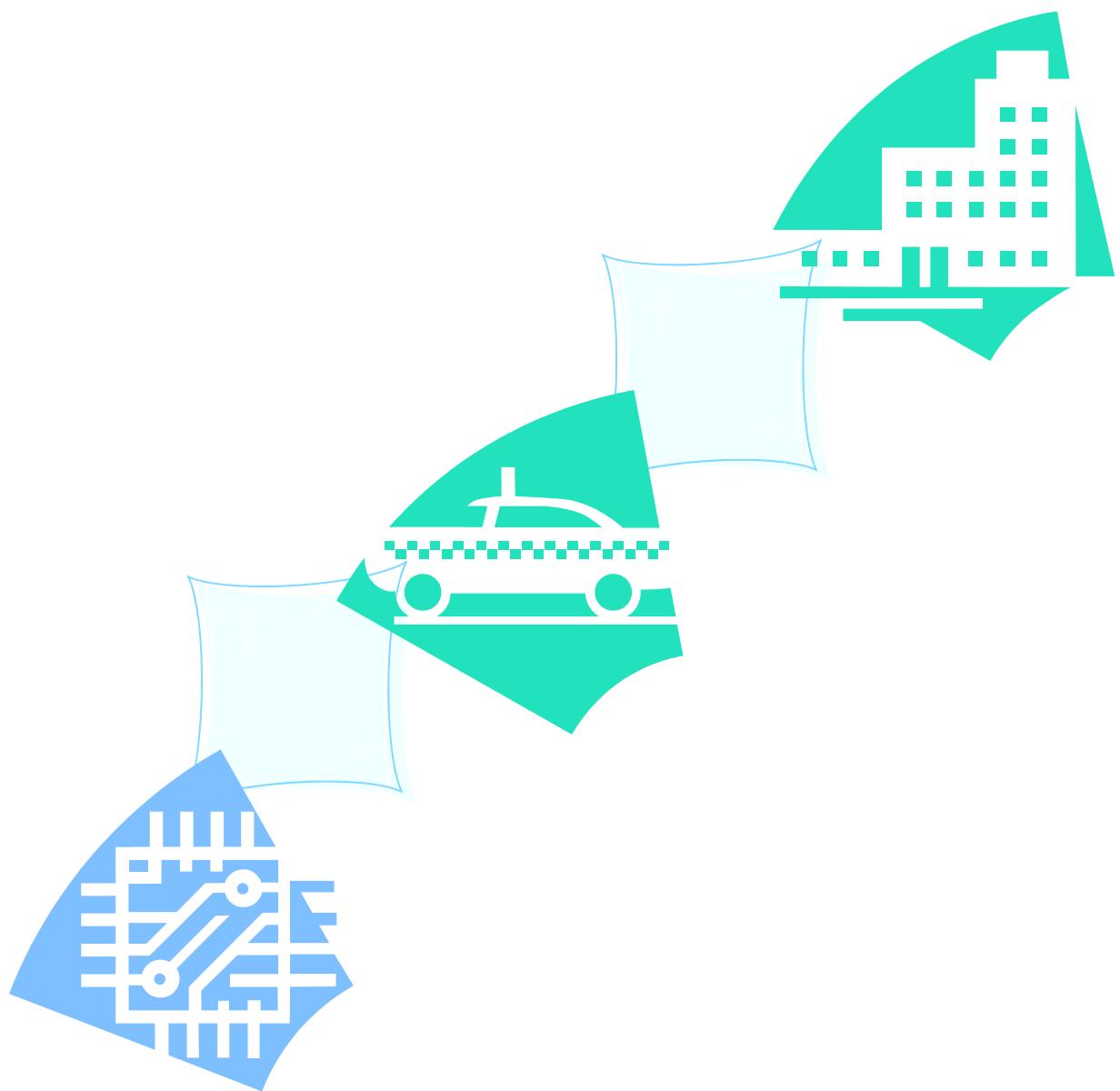


# SIM340E User Guide



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# 1 SIM340E EVB and accessories

## 1.1 SIM340E EVB

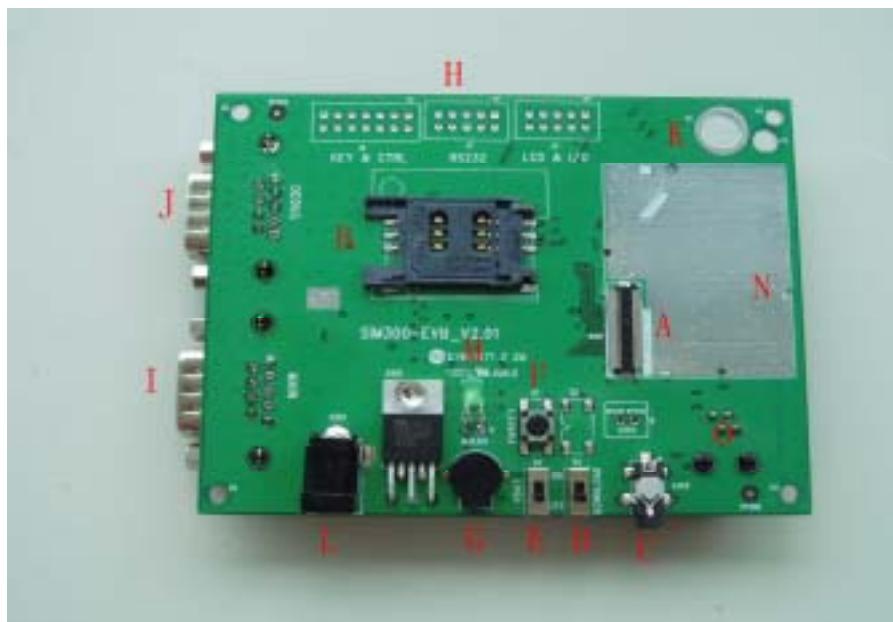


Figure 1 : EVB TOP view

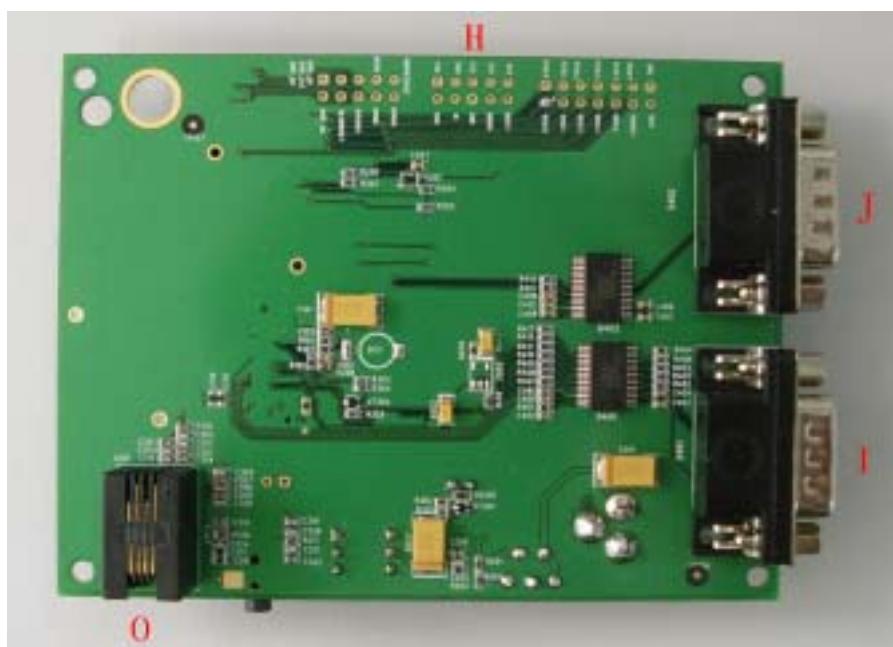


Figure 2 : EVB BOTTOM view

A: SIM340E module interface

B: SIM card interface

C: headset interface

- D: Download switch, turn on or off download function
- E: VBAT switch, switch the voltage source from the adaptor or external battery
- F: PWRKEY key, turn on or turn off SIM340E
- G: buzzer
- H: expand port, such as keypad port, main and debug serial port, display port
- I: MAIN serial port for downloading, AT command transmitting, data exchanging
- J: DEBUG serial port
- K: hole for fixing the antenna
- L: source adapter interface
- M: light
- N: hole for fixing the SIM340E
- O: headphones interface

## 1.2 accessories



- A: antenna
- B: antenna transmit line
- C: headset
- D: 5V DC source adapter
- E: serial port line

## 2 EVB and accessory equipment

At normal circumstance, the EVB and its accessory are equipped as the nether figure :



**Figure 3 : EVB and accessory equipment**

## **3 Operational description**

Firstly , please equip the module and accessories as the figure 3.

### **3.1 Tune up procedure**

- 1 ) switching the S1 switch to **off** state, S2 switch to **ON** state ;
- 2) Press the **PWRKEY** button for about 2 second, then the LED glint , and the module is tuning up successfully ;

### **3.2 SIM340E features**

#### **3.2.1 General specification**

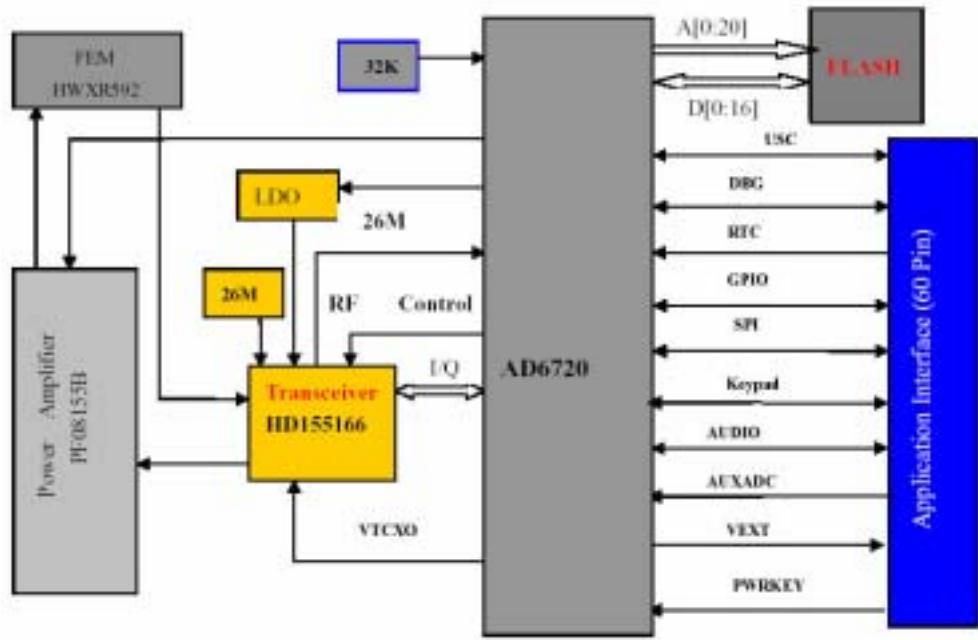
SIM340E is a Quad-band GSM/GPRS module with a SIM card holder and delivers GSM/GPRS 850/900/1800/1900MHz performance for voice, SMS, Data, and Fax in a small form factor and with low power consumption. SIM340E can be used for WLL applications/M2M application and much more.

- Quad- band GSM/GPRS module with a size of 40x33x5.5mm

- Customized MMI and keypad/LCD support
- An embedded Powerful TCP/IP protocol stack
- Supply voltage range 3.4 ... 4.5 V
- Normal Operation Temperature: -20°C ~60°C
- GPRS multi-slot Class 10
- GSM R97/98

### 3.2.2 Hardware Specification

The hardware block diagram for SIM340E is shown as below:



The PCB for SIM340E is 8 layers.

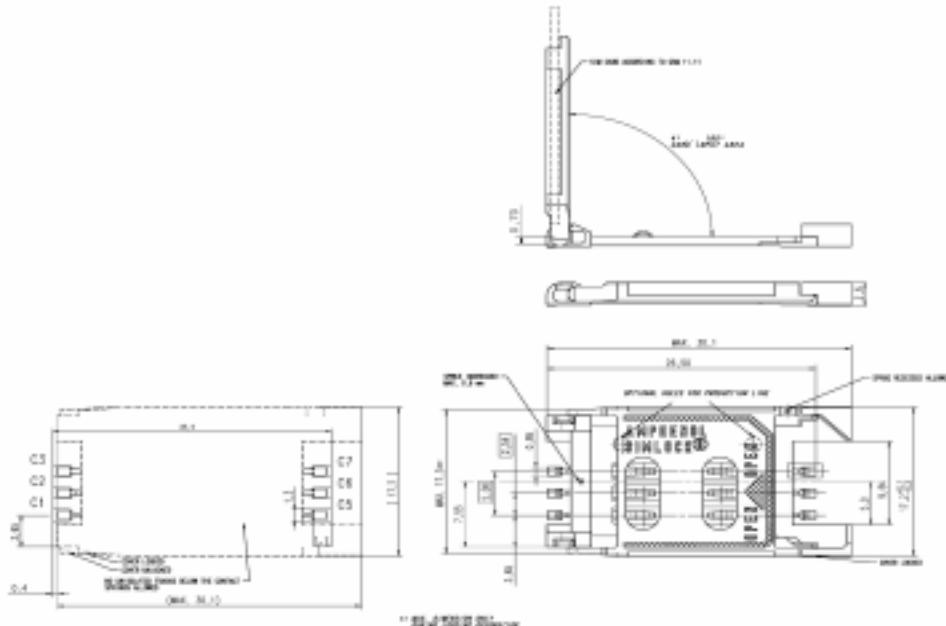
Frequency	Max	Min
GSM850	33dBm ±2db	5dBm±5db
EGSM900	33dBm ±2db	5dBm±5db
DCS1800	30dBm ±2db	0dBm±5db
PCS1900	30dBm ±2db	0dBm±5db

Frequency	Receive sensitivity
GSM850	< -106dBm
EGSM900	< -106dBm
DCS1800	< -106dBm
PCS1900	< -106dBm

Frequency	Receive	Transmit
GSM850	869 ~ 894MHz	824 ~ 849 MHz

EGSM900	925 ~ 960MHz	880 ~ 915MHz
DCS1800	1805 ~ 1880MHz	1710 ~ 1785MHz
PCS1900	1930 ~ 1990MHz	1850 ~ 1910MHz

The mechanical architecture of SIM card holder and the definition of SIM card are shown below:



Pin	Signal	Description
C1	SIM_VDD	SIM Card Power supply, it can identify automatically the SIM Card power mode , one is $3.0V\pm10\%$ , another is $1.8V\pm10\%$ . Current is about 10mA.
C2	SIM_RST	SIM Card Reset.
C3	SIM_CLK	SIM Card Clock.
C5	GND	Connect to GND.
C6	VPP	Not connect.
C7	SIM_DATA	SIM Card data I/O.

### 3.2.3 Software Specification

Feature	Implementation
Frequency Bands	SIM340E Quad-band: GSM 850, EGSM 900, DCS 1800, PCS 1900. The SIM340E can search the 4 frequency bands automatically. The frequency bands also can be set by AT command. Compliant to GSM Phase 2/2+
GSM class	Small MS
GPRS connectivity	GPRS multi-slot class 10 ( default ) GPRS mobile station class B

DATA GPRS:	GPRS data downlink transfer: max. 85.6 kbps GPRS data uplink transfer: max. 42.8 kbps Coding scheme: CS-1, CS-2, CS-3 and CS-4 SIM340E supports the protocols PAP (Password Authentication Protocol) usually used for PPP connections. The SIM340E integrates the TCP/IP protocol.
CSD:	Support Packet Switched Broadcast Control Channel (PBCCH) CSD transmission rates: 2.4, 4.8, 9.6, 14.4 kbps, non-transparent Unstructured Supplementary Services Data (USSD) support
SMS	MT, MO, CB, Text and PDU mode SMS storage: SIM card
FAX	Group 3 Class 1
SIM interface	Support SIM card: 1.8V, 3V
Audio features	Speech codec modes: Half Rate (ETSI 06.20) Full Rate (ETSI 06.10) Enhanced Full Rate (ETSI 06.50 / 06.60 / 06.80) Echo Cancellation
Serial port and Debug port	Serial Port: Seven lines on Serial Port Interface Serial Port can be used for CSD FAX, GPRS service and send AT command of controlling module. Serial Port can use multiplexing function. Autobauding supports baud rate from 4800 bps to 115200bps. Debug Port: Two lines on Serial Port Interface /TXD and /RXD Debug Port only used for debugging
Phonebook management	Support phonebook types: SM, FD, LD, RC, ON, MC.
SIM Application Toolkit	Support SAT class 3, GSM 11.14 Release 99
Real time clock	Implemented
Timer function	Programmable via AT command
Firmware upgrade	Firmware upgrade by serial port.

### 3.2.4 Solution of SIM340E

The hardware solution is AD6720+HD155166+PF08155B+HWXR592+SST34HF3284;

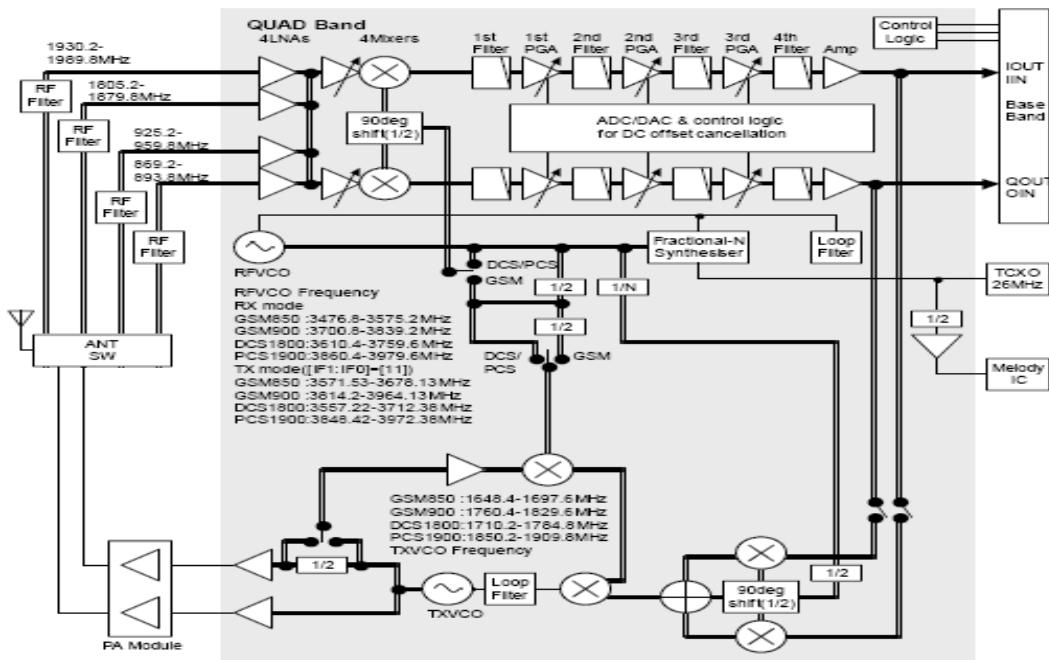
The software solution is TTPcom Release 10.0.

### 3.2.5 Radio frequency units

The RF units for SIM340E include HD15516(transceiver), PF08155(PA), HWXR592(FEM).

1) HD155166

**Block Diagram**  
**The Configuration of HD155166BP**



2) PF08155

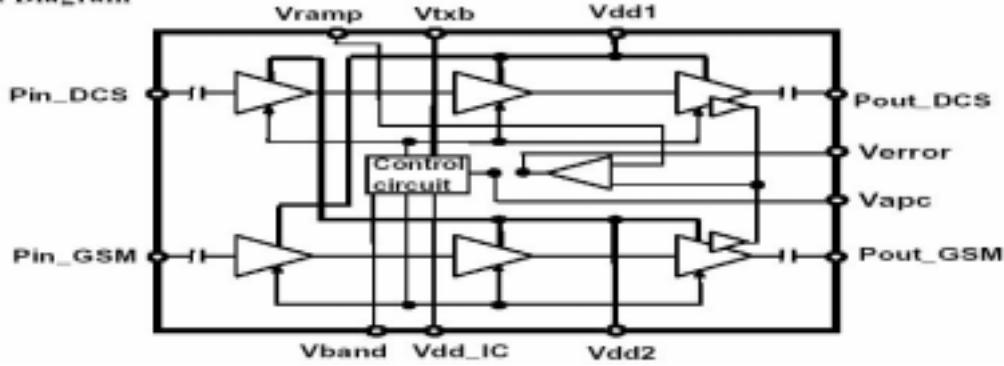
## Application

- Quad band amplifier for  
 US/E-GSM (824 to 849MHz, 880 to 915 MHz),  
 DCS1800/1900 (1710 to 1785 MHz, 1850 to 1910 MHz).
- For 3.5 V nominal operation

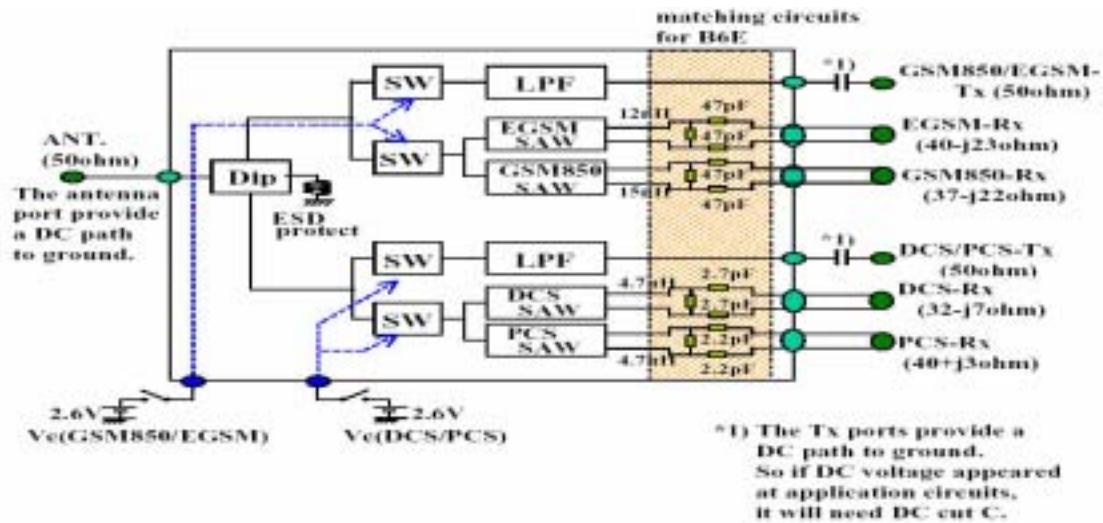
## Features

- Built-in closed loop APC circuit with power detector performs stable power control accuracy under varied supply voltage and temperature.
- Easy power control design
- The smallest size :  $6.0 \times 6.0 \times 1.2\text{mm}$  typ. ( $1.3\text{ mm t Max.}$ ) as APC integrated PA module.
- High Gain 3-stage amplifier: 3 dBm typical Input power.
- Superb forward isolation level: -50dBm Typical at 6dBm input power.
- Lead free soldering process available
- GPRS Class 12 compatible

**Circuit Diagram**



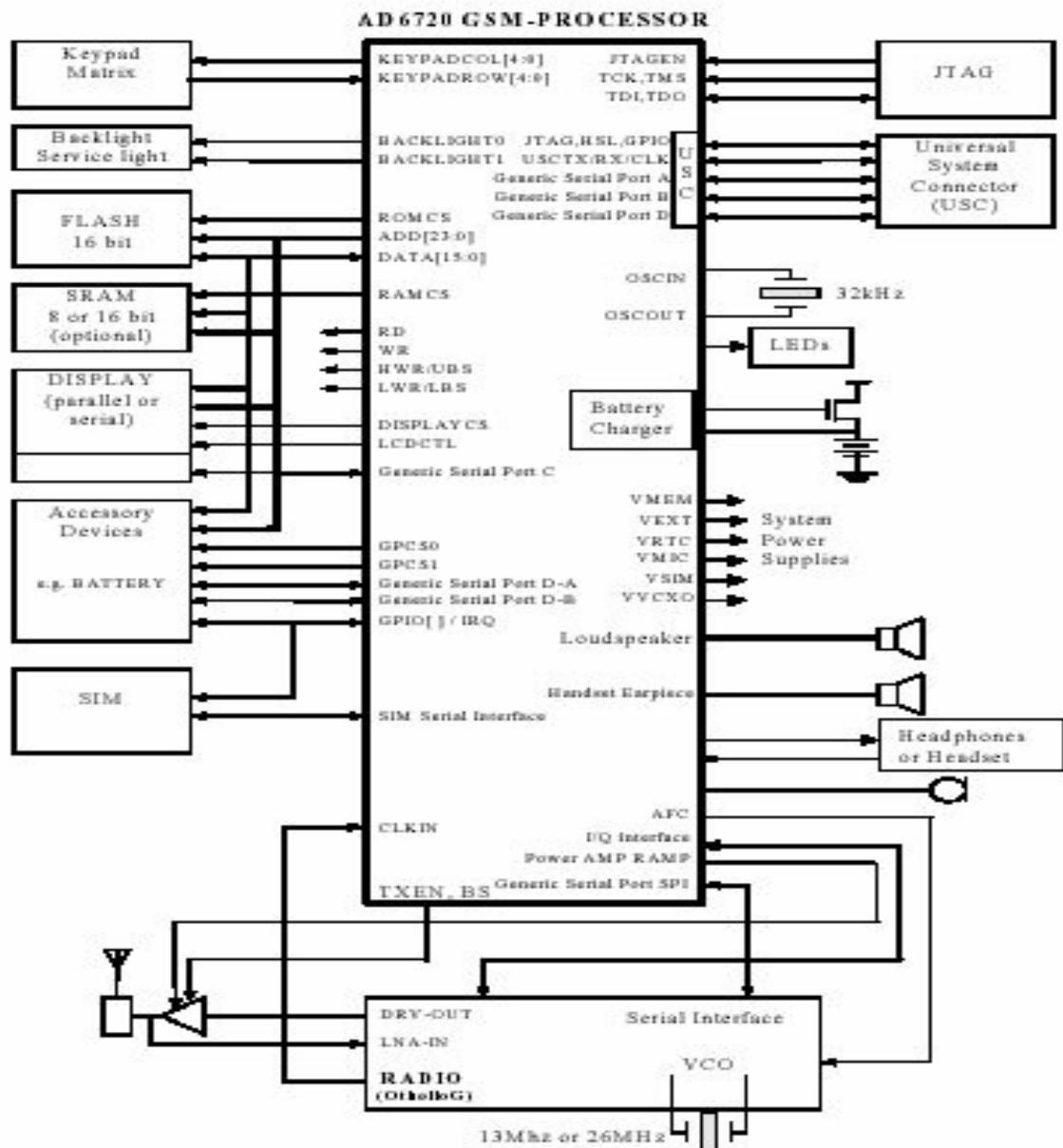
3) HWXR592



### 3.2.6 Baseband units

The baseband units for SIM340E include AD6720 and SST34HF.

1) AD6720 (AD6720 is integrated Digital baseband and analog baseband).



## 2) SST34HF

### Features :

32-Mbit Flash and 8-Mbit PSRAM

2.7V~3.0V Operating voltage

### Flash :

32-megabit ( 2M\*16 )

2.7V to 3.0V Read/Write

Access Time-70ns

Sector Erase Architecture

- Sixty-three 32K WordSectors With Individual Write Lockout

- Eight 4K Word Sectors with Individual Write Lockout

Fast Word Program Time-15us

Suspend/Resume Feature for Erase and Program

- Supports Reading and Programming from Any Sectors by Suspending Erase of a

Different Sector

-Supports Reading Any Word by Suspending Programming of Any Other Word

Low-power Operation

-12mA Active

-13uA Standby

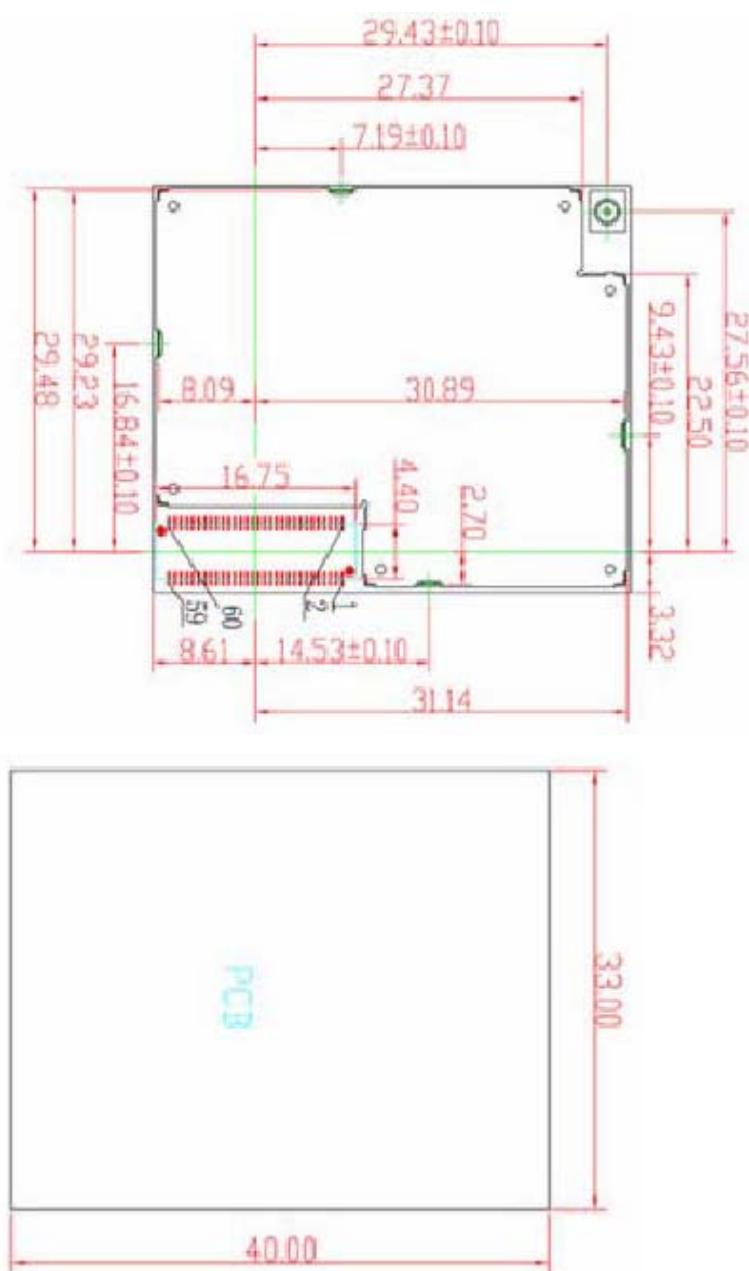
**PSRAM :**

4-megabit ( 256K\*16 ) /8-megabit(512K\*16)

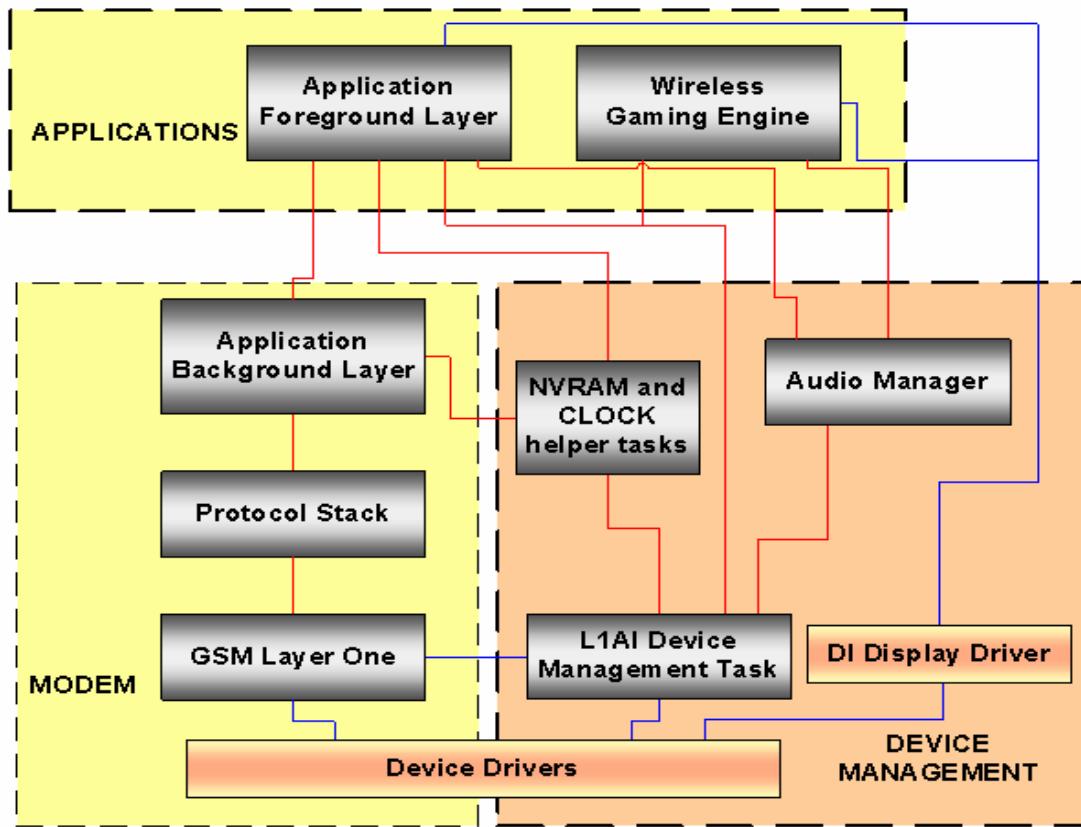
2.7V to 3.3V Vcc

70ns Access Time

### 3.2.7 Mechanical architecture



### 3.2.8 Software Architecture



## 4 AT command

( please see the AT command document )

## 5 FCC Labeling Requirement

Please note :

When the SIM340E is integrated into a final product, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text :

“ Contains FCC ID : UDV-0606020080701 ”

SIM340E FCC label is shown as :



## 6 FCC RF exposure requirements

The maximum measured power output is 770 mW( 1900MHz )/1440mW( 850MHz ), the maximum antenna gain is 3 dBi.

The maximum permissible exposure is defined in 47 CFR 1.1310 with 1 mW/cm<sup>2</sup>.

The transmitter is using indoor antennas that operate at 20cm or more from nearby persons.

the power density at 20 cm is **0.4596** mW/cm<sup>2</sup>. ( 1900MHz ) , the power density at 20 cm is **0.8594** mW/cm<sup>2</sup>. ( 850MHz )

This equipment complies with part15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.