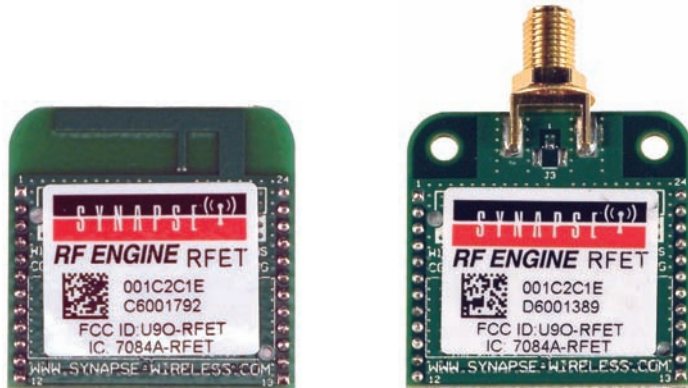


Synapse RF Engine - ZigBee Radio Board (RFET)

Amplified - Extended Range



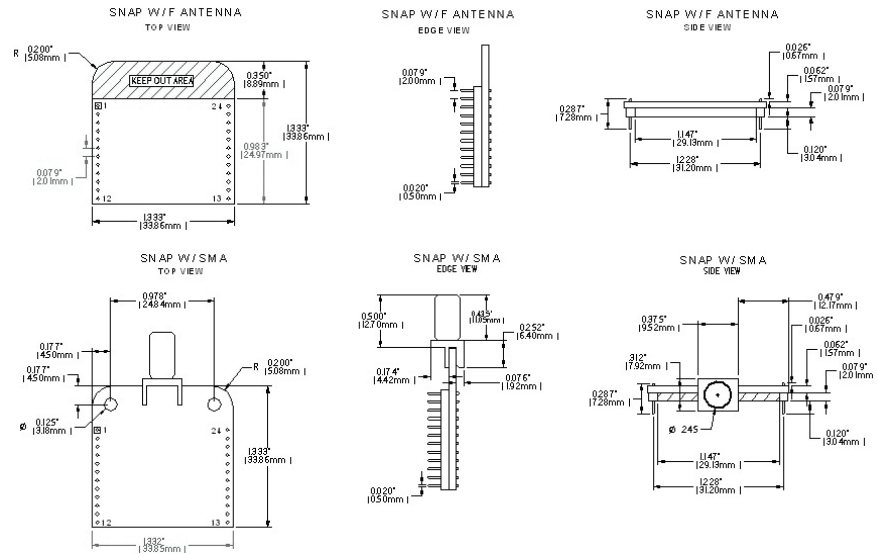
- ✓ SNAP self-forming wireless network software preinstalled
- ✓ Communicate using simple serial AT commands
- ✓ Coordinator or End Device versions
- ✓ Amplified transmit (18dB) with reverse polarity SMA for external antenna
- ✓ Embedded F antenna also available
- ✓ 10dB receive amplifier standard
- ✓ Consumes as little as 47 μ A in operation
- ✓ Eight 10-bit A/D (or digital I/O) Plus 5 digital I/O pins
- ✓ Serial interface (logic levels or RS232 levels)
- ✓ 16K, 32K or 60K flash memory possible
- ✓ FCC certified all 16 channels

The Synapse RF Engine™ is an all-in-one solution to your embedded wireless control and monitoring network needs. Just plug it in and send and receive data through the built in serial port. The RF Engine will take the serial data and send it over a self forming wireless network using the ZigBee® physical layer (802.15.4)

The RF Engine contains a microcontroller, a ZigBee modem, the SNAP network software as well as amplifiers, matching networks and is FCC certified. With this "engine" handling the RF hardware and software, **you can focus on your application, not the network.**

Synapse offers RF Engines in numerous configurations and can customize one to meet your needs.

Physical Dimensions:



Specifications:

Performance	Indoor Range	up to 1000 ft.
	Outdoor LOS Range	up to 3.0 miles
	Transmit Power Output	18 dBm
	RF Data Rate	250,000 bps
	Receiver Sensitivity	-102 dBm (1% PER)
Power Requirements	Supply Voltage	2.7 - 3.4V
	Transmit Current (Typ)	110 mA
	Idle/Receive Current (Typ)	50 mA
	Avg. Current	47 µA (@ 30 sec. wakeup cycle)
General	Frequency	ISM 2.4 GHz
	Spreading Method	Direct Sequence
	Modulation	O-QPSK
	Dimensions	1.333" x 1.333"
	Operating Temperature	-40 to 85 deg C.
	Antenna Options	Integrated F, External RPSMA
Networking	Topology	SNAP
	Number of Channels	16
Available I/O	UARTS with HW Flow Control	2 ports - 8 total I/O
	GPIO	11 total, 8 can be analog in with 10-bit ADC
Agency Approvals	FCC Part 15.247	Yes
	Industry Canada (IC)	Yes

All specifications are subject to change without notice.



Part Selection:

Part No.	Antenna	Flash Memory	A/D	ZigBee Mode
RF100CD6	External *	60KB	-	Coordinator
RF100CC6	F type	60KB	-	Coordinator
RF100ED5	External *	32KB	10 bit	End Device
RF100EC5	F type	32KB	10 bit	End Device

* External antenna sold separately - ask your sales representative

Pinout:

Pin No.	Name	Direction	Description
1	GND	-	Power Supply/Return
2	GPIO0_TPM1CH2	Bidirectional	GPIO, or Timer1 Channel 2
3	GPIO1_KBI0	Bidirectional	GPIO, Keyboard In
4	GPIO2_KBI1	Bidirectional	GPIO, Keyboard In
5	GPIO3_RX_UART0	Input	UART0 Data In
6	GPIO4_TX_UART0	Output	UART0 Data Out
7	GPIO5_KBI4_CTS0	Bidirectional	GPIO, Keyboard In, or UART0 CTS
8	GPIO6_KBI5_RTS0	Bidirectional	GPIO, Keyboard In, or UART0 RTS
9	GPIO7_RX_UART1	Input	UART1 Data In
10	GPIO8_TX_UART1	Output	UART1 Data Out
11	GPIO9_KBI6_CTS1	Bidirectional	GPIO, Keyboard In, or UART1_CTS
12	GPIO10_KBI7_RTS1	Bidirectional	GPIO, Keyboard In, or UART1_RTS
13	GPIO11_AD7	Bidirectional	GPIO, or Analog In
14	GPIO12_AD6	Bidirectional	GPIO, or Analog In
15	GPIO13_AD5	Bidirectional	GPIO, or Analog In
16	GPIO14_AD4	Bidirectional	GPIO, or Analog In
17	GPIO11_AD3	Bidirectional	GPIO, or Analog In
18	GPIO12_AD2	Bidirectional	GPIO, or Analog In
19	GPIO13_AD1	Bidirectional	GPIO, or Analog In
20	GPIO14_AD0	Bidirectional	GPIO, or Analog In
21	VCC	-	Power Supply
22	Reserved	-	-
23	RESET_L	Input	Module Reset, Active Low
24	GND	-	Power Supply/Return



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