

Parameters Subject to Change Without Notice

FEATURES

- High-accuracy output current.
- Over temperature protection.
- No EMI problem.
- Compatible with PWM dimming, analog dimming and TRIAC dimming.
- Low BOM cost.

APPLICATIONS

- LED Lighting

ELECTRICAL SPECIFICATIONS

| Parameter | Symbol | Value | Unit |
|----------------|--------|---------|------|
| Input Voltage | VIN | 110-130 | V |
| Output Voltage | VOUT | 120 | V |
| Output Current | IOUT | 22 | mA |

DESCRIPTION

EV1691D_S0_R0 is a 120V/22mA LED driver EVB based on JW1691D.

JW[®]1691D is a single channel Linear LED driver with 500V MOSFET integrated, the output current is set by the external resistor, between 5mA~60mA. The output current has little variation with OUT pin's voltage variation. The system topology is simple with few external devices and very low cost.

JW1691D provides over temperature protection. When temperature inside chip exceeds 150°C, JW1691D decreases LED current, which can help chip cooling.

EVALUATION BOARD

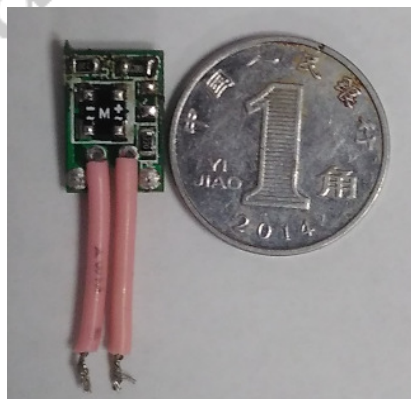
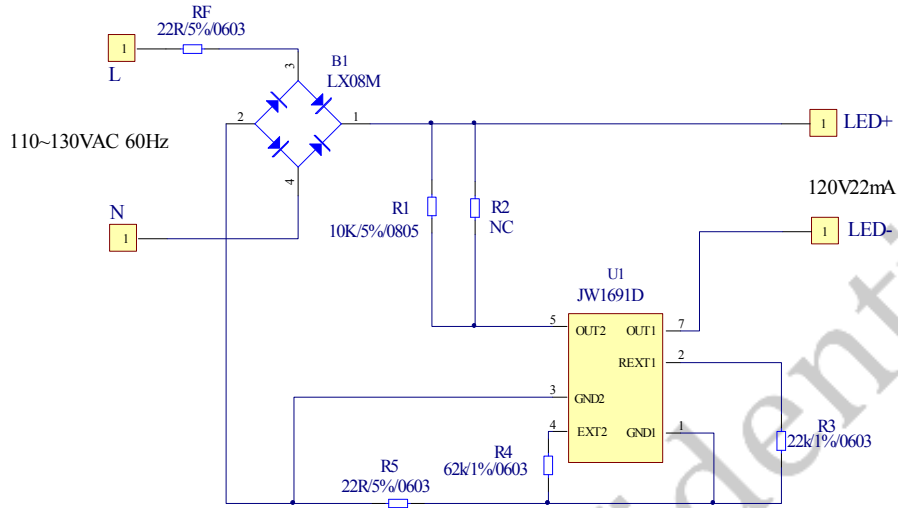


Fig.1 Top

SCHEMATIC



BILL OF MATERIALS

| Qty | Designator | Comment | Description | Package | Manufacturer | Manufacturer P/N |
|-----|------------|-------------|---------------|-------------|--------------|------------------|
| 1 | B1 | GUB40 | Diode Bridge | BRIDGE-MB10 | | |
| 1 | RF1 | 22R/5%/0805 | Fuse resistor | 0805R | | |
| 1 | R1 | 10K/5%/0805 | Resistor | 0805R | | |
| 0 | R2 | NC | Resistor | | | |
| 1 | R3 | 22K/1%/0603 | Resistor | 0603R | | |
| 1 | R4 | 62K/5%/0603 | Resistor | 0603R | | |
| 1 | R5 | 22R/5%/0603 | Resistor | 0603R | | |
| 1 | U1 | JW1691D | IC-JW1691D | ESOP8 | Joulwatt | |

PRINTED CIRCUIT BOARD LAYER OUT

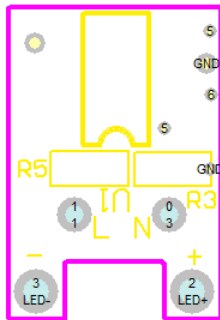


Fig.1 Top Overlay

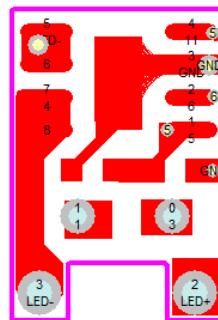


Fig.2 Top Layer

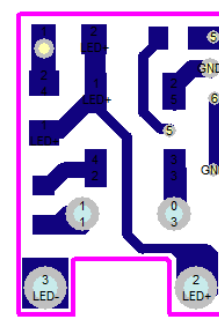


Fig.3 Bottom Layer

QUICK START GUIDE

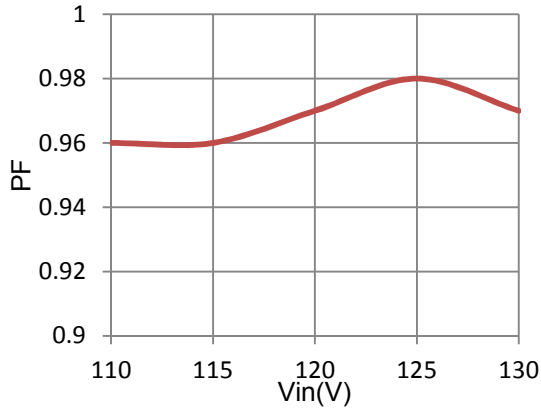
1. Set the AC source to 110V ~130V, turn off the source.
2. Connect the “Line” of AC source to the “L”, and “neutral” to “N” with a TRIAC cascade.
3. Turn on the power supply. The evaluation board starts operating in normal condition.
4. The MAX LED current can be adjusted by changing the current sensing resistor of JW1691D. For example: Setting the LED current to 18mA, the current sensing resistor is:

$$R_s \approx 2000 * 0.5V / 0.018mA * 0.5 = 27K\Omega.$$
5. For more information, please refer to the datasheets of JW1691D.

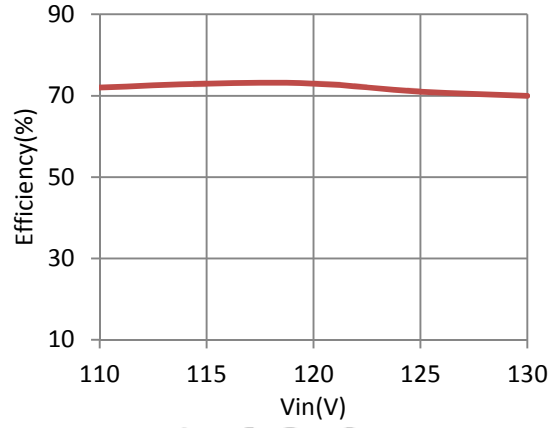
TYPICAL PERFORMANCE CHARACTERISTICS

VIN=120VAC, Output 120V22mA unless otherwise noted

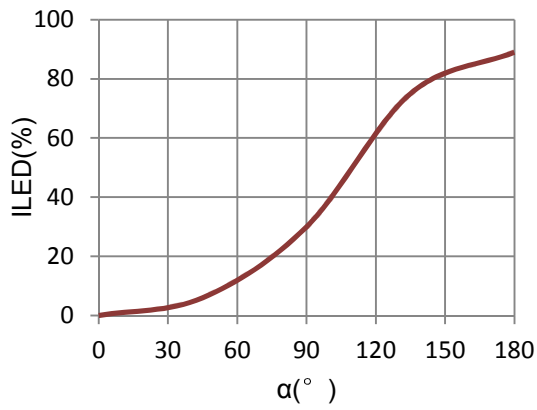
Tab.1 PF VS Vin



Tab.2 Efficiency VS Vin



Tab.3 Io VS Vin



IMPORTANT NOTICE

- Joulwatt Technology Inc. reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein.
- Any unauthorized redistribution or copy of this document for any purpose is strictly forbidden.
- Joulwatt Technology Inc. does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

JoulWatt Confidential

Copyright © 2017 EV1691_S1_R0 Incorporated.

All rights are reserved by Joulwatt Technology Inc.