

# 承认书

RoHS

## SPECIFICATION FOR APPROVAL Switching power Supply/开关电源

客 户:

CUSTOMER: SparkFun

产品描述:

DESCRIPTION: Input:100~240V AC 50/60Hz Output: 12VDC0.6A

机种型号:

OUR MODEL NO: YNQX09L120060UL

样品编号:

日期:

SAMPLE NO: QX201800213

DATE: 2018-03-08

产品颜色:

SAMPLE COLOR: Black ☒ White ☐

符合环保项: ROHS ☒ REACH ☒ PAHS ☐ 17P ☐ 加州 65 ☐

APPROVAL SIGNATURE/客户确认

核准/APPROVED BY

审核/CHECKED BY

检测/TESTED BY

Manufacturer/制造商

业务/SALES

核准/APPROVED BY

设计/DESIGNED BY

Nick Lin

深圳市齐鑫电子有限公司

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深圳市齐鑫电子有限公司  
SHEN ZHEN QI XIN ELECTRONICS CO., LTD

型号/Our model: YNQX09L120060UL

客户/Customer: SparkFun

日期/Date:2018-03-08

样品编号/SAMPLE No: QX201800213

版本目录/Rev. List

| 版本/Rev. | 日期/Date    | 描述/Description | 制订/Design |
|---------|------------|----------------|-----------|
| A0      | 2018-03-08 | 新版本/New Rev.   | CM        |
|         |            |                |           |
|         |            |                |           |
|         |            |                |           |
|         |            |                |           |

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| <div>深圳市齐鑫电子有限公司</div> <div>SHEN ZHEN QI XIN ELECTRONICS CO., LTD</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 型号/Our model: YNQX09L120060UL |
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| <div>1、描述/ DESCRIPTION:</div> <div>本规格书适应于 <u>YNQX09L120060UL</u> 型号的开关电源.</div> <div>The purpose of the document is to specify the functional requirements of a 7.2W switching power supply.</div> <div>2、输入特性/INPUT CHARACTERISTICS:</div> <div>2.1 输入电压/Input Voltage:</div> <div>额定电压/Rated Voltage:100~240Vac</div> <div>调整范围/Variation Range:90-264Vac</div> <div>2.2 输入频率/Input Frequency:</div> <div>额定频率/ Rated Frequency: 50/60Hz.</div> <div>调整频率/Variation Frequency:47-63Hz</div> <div>2.3 输入电流/Input Current:</div> <div>当输入交流电压为额定值的下限电压负载满载时,最大输入交流电流 0.3A.</div> <div>0.3Amps max At any input voltage and rated, DC output rated load.</div> <div>2.4 浪涌电流/Inrush Current:</div> <div>当输出为额定负载,环境温度为 25℃,输入 240Vac 冷态起机时将不会损坏.</div> <div>No damage shall be occurred and the input fuse shall not be blown up, Cold start at 240Vac input, with rated load and 25℃ ambient.</div> <div>2.5AC 漏电流/Ac Leakage Current:</div> <div>当输入电压 240Vac 时,最大漏电流为 0.25mA.</div> <div>0.25mA Max.At240Vac input.</div> |                               |

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### 3、输出特性/OUTPUT CHARACTERISTICS:

#### 3.1 输出功率/Power output (AC:100~240V)

| 电压<br>Voltage | 最小负载<br>Min. Load | 额定负载<br>Rated. Load | 峰值功率<br>Peak | 输出功率<br>Output power |
|---------------|-------------------|---------------------|--------------|----------------------|
| 12VDC         | 0.01A             | 0.6A                |              | 7.2W                 |

#### 3.2 负载特性,调整率/Combined Load/Line Regulation (AC:100~240V)

| 电压<br>Voltage | 最小负载<br>Min. Load | 额定负载<br>Rated. Load | 线性调整<br>Line Regulation | 负载调整<br>Load Regulation |
|---------------|-------------------|---------------------|-------------------------|-------------------------|
| 12VDC         | 0.01A             | 0.6A                | ±2%                     | ±5%                     |

#### 3.3 纹波和噪音 Ripple and Noise:

测试条件:在输入 115/230Vac 25℃和输出最小及最大负载时,使用示波器带宽为 20MHz 连接到适配器的输出端,同时输出端并联一个 47uF 的电解电容和一个 0.1uF 的瓷片电容.

At 115/230Vac 25℃ input and output Min and Max.Load,the ripple and noise are as follows when measure with Max.Bandwidth of 20MHz and Parallel 47uF/0.1uF,crossed connected at testing point.

| 电压<br>Voltage | 最大纹波/最大噪音<br>Ripple and Noise(Max.) |
|---------------|-------------------------------------|
| +12VDC        | 200mV p-p                           |

#### 3.4 启动延迟时间/Turn on delay time:

当输入 115Vac 和输出最大负载时,最大启动时间为 3S.

3Second Max.at 115Vac input and output Max.load.

#### 3.5 上升时间/Rise time:

当输入 115Vac 和输出最大负载时最大时间为 40 mS.

40 mS Max.at 115Vac input and output Max load.

#### 3.6 保持时间/Hold up time:

当输入 115Vac 和输出最大负载时,最小保持时间为 5 mS .

5 mS Min.at 115Vac input and output Max.Load.

#### 3.7 过冲/Overshoot:

在电源开启或关闭的时候,最大 15%.

15% Max.When power supply at turn or turn off.

#### 3.8 效率/Efficiency:

当 115/230Vac 输入电压时, 1/4, 1/2, 3/4 和满载计算平均效率, 最小 80.01%.

80.01% Min,At 115/230Vac input voltage,1/4, 1/2, 3/4 and full load calculation average efficiency.

适配器满足能效 VI.

Adapter meet efficiency level VI.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |
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| <div>3.9 待机功耗/Standby Power:</div> <div>当输入 115Vac 60Hz 时 0.1W 最大 .</div> <div>0.1W Max. at 115Vac 60Hz Io=0 input.</div> <div>4、保护功能/PROTECTION FUNCTION:</div> <div>4.1 短路电路保护/Short circuit protection:</div> <div>该电源供给器在短路解除时能正常工作恢复.</div> <div>The power supply will be auto recovered when short circuit faults remove.</div> <div>4.2 过流保护/Over current Protection:</div> <div>过流故障排除后,电源将自动恢复正常工作.</div> <div>The power supply will be auto recovered when over current faults remove.</div> <div>5、环境要求/ENVIRONMENTAL REQUIREMET:</div> <div>5.1 工作温度/Operating Temperature:</div> <div>0℃-40℃,满载,正常工作.</div> <div>0℃ to 40℃,Full load, Normal operation.</div> <div>5.2 储藏温度/Storage Temperature:-20℃ to 60℃</div> <div>带外壳/With package</div> <div>5.3 工作湿度/Relative Humidity:</div> <div>5%(0℃)~90%(40℃),72 小时,满载,正常工作.</div> <div>5%(0℃)~90%(40℃)RH,72Hrs,Full load, Normal operating.</div> <div>5.4 振动/Vibration:</div> <div>1. 测试标准:国际电工电子委员会</div> <div>Operating: IEC 721-3-3 3M3</div> <div>5~9Hz,A=1.5mm</div> <div>加速度(9~200Hz,Acceleration 5m/S2)</div> <div>2. 运输/Transportation:</div> <div>IEC 721-3-2 2M2</div> <div>5-9Hz,A=3.5mm</div> <div>9~200Hz,加速度 Acceleration=5m/S2</div> <div>200~500Hz,加速度 Acceleration=15m/S2</div> <div>3. 轴向振动/Axes,10 cycles per axis.</div> <div>在测试过程中不能出现永久性的损坏.</div> <div>No permanent damage may occur during testing.</div> <div>在电源开启和关闭后,样机能够恢复到最初条件.</div> <div>The SAMPLE has to restore to its original situation after power off/on..</div> |                               |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                               |
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| <div>5.5 跌落试验/Dropping Packed:</div> <div>跌落高度为 1000mm;</div> <div>Drop the height is 1000mm.</div> <div>测试台面是厚 13mm 的夹木板，离地面高 19-20mm</div> <div>The horizontal surface Consists of hardwood at least 13mm thick,mounted on two layers of plywood each 19mm to 20mm thick,all supported on a concrete or equivalent non-resilient floor.</div> <div>6、安全及 EMC 要求/SAFETY AND EMC REQUIREMENT:</div> <div>6.1 安全：符合标准 UL60950</div> <div>Safety:accord standard with UL60950</div> <div>6.2 高压/DIELECTRIC STRENGTH Hi-Pot:</div> <div>初级对次级/Primary to secondary: 4242Vdc/5mA/60S for type test.</div> <div>6.3 绝缘阻抗/Iusulation resistance:</div> <div>初级对次级/Primary to secondary:20M <math>\Omega</math> min at 500V DC.</div> <div>6.4 EMI 标准/EMI STANDARD</div> <div>Meets the Limits of/测试符合</div> <div>&lt;1&gt;.Fcc part15 class B rules</div> <div>&lt;2&gt;.EN55032 class B rules</div> <div>&lt;3&gt;. GB17625.1-2012</div> <div>&lt;4&gt;.AS/NZS CISPR32:2015.</div> <div>&lt;5&gt;.IEC61000-4-5</div> <div>&lt;6&gt;.IEC61000-4-2</div> |                               |

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## 7、结构参数/MECHANICAL REQUIREMENT:

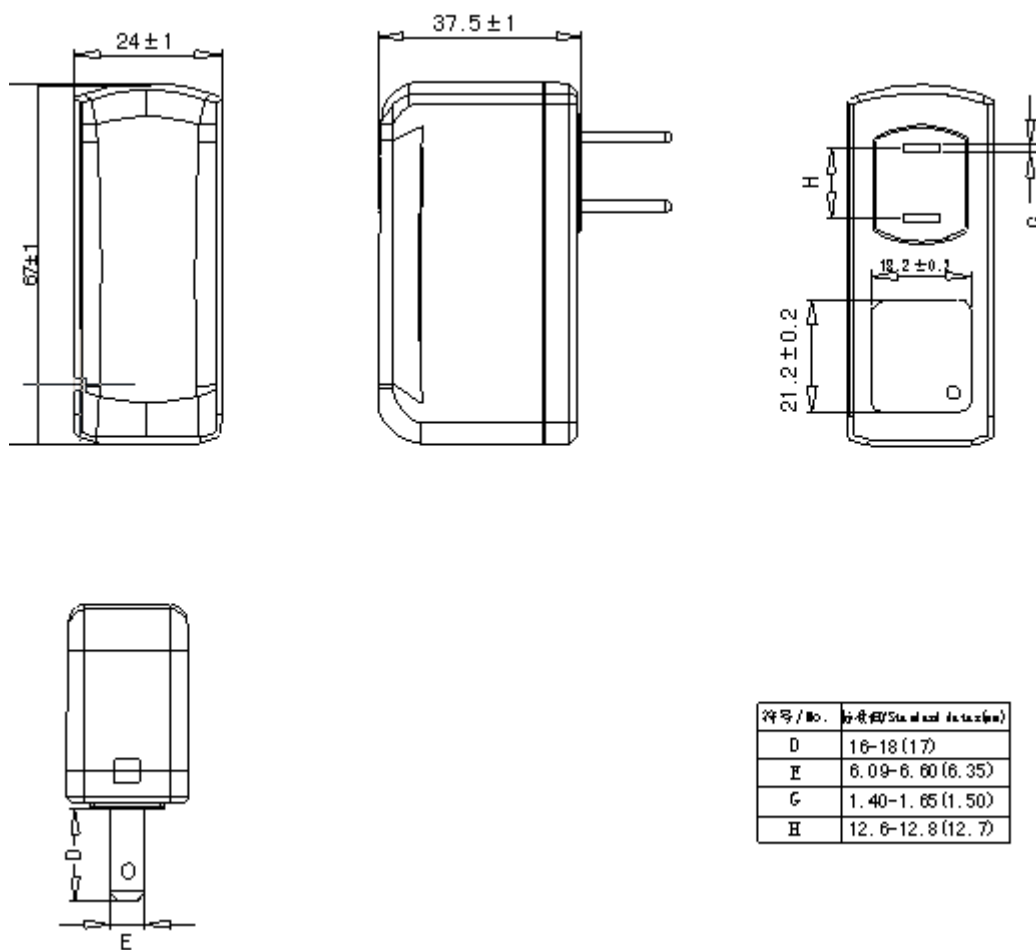
### 7.1 外壳/Enclosure:

外壳尺寸: L67 x W24 x H37.5mm;

The power supply size: L67x W24 x H37.5mm;

### 7.2 输入线/Input Connector:

2 Pin US 插脚/Two pin input plug of US.



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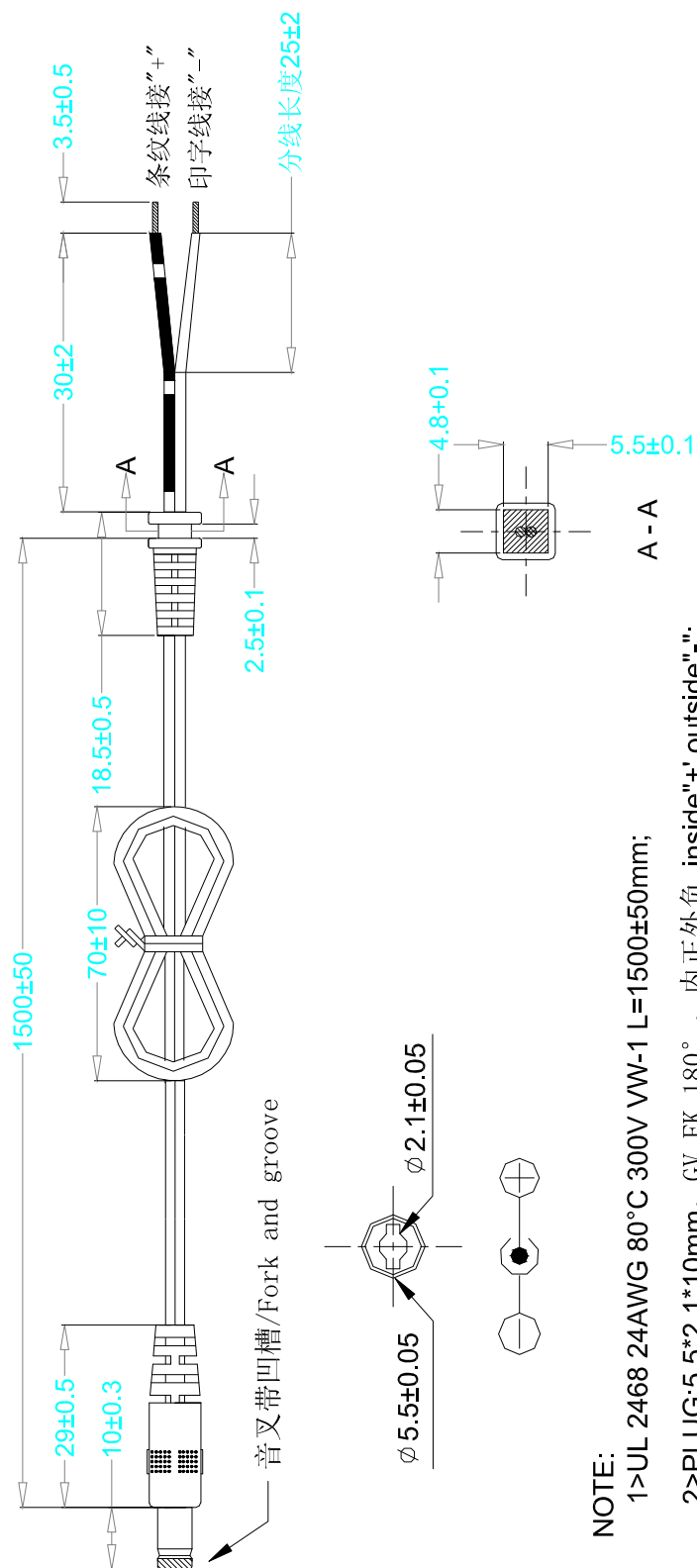
型号/Our model: YNQX09L120060UL

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## 8、线材/CORD:



### NOTE:

- 1>UL 2468 24AWG 80°C 300V VW-1 L=1500±50mm;
- 2>PLUG:5.5\*2.1\*10mm, GV FK 180°, 内正外负, inside"+" outside"-;
- 3>Color:Black;
- 4>RoHS2.0REACH\PAHS\17P\加州65.
- 5>Material:线皮: PVC.线芯: 铜.

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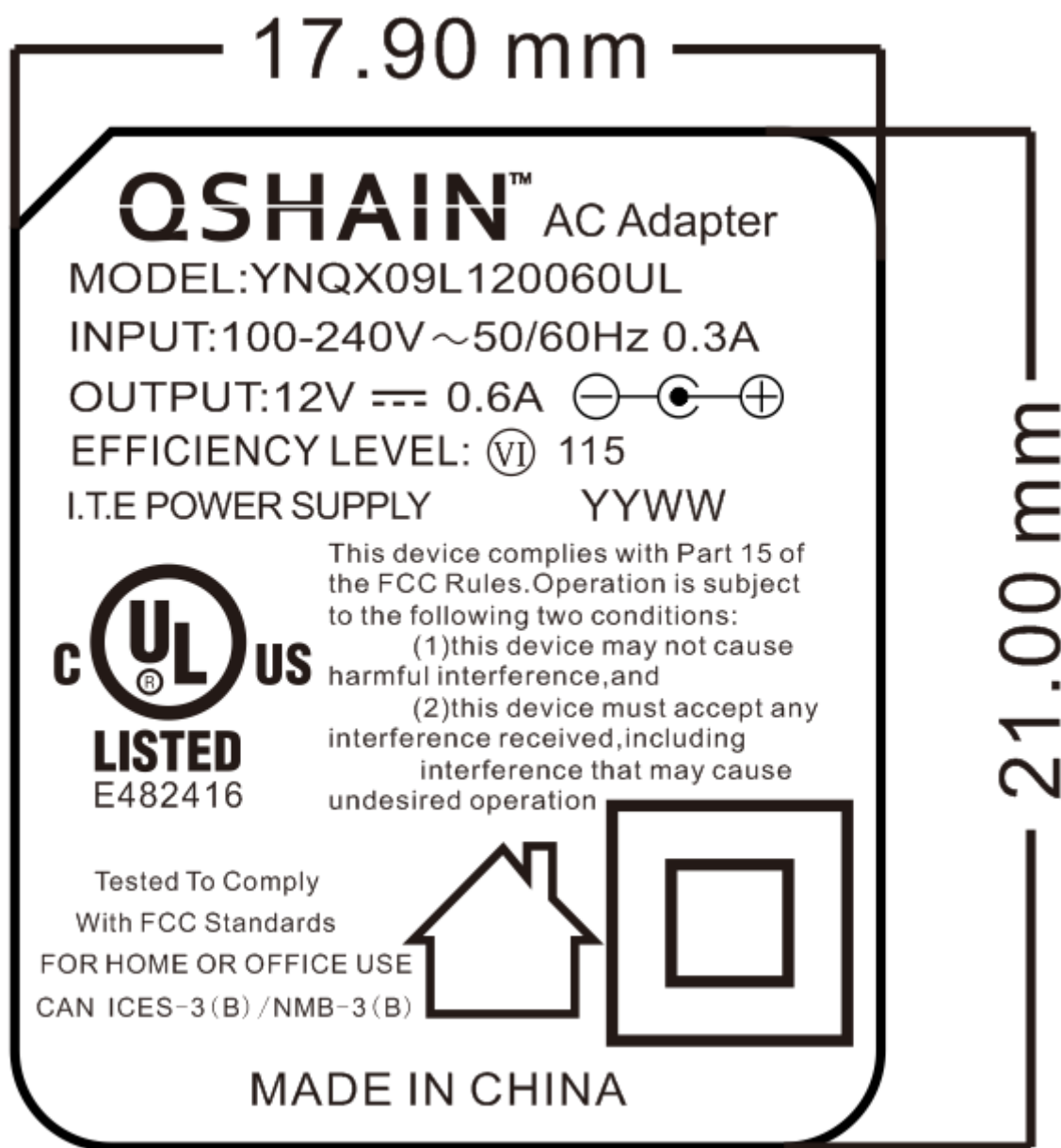
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9、铭牌/LABEL:



NOTE:

- 1.颜色/Color: 黑底白字/ Black ground white
- 2.材质/Material: PET+雾面/fog surface
- 3.厚度/Thickness: 0.25mm
- 4.误差/Toilerance: +0/-0.2mm
- 5.环保/RoHS
- 6.YYWW, YY 表示年份, WW 表示周数
- 7.此铭牌是按业务要求制作

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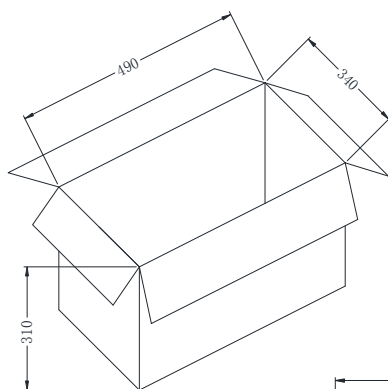
型号/Our model: YNQX09L120060UL

客户/Customer: SparkFun

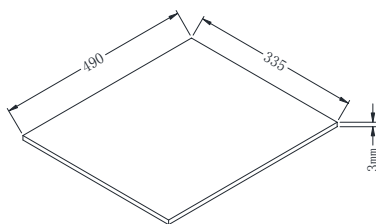
日期/Date:2018-03-08

样品编号/SAMPLE No: QX201800213

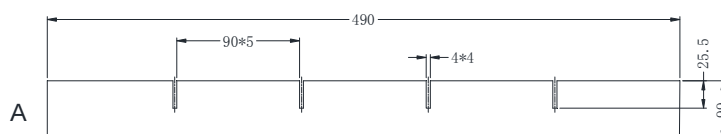
## 10、包装说明/PACKING:



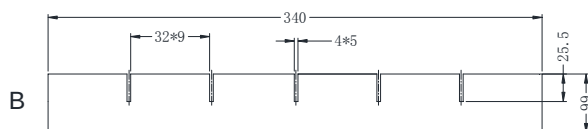
外箱/Carton



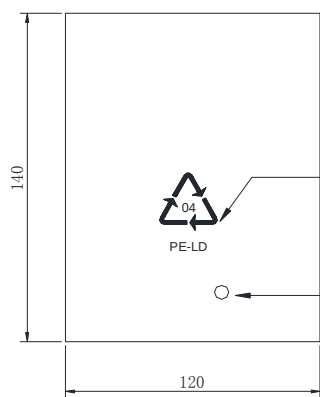
平板/Slab



A



B



胶袋/Pe bag

绿色字体/  
Green lettering

透气孔  
Breathe freely os

包材/Packing:

A:L490\*W99mm

B:L340\*W99mm

外箱内尺寸/Carton inside size :L490\*W340\*H310mm

平板/Slab:L490\*W335\*T3mm

胶袋/Pe bag:L140\*W120\*T0.03mm

数量/Quantity:135PCS/CTN

备注：此包装材料仅供参考。

|                                                                                                                                 |                                      |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <div style="text-align: center;"> <p><b>深 圳 市 齐 鑫 电 子 有 限 公 司</b></p> <p><b>SHEN ZHEN QI XIN ELECTRONICS CO.,LTD</b></p> </div> | <b>型号/Our model:</b> YNQX09L120060UL |
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样品编号/SAMPLE No: QX201800213

| No<br>序号     | Test item<br>测试项目             | Test condition<br>测试条件                                                                       | Standard spec<br>标准规格                                                                              | Test data<br>测试数据 |       |   |   |   | Unit<br>单位 | Judge<br>判定 |
|--------------|-------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------|-------|---|---|---|------------|-------------|
|              |                               |                                                                                              |                                                                                                    | 1                 | 2     | 3 | 4 | 5 |            |             |
| 1            | Output Voltage<br>输出电压        | Vin100Vac 60Hz Io=0<br>输入 100Vac 空载                                                          | 12Vdc±5%                                                                                           | 11.98             | 11.95 |   |   |   | V          | Pass        |
| 2            | Output Voltage<br>输出电压        | Vin100Vac 60HzIo=Rated Current<br>输入 100Vac 60Hz 负载                                          | 12Vdc±5%                                                                                           | 11.80             | 11.81 |   |   |   | V          | Pass        |
| 3            | Average Efficiency<br>平均效率    | Vin 115Vac 60Hz<br>输入 115Vac 60Hz                                                            | 80.01%                                                                                             | 80.58             | 80.63 |   |   |   | %          | Pass        |
| 4            | Ripple&Noise mVp-p<br>纹波&杂讯   | Vin100Vac 60Hz Full load<br>输入 100Vac 60Hz 满载                                                | 200mVp-p                                                                                           | 113               | 113   |   |   |   | mVp-p      | Pass        |
| 5            | Line Regulation<br>线性调整率      | Vin=100V~240V Io=Rated<br>Current<br>额定电流                                                    | ±2%                                                                                                | OK                | OK    |   |   |   |            | Pass        |
| 6            | Standby Power<br>待机功耗         | Vin 115Vac 60Hz Io=0<br>输入 115Vac 60Hz                                                       | 0.1W max                                                                                           | 0.05              | 0.05  |   |   |   | W          | Pass        |
| 7            | Short circuit test<br>短路测试    | Vin100Vac 60Hz<br>输入 100Vac 空载                                                               | No odor smoke fire<br>plastic deformation<br>and excessive heat<br>happen.<br>无冒烟,起火,外壳变<br>形及过热现象 | OK                | OK    |   |   |   |            | Pass        |
| 8            | OCP<br>过电流保护                  | Vin100Vac 60Hz<br>输入 100Vac                                                                  | AMax                                                                                               | 1.06              | 1.06  |   |   |   | A          |             |
| 9            | Output Voltage<br>输出电压        |                                                                                              | 12Vdc±5%                                                                                           | 11.98             | 11.95 |   |   |   | V          | Pass        |
| 10           | Output Voltage<br>输出电压        | Vin240Vac 50HzIo=Rated Current<br>输入 240Vac 60Hz 负载                                          | 12Vdc±5%                                                                                           | 11.80             | 11.81 |   |   |   | V          | Pass        |
| 11           | Average Efficiency<br>平均效率    | Vin230Vac 50Hz<br>输入 230Vac 50Hz                                                             | 80.01%                                                                                             | 80.67             | 80.72 |   |   |   | %          | Pass        |
| 12           | Ripple & Noise mVp-p<br>纹波&杂讯 | Vin240Vac 50Hz Full load<br>输入 240Vac 50Hz 额定电流                                              | 200mVp-p                                                                                           | 112               | 112   |   |   |   | mVp-p      | Pass        |
| 13           | Line Regulation<br>线性调整率      | Vin=100V~240V Io=Rated<br>Current<br>输入 100V~240V                                            | ±2%                                                                                                | OK                | OK    |   |   |   |            | Pass        |
| 14           | Standby Power<br>待机功耗         | Vin230Vac 50Hz Io=0<br>输入 230V 50Hz                                                          |                                                                                                    |                   |       |   |   |   | W          | Pass        |
| 15           | Short circuit test<br>短路测试    | Vin240Vac 50Hz<br>输入 240Vac 50Hz                                                             | No odor smoke fire<br>plastic deformation<br>and excessive heat<br>happen.<br>无冒烟,起火,外壳变<br>形及过热现象 | OK                | OK    |   |   |   |            | Pass        |
| 16           | OCP<br>过电流保护                  | Vin230Vac 50Hz<br>输入 230Vac 50Hz                                                             | AMax                                                                                               | 1.04              | 1.04  |   |   |   | A          |             |
| 17           | Hi-pot test<br>高压测试           | 高压 /DIELECTRIC STRENGTH Hi-Pot: 初级对次级<br>/Primary to secondary:4242Vdc/5mA/60S for type test |                                                                                                    | OK                | OK    |   |   |   |            | Pass        |
| 18           | Burn in<br>老化                 | Input:220Vac/50Hz Full Load 4hrs<br>输入 220Vac/50Hz 满载 4 小时                                   |                                                                                                    | OK                | OK    |   |   |   |            | Pass        |
| 19           | Drop test<br>跌落               | Heigh:1m Three*fes(once on each plane)<br>高 1 米,3 个面,每面 1 次.                                 |                                                                                                    | OK                | OK    |   |   |   |            | Pass        |
| REMARK<br>备注 |                               |                                                                                              |                                                                                                    |                   |       |   |   |   |            |             |

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