MEAN WELL NPF-120 Series Constant Voltage Plus Constant Current LED Driver Owner's Manual

Contents

MEAN WELL NPF-120 Series Constant Voltage Plus Constant Current LED Driver

NPF-120 series

120W Constant Voltage + Constant Current LED Driver

SELV IP67 (CCC optional) Type HL CB

Features

- Constant Voltage + Constant Current mode output
- Plastic housing with Class II design
- Built-in active PFC function
- No load power consumption <0.15W
- IP67 rating for indoor or outdoor installations
- Typical lifetime>50000 hours
- 5 years warranty

Applications

- LED panel lighting
- LED downlight
- LED decorative lighting
- LED tunnel lighting
- Moving sign
- Type "HL" for use in Class I, Division 2 hazardous (Classified) location

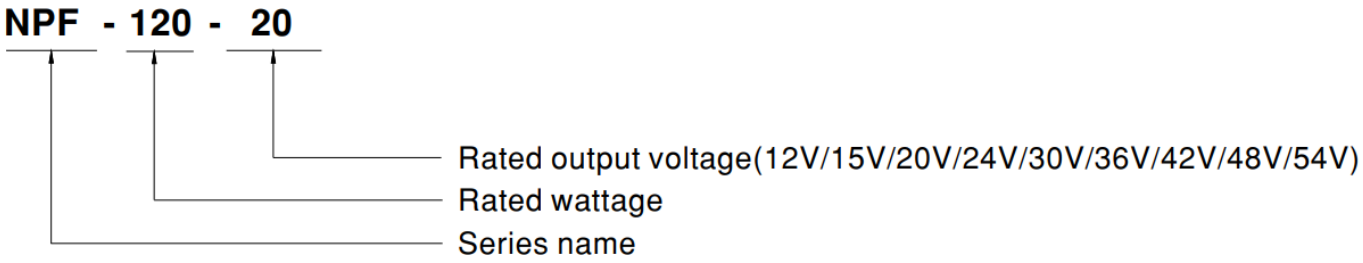
GTIN CODE

MW Search: https://www.meanwell.com/serviceGTIN.aspx

Description

NPF-120 series is a 120W AC/DC LED driver featuring the dual modes constant voltage and constant current output. NPF-120 operates from 90~305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the hign efficiency up to 90.5%, with the fanless design, the entire series is able to operate for -40°C ~ +90°C case temperature under free air convection. The entire series is rated with IP67 ingress protection level and is suitable to work for a variety of applications at dry, damp or wet locations.

Model Encoding



SPECIFICATION

MODEL			NPF-120-12	NPF-120-15	NPF-120-20	NPF-120-24	NPF-120-30	NPF-120-36	NPF-120-42	NPF-120-48	NPF-120-54
OUTPUT	DC VOLTAGE		12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note. 2		7.2 ~ 12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24 V	18 ~ 30V	21.6 ~ 36 V	25.2 ~ 42 V	28.8 ~ 48 V	32.4 ~ 54 V
	RATED CURRENT		10A	8A	6A	5A	4A	3.4A	2.9A	2.5A	2.3A
	RATED POWER	Note. 5	120 W	120W	120W	120 W	120 W	122. 4W	121. 8W	120 W	124. 2W
	RIPPLE & NOISE (max.) Note.3		150 mVp-p	150mVp-p	150mVp-p	150 mVp-p	200 mVp-p	200 mVp-p	250 mVp-p	250 mVp-p	350 mVp-p
	VOLTAGE TOLERANCE Note.4		±4.0 %	±4.0%	±4.0%	±4.0 %	±3.0 %	±2.0 %	±1.0 %	±1.0 %	±1.0 %
	LINE REGULATION		±0.5 %	±0.5%	±0.5%	±0.5 %	±0.5 %	±0.5 %	±0.5 %	±0.5 %	±0.5 %
	LOAD REGULATION		±2.0 %	±1.5%	±1.0%	±0.5 %	±0.5 %	±0.5 %	±0.5 %	±0.5 %	±0.5 %
	SETUP, RISE TIME Note.6		500ms, 80ms 115VAC / 230VAC								
	HOLD UP TIME (Typ.)		16ms/230VAC	16ms/115VAC							
	VOLTAGE RANGE	Note. 5	90 ~ 305VAC 127 ~ 431VDC (Please refer to “STATIC CHARACTERISTIC” section)								
	FREQUENCY RANGE		47 ~ 63Hz								
	POWER FACTOR		PF≧0.97/115VAC, PF≧0.96/230VAC, PF≧0.94/277VAC@full load (Please refer to “POWER FACTOR (PF) CHARACTERISTIC” section)								

INPUT	**TOTAL HARMONIC DISTORTION**	THD< 20%(@load≧60%/115VC,230VAC; @load≧75%/277VAC) (Please refer to “TOTAL HARMONIC DISTORTION(THD)” section)								
	EFFICIENCY (Typ.)	89%	89%	90%	90.5 %	89.5 %	90%	90%	90%	90.5 %
	AC CURRENT	1.3A / 115VAC	0.65A / 230VAC	0.55A / 277VAC						
	INRUSH CURRENT(Typ.)	COLD START 60A(twidth=520μs measured at 50% Ipeak) at 230VAC; Per NEMA 410								
	MAX. No. of PSUs on 16A CIRCUIT BREAKER	4 units (circuit breaker of type B) / 6 units (circuit breaker of type C) at 230VAC								
	LEAKAGE CURRENT	<0.25mA / 277VAC								
	NO LOAD POWER CONSUMPTION	<0.15W								
PROTECTION	**OVER CURRENT**	95 ~ 108%								
		Constant current limiting, recovers automatically after fault condition is removed								
	SHORT CIRCUIT	Hiccup mode, recovers automatically after fault condition is removed								
	OVER VOLTAGE	15 ~ 17V	17.5 ~ 21 V	23 ~ 27V	28 ~ 34V	34 ~ 40V	41 ~ 46V	46 ~ 54V	54 ~ 60V	59 ~ 66V
		Shut down and latch off o/p voltage, re-power on to recover								
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	**WORKING TEMP.**	Tcase=-40 ~ +90℃ (Please refer to “ OUTPUT LOAD vs TEMPERATURE” section)								
	MAX. CASE TEMP.	Tcase=+90℃								
	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)								
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
	SAFETY STANDARDS Note.8	UL8750(type”HL”), CSA C22.2 No. 250.13-12, EN BS EN/EN61347-1, BS EN/EN61347-2-13 independent, BS EN/EN62384, EAC TP TC 004,GB19510.1,GB19510.14, IP67 approved; Design refer to BS EN/EN60335-1								

SAFETY & EMC	**WITHSTAND VOLTAGE**	I/P-O/P:3.75KVAC
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25℃/ 70% RH
	EMC EMISSION Note.8	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@load≧60%) ; BS EN/EN61000-3-3; GB/T 17743, GB17625.1, EAC TP TC 020
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11; BS EN/EN61547, light industry level (surge immunity Line-Line 2KV); EAC TP TC 020
OTHERS	**MTBF**	2632.6K hrs min. Telcordia SR-332 (Bellcore) ; 295.2Khrs min. MIL-HDBK-217 F (25℃)
	DIMENSION	191*63*37.5mm (L*W*H)
	PACKING	0.97Kg; 15pcs/15.6Kg/0.87CUFT

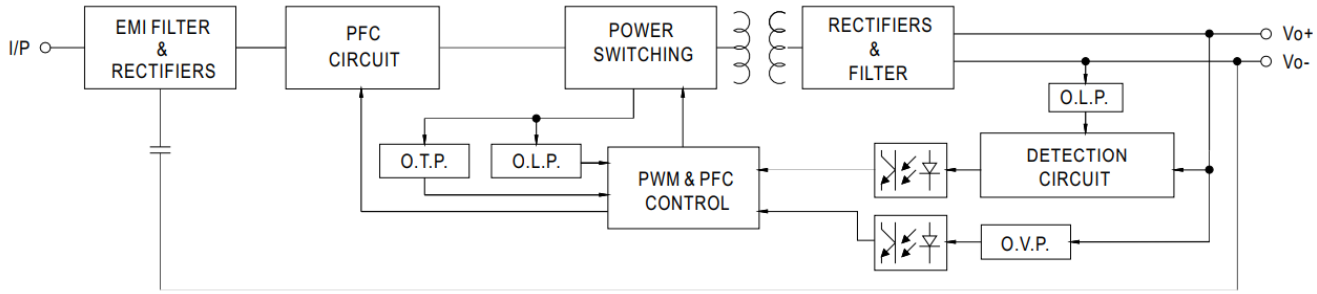
NOTE

1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25℃ of ambient temperature.
2. Please refer to “DRIVING METHODS OF LED MODULE”.
3. Ripple & noise are measured at 20MHz of bandwidth by using a 12″ twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
4. Tolerance : includes set up tolerance, line regulation and load regulation.
5. De-rating may be needed under low input voltages. Please refer to “STATIC CHARACTERISTIC” sections for details.
6. Length of set up time is measured at first cold start. Turning ON/OFF the driver may lead to increase of the set up time.
7. The driver is considered as a component that will be operated in combination with 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. (as available on **https://www.meanwell.com//Upload/PDF/EMI_statement_en.pdf**)
8. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly tc point (or TMP, per DLC), is about 75℃ or less.
9. Please refer to the warranty statement on MEAN WELL’s website at **http://www.meanwell.com**
10. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).
11. For any application note and IP water proof function installation caution, please refer our user manual before using. **https://www.meanwell.com/Upload/PDF/LED_EN.pdf**

※ Product Liability Disclaimer For detailed information, please refer to **https://www.meanwell.com/serviceDisclaimer.aspx**

BLOCK DIAGRAM

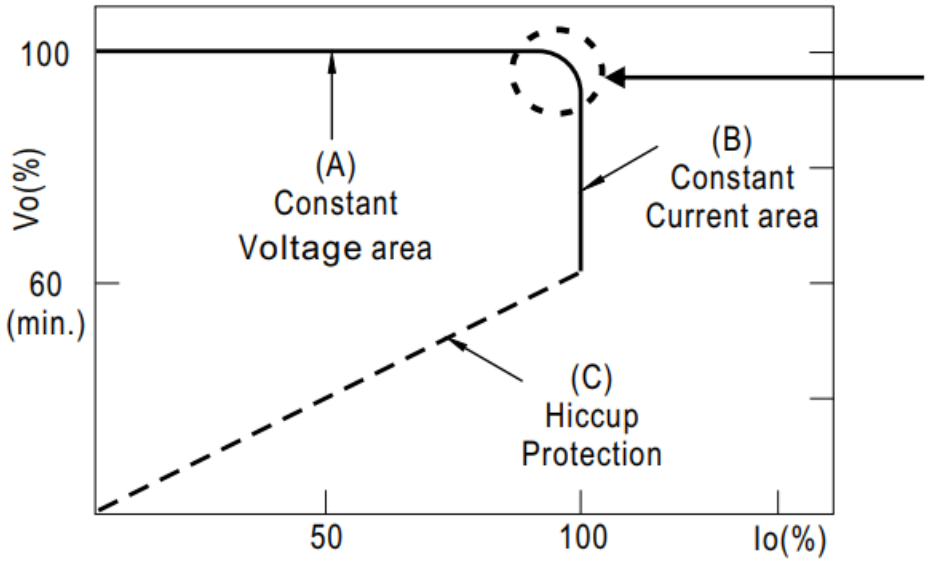
PFC fosc : 50~120KHz
PWM fosc : 60~130KHz



DRIVING METHODS OF LED MODULE

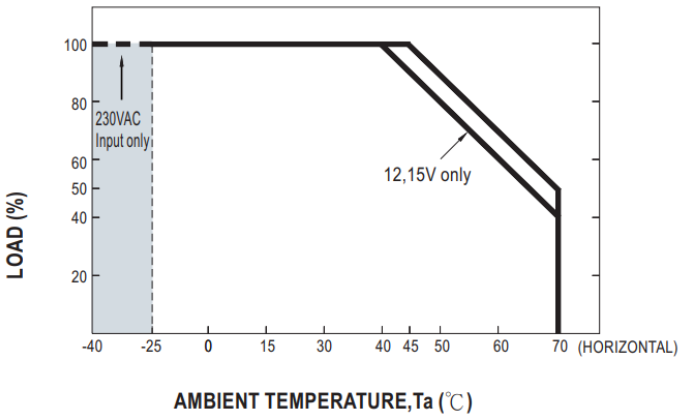
This series is able to work in either Constant Current mode (a direct drive way) or Constant Voltage mode (usually through additional DC/DC driver) to drive the LEDs.

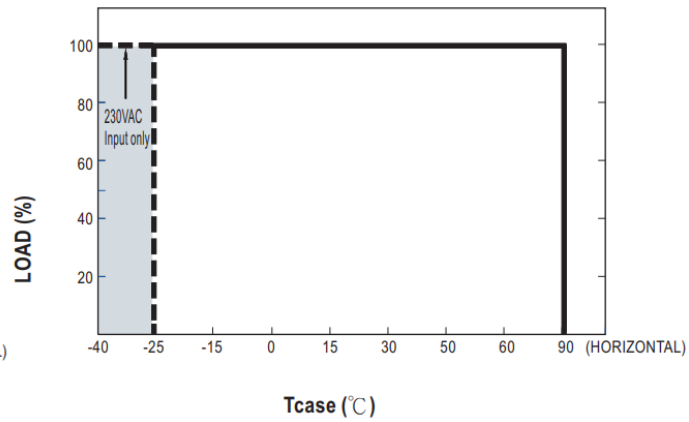
In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.
Should there be any compatibility issues, please contact MEAN WELL.



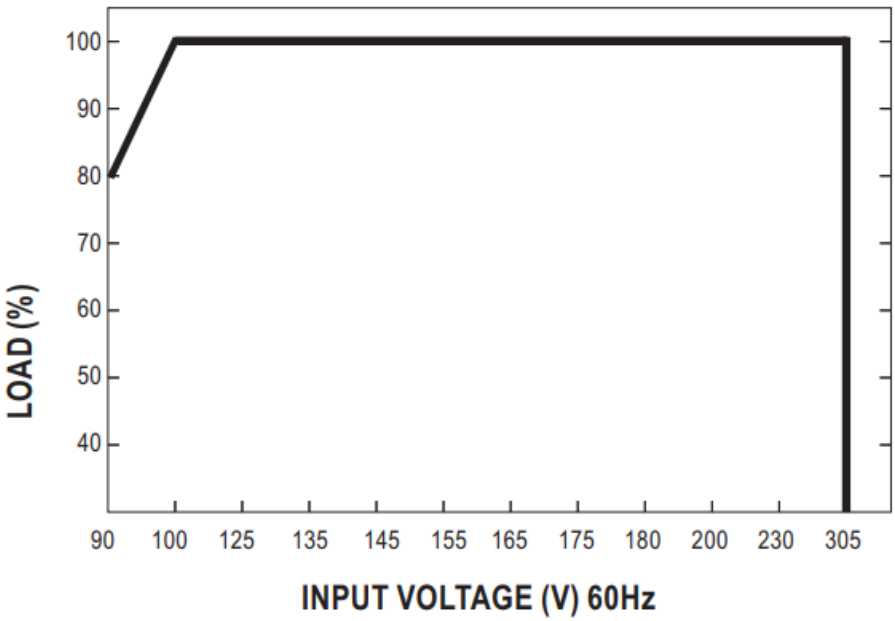
Typical output current normalized by rated current (%)

OUTPUT LOAD vs TEMPERATURE



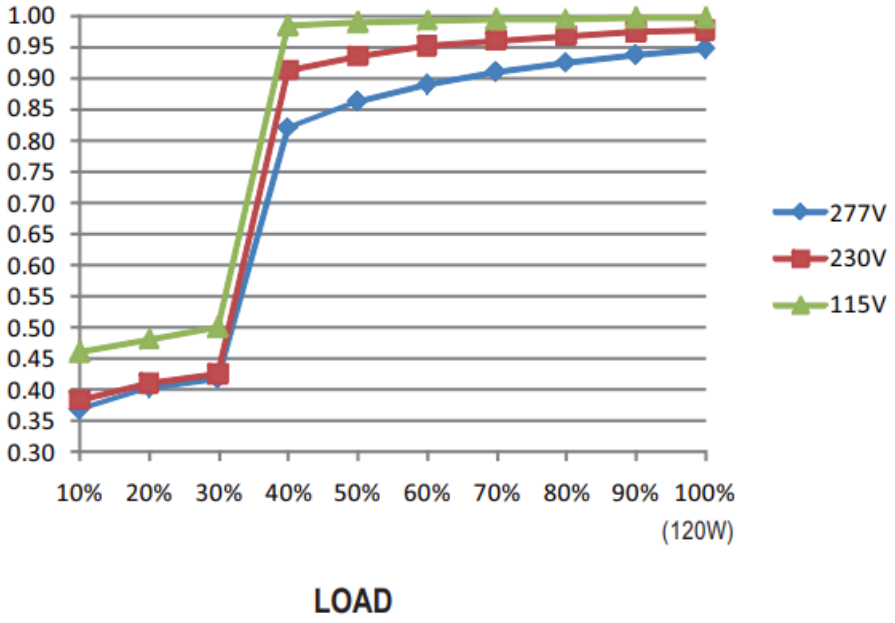


STATIC CHARACTERISTIC



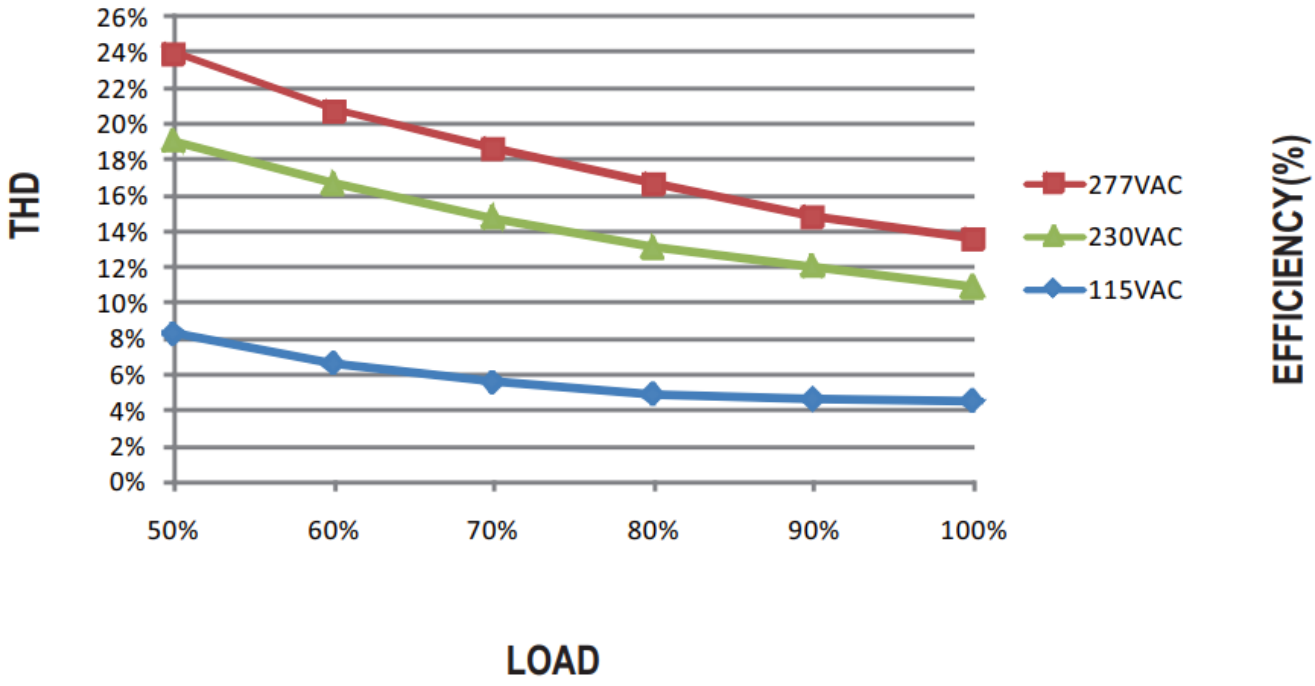
※De-rating is needed under low input voltage.

POWER FACTOR (PF) CHARACTERISTIC



TOTAL HARMONIC DISTORTION (THD)

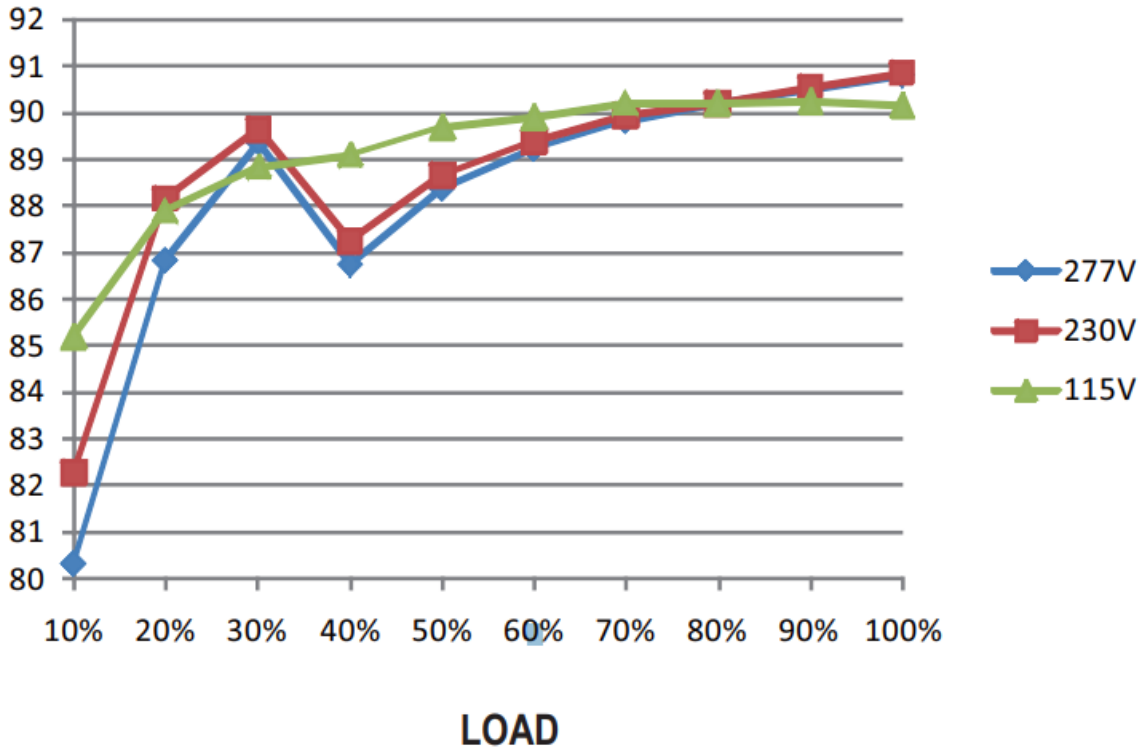
48V Model, Tcase at 80°C



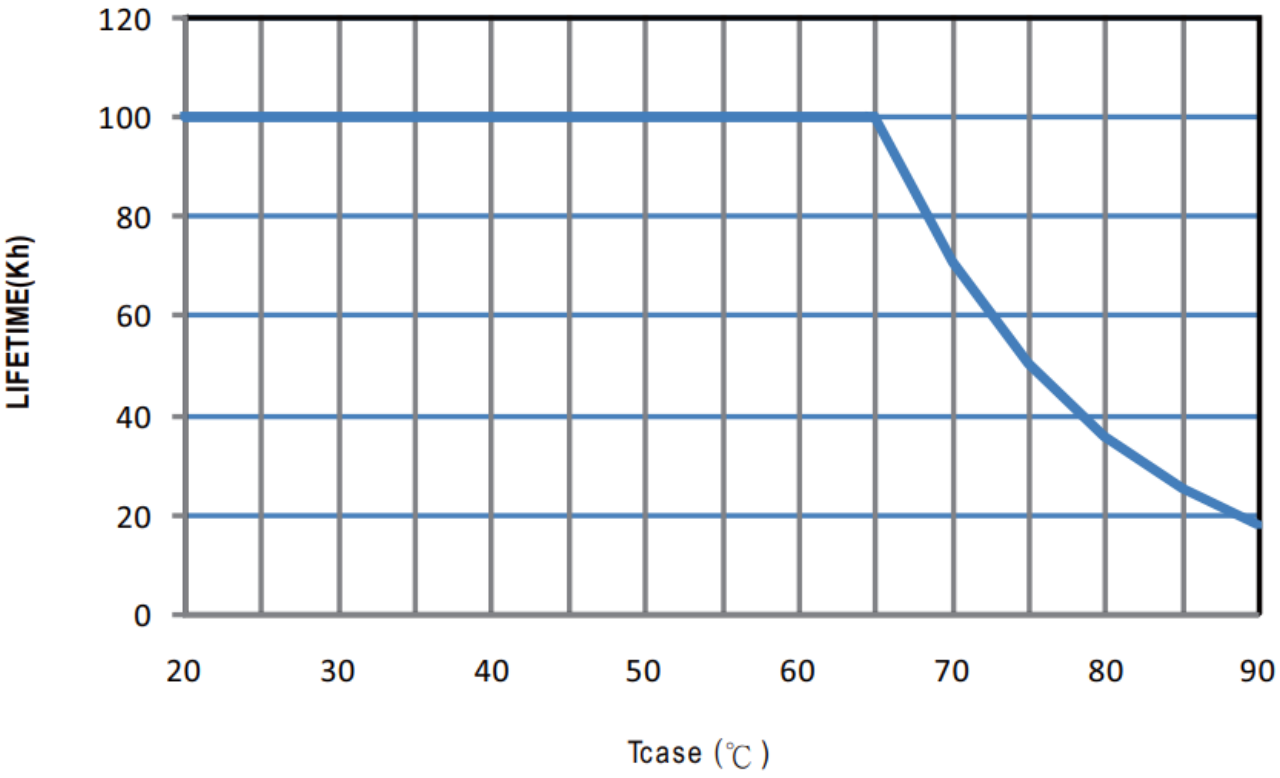
EFFICIENCY vs LOAD

NPF-120 series possess superior working efficiency that up to 90% can be reached in field applications.

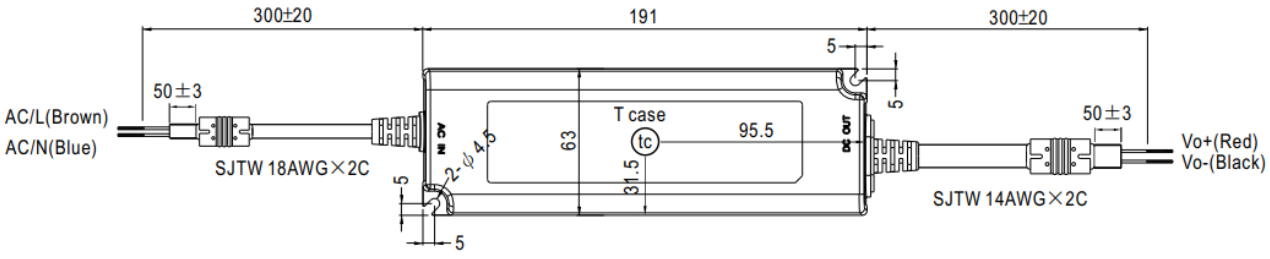
48V Model, Tcase at 80℃



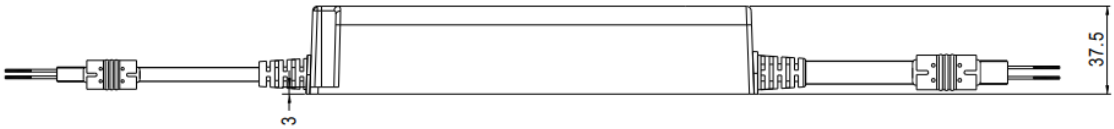
LIFE TIME



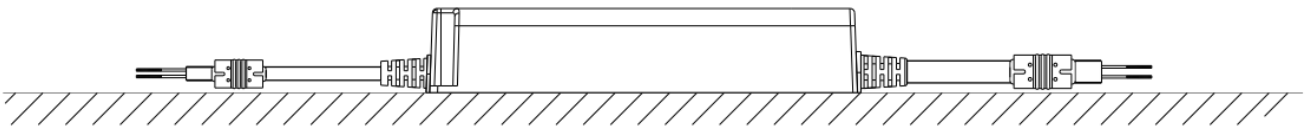
MECHANICAL SPECIFICATION



• ⓣⓒ : Max. Case Temperature



Recommend Mounting Direction



INSTALLATION MANUAL

Please refer to: http://www.meanwell.com/manual.html

Documents / Resources

	MEAN WELL NPF-120 Series Constant Voltage Plus Constant Current LED Driver [pdf] Owner's Manual NPF-120-12, NPF-120-15, NPF-120-20, NPF-120-24, NPF-120-30, NPF-120-36, NPF-120-42, NPF-120-48, NPF-120-54, NPF-120 Series Constant Voltage Plus Constant Current LED Driver, NPF-120 Series, Constant Voltage Plus Constant Current LED Driver, Constant Current LED Driver, Current LED Driver, LED Driver

References

- User Manual