Datasheet

MOC Series

Outdoor LED Driver Dimmable

Richmat 豪江

Believe in the Power of Quality

PRODUCT:

FEATURES:

- Efficiency up to 96%
- PF>0.97, THD<10%
- 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(Model S)
- Isolated auxiliary power supply (optional for X version): 12V/0.2A
- Lightning protection level : Difference module 6KV , Common mode 6KV
- Protection level: IP65
- Protections：BOP、OTP、SCP、OVP-Dimming Interface
- Metal Housing Design with Functional Ground
- Warranty：5 Years

CERTIFICATIONS:

APPLICATIONS:

LED Industrial lighting
LED High Bay Lighting
LED Oil Station Lighting

PRODUCT OVERVIEW:

The HJ-MOC series is a circular non-isolated constant current driver, with rated output powers of 80W, 120W, 150W, 200W, and 240W. Utilizing independently developed patented technology, the driver exhibits superior performance under a wide range of input and output conditions, boasting high energy conversion efficiency and contributing to environmentally friendly and energy-saving products. Its adjustable output current and precise dimming control are advantageous for LED lighting design.

The MOC series offers three versions: Version A allows adjustment of the output current only through a potentiometer, Version S features three-in-one dimming plus potentiometer-adjusted current, and Version X includes three-in-one dimming, potentiometer-adjusted current, and a 12V auxiliary source. The series is equipped with comprehensive active and passive protection functions, effectively addressing various harsh conditions, ensuring high reliability, and low failure rates, and contributing to reducing costs for luminaire manufacturers.

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Model list:

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-W80-V266A/S/X-MOC	120-277V	80W	180-266Vdc	200-266Vdc	0.2-0.4A	0.97	7%	94%	90℃
HJ-W120-V266A/S/X-MOC	120-277V	120W	180-266Vdc	200-266Vdc	0.3-0.6A	0.97	7%	95%	90℃
HJ-W150-V266A/S/X-MOC	120-277V	150W	180-266Vdc	200-266Vdc	0.564-0.75A	0.97	7%	95%	90℃
HJ-W200-V266A/S/X-MOC	120-277V	200W	180-266Vdc	200-266Vdc	0.752-1.0A	0.97	7%	96%	90℃
HJ-W240-V266A/S/X-MOC	120-277V	240W	180-266Vdc	200-266Vdc	0.902-1.2A	0.97	7%	96%	90℃

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.

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INPUT:

Parameter	Min	Typ.	Max	Note
Rated input voltage	120Vac		277Vac	Applicable to all models
Input voltage range	90Vac		305Vac	Applicable to all models
Input frequency range	47Hz	50/60Hz	63Hz	Applicable to all models
Input current			0.8A	120Vac, full load (HJ-W80-V266A/S/X-MOC)
			1.2A	120Vac, full load (HJ-W120-V266A/S/X-MOC)
			1.5A	120Vac, full load (HJ-W150-V266A/S/X-MOC)
			2.0A	120Vac, full load (HJ-W200-V266A/S/X-MOC)
			2.4A	120Vac, full load (HJ-W240-V266A/S/X-MOC)
Input power			95W	120Vac, full load (HJ-W80-V266A/S/X-MOC)
			140W	120Vac, full load (HJ-W120-V266A/S/X-MOC)
			170W	120Vac, full load (HJ-W150-V266A/S/X-MOC)
			235W	120Vac, full load (HJ-W200-V266A/S/X-MOC)
			280W	120Vac, full load (HJ-W240-V266A/S/X-MOC)
Input surge current peak value			60A	120Vac, Cold Start
			110A	230Vac, Cold Start
			130A	277Vac, Cold Start
Standby power consumption			1W	230Vac, Full Load
Power factor	0.95	0.97		230Vac, Full Load
	0.9			120-277Vac 50/60Hz, 70-100% Load
Total harmonic distortion		4%	6%	120Vac, Full Load
		6%	8%	230Vac, Full Load
		7%	10%	277Vac, Full Load
			25%	120-277Vac 50/60Hz, 70-100% Load

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

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OUTPUT:

Parameter		Min	Typ.	Max	Note
Output voltage range		180V		266V	Applicable to all models
Rated output voltage		200V		266V	Applicable to all models
Rated output current	HJ-W80-V266A/S/X-MOC	0.3A		0.4A	At the rated output voltage, the maximum output power satisfies Po=Vo*Io=80W
	HJ-W120-V266A/S/X-MOC	0.45A		0.6A	At the rated output voltage, the maximum output power satisfies Po=Vo*Io=120W
	HJ-W150-V266A/S/X-MOC	0.564A		0.75A	At the rated output voltage, the maximum output power satisfies Po=Vo*Io=150W
	HJ-W200-V266A/S/X-MOC	0.752A		1.0A	At the rated output voltage, the maximum output power satisfies Po=Vo*Io=200W
	HJ-W240-V266A/S/X-MOC	0.902A		1.2A	At the rated output voltage, the maximum output power satisfies Po=Vo*Io=240W
Default factory output current	HJ-W80-V266A/S/X-MOC		0.4A		
	HJ-W120-V266A/S/X-MOC		0.6A		
	HJ-W150-V266A/S/X-MOC		0.75A		
	HJ-W200-V266A/S/X-MOC		1.0A		
	HJ-W240-V266A/S/X-MOC		1.2A		
Current adjustment range	HJ-W80-V266A/S/X-MOC	0.2A		0.4A	
	HJ-W120-V266A/S/X-MOC	0.3A		0.6A	
	HJ-W150-V266A/S/X-MOC	0.375A		0.75A	
	HJ-W200-V266A/S/X-MOC	0.5A		1.0A	
	HJ-W240-V266A/S/X-MOC	0.6A		1.2A	
Maximum no-load output voltage				330V	Applicable to all models
Efficiency	HJ-W80-V266A/S/X-MOC		92%		Input 120Vac, output 266V/0.3A
			94%		Input 230Vac, output 266V/0.3A
			94%		Input 277Vac output 266V/0.3A
	HJ-W120-V266A/S/X-MOC		93%		Input 120Vac, output 266V/0.45A
			95%		Input 230Vac output 266V/0.45A
			95%		Input 277Vac output 266V/0.45A
	HJ-W150-V266A/S/X-MOC		93%		Input 120Vac, output 266V/0.564A
			95%		Input 230Vac output 266V/0.564A
			95%		Input 277Vac output 266V/0.564A
	HJ-W200-V266A/S/X-MOC		93%		Input 120Vac, output 266V/0.752A
			96%		Input 230Vac output 266V/0.752A
			96%		Input 277Vac output 266V/0.752A
	HJ-W240-V266A/S/X-MOC		93%		Input 120Vac, output 266V/0.902A
			96%		Input 230Vac output 266V/0.902A
			96%		Input 277Vac output 266V/0.902A
Current accuracy		-5%		5%	100% load constant power range
Output current ripple			5%	10%	ΔI=Ipk-pk/2/Io*100%
Startup current overshoot				10%	LED load
Startup time				1000ms	100% load@120-277Vac
Linear regulation rate		-3%		3%	100% load
Load regulation rate		-3%		3%	100% load
Temperature coefficient		-0.03%/℃		+0.03%/℃	Casing Temp. : 0-90℃

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Over temperature protection	90℃		100℃	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			10W	Not damaged by prolonged short circuits, automatic recovery upon fault resolution.
Input undervoltage protection	96Vac	101Vac	106Vac	Derated output, returns to normal after the abnormal condition is resolved.

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

DIMMING

Parameter	Description	Min	Typ.	Max	Note
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	0.40V	0.5V	0.6V	
	Dimming start voltage	0.6V	0.70V	0.8V	
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	1.5%	2.0%	2.4%	
	Dimming start duty cycle	2.6%	3.0%	4.0%	
Resistor Dimming	External resistor	0Ω		100KΩ	DIM+ output 100uA current
	Dimming output range	10%		100.0%	
	Dimming cutoff resistance	4.0KΩ	5.0KΩ	6.0KΩ	
	Dimming start resistance	6KΩ	7.0KΩ	8KΩ	
Interface protection	Interface over voltage protection			400Vdc或 277Vac	Interface not damaged within 30 minutes.
Auxiliary power supply (optional for X version)	Rated output voltage	11.4V	12V	12.6V	
	Rated output current			200mA	

Remarks:

Note: 1. The dimming interface can withstand voltages within 277Vac for a short period of time (within 30 minutes) without damage, and returns to normal after the fault is resolved; when the dimming interface is externally connected to AC mains, the output current drops to half of the set current value. Construction personnel can quickly identify and resolve faults based on this phenomenon to avoid permanent damage to the interface;

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2. All performance parameters are typical values measured at an ambient temperature of 25°C and using an LED load, unless otherwise specified;

3. When the dimming line is not in use, please seal the dimming line connector with an insulating sleeve to prevent interference signals from causing damage to the dimming line and affecting the normal operation of the power supply;

4. The auxiliary power supply function is only applicable to the X version series

OTHER:

Parameter	Description	Note
Estimation of Mean Time Between Failures (MTBF)	260,000 hours	230Vac, full load, ambient temperature 25℃ (MIL-HDBK-217F).
Lifetime	≥50,000 hours	230Vac, full load, Tc=75℃
International Protection	IP65	Suitable for dry and humid environments, avoid prolonged exposure to rain.
Maximum casing temperature	90℃	
Warranty	5 Years	Casing temperature (Tc point) not exceeding 75℃
Weight	690.5g (net weight)	HJ-W80-V266A/S/X-MOC
	694.5g (net weight)	HJ-W120-V266A/S/X-MOC
	696.5g (net weight)	HJ-W150-V266A/S/X-MOC
	725.5g (net weight)	HJ-W200-V266A/S/X-MOC
	742.5g (net weight)	HJ-W240-V266A/S/X-MOC
Dimension	Φ128mm*62.5mm	Diameter*height

ENVIRONMENT:

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

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Safety and EMC:

Items	Standard	Note
CCC	GB 19510.14-2009、GB/T 17743-2021、GB 17625.1-2022	
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	
UL	UL8750	
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 6 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	>10MΩ 500Vdc 输入对调光端	
Dielectric strength	IP-PE=1500Vac IP-DIM=3000Vac OP-DIM=3000Vac DIM-PE=500Vac	
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.

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Characteristics Curve:

1.Inrush Current

Vin	Peak current	Duration (@10% peak current)	Duration (@50% peak current)
120Vac	56.2A	546us	365us
220Vac	81.3A	552us	372us
277Vac	93.5A	535us	375us

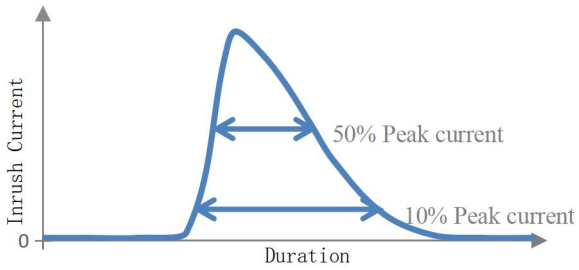

Fig. 1. Inrush Current VS Duration

2.Efficiency VS output voltage

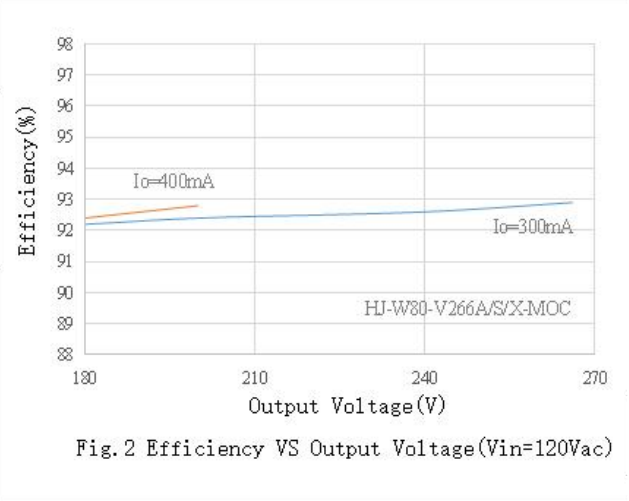

Fig. 2 Efficiency VS Output Voltage(Vin=120Vac)

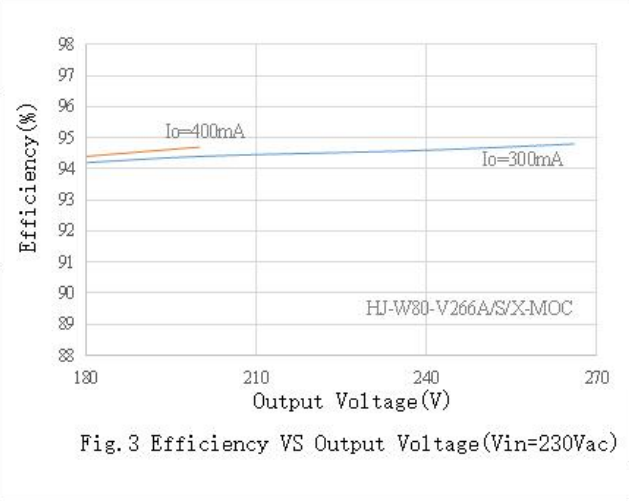

Fig. 3 Efficiency VS Output Voltage(Vin=230Vac)

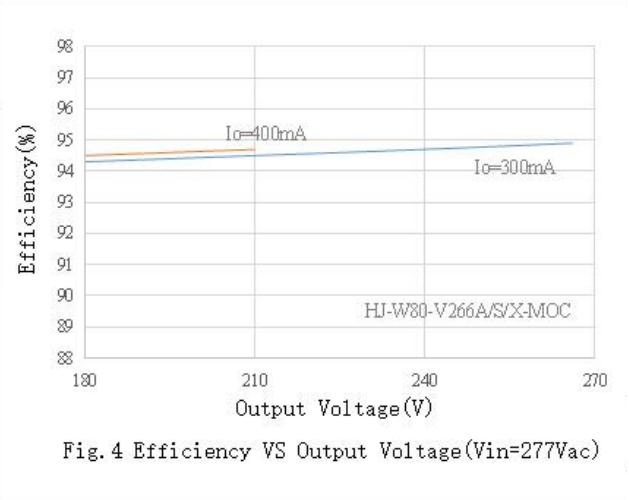

Fig. 4 Efficiency VS Output Voltage(Vin=277Vac)

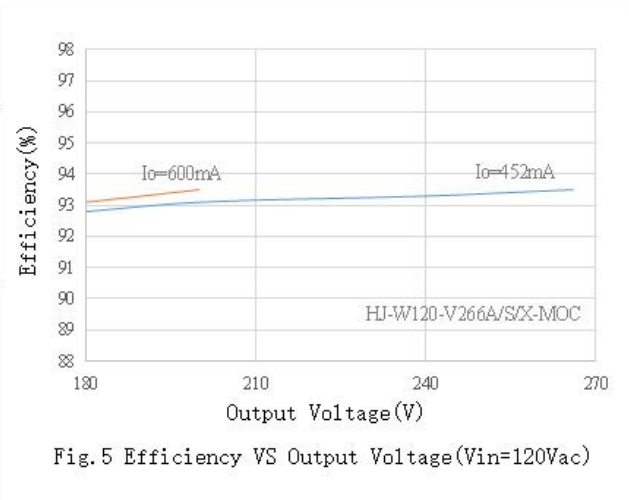

Fig. 5 Efficiency VS Output Voltage(Vin=120Vac)

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Characteristics Curve:

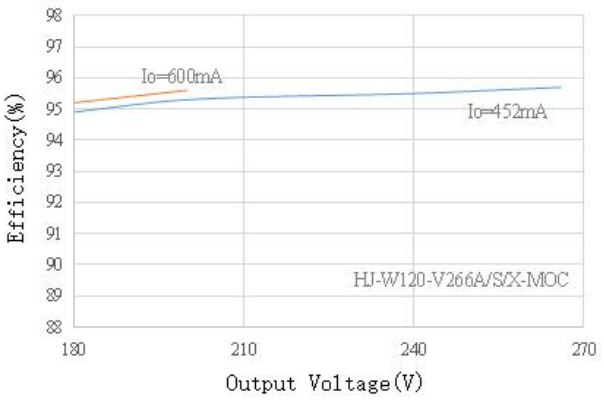

Fig.6 Efficiency VS Output Voltage(Vin=230Vac)

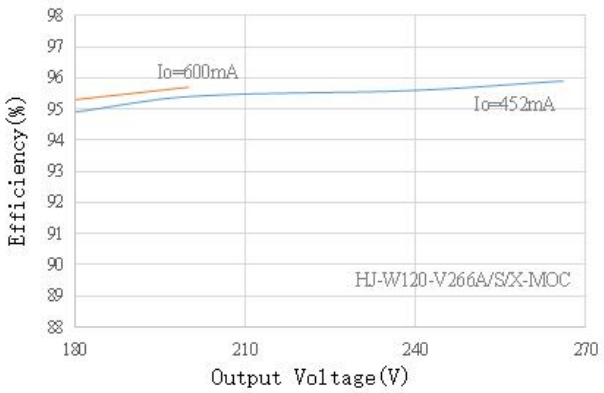

Fig.7 Efficiency VS Output Voltage(Vin=277Vac)

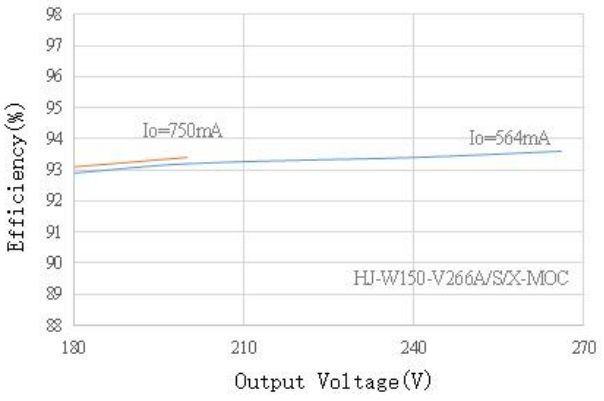

Fig.8 Efficiency VS Output Voltage(Vin=120Vac)

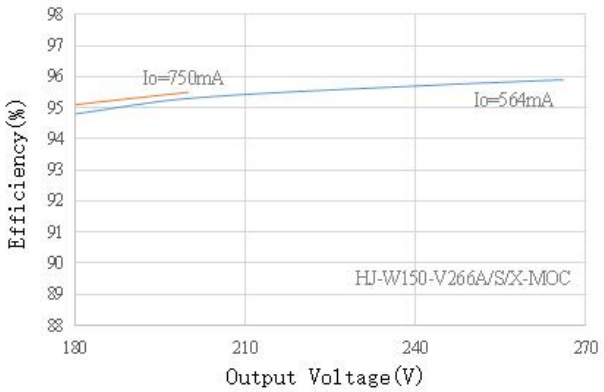

Fig.9 Efficiency VS Output Voltage(Vin=230Vac)

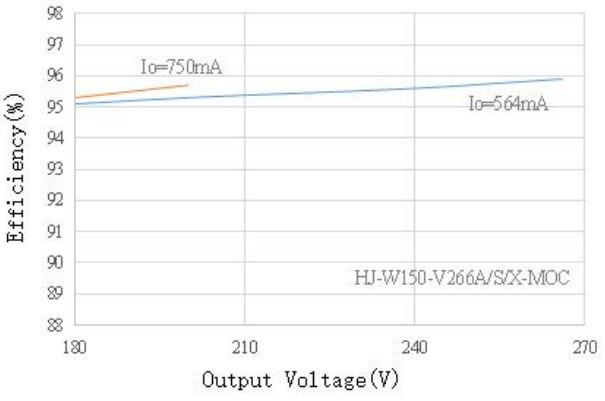

Fig.10 Efficiency VS Output Voltage(Vin=277Vac)

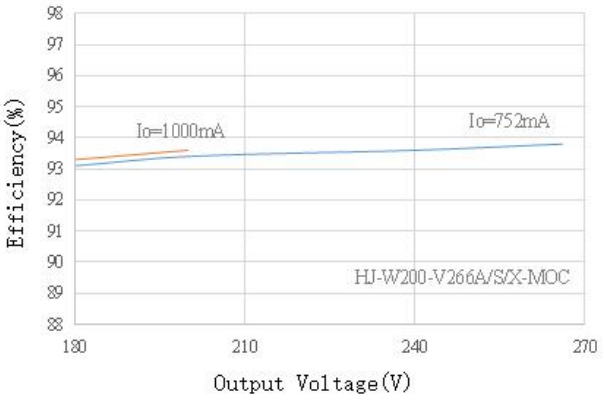

Fig.11 Efficiency VS Output Voltage(Vin=120Vac)

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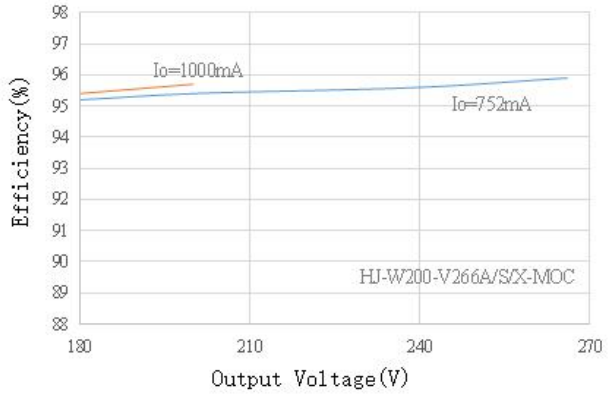

Fig. 12 Efficiency VS Output Voltage(Vin=230Vac)

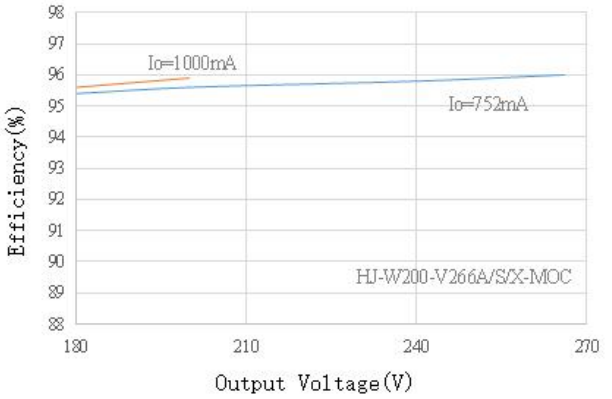

Fig. 13 Efficiency VS Output Voltage(Vin=277Vac)

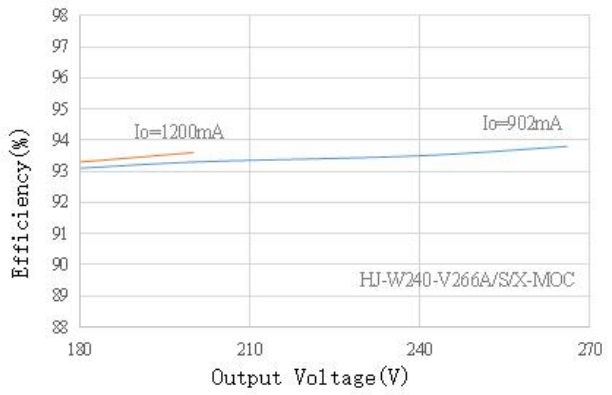

Fig. 14 Efficiency VS Output Voltage(Vin=120Vac)

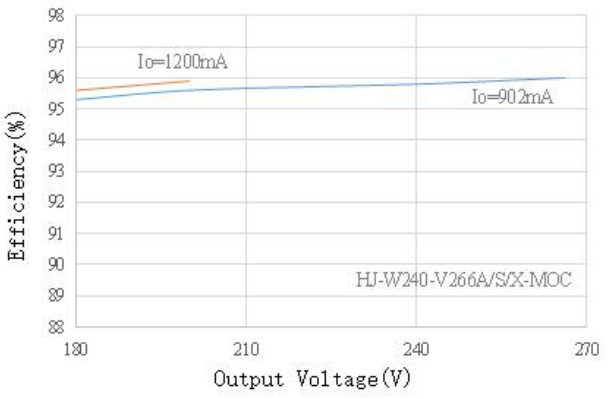

Fig. 15 Efficiency VS Output Voltage(Vin=230Vac)

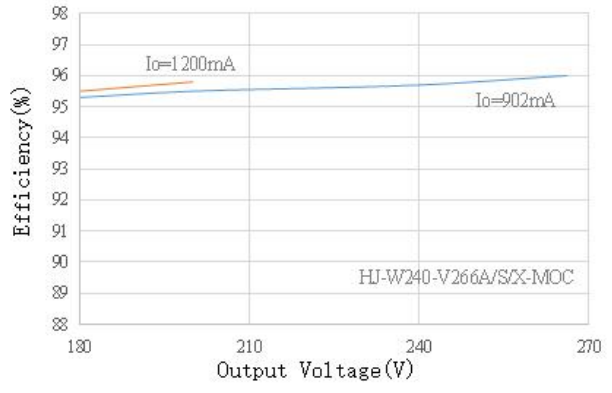

Fig. 16 Efficiency VS Output Voltage(Vin=277Vac)

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3. Power factor VS output power

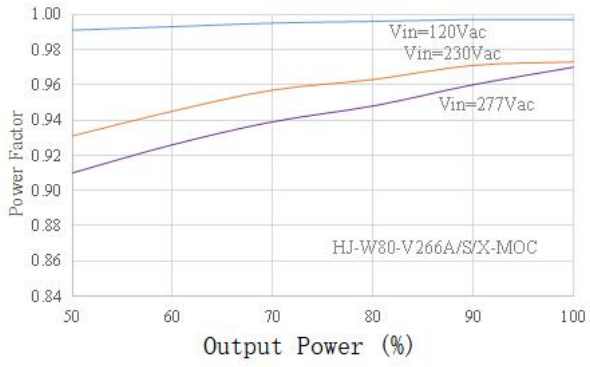

Fig 17. Power Factor VS Output Power

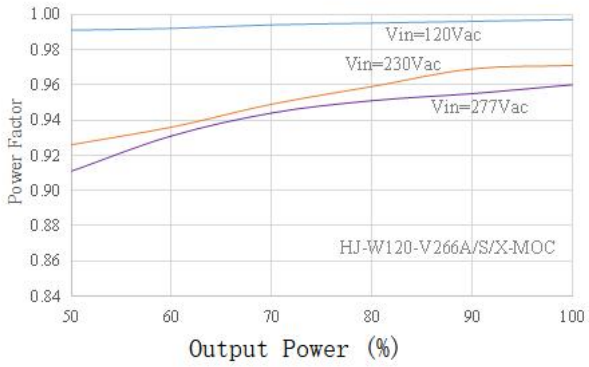

Fig 18. Power Factor VS Output Power

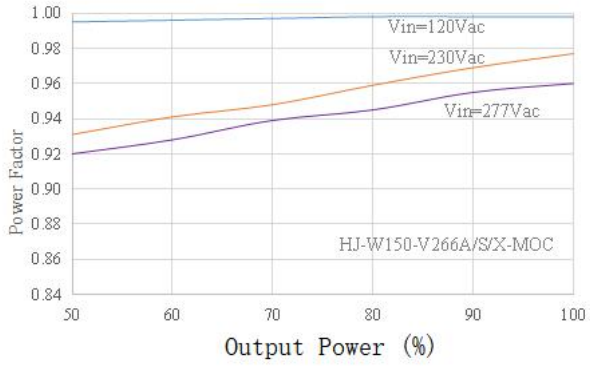

Fig 19. Power Factor VS Output Power

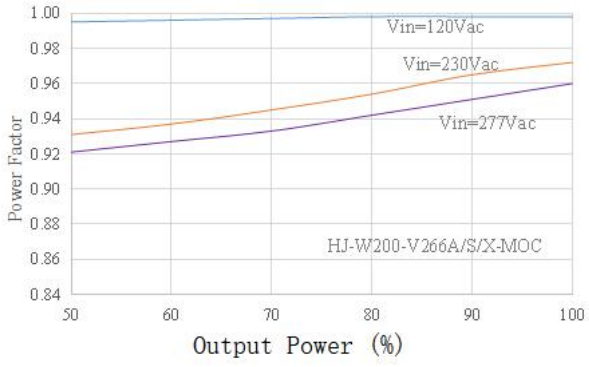

Fig 20. Power Factor VS Output Power

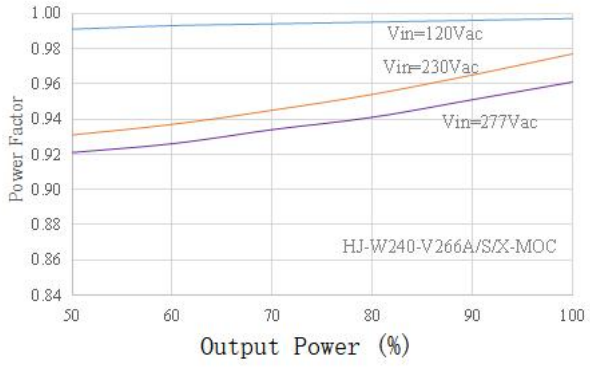

Fig 21. Power Factor VS Output Power

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Characteristics Curve:

4.THD VS Output Power

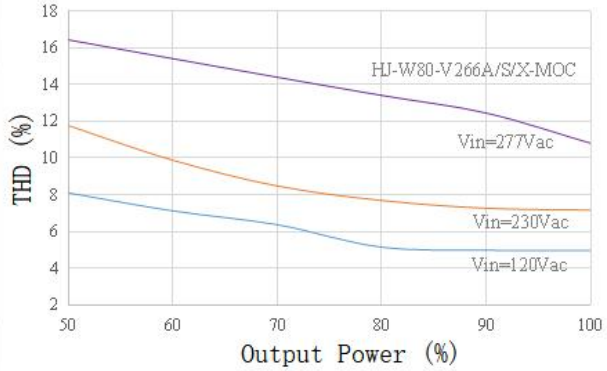

Fig. 22 THD VS Output Power

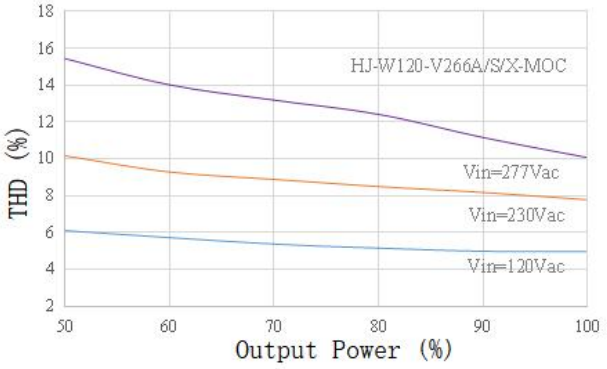

Fig. 23 THD VS Output Power

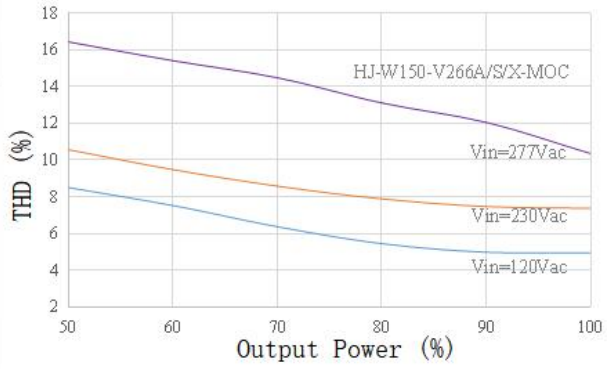

Fig. 24 THD VS Output Power

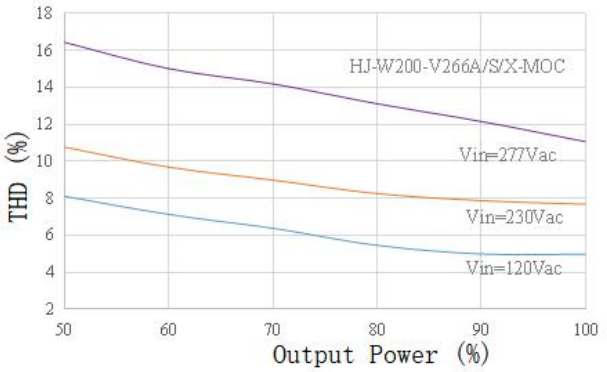

Fig. 25 THD VS Output Power

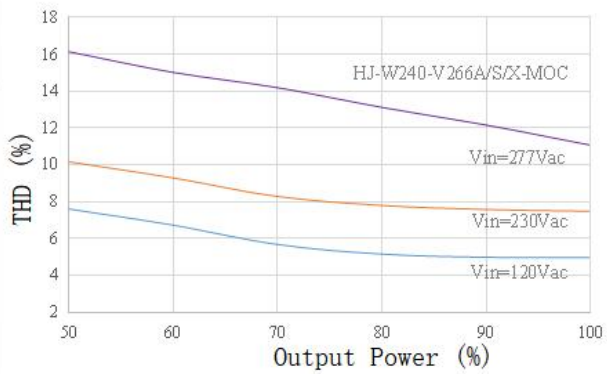

Fig. 26 THD VS Output Power

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5. Output voltage VS output current

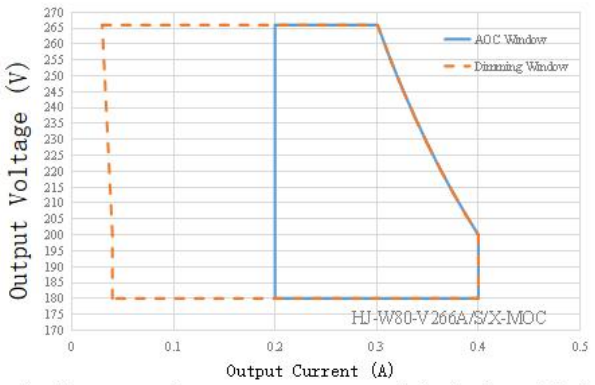

Fig 27. Output Voltage VS Output Current (Dimming/AOC Window)

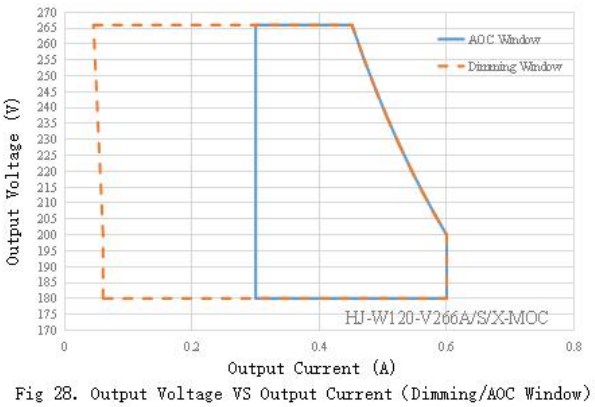

Fig 28. Output Voltage VS Output Current (Dimming/AOC Window)

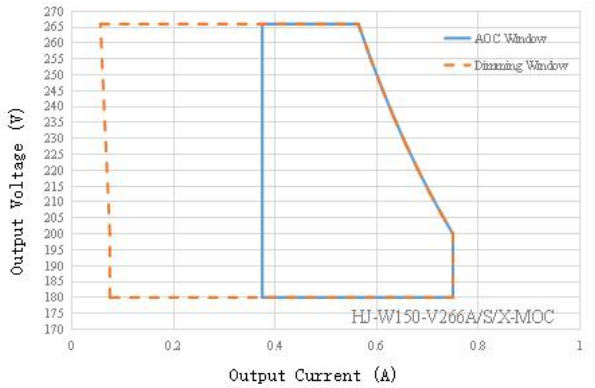

Fig 29. Output Voltage VS Output Current (Dimming/AOC Window)

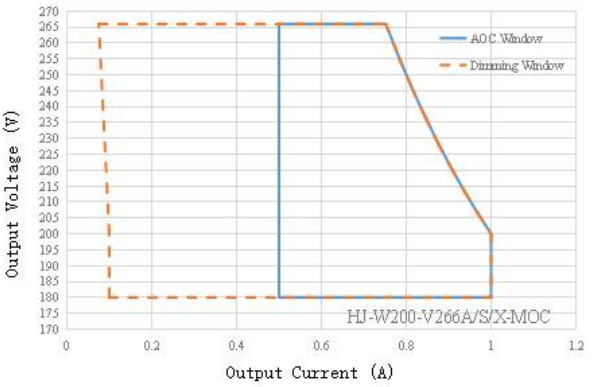

Fig 30. Output Voltage VS Output Current (Dimming/AOC Window)

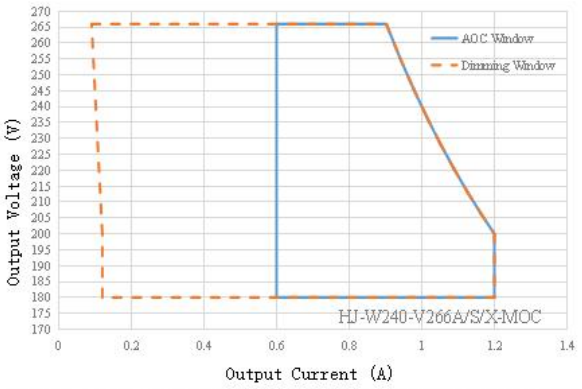

Fig 31. Output Voltage VS Output Current (Dimming/AOC Window)

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Characteristics Curve:

6. THD VS Output Power

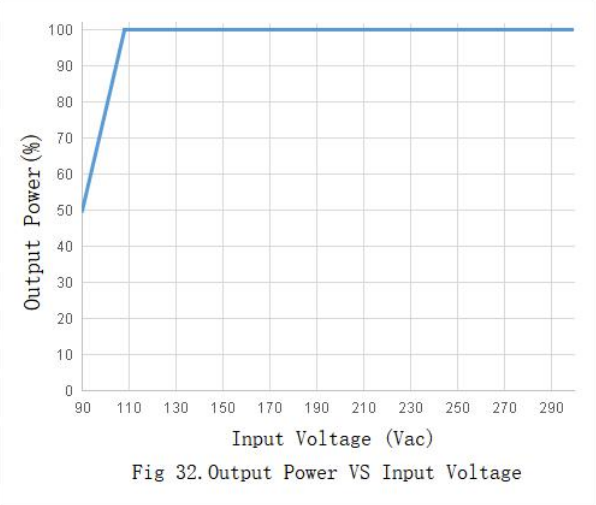

Fig 32. Output Power VS Input Voltage

7. Output PowerVS Dimming Signal

7.1 Voltage (0V-10V) and resistance (0K-100K) dimming

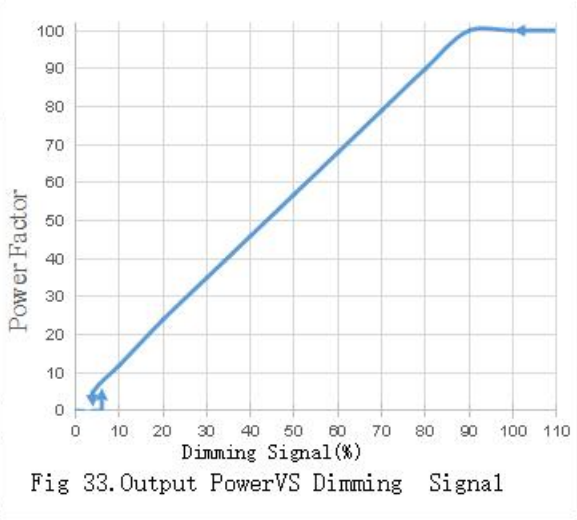

Fig 33. Output PowerVS Dimming Signal

7.2 PWM dimming

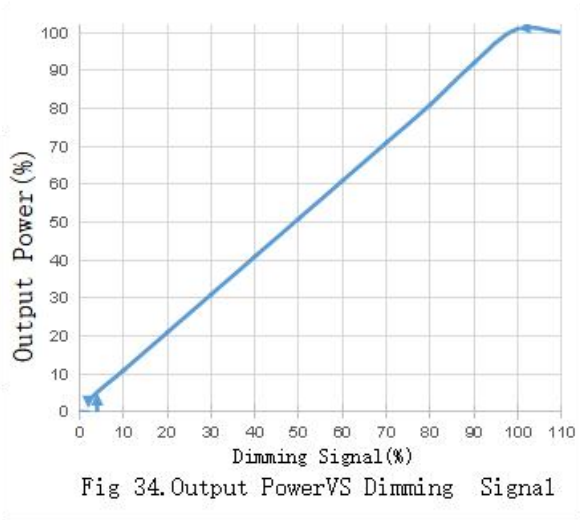

Fig 34. Output PowerVS Dimming Signal

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Characteristics Curve:

8. Output Power VS Tc

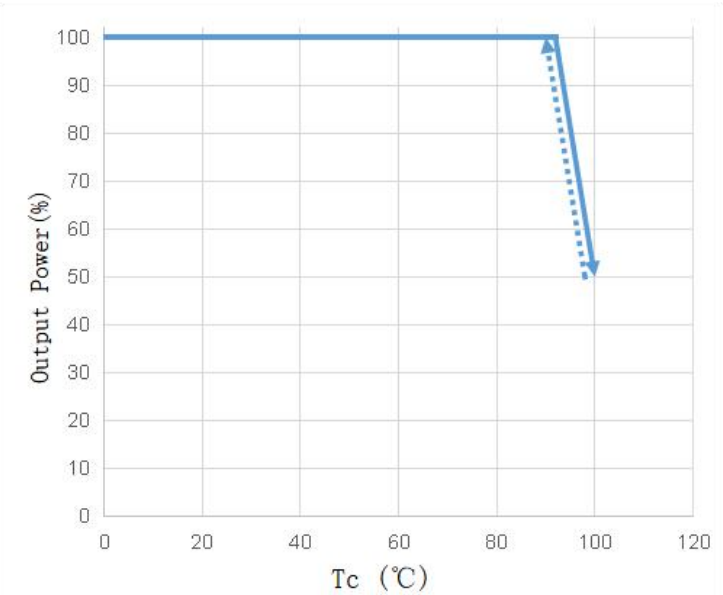

Fig 35. Output Power VS Tc

9. Lifetime VS Tc

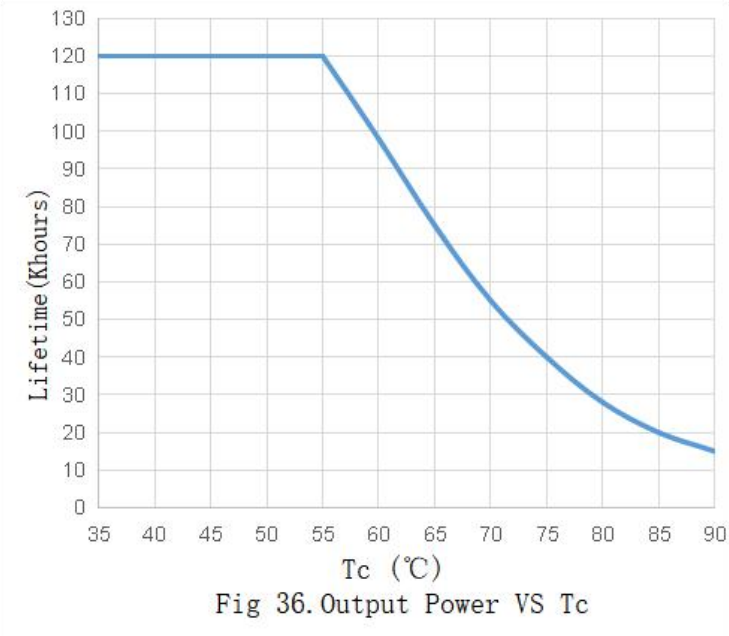

Fig 36. Output Power VS Tc

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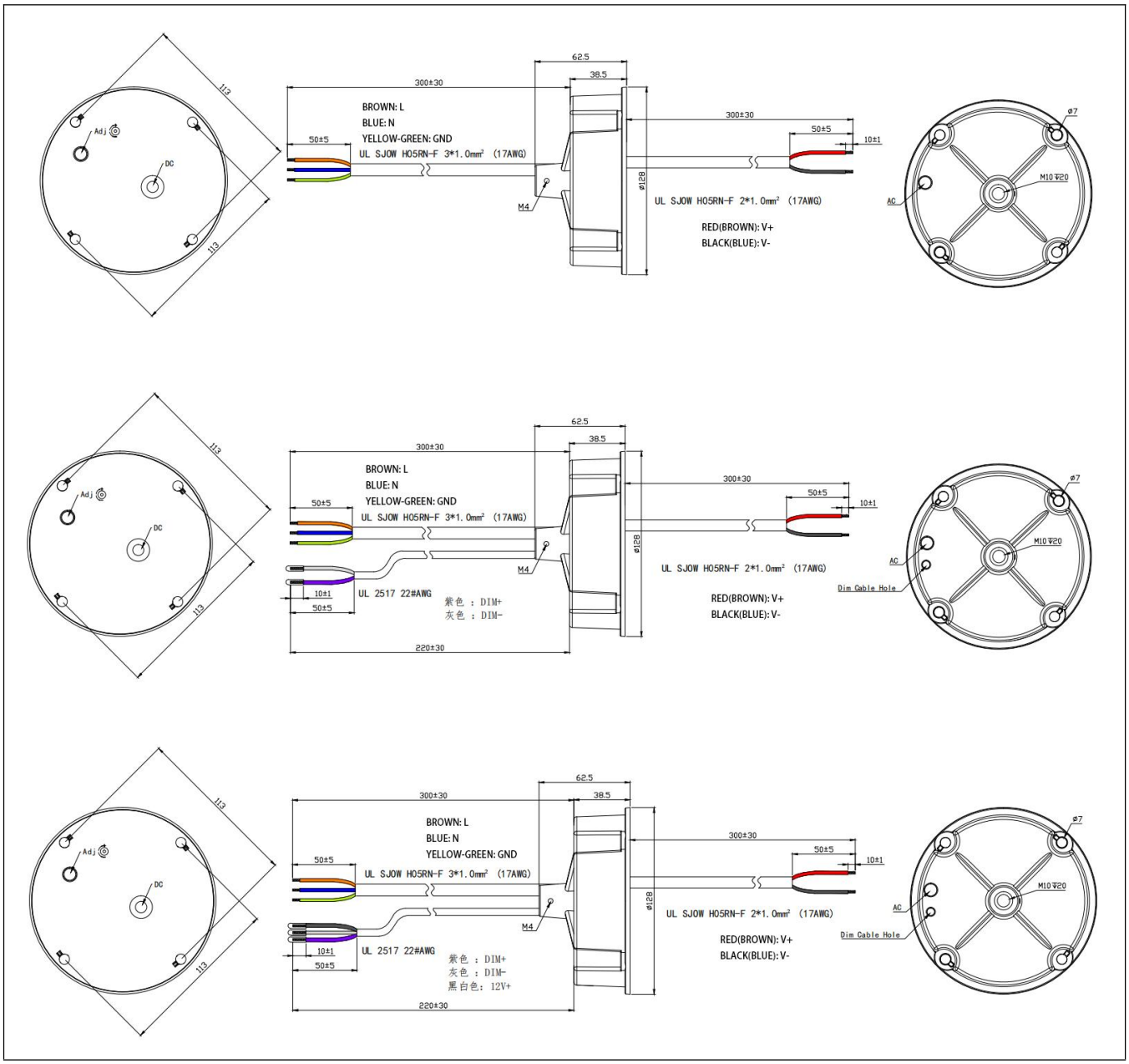
Structural dimensions:



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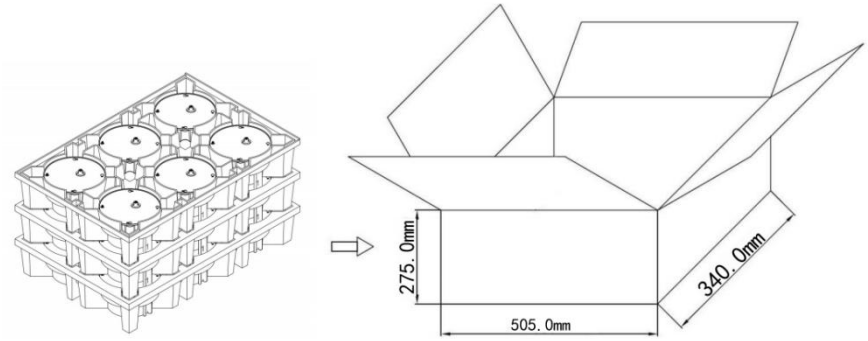
Packaging:



Product model	HJ-W80-V266A/S/X-MOC	HJ-W120-V266A/S/X-MOC	HJ-W150-V266A/S/X-MOC	HJ-W200-V266A/S/X-MOC	HJ-W240-V266A/S/X-MOC
Net weight each pcs	690.5g	694.5g	696.5g	725.5g	742.5g
Gross weight per box	15Kg	15Kg	15Kg	16Kg	16Kg

- The external dimensions of the packaging box (unit: mm) are: Length x Width x Height = 505×340×275;
- Each box contains18 units, arranged in3 layers with6 units per layer.
- 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:

Address: 9A502, Taihua Wutong Island, Hangcheng Street, Baoan District, Shenzhen, Guangdong, China
: +86 18953346833 / +1 587-887-5087

Versions	Description of Update	Update Date	Note
V00	Initial release	2023.11.21	
V01	PWM dimming curves are listed separately	2024.01.02	

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Edit	Audit	Approval

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