

客户承认书  
SPECIFICATION FOR APPROVAL

CUSTOMER/客户: \_\_\_\_\_

CUSTOMER P. N. /客户物料号: \_\_\_\_\_

MODEL OF CERTIFICATE/认证型号: MSP-ZA350IC34V0-012D

PRODUCT MODEL/产品型号: MSP-ZA350IC34V0-012D

PRODUCT NO./产品编号: ZWF0064-NO

SAMPLE DATE/送样日期: 2012-06-02

CUSTOMER AUTHORIZED SIGNATURE /客户承认签核

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Please return to us one copy of "SPECIFICATION FOR APPROVAL" with your approved signature./客户确认签字，盖章后请回传一份承认书给我司。

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## 1. Scope/简述

The document detail the electrical, mechanical and environmental specifications of a 12W constant current LED driver. The LED driver shall meet the RoHS requirement.

此份资料详细描述了一款 12W LED 恒流驱动电源的电气性能, 结构性能及环境等要求. 此款电源符合 RoHS 要求.

Description/描述:

- |   |   |
|---|---|
| <input type="checkbox"/> LED driver (With AL Case)/带铝壳型 | <input checked="" type="checkbox"/> LED driver (With Plastic Case)/带胶壳型 |
| <input type="checkbox"/> Open Frame/开放式结构               | <input type="checkbox"/> Others/其他                                      |

## 2. Input Characteristics/输入特性

### 2.1. Input Voltage & Frequency/输入电压与频率

The range of input voltage is from 90 to 264Vac single phase/输入电压范围: 单相从 90 到 264Vac.

Items/项目	Minimum/最小	Nominal /额定值	Maximum/最大
Input Voltage/输入电压	90Vac	100-240Vac	264Vac
Input Frequency/输入频率	47Hz	60Hz/50Hz	63Hz

### 2.2. Input AC Current/输入交流电流

0.6Amax. @ 100-240Vac input & full load.

### 2.3. Inrush Current (cold start) /浪涌电流(冷启动)

20Amax. @ 230Vac input 25°C (cold start).

### 2.4. Power Factor/功率因素

Typical value is 0.92@110Vac input &100% full load /额定输入 110V&100%负载;

Typical value is 0.90@220Vac input &100% full load /额定输入 220V&100%负载.

### 2.5. Efficiency/效率

Typical value is 81% (78%min) @110Vac input & full load

在输入 110Vac 与满载时典型效率 81%(78%min);

Typical value is 83%(80%min)@220Vac input & full load

在输入 220Vac 与满载时典型效率 83%(80%min).

## 3. Output Characteristics/输出特性

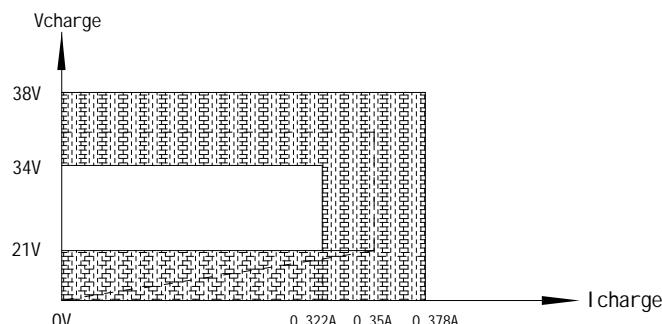
### 3.1. Static Output Characteristics <Vo & R+N>/静态输出

Load/负载		Output Range 输出电压范围	R+N 纹波与噪声	Remark 备注
Min. Load	Max. Load			
0.0A	---	34-38V	3500mVp-p	/
---	0.322A	21-34V		

Ripple & Noise: Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 0.1uF ceramic capacitor and a 10uF electrolysis capacitor. (test under the condition of rated input and rated output)

纹波与噪声: 量测时示波器选用 20MHz 带宽限制, 输出端要并联一颗 0.1uF 的陶瓷电容和一颗 10uF 的电解电容. (在额定输入及输出的条件下检测)

### 3.2. Voltage/Current Curve/恒压/恒流控制曲线



Constant Current Output Characteristics /恒流输出特性	Min. / 最小值	Typical. / 典型值	Max. / 最大值
Output Current Range/输出电流范围	0.322A	0.35A	0.378A
Output Voltage Range/输出电压范围	21V	/	34V

### 3.3. Turn - on Delay Time/开机延迟时间

3.0S max. @ 100-240Vac input & full load.

## 4. Protection Requirements/保护要求

### 4.1. Short Circuit Protection/短路保护

The input power shall decrease when the output rail short, the power supply shall no damage, and shall be self-recovery when the fault condition is removed.

当输出短路时，产品输入功率降低且不会损伤，当短路情况解除后，产品将会自动恢复正常

### 4.2. Over Voltage Protection/过压保护

When the output voltage is over (1.2-1.4) V<sub>out</sub>, the product will shutdown and enter protection status, the driver will re-start and work normally if the fault condition was eliminated.

当输出电压超过(1.2-1.4)V<sub>out</sub>时，产品将会关机进入保护状态，当故障解除后，产品将会重启正常工作

## 5. Environment Requirements/环境要求

### 5.1. Operating Temperature and Relative Humidity/操作温/相对湿度要求

-25°C to +50°C

5%RH to 95%RH

### 5.2. Storage Temperature and Relative Humidity/存储温/相对湿度要求

-35°C to +70°C

5% to 95%RH non-condensing at Sea level shall be low 10,000 feet/低于10,000英尺。

### 5.3. Vibration/振动

10 to 300Hz sweep at a constant acceleration of 1.0G(Breadth: 3.5mm) for 1Hour for each of the perpendicular axes X, Y, Z.

扫描频率：10 to 300Hz, 加速度：1.0G(位移：3.5mm), X, Y, Z 三垂直坐标轴向各振动1小时。

## 6. Reliability Requirements/可靠性要求

### 6.1. Life Time Qualification/寿命时间估算

The life time shall be at least 78,000 hours at 110Vac input, 80% load and 45°C ambient temperature.  
寿命时间: 在 45°C 环境及 110Vac 输入与 80% 负载条件下, 至少 78,000 小时.

### 6.2. MTBF Qualification/平均故障间隔时间估算

The MTBF shall be at least 490,000 hours at 110Vac, 80% load and 25°C ambient temperature(MIL-HDBK-217F).

平均故障间隔时间: 在 25°C 环境及 110Vac 输入与 80% 负载条件下, 至少 490,000 小时.

## 7. Safety & EMI /EMS Standards/安规及 EMI /EMS 标准

### 7.1. Safety Category/安规种类

Safety Category	Country	Standard
CUL	USA & Canada	UL8750, UL935, UL1012, UL1310 Class 2, CSA-C22.2 No. 107.1, CSA C22.2 No. 223-M91 Class 2
CE	Europe	EN 61347-1, EN 61347-2-13

### 7.2. EMI Standards/EMI 标准

EMI Standards	Country	Notes
EN 55015	Europe	Conducted emission Test & Radiated emission Test with 6 dB margin
FCC	USA	FCC Part 15 class B, ANSI C63.4: 2009

### 7.3. Energy Star Standards/能量星标准

Energy Star Standards	Notes
ANSI / IEEE C62.41-1991	Transient protection, power supply shall comply with Class A operation. The line transient shall consist of seven strikes of a 100kHz ring wave, 2.5kV level, for both common mode and differential mode

### 7.4. EMS Standards/EMS 标准

EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EN 61000-4-2	Electrostatic Discharge(ESD): 8kV air discharge, 4kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

8. Main Safety Test Items/安规主要测试项目

8.1. Dielectric Strength(Hi -pot)/介电耐压强度(高压)

Primary to Secondary: 3750Vac 10mA Max / 60second(3second for production)/Finished goods  
初级对次级: 3750Vac /10mA Max / 60秒(生产时高压测试时间: 3秒)<成品>

8.2. Leakage Current/泄漏电流

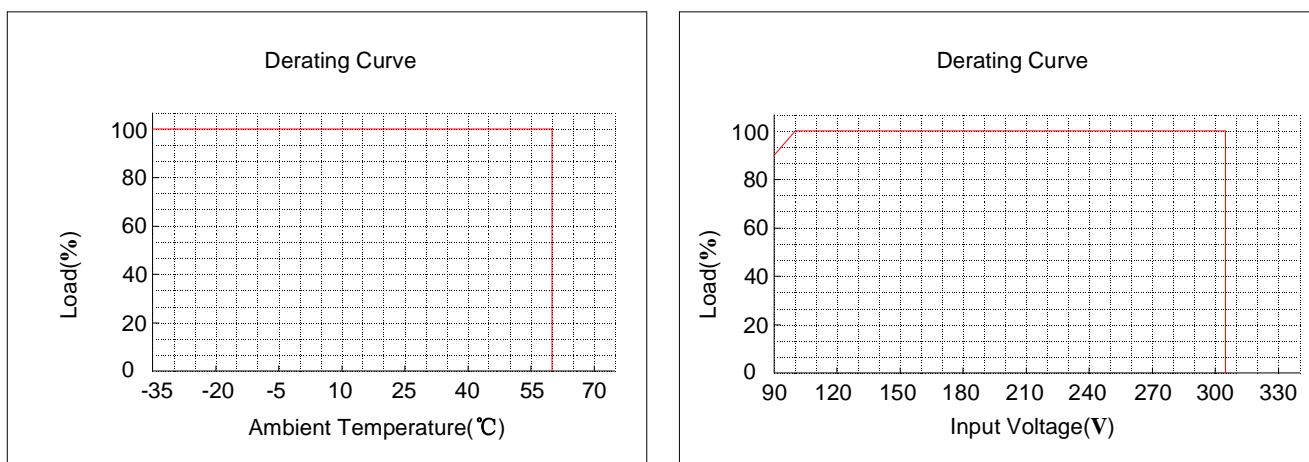
0.5mA Max. at 240Vac/50Hz input.

8.3. Insulation Resistance/绝缘阻抗

The IR shall be at least 50MΩ when apply 500Vdc between primary and secondary.

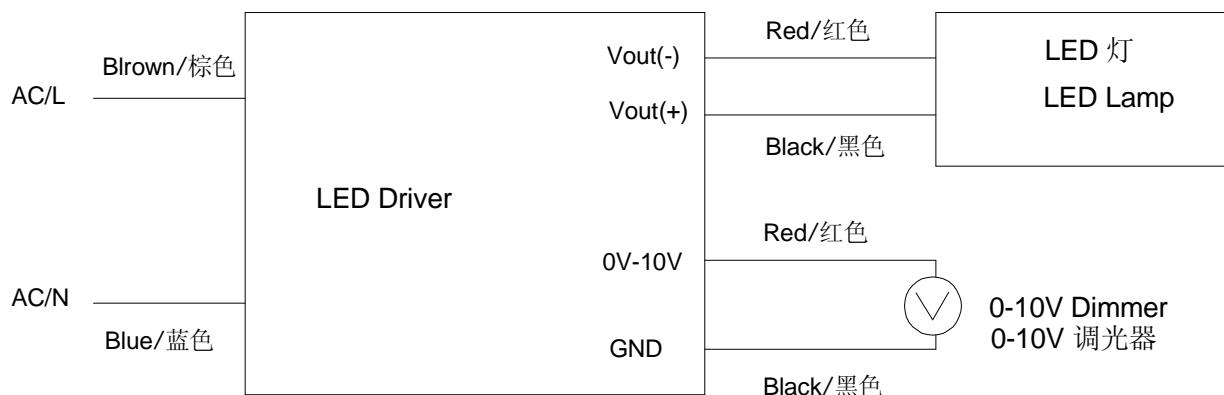
在初级与次级间加 500Vdc 进行绝缘测试，最小绝缘阻抗 50MΩ .

9. Derating Curve/降额曲线



## 10. Dimming Explain/调光说明

10.1. Dimming sketch map shown as following/调光示意图如下



Notes/备注:

1、DIM 端口外接 0-10V 亮度控制，通过改变 Isense 的电位（0V~10V），可实现 20%~100% 亮度等级调节。

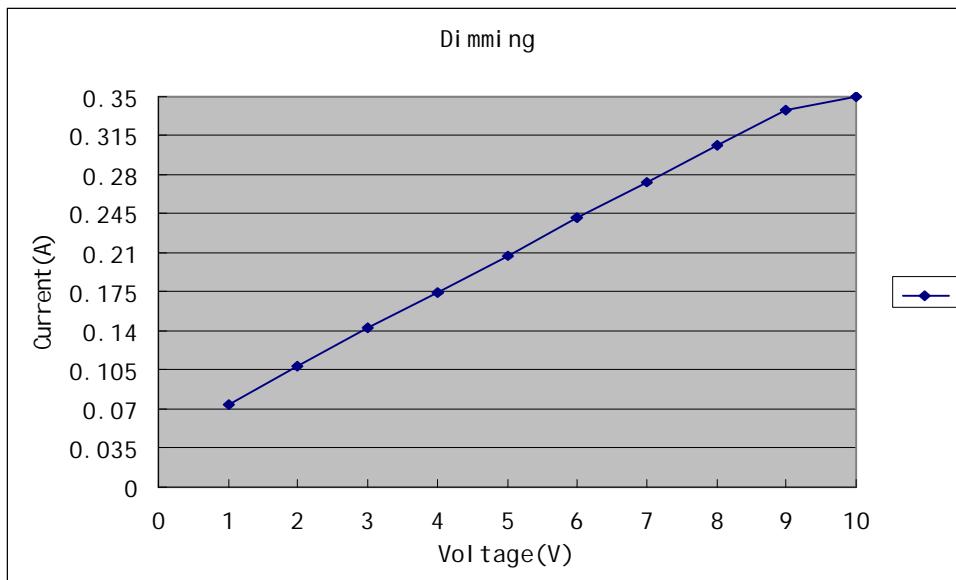
A 0-10V dimmer connected to DIM Port for achieving 20-100% brightness dimming by changing the voltage(0-10V) of Isense .

2、一台 LED 驱动电源，一个亮度控制器只控制一盏 LED 灯。

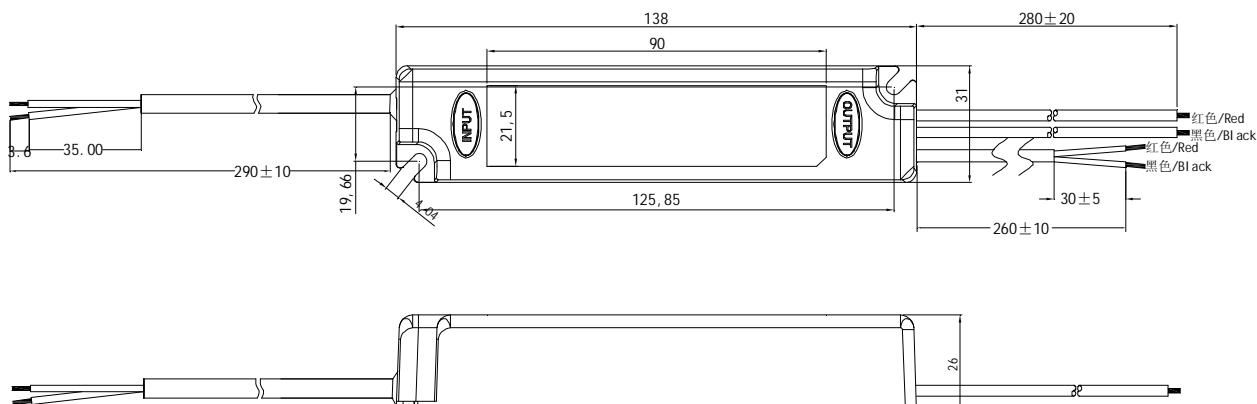
One LED driver, one brightness controller control one LED lamp only.

10.2. Dimming Voltage/Current Proportion Curve/调光电压/电流比例控制曲线:

Dimming Voltage/调光电压 (V)	1	2	3	4	5	6	7	8	9	10
Dimming Current/调光电流 (A)	0.074	0.108	0.142	0.175	0.208	0.242	0.274	0.306	0.338	0.35



11. Mach. Outline Drawing/外观示意图



Dimensions/尺寸	Millimeters( Inches ) /毫米( 英寸 )
Length/长	138(5.43)
Width/宽	31(1.22)
Height/高	26(1.02)

Wire/线	Specification/规格
AC Input/输入	2*1.0mm <sup>2</sup> CCC+VDE
DC Output/输出	UL1015 18AWG
Dimming/调光	UL2464 20AWG

12. I/O Marking Drawing/铭牌示意



备注：  
 1. PET 120# 材质  
 2. 黑底白字+光膜  
 3. 环保  
 4. 回字符号高度要求≥5mm  
 5. WEEE符号高度要求≥7mm