

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 inside its top curve. The logo is contained within a white rounded rectangle with a thin teal border.

# MXG SERIES LED DRIVERS

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DL-200Z-A/P-MXL SPEC V1.0

## Features

- Class I structure
- Input voltage: 100-277 V ~ 50/60 Hz
- Efficiency :92.5%(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)  
 Isolated 3 in 1 dimming (P 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-200Z-56P-MXL DL-200Z-56A-MXL	100-277V 50/60Hz	200W	25-56Vdc	5.5A	≥91.5%	≤10%	≥0.95
DL-200Z-143P-MXL DL-200Z-143A-MXL	100-277V 50/60Hz	200W	95-143Vdc	1.9A	≥92.5%	≤10%	≥0.95
DL-200Z-286P-MXL DL-200Z-286A-MXL	100-277V 50/60Hz	200W	143-286Vdc	0.7A	≥92.5%	≤10%	≥0.95

### Note:

1. Test conditions of the above parameters: Ta=25°C, 230Vac input, full load operation for 30 minutes;
2. When input 100-277VAC, rated power 200W,

Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

## Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	100Vac	230Vac	277Vac	
Input voltage range	90Vac		305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	0.97	-	-	@230Vac full load, rated input voltage
Power factor	0.9	-	-	80%-100% load, 100-277VAC input
T.H.D.	-	-	7%	@230Vac full load
T.H.D.	-	-	20%	80%-100% load, 120-277VAC input
Input current	-	-	2.5A	@120Vac full load
Inrush current	-	-	110A	230Vac, cold start (25°C)

## Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current				
DL-200Z-56P/A-MXL	-	3.6A	-	
DL-200Z-143P/A-MXL	-	1.4A	-	
DL-200Z-286P/A-MXL	-	0.7A	-	
Output current range				
DL-200Z-56P/A-MXL	2.6A	-	5.6A	
DL-200Z-143P/A-MXL	1.2A	-	2.1A	
DL-200Z-286P/A-MXL	0.7A	-	1.05A	
Output voltage range				
DL-200Z-56P/A-MXL	25V	-	56V	
DL-200Z-143P/A-MXL	71V	-	143V	
DL-200Z-286P/A-MXL	190V	-	286V	
Rated power(100-277Vac)	-	200W	-	
No-load voltage				
DL-200Z-56P/A-MXL	-	-	60V	
DL-200Z-143P/A-MXL	-	-	149V	
DL-200Z-286P/A-MXL	-	-	302V	

Efficiency@100Vac				
DL-200Z-56P/A-MXL	87%	88.5%	-	full load@100Vac
DL-200Z-143P/A-MXL	88%	89.5%	-	
DL-200Z-286P/A-MXL	88%	89.5%	-	

## Output characteristic

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac				
DL-200Z-56P/A-MXL	90.5%	92.5%	-	full load@230Vac
DL-200Z-143P/A-MXL	92.0%	93.5%		
DL-200Z-286P/A-MXL	92.0%	93.5%		
Output Current Ripple	-	5% Iomax	-	100% load, 20 MHz BW; Ripple =rms/ average
Accuracy of output current	-3%	-	+3%	full load
Line regulation	-3%	-	+3%	full load
Load regulation	-3%	-	+3%	full load
Starting time	300 ms	-	1000 ms	Full load@120-277Vac

**Note:** 1.The output current range is limited by the input and output voltage, please refer to “I-V WORKING AREA” for details.

## Dimming characteristic

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming (Optional)	Safe applied voltage range	0V	-	12V	When the external voltage is $\geq 12V$ , the dimming will fail
	Dimming output range	0%	-	100%	-
	Rated dimming voltage range	0V	-	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	0V	-	0.3V	-
	PWM frequency scope	300Hz	-	2000Hz	-
	PWM duty cycle	0%	-	99%	Output full power at 99% duty cycle
Resistor Dimming (Optional)	External resistance value	0K $\Omega$	-	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 10.3V, the maximum power output of the power supply will be achieved.

## Protection

Function	Function instructions
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℃, 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℃ of ambient temperature;
2. Including setting error, line regulation and load regulation.

## Environmental

Environmental categories	Parameter
Working temperature	-40 ~ +55℃@200-277Vac, -40 ~ +45℃ @100-200Vac (refer to "Life Curve ")
Max.Case Temp.	-40 ~ 90℃
Working humidity	20 ~ 95% RH, non condensing
Storage temperature, humidity	-40 ~ +80℃, 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℃)
Lifetime	50,000 hours @Tcase≤75℃,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" section

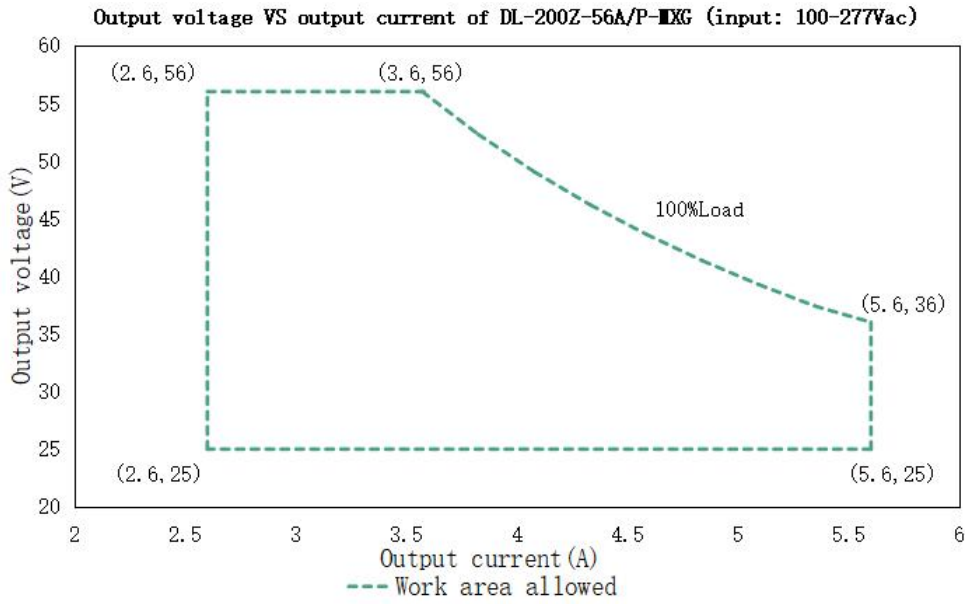
## Safety and EMC

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 $\pm 6KV$ (2 ohm) ,common mode L, N-PE $\pm 15 KV$ ( 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:100M $\Omega$ / 500VDC; I/P-O/P:100M $\Omega$ / 500VDC / 25 $^{\circ}$ C/ 70% RH
Leakage current	<0.7mA@277Vac

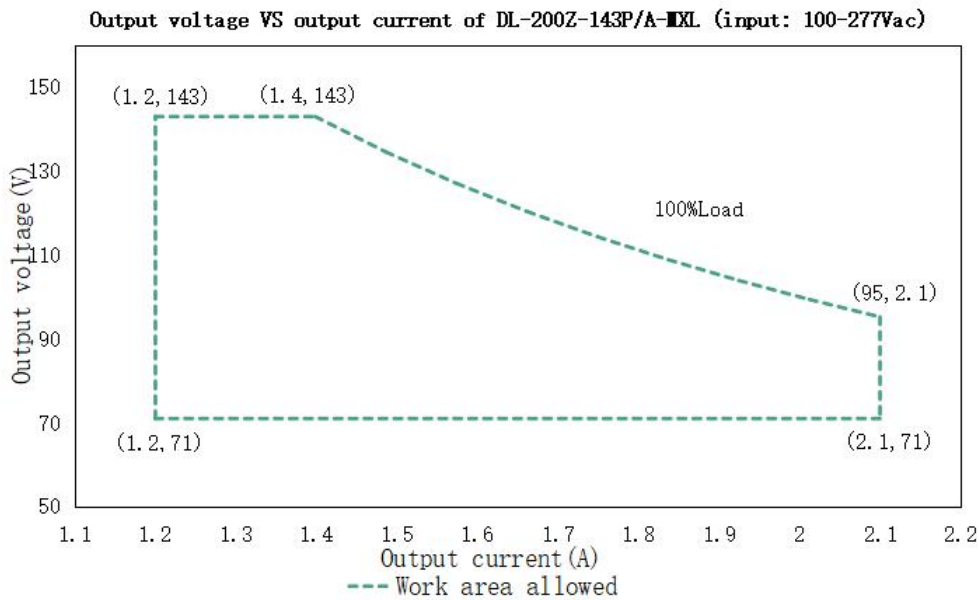
**Note:**

- 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.

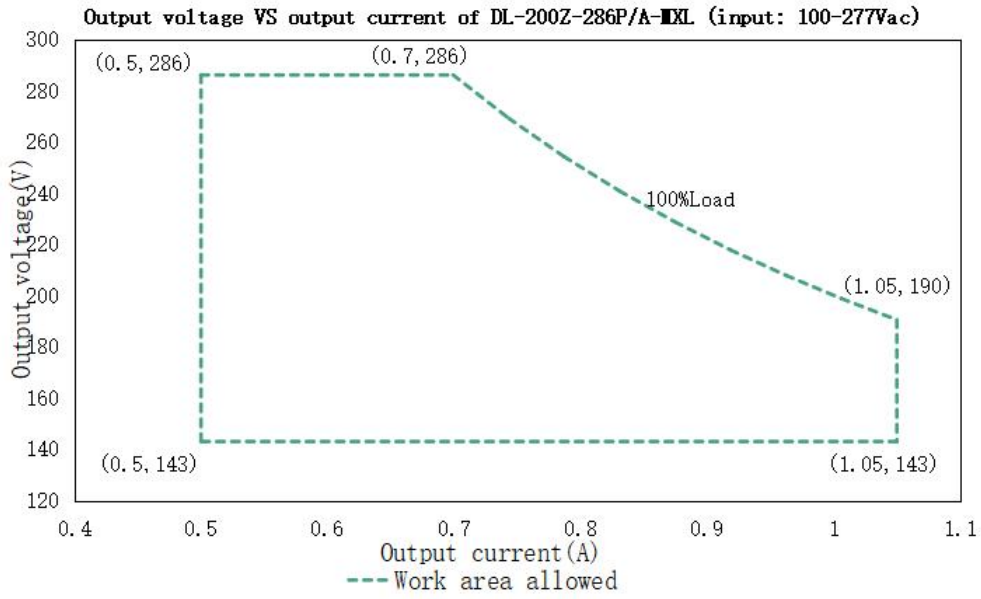
## I-V Working area



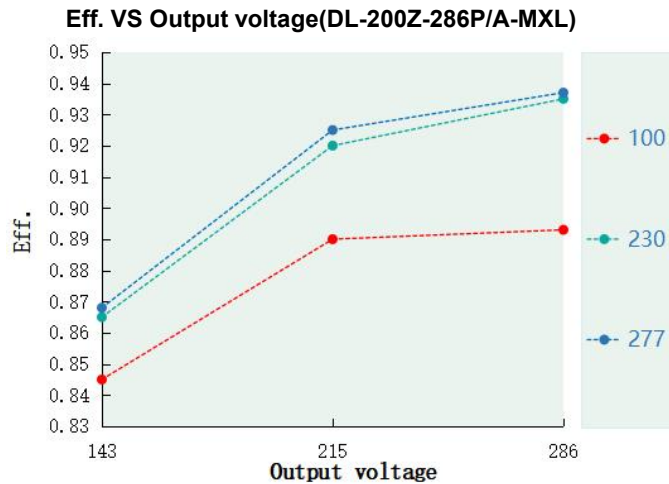
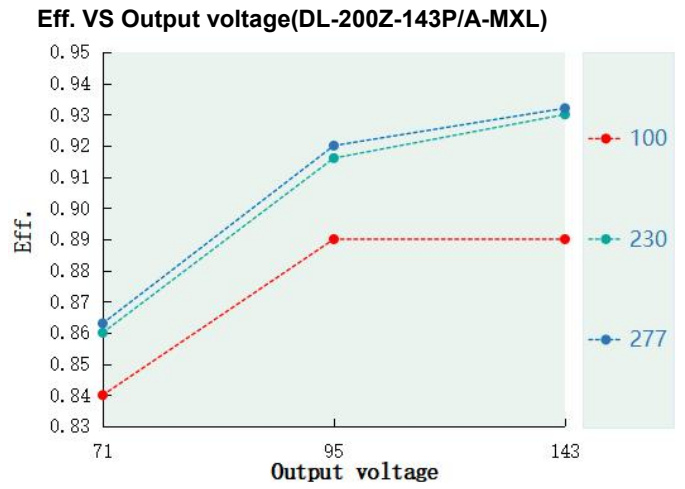
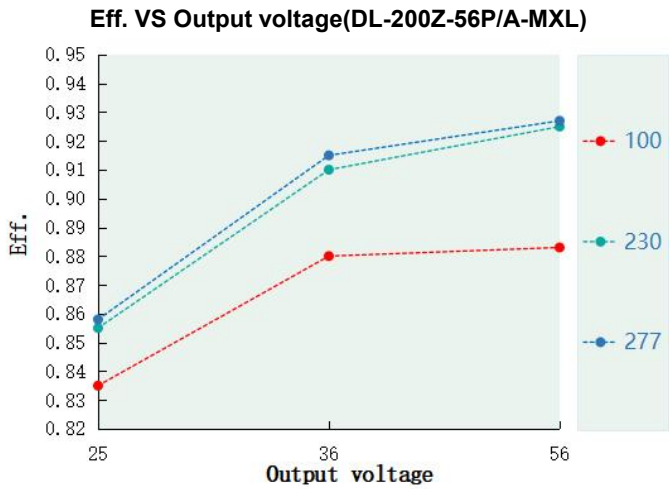
Load	Output								
Load working Voltage	25V	29V	32V	36V	40V	44V	48V	52V	56V
Io_MAX	5.6A	5.6A	5.6A	5.6A	5.0A	4.56A	4.17A	3.85A	3.6A
Po_MAX	140W	162W	180W	200W	200W	200W	200W	200W	200W



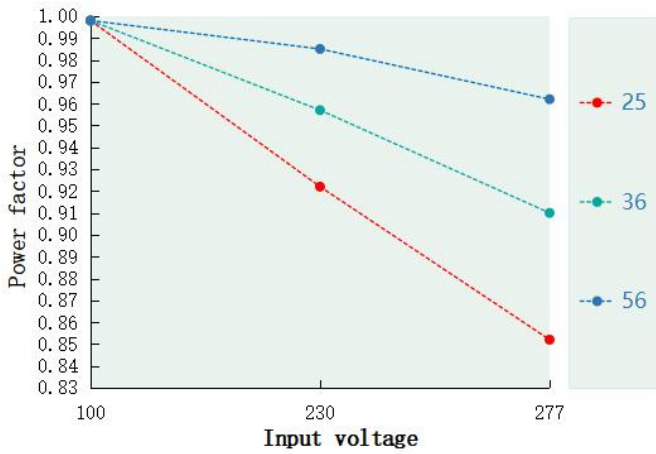
Load	Output								
Load working Voltage	71V	80V	89V	95V	107V	116V	125V	134V	143V
Io_MAX	2.1A	2.1A	2.1A	2.1A	1.86A	1.72A	1.6A	1.49A	1.4A
Po_MAX	149.1W	168W	186.9W	199.5W	199W	199.5W	200W	199.6W	200W



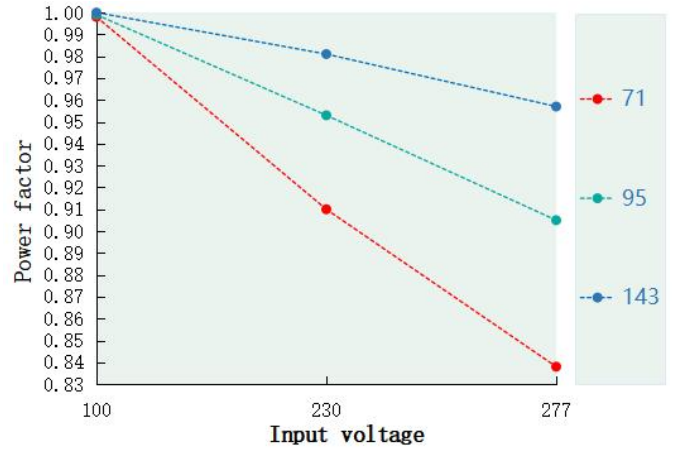
Load	Output								
Load working Voltage	143V	160V	178V	190V	214V	232V	250V	268V	286V
Io_MAX	1.05A	1.05A	1.05A	1.05A	0.94A	0.87A	0.8A	0.75A	0.7A
Po_MAX	150.15W	168W	186.9W	200W	200W	200W	200W	200W	200W



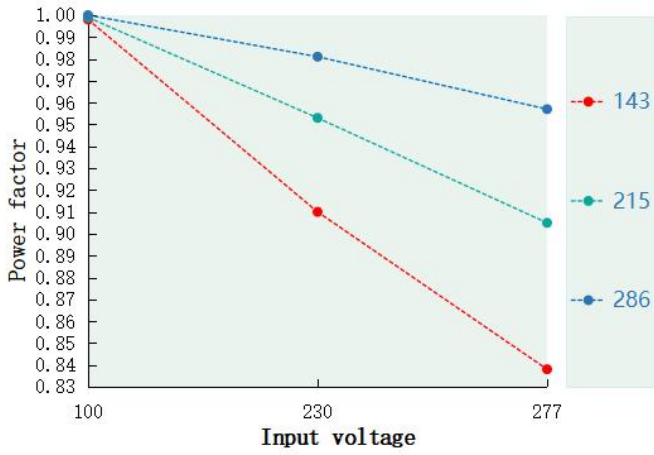
**Power factor VS Input voltage(DL-200Z-56P/A-MXL)**



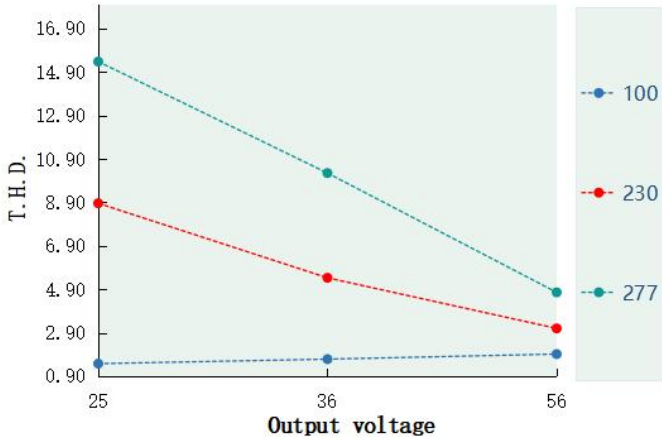
**Power factor VS Input voltage(DL-200Z-143P/A-MXL)**



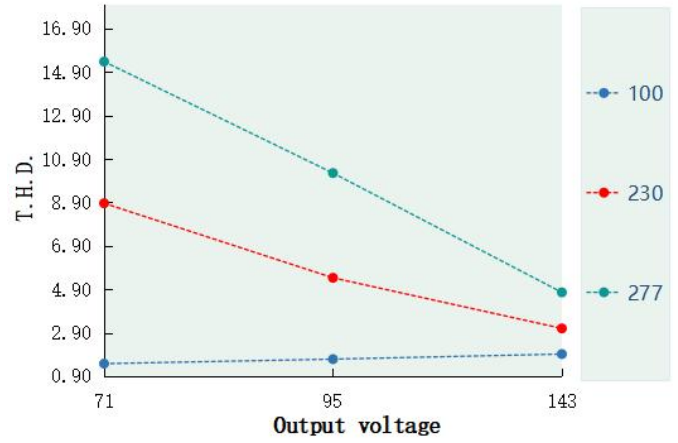
**Power factor VS Input voltage(DL-200Z-286P/A-MXL)**



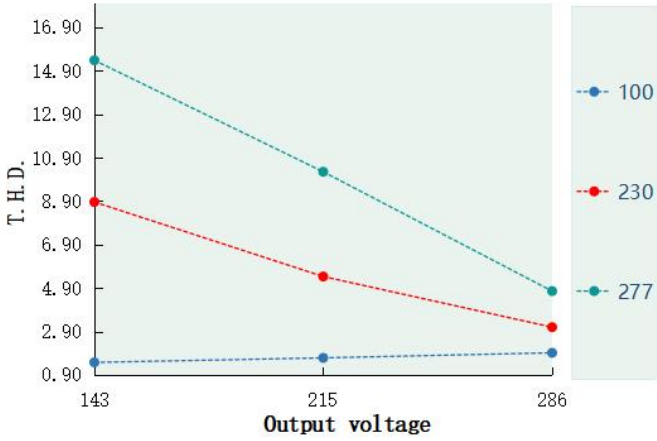
**T.H.D. VS Output voltage(DL-200Z-56P/A-MXL)**



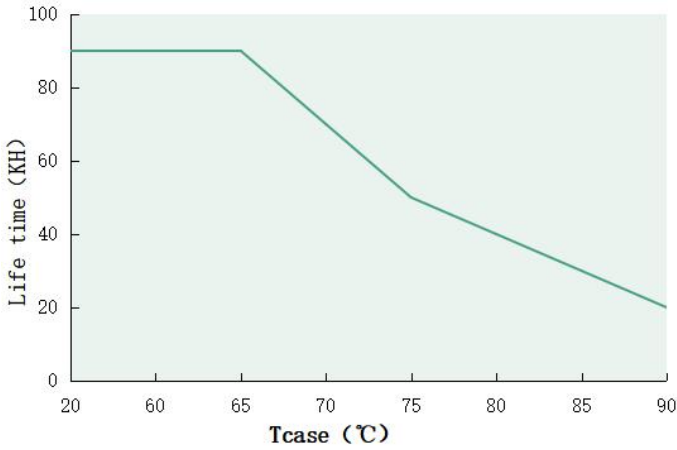
**T.H.D. VS Output voltage(DL-200Z-143P/A-MXL)**



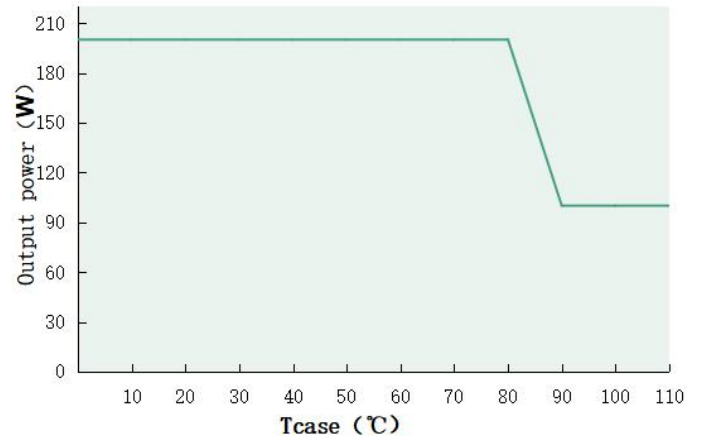
**T.H.D. VS Output voltage(DL-200Z-286P/A-MXL)**



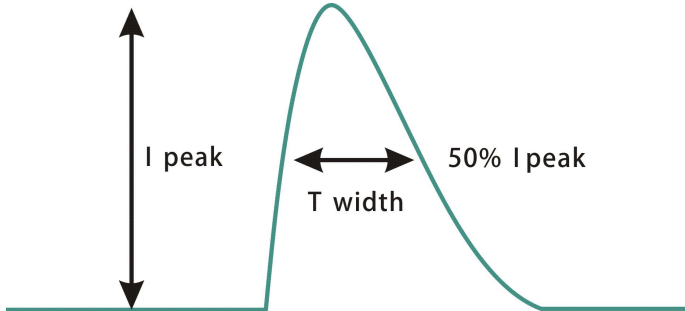
**Tcase VS Lifetime (DL-200Z-A/P-MXL)**



**Output power VS Tcase (DL-200Z-A/P-MXL)**



**Inrush current(DL-200Z-A/P-MXL)**



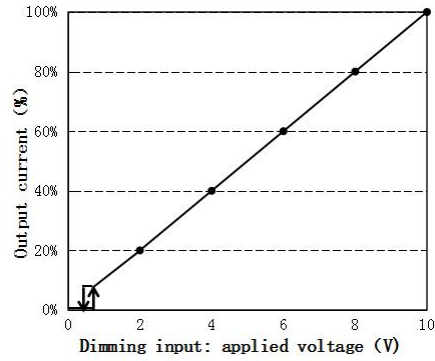
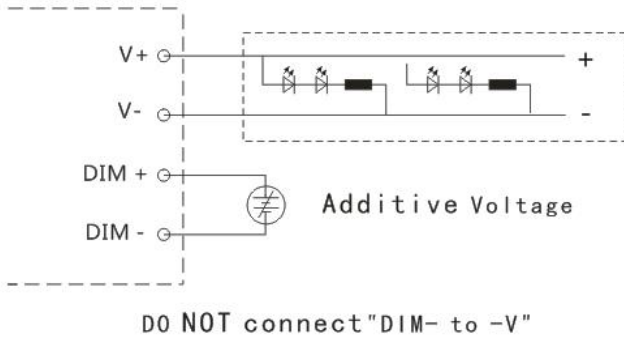
Input voltage	Peak current	T(@50% Peak current)
100Vac	55.6A	147us
230Vac	107A	165us
277Vac	130A	167us

## Dimming operation

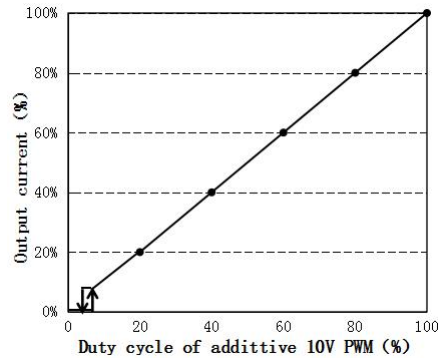
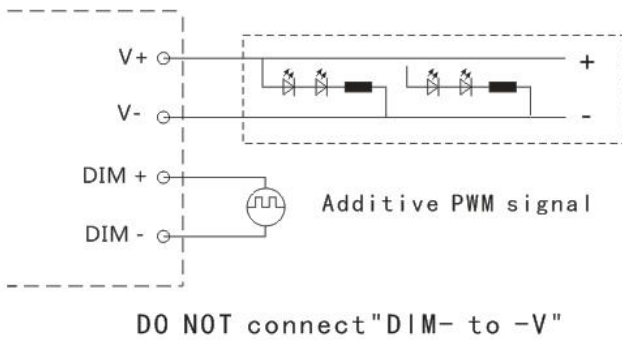
※ **Three-in-one dimming function (X version only)**

- 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).

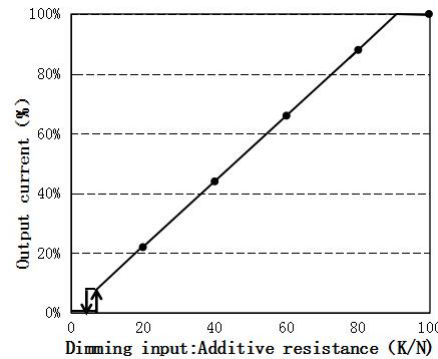
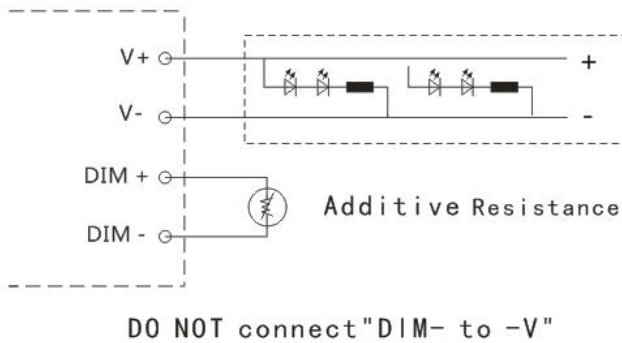
◎ **With an applied voltage of 0-10V:**



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



◎ **With an additional 0-100K resistor:**



**Remark:**

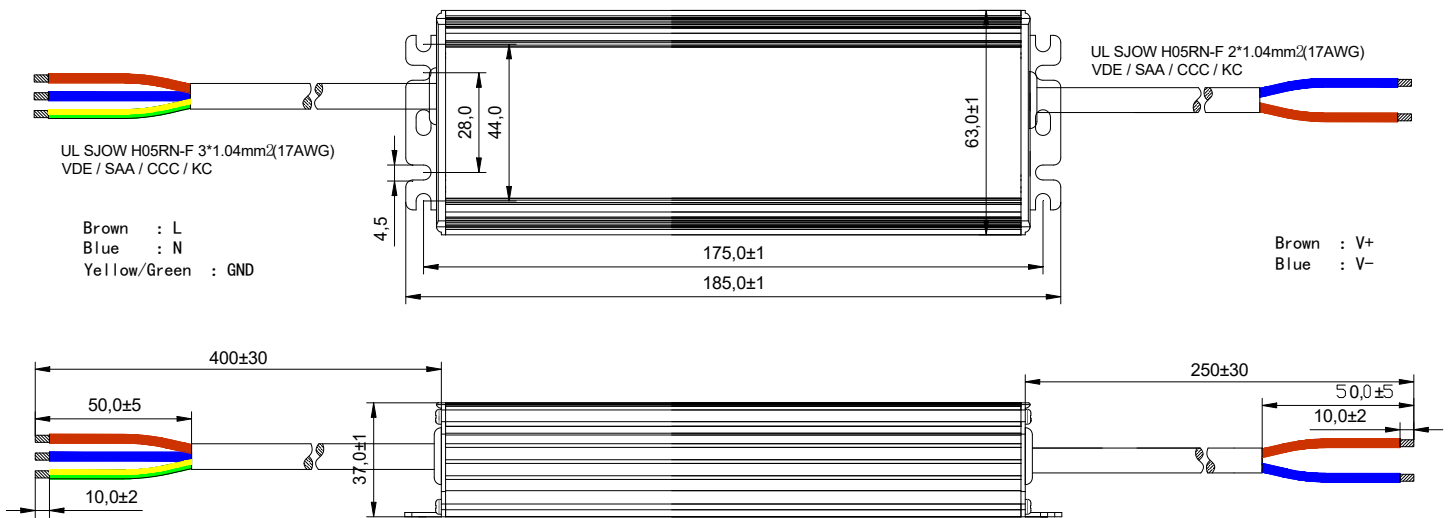
1. Positive and negative logic dimming can be programmed.
2. Dimming off only applies to positive logic. For other requirements, please contact technical personnel.

## Mechanical specification

Size (mm) L153\*W63\*H32

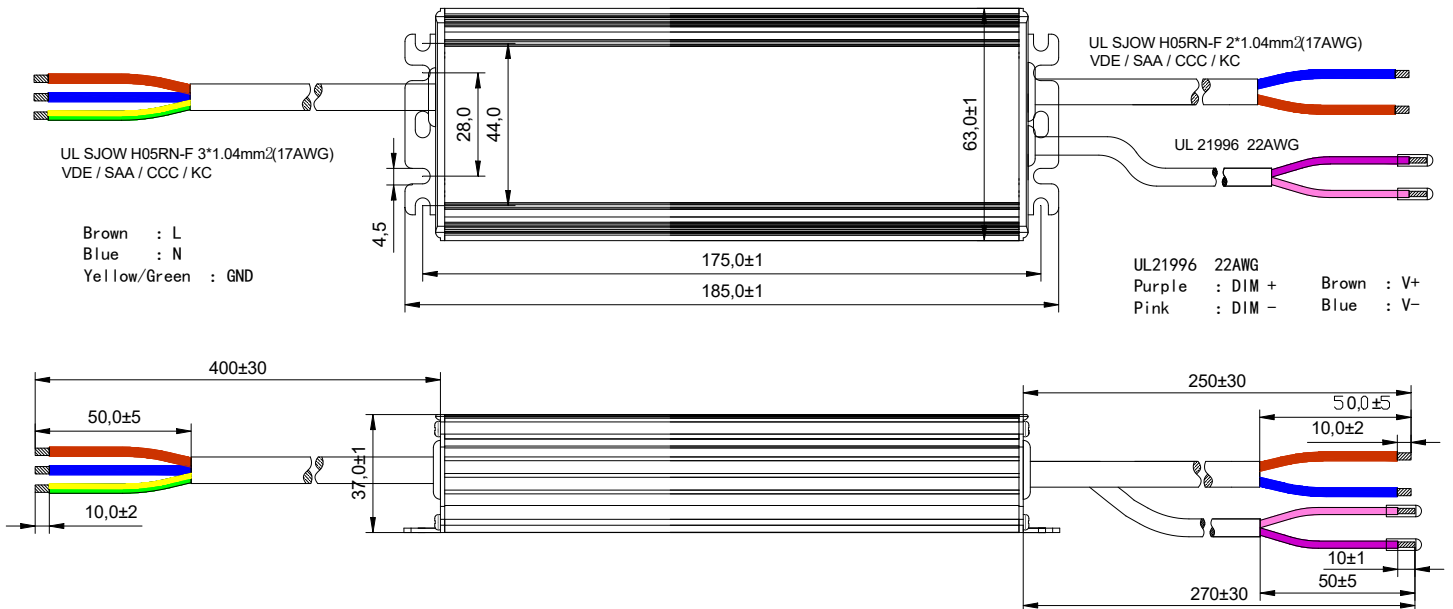
### General product dimension drawing

DL-200Z-56P/143P/286P-MXL



### General product dimension drawing

DL-200Z-56P/143P/286P-MXL

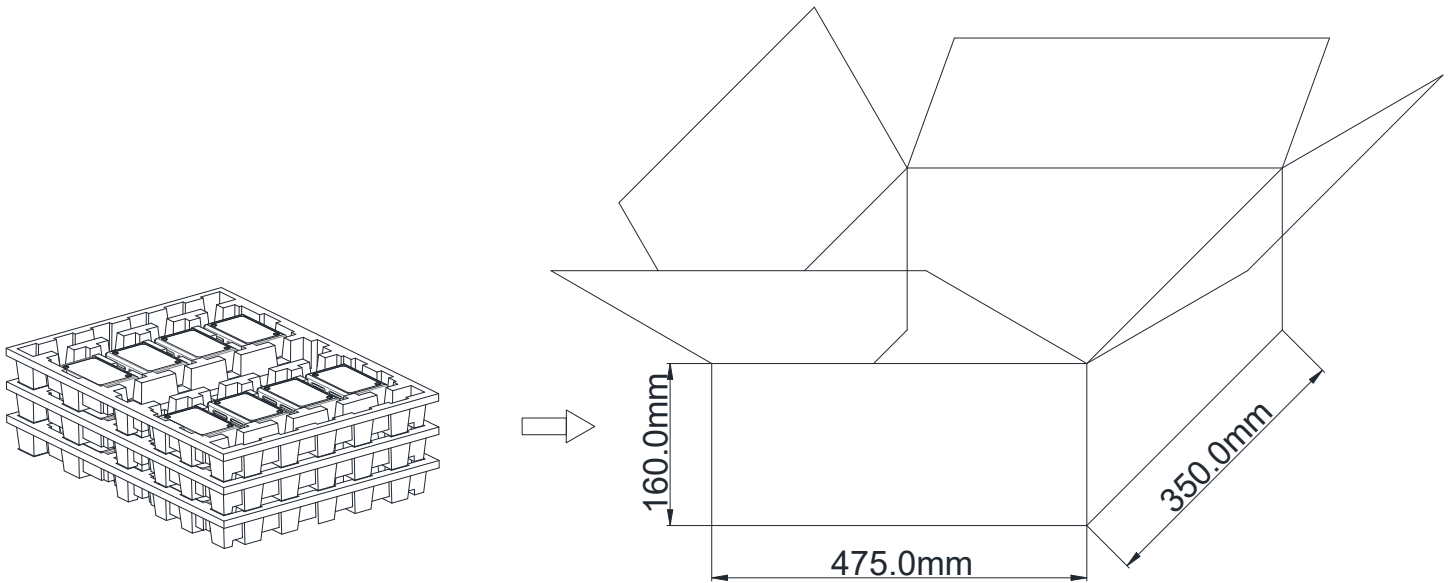


## Weight

Weight 800g

## Packaging

Packaging (mm) L475\*W350\*H160



Note: One Carton 3 layers and 8 pcs each layer, total 24pcs/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
2024.3.1	Initial version.	V1.0	

MANUFACTRUER		
EDIT	CHECK	APPROVE