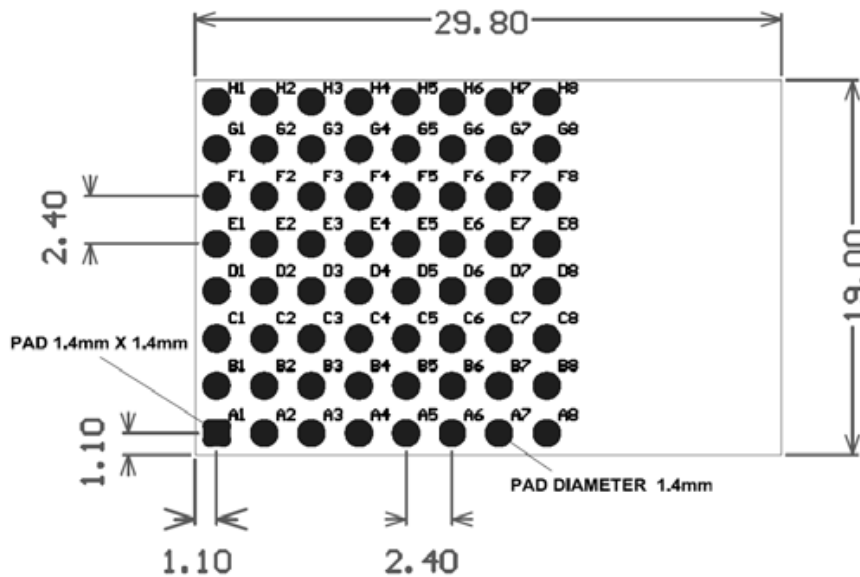
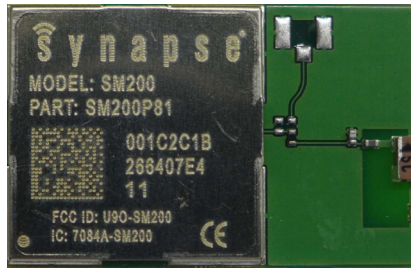


SM200P81

SNAP RF Engine

Great Module for Low Power Consumption

Synapse's SM200P81 SNAP Engine® is a reliable, IEEE802.15.4, surface-mount module reaching data rates up to 2Mbps. This small, low-powered, 2.4 GHz transmitter-receiver module can have a range of up to 1,500 ft and power consumption as low as 0.37 μ A. The SM200P81 SNAP Engine comes pre-loaded with the Synapse SNAP® mesh network operating system and provides fast, out of the box interoperability with other SNAP RF Engine products accelerating your solution's time to market.



Features

- 34 GPIO and up to 7 A/D inputs
- Two UART ports for control or transparent data
- Low power modes: 0.37 μ A with external interrupt 1.37 μ A with internal timer running
- 128k flash, 58.5k free for over-the-air uploaded user apps
- FCC, IC, and CE certified
- Up to 1500ft line of sight range
- 250Kbps to 2Mbps radio data rate
- 2.4GHz RF frequency
- Spread spectrum (DSSS) technology
- Small form factor surface mount
- SNAP Network Operating System

6723 Odyssey Drive // Huntsville, AL 35806
(877) 982-7888 // Synapse-Wireless.com



Part Selection

Part No.	Antenna	Receive Amp	Power Amp
SM200P81	Chip	No	No

SM200P81 Specifications

Performance	Indoor Range	Up to 100 ft.
	Outdoor LOS Range	Up to 1,500 ft.@250 Kbps
	Transmit Power Output	3dBm
	RF Data Rate	250Kbps, 500Kbps, 1Mbps, 2Mbps
	Receiver Sensitivity	-100dBm (1%PER)
Power Requirements	Supply Voltage	1.8* – 3.6V
	Transmit Current (Typ)	22.5mA
	Receive Current (Typ)	20.5mA
	Sleep Current (Typ)	0.37µA
General	Frequency	ISM 2.4 GHz
	Spreading Method	Direct Sequence (DSSS)
	Modulation	O-QPSK
	Dimensions	29.80mm X 19.00mm
	Operating Temperature	-40 to 85 deg C.
	Antenna Options	Chip
Networking	Topology	SNAP
	Error Handling	Retries and Acknowledgement
	Number of Channels	16
Available I/O	UARTS with HW Flow Control	2 ports – 8 total I/O
	GPIO	34 Total, 7 with 10-bit ADC
Agency Approvals	FCC Part 15.247	Yes
	Industry Canada (IC)	Yes
	European Union (CE)	Yes

*Can run down to 1.8V but requires 2.0V or greater for flash writing operations

PWM

Eight pins can optionally be used as Pulse Width Modulation (PWM) outputs, as shown in the following table.

ATmega128RFA1	Pad
PB4 PCINT4 OC2	E3
PB5 PCINT5 OC1A	D1
PB6 PCINT6 OC1B	D2
PB7 PCINT7 OC0A/OC1C	D3
PE3 AIN0 OC3A	B2
PE4 INT4 OC3B	C3
PE5 INT5 OC3C	B3
PG5 OC0B	G5

SM200P81 Module Pin Assignments

Pin #	Pin Name	Pin #	Pin Name
A1	GND	E1	PB2_MOSI_PDL_PCINT2
A2	VCC	E2	PB3_MISO_PDO_PCINT3
A3	VCC	E3	PB4_OC2A_PCINT4
A4	PF0_ADC0	E4	NC
A5	PF2_ADC2_DIG2	E5	NC
A6	PF4_ADC4_TCK	E6	NC
A7	PF6_ADC6_TDO	E7	NC
A8	GND	E8	RF OUT (Special Order)
B1	PE2_XCK0_AIN0	F1	PB0_SSN_PCINT0
B2	PE3_OC3A_AIN1	F2	PB1_SCK_PCINT1
B3	PE5_OC3C_INT5	F3	PD1_SDA_INT1
B4	PF1_ADC1	F4	PD0_SCL_INT0
B5	PG1_DIG1	F5	NC
B6	PF5_ADC5_TMS	F6	NC
B7	PF7_ADC7_TDI	F7	NC
B8	GND	F8	GND
C1	PE0_RXD0_PCINT8	G1	NC
C2	PE1_TXD0	G2	PD7_T0
C3	PE4_OC3B_INT4	G3	PD4_ICP1
C4	PE6_T3_INT6	G4	PD2_RXD1_INT2
C5	PE7_ICP3_INT7_CLK0	G5	PG5_OC0B
C6	NC	G6	NC
C7	NC	G7	NC
C8	GND	G8	GND
D1	PB5_OC1A_PCINT5	H1	GND
D2	PB6_OC1B_PCINT6	H2	PD6_T1
D3	PB7_OC0A_OC1C_PCINT7	H3	PD5_XCK1
D4	NC	H4	PD3_TXD1_INT3
D5	NC	H5	RESET#
D6	NC	H6	NC
D7	NC	H7	NC
D8	GND	H8	GND

Please refer to the SNAP User's Guide for the I/O pin-mappings used by the SNAP-OS.

More technical details are in Synapse Developer Microsite: forums.synapse-wireless.com