Features

- High Efficiency (Up to 86.5%)
- Constant Current Output
- 0-10V Dimmable with High Accuracy
- 5% Minimum Dimming Level
- Low Ripple
- All-Around Protection: OVP, SCP, OTP
- Class 2 & SELV Output
- Double & Reinforced Insulation

Description

The *LUC-052SxxxDSF* series is a 52W, constant-current, indoor LED driver that operates from 90-305 Vac input with extra low ripple. Created for dimmable panel lights and linear lights, it provides good dimming accuracy down to 5% output. The high efficiency of these drivers and slim metal case enable them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against over voltage, short circuit, and over temperature of the driver.

Models

Output Current	Input Voltage Range (1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
700 mA	90~305 Vac 127~300 Vdc	25~75 Vdc	52 W	86.5%	0.96	0.95	LUC-052S070DSF(4)
1050 mA	90~305 Vac 127~300 Vdc	17~50 Vdc	52 W	86.0%	0.96	0.95	LUC-052S105DSF(3)(4)
1400 mA	90~305 Vac 127~300 Vdc	13~37 Vdc	52 W	84.0%	0.96	0.95	LUC-052S140DSF(3)(4)

Notes: (1) UL, FCC certified input voltage range: 100-277Vac/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 output for dry and damp location.
(4) SELV Output.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127~300 Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750;277Vac/ 60Hz
	-	-	0.70 mA	IEC60598-1;240Vac/ 60Hz
Input AC Current	-	-	0.80 A	Measured at full load and 100 Vac input
	-	-	0.40 A	Measured at full load and 220 Vac input
Inrush Current(I^2t)	-	-	0.30 A^2s	At 220Vac input, 25°C cold start, duration=296μs, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Power Factor	0.90	-	-	At 100Vac-277Vac, 75%load-100%load (39-52W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	At full load condition
Output Current Ripple (pk-pk)	-	5%Io	10%Io	At full load condition.
Startup Overshoot Current	-	-	10%Io	At full load condition.
No Load Voltage I_O = 700 mA I_O = 1050 mA I_O = 1400 mA	 - - -	 - - -	 90 V 60 V 55 V	
Line Regulation	-	-	±1%	Measured at full load
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.6 s	1.0 s	Measured at 120V and 220Vac input.
Temperature Coefficient of Iomax	-	-	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 typical at 25 °C unless otherwise stated.

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: I_O = 700 mA I_O = 1050 mA I_O = 1400 mA	 82.0% 82.0% 80.0%	 84.0% 84.0% 82.0%	 - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 220 Vac input: I_O = 700 mA I_O = 1050 mA I_O = 1400 mA	 84.5% 84.0% 82.0%	 86.5% 86.0% 84.0%	 - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 277 Vac input: I_O = 700 mA I_O = 1050 mA I_O = 1400 mA	 84.5% 84.0% 82.0%	 86.5% 86.0% 84.0%	 - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	246,000 Hours	-	Measured at 120Vac input, 80%load and 25℃ ambient temperature (MIL-HDBK-217F)
Lifetime	-	110,000 Hours	-	Measured at 120Vac input, 80%load and 60℃ Case temperature, See lifetime vs. Tc curve for more details

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Operating Case Temperature for Safety Tc_s	-	-	84°C	UL8750
	-	-	90°C	IEC60598-1
Operating Case Temperature for Warranty Tc_w			70°C	
Dimensions Inches (L × W × H) Millimeters (L × W × H)	12.32× 1.18 × 0.98 313 × 30 × 25			T5-can
Net Weight		410 g		

Note: All specifications are typical at 25 °C unless otherwise stated.

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the 0~10V Wire	-20 V	-	20 V	
Source Current on Vdim (+)Pin	0 uA	-	200 uA	
Dimming Output Range	5%Iomax	-	100% Iomax	
Minimum Output Current	4%Iomax	5%Iomax	6%Iomax	

Note: All specifications are typical at 25 °C unless stated otherwise.

Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Ambient Temperature	-30 °C	-	+70 °C	Humidity: 10% RH to 90% RH. See Derating Curve for more details
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 90% RH

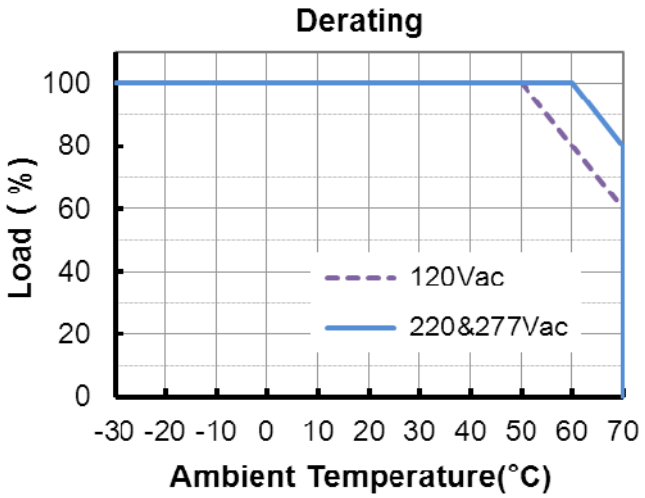
Safety & EMC Compliance

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
EMI Standards	**Notes**
EN 55015	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic Current Emissions
EN 61000-3-3	Voltage Fluctuations & Flicker

Safety & EMC Compliance (Continued)

EMI Standards	Notes
FCC Part 15	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: level 3, criteria A
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

Derating



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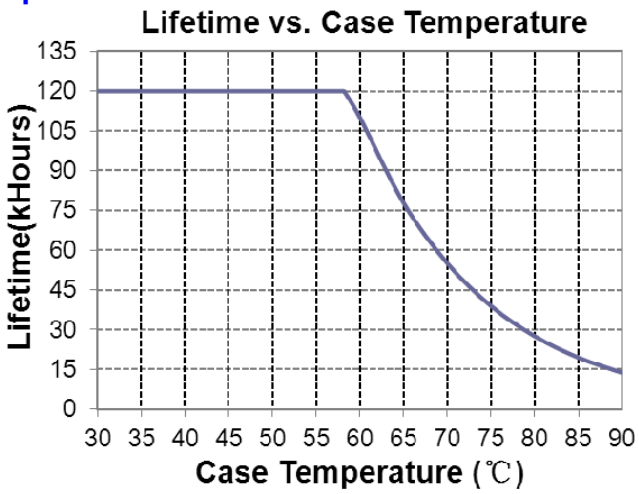
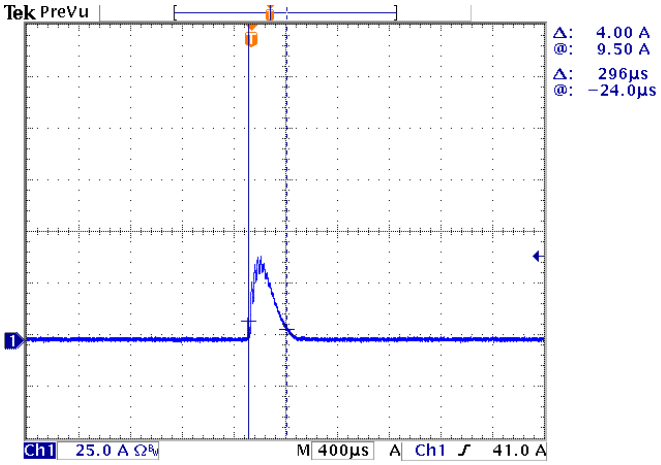
Lifetime vs. Case Temperature

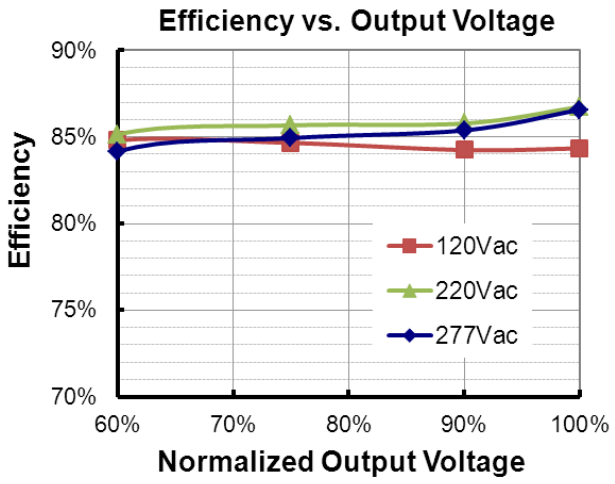


Inrush Current Waveform

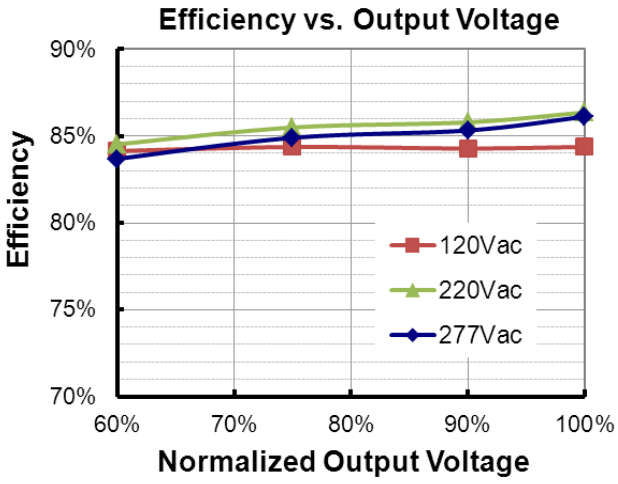


Efficiency vs. Load

LUC-052S070DSF



LUC-052S105DSF



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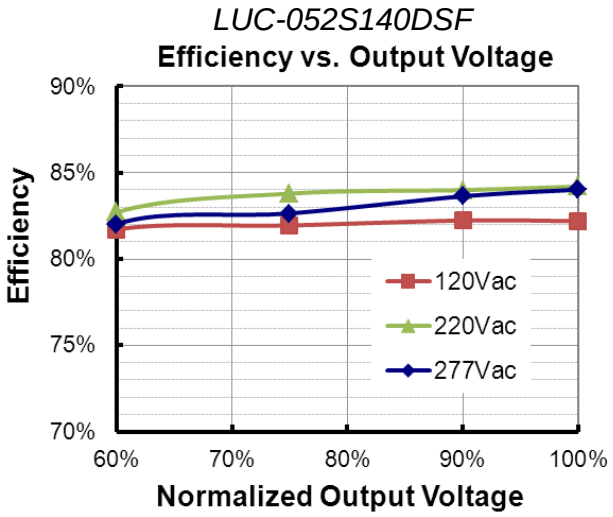
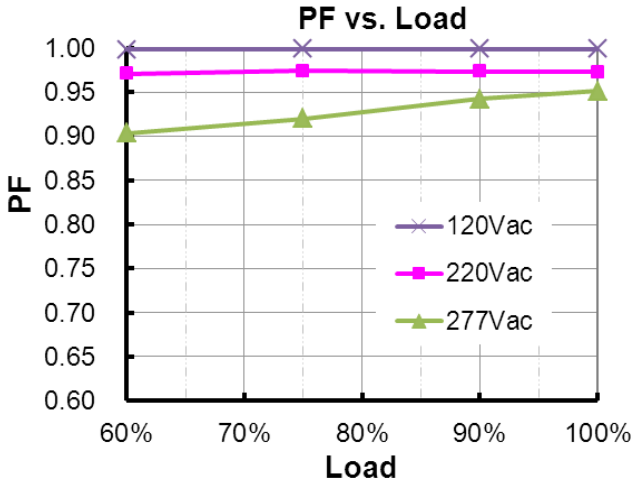
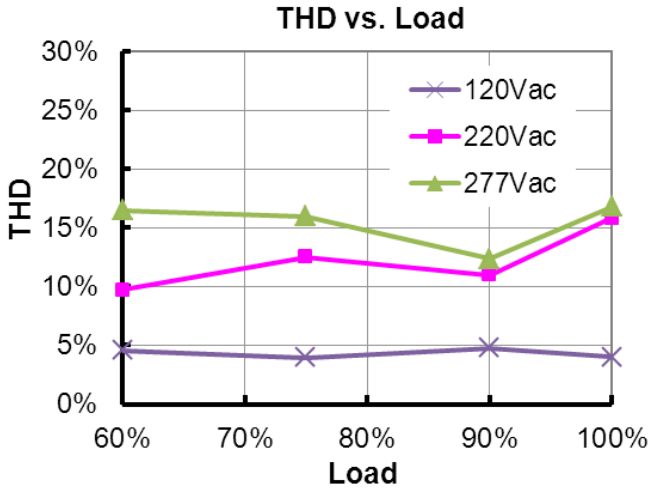


Power Factor Characteristics



Total Harmonic Distortion



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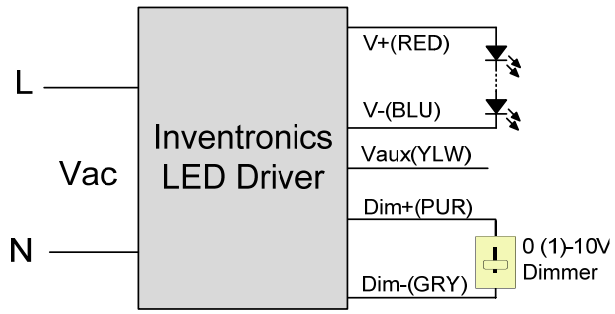
Protection Functions

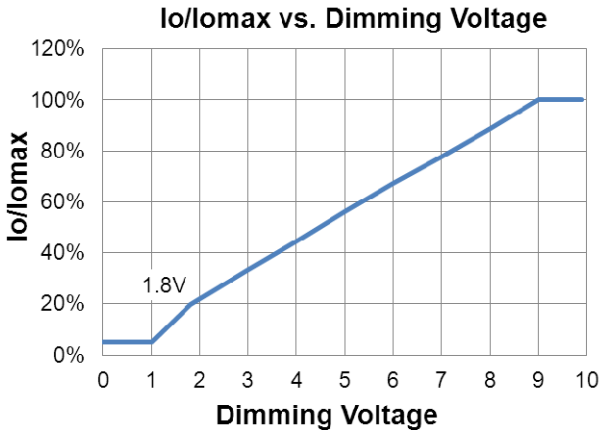
Parameter	Notes
Over Temperature Protection	Decrease output current mode. It will be back to normal condition after over temperature is removed.
Short Circuit Protection	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.
Over Voltage Protection	Limits output voltage at no-load, with backup protection in case the normal voltage limit fails.

Dimming

- **0-10V Dimming**

Two recommended implementations are provided below.



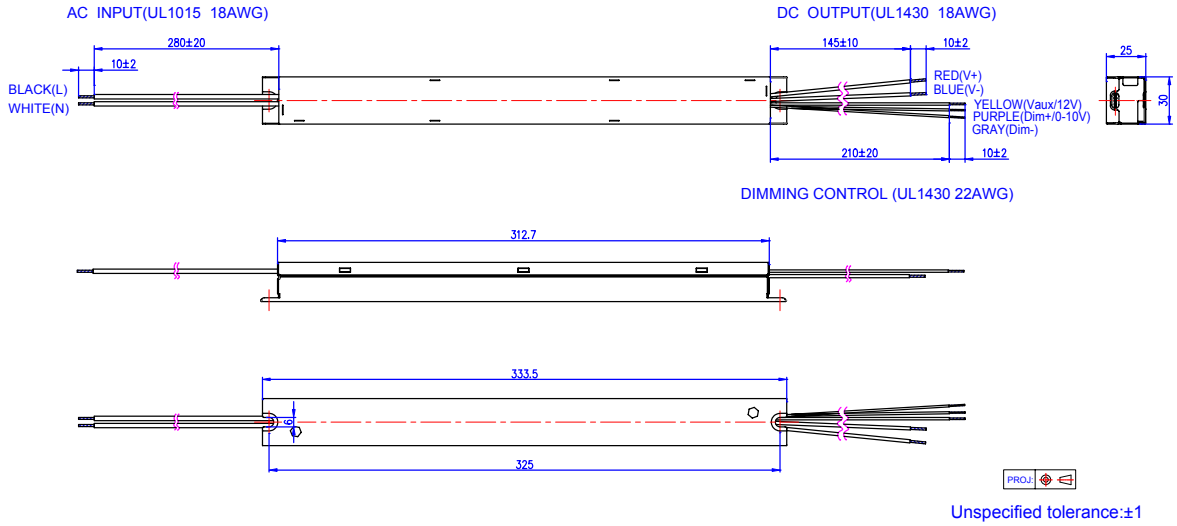


Implementation: DC input

Notes:

1. The dimming signal is allowed to be less than 1V, however, when it is between 0-1V, the output current is 5%Iomax.
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



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
2015-01-09	A	Datasheets Release	/	/