



## 90W Single Output Switching Power Supply

## LPF-90 series



## ■ Features :

- Universal AC input / Full range (up to 305VAC)
- Built-in active PFC function
- High efficiency up to 91%
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Fully isolated plastic case
- Fully encapsulated with IP67 level (Note.6)
- Class II power unit, no FG
- Suitable for LED lighting and moving sign applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 3 years warranty



## SPECIFICATION

MODEL		LPF-90-15	LPF-90-20	LPF-90-24	LPF-90-30	LPF-90-36	LPF-90-42	LPF-90-48	LPF-90-54								
OUTPUT	DC VOLTAGE	15V	20V	24V	30V	36V	42V	48V	54V								
	CONSTANT CURRENT REGION Note.4	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V								
	RATED CURRENT	5A	4.5A	3.75A	3A	2.5A	2.15A	1.88A	1.67A								
	RATED POWER	75W	90W	90W	90W	90W	90.3W	90.24W	90.18W								
	RIPPLE & NOISE (max.) Note.2	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p	200mVp-p								
	VOLTAGE TOLERANCE Note.3	±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%								
	LOAD REGULATION	±1.5%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%								
	SETUP, RISE TIME Note.7	2000ms, 80ms / 115VAC at full load				1000ms, 80ms / 230VAC at full load											
HOLD UP TIME (Typ.)	16ms/230VAC		16ms/115VAC at full load														
INPUT	VOLTAGE RANGE Note.5	90 ~ 305VAC		127 ~ 431VDC													
	FREQUENCY RANGE	47 ~ 63Hz															
	POWER FACTOR (Typ.)	PF>0.97/115VAC, PF>0.96/230VAC, PF>0.95/277VAC at full load (Please refer to "Power Factor Characteristic" curve)															
	EFFICIENCY (Typ.)	89%	90%	90.5%	91%	91%	91%	91%	91%								
	AC CURRENT (Typ.)	0.95A / 115VAC		0.5A / 230VAC		0.4A / 277VAC											
	INRUSH CURRENT(Typ.)	COLD START 70A/230VAC															
LEAKAGE CURRENT	<0.75mA / 277VAC																
PROTECTION	OVER CURRENT Note.4	95 ~ 108%															
	OVER VOLTAGE	18 ~ 21V		23 ~ 27V		28 ~ 34V		34 ~ 38V		41 ~ 46V		47 ~ 53V		54 ~ 60V		59 ~ 65V	
	OVER TEMPERATURE	90°C ±10°C (RTH2)															
ENVIRONMENT	WORKING TEMP.	-40 ~ +70°C (Refer to "Derating Curve")															
	WORKING HUMIDITY	20 ~ 95% RH non-condensing															
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH															
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)															
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes															
SAFETY & EMC	SAFETY STANDARDS	UL8750, EN61347-1, EN61347-2-13 independent, 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°C / 70% RH															
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (≥ 60% load) ; EN61000-3-3															
OTHERS	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; EN61547, EN55024, light industry level(surge 2KV), criteria A															
	MTBF	301.6Khrs min. MIL-HDBK-217F (25°C)															
DIMENSION	DIMENSION	161*61*36mm (L*W*H)															
	PACKING	0.7Kg;20pcs/15Kg/0.73CUFT															
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>4. Constant current operation region is within 60% ~ 100% rated output voltage. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.</li> <li>5. Derating may be needed under low input voltages. Please check the static characteristics for more details.</li> <li>6. Suitable for indoor use or outdoor use without direct sunlight exposure. Please avoid immerse in the water over 30 minutes.</li> <li>7. Length of set up time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.</li> <li>8. The power supply 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.</li> </ol>																

File Name:LPF-90-SPEC 2011-05-27

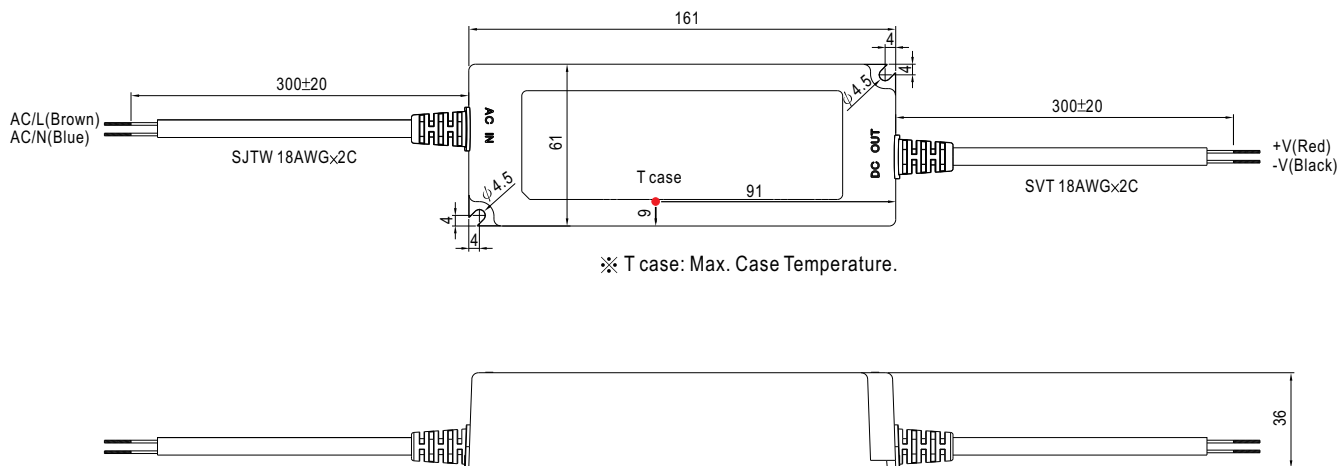


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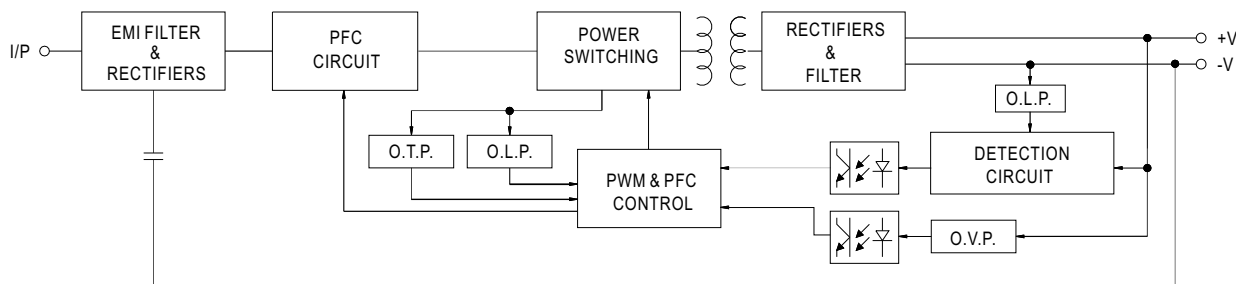
■ Mechanical Specification

Case No.LPF-90A Unit:mm

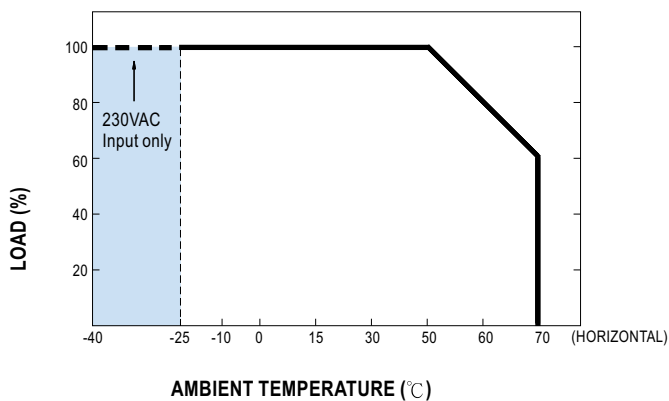


■ Block Diagram

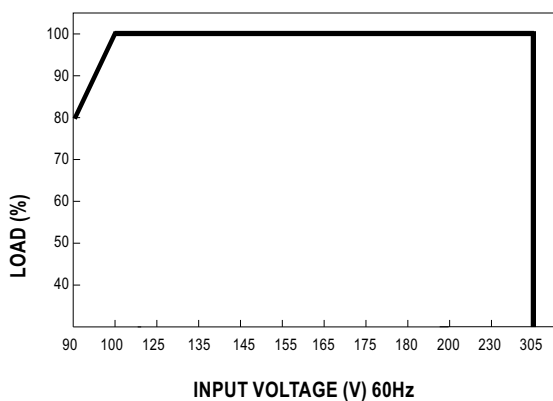
fosc : 100KHz



■ Derating Curve



■ Static Characteristics



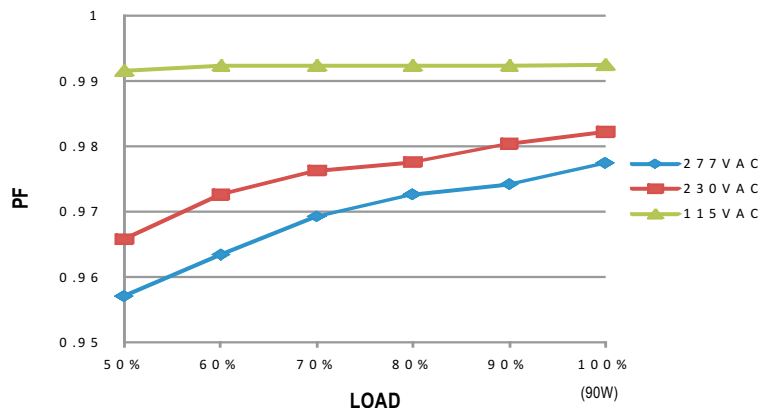


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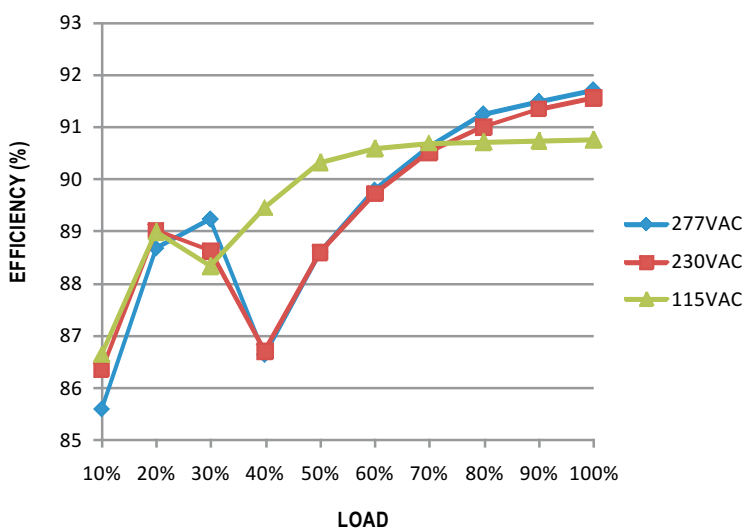
### Power Factor Characteristic

#### Constant Current Mode



### EFFICIENCY vs LOAD (48V Model)

LPF-90 series possess superior working efficiency that up to 91% can be reached in field applications.

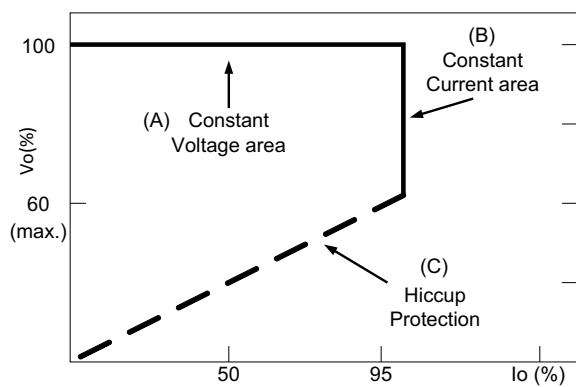


### DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method "direct drive" and "with LED driver".

A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.

Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode (with LED driver, at area (A) and CC mode (direct drive, at area (B)).



Typical LED power supply I-V curve