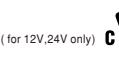




60W Single Output LED Driver

NPF-60D series



■ Features

- Plastic housing with class II design
- Built-in active PFC function
- Class 2 power unit
- Standby power consumption <0.5W
- IP67 rating for indoor or outdoor installations
- Function: 3 in 1 dimming (dim-to-off)
- Typical lifetime >50000hours
- 5 years warranty

■ Description

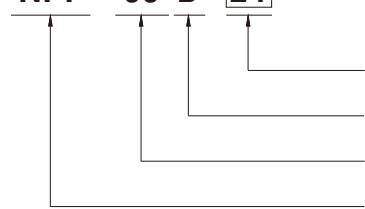
NPF-60D series is a 60W AC/DC LED driver featuring the constant current mode output.

NPF-60D operates from 90~305VAC and offers models with different rated voltage ranging between 12V and 54V. Thanks to the high efficiency up to 90%, with the fanless design, the entire series is able to operate for -40°C~+85°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. NPF-60D is equipped with the 3 in 1 dimming function so as to provide the design flexibility for LED lighting system.

■ Model Encoding

NPF - 60 D -24



Output voltage(12,15,20,24,30,36,42,48,54V)

Built-in 3 in 1 dimming function

Rated wattage

Series name

■ 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

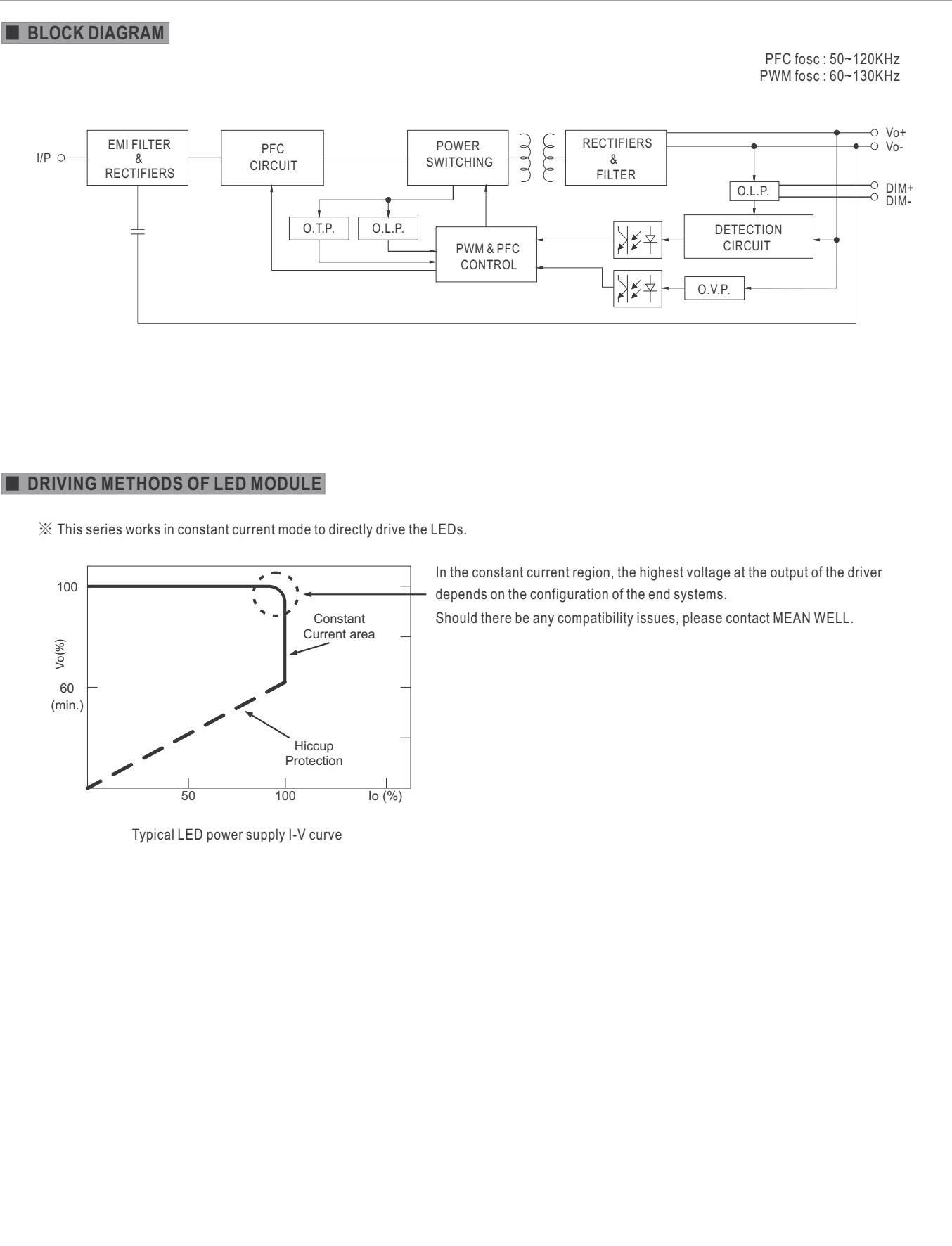
SPECIFICATION

MODEL	NPF-60D-12	NPF-60D-15	NPF-60D-20	NPF-60D-24	NPF-60D-30	NPF-60D-36	NPF-60D-42	NPF-60D-48	NPF-60D-54								
OUTPUT	RATED CURRENT	5A	4A	3A	2.5A	2A	1.67A	1.43A	1.25A								
	RATED POWER	60W	60W	60W	60W	60W	60.12W	60.06W	60W								
	CONSTANT CURRENT REGION	7.2 ~ 12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V								
	CURRENT RIPPLE	5.0% max. @rated current															
	CURRENT TOLERANCE	±5.0%															
SET UP TIME Note.3		500ms/115VAC, 230VAC															
INPUT	VOLTAGE RANGE Note.2	90 ~ 305VAC 127 ~ 431VDC (Please refer to "STATIC CHARACTERISTIC" section)															
	FREQUENCY RANGE	47 ~ 63Hz															
	POWER FACTOR (Typ.)	PF ≥ 0.97/115VAC, PF ≥ 0.95/230VAC, PF ≥ 0.92/277VAC@full load (Please refer to "POWER FACTOR (PF) CHARACTERISTIC" section)															
	TOTAL HARMONIC DISTORTION	THD < 20%(@load ≥ 60%/115VAC, 230VAC; @load ≥ 75%/277VAC) (Please refer to "TOTAL HARMONIC DISTORTION(THD)" section)															
	EFFICIENCY(Typ.)	86%	87%	88%	89%	90%	90%	90%	90%								
	AC CURRENT (Typ.)	0.8A / 115VAC	0.4A / 230VAC	0.32A / 277VAC													
	INRUSH CURRENT(Typ.)	COLD START 50A(twidth=270μs measured at 50% Ipeak) at 230VAC; Per NEMA 410															
	MAX. NO. of PSUs on 16A CIRCUIT BREAKER	9 units (circuit breaker of type B) / 16 units (circuit breaker of type C) at 230VAC															
	LEAKAGE CURRENT	<0.25mA / 277VAC															
STANDBY POWER CONSUMPTION		<0.5W															
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 ~ 21V	23 ~ 27V	28 ~ 34V	34 ~ 40V	41 ~ 46V	46 ~ 54V	54 ~ 60V								
		Shut down 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 ~ +85°C (Please refer to " OUTPUT LOAD vs TEMPERATURE" section)															
	MAX. CASE TEMP.	Tcase=+85°C															
	WORKING HUMIDITY	20 ~ 95% RH non-condensing															
	STORAGE TEMP., HUMIDITY	-40 ~ +80°C, 10 ~ 95% RH															
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)															
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes															
SAFETY & EMC	SAFETY STANDARDS	UL8750(type"HL"), UL879(for 12V,24V only), CSA C22.2 No. 250.13-12, ENEC BS EN/EN61347-1, BS EN/EN61347-2-13, BS EN/EN62384 independent, EAC TP TC 004,GB19510.1,GB19510.14, IP67 approved ; Design refer to BS EN/EN60335-1															
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC															
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH															
	EMC EMISSION	Compliance to BS EN/EN55015, BS EN/EN61000-3-2 Class C (@ load ≥ 60%) ; BS EN/EN61000-3-3; GB17743 and 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	1016.1K hrs min. Telcordia SR-332 (Bellcore) ; 314.05K hrs min. MIL-HDBK-217F (25°C)															
	DIMENSION	150*53*35mm (L*W*H)															
	PACKING	0.49Kg;30pcs/15.7Kg/1.0CUFT															
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated current and 25°C of ambient temperature. 2. De-rating may be needed under low input voltages. Please refer to "STATIC CHARACTERISTIC" sections for details. 3. 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. 4. The standby power consumption is specified for 230VAC. 5. 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. 6. 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°C or less. 7. Please refer to the warranty statement on MEAN WELL's website at http://www.meanwell.com 8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 9. 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																	

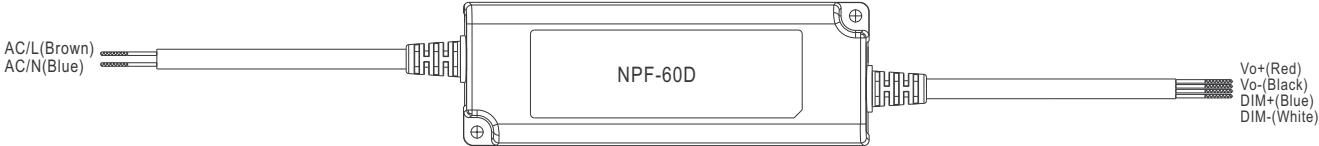


60W Single Output LED Driver

NPF-60D series



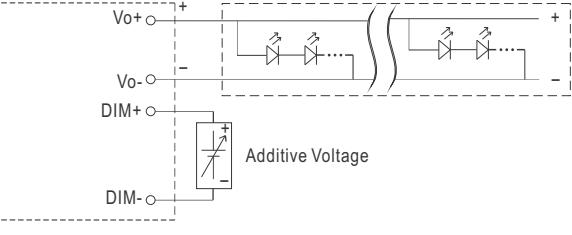
DIMMING OPERATION



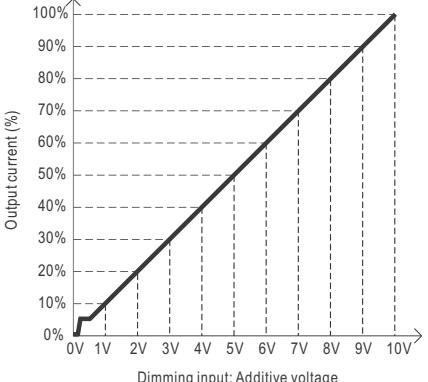
※ 3 in 1 dimming function

- Output constant current level can be adjusted by applying one of the three methodologies between DIM+ and DIM-:
 - 0 ~ 10VDC, or 10V PWM signal or resistance.
 - Direct connecting to LEDs is suggested. It is not suitable to be used with additional drivers.
 - Dimming source current from power supply: 100µA (typ.)

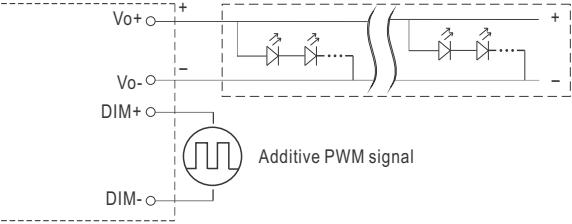
◎ Applying additive 0 ~ 10VDC



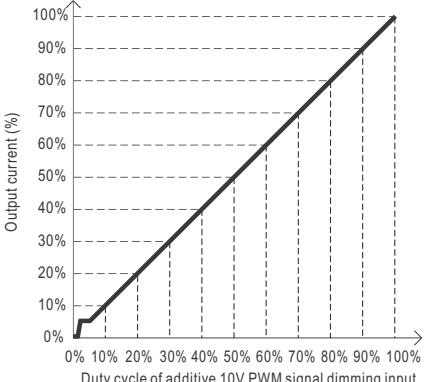
"DO NOT connect 'DIM- to Vo-'"



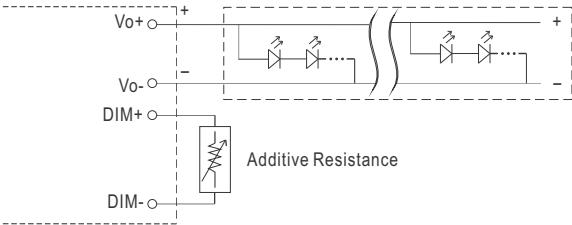
◎ Applying additive 10V PWM signal (frequency range 100Hz ~ 3KHz):



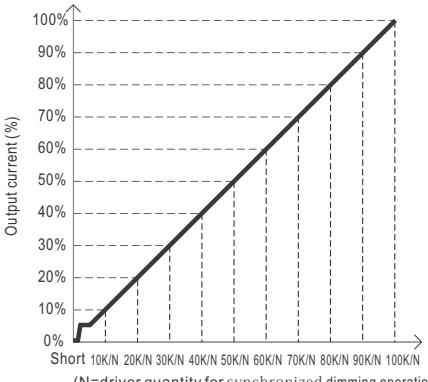
"DO NOT connect 'DIM- to Vo-'"



◎ Applying additive resistance:



"DO NOT connect 'DIM- to Vo-'"



(N=driver quantity for synchronized dimming operation)

Note : 1. Min. dimming level is about 6% and the output current is not defined when 0% < Iout < 6%.

2. The output current could drop down to 0% when dimming input is about 0kΩ or 0Vdc, or 10V PWM signal with 0% duty cycle.

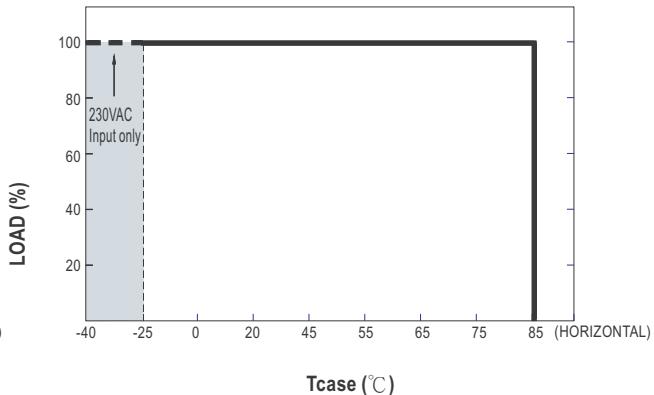
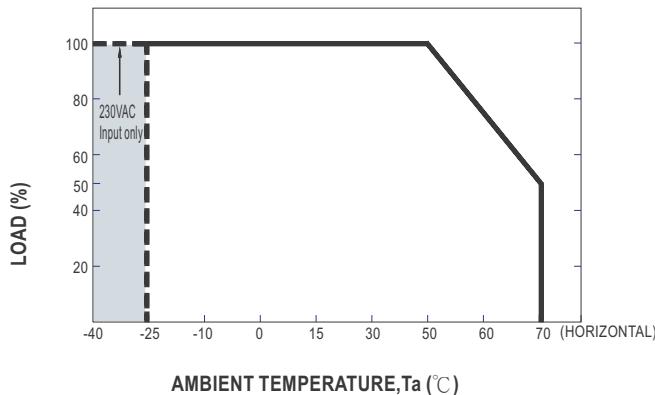
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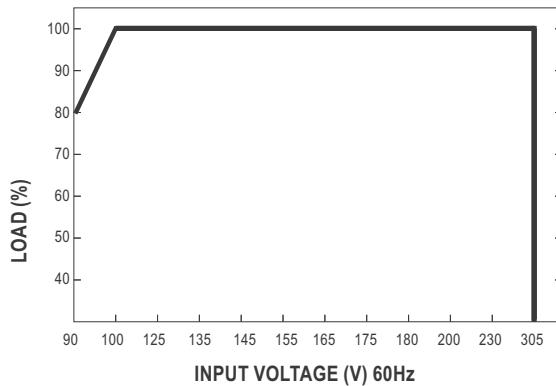
60W Single Output LED Driver

NPF-60D series

■ OUTPUT LOAD vs TEMPERATURE

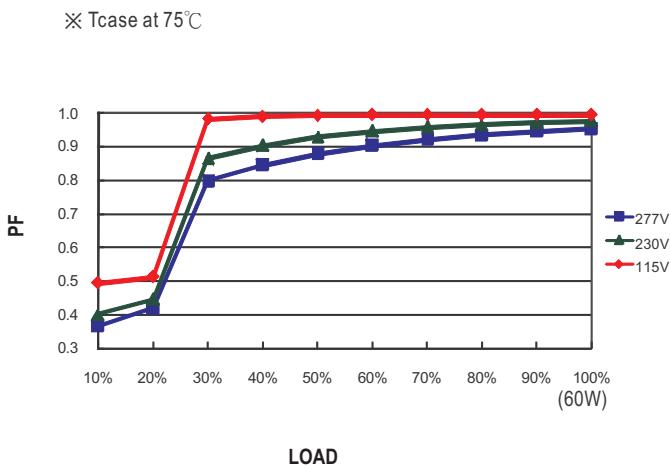


■ STATIC CHARACTERISTIC



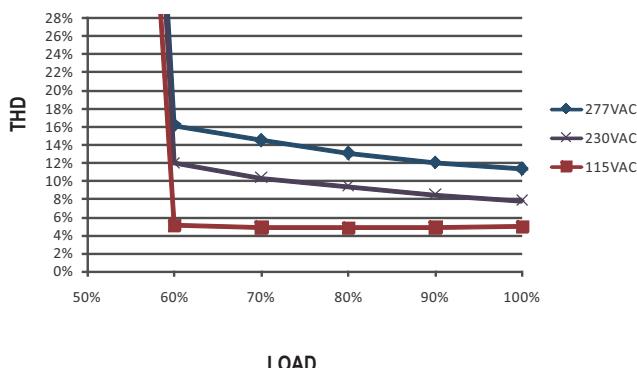
※ De-rating is needed under low input voltage.

■ POWER FACTOR (PF) CHARACTERISTIC



■ TOTAL HARMONIC DISTORTION (THD)

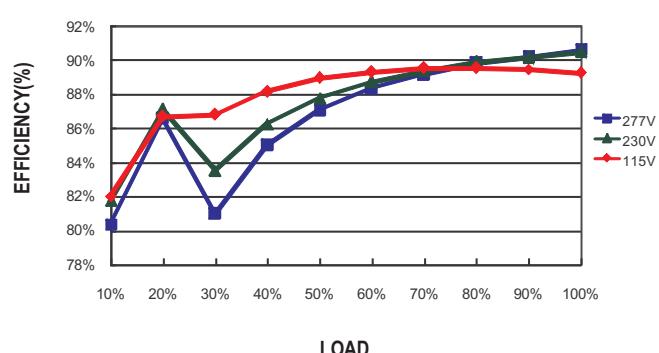
※ 48V Model, Tcase at 75°C

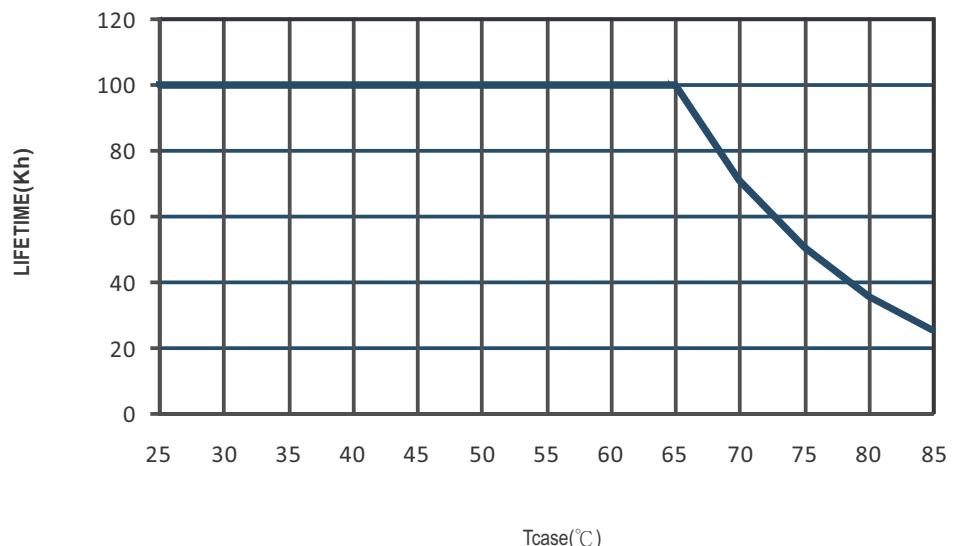


■ EFFICIENCY vs LOAD

NPF-60D series possess superior working efficiency that up to 90% can be reached in field applications.

※ 48V Model, Tcase at 75°C



LIFE TIME



60W Single Output LED Driver

NPF-60D series

