Specification for Approval

Product Name:	200W Non-isolated LED driver
Product Model:	LNC-200B232
Product Code:	MS003877-V0
Rev.	A.1
Sample Date:	

CUSTOMER AUTHORIZED SIGNATURE		
Tested By	**Checked By**	**Approved By**
(Company seal)Return one copy to MOSO with approved signature and company seal.		

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E-mail: wcx@mosopower.com
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ECN History

Rev.	Description of Change		Changed Date	Notes
	Before	After		
A.1			2018-04-25	

Contents

1 Scope

This document defines the electrical, mechanical and environmental specifications of a 200W Non-isolated LED driver. The LED driver shall meet the RoHS requirement.

This enclosure of LED driver is:

■ With AL Case ☐ With Plastic Case ☐ Open Frame ☐ Others

2 Input Characteristics

2.1 Input Voltage and Frequency

Item	Minimum	Rated Value	Maximum
Input Voltage	90Vac	100-277Vac	305Vac
Input Frequency	47Hz	50/60 Hz	63Hz

2.2 AC Input Current

Under 25℃±10℃ ambient temperature, rated input and output range, maximum AC input current is 2.7A.

2.3 Inrush Current (Cold Start)

Under 25℃±10℃ ambient temperature, 230Vac input, the peak value of the inrush current is less than 75A.

2.4 Power Factor

2.4.1 Under 25℃±10℃ ambient temperature, 115Vac input, 100% load, the typical value of power factor is 0.98 , the minimum value is 0.97(reference Power Factor vs. Load Curve);

2.4.2 Under 25℃±10℃ ambient temperature, 230Vac input, 100% load, the typical value of power factor is 0.96 , the minimum value is 0.95(reference Power Factor vs. Load Curve);

2.4.3 Under 25℃±10℃ ambient temperature, 277Vac input, 100% load, the typical value of power factor is 0.92 , the minimum value is 0.90,(reference Power Factor vs. Load Curve).

2.5 Efficiency

2.5.1 Under 25℃±10℃ ambient temperature, 115Vac input, 190 V output voltage, 100% load, the typical value of efficiency is 92 %, the minimum value is 90 %(reference Efficiency vs. Load Curve);

2.5.2 Under 25℃±10℃ ambient temperature, 230Vac input, 190 V output voltage, 100% load, the typical value of efficiency is 94 %, the minimum value is 92 %(reference Efficiency vs. Load Curve).

2.6 THD

2.6.1 Under 25℃±10℃ ambient temperature, 230Vac input, 80-100% load, THD is less than 15% (reference THD Curve);

2.6.2 Under 25℃±10℃ ambient temperature, 277Vac input, 80-100% load, THD is less than 20% (reference THD Curve).

2.7 Standby power consumption

Under 25℃±10℃ ambient temperature, rating input voltage, the average value of standby power consumption is less than 10W.

3 Output Characteristic

3.1 Output Power

Under full input voltage range, the maximum value of output power is 200 W.

3.2 Output Voltage and Current

Item (Unit)	Value	Test Condition (Under 25℃±10℃ Ambient Temperature)
Output Current (A)	0.860	full input voltage range
Output Voltage Range(V)	170～232	full input voltage range
Error of Output Current	±5%	full input voltage range, full load range(the typical value)
No Load Output Voltage（V）	≤300V	full input voltage range
Note: the error of output current is less than±8%		

3.3 Output Current Ripple

Under 25℃±10℃ ambient temperature, 230Vac input, 100% load, the ratio of output current ripple [1] peak-peak value and rated output current is less than 20 %.

Note: load is LED, ripple is different with difference LED load. @ Measurement is done by 20MHz bandwidth oscilloscope.

3.4 Cold Start Turn-On Delay Time

Under 25℃±10℃ ambient temperature, 230Vac input, 100% load, turn-on delay time at cold start is less than 0.5s; 115Vac input, less than 3S.

3.5 Output Current Overshoot

Under 25℃±10℃ ambient temperature, 100-277Vac input, LED full load, the ratio of output current overshoot and rated output current is less than 10 %.

3.6 Line Regulation (Input Voltage Regulation)

Under 25℃±10℃ ambient temperature, 100% load, change input from 100Vac to 277Vac, the Line Regulation (Input Voltage Regulation) is less than 1 %.

3.7 Load Regulation

Under 25℃±10℃ ambient temperature, 100-277Vac input voltage, change load from 80% to 100%, Load Regulation is less than 3 %.

4 Protect Function

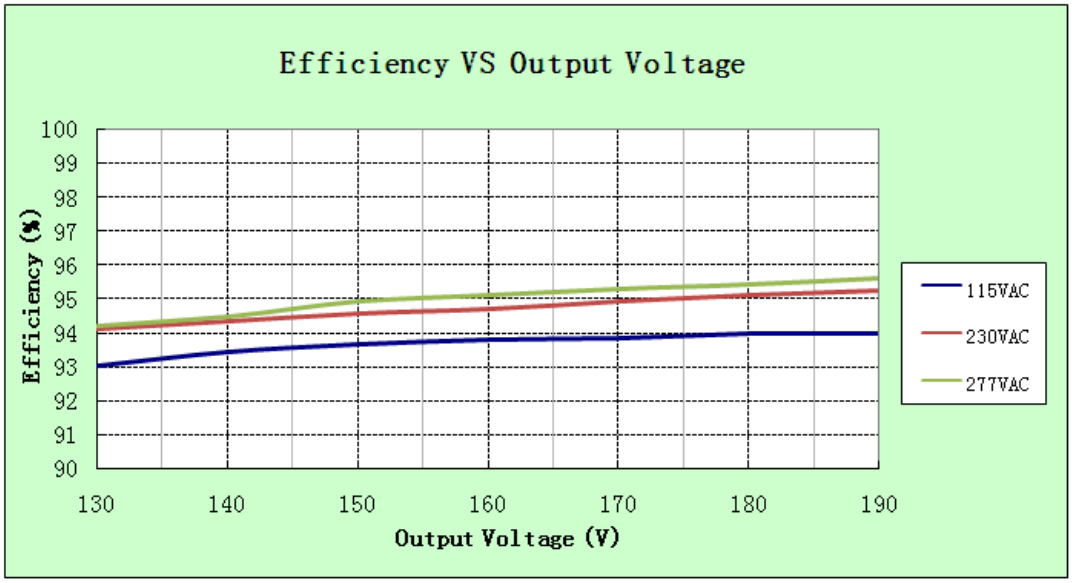
4.1 Short Circuit Protection

The average value of input power shall less than 10W when the output rail short, the power supply shall be self-recovery when the fault condition is removed.

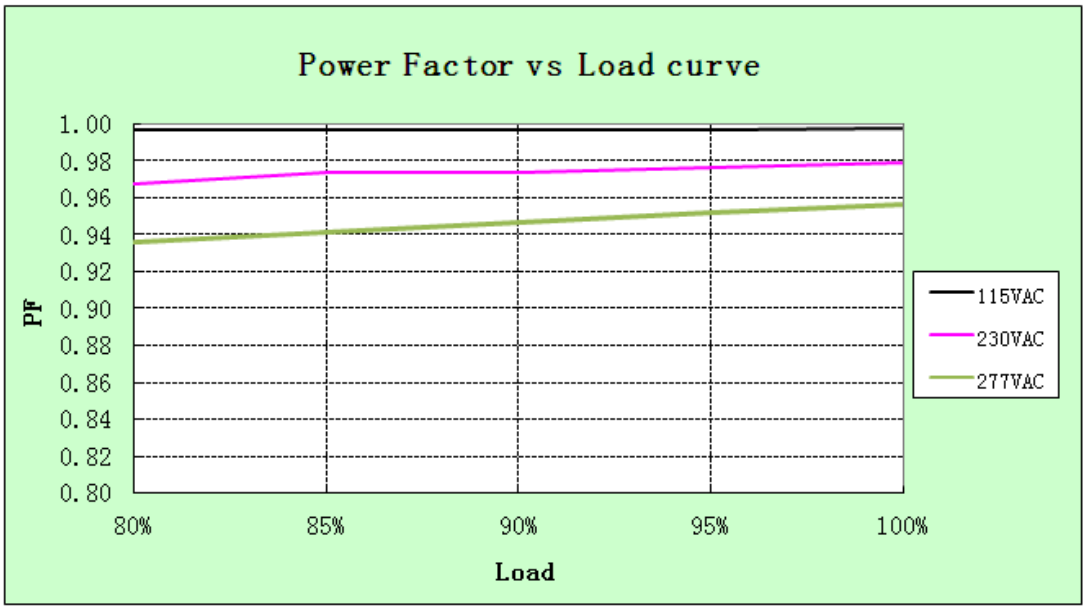
4.2 Over Voltage Protection

When the output voltage is 1.05-1.3 Rated Load Voltage, the driver enters protection status, the driver will work normally after fault condition removed.

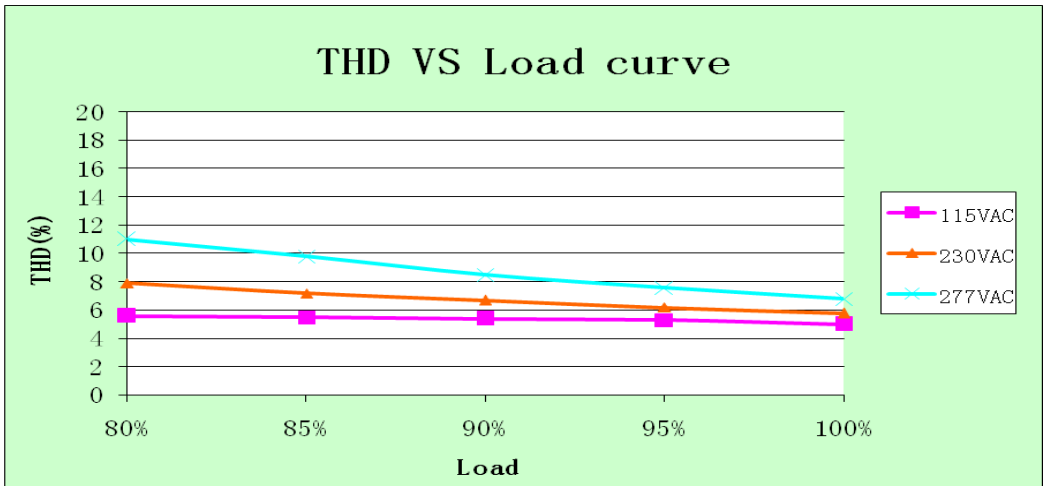
5 Efficiency vs. Load Curve



6 Power Factor vs Load Curve



7 THD Curve



8 Safety and Electromagnetic Compatibility

8.1 Safety Standards

Safety Certification	Country and region	Standards	Whether have Certification
CCC	China	GB19510.1	
		GB19510.14	
CE	Europe	EN61347-1	
		EN61347-2-13	
CB	CB member	IEC61347-1	
		IEC61347-2-13	
UL	America	UL 8750	
		UL 1310（Class 2 Power Units）	
		UL 1012	
cUL	Canada	CSA C22.2 No.250.13-12	
		CSA C22.2 No.223-M91（Power Supplies With Extra-Low-Voltage Class 2 Outputs）	
		AS/NZS 61347.1	
KC	Korea	K61347-1	
		K61347-2-13	
		K62384	
PSE	Japan	J61347-1	
		J61347-2-13	
SAA	Australia	AS/NZS IEC 61347-2-13	
		AS/NZS 61347.1	

8.2 Electromagnetic Compatibility Standards

EMC Certification	Country and region	Standards	Whether have Certification
CCC	China	GB 17743	
		GB 17625.1	

CE	Europe	EN 55015	
		EN 61000-3-2	
		EN 61000-3-3	
		EN 61547	
KC	Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	America	FCC part 15	

9 Details Of Safety Specifications

9.1 Dielectric Strength

9.1.1 input to PE : 1650Vac, 60s, current is less than 10mA;

Note: 25℃±10℃ ambient temperature, I/P: L, N Line; PE: Protecting Earthing.

9.2 Grounding Resistance

Under 25℃±10℃ ambient temperature, pass 25A current for 60s, the measured grounding resistance is less than 0.1Ω.

9.3 Leakage Current

Leakage Current is defined as the current flowing through the ground wire. Under 25℃±10℃ ambient temperature and 240Vac/50Hz input, the leakage current shall be less than 0.70mA.

9.4 Insulation Resistance

Under 25℃±10℃ ambient temperature and less than 70% relative humidity, apply 500V dc voltage to each port of input to GND last 60s, the insulation resistance at least 50MΩ.

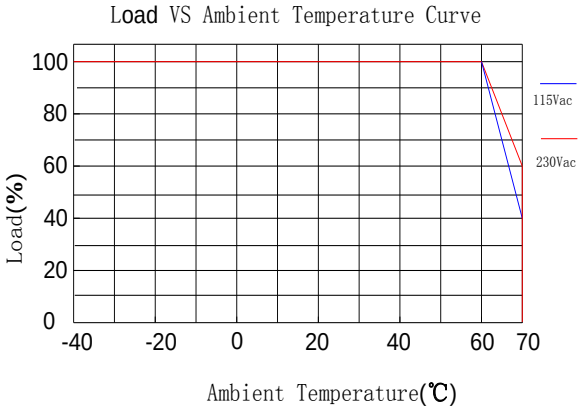
9.5 Surge Immunity Test

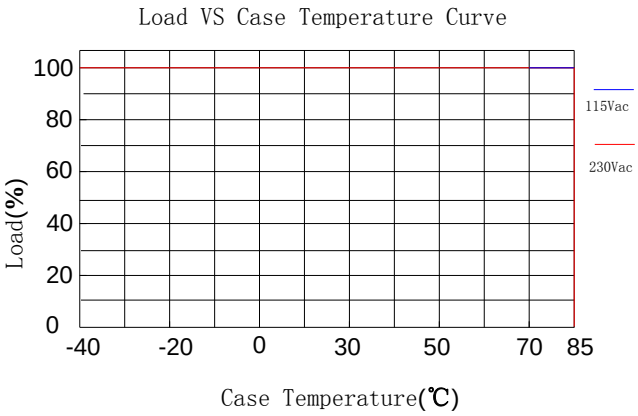
Under 25℃±10℃ ambient temperature, L line to N line is 1000V; L line to earth is2000V; N line to earth is2000V.

10 Environmental Specifications

10.1 Operated Temperature and Humidity

10.1.1 Temperature: -40℃ to +60℃(reference curve);





10.1.2 Relative Humidity: 20% to 95%, non-condensing.

10.2 Storage Temperature and Humidity

10.2.1 Temperature: -40℃ to +85℃;

10.2.2 Relative Humidity: 20% to 95%, non-condensing.

10.3 Degrees of Protection

IP67

11 Reliability

11.1 Mean Time Between Failure (MTBF) Qualification (According to MIL-HDBK-217F Standards)

Mean time between failure is at least 200，000 hours under 25℃ ambient temperature, 230Vac input, and 80% load.

11.2 Life Time Qualification

The life time is at least 50, 000 hours, under 45℃ case temperature, 230Vac input, and 80% load.

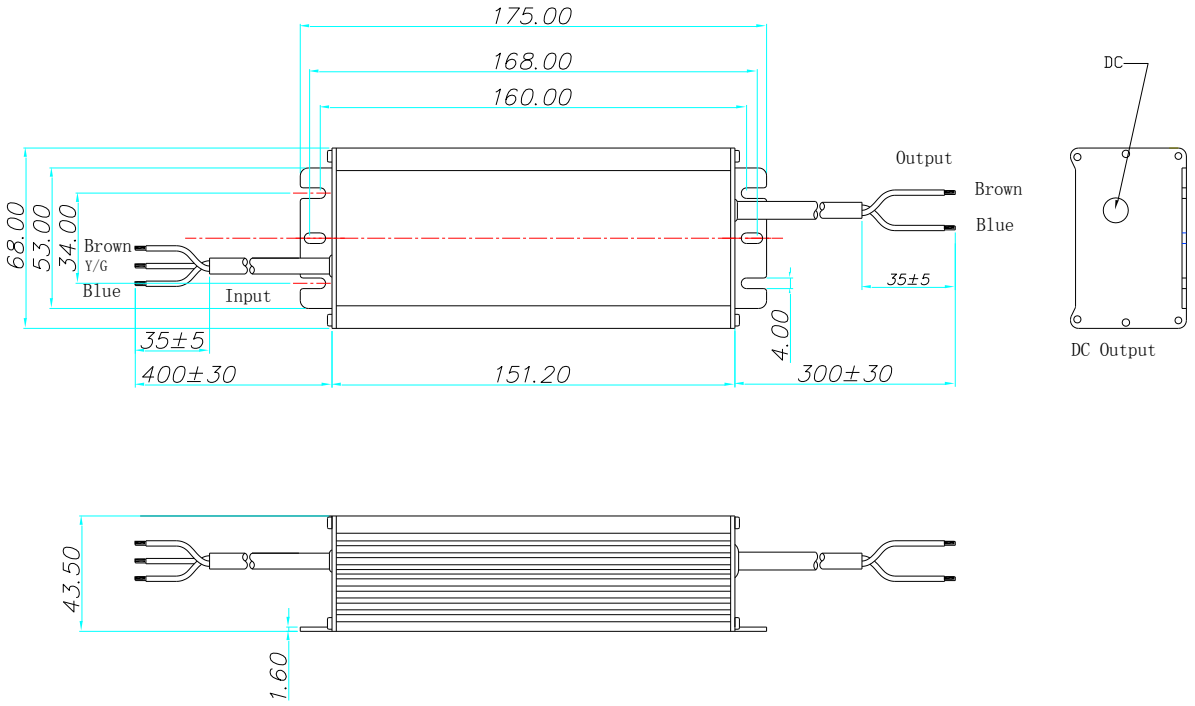
11.3 Vibration

10 to 500HZ Sweep at constant acceleration of 1.0G (depth: 3.5mm) for 1 Hour for each of the perpendicular axes X, Y, Z.

11.4 Drop Test

Ten times 60cm drop test with one angle three edges and six face of complete package, package shall not damage, product function and dielectric strength should meet the requirement.

12 Mechanical Outline



Wire	Specification
AC Input	CCC+VDE 3x1.0mm^2 L=400mm
DC Output	CCC+VDE 2x1.0mm^2 L=300mm

13 Label

14 Weight

700±50g