



Specification for Approval

Product Name: 42W Programmable Driver
Product Model: PHC-042M036
 Rev. A.1
Sample Date: —

CUSTOMER AUTHORIZED SIGNATURE		
Tested By	Checked By	Approved By
(Company seal)Return one copy to MOSO with approved signature and company seal.		

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Prepared By	Checked By	Approved By



ECN History

Rev.	Description of Change		Changed Date	Notes
	Before	After		
A.2	Original Release	---	2018-12-12	



Product Feature:

- ◆ Input Voltage: 90~305Vac;
- ◆ Offline programming through dimming wire;
- ◆ No stroboscopic;
- ◆ 2-in-1 dimming mode: 0-10Vdc, PWM dimming;
Dim-to-off;
- ◆ THD<10%;
- ◆ Surge protection: 4KV line-line, 6KV line-earth;
- ◆ Protection: Input OVP, Output OVP, SCP, OTP;
- ◆ IP67 design for indoor and outdoor applications;
- ◆ 5 years warranty.

Application

- ◆ LED street lighting, industrial lighting and landscape lighting.

DESCRIPTION

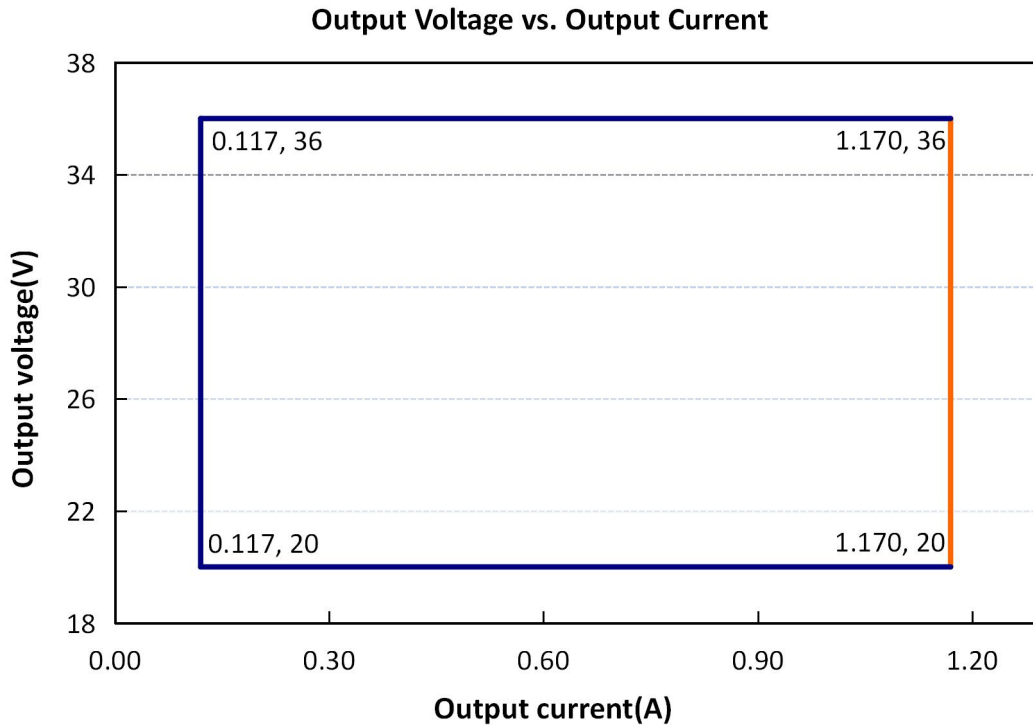
The PHC-042 is a 42W, constant-current, programming LED driver that operates from 90-305Vac input with excellent power factor and low THD. It is created for industrial lights, tunnel and street lights. The high efficiency of these drivers and compact metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input over voltage, output over voltage, short circuit, and over temperature.

Models

Model Number	Max Output Power (W)	Output Voltage Range (Vdc)	Output current (A)	Default Output Setting	Typical Efficiency	Typical THD	Typical PF	
							120Vac	230Vac
PHC-042M036	42	20-36	0.117~1.170	20~36V/1.170A	85%	10%	0.98	0.96

Remark: All parameters not specially mentioned are measured at 230Vac input, full load and 25°C of ambient temperature.

OPERATING AREA I-V



INPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90Vac	100-277Vac	305Vac	Please refer to the derating curve
Input Frequency	47Hz	50/60 Hz	63Hz	
Leakage Current	-	-	0.70mA	277Vac/60Hz
Input AC Current	-	-	0.70A	120-277Vac with full load
Inrush Current	-	-	0.1A ² S	230Vac input, Ta=25°C (cold start)
Power Factor	0.96	0.98	-	120Vac with full load
	0.95	0.96	-	230Vac with full load
THD	-	15%	20%	120-277Vac with 70%-100% load
	-	10%	15%	120-230Vac with 80%-100% load

OUTPUT SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-8%	-	8%	
Total Output Current Ripple(pk-pk)	-	10%	20%	20MHz BW, full load & LED Load, ripple is different with difference LED load.
Startup Overshoot Current	-	5%	10%	120~277Vac & full load, LED Load
No Load Output Voltage PHC-042M036	-	-	50V	
Line Regulation	-8%	-	+8%	25°C±10°C ambient temperature, input voltage changes from 120Vac to 277Vac.
Load Regulation	-8%	-	+8%	25°C±10°C ambient temperature, 230Vac input, load changes from 60% to 100%.
Turn-on Delay Time	-	-	3S	120Vac, 100% load
	-	1S	2S	230Vac, 100% load

GENERAL SPECIFICATIONS

Parameter	Min.	Typ.	Max.	Notes
Efficiency @120Vac PHC-042M036	82%	83%	-	Measured at full load and 25°C ambient temperature
Efficiency @230Vac PHC-042M036	83%	85%	-	Measured at full load and 25°C ambient temperature
Efficiency @277Vac PHC-042M036	83%	85%	-	Measured at full load and 25°C ambient temperature
Dielectric Strength	Input-Output	-	3750Vac	10mA/60S
	Input-PE	-	1600Vac	
	Output- PE	-	1600Vac	
Grounding Resistance	-	-	0.1Ω	25A/60S
Insulation Resistance	50MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60S/25°C/70%RH
MTBF	-	200000Hours	-	230Vac, 80% load (MIL-HDBK-217F)
Lifetime	-	50000Hours	-	230Vac&100% load, 70°C case temperature, refer to lifetime VS Tc curve for details

Operating Case Temperature for Safety Tc _s	-40°C	-	+85°C	
Operating Case Temperature for Warranty Tc _w	-40°C	-	+70°C	5 Years Warranty Humidity: 10% to 95% RH
Storage Temperature	-40°C	-	+85°C	Humidity: 10% to 95% RH
Dimensions (L×W×H)mm	117*67*37			
Net Weight	490±50g/PCS			
Package	L480×W275×H208mm; 24PCS/Ctn.			

Note: All specifications are tested by Cree XLamp XP-G2 and typical measured at 230Vac and 25°C unless otherwise stated.

DIMMING

Parameter	Min.	Typ.	Max.	Notes	
0~10V Absolute Maximum Voltage on the V _{dim} (+) Pin	-	10V	-		
0~10V Source Current on V _{dim} (+)Pin	-	1mA	2mA		
Dimming Output Range	PHC-042M036	10% I _{max}	-	100% I _{max}	I _{max} =1.170A
	PHC-042M036	0.117A	-	1.170A	
Recommended Dimming Range for 0-10V	0V	-	10V	Default 0-10V/PWM dimming Dim-to-off	
PWM _{in} High Level	9.7V	-	10.3V		
PWM _{in} Low Level	0V	-	0.3V		
PWM _{in} Frequency Range	200Hz	-	2KHz		
PWM _{in} Duty Cycle	10%	-	100%		

SAFTY STANDARDS

Safety Category	Country / Territory	Standards	Whether have Certification
CCC	China	GB19510.1, GB19510.14	
CE	Europe	EN61347-1, EN61347-2-13	√
		EN62493	√
ENEC		EN62384	
CB	CB Countries	IEC61347-1, IEC61347-2-13	
BIS	India	IS 15885(PART 2/SEC 13)	
UL	USA	UL 8750	
CUL	Canada	CSA C22.2 No.250.13	
KC	South Korea	K61347-1, K61347-2-13	
PSE	Japan	J61347-1, J61347-2-13	
SAA	Australia	AS/NZS IEC 61347.2.13	
		AS/NZS 61347.1	

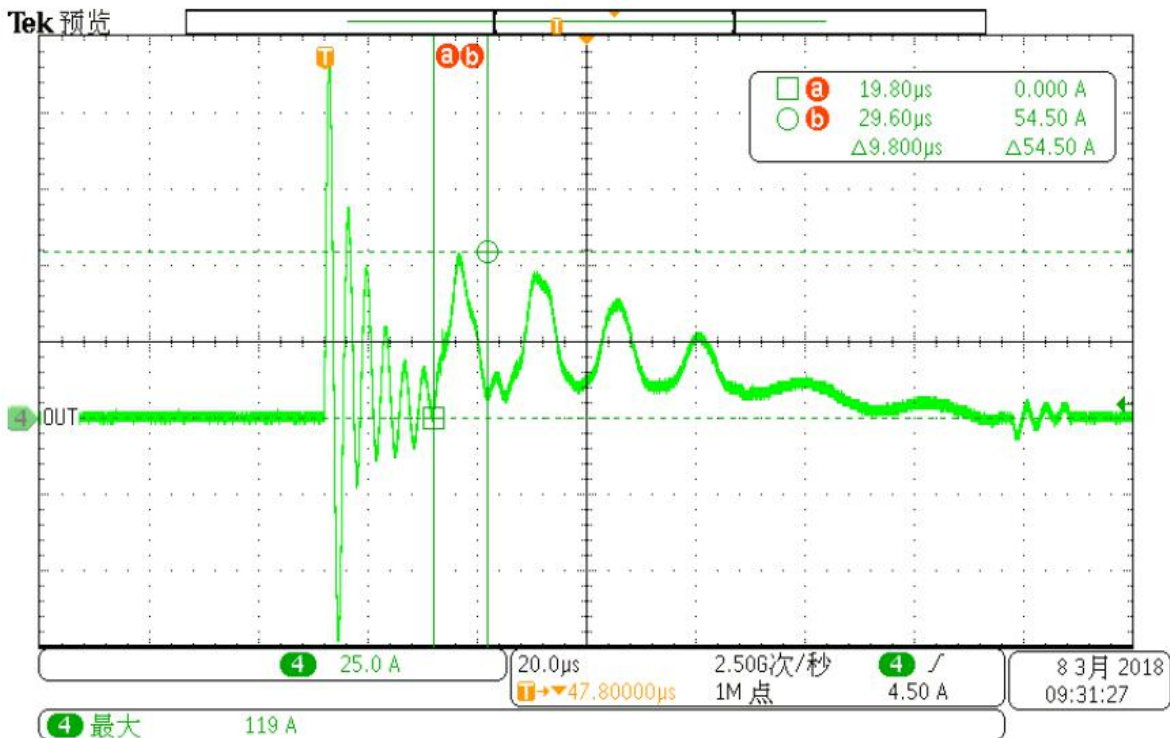
EMC COMPLIANCE

EMC Category	Country / Territory	Standards	Whether have Certification
CCC	China	GB/T 17743, GB 17625.1	
CE	Europe	EN 55015	√
		EN 61000-3-2, EN 61000-3-3	√
		EN61000-4-2,3,4,5,6,11	√
		EN 61547	√
KC	South Korea	K61547	
		K00015	
PSE	Japan	J55015	
FCC	USA	FCC part 15	

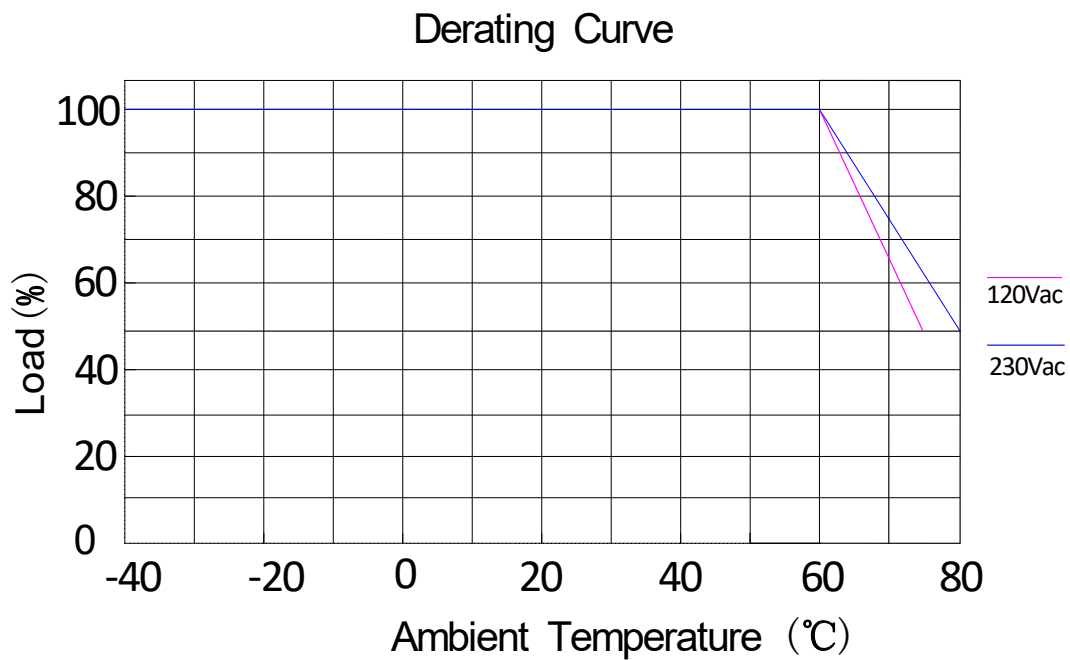
NOTE:

This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

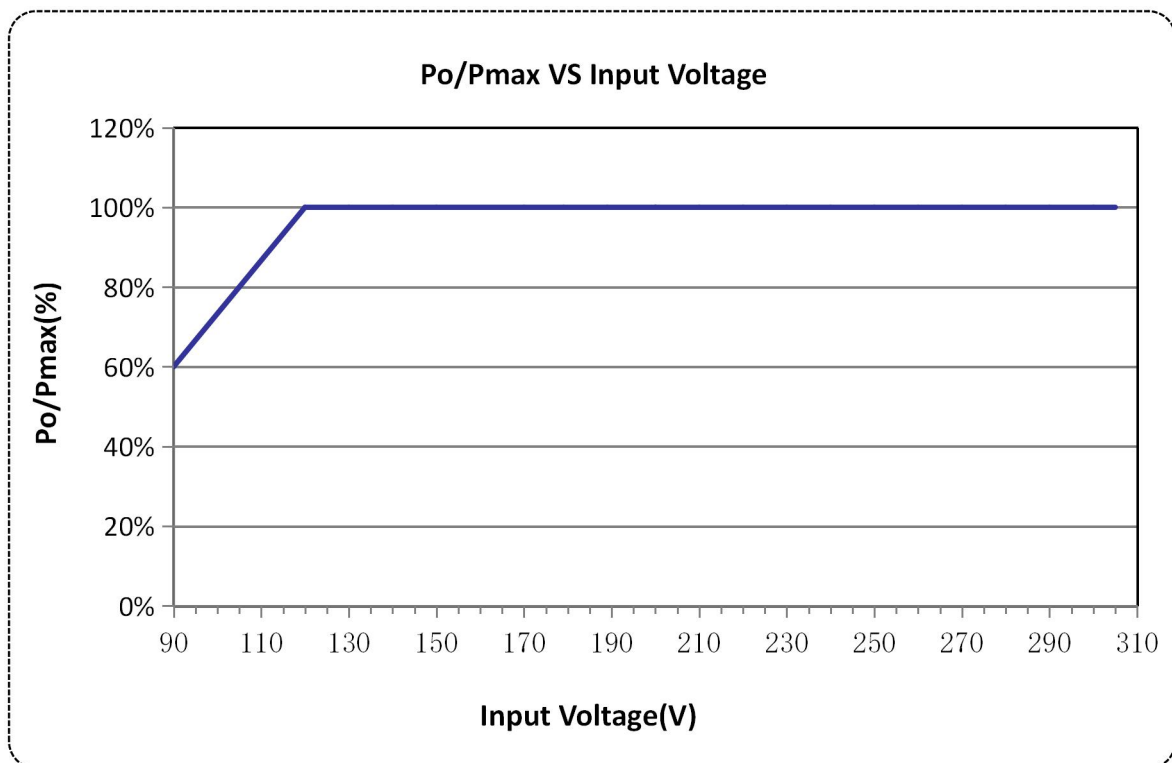
INRUSH CURRENT WAVEFORM



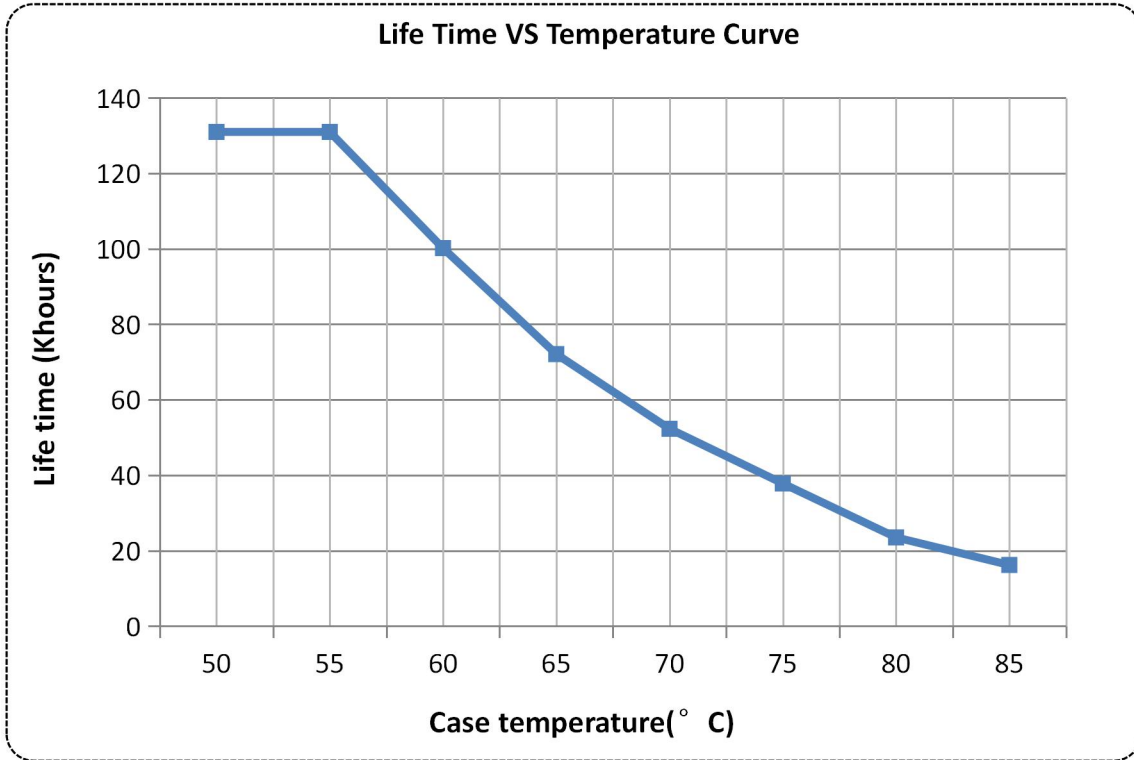
DERATING CURVE



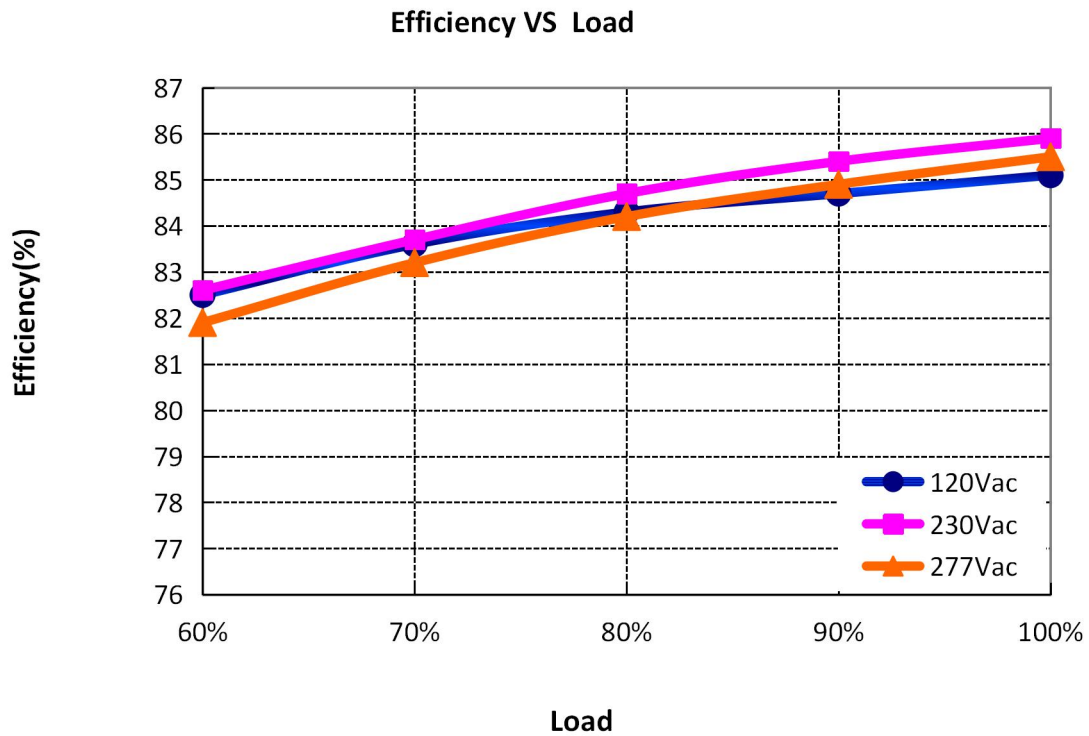
OUTPUT POWER VS INPUT VOLTAGE



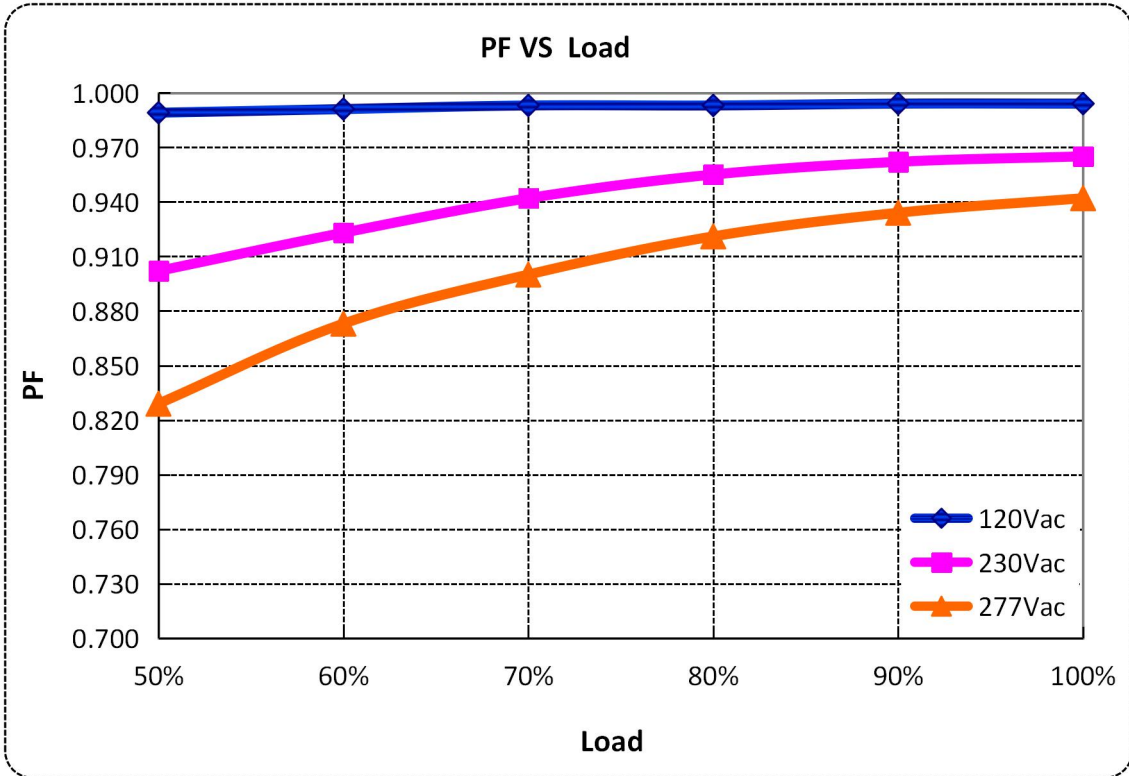
LIFETIME VS CASE TEMPERATURE



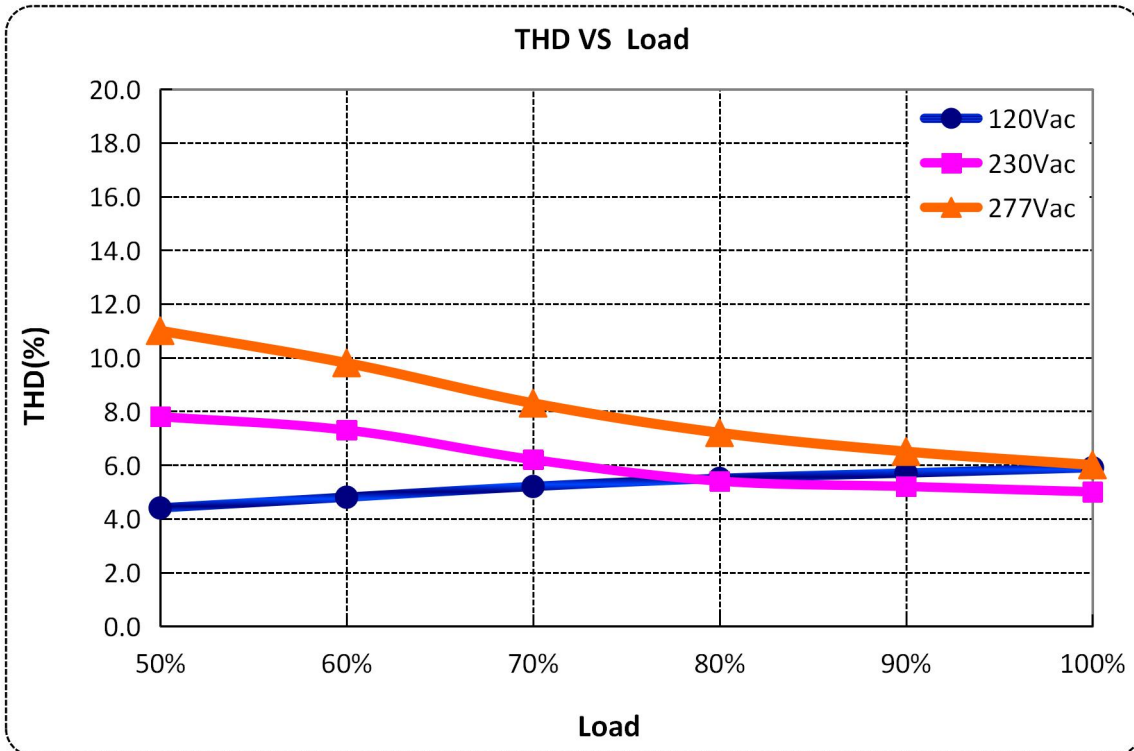
EFFICIENCY VS LOAD



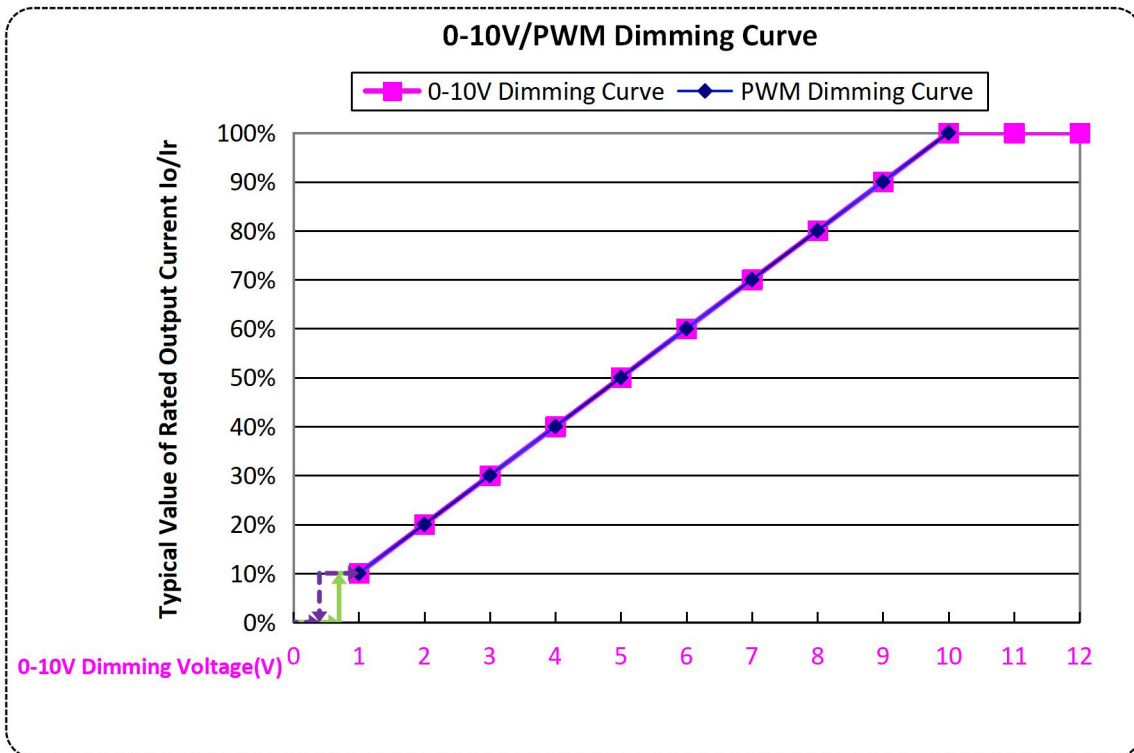
POWER FACTOR VS LOAD



TOTAL HARMONIC DISTORTION



0-10V/PWM DIMMING CURVE



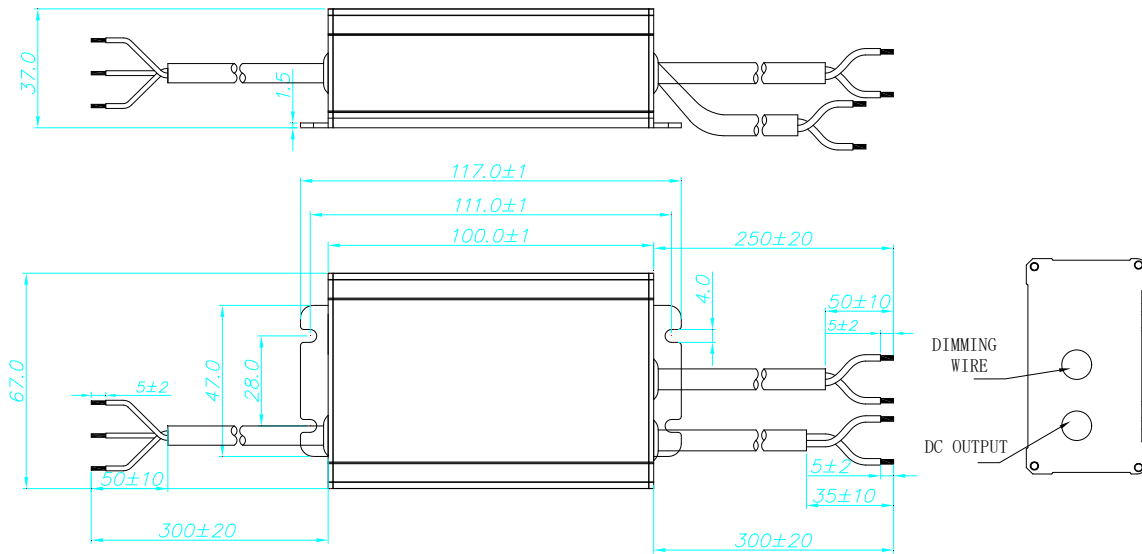
Note:

Dim to off model is realized by decreasing the output voltage, the power supply still has residual voltage when dim to off, so the start up voltage of the lamp should be higher than residual voltage.

PROTECTIONS

Parameter		Min.	Typ.	Max.	Notes
Input Over Voltage Protection	Input Protection Voltage	310Vac	330Vac	350Vac	Turn off the output when the input voltage exceeds protection voltage.
	Recovery Voltage	300Vac	320Vac	340Vac	Auto Recovery. The driver will restart when the input voltage falls below recovery voltage.
	Max. of Input Over Voltage	-	-	440Vac	The driver can survive for 48 hours with input over-voltage of 440Vac.
Over Temperature Protection		Decreases output current, returning to normal after over temperature is removed.			
Short Circuit Protection		Hiccup mode and auto recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.			
Output Over Voltage Protection		Limits output voltage at no load and in case the normal voltage limit fail			

MECHANICAL OUTLINE



Wire	Specification	Note
Input	CCC+VDE H05RN-F 3x1.0mm ² L=300±20mm	CCC/CE
Output	CCC+VDE H05RN-F 2x1.0mm ² L=300±20mm	CCC/CE
Dimming	UL2733 22AWG*2C L=250±20mm	PURPLE/GRAY

LABEL

