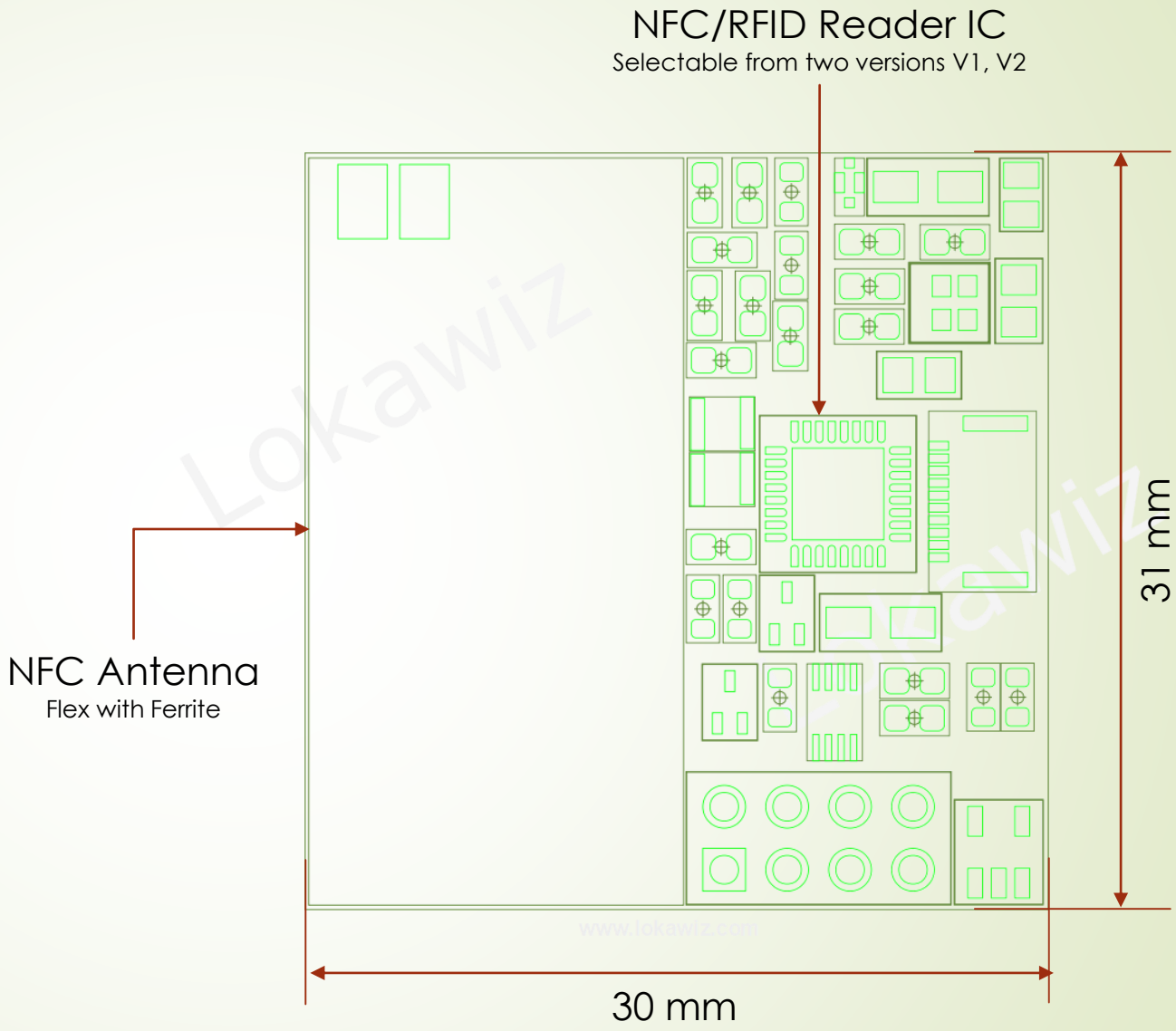


FFC: Flat Flex Connector, Used with flex cable.
G#C/P: GSM/GNSS # to Core/Peripheral, # = 1, 2, 3, 4

NFC/RFID
Modules

Features

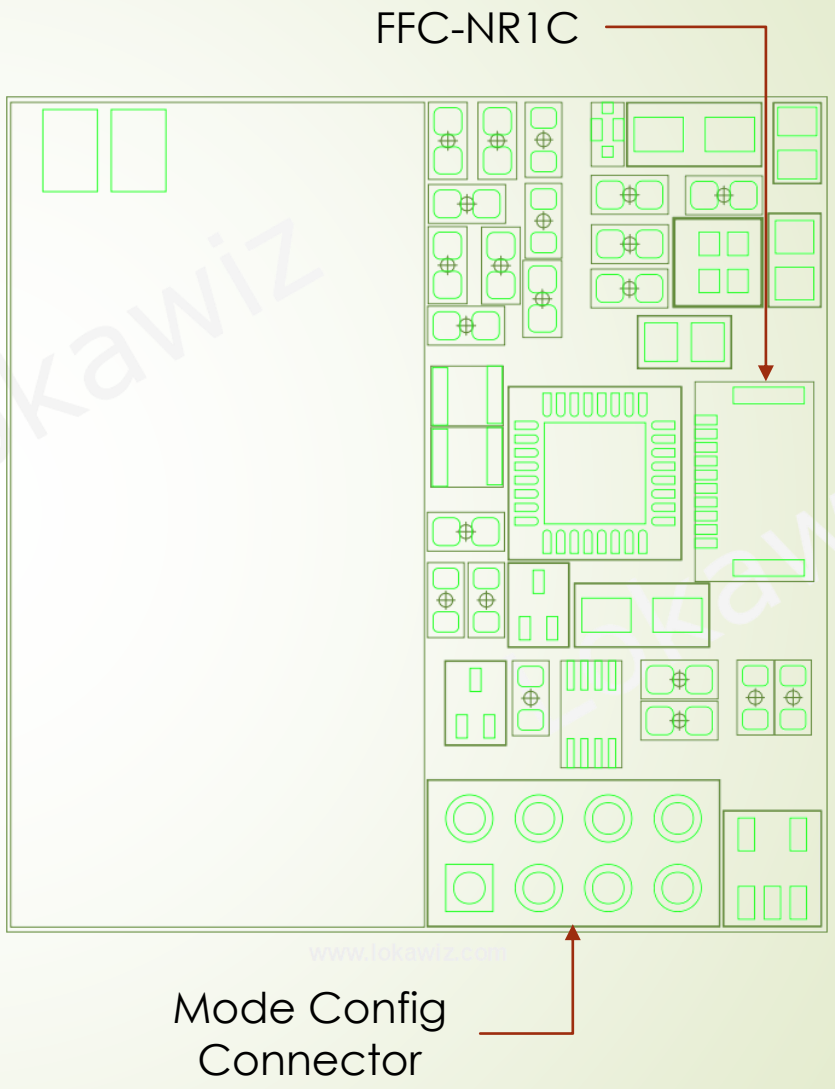
- Compact size: 30x31 mm^2
- NFC/RFID Tag Reader/Writer
  - 13.56 MHz RF communication
  - Read distance up to 5 cm
- Supported Tags (common)
  - ISO/IEC [14443 Type A&B, 15693, 18092-3M1]; NFC Forum Type 1, 2, 3 & 4 (5 with V2)
- SPI interface to Host (V1 & V2)
- UART interface in V1
- Interrupts, Card Emulation (V2)



NFC/RFID
Connectors

Interfaces

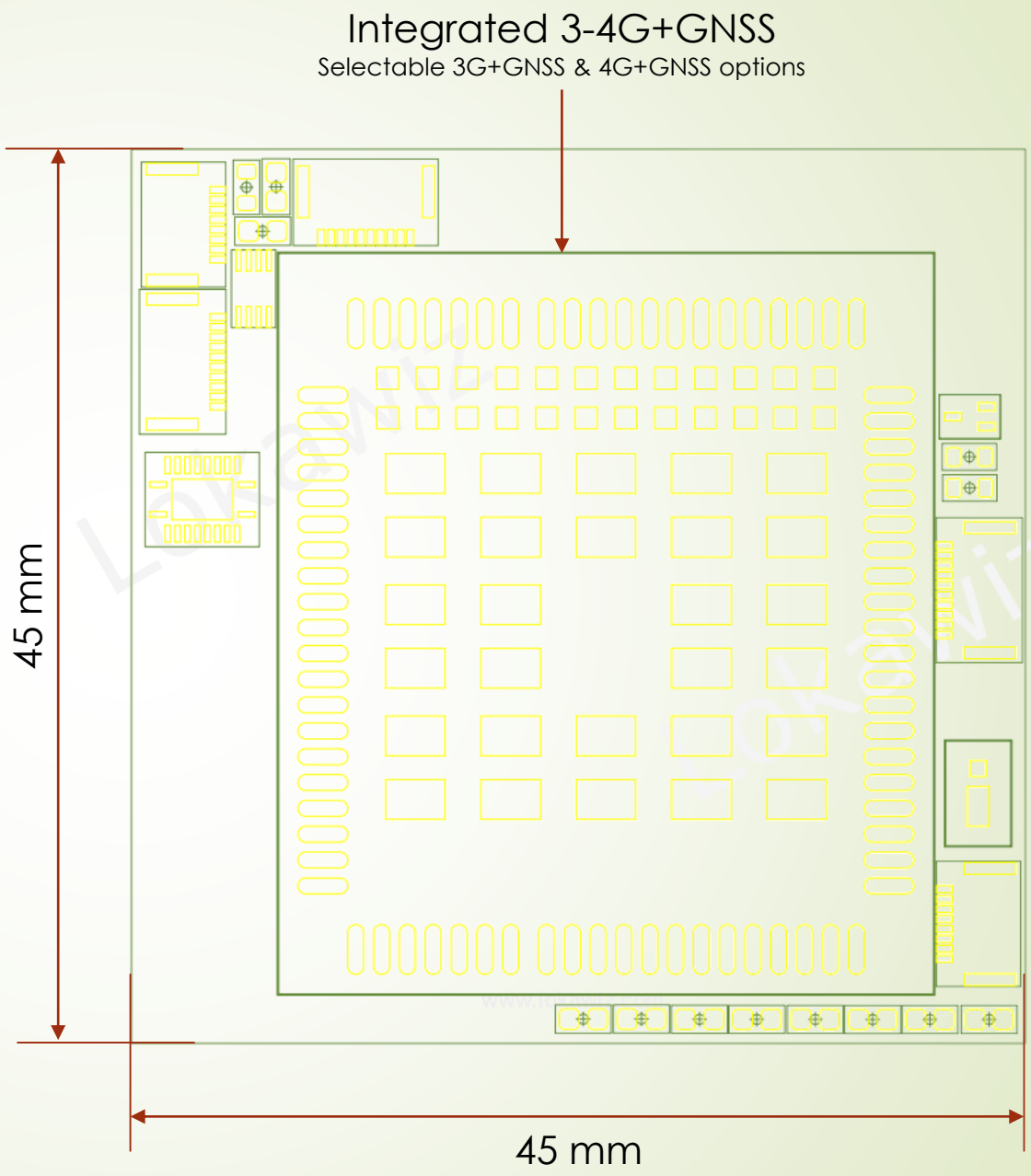
- FFC-NR1C (10 pin)
  - Interface to Core FFC-C3P
- Mode Config Connector
  - UART default mode
  - SPI Communication select
  - SPI mode with interrupt based communication with Core
  - Full mode with soft Reset for both SPI & UART modes
  - Non Reset mode for both
  - Low power option for SPI



3-4G+GNSS
Modules – A

Features

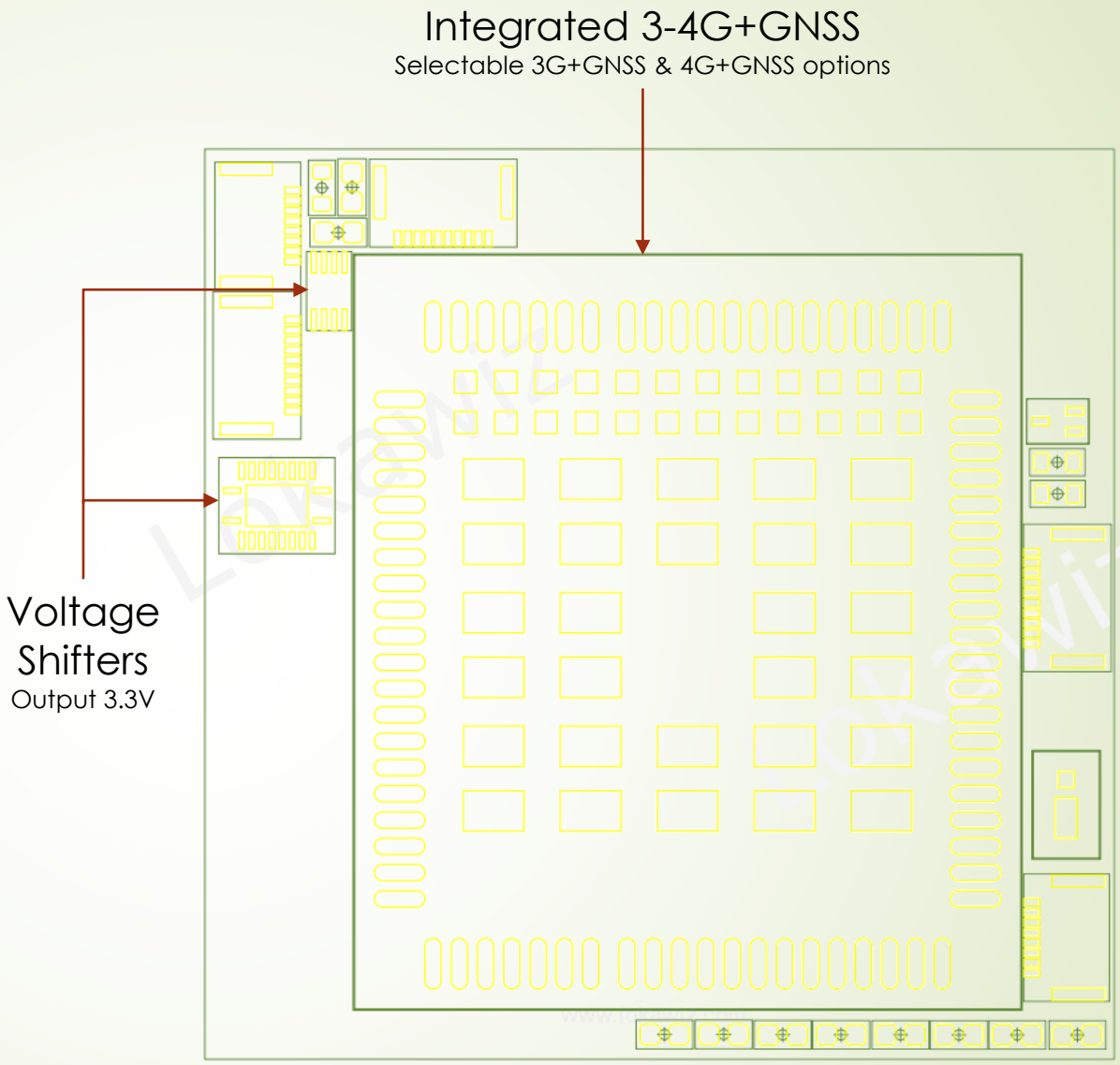
- Small size: 45x45 mm^2
- Compatible with Core board
  - Connect 10 & 8 pin flex cables
- Integrated 3-4G+GNSS module with on chip CPU
- Fully compatible with legacy EDGE & GSM/GPRS networks
- Selectable 3G and 4G options
  - HSPA+, DL/UL 14.4/5.76 Mbps
  - LTE CAT1, DL/UL 10/5 Mbps
  - LTE CAT4, DL/UL 150/50 Mbps
  - LTE MIMO support (4G option)



3-4G+GNSS
Modules – A

Features

- Voltage Shifter for 3.3V IOs
- Range of IP Protocols support
  - TCP,UDP,PPP,HTTP,FTP,SMTP,SSL
  - HTTPS,FTPS,SMTPS,NTP,PING additionally in 4G Types
- GNSS features
  - GPS, GLONASS. In 4G type also BeiDou, Galileo, QZSS
  - High sensitivity (max for type 3G/4G: -161dBm/-157dBm)
  - Low Time To Fast Fix (TTFF) (minimum for 3G/4G: 2/1.8s)
  - High Location accuracy less than 2.5m

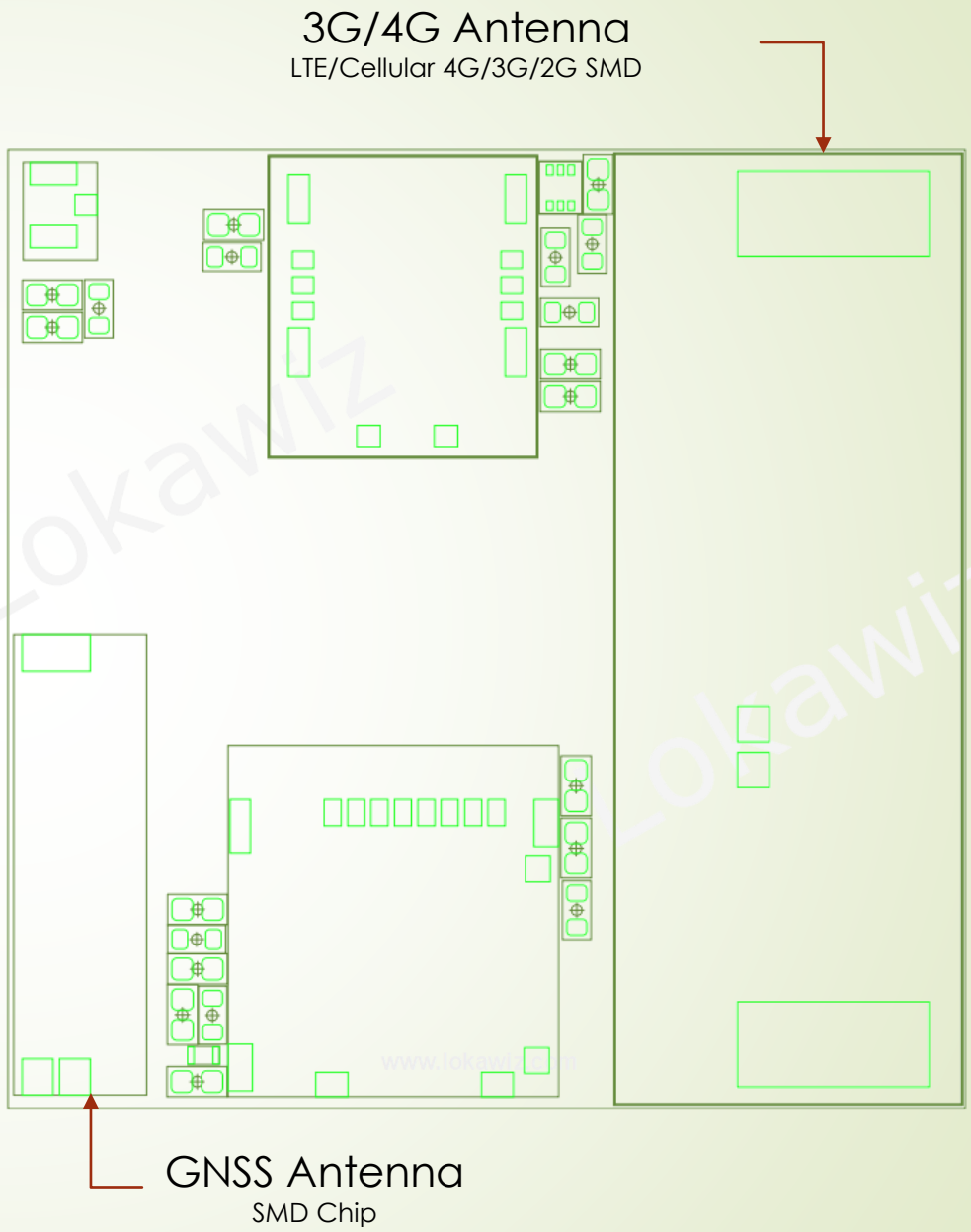


3-4G+GNSS

Modules – B

Features

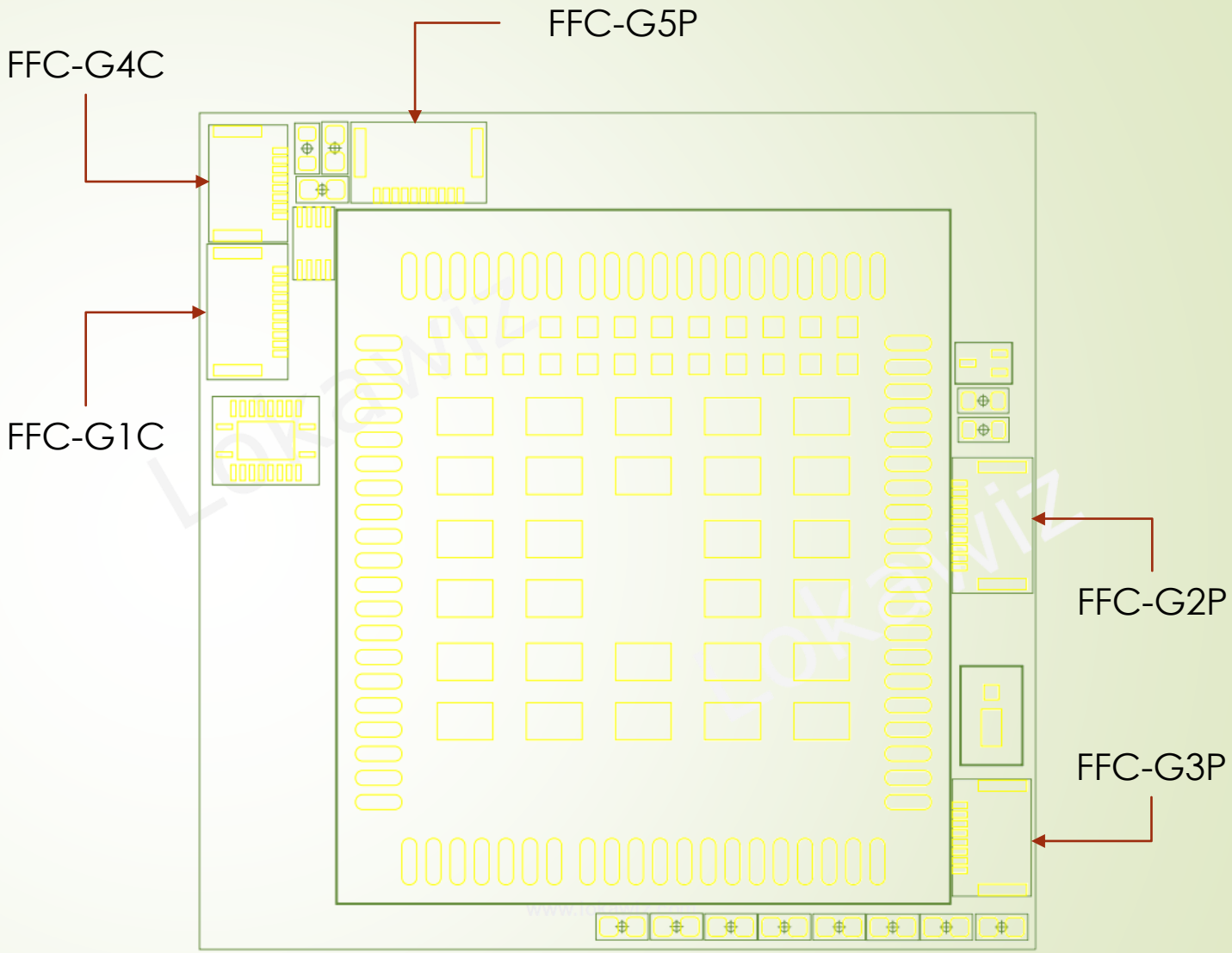
- 3G/4G Antenna
  - Bands: 698~960,1710~2690MHz
  - High Efficiency (~60% or more)
  - Max Gain up to 3.72dBi, ~3 or more in higher bands
  - VSWR < 2/Return Loss < -10dB
- On board GNSS antenna
  - Band: 1.560~1.610
  - Very High Efficiency, 75%
  - Max Gain up to 4 dBi
  - VSWR ≤ 1.6/Return Loss < -12dB



3-4G+GNSS
Connectors – A

Interfaces

- Core and Peripheral Interfaces (IFs)
- FFC-G1C (10-pin)
  - Interface to Core FFC-C1P
- FFC-G4C (8-pin)
  - Interface to Core FFC-C4P
- FFC-G2P (10-pin)
  - PCM and module debug
- FFC-G3P (8-pin)
  - ADC & I2C Peripherals
- FFC-G5P (10-pin)
  - USB Boot and Reset Interface

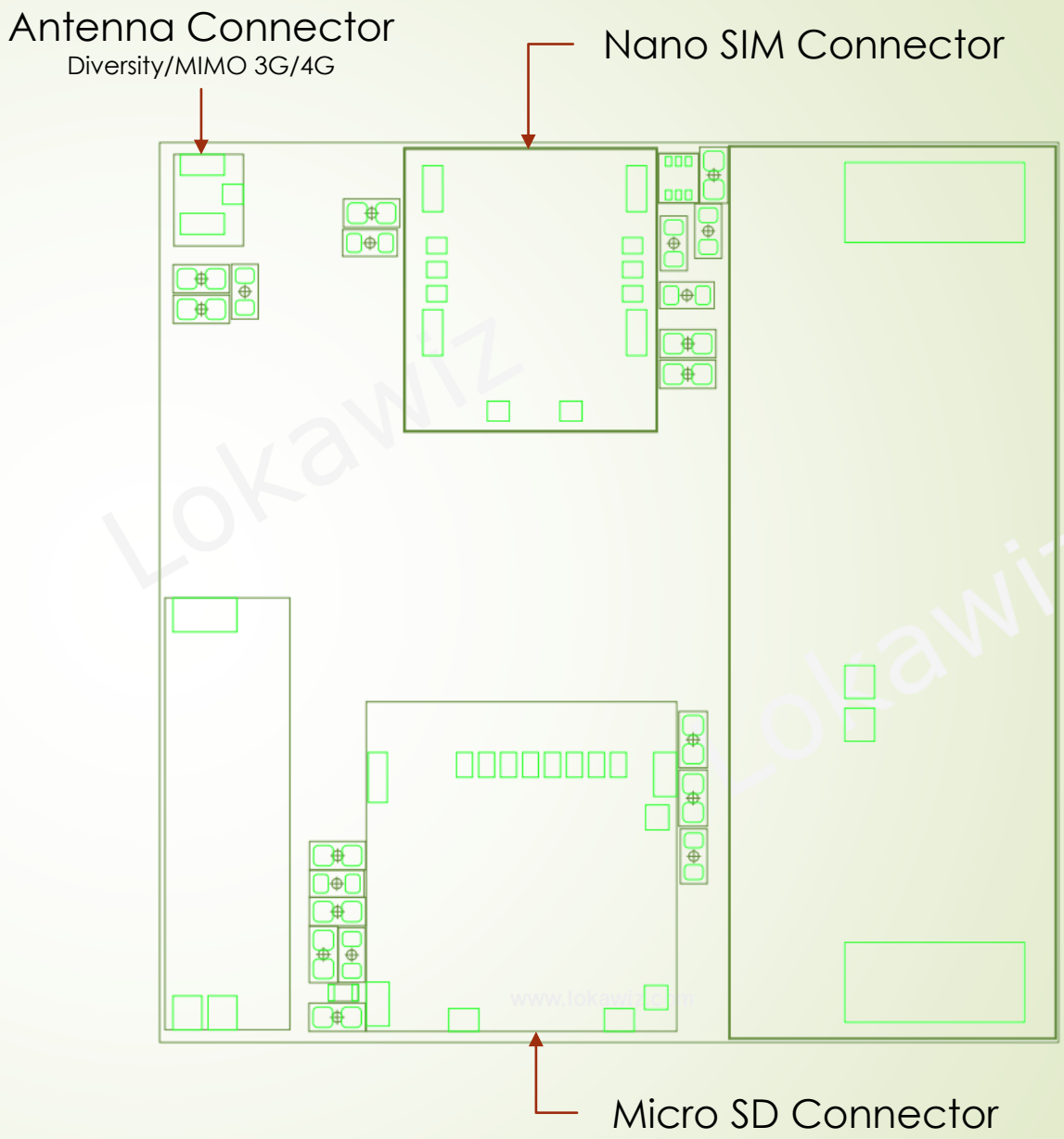


FFC: Flat Flex Connector, Used with flex cable.
G#C/P: 3-4G/GNSS # to Core/Peripheral, # = 1, 2, 3, 4

3-4G+GNSS
Connectors – B

Interfaces

- External Antenna connector
  - Rx Diversity/MIMO (4G Version)
- Nano-SIM connector
  - 6-circuit Push-Pull Type
  - Durability 5000 mating cycle
- Micro SD Connector
  - 8-circuit Push-Push Type with Anti-card fly-out
  - Durability 10000 mating cycle
- Extendible for SGMI, Wi-Fi and BT peripherals (4G Version).

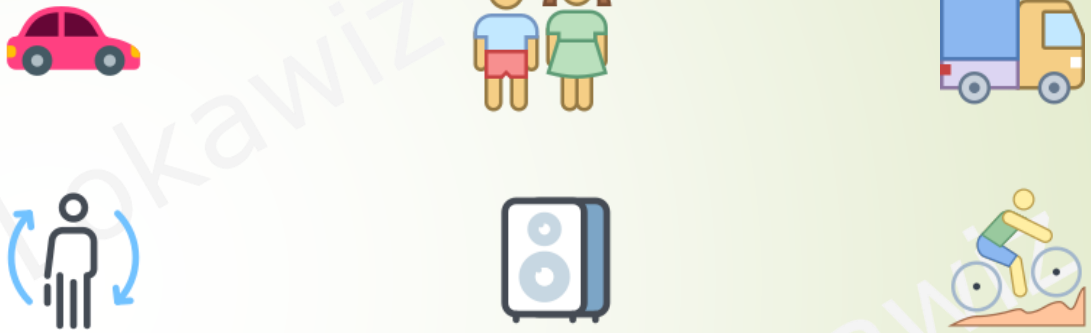


Applications

Use Cases

- Outdoor Tracking
  - Vehicle Tracking
  - Kids and pets tracking
  - Smart Logistics
  - Employee tracking
  - Asset Tracking
  - Outdoor Games
- In-premise (e.g. attendance)
  - kid, employee, visitor, patient

Outdoor Tracking



In-Premise

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Contact

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Thank You