

LPF-60 Series

60W Single Output Dimming LED Lighting Power Supplies



Case No: 8010AC
162.5 x 43 x 32 mm

Features

- Constant Voltage and 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

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



Specification

INPUT	Voltage	90V ~ 305VAC 127 ~ 431VDC								
	Frequency	47 ~ 63 Hz								
	Power Factor	PF \geq 0.97/115VAC PF \geq 0.95/230VAC, PF \geq 0.92/277VAC at full load (please refer to "Power Factor characteristic" curve)								
	Total Harmonic Distortion	<20% at load \geq 60%/115VDC, 230VAC; at \geq 75% 277/VAC (Please refer to "Total Harmonic Distortion" section)								
	Efficiency	86%	87%	88%	89%	90%	90%	90%	90%	90%
	Current	0.8A@115VAC 0.4A@230VAC 0.32A@277VAC								
	Inrush Current (Typ.)	Cold Start 55A(twidth=270 μ s measured at 50% Ipeak) @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 input								
	OUTPUT	MODEL No.	LPF-60-12	LPF-60-15	LPF-60-20	LPF-60-24	LPF-60-30	LPF-60-36	LPF-60-42	LPF-60-48
Voltage		12V	15V	20V	24V	30V	36V	42V	48V	54V
Rated Current		5A	4A	3A	2.5A	2A	1.67A	1.43A	1.25A	1.12A
Current Range		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 Power		60W	60W	60W	60W	60W	60.12W	60.06W	60W	60.48W
Ripple Noise MAX.		150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	250mVp-p	250mVp-p	250mVp-p	350mVp-p
Voltage Tolerance		\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%	\pm 4.0%
Line Regulation		\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%
Load Regulation		\pm 2.0%	\pm 1.5%	\pm 1.0%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%	\pm 0.5%
Setup Rise Time		1000ms, 80ms / 115VAC 500ms, 80ms / 230VAC								
PROTECTION	Holdup Time (Typ.)	16ms / 230VAC 16ms / 115VAC								
	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
	Over Temperature	Protection Type: Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	Working Temp.	Tcase = -40~+80°C (Refer to "Derating Curve")								
	Max. Case Temperature	Tcase = +80°C								
	Working Humidity	20~95% RH non-condensing								
	Storage Temp., Humidity	-40~+80°C, 10~95%RH								
	Temp. Co-efficient	\pm 0.03% / °C (0~50°C)								
SAFETY & EMC	Vibration	10~500Hz, 5G 12min./1cycle, period for 72 min. each along X, Y, Z axes								
	Withstand Voltage	I/P-O/P:3.75KVAC								
	Isolation Resistance	I/P-OP:100M Ohms / 500VDC/ 25°C / 70% RH								
	Safety Standards	UL8750, CSA C22.2 No. 250.0-08, ENEC EN61347-1, EN61347-2-13 independent, 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, TUV EN60950-1								
	EMC Emission	Compliance to EN55015,EN61000-3-2 Class C (@load \geq 60%) ; EN61000-3-3, GB17743 and GB17625.1, EAC TP TC 020								
OTHERS	EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, light industry level (surge immunity Line-Line 2KV), EAC TP TC 020								
	M.T.B.F.	440.5K hrs min. MIL-HDBK-217F (25°C)								
	Packaging	0.45Kg; 32pcs/15.4Kg/0.93CUFT								

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C 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 0.1 μ f & 47 μ f 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. 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°C or less.
9. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED driver can only be used behind a switch with permanent connection to the mains.
10. The ambient temperature of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude of higher than 2000m (6500ft).

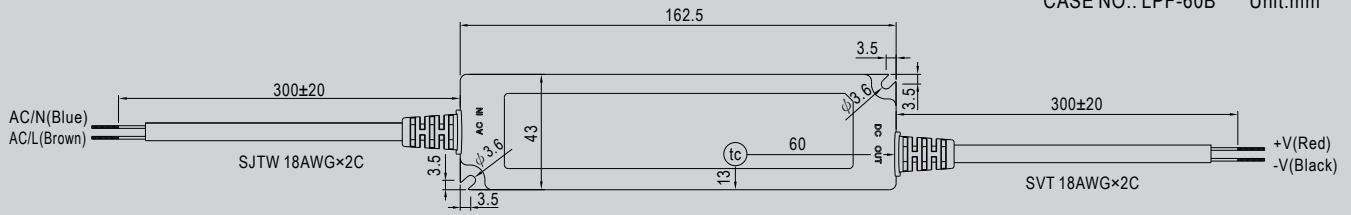
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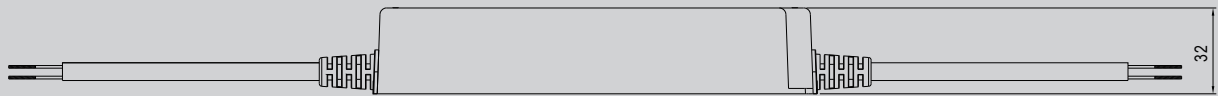


Mechanical Diagram

CASE NO.: LPF-60B Unit:mm

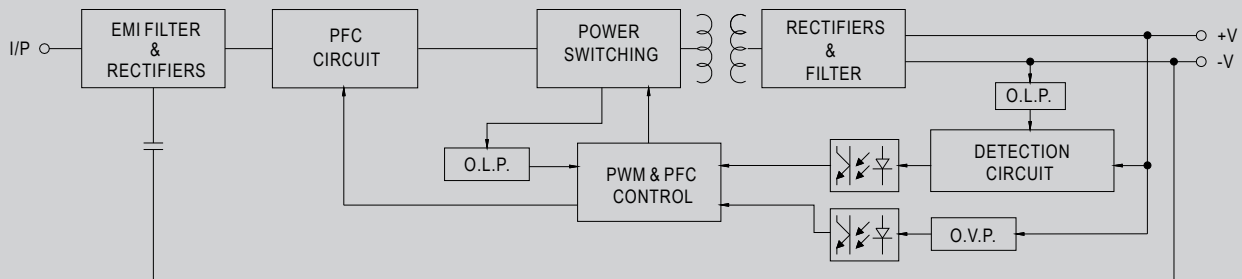


• tc : Max. Case Temperature



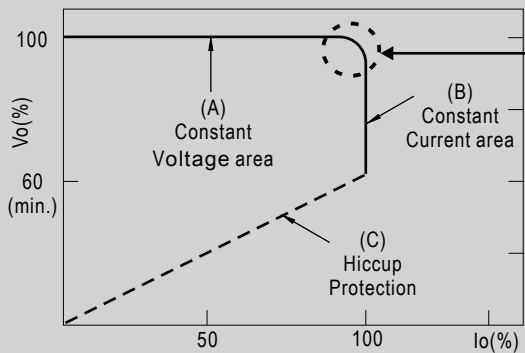
Block Diagram

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.



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

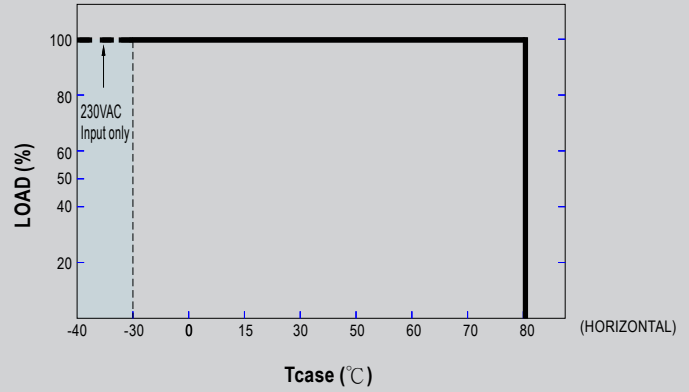
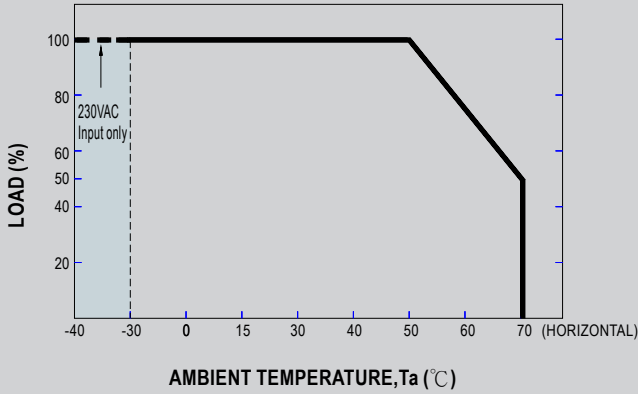
Typical output current normalized by rated current (%)

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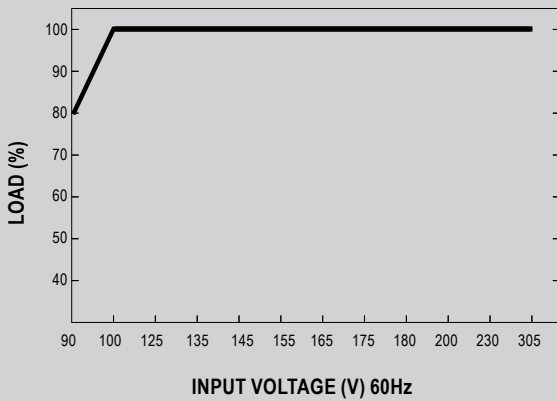
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Output Load vs Temperature



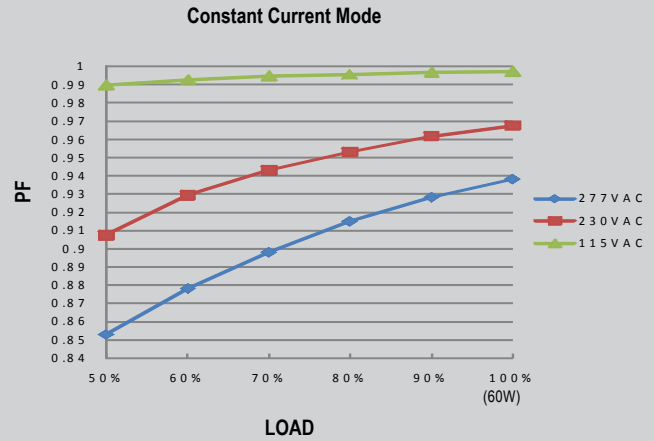
Static Characteristic



De-rating is needed under low input voltage.

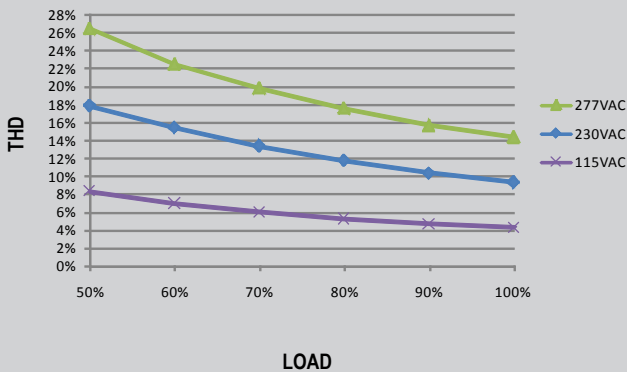
Power Factor (PF) Characteristic

T_{case} at 70°C



Total Harmonic Distortion (THD)

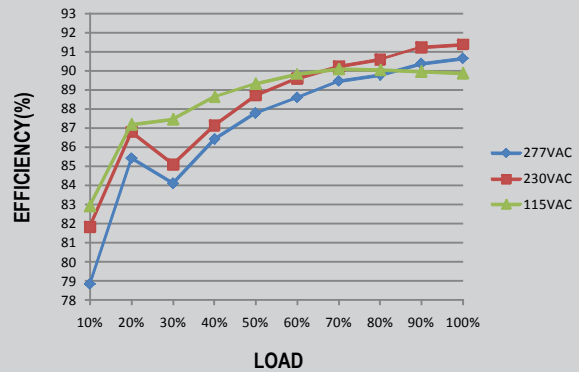
48V Model, T_{case} at 70°C



Efficiency vs Load

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

48V Model, T_{case} at 70°C



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Life Time

