

SPECIFICATION

Product name : HBE-40D-150X

Release date : 2024/9/26

SUNCOM	Product Type	LED INTEGRATED SPECIAL DRIVER		
	Product Series	HBG-40D-150X Series	REV	V1.0

Features

- Class I type for insulation
- Input voltage range:320-480Vdc
- Efficiency 92% (Typ.)
- Constant current output ,with power limitation for control mode
- Metal material case, protection grade against water and dust: IP67
- Surge level:
 - differential mode : 4kV
 - common mode :6kV
- Function available:
 - Output current is dimmed by external potentiometer (Only Type A)
 - Output current is dimmed by Isolated 3 in 1 dimmer (Only Type P)
- guaranteed Lifetime : 5 years

Applications

High-end shoebox light, wall light, floodlight flat mining light,
Street lights, tunnel lights

Model list

Model NO.	Rated Input voltage	Max Output power	Output voltage	The default current	Eff.
HBG-40D-150A HBG-40D-150P	320-480Vdc	40W	90-150Vdc Rated Power (100-150Vdc)	0.3A	≥92%

Note:

1. Test conditions: If not specified, all specification parameters are measured at 400Vdc input, rated load, and ambient temperature of 25 ° C.
2. When the input is lower than 300±10Vdc, the output power is halved, and when the input is higher than 320Vdc again, the work will resume; Special attention should be paid to the application, please refer to the input voltage VS output power diagram.

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Input characteristics

Parameter	Min	Typ.	Max	Remark
Rated input voltage	-	400Vdc	-	-
Input voltage range	320Vdc	-	480Vdc	-
Input current	-	-	0.15A	@320Vdc input ,with full load
Inrush current	-	-	70A	400Vdc input ,with full load (cold start)

Output characteristics

Parameter	Min	Typ.	Max	Remark
Rated current	-	0.27A	-	-
Output current range	0.2A	-	0.4A	-
Output voltage range	90Vdc	-	150Vdc	Constant power:100-150VDC
Rated power	-	40W	-	-
No-load voltage	-	-	180V	-
Efficiency@400Vdc	-	92%	-	full load
Current accuracy	-5%	-	+5%	full load
Line regulation	-3%	-	+3%	full load
Load regulation	-3%	-	+3%	full load
Starting time	-	-	500ms	Full load@400Vdc

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

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Dimming characteristics

Dimming function		Min	Typ.	Max	Instructions
1-10V Dimming (Optional)	Safe operation voltage range	1V	-	12V	Beyond the range may lead to a failure of the driver.
	Dimming output range	10%	-	100%	-
	Rated operation voltage range	1V	-	10V	-
PWM Dimming (Optional)	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	Rated dimming frequency	300Hz	-	2000Hz	-
	PWM duty cycle	10%	-	99%	full power output at 99%duty cycle
Resistor Dimming (Optional)	Rated external resistance value	10KΩ	-	100KΩ	-
	Dimming output range	10%	-	100%	-

Note:

1. Output current of dimming port: 100uA (typical value).

Protections

Protection	description
under-voltage protection	When the input voltage is less than $300 \pm 10\text{Vdc}$, the output power is halved, and when the input is higher than 320Vdc again, the work resumes.
Output overload protection	Protection mode: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	Could recover automatically; when the temperature of the case is greater than $90 \pm 5^\circ\text{C}$, the output power decreases to a half.
Output over-voltage protection	Protection mode:Hiccup or clamp at a certain output highest voltage state,when the fault is removed, the driver works normally

Note:

1. Unless otherwise specified, all parameters should be measured at the condition of 400Vdc input ,with rated load ,and ambient temperature of 25°C;
2. Including setting error, linear adjustment rate and load adjustment rate;

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Environmental characteristics

Environmental categories	Parameter
Working temperature	-40 ~ +55°C Vin@400Vdc((Refer to "Service Life Curve"))
Safety case temperature	-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	50000 hours, Vin@400Vdc, 80% load, shell temperature 75°C,.Refer to” Tcase VS Lifetime” curve for details.

Safety and EMC

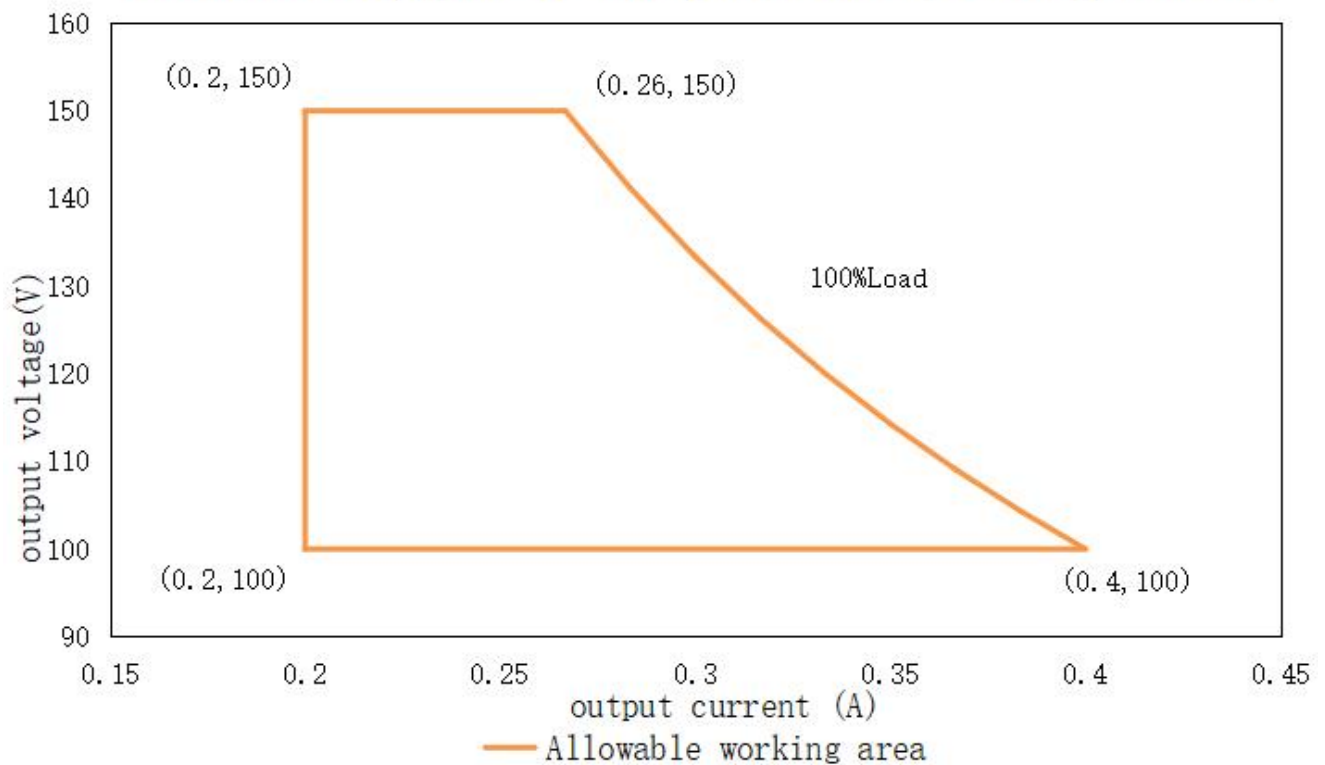
Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、EN 62384;
EMC	EN 55015、EN 61547、EN 61000-3-2、GB/T 17743、GB17625.1、EN 61000-3-3
Surge level	Differential mode L-N $\pm 4\text{KV}(2\Omega)$,common mode L, N-PE $\pm 6\text{KV}(12\Omega)$ Refer toIEC61000-4-5 2014
High-pot test	I/P-PE:1.5KVac O/P-PE : 0.5KVac I/P-DIM:3.75KVac
Insulation impedance	I/P-PG:100M Ohms/500Vdc
Leakage current	0.7mA@480Vdc

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.

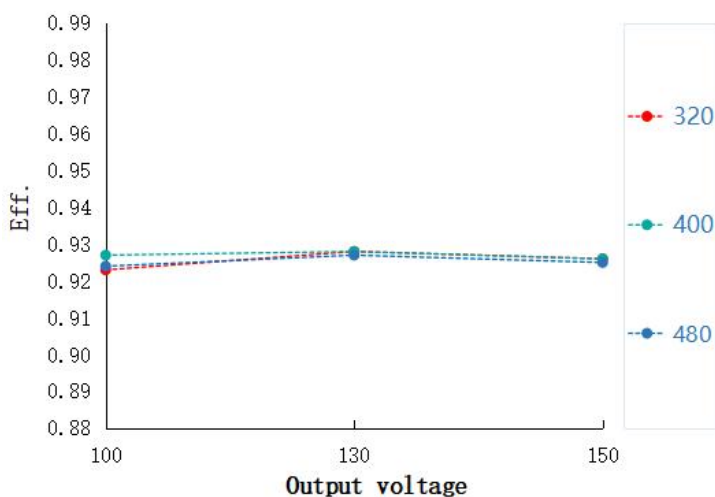
I-V Working area

HBG-40D-150X (Import: 320-480Vdc) output voltage VS output current

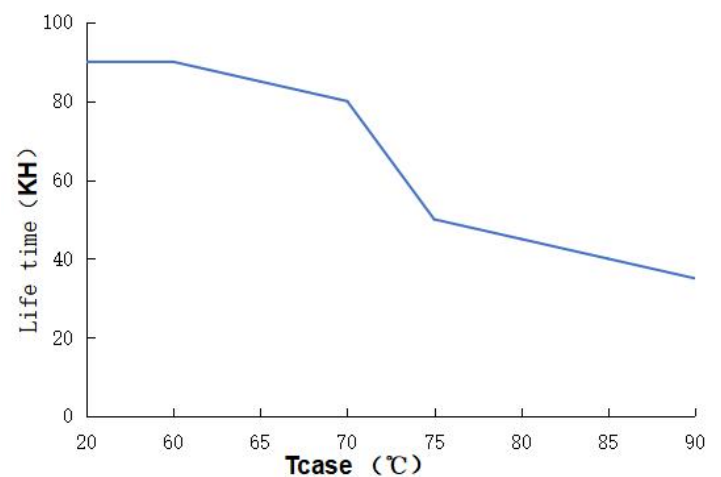


Load	Output					
Load working Voltage	100Vdc	110Vdc	120Vdc	130Vdc	140Vdc	150Vdc
Io_MAX	0.40A	0.36A	0.33A	0.31A	0.29A	0.27A
Po_MAX	40W	40W	40W	40W	40W	40W

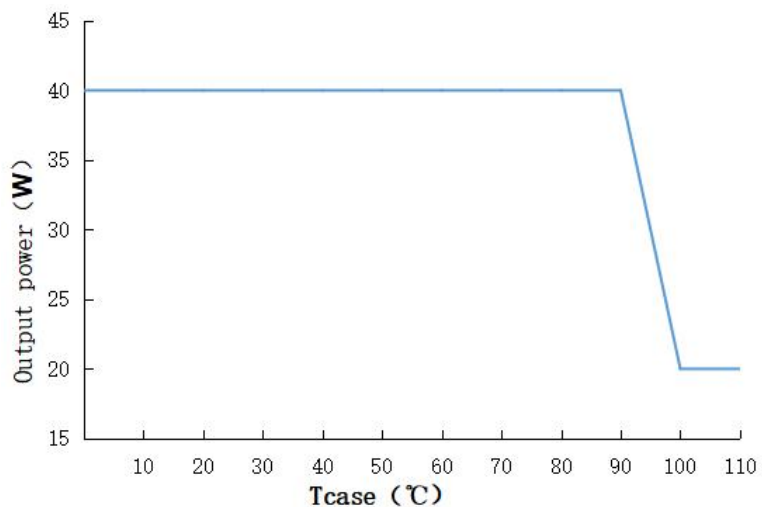
Eff. VS Output voltage



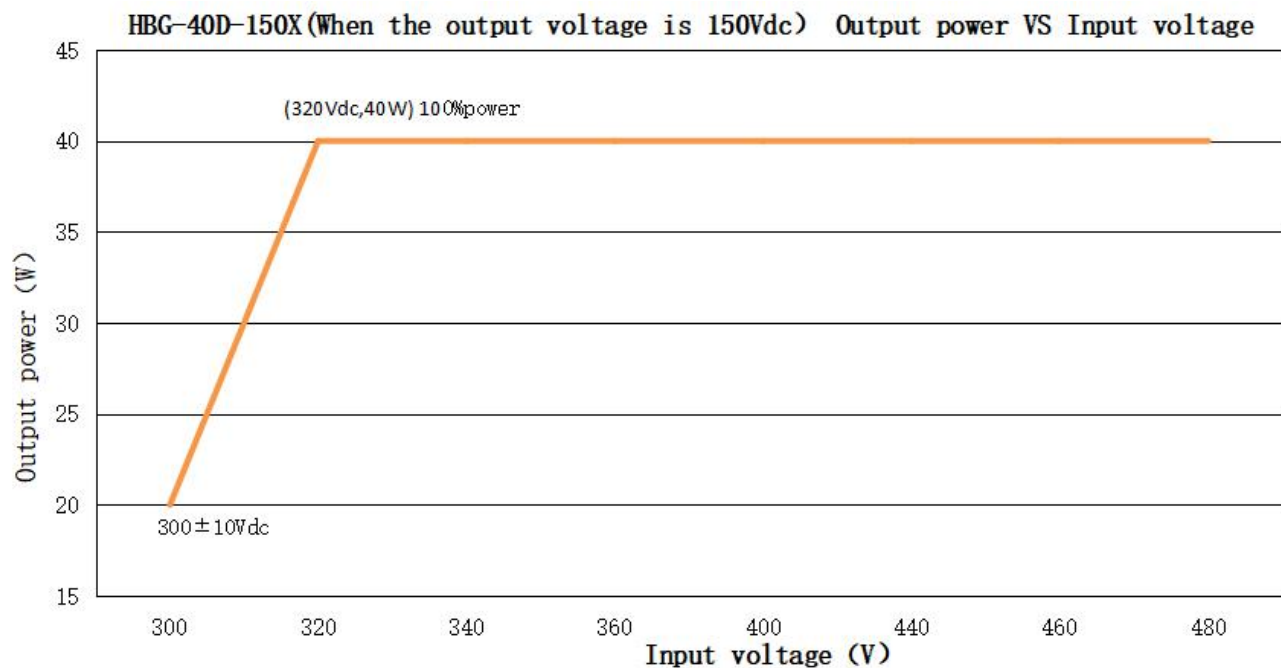
Tcase VS Life time



Output power VS Tcase



Output power VS Input voltage



HBG-40D-150X (Rated output current value and output power corresponding to different input voltages when the output voltage is 150Vdc)

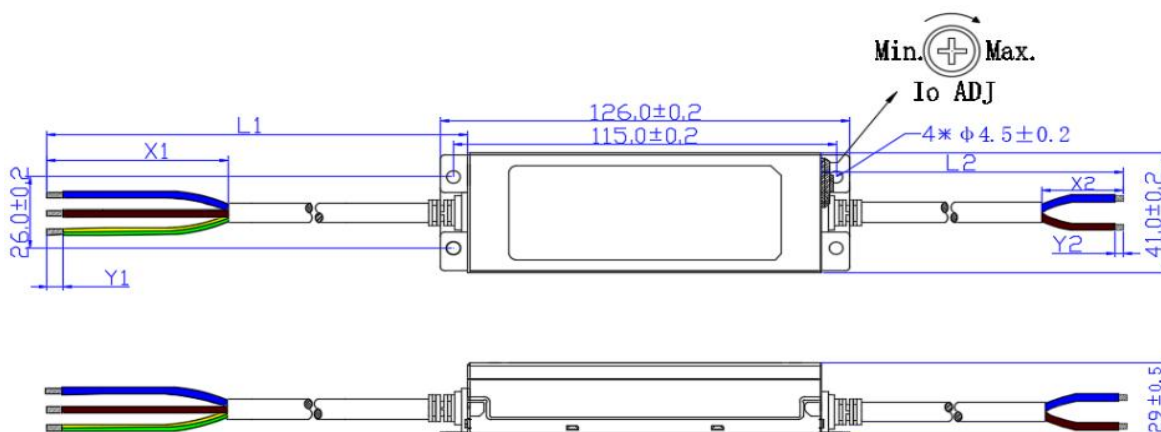
Input Voltage	300Vdc	320Vdc	350Vdc	370Vdc	400Vdc	420Vdc	450Vdc	480Vdc
I _o	0.13A	0.27A	0.27A	0.27A	0.27A	0.27A	0.27A	0.27A
P _o	20W	40W	40W	40W	40W	40W	40W	40W

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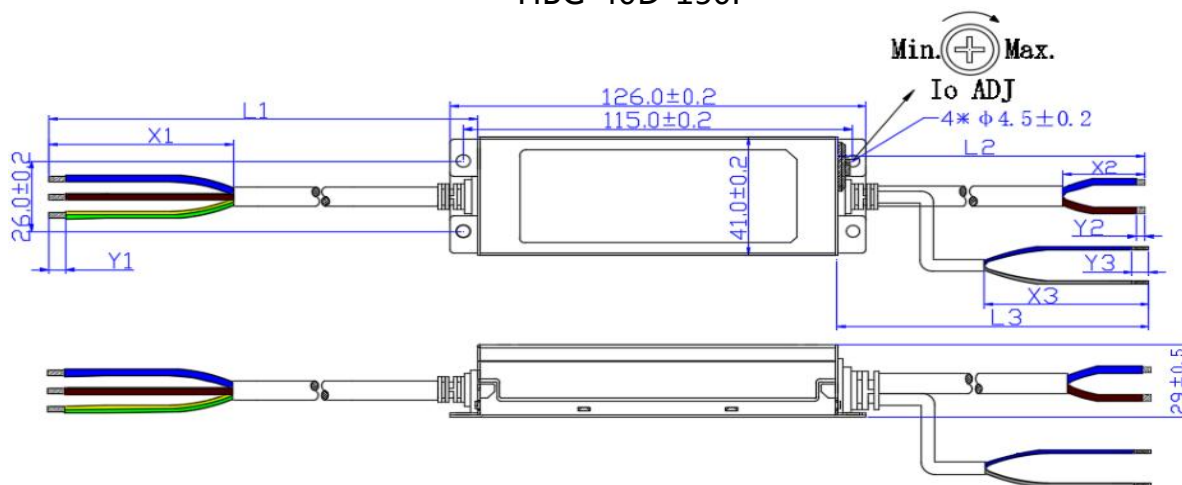
Mechanical specification

Size (mm)	L126mm*W41mm*H29mm
Weight (g)	290g
Packaging (mm)	

HBG-40D-150A



HBG-40D-150P



category	Input line specification	Output line specification	Dimming and auxiliary power cord specifications
specification	Rubber round wire HO5RN-F 3*1.0mm ² Outer diameter :7.2mm VDE/CCC/SAA	Rubber round wire HO5RN-F 2*1.0mm ² Outer diameter :6.8mm VDE/CCC/SAA	PVC sheath wire 22AWG 300V, 105℃ Outer diameter :4.8mm
colour	AC-L brown; AC-N Blue PG Green/yellow-green	LED+ brown; LED- Blue	DIM+ purple; DIM-pink
exposure	440±10mm (L1)	290±10mm (L2)	290±10mm (L3)
peel off the skin	50±5mm (X1)	25±5mm (X2)	50±5mm (X3)
Wicking	10±1mm (Y1)	5±1mm (Y2)	10±1mm (Y3)

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Version

DATE	DESCRIPTION	REV.	CHECK
2024.9.26	Initial version.	V1.0	