

Features

- High Efficiency (Up to 89.5%)
- Constant Output Current
- 0-10V Dimmable
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP66) Dry & Damp Location
- Class 2 & SELV Output
- Suitable for Built-in Use



Description

The LUC-048SxxxDSP(SSP) series is a 48W, constant-current IP66 LED driver that operates from 90-305 Vac input with excellent power factor. They are created for down lights and panel lights etc. The high efficiency of these drivers enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against output over voltage, short circuit and over temperature.

Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor (2)	Model Number (3)
900 mA	90 ~ 305 Vac 127 ~ 300Vdc	26~52 Vdc	47 W	89.5%	0.96	LUC-048S090DSP(SSP)
1400 mA	90 ~ 305 Vac 127 ~ 300Vdc	21~35 Vdc	49 W	89.0%	0.96	LUC-048S140DSP(SSP)

Notes: (1) UL, FCC certified input voltage range: 100-277Vac or 127-300Vdc; other certified input voltage range except UL & FCC: 100-240Vac /127-250Vdc.

(2) Measured at full load and 220 Vac input.

(3) Class 2 & SELV Output

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	127-300Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.66 A	Measured at full load and 100 Vac input.
	-	-	0.33 A	Measured at full load and 220 Vac input.
Inrush Current(I^2t)	-	-	0.003 A ² s	At 220Vac input 25°C Cold Start. Duration=30 μ s, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
Power Factor	0.90	-	-	At 100-277Vac, 75%-100%Load(36~48W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Range	-5%Io	-	5%Io	
Total Output Voltage Ripple (pk-pk)	-	-	4 V	At full load condition. 20 MHz BW
Output Current Overshoot / Undershoot	-	-	10%Io	At full load condition.
No Load Output Voltage LUC-048S090DSP(SSP) LUC-048S140DSP(SSP)	- -	- -	57 V 40 V	
Line Regulation	-	-	±1 %	Measured at full load.
Load Regulation	-	-	±3 %	
Turn-on Delay Time	-	0.40 s	0.75 s	Measured at 120Vac input, 75%-100%Load
	-	0.30 s	0.50 s	Measured at 220Vac input, 75%-100%Load
Temperature Coefficient	-	-	0.03%/°C	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	10.8 V	12 V	13.2 V	
12V Auxiliary Output Source Current	0 mA	-	20 mA	Return terminal is "Dim"

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

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: LUC-048S090DSP(SSP) LUC-048S140DSP(SSP)	86.5% 85.0%	88.5% 87.0%	- -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
Efficiency at 220 Vac input: LUC-048S090DSP(SSP) LUC-048S140DSP(SSP)	87.5% 87.0%	89.5% 89.0%	- -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
Efficiency at 277 Vac input: LUC-048S090DSP(SSP) LUC-048S140DSP(SSP)	87.5% 86.5%	89.5% 88.5%	- -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 1.0% lower if measured immediately after startup.)
No Load Power Dissipation	-	-	6 W	
MTBF	-	392,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	117,000 Hours	-	Measured at 120Vac input, 80%Load and 60°C Case temperature. See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+89°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+70°C	Humidity: 10% RH to 100% RH
Storage Temperature	-40°C	-	+85°C	Humidity: 5% RH to 100% RH

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Dimensions Inches (L × W × H) Millimeters (L × W × H)	3.74 × 2.76 × 1.26 95 × 70 × 32			
Net Weight	-	385 g	-	

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

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+) Pin	0 uA	200 uA	250 uA	
Dimming Output Range	10%Iomax	-	100%Iomax	
Recommended Dimming Input Range	0 V	-	10 V	

Safety & EMC Compliance

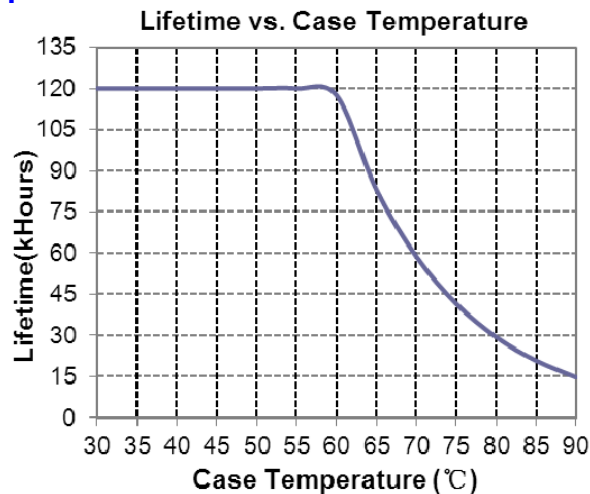
Safety Category	Standard
UL/CUL	UL 8750, UL1310, CAN/CSA-C22.2 No. 250.13-12, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655: 2011
EMI Standards	Notes
EN 55015 ⁽¹⁾	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic Current Emissions
EN 61000-3-3	Voltage Fluctuations & Flicker
FCC Part 15 ⁽¹⁾	ANSI C63.4:2009 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT

Safety & EMC Compliance (Continued)

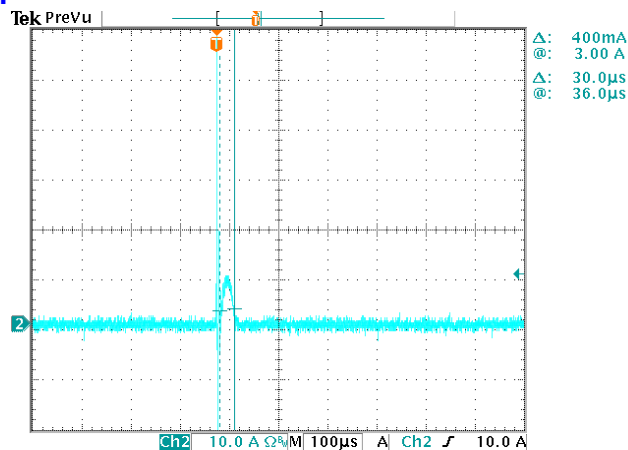
EMS Standards	Notes
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 2 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Note: (1) 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.

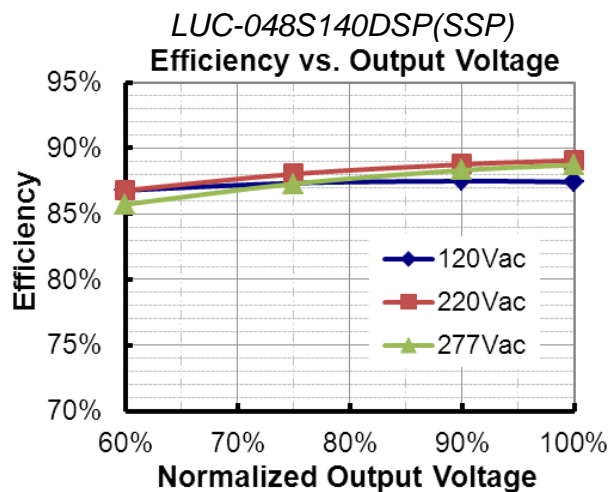
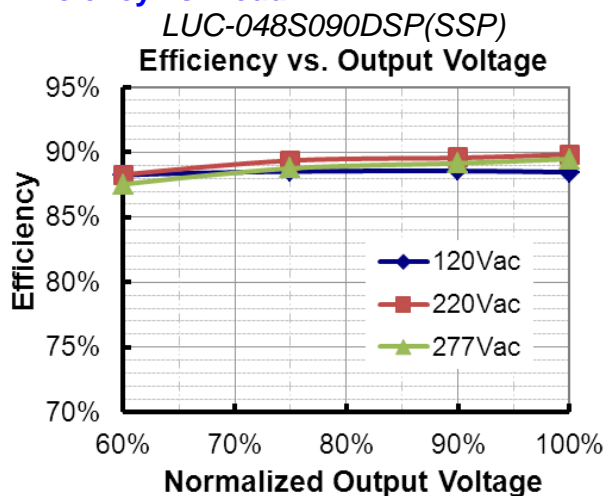
Lifetime vs. Case Temperature



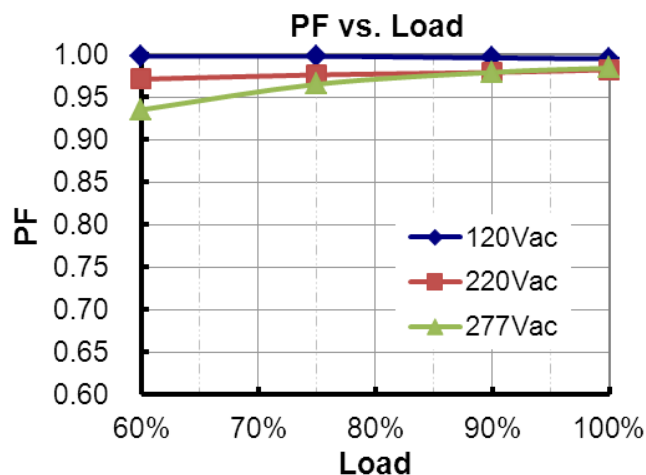
Inrush Current Waveform



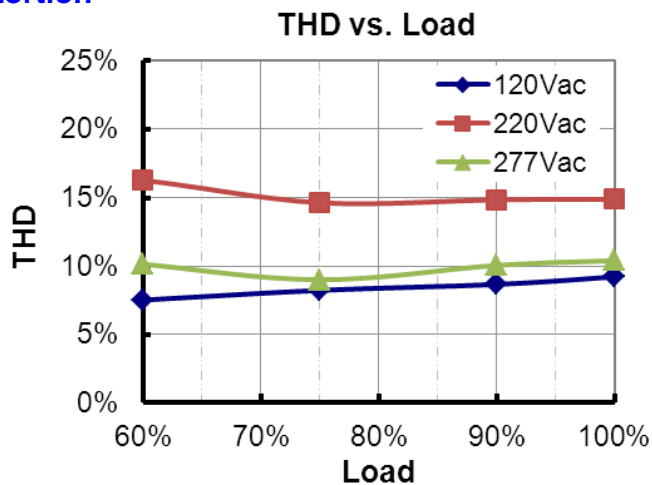
Efficiency vs. Load



Power Factor



Total Harmonic Distortion



Protection Functions

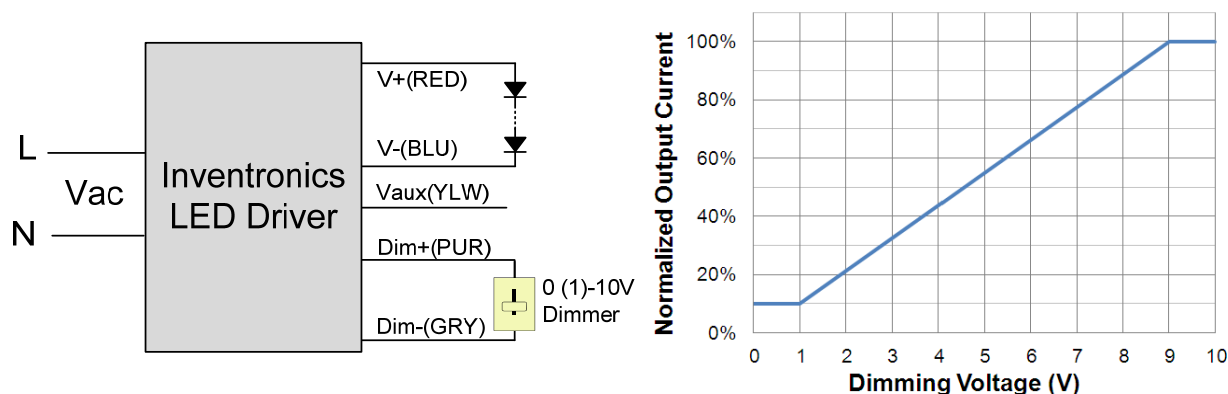
Parameter	Notes
Over Temperature Protection	Auto Recovery. Returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

Dimming

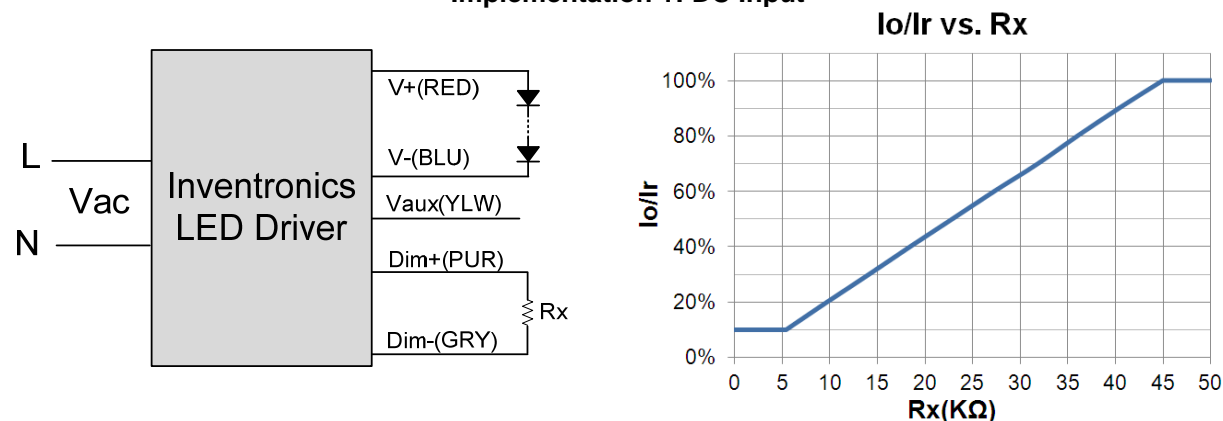
● 0-10V Dimming

The recommended implementation of the dimming control is provided below.

Output Current vs. Dimming Voltage



Implementation 1: DC Input



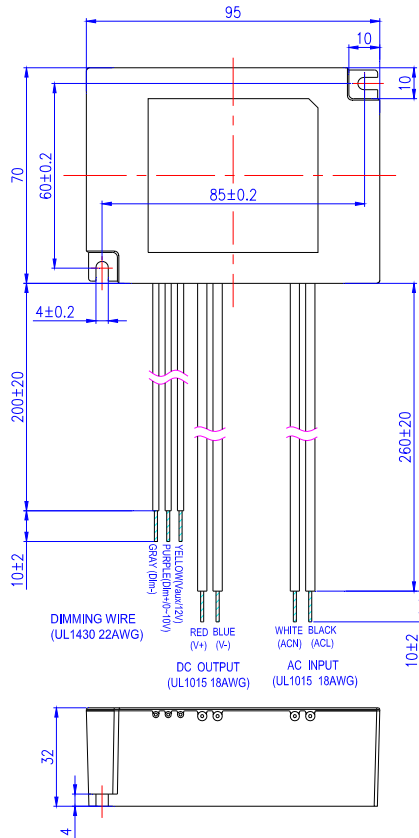
Implementation 2: External Resistor

Notes:

1. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2. Do NOT connect Dim- to the output V- or V+, otherwise the driver will not work properly.
3. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

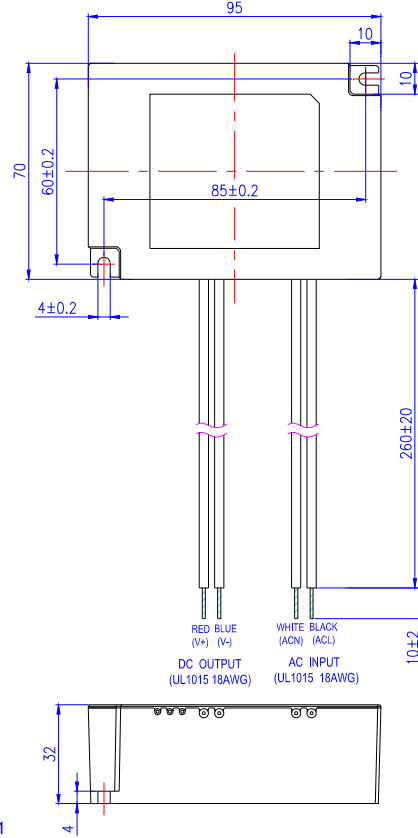
Mechanical Outline

LUC-048SxxxDSP



Unspecified tolerance: ±1

LUC-048SxxxSSP



Unspecified tolerance: ±1

RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2015-07-17	A	Datasheet Release	/	/
2016-08-02	B	Turn-on Delay Time at 120Vac	Max.=1.0 s	Max.=0.75 s
		Net Weight	350 g	385 g
		KS Certificate Regulation	/	Added
		Note of EMI Standard	/	Added