

Features

- 0 -10V Dimmable (Compatible with Passive Dimmers)
- 5% Minimum Dimming Level
- Two Channels of Constant Current Output
- High Efficiency (Up to 87%)
- Active Power Factor Correction (0.95 Typical)
- Waterproof (IP54)
- All-Around Protection: SCP, OVP, OTP
- Class 2 Output and SELV



Description

The LUC-042DxxxDSM(SSM) Series operates from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. Features include lightning protection, short circuit protection, over voltage protection and over temperature protection.

Model List

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Efficiency (2)	Power Factor (2)	Model Number
450 mA	90 ~ 305 Vac	27~ 47 Vdc	42 W	87 %	0.95	LUC-042D045DSM(SSM)(3)
520 mA	90 ~ 305 Vac	20~ 41 Vdc	42 W	86 %	0.95	LUC-042D052DSM(SSM)(3)
560 mA	90 ~ 305 Vac	20~ 40 Vdc	45 W	86 %	0.95	LUC-042D056DSM(SSM)(3)
700 mA	90 ~ 305 Vac	17~ 30 Vdc	42 W	85 %	0.95	LUC-042D070DSM(SSM)(4)

- Notes:** (1) Certified input voltage range 100-240Vac for CE only;
 (2) Measured at a 220 Vac input with a full load.
 (3) Class 2 output (USR only) for dry and damp location.
 (4) Class 2 output (USR & CNR) for dry and damp location.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.5 mA	At 277Vac, 60Hz input
Input AC Current	-	-	0.46 A	Measured at full load and 120 Vac input
Inrush Current	-	-	50 A	At 220Vac input, 25°C cold start, duration=50 μs, 10%Ipk-10%Ipk.
Inrush Current(I ² t)	-	-	0.042 A ² s	
Power Factor	0.90	-	-	At 100Vac-277Vac, 75%load-100%load
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
# of Output Channels	-	2	-	
Output Current Tolerance	-5%	-	5%	

Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Output Current Ripple	-	5%Io	10%Io	Full load condition; ripple frequency 140K
Startup Overshoot Current	-	-	10%	Full load condition
Line Regulation	-	-	±1%	
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	0.8 s	1.0 s	Measured at 120Vac input
Dimming Range (Io)	5%	-	100%	
Temperature coefficient	-	-	0.01%/°C	Case temperature = 0°C ~Tc max

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

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
No Load Voltage	Vomax	110% Vomax	130% Vomax	Vomax is the maximum operation output voltage
Short Circuit Protection	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.			
Over Temperature Protection	Decrease output current mode. When the case temperature reaches 100±10°C, the output current decreases to 50%Io until the case temperature reaches 50°C.			

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency Io=450 mA Io=520 mA Io=560 mA Io=700 mA	85% 84% 84% 83%	86% 85% 85% 84%	- - - -	Measured at full load and 120 Vac input
Efficiency Io=450 mA Io=520 mA Io=560 mA Io=700 mA	86% 85% 85% 84%	87% 86% 86% 85%	- - - -	Measured at full load and 220 Vac input
Efficiency Io=450 mA Io=520 mA Io=560 mA Io=700 mA	86% 85% 85% 84%	87% 86% 86% 85%	- - - -	Measured at full load and 277 Vac input
No Load Power Dissipation	-	-	3 W	
MTBF	-	471,000 Hours	-	Measured at 120Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)
Life Time	-	87,900 Hours	-	Measured at 120Vac input, 80%load, Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details
Case temperature	-	-	90°C	

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Dimensions Inches (L × W × H) Millimeters (L × W × H)	8.39 × 1.71 × 1.20 213 × 43.5 × 30.5			
Net Weight		510 g/1.13 lbs		

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

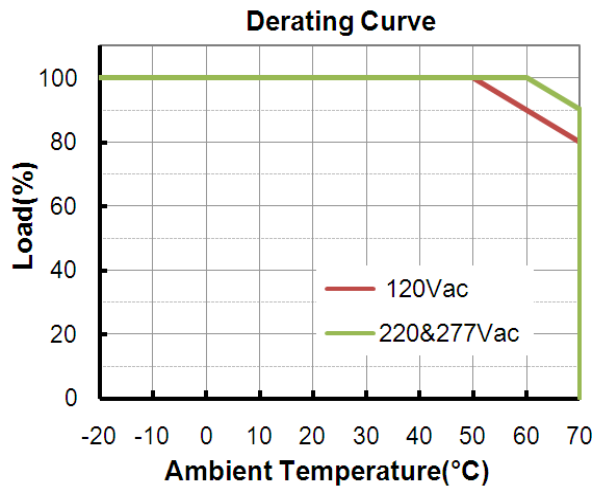
Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-20 °C	-	+70 °C	Humidity: 10% RH to 100% RH. See Derating Curve for more details
Storage Temperature	-30 °C	-	+85 °C	Humidity: 5% RH to 100% RH

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, UL1310, UL1012, CAN/CSA-C22.2 No. 223-M91, CSA C22.2 No. 107.1-01
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015/CISPR15	Conducted Emission Test & Radiated Emission Test
EN 61000-3-2	Harmonic Current Emissions Class C
EN 61000-3-3	Voltage Fluctuations & Flicker
FCC Part 15	ANSI C63.4:2009 Class B
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge Level 3, Criteria A
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS Level 3, Criteria A
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 Level 3, Criteria A
EN 61000-4-8	Power Frequency Magnetic Field Test 3A/m , Criteria A
EN 61000-4-11	Voltage Dips Criteria B
EN 61547	Electromagnetic Immunity Requirements Applies to Lighting Equipment

Derating Curve



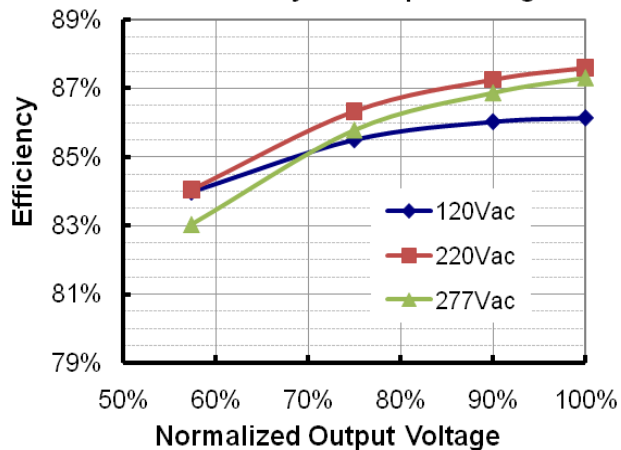
Life Time vs. Case Temperature Curve



Efficiency vs. Load

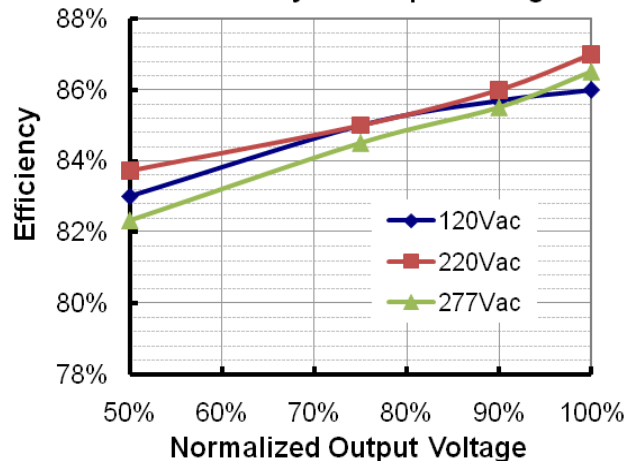
LUC-042D045DSM(SSM)

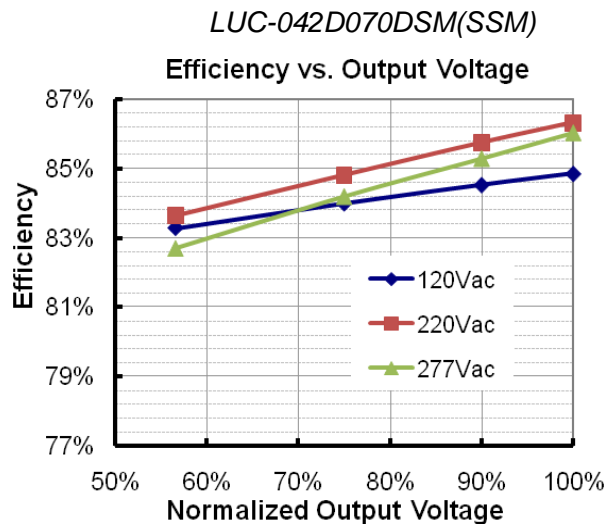
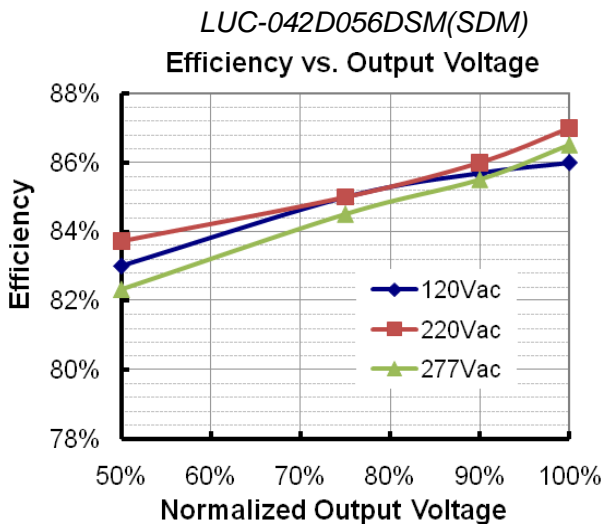
Efficiency vs. Output Voltage



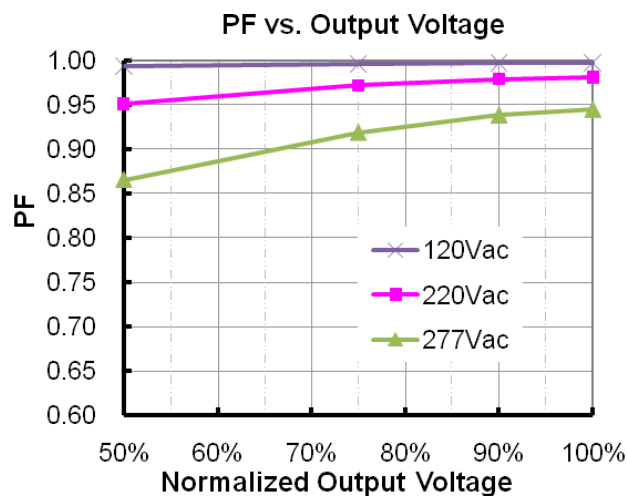
LUC-042D052DSM(SSM)

Efficiency vs. Output Voltage

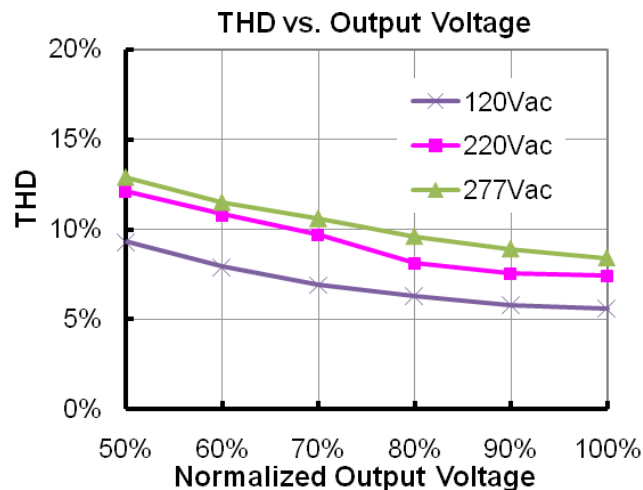




Power Factor Characteristics



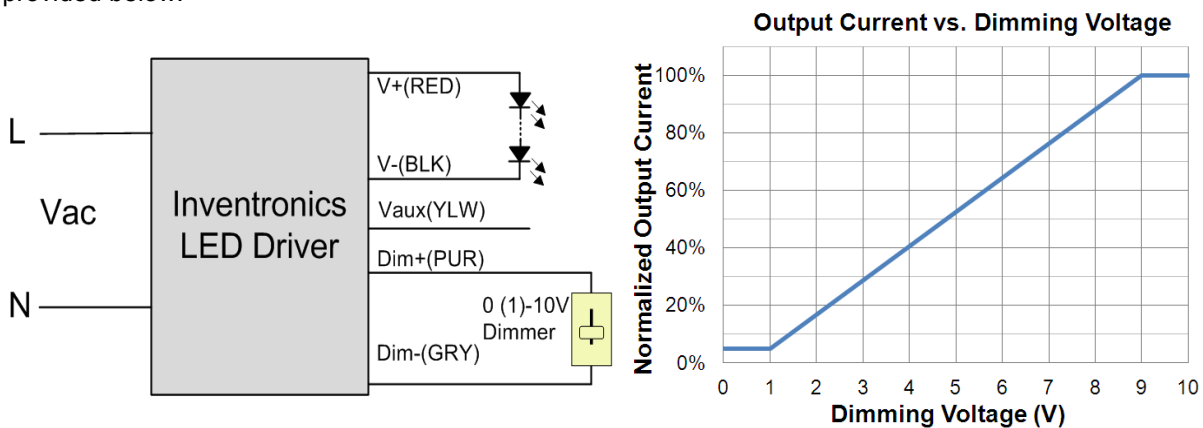
Total Harmonic Distortion



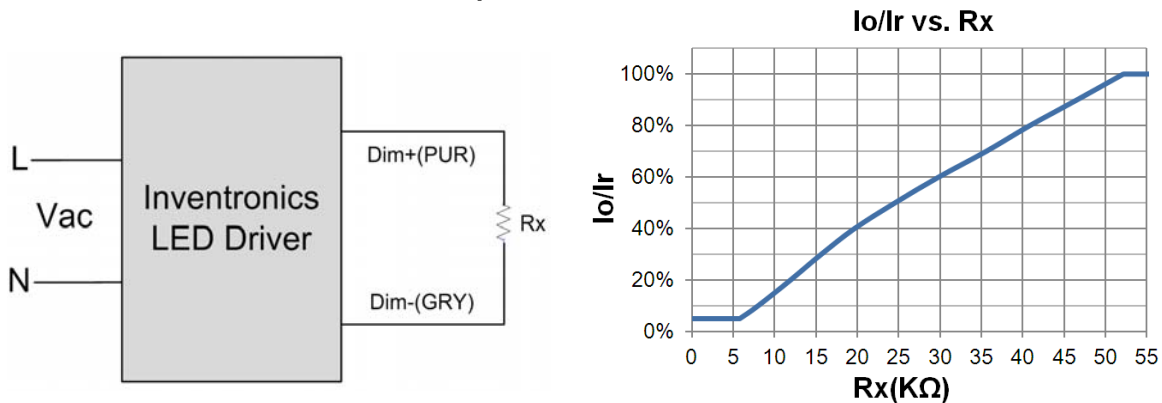
Dimming Control (On secondary side)

Parameter	Min.	Typ.	Max.	Notes
12V output voltage	10.8 V	12.0 V	13.2 V	
12V output source current	0 mA	-	60 mA	
Absolute Maximum Voltage on the 0~10V Wire	-20 V	-	20V	
0~10V Wire Current Sourcing Capability	100 μ A	150 μ A	200 μ A	

The dimmer control is operated from an input signal of 0 – 10 Vdc. Recommended implementations are provided below.



Implementation 1: DC Input



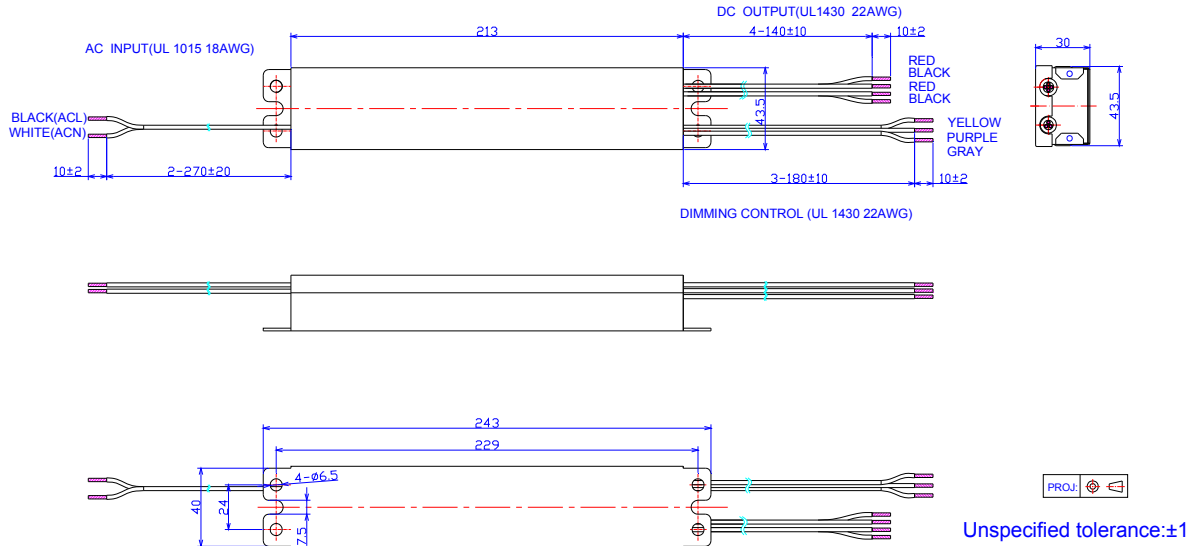
Implementation 2: External Resistor

Notes:

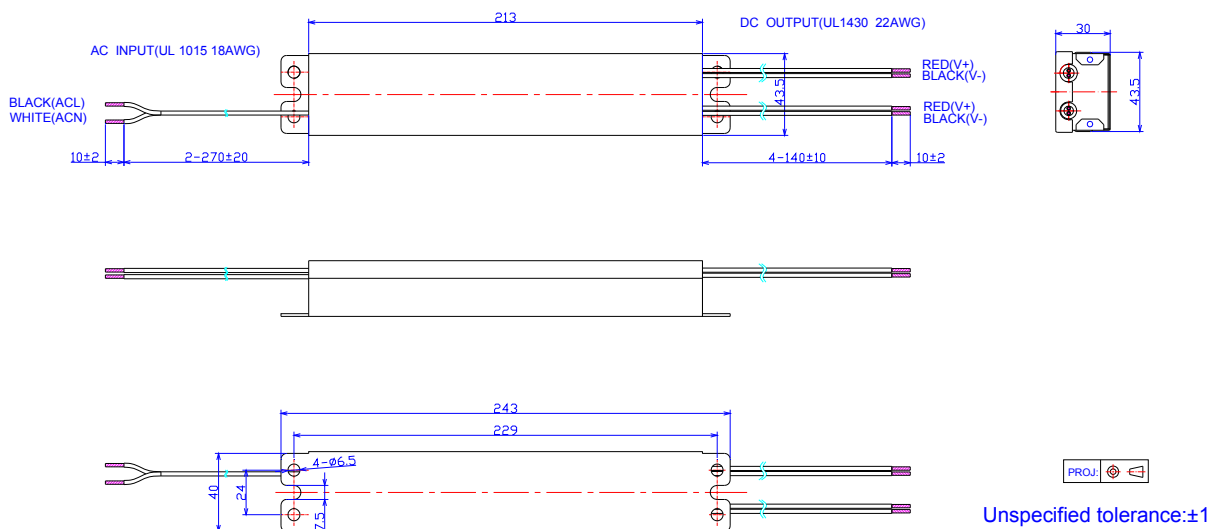
1. The dimming signal is allowed to be less than 1V, however, when it is between 0-1V, the output current is 5% I_o .
2. Do not connect the dimming wires to the output; otherwise, the LED driver cannot work normally.
3. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

Mechanical Outline

LUC-042DxxxDSM



LUC-042DxxxSSM



Notes:

1. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold.
2. The two red wires (Vout positive) are connected internally; the two black wires (Vout negative) are separated inside.
3. The Vout(+) wires are allowed to be connected together. But, the Vout(-) wires cannot be connected together or will become single channel output.

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
2012-12-03	A	Datasheets Released	/	/
2013-04-07	B	OTP description	/	Added
		The note of Output Current Ripple	/	Updated
		Notes of mechanical outline	/	Added
		EN 61000-4-5- Surge Immunity Test: AC Power Line:	Line to Line 1 kV	Line to Line 2 kV
2013-08-14	C	Io/Ir vs. Rx Curve	/	Added
2019-09-23	D	KS Logo	/	Added
		Safety & EMC Compliance	KS	Added