

The logo for DONE, featuring the word "DONE" in a bold, teal, sans-serif font. The letter "D" is stylized with a white circular element on its left side. The logo is enclosed in a thin teal rounded rectangular border.

# **MXG SERIES LED DRIVERS**

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**DL-50W-A/P/X-MXG SPEC V1.4**

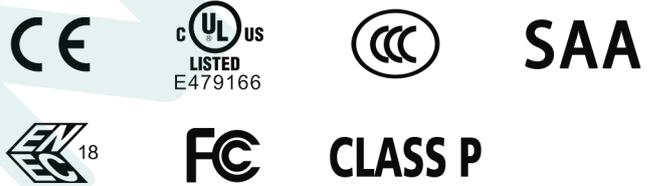
## Features

- Class I structure
- Input voltage: 120-277 V ~ 50/60 Hz
- Efficiency :89%(Typ.)
- Constant power drive and constant current output control mode
- Metal shell structure, protection grade: IP67
- Lightning protection level: differential mode 6kV, common mode 15kV
- Function selection:
  - Output current is adjusted by external potentiometer (A version only)
  - Input over-voltage protection ( P version only )
  - Isolated 3 in 1 dimming (X/P version only)
  - Auxiliary source: 12V/300mA (X version only)
- Lifetime design : 5 years



## Applications

Road lighting、Industrial lighting、Venue lighting  
 Floodlight lighting、Landscape lighting 、Plant lighting



## Model list

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff.	T.H.D	PF
DL-50W-V56A-MXG DL-50W-V56P-MXG DL-50W-V56X-MXG	AC 120-277V 50/60Hz	50W	25-56Vdc	1.5A	≥89%	≤10%	≥0.95
DL-50W-V72A-MXG DL-50W-V72P-MXG DL-50W-V72X-MXG	AC 120-277V 50/60Hz	50W	36-72Vdc	0.7A	≥89%	≤10%	≥0.95

- Note :**
1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes.
  2. When the input is less than 108Vac±10%, the output power gradually decreases. When the input 120-277Vac, rated power 50W. Please refer to "THE OUTPUT POWER VS INPUT VOLTAGE" curve chart for details.
  3. Input overvoltage protection is optional for the P version

## Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	120Vac 150Vdc	230Vac	277Vac 420Vdc	
Input voltage range	108Vac		305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	0.95	-	-	@230Vac full load, rated input voltage
Power factor	0.9	-	-	80%-100% load, 120-277VAC input
T.H.D.	-	-	10%	@230Vac full load
T.H.D.	-	-	20%	80%-100% load, 120-277VAC input
Input current	-	-	0.5A	@120Vac full load
Inrush current	-	-	70A	230Vac, cold start (25°C)

## Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current				
DL-50W-V56A/P/X-MXG	-	0.9A	-	
DL-50W-V72A/P/X-MXG		0.7A		
Output current range				
DL-50W-V56A/P/X-MXG	0.6A	-	1.7A	
DL-50W-V72A/P/X-MXG	0.5A		1.05A	
Output voltage range				Constant power voltage range:
DL-50W-V56A/P/X-MXG	25V	-	56V	30-56V
DL-50W-V72A/P/X-MXG	36V		72V	48-72V
Rated power(90-120Vac)	-	25W	50W	The derating begins when the input voltage is less than 108Vac ±10%
Rated power(120-277Vac)	-	50W	-	
No-load voltage				
DL-50W-V56A/P/X-MXG	-	-	75V	
DL-50W-V72A/P/X-MXG			90V	
Efficiency@120Vac				
DL-50W-V56A/P/X-MXG	84%	86%	-	full load @120Vac
DL-50W-V72A/P/X-MXG	84%	86%		
Efficiency@230Vac				
DL-50W-V56A/P/X-MXG	87%	89%	-	full load @230Vac
DL-50W-V72A/P/X-MXG	87%	89%		

## Output characteristic

Parameter	Min	Typ.	Max	Note
Output Current Ripple	-	5%Iomax	-	100% load , 20 MHz BW ; Ripple =rms/ average
Accuracy of output current	-5%	-	+5%	full load Constant power range
Line regulation	-3%	-	+3%	full load Constant power range
Load regulation	-3%	-	+3%	full load Constant power range
Starting time	300ms	-	1000ms	Full load@120-277Vac
Auxiliary source output voltage	10.8 V	12V	13.2V	-
Auxiliary source output current	0 mA	-	300 mA	Reference ground is "Dim -"
Auxiliary source output transient peak current @6W	-	-	500 mA	In a 5.0ms cycle, the maximum duration of the maximum peak current of 500mA is 2ms, and the average value must not exceed 250mA

**Note:**

1. The output current range is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details.
2. When the output voltage is in the constant power range, the current accuracy is -5%~+5%; when the output voltage is below the constant power range, the current accuracy is -10%~+10%;

## Dimming characteristic

Parameter		Min	Typ.	Max	Note
0-10V Dimming ( Optional )	Safe applied voltage range	0	-	12V	When the external voltage is $\geq$ 12V, the dimming will fail
	Dimming output range	0	-	100%	-
	Rated dimming voltage range	0	-	10V	It can be set to negative dimming mode through program setting
PWM Dimming ( Optional )	PWM high level	9.5V	-	10.5V	-
	PWM low level	0	-	0.3V	-
	PWM frequency band	300Hz	-	2000Hz	-
	PWM duty cycle	0	-	99%	Output full power at 99% duty cycle
Resistor Dimming ( Optional )	External resistance value	0	-	100K $\Omega$	-
	Dimming output range	0	-	100%	-
Multiple time-controlled dimming (optional)	MCU control	Set segment dimming function through program		Working mode	
	Timer control	It is divided into six segments by default and can be customized		24H to achieve a cycle	

- Note:**
1. Output current of dimming port: 100uA (typical value)
  2. The X version is 0-10V dimming, and the P version is 1-10V dimming (0V can be turned off). The maximum voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal cable is inverted, the power supply will be damaged;
  3. Dimming default setting is three in one positive logic dimming (programmable software can be set to timing dimming, 0-5V or other voltage dimming);
  4. When set to positive logic dimming function, the 0V dimming is turned off, and the output voltage is  $0.46 \cdot V_{omax}$  after the dimming is turned off. Be careful when using this function, but customers are advised to use 1-10V dimming.
  5. When setting negative logic dimming, the default output is 100% when the dimming is suspended. Negative logic dimming cannot be turned off. When the port voltage of the dimming is greater than 10.5V, the maximum power output of the power supply will be achieved.

## Protection

Function		Function instructions			
Input over-voltage protection ( P version only )	Input over-voltage protection	Min.	Typ.	Max.	Notes
		320 Vac	340 Vac	350 Vac	Turn off the output when the input voltage exceeds protection voltage.
	Input over-voltage recovery	Min.	Typ.	Max.	Notes
		300 Vac	320 Vac	340 Vac	The driver will restart automatically when the input voltage falls below recovery voltage.
Input under-voltage protection		When the input voltage is less than 108Vac ±10%, the output power gradually decreases.			
Output overload protection		Protection mode:hiccup mode,recovers automatically after fault condition is removed.			
Output short circuit protection		Hiccup mode:recovers automatically after fault condition is removed			
Over temperature protection		Self-recovery type : when the housing temperature is greater than 90°C, the output power decreases gradually.			
Output over-voltage protection		Protection mode: Hiccup mode or clamped in output highest voltage , the product is not damaged , LED driver works normally after fault condition is removed.			

**Note:**

1. Unless otherwise specified, all specifications and parameters shall be measured at the conditions of 230Vac (50Hz), rated load and 25°C of ambient temperature;
2. Including setting error, line regulation and load regulation.

## Environmental

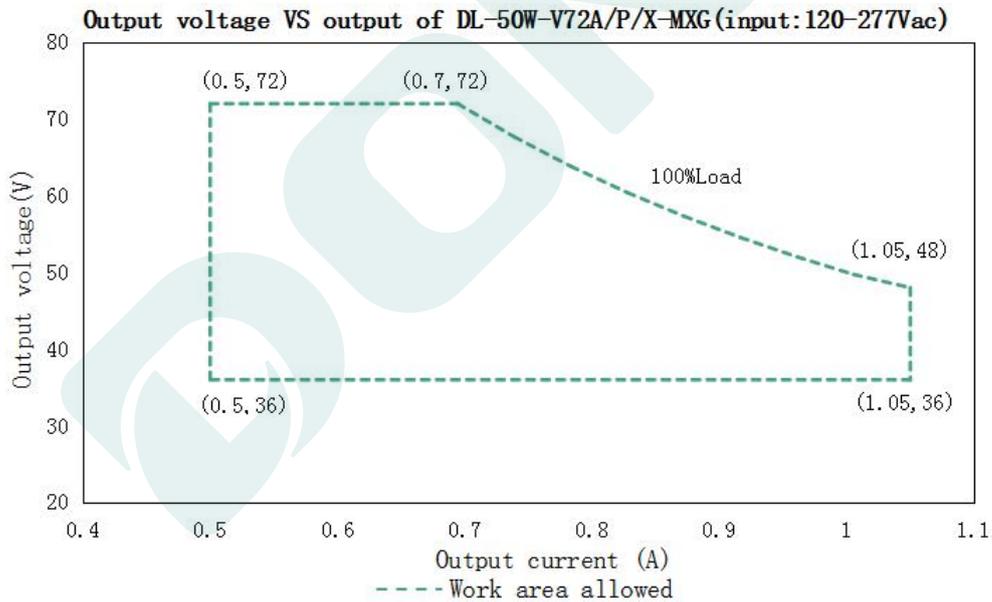
Environmental categories	Parameter
Working temperature	-40 ~ +55°C@200-277Vac, -40 ~ +45°C @120-200Vac (refer to "Life Curve ")
Max.Case Temp.	-40 ~ 90°C
Working humidity	20 ~ 95% RH, non condensing
Storage temperature、 humidity	-40 ~ +80°C, 10 ~ 95% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25°C)
Lifetime	75,000 hours @Tcase≤75°C,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" section

## Safety and EMC

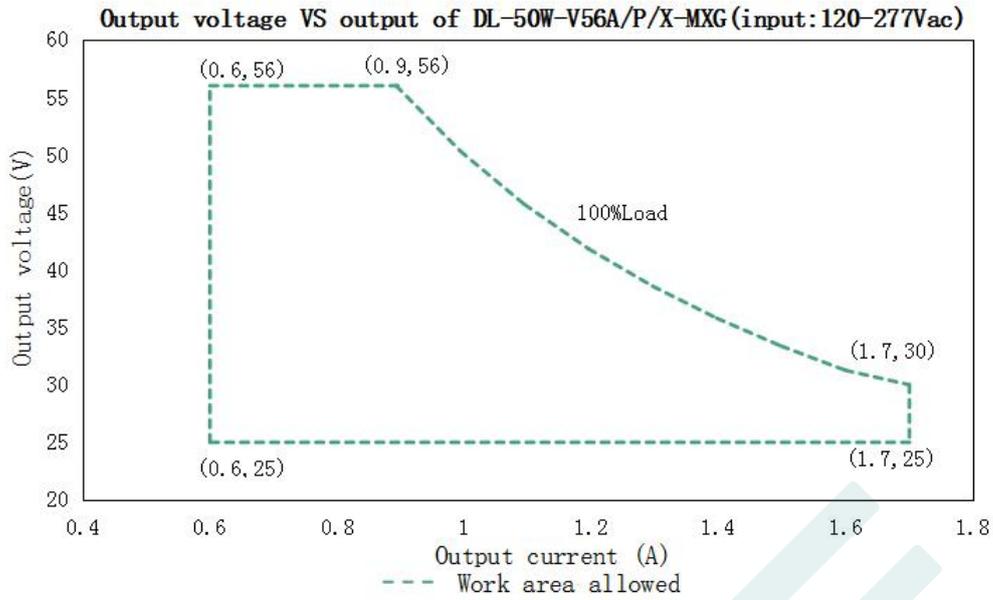
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384、UL8750
EMC	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、EN 61000-3-3
Surge protection	Differential mode L-N ±6KV ( 2 ohm ) ,common mode L , N-PE± 15 KV ( 12 ohm ) ; Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac I/P-DIM:1.5KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100MΩ / 500VDC; I/P-O/P:100MΩ / 500VDC / 25°C/ 70% RH
Leakage current	<0.7mA@277Vac

**Note:** The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation,the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

## I-V Working area

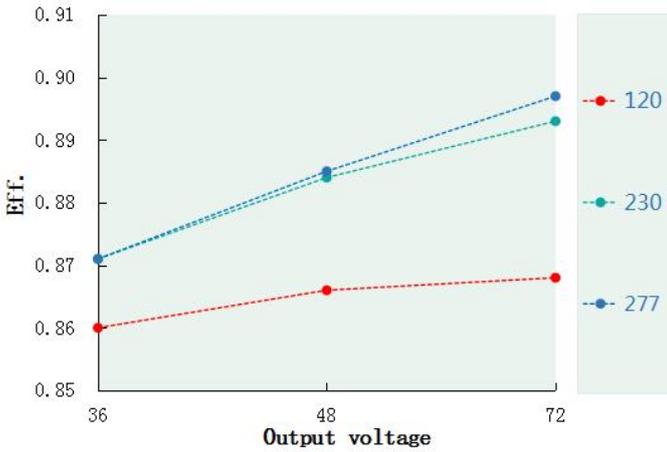


Load	Output								
Load working Voltage	36V	39V	42V	45V	48V	52V	58V	64V	72V
Io_MAX	1.05A	1.05A	1.05A	1.05A	1.05A	0.96A	0.86A	0.78A	0.7A
Po_MAX	37.8W	41W	44.1W	47.25W	50W	50W	50W	50W	50W

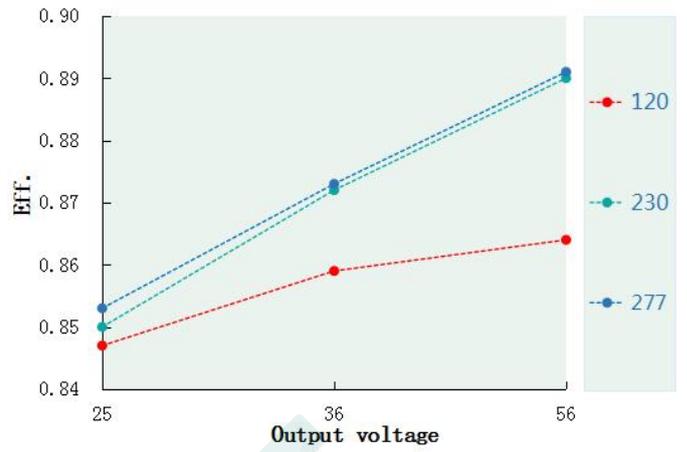


Load	Output								
Load working Voltage	25V	30V	33V	36V	40V	44V	48V	52V	56V
Io_MAX	1.7A	1.7A	1.51A	1.39A	1.25A	1.14A	1.04A	0.96A	0.9A
Po_MAX	42.5W	50W	50W	50W	50W	50W	50W	50W	50W

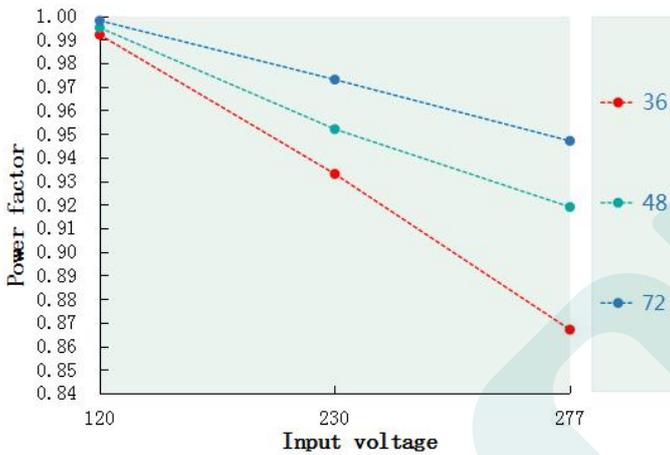
Eff. VS Output voltage(DL-50W-V72A/P/X-MXG)



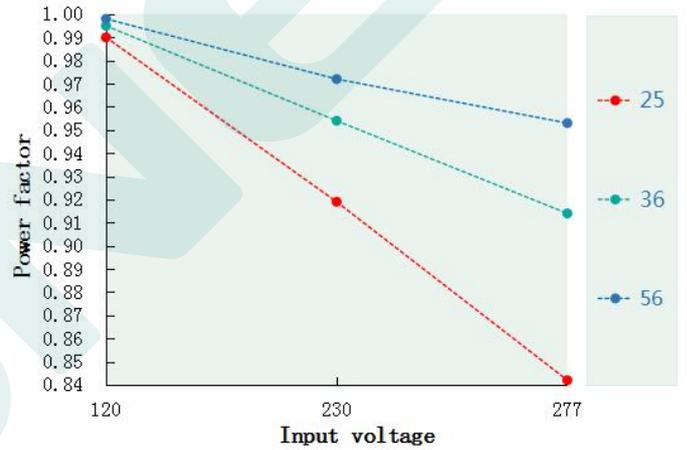
Eff. VS Output voltage(DL-50W-V56A/P/X-MXG)



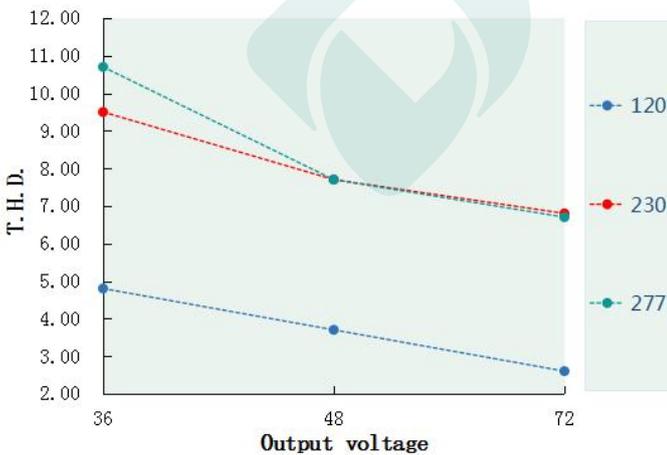
Power factor VS Input voltage(DL-50W-V72A/P/X-MXG)



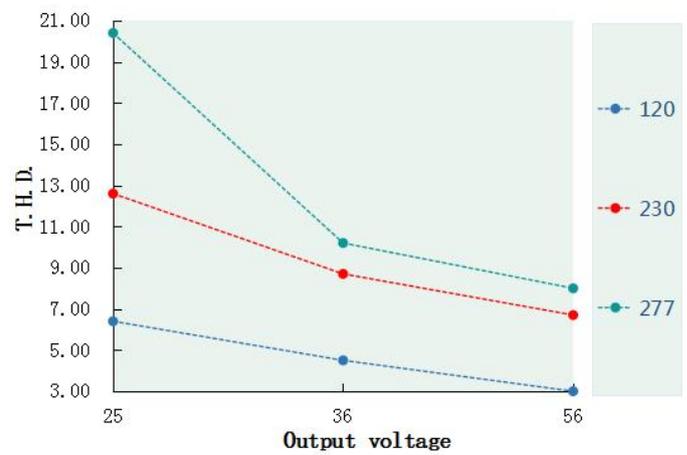
Power factor VS Input voltage(DL-50W-V56A/P/X-MXG)



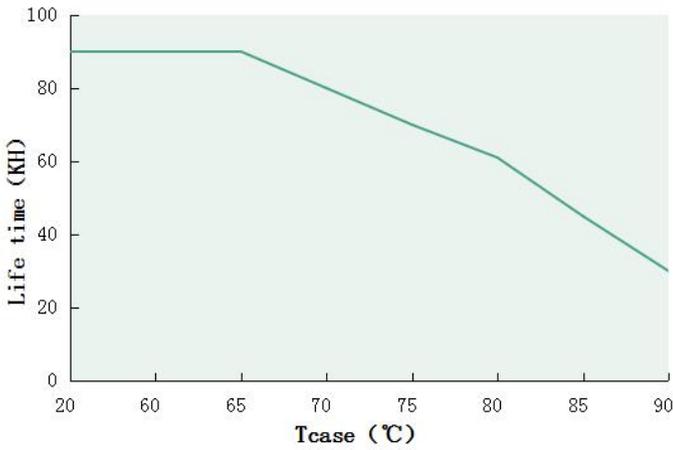
T.H.D. VS Output voltage(DL-50W-V72A/P/X-MXG)



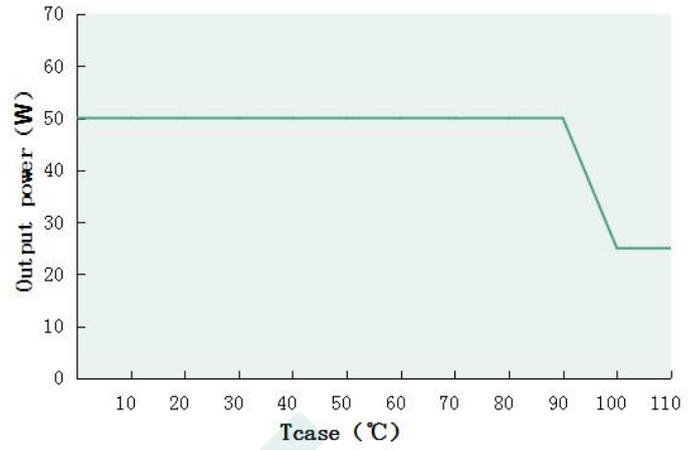
T.H.D. VS Output voltage(DL-50W-V56A/P/X-MXG)



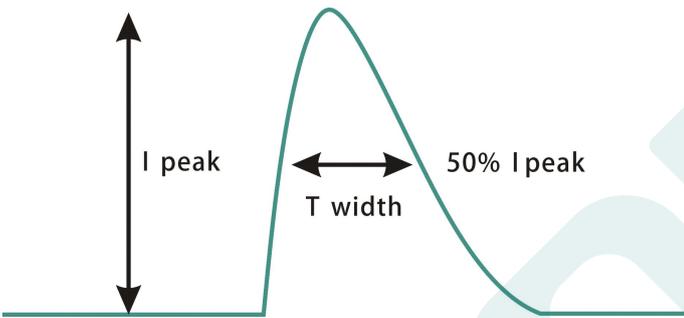
Tcase VS Lifetime(DL-50W-A/P/X-MXG)



Output power VS Tcase (DL-50W-A/P/X-MXG)

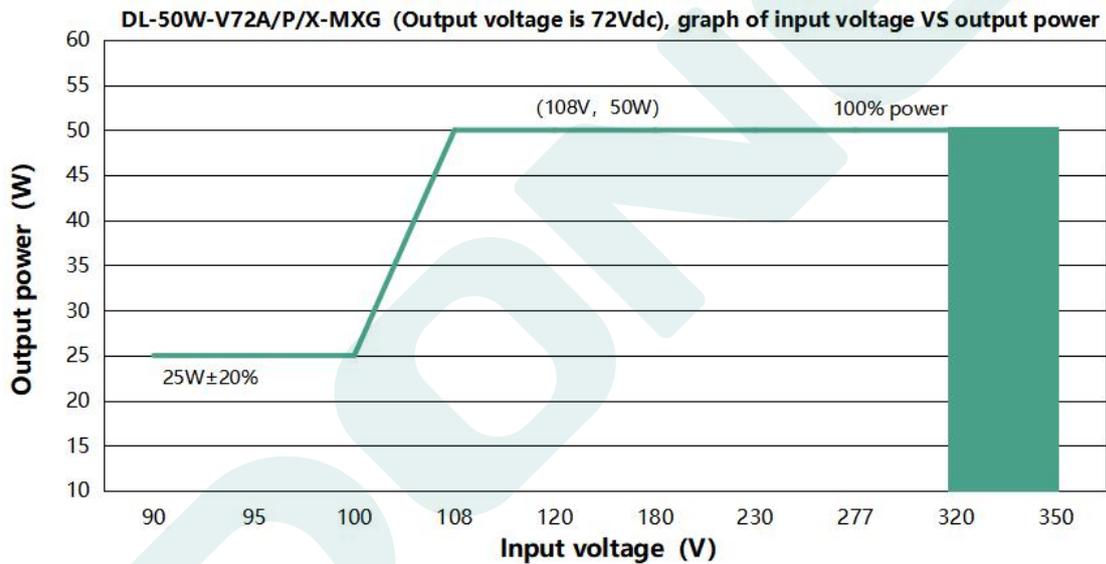
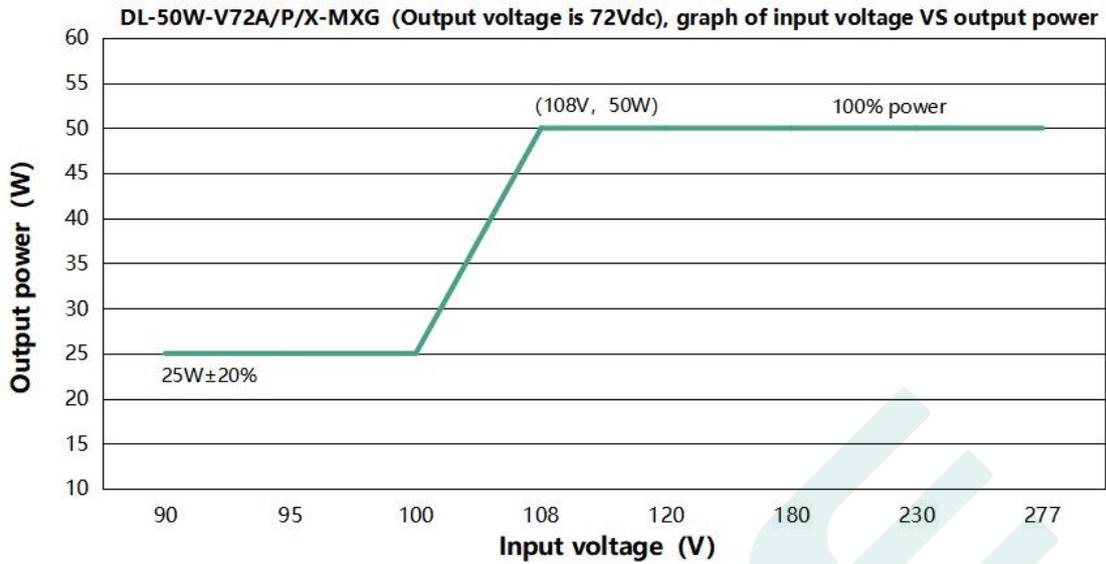


Inrush Current(DL-50W-A/P/X-MXG)



Input voltage	Peak current	T(@50% Peak current)
120Vac	20A	168us
230Vac	37.5A	167us
277Vac	45.2A	166us

Output power VS Input voltage

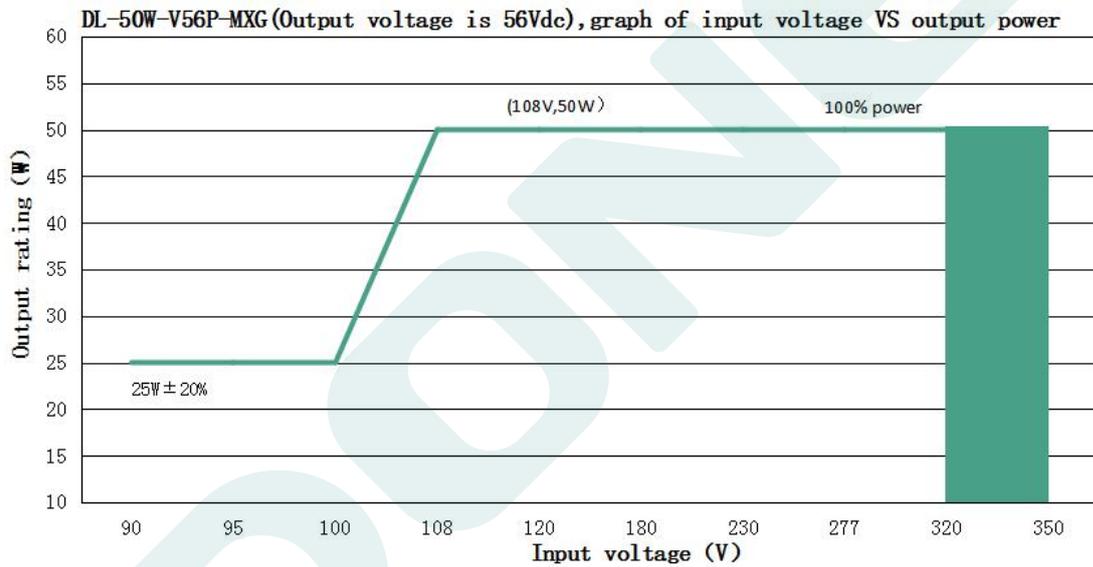
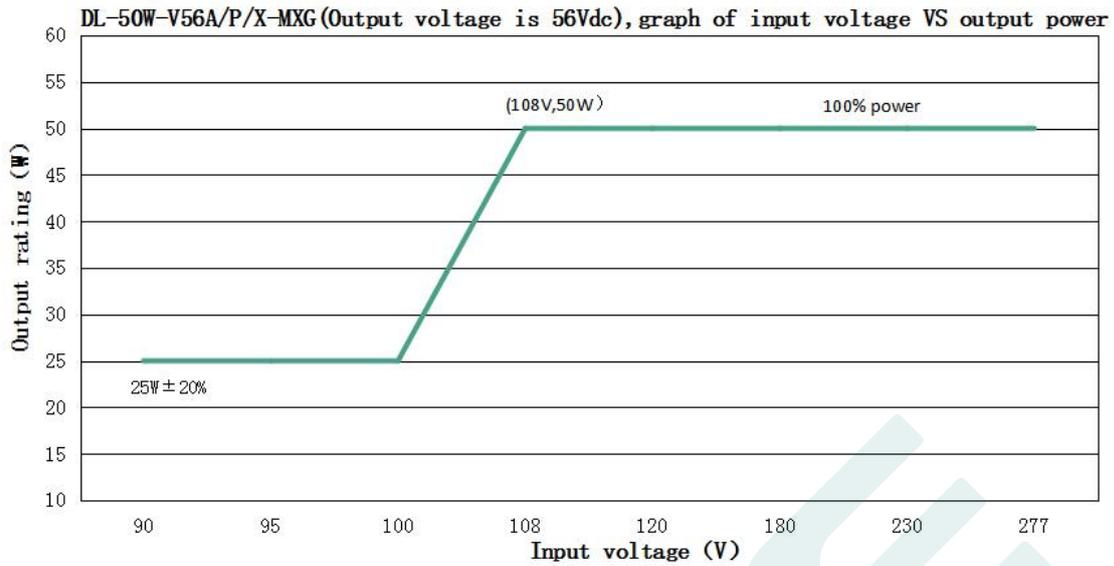


DL-50W-V72A/P/X-MXG (When the output voltage is 72Vdc, the rated output current value and output power corresponding to different input voltage)

Input Voltage	90Vac	95Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.35A	0.35A	0.49A	0.7A	0.7A	0.7A	0.7A	0.7A
Pout	25W	25W	35W	50W	50W	50W	50W	50W

**Note:** Output power will decrease gradually when input voltage less than 108Vac±10%;When the input voltage is 90Vac,the output power range is 25W±20%.

**Output power versus Input voltage**



DL-50W-V56A/P/X-MXG (When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)

Input Voltage	90Vac	95Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.44A	0.44A	0.49A	0.89A	0.9A	0.9A	0.9A	0.9A
Pout	25W	25W	35W	50W	50W	50W	50W	50W

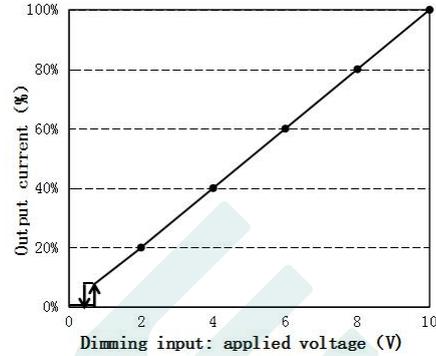
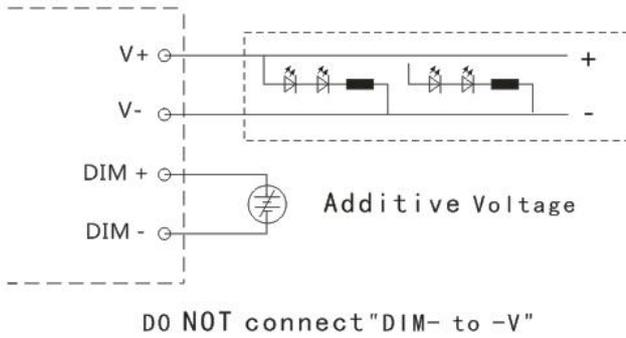
**Note:** Output power will decrease gradually when input voltage less than 108Vac±10%;When the input voltage is 90Vac,the output power range is 25W±20%.

## Dimming operation

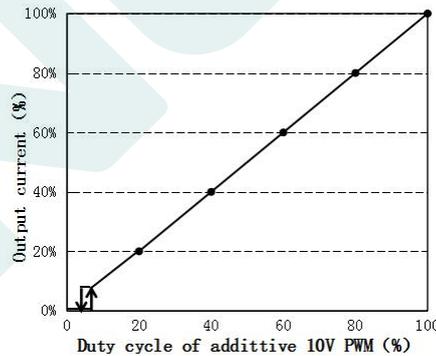
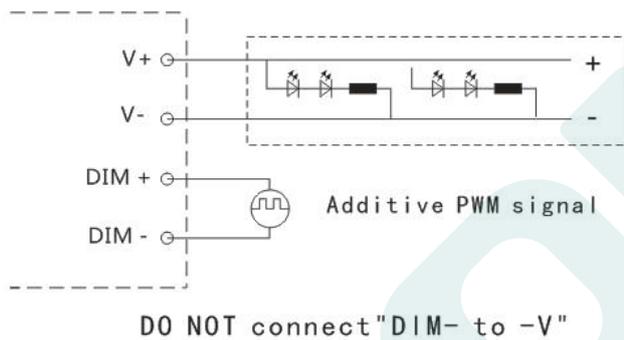
※ Three-in-one dimming function (P/X version only)

- A. Connect a resistor 0-100K or 0-10V DC voltage or 10V PWM signal between DIM+ and DIM- to adjust the output current.
- B. Output current of dimming port: 100uA (typical value).

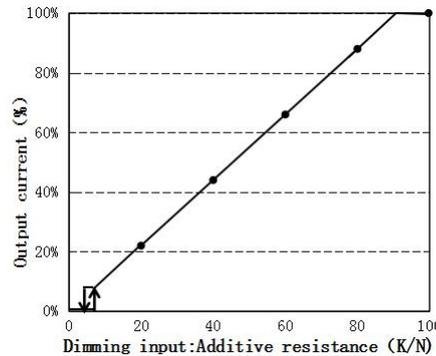
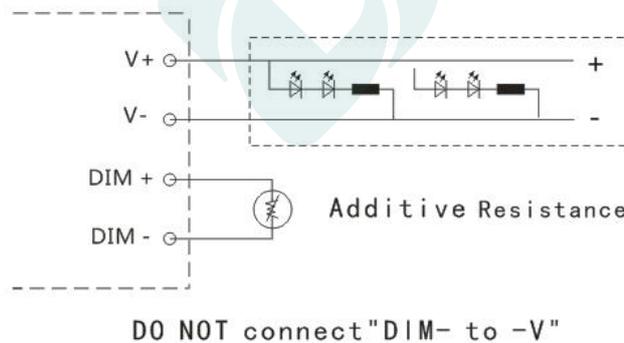
● With an applied voltage of 0-10V:



● Applying additive 10V PWM signal ( Frequency range : 300Hz-2K Hz ) :



● With an additional 0-100K resistor:



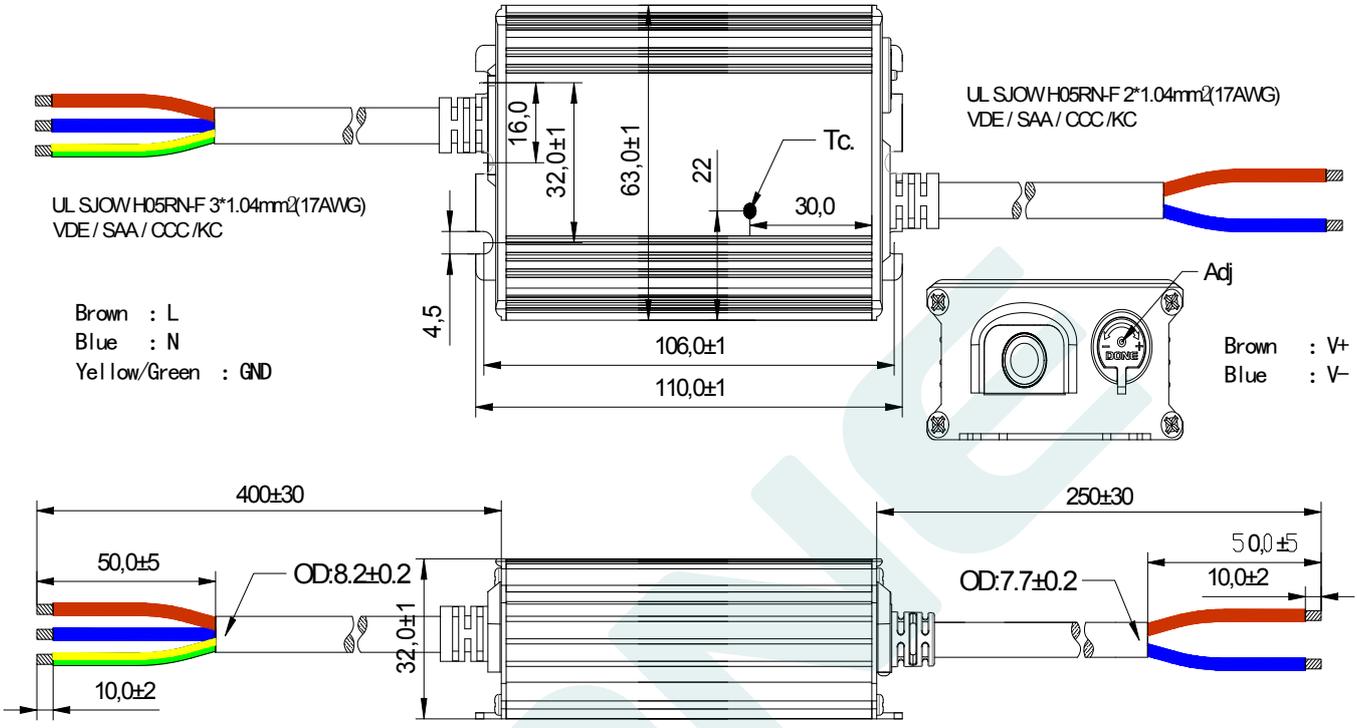
**Note:**

1. Positive and negative logic dimming can be programmed.
2. Dimming off only applies to positive logic. For other requirements, please contact technical personnel.

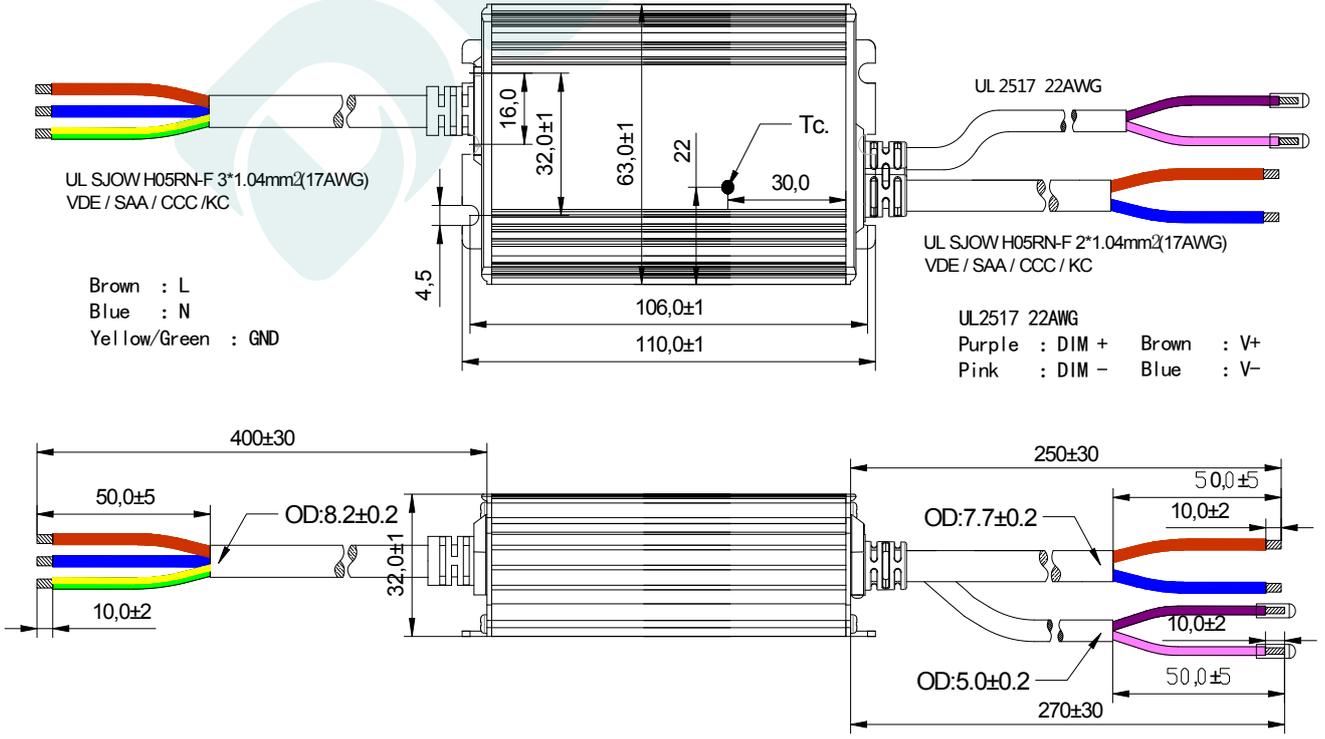
# Mechanical specification

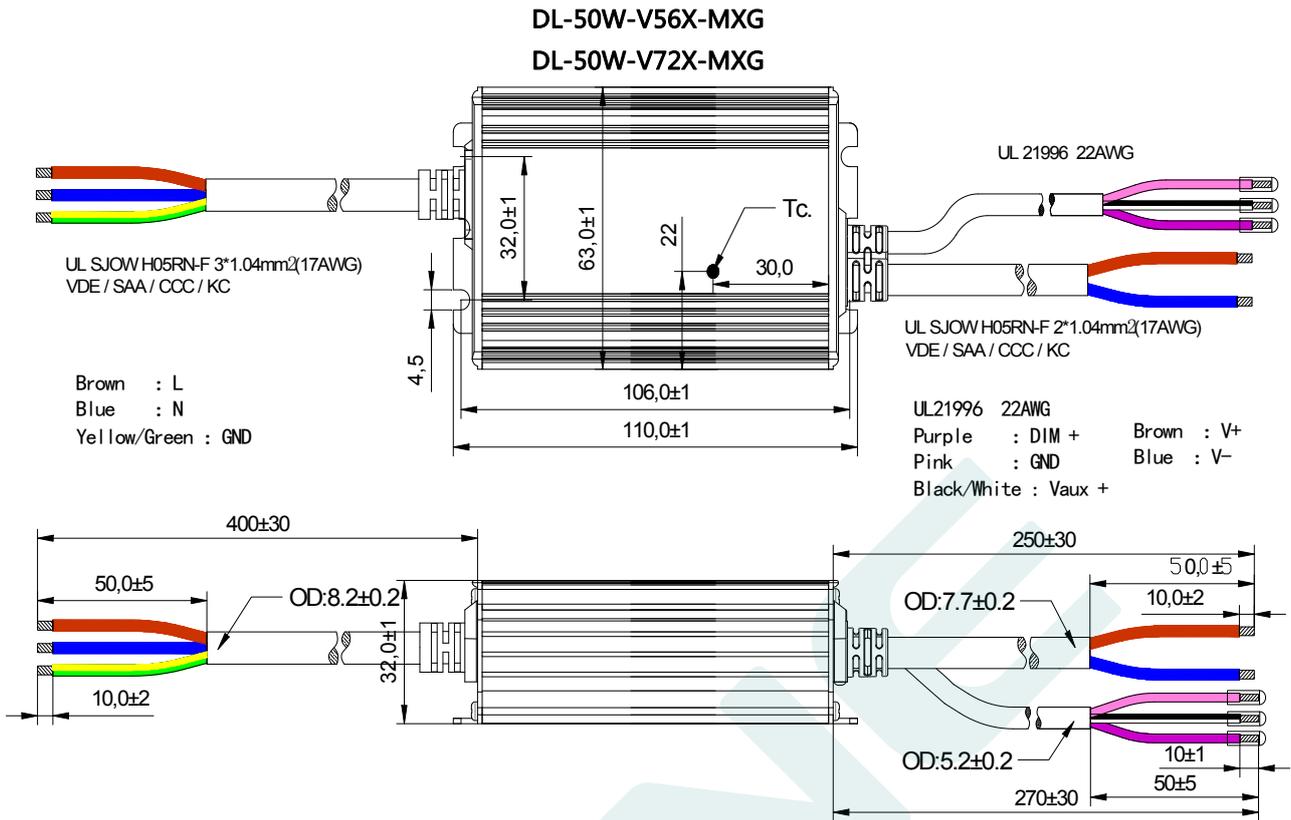
Size ( mm ) L110\*W63\*H32

**DL-50W-V56A-MXG**  
**DL-50W-V72A-MXG**



**DL-50W-V56P-MXG**  
**DL-50W-V72P-MXG**



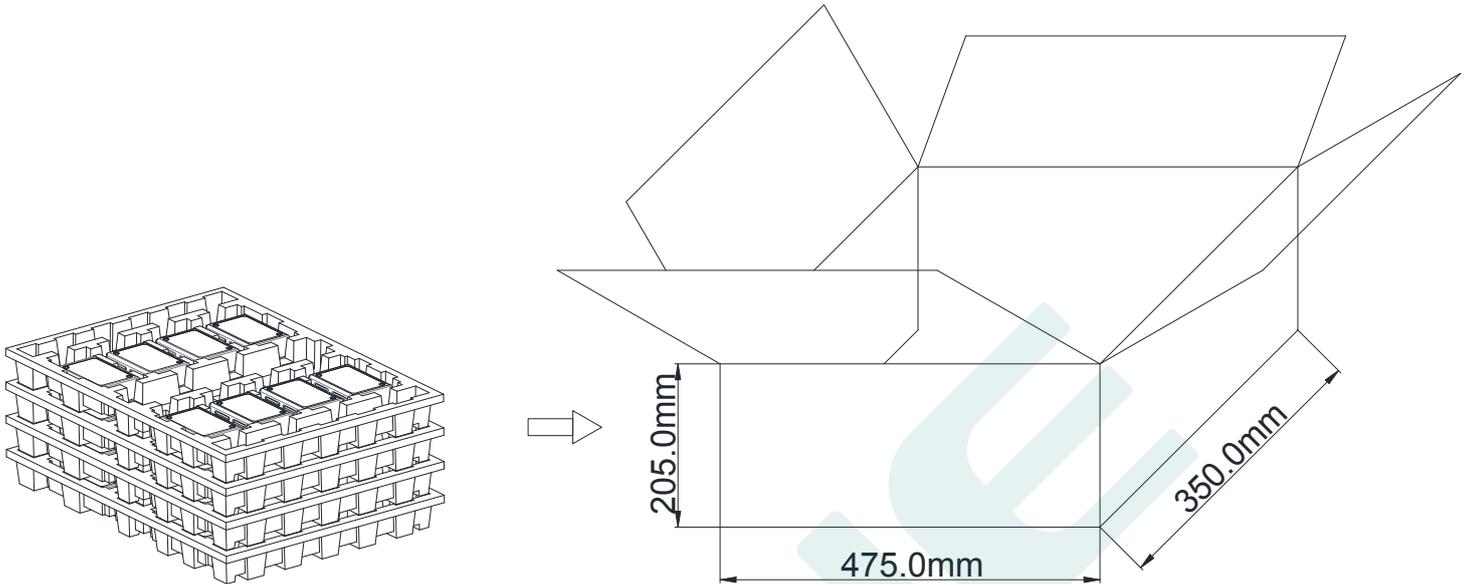


## Weight

Weight 430 g

## Packaging

Packaging ( mm ) L475\*W350\*H205



Note: One Carton 4 layers and 8 pcs each layer, total 32pcs/carton.

**Note:**

1. According to the certificate obtained by the LED DRIVER, the LED DRIVER with the English label is sold in Europe, America and India.
2. The LED DRIVER with Chinese label is only used for China market.

## Version

DATE	DESCRIPTION	REV.	CHECK
2022.3.31	Initial version.	V1.0	
2022.10.15	Add VDE wire	V1.1	
2022.12.24	Add P version optional input over-voltage protection.	V1.2	
2023.10.26	Current regulation range is changed from 0.4-1.7A to 0.6-1.7A	V1.3	
2024.11.20	Add the Tc point and modify input current.	V1.4	

### MANUFACTURER

EDIT

CHECK

APPROVE