

## Features

- 0 -10V Dimmable (Compatible with Passive Dimmers)
- Constant Current Output
- High Efficiency
- Active Power Factor Correction
- All-Round Protection: OLP, SCP and Open Lamp Protection
- EN61347, UL8750 Safety Certifications Approved
- Class2 Output



## Description

The LUC-012SxxxDSP (SSP) series operate from a 90 ~ 305 Vac input range. They are designed to be highly efficient and reliable. Features include open lamp, short circuit and over load protections.

## Model List

| Output Current | Input Voltage Range | Output Voltage Range | Max. Output Power | Efficiency (1) | Power Factor (1) | Model Number        |
|----------------|---------------------|----------------------|-------------------|----------------|------------------|---------------------|
| 350 mA         | 90 ~ 305 Vac        | 17~ 34 Vdc           | 12 W              | 82 %           | 0.94             | LUC-012S035DSP(SSP) |
| 500 mA         | 90 ~ 305 Vac        | 12~ 24 Vdc           | 12 W              | 81 %           | 0.94             | LUC-012S050DSP(SSP) |
| 700 mA         | 90 ~ 305 Vac        | 9 ~ 17 Vdc           | 12 W              | 81 %           | 0.94             | LUC-012S070DSP(SSP) |

**Notes:** (1) Measured in 220 Vac input at full load.

## Input Specifications

| Parameter        | Min.  | Typ. | Max.   | Notes                                                |
|------------------|-------|------|--------|------------------------------------------------------|
| Input Voltage    | 90Vac | -    | 305Vac |                                                      |
| Input Frequency  | 47 Hz | -    | 63 Hz  |                                                      |
| Leakage Current  | -     | -    | 0.5 mA | At 277Vac, 50Hz input                                |
| Input AC Current | -     | -    | 0.18 A | Measured at full load and 120 Vac input              |
| Inrush Current   | -     | -    | 3A     | At 277Vac input Ta=25°C cold start, duration = 150µs |

## Output Specifications

| Parameter                 | Min. | Typ.  | Max.  | Notes                          |
|---------------------------|------|-------|-------|--------------------------------|
| Output Current Tolerance  | -5%  | -     | 5%    |                                |
| Output Current Ripple     |      |       | 30%Io |                                |
| Startup Overshoot Current | -    | -     | 20%   | Full load condition            |
| Line Regulation           | -    | -     | 1%    | Input voltage from min to max  |
| Load Regulation           | -    | -     | 3%    | Output voltage from min to max |
| Turn-on Delay Time        | -    | 0.8 s | 1 s   | Measured at 120Vac input       |
| Dimming Range (Io)        | 10%  |       | 100%  |                                |

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

Specifications are subject to changes without notice.

## Protection Functions

| Parameter                | Min.                                                                                 | Typ.       | Max.       | Notes                                         |
|--------------------------|--------------------------------------------------------------------------------------|------------|------------|-----------------------------------------------|
| No Load Voltage          | Vomax                                                                                | 110% Vomax | 120% Vomax | Vomax is the maximum operation output voltage |
| Short Circuit Protection | Hiccup. The power supply shall be self-recovery when the fault condition is removed. |            |            |                                               |

## General Specifications

| Parameter                                                                                     | Min.                                | Typ.                 | Max.        | Notes                                                                                                  |
|-----------------------------------------------------------------------------------------------|-------------------------------------|----------------------|-------------|--------------------------------------------------------------------------------------------------------|
| Efficiency<br>I <sub>o</sub> = 350 mA<br>I <sub>o</sub> = 500 mA<br>I <sub>o</sub> = 700 mA   | 81%<br>80%<br>80%                   | 82%<br>81%<br>81%    | -<br>-<br>- | Measured at full load and 277 Vac input                                                                |
| Efficiency<br>I <sub>o</sub> = 350 mA<br>I <sub>o</sub> = 500 mA<br>I <sub>o</sub> = 700 mA   | 79%<br>78%<br>78%                   | 80%<br>79%<br>79%    | -<br>-<br>- | Measured at full load and 120 Vac input                                                                |
| Power Factor<br>I <sub>o</sub> = 350 mA<br>I <sub>o</sub> = 500 mA<br>I <sub>o</sub> = 700 mA | 0.88<br>0.88<br>0.88                | 0.90<br>0.90<br>0.90 | -<br>-<br>- | Measured at maximum output voltage and 277Vac input                                                    |
| Power Factor<br>I <sub>o</sub> = 350 mA<br>I <sub>o</sub> = 500 mA<br>I <sub>o</sub> = 700 mA | 0.96<br>0.96<br>0.96                | 0.98<br>0.98<br>0.98 | -<br>-<br>- | Measured at maximum output voltage and 120 Vac input                                                   |
| No Load Power Dissipation                                                                     | -                                   | -                    | 3W          |                                                                                                        |
| MTBF                                                                                          | 459,000 Hours                       | -                    | -           | Measured at 120Vac input, 80%load and 25°C ambient temperature (MIL-HDBK-217F)                         |
| Life Time                                                                                     | 63,530 Hours                        | -                    | -           | Case temperature=60°C @ T <sub>c</sub> point.<br>See the life vs. T <sub>c</sub> curve for the details |
| Dimensions<br>Inches (L × W × H)<br>Millimeters (L × W × H)                                   | 4.13 × 1.65 × 1.22<br>105 × 42 × 31 |                      |             |                                                                                                        |
| Net Weight                                                                                    | 140g                                |                      |             |                                                                                                        |

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

## Environmental Specifications

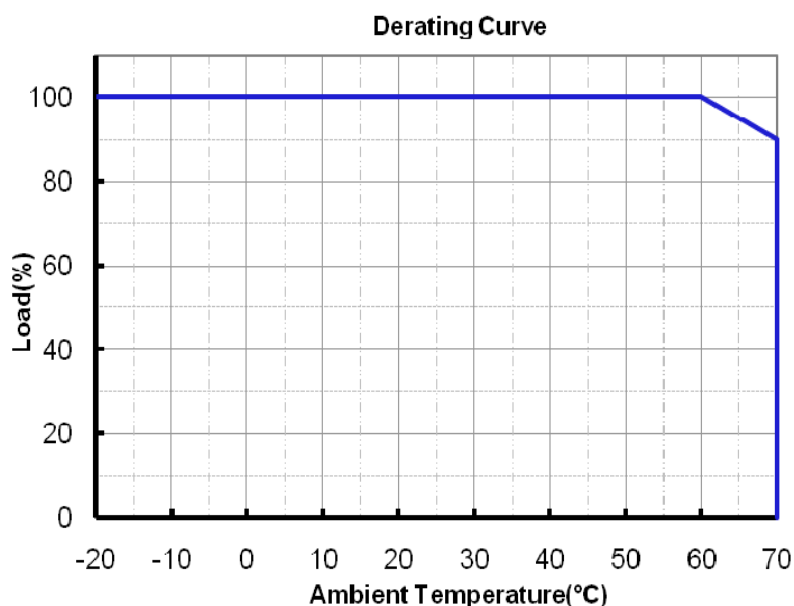
| Parameter             | Min.   | Typ. | Max.   | Notes                       |
|-----------------------|--------|------|--------|-----------------------------|
| Operating Temperature | -20°C  | -    | +70 °C | Humidity: 10% RH to 90% RH. |
| Storage Temperature   | -30 °C | -    | +85 °C | Humidity: 5% RH to 90% RH   |

Specifications are subject to changes without notice.

## Safety & EMC Compliance

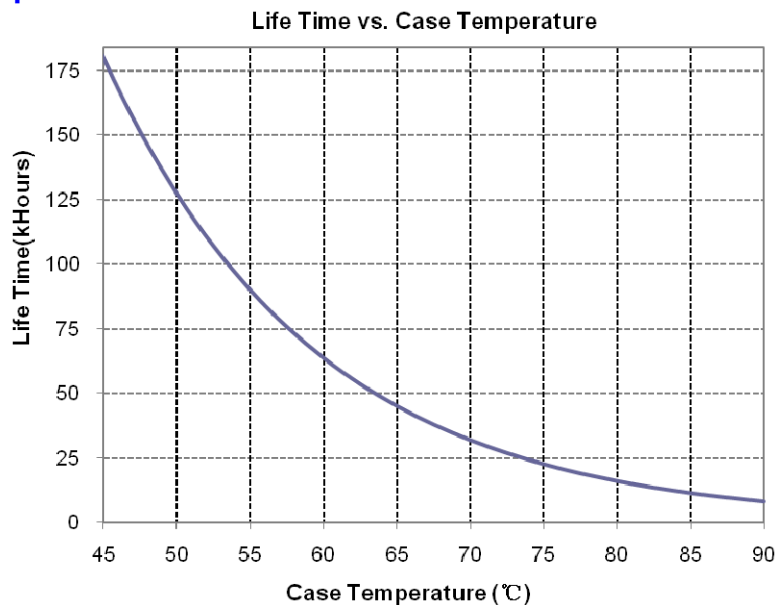
| Safety Category  | Standard                                                                                      |
|------------------|-----------------------------------------------------------------------------------------------|
| CE               | EN 61347-1, EN61347-2-13                                                                      |
| UL/cUL           | UL8750, UL1310, UL1012, CAN/CSA-C22.2 No. 223-M91, CSA C22.2 No. 107.1-01                     |
| EMI Standards    | Notes                                                                                         |
| EN 55015/CISPR15 | Conducted Emission Test & Radiated Emission Test with 6 dB margin                             |
| EN 61000-3-2     | Harmonic Current Emissions Class C                                                            |
| EN 61000-3-3     | Voltage Fluctuations & Flicker                                                                |
| FCC Part 15      | 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 1 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

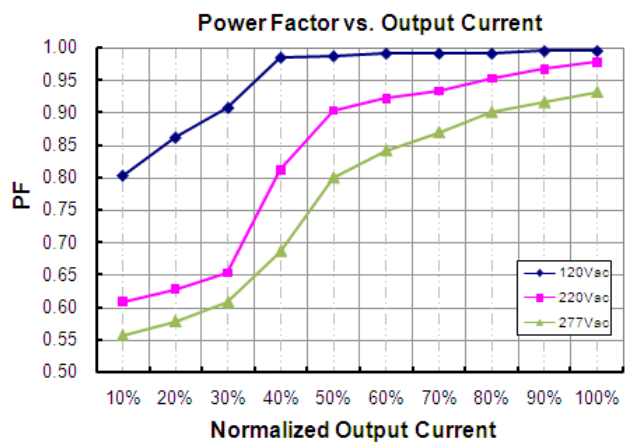
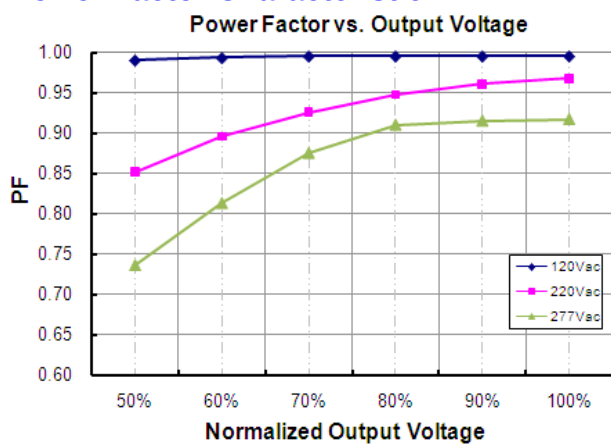


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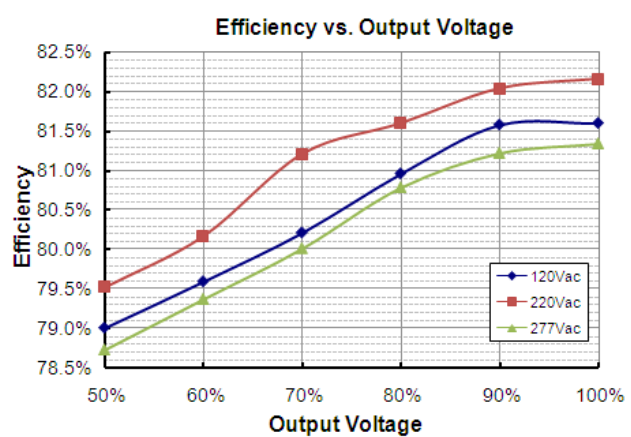
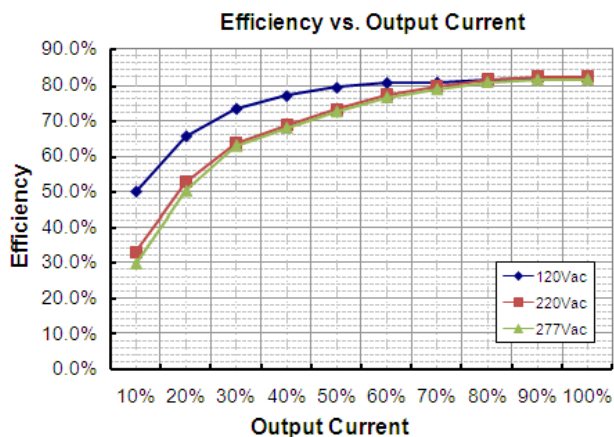
## Life vs. Case Temperature Curve



## Power Factor Characteristic



## Efficiency vs. Load (350mA model)

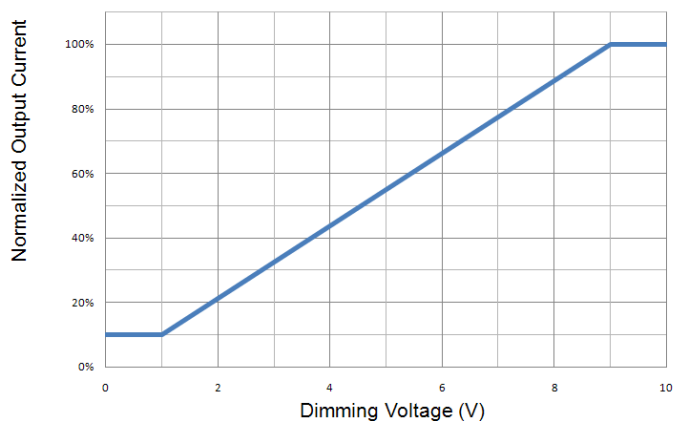


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## Dimming Control (On secondary side)

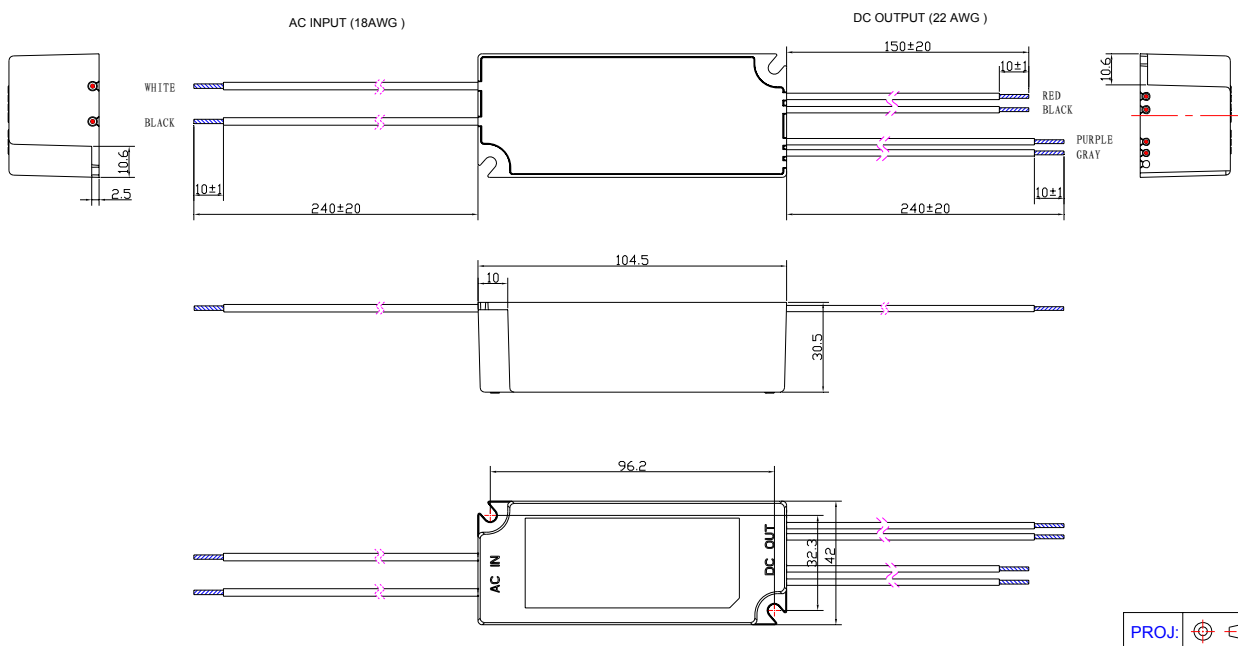
| Parameter                                  | Min.   | Typ.  | Max.   | Notes |
|--------------------------------------------|--------|-------|--------|-------|
| Absolute Maximum Voltage on the 0~10V Wire | -2 V   | -     | 15 V   |       |
| 0~10V Wire Current Sourcing Capability     | 100 uA | 150uA | 200 uA |       |

Output Current vs. Dimming Voltage



## Mechanical Outline

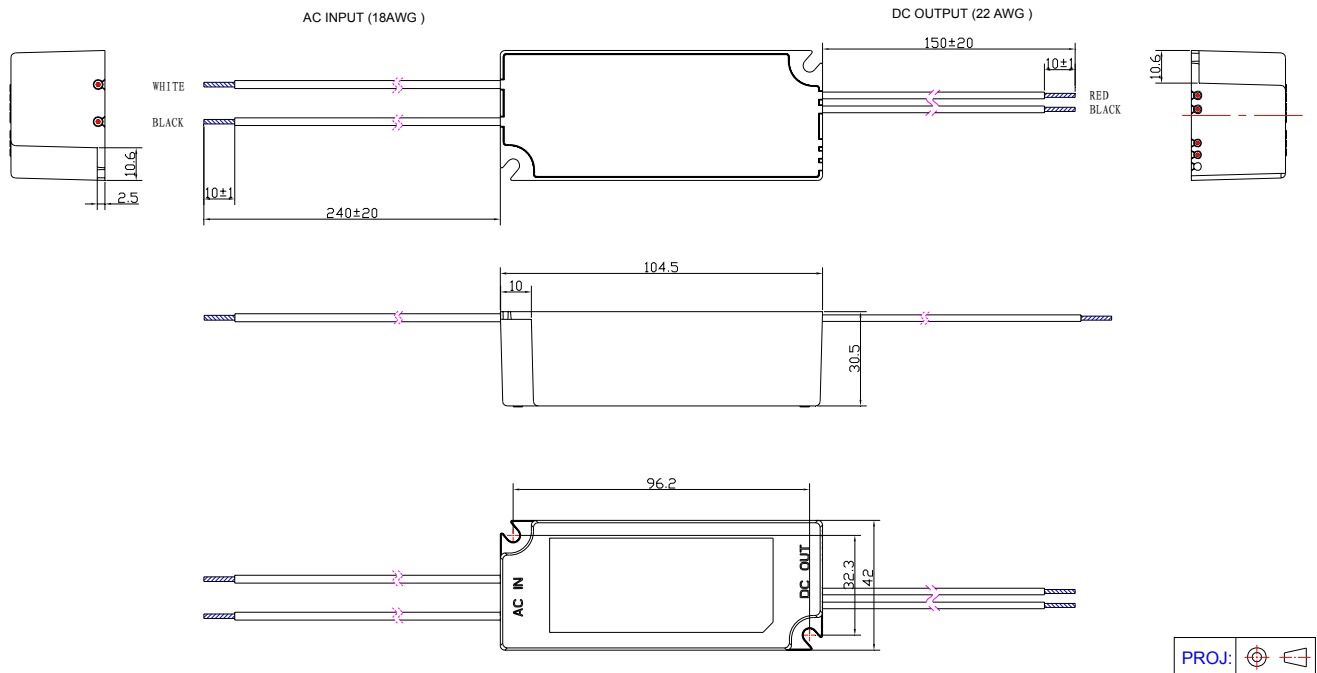
### LUC-012SxxxDSP



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## Mechanical Outline (Continued)

### LUC-012SxxxSSP



## RoHS Compliance

Our products comply with the European Directive 2002/95/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     |
| 2011-09-29  | A    | Release                                 | /    | /      |
| 2011-10-11  | B    | Derating Curve, Life time PF, EFF Curve | /    | Update |