

东莞市商旗电子有限公司

Dong guan SUNTECH Electricity Co. Ltd.

规格承认书

SPECIFICATION FOR APPROVAL

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Description: [The five-speed adjustable voltage drop line 5v2a is 1.5 meters+3.5 meters long ; TYPE C Straight head](#)
[五档可调降压线 5V/2A 线长 1.5 米+3.5 米; TYPE C 直头](#)

Model: [ST-CH1900L-T1](#)

Page : [11](#)

Customer approval

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1.0 适用范围 Scope

本规格（充电器）适用于 5.0V-2A 的充电器

This Specification applies to 5.0V-2A car charger

2.0 引用标准 Reference Standard

CCC(GB4943-2001/GB9254-1998/GB17625.1-2003)

2.1 GB2423.1-89 电工电子产品基本环境实验规程 实验 A: 低温实验方法。

GB2423.1-89 Electrical Engineering Electric Product basic environmental test procedures experiment

A: Low Temp experiment methods.

2.2. GB2423.2-89 电工电子产品基本环境实验规程 实验 B: 高温实验方法。

GB2423.2-89 Electrical Engineering Electric Product basic environmental test procedures experiment

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2.3. GB2423.8-81 电工电子产品基本环境实验规程 实验 Ed: 自由跌落实验方法。

GB2423.8-81 Electrical Engineering Electric Product basic environmental test procedures experiment

test Ed: Free drop test method

2.4. GB/T2423.9-93 电工电子产品基本环境实验规程 实验 Cb 设备用恒定湿热实验方法。

GB/T2423.9-93 Electrical Engineering Electric Product basic environmental test procedures experiment

test Cb: devices with a constant warm experimental methods.

2.5. GB/T2423.10-1995 电工电子产品基本环境实验规程 实验 Fc: 振动实验方法。

GB/T2423.10-1995 new electrical and electronic products environmental test procedures

test Fc: vibration test method

3.0 电气特性 Electrical Characteristics

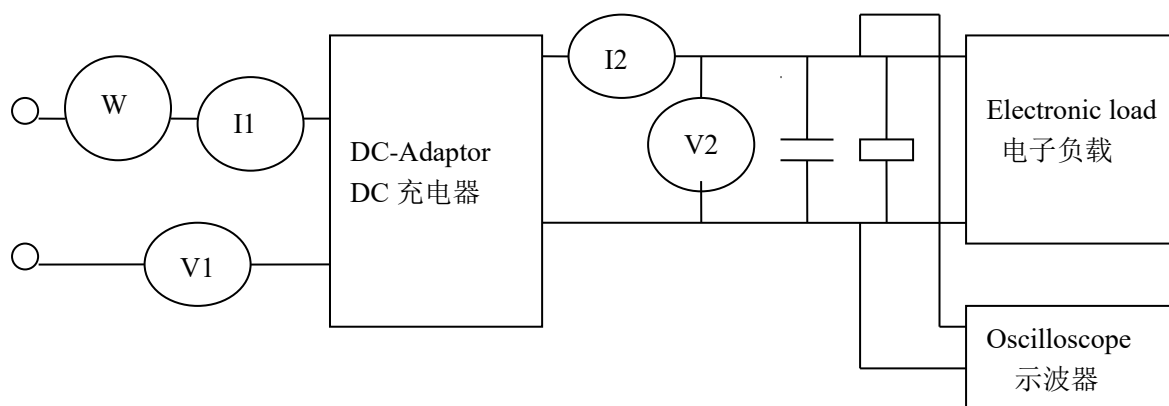
测试电路

无特殊规定的情况下依照下面的电路进行测试。

In the absence of special provisions, follow the circuit below to test.

W: 输入功率/ I1 输入电流/ V1 输入电压/ I2 代表输出电流/V2 代表输出电压。

W: The input power/ I1 input current/V1 input voltage/I2 representative output current of /V2 representative output voltage.



4.0 输入特性 Input Characteristics

4.1 额定输入电压 Rated Input Voltage

1. 额定输入直流电压 12V~24V

Rated Input DC: 12V~24V

2. ACC 触发启动

ACC triggers start

3. ACC 延时 3-5 秒

ACC delays 3-5 seconds

4.2 直流输入电流 DC Input Current

输入电流 2000mA(Max)

Max. Input Current: 2000mA

4.3 效率 Efficiency

在输入直流电压 12V-24V,输出最大负荷下,充电器工作效率大于 70%

When the input DC voltage is 12V-24V and the output maximum load, the working efficiency of the charger is greater than 70%

4.4 低电压保护 Down Voltage Protection

1.输入电压低于(小车: 11.9V±0.15V/大车: 23.9V±0.15V) IC 自动进行保护不工作,无 5V 输出,低电压保护延时 6 分钟。

Input voltage is lower than (small car: 11.9V±0.3V/ large car: 23.9V±0.3V) IC automatic protection does not work, no 5V output, low voltage protection delay of 6 minutes.

2. 此产品共四组低电压可调保护电压,另外可设置停车保护时间。

低电保护电压分别为: 1、11.6V/23.6V; 2、11.9V/23.9V; 3、12.2V/24.2V; 4、12.5V/24.5V
停车保护时间分别为: 1 小时, 2 小时, 4 小时, 6 小时, 12 小时, 24 小时。

详细设置方法请参照规格书 14.0 操作说明

This product has four sets of low voltage adjustable protection voltage, and can set the stop protection time.

The low voltage protection voltage is 1、11.6V /23.6V; 2、11.9V /23.9V; 3、12.2V /24.2V; 4、12.5V /24.5V.

The parking protection time is: 1 hour, 2 hours, 4 hours, 6 hours, 12 hours, 24 hours.

For details, refer to 14.0 Operation instructions in the specification.

3、LED 指示灯 The LED light

启动工作状态亮绿灯,保护状态亮红灯。

The green light is on in startup state, and the red light is on in protection state

5.0 输出特性 Output Characteristics

5.1 输出额定电压 Rated Output Voltage

额定输出直流电压 5.0V,刚连接电源车充空载电压在 5.6 左右,在瞬间会降至 5V

Rated output DC voltage : 5.0V, in connecting to power supplies, No - load voltage about 5.6V,for a moment it reduce to 5V.

5.2 输出电压范围 Output Voltage range:

空载输出电压范围: 4.8-5.5V

No load output voltage range: 4.8-5.5V

满载输出电压范围: 4.8-5.25V

Full load output voltage range: 4.8-5.25V

5.3 额定输出电流 Rated output current

在 CC 模式下额定输出电流 2A.

The rated output current under CC working mode is 2A

5.4 额定功率 Rated Power

输出功率在 10W

Rated output power is 10W

5.5 充电器输出电压/电流特性 Charger output voltage / Current characteristics

根据实际测试输出. According to the actual testing output

5.6 输出纹波、噪音 Output Ripple, Noise

输出端并 0.1uF 瓷片电容与 10uF 电解电容,限制示波器带宽 20MHz 时,测得纹波小于 150mV p-p

The output capacitor 0.1uF and 10uF, 20MHz oscilloscope bandwidth limit when measured ripple of less than 150mV p-p

5.7 启动延时 Start-up Delay

在额定输入电压下充电器启动延时时间为 3-5 秒

The starting delay time of the charger at the rated input voltage is equal to 3-5 seconds

5.8 保护 Protection

5.8.1 过流保护 Over Current Protection

在输入直流电压 12-24V 时, IC 内置过流保护, 输出过流保护电流为:3.1A±0.2A

In dc voltage 12-24V input, IC built-in overcurrent protection, output overcurrent protection current: 3.1A ± 0.2A

5.8.2 短路保护 Short-circuit Protection

输出短路后不损坏该制品, 短路解除时能恢复正常输出.

Output short circuit does not damage the product, normal output can be restored when short circuit is removed.

5.8.3 过压保护. Over Voltage Protection

输出通过主芯片来控制过压保护:当输入电压数值达到 33V±2V 时, 主芯片启动过压保护功能.

Over voltage protection is controlled by the main chip. When the input voltage reaches 33V ± 2V, the main. chip starts the over voltage protection function.

5.9 输出电压自动补偿保护 Output Voltage Auto. Self Compensation Protection

本车载充电器专门针对由于输出导线较长在大电流输出时导线损耗电压过高, 输出端电性参数无法达到要求而增加了导线损耗补偿功能, 因此本车充在大电流输出时(当输出电流为 2A 时输出电压会从 4.65V 逐步调节到 5.3V Max) 达到输出电性能参数符合设计要求; 因此本车充在通电开始带上负载后的几秒钟出现电压小幅度上升是正常现象。

The car charger is specially designed to increase the wire loss compensation function because the output wire is long and the wire loss voltage is too high in the high current output, and the electrical parameters of the output end cannot meet the requirements. Therefore, when the car is charged with high current output (when the output current is 2a, the output voltage will be gradually adjusted from 4.65V to 5.3V Max), the output electrical performance parameters meet the design requirements; Therefore, it is normal for the voltage to rise slightly in a few seconds after the car is charged with the load.

6.0 可靠性项目 Reliability

6.1 静电 Statics

在接触放电±4KV 和空气中放电±8KV 模式下, 各处分别放电 10 次无误动作

In the mode of contact discharge ±4KV and air discharge ±8KV, 10 times of discharge are correct

6.2 温升 Temperature Rise

在常温 25°C 下输入端施加 12V-24V DC 电压, 输出 2A 负荷的状态下, 工作 24 小时。外壳表面温升

65°C 以下 ambient temperature 25 °C at the input voltage of 12V-24Vdc, USB output load 2.0A with

6.3 连续工作时间 Constant Working Time

constant 24 . Hours working, the case surface temperature below 65 °C

在输入额定电压和输出电流 2A 的条件下, 连续工作 96 小时, 不损坏充电器。

When rated input voltage and output current is 2A, no damage occurred to the charger after 96 hours continuous working.

6.4 平均无故障时间 MTBF

该充电器在常温 25°C 正常输入时, 输出为 80% 最大负载, 90% 情况下其平均无故障时间为 5000 小时。
The charger outputs 80% of the maximum load at normal input at 25°C at room temperature and

has an average trouble-free time of 5000 hours in 90% of cases.

6.5 EMI 标准 EMI Standard

产品设计满足 CE 要求。

Designed to meet CE.

7.0 环境要求 Environment Requirement

7.1 工作温度 Working Temp.

-20°C to +60°C

7.2 储藏温度 Storage Temp.

-20°C to +70°C

7.3 工作湿度 Working Humidity

35°C ~ 85% RH.

7.4 储藏湿度 Storage Humidity

5°C ~ 95% RH.

8.0 机械要求 Mechanics

8.1 尺寸 Dimension

(L) 54*(W)39*(H)21mm

8.2 重量 Weight

0.153Kg

8.3 输入插头类型 Type of input plug

黄线 B+、红线 ACC、黑线 GND(1.5 米) 20AWG 三芯线, 脱皮浸锡

Yellow line B+, red line ACC, black line GND(1.5 m) 20AWG three-core wire, peeling and dipped

tin

8.4 输出线材与接口类型 Type of output wire and interface

3.5 米 PVC 线 硬度 65P 22AWG 三芯线 导体构成: 0.16*17 铜线, 黑色 OD: 3.8mm

3.5m PVC wire hardness 65P 22AWG three core conductor composition: 0.16*17 copper wire, black OD: 3.8mm

输出插头: TYPE C 直头

PLUG: TYPE C Straight head

8.5 振动试验 Vibration Test

在包装好不工作的情况下实验, 具体参照 IEC publ.68-2-6 标准

To be tested in conditions where packing does not work, in accordance with IEC Publ.68-2-6

测试条件 Test Conditions		规格 Specification
振动频率 Vibration frequency	10~55Hz	不发生功能损坏的异常情况 Abnormal function of damage does not occur
振动方式 Vibration mode	每一个部件 2 小时 (X,Y,Z) Each member 2 hours (X, Y, Z)	
加速度 Acceleration	0.6G 1.5G (5~50Hz Max)	
振幅 Amplitude	0.35 mm(5~50Hz)	

8.6 弯曲强度测试 Flexural strength test

拉重负载: 200g,弯曲强度: $\pm 60^\circ$, 次数: 大于 2000 次, 频率: 40 次/分, 测试后性能无异常, 断线率 30%以下

Pull a heavy load: 200g, bending strength: $\pm 60^\circ$, times: 2000 times, frequency: 40 beats / min, after the test performance is normal, break rate of 30% or less

8.7 拉伸强度 Tensile strength

对连接器端施加 10N 1 分钟后与实验前状态比较, 没有机械破坏等, 且不出现电器性能损坏

In applied to the connector end compared with the state before the experiment 10N 1 minute, no mechanical damage, etc., and does not damage the electrical properties occur.

8.8 跌落试验 Drop Test

制品从 120CM 处落下 3 次, 落下的方向任意, 落在硬地板上, 实验后与实验前状态比较没有机械破损等不良状况, 且不出现电器性能损坏。

Products drops from 120cm at Three times by arbitrary direction, fell on rigid floor before the experiment after experiment compared with the state without mechanical damage and other adverse conditions, and does not appear damaged electrical properties

8.9 插拔实验 Plug experiment

插头与连接器经正常插拔 10 次, 插头每次插入力度不大于 30N, 拔出力在 7~50N 之间, 可持续拔插 1500 次。外观允许有轻度损伤, 但导通性能良好。

The plug and connector can be plugged and unplugged for 10 times, with each insertion force not more than 30N and the pulling force between 7 and 50N. The plug and connector can be plugged and unplugged for 1500 times. Appearance allows slight damage, but good conduction performance.

8.10 五金件盐雾实验 Metal Parts Salt Spray test

盐雾试验要求: 调制 (工业盐) 盐水的浓度为 5%, 设备温度设置为 35~40°C, 充电器不包装, 放

入盐雾试验设备中持续喷雾 12 小时, 试验结束后取出, 在常温下搁置 12 小时, 再检查充电器外观; Salt spray test requirements: the concentration of modulation (industrial salt) brine is 5%, the

temperature of the equipment is set at 35 ~ 40°C, the charger is not packaged, put into the salt spray test equipment for continuous spraying for 12 hours, take out after the test, put in storage at room temperature for 12 hours, and then check the appearance of the charger; It is required that exposed metal and electroplated parts do not rust.

9.0 机械性能 Mechanics

目视检查: 无外观异常, 表面无明显划痕、毛刺及其它机械损伤, 外露金属部分无锈。

9.1 Visual inspection: no abnormal appearance, no obvious scratches, burrs and other mechanical damage on the surface, and no rust on the exposed metal part.

9.2 外壳材质 Case Material

环保工程塑料 ABS 耐燃性遵循 UL94V-0 以上

Eco-friendly plastic ABS, Flammability UL94V-0 or above

10.0 环境性能 Environmental Characteristics

10.1 低温工作实验 Low Temperature Working Experiment

环境温度 -20°C, 在输入端施加电压 12-24V DC, 输出 5V 电充 2A 工作 8 小时无异常

Ambient temperature -5°C, the input voltage applied to the 12-24V DC, the output of 5.0V electric charge

10.2 高温工作实验 High Temperature Working Experiment

环境温度 60°C, 在输入端施加电压 12-24V DC, 输出 5V 电充 2A 工作 8 小时无异常

Ambient temperature 60°C, the input voltage applied to the 12-24V DC, the output 5.0V

10.3 低温放置 Low Temperature Placement exception

在-20±2°C非工作状态下进行试验, 试验后常温放置4小时后测试无异常
 The test was carried out under the non-working condition of -20±2°C. After the test, no abnormality was found in the test after 4 hours at room temperature

10.4 高温放置 High Temperature Placement

在60±2°C非工作状态下进行试验, 试验后常温放置4小时后测试无异常
 The test was carried out at 60±2°C in non-operating state, and no abnormality was found after 4 hours at room temperature after the test.

10.5 通电高温湿度放置 Powered high temperature and high humidity place

在60°C, 90~95%RH, 加电状态下, 试验后常放置4小时后测试无异常
 At 60°C, 90~95%RH, under the state of power, the test is usually placed for 4 hours after testing no abnormality

10.6 通电低温低湿度放置 Powered low temperature and low humidity place

在-5°C, 10%~40%RH, 加电状态下, 试验后常放置4小时后测试无异常
 At -5°C, 10%~40%RH, under the state of power, the test is usually placed for 4 hours after testing no abnormality.

11.0 安规、关键部品清单 List of key components

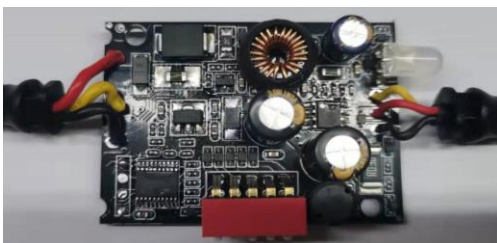
11.1 部品清单 Safety Key Components List

序号 No.	部 EMC 品 名 Ministry of EMC Name	规格 Specification	用量 Q'TY	位号 Bit No.	备注 Remark
1	保险管 Fuse	4A/72V	1		
2	PCB	T=1.2mm FR-4	1		
3	TOP CASE	ABS	1		
4	BOTTOM CASE	ABS	1		

11.2 关键部品清单 List of key parts

序号 No.	品名 Name	规格 Specification	用量 The amount	位号	备注
1	IC	PL8322	1		
2	L	33UH	1		

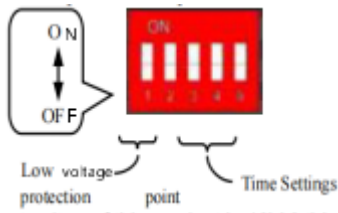
12.0 制品 PCB PCB Pictures



13.0 制品外观图和使用说明 Appearance and User Instruction



14.0 操作说明



本产品输入电压为 12V-24V，产品输入电压自动检测 12 V / 24 V。

The input voltage of the product is 12V-24V, and the input voltage of the product is automatically detected 12V / 24V.

14.1 低电压保护和时间开关设置 Low voltage protection and time switch settings

Low voltage protection setting			Time Close Settings			
Voltage settings	1	2	3	4	5	Time setting
11.6V	ON	ON	ON	ON	ON	1hours
11.9V	ON	OFF	ON	ON	OFF	2hours
12.2V	OFF	ON	ON	OFF	OFF	4hours
12.5V	OFF	OFF	OFF	OFF	OFF	6hours
23.6V	ON	ON	OFF	OFF	ON	12hours
23.9V	ON	OFF	OFF	ON	OFF	24hours
24.2V	OFF	ON				
24.5V	OFF	OFF				

15.0 包装规格 Packaging specifications

15.1 包材清单 Package list

序号 No.	品名 Name	规格 Specification	用量 The amount	备注 REMARKS
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1	PE 袋	10*15cm	1	
2	纸箱 carton	47*36*27cm	1	
3	分隔板 clapboard			
4	刀卡 Fluted coupling shee			
5	透明封口胶 Transparent sealing glue			

