Description

The U5 series is constant-current LED Driver. IP20 rated LED driver that operates from 176~305Vac input with excellent power factor. The better thermal design and high efficiency enables the driver to operate with high reliability and extend product lifetime. Overall protection is provided against lightening surge, output over voltage, short circuit, and over temperature to ensure low failure rate.

Product Features

- Input voltage range: 176~305Vac;
- Constant power design;
- 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 ;
- 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(Typ.)
U5-120V220	176-305	120	75-220	0.55-1.05	0.70	91.5%	0.98	5%

NOTES:

[1]. V means non-dimmable, adjustable output current with potentiometer.

[2]. All specifications are measured at 25 [illegible] 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	-	-	1.0A	176Vac&Full Load
Max Input Power	-	-	145W	176Vac&Full Load
Leakage Current	-	-	0.70mA	IEC 60598-1;240Vac/60Hz
Inrush Current	-	-	55A	230Vac&Full Load, Cold Start
Power Factor(PF)	0.95	0.98	-	220-240Vac, 50-60Hz, 100% Load
Power Factor(PF)	0.94	0.96	-	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)	-	5	-	230Vac

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	75Vdc	-	220Vdc	The full power cannot be lower than 114Vdc
Open Circuit Voltage	-	-	300Vdc	The open circuit protection is locked, and the AC needs to be powered on again
Output Current Range	0.52A	-	1.05A	Adjustable output current with potentiometer
Full Power Current Range	0.55A	-	1.05A	
Current Accuracy	-5% I_{set}	-	+5% I_{set}	I_{set}>0.70A
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	-	-	10%	220~240Vac &100% Load, load is LED
Line Regulation	-1%	-	+1%	25℃±10℃ ambient temperature, input voltage changes from 200Vac to 240Vac.
Load Regulation	-5%	-	+5%	25℃±10℃ ambient temperature, Input Voltage 230Vac, load changes from 60% to 100%.
Turn-on Delay Time	-	-	1.5s	240Vac, 100%Load
Isolation input to output	-	Double	-	
Output Pst^{LM}	-	-	0.01	In entire operating window
Output SVM	-	-	0.01	In entire operating window

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@230Vac Io=0.55A Io=1.05A	 90.0% 90.0%	 91.5% 91.5%	 - -	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	-	100Khours	-	Tc=75℃, 230Vac&100% Load
Operating Temperature Ta	-40 ℃	-	+50℃	230Vac & 100%Load
Operating Tc for Safety Tc_s	-40 ℃	-	+90℃	
Operating Tc for Warranty Tc_w	-40 ℃	-	+90℃	5 years warranty case temperature
Storage Temperature	-40 ℃	-	+85 ℃	
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	-	-	-	Return to normal when the fault condition is removed
Over Temp Protection Tc	-	95℃	-	Tc; 230Vac&100% load
Short Circuit Protection	-	-	-	Return to normal when the fault condition is removed
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			

Safety Specification

Parameter	Min	Typ.	Max	Notes
Dielectric Strength(Input-Output)	-	3750Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Input-Ground)	-	3750Vac	-	60s，Current not exceeding 5mA
Dielectric Strength(Output-Ground)	-	1650Vac	-	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		

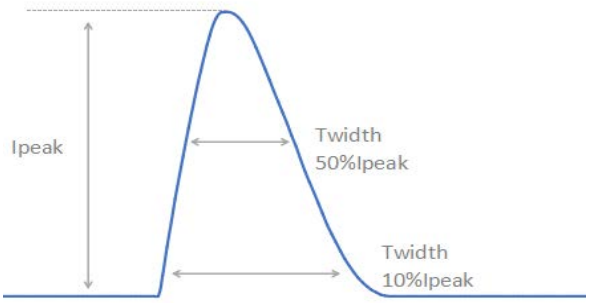
EMC Compliance

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

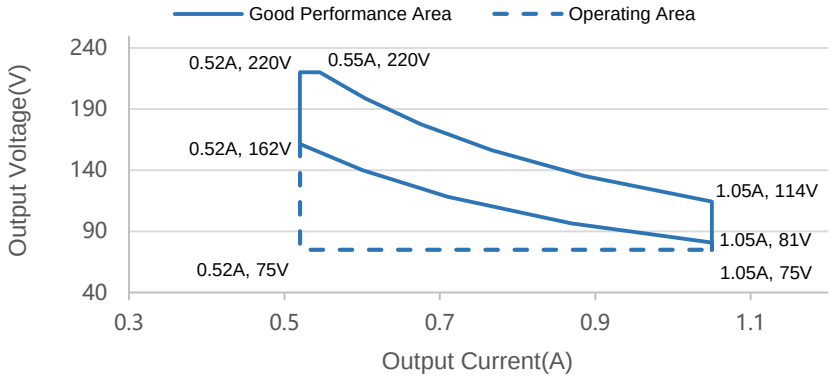
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current

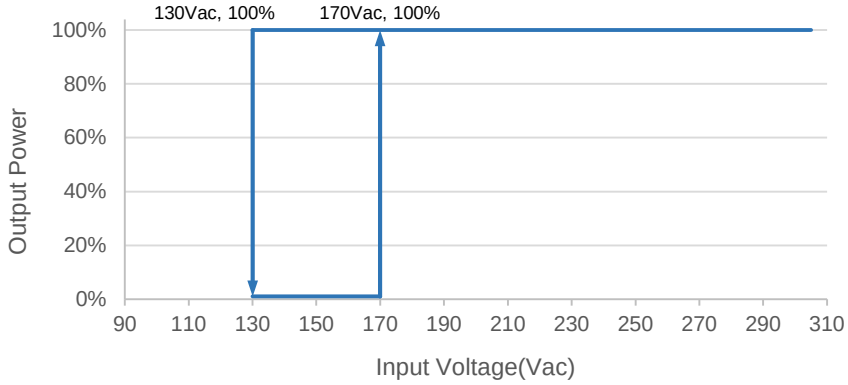


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
230Vac	55A	950uS	350uS

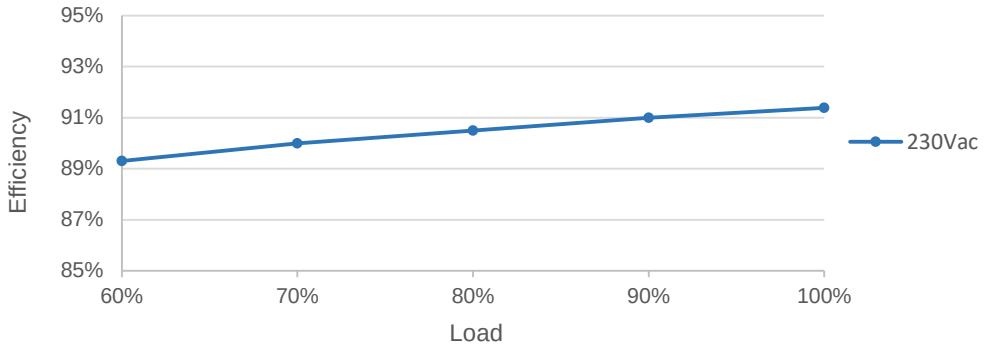
Output Voltage vs. Output Current



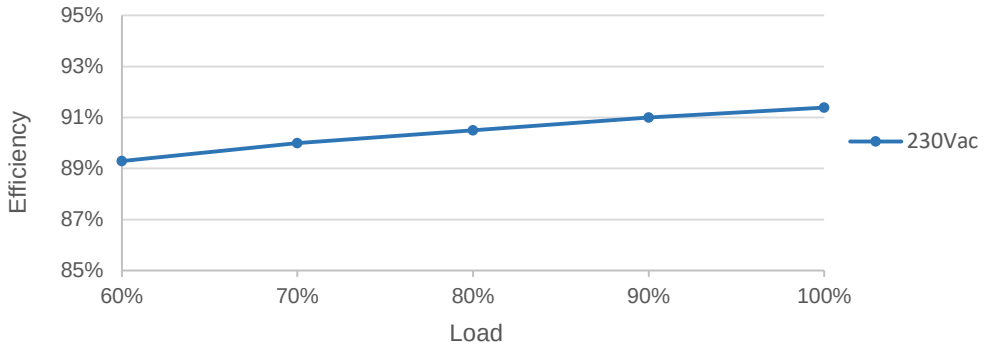
Output Power vs. Input Voltage



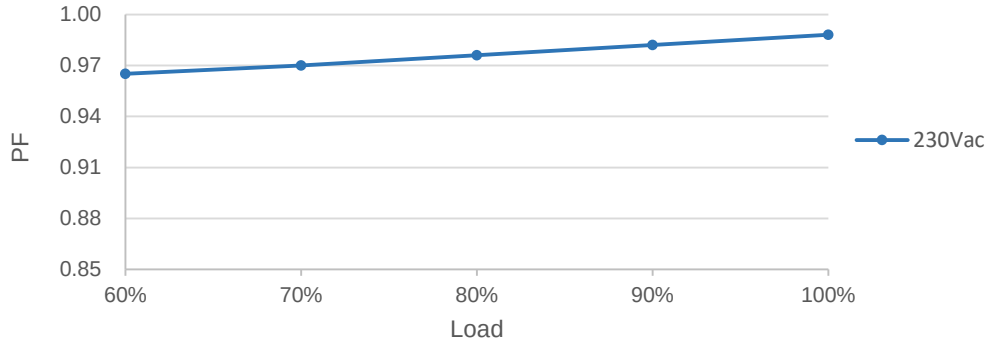
Efficiency vs. Load (Io=0.55A)



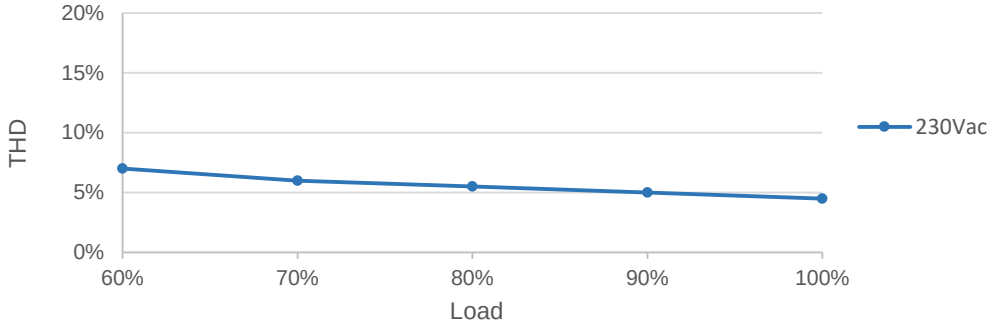
Efficiency vs. Load (Io=1.05A)



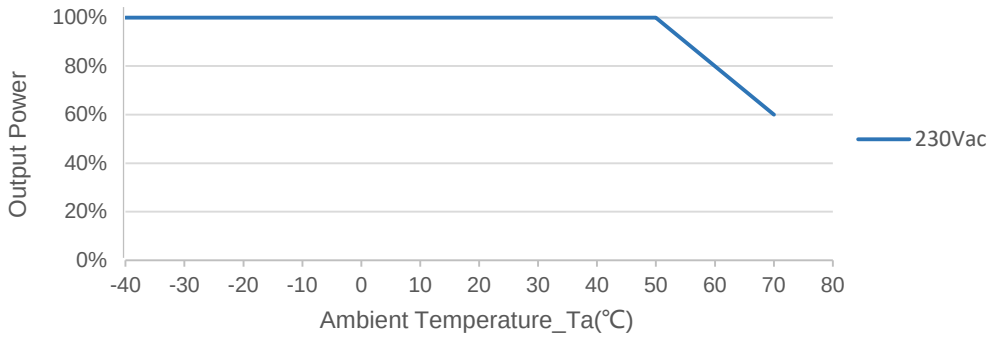
PF vs. Load



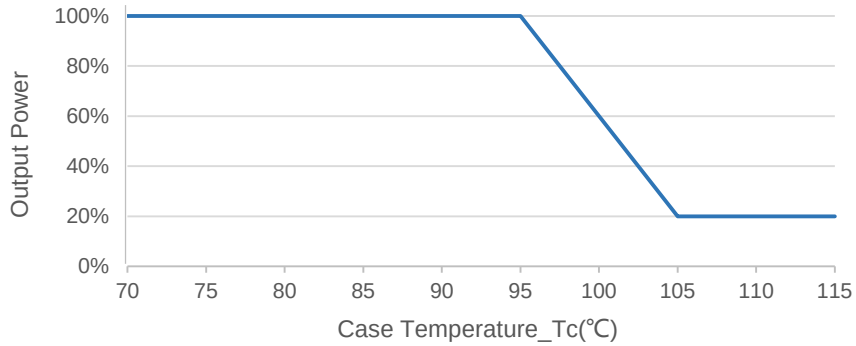
THD vs. Load



Output Power vs. Ambient Temperature

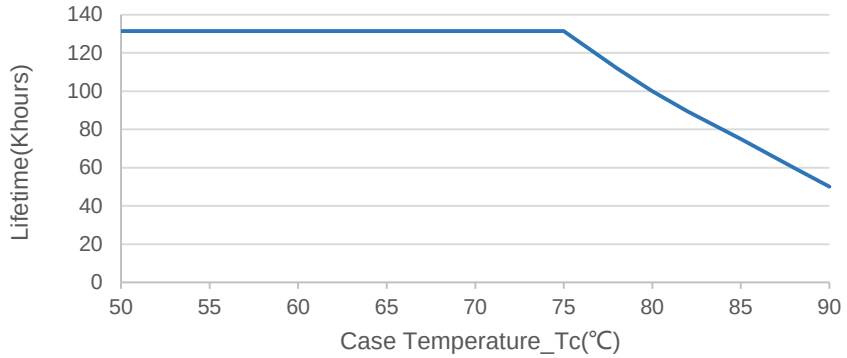


Over Temperature Protection Curve

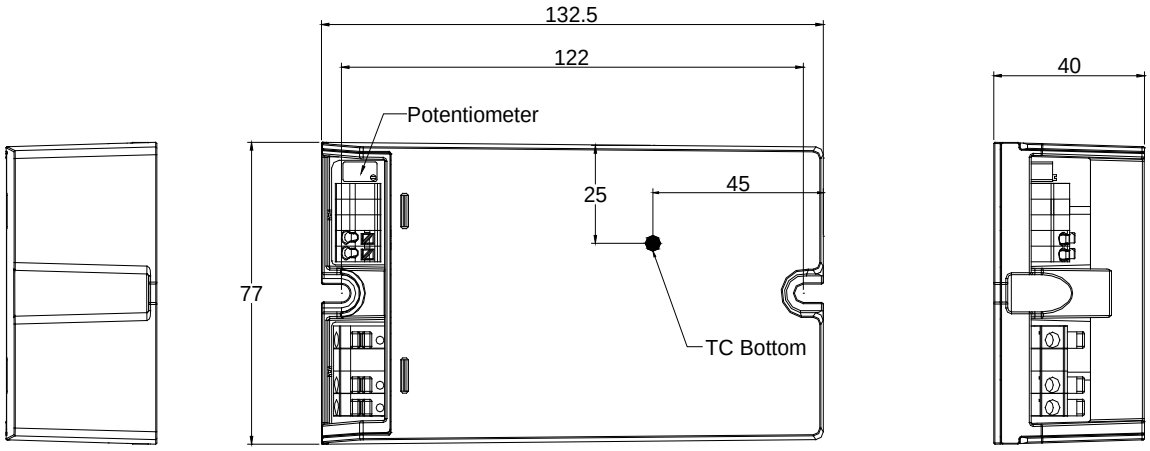


Notes: returning to normal after over temperature is removed.

Lifetime vs. Case Temperature



Mechanical Outline

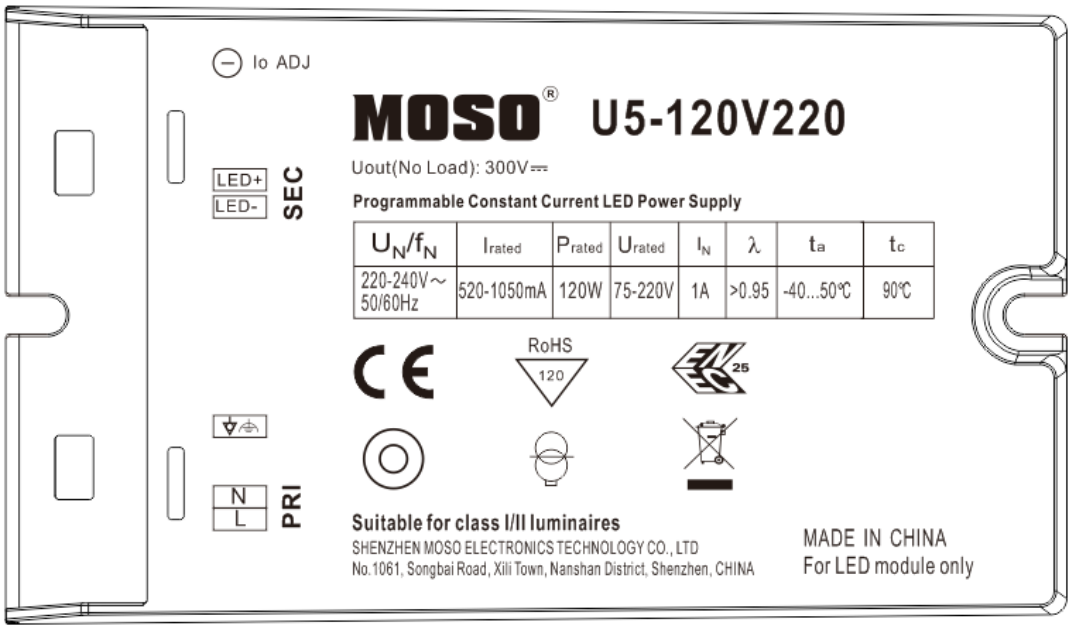


Notes: EQUI pin connects to ground wire and metal housing of luminaries for Class I applications, and to metal housing for Class II applications.

Connections

Input (L,N,G)	Wire Cross-section0.5 mm^2 - 1.5 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

Label



Version

A.1	First release	2024.06.24
B.2	ECL202408036	2024.08.22
C.2	ECL202509036	2025-09-30

Specification for Approval

Product Name: 120W Class I/II LED Driver

Product Model: U5-120V220

Rev : C.2

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Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 120W Class I/II LED Driver

Product Model: U5-120V220

Rev: C.2

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