

## Features

- High Efficiency (Up to 89%)
- Active Power Factor Correction (Typical 0.92)
- Constant Current Output
- Lightning Protection
- Waterproof (IP67)
- Dimming Control
- All-Round Protection: OVP, SCP, OLP
- Comply With UL8750 & EN61347 Safety Regulations
- Comply With FCC Part15 Class B



## Description

The EUC-050SxxxDT(ST) Series operate from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. Features include over voltage protection, short circuit protection and over load protection.

## Models

| Output Current | Input Voltage Range | Output Voltage Range | Max. Output Power | Typical Efficiency (1) | Power Factor(1) |        | Model Number           |
|----------------|---------------------|----------------------|-------------------|------------------------|-----------------|--------|------------------------|
|                |                     |                      |                   |                        | 110Vac          | 220Vac |                        |
| 4200 mA        | 90 ~ 305 Vac        | 4 ~12 Vdc            | 50 W              | 83%                    | 0.98            | 0.92   | EUC-050S420DT (ST) (6) |
| 3330 mA        | 90 ~ 305 Vac        | 5 ~15 Vdc            | 50 W              | 84%                    | 0.98            | 0.92   | EUC-050S333DT(ST) (6)  |
| 2800 mA        | 90 ~ 305 Vac        | 6 ~18 Vdc            | 50 W              | 84%                    | 0.98            | 0.92   | EUC-050S280DT(ST) (6)  |
| 2100 mA        | 90 ~ 305 Vac        | 8 ~24 Vdc            | 50 W              | 86%                    | 0.98            | 0.92   | EUC-050S210DT(ST) (6)  |
| 1750 mA        | 90 ~ 305 Vac        | 9 ~29 Vdc            | 50 W              | 87%                    | 0.98            | 0.92   | EUC-050S175DT(ST) (6)★ |
| 1400 mA        | 90 ~ 305 Vac        | 12~36 Vdc            | 50 W              | 87%                    | 0.98            | 0.92   | EUC-050S140DT(ST) (6)  |
| 1100 mA        | 90 ~ 305 Vac        | 16~48 Vdc            | 50 W              | 87%                    | 0.98            | 0.92   | EUC-050S110DT(ST) (5)★ |
| 700 mA         | 90 ~ 305 Vac        | 24~72 Vdc            | 50 W              | 87%                    | 0.98            | 0.92   | EUC-050S070DT(ST) (4)  |
| 580 mA         | 90 ~ 305 Vac        | 27~86 Vdc            | 50 W              | 87%                    | 0.98            | 0.92   | EUC-050S058DT(ST) (4)  |
| 450 mA         | 90 ~ 305 Vac        | 36~110 Vdc           | 50 W              | 88%                    | 0.98            | 0.92   | EUC-050S045DT(ST) (4)★ |
| 350 mA         | 90 ~ 305 Vac        | 47~142 Vdc           | 50 W              | 89%                    | 0.98            | 0.92   | EUC-050S035DT(ST) (4)★ |

- Notes:**
- (1) Measured at full load and 220 Vac input.
  - (2) The DT suffix may be changed to ST to omit the dimming function and remove the three wires associated with that function.
  - (3) A suffix -xxx may be added to denote variations or modifications to the base product, where x can be any alphanumeric character or blank.
  - (4) Non-Class 2 output (USR & CNR).
  - (5) Class 2 output (USR), Non-Class 2 output (CNR).
  - (6) Class 2 output (USR & CNR).
  - (7) ★: Popular model.

## Input Specifications

| Parameter        | Min.  | Typ. | Max.   | Notes                                    |
|------------------|-------|------|--------|--|
| Input Voltage    | 90 V  | -    | 305 V  |  |
| Input Frequency  | 47 Hz | -    | 63 Hz  |  |
| Leakage Current  | -     | -    | 0.5 mA | At 277Vac 60Hz input                     |
| Input AC Current | -     | -    | 0.7 A  | Measured at full load and 100 Vac input. |
|                  | -     | -    | 0.35 A | Measured at full load and 220 Vac input. |
| Inrush Current   | -     | -    | 60 A   | At 230Vac input 25°C Cold Start          |

## Output Specifications

| Parameter                | Min. | Typ.  | Max.  | Notes   |
|--------------------------|------|-------|-------|---|
| Output Current Tolerance | -5%  | -     | 5%    |   |
| No Load Output Voltage   |      |       |       |   |
| $I_o = 4200$ mA          | -    | -     | 17 V  |   |
| $I_o = 3330$ mA          | -    | -     | 20 V  |   |
| $I_o = 2800$ mA          | -    | -     | 24 V  |   |
| $I_o = 2100$ mA          | -    | -     | 30 V  |   |
| $I_o = 1750$ mA          | -    | -     | 35 V  |   |
| $I_o = 1400$ mA          | -    | -     | 41 V  |   |
| $I_o = 1100$ mA          | -    | -     | 53 V  |   |
| $I_o = 700$ mA           | -    | -     | 77 V  |   |
| $I_o = 580$ mA           | -    | -     | 92 V  |   |
| $I_o = 450$ mA           | -    | -     | 120 V |   |
| $I_o = 350$ mA           | -    | -     | 154 V |   |
| Ripple & Noise           |      |       |       |   |
| $I_o = 4200$ mA          | -    | -     | 5 V   | Measurement is done by 20MHz bandwidth oscilloscope and the output paralleled a 104/500V ceramic capacitor and a 10uF/200V electrolysis capacitor |
| $I_o = 3330$ mA          | -    | -     | 5 V   |   |
| $I_o = 2800$ mA          | -    | -     | 5 V   |   |
| $I_o = 2100$ mA          | -    | -     | 5 V   |   |
| $I_o = 1750$ mA          | -    | -     | 5 V   |   |
| $I_o = 1400$ mA          | -    | -     | 5 V   |   |
| $I_o = 1100$ mA          | -    | -     | 5 V   |   |
| $I_o = 700$ mA           | -    | -     | 7 V   |   |
| $I_o = 580$ mA           | -    | -     | 8 V   |   |
| $I_o = 450$ mA           | -    | -     | 11 V  |   |
| $I_o = 350$ mA           | -    | -     | 14 V  |   |
| Line Regulation          | -    | -     | 2%    |   |
| Load Regulation          | -    | -     | 5%    |   |
| Turn-on Delay Time       | -    | 2.5 s | 3.0 s | Measured at 110Vac input.   |
|                          | -    | 1.5 s | 2.0 s | Measured at 220Vac input.   |

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

## Protection Functions

| Parameter                | Min.   | Typ.                     | Max.  | Notes   |
|--------------------------|--|--------------------------|-------|---|
| Over Voltage Protection  |  |                          |       |   |
| I <sub>o</sub> = 4200 mA | 16 V   | 17 V                     | 18 V  | Hiccup mode. The power supply shall be self-recovery when the fault condition is removed. |
| I <sub>o</sub> = 3330 mA | 19 V   | 20 V                     | 22 V  |   |
| I <sub>o</sub> = 2800 mA | 23 V   | 24 V                     | 26 V  |   |
| I <sub>o</sub> = 2100 mA | 29 V   | 30V                      | 32 V  |   |
| I <sub>o</sub> = 1750 mA | 34 V   | 35V                      | 37 V  |   |
| I <sub>o</sub> = 1400 mA | 40 V   | 42 V                     | 44 V  |   |
| I <sub>o</sub> = 1100 mA | 52 V   | 54 V                     | 56 V  |   |
| I <sub>o</sub> = 700 mA  | 76 V   | 78 V                     | 80 V  |   |
| I <sub>o</sub> = 580 mA  | 94 V   | 96 V                     | 98 V  |   |
| I <sub>o</sub> = 450 mA  | 116 V  | 118 V                    | 120 V |   |
| I <sub>o</sub> = 350 mA  | 154 V  | 156 V                    | 158 V |   |
| Over Load Protection     | -  | 1.25<br>V <sub>max</sub> | -     | Hiccup mode. The power supply shall be self-recovery when the fault condition is removed. |
| 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                |                   |       |      |  |
| I <sub>o</sub> = 4200 mA  | 79%               | 80%   | -    | Measured at full load and 120 Vac input.                                       |
| I <sub>o</sub> = 3330 mA  | 80%               | 81%   | -    |  |
| I <sub>o</sub> = 2800 mA  | 81%               | 82%   | -    |  |
| I <sub>o</sub> = 2100 mA  | 83%               | 84%   | -    |  |
| I <sub>o</sub> = 1750 mA  | 84%               | 85%   | -    |  |
| I <sub>o</sub> = 1400 mA  | 85%               | 86%   | -    |  |
| I <sub>o</sub> = 1100 mA  | 85%               | 86%   | -    |  |
| I <sub>o</sub> = 700 mA   | 85%               | 86%   | -    |  |
| I <sub>o</sub> = 580 mA   | 85%               | 86%   | -    |  |
| I <sub>o</sub> = 450 mA   | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 350 mA   | 87%               | 88%   | -    |  |
| Efficiency                |                   |       |      |  |
| I <sub>o</sub> = 4200 mA  | 82%               | 83%   | -    | Measured at full load and 220 Vac input.                                       |
| I <sub>o</sub> = 3330 mA  | 83%               | 84%   | -    |  |
| I <sub>o</sub> = 2800 mA  | 83%               | 84%   | -    |  |
| I <sub>o</sub> = 2100 mA  | 85%               | 86%   | -    |  |
| I <sub>o</sub> = 1750 mA  | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 1400 mA  | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 1100 mA  | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 700 mA   | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 580 mA   | 86%               | 87%   | -    |  |
| I <sub>o</sub> = 450 mA   | 87%               | 88%   | -    |  |
| I <sub>o</sub> = 350 mA   | 88%               | 89%   | -    |  |
| No Load Power Dissipation |                   |       | 6 W  |  |
| MTBF                      | 487,000<br>hours  |       |      | Measured at 110Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Life Time                 | 50,000<br>hours   |       |      | Measured at 110Vac input, 80%Load and 60°C Case temperature                    |
| Case Temperature          |                   |       | 85°C |  |
| Dimensions                |                   |       |      |  |
| Inches (L x W x H)        | 6.77 x 1.67x 1.36 |       |      |  |
| Millimeters (L x W x H)   | 172 x 42.5x 34.5  |       |      |  |
| Net Weight                | -                 | 480 g | -    |  |

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

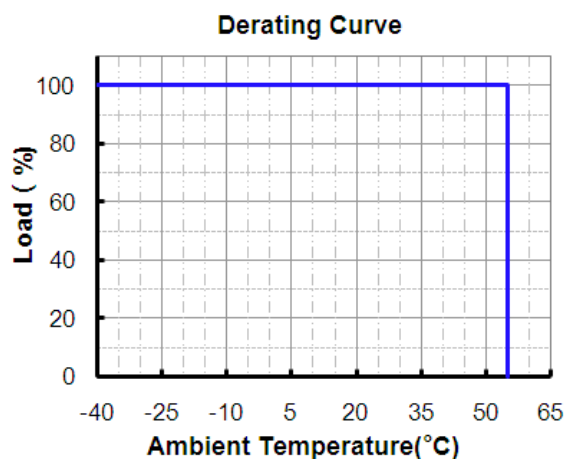
## Environmental Specifications

| Parameter             | Min.   | Typ. | Max.   | Notes  |
|-----------------------|--------|------|--------|--|
| Operating Temperature | -40 °C | -    | +55 °C | Humidity: 10% RH to 100% RH<br>See Derating Curve for more details |
| Storage Temperature   | -40 °C | -    | +85 °C | Humidity: 5% RH to 100% RH   |

## Safety & EMC Compliance

| Safety Category | Standard  |
|-----------------|---|
| UL/CUL          | UL8750, UL1012, UL1310 Class 2,<br>CSA-C22.2 No. 107.1, CSA C22.2 NO. 223-M91 Class 2 |
| 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  |
| 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             |
| 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   |
| EN 61000-4-11   | Voltage Dips  |
| EN 61547        | Electromagnetic Immunity Requirements Applies To Lighting Equipment                   |

## Derating Curve

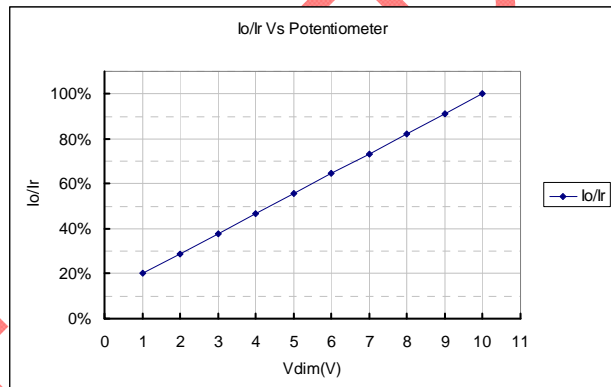
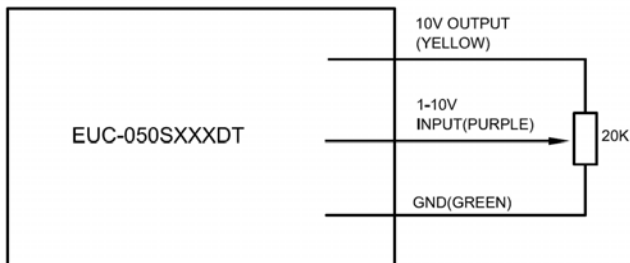


Specifications are subject to changes without notice.

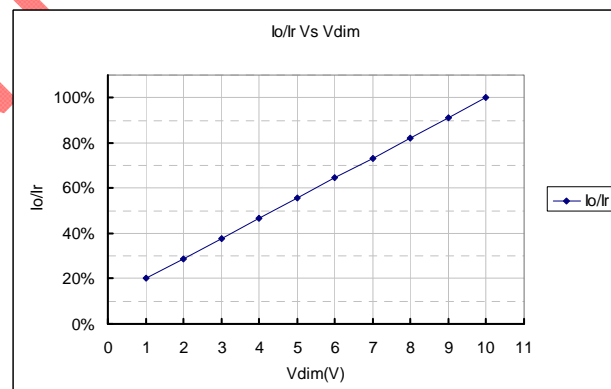
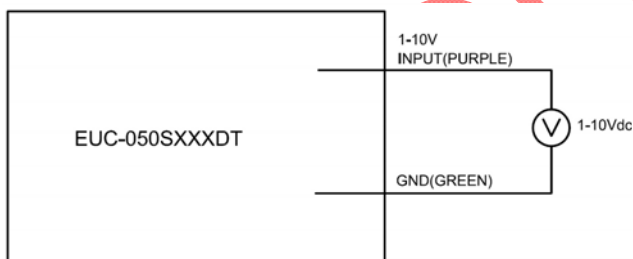
## Dimming Control (On secondary side)

| Parameter                                       | Min. | Typ.   | Max. | Notes |
|---|------|--------|------|-------|
| 10V output voltage                              | 10 V | 10.5 V | 11 V |       |
| 10V output source current                       | 0 mA | -      | 2 mA |       |
| Absolute maximum voltage on the 1~10V input pin | 0 V  | -      | 15 V |       |
| Source current on 1~10V input pin               | 0 mA | -      | 1 mA |       |

The dimmer control may be operated from either a potentiometer or from an input signal of 1 – 10 Vdc. Two recommended implementations are provided below.



Implementation 1: Potentiometer control



Implementation 2: DC input

### Notes:

- The dimming voltage can be tuned down to less than 1V, and the output current will be decreased to about 20%Ir; but the connected LEDs may flicker. Keeping dimming voltage greater than 1V in application is strongly recommended.
- Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.



## Revision Record

| Change Date             | Rev.                   | Description of Change   |   |      |  |                                     |      |      |
|-------------------------|------------------------|---|---|------|--|-------------------------------------|------|------|
|                         |                        | Item  | From  |      |  | To                                  |      |      |
| 2009-12-08              | A                      | Modify the PF value, no-load power dissipation, dimming range |   |      |  |                                     |      |      |
| 2010-01-12              | B                      | Modify the derating curve and mechanical outline              |   |      |  |                                     |      |      |
| 2010-04-12              | C                      | Change the Power Factor                                       | 110Vac 0.99<br>220Vac 0.94                        |      |  | 0.98<br>0.92                        |      |      |
|                         |                        | Add Leakage Current in Input Specifications                   | /   |      |  | Max. 0.5 Ma At 277Vac 50Hz input    |      |      |
|                         |                        | Change Inrush Current   | 20A   |      |  | 60A                                 |      |      |
|                         |                        | Add No Load Output Voltage                                    | /   |      |  | The max. value of every model.      |      |      |
|                         |                        | Change Ripple and Noise                                       | Max. 25% V <sub>o</sub>                           |      |  | The max. value of every model.      |      |      |
|                         |                        | Change Turn-on Delay Time                                     | Typ. Max.<br>110Vac 1.7S 2.0S<br>220Vac 0.7S 1.0S |      |  | Typ. Max.<br>2.5S 3.0S<br>1.5S 2.0S |      |      |
|                         |                        | Delete Output Overshoot / Undershoot                          | Max. 10%  |      |  | /                                   |      |      |
|                         |                        | Change Over Load Protection                                   | Typ.: 1.25P <sub>o</sub>                          |      |  | Typ.: 1.25 Vmax                     |      |      |
|                         |                        | Delete part of the notes in Operating Temperature             | Derating: 2% per °C from 55°C to 70°C.            |      |  | /                                   |      |      |
|                         |                        | Change the Max. Ambient Temperature in Derating Curve         | +70 °C  |      |  | +55 °C                              |      |      |
|                         |                        | Change linearity of dimming curve                             | /   |      |  | /                                   |      |      |
|                         |                        | Change the notes in Dimming Control                           | /   |      |  | /                                   |      |      |
| 2010-05-31              | D                      | Add star rank for recommended models                          | /   |      |  | ☆: Popular model.                   |      |      |
| 2010-10-14              | E                      | Change the notes in Dimming Control                           | /   |      |  | /                                   |      |      |
| 2011-1-10               | F                      | Change popular models   | /   |      |  | /                                   |      |      |
|                         |                        | Change No Load Output Voltage                                 | Max. 122V   |      |  | Max. 120V                           |      |      |
|                         |                        | Change Over Voltage Protection                                | Min.  | Typ. | Max.                                   | Min.                                | Typ. | Max. |
|                         |                        | I <sub>o</sub> = 4200 Ma                                      | 14V   | 16V  | 18V                                    | 16V                                 | 17V  | 18V  |
|                         |                        | I <sub>o</sub> = 3330 Ma                                      | 18V   | 20V  | 22V                                    | 19V                                 | 20V  | 22V  |
|                         |                        | I <sub>o</sub> = 2800 Ma                                      | 22V   | 24V  | 26V                                    | 23V                                 | 24V  | 26V  |
|                         |                        | I <sub>o</sub> = 2100 Ma                                      | 30V   | 32V  | 34V                                    | 29V                                 | 30V  | 32V  |
|                         |                        | I <sub>o</sub> = 1750 Ma                                      | 36V   | 38V  | 40V                                    | 34V                                 | 35V  | 37V  |
|                         |                        | I <sub>o</sub> = 1400 Ma                                      | 40V   | 41V  | 42V                                    | 40V                                 | 42V  | 44V  |
|                         |                        | I <sub>o</sub> = 1100 Ma                                      | 57V   | 58V  | 59V                                    | 52V                                 | 54V  | 56V  |
| I <sub>o</sub> = 700 Ma | 92V                    | 94V   | 96V   | 76V  | 78V                                    | 80V                                 |      |      |
| I <sub>o</sub> = 450 Ma | 141V                   | 143V  | 145V  | 116V | 118V                                   | 120V                                |      |      |
| I <sub>o</sub> = 350 Ma | 183V                   | 185V  | 187V  | 154V | 156V                                   | 158V                                |      |      |
|                         | Add FCC Part15 Class B | /   |   |      | FCC Part 15 Class B, ANSI C63.4: 2009. |                                     |      |      |
| 2011-12-28              | G                      | 580 Ma Model  | /   |      |  | Added                               |      |      |
| 2012-2-3                | H                      | Parameter of Dimming Control                                  | /   |      |  | Changed                             |      |      |
| 2012-7-17               | I                      | Max Case Temperature  | /   |      |  | Updated                             |      |      |
| 2012-7-30               | J                      | Min Operating Temperature                                     | -35°C   |      |  | -40°C                               |      |      |
|                         |                        | Derating Curve  | /   |      |  | Updated                             |      |      |

Specifications are subject to changes without notice.

EUC-050SxxxDT(ST) Rev. K

|            |   |               |   |         |
|------------|---|---------------|---|---------|
| 2013-02-22 | J | Dimming Notes | / | Updated |
|------------|---|---------------|---|---------|

DISCONTINUED

*Specifications are subject to changes without notice.*