

New Product Introduction



October 2024

CoolSiC™ MOSFET 1200 V G2 in D2PAK-7 package IMBG120R034M2H

Easy 1200 V H7 lead types F3L500R12W3H7 H11 and FS3L40R12W2H7P B11

High-side gate driver 1EDL8011

Easy module EV charger DC-DC secondary stage DDB2U60N07W1RF B58 and DDB2U60N12W3RF C39

OptiMOS™ 5 80 V and 100 V mTOLG package automotive MOSFETs

OptiMOS™ 7 40 V SSO8 Duals automotive MOSFETs

OptiMOS™ power MOSFETs 25 V - 150 V in PQFN 5x6 Source-Down Standard-Gate and Center-Gate DSC

OptiMOS™ IPOL TDA38640A, TDA38740A and TDA38725A

Highly efficient DC-DC buck regulator TDA38806 and TDA38807

OptiMOS™ 6 power MOSFET 120 V

<u>SP4T antenna tuning switch with powerful combination of low R_{on} and C_{off} BGSA14M3N10</u>

CYW55513 1x1 Wi-Fi 6 / 6E + Bluetooth 5.4 Combo IC

CoolSiC[™] MOSFET 1200 V G2 in D2PAK-7 package IMBG120R034M2H

The CoolSiC™ MOSFET discrete 1200 V, 34 mΩ G2 in a TO-263-7 (D²PAK-7L) package builds on the strengths of Generation 1 technology and enables the accelerated system design of more cost optimized, efficient, compact, and reliable solutions. The CoolSiC™ MOSFET discrete 1200 V G2 comes with significant improvements in key figures-of-merit for both, hard-switching operation and soft-switching topologies, suitable for all common combinations of AC-DC, DC-DC, and DC-AC stages.



Features

- > Very low switching losses
- > Overload operation up to T_{vi} = 200°C
- > Short circuit withstand time 2 μs
- > Benchmark gate threshold voltage, V_{GS(th)} = 4.2 V
- > Robust against parasitic turn on, 0 V turn-off gate voltage can be applied
- > Robust body diode for hard commutation
- XT interconnection technology for best-in-class thermal performance

Competitive advantage

- > Lowest R_{DS(on)} for highest output capability
- > Most granular portfolio in the market
- > Overload operation up to T_{vi} = 200°C
- > Robust short-circuit rating
- > Avalanche robustness

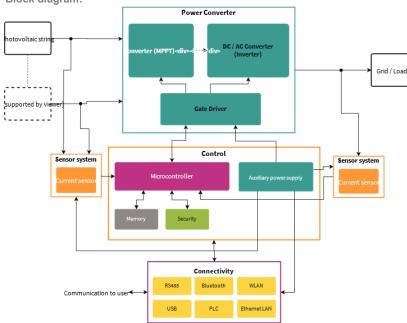
Benefits

- > Better energy efficiency
- > Cooling optimization
- > Higher power density
- > New robustness features
- > Highly reliable

Target applications

- > EV charging
- > String inverter
- > Solar power optimizer
- > Online UPS / industrial UPS
- > General purpose drives (GPD)

Block diagram:



Product collaterals / Online support

Product page

OPN	SP Number	Package
IMBG120R034M2HXTMA1	SP006016740	PG-TO-263-7

Easy 1200 V H7 lead types F3L500R12W3H7_H11 and FS3L40R12W2H7P_B11

The FS3L40R12W2H7P_B11 and F3L500R12W3H7_H11 featuring the latest TRENCHSTOP™ IGBT H7 chip generation has extended Easy family portfolio in 1000 V_{DC} systems and enabled fast switching applications.

The EasyPACK[™] 2B in three phase NPC 2 topology with 1200 V TRENCHSTOP[™] IGBT7 H7 is suitable for 1100 V PV string inverter and ESS and comes with PressFit Pin and NTC, TIM.

The EasyPACK™ 3B in single phase NPC2 topology with 1200 V TRENCHSTOP™ IGBT7 H7 is suitable for 1100 V PV string inverter applications and comes with high current pin and NTC.



Features

- > Fast switching capabilities
- > 175°C overload
- > Low V_{CEsat}
- > Humidity ruggedness
- > PressFIT pins, high current pins

Benefits

- > Highest power rating up to 150 kW is possible
- > Best cost-performance ratio which leads to reduced system costs
- > Enabling high frequency operation and improvement for reduced cooling requirements

Competitive advantage

- > Broadest portfolio of Easy modules on the market with diverse choices on topology, voltage classes, packages and technologies for different application purposes
- Cost-efficient solution for fast-switching applications like Solar, ESS, Hydrogen, EV charging, UPS and fuel cell

Target applications

- > Solar
- > UPS
- > Hydrogen
- > Energy storage
- > EV charging

Product collaterals / Online support

Product family page

OPN	SP Number	Package
F3L500R12W3H7H11BPSA1	SP005874757	AG-EASY3B-711
FS3L40R12W2H7PB11BPSA1	SP005859380	AG-EASY2B-711

High-side gate driver 1EDL8011

With powerful internal gate current capabilities, 1EDL8011 high-side gate driver provides fast turn-on/off control of high side N-channel MOSFET disconnect switch to protect battery driven system from during fault conditions. 1EDL8011 is available in DSO-8 package including features of OCP protection, the adjustable current setting threshold, time delay as well as a safe start-up mechanism with flexible blanking during MOSFET turn-on transition.



Features

- > Max input voltage 125 V
- > Strong driver for fast turn-off
- > Strong charge pump for fast start-up
- > V_{DS} monitor for over current protection
- > Internal charge pump

Competitive advantage

- > Increased performance: lowest loss possible in disconnect switch thanks to strong charge pump and gate driver
- > Wider voltage capability: IC can handle a wider input voltage range than a discrete solution
- > Production simplicity: fewer components to procure, inventory, expedite, inspect, assemble, and test
- Cost efficient: integrating the circuitry allows customer to include safety features beyond available room in discrete approach
- Higher quality and reliability: integration provides higher quality and reliability compared to high component count discrete approach

Benefits

- > Adjustable current trip threshold
- > Adjustable time delay
- > Adjustable start-up blanking
- > High-side protection from inrush current

Target applications

- > Battery power tools
- > Battery gardening tools
- > Robotics, vacuum cleaner
- > Drones, e-bikes
- > Battery Management System

Product collaterals / Online support

Product page

Block diagram:

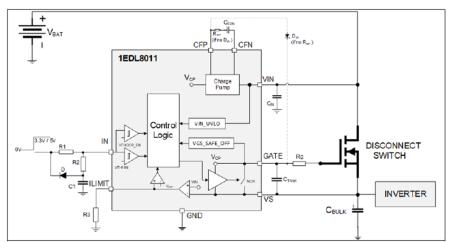


Figure 2 Block diagram

OPN	SP Number	Package
1EDL8011XUMA1	SP005726254	PG-DSO-8

Easy module EV charger DC-DC secondary stage DDB2U60N07W1RF_B58 and DDB2U60N12W3RF_C39

EasyBRIDGE™ 1200 V, 60 A rectifier module with Trenchstop IGBT7 and CoolSiC™ Schottky diode G5 1200 V, NTC, Easy 3B and PressFIT contact technology and EasyBRIDGE™ 650 V, 60 A rectifier module with CoolSiC™ MOSFET and CoolSiC™ Schottky diode G5 650 V, NTC, Easy 1B and PressFIT contact technology.



Features

- > Best-in-class packages with 12 mm height
- > Leading edge WBG material
- > Very low module stray inductance
- > PressFIT pins
- > Integrated NTC temperature sensor
- > Uses best-in-class SiC Schottky Diode Gen 5 technology

Competitive advantage

- > Customized topology in a single module: CoolSiC[™] Schottky diode based bridge modules with additional switches for enabling additional features and highest flexibility in the application
- > Latest chip technologies for lowest conduction and switching losses, resulting in increased efficiency
- > High surge current capability for use in grid or battery side

Benefits

- > Outstanding module efficiency
- > System cost advantages
- > System efficiency improvement
- > Reduced cooling requirements
- > Enabling higher frequency
- > Increase of power density
- > Compact design
- > Raised performance for fast DC charging

Target applications

> EV charging

Product collaterals / Online support

Product family page

OPN	SP Number	Package
DDB2U60N07W1RFB58BPSA1	SP005824111	AG-EASY1B-3111
DDB2U60N12W3RFC39BPSA1	SP005581531	AG-EASY3B-2311

OptiMOS™ 5 80 V and 100 V mTOLG package automotive MOSFETs

Infineon introduces new OptiMOSTM 5 80 V and 100 V automotive MOSFETs in its new mTOLG 8 x 8 mm² surface mount package.

These MOSFETs are designed specifically for the high performance, high quality and robustness needed for demanding automotive applications. mTOLG package MOSFETs are recommended for aluminum (AI) based IMS substrates because of their enhanced temperature cycling (TCoB) performance.



Features

- > Gullwing shaped leads
- > Compatible with other 8 x 8 mm² packages
- > Leading edge R_{DS(on)}
- > Fast switching times (turn on/off)
- > Extended qualification beyond AEC-Q101

Benefits

- > Enhanced temperature cycling results
- > Recommended for metal substrate PCBs
- Minimized conduction losses and excellent switching performance
- > High power density
- > Option to use second source of 8 x 8 mm²

Competitive advantage

- > The mTOLG package features gullwing-shaped leads that handle mechanical stress well during thermal cycling
- Offers best-in-class R_{DS(on)} performance in both the 80 V and the 100 V category
- > The JEDEC-listed mTOLG package is compatible with other 8 x 8 mm² gullwing package MOSFETs

Target applications

- > DC-DC converters (HV / 48 V, 48 V / 12 V, HV / 24 V)
- > 48 V pumps, fans, and eTurbo
- > 48 V PTC heater, 48 V motor control and other 48 V auxiliary loads
- > 48 V power distribution
- > Traction inverters for light electric two / three-wheel vehicles

Product collaterals / Online support

Product family page

OPN	SP Number	Package
IAUMN08S5N012GAUMA1	SP006044709	PG-HSOG-4
IAUMN08S5N013GAUMA1	SP006044711	PG-HSOG-4
IAUMN10S5N016GAUMA1	SP006044713	PG-HSOG-4
IAUMN10S5N017GAUMA1	SP006044715	PG-HSOG-4

OptiMOS™ 7 40 V SSO8 Duals automotive MOSFETs

The success story of the Dual SSO8 5x6 leadless packages continues with a high performant Cu-clip and the latest OptiMOS 7™ 40 V technology as the leading-edge package for tomorrow's low to mid power applications like window-lift, power-lift gate, power-seat, body control module, USB-charging, electric-parking brake, water pump or all other small BLDC drives loads.



Dual SSO8 5x6 in combination with the leading-edge OptiMOS-7™ 40 V power MOS technology combines for best-in-class power density and power efficiency at Infineon's high-quality standard for robust automotive packages.

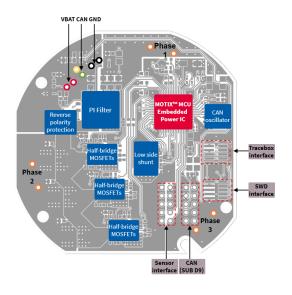
Features

- > 5 x 6 mm² small footprint in leadless package
- > 60 A high current capability
- > Available in IFX leading-edge OptiMOS™ 7 40 V technology
- > R_{DS(on)} range: 1.8 m Ω 5.6 m Ω
- > Advanced leadless package with Cu-Clip for lowest package resistance and minimized stray inductance

Competitive advantage

- > Best-in-class R_{on} performance by IFX
- > Best-in-class pricing vs performance
- > Best automotive quality robust package
- > High efficient in-house production
- > Stable in-house supply and dual fab strategy

Block diagram:



Benefits

- > Highest power and current density in Dual SSO8 5x6
- > High thermal capacity lead-frame package
- > Reduced conduction losses
- > Reduced form factor
- > Best cost / performance ratio

Target applications

- > All body control modules: window-lift, power-lift gate, power-seat
- > USB charging
- > Water pump
- > All cost efficient and small BLDC drives

Product collaterals / Online support

Product family page

OPN	SP Number	Package
IAUCN04S7N040DATMA1	SP005728246	PG-TDSON-8
IAUCN04S7L053DATMA1	SP005862639	PG-TDSON-8
IAUCN04S7N056DATMA1	SP005728248	PG-TDSON-8

OptiMOS™ power MOSFETs 25 V - 150 V in PQFN 5x6 Source-Down Standard-Gate and Center-Gate DSC

The Source-Down package concept enables a large potential for system-level improvements, utilizing the lowest $R_{\text{DS}(\text{on})}$ per footprint area and outstanding the thermal performance to reduce BOM-costs and increase the power density. In combination with a reinforced drain clip on the top side of the chip, package parasitics are significantly reduced and thermal management requires less active cooling, thus further optimizing system efficiency. Furthermore, the dual-side cooling package allows to dissipate up to six times more power compared to the overmolded package. The advanced Center-Gate footprint is optimized for parallelization.



Features

- > Cutting edge silicon technology OptiMOS™ with outstanding FOMs
- Source-Down package with improved thermal performance and ultra-low parasitics
- > Source-Down package with maximized chip/package ratio
- Source-Down package in Center-Gate and Standard-Gate footprint
- > Dual-side cooling variant

Benefits

- > Minimized conduction losses, reduced voltage overshoot
- > Increased maximum current capability, fast switching
- > Standard-Gate footprint easily adapts at existing PCB
- > Center-Gate footprint enables optimized parallelization
- > Dual-side cooling to boost thermal performance

Competitive advantage

- > Lowest possible R_{DS(on)} on 5.0 x 6.0 mm 2 PCB real-estate
- > Improved thermal performance for easy thermal management
- > Lowest package parasitics for best switching performance
- > Center-Gate footprint with large creepage distance

Target applications

- > Telecom and server
- > Drones and robotics
- > Power tools and Battery Management Systems (BMS)
- > Solar
- > Class-D audio applications
- > LEVs and low voltage drives

Product overview incl. datasheet link

OPN	SP Number	Package
IQDH29NE2LM5CGSCATMA1	SP005905047	PG-WHTFN-9
IQDH35N03LM5CGSCATMA1	SP005905058	PG-WHTFN-9
IQDH45N04LM6CGSCATMA1	SP005905614	PG-WHTFN-9
IQD005N04NM6CGSCATMA1	SP005905684	PG-WHTFN-9
IQD009N06NM5CGSCATMA1	SP005905688	PG-WHTFN-9
IQDH88N06LM5CGSCATMA1	SP005905868	PG-WHTFN-9
IQD016N08NM5CGSCATMA1	SP005905871	PG-WHTFN-9
IQD020N10NM5CGSCATMA1	SP005905875	PG-WHTFN-9
IQD063N15NM5CGSCATMA1	SP005905536	PG-WHTFN-9
IQDH29NE2LM5SCATMA1	SP005904377	PG-WHSON-8
IQDH35N03LM5SCATMA1	SP005904380	PG-WHSON-8
IQDH45N04LM6SCATMA1	SP005904384	PG-WHSON-8
IQD005N04NM6SCATMA1	SP005904390	PG-WHSON-8
IQD009N06NM5SCATMA1	SP005904393	PG-WHSON-8
IQDH88N06LM5SCATMA1	SP005904396	PG-WHSON-8
IQD016N08NM5SCATMA1	SP005904399	PG-WHSON-8
IQD020N10NM5SCATMA1	SP005904424	PG-WHSON-8
IQD063N15NM5SCATMA1	SP005904427	PG-WHSON-8

Product collaterals / Online support

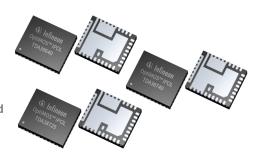
Product family page

Customer connector

Product presentation

OptiMOS™ IPOL TDA38640A, TDA38740A and TDA38725A

OptiMOS™ IPOL TDA38640A, TDA38740A, and TDA38725A are easy-to-use, fully integrated, highly efficient 25 - 40 A synchronous buck regulators with Intel SVID / I2C compliance, PMBUS compliance, or pin programmability and SVID. A proprietary fast COT engine enables a fast-transient response and reduces the board footprint. They offer best-in-class efficiency by using OptiMOS™ FETs, optimized for low-voltage high-current applications. Extensive protection features provide system-level security under fault conditions.



Features

- > Wide input voltage range 3.0 17 V
- > Wide input voltage range 3.0 17 V
- > Output voltage range: 0.25 3.04 V
- > Enhanced stability engine stable
- > Opt. forced continuous conduction mode
- > Switching frequency from 400 kHz 2 MHz
- > Monotonic start-up and soft-start time
- > Thermally compensated internal OCP

Benefits

- > Superior transient response
- > Accurate output voltage regulation
- > High efficiency and high power density
- > Fast constant on-time PWM engine

Target applications

> Information and communication technologies

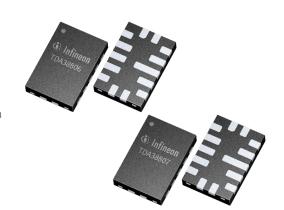
Product collaterals / Online support

Product family page

OPN	SP Number	Package
TDA38640A0000AUMA1	SP006008417	PG-IQFN-36
TDA38740A0000AUMA1	SP006008419	PG-IQFN-36
TDA38725A0000AUMA1	SP006008421	PG-IQFN-36

Highly efficient DC-DC buck regulator TDA38806 and TDA38807

TDA38806 / 07 are 6 A fully integrated and highly efficient DC-DC buck regulators. They use a fast constant on-time (COT) control scheme which simplifies design and achieves fast transient response while maintaining excellent line and load regulation. TDA3880x can operate over a wide range of input voltage (2.7 V - 16 V) and are suitable for a variety of applications such as data center and telecommunications.



Features

- > Wide input voltage range (2.7 V to 16 V)
- > No external compensation
- > Supports both FCCM and DEM mode
- > Programmable Fsw
- > Soft start
- > OCP limit
- > Enhanced protection features

Target applications

- > Server and datacom
- > Storage
- > Telecom
- > Distributed point of load power architectures

Product collaterals / Online support

Product family page

Benefits

- > Support diverse end applications
- > Compact design
- > No external components
- > Efficiency at light / full load
- > Robust design and reliability

OPN	SP Number	Package
TDA38806XUMA1	SP005825174	PG-TSNP-14
TDA38807XUMA1	SP005825002	PG-TSNP-14

OptiMOS™ 6 power MOSFET 120 V

This is a normal level 120 V MOSFET in TO-Leadless packaging with 2.6 m Ω on-resistance. IPT026N12NM6 is part of Infineon's OptiMOSTM 6 power MOSFET family.



Features

- > Compared to OptiMOS™ 3, the technology features
 - > up to 58% better $R_{DS(on)}$
 - > up to 66% better FOM_g
 - > up to 90% better Q_{rr}
 - > up to 35% better FOM_{oss}

Product collaterals / Online support

Product page

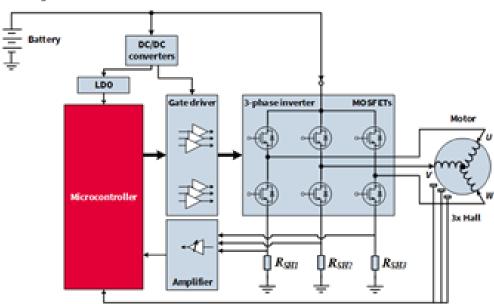
Benefits

- > Very low reverse recovery charge
- > Excellent gate charge x R_{DS(on)}
- > High avalanche energy rating
- > 175°C junction temperature rating
- > Pb-free plating
- > RoHS compliant
- > Halogen-free
- > MSL1 classified

Target applications

- > Power and gardening tools
- > Motor control and drives

Block diagram:



OPN	SP Number	Package
IPT026N12NM6ATMA1	SP006034354	PG-HSOF-8

SP4T antenna tuning switch with powerful combination of low R_{on} and C_{off} BGSA14M3N10

The BGSA14M3N10 is a very compact Single Pole Four Throw (SP4T) antenna tuning switch optimized for RF applications up to 7.125 GHz. It offers a powerful combination of low R_{ON} and C_{OFF} together with a high RF voltage ruggedness, making it a perfect fit for switching any reactive components such as inductors and capacitors without significant losses.



Features

- > Smallest size SP4T tuner on the market 0.95 mm x 1.3 mm
- > Wide frequency operation range from 0.38 GHz up to 7.125 GHz
- > Low R_{ON} x C_{OFF} figure of merit along with very high linearity

Benefits

- > Low R_{ON} resistance of 1.1 Ω in ON state
- > Low C_{OFF} capacitance of 116 fF in OFF state
- > RF operating voltage handling 45 V in OFF state
- > MIPI RFFE 2.1 control interface
- > Single VIO supply supporting both 1.2 V and 1.8 V
- > 4 default USID addresses via external USID_SEL pin
- Small form factor 0.95 mm x 1.3 mm (MSL1, 260°C per JEDEC J-STD-020)

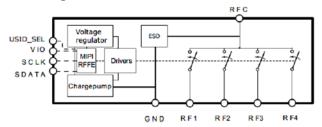
Competitive advantage

- > Support sub-7.2 GHz NR / NR-U (5G) applications
- > Ultra-low R_{ON} x C_{OFF} figure of merit along with very high linearity
- Space saving due to ultra-small package, suitable for spaceconstrained applications

Target applications

- > All battery powered cellular applications
- > Smartphone
- > Notebook and tablet
- > Smartwatch
- > VR headset, smart home (e.g. cellular CPE)

Block diagram:



Product overview incl. datasheet link

OPN	SP Number	Package
BGSA14M3N10E6327XTSA1	SP005893306	PG-TSNP-10

Product collaterals / Online support

Product page

CYW55513 1x1 Wi-Fi 6 / 6E + Bluetooth 5.4 Combo IC

The AIROC™ CYW55513/2/1 are a family of low-power, single-chip devices that support 1x1 single-stream, tri-band (CYW55513), dual-band (CYW55512) and singleband (CYW55511), Wi-Fi 6/6E, IEEE 802.11ax-compliant Wi-Fi MAC / baseband /radio. and Bluetooth® / Bluetooth® Low Energy 5.4. The device supports up to 1024 QAM MCS11 in 20 MHz channels delivering PHY rates up to 143 Mbps. CYW55513/2/1 provide best-in-class range/coverage by delivering up to 24 dBm of transmit power, and sensitivity down to -101.5 dBm, while supporting Wi-Fi 6/6E range improving features such as HR ER-PPDU, longer guard intervals, long OFDM symbol, and dualcarrier modulation (DCM), with Infineon range improvements for legacy rate devices. SDIO and gSPI interfaces available for interfacing to an array of A-Class (Linux/ Android) and M-Class (RTOS) host processors. CYW55513/2/1 include a Bluetooth® 5.4-compliant subsystem, with a 192 MHz Arm® Cortex®- CM33 processor, supporting Bluetooth® classic (BDR, EDR for A2DP/HFP) and Bluetooth® Low Energy audio (LC3 codec), running in hosted / controller or embedded mode where it can offload the host processor. Additionally, the devices support Bluetooth® LE 2 Mbps, Bluetooth® LE1 Mbps, Low-Energy long-range (LR), and periodic advertising extensions. The AIROC™ CYW5551x Wi-Fi and Bluetooth® 5.4 combos are supported by our third party module partners Azurewave, Ezurio, Murata, uBlox and USI.



Features

- > 1x1, Tri-Band 2.4 / 5 / 6 GHz, 20 MHz Wi-Fi 6E
- > OFDMA, MU-MIMO, TWT, BSS Coloring, DCM
- > STA and SoftAP mode
- > Network offload power save features
- > WPA2 and WPA3 Security
- > SDIO and GSPI Host Interface
- > Bluetooth® / BLE 5.4
- > Bluetooth A2DP, HFP Audio, LE Audio
- > LE long range, 2 Mbps, adv. extensions
- > UART or SDIO shared with Wi-Fi
- > -40°C to +85°C operating temperature range
- > Secure boot, encryption, authentication

Product collaterals / Online support

Product family page

Benefits

- > Seamless integration into ModusToolbox™
- > Optimized for IoT applications demands
- > Greenfield 6 GHz band for expanded channels
- > Boosts network efficiency
- > Improves range and saves power
- > Bluetooth® / BLE Audio hosted or embedded
- > Multi-layer security for more protection

Target applications

- > Wearables, healthcare
- > Smart building
- > Surveillance camera and video doorbell
- > Wireless Audio, smart speaker
- > Appliances
- > Gateways, bridges and hubs
- > Printers
- > Service robots

Infineon Base Part	Module Partner Part Number	Infineon SP Number	Module Partner
CYW55513IUBGT	L BEE5XV2FY-922	SP005860135	Murata
CYW55513IUBGT	AW-XM606	SP005860135	Azurewave
CYW55513IUBGT	WM-BAC-CYW-65	SP005860135	USI
CYW55512IUBGTXTMA1	AW-XM650	SP005979362	Azurewave
CYW55513IUBGT	Maya W3	SP005860135	u-blox
CYW55512IUBGTXTMA1	Maya W3	SP005979362	u-blox
CYW55511IUBGTXTMA1	Maya W3	SP005979368	u-blox
CYW55513IUBGT	Sona IF513	SP005860135	Ezurio