



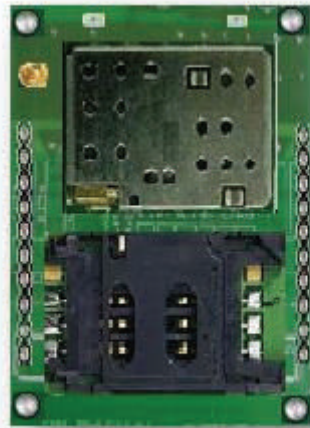
MELANGE SYSTEMS PRIVATE LIMITED

Wireless controls in action

GM08-F15xx GSM/GPRS Modules

Tailor made GSM/GPRS solution to the industrial applications

Melange Systems presents one stop solution to GSM/GPRS based industrial applications with a single module, consists of multiple interfacing options. The dual-band GSM/GPRS module reaches out with a simple bergstik interface and an on board SIM card holder that cuts down major interfacing hustles from the mother board. The core processor supports SCI, SPI and IIC interfaces and offers a high resolution ADC (16 bit). The module also has an on board RTC and tamper detection input. These feature rich modules are available in very small form factor and best suited for any low power applications.



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GM08-F15 Product Specification

www.melangesystems.com

Module Features

General Features:

- GSM or GPRS Dual Band 900/1800 MHz or 850/1900 MHz
- GPRS Class 10
- Output Power -Class 4 (2W) at 850/900 MHz
-Class 1 (1W) at 1800/1900 MHz
- Supply Voltage 3.4V ~ 4.2V, Nominal : 3.8V
- Low Power consumption : Sleep mode < 200uA
- Operating Temperature : -30 ~ 75 °C
- GSM Sensitivity -110 dBm (typ) at 850/900 MHz
-109 dBm (typ) at 1800/1900 MHz

Interfaces:

- Digital Input/Output X 10
- 16 bit ADC Inputs X 8
- SPI
- IIC
- SCI X 2

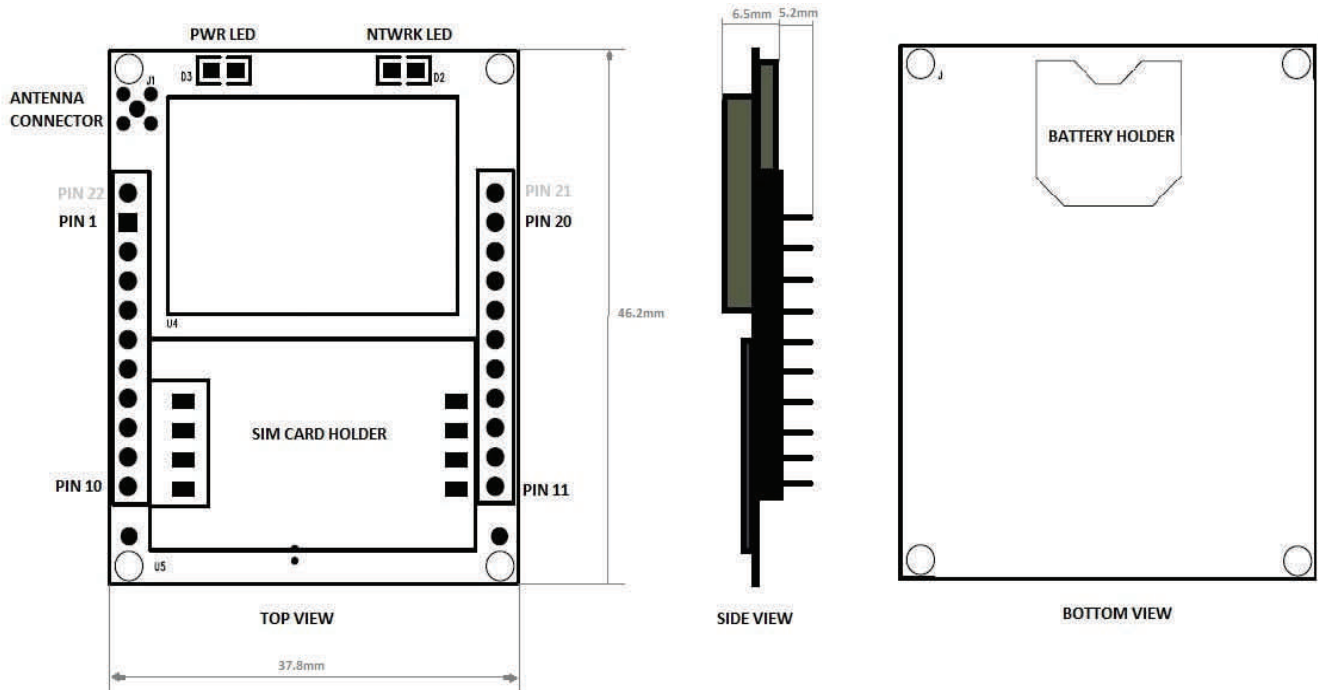
Special Features:

- On board SIM card holder
- 10 + 10 Pin 2.54mm bergstik connector (Low cost interface)
- Inbuilt Real time clock with backup
- Tamper detection Input with backup (Alive when the module is off also)
- Onboard backup battery holder
- Optional SCI3 provision
- Optional battery charging supervisor pins.

Software:

- Melange Systems proprietary / Customized for application

Module Specifications and Pin out



Pin No	Name	Direction	Description
1	DIO6/AD6	I/O	Digital[I/O]6/Analog In6
2	RESERVED		
3	DIO2/AD2/SCLK	I/O	Digital[I/O]2/Analog In2/SCLK[SPI]
4	VCC	INPUT	Power Supply
5	DOU1	OUTPUT	SCI1 (Data Out)
6	DIN1	INPUT	SCI1 (Data In)
7	GND	-	Ground
8	DIO4/AD4/DIN2	I/O	Digital[I/O]4/Analog In4/Data In[SCI2]
9	BGND	INPUT	Programming
10	DIO8/SCL	I/O	Digital[I/O]8 /SCL[IIC]
11	DIO9/SDA	I/O	Digital[I/O]9 /SDA[IIC]
12	TAM	INPUT	Tamper Input
13	DIO5/AD5/DOU2	I/O	Digital[I/O]5/Analog In5/Data Out[SCI2]
14	DIO1/AD1/MISO	I/O	Digital[I/O]1/Analog In1/MISO[SPI]
15	SLEEP	INPUT	Module Sleep
16	RST	INPUT	Module Reset
17	DIO0/AD0/MOSI	I/O	Digital[I/O]0/Analog In0/MOSI[SPI]
18	DIO3/AD3/SS	I/O	Digital[I/O]3/Analog In3/ChipSelect[SPI]
19	VREF	INPUT	ADC Reference Voltage
20	DIO7/AD7	I/O	Digital[I/O]7/Analog In7
21	DOU3	OUTPUT	Data Out[SCI3]
22	DIN3	INPUT	Data Out[SCI3]

	Minimum Pins
	Optional Pins

Electrical Characteristics

Power Supply

Parameter	Min	Typ	Max	Unit
Supply Voltage (VCC)	3.4	3.8	4.2	V
Sleep current		160		uA
Idle current		2.5		mA
Traffic mode current	210		300	mA
Peak current	1.5		2	A

Digital I/O

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
V _{DIL}	Input Low Voltage	All Digital Inputs	0	-	1.1	V
V _{DIH}	Input High Voltage	All Digital Inputs	2.3	-	3.6	V
V _{DOL}	Output Low Voltage	All Digital Outputs	0	-	0.5	V
V _{DOH}	Output High Voltage	All Digital Outputs	3.1	-	3.6	V
I _{OH}	Output High Current	Single Digital Outputs	-	-	20	mA
I _{OL}	Output Low Current	Single Digital Outputs	-	-	20	mA
I _{OHT}	Total Output High Current	All Digital Outputs	-	-	100	mA
I _{OLT}	Total Output Low Current	All Digital Outputs	-	-	100	mA

ADC

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
V _{REF}	Reference Supply Voltage	-	0	-	3.6	V
I _{REF}	Reference Supply Current	Module Active	215	-	610	uA
I _{REF}	Reference Supply Current	Sleep Mode or Module disabled	-	0.072	-	uA
V _{AIN}	Analog Input Voltage	All Analog Inputs	0	-	V _{REF}	V

GSM Characteristics

GSM 850

Characteristic	Condition	Min	Typ	Max	Unit
Frequency	-	824	-	849	MHz
Maximum Output Power	Nominal	32.5	33	-	dBm
2nd Harmonic 3rd Harmonic	Pout -33dBm	-	-40	-	dBm
All other harmonics up to 13 GHz					
Sensitivity	-	-106	-	-	dBm

GSM 900

Characteristic	Condition	Min	Typ	Max	Unit
Frequency	-	880	-	915	MHz
Maximum Output Power	Nominal	32.5	33	-	dBm
2nd Harmonic 3rd Harmonic	Pout -33dBm	-	-40	-	dBm
All other harmonics up to 13 GHz					
Sensitivity	-	-106	-	-	dBm

DCS

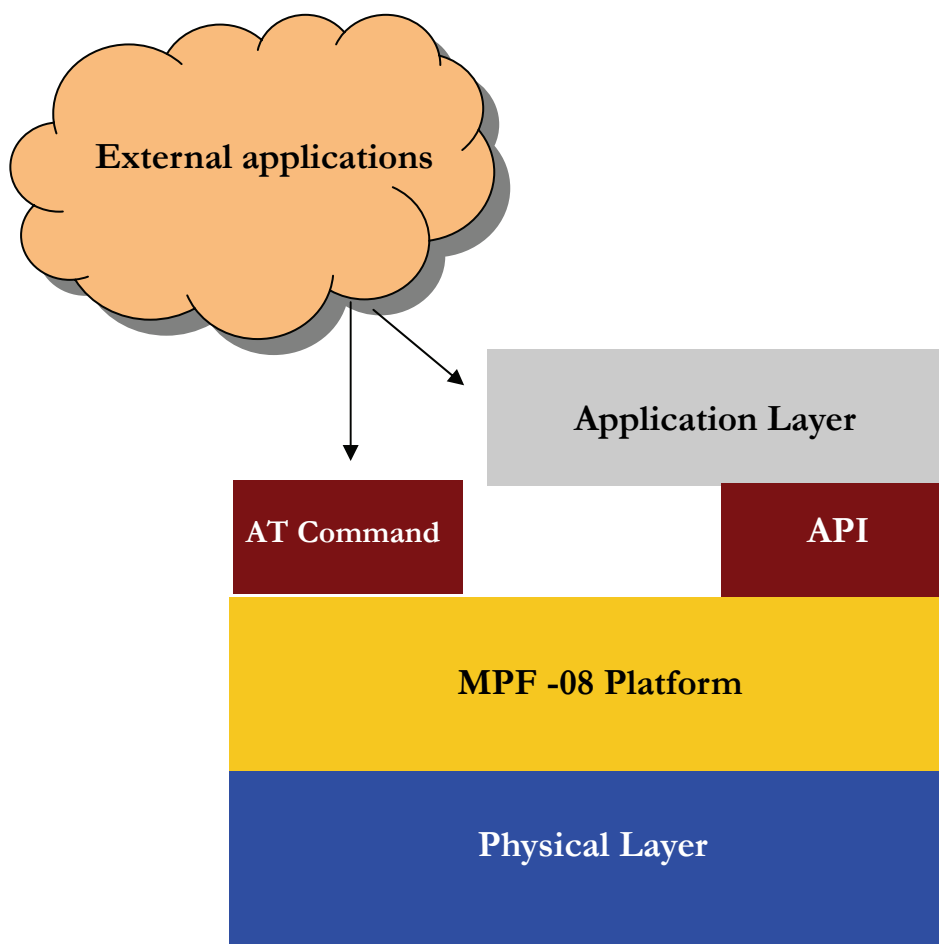
Characteristic	Condition	Min	Typ	Max	Unit
Frequency	-	1710	-	1880	MHz
Maximum Output Power	Nominal		30	-	dBm
2nd Harmonic 3rd Harmonic	Pout -33dBm	-	-40	-	dBm
All other harmonics up to 13 GHz					
Sensitivity	-	-106	-	-	dBm

PCS

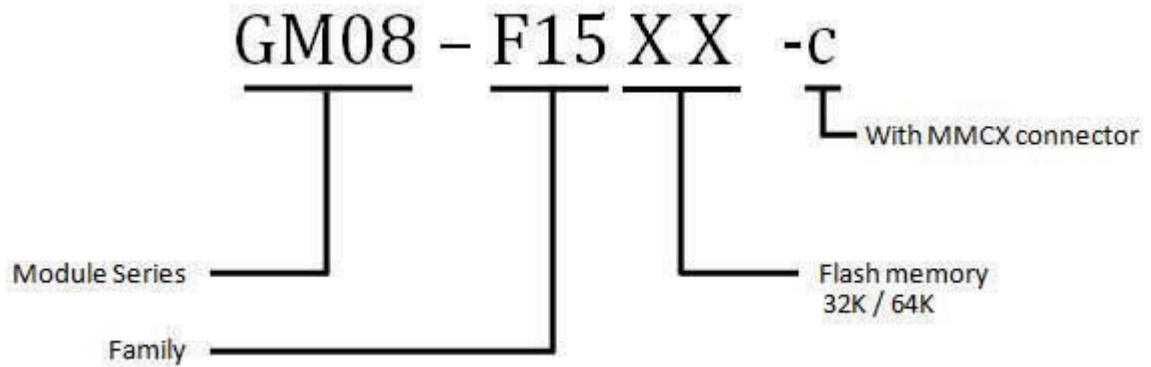
Characteristic	Condition	Min	Typ	Max	Unit
Frequency	-	1850	-	1990	MHz
Maximum Output Power	Nominal		30	-	dBm
2nd Harmonic 3rd Harmonic	Pout -33dBm	-	-40	-	dBm
All other harmonics up to 13 GHz					
Sensitivity	-	-108	-	-	dBm

Software Overview

GM08 Module comes with a preloaded MPF -08 platform software which includes necessary drivers for all the peripherals including GSM. MPF- 08 also works as a stand alone software providing limited set of user interface (Detailed reference available with MPF -08 Reference manual). This layer handles interruptions, signaling, memory operations and all the GSM/GPRS activities. Application specific customizations are done on the application layer, ported on top of MPF-08 using the provided APIs.



Module Part Number



Document Details

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*** This is a preliminary document subject to change without notice**

Related Documents

1. GM08 User manual
2. GM08 Industrial design guide
3. Melange MPF-08 Reference manual