

ShenZhen TengShun Power Supply Co.,Ltd

## 规格书

### **SPECIFICATION FOR APPROVAL**

客户名/Customer: \_\_\_\_\_  
客户型号/Customer Model No.: \_\_\_\_\_  
敝司型号/MDA Model No.: TS-2012H  
敝司代号MDA Part No.: K/LAD001  
描述/Description: 5S 21V1000mA Li-ion Battery Charger  
版本/Revision: \_\_\_\_\_  
日期/Date : 2016-1-21

批准/Approved by	检查/Checked by	制作/Prepared by
Jerry	Jack	Baccery

客户确认/CUSTOMER APPROVAL		

**PRODUCT SPECIFICATION**

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## **PRODUCT SPECIFICATION**

### 1.0 简介/INTRODUCTION

此份是AC转DC单路输出的开关电源规格书, 产品总输出功率为 21.0W  
 The document specifies the AC/DC switching mode charger with one output,  
 The total output power is 21.0W Max.  
 产品符合欧盟的ROHS要求.  
 The unit meet ROHS directive of the European Union.

### 2.0 输入特性/INPUT CHARACTERISTICS

- |                                  |                                 |
|----------------------------------|---------------------------------|
| 2.1 输入电压标称值/Input Voltage:       | <u>AC100-240V 2-pin EU Plug</u> |
| 输入电压范围/Input Voltage Range:      | <u>AC 90-264V</u>               |
| 2.2 输入电流/Input Current:          | <u>0.4AMax @ 220-240Vac</u>     |
| 2.3 工作频率/Operating Frequency:    | <u>50/60 Hz</u>                 |
| 频率范围/Operating Frequency Range:  | <u>47-63 Hz</u>                 |
| 2.4 浪涌电流/In-Rush Current:        | <u>20A@ AC220V full load</u>    |
| 2.5 空载功耗/Input power (no load) : | <u>&lt;0.3A □</u>               |

### 3.0 输出特性/OUTPUT CHARACTERISTICS

#### 3.1 Output Voltage @AC100-240V

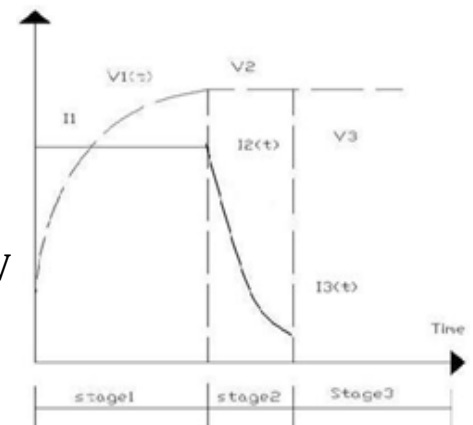
- A. Voltage at no load:      **21.0V@ AC110V**
- B. Rated Charge current: **1000mA@ AC100-240V**

#### 3.2 Charge Mode:(CC---CV)

- A. CC Mode:   Constant current:1000mA   Battery Voltage:16-20.8V
- B. CV Mode:   Constant voltage: 20.8-21.0Vdc, Current: 1A down to 0.15A

#### 3.3 Led Display

- No Load/Fully charged:   **Green Led**
- In Charging:                **Red Led**



## PRODUCT SPECIFICATION

### Led Display for State

1. Connect with AC main power,Led displays Green,means Charger works properly.
2. Output Part Connects with DC load,Led Green turns to Red,start charging. Charging Mode:CC(Constant current:1A)---CV(Constant Voltage:20.7-21V)
3. Red Led turning to Green, battery is charged fully, current down to trickle current: 150mA, one detect current for red led turning to green.

3.4 纹波/Ripple and Noise : <180mV<sub>p-p</sub>max.@ AC220V

(CV=21.0V) No load

用示波器测试输出纹波,示波器需调到20MHz的带宽档,并在负载端并联一个0.1uF的瓷片电容和一个10uF的电解电容.

The measurement for differential ripple and noise the output will be using oscilloscope, with 20MHz bandwidth. A 10uF electrolytic capacitor and a 0.1uF ceramic capacitor should be parallel with output load.

3.5 效率/Efficiency: 78% min. @ AC220V full load

### 4.0 保护功能/PROTECTION FUNCTION

4.1 Over-current Protection: <1000mA @AC 220V 50HZ

4.2 Short-circuit Protection:

When the output pins is in short circuit,the Red led will keep flashing or disappear, and input drain power less than 0.5watts,Remove the faulty process, charger recovers automatically,and no any damage

4.3 Over-load Protection:

Battery load is beyong to max power of charger,then stop charge. Red led turning to Green.

4.4 Polarity Reverse Protection

Output Polarity in reverse,led is off,but no burn for charger.

### 5.0 环境测试/ENVIRONMENTAL CONDITION

5.1 贮存环境/Non-operation

5.1.1 环境温度/Ambient temperature : -20-60 °C

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5.1.2 环境湿度/Relative humidity 5-65 %

产品能在上述环境中长期存放,并不会影响电气/机械性能及后续运作.  
The power supply shall be capable of withstanding the above environmental conditions for extended periods of time, without sustaining electrical and/or mechanical damage and subsequently operational deficiencies.

5.2 运行环境/Operating

5.2.1 环境温度/Ambient temperature : 0-40 °C

5.2.2 环境湿度/Relative humidity : 5-65%

产品能在上述条件下持续运作而不影响电气/机械性能.  
The power supply shall be capable of operating continuously in any mode without performance deterioration in the above environmental condition.

5.2.3 温升测试/T rise : 温度上升 $\leq 48^{\circ}\text{C}$

环境温度 $25\pm 2^{\circ}\text{C}$ ,以1.0A负载工作4小时,测量可能会被接触到的充电器的外表面温度直至获得最大温度,要求温升最高不超过 $50^{\circ}\text{C}$ 。

at a environment temperature of  $25 \pm 2^{\circ}\text{C}$  ,1.0A load For 4 hours measure central section of surface ,T rise max value  $\leq 48^{\circ}\text{C}$  .

6.0 可靠性及品质控制/RELIABILITY AND QUALITY CONTROL

6.1 煲机/Burn-in

6.1.1 煲机环境温度 40 °C  
/Burn-in Ambient temperature

6.1.2 煲机时间/Burn-in Time : 4hr.

6.2 跌落测试/Drop Test

将被测品从1000mm的高度跌落,跌三次,跌落承接面为3.2mm厚的硬木板上,硬木板铺设在水泥地板上,跌落后产品无电气/机械/安规上的性能不符合现象.

Dropped the specimen from 1000mm height, 3 times onto a hardwood floor at least 3.2 mm thick vinyl tile . There shall be no problem on appearance, structure, performance and safety.

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6.3 振动测试/Vibration and Shock

产品应能承受在正常运输中的振动,参照MIL-STD-810D 514.3项  
目录1程序I

The power supply shall be designed to withstand normal transportation  
vibration per MIL-STD-810D method 514.3 CAT1 Proc I.

6.4 平均无故障时间/MTBF

平均无故障时间Mean Time Between: 50,000 hr.@ 25°C

7.0 安规及电磁兼容/SAFETY AND EMC STANDARD

7.1 安规标准/Safety standard : UL60950

7.2 电磁兼容标准/EMC Standard : EN55022 EN55024

7.3 高压测试/Dielectric strength

初级对次级/Primary to secondary : AC3000V 5S Cut off current 5mA

7.4 绝缘电阻/Insulation resistance

初级对次级/Primary to secondary : ≥20MΩ Apply DC 500V

在40°C温度90%的湿度环境下6小时, 绝缘阻抗时不低于20MΩ

After store in 40 °C temperature and 65% humidity 6 hours, the insulation  
of primary to secondary is more than 20M OHM.

8.0 机械结构MECHANICAL

8.1 输出DC线/Output DC Cord

8.1.1 DC线材/Output cord: 2464 22AWG 1.2m Cable

8.1.2 DC插头/Output plug type: DC Jack: 5.5\*2.1\*10mm

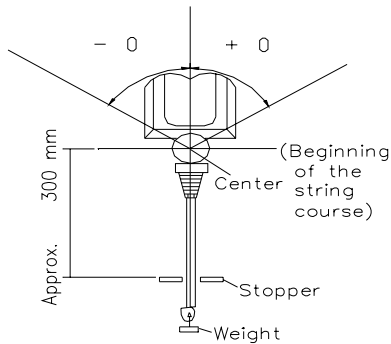
8.1.3 DC插头极性/Output plug polarity centre:+ outside:-

MDA Model No.:	Revision:
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### 8.1.4 摇摆测试/Flexibility test

SR: 800 Cycles, loading 200g

DC Plug: 800Cycles, loading 200g



摇摆角度为  $\pm 60^\circ$ , 20次/分钟, 断线率低于30%并且无外观损伤。

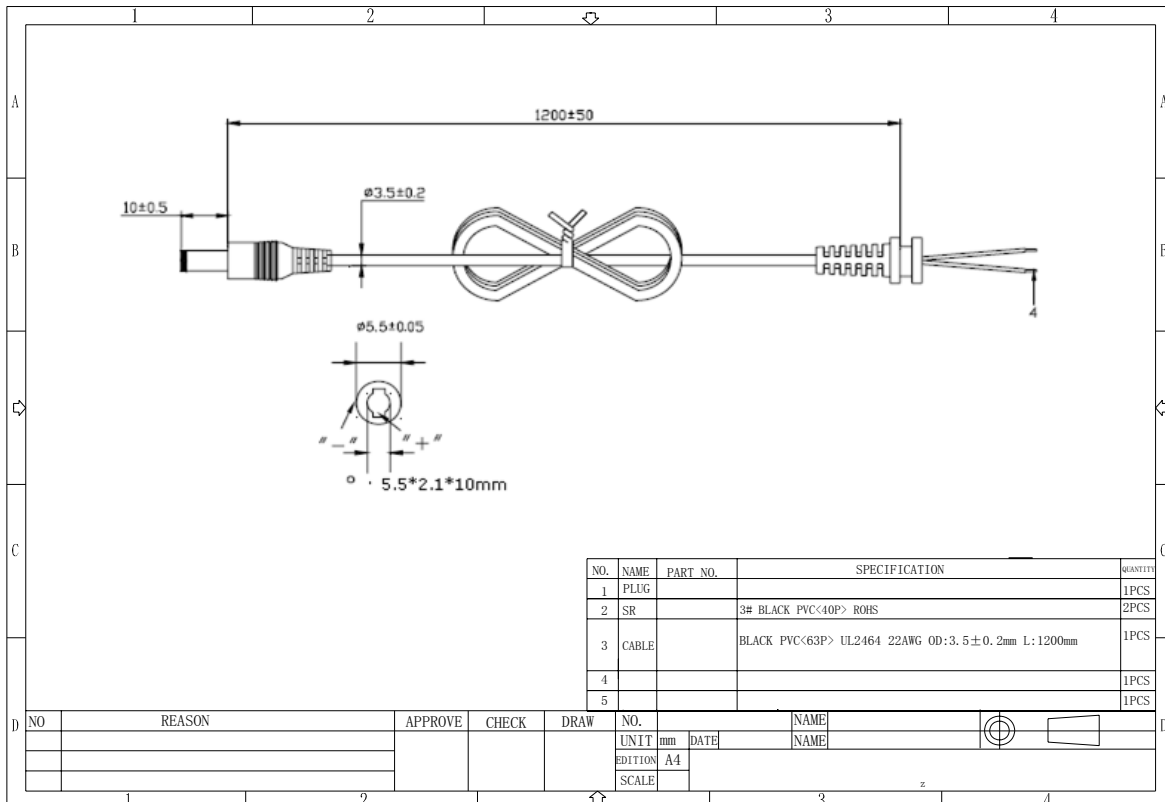
Bend in obverse at rate 20 time/min. and at an angle of  $\pm 60^\circ$ . Disconnection rate of the wire shall be 30% or less.and no abnormality on appearance.

### 8.1.5 拉力测试/Pull test

固定DC头,吊重3KG 60秒,无外观损伤。

Fixed both DC cord plug and bush and a static load of 20P shall be applied and sustained for 60s. There shall be no abnormality on the DC cord.

### 8.1.6 DC线图示/DC Cord Diagram



# ShenZhen TengShun Power Supply Co.,Ltd



Case Size: 93\*46\*35mm

## Li-ion Charger

Model: TS-2012H

Input: 100-240Vac~  
50/60Hz 0.4A Max

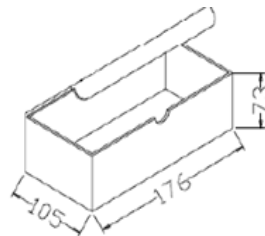
Output: 21Vdc 1000mA



Made In China

Label Size: 23.5\*32mm

1.内纸盒



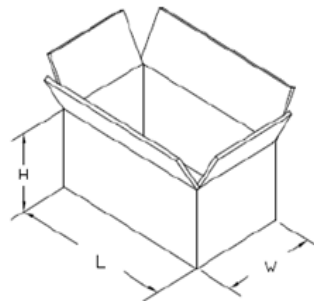
box

Chamber

PE Bag

Other

2.外纸箱



包装描述/Packing description:

	长/L	宽/W	高/H
尺寸/Size (cm)	50	44	33
公差/Tolerance	+2/-0	+2/-0	+2/-0
数量/QTY(pcs)	100pcs/ctn		
毛重/G.W.(Kg)			

### 5S 21V1000mA Li-ion Battery Charger Information:

Input: 100-240VAC 50/60Hz

Input Plug: 2-pin EU Power Plugs

Output Voltage at no load: 21Vdc

Charge Mode: CC---CV Mode

CC Mode: current: 1000mA voltage: 16-20.8V

CV Mode: current 1000mA in decreasing until 150mA, voltage: 20.8-21V

Led display: Green: No load/Full charge

Red: Finish charge/no load

DC Jack: 5.5\*2.1\*10mm DC cable: 2464 22AWG cable 1.2m

Weight: 0.16kg/pcs

Package: 100pcs/carton 18-18.5kg/Ctn Carton size: 50\*44\*233cm

Safe Protection: Over-current, Over-load, Short-circuit, Polarity Reverse protection