

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.

**DONE**

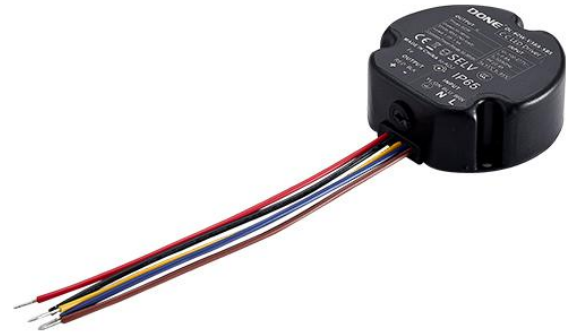
# SBS SERIES LED DRIVER

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**DL-60Z-A-SBS SPEC V1.2**

## Features

- Class I type for insulation
- Input voltage range: 100-277Vac ~ 50/60 Hz
- Efficiency :89.5%(Typ.)
- Constant current output ,with power limitation for control mode
- Metal case, protection grade against water and dust: IP65
- Surge level :differential mode :4kV, common mode :6kV
- Function selection:  
 Output current is adjusted by external potentiometer
- Guaranteed Lifetime : 5 years



## Applications

Explosion-proof lighting



## Model list

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff. (Typ. )	T.H.D	PF
DL-60Z-V38A-SBS	100-277Vac 50/60Hz	60W	20-38Vdc	1.8A	≥89.5%	≤10%	≥0.95
DL-60Z-V58A-SBS	100-277Vac 50/60Hz	60W	32-58Vdc	1.3A	≥89.5%	≤10%	≥0.95

- Note :**
1. Test conditions: Ta=25°C , under 230Vac input,after running for 30 minutes with full load .
  2. When the input is less than 90±10Vac,the output power gradually decreases to a half.and it recovers full power of 60W when the input is above 100VAC again. Please refer to “THE OUTPUT POWER VS INPUT VOLTAGE” curve chart for details.

## Input characteristics

Parameter	Min	Typ.	Max	remark
Rated input voltage	100Vac	230Vac	277Vac	
Input voltage range	90Vac		305Vac	
Rated frequency range	47Hz	50/60Hz	63Hz	
Power factor	-	0.95	-	@230Vac input ,with full load
T.H.D.	-	-	10%	@230Vac input ,with full load
Input current	-	-	0.8A	@100Vac input ,with full load
Inrush current	-	-	70A	@230Vac input, cold start (25°C)

## Output characteristics

Parameter	Min	Typ.	Max	remark
Rated current DL-60Z-V38A -SBS DL-60Z-V58A -SBS	-	1.58A 1.03A	-	
Output current range DL-60Z-V38A -SBS DL-60Z-V58A -SBS	1.05A 0.7A	-	1.9A 1.45A	
Output voltage range DL-60Z-V38A -SBS DL-60Z-V58A -SBS	20V 32V	-	38V 58V	Constant power:32-38V Constant power:42-58V
Rated power(100-277Vac)	-	60W	-	Decrease to a half once input voltage being less than 90±10Vac
No-load voltage DL-60Z-V38A -SBS DL-60Z-V58A -SBS	-	-	55V 75V	
Efficiency@100Vac DL-60Z-V38A -SBS DL-60Z-V58A -SBS	87.5% 87.5%	88.5% 88.5%	-	@100Vac input ,with full load

## Output characteristics

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac DL-60Z-V38A -SBS DL-60Z-V58A -SBS	88.5% 88.5%	89.5% 89.5%	-	@230Vac input ,with full load
Accuracy of output current	-6%	-	+6%	For constant-power range , with full load
Line regulation	-5%	-	+5%	full load
Load regulation	-5%	-	+5%	full load
Starting time	-	-	1000ms	Full load @100-277Vac

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

2.The output current accuracy range is  $\pm 7\%$  when the input voltage is 100-180Vac, and  $\pm 6\%$  when the input voltage is 180-277Vac.

## Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
Resistor Dimming ( Optional )	Rated external resistance value	0K $\Omega$	-	100K $\Omega$	-
	Dimming output range	30%	-	100%	-

## Protection

Protection	description
under-voltage protection	When the input voltage is less than 90 $\pm$ 10Vac, the output power decreases.
Output over-voltage protection	hiccup mode,and recovers automatically when the fault condition is removed.
Output short circuit protection	Hiccup mode,and recovery automatically when the fault condition is removed.
Over temperature protection	when the temperature of the case is greater than 90 $^{\circ}$ C, the output power decreases to a half.
Output over-power protection	The maximum output power is limited to about 1.1 time of the rating automatically. Only for P version

**Note:**

1. Unless otherwise specified, all parameters should be measured at the condition of 230Vac (50Hz) input ,with rated load ,and ambient temperature of 25 $^{\circ}$ C;
2. Including setting error, linear adjustment rate and load adjustment rate;

## Environmental

Environmental categories	Parameter
Working temperature	-40 ~ +55°C@100-277Vac (refer to "Life Curve ")
Working humidity	20 ~ 85% 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)

## Safety and EMC

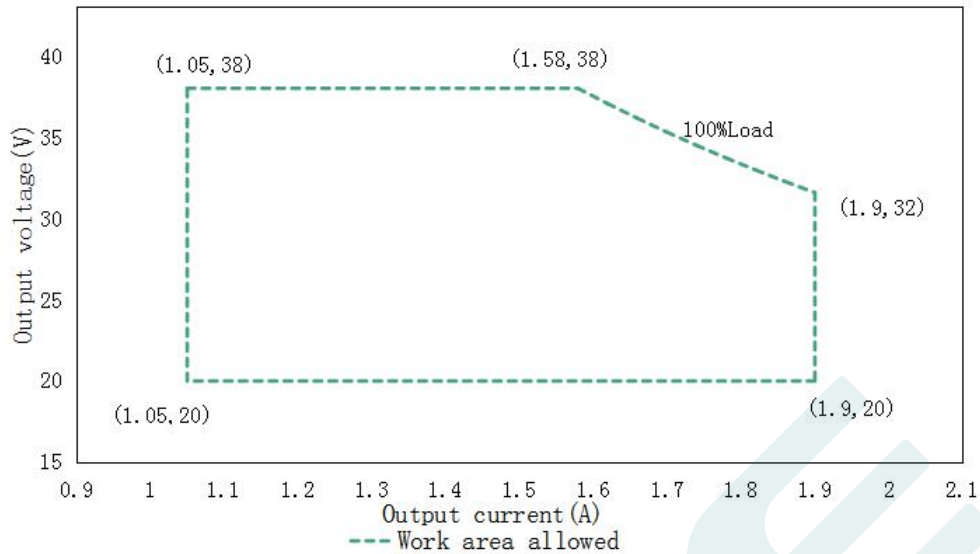
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384;
EMC	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、 EN 61000-3-3
Surge leve	Differential mode L-N ±4KV ( 2 ohm ) ,common mode L, N-PE± 6KV ( 12 ohm ); Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac
Insulation impedance	I/P-PE:100MΩ / 1000VDC; 25°C/ 70% RH
Leakage current	<0.7mA@277Vac

### Note:

1.Attention! As a component of the whole, the EMC performance of the final product is not only decided by the driver, even if the driver is well-designed and fulfil all the required compliance. The final equipment manufacturers must re-qualify EMC Directive on the complete product.

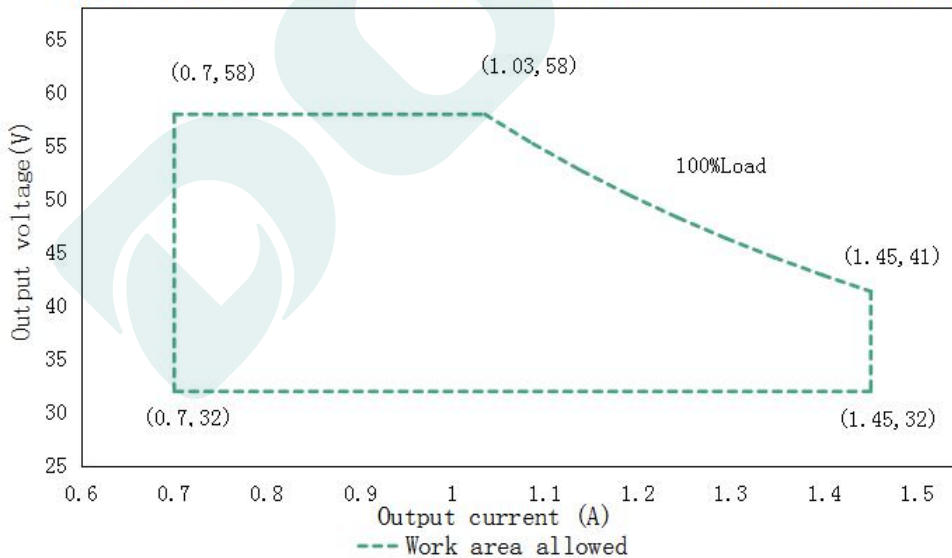
## I-V Working area

Output voltage VS output current of DL-60Z-V38A-SBS (input: 100-277Vac)



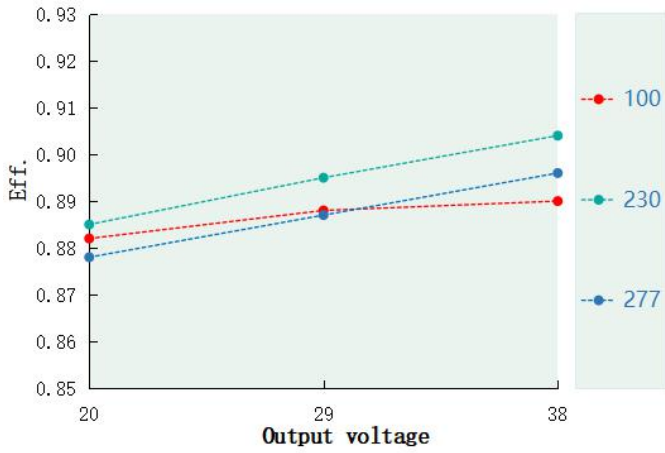
Load	Output								
Load working Voltage	20V	23V	26V	28V	30V	32V	34V	36V	38V
Io_MAX	1.9A	1.9A	1.9A	1.9A	1.9A	1.88A	1.76A	1.67A	1.58A
Po_MAX	38W	43.7W	49.4W	53.2W	57W	60W	60W	60W	60W

Output voltage VS output current of DL-60Z-V58A-SBS (input: 100-277Vac)

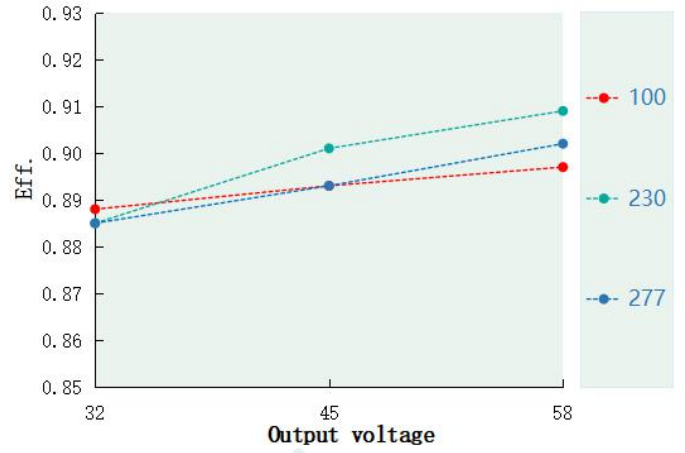


负载	输出								
负载工作电压	32V	35V	38V	41V	44V	47V	50V	54V	58V
电源电流 Io_MAX	1.45A	1.45A	1.45A	1.45A	1.36A	1.28A	1.2A	1.11A	1.03A
电源功率 Po_MAX	46.4W	50.75W	55.1W	59.45W	60W	60W	60W	60W	60W

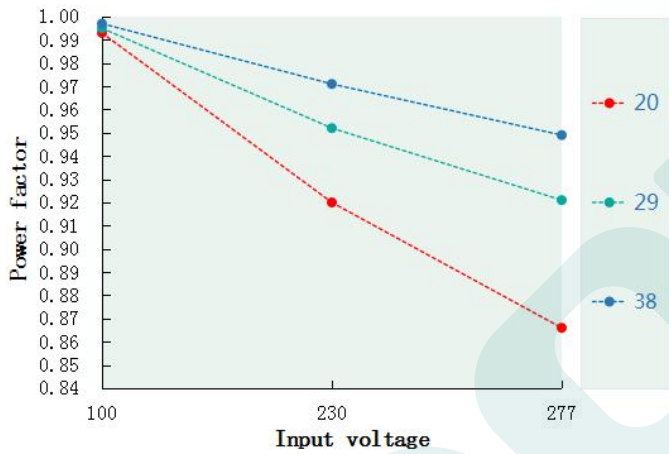
**Eff. VS Output voltage(DL-60Z-V38A-SBS)**



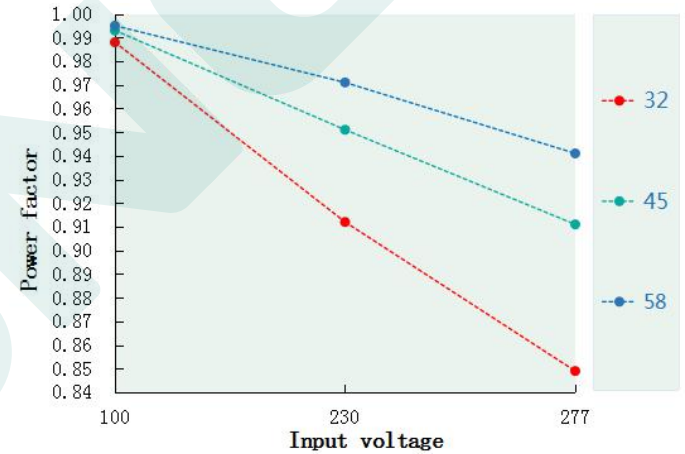
**Eff. VS Output voltage(DL-60Z-V58A-SBS)**



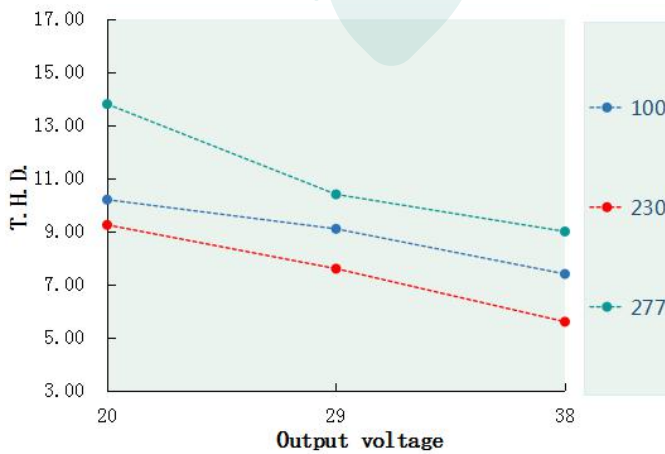
**Power factor VS Input voltage(DL-60Z-V38A-SBS)**



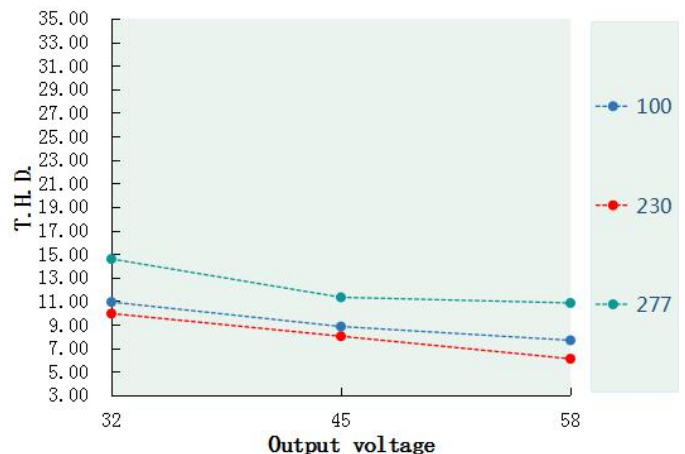
**Power factor VS Input voltage(DL-60Z-V58A-SBS)**



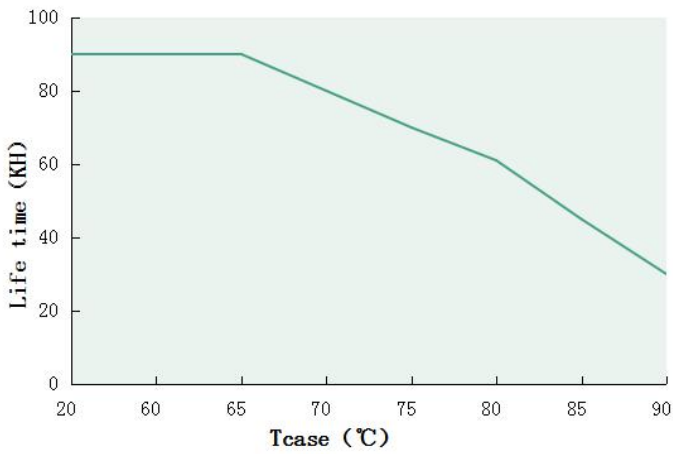
**T.H.D. VS Output voltage(DL-60Z-V38A-SBS)**



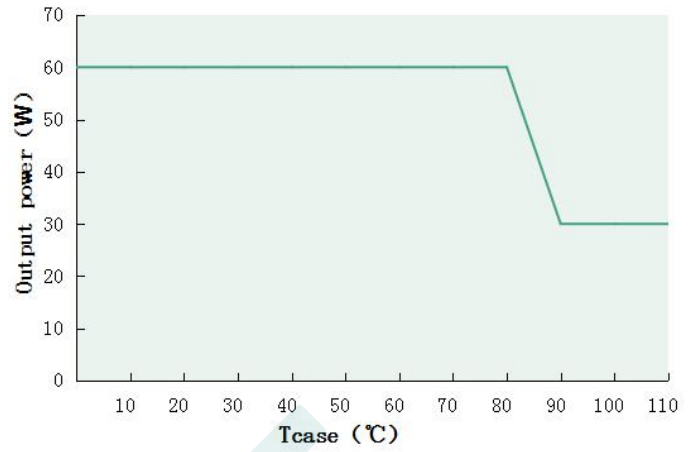
**T.H.D. VS Output voltage(DL-60Z-V58A-SBS)**



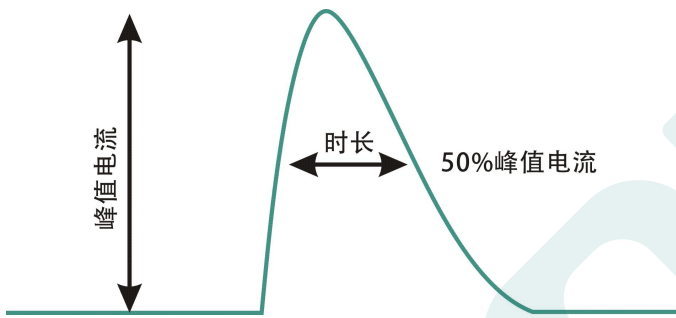
Tcase VS Lifetime(DL-60Z-V38/V58A-SBS)



Output power VS Tcase (DL-60Z-V38/V58A-SBS)

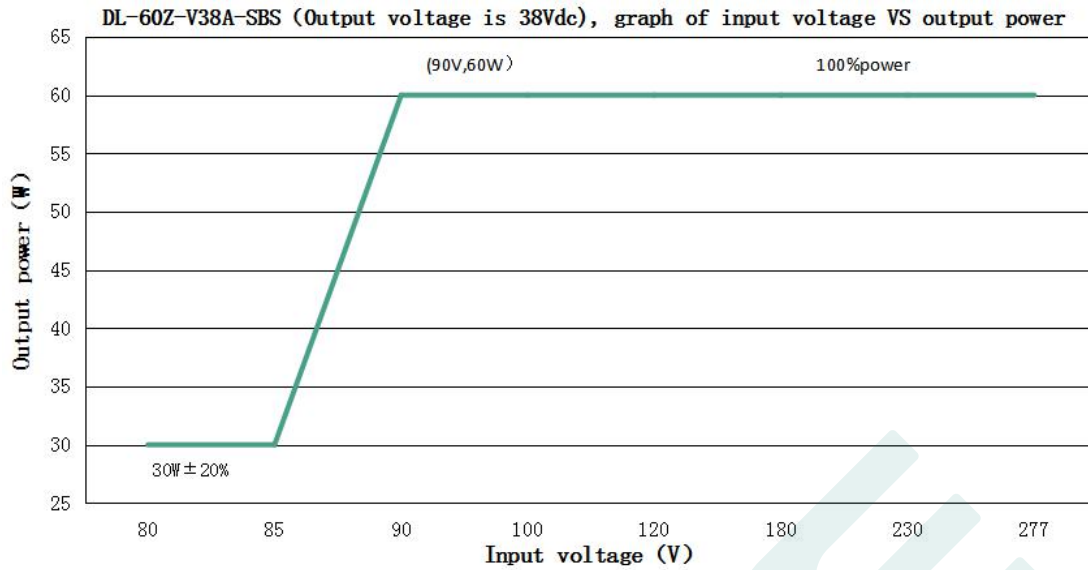


Surge curve(DL-60Z-V38/V58A-SBS)



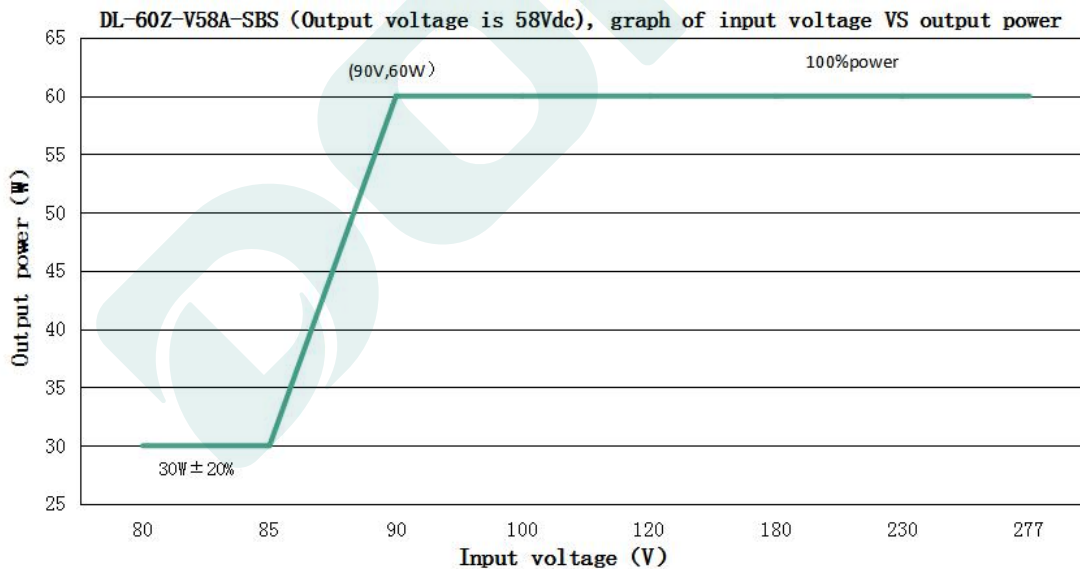
输入电压	峰值电流	T (@50%峰值电流)
120Vac	28A	82.2us
230Vac	38.2A	84us
277Vac	41.6A	88.6us

**Output power VS Input voltage**



**DL-60Z-V38A-SBS (For output 38Vdc, the rated output current & power under different input voltage)**

Input Voltage	85Vac	90Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.79A	1.58A	1.58A	1.58A	1.58A	1.58A	1.58A	1.58A
Pout	30W	60W	60W	60W	60W	60W	60W	60W



**DL-60Z-V58A-SBS (For output 58Vdc, the rated output current & power under different input voltage)**

Input Voltage	85Vac	90Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.51A	1.03A	1.03A	1.03A	1.03A	1.03A	1.03A	1.03A
Pout	30W	60W	60W	60W	60W	60W	60W	60W

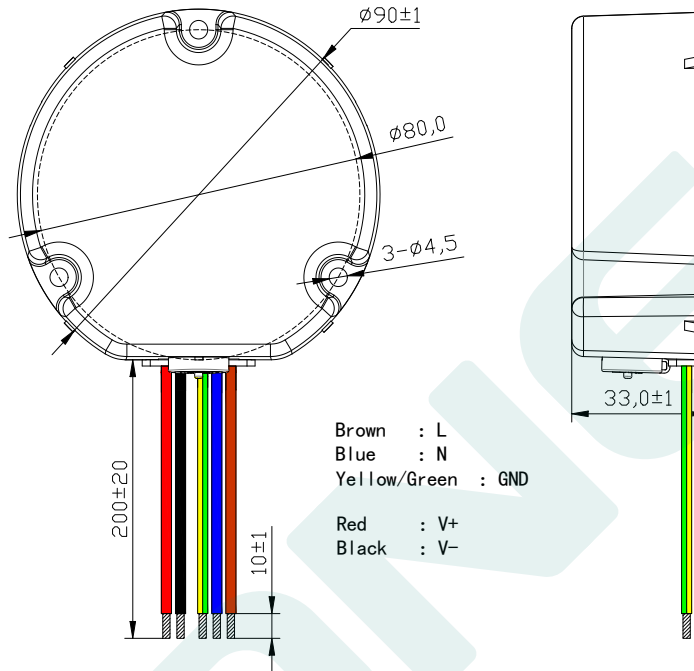
**Note:**

1. When the input voltage is below 90±10Vac, the output power decreases to 30W±20%.

## Mechanical specification

Size (mm)       $\varnothing 90 \times H33 \text{mm}$

**Dimension drawing**  
**DL-60Z-V38/58A-SBS**

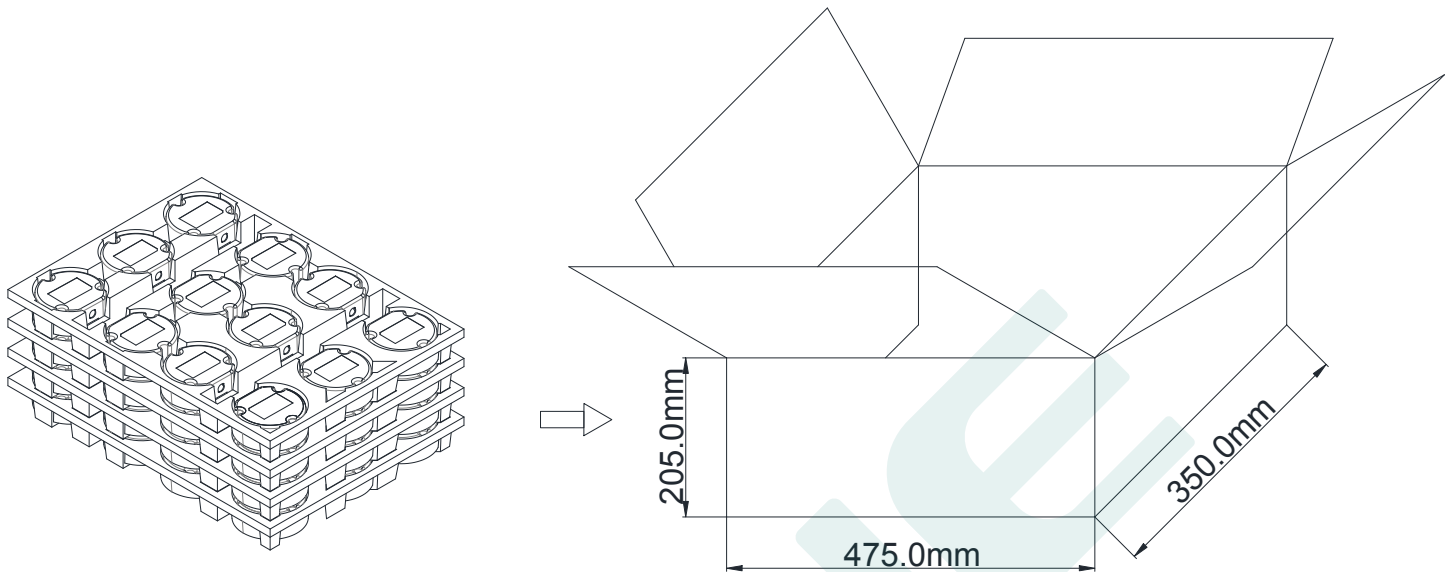


## Weight

Weight      347 g

## Packaging

Packaging (mm) L475\*W350\*H205



Note: One Carton 4 layers and 12 pcs each layer, total 48pcs/carton.

**Note:**

1. According to the qualified certificate of the LED DRIVER, that with English label is for sale in Europe, America and India.
2. That with Chinese label are used for Chinese market.

**Version**

DATE	DESCRIPTION	REV.	CHECK
2023.5.9	Initial version.	V1.0	
2023.9.25	Added 58V output models	V1.1	
2024.05.11	Change the efficiency VS output voltage chart on page 7	V1.2	

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