

FEATURES

- ✓ Constant Voltage design
- ✓ Single-channel with 12V/24V, 36V/48V, 48V/54V constant voltage output optional via DIP Switch.
- ✓ Class 2 Power
- ✓ Surge protection: DM 6KV, CM: 10KV
- ✓ Multi-Protections: SCP/OVP/OLP
- ✓ IP67
- ✓ 5 years warranty

INTRODUCTION

L1-060S series is output 60W and voltage adjustable LED led driver, L1-060S series is constant voltage output but changeable via DIP Switch, it will be used for LED Module Only. This is a flicker-free, high efficiency up to 88% LED Driver.

KEY PARAMETERS

Model	Max. Power (W)	Working mode	V.out (Vdc)	I.out Max. (A)	Default Output Voltage and Current (V/A)	Typ. Efficiency ^[1]		Typ. PF	
						120Vac	230Vac	120Vac	230Vac
L1-060N-024S	60	C.V	12	5.0	24/2.5	85%	87%	0.98	0.96
	60	C.V	24	2.5		85%	87%	0.98	0.96
L1-060N-048S	60	C.V	36	1.66	48/1.25	86%	88%	0.98	0.96
	60	C.V	48	1.25		86%	88%	0.98	0.96
L1-060N-054S	60	C.V	48	1.25	54/1.11	86%	88%	0.98	0.96
	60	C.V	54	1.11		86%	88%	0.98	0.96

NOTES:

[1] Unless specify noted, all performance parameters are typically measured at 25°C, full load.

TECHNICAL DATA

Input Characteristics	
Rated Input Voltage	100-240Vac (277Vac for North America only)
Input Voltage Range	90-305Vac
Input Frequency	50/60Hz
Input Current (Typ.)	0.75A @100-277Vac, 100% load
Standby Power	≤1.0W @ 120Vac
Inrush Current	≤75A @ 230Vac, 25°C, cold start
Power Factor	≥0.95 @ 100-240Vac, 100% load
THD	≤15% @ 100-240Vac, 100% load



Output Characteristics	
Output Voltage	Refer to "KEY PARAMETERS"
Voltage Accuracy	± 5%
Efficiency	≥85% @120 Vac & full load, 86% @230Vac & full load (typ. value)
Ripple and noise	≤10% Vout @ 120 /230Vac & full load The terminal is connected in parallel with 0.1uF and 47uF capacitors, the measurement is performed at 20MHZ bandwidth
Line Regulation	3%
Load Regulation	3%
Turn-On Delay Time	0.5S Max. @ 230Vac / 1.0S Max. @120Vac
Protective Function	
Input Over Voltage Protection	When the AC input voltage exceeds about 320V, it will stop working, and the voltage will automatically recover when the voltage drops below 305V (optional function)
Output Over Voltage Protection	When the product exceeds the limit range, it enters the protected state. After the fault is removed, the product will resume working state.
Output Over Current Protection	Hiccup mode. When the fault is removed and the power is restarted, the power supply will return to normal operation.
Short Circuit Protection	Hiccup mode. When the output short circuit is removed and the power is restarted, the power supply will return to normal operation.
Over Temperature Protection	Drop current mode. When the over temperature is removed, the current will automatically resume. (optional function)
Environmental Conditions	
Operating Temperature	-40℃ to +50℃ (Ta)
Operating Case Temperature for Safety Tc	Max. +90℃ (Tc)
Humidity	10% - 90% RH, (not condensed)
Storage Temperature	-40℃ to +75℃
Storage Humidity	10% - 90%RH, Non-condensing (sea level to 2000 meters)
Vibration	10 - 500Hz X, Y, Z vertical axes vibrate at a constant acceleration of 1.0G (depth 3.5mm) for 1 hour
Degree Of Protection	IP67
Reliability	
Lifetime	≥5 years @230Vac, Tc: 75℃. See Life Cycle and Tc Curves for details
MTBF	≥ 200,000H@ 25℃, 230Vac, 80% load (MIL-HDBK-217F)
Warranty	5 years (Tc: 75℃)
Others	
Size	L133*W62*H32mm
Weight	510 ± 50 g
Package (with inner box)	L420mm*W270mm*H195mm 20PCS/Ctn, N.W.: 10.5Kg ± 10%, G.W.: 11.5Kg ± 10%



NOTES

1. It is recommended that customers install over-voltage protection and surge protection devices in the power supply circuit of lamps to ensure the safety of electricity use.
2. The power supply is used as a component of the whole lamp in combination with the terminal equipment. Because the EMC performance is affected by the LED lamps and wiring, the terminal equipment manufacturing, The manufacturer needs to re-confirm the EMC of the whole device.
3. When adjusting the output current of the power supply, please ensure that the total output power does not exceed the rated Max. power. The total output power exceeds the Max. power, which cannot be covered by the warranty.
4. Unless otherwise specified, the above parameters are the test results under the conditions of ambient temperature 25℃, humidity 50%, 100% load, and input voltage 230Vac.

SAFETY CRITERION

Safety Category	Country / Territory	Criterion	Approved
CCC	China	GB19510.1, GB19510.14	√
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
ENEC		EN62384	√
CB	CB countries	IEC61347-1, IEC61347-2-13, IEC62493	√
UL	USA	UL 8750, UL1310, UL1012	√
cUL	Canada&USA	CSA C22.2 No.250.13	√
SAA	Australia	AS/NZS IEC 61347.2.13	√
		AS/NZS 61347.1	√

SAFETY KEY TEST ITEMS

Insulation Requirement	Hi-pot Test Criterion	REMARK
Input-Output	3000Vac	Max. 10mA 60s
Input-Case	1600Vac	Max. 10mA 60s
Output-Case	500Vac	Max. 10mA 60s
OTHERS	Criterion	REMARK
Insulation Resistance	≥10MΩ	Input-Output, Test Voltage: 500Vdc
Ground Resistance	≤0.1Ω	25A/1min

EMC Compliance

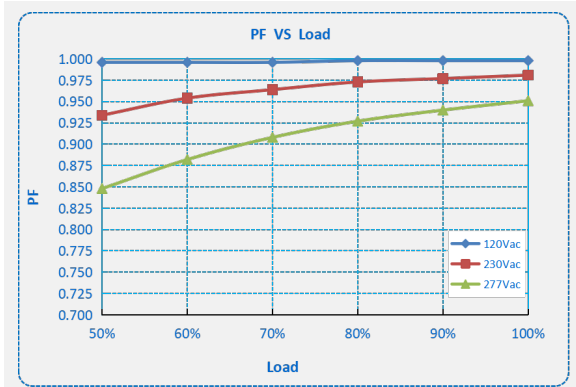
EMC Category	Country / Territory	Criterion	Approved
CCC	China	GB/T 17743, GB 17625.1	√
CE	Europe	EN 55015	√
		EN 61000-3-2, EN 61000-3-3	√
		EN61000-4-2,3,4,5,6,11	√
		EN 61547	√
FCC	USA	FCC part 15	

NOTES:

1. The LED Driver itself meets with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference as component.
2. Please short L and N, LED+ and LED-, Dim+ and Dim - when Hi-pot test. Arcing = 0 for Hi-pot tester.

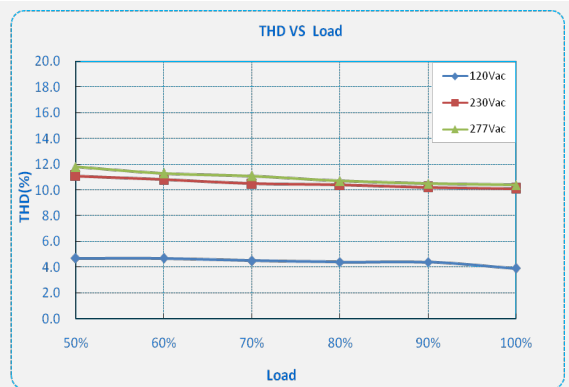


PF VS LOAD CURVE



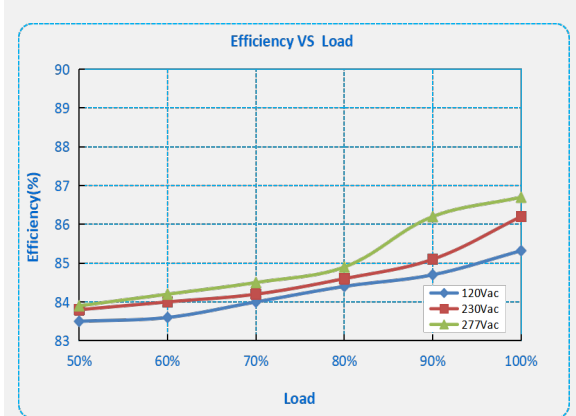
L1-060X Series

THD CURVE

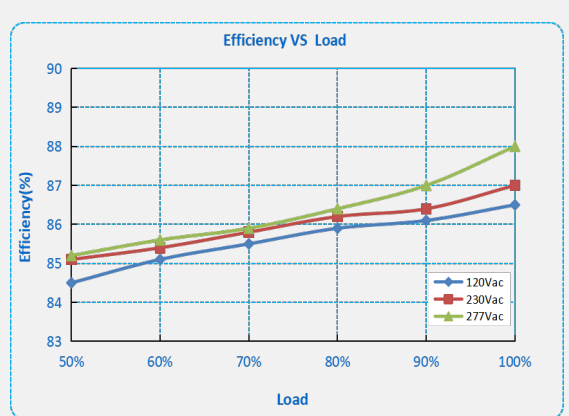


L1-060X Series

EFFICIENCY VS. LOAD

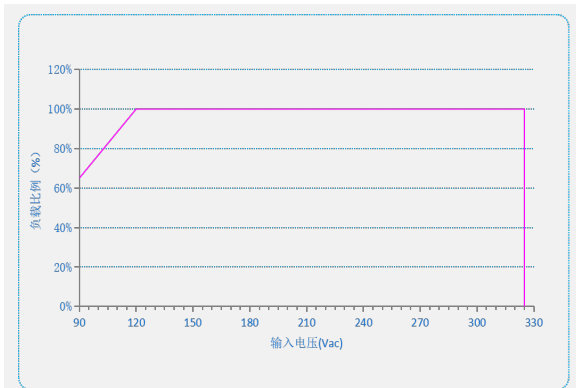


L1-060X-012/024

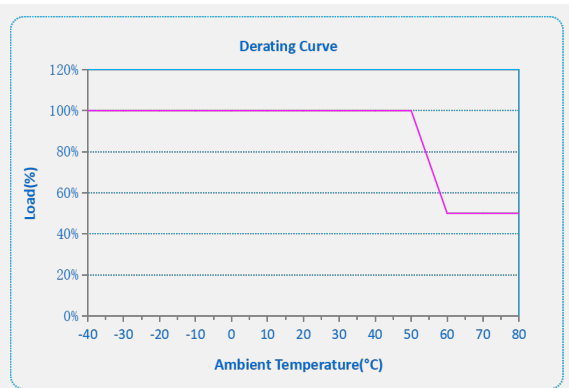


L1-060X-036/048/054

DERATING CURVE



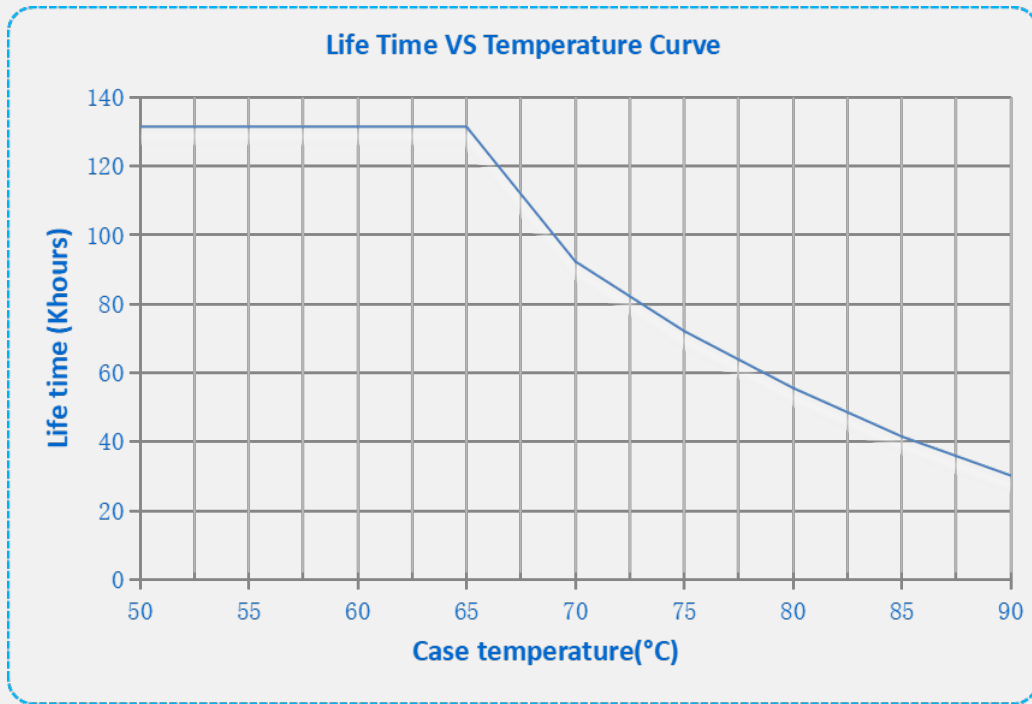
Output Power Vs. Input Voltage



Output Power Vs. Ta



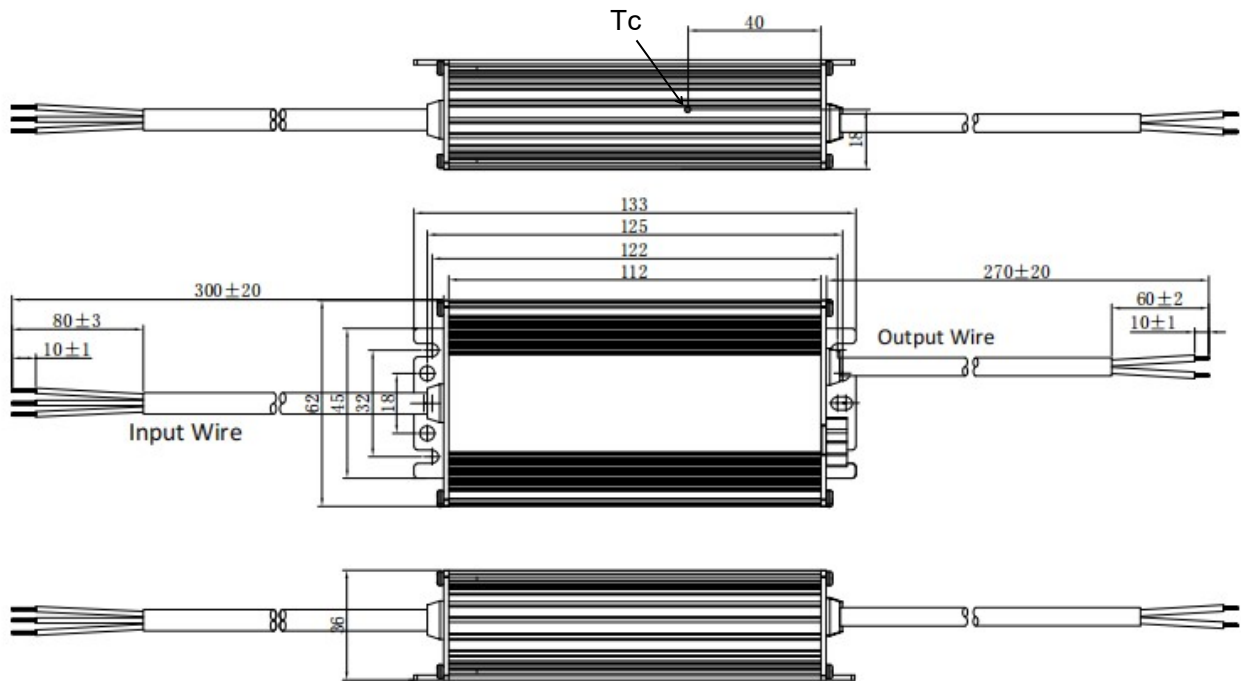
■ Life Vs Tc



Life Vs.T case



■ Mechanical Outline (unit:mm) Type S



Wires	Specification	Remark
Input Wires	SJOW 3x17AWG 1.04mm ² 300V, L=300±20mm (Default) Brown: L, Blue: N, Yellow / Green: PE	UL
	H05RN-F 3x1.0mm ² 300/500V L=300±20mm Brown: L, Blue: N, Yellow / Green: PE	CCC/VDE
Output Wires	SJOW 2x17AWG 1.04mm ² 300V, L=270±20mm (Default) Brown:LED+, Blue:LED-	UL
	H05RN-F 2x0.75/1.0mm ² 300/500V L=270±20mm Red: LED+, Black: LED-	CCC/VDE

■ Installation considerations

1. The lightning protection level of the power supply meets the standard requirements of IEC61000-4-5 and other countries. If it is used in lightning-prone areas or areas with relatively complex power grid environment, it is recommended to install a professional lightning protection module on the AC input end of the power supply.
2. Please insulate and waterproof the dimming cable when it is not in use
3. The voltage-withstand of LED chip and Aluminum PCB >3KV
4. Safety space between Aluminum PCB and LED coppers >5mm.
5. The safety distance between LED+ and LED- on Aluminum PCB>1.8mm
6. Minimize copper on Aluminum PCB to reduce junction capacitance and leakage current
7. LED chip is recommended to be designed in parallel first and then in series



REVISION HISTORY

Version	Description of Change		Changed Date	Notes
	Before	Now		
A00	Release	---	2023/8/10	