

Features

- High Efficiency (Up to 87.5%)
- 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
- 5 Years Warranty



Description

The **LUC-040SxxxDSF** series is a 40W, constant-current, indoor LED driver that operates from 90-305 Vac input with extra low ripple. It is created for many lighting applications including panel and linear, etc, 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.

Models

Output Current	Input Voltage Range (1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number
					120Vac	220Vac	
530 mA	90~305 Vac 127~300 Vdc	25~75 Vdc	40 W	87.5%	0.96	0.95	LUC-040S053DSF ⁽⁴⁾
700 mA	90~305 Vac 127~300 Vdc	19~55 Vdc	38 W	87.0%	0.96	0.95	LUC-040S070DSF ⁽³⁾⁽⁴⁾
1050 mA	90~305 Vac 127~300 Vdc	13~38 Vdc	40 W	85.5%	0.96	0.95	LUC-040S105DSF ⁽³⁾⁽⁴⁾

Notes: (1) Certified input voltage range: UL, FCC 100-277Vac or 127-300Vdc; otherwise 100-240Vac or 127-250Vdc (except KS).

(2) Measured at 100% 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	-	-	0.60 A	Measured at 100% load and 100 Vac input
	-	-	0.30 A	Measured at 100% load and 220 Vac input
Inrush Current(I ² t)	-	-	0.22 A ² s	At 220Vac input, 25°C cold start, duration=328 μs, 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, 50-60Hz, 75%-100%load
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	At 100% load condition
Output Current Ripple (pk-pk)	-	5%Io	10%Io	At 100% load condition.
Startup Overshoot Current	-	-	5%Io	At 100% load condition.
No Load Voltage				
LUC-040S053DSF	-	-	90 V	
LUC-040S070DSF	-	-	60 V	
LUC-040S105DSF	-	-	45.6 V	
Line Regulation	-	-	±1%	Measured at 100% load
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.6 s	1.0 s	Measured at 120V and 220Vac input. 75%-100%load
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:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
LUC-040S053DSF	84.5%	86.5%	-	
LUC-040S070DSF	83.5%	85.5%	-	
LUC-040S105DSF	82.0%	84.0%	-	
Efficiency at 220 Vac input:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
LUC-040S053DSF	85.5%	87.5%	-	
LUC-040S070DSF	85.0%	87.0%	-	
LUC-040S105DSF	83.5%	85.5%	-	
Efficiency at 277 Vac input:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
LUC-040S053DSF	85.5%	87.5%	-	
LUC-040S070DSF	84.5%	86.5%	-	
LUC-040S105DSF	83.5%	85.5%	-	
MTBF	-	488,000 Hours	-	Measured at 120Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	120,000 Hours	-	Measured at 120Vac input, 80%load and 60°C 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	-30 °C	-	+82 °C	UL8750
	-30 °C	-	+85 °C	IEC60598-1
Operating Case Temperature for Warranty Tc_w	-30 °C	-	+75 °C	Case temperature for 5 years warranty; No condensation
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 90% RH; No condensation
Dimensions Inches (L × W × H) Millimeters (L × W × H)	12.3 × 1.2 × 1.0 313 × 30 × 25			T5-can With mounting ear 13.1 × 1.2 × 1.0 333.5 × 30 × 25
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 μA	-	200 μA	
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.

Safety & EMC Compliance

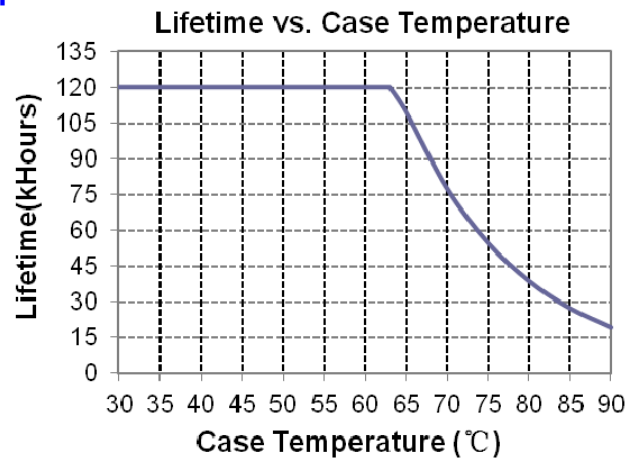
Safety Category	Standard
UL/CUL	UL 8750, UL1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
ENEC & TUV & CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 ⁽¹⁾	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic Current Emissions
EN 61000-3-3	Voltage Fluctuations & Flicker
FCC Part 15 ⁽¹⁾	ANSI C63.4 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

Safety & EMC Compliance (Continued)

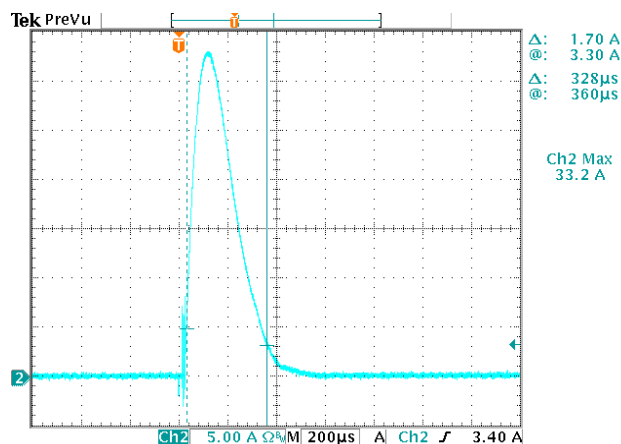
EMS Standards	Notes
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 2 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency 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



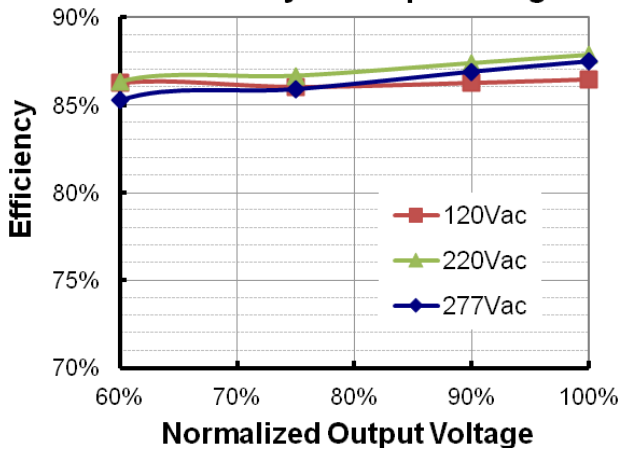
Inrush Current Waveform



Efficiency vs. Load

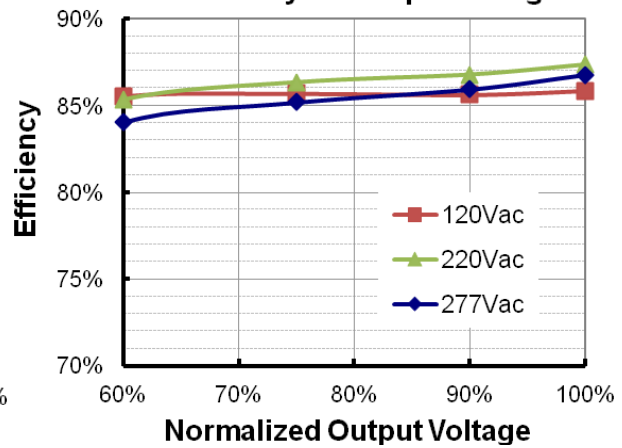
LUC-040S053DSF

Efficiency vs. Output Voltage



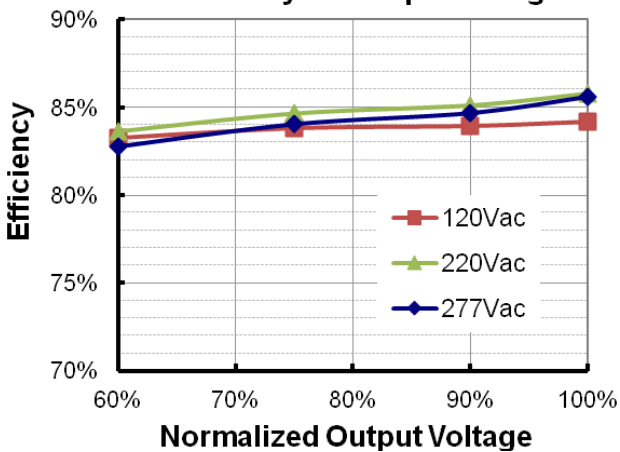
LUC-040S070DSF

Efficiency vs. Output Voltage



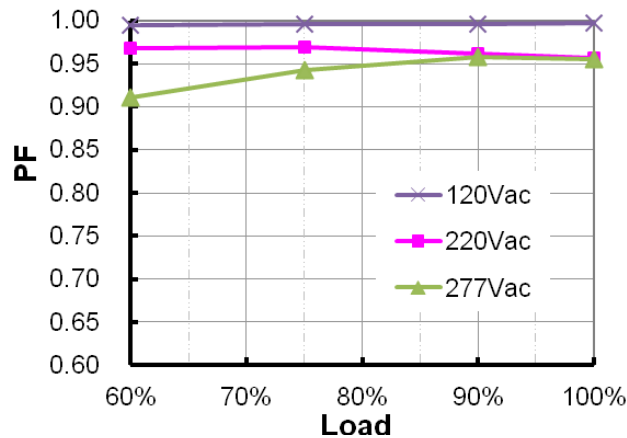
LUC-040S105DSF

Efficiency vs. Output Voltage

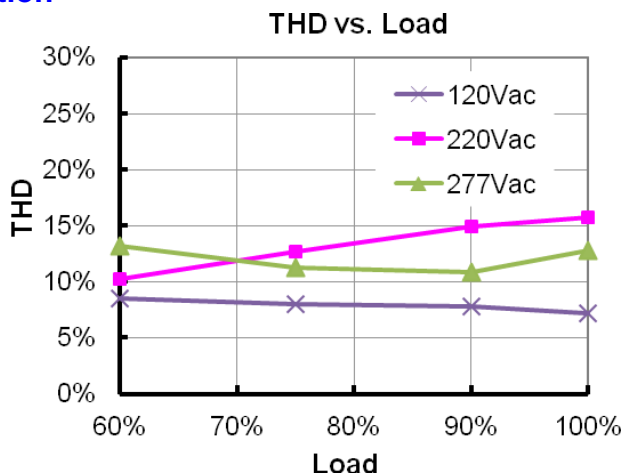


Power Factor Characteristics

PF vs. Load



Total Harmonic Distortion



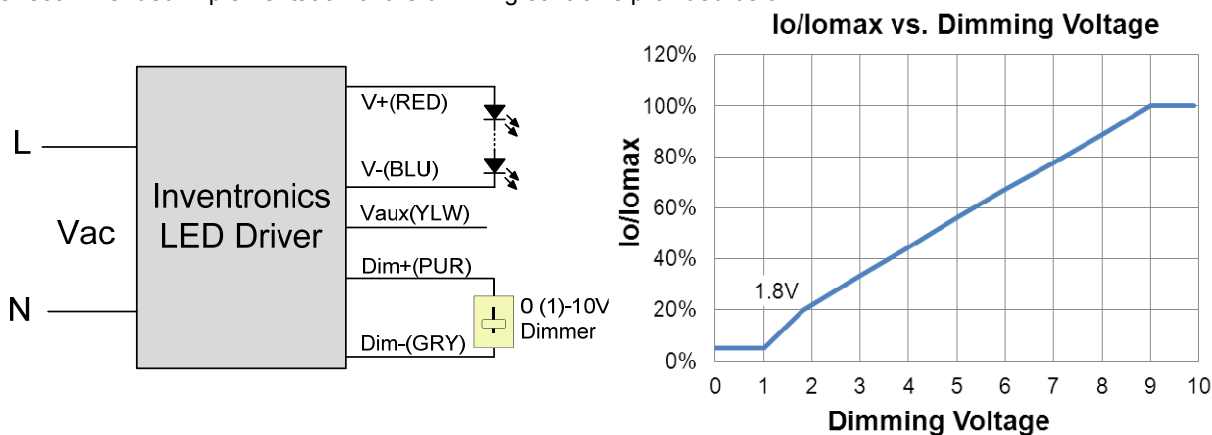
Protection Functions

Parameter	Notes
Over Temperature Protection	Decreases output current. Returning to normal 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 and in case the normal voltage limit fails.

Dimming

● 0-10V Dimming

The recommended implementation of the dimming control is provided below.

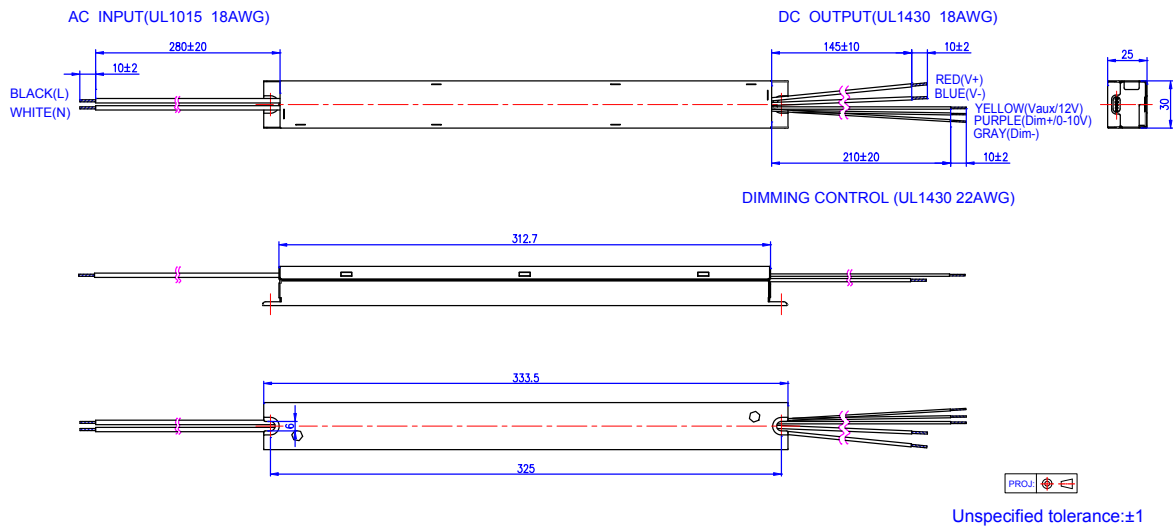


Implementation: DC input

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 reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2015-01-08	A	Datasheets Release	/	/
2019-09-19	B	ENEC Logo	/	Updated
		TUV Logo	/	Updated
		KS Logo	/	Added
		Features	5 Years Warranty	Added
		Input Specifications(Power Factor/THD)	50-60Hz	Added
		Input Specifications(Power Factor/THD)	(30-40W)	Deleted
		Output Specifications (No Load Voltage- LUC-040S105DSF)	50V	45.6 V
		General Specifications	Operating Case Temperature for Warranty Tc_w- Notes	Updated
		General Specifications	Storage Temperature	Added
		General Specifications	With mounting ear	Added
		Environmental Specifications	/	Deleted
		Safety &EMC Compliance	UL/CUL	Updated
		Safety &EMC Compliance	ENEC	Added
		Safety &EMC Compliance	TUV	Added
		Safety &EMC Compliance	CB	Added
		Safety &EMC Compliance	KS	Added
		Safety &EMC Compliance	FCC	Updated
		Safety &EMC Compliance	EN 61000-4-4	Updated
		Safety &EMC Compliance	EN 61000-4-5	Updated
		Safety &EMC Compliance	Note	Added
		Derating	/	Deleted
		Protection Functions	OTP/OVP- Notes	Updated
		RoHS Compliance	/	Updated