

键盘规格书

Keyboard specifications

客 户 名 称 (Customer name): _____

产 品 名 称 (Product Name): 蓝牙键盘

产 品 编 号 (Model#): EB-023S

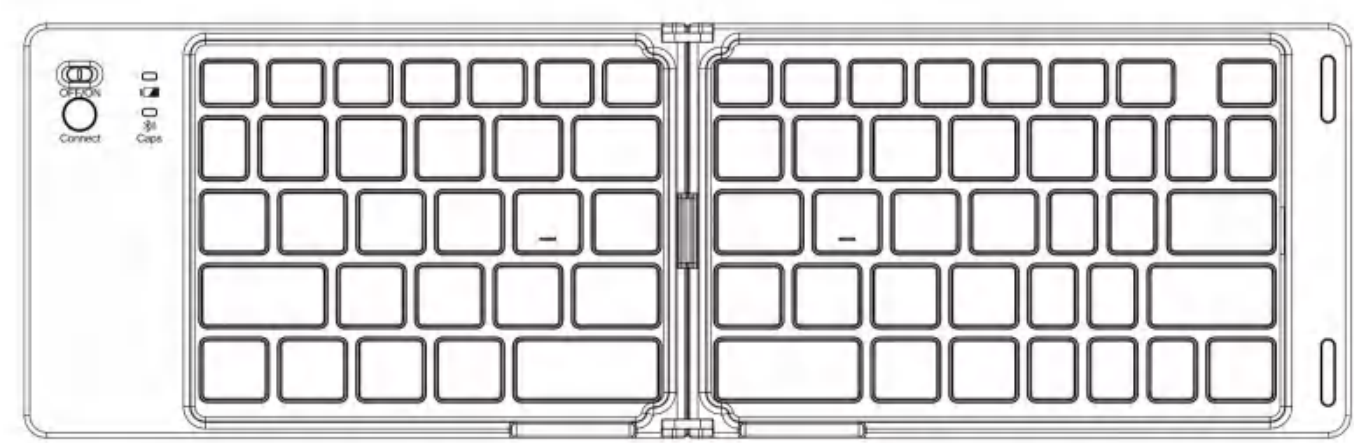
模 组 方 案 (IC formula): _____

承 认 日 期 (Date): 2024 年 3 月 15 日

产 品 规 格 书 Product specification							
型号 model	023S	品 名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

1. 本產品規格書定義了此款產品作為：一種使用 HID 協議的藍牙裝置，可以做為 IOS/安
卓/WIN 系統設備的輸入裝置。

This product works as a wireless device which using HID protocol, can be used for
IOS, Android, Windows Systems.



SIZE:294.5*92*9.2MM

2. 外觀零部件屬性 Parts and Specifications

部件名稱 Part name	部件材質 Material	部件表面處理 Surface finish	部件顏色 Color
HB-023S 面壳 Top cover	ABS	Texture RS1005	Black
HB-023S 底壳 Bottom cover	ABS	Texture RS1005	Black
HB-023S 键帽 keys	ABS	Texture VDI 24	Black
HB-023S 灯柱 Light post	ABS	省 光 Polish	Beige
KB242001 导电膜 Membrane	PET	印背色 Silver Printing color	Silver

产 品 规 格 书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

3.電性参数Electrical parameters

项目 Category		参数 Parameters	备注 Remarks	
	产品型号 Model#	EB-023S		
	产品描述 Model Name	Bluetooth keyboard PCBA		
Basic	Compatibility	Compatible with IBM PC/MAC/iPad/iPhone Can work on Windows/LINUX/IOS/Android		
	Keys	67		
	Connection	Bluetooth 5.0		
	PCBA material	FR4		
IC Spec	型号 Model#	国产		
	规格 Spec	Bluetooth 5.0		
电气 信息 Electrical	工作电压 Working Voltage		3.2-4.2V	
	供电方式 Power supply		锂聚合物电池 Rechargeable Li battery	
	有效工作时长 Working hours		40h	
	充电时长 Recharging time		2h	
	功耗 Power consum ption	类别 Category	PCBA	
		工作电流 Working currency	最低 616uA 最高 937uA 平均 773uA Lowest:616uA, highest:937uA, average:773uA	连接单击同一个键 Press one key continuously
			最低 1064uA 最高 1756uA 平均 1410uA Lowest:1064uA, highest:1756uA, average:1410uA	连接单击不同键 Press different keys continuously
		待机电流 Standby currency	最低 23uA 最高 57uA 平均 40uA Lowest:23uA, highest:57uA, average:40uA	暂停击键 No operation
		睡眠电流 Sleep currency	5uA	10 分钟后蓝牙断开连接 after 10 minutes no operation
		对码电流 Pairing currency	对码中 最低 0.43mA 最高 2.5mA 平均 1.45mA Pairing: Lowest:0.43mA, highest:2.5mA, average:1.45mA	回连时连续按键 Reconnecting to the device and Press one key continuously
			回连中 最低 13mA 最高 13mA 平均 13mA Reconnecting: Lowest:13mA, highest:13mA, average:13mA	
	睡眠方式 Sleep Mode		10 分钟无按键，蓝牙休眠并断开连接 after 10 minutes no operation, Bluetooth will be disconnected and the keyboard will be turned into sleep mode.	
睡眠唤醒 Wake up Mode		按键唤醒 Press any key to wake up		

产 品 规 格 书 Product specification							
型号 model	023S	品 名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

	低电报警 Low Battery Alarm	3.2V	
	电池容量 Battery Capacity	150MAh	
射 频 规格 RF Specs	工作频率 Working Frequency	2.402GHz-2.4835GHz	
	频道数目 Channel QTY	79	
	频道带宽 Channel width	1Mb/s	
	频道间隔 Channel Space	1MHZ	
	扩频方式 SPSP	FHSS	
	调制方式 Modulation	GFSK	
	工作距离 Working distance	>10M	
	对码距离 Pairing distance	<5M	
	数据速率 Data transfer speed	1Mbps	
环 境 信息 Environment	工作温度 Working temperature	5℃-50℃	
	工作湿度 Working humidity	10%-90%	
	存储温度 Storage temperature	-20℃-70℃	
	存储湿度 Storage humidity	5%-95%	
	驱 动 Drive	无需驱动 No drive needed	
	产 品 重 量 Product weight	122g	

3. 電性功能Electrical function

1. 开关机

Turn on/off

蓝牙电源由锂聚合物电池供电，开关在 ON 状态开机， 蓝光亮 2S 后熄灭,开关在 OFF 状态关机

The keyboard is powered by 90mAh Li battery. Slide the switch to On position and The blue LED light will be turned on for 2 seconds. Slide the switch to Off position, the keyboard will be turned off.

2. 对码 (配对)

Pairing

开机状态下，轻按对码键，即进入蓝牙搜索配对状态，蓝灯开始闪烁，进入对码状态。对码成功后，蓝灯停止闪烁。对码成功后如再开机， 蓝牙键盘会自动连接蓝牙接收设备。

After turning on the keyboard, press the pairing button on the bottom, the red blue LED light will flash to connect

产 品 规 格 书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

with devices and pair the keyboard to the device. When it is connected to the device successfully, the blue LED light will stop flashing. If the keyboard is paired with devices, it will be connected to the devices automatically for later usage.

3. 休眠

Sleep mode

10 分钟无按键动作，PCBA 休眠；休眠后，若有按键则蓝牙自动回连之前连接的主机。主机断开蓝牙连接，PCBA 也会自动进入休眠。

After 10 minutes no operation, the Bluetooth will be disconnected and the keyboard will be turned into sleep mode. To wake up the keyboard by pressing any key.

4.系统切换（system shifting）

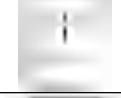
- 1) FN+Q 切换至 Android 系统,实现 Android 键盘功能，蓝灯快闪三次表示切换成功;
FN+Q shift to Android. To realize Android function, the blue light blink 3 times.
- 2) FN+W 切换至 Windows 系统,实现 Windows 键盘功能，蓝灯快闪三次表示切换成功;
FN+W shift to Windows. To realize Windows function, the blue light blink 3 times.
- 3) FN+E 切换至 IOS 系统,实现 IOS 键盘功能，蓝灯快闪三次表示切换成功.
FN+E shift to IOS. To realize IOS function, the blue light blink 3 times.

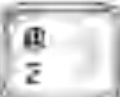
功能图示Function Illustration



按键图标 Icon	IOS 系统功能	Android 系统功能	Windows 系统功能	按键图标 Icon	IOS 系统功能	Android 系统功能	Windows 系统功能
	Home	Home	ESC		Play/Pause	Play/Pause	F7
	Search	Search	F1		Next Song	Next Song	F8
	Select all	Select all	F2		Volume down	Volume down	F9
	Copy	Copy	F3		Volume up	Volume up	F10

产 品 规 格 书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

	Paste	Paste	F4		N/A	N/A	F11
	Cut	Cut	F5		N/A	N/A	F12
	Previous song	Next song	F6		N/A	N/A	N/A
	N/A	System shift	N/A		Page up	Page up	Page up
	System shift	N/A	N/A		End page	End page	End page
	Home pg	Page top	Page top		Fn key	Fn key	Fn key
	End page	Pg Dn	Pg Dn				

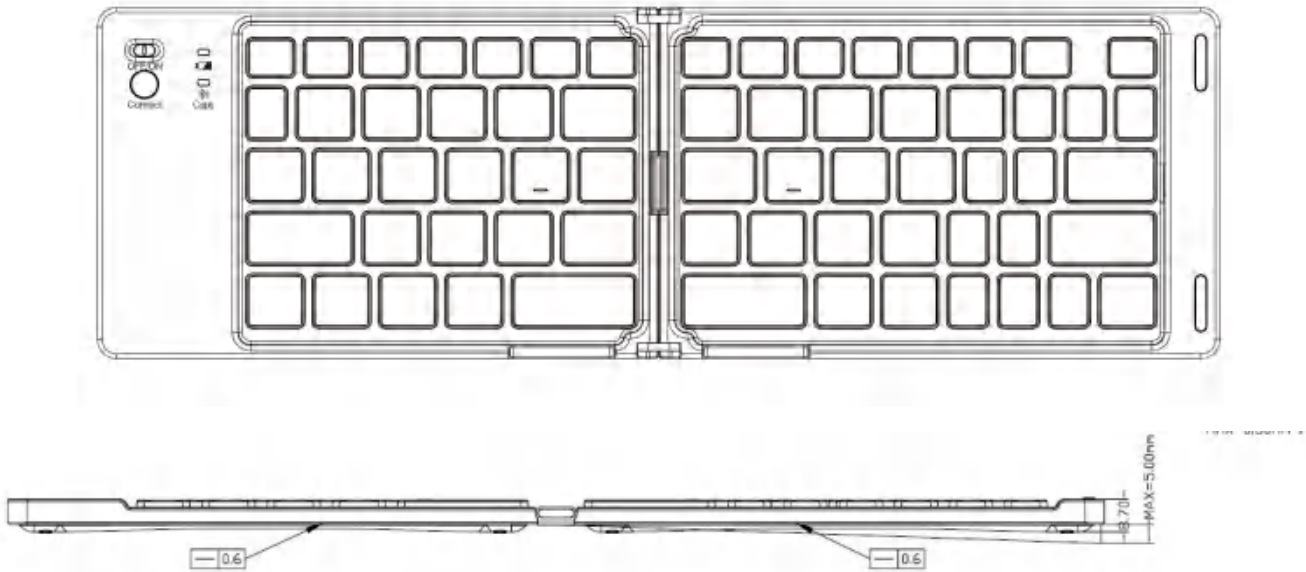
Windows FN+Shift+function key							
按键图标 Icon	功能 Function	按键图标 Icon	功能 Function	按键图标 Icon	功能 Function	按键图标 Icon	功能 Function
	浏览器 Browser		复制 copy		上一曲 Previous song		搜索 Search
	粘贴 paste		播放/暂停 Play/pause		剪切 cut		全选 Select All
	下一曲 Next song		音量减 Vol-		音量加 Vol+		
以上功能描述除主页为单键实现功能以外，其他键功能都以组合键的方式实现。例如：FN+7;实现上一曲功能。 For all above functions,besides “home” function can be realized by single press in one key, all other functions will only be realized by a combination of two keys or more.Eg. FN+7 to get previous song.							

1. 外觀标准描述Appearance standard description

1.1 变形度Deformation degree

产品规格书 Product specification

型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0
-------------	------	------------	-----------------------------	--------------	--	----	-----



如上图所示描述 Described as shown in the above figure:

键盘长度方向变形 Deformation of keyboard length direction: $\text{MAX} \leq 6.0\text{mm}$;

键盘左右键区变形 Deformation of left and right keypads of keyboard: $\text{MAX} \leq 0.6\text{mm}$;

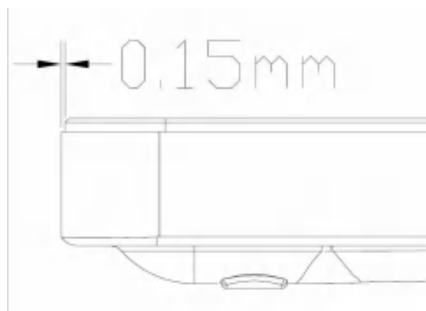
键盘宽度方向变形 Deformation of keyboard width direction: $\text{MAX} \leq 0.5\text{mm}$;

5.2 产品外观特定标准 Specific standards for product appearance

5.2.1、面壳与底壳组装间隙 Assembly gap between face shell and bottom shell

键盘周边底壳超出面壳 The bottom shell around the keyboard exceeds the surface shell by $\leq 0.15\text{mm}$;

如下图所示 As shown in the following figure:



5.2.2、按键避空间隙 Press the key to avoid space gap

键帽与面壳避空间隙按压状态: $\leq 1.4\text{mm}$; 键帽弹起状态间隙: 目测 $\leq 1.6\text{mm}$;

如下图所示:

Pressing state of key cap and face shell avoiding space gap: $\leq 1.4\text{mm}$; Gap in key

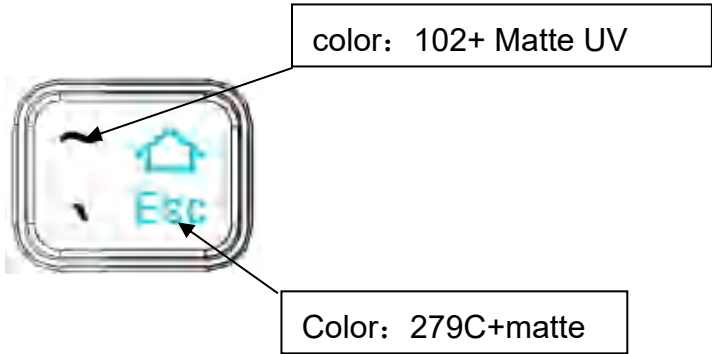
cap pop-up state: visual inspection $\leq 1.6\text{mm}$; As shown in the following figure:

产品规格书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0



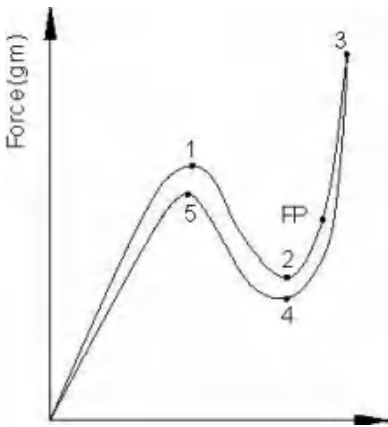
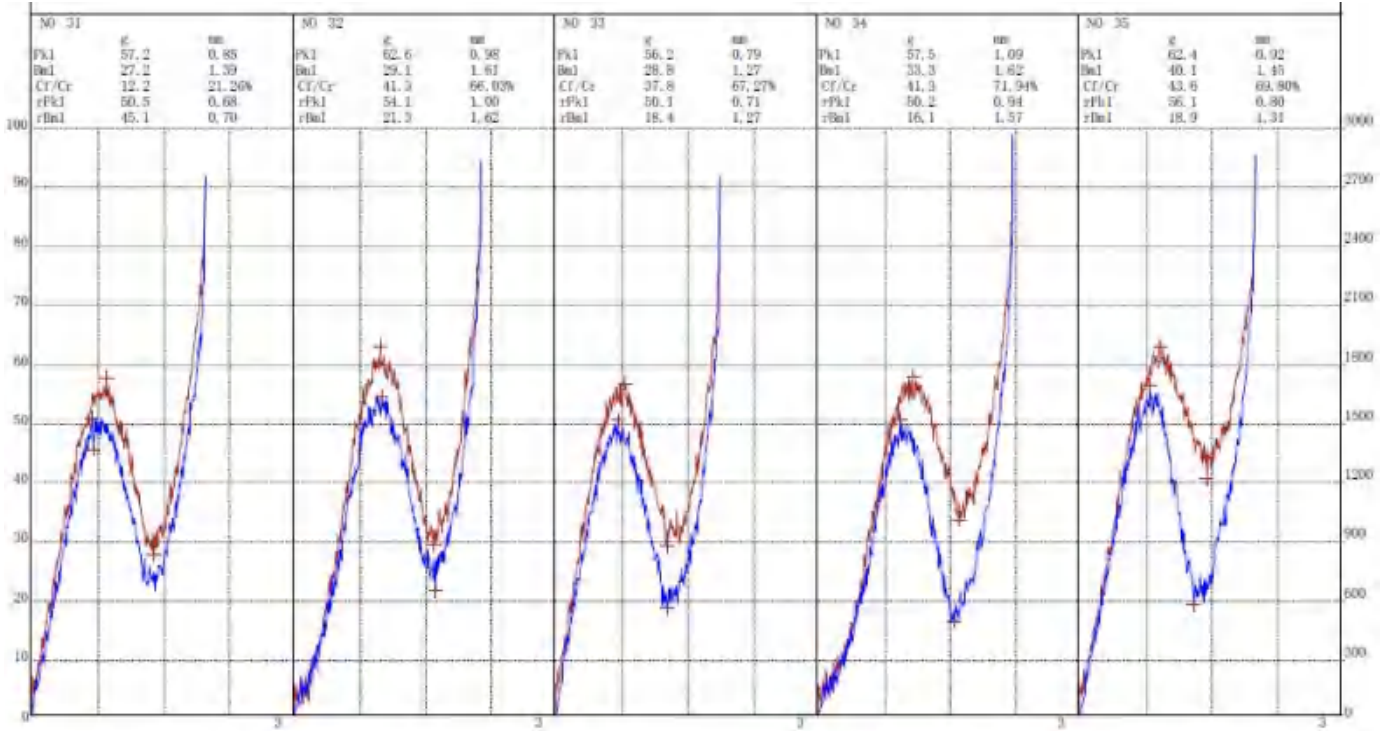
5.2.3、鍵帽絲印及一體成型LOGO工藝外觀描述

Keycap screen printing and integrated LOGO process appearance description



按键机构参数Parameters of key mechanism

产 品 规 格 书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0



Stroke (mm)

Point	Position (mm) Initial	Force (Mark)	Force (g) Initial
P1	S1 =0.9 ± 0.20	PF	60g±0.15
P2	S2 =1.5 ± 0.15	CL	40%~60%
P3	S3 =1.8 ± 0.20	TM	Max 120 g
P4	S4 =P2 ± 0.30	RF	Min 15 g
Fire point	SFP=P2+0.25/0.0		

PF=Peak force, CL=Click feeling, TM=Travel to make , RF=Return force, FP= Fire point

6.1 操作行程Operation distance

操作行程(Operation distance): 1.80± 0.30 mm

最大键程(Maximum key stroke): 2.0 ± 0.30 mm (120g pulling force)

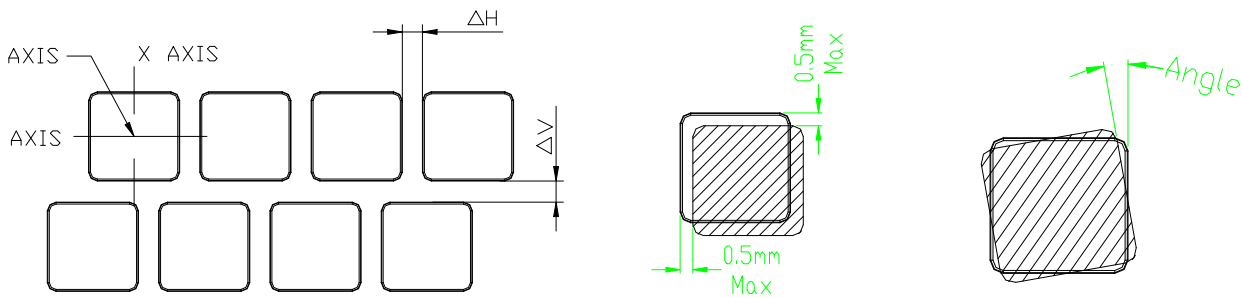
6.2 键帽压力 Key cap press

最小100GF施力于特定键帽的某个角落或侧边

产 品 规 格 书 Product specification							
型号 model	023S	品名 name	双折蓝牙键盘 wireless keyboard	客户 client		版本	5.0

A minimum of 100GF is applied to a certain corner or side of a specific keycap

6.3 键帽间距及排列Key cap spacing and arrangement



列与列间距 (column spacing): 2.8mm-3.3mm

行与行间距(Line spacing): 2.8mm-3.2mm

键帽间距(标准键帽)Key cap spacing(qwerty keyboard): ΔH (ΔV) -- ± 0.2 mm

相邻键帽高低差最大0.4MM Maximum height difference between adjacent keycaps is0.4MM0.4MM

键帽倾斜度最大20度 The keycap tilts up to 20 degrees

键帽X.Y方向动作: .X方向与Y方向的振幅均应小于等于0.35MM;
Action of key cap in x and y direction: the amplitude in x direction and y direction should be less than or equal to 0.35MM

可靠性测试 Reliability Test

- 1. 高低温测试 High-Low Temperature Test
- 2. 跌落测试 Drop Test
- 3. 键帽字符耐磨测试 Key Cap Fonts Abrasion Testing
- 4. 开关键拔动寿命测试 Pull-out life test of switch-on key
- 5. 五金件盐雾测试 Hardware salt spray test
- 6. 键帽拉拔力测试 Key cap drawing force test
- 7. 键盘键帽点击寿命Click life of keyboard keycap

注: 以上可靠性测试只针对本款产品进行的检测和验证, 测试方式及测试条件以我司通用测试标准为准

The above reliability test is only for the detection and verification of this product, and the test method and test conditions are subject to our general test standards.