E-Star Power Development Co., Ltd. (E-STAR)
1F., No.40, Juren Ln., Sec. 2, Sanmin Rd., Banciao Dist., New Taipei City 22069, Taiwan (R.O.C.)
Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

25W LED Driver power supply < LPF-25

■ 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-25 series is a 25W AC/DC LED driver featuring the dual modes constant voltage and constant current output. LPF-25 operates from 90～305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the efficiency up to 87%, with the fanless design, the entire series is able to operate for -35℃ ~ +70℃ 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 - 25 - 24

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

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SPECIFICATION

MODEL		LPF-25-12	LPF-25-15	LPF-25-20	LPF-25-24	LPF-25-30	LPF-25-36	LPF-25-42	LPF-25-48	LPF-25-54
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	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
	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
	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	1500ms, 80ms / 115VAC 500ms, 80ms / 230VAC								
	HOLD UP TIME (Typ.)	16ms/115VAC 16ms/230VAC								
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.)	84%	85%	86%	86%	86%	86%	86%	87%	86.5%
	AC CURRENT	0.4A / 115VAC 0.25A / 230VAC 0.2A/277VAC								
	INRUSH CURRENT(Typ.)	COLD START 50A(twidth=200μs 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								
ENVIRONMENT	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								
	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 EN61347-1, EN61347-2-13 independent, EN62384,J61347-1, J61347-2-13 approved, IP67 approved ;Design refer to UL60950-1, TUV EN60950-1								
	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 EN55015,EN61000-3-2 Class C (@load≧50%) ; EN61000-3-3								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level (surge immunity Line-Line 2KV)								
OTHERS	MTBF	473.4Khrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	148*40*32mm (L*W*H)								
	PACKING	0.36Kg; 40pcs/ 15.4Kg/1.02CUFT								

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. The model certified for CCC(GB19510.14, GB19510.1, GB17743 and GB17625.1) is an optional model .
9. 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.
10. 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.

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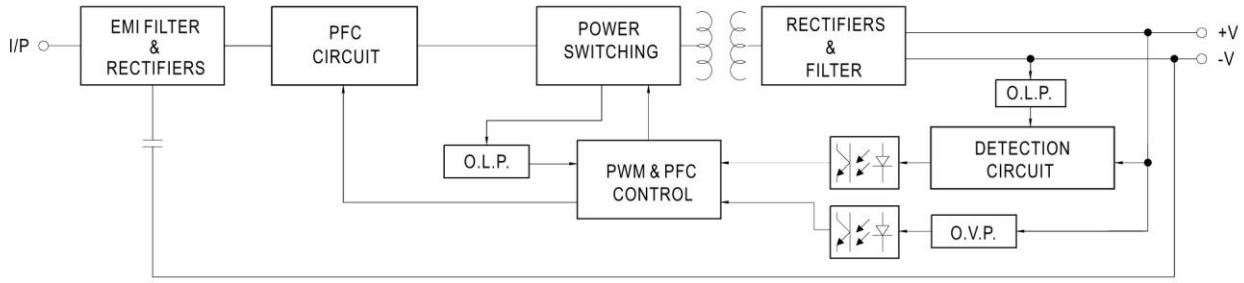
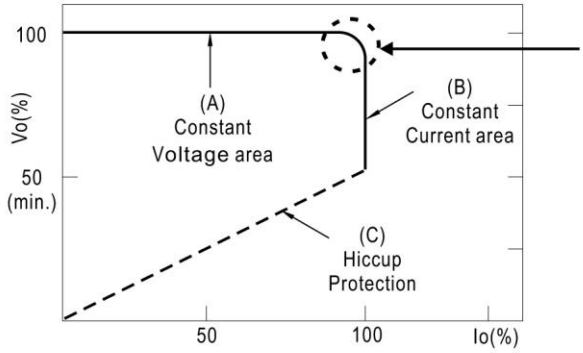
■ BLOCK DIAGRAM

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.

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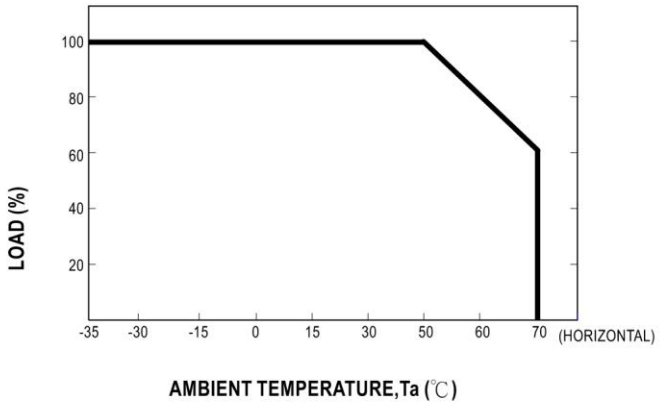
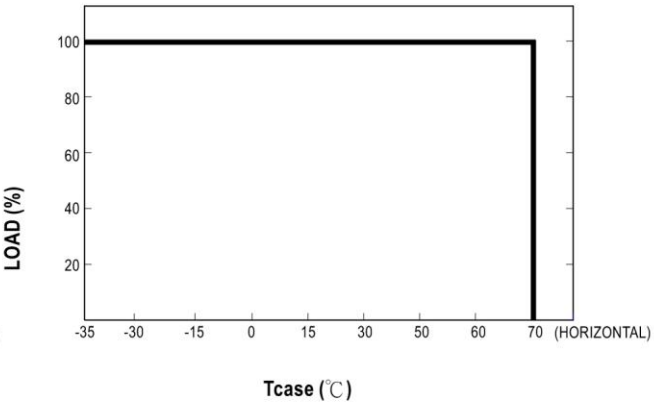
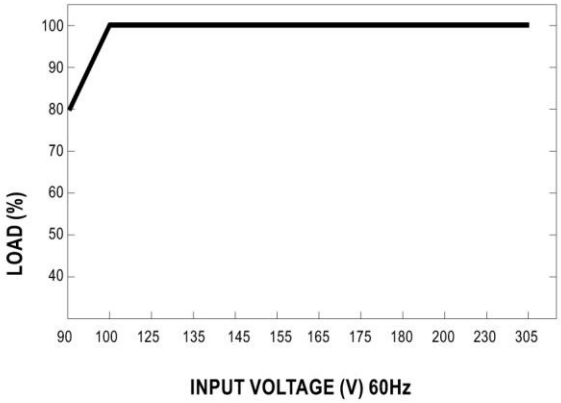
■ OUTPUT LOAD vs TEMPERATURE





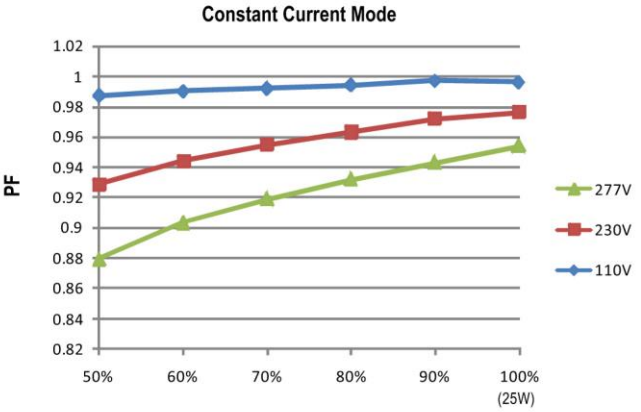
■ STATIC CHARACTERISTIC



※ De-rating is needed under low input voltage.

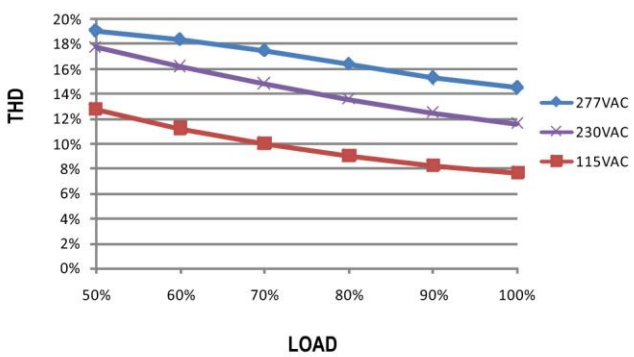
■ POWER FACTOR (PF) CHARACTERISTIC

※ Tcase at 60℃



■ TOTAL HARMONIC DISTORTION (THD)

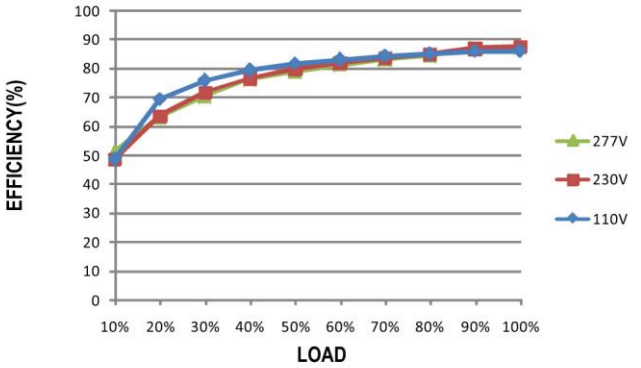
※ 48V Model, Tcase at 60℃



■ EFFICIENCY vs LOAD

LPF-25 series possess superior working efficiency that up to 87% can be reached in field applications.

※ 48V Model, Tcase at 60℃



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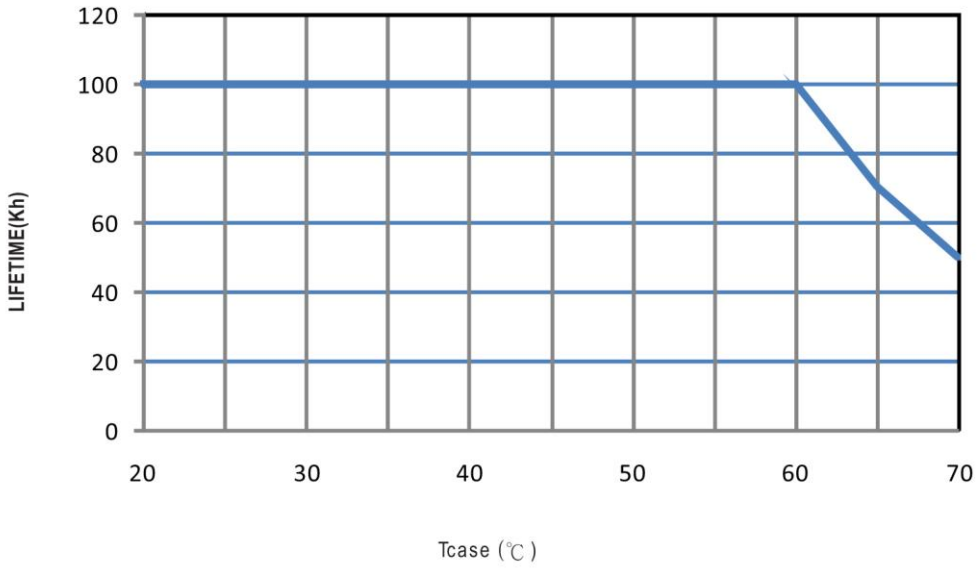
■ LIFE TIME



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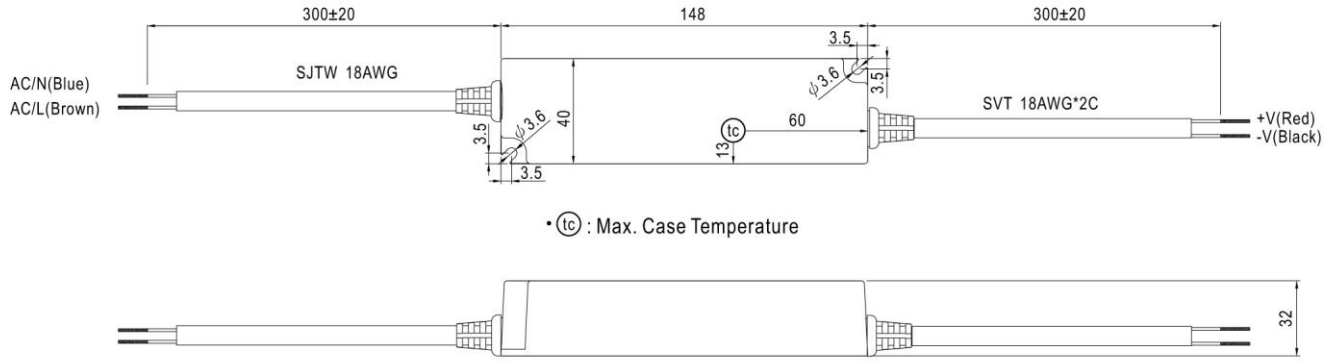
■ MECHANICAL SPECIFICATION

CASE NO.: LPF-16A Unit:mm



• tc : Max. Case Temperature