60W Constant Voltage + Constant Current LED Driver

LPF-60 series

User's Manual

TAIWAN EXCELLENCE 2012

SELV IP67 (CCC optional) 05 IS 15885(Part 2/Sec13) R-41027766 (for 24V only) c US CB UK CA

Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- Class 2 power unit
- Fully encapsulated with IP67 level
- Typical lifetime>50000 hours
- 5 years warranty

Applications

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

Description

LPF-60 series is a 60W AC/DC LED driver featuring the dual modes constant voltage and constant current output. LPF-60 operates from 90～305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the hign efficiency up to 90%, with the fanless design, the entire series is able to operate for -40℃ ~ +80℃ 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.

Model Encoding

LPF - 60 - 20

- 20 — Rated output voltage(12V/15V/20V/24V/30V/36V/42V/48V/54V)
- 60 — Rated wattage
- LPF — Series name

60W Constant Voltage + Constant Current LED Driver LPF-60 series

SPECIFICATION

MODEL		LPF-60-12	LPF-60-15	LPF-60-20	LPF-60-24	LPF-60-30	LPF-60-36	LPF-60-42	LPF-60-48	LPF-60-54
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.2	7.2 ~12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT	5A	4A	3A	2.5A	2A	1.67A	1.43A	1.25A	1.12A
	RATED POWER Note.5	60W	60W	60W	60W	60W	60.12W	60.06W	60W	60.48W
	RIPPLE & NOISE (max.) Note.3	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	250mVp-p	250mVp-p	350mVp-p
	VOLTAGE TOLERANCE Note.4	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%	±4.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±2.0%	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.6	1000ms, 80ms / 115VAC 500ms, 80ms / 230VAC								
	HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC								
INPUT	VOLTAGE RANGE Note.5	90 ~ 305VAC 127 ~ 431VDC (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 (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)								
	TOTAL HARMONIC DISTORTION	THD< 20%(@load≧60%/115VC,230VAC; @load≧75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)								
	EFFICIENCY (Typ.)	86%	87%	88%	89%	90%	90%	90%	90%	90%
	AC CURRENT	0.8A / 115VAC 0.4A / 230VAC 0.32A/277VAC								
	INRUSH CURRENT(Typ.)	COLD START 55A(twidth=270μs measured at 50% Ipeak) at 230VAC; Per NEMA 410								
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	8 units (circuit breaker of type B) / 14 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 ~ 17V	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, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	Tcase=-40 ~ +80℃ (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)								
	MAX. CASE TEMP.	Tcase=+80℃								
	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH								
	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, IP67, J61347-1, J61347-2-13, BIS IS15885(for 24V only), EAC TP TC 004,GB19510.1,GB19510.14 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≧60%) ; BS EN/EN61000-3-3, GB17743 and 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	440.5Khrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	162.5*43*32mm (L*W*H)								
	PACKING	0.45Kg; 32pcs/15.4Kg/0.93CUFT								

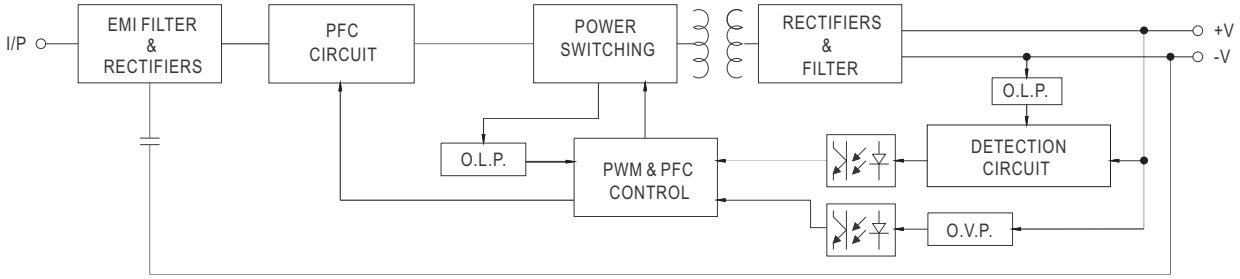
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. Please refer to "DRIVING METHODS OF LED MODULE".
3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
4. Tolerance : includes set up tolerance, line regulation and load regulation.
5. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details.
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.
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.
8. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch without permanently connected to the mains.
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.
10. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com
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).
12. For any application note and IP water proof function installation caution, please refer our user manual before using.
    https://www.meanwell.com/Upload/PDF/LED_EN.pdf

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

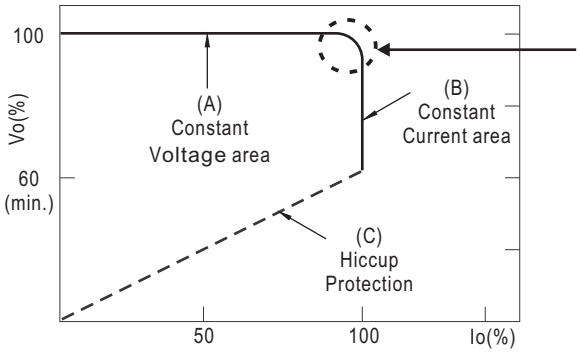
■ BLOCK DIAGRAM

fosc : 100KHz



■ DRIVING METHODS OF LED MODULE

※ This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.

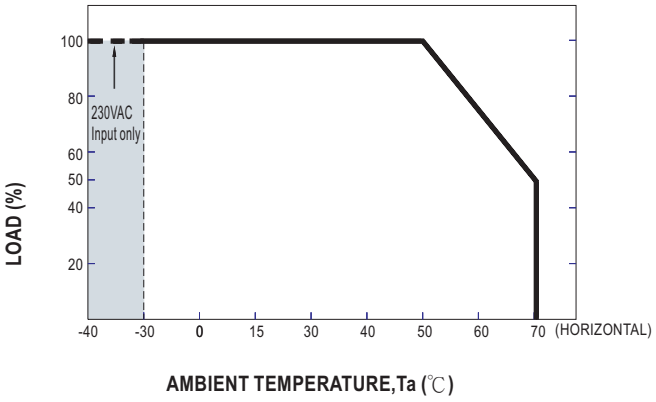


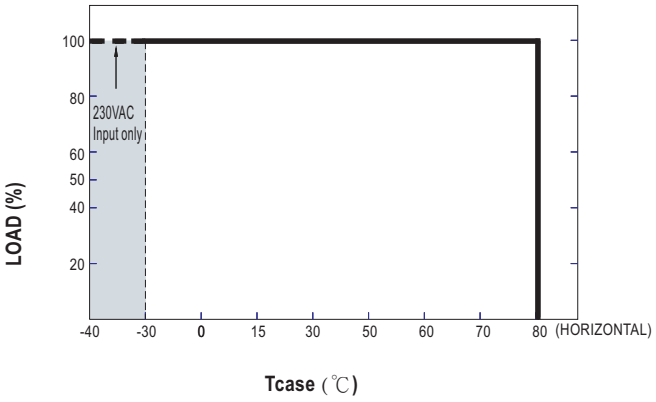
Typical output current normalized by rated current (%)

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.

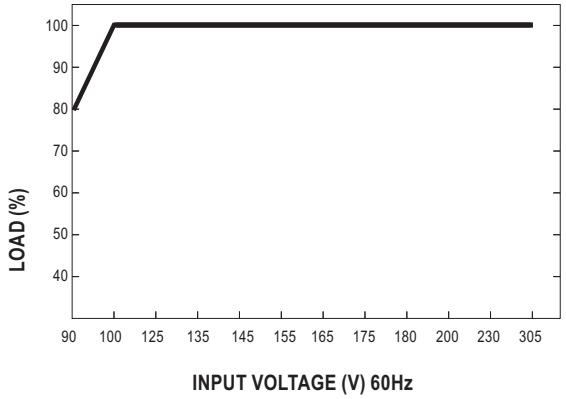
Should there be any compatibility issues, please contact MEAN WELL.

■ OUTPUT LOAD vs TEMPERATURE





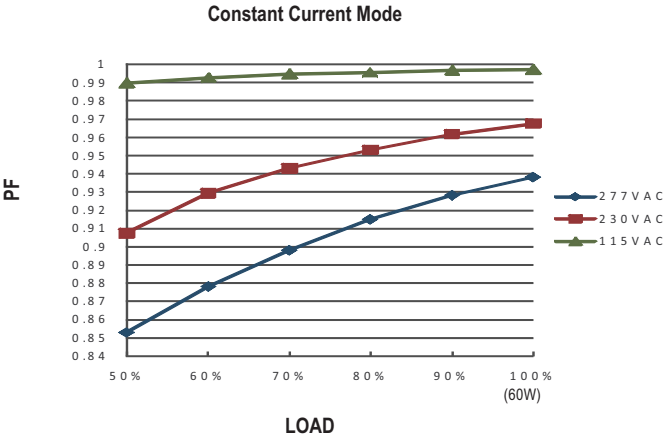
■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

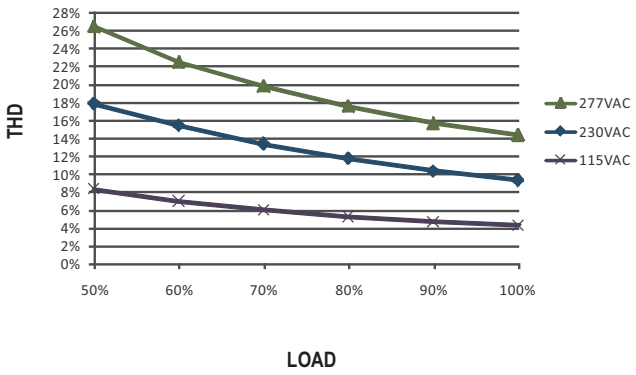
■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 70℃



■ TOTAL HARMONIC DISTORTION (THD)

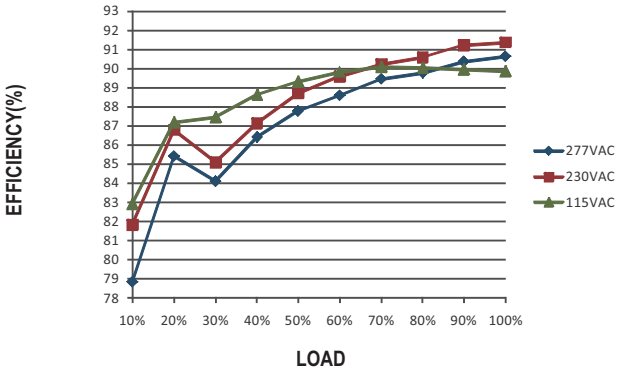
※ 48V Model, Tcase at 70℃



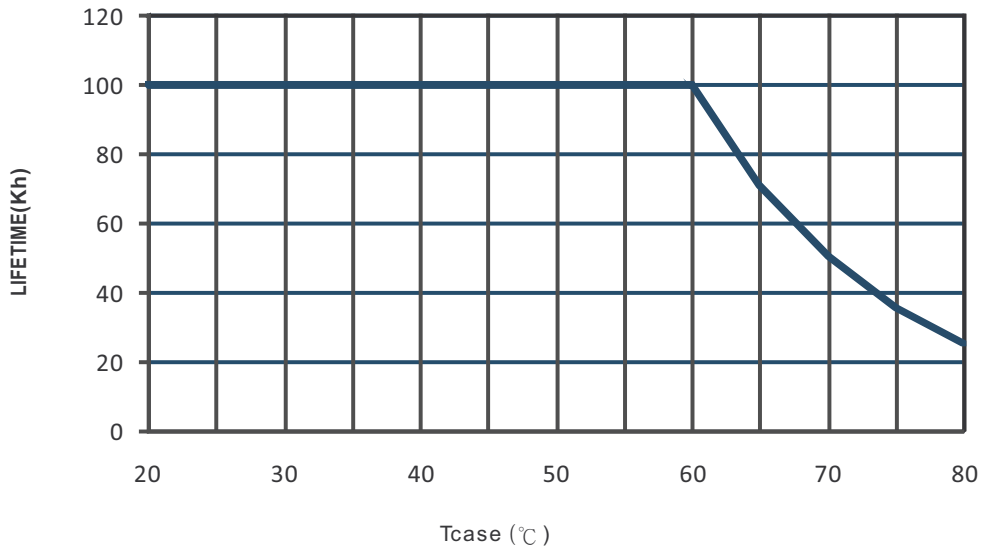
■ EFFICIENCY vs LOAD

LPF-60 series possess superior working efficiency that up to 90% can be reached in field applications.

※ 48V Model, Tcase at 70℃

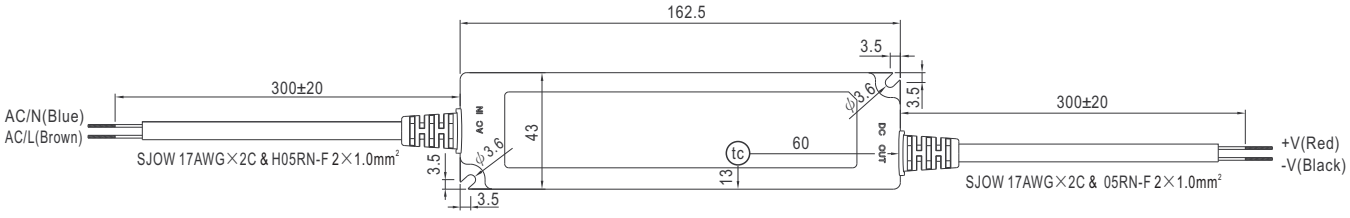


■ LIFE TIME



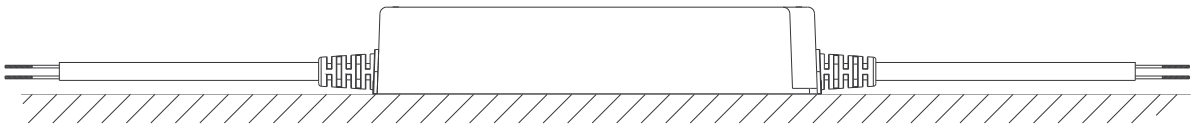
■ MECHANICAL SPECIFICATION

CASE NO.: LPF-60B Unit:mm



• (tc) : Max. Case Temperature

■ Recommend Mounting Direction



■ INSTALLATION MANUAL

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