VMX-100-SPP Preliminary Datasheet

General Description

The VMX-100-SPP is a 2.4 GHz Bluetooth radio (or modem) that acts as a wireless transceiver. Integrating the VMX-100-SPP into a device and setting up Bluetooth serial communication enables that device to send and receive wireless communication to/from other Bluetooth-enabled devices.

Features

- Small Size: The VMX-100 Wireless Modem has been engineered to be a very small size - only 1.44" x 1.335".
- Simple Integration: Using VMX-100 Wireless Modems eliminates the need for expensive RF engineering and development for your product.
- Fast Time to Market: Using the VMX-100 Wireless Modem reduces the time to market for your wireless product.
- Highly Customizable: VPrf.com gives you the flexibility you need for your specific application by offering wireless radio customization and integration services.
- Extended Range: VMX-100 Wireless Modems transmit and receive Bluetooth signals up to 100 meters (328 feet) with embedded antennas.
- Low Power Consumption: Power management becomes easier with the low power consumption of the VMX-100 Wireless Modem.

Applications

- Consumer Products
- Medical Devices
- Industrial Products
- Handheld Devices
- Military Devices
- Government Applications

Ordering Information

Part Number	Description
VMX-100-SPP	Bluetooth Modem with embedded Serial Port Profile and integrated PCB antenna.
VMX-Evaluation Kit	Evaluation kit for VMX Bluetooth Modems. Includes one VMX-100-SPP module, one VMX-RS232 Interface Adapter, one Bluetooth USB Adapter, one 9-pin RS232 serial cable, one AC power adapter, and instructions.

Key Specifications

| General Specifications		
	Board Size with Connector	1.44" x 1.335" x 0.385" (36.58mm x 33.91mm x 9.78mm)
	Weight	0.3 oz.
	Frequency	2.4 GHZ - ISM band
	Bluetooth Class	Class I
	Emission Type	Frequency hopping spread spectrum (FHSS GFSK)
	RF Data Rate	1 Mbps
	Data Throughput	723 kbps maximum
	Connector	30 pins, 2 rows, 2 mm pin spacing
	Operating Temperatures	0° to 70° C (commercial)
Antenna		
	Internal	Embedded antenna
	External	Connector for external antenna* *May require additional FCC testing.
Power Requirements		
	Supply Voltage	3.3 - 5 volts unregulated
	Transmit Current	125 mA
	Receive Current	60 mA
	Sleep Mode Current	100 µA
	Shutdown Mode Current	0.1 µA
	Transmit Power Output	100 mW maximum (20 dBm)
	Max. Sleep Time to Maintain Sync	1.28 seconds recommended
Compatibility & Certification		
	FCC	FCC Modular Approval
	Bluetooth	Bluetooth 1.1 Compatible
Distance		
	Range	100 m (330 feet) open range
Interface		
	30 Pin Interface	UART, USB, and audio interfaces (standard)
Power Consumption		
	ACL Data Transfer 720kbps USB (Slave)	140 mA
	ACL Connection, Sniff Mode, 40ms Interval, 38.4kbps UART	10 mA
	ACL connection, Sniff Mode 1.28s interval, 38.4kbps UART	2 mA

Pin Diagram
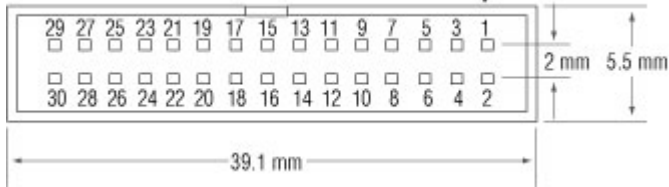
Pin Description

Pin Number	Name	Description/Function
1	GND	Ground
2	VCC	3.3V to 5.5V unregulated power supply
3	RESET(L)	Reset if low - must be low for >5ms
4	UART_CTS(L)	UART clear to send input - active low - connect to your RTS output
5	GND	Ground
6	UART_RTS(L)	UART request to send output - active low - connect to your CTS input
7	UART_TX	UART data output to your device's RX
8	UART_RX	UART data input to your device's TX
9	GPIO_1	VPrf programmable input/output line
10	SHUTDOWN(L)	Power shutdown to entire module - active low
11	SPI_MISO	Serial peripheral interface data output
12	GPIO_2	VPrf programmable input/output line
13	GND	Ground
14	SPI_CSB	Chip select for serial peripheral interface
15	USB_D+	USB data plus
16	USB_D-	USB data minus
17	SPI_MOSI	Serial peripheral interface data input
18	GND	Ground
19	GPIO_3	VPrf programmable input/output line
20	SPI_CLK	Serial peripheral interface clock
21	PCM_SYNC	Audio synchronous data SYNC
22	PCM_IN	Audio synchronous data input
23	PCM_CLK	Audio synchronous data

24	PCM_OUT	Audio synchronous data
25	GPIO_4	VPrf programmable input/output line
26	GND	Ground
27	GPIO_5	VPrf programmable input/output line
28	GPIO_6	VPrf programmable input/output line
29	VCC	3.3V to 5.5V unregulated power supply
30	GND	Ground

(L) – Indicates an active low signal

Wiring Diagram
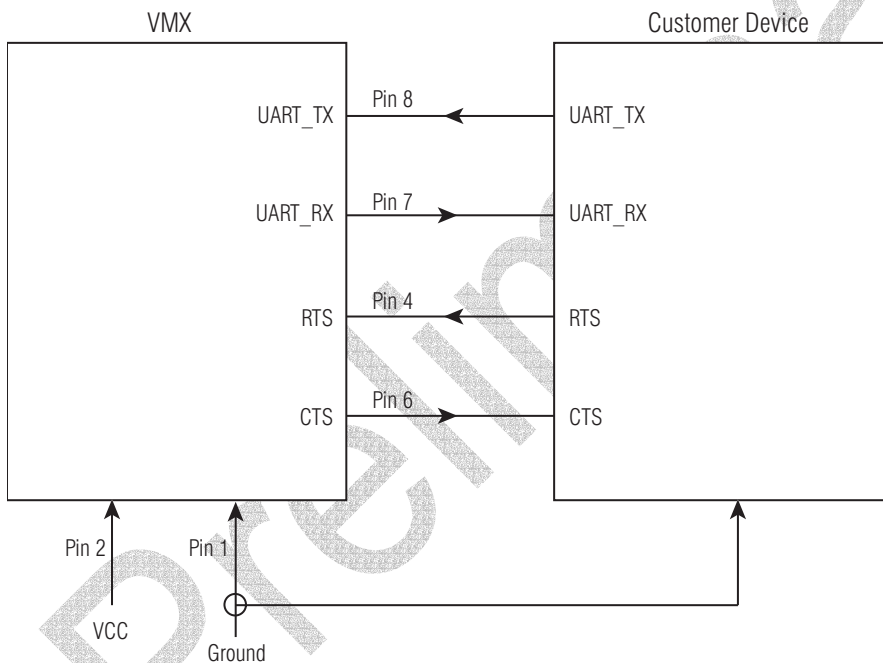
Electrical Characteristics

Parameter	Minimum	Typical	Maximum
Absolute Maximum VCC			5.5V
Absolute Minimum VCC	3.15V		
Input Logic Level Low	-0.4V		0.8V
Input Logic Level High	2.1V		3.4V
Output Logic Level Low			0.2V
Output Logic Level High	2.8V		

Default UART Settings

Parameter	Setting
Baud Rate	57,600
Data Bits	8
Parity	None
Stop Bits	1
Hardware Flow Control	Enabled

Mechanical Drawing