FlyportPRO GPRS quadband System on module

- GPRS quadband (850/900/1800/1900MHz)
- Microchip PIC 24F 16 bit processor
- uFL antenna connector
- Easy development with openPicus free IDE
- Open source hardware
- Serial bootloader onboard
- GPRS Functions
  - SMS/MMS send receive
  - Call incoming / send
  - HTTP client
  - TCP Socket
  - UDP Socket
  - FTP client
  - Email SMTP client
- Digital I/Os
- Analog Inputs
- 3 UART, 1 SPI, 2 I2C
- Remappable pins at runtime
- RTCC onboard

Applications

- M2M
- Sensors and automation
- Internet of Things
- Building automation and remote control
- Industrial/process management

Introduction

FlyportPRO GPRS is a miniature **module** featuring GPRS quadband (850/900/1800/1900MHz) connectivity and several interfaces to the 'real world'. The module integrates a powerful **16 bit processor** which runs custom applications and a **GPRS transceiver** which handles the connectivity.

The module provides the embedded world with a powerful 'mobile internet network engine', in a small footprint, at low power and low cost.

No need to work with AT commands since our APIs handle the communication between the microcontroller and the GPRS transceiver sending all the required AT commands, parsing responses and managing asynchronous messages.

Low power modes are available on FlyportPRO GPRS for battery powered applications.

The module form factor is identical to FlyportPRO Wi-Fi and FlyportPRO Ethernet and compatible pinout.

FlyportPRO GPRS is powered by openPicus framework based on FreeRTOS. The free IDE allows to create applications, to import web pages and to compile and download code to the module.

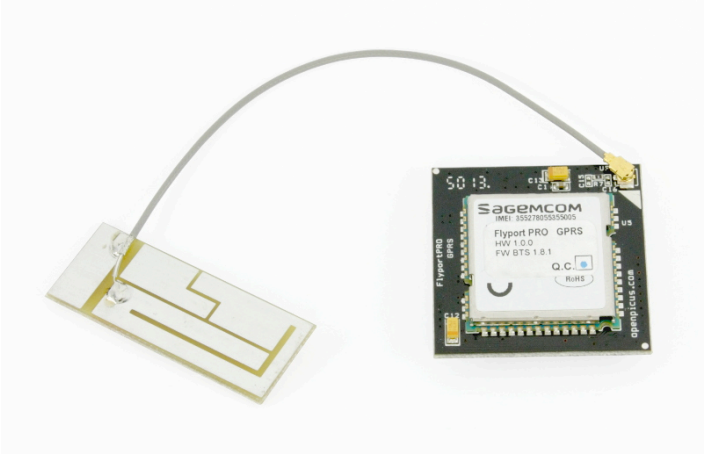
Features

16 Bit Processor	PIC24FJ256GB206 - 256K Flash – 96K Ram – 16 Mips
Transceiver	SAGEM
Antenna	uFL connector for external antenna
Power Supply	3,3V
Low power	Hibernation, Low power and Sleep modes
USB	On the Go (OTG)
Integrated RTC	32,768 Khz quartz onboard
Digital I/O	up to 32 remappable at Runtime
Analog In	10 channels - 10bits ADC - Voltage ref onboard 2,048V
Communication	up to 3 UARTs, SPI, 2 I2C
Flash	16 Mbit
Eeprom	64 Kbit
Connectors	2*30 ways, pitch 1.27mm female pin header
Dimensions	34 x 34 x 9 mm, 10 grams

Introduction

FlyportPRO GPRS is powered by openPicus framework and mounts a 256K Flash 16bit processor. The framework give you full control of your application and connectivity events (extremely important for energy saving).

FlyportPRO GPRS has an extra 16Mbit Flash memory onboard for Firmware upgrade over Internet.



Available onboard:
SPI, I2C, UART and embedded Real Time clock.
I/O : analog and digital and PWM.

Remappable pinout:
Special functions such as SPI,UART,PWM and Interrupts can be assigned to any remappable pin at runtime.

Programming:
We provide the free IDEpro with each StarterKit.

C programming skills are needed. No expansive programmer is needed since the serial bootloader loaded on the module allows you to flash the firmware using just a serial cable.

On www.openpicus.com you can find examples, libraries and tools to start to develop immediately.

GPRS TRANSCEIVER (SAGEM HILONC)

Full Quad Band	EGSM 850, 900, 1800, 1900
Output Power	Class 4 (2W) for 850 / 900 Mhz ; Class 1 (1W) for 1800 / 1900 Mhz
Certifications	Full Type Approved : R&TTE, GCF, PTCRB, FCC

Electrical characteristics

VOLTAGE RATINGS

+3.3V DC Voltage input (pin 4) **MIN:+3,0V MAX:+3,3V**

CURRENT CONSUMPTION Power supply 3.3V, Ambient temperature 25°C

GPRS On and Connected	42mA (with some peaks up to 1,5A)
Low power	24mA (GPRS transceiver is connected to the network but it is in sleep mode)
Hibernation	21mA (GPRS transceiver OFF, Microcontroller is ON)
Sleep mode	162uA (GPRS transceiver and microcontroller OFF)

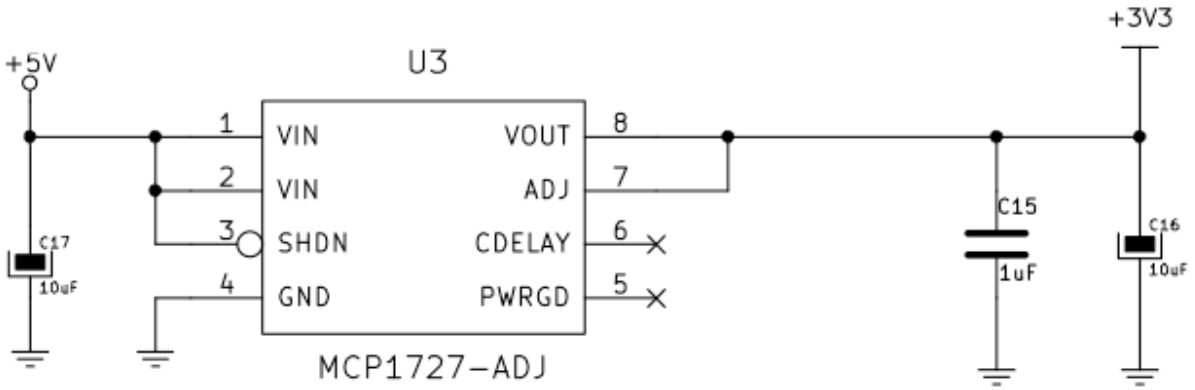
GPRS reconnection

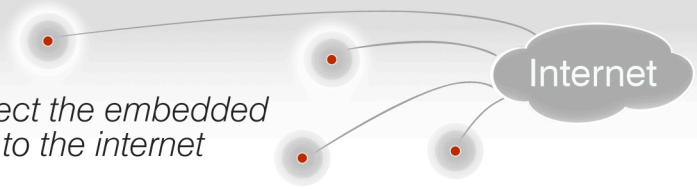
The module needs up to 60 seconds to wakeup and reconnect to the network after Hibernation or Sleep mode. If you need an immediate wake up we suggest you to use the Low power mode.

POWER SUPPLY DESIGN

GPRS connection has lot of impulsive peaks of current (during network registration or HTTP calls for example). These peaks are going up to 1.5-2A for 400-600uS. Please follow this reference schematic to design the power supply. We suggest a 2A power supply.

The 10uF capacitors are mantatory in order to avoid power supply interruptions during current peaks.





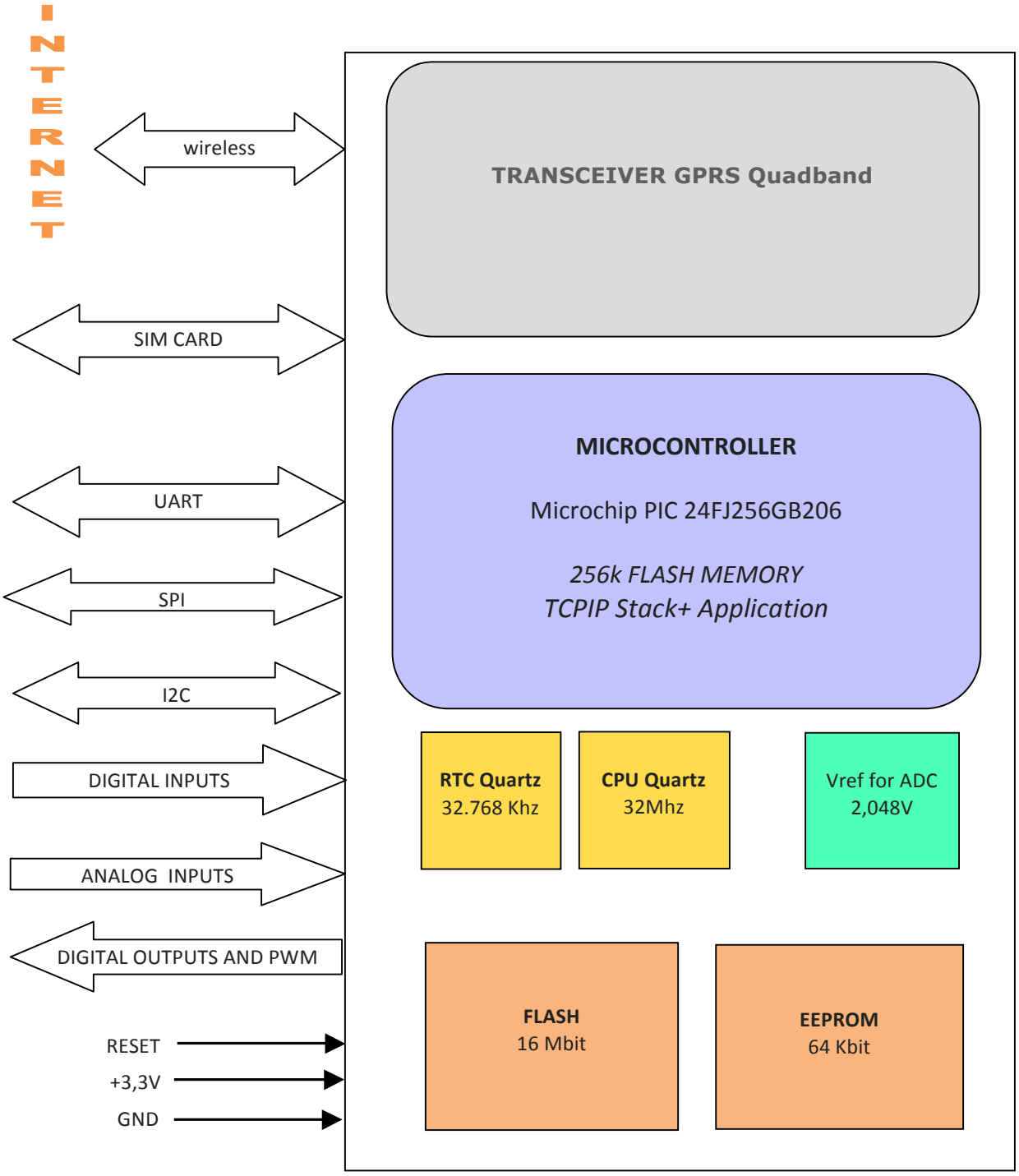
Mechanical info

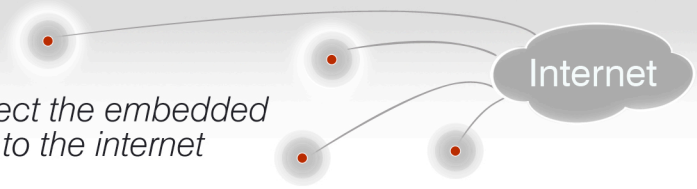
Dimensions	**34*34*9 mm**
Weight	**10 grams**

Temperature range

Operating range	**MIN: -20°C**	**MAX: +85°C**

Block Diagram





J1 Connector

FLYPORT modules are based on Microchip PIC processor and offer **remappable pins function.** User can customize the hardware configuration by firmware.

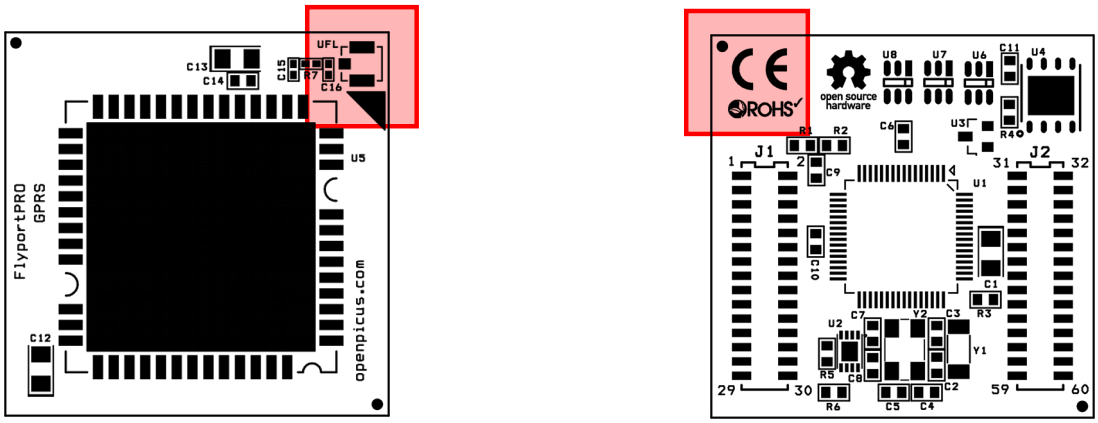
Pin	Description	Special Function	5V tolerant	Remap
p1	GPIO	ADC #0	NO	YES
p2	RESET (active low)		NO	NO
p3	GPIO	ADC #1	NO	YES
p4	VDD (+3.3V input)		NO	NO
p5	GPIO	ADC #2	NO	NO
p6	GND		NO	NO
p7	GPIO	ADC #3	NO	YES
p8	GPIO (ICSP – PGD)	ADC #5	NO	YES
p9	GPIO		NO	NO
p10	GPIO (ICSP – PGC)	ADC #4	NO	YES
p11	GPIO		YES	NO
p12	GPIO	ADC #6	NO	YES
p13	GPIO		YES	YES
p14	GPIO		YES	YES
p15	GPIO	Interrupt #0	YES	YES
p16	GPIO	ADC #7	NO	NO
p17	GPIO		YES	YES
p18	GPIO	ADC #8	NO	NO
p19	GPIO	I2C #1 – SDA	YES	YES
p20	GPIO	ADC #9	NO	YES
p21	GPIO	I2C #1 – SCL	YES	YES
p22	UART #1 TX (output) – for programming		NO	YES
p23	UART #1 RX (input) – for programming		YES	YES
p24	I2C #2 – SDA signal (shared with onboard EEPROM)		NO	YES
p25	GPIO	USB D+	NO	NO
p26	I2C #2 – SCL signal (shared with onboard EEPROM)		NO	YES
p27	GPIO	USB D-	NO	NO
p28	GPIO	USBID	YES	YES
p29	USB Vusb		NO	NO
p30	GPIO	USB Vbus	YES	NO

J2 Connector

Pin	Description	Special function	5V tolerant	Remap
p31	GPIO		YES	NO
p32	GPIO		YES	NO
p33	GPIO		YES	NO
p34	GPIO		YES	NO
p35	GPIO		YES	NO
p36	Not connected		YES	NO
p37	Not connected		YES	NO
p38	Not connected		YES	NO
p39	Vref output (2,048V)		NO	NO
p40	Not connected		NO	NO
p41	Not connected		NO	NO
p42	Not connected		NO	NO
p43	Not connected		NO	NO
p44	Not connected		NO	NO
p45	Not connected		NO	NO
p46	Not connected		NO	NO
p47	Not connected		NO	NO
p48	Not connected		NO	NO
p49	Not connected		NO	NO
p50	Not connected		NO	NO
p51	Not connected		NO	NO
p52	Not connected		NO	NO
p53	VSIM (TO THE EXTERNAL SIM CONNECTOR)	SIM CARD	NO	NO
p54	SIM_CLK (TO THE EXTERNAL SIM CONNECTOR)	SIM CARD	NO	NO
p55	SIM_RST (TO THE EXTERNAL SIM CONNECTOR)	SIM CARD	NO	NO
p56	SIM_DATA (TO THE EXTERNAL SIM CONNECTOR)	SIM CARD	NO	NO
p57	Not connected		NO	NO
p58	Not connected		NO	NO
p59	GND		NO	NO
p60	VDD (+3.3V input)		NO	NO

Module overview

TOP VIEW **NO FLY ZONE!** BOTTOM VIEW



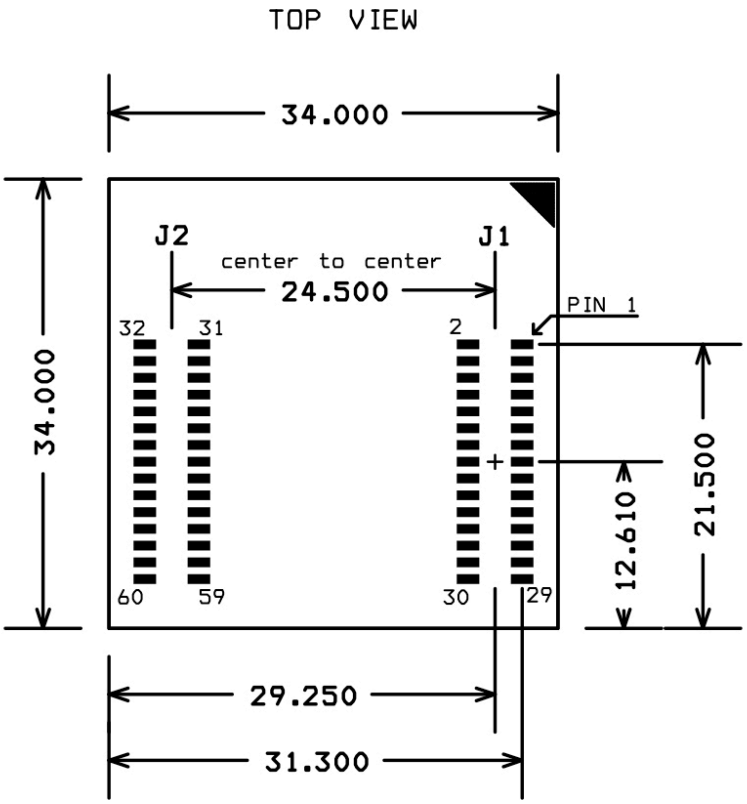
DON'T PLACE COMPONENTS, TRACKS OR COPPER UNDER THE NO FLY ZONE:
THERE IS THE uFL CONNECTOR FOR THE ANTENNA

Footprint and dimensions

On your carrier board we suggest to use 2*15 ways pitch 1.27mm Male pin header connectors such as:

TH: SAMTEC **FTSH–115–04–F–D**
SMT: SAMTEC **FTSH–115–04–F–DV**

NOTE: The following view is made in transparency from TOP. On the right corner there's a triangle sign on the silkscreen to identify where is J1.



Ordering information

Buy online from our store or through our resellers and distributors.

Code OP014101 STARTERKIT PRO GPRS
1 Evaluation board and
1 FlyportPRO GPRS
1 GPRS Antenna
1 5V 2A power supply

Code OP014031 FLYPORTPRO GPRS (uFL connector)

How to start development

Contact us to receive the free IDEpro.

On www.openpicus.com you find a getting started guide, tutorials, libraries and code examples.

Each FLYPORT Module has a serial bootloader onboard.