Description

The U5 M series is a constant current, off-line programmable and IP20 rated LED driver that operates from 176~305 Vac input with excellent power factor. The U5 M series supports timer dimming with three modes. The better thermal design and high efficiency enable the driver to operate with high reliability and extend product life. Overall protection is provided against lightning surge, output over voltage, short circuit and over temperature to ensure low failure rate.

Product Features

- Input voltage range: 176~305Vac;
- 3-in-1 dimmable: 0/1-10V/PWM (Dim-to-off optional), Timer dimming;
- Constant lumen output(CLO);
- 3 Timers dimming: Timing; Virtual Midnight; Self-Adaptive;
- Standby power consumption<0.5W;
- Suitable for luminaires with protection Class I and II;
- Surge protection: 6KV line-line, 10KV line-earth(Class I);
- Protections: Input UVP; Output SCP/OVP/OTP;
- IP20 design for indoor and outdoor applications ;
- Suitable for dry / damp / wet locations ;
- 5 years warranty.

Application

Street and urban lighting
Industrial lighting,

Models

Model Number	Input Voltage Range(Vac)	Max Output Power(W)	Output Voltage Range(Vdc)	Full Power Output Current Range(A)	Default Current(A)	Eff.(Typ.)	PF(Typ.)	THD
U5-080M120	176-305	80	35-120	0.67-1.05	0.70	91.0%	0.97	5%

NOTES:

[1]. M means 0/1-10V/PWM dimming.

[2]. All specifications are measured at 25℃ ambient temperature, input voltage 230Vac, and the typical value tested by full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage	176Vac	220~240Vac	305Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	0.65A	176Vac&Full Load
Max Input Power	-	-	100W	176Vac&Full Load
Leakage Current	-	-	0.70mA	IEC 60598-1;240Vac/60Hz
Inrush Current	-	-	65A	230Vac&Full Load, Cold Start
Standby Power Consumption	-	-	0.5W	230Vac&50Hz
Power Factor(PF)	0.96	0.98	-	220-240Vac, 50-60Hz, 100% Load
Power Factor(PF)	0.90	0.92	-	220-240Vac, 50-60Hz, 60%-100% Load
Total Harmonic Distortion(THD)	-	5%	10%	220-240Vac, 50-60Hz, 100% Load
Total Harmonic Distortion(THD)	-	-	10%	220-240Vac, 50-60Hz, 60%-100% Load
MCB(B16)	-	6	-	230Vac

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	35Vdc	-	120Vdc	The full power cannot be lower than 76Vdc
Open Circuit Voltage	-	-	160Vdc	
Output Current Range	0.11A	-	1.05A	Programmer adjustable current range
Full Power Current Range	0.67A	-	1.05A	
Current Accuracy	-5% I_{set}	-	+5% I_{set}	Iset: 350mA~1050mA
Total Output Current Ripple (pk-pk)	-	5%	10%	20MHz BW, full load& LED load, the ripple would be tiny different under different LED load.
Startup Overshoot Current	-	5%	10%	220~240Vac &100% Load, load is LED
Line Regulation	-1%	-	+1%	25℃±10℃ ambient temperature, input voltage changes from 200Vac to240Vac.
Load Regulation	-3%	-	+3%	25℃±10℃ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-	-	1.0s	230Vac
Output Pst^{LM}	-	-	0.01	Erp Standard
Output SVM	-	-	0.01	Erp Standard

Notes:

While using the dim-to-off function, the working voltage of the fixture should not be ＜50V for normal use.

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=1.05A Io=0.67A	 89% 89%	 91% 91%	 - -	Measured at full load and 25℃ambient temperature
Mean Time Between Failure	-	200Khours	-	25℃±10℃ambient temperature, 230Vac,80% load (MIL-HDBK-217F/SR-332)
Life Time	-	50Khours	-	Tc=75℃, 230Vac&100% load,
Operating Temperature	-40℃	-	+55℃	230Vac&100% load
Operating Tc for Safety Tc_s	-40℃	-	+90℃	
Operating Tc for Warranty Tc_w	-40℃	-	+75℃	5 years warranty case temperature
Storage Temperature	-40℃	-	+85℃	Humidity: 5% to 50% RHNo condensation
Altitude	-60m	-	4000m	
Input Under voltage Protection	130Vac	150Vac	170Vac	When the input voltage is lower than the protection voltage, the driver will turn off automatically. When the input voltage exceeds the recovery voltage, the driver will restart automatically.
Output over voltage Protection	-	-	-	self-recovery
Over Temp Protection Tc	-	95℃	-	Tc; 230Vac&100% load
Short Circuit Protection	-	-	-	self-recovery after 30 seconds
Dimensions (L*W*H)mm	132.5*77*40mm			
Net Weight	520±50g/PCS			
Package (L*W*H)mm	500*344*177mm; 30PCS/ctn, Gross Weight: 18.5kg			

Dimming

Parameter	Min	Typ.	Max	Notes
Absolute Maximum Voltage	-	10V	15V	On the Vdim (+) Pin
Source Current on Vdim (+)Pin	-	200uA	400uA	
Dimming Range	10% I_{set}	-	100% I_{set}	I_{set} is set to the full power range
Suggest Dimming Input 0-10V	0V	-	10V	
Turn-on Voltage	0.7V	-	1.0V	
Turn-off Voltage	0.4V	-	0.7V	
PWM in High Level	9.7V	-	10.3V	
PWM in Low Level	0V	-	0.3V	
PWM in Frequency Range	300Hz	-	2KHz	
PWM in Duty Cycle	1%	-	99%	
Turn-on Duty Cycle	7%	-	10%	
Turn-Off Duty Cycle	4%	-	7%	
Timer dimming	-	-	-	3 types, which is set by software
Output lumen compensation	-	-	-	Constant lumen output function
Over Temperature Protection	-	-	-	Thermal Cut Off function optional

Safety Specification

Parameter	Min	Typ.	Max	Notes
Dielectric Strength(Input-Output)	-	3000Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Input-Ground)	-	3000Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Output-Ground)	-	1650Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Input-Dimming)	-	3000Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Dim-Ground)	-	500Vac	-	60s，Current not exceeding 5mA
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60s/25℃/70%RH

Safety Compliance

Safety Category	Standards	Approved	Notes
CCC	GB19510.1,GB19510.14		
CE	EN61347-1, EN61347-2-13, EN62493	√	
ENEC	EN61347-1, EN61347-2-13, EN62384	√	
CB	IEC61347-1, IEC61347-2-13	√	
BIS	IS 15885(PART 2/SEC 13)		
UL	UL 8750		
CUL	CSA C22.2 No.250.13		
KC	K61347-1, K61347-2-13		
PSE	J61347-1, J61347-2-13		
SAA	AS/NZS IEC 61347.2.13		
SAA	AS/NZS 61347.1		

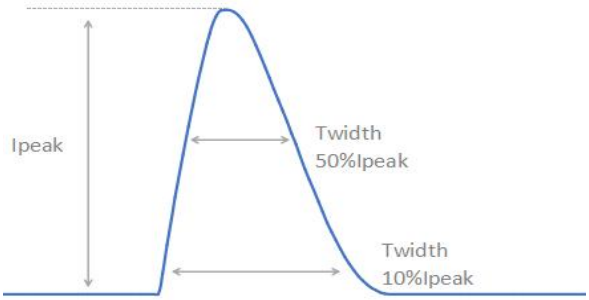
EMC Compliance

EMC Category	Standards	Approved	Notes
CCC	GB/T 17743, GB 17625.1		
CE	EN 55015	√	
CE	EN 61000-3-2, EN 61000-3-3	√	
CE	EN61000-4-2,3,4,5,6,11	√	
CE	EN 61547	√	
KC	K61547		
KC	K00015		
PSE	J55015		
FCC	FCC part 15		
Surge Shock Immunity	ANSI/C82.77-5-2017		
Ringing Wave			

RoHS

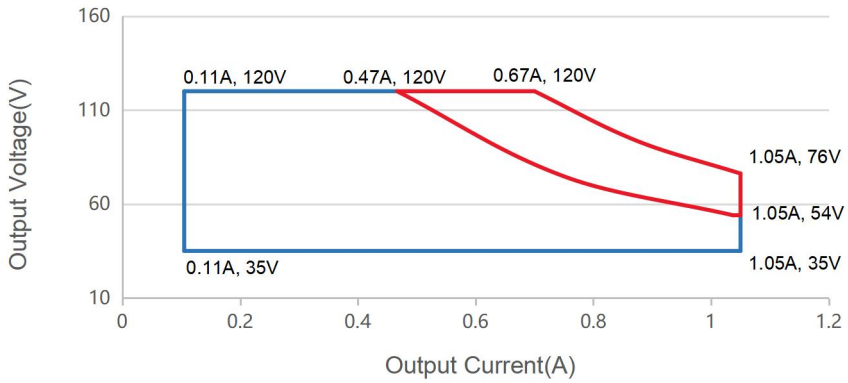
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



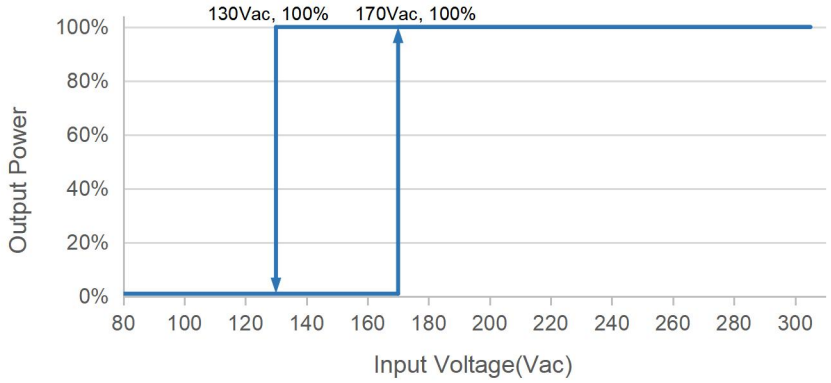
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	65A	650uS	300uS

Output Voltage vs. Output Current

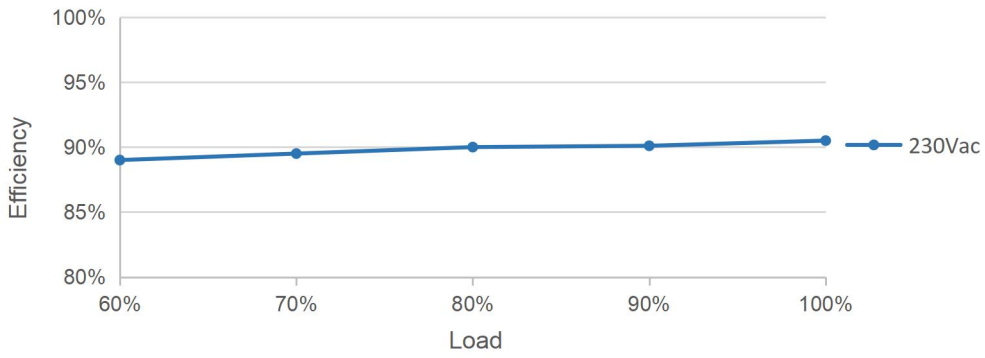


Red curve: good performance area

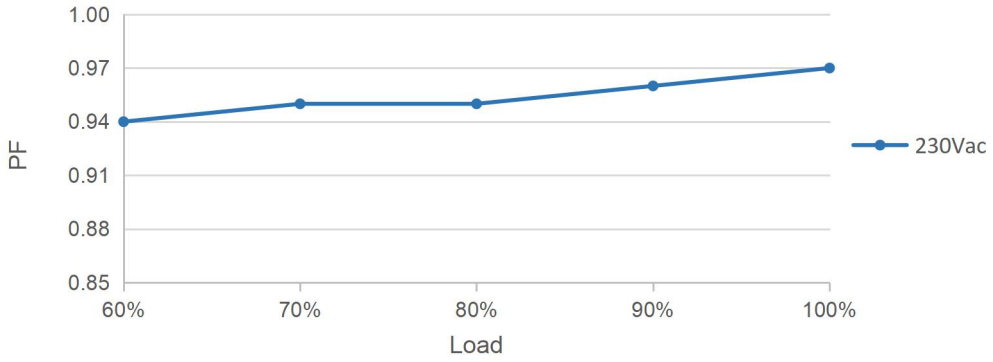
Output Power vs. Input Voltage



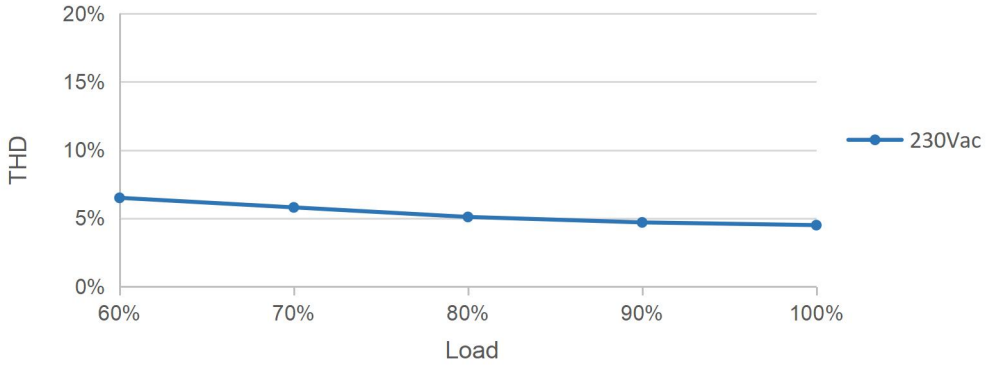
Efficiency vs. load



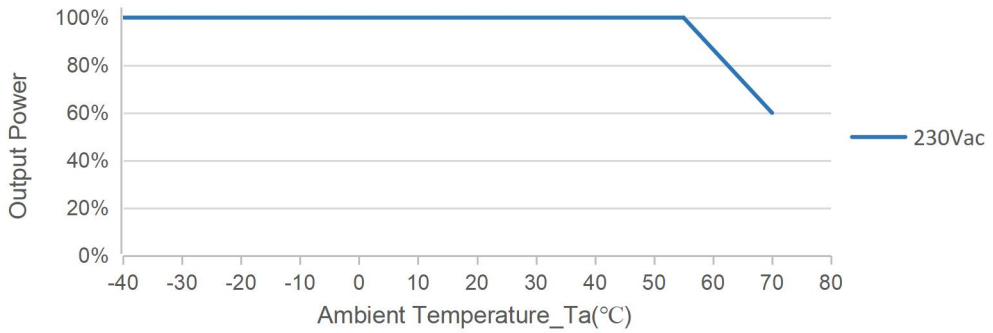
PF vs. Load



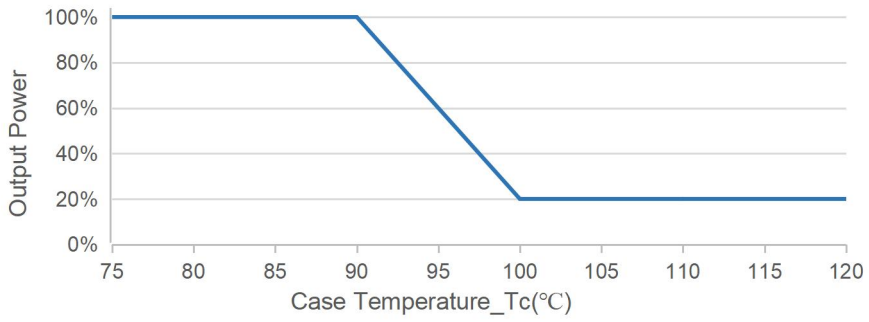
THD vs. Load



Output Power vs. Ambient Temperature



Over Temperature Protection Curve

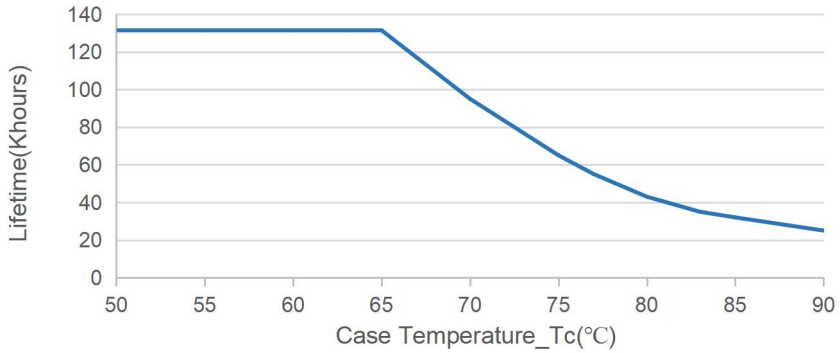


Notes:

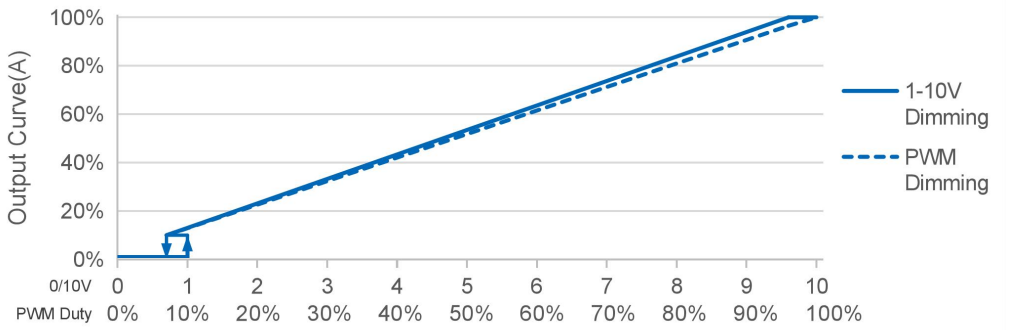
Customers can set the start derating temperature and end derating temperature. This curve is the default factory protection curve，When the temperature rises to the

normal operating temperature, the drive will resume output.

Lifetime vs. Case Temperature



0/1-10V/PWM Dimming



Note: Afterglow may appear after switching off dimming due to the difference of lamp panel. Thus, lighting fixture grounding test is suggested.

Off-line Programming

User-friendly connection of programming without necessary to power on device(suitable for X6, X6S, X6I,X6E Series).

Programming mode I

Visual Intelligent Programming

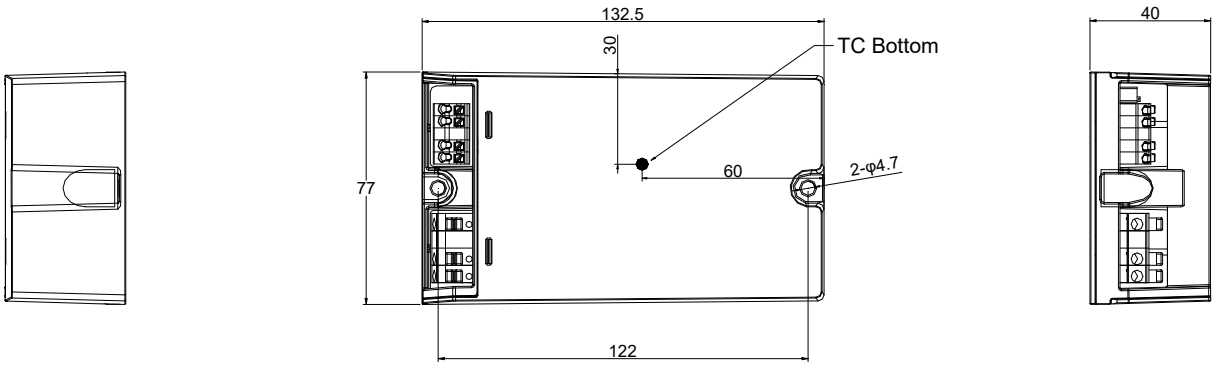
1. Set the output parameters through the control signal line 0-3.3V/0-5V/0-9V/0-10V optional.
2. Timer dimming. Set the timer control function, support up to 7 segments;
3. Set output CLO;
4. Read the recorded system parameters; Record the working time working temperature, and software version information of the LED driver.
5. Configure the driving parameters. After setting is completed, then click the configured parameters to complete programming.
6. Download it to the offline programmer.

Programming mode 2

Instructions of one touch programmer:

1. Open the software interface and download the program to the offline programmer;
2. Connect the dimming wire with the programmer, press the programmer button, the programmer will give you asubtle reminder “(Beep) ” to tell you the installation completed.

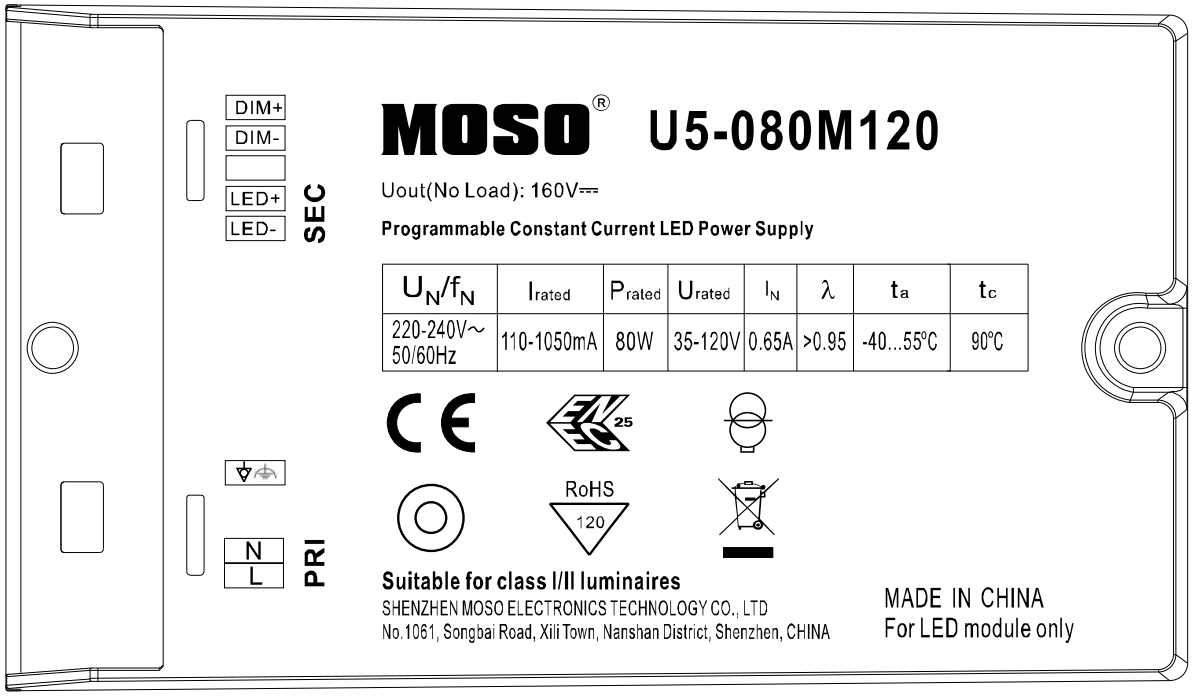
Mechanical Outline



Connections

Input (L,N,G)	Wire Cross-section0.5 mm^2 - 2.5 mm^2/20 AWG - 16 AWG	Push-in at 45ºangle, solid and stranded wire
Output	Wire Cross-section0.2 mm^2 - 1.5 mm^2/22 AWG - 16 AWG	Push-in at 45ºangle, solid and stranded wire
Dimming	Wire Cross-section0.2 mm^2 - 1.5 mm^2/22 AWG - 16 AWG	Push-in at 45ºangle, solid and stranded wire

Label



Version

A.1	First release	2024-08-01

Specification for Approval

Product Name: 80W Class I/II LED Driver

Product Model: U5-080M120

Rev : A.1

Address: XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China
Tel: 0755-27657000
FAX: 755-27657908
E-mail:info@mosopower.com
Web Site: http://www.mosopower.com

Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 80W Class I/II LED Driver

Product Model: U5-080M120

Rev: A.1

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

Address: XiLi Songbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China
Tel: 0755-27657000
FAX: 755-27657908
E-mail:info@mosopower.com
Web Site: http://www.mosopower.com

Prepared By	Checked By	Approved By