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12W LED Driver power supply < PLM-12



Features

- 230VAC only or Full range (up to 295VAC) models available
- Built-in active PFC function
- Constant current design
- Protections: Short circuit
- Cooling by free air convection
- Fully isolated plastic case
- Class II power unit, no FG
- Class 2 power unit (Blank type only)
- No load power consumption <0.5W
- High reliability, low cost
- 2 years warranty

Applications

- Indoor LED lighting
- LED office lighting
- LED commercial lighting
- LED decorative lighting

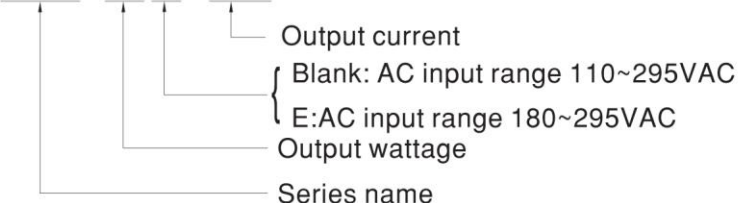
Description

PLM-12 is a 12W economical AC/DC LED power supply series. Incorporating a built-in active PFC design, PLM-12 provides a high Power Factor value greater than 0.9. In addition, with the low no load power consumption below 0.5W, and the setup time less than 500ms, PLM-12 is complied with the ErP regulation required by European Union for lighting fixtures.

PLM-12 is a class II (without FG pin) power unit housed with the UL 94V-0 rated flame retardant plastic case. The I/O terminals are designed with screw-less clamp style terminal block that greatly simplifies the wiring installation. Two types of models with different input voltage range are offered: PLM-12 series, which operates from 110~295VAC, and PLM-12E series, which operates from 180~295VAC. These two series are both constant current output design, supplying models with the current of 350mA, 500mA, 700mA and 1050mA, respectively.

Model Encoding

PLM - 12 E - 350





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SPECIFICATION

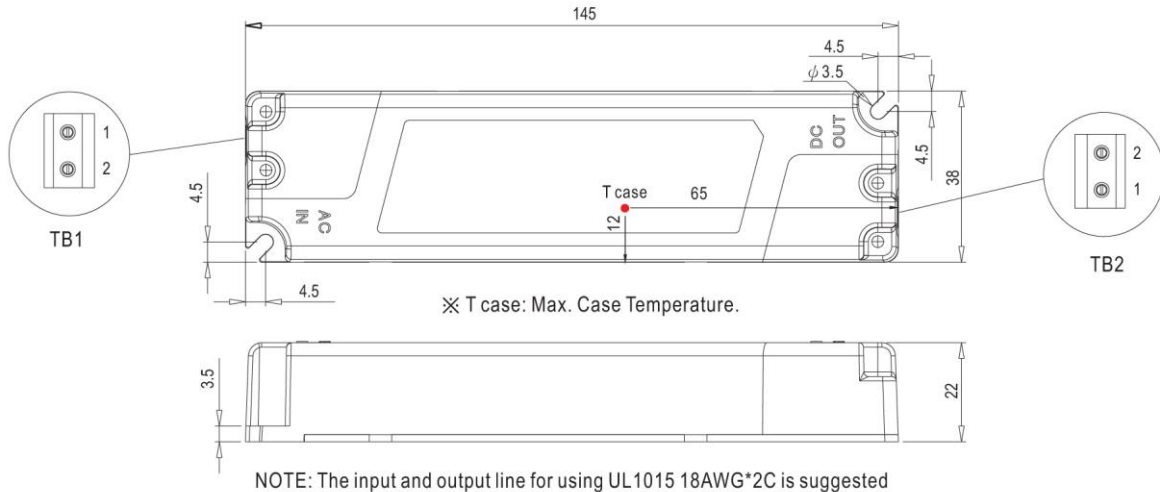
MODEL		PLM-12□-350	PLM-12□-500	PLM-12□-700	PLM-12□-1050	
OUTPUT	CONSTANT CURRENT REGION <small>Note.5</small>	22 ~ 36V	15 ~ 24V	11 ~ 18V	7 ~ 12V	
	RATED CURRENT	0.35A	0.5A	0.7A	1.05A	
	NO LOAD OUTPUT VOLTAGE _(max.)	42V	30V	22V	16V	
	RATED POWER	12.6W	12W	12.6W	12.6W	
	RIPPLE & NOISE <small>(max.) Note.2</small>	Blank type	3.6Vp-p	2.4Vp-p	2.4Vp-p	1.8Vp-p
		E type	5.5Vp-p	3.6Vp-p	3.6Vp-p	2.7Vp-p
	CURRENT ACCURACY _{Note.3}	±5.0%				
	SETUP TIME	Blank type: 500ms / 115VAC, 230VAC at full load; E type: 500ms / 230VAC at full load				
INPUT	VOLTAGE RANGE <small>Note.4</small>	Blank type: 110 ~ 295VAC 156 ~ 417VDC; E type: 180 ~ 295VAC 254~ 417VDC				
	FREQUENCY RANGE	47 ~ 63Hz				
	POWER FACTOR	Blank type	PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF > 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve)			
		E type	PF ≥ 0.95/230VAC, PF ≥ 0.9/277VAC (at full load) (Please refer to "Power Factor Characteristic" curve)			
	TOTAL HARMONIC DISTORTION	Blank type	THD < 20% when output loading ≥ 60% at 115VAC/230VAC input and output loading ≥ 75% at 277VAC input			
		E type	THD < 20% when output loading ≥ 60% at 230VAC input and output loading ≥ 75% at 277VAC input			
	EFFICIENCY <small>(Typ.)</small>	Blank type	85%	84%	83%	81%
		E type	84%	83%	82%	78%
	AC CURRENT	Blank type: 0.15A/115VAC 0.08A/230VAC 0.07A/277VAC; E type: 0.08A/230VAC 0.07A/277VAC				
	INRUSH CURRENT(Typ.)	COLD START 15A (twidh=50μs measured at 50% I _{peak}) at 230VAC				
MAX. No. of PSUs on 16A CIRCUIT BREAKER	160 units (circuit breaker of type B) / 160 units (circuit breaker of type C) at 230VAC					
LEAKAGE CURRENT	0.25mA / 240VAC					
PROTECTION	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed.				
ENVIRONMENT	WORKING TEMP.	-30 ~ +50°C				
	WORKING HUMIDITY	20 ~ 90% RH non-condensing				
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH				
	TEMP. COEFFICIENT	±0.06%/°C (0 ~ 50°C)				
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes				
SAFETY & EMC	SAFETY STANDARDS	UL8750, CSA C22.2 No. 250.13-12 (for Blank type only); ENEC EN61347-1, EN61347-2-13, EN62384, GB19510.14, GB19510.1 (for E type only), IP30 approved				
	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, GB17743, GB17625.1 (for E type only), EN61000-3-2 Class C (≥60% load); EN61000-3-3				
	EMC IMMUNITY	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN61547, light industry level, criteria B (surge 2KV)				
OTHERS	MTBF	808.162Khrs min. MIL-HDBK-217F (25°C)				
	DIMENSION	145*38*22mm (L*W*H)				
	PACKING	0.126Kg; 60pcs/8.6 Kg/0.48CUFT				
NOTE	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. Please see "AC input voltage drop vs. output current characteristics" table. Derating may be needed under low input voltage, please check the static characteristic for more details. 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. 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-quality EMC Directive on the complete installation again. Direct connecting to LEDs is suggested, but is not suitable for using additional drivers. 					



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Mechanical Specification

Case No. PLM-25 Unit:mm



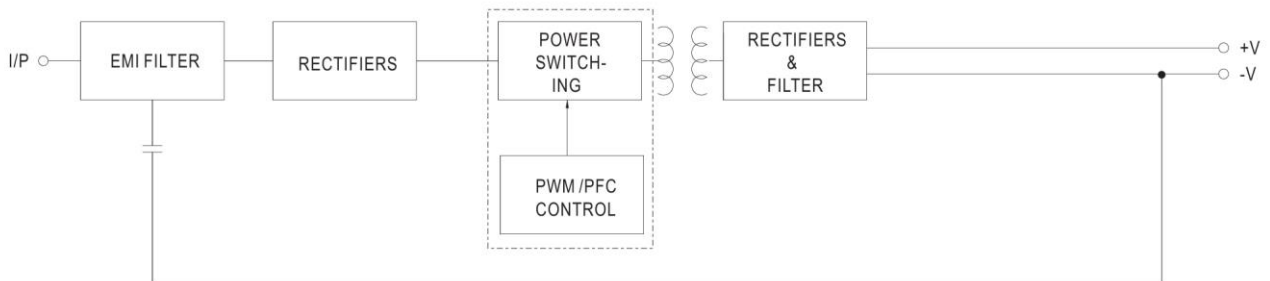
Terminal Pin No. Assignment (TB1):
 SWITCHLAB MWX201-75002EB(GRAY)

Pin No.	Assignment
1	AC/L
2	AC/N

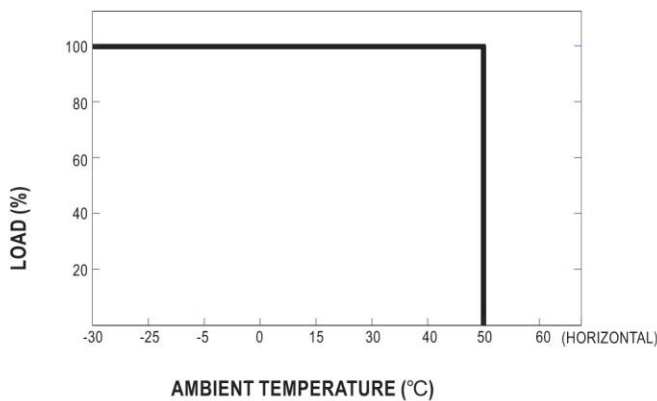
Terminal Pin No. Assignment (TB2):
 SWITCHLAB MWX201-75002B(BLUE)

Pin No.	Assignment
1	+V
2	-V

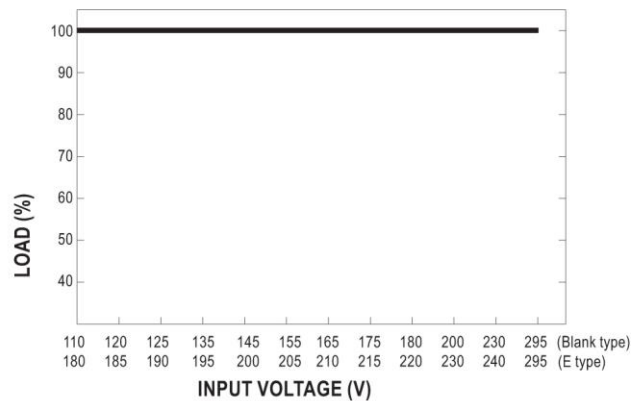
Block Diagram



Derating Curve



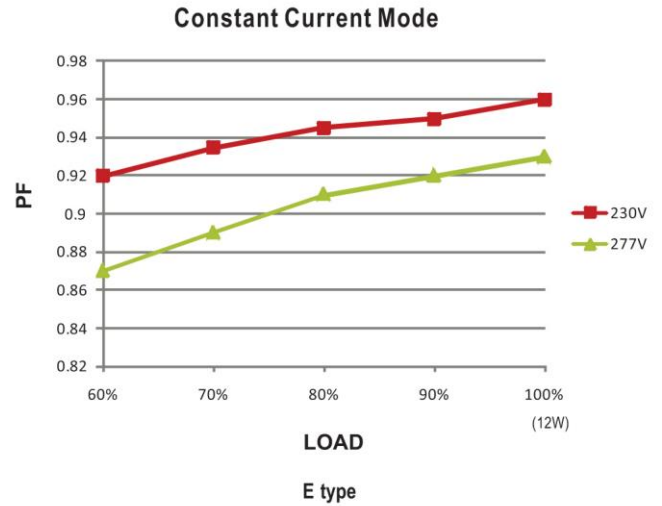
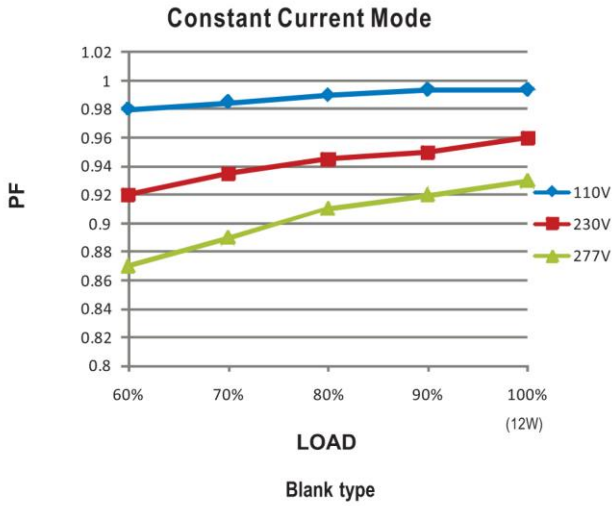
Static Characteristics



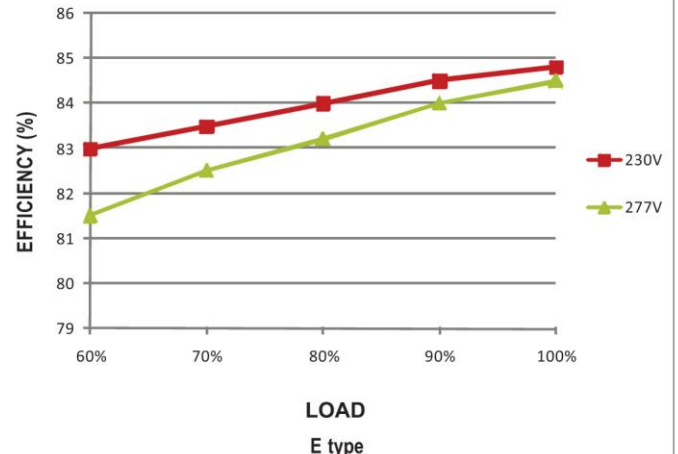
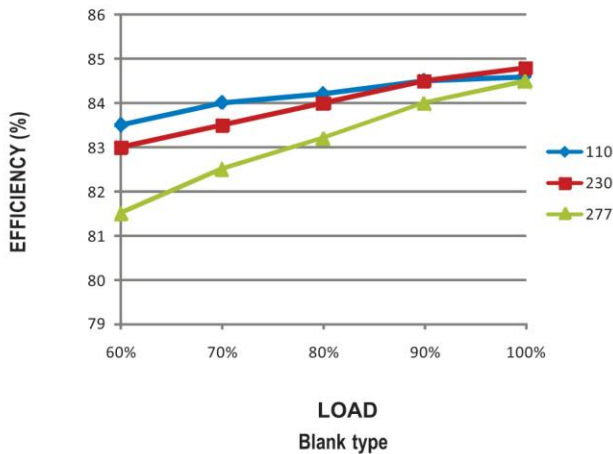


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Power Factor Characteristic



EFFICIENCY vs LOAD (500mA Model)



AC input voltage drop vs. output current characteristics

AC input drop	10%	8%	5%	3%
Io drop	<15%	<11%	<7%	<6%

NOTE: Output current will return to the rated value within 50ms