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|  <b>XB Connectivity</b> | Doc. No.     | DSHP-A0162-07 | Page No.    | 1/8       |
|                                                                                                         | Date Issued  | 2020-04-06    | Prepared by | Josephine |
|                                                                                                         | Date revised | 2020-11-23    | checked by  | Jay       |
| <b>Product Specification</b>                                                                            | Rev. No.     | 01            | Approved by | Mei Chen  |
| <b>Title : DIP SWITCH 拨码开关</b>                                                                          |              |               |             |           |

## 1. SCOPE (适用范围)

This specification covers the performance, tests and quality requirements for the DIP SWITCH SERIES.本规范涵盖了盖拨码开关的性能、测试和质量要求。)

## 2. PRODUCT DESCRIPTION (产品描述)

| DESCRIPTION (描述)                    | Part Number (料号) |
|-------------------------------------|------------------|
| 拨码开关贴片1位,引脚间距1.27mm,SMD表面贴装U型脚 黑色壳体 | XB-DSHU-01       |
|                                     |                  |
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## 3. APPLICABLE DOCUMENT (适用文件)

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence. (下列文件构成本规范的一部分,在此规定的范围内。本规范要求与产品图纸有冲突时,以产品图纸为准。如果本规范的要求与参考文件发生冲突,应以本规范为准。)

## 4. REQUIREMENTS (要求)

### 4.1. Design and Structure (设计和结构)

Product shall be of the design, structure and physical dimensions specified on the applicable product drawing. (产品的设计、结构和物理尺寸参考所适用的产品图纸)

### 4.2. Materials/ Finish (材料/表面处理)

Materials used in the structure of product shall be as specified on the applicable product drawing. (产品结构中使用的材料参考所适用的产品图纸)

### 4.3. Ratings (额定功率)

|                                                                                                         |              |               |             |           |
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| Item (项目)                          | Standard (标准)                                      |
|------------------------------------|----------------------------------------------------|
| Contact rating (开关常切换)             | 25mA 24V DC                                        |
| Non-Contact rating (开关不常切换)        | 0.1A 50V DC                                        |
| Operating temperature range 工作温度范围 | -20°C ~ +70°C<br>From -20 to +70 degree centigrade |
| Storage Temperature Range 储存温度范围   | -30°C ~ +80°C<br>From -40 to +85 degree centigrade |

## 5.0 TEST STANDARD (测试条件)

5.1 Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows (除另有说明外,用以进行测量和测试的标准环境条件范围如下)

Ambient temperature (环境温度): 5°C to 35°C

Normal humidity (正常湿度): 45% to 85%

Air pressure (气压): 86Kpa to 106Kpa

5.2 However if doubt arises on the decision based on the measured Values under the above-mentioned Conditions. The following conditions shall be employed: (但是在对判定产生疑问时,按下述状态实施)

Temperature (温度): 20±2°C

Relative humidity (相对湿度): 65±5%

Air pressure (气压): 86Kpa to 106Kpa

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## 6.0 PERFORMANCE AND TEST DESCRIPTION (性能和测试类型)

### 6.1 APPEARANCE (外观)

| ITEM | DESCRIPTION (类型)          | TEST CONDITION (测试条件) | REQUIREMENT (要求)                                                                           |
|------|---------------------------|-----------------------|--------------------------------------------------------------------------------------------|
| 1    | <b>Appearance</b><br>(外观) | <b>Visual.</b> (目视)   | <b>Should not have any flaw<br/>Scratch discoloration and<br/>crushed</b> (无任何裂痕、刮伤、污染和变形) |

### 6.2 ELECTRICAL (电气)

| ITEM | DESCRIPTION (类型)                                                | TEST CONDITION (测试条件)                                                                                                                                                                                                     | REQUIREMENT (要求)                                      |
|------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| 2    | <b>Contact Resistance</b><br>接触电阻 (initial初始<br>值)              | <b>To be measure with AC 1KHz±200Hz<br/>(Max 20mv,Max 50mA)or 10mA,5V DC</b><br>(用 1 千赫兹±200 赫兹(在最大电压<br>200mv, 最大电流 50mA)或 10mA, 5V DC 测试)                                                                               | <b>50 mΩ Max.</b>                                     |
|      | <b>Contact Resistance</b><br>接触电阻 (after life test<br>测试后)      |                                                                                                                                                                                                                           | <b>100 mΩ Max.</b>                                    |
| 3    | <b>Insulation Resistance.</b> (绝缘电阻)                            | <b>Measurements shall be made following<br/>application of 500VDC potential between<br/>terminals and between individual<br/>terminals and frame for one minute.</b> (在<br>端子与端子之间, 端子与外壳之间施加500VDC,<br>一分钟, 测量相邻两端的绝缘电阻) | <b>100 MΩ min.</b>                                    |
| 4    | <b>Dielectric strength.</b> (耐电压)                               | <b>AC500V(50-60HZ,1mA current) being<br/>applied between all the adjacent<br/>terminals and between the terminal<br/>and frame for 1 minute</b> (在接触端子或排<br>脚之间输入 500VAC(50-60 赫兹)电压 1 分<br>钟, 感应电流为 1mA)                 | <b>There shall be no<br/>breakdown.</b><br>(无击穿、闪烁现象) |
| 5    | <b>Capacitance<br/>between adjacent<br/>switches(极际电<br/>容)</b> | <b>To be measured with frequency 1MHz±<br/>10KHz,applied between adjacent<br/>terminal and circuit</b> (频率为 1MHz±<br>10KHz 适用于相邻排脚和电路)                                                                                    | <b>5PF Max.</b>                                       |

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|                                                                                                         | Date revised | 2020-11-23    | checked by  | Jay       |
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### 6.3 MECHANICAL (机械)

| ITEM | DESCRIPTION (类型)                        | TEST CONDITION (测试条件)                                                                                                                                                                                                                                                     | REQUIREMENT (要求)                                                                                                                                                                                                                                                                                       |
|------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | Operation force<br>(操作力)                | Place the switch such that the direction of switch operation is vertical and then gradually increase the load applied to the center of the stem, the maximum load required for the stem to come to a stop shall be measured. (开关的动作方向为垂直放置开关向推柄中心逐渐地增加负荷直到推柄停止时所测量的最大负荷)  | 8N Max.                                                                                                                                                                                                                                                                                                |
| 7    | Terminal strength<br>(端子强度)             | A static load of 500gf shall be applied To the terminal for 1 minute in any direction. (在排脚前端任意一个方向加 500gf 力度测试, 时间为 1 分钟)                                                                                                                                                | Electrical characteristics shall be satisfied without damage or excessive looseness of terminals.<br>(在排脚中没有裂开. 松动等异常, 满足于机械、电器性能)                                                                                                                                                                     |
| 8    | Operation life with No load (无负载下的运动寿命) | 3000 cycle operation at a rate of 15~20 cycle/minute (15~20 回/分钟 寿命最少为 3000 次)                                                                                                                                                                                            | Contact resistance (接触电阻): Max 100mΩ<br>Insulation resistance (绝缘电阻): Min 1000mΩ with DC 500V<br>Operating force±30%gf before test No.4.1 shall Be satisfied. There shall be no defects in appearance or in the mechanical functions .<br>(动作力的变化范围在初始值的±30%以内, 满足 6. 1. 2 项无论是在外观上还是在机械功能上, 都不得有任何缺陷) |
|      | Operation life with load (负载下的运动寿命)     | 24VDC 25mA 3000 cycle operation at arate of 15~20 cycle/minute (在 DC24V 25mA 条件下, 以 15~20 回/分钟, 寿命最小 3000 次)                                                                                                                                                              |                                                                                                                                                                                                                                                                                                        |
| 9    | Vibration (振动)                          | Amplitude (全振幅): 1.5 mm<br>Sweep rate (扫描速度): 10-55-10HZ for 1 minute<br>Sweep method (扫描方式): Logarithmic frequency sweeprate (对数频率扫描速度)<br>Vibration direction (振动方向): X, Y, Z (directions 3 个方向)<br>Time (时间): Each direction 2 hours (每个方向 2 个小时)(Total 6hours 共 6 小时) | 1Kg <sup>3</sup> f                                                                                                                                                                                                                                                                                     |

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#### 6.4 ENVIRONMENTAL (环境)

| ITEM | DESCRIPTION (类型)           | TEST CONDITION (测试条件)                                                                                                                                                                                                                                                                   | REQUIREMENT (要求)                                                                                                                          |
|------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 10   | Solder ability (可焊性)       | <b>Test temperature: 245±5°C Test time :5sec During test, the stick detect temperature in the oven. Then switch terminal soak in the oven. It put 2min under normal temperature after testing.</b><br>试验温度: 245±5°C 试验时间: 5s; 试验时以测温棒检测锡炉温度; 开关端子浸入与焊锡接触, 在时间内取出; 测试后再常温下测试后再常温下静止 2 分钟 | <b>The area must be reach 90% on the surface of switch terminal</b><br>开关端子上锡面积应达到 90% 以上                                                 |
| 11   | Soldering heat test (耐焊接热) | <b>Soldering temperature (焊接温度) : 260± 5°C</b><br><b>soldering time (焊接时间) : 5 ±1 sec.</b>                                                                                                                                                                                              | <b>Without deformation of case or excessive looseness of terminals electrical characteristic shall be satisfied. (本体无变形, 能满足于机械、电器性能)</b> |

#### 7.0 SOLDERING AND CLEANING PROCESSES 焊接和清洗 :

7.1. Keep all switch contacts in their "OFF" position for all operations.

在所有操作过程中, 请确保开关在 OFF 位置

7.2. Wave soldering (波峰焊) : DIP Suggestions solder temperature at 260°C(500°F)

max.5 seconds . DIP 型推荐焊接焊锡温度为 260°C (500°F) 最多 5 秒

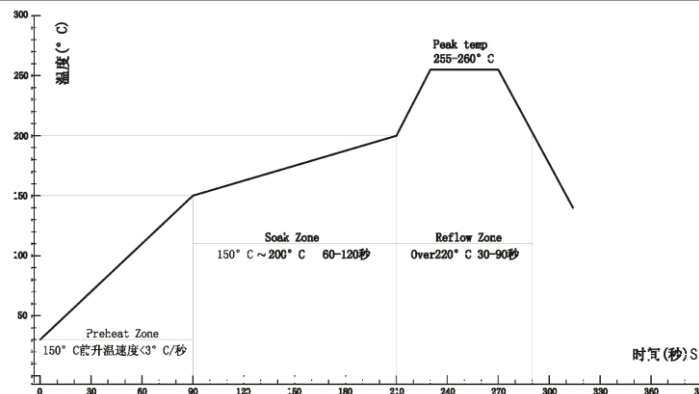
7.3. Hand soldering (手焊) : Use a soldering iron of 30 watts controlled at 350°C

approximately 5 seconds. while applying solder.

使用 30W 烙铁控制温度在 350°C, 焊接时长约 5 秒

7.4. Reflow soldering profile (回炉焊) : When the maximum temperature of the reflow furnace is 260 °C and the temperature is 260 °c. 10 seconds MAX. (reference) SMT 型回焊炉最高温度为 260°C, 温度为 260°C 时, 最长时间不超过 10 秒 (如图)

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7.5. Cleaning process: agitation or triple bath cleaning method. Freon TF or TE give excellent results, when vapor methods are used do not subject the switch to solvents at temperature above 51°C.

清洗使用超音波方式，能给予更好效果，使用蒸气方式时，温度不可超过 51°C

## 8. PACKAGING 包装

8.1. All code switches are shipped in standard IC tube （所有拨码开关产品均以 IC 管形式包装）

8.2. SMT type can be shipped in tape & reel packing, the quantity is 1000 pcs/reel （贴片型可采用盘带包装，每卷为 1000 只）

| 系列 SERIES | 开关位数 NO.of POS | 每卷装数量 PER TUBE |
|-----------|----------------|----------------|
|           | 1              | 2000           |
|           | 2              | 2000           |
|           | 3              | 2000           |
|           | 4              | 2000           |
|           | 5              | 2000           |
|           | 6              | 2000           |
|           | 7              | 2000           |
|           | 8              | 2000           |
|           | 9              | 2000           |

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|  |    |      |
|--|----|------|
|  | 10 | 2000 |
|  | 12 | 2000 |

| Rev. | Description | Date revised | Created/<br>Revised by |
|------|-------------|--------------|------------------------|
| 01   | New Release | 2021/05/16   | Josephine Lin          |
|      |             |              |                        |
|      |             |              |                        |