



# 深圳市华浩德电子有限公司

Shenzhen Fahold Electronics CO.LTD.

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|                        |                                                                                                                     |  |  |
|------------------------|---------------------------------------------------------------------------------------------------------------------|--|--|
| Product Name:<br>产品名称  | FD-42T 系列防水电源                                                                                                       |  |  |
| Product Model:<br>产品型号 | FD-42T-054*/B/C/D/Z 27-54V 0.55-1.1A FCC <input checked="" type="checkbox"/> UL <input checked="" type="checkbox"/> |  |  |



|                             |                                 |                            |
|-----------------------------|---------------------------------|----------------------------|
| Customer/客户:                |                                 |                            |
| Products code<br>产品代码:      | Sample NO.<br>样品编码:             | Customer ID<br>客户代码: F8888 |
| Customer Model No.<br>客户型号: | Fahold Model No.<br>我司型号:FD-42T | Version.<br>版本: 00         |

|                                 |               |                |
|---------------------------------|---------------|----------------|
| IGNATURE AND SEAL BY US /我司签字盖章 |               |                |
| 日期:                             | 2019-8-15     |                |
| Prepared By 编制                  | Checked By 审核 | Approved By 批准 |
| 覃小玲                             |               |                |

Please confirm and send it back with signature within 7 days.Otherwise we will assume your acceptance.And if any quality dissent ,will execute according to this product specification.

请确认后七日内回签，如不回签则视贵公司默认接受，在发生品质异常时按此份产品规格书执行。

CUSTOMER APPROVED SIGNATURE /客户承认盖章

Customer Model No.客户型号:

|         |       |          |
|---------|-------|----------|
| 日期:     |       |          |
| ENG./工程 | QA/品管 | OTHER/其他 |
|         |       |          |

Comments 建议:

深圳市华浩德电子有限公司  
文管中心  
受控文件



### Feature特征:

- ◆ IP65防护等级
- ◆ Max output power 36W.最大输出功率36W
- ◆ Constant current design. 恒流设计
- ◆ 3 in 1 dimming mode:0-10V,PWM,RX. 三合一调光  
调光模式: 0-10V, PWM,RX
- ◆ Smoothly dimming(0-100%),can dim to off.  
从0%-100%平滑调光, 且调光输出可关断
- ◆ UL FCC Certified.多个国家与机构认证
- ◆ Surge protection:  
Differential mode:4KV.Common mode:6K.  
差模:4KV, 共模:6KV
- ◆ PROTECTION: Short Circuit, Open Circuit  
保护: 短路保护, 开路保护
- ◆ Auxiliary output 12V;可带12V辅助源。

### Application应用

- ◆ Street lights、High bay lights.路灯、工矿灯

### Introduction 介绍

The document detail the electrical, mechanical and environmental specifications of a 36W constant current LED driver with 0-10V Dimming. This LED drive power supply is suitable only for LED load

此份资料详细描述了 36W 带 0-10V 调光的 LED 恒流驱动电源的电器性能, 环境要求等。此款电源只适用于 LED 负载。

### Model and Key parameters 型号和关键参数 Table 1, 表 1

| Model 型号          | 功率 (W) | Output voltage 输出电压(V) | Max output voltage (Vdc)最大空载电压 | output current 输出电流(A) | Efficiency 效率(%) @120V | Efficiency 效率(%) @230V |
|-------------------|--------|------------------------|--------------------------------|------------------------|------------------------|------------------------|
| FD-42T-054*/B/C/D | 36     | 27-54                  | 63                             | 0.55-1.1               | 86                     | 88                     |
|                   |        |                        |                                |                        |                        |                        |
|                   |        |                        |                                |                        |                        |                        |

Note:

1:带载最大电压测试 Max output voltage test

2: 可选字母 B,C,D 或空位, 表示输出增加不同的可选功能。默认空位表示可调电流 (基础机型);B 字母表示可三合一调光并可调电流, C 字母表示不可调光不可调电流, D 代表调光不调电流, Z 代表智能调光。

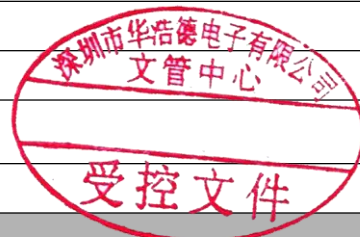
2: Optional letters B, C, D or empty, indicating that the output increases with different optional functions. The default position indicates that the current can be adjustable(basic model); letter B can be three-in-one dimming and fine-tuning current, letter C indicates that non dimmable and output current unadjustable, letter D enable dimming unchanrged current.Z Intelligent dimming.

3:型号 C/D 后面标签上要写 YYYY,YYYY 代表输出电流, 如 FD-42T-54C-1100

The model C / D on the back of the label to write YYY and YYY for the output current, such as FD-42T-54C-1100

**■ Technical data 技术参数**

| Input characteristics 输入特性         |                                                                                                                                                                                                                                                                           |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input Voltage 输入电压                 | 100-347Vac                                                                                                                                                                                                                                                                |
| Input Frequency 输入频率               | 50/60Hz                                                                                                                                                                                                                                                                   |
| Input Current (Typ.)<br>输入电流 (典型值) | 1.8 A @100-347 Vac, 100% load                                                                                                                                                                                                                                             |
| No load Voltage 空载功耗               | 2Wmax                                                                                                                                                                                                                                                                     |
| Inrush Current 浪涌电流                | 60Amax. @ 230Vac, 25℃                                                                                                                                                                                                                                                     |
| Power factor (Typ.)<br>功率因数 (典型值)  | PF>0.952 @ 100-347 Vac, 100% load, 见图 2                                                                                                                                                                                                                                   |
| THD 总谐波失真                          | THD<20% @ 100-347 Vac, 100% load 见图 3                                                                                                                                                                                                                                     |
| Output characteristics 输出特性        |                                                                                                                                                                                                                                                                           |
| Current accuracy 电流精度              | ± 5% I <sub>o</sub>                                                                                                                                                                                                                                                       |
| Efficiency 效率                      | ≥86% @ 100 Vac, ≥88% @ 347Vac, 见图 1                                                                                                                                                                                                                                       |
| Output Voltage 输出电压                | Table 1, 见表 1                                                                                                                                                                                                                                                             |
| Ripple and Noise<br>纹波与噪声          | 800mVp-p                                                                                                                                                                                                                                                                  |
| Line Regulation<br>线性调整率           | 3%I <sub>o</sub>                                                                                                                                                                                                                                                          |
| Load Regulation<br>负载调整率           | 3%I <sub>o</sub>                                                                                                                                                                                                                                                          |
| Turn On Delay Time<br>开机延时         | Under normal conditions, the maximum delay time is 2 second<br>最大延迟时间小于 2 秒                                                                                                                                                                                               |
| Protection functions 保护功能          |                                                                                                                                                                                                                                                                           |
| Open circuit 开路保护                  | When the LED disconnection the product is protected such as hiccup or when it is at the highest point of output voltage, the power supply shall be self-recovery when the fault condition is removed.当 LED 开路时, 产品进入保护状态, 如打嗝或钳在某输出最高电压状态, 产品不会损伤, 当故障排除或重新开机时, 电源恢复工作正常。 |
| Short Circuit 短路保护                 | The input power shall decrease when the output rail short, the power supply shall be self-recovery when the fault condition is removed.当输出短路时输入功率会相应减小, 短路情况解除后, 电源自动恢复正常。                                                                                                |
| Environmental conditions 环境条件      |                                                                                                                                                                                                                                                                           |
| Operating Temperature<br>工作温度      | -40℃ to +60℃                                                                                                                                                                                                                                                              |
| Operating Relative Humidity<br>湿度  | 10% to 90% RH, non-condensing                                                                                                                                                                                                                                             |
| Storage Temperature<br>储存温度        | -40℃ to +75℃                                                                                                                                                                                                                                                              |
| Storage Relative Humidity<br>储存湿度  | 10% to 90%RH, non-condensing (Sea level to 2,000 m)                                                                                                                                                                                                                       |
| Vibration 振动                       | 10 to 500HZ Sweep at constant acceleration of 1.0G (depth: 3.5mm) for 1 Hour for each of the perpendicular axes X, Y, Z.                                                                                                                                                  |
| Degrees of Protection<br>防护等级      | IP65                                                                                                                                                                                                                                                                      |
| Safety compliance 安全标准             |                                                                                                                                                                                                                                                                           |



|                                                                                                                                                                                                                                                                                |                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Safety Standard 安规标准                                                                                                                                                                                                                                                           | GB19510.1,GB19510.14;EN61277-1,EN61277-2-13;UL8750, CSA C22.2No.250.13-12.                                      |
| Dielectric Strength 介电强度                                                                                                                                                                                                                                                       | 初级-次级: P-S:3750VAC/5mA/60S 初级-地: P-E:1500VAC/5mA/60S<br>次级-地: P-E:500VAC/5mA/60S                                |
| Insulation Resistance 绝缘电阻                                                                                                                                                                                                                                                     | I/P-O/P:>50M Ohms / 500VDC / 25 °C / 70% RH.                                                                    |
| Leakage Current 泄漏电流                                                                                                                                                                                                                                                           | The leakage current shall be less than 0.25mA for Class 2 at maximum input voltage                              |
| EMI                                                                                                                                                                                                                                                                            | GB17743, GB17625.1; EN55015, EN61000-3-2, EN61000-3-3, FCC Class B                                              |
| EMS                                                                                                                                                                                                                                                                            | EN 61000-4-2, 3,4,5,6,8,11, EN 61347.                                                                           |
| ESD 静电放电 (静电) 免疫                                                                                                                                                                                                                                                               | 静电放电/免疫 Severity Level 等级 Level3/3 级 空气放电: ±8kV<br>Severity Level 等级 Level2/2 级 接触放电: ±4kV 性能标准: B              |
| RF 射频场强度                                                                                                                                                                                                                                                                       | 射频电磁场药敏试验, 80-1000MHZ; Severity Level 等级 Level2/2 级, 3V/M,<br>Performance Criterion 性能标准: A                     |
| EFT 电快速瞬变脉冲                                                                                                                                                                                                                                                                    | Severity Level 等级: Level2/2 级 line to line 1.0kv 性能标准: B                                                        |
| Surge Immunity 浪涌雷击                                                                                                                                                                                                                                                            | Severity Level 等级: Level2/2 级, 差模 4kV<br>Severity Level 等级: Level3/3 级, 共模 6KV<br>Performance Criterion 性能标准: B |
| <b>Reliability 可靠性</b>                                                                                                                                                                                                                                                         |                                                                                                                 |
| Life Time 寿命                                                                                                                                                                                                                                                                   | ≥5Years H@347Vac, 100% load. See lifetime vs. Tc curve for the details                                          |
| MTBF 平均无故障时间                                                                                                                                                                                                                                                                   | ≥ 200,000H@ 25 °C,347Vac, 80% load. (MIL-HDBK-217F)                                                             |
| Warranty 质保                                                                                                                                                                                                                                                                    | 5 years                                                                                                         |
| <b>Others 其它</b>                                                                                                                                                                                                                                                               |                                                                                                                 |
| Dimensions 尺寸                                                                                                                                                                                                                                                                  | 140*48*32mm (L*W*H)                                                                                             |
| Weight 重量                                                                                                                                                                                                                                                                      | *                                                                                                               |
| <b>Remark 备注</b>                                                                                                                                                                                                                                                               |                                                                                                                 |
| 1. The parameters above including the power factor, THD, efficiency are all tested under the ambient temperature 25°C and humidity 50%, AC input 230V and 90% output load.此参数所得包括功率因数, 总谐波失真, 效率等所有测试均在 25°C 50%湿度 输入电压 230V 以及 90%输出负载的环境下测试。<br>2.Io is rate output current. |                                                                                                                 |

### ■ Dimming 调光功能

| 调光类型           | 参数   | Min 最小值 | Typ 典型值 | Max 最大 | 备注      |
|----------------|------|---------|---------|--------|---------|
| 0-10V<br>1-10V | 信号电平 | -20V    | 0-10V   | 14V    |         |
|                | 调光范围 | 10%     |         | 100%   | 输出电流百分比 |
|                | 开启电平 | 0.3V    | 0.5V    | 0.7V   |         |
|                | 关断电平 | 0.5V    | 0.7V    | 0.9V   |         |
| PWM            | 信号电平 | 0V      | 10Vp-p  | 14V    |         |
|                | 信号频率 | 1KHz    |         | 2KHz   |         |
|                | 占空比  | 5%      |         | 100%   |         |
| 电阻调光           | 电阻值  | 0.4kΩ   |         | 50kΩ   |         |
|                | 调光范围 | 10%     |         | 100%   | 输出电流百分比 |

### ■ Dimming 调光范围

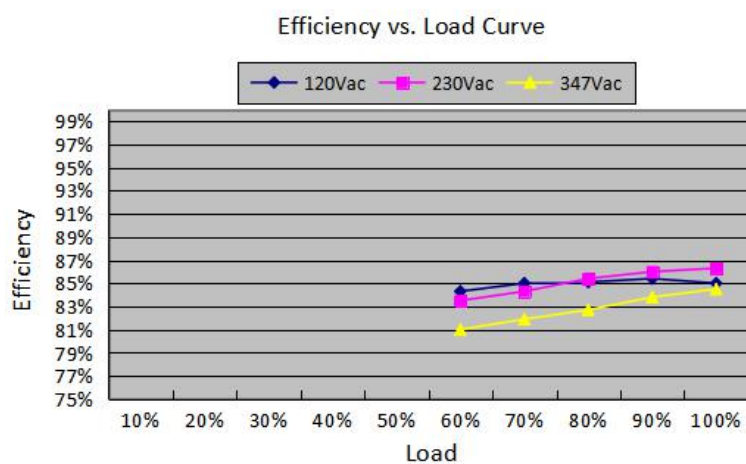
| Function  | 0-10V | PWM | RX |
|-----------|-------|-----|----|
| Yes Or No | Y     | Y   | Y  |

|                |   |           |           |           |           |           |           |           |           |            |          |      |
|----------------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|----------|------|
| 0-10V          | 0 | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9          | 10       | open |
| I <sub>r</sub> | 0 | 11%       | 22%       | 31%       | 41%       | 51%       | 61%       | 71%       | 81%       | 91%        | 100%     | 100% |
| PWM            | 0 | 10%       | 20%       | 30%       | 40%       | 50%       | 60%       | 70%       | 80%       | 90%        | 100%     | 100% |
| I <sub>r</sub> | 0 | 9%        | 19%       | 29%       | 39%       | 49%       | 59%       | 69%       | 80%       | 90%        | 100%     | 100% |
| R <sub>X</sub> | 0 | 0.4K<br>Ω | 0.8K<br>Ω | 1.4K<br>Ω | 2.2K<br>Ω | 3.2K<br>Ω | 4.3K<br>Ω | 6.3K<br>Ω | 9.6K<br>Ω | 16.2K<br>Ω | 45K<br>Ω | 50KΩ |
| I <sub>r</sub> | 0 | 10%       | 20%       | 30%       | 40%       | 50%       | 60%       | 70%       | 80%       | 90%        | 100%     | 100% |

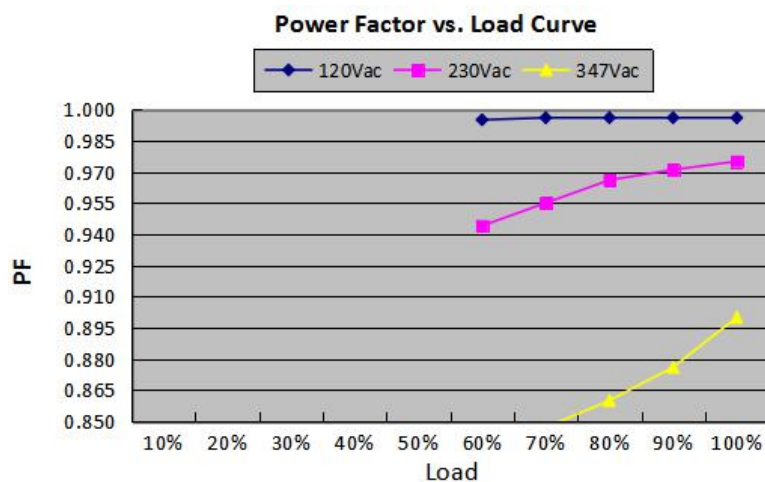
Note:

1. I<sub>r</sub> is the output current percentages. I<sub>r</sub> 为输出电流百分比
2. I<sub>r</sub> above is typical values. 以上 I<sub>r</sub> 均为典型值

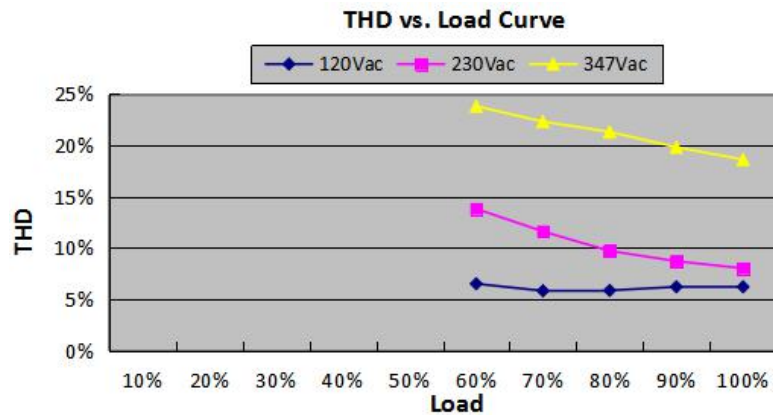
### Efficiency vs. Load 效率负载



### Power Factor 功率因素

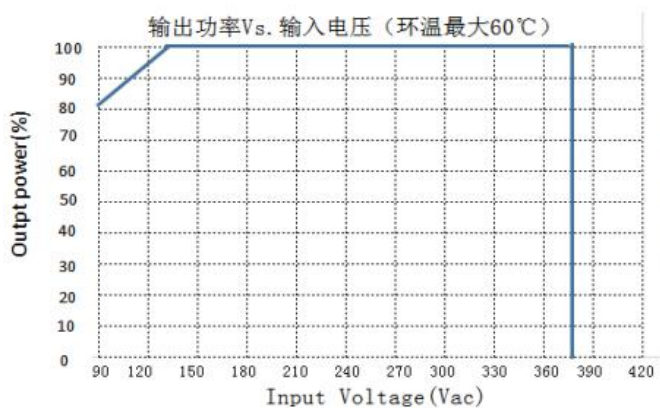


### THD vs. Load THD 和负载



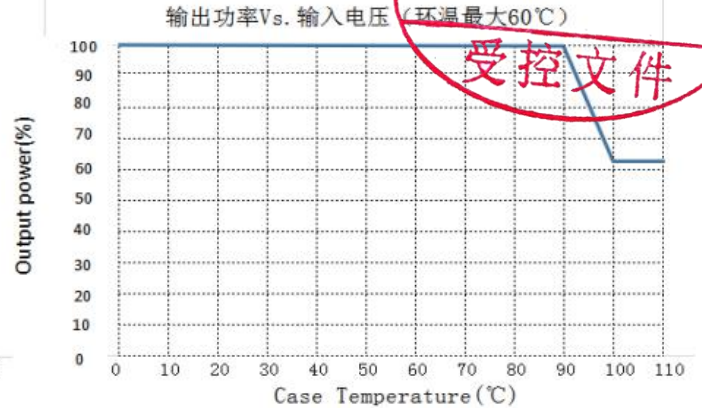
### ■ 输出功率 Vs. 输入电压(环温最大 60℃)

Output power VS Input voltage

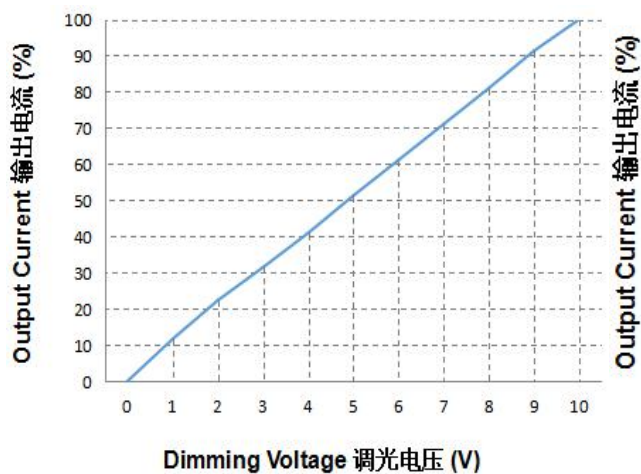


### 输出功率 Vs. 壳温

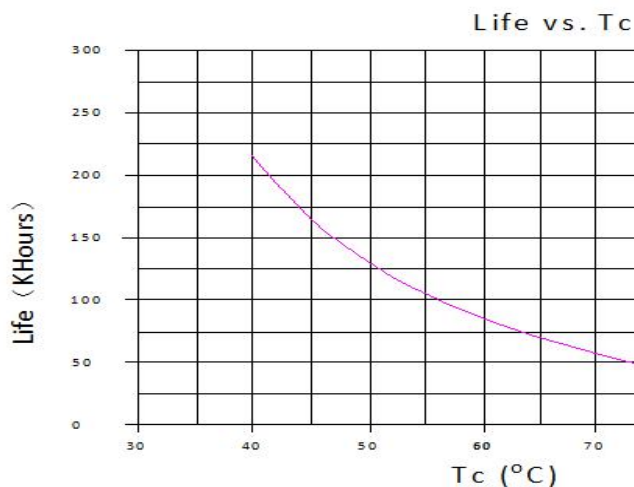
Output power VS Shell temperature



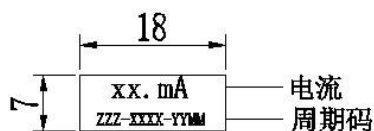
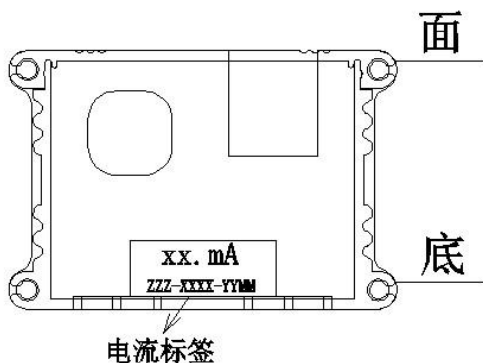
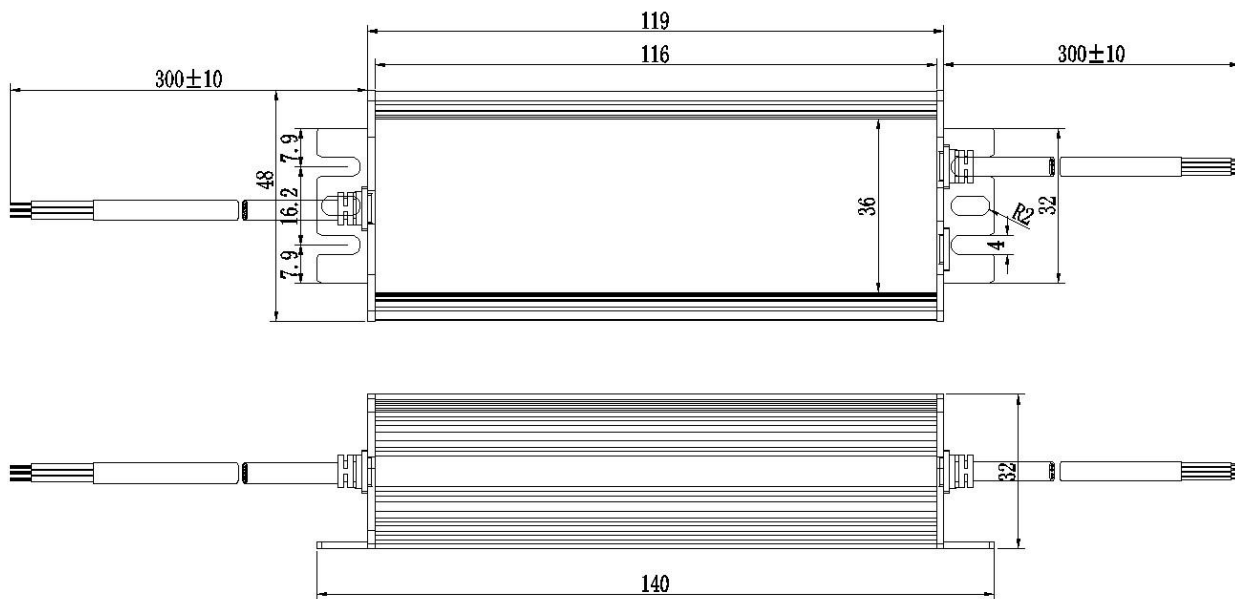
### ■ Dimming curve 调光曲线



### Life vs. Tc 寿命和温度 P5, 图 5

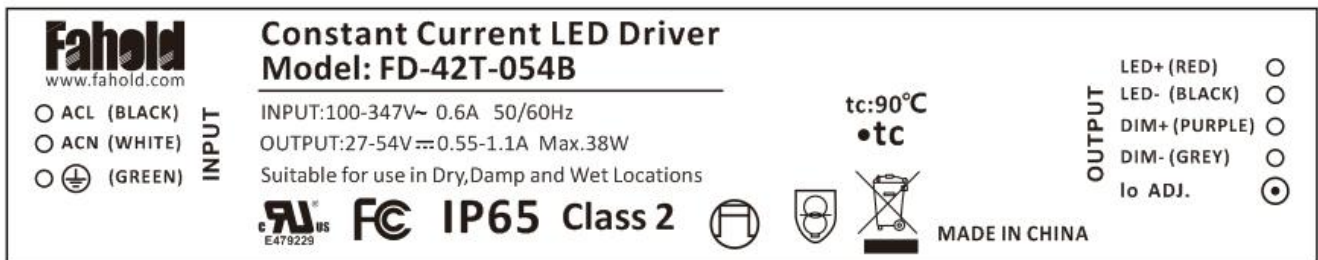


### Dimensional Drawing (unit: mm) 尺寸



XX. mA为电流, 电流标签填实际订单电流  
 ZZZ-XXXX-YYMM为周期码, 在电流标签上比电流略小  
 周期码编码为: ZZZ(业务员代码) + XXXX(订单号末4位) + YY(当年) + MM(当月), 假设: 业务员代码为B01, 订单号为: S20180803213, 当年为2019年当月为3月, 周期码为: B01-3213-1903  
 电流标签优先贴于输出端

### ■ LABEL 标签示例



### 安装注意事项 Installation considerations

1. 若产品有外部可调电位器，请在调整好电流之后，建议用 704 硅胶将调整电流的孔密封好，将防水胶塞盖好。

If the power supply has adjustable external potentiometer, after adjust output current, suggest using 704 silicone sealing good the hole and plug waterproof rubber.

2. 电源的防雷等级满足 IEC61000-4-5 等各国的标准要求，如果使用在雷电多发地区或电网环境相对复杂的地区，建议在电源的 AC 输入端加装专业的防雷模块。

Lightning protection level to meeting IEC61000-4-5 standard requirement, if you use the lightning occurs or the area of power grid environment is relatively complex, suggest in the power supply of the AC input terminal equipped with professional lightning protection module.

### 包装，运输，贮存 Package, Transportation & Storage

#### 1. 包装 Package

a. 包装箱的外形尺寸为（单位：mm）：长 X 宽 X 高；

package box outside dimension: L140×W48×H32 (unit: mm);

b. 每箱产品的包装数量为 台；

product number in each box: PCS;

c. 整箱毛重 KG

whole box gross weight: kg;

#### 2. 运输 Transportation

适用于车，船，飞机运输，运输中应遮蓬，防晒，文明装卸。

Packaging is designed suitable for transportation by truck, ship, and plane. The products should be shielded from sunshine, and loaded and unloaded carefully.

#### 3. 贮存 Storage

产品贮存应符合 GB3873-83 的规定。

贮存期限超过一年的产品要重新检验，合格后方可使用。

The product storage meet the standard of the GB 3873-83.

Product should be rechecked over 1 year.

### 免责声明:

本手册内容根据产品现有信息制作, 由于产品版本升级或其他原因, 其内容有可能变更, 本公司保留不作预先通知的情况下对产品进行改进的权利, 对公司产品的性能说明保留最终解释权, 本公司致力于改善产品的质量, 不断对产品进行升级优化。

### 产品安装与使用注意事项

- 请勿将 AC 供电接入 DC 输出端口及调光端口。
- 请调好电流之后用 704 硅胶将电位器孔堵住。
- 请勿私自调节可调电位器, 以免电流变化影响功率。
- 请勿超过电源标称功率 36W 使用。
- 请勿将电源并联使用在同一灯具上。
- 本产品为恒流 LED 电源, 仅适用于 LED 灯具。



### 安全及注意事项

为了减少对人身伤害、电击、火的危险, 以及电源的损坏, 请仔细阅读以下规格, 并遵守这些规则, 以防危险。

- 请勿将电源安装在有易燃易爆物区域, 以免引起爆炸及火灾。
- 请勿私自拆装电源、更换器件, 以免触电。