



## 18W LED Driver Using UL66C

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### Subject

### UL66C 18W/55mA LED Driver Demo Board Manual

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#### 特点:

- 外围电路极其简单，无需变压器及电感器件
- 具有过温保护及自恢复功能
- 可将元件直接布于LED灯板上，方便自动化生产
- 方案元件极少，超低成本
- 无频闪
- 具有良好的EMI性能

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### Revision History

| Revise Date | Version | Reason/Issue |
|-------------|---------|--------------|
| 2016/12/29  | A       | First Issue  |



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## 1. LED Driver Demo Board Specification

### 1.1. Input Characteristics

- AC input voltage rating 200Vac~240Vac
- AC input voltage range 180Vac ~ 264Vac
- AC input frequency range 47Hz ~ 63Hz

### 1.2. Output Characteristics

- Typical Output voltage 255V@220Vac
- Typical output current 55mA@220Vac

### 1.3. Performance Specifications

- Maximum output power 14W
- Efficiency 87.84%@220Vac

### 1.4. Environment

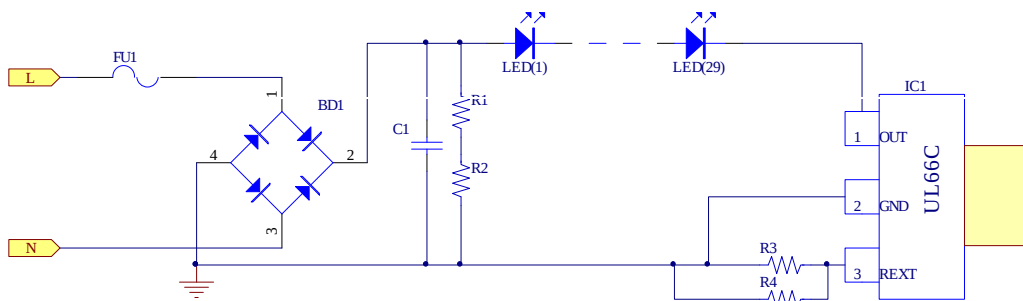
- Operation Temperature 0°C to 40 °C
- Operation Humidity 20% to 90% R.H
- Storage Temperature -40°C to 60 °C
- Storage Humidity 0% to 90% R.H



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## 2. LED Demo Board Information

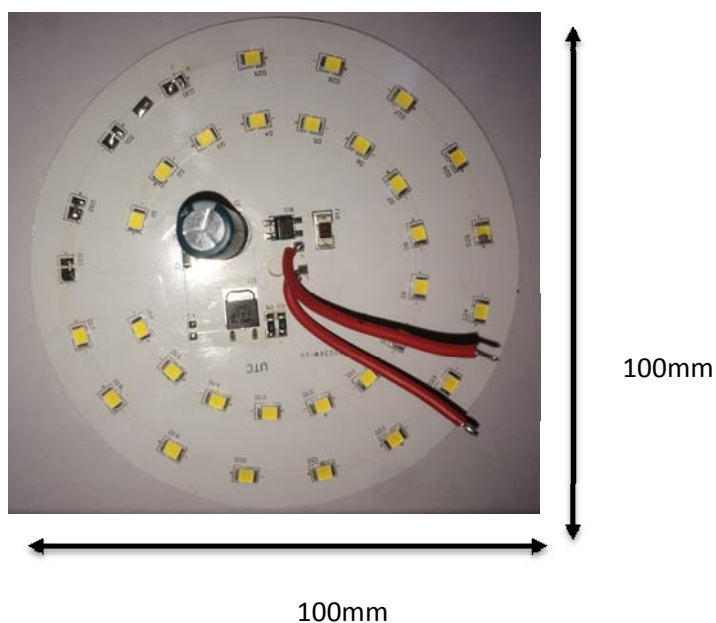
### 2.1. Schematic



### 2.2. BOM

| No. | Position   | Description      | Quantity |
|-----|------------|------------------|----------|
| 1   | FU1        | 1A/250V,2410贴片保险 | 1        |
| 2   | BD1        | UTC MB6S         | 1        |
| 3   | C1         | 10uF,400V        | 1        |
| 4   | R1,R2      | 1M,5%,1206       | 2        |
| 5   | R3,R4      | 22R,1%,1206      | 2        |
| 6   | LED1-LED16 | 9V LED灯珠 ,L2835  | 29       |
| 7   | IC1        | UTC UL66C,TO-252 | 1        |

### 2.3. Demo Board Snapshot



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## 3. Performance Evaluation

This document presented here is to describe the power module performance.

The measuring data are tested at the board end, unless otherwise specified.

### The Summarized Result :

| Item                             | Test result   |
|----------------------------------|---------------|
| <b>1. Input Characteristics</b>  |               |
| Efficiency (@220Vac)             | 87.84%@220Vac |
| <b>2. Output characteristics</b> |               |
| Maximum Output Power             | 14W           |
| Output Typical Voltage           | 255V@220Vac   |
| Output Typical Current           | 55mA@220Vac   |

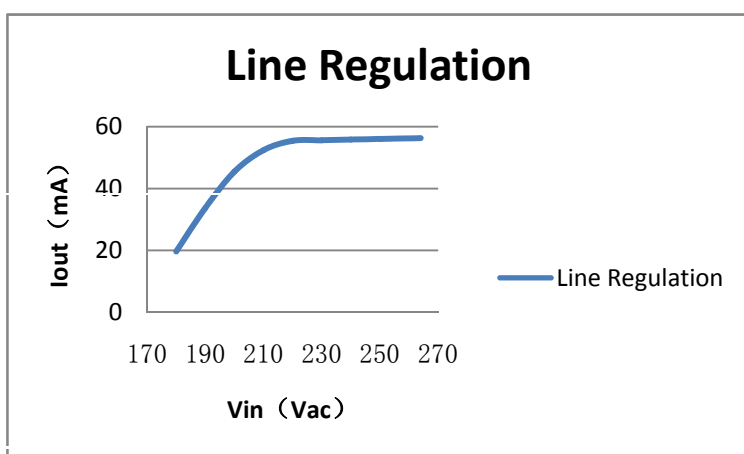
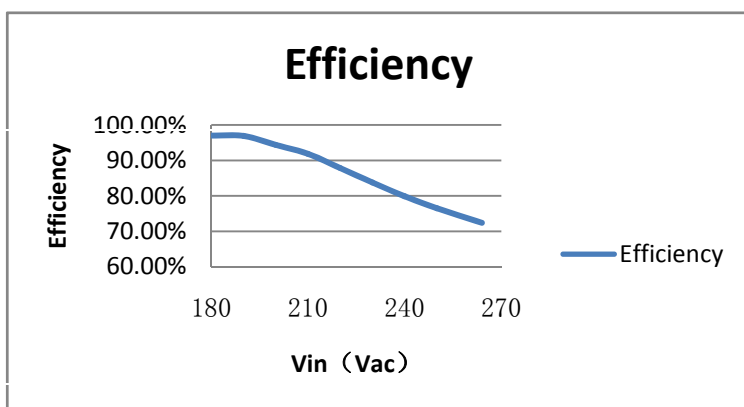
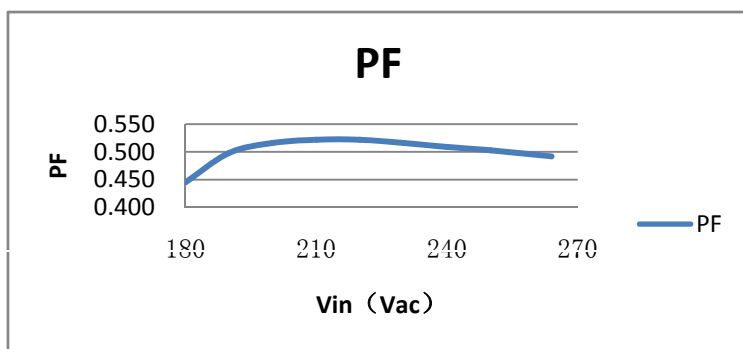
### Test Equipment:

| Item                   | Vendor     | Model No: |
|------------------------|------------|-----------|
| 1.AC Source            | GW INSTEK  | APS-9501  |
| 2.Digital Power meter  | DECTECH    | 3330S     |
| 3. LED Load            |            |           |
| 4.Digital Oscilloscope | Tektronics | DPO3012   |
| 5.Multi-meter          |            |           |

### 3.1 Test data

| VIN(Vac ) | Pin(W) | PF    | Io(mA) | Vo(V) | EFF    |
|-----------|--------|-------|--------|-------|--------|
| 180       | 4.91   | 0.445 | 19.68  | 242   | 97.00% |
| 190       | 8.68   | 0.498 | 33.78  | 249   | 96.90% |
| 200       | 12.19  | 0.516 | 45.48  | 253   | 94.39% |
| 210       | 14.56  | 0.522 | 52.44  | 255   | 91.84% |
| 220       | 16.10  | 0.522 | 55.46  | 255   | 87.84% |
| 230       | 16.93  | 0.516 | 55.62  | 255   | 83.77% |
| 240       | 17.83  | 0.509 | 55.85  | 255   | 79.88% |
| 250       | 18.69  | 0.503 | 56.08  | 255   | 76.51% |
| 264       | 19.85  | 0.492 | 56.34  | 255   | 72.38% |

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### 3.2 温升

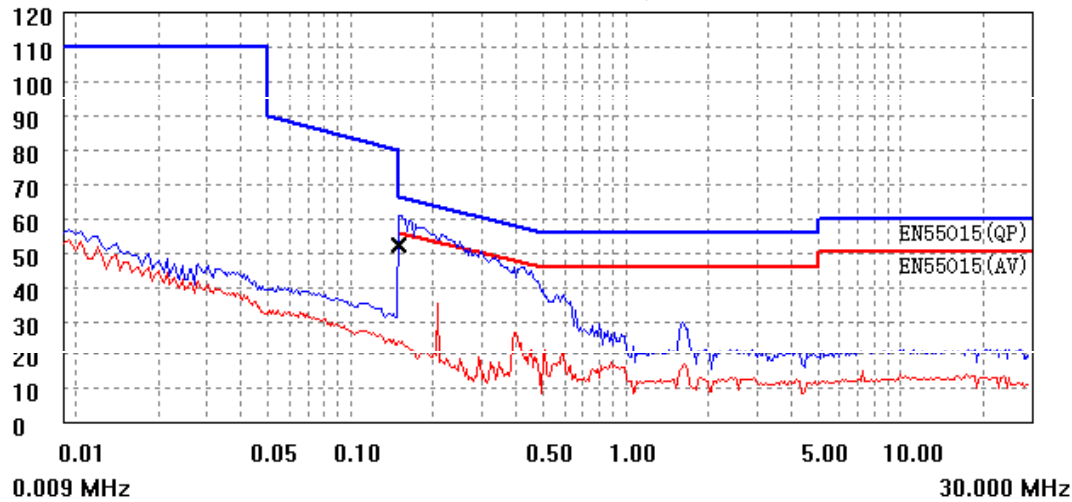
测试条件：置于无对流的恒温箱中, 点亮30min, Vin=220Vac

| IC温度(℃) | 光源温度(℃) | 环境温度(℃) | 输出电流(mA) |
|---------|---------|---------|----------|
| 97      | 91      | 25      | 55.45    |

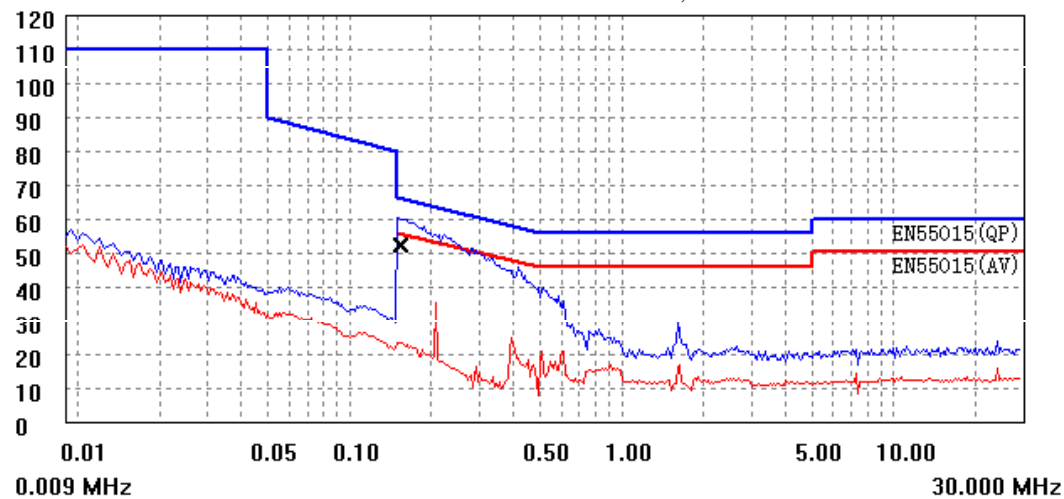
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## 4 EMI

Live Conduction@220Vac/50Hz, full load



Neutral Conduction@220Vac/50Hz, full load



Vertical Radiated@220Vac/50Hz, full load

