
# MEAN WELL LPF-25D-12 Series Constant Current Mode LED Driver Owner's Manual



Contents



## MEAN WELL LPF-25D-12 Series Constant Current Mode LED Driver

## Product Usage Instructions

### User’s Manual

### Installation

1. Ensure the input voltage is within the specified range.
2. Connect the LED driver to the LED lighting system as per the manufacturer’s instructions.
3. Secure all connections properly to avoid any electrical hazards.
4. Mount the LED driver in a well-ventilated area away from moisture or heat sources.

### Operation

1. Apply power to the LED driver within the specified voltage range.
2. Observe the LED lighting system for proper functionality and brightness.
3. If any issues occur, disconnect power immediately and troubleshoot accordingly.

### Maintenance

1. Regularly inspect the LED driver for any signs of damage or overheating.
2. Clean the LED driver gently using a dry cloth to remove any dust or debris.
3. Ensure proper ventilation around the LED driver for optimal performance.

## Features

- Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- Class 2 power unit
- IP67 rating for indoor or outdoor installations
- Function: 3 in 1 dimming
- Typical lifetime>50000 hours
- 5 years warranty

### Applications

- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign

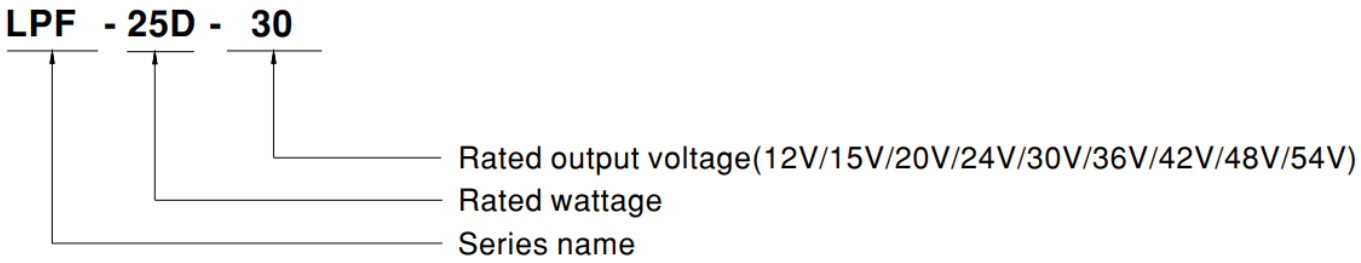
**GTIN CODE**

**MW Search: https://www.meanwell.com/serviceGTIN.aspx**

## Description

LPF-25D series is a 25W AC/DC LED driver featuring the constant current output. LPF-25D operates from 90—305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the efficiency up to 86%, with the fanless design, the entire series is able to operate for -350C +700C case temperature under free air convection. The entire series is rated with IP67 ingress protection level and is suitable to work for a variety of applications at dry, damp or wet locations. LPF-25D is equipped with the 3 in 1 dimming function so as to provide the design flexibility for LED lighting system.

**Model Encoding**




## SPECIFICATION

| MODEL | | LPF-25D-12 | LPF-25D-15 | LPF-25D-20 | LPF-25D-24 | LPF-25D-30 | LPF-25D-36 | LPF-25D-42 | LPF-25D-48 | LPF-25D-54 |
|---|---|---|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 12V | 15V | 20V | 24V | 30V | 36V | 42V | 48V | 54V |
| | RATED CURRENT | 2.1A | 1.67A | 1.25A | 1.05A | 0.84A | 0.7A | 0.6A | 0.53A | 0.47A |
| | RATED POWER Note.5 | 25.2W | 25.05W | 25W | 25.2W | 25.2W | 25.2W | 25.2W | 25.44W | 25.38W |
| | CONSTANT CURRENT REGION Note.2 | 6.6 ~12V | 8.25 ~15V | 11 ~ 20V | 13.2 ~24V | 16.5 ~30V | 19.8 ~36V | 23.1 ~42V | 26.4 ~48V | 29.7 ~54V |
| | CURRENT RIPPLE | 5.0% max. @rated current | | | | | | | | |
| | CURRENT TOLERANCE | ±5.0% | | | | | | | | |
| | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|
| | **SETUP, RISE TIME Note.6** | 1500ms, 80ms / 115VAC 500ms, 80ms / 230VAC | | | | | | | |
| | **HOLD UP TIME ( Typ.)** | 16ms/230VAC 16ms/115VAC | | | | | | | |
| **INPUT** | **VOLTAGE RANGE Note.5** | 90 ~ 305VAC 127 ~ 431VDC<br>(Please refer to “STATIC CHARACTERISTIC” section) | | | | | | | |
| | **FREQUENCY RANGE** | 47 ~ 63Hz | | | | | | | |
| | **POWER FACTOR** | PF≧0.97/115VAC, PF≧0.95/230VAC, PF≧0.92/277VAC@full load<br>(Please refer to “POWER FACTOR (PF) CHARACTERISTIC” section) | | | | | | | |
| | **TOTAL HARMONIC DISTORTION** | THD< 20%(@load≧60%/115VC,230VAC; @load≧75%/277VAC)<br>(Please refer to “TOTAL HARMONIC DISTORTION(THD)” section) | | | | | | | |
| | **EFFICIENCY (Typ.)** | 84% | 84% | 85% | 85.5% | 85.5% | 85.5% | 85.5% | 86% | 86% |
| | **AC CURRENT** | 0.4A / 115VAC 0.25A / 230VAC 0.2A/277VAC | | | | | | | |
| | **INRUSH CURRENT(Typ.)** | COLD START 50A(twidth=200$\mu$s measured at 50% Ipeak) at 230VAC*;* Per NEMA 410 | | | | | | | |
| | **MAX. No. of PSUs on 16A CIRCUIT BREAKER** | 12 units (circuit breaker of type B) / 21 units (circuit breaker of type C) at 230VAC | | | | | | | |
| | **LEAKAGE CURRENT** | <0.75mA / 240VAC | | | | | | | |
| **PROTECTION** | **OVER CURRENT** | 95 ~ 108% | | | | | | | |
| | | Constant current limiting, recovers automatically after fault condition is removed | | | | | | | |
| | **SHORT CIRCUIT** | Hiccup mode, recovers automatically after fault condition is removed. | | | | | | | |
| | **OVER VOLTAGE** | 15 ~ 18V | 17.5 ~ 21V | 23 ~ 27V | 28 ~ 35V | 34 ~ 40V | 41 ~ 49V | 46 ~ 54V | 54 ~ 63V | 59 ~ 66V |
| | | Shut down and latch off o/p voltage, re-power on to recover | | | | | | | |
| | **OVER TEMPERATURE** | Shut down o/p voltage, recovers automatically after temperature goes down | | | | | | | |
| **ENVIRON** | **WORKING TEMP.** | Tcase=-35 ~ +70℃ (Please refer to “ OUTPUT LOAD vs TEMPERATURE” section ) | | | | | | | |
| | **MAX. CASE TEMP.** | Tcase=+70℃ | | | | | | | |
| | **WORKING HUMIDITY** | 20 ~ 95% RH non-condensing | | | | | | | |
| | **STORAGE TEMP., HUMIDITY** | -40 ~ +80℃, 10 ~ 95% RH | | | | | | | |

| | | |
|---|---|---|
| **MENT** | **TEMP. COEFFICIENT** | ±0.03%/℃ (0 ~ 50℃) |
| | **VIBRATION** | 10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes |
| **SAFETY & EMC** | **SAFETY STANDARDS Note.8** | UL8750, CSA C22.2 No. 250.0-08,ENEC BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384,<br>EAC TP TC 004,GB19510.1,GB19510.14,IP67 approved ;Design refer to UL60950-1 |
| | **WITHSTAND VOLTAGE** | I/P-O/P:3.75KVAC |
| | **ISOLATION RESISTANCE** | I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH |
| | **EMC EMISSION Note.8** | Compliance to BS EN/EN55015,BS EN/EN61000-3-2 Class C (@load≧55%) ; BS EN/EN61000-3-3,GB/T 17743 , GB17625.1,EAC TP TC 020 |
| | **EMC IMMUNITY** | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Line 2KV),EAC TP TC 020 |
| **OTHERS** | **MTBF** | 3574.2K hrs min. Telcordia SR-332 (Bellcore) ; 391.6Khrs min. MIL-HDBK-217F (25℃) |
| | **DIMENSION** | 148*40*32mm (L*W*H) |
| | **PACKING** | 0.36Kg; 40pcs/ 15.4Kg/1.02CUFT |

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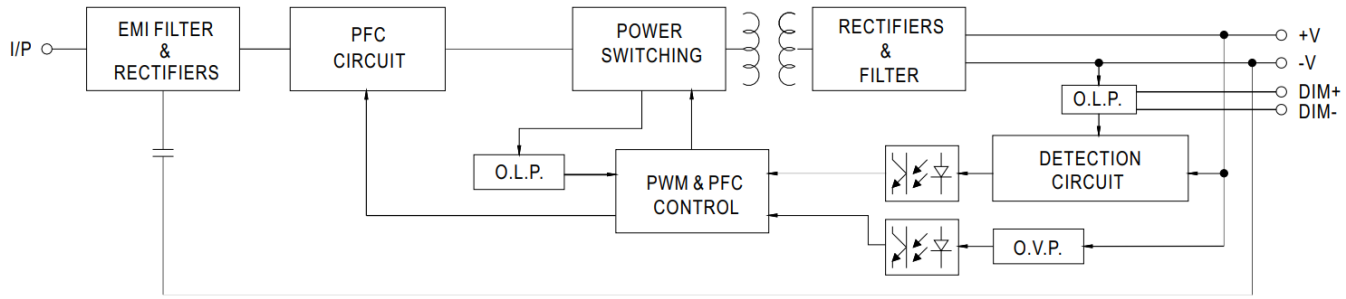
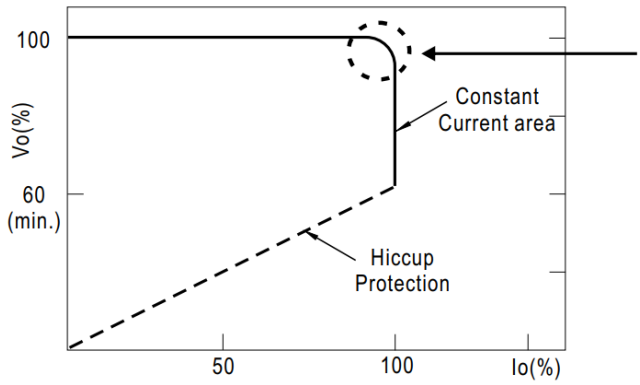
|---|---|
| **NOTE** | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.<br><br>2. Please refer to “DRIVING METHODS OF LED MODULE”.<br><br>3. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated wit h a 0.1uf & 47uf parallel capacitor.<br><br>4. Tolerance : includes set up tolerance, line regulation and load regulation.<br><br>5. De-rating may be needed under low input voltages. Please refer to “STATIC CHARACTERISTIC” se ctions for details.<br><br>6. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.<br><br>7. The driver is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.<br><br>(as available on https://**www.meanwell.com//Upload/PDF/EMI_statement_en.pdf)**<br><br>8. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be use d behind a switch without permanently connected to the mains.<br><br>9. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 70℃ or less.<br><br>10. Please refer to the warranty statement on MEAN WELL’s website at **http://www.meanwell.com**<br><br>11. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br><br>12. For any application note and IP water proof function installation caution, please refer our user man ual before using. https://**www.meanwell.com/Upload/PDF/LED_EN.pdf**<br><br>※ Product Liability Disclaimer For detailed information, please refer to https://**www.meanwell.com/ser viceDisclaimer.aspx** |

**BLOCK DIAGRAM**




## DRIVING METHODS OF LED MODULE

- This series works in constant current mode to directly drive the LEDs.

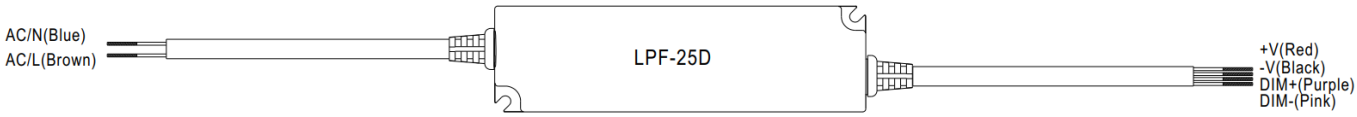



Typical output current normalized by rated current (%)

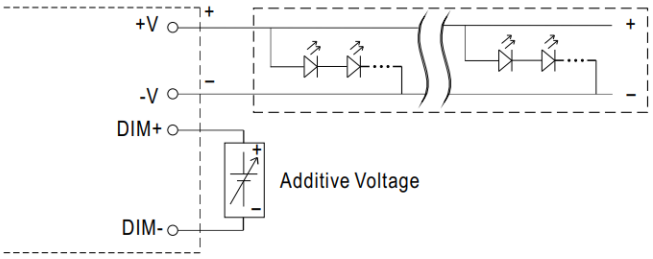
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.
Should there be any compatibility issues, please contact MEAN WELL.

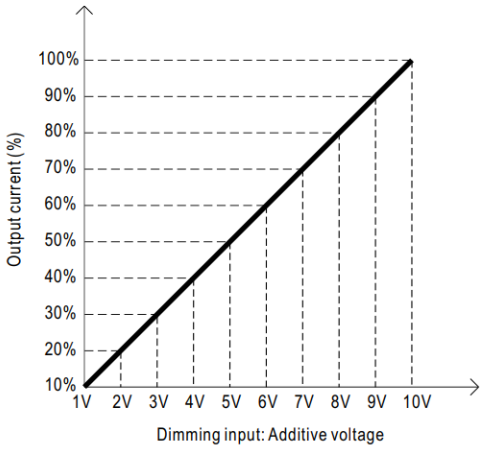
## DIMMING OPERATION

- 3 in 1 dimming function

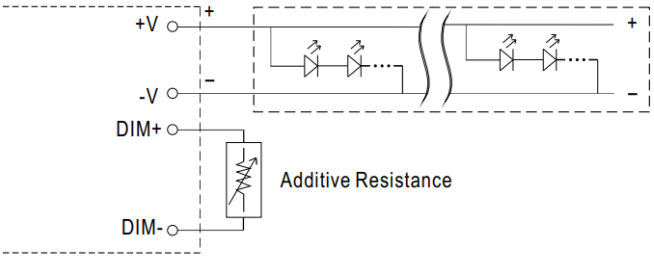


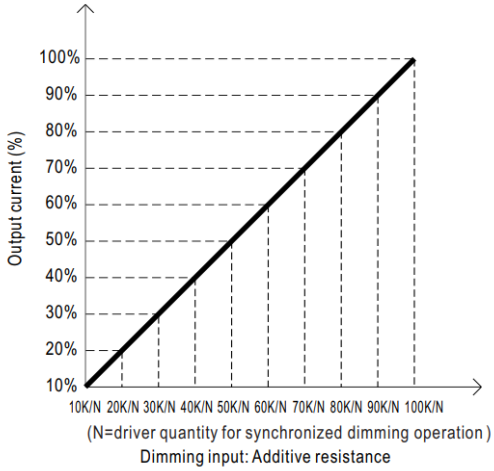

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
- 1 ~ 10VDC, or 10V PWM signal or resistance.
- Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
- Dimming source current from power supply: 100uA (typ.)
- Applying additive 1 ~ 10VDC



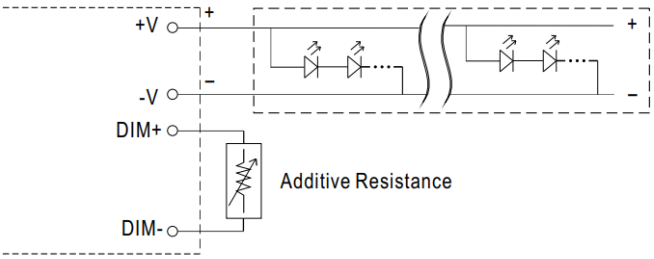



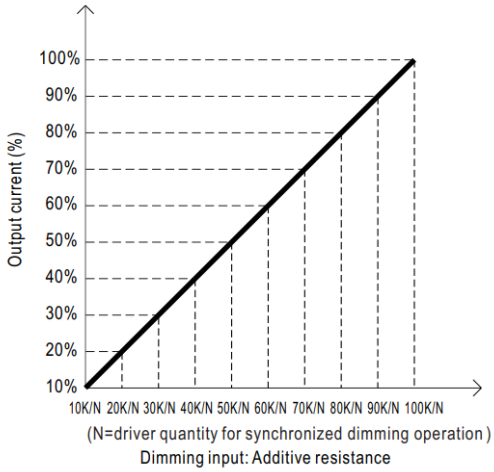

**Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):**



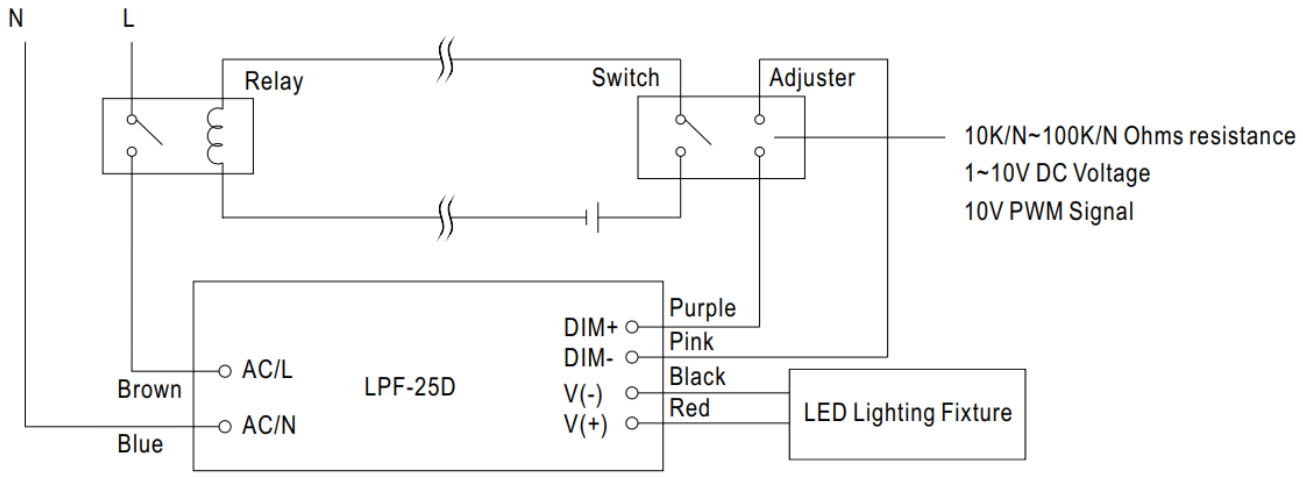

**Applying additive resistance:**



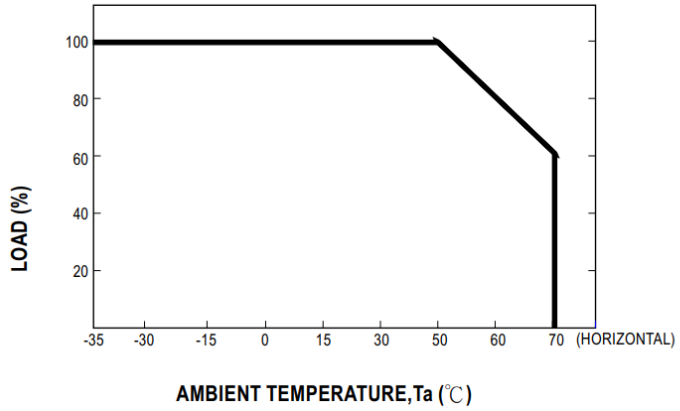

**Note:**

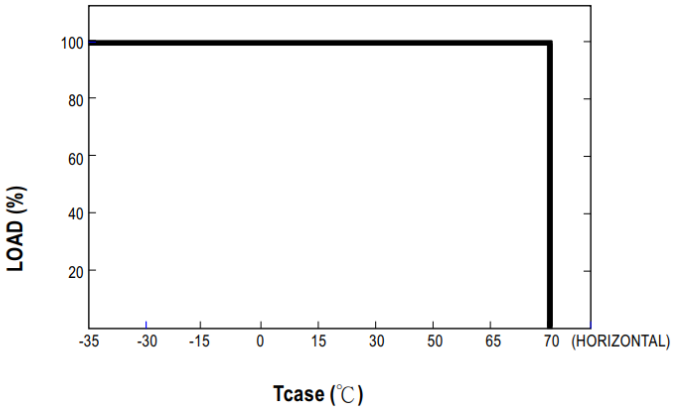
In the case of turning the lighting fixture down to 0% brightness, please refer to the configuration as follow, or please contact MEAN WELL for other options.



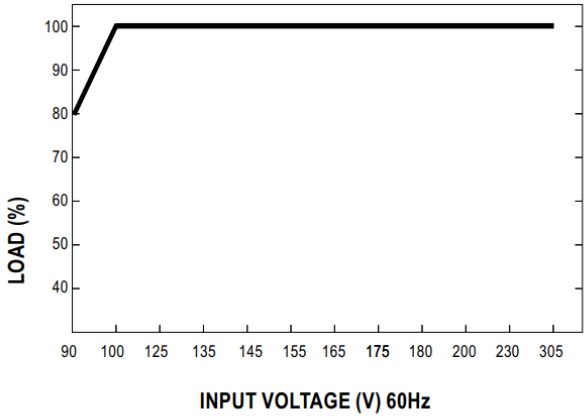

Using a switch and relay can turn ON/OFF the lighting fixture.

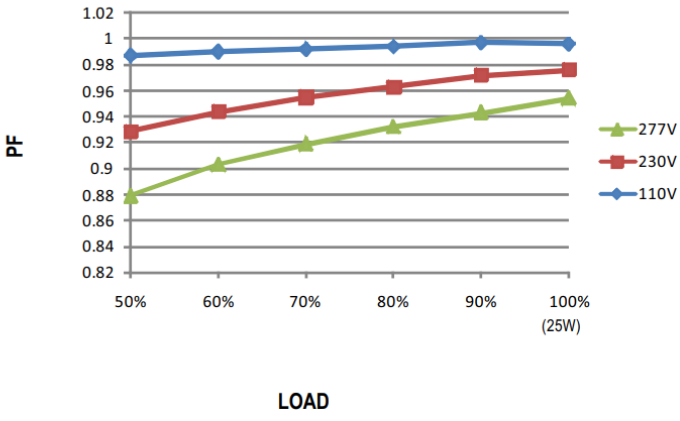
## OUTPUT LOAD VS TEMPERATURE




1. **STATIC CHARACTERISTIC**
2. **POWER FACTOR (PF) CHARACTERISTIC**
   - Tcase at 60°C



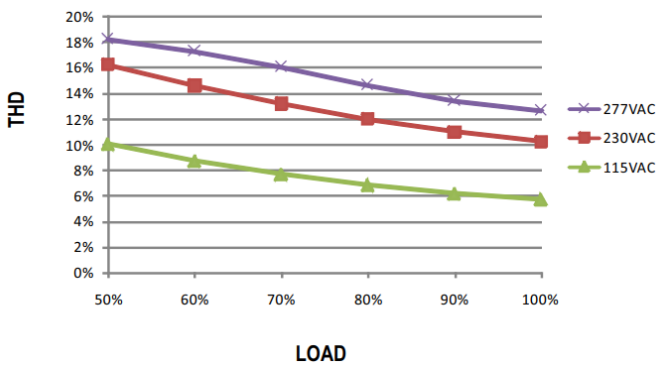

- De-rating is needed under low input voltage.

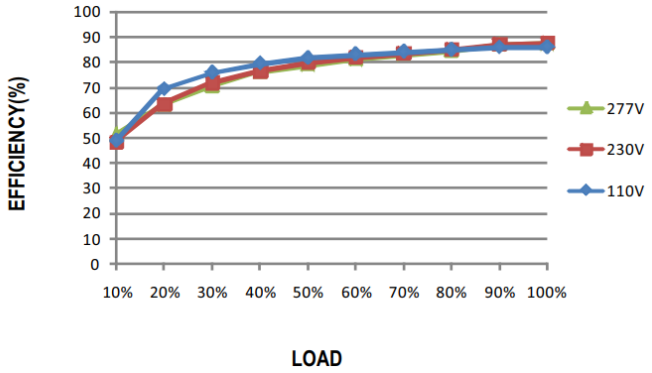
## TOTAL HARMONIC DISTORTION (THD)

- 48V Model, Tcase at 60°C

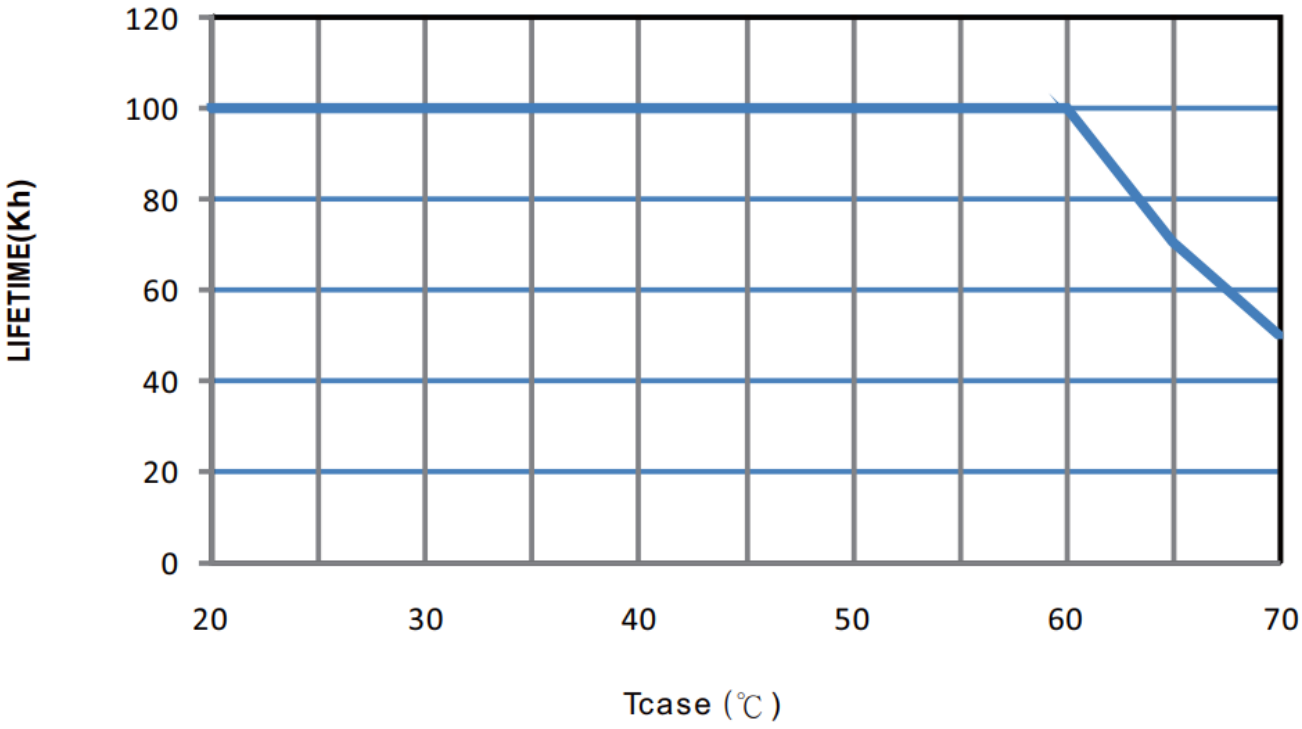
**EFFICIENCY vs LOAD**

- LPF-25D series possess superior working efficiency that up to 86% can be reached in field applications.
- 48V Model. Tcase at 60°Cl

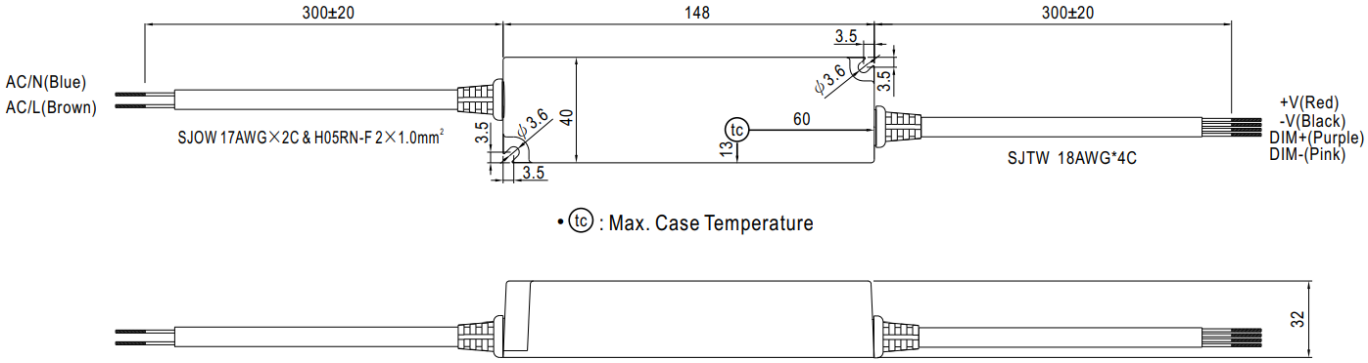


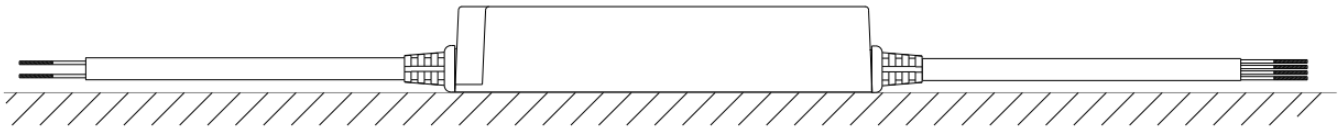

**LIFE TIME**




**MECHANICAL SPECIFICATION**




### Recommend Mounting Direction



### INSTALLATION MANUAL

- Please refer to: http://www.meanwell.com/manual.html

## Frequently Asked Question

**Q: What should I do if the LED driver overheats?**
A: If the LED driver overheats, immediately disconnect power and allow it to cool down before investigating the cause. Ensure proper ventilation around the driver to prevent overheating in the future.

**Q: Can I connect multiple LED drivers?**
A: The maximum number of LED drivers that can be connected depends on the circuit breaker type and voltage. Refer to the manual for the specific details regarding the number of units that can be connected in a circuit.

## Documents / Resources

| | |
|---|---|
|  | MEAN WELL LPF-25D-12 Series Constant Current Mode LED Driver [pdf] Owner's Manual LPF-25D-12, LPF-25D-15, LPF-25D-20, LPF-25D-24, LPF-25D-30, LPF-25D-36, LPF-25D-42, LPF-25D-48, LPF-25D-54, LPF-25D-12 Series Constant Current Mode LED Driver, LPF-25D-12 Series, Constant Current Mode LED Driver, Current Mode LED Driver, Mode LED Driver, LED Driver, Driver |

## References

- User Manual