



Datasheet

MPB Series - 320W

Outdoor LED Driver Dimmable

Richmat 豪江

Believe in the Power of Quality

PRODUCT:



FEATURES:

- Efficiency up to 95%
- PF>0.97,THD<3%
- full power output within recommended operating voltage range
- Constant Current output
- Output current is manually adjustable
- 3 in 1 Dimming Function: 0-10V、PWM、Resistor
- 12V Auxiliary Cable
- Lightning protection level : Difference module 6 kV , Common mode 20 kV
- IP67 rating for indoor and outdoor
- Protections: BOP、OTP、SCP、OVP- Dimming Interface
- Warranty: 5 Years

CERTIFICATIONS:



APPLICATIONS:

- LED Street lighting
- LED Sports Lighting
- LED Plant Grows Lighting
- LED Industrial Lighting
- LED fish aggregating Light

PRODUCT OVERVIEW:

The HJ-320W-MPB series is an isolated two-stage circuit structure outdoor constant current driver with a rated output power of 320W. Applying independently developed patented technology, the driver power supply demonstrates superior performance under a wide range of input and output conditions. It achieves a maximum driving current of 8.88A, with a high energy conversion efficiency of up to 95% and total harmonic distortion (THD) below 3%, making it an environmentally friendly and low-carbon product. Its adjustable output current and precise dimming control is advantageous for LED lighting design. The driver is equipped with comprehensive active and passive protection functions, effectively addressing various harsh conditions, ensuring high reliability, and low failure rates, and contributing to the increased reliability and reduced cost of lighting systems.

MODULE	Rated input voltage	Rated output power	Output voltage range	Recommended operating voltage	Adjustable range of output current	Power factor	T.H.D	Efficiency	Max. Case Temp.
HJ-W320-V56A-MPB	120-277V	320W	25-56Vdc	36-56Vdc	4.28-8.88A	0.97	3%	94%	90°C
HJ-W320-V56X-MPB	120-277V	320W	25-56Vdc	36-56Vdc	4.28-8.88A	0.97	3%	94%	90°C
HJ-W320-V457A-MPB	120-277V	320W	228-457Vdc	293-457Vdc	0.5-1.1A	0.97	3%	95%	90°C
HJ-W320-V457X-MPB	120-277V	320W	228-457Vdc	293-457Vdc	0.5-1.1A	0.97	3%	95%	90°C

Remarks: 1. Test conditions of the above parameters: Ta=25C, 230Vac input, full load operation for 30 minutes;
 2. The driver can operate normally throughout the entire rated output voltage range, ensuring superior performance of the LED driver within the recommended operating voltage range.

INPUT:

Parameter	Min	Typ.	Max	Note
Rated input voltage	120Vac		277Vac	
Input voltage range	108Vac		305Vac	
Input frequency range	47Hz	50/60Hz	63Hz	
Input current			3.5A	120Vac, Full Load
Input power			380W	120Vac, Full Load
Input surge current peak value			40A	120Vac, Cold Start
			85A	230Vac, Cold Start
			100A	277Vac, Cold Start
Power factor	0.97	0.99		120Vac, Full Load
	0.95	0.97		230Vac, Full Load
	0.93	0.95		277Vac, Full Load
	0.9			120-277Vac 50/60Hz, 70-100% Load
Total harmonic distortion		3%	5%	120Vac, Full Load
		3%	5%	230Vac, Full Load
		7%	9%	277Vac, Full Load
			15%	120-277Vac 50/60Hz, 70-100% Load

Remark:

All performance parameters are measured at an ambient temperature of 25°C and with the use of LED load, unless otherwise specified.

OUTPUT: HJ-320W-V56A/X-MPB

Parameter	Min	Typ.	Max	Note
Output voltage range	25V		56V	
Rated output voltage	36V		56V	At the rated output voltage, the maximum output power = $P_o = V_o * I_o = 320W$
Rated output current	5.7A		8.88A	
Default factory output current		6.6A		
Current adjustment range	4.28A		8.88A	Refer to the AOC curve
Maximum no-load output voltage			70V	
Efficiency	90.5%	91.0%		Input 120Vac, Output 36V/8.88A
	92.5%	93%		Input 230Vac, Output 36V/8.88A
	92.0%	92.5%		Input 277Vac, Output 36V/8.88A
	91.5%	92.0%		Input 120Vac, Output 56V/5.7A
	93.5%	94%		Input 230Vac, Output 56V/5.7A
	93.5%	94%		Input 277Vac, Output 56V/5.7A
Current accuracy	-5.0%		+5.0%	100% load Constant Power Range
Output current ripple		5.0%	10%	$\Delta I = I_{pk} - I_{pk} / I_o * 100\%$
Startup current overshoot			10%	LED Load
Startup time	500ms		1000ms	100%Load@120-277Vac
Linear regulation rate	-2%		+2%	100%Load
Load regulation rate	-3%		+3%	100%Load
Temperature coefficient	-0.03%/°C		+0.03%/°C	Casing Temp. : 0-90°C
Over temperature protection	90°C		100°C	Casing temperature: Prolonged operation at the highest temperature will reduce the reliability of the power supply. Pay attention to heat dissipation when in use.
Short circuit protection			15W	Not damaged by prolonged short circuits, automatic recovery upon fault resolution.
Input undervoltage protection	98Vac	102Vac	108Vac	Derated output, returns to normal after the abnormal condition is resolved.
Input overvoltage protection	310Vac	320Vac	330Vac	Turn off the output, returns to normal after the abnormal condition is resolved.

OUTPUT: HJ-320W-V457A/X-MPB

Parameter	Min	Typ.	Max	Note
Output voltage range	228V		457V	
Rated output voltage	293V		457V	At the rated output voltage, the maximum output power = $P_o = V_o * I_o = 320W$
Rated output current	0.7A		1.1A	
Default factory output current		0.7A		
Current adjustment range	0.5A		1.1A	Refer to the AOC curve
Maximum no-load output voltage			500V	
Efficiency	92.5%	93%		Input 120Vac, Output 293V/1.1A
	94.5%	95%		Input 230Vac, Output 293V/1.1A
	94%	94.5%		Input 277Vac, Output 293V/1.1A
	92.5%	93%		Input 120Vac, Output 457V/0.7A
	94.5%	95%		Input 230Vac, Output 457V/0.7A
	95%	95.5%		Input 277Vac, Output 457V/0.7A
Current accuracy	-5%		+5%	100% load Constant Power Range
Output current ripple		5%	10%	$\Delta I = I_{pk} - I_{pk} / I_o * 100\%$
Startup current overshoot			10%	LED Load
Startup time	500ms		1000ms	100%Load@120-277Vac
Linear regulation rate	-2%		+2%	100%Load
Load regulation rate	-3%		+3%	100%Load
Temperature coefficient	-0.03%/°C		+0.03%/°C	Casing Temp. : 0-90°C
Over temperature protection	90°C		100°C	Casing temperature: Prolonged operation at the highest temperature will reduce the reliability of the power supply. Pay attention to heat dissipation when in use.
Short circuit protection			15W	Not damaged by prolonged short circuits, automatic recovery upon fault resolution.
Input undervoltage protection	98Vac	103Vac	108Vac	Derated output, returns to normal after the abnormal condition is resolved.
Input overvoltage protection	310Vac	320Vac	330Vac	Turn off the output, returns to normal after the abnormal condition is resolved.

Remark: After adjusting the current, seal the adjustable potentiometer hole with 704 silicone, and cover it with the waterproof plug.

DIMMING & 12Vdc Auxiliary:

Parameter	Description	Min	Typ.	Max	Note
12Vdc Auxiliary	Rated output voltage	10.8V	12V	13.2V	
	Rated output current		0.25A		
0-10V Dimming	External voltage range	0V		12V	DIM+ output 100uA current
	Recommended dimming voltage	1V		10V	
	Dimming output range	10%		100%	DIM+/DIM-reverse connection prohibited.
	Dimming cutoff voltage	0.48V	0.53V	0.58V	
	Dimming start voltage	0.6V	0.65V	0.7V	
PWM Dimming	PWM High	9.8V		10.2V	DIM+ output 100uA current
	PWM Low	0V		0.3V	DIM+/DIM-reverse connection prohibited.
	PWM Frequency	500Hz		2KHz	
	Recommended dimming duty cycle	10%		100%	
	Dimming output range	10%		100%	
	Dimming cutoff duty cycle	7%	7.5%	8%	
	Dimming start duty cycle	8.2%	8.7%	9.2%	
Resistor Dimming	External resistor	0Ω		100KΩ	DIM+ output 100uA current
	Dimming output range	10%		100.0%	
	Dimming cutoff resistance	4.8KΩ	5.3KΩ	5.8KΩ	
	Dimming start resistance	6KΩ	6.5KΩ	7KΩ	
Interface protection	DIM+/DIM- Reversal		Main Output Shutdown		Interface not damaged within 30 minutes.
	Interface over voltage protection			400Vdc or 277Vac	Interface not damaged within 30 minutes.

Remarks:

1. The dimming interface can withstand voltages up to 277Vac without damage for a short period (within 30 minutes), and returns to normal operation after the fault is resolved. When the dimming interface is connected to AC mains, the output current decreases to half of the set current value. Construction personnel can quickly identify and resolve faults based on this phenomenon, avoiding permanent damage to the interface.
2. All performance parameters are typical values measured at an ambient temperature of 25°C and with the use of LED load, unless otherwise specified.
3. When the dimming line is not in use, please seal the dimming line connector with insulating tubing to prevent disturbances signals from entering, which could damage the dimming line and affect the normal operation of the power supply.

OTHER:

Parameter	Description	Note
Estimation of Mean Time Between Failures (MTBF)	210,000 hours	230Vac, full load, ambient temperature 25°C (MIL-HDBK-217F).
Lifetime	70,000 hours	230Vac, full load, Tc=75°C
International Protection	IP 67	Suitable for dry and humid environments, avoid prolonged exposure to rain.
Maximum casing temperature	90°C	
Warranty	7 Years	Casing temperature (Tc point) not exceeding 75°C
Weight 1	1.5kg	Net weight(HJ-W320-V56A/X-MPB)
Dimension 1	237*83*42 mm	L * W * H(HJ-W320-V56A/X-MPB)
Weight 2	1.3kg	Net weight(HJ-W320-V547A/X-MPB)
Dimension 2	237*71*42 mm	L * W * H(HJ-W320-V547A/X-MPB)

ENVIRONMENT:

Parameter	Min	Typ.	Max	Note
Operating temperature	-40°C	45°C	90°C	Casing temperature
Operating humidity	10%RH		90%RH	No condensation
Storage temperature	-40°C	25°C	90°C	
Storage humidity	10%RH		90%RH	No condensation

Safety and EMC:

Items	Standard	Note
CCC	GB 19510.14-2009、GB/T 17743-2021、GB17625.1-2022	
ENEC	EN 61347-1:2015 EN 61347-2-13:2014 EN 61347-2-13:2014/A1:2017	
CB	IEC 61347-1, IEC 61347-2-13-2016	
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013	
Conducted emission	EN 55015/GB 17743 FCC Part 15 Subpart B	Conducted emission Test & Radiated emission Test
Radiated emission		
Harmonics Current	EN 61000-3-2	Harmonic current emissions
Voltage flicker	EN 61000-3-3	Voltage Fluctuations & Flicker
ESD	EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
Radiated Susceptibility	EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
Surge (transient)	EN 61000-4-5	Surge Immunity Test: Differential Mode 6 kV, Common Mode 20 kV
Conducted immunity	EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
Power frequency magnetic field	EN 61000-4-8	Power Frequency Magnetic Field Test
Voltage dips and interruption	EN 61000-4-11	Voltage Dips
Immunity of lighting equipment	EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment
Oscillatory wave immunity	EN 61000-4-12	Oscillatory Waves Immunity Test
Insulation	I/P-O/P, I/P-FG, O/P-FG:100MΩ / 500VDC / 25°C/ 70% RH	
Dielectric strength	I/P-O/P:3.75kVac I/P-FG:1.5kVac O/P-FG:500Vac I/P-DIM&Vaux:3.75kVac O/P-DIM&Vaux:1.5kVac DIM&Vaux-FG:1.5kV	
Ground resistance	<0.1Ω, 25A/1min	
Leakage current	<0.75mA 277Vac	

Note: The power supply complies with relevant EMC standards. As part of the terminal equipment system, EMC needs to be reconfirmed in conjunction with the entire system.

Characteristics Curve:

Vin	Peak current	Duration (@10% peak current)	Duration (@50% peak current)
120Vac	40A	1300us	292us
230Vac	81.6A	964us	420us
277Vac	97.6A	980us	420us

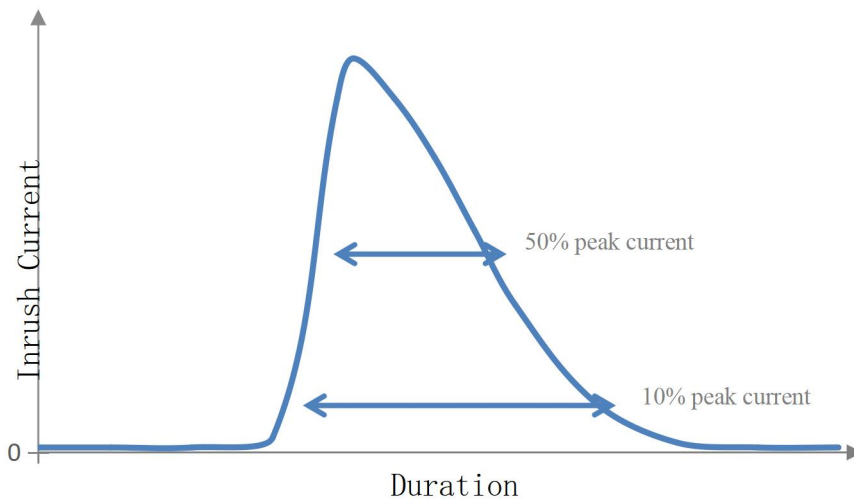


Fig.1. Inrush Current VS Duration

Characteristics Curve:

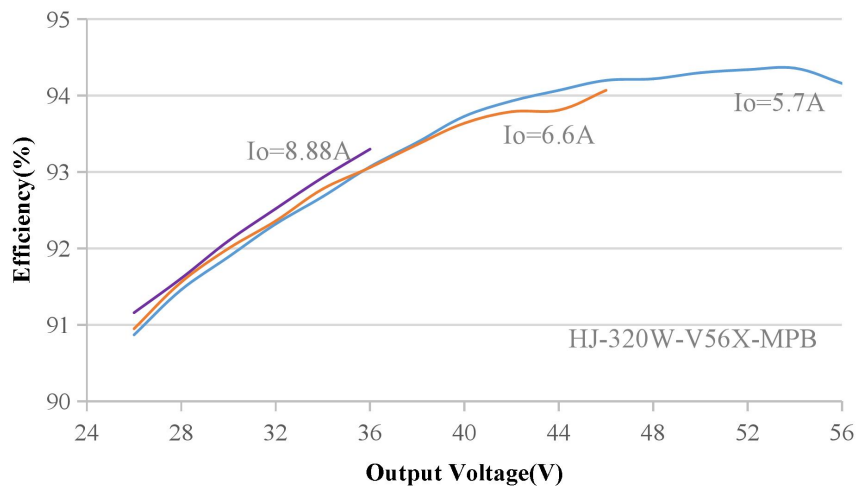


Fig 2.1 Efficiency VS Output Voltage

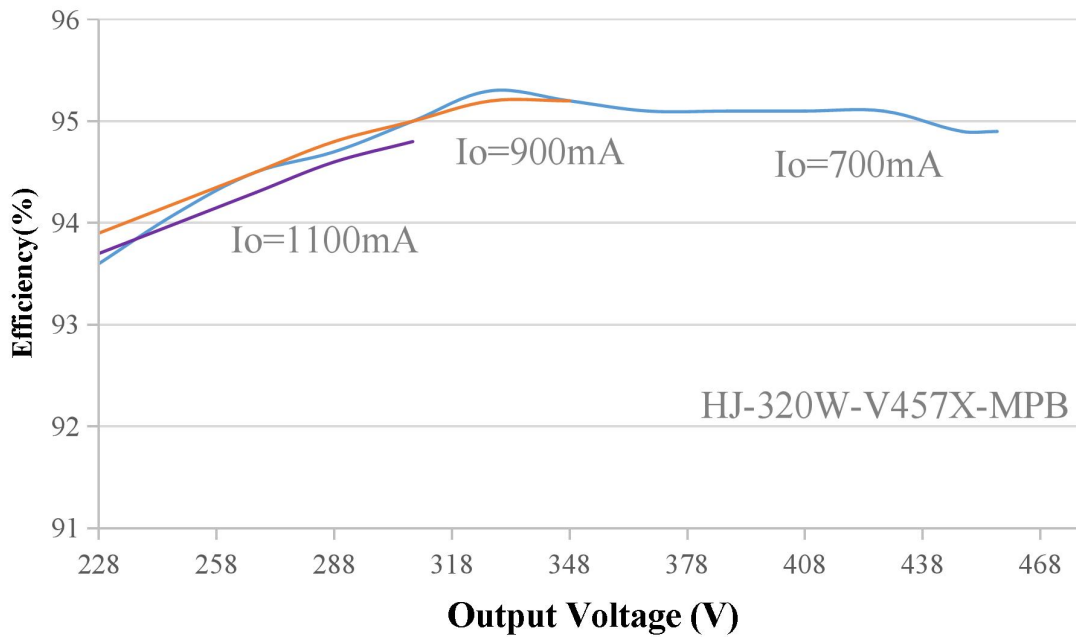


Fig.2.2.Efficiency VS Output Voltage

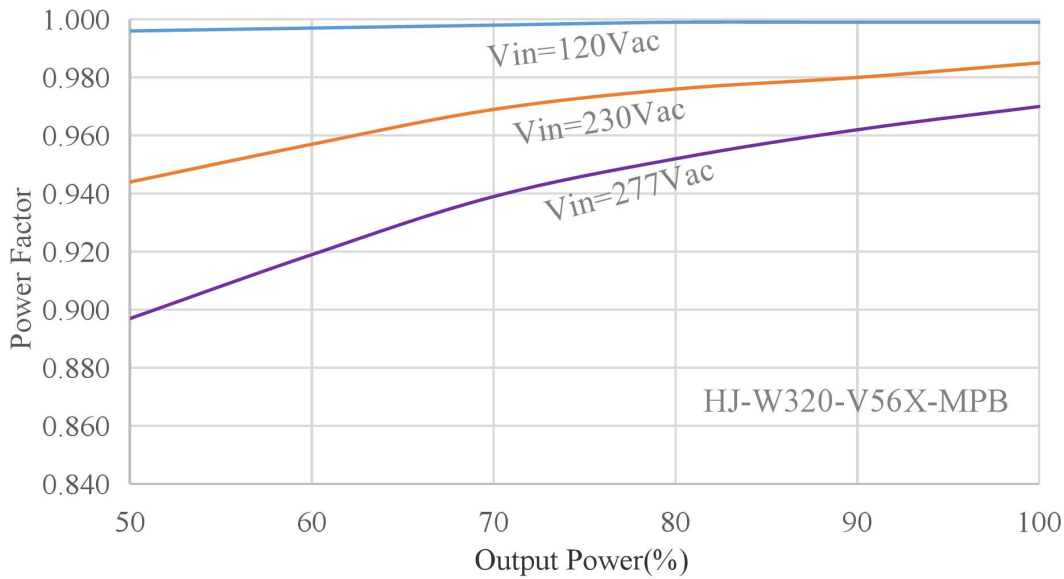


Fig 3.1.Power Factor VS Output Power

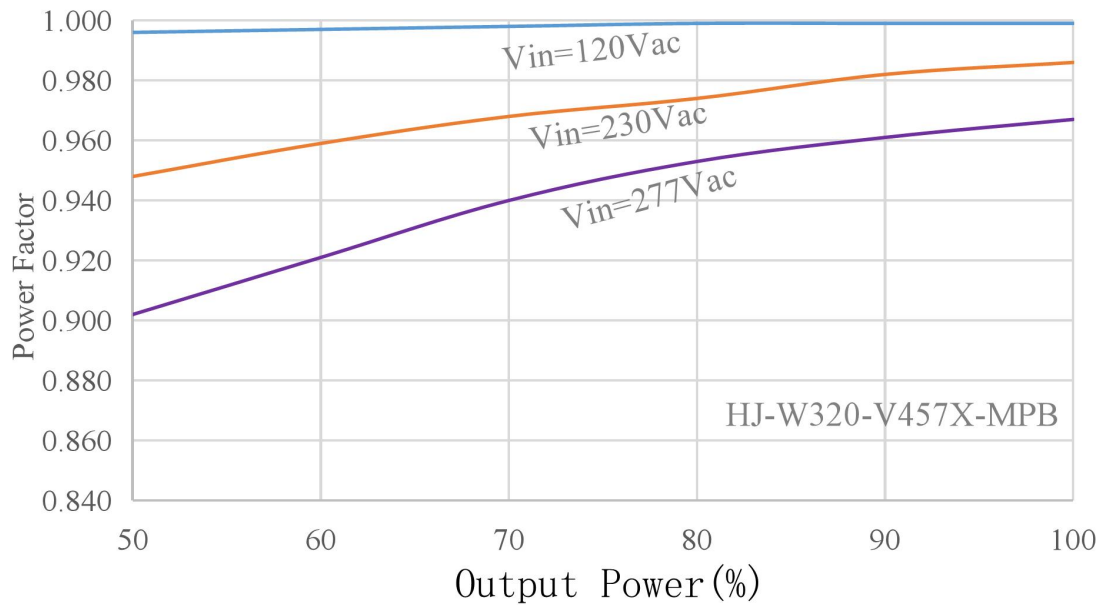


Fig 3.1. Power Factor VS Output Power

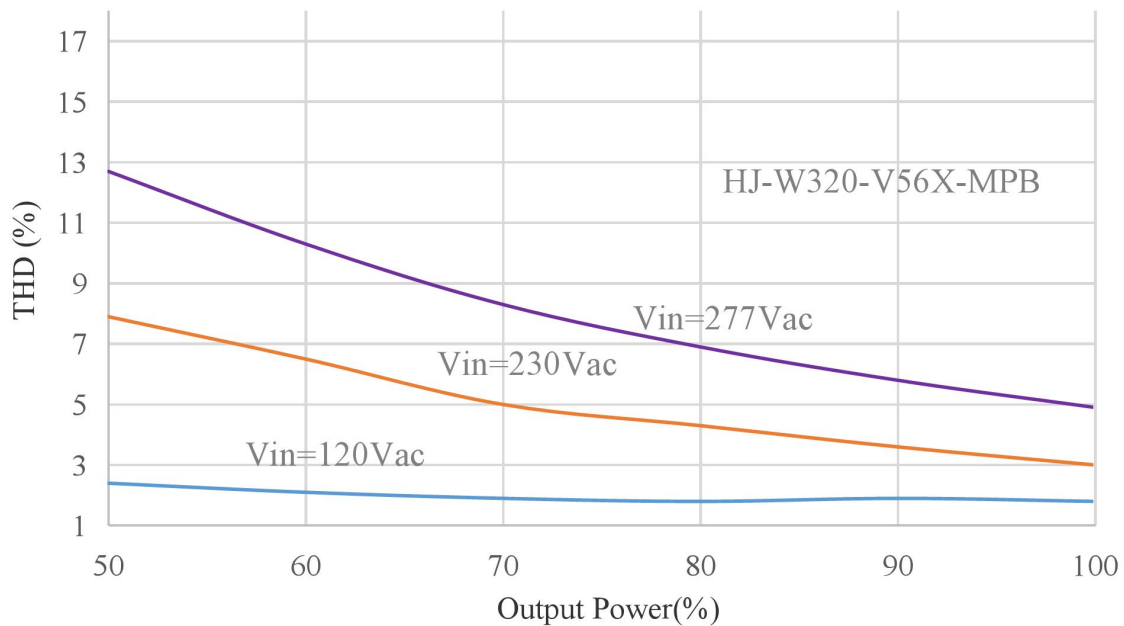


Fig 4.1 THD VS Output Power

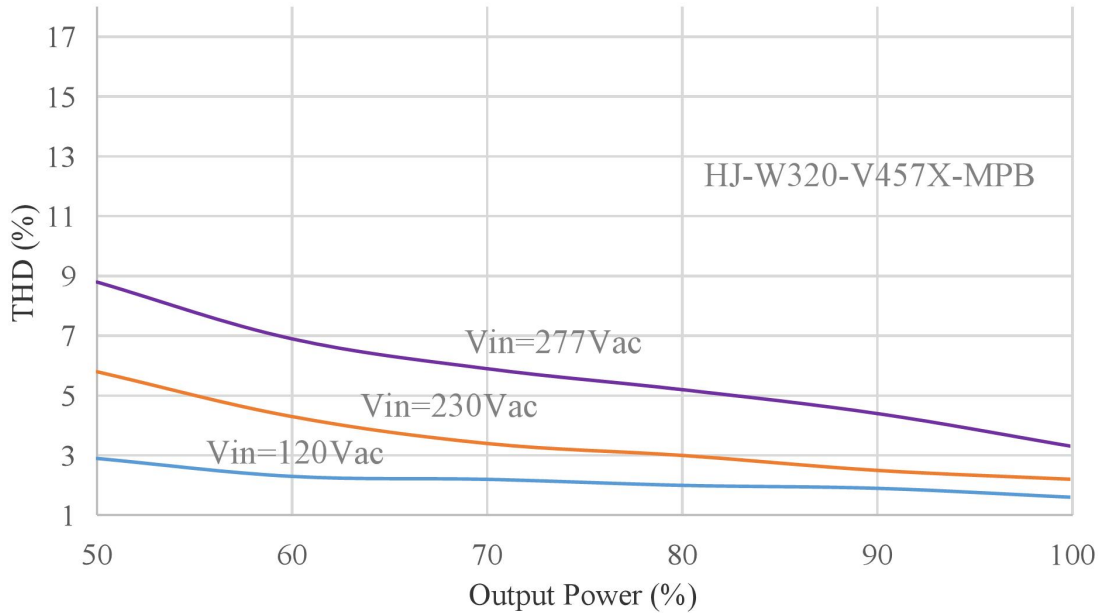


Fig4.2 THD VS Output Power

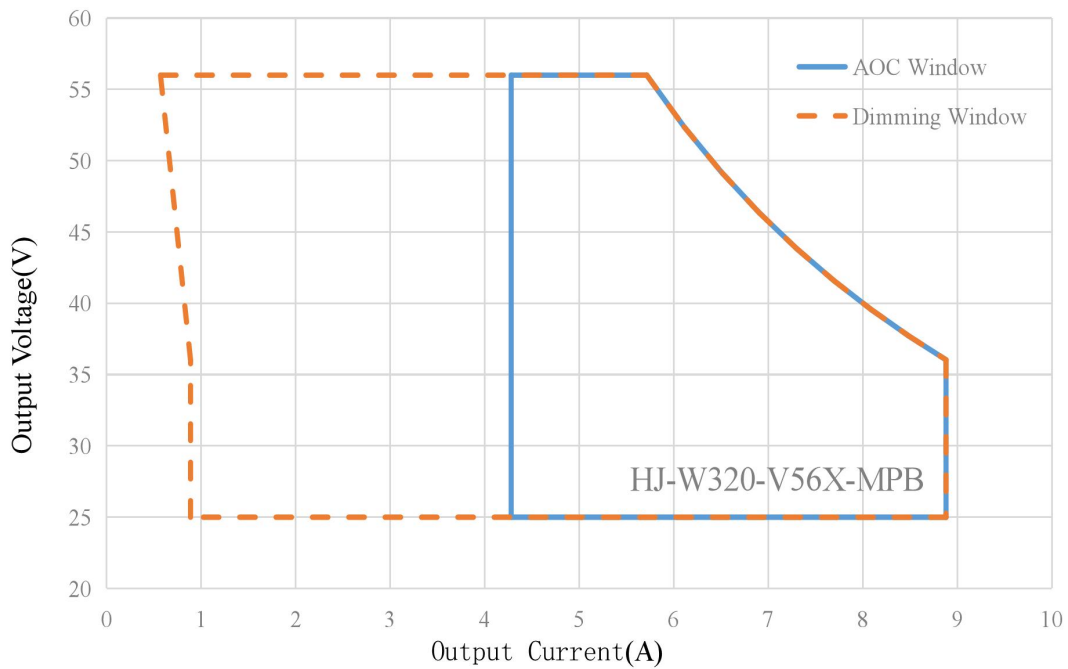


Fig 5.1 Output Voltage VS Output Current (Dimming/AOC Window)

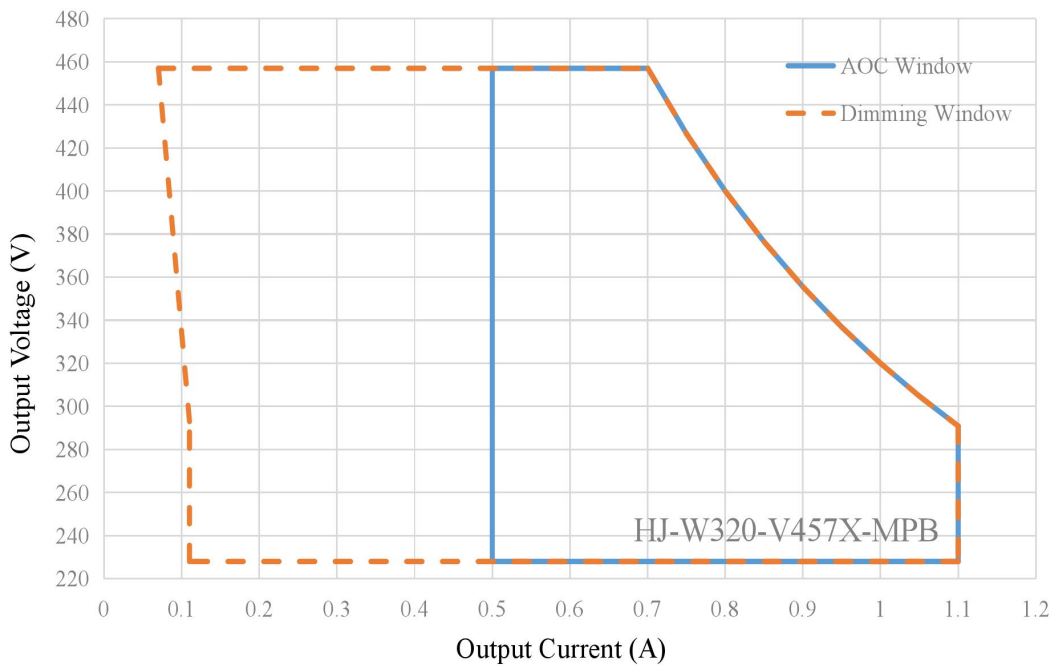


Fig 5.2 Output Voltage VS Output Current (Dimming/AOC Window)

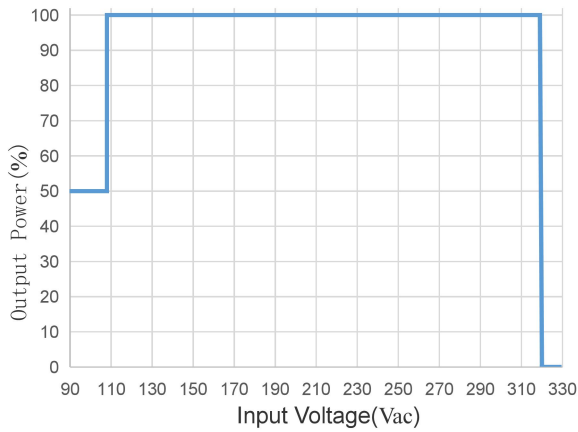


Fig 6. Output Power VS Input Voltage

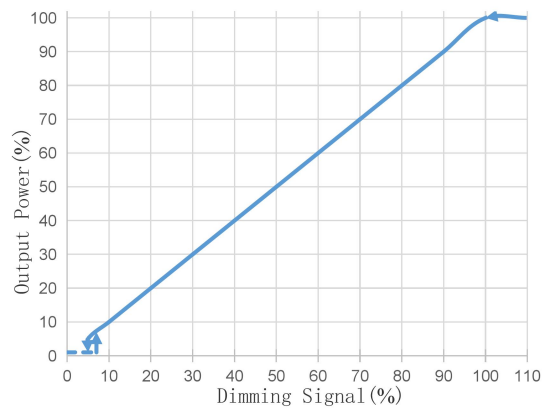


Fig 7. Output Power VS Dimming Signal

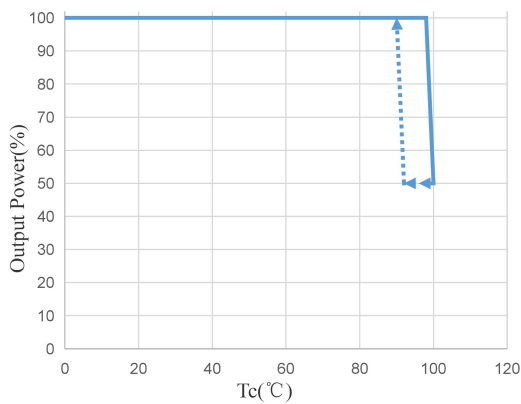


Fig 8. Output Power VS Tc

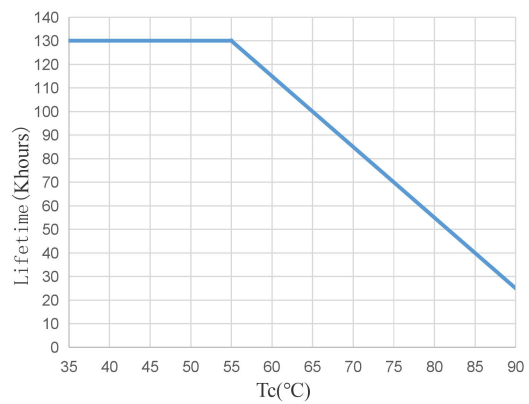
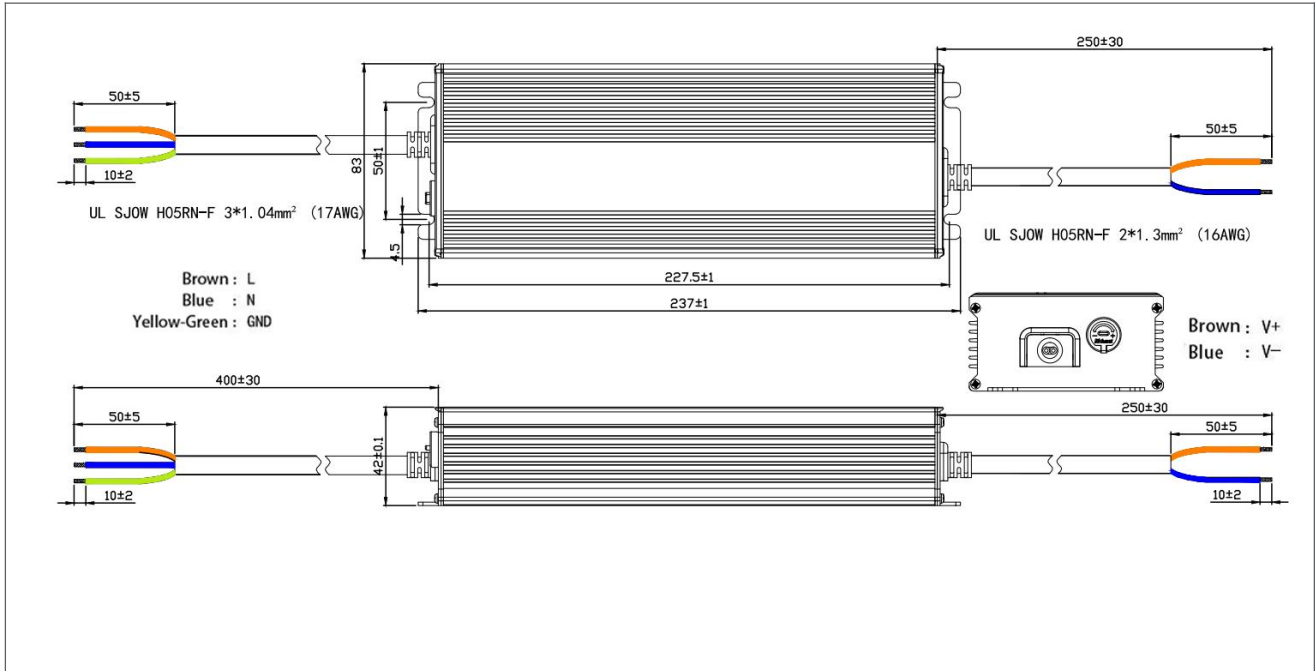


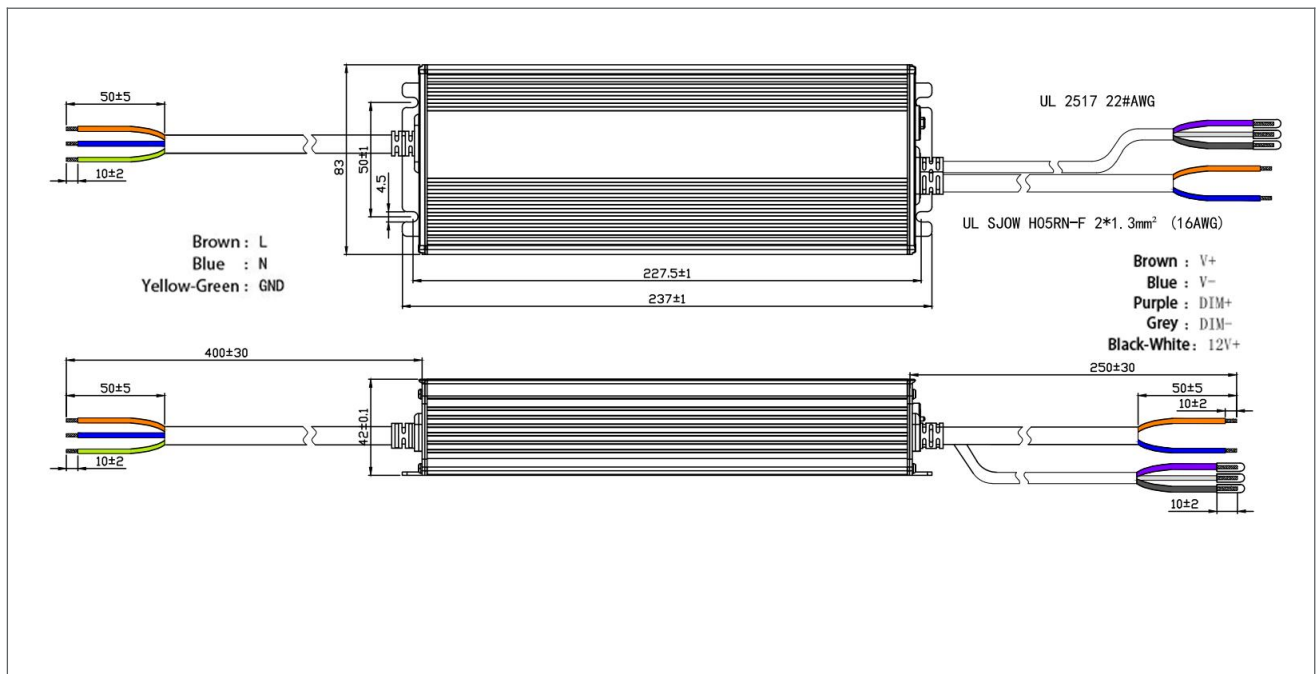
Fig 9. Lifetime VS Tc

Mechanical Specification:

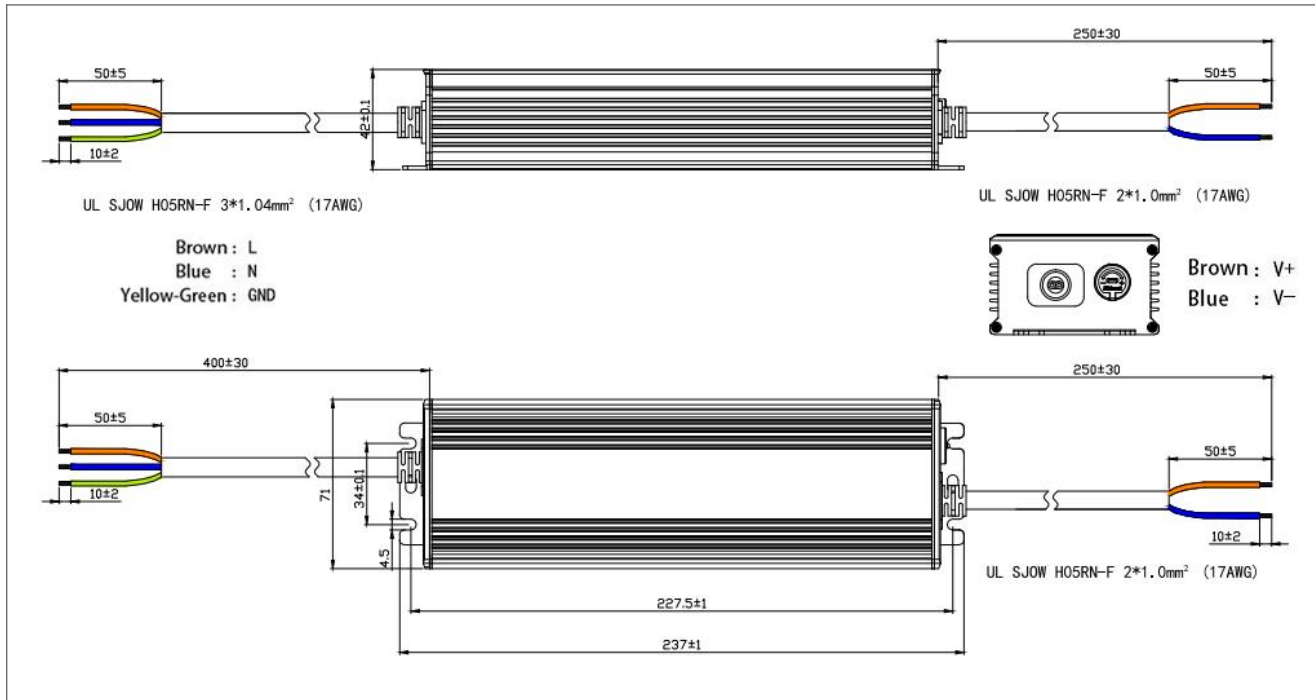
HJ-W320-V56A-MPB



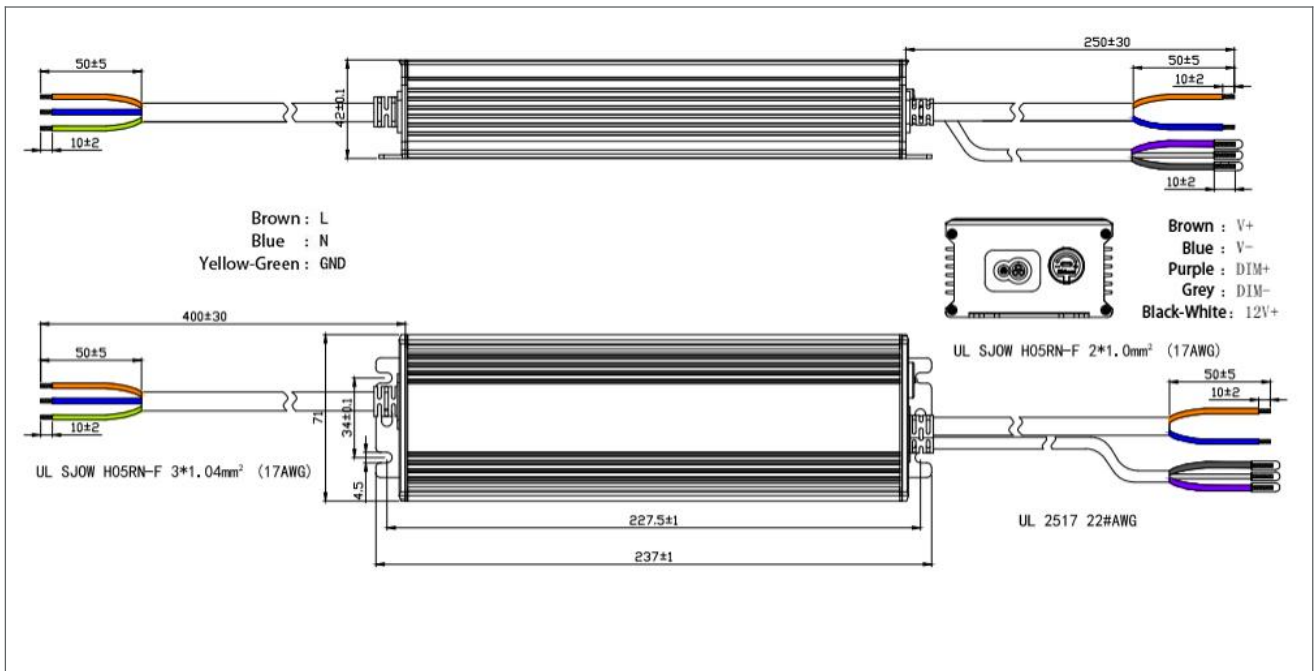
HJ-W320-V56X-MPB



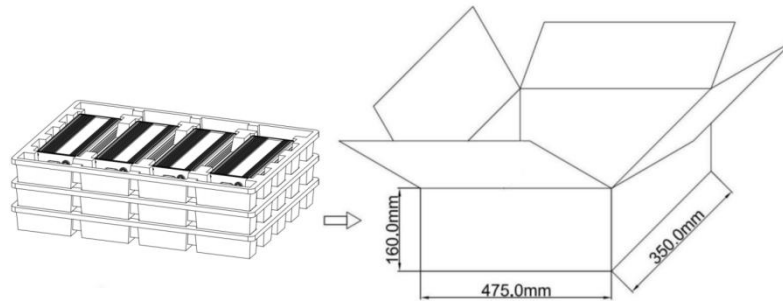
HJ-W320-V457A-MPB



HJ-W320-V457X-MPB



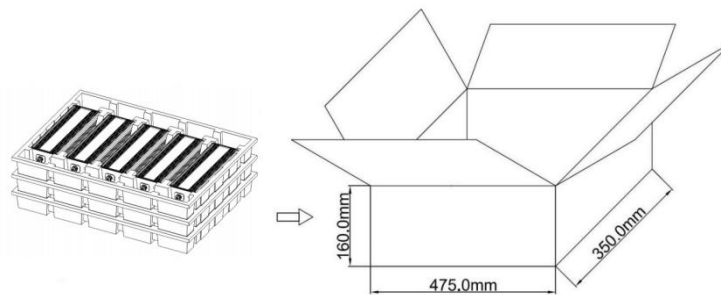
Packaging: HJ-W320-V56A/X-MPB



Packaging Description:

- The external dimensions of the packaging box (unit: mm) are: Length x Width x Height = 475 x 350 x 160;
- Each box contains 12 units, arranged in 3 layers with 4 units per layer. The gross weight is 19.5 Kg;
- Net weight per unit: 1.5 kg;
- The packaging box includes product name, model, manufacturer's identification, quality department's inspection certificate, manufacturing date, and other information.

Packaging: HJ-W320-V457A/X-MPB



Packaging Description:

- The external dimensions of the packaging box (unit: mm) are: Length x Width x Height = 475 x 350 x 160;
- Each box contains 15 units, arranged in 3 layers with 5 units per layer. The gross weight is 21 Kg;
- Net weight per unit: 1.3 kg;
- The packaging box includes product name, model, manufacturer's identification, quality department's inspection certificate, manufacturing date, and other information.

Shipping:

The packaging is suitable for transportation by car, ship, and airplane. During transport, it should be protected from moisture, sunlight, and handled with care during loading and unloading.

Storage:

Product storage should comply with the provisions of GB 3873-83. Products stored for more than 1 year should undergo re-inspection, and only after passing the inspection can they be used.

RoHS:

The product complies with the European Union RoHS Directive (2011/65/EU) and the European Parliament Amendment 2015/863/EU.

Update History:

Versions	Description of Update	Update Date	Note
V00	NEW	2024.01.15	

Edit	Audit	Approval
Zhukun Jun	Lisheng Pang	Jiyuan Chen