

BT5.0+3.0+2.4G 三模键盘

BT5.0+3.0+2.4G tri-mode keyboard

#### 方案特点

/Scheme

features:

Bluetooth 5.0+3.0+2.4G 三模 SOC

Bluetooth 5.0+3.0+2.4G Tri-mode SOC

极低功耗 (Tx=5mA), 极高灵敏度 (-96dbm)

Extremely low power consumption (Tx=5mA), extremely high sensitivity (-96dbm)

蓝牙兼容性好, 回连速度快

Good Bluetooth compatibility and fast connection speeds

智能多级省电, 工作距离大于 10 米

Intelligent multi-level power saving, working distance is more than 10 meters

蓝牙支持多通道, 可连多台设备, 自由切换

Bluetooth support multi-channel, can be connected to multiple devices, free switching

内置升压 (2.2-2.8V 可调), 外围零件简单

Built-in booster (2.2-2.8V adjustable), simple peripheral parts

提供免对码测试 dongle, 蓝牙设备名修改 dongle

Provide code-free testing dongle, Bluetooth device name modification dongle

支持键鼠套装

Support Keyboard and Mouse Kit

支持 windows 蓝牙快速配对《Swift pair》, 及鼠标电量显示

Supports windows bluetooth quick pairing “Swift pair”, and mouse battery indicator.

蓝牙芯片已过 BQB 5.0 认证, QDID = 115877

Bluetooth chip is BQB 5.0 certified, QDID = 115877

#### 硬件规格/Hardware Specifications

☐ 芯片microchip: BK363× QFN48 / BK2451 QFN20

☐ 按键button or key /LED:

8×18 标准83053矩阵

8×18 Standard 83053 Matrix

6×LED : 蓝牙/2.4G/Caps/低压

蓝牙/2.4G/Caps/低压

#### 特别说明/special note

默认蓝牙设备名: BT5.0 Keyboard\_Pro / BT3.0 Keyboard

Default Bluetooth device name: BT5.0 Keyboard\_Pro / BT3.0 Keyboard

最大支持17个字节 (17个英文字母, 或5个中文字)

Supports up to 17 bytes (17 English letters, or 5 Chinese characters)

2.4G为对码设计，出厂必须先配对出货

2.4G is a pair-code design and must be paired for shipment from the factory.

蓝牙进入配对模式后，电脑会搜索到2个蓝牙设备名(BT5.0/3.0 Keyboard) 建议优先选BT5.0 Keyboard配对

When Bluetooth enters pairing mode, the computer will search for two Bluetooth devices (BT5.0/3.0 Keyboard), and it is recommended to prioritize BT5.0 Keyboard pairing.

测试及操作说明/Testing and Operating Instructions

设计为可连接4台设备，任意切换/ Designed to connect up to 4 devices and switch at will

Fn+1=2.4G(固定set rigidly in place)Fn+2=BT1      Fn+3=BT2      Fn+4=BT3

每个设备下可以有4组键值/There can be 4 sets of key values under each device

Fn+Q= iOS      Fn+W= Android Fn+E= Windows Fn+R= Mac .

| 操作manipulate   | 功 能Functions   |
|--|--|
| 2.4G 测试模式<br>(配 2.4G 免对码 dongle), 2.4G Test Mode<br>(with 2.4G dongle)   | 切换到 2.4G 模式, 直接进 2.4G 测试<br>Switch to 2.4G mode, directly into 2.4G test   |
| 2.4G 出厂配对 (无 2.4G 配对记录)<br>2.4G factory pairing (no 2.4G pairing history)  | 点开《PC 对码软件》, 插入 2.4G dongle, 键盘切换到 2.4G 模式, 自动配对成功<br>Tap “PC Pairing Software”, insert the 2.4G dongle, switch the keyboard to 2.4G mode, and the pairing will be successful automatically. |
| 2.4G 出厂配对 (有 2.4G 配对记录)<br>2.4G factory pairing (with 2.4G pairing history)  | 点开《PC 对码软件》, 插入 2.4G dongle, 长按 Esc + = 3 秒, 自动配对成功<br>Tap “PC Pairing Software”, insert the 2.4G dongle, long press Esc + = for 3 seconds, auto pairing will be successful.                 |
| 蓝牙测试模式-无配对记录<br>(配蓝牙免对码 dongle)<br>Bluetooth Test Mode - No Pairing Record<br>(Pairing Bluetooth No Pairing Code dongle) | 切换到蓝牙模式, 直接进蓝牙测试<br>Switch to Bluetooth mode, directly into the Bluetooth test   |
| 蓝牙测试模式-有配对记录<br>(配蓝牙免对码 dongle)<br>Bluetooth test mode - with pairing record<br>(Pairing Bluetooth dongle free)          | 清除配对记录, 或重新进入蓝牙配对, 才能连快连, 进蓝牙测试<br>Clear the pairing history, or re-enter the Bluetooth pairing, to connect to the fast connection, and enter the Bluetooth test.                            |
|  |  |
| 按住 Esc + 2, 上电<br>Press and hold Esc + 2 to power up   | 修改蓝牙设备名 (配蓝牙免对码 dongle)<br>Modify Bluetooth device name (with Bluetooth dongle)  |
| 按住 Esc + 3, 上电, 保持 3 秒<br>Press and hold Esc + 3 to power up, hold for 3 seconds   | 清除蓝牙配对记录<br>Clear Bluetooth pairing history  |
| 按住 Esc + 4, 上电<br>Press and hold Esc + 4 to power up   | 进 EMI 测试模式<br>into EMI Test Mode   |
|  |  |
| 长按 Esc + = (大于 3 秒)<br>Long press Esc + = (more than 3 seconds)  | 在 2.4G 模式下, 进入 2.4G 强制配对<br>In 2.4G mode, enter 2.4G forced pairing  |

|  |   |
|--|---|
| 长按 Fn + 2/3/4 (大于 3 秒)<br>Long press Fn + 2/3/4 (more than 3 seconds)      | 在 2.4G 和蓝牙模式下, 都进入蓝牙配对<br>Enter Bluetooth pairing in both 2.4G and Bluetooth modes                |
| 短按 Fn + 1/2/3/4 (小于 3 秒)<br>Short press Fn + 1/2/3/4 (less than 3 seconds) | 在 2.4G/蓝牙 1/蓝牙 2/蓝牙 3 4 种模式间切换<br>Switch between 2.4G/Bluetooth 1/Bluetooth 2/Bluetooth 3 4 modes |
|  |   |
| 蓝牙配对时间<br>Bluetooth pairing time   | 2 分钟<br>2 minutes.  |
| 2.4G 配对时间<br>2.4G pairing time   | 20 秒<br>20 seconds.   |
| 2.4G/蓝牙 回连时间<br>2.4G/Bluetooth Reconnect Time                              | 10 秒<br>10 seconds.   |
| 放停, 进一级休眠<br>Release, level 1 hibernation                                  | 3 秒<br>3seconds.  |
| 放停, 进二级休眠<br>Release to secondary hibernation.                             | 30 分钟<br>30seconds.   |

#### 蓝牙配对说明/Bluetooth pairing instructions

长按配对键（大于3秒）进入配对状态，LED快闪（配对时间2分钟）

Win10系统            设置 - 蓝牙 - ON

Win10系统搜索到 BT5.0或BT3.0 Keyboard，点KB，进入配对配对成功，LED常亮2秒，显示已连接成功，蓝牙标记变亮

Long press pairing button (>3 seconds) to enter pairing status, LED fast flash (pairing time 2 minutes)

1. Win10 system Settings - Bluetooth - ON

4. Win10 system searches for BT5.0 or BT3.0 Keyboard, tap KB, enter pairing pairing success, the LED is always on for 2 seconds, it shows that it has been connected successfully, the Bluetooth mark turns bright

#### Windows swift pair 蓝牙快速配对说明

Win10 RS4 或 Build 1803 以上系统

键盘进入蓝牙配对状态后，靠近电脑

win10 会自动弹出《快速配对窗口》，点连接，即可快速完成配对

\*\* 在win10蓝牙设置界面，需要将<迅速配对>选项勾选

Windows swift pair bluetooth fast pairing instructions

1. Win10 RS4 or Build 1803 or above system.

2. After the keyboard enters the Bluetooth pairing state, close to the computer.

3. Win10 will automatically pop up the “Quick Pairing Window”, click connect, you can quickly complete the pairing.

\*\* In Win10 Bluetooth settings interface, you need to check the <Quick Pairing> option.

#### G强制配对说明/2.4G forced pairing instructions:

切换到2.4G模式

2 同时长按 Esc + =（大于3秒），进入2.4G配对，LED快闪（配对时间20秒）

在20秒内，插入USB Dongle

LED常亮2秒，2.4G配对成功

1. Switch to 2.4G mode

2 Long press Esc + = at the same time (more than 3 seconds), enter 2.4G pairing, LED flash (pairing time 20 seconds)

3. Within 20 seconds, plug in the USB Dongle.

4. LED will be on for 2 seconds, 2.4G pairing is successful.

#### 智能多级省电设计（蓝牙/2.4G模式一致）

按下按键，工作模式

按键释放，3秒后，进入一级休眠模式

按键释放，30分钟后，进入二级休眠模式，蓝牙/2.4G断线

二级休眠后，按键唤醒，进入回连

若回连成功，进入工作模式

若回连不成功，又进入二级休眠

Intelligent multi-level power saving design (Bluetooth/2.4G mode consistent)

1. Press the button, working mode
2. Key release, after 3 seconds, enter the first level of hibernation mode
3. Key release, after 30 minutes, enter the second level of hibernation mode, Bluetooth/2.4G disconnected
4. After the second level of hibernation, press the key to wake up, enter back to the connection
5. If the connection is successful, it will enter the working mode.

If the connection is unsuccessful, it will enter the second level hibernation mode again.

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## 阶梯工作电流

键盘整机功耗（电压3V）

| 模式   | 工作电流    | 按键释放<br>(一级休眠) | 按键释放<br>(30 分钟后, 二级休眠) |
|------|---------|----------------|------------------------|
| 蓝牙   | < 1.5mA | < 100uA        | < 20uA                 |
| 2.4G | < 1.5mA | < 20uA         | < 20uA                 |

## LED 指示说明

| 状 态 Status                                  | 指 示 Indication   |
|---|--|
| 配对 form a pair (e. g. to marry)             | 快闪 (2.5HZ)   |
| 回连<br>ligature                              | 慢闪 (0.5HZ)<br>Fast Flash (2.5HZ)   |
| 配对成功<br>succeed in matching                 | LED 长亮 2 秒, 灭<br>LED on for 2 seconds, off   |
| 回连成功<br>Reconnect successfully              | LED 长亮 2 秒, 灭<br>LED on for 2 seconds, off   |
| 清除蓝牙配对记录<br>Clear Bluetooth pairing history | 长亮, 成功后快闪 (2.5HZ)<br>Long light, fast flash after success (2.5 HZ)                                 |
| 连线使用中<br>Connections in use                 | 3 秒, 亮 100 毫秒<br>3 seconds, 100 milliseconds on  |
| 低压low voltage                               | 动作 (每 1 秒快闪 1 次), 释放后, 闪 10 次灭<br>Action (1 flash every 1 sec.), after release, flash 10 times off |
| 低压关机low-pressure shutdown                   | 快闪 10 次关机 (3HZ)<br>Flash 10 shutdowns (3HZ)  |
| Caps 灯                                      | 有按键=长亮, 释放=亮 5 秒, 灭<br>Pushbutton=Long on, Release=Light for 5 seconds, Off                        |

## 低压检测

硬件选择单/双电池/锂电

双电池低压报警 = 2.0V, 关机电压 = 1.8V 单电池低压报警 = 1.0V , 关机电压 = 0.9V 锂电池低压报警 = 3.3V , 关机电压 = 3.0V

Low voltage detection

Hardware Selection Single/Dual Battery/Lithium Battery

Dual Cell Low Voltage Alarm = 2.0V , Shutdown Voltage = 1.8V Single Cell Low Voltage Alarm = 1.0V , Shutdown Voltage = 0.9V Lithium Battery Low Voltage Alarm = 3.3V , Shutdown Voltage = 3.0V



#### 工厂生产测试

2.4G/BT BLE 都提供免对码dongle, 生产测试, 效率高

(详见双模生产流程图)

Factory production test

2.4G/BT BLE both provide code-free dongle, production testing, high efficiency

(See dual-mode production flow chart)

#### EMI 测试

按下 ESC+ 4 上电, 进入 EMI 模式 (详见 EMI 测试说明)

EMI Test

Press ESC+ 4 to power up and enter EMI mode (see EMI test instructions for more information).

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#### FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.