



SOSEN LED Driver, Your Smart Choice

Specifications

SS-240M Series LED Driver

Model: SS-240M-XX

Description: 240W LED Driver

Rev.: V03

Release Date: 2019-07-25

SS-240M Series LED Driver

SOSEN
LED DRIVER

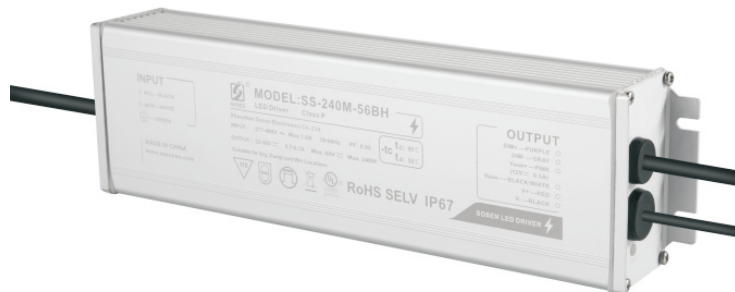


LED DRIVER

M Series

Features:

- Efficiency up to 93%
- Dimming: 0-10V, PWM, Timing
- Isolated dim to off function
- Surge protection: L/N-PE: 10kV, L-N: 6kV
- Optional aux : 12V/0.3A
- Constant lumen output
- Standby(STB) function
- Standby power < 1.5W
- IP67
- Communication function with PC
- TYPE HL, suitable for hazard locations
- Protections: SCP/OTP/UVP
- Warranty: 5 years



IP67 Class P

Description:

SS-240M series is programmable with 249-528Vac input for industrial applications. It provides constant power with isolated dimming and optional independent Aux, which enhances the fixture's flexibility to add controls driven directly by Auxiliary. It comes with Input Under-Voltage Protection, Short-Circuit Protection and OTP for highbays, sports lighting and grow lights.

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vo Range	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-240M-56BH	249-528Vac	240W	22-56V	36-56V	0.7-6.7A	10%	0.95	92%	90°C
SS-240M-228BH	249-528Vac	240W	114-228V	137-218V	0.35-1.75A	10%	0.95	93%	90°C
SS-240M-343BH	249-528Vac	240W	171-343V	228-343V	0.1-1.05A	10%	0.95	93%	90°C

Note:

- Suffix B for model with 3-in-1 dimming (0-10V, PWM Dim, Timing);
- Suffix H for auxiliary 12V

SS-240M Series LED Driver

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	277Vac		480Vac	
AC Input Range	249Vac		528Vac	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			1.8A	277Vac, Full load
Max Input Power			270W	277Vac, Full load
Max Inrush Current(277Vac)			50A	Cold start
Max Inrush Current(347Vac)			70A	Cold start
Max Inrush Current(480Vac)			90A	Cold start
No Load Power			1.5W	347Vac/60Hz, Dim-off or STB Enable
Power Factor	0.93	0.95		347Vac/60Hz, Full load
	0.90			277-480Vac, 80-100% load
THD		7%	10%	347Vac/60Hz, Full load
			20%	277-480Vac, 80-100% load

SS-240M Series LED Driver

Output Characteristics(SS-240M-56BH):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	22V		56V	Power derated @22-36V
Rated Output Voltage	36V		56V	$P_o=V_o \cdot I_o=240W$, Full load
Rated Output Current	4.3A		6.7A	6.7A for 36V, 4.3A for 56V
Current Adjustable Range(AOC)	0.7A		6.7A	Adjustable by program
No Load Voltage			60V	
Efficiency @277Vac	89.0%	91.0%		Output 56V/4.3A
Efficiency @347Vac	90.0%	92.0%		Output 56V/4.3A
Efficiency @480Vac	90.0%	92.0%		Output 56V/4.3A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac
			0.5S	347Vac
Line Regulation	-1%		+1%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection				Driver will not be damaged, Constant current mode

SS-240M Series LED Driver

Output Characteristics(SS-240M-228BH):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	114V		228V	Power derated @114-137V
Rated Output Voltage	137V		218V	$P_o=V_o \cdot I_o=240W$, Full load
Rated Output Current	1.1A		1.75A	1.75A for 137V, 1.1A for 218V
Current Adjustable Range(AOC)	0.35A		1.75A	Adjustable by program
No Load Voltage			230V	
Efficiency @277Vac	90.0%	91.0%		Output 218V/1.1A
Efficiency @347Vac	91.0%	93.0%		Output 218V/1.1A
Efficiency @480Vac	91.0%	93.0%		Output 218V/1.1A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac
			0.5S	347Vac
Line Regulation	-1%		+1%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection				Driver will not be damaged, Constant current mode

SS-240M Series LED Driver

Output Characteristics(SS-240M-343BH):

Parameter	Min.	Typ.	Max.	Remark
Output Voltage Range	171V		343V	Power derated @171-228V
Rated Output Voltage	228V		343V	$P_o=V_o \cdot I_o=240W$, Full load
Rated Output Current	0.7A		1.05A	1.05A for 228V,0.7A for 343V
Current Adjustable Range(AOC)	0.1A		1.05A	Adjustable by program
No Load Voltage			360V	
Efficiency @277Vac	89.0%	91.0%		Output 343V/0.7A
Efficiency @347Vac	91.0%	93.0%		Output 343V/0.7A
Efficiency @480Vac	91.0%	93.0%		Output 343V/0.7A
Output Current Tolerance	-5%		+5%	
Output Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	277Vac
			0.5S	347Vac
Line Regulation	-1%		+1%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Tc, Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection				Driver will not be damaged, Constant current mode

SS-240M Series LED Driver

Other Characteristics:

Parameter	Min.	Typ.	Max.	Remark	
Aux Power (Optional)	12V	11.5V	12V	12.5V	
	12V			300mA	Peak current 400mA, lasted 15 minutes at most
0-10V Dimming (Optional)	Dim Vmax	0V		12V	
	Dim Range	10%loset		100%loset	
	Rec.Dim Range	1V		10V	
PWM Dimming (Optional)	PWM High	9.8V		10.2V	
	PWM Low	0V		0.3V	
	Frequency	1KHz		2KHz	
	PWM Duty	10%		100%	
Resistor Dimming (Optional)	Resistance	10K		100K	
	Dim Range	10%		100%	Internal constant current supply current approximately 110 μ A
Dim to Off (Optional)	Dim-off	0.3V	0.5V	0.7V	
	Dim Turn on	0.3V	0.55V	0.7V	
STB function enabled voltage (Optional)	Enabled voltage	0V		0.5V	Standby power < 1.5W
	Disabled voltage	3.5V		12V	STB Wire no connect for disabled STB function
Timing Curve(Optional)	By programming			Typically 3 sections	
Lifetime(Tc \leq 75 $^{\circ}$ C)	\geq 62,000 hours				
MTBF	198,000 hours			347Vac,Full load, Ta=25 $^{\circ}$ C (MIL-HDBK-217F)	
IP Grade	IP67				
Tc	90 $^{\circ}$ C				
Warranty	5 years			Refer to life time drawing	
Net Weight	1500g				
Dimension	254mm*71mm*39.6mm			L x W x H	

NOTE: All the parameters above are tested Ta 25 $^{\circ}$ C, unless specified.

SS-240M Series LED Driver

Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40°C	25°C	+90°C	
Storage Temperature	-40°C	25°C	+85°C	
Operation Humidity	10%RH		90%RH	
Storage Humidity	5%RH		95%RH	
Altitude	-65m		4000m	

Safety and EMI/EMS Standards

Certification	Standard	Status	Remark
UL/cUL	UL8750	✓	
TUV	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013 EN62493:2015		
RCM	AS/NZS61347.2.13		
CCC	GB 19510.14-2009		
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013		

EMI/EMS	Criterion	Remark
Conduction Emission	FCC Part15: Subpart A ANSI 63.4:2014	Class A
Radiation Emission	FCC Part15: Subpart A ANSI 63.4:2014	Class A
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN61000-4-5	Difference mode 6kV, Common mode 10kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	Difference mode 6kV, Common mode 6kV,Criterion B

SS-240M Series LED Driver

Safety Test Items:

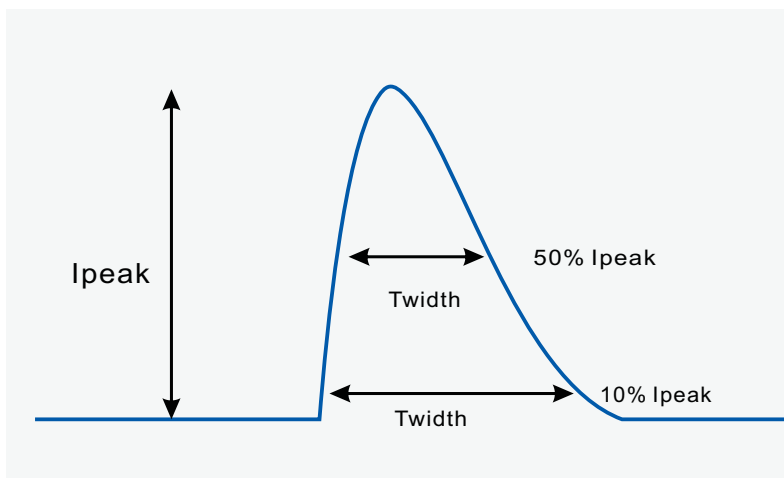
Safety test items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	TUV Insulation Requirements	CCC Insulation Requirements	
Input-Output	2U+1000	/	/	Reinforced insulation
Input-Case	2U+1000	/	/	Basic insulation
Input-Dim	2U+1000	/	/	Reinforced insulation
Output-Dim	2U+1000	/	/	Additional insulation
Output-Case	2U+1000	/	/	Function insulation
Dim-Case	2U+1000	/	/	Basic insulation
Insulation Resistance	≥10MΩ			Input-Output, Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leak Current	≤0.75mA			480Vac

NOTE:

1. SOSEN warrants the LED Driver itself meets with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference as component.
2. Please short Line and Neutral, LED+ and LED-, Dim+ and Dim - when Hi-pot test.
- 3.U: Max Input voltage .

Performance Curves:

Input Inrush Current

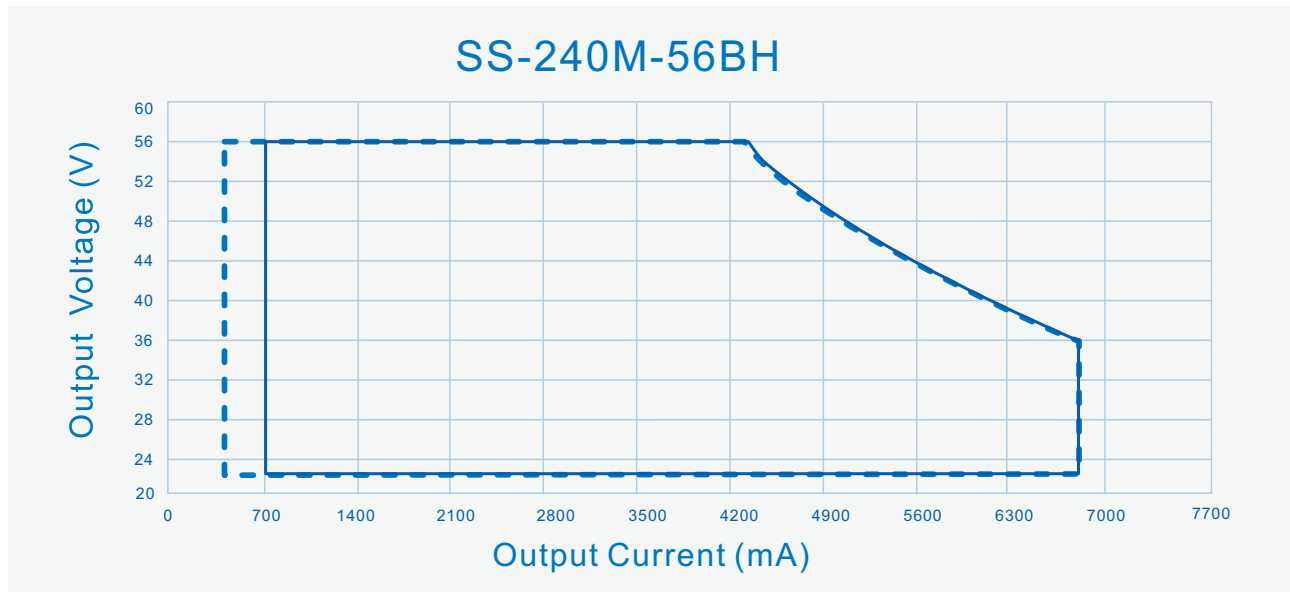


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
277Vac	50A	542uS	
347Vac	70A	564uS	
480Vac	90A	582uS	

SS-240M Series LED Driver

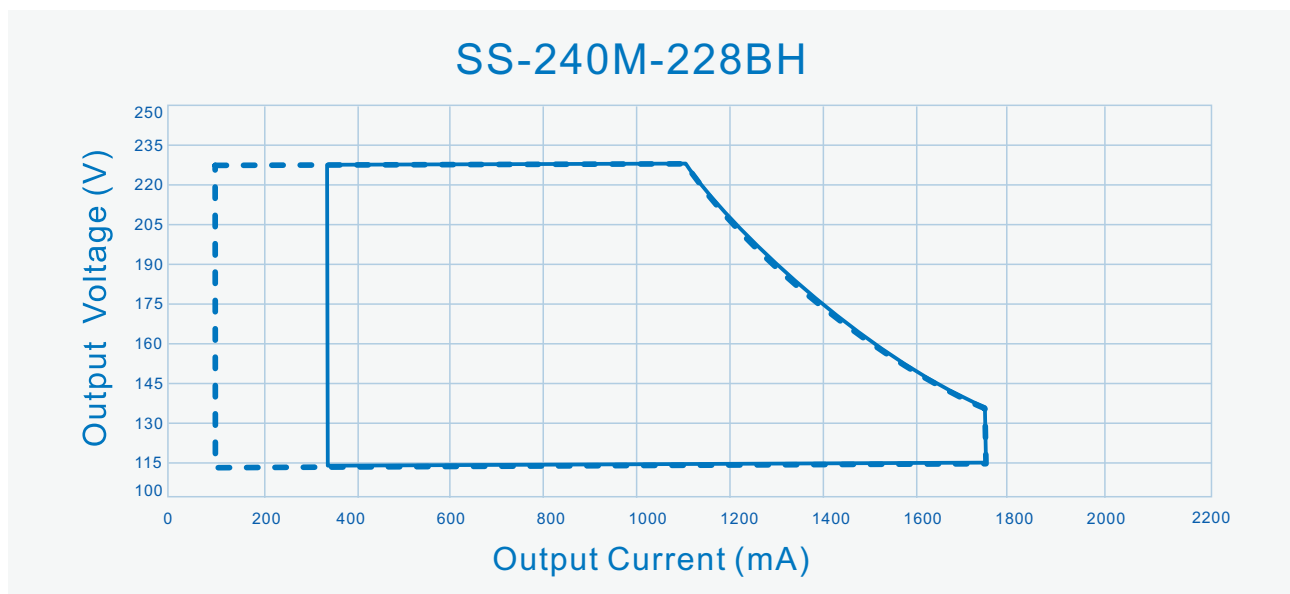
Performance Curves:

Output Voltage Vs. Output Current(Dim/AOC Window)



----- Dimming Window ————— AOC Window

Output Voltage Vs. Output Current(Dim/AOC Window)

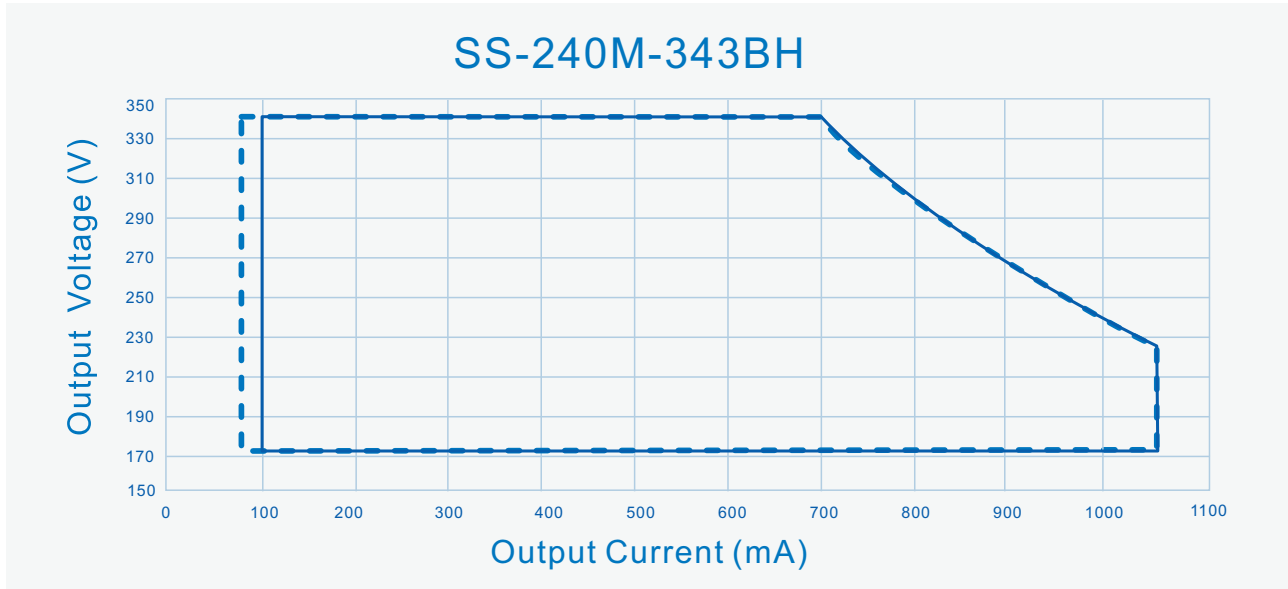


----- Dimming Window ————— AOC Window

SS-240M Series LED Driver

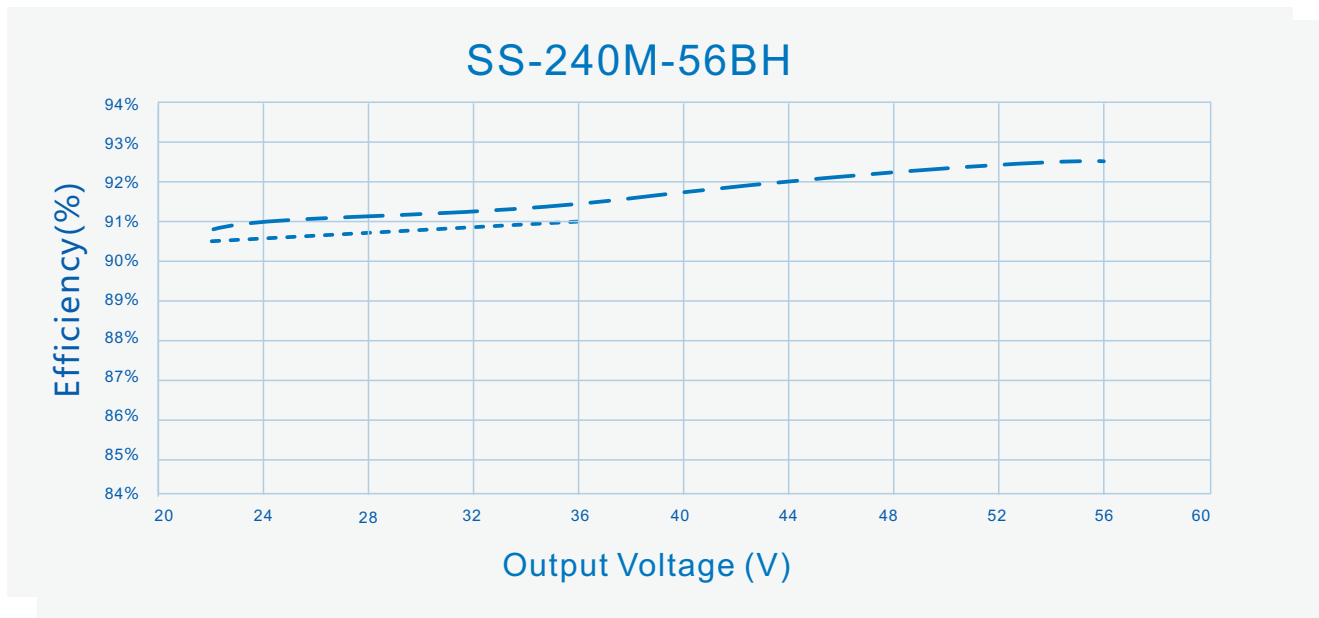
Performance Curves:

Output Voltage Vs. Output Current(Dim/AOC Window)



----- Dimming Window ————— AOC Window

Efficiency Vs. Output Voltage (Vin=277Vac)

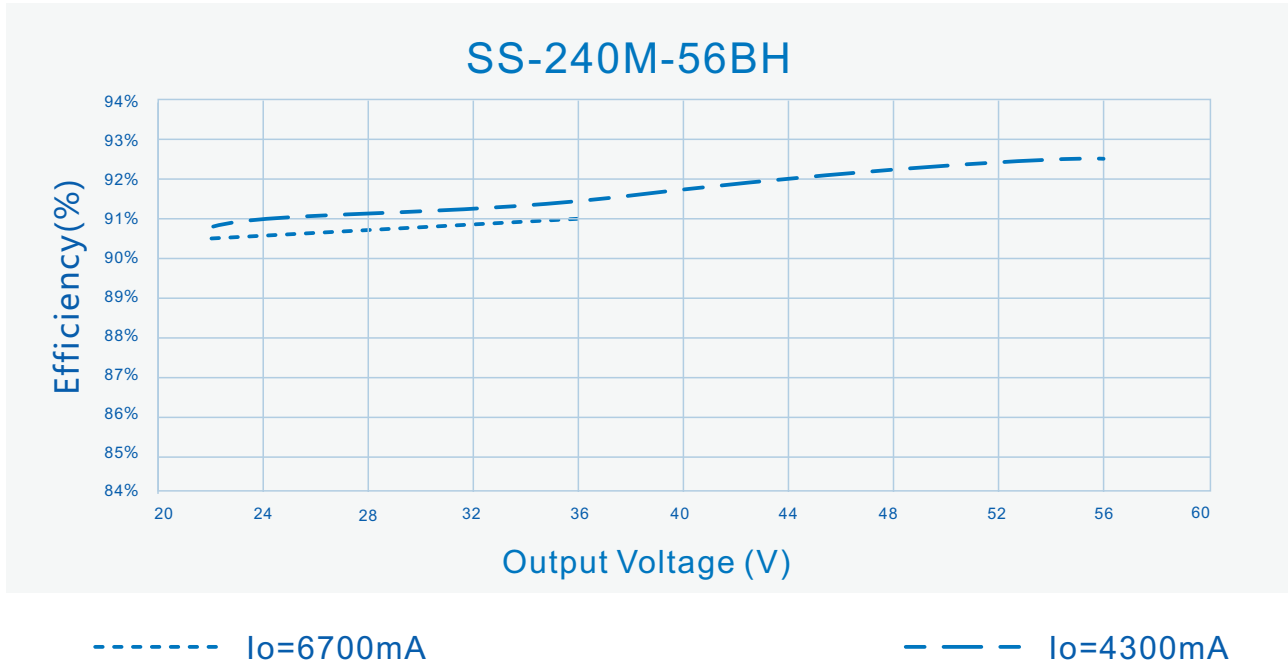


----- Io=6700mA - - - Io=4300mA

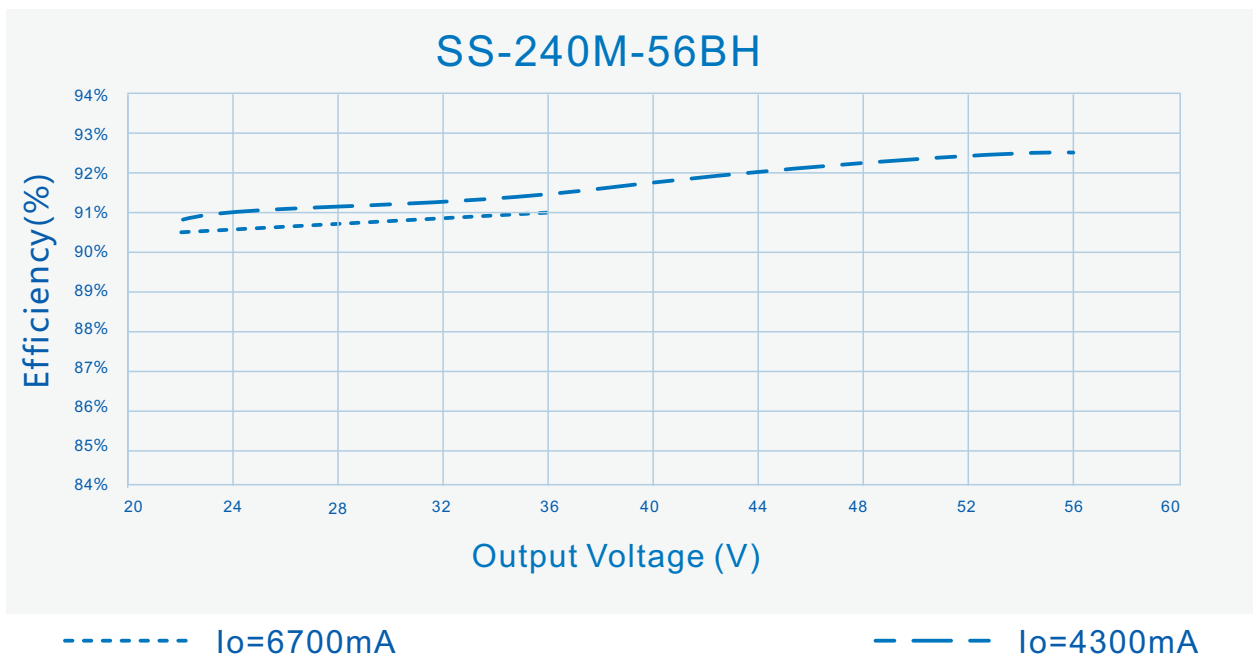
SS-240M Series LED Driver

Performance Curves:

Efficiency Vs. Output Voltage ($V_{in}=347V_{ac}$)



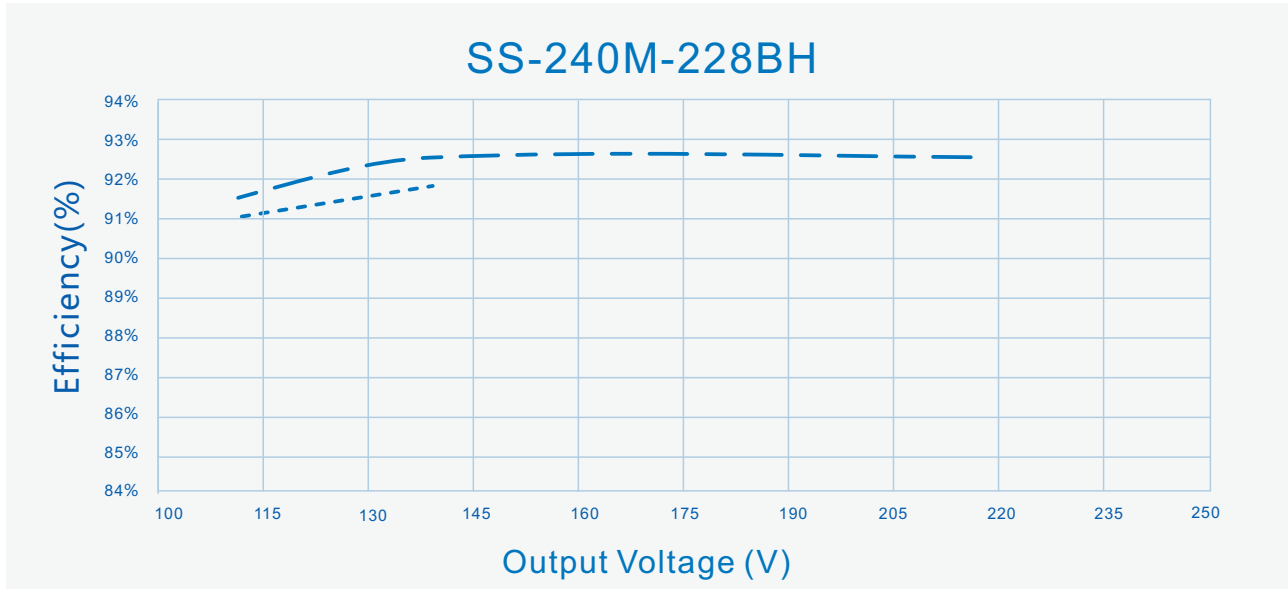
Efficiency Vs. Output Voltage ($V_{in}=480V_{ac}$)



SS-240M Series LED Driver

Performance Curves:

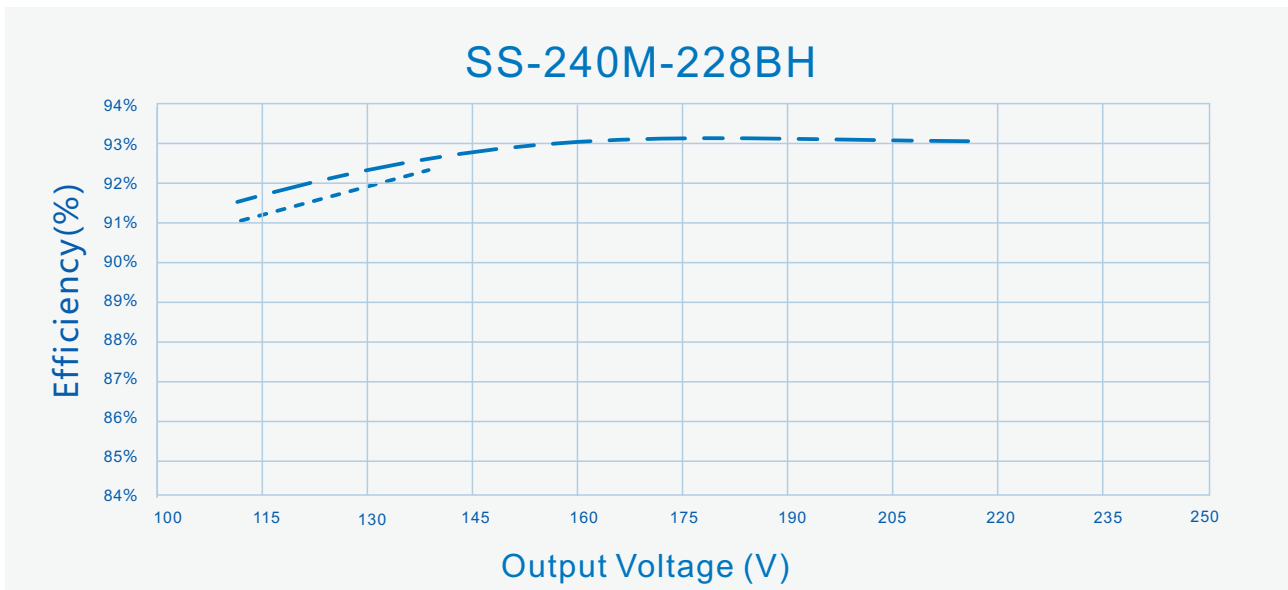
Efficiency Vs. Output Voltage ($V_{in}=277V_{ac}$)



----- $I_o=1750mA$

- . - . $I_o=1100mA$

Efficiency Vs. Output Voltage ($V_{in}=347V_{ac}$)



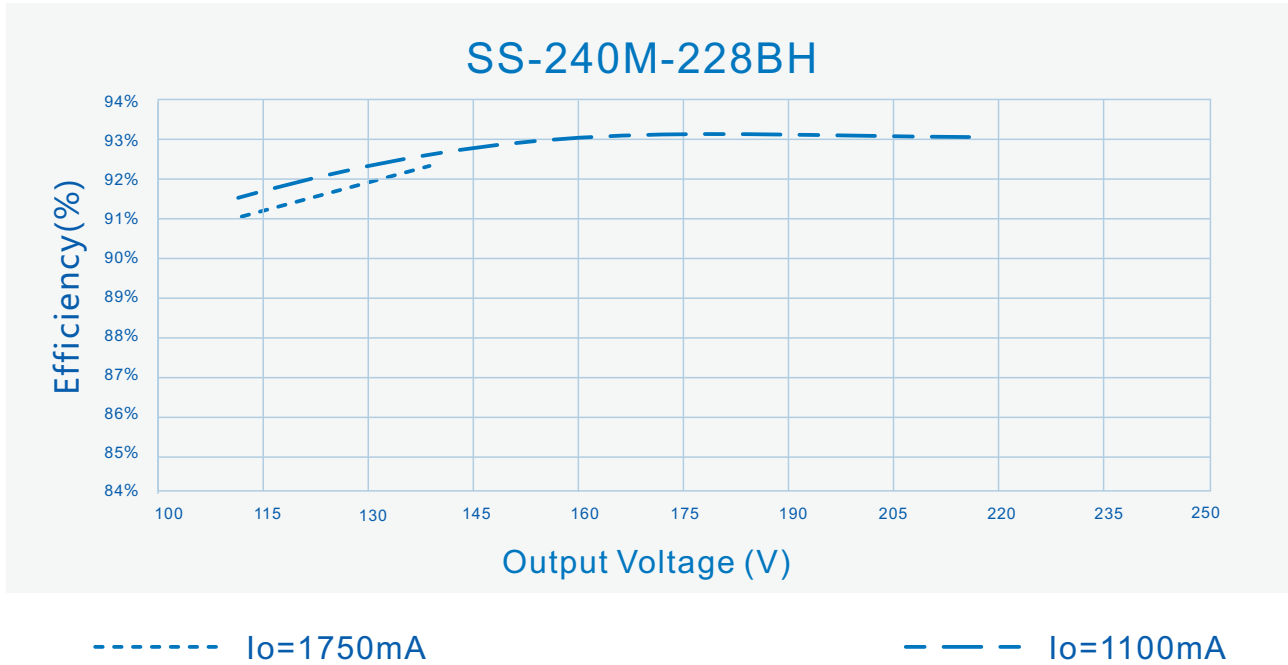
----- $I_o=1750mA$

- . - . $I_o=1100mA$

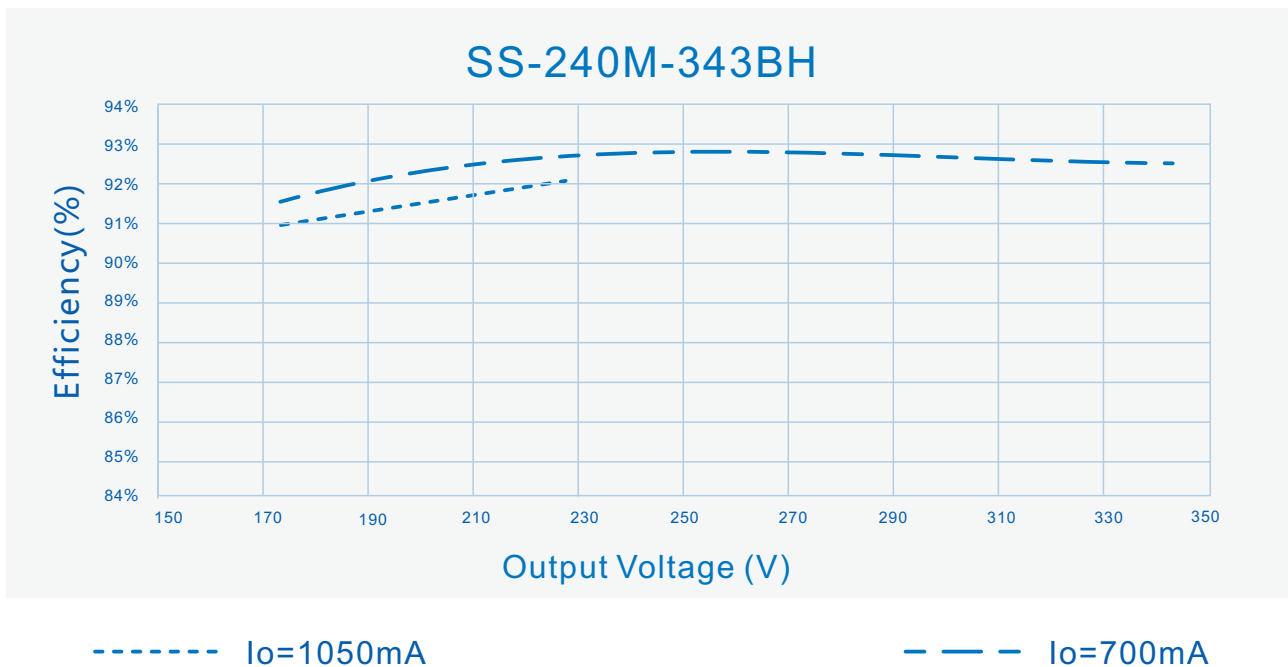
SS-240M Series LED Driver

Performance Curves:

Efficiency Vs. Output Voltage ($V_{in}=480V_{ac}$)



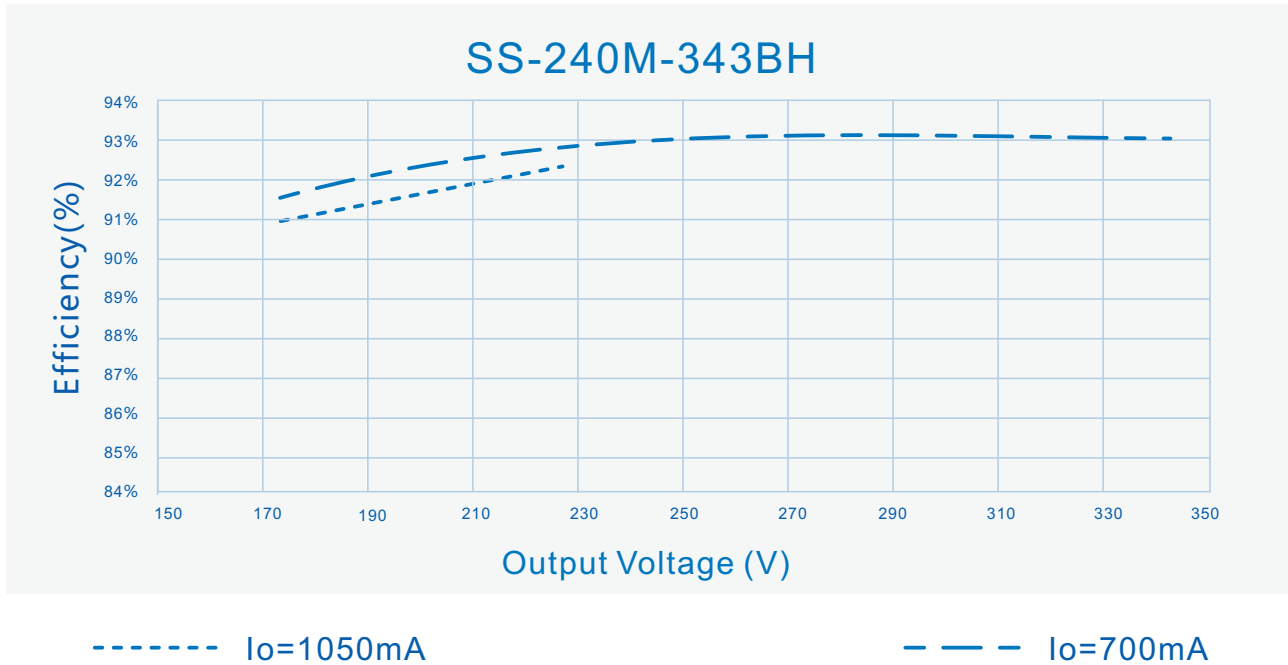
Efficiency Vs. Output Voltage ($V_{in}=277V_{ac}$)



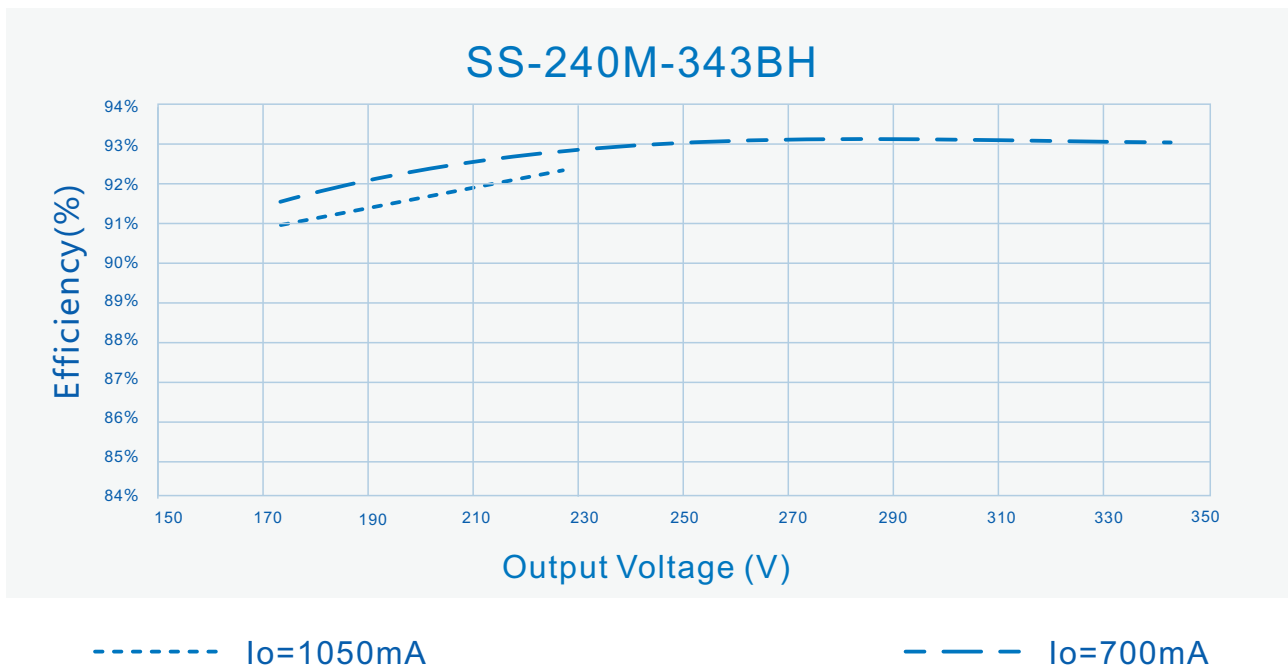
SS-240M Series LED Driver

Performance Curves:

Efficiency Vs. Output Voltage ($V_{in}=347V_{ac}$)



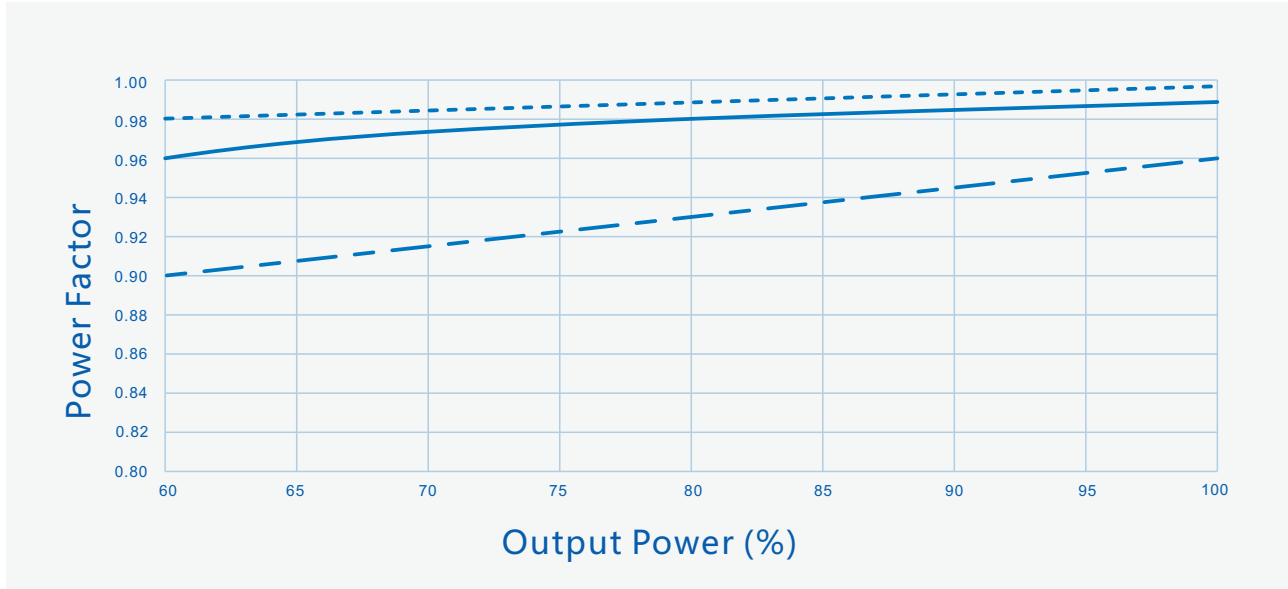
Efficiency Vs. Output Voltage ($V_{in}=480V_{ac}$)



SS-240M Series LED Driver

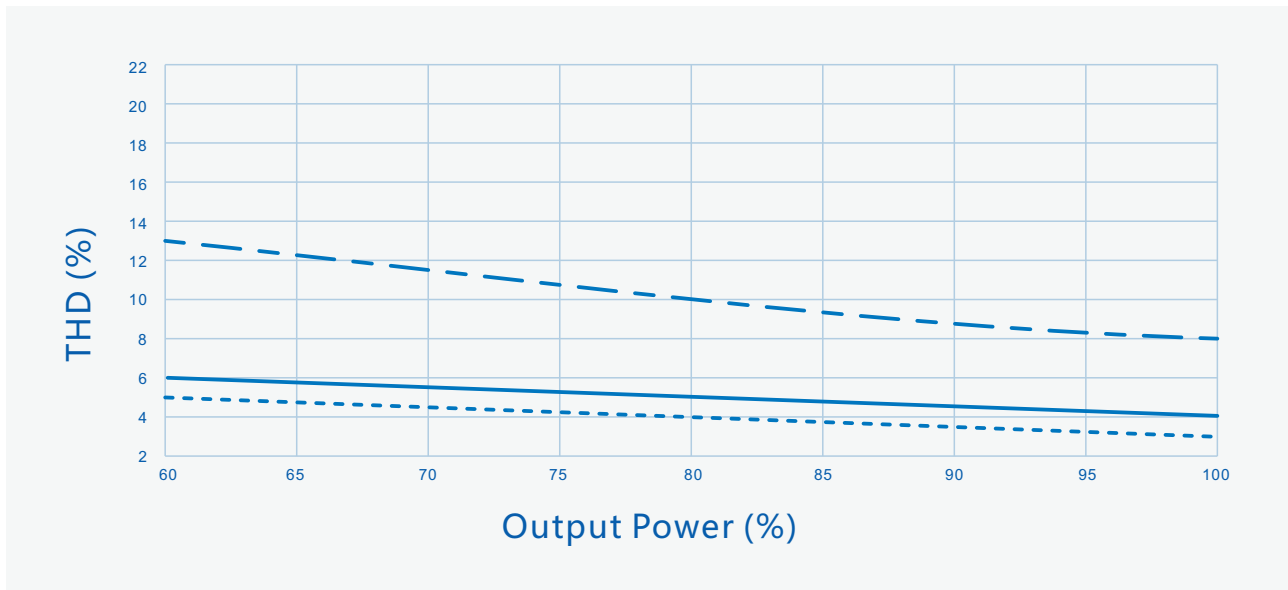
Performance Curves:

Power Factor Vs. Output Power



----- Vin=277Vac ——— Vin=347Vac - - - Vin=480Vac

THD Vs. Output Power

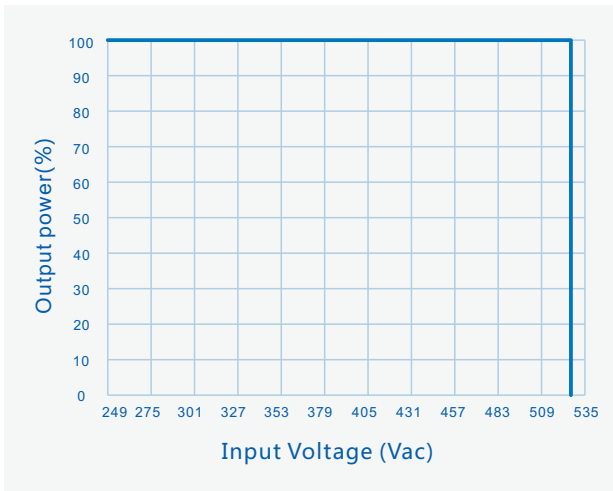


----- Vin=277Vac ——— Vin=347Vac - - - Vin=480Vac

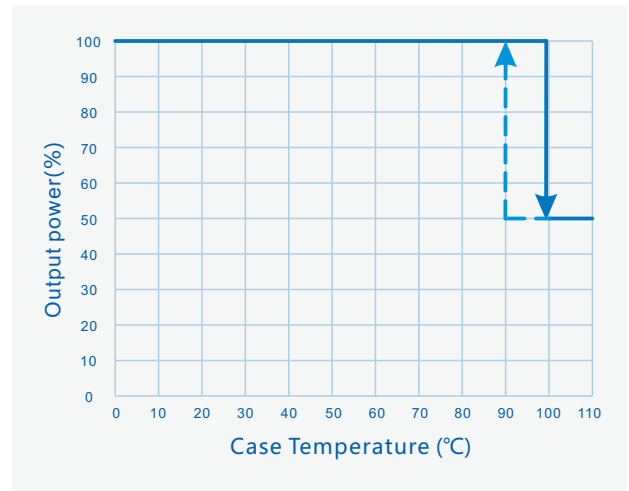
SS-240M Series LED Driver

Performance Curves:

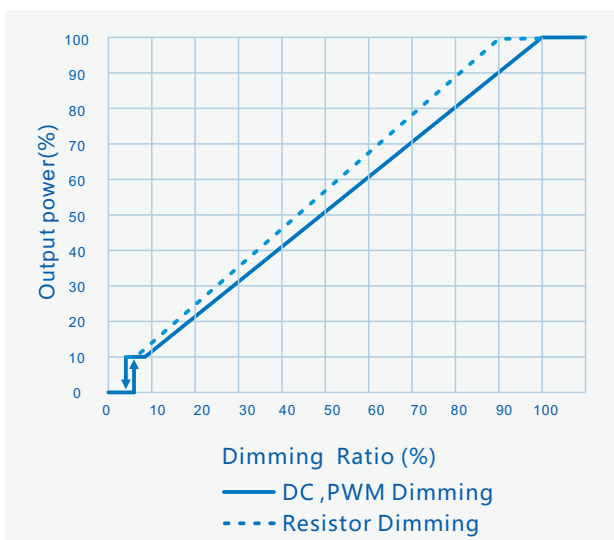
Output power Vs. Input Voltage (Ta Max.50°C)



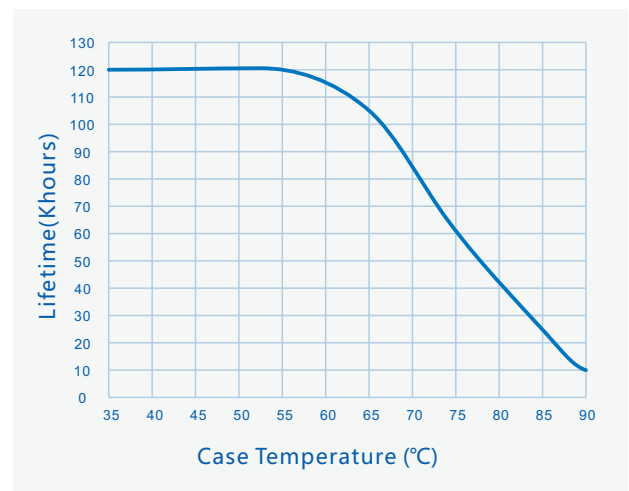
Output power Vs. Case Temperature



Output Power Vs. Dimming



Lifetime Vs. Case Temperature

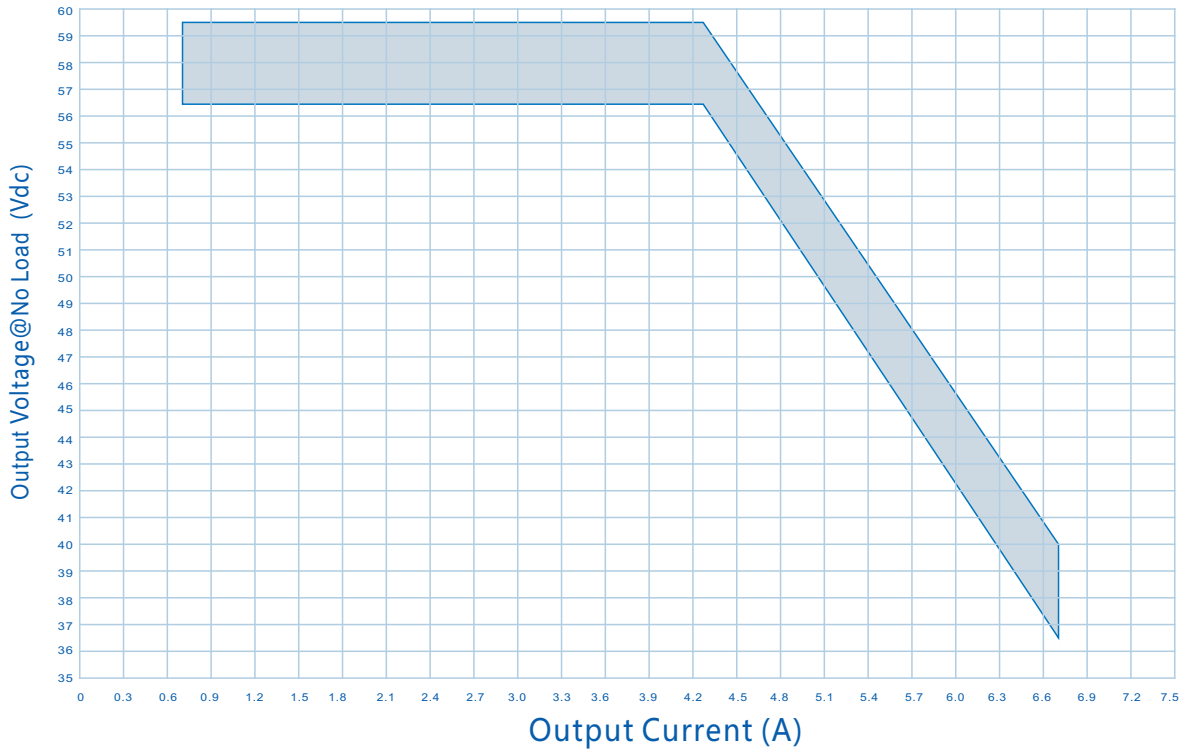


SS-240M Series LED Driver

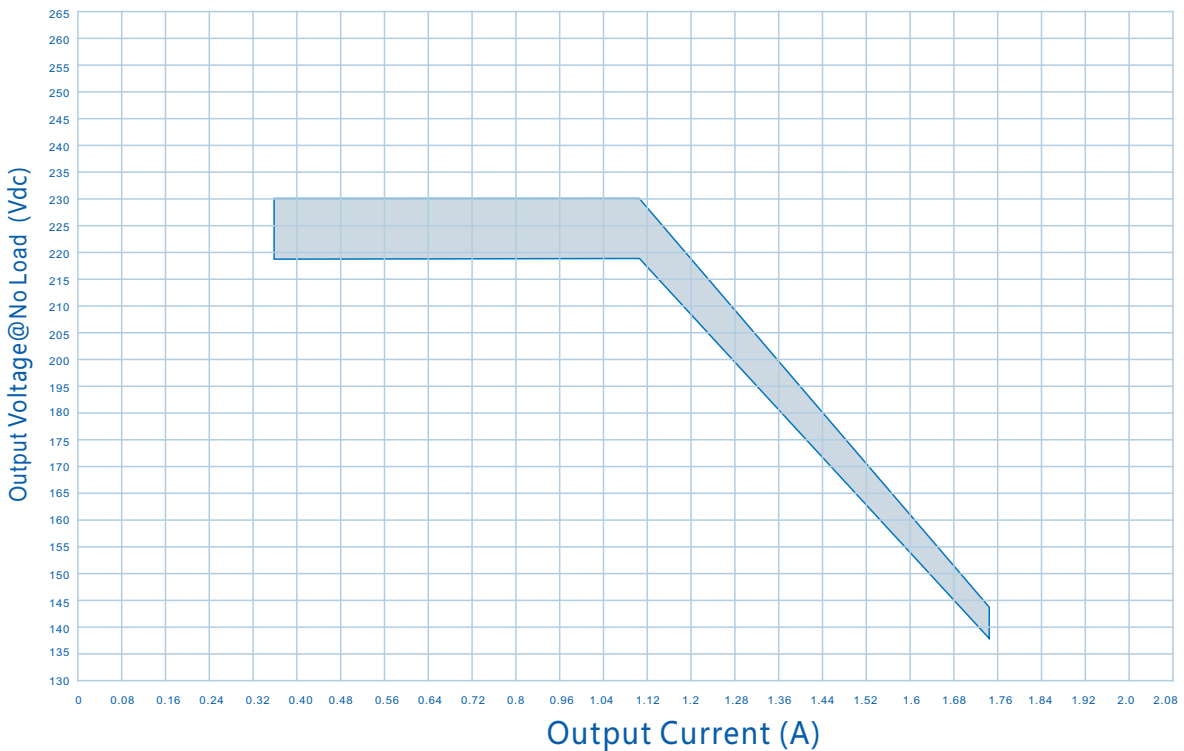
Performance Curves:

No load voltage VS. Output current

SS-240M-56BH



SS-240M-228BH

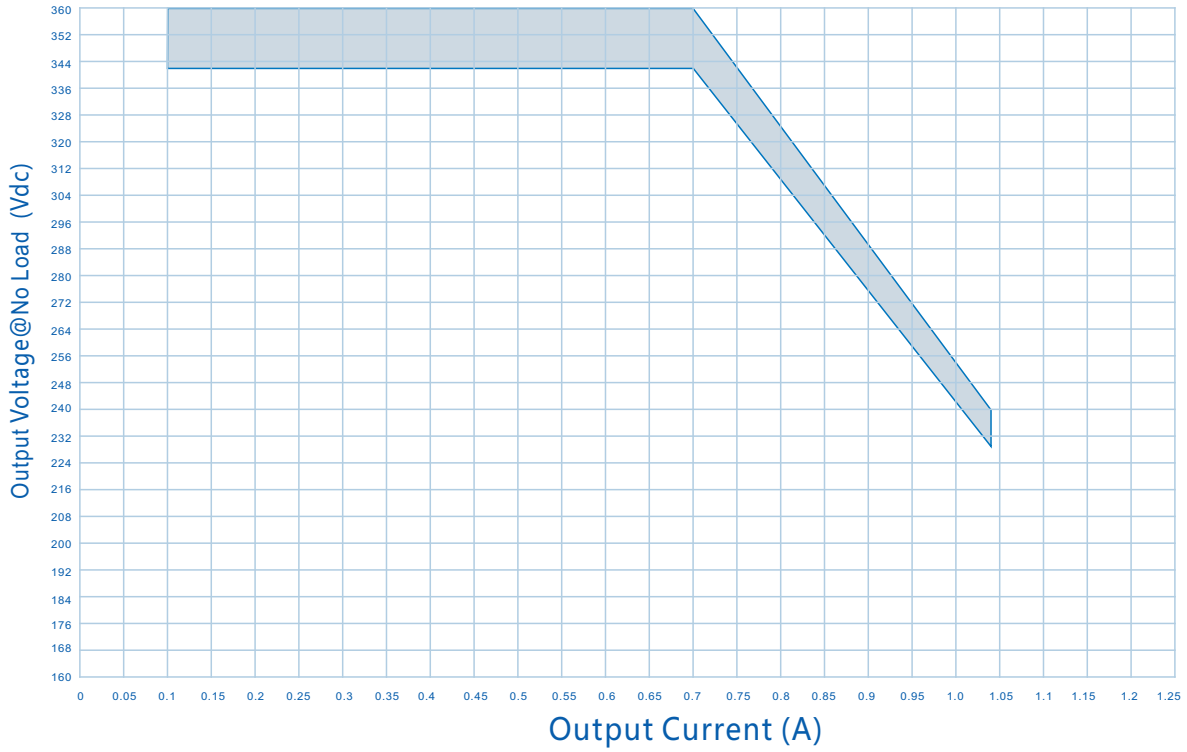


SS-240M Series LED Driver

Performance Curves:

No load voltage VS. Output current

SS-240M-343BH



SS-240M Series LED Driver

Constant Lumen Output

Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

Programming connection diagram :

Legacy Timer: Driver's output follows the pre-programmed timing curve after turn-on.

Auto-Adjust by Percentage: Driver's output will be adjusted by automatically changed dimming curve by the period percentage based on the latest 5 dimming curve.

Auto-Adjust by Mid-point: Driver's output will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.

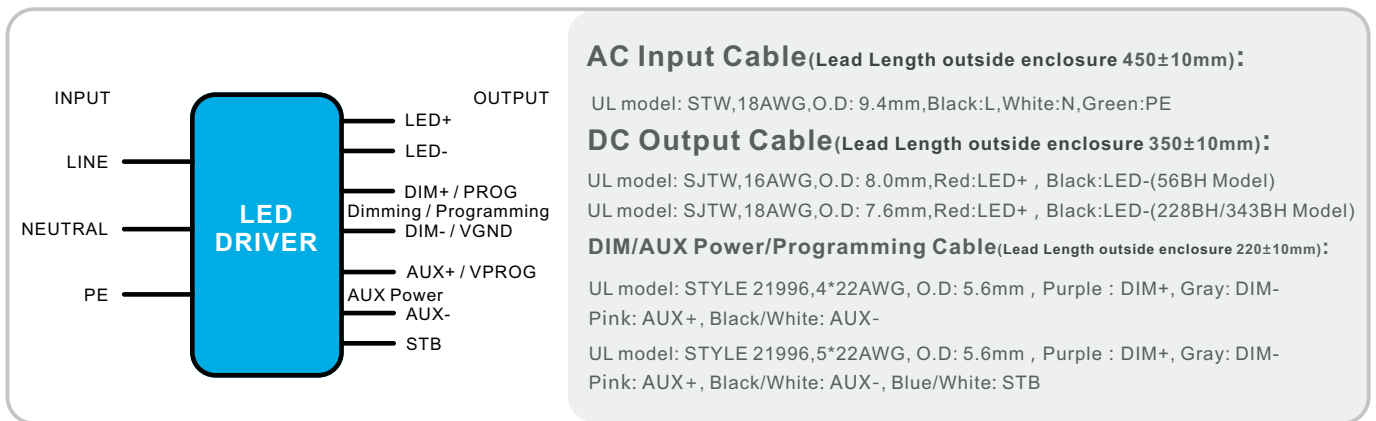


Note:

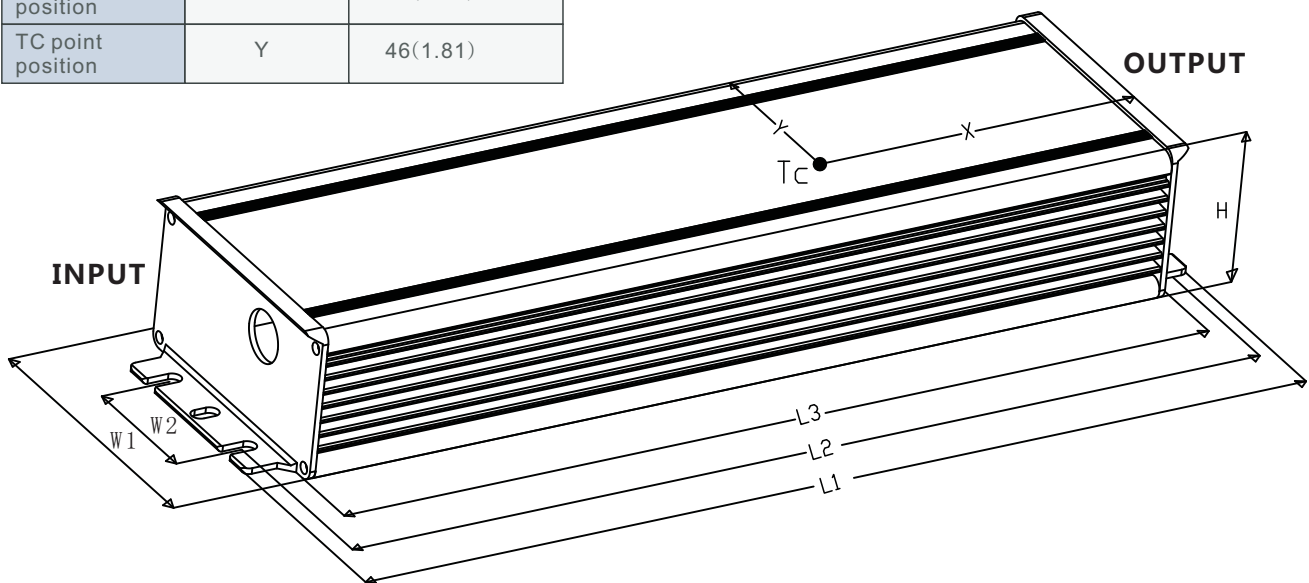
Programming could be completed by off-line mode either without turn on the driver or without PC, other than the traditional on-line mode.

SS-240M Series LED Driver

Mechanical characteristics(Unit: mm)



Name Description	Standard Code	mm(In.)
Case Length	L3	230(9.06)
Case Width	W1	71(2.8)
Case Height	H	39.6(1.56)
Overall Length	L1	254(10)
Mounting Hole Length	L2	241(9.49)
Mounting Hole Width	W2	34(1.34)
TC point position	X	95(3.74)
TC point position	Y	46(1.81)



SS-240M Series LED Driver



Installation Tips

1. Dimming leads should be capped if not in use to avoid dimming circuit damage caused by external signals.

Package

- Outside carton dimension: L×W×H =493mm×385mm×116mm;
- 7PCS/Carton;
- Net weight/PC: 1.5kg;Gross weight/Carton: 11.5kg;
- Please refer to the product name, model number, manufacturer identification, quality inspection certificate, manufacturing date Etc. on the package. and LED power supply instruction manual in the package.

Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be shielded from direct sunshine, loaded/unloaded with caution.

Storage

The product storage meets the standard of the GB 3873 - 83.
Products should be rechecked if stock for over 1 year before installation.

RoHS

Products comply with European directive 2011/65/EC.

REVISION HISTORY

Version	Description of Change	Changed Date	Remark
V00	Original release	2018/10/18	
V01	Update structure diagram	2019/04/04	
V02	Update performance curve	2019/05/29	
V03	Update cable length & programming illustration	2019/07/25	

