SPECIFICATION FOR
RF Keyboard-FSK (912MHZ)

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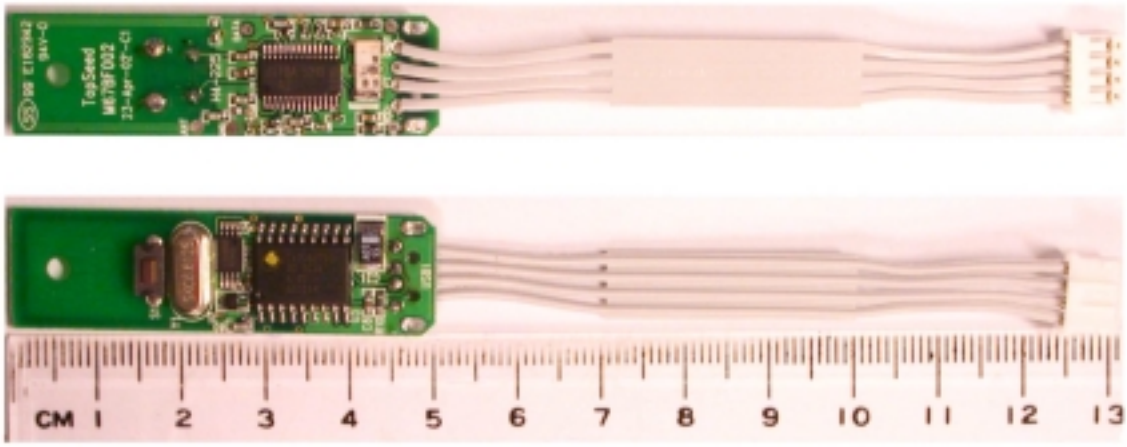
1. Table of date-revision

2.Description：

The Topseed RF Keyboard is a FSK（Frequency Shift Key）Transmitter for the frequency band 912MHZ. The RF Keyboard offers a full-integrated PLL synthesizer and a high efficiency power amplifier to drive a loop antenna；A special circuit design and a unique power amplifier design are used to save current consumption and to save battery live.
This keyboard specification applies 88 key and touch pad that is fully compatible with IBM PC AT system.KBBE series keyboard are silent-touch and spill-resistant.

For the Receiver Modular use with USB 1.1 compliant can be easily actuated without affecting the position of the mouse.
Note that the Channel button (Red button) on the receiver should flash any time the Cordless device is moved or a button is pressed. Then, it will remember your product ID and Channel ID.



The Radio Frequency designed in this version of RF keyboard is FSK 912MHZ and can be use in a range of up to 7-10 meter from the receiver at any directions. The keyboard can operate for 10-12 months with two AA Alkaline batteries.

3.Physical Description and Specification

3.1 Dimensions

The approximate dimensions of the mouse's transmitter is as follows：

Length 361.5mm
Width 279.2mm
Height 19.5mm

3.2 Weight

The approximate dimensions of the mouse's transmitter is as follows：

Weight of the RF Keyboard not to exceed 1250 grams（with batteries）.

4.RF Keyboard Specification

The RF Keyboard consists of three major parts；a base band controller, a radio that suitable for America available 902-928 MHz frees ISM band applications, and a low power uC-controlled, includes RF antenna supporting circuitry, together with basic RF software level.

4-1 Range in meters：up to 7 Meter from the Receiver
4-2 Frequency Rang：912MHZ+/-50KHz（64 channels ID for Mouse）
4-3 Data transmitting by transistor module
4-4 Operational voltage and power consumption：

Operational voltage	3V	6V
Stand-by current	0.96mA	0.96mA
Button operating Current	4.0mA	3.9mA
Touch PAD operating Current	9.3mA	7.9mA

4-5 Low power consumption：on normal operation 7 mA and 80 uA on sleep mode.
4-6 Scrolling by mechanical encoder（24 detents every circle）
4-7 Support Power down Mode and high efficiency power amplifier.
4-8 Receiver Fully Compliant Low Speed 1.5Mbps）USB 1.1 Interface
4-9 Suspend/resume operation and device remote wakeup
4-10 Two channel ID selectable by slide switch

4.RF Keyboard Specification

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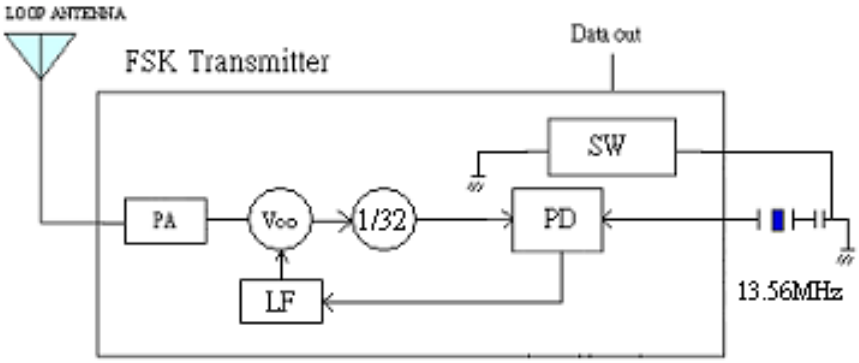
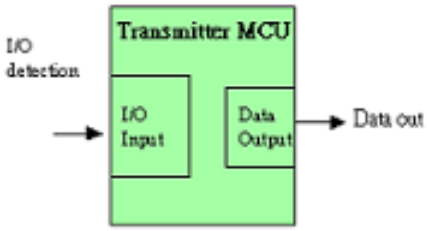
Frequency Range	912 MHz
Modulation	FSK
Channel No.	1
I.D (selectable by slide switch)	
Channel I.D	6 bits → 64
Operation Voltage	3V
Battery	AA*4 Alkaline batteries.
Batter Life	6-8 months
TX Power	< 0dBm (1mW)
Transmission rate	6K bps
TX FM frequency deviation	+/- 60 KHz
Frequency tolerance	+/- 20ppm
Key Num.	**88/104/105/109**
Transmission Distance	7-10 Meter

5. Electrical Block Diagram

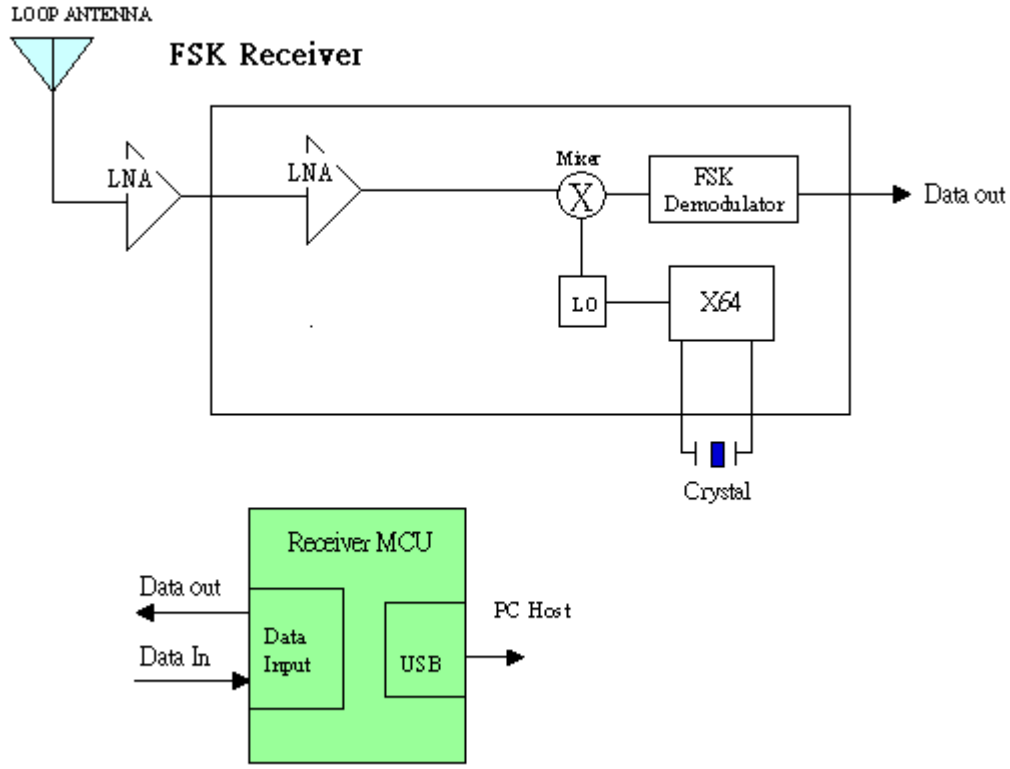
FSK (912MHZ) Transmitter





5. Electrical Block Diagram

FSK (912MHZ) Receiver



USB 1.1 compliant The module is a USB high-speed class device (12 Mbps) and has the full functionality of a USB slave

6. Electrical Characteristics**:**

6.1 GENERAL SPECIFICATION

6.1.1 Operation temperature range

0 ~ + 40 ℃

6.1.2 Storage temperature range

- 10 ~ + 60 ℃

6.1.3 Relative humidity range

10 %~ 90 % RH

6.2 Operational Range

Parameter	Min	Max	Unit
Supply Voltage	2.3	3.6	V
Frequency (US)	912MHz+/-	50KHz	MHZ
Ambient temperature	-10	60	℃

6.3 Electrostatic Discharge (ESD) Sensitivity

Direct discharge:

Test Voltage: Not less than 8 KV for Air discharge

Not less than 4 KV for Contact discharge

Indirect discharge:

Test Voltage: Not less than 4 KV for HCP

Not less than 4 KV for VCP

6.4 AC/DC Characteristics

Supply Voltage: VS= 3.0 V

Parameter		Min	Typ	Max	Unit
Current Consumption	Sleep mode		6	12	uA
	Transmit Mode		6	10	mA
Data rate			6		bps
Sensitivity			-102		dbm
Transmitter settling time			2.2		ms
Power amplifier output		-4	-2	0	dbm
Output power (Transmit mode)			1		mW

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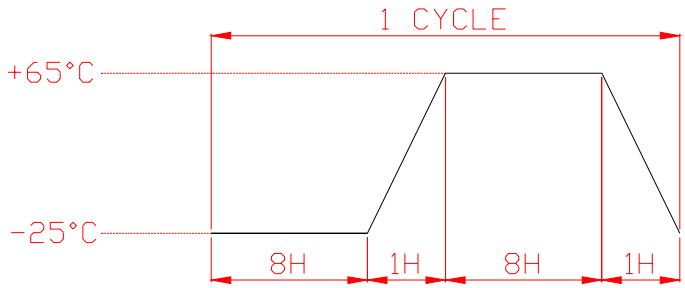
7. Environmental Tests

7-1Endurance test

ITEM	SPECIFICATION
7.1.1 Heat load test	Measurement after the test with following conditions and lefts in chamber (normal temp, normal humidity) for one hour (1). Temperature: + 65 +/- 2 ℃ (2). Time: 72 hours
7.1.2 Humidity load test	Measurement after the test with following conditions and lefts in chamber (normal temp, normal humidity) for 24 hours. (1). Temperature: +50 +/- 2 ℃ (2). Relative humidity: 90 to 95% (3). Time: 72 hours (4). Dew condensation shall be removed.
7.1.3 Cold test	Measurement after the test with following conditions and lefts in chamber (normal temp, normal humidity) for one hour. (1). Temperature: -25 +/- 2 ℃ (2). Time: 72 hours (3). Dew condensation shall be removed.
7.1.4 Vibration test	Storage: 10 to 300 Hz, 2.0 G 1 hour per axis Operation: 10 to 500 Hz, 0.5 G 1 hour per axis
7.1.5 HEAT CYCLE TEST	Measure initial value at standard testing conditions. **1. Conditions**  **2.** Measurement after the test (temp cycles =4) and left in chamber (normal temp, normal humidity) for one hour.

7. Environmental Tests

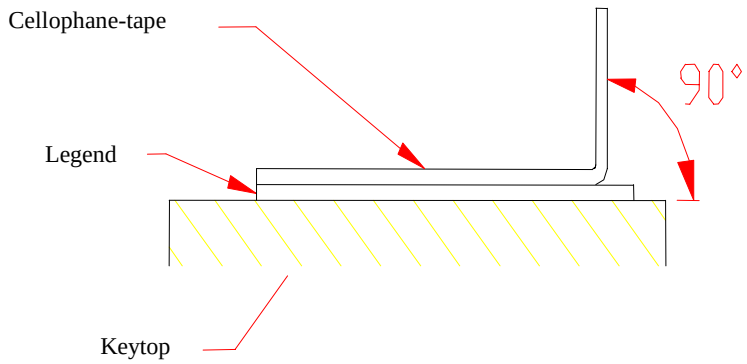
ITEM	SPECIFICATION
7.1.6 Shock test	Storage: 60G 1/4sines wave pulses, 11 ms DURATION Operation: 5G 1/4sines wave pulses, 11 ms DURATION
7.1.7 Drop test	The package carton, on the condition of 91 cm height, after 1 corner, 3 edges, and 6 faces dropping, electrical and mechanical characters will still be in normal conditions.

7-2 Legend endurance test:

ITEM	SPECIFICATION
7.2.1 Rubber eraser:	Material: Lion #510 for pencil Speed: 2 round per second Stroke: 20mm Force: 200 gf Cycle: 600 time Judgment: legend shall be legible and have no crack
7.2.2 Alcohol	Material: flannel soaked with ISOPROPYL alcohol Speed: 2 round per second Stroke: 20mm Force: 200 gf Cycle: 60 time Judgment: legend shall be legible and have no crack
7.2.3 Neutral detergent	Material: flannel soaked with neutral detergent Speed: 2 round per second Stroke: 20mm Force: 200 gf Cycle: 120 time Judgment: legend shall be legible and have no crack

7. Environmental Tests

7-2 Legend endurance test:

ITEM	SPECIFICATION
7.2.4 Artificial sweat:	Material: flannel soaked with artificial sweat Speed: 2 round per second Stroke: 20mm Force: 200 gf Cycle: 60 time Judgment: legend shall be legible and have no crack
7.2.5 Peeling test	There shall not be peeling of the legend when 18mm width of cellophane-tape is put by finger pressure of approx. 500gf. And followed by peeling at a stretch to the vertical direction. Test cycle: 1 time Material: 3M NO. 600 

7. Environmental Tests

7-2 Legend endurance test:

ITEM	SPECIFICATION
7.2.6 Pencil hardness	There shall be no legend peel off when a pencil (manufacturer name: Mitsubishi type in hardness type b whose load shall be cut at right angle shall be applied to the legend in a direction of 45 degree. Pressure: approx. 1 kg. (Lead shall not be snapped.) Speed: 0.5mm/sec Test cycle: 1 time