

NPF-120 Series

120W Single Output Switching Power Supply



Features

- Universal AC input/Full range (up to 305VAC)
- Built-in active PFC function
- High efficiency up to 90.5%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Fully isolated plastic case
- Fully encapsulated with IP67 level
- Class II power unit, no FG
- Suitable for dry/damp/wet locations
- No load power consumption <0.15W
- 5 years warranty



Specification

	Voltage	90 ~ 305VAC		127 ~ 431VDC							
	Frequency	47 ~ 63 Hz									
	Power Factor	PF>0.97/115VAC, PF>0.96/230VAC, PF>0.94/277VAC at full load (please refer to "Power Factor Characteristic" curve)									
INPUT	Total Harmonic Distortion	THD<20% when output loading ≥60% at 115VAC/230VAC input and output loading ≥75% at 277VAC input									
	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									
	Max No of PSUs on 16A Circuit Breaker	4 units (type B) / 6 units (type C) at 230VAC									
	Leakage	<0.25mA/277VAC									
	Efficiency	89%	89%	90%	90.5%	89.5%	90%	90%	90%	90.5%	
	MODEL No.	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	
	Voltage	12V	15V	20V	24V	30V	36V	42V	48V	54V	
	Constant Current Region	7.2 ~ 12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V	
	Rated Current	10A	8A	6A	5A	4A	3.4A	2.9A	2.5A	2.3A	
	Rated Power	120W	120W	120W	120W	120W	122.4W	121.8W	120W	124.2W	
OUTPUT	R&N	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	250mVp-p	250mVp-p	350mVp-p	
	Voltage Tolerance	±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	500ms, 80ms at 95% load 230VAC/115									
	Hold Up Time	16ms/230VAC	16ms/115VAC at full load								
		Over Current	95 ~ 108% Protection Type: Constant current limiting, recovers automatically after fault condition is removed								
PROTECTION	Short Circuit	Hiccup mode, recovers automatically after fault condition is removed									
	Over Voltage	15~17V	17.5 ~ 21V	23 ~ 27V	28 ~ 34V	34 ~ 40V	41 ~ 46V	46~54V	54~60V	59~66V	
	Over Temperature	Shut down o/p voltage, re-power on to recover									
	Working Temperature	Tcase= -40 ~ +90°C (Refer to derating curve)									
ENVIRONMENT	Working Humidity	20 ~ 95% RH non-condensing									
	Storage temp., Humidity	-40 ~ +80°C, 10~95% RH									
	Temp. Co-efficient	±0.03%/°C (0~50°C)									
	Vibration	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes									
	Safety Standards	UL8750(type"HL"), CSAC22.2 No. 250.13-12, ENEC EN61347-1, EN61347-2-13 independent, EN62384, EAC TP TC 004,GB19510.1,GB19510.14, IP67 approved; Design refer to EN60335-1									
SAFETY & EMC	Withstand Voltage	I/P-O/P:3.75KVAC									
	Isolation Resistance	I/P-OP:100M Ohms / 500VDC / 25°C / 70%RH									
	EMC Emission	Compliance to EN55015,EN61000-3-2 Class C (@load;;60%); EN61000-3-3; GB17743 and GB17625.1, EAC TP TC 020									
	EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8, 11; EN61547, light industry level (surge immunity Line-Line 2KV); EAC TP TC 020									
OTHERS	M.T.B.F.	295.1K hrs min. MIL-HDBK-217F (25°C)									
	Packaging	0.97Kg; 15pcs/15.6Kg/0.78CUFT									

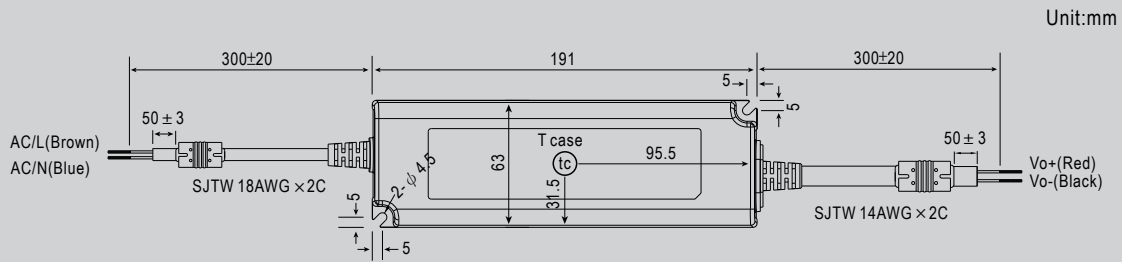
1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1µf & 47µf parallel capacitor.
3. Tolerance: includes set up tolerance, line regulation and load regulation.
4. Length of setup time is measured at cold first start. Turning ON/OFF the power supply may lead to increase of the set up time.
5. The power supply 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.
6. The model certified for CCC (GB 19510.14, GB19510.1, GB17743 and GB17625.1) is an optional model.
7. This series meets the typical life expectancy of >50,000 hours of operation when Tcase, particularly (Tc)point (or TMP, per DLC), is about 80°C or less.

NPF-120 Series

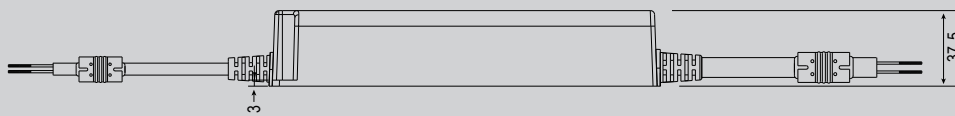
120W Single Output Switching Power Supply



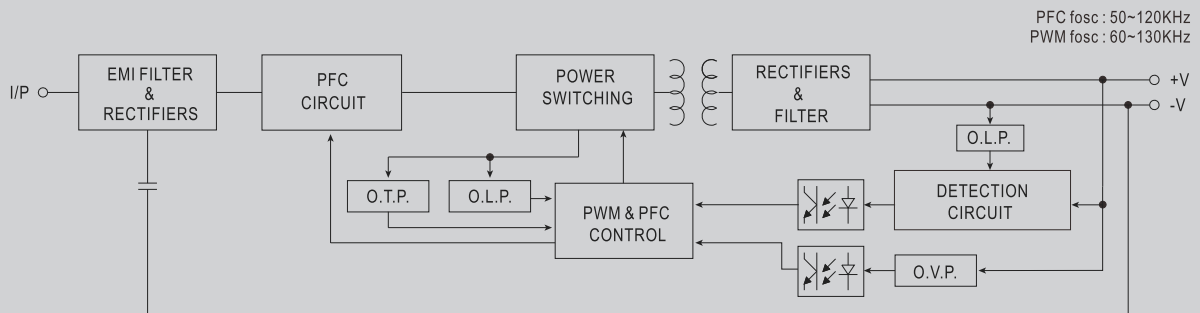
Mechanical Specification



• (tc) : Max. Case Temperature

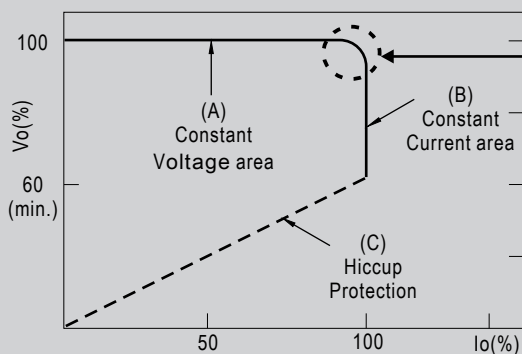


Block Diagram



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.

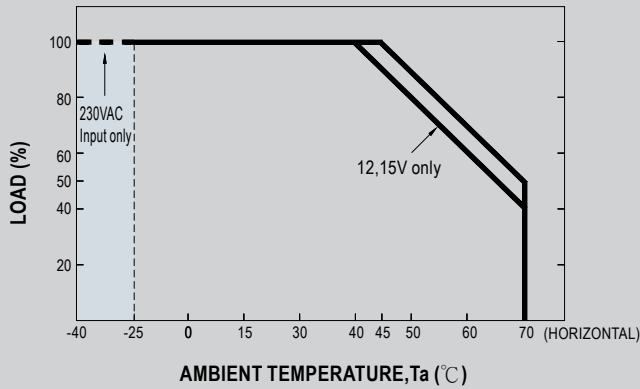
Typical output current normalized by rated current (%)

NPF-120 Series

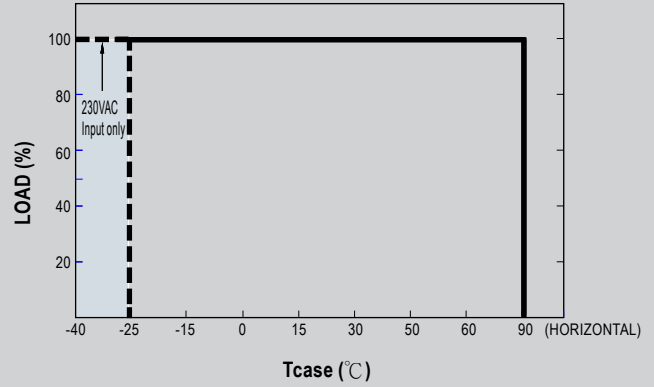
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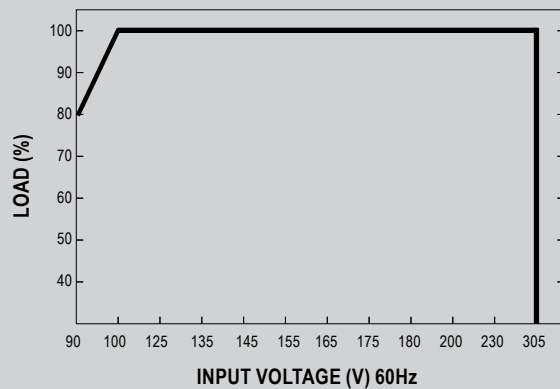
Output Load vs Temperature



Efficiency vs Load (48V Model)



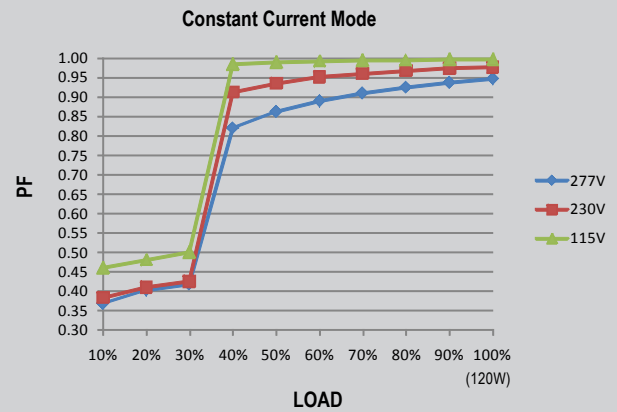
Static Characteristic



De-rating is needed under low input voltage.

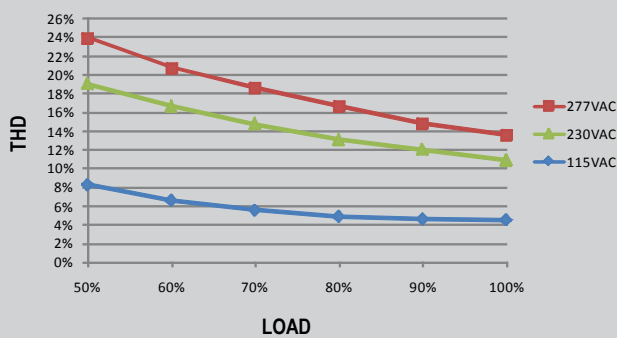
Power Factor (PF) characteristic

Tcase at 80 °C



Total Harmonic Distortion (THD)

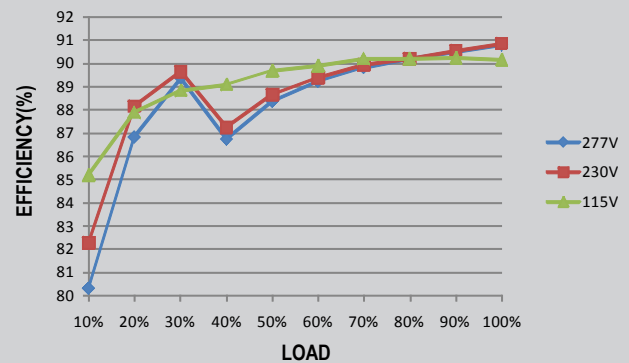
48V Model, Tcase at 80 °C



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°C



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Mechanical Specification

