
SPECIFICATION FOR APPROVAL

客 户：(CUSTOMER)

客 户 料 号：(CUSTOMER P/N)

品 名：(TITLE)

RED LOW-PROFILE SWITCH

料 号：(PART NO)

送件日期：(DATE) 2023 年 10 月 17 日	承认日期：(DATE of ACCEPTANCE) 年 月 日
签 章：(Signature)	签 章：(Signature)

1. Application scope/适用范围

This confirmation form is available for the optical potential keypad switch, which is applied to the electronic circuit devices with small current.

本确认书适用于光学电位式键盘开关，该键盘开关应用于小电流的电子回路装置上。

2. Structure/结构

2.1 Shape, size: (as show in the attached picture)

形状、尺寸：（如附图所示）。

2.2 Appearance: all the parts are in good condition and without rust, crack and coating defects

外观：各部位良好无锈斑、裂痕、电镀不良等现象。

3. Mechanical Performance/机械性能

3.1 Action travel: $1.1 \pm 0.30\text{mm}$

动作行程： $1.1 \pm 0.30\text{mm}$ 。

3.2 Total travel: $2.5 \pm 0.30\text{mm}$

总行程： $2.5 \pm 0.30\text{mm}$ 。

3.3 Action force: $40 \pm 10\text{gf}$

动作力： $40 \pm 10\text{gf}$ 。

3.4 Optical switch configuration: normally open

光开关形态：常开。

3.5 Hand feeling: sensitive and smooth

手感动作：动作灵敏、顺滑。

3.6 Stem pull-up force: $>3\text{kgf}$

(Note: The pull-up force between the key cap and the stem shall be $< 2\text{kgf}$)

轴体拉拔力： $>3\text{kgf}$

(注：键帽配合拉拔力应 $<2\text{kgf}$)。

3.7 Environment temperature/环境温度：

3.7.1 operating temperature range: $-5^{\circ}\text{C} \sim +45^{\circ}\text{C}$

3.7.2 storage temperature range: $-20^{\circ}\text{C} \sim +65^{\circ}\text{C}$

3.7.1 使用温度范围： $-5^{\circ}\text{C} \sim +45^{\circ}\text{C}$

3.7.2 存贮温度范围： $-20^{\circ}\text{C} \sim +65^{\circ}\text{C}$

3.8 Relative humidity: $<85\% \text{RH}$

相对湿度： $<85\% \text{RH}$

4. Electrical parameter/电气规格值

4.1 Rated voltage: IR typical value $\leq 1.4\text{V-DC}$ 、PT $\leq 10\text{V-DC}$

额定电压：IR典型值 $\leq 1.4\text{V-DC}$ 、PT $\leq 10\text{V-DC}$ 。

4.2 Reverse Breakdown Voltage: IR=5V、PT=7V

反向击穿电压：IR=5V、PT=7V

4.3 Rated current: IR $\leq 10\text{mA}$ 、PT $\leq 2\text{mA}$

额定电流：IR $\leq 10\text{mA}$ 、PT $\leq 2\text{mA}$ 。

4.4 IR recommend current: 5-10mA

Note: During circuit design, the IR current limiting resistance must be adjusted according to the input voltage, and the PT must be fully connected after the keyboard switch handle is pressed to the bottom.

IR建议电流：扫描150us-50us/5-8mA。

注：电路设计时务必依据输入电压调整IR限流电阻，必需确保键盘开关按柄下压到底后PT完全导通。

5. Electrical performance/电气性能

5.1 Working principle/工作原理：

The switching between shielding and non shielding of the light path by the grating is used to realize the illumination or shielding of the light-emitting tube to the photosensitive tube, so as to turn on or off the photosensitive tube and turn on or off the current.

利用光栅对光路径的遮蔽量切换，实现发光管对光敏管进行光照量的改变，从而使光敏管导通量发生变化实现输出电流或电压发生变化。

5.2 Potential conversion characteristics/电位转换特性：

The test is shown in Figure1. Press the stem down at speed of one time/second and measured.

测试见图1所示，将按柄按下，速度每秒1次进行测量。

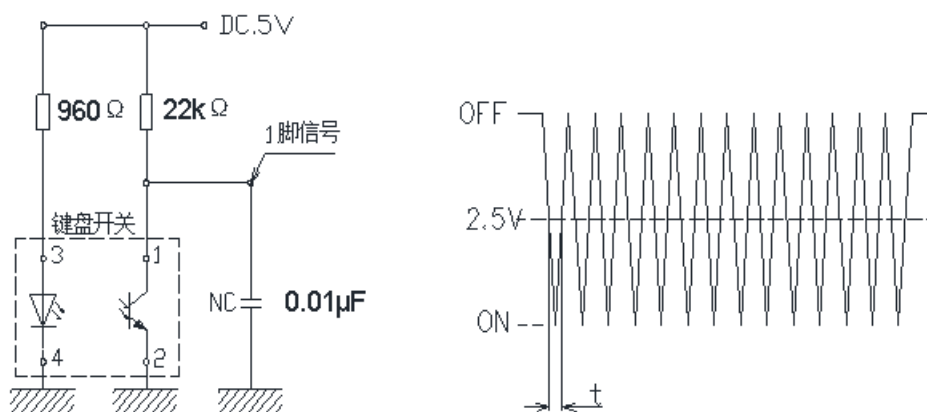


图 1

Note: ON state -- the state where the output voltage is below 2.5V;
 OFF state -- the state where the output voltage is above 2.5V.
 注：ON 状态 -- 指输出电压在2.5V 以下状态；
 OFF 状态 -- 指输出电压在2.5V 以上状态。

5.3 Output signal/输出信号:

Pin 1、2 signal output waveform is shown in Figure 5:

1、2脚信号的输出波形见图2所示:



按柄动作用	信 号	输 出 波 形
未按动按柄	1、2脚开路	
按下按柄	1、2脚导通	

图2

6. Insulation resistance/绝缘电阻

Measure the withstand voltage between non-contact pins, apply 50V DC voltage, and the insulation resistance is $\geq 50M \Omega$

在相互不接触引脚之间测量耐压强度，外加50V DC电压，绝缘电阻 $\geq 50M \Omega$ 。

7. Withstand voltage/耐压

Measure the withstand voltage strength between the non-contact pins and apply AC voltage (50V/mA) for 1 minute. There should be no breakdown, flashover, etc.

在相互不接触引脚之间测量耐压强度，外加50V/mA AC电压1分钟，应无击穿、飞弧等现象。

8. Mechanical life/机械寿命

Under no-load condition, press the stem at the speed of 3-6 times/s with the strike force < 200gf, the service life of the switch shall be ≥ 70 million times and its parameter value attenuation $\leq 30\%$

在无负载状态下，以3~6次/秒的速度，打击力<200gf的条件下按压按柄，开关寿命应 ≥ 7000 万次，其参数值衰减 $\leq 30\%$ 。

9. Solderability/可焊性

When the reflow soldering temperature of IR and PT is $240 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$, within 3s, the soldering area is $\geq 50\%$.

IR、PT在回流焊温度 $240^\circ\text{C} \pm 5^\circ\text{C}$ ，时间3s以内，爬锡面积 $\geq 50\%$ 。

10. 10. Soldering heat/耐焊接热

IR and PT shall be free of any mechanical damage and flexible in operation after $5s \pm 1s$ at reflow temperature of $260\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$.

IR、PT在回流焊温度 $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 时，时间为 $5s \pm 1s$ 作用后，应无任何机械损伤，动作应灵活。

Note: In order to ensure the stability of product performance, IR and PT must be effectively dehumidified before going online, and the external packaging bag must be removed and baked at a constant temperature of $60\text{ }^{\circ}\text{C}$ for more than 12H.

注：为确保产品性能稳定，IR、PT上线前必需有效除湿，去除外包装袋恒温 60°C 烘烤12H以上。

11. Packing method/包装方式

Packing quantity/装箱数量: 10000pcs/box

