## Features

- Ultra High Efficiency (Up to 92%)
- High Power Factor (0.99 Typical)
- Constant Voltage
- Lightning Protection
- All-Round Protection: OVP, OCP, SCP, OTP
- Waterproof (IP67)

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E328335

## Description

The EUV-100SxxxST Series operate from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. Features include lightning protection, over voltage protection, over current protection, short circuit protection and over temperature protection.

## Models

| Output Voltage | Input Voltage Range | Output Current Range | Max. Output Power | Typical Efficiency (1) | Power Factor | | Model Number (2) |
|---|---|---|---|---|---|---|---|
| | | | | | 110Vac | 220Vac | |
| 12 Vdc | 90 ~ 305 Vac | 0~8.33 A | 100 W | 91% | 0.99 | 0.96 | EUV-100S012ST |
| 24 Vdc | 90 ~ 305 Vac | 0~4.05 A | 100 W | 92% | 0.99 | 0.96 | EUV-100S024ST☆ |
| 36 Vdc | 90 ~ 305 Vac | 0~2.75 A | 100 W | 92% | 0.99 | 0.96 | EUV-100S036ST☆ |
| 48 Vdc | 90 ~ 305 Vac | 0~1.95 A | 100 W | 92% | 0.99 | 0.96 | EUV-100S048ST☆ |

**Note:** (1) Measured at full load and 220 Vac input.
(2) A suffix –xxxx may be added to denote variations or modifications to the base product, where x can be any alphanumeric character or blank.
(3) ☆: Popular model.

## Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Input Voltage | 90 V | - | 305 V | |
| Input Frequency | 47 Hz | - | 63 Hz | |
| Leakage Current | - | - | 0.75 mA | At 277Vac 60Hz input |
| Input AC Current | - | - | 1.20 A | Measured at full load and 100 Vac input. |
| | - | - | 0.60 A | Measured at full load and 220 Vac input. |
| Inrush Current | - | - | 65 A | At 220Vac input, 25℃ cold start, duration=1.2 ms , 10%Ipk-10%Ipk. |
| Inrush Current($I^2t$) | - | - | 1 $A^2s$ | |
| Power Factor | 0.85 | - | - | At 100Vac-277Vac, 75%load-100%load |
| THD | - | - | 20% | At 220Vac, full load |

## Output Specifications

| Parameter | | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|---|
| Output Voltage Tolerance | | -5% | - | 5% | |
| Ripple and Noise (pk-pk) | | - | - | 2.0% $V_O$ | Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor. |
| Line Regulation | | - | - | ±1% | |
| Load Regulation | | - | - | ±2% | |
| Turn-on Delay Time | | - | 0.6 s | 1.2 s | Measured at 110Vac input. |
| | | - | 0.3 s | 0.6 s | Measured at 220Vac input. |
| Output Overshoot / Undershoot | | - | - | 10% | When power on or off. |
| Load Dynamic Response | Output Deviation | - | - | 5% $V_O$ | R/S: 1 A/uS<br>Load: 25% ~ 75% full load. |
| | Settling Time | - | - | 10 mS | |
| Temperature coefficient | | - | - | 0.05%/°C | Case temperature = 0°C ~Tc max |

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

## Protection Functions

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Over Voltage Protection | | | | |
| $V_O$ = 12 V | 14 V | 15 V | 16 V | Latch mode. The power supply shall return to normal operation only after the power is turn-on again. |
| $V_O$ = 24 V | 27 V | 30 V | 34 V | |
| $V_O$ = 36 V | 40 V | 47 V | 50 V | |
| $V_O$ = 48 V | 54 V | 59 V | 63 V | |
| Over Current Protection | 110% $I_O$ | 135% $I_O$ | 195% $I_O$ | Hiccup mode. The power supply shall be self-recovery when the fault condition is removed. |
| Over Temperature Protection | - | 110 °C | - | Maximum temperature of components inside the case. |
| Short Circuit Protection | 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. | | | |

## General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Efficiency | | | | |
| $V_O$ = 12 V | 87% | 89% | - | Measured at full load, 110Vac input, 25℃ ambient temperature, after the unit is thermally stabilized. It will be lower about 1%, if measured immediately after startup. |
| $V_O$ = 24 V | 88% | 90% | - | |
| $V_O$ = 36 V | 88% | 90% | - | |
| $V_O$ = 48 V | 88% | 90% | - | |
| Efficiency | | | | |
| $V_O$ = 12 V | 89% | 91% | - | Measured at full load, 220Vac input, 25℃ ambient temperature, after the unit is thermally stabilized. It will be lower about 1%, if measured immediately after startup. |
| $V_O$ = 24 V | 90% | 92% | - | |
| $V_O$ = 36 V | 90% | 92% | - | |
| $V_O$ = 48 V | 90% | 92% | - | |
| No Load Power Dissipation | - | - | 3.5 W | |

## General Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| MTBF | - | 338,000 hours | - | Measured at 110Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Life Time | - | 113,000 hours | - | Measured at 220Vac input, 80%Load; Case temperature=60℃ @ Tc point. See life time vs. Tc curve for the details |
| Case temperature | - | - | 88 °C | |
| Dimensions<br>Inches (L × W × H)<br>Millimeters (L × W × H) | 7.24 × 2.66 × 1.44<br>184 × 67.5 × 36.5 | | | |
| Net Weight | - | 950 g | - | |

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

## Environmental Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Operating Temperature | -35 ℃ | - | +70 ℃ | Humidity: 10% RH to 100% RH<br>See Derating Curve for more details |
| Storage Temperature | -40 ℃ | - | +85 ℃ | Humidity: 5% RH to 100% RH |

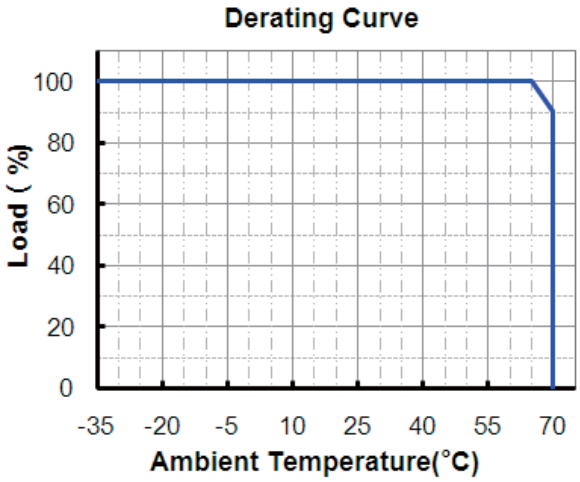
## Safety & EMC Compliance

| Safety Category | Standard |
|---|---|
| UL/CUL | UL8750,UL1012, CSA-C22.2 No. 107.1 |
| 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 |
| **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 |
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: line to line 2 kV, line to earth 4 kV |
| EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS |
| EN 61000-4-8 | Power Frequency Magnetic Field Test |

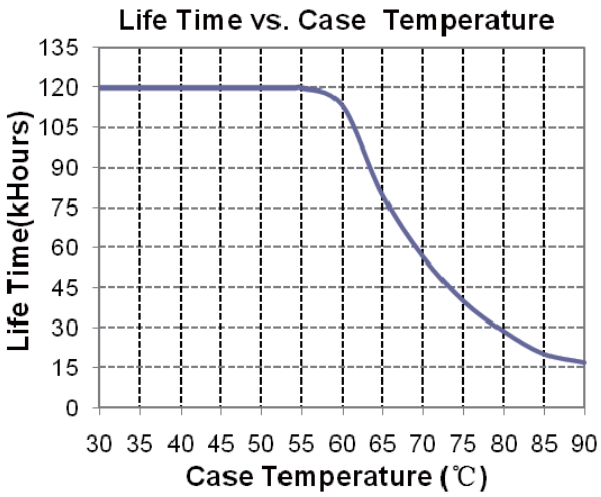
## Safety & EMC Compliance (Continued)

| EMS Standards | Notes |
|---|---|
| EN 61000-4-11 | Voltage Dips |
| EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

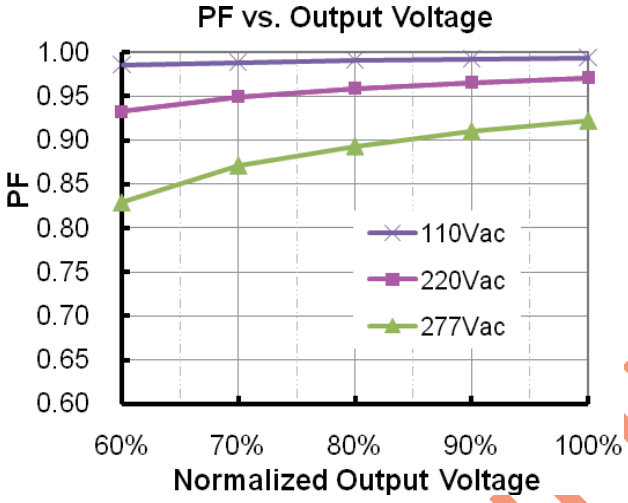
## Derating Curve



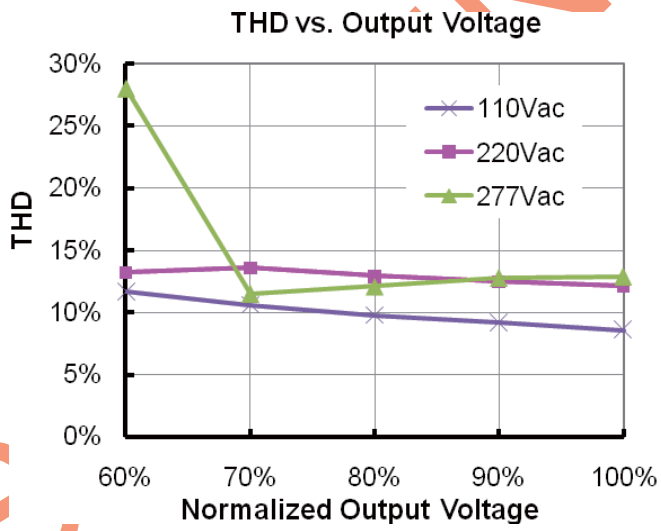

## Life time vs. Case Temperature Curve



## Power Factor Characteristics

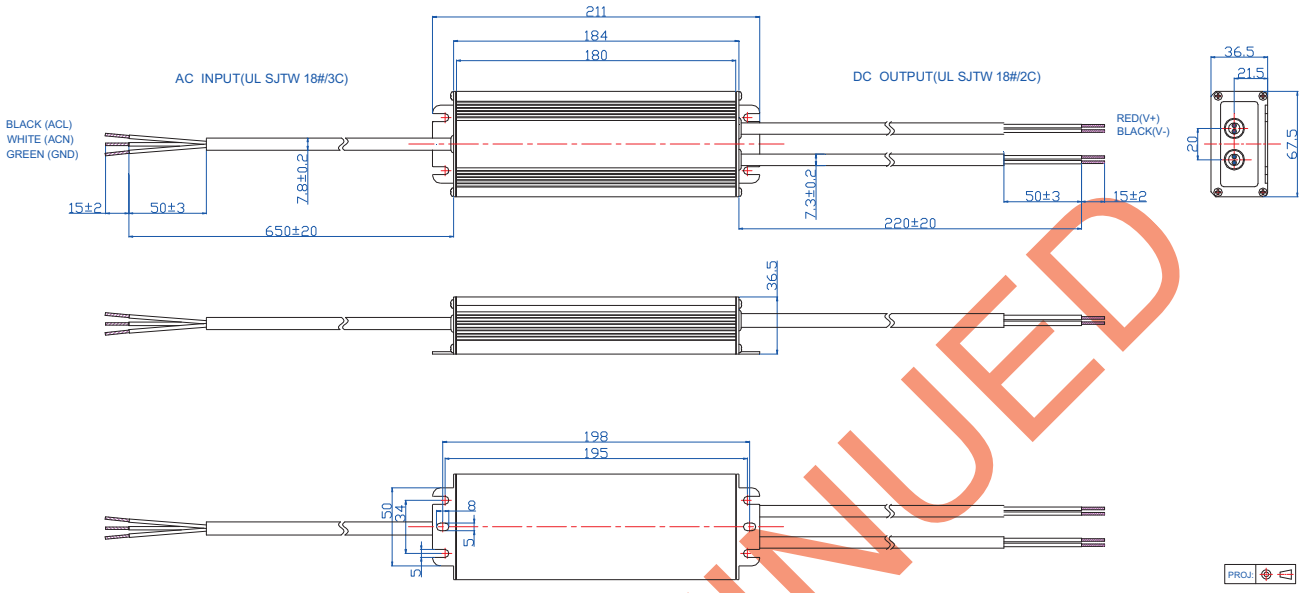



## Total Harmonic Distortion Curve



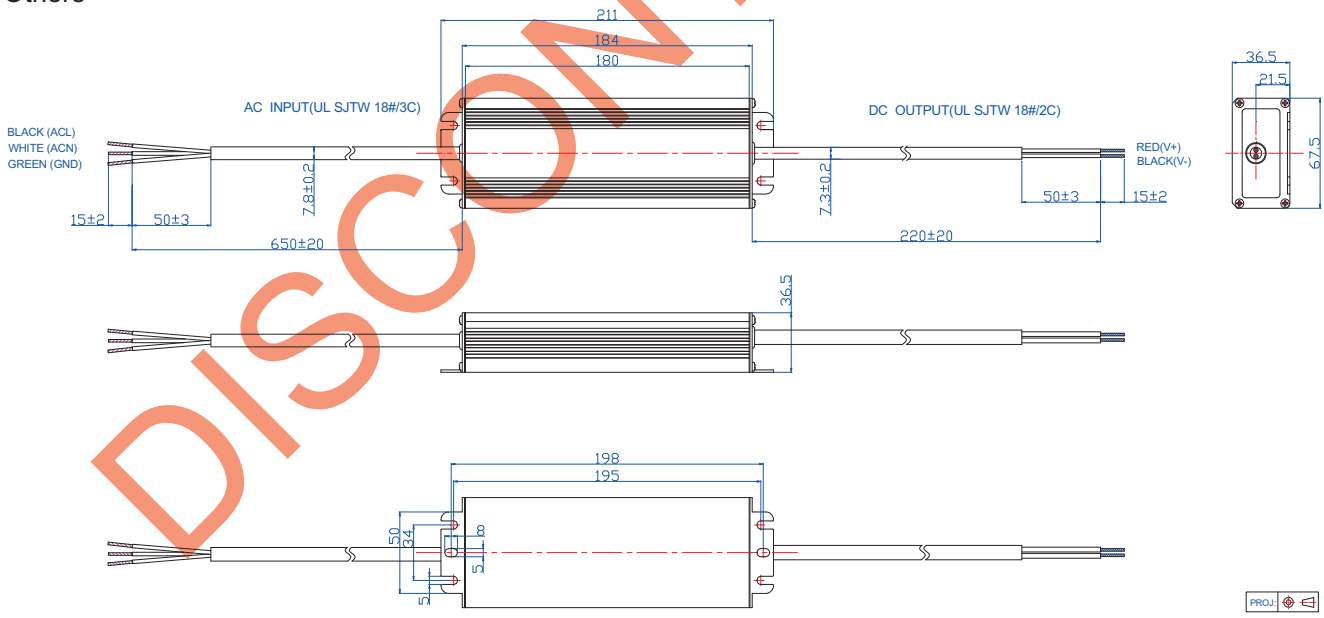
## Mechanical Outline

EUV-100S012ST




**Note:** The 2 DC output cables are connected in parallel internally because one AWG #18 wire can only carry 10A. Please connect the 2 red wires together and 2 black wires together in application, or ensure each cable carries same current.

Others






## 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 | |
| 2009-08-14 | A | Change Max. Output Current and Efficiency. | | | | |
| 2009-09-02 | B | Change MTBF and Life Time. | | | | |
| 2009-09-11 | C | Change Turn-on Delay Time | | | | |
| 2009-10-15 | D | Delete “UL1310 Class2” in Safety & EMC Compliance | | | | |
| 2009-11-10 | E | Change the min. value and notes of efficiency. | | | | |
| 2009-11-13 | F | Add the Mechanical Outline of 12V. | | | | |
| 2009-12-16 | G | Add note for mechanical outline. | | | | |
| 2010-01-14 | H | Change the max. value of over current protection. | | | | |
| 2010-05-31 | I | Add star rank for recommended models | / | | ☆: Popular model. | |
| | | Add Leakage Current in Input Specifications | / | | Max. 0.75 mA At 277Vac 50Hz input | |
| | | Standardize the tolerance in Mechanical Outline | / | | / | |
| 2012-6-12 | J | Mechanical Outline | / | | Updated | |
| | | Life Time Curve | / | | Added | |
| | | Vo=81 V & Vo=105 V Models | / | | Deleted | |
| 2012-7-17 | K | Max Case Temperature | / | | Updated | |
| 2012-12-24 | L | MTBF | Min 439,000 hours | | Typ 338,000 hours | |
| | | Life time | Min 50,000 Hrs @ 65℃ | | Typ113,000 Hrs@ 60℃ | |
| | | Ripple and Noise (pk-pk) | 1.5% $V_O$ | | 2.0% $V_O$ | |
| | | Turn-on delay time @110 Vac | 1.0 s | | 1.2 s | |
| | | Inrush Current($I^2t$) | / | | Added | |
| | | Min PF and max THD | / | | Added | |
| | | Temperature coefficient | / | | Added | |
| | | No Load Power Dissipation | 1.5 W | | 3.5 W | |
| | | 42V and 54V Model | / | | Deleted | |
| | | Efficiency @ 110 Vac | MIN | TYP | MIN | TYP |
| | | $V_O$ = 12 V | 86% | 89% | 87% | 89% |
| | | $V_O$ = 24 V | 88% | 91% | 88% | 90% |
| | | $V_O$ = 36 V | 88% | 90% | 88% | 90% |
| | | $V_O$ = 48 V | 88% | 90% | 88% | 90% |
| | | $V_O$ = 54 V | 88% | 91% | 89% | 91% |
| | | Efficiency @ 220Vac | MIN | TYP | MIN | TYP |
| | | $V_O$ = 12 V | 89% | 91% | 89% | 91% |
| | | $V_O$ = 24 V | 91% | 93% | 90% | 92% |
| | | $V_O$ = 36 V | 91% | 93% | 90% | 92% |
| | | $V_O$ = 48 V | 91% | 92% | 90% | 92% |
| | | $V_O$ = 54 V | 91% | 92% | 91% | 92% |
| | | PF curve and THD curve | / | | Added | |