

## 21W Constant Current power supply



■ Approve



### Features

- Class II, SELV, Independent
- Input Voltage: 220-240VAC
- Protections: SCP/OLP/OVP/OTP
- Power Factor:  
0.6C@300-400mA,600-700mA  
0.55C@450-550mA
- Efficiency:  $\geq 85\%$
- 5 years warranty
- IP20

### Applications

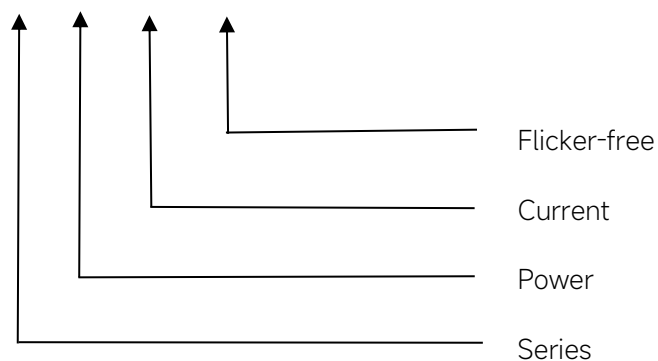
- LED panel、LED down light

## ◆ Description

LS-21-XXX SI1 E is a 21W constant current LED driver with 300~700mA output current. With it's compact dimensions from 92 x 36 x 25 mm it is easy to integrate in LED panel、LED down light、LED spot light products. To ensure trouble-free operation, protection is provided against output short circuit and over Load.

## ◆ Model code

LS-21-XXX SI1 E



## ◆ Specification

|             |                                  |                                                                                                                |       |       |      |       |
|-------------|----------------------------------|----------------------------------------------------------------------------------------------------------------|-------|-------|------|-------|
| Output      | Constant Current (mA)            | 300                                                                                                            | 350   | 400   | .... | 700   |
|             | Voltage Range(VDC)               | 40-70                                                                                                          | 42-60 | 30-42 | .... | 18-30 |
|             | Unload voltage Max.              | 90                                                                                                             | 80    | 59    | .... | 50    |
|             | Current Accuracy                 | ±5%                                                                                                            |       |       |      |       |
|             | Output HF current ripple(≥1KHz)  | ±5%                                                                                                            |       |       |      |       |
|             | Output LF current ripple(≤120Hz) | ±5%                                                                                                            |       |       |      |       |
|             | SVM                              | ≤0.4                                                                                                           |       |       |      |       |
|             | P <sub>st</sub>                  | ≤1                                                                                                             |       |       |      |       |
|             | Efficiency(Typ.)                 | ≥85%@Full load,230V                                                                                            |       |       |      |       |
| Input       | Rated input voltage              | 220-240VAC                                                                                                     |       |       |      |       |
|             | Range of input voltage           | 198-264VAC                                                                                                     |       |       |      |       |
|             | Maximum voltage                  | 300VAC@1 h maximum,unit might not operate in this abnormal condition                                           |       |       |      |       |
|             | Frequency(Hz)                    | 50/60 Hz                                                                                                       |       |       |      |       |
|             | Displacement factor              | ≥0.7                                                                                                           |       |       |      |       |
|             | Power Factor                     | 0.6C@300-400mA,600-700mA;0.55C@450-550mA, Full load,230V                                                       |       |       |      |       |
|             | Input Current max                | 0.3A                                                                                                           |       |       |      |       |
|             | Start-up time                    | < 0.5S                                                                                                         |       |       |      |       |
|             | No Load Power                    | ≤0.5W                                                                                                          |       |       |      |       |
| Protection  | Over Load Protection             | 103-120%                                                                                                       |       |       |      |       |
|             |                                  | YES/Auto Resume                                                                                                |       |       |      |       |
|             | Over Voltage Protection(VDC)     | 90                                                                                                             | 80    | 59    | .... | 50    |
|             |                                  | YES/Auto Resume                                                                                                |       |       |      |       |
|             | Short circuit Protection         | YES/Auto Resume                                                                                                |       |       |      |       |
| capability  | Over Temperature Protection      | YES/Auto Resume                                                                                                |       |       |      |       |
|             | Surge capability (L-N)           | 1KV                                                                                                            |       |       |      |       |
| Environment | Surge capability (L/N-Ground)    | NA                                                                                                             |       |       |      |       |
|             | Operating Temperature            | -20°C~+45°C                                                                                                    |       |       |      |       |
|             | Humidity                         | 20%-90%RH                                                                                                      |       |       |      |       |
|             | T <sub>c</sub>                   | 80°C                                                                                                           |       |       |      |       |
|             | Storage Temperature              | -25°C~+60°C                                                                                                    |       |       |      |       |
|             | Life time                        | > 30,000h@tc=75°C; > 60,000h@tc=65°C                                                                           |       |       |      |       |
|             | Noise                            | ≤20dB(A)@10cm                                                                                                  |       |       |      |       |
| Surface     | Dimension                        | 92x36x25 (LxWxH)mm                                                                                             |       |       |      |       |
| Standards   | Safety                           | GB19510. 1, GB19510. 14;IEC61347- 1, IEC61347-2- 13;EN61347- 1, EN61347-2-13,EN62384                           |       |       |      |       |
|             | EMC                              | GB/T17743, GB17625. 1,EN55015, EN61000-3-2, EN61000-3-3, EN61547,EN61000-4-5,EN61000-4-2,3,4,5,6,8,11, EN61547 |       |       |      |       |
|             | Energy Efficiency                | Erp2.0 EU 2019/2020                                                                                            |       |       |      |       |

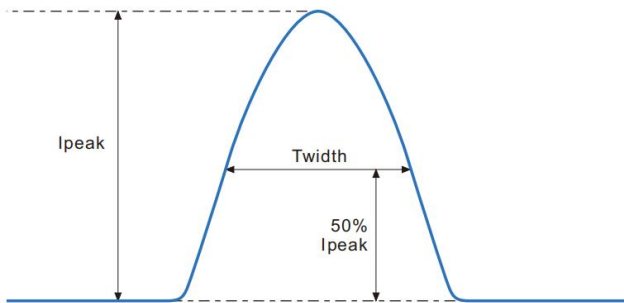
|      |                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|      | RoHS                                                                                                                                                                                                                                                                                                                                                                                                                           | RoHS (2011/65/EU) (EU)2015/863 |
| Note | 1. All parameters NOT specially mentioned are measured at 230VAC input , full load and 25°C of ambient temperature.<br>2. Ripple & Noise are measured at 20MHz of bandwidth by using a 300mm twisted pair-wire terminated with a 0.1uF & 47 uF parallel capacitor.<br>3. Data are typical values obtained from test samples<br>4. Switch and dimmer are not recommended to connect between this product output and luminaries. |                                |

## ◆ Model list

| Number | Model number    | Output          |                  |                             |              |
|--------|-----------------|-----------------|------------------|-----------------------------|--------------|
|        |                 | Current<br>(mA) | Voltage<br>(VDC) | Voltage<br>No load<br>(VDC) | Power<br>(W) |
| 1      | LS-21-300 SI1 E | 300             | 40-70            | 90                          | 21           |
| 2      | LS-21-350 SI1 E | 350             | 42-60            | 80                          | 21           |
| 3      | LS-21-400 SI1 E | 400             | 30-42            | 59                          | 16.8         |
| 4      | LS-21-450 SI1 E | 450             | 30-42            |                             | 18.9         |
| 5      | LS-21-500 SI1 E | 500             | 30-42            |                             | 21           |
| 6      | LS-21-550 SI1 E | 550             | 30-40            |                             | 22           |
| 7      | LS-21-600 SI1 E | 600             | 27-39            |                             | 23.4         |
| 8      | LS-21-650 SI1 E | 650             | 20-32            | 50                          | 20.8         |
| 9      | LS-21-700 SI1 E | 700             | 18-30            | 50                          | 21           |

## ◆ Inrush Current

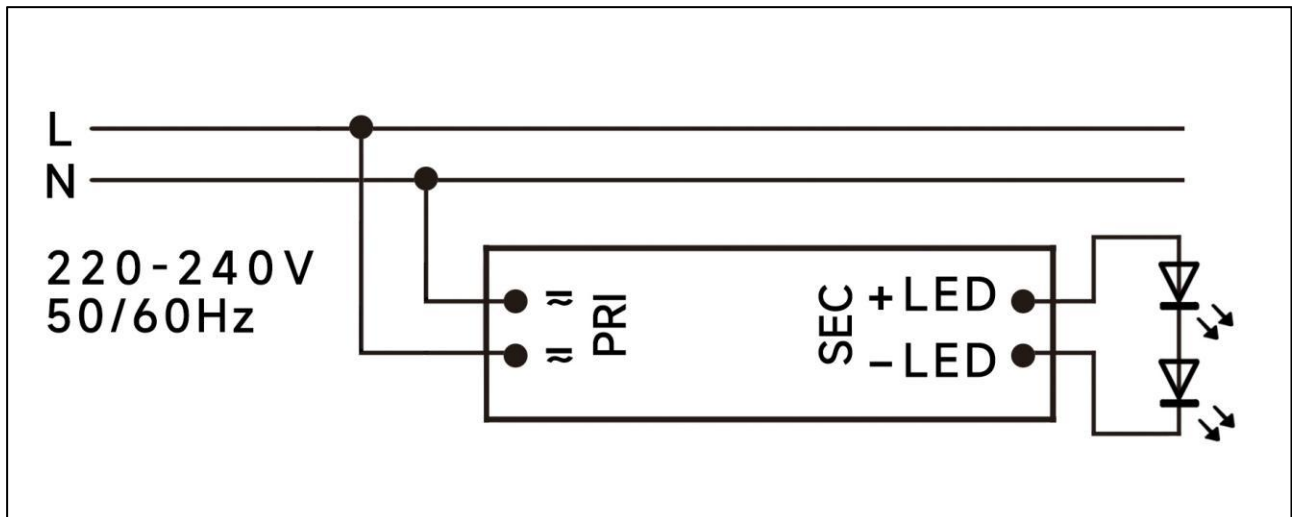
| $I_{peak}$ | Twidth      | B10   | B16   | B20   | C10   | C16   | C20   |
|------------|-------------|-------|-------|-------|-------|-------|-------|
| 12.5A      | 100 $\mu$ s | 26pcs | 42pcs | 53pcs | 26pcs | 42pcs | 53pcs |



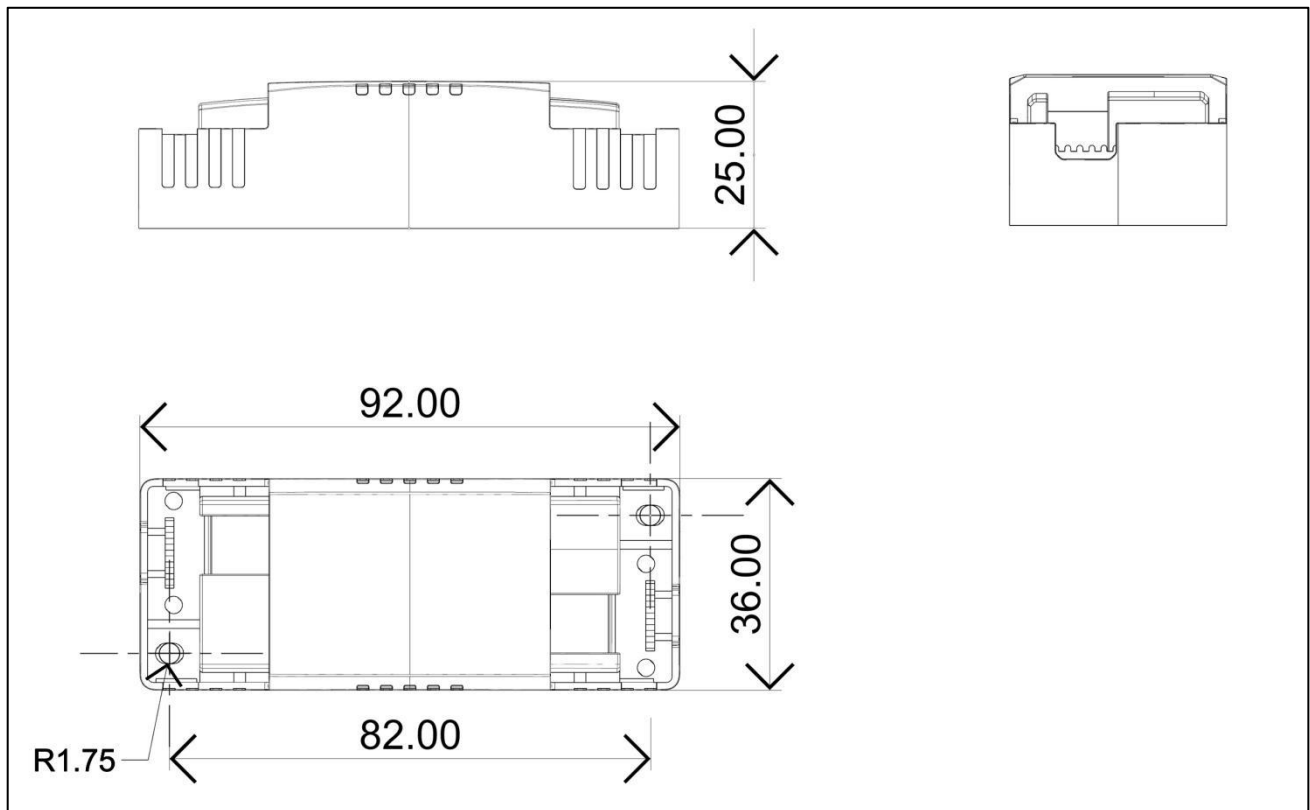
Remarks:

- 1.The number of drives mounted under different MCBs in the table is the maximum value. Please do not exceed this number during installation.
- 2.Different brands and models of miniature circuit breakers, the number of drives mounted will be slightly different.

## ◆ Wiring diagram



## ◆ 2D diagram



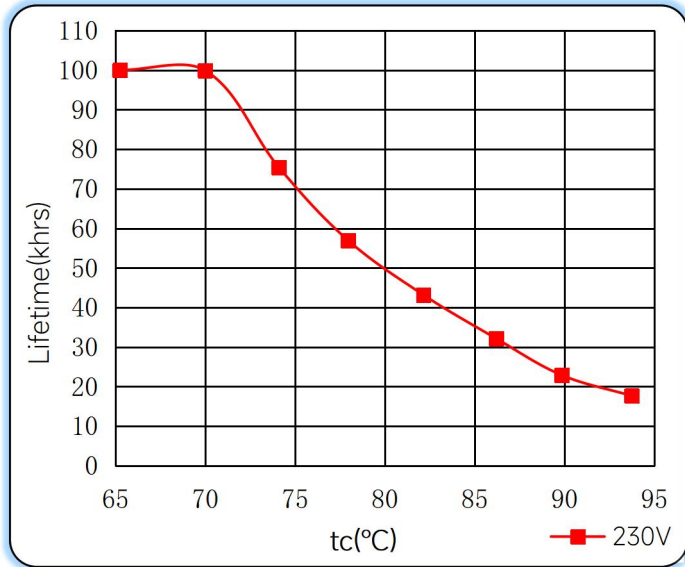
## ◆ Wiring & Connections

| Specification item |                           | Value (Unit )             |
|--------------------|---------------------------|---------------------------|
| Input              | Input wire cross-section  | 0.5...1.5 mm <sup>2</sup> |
|                    | Input wire gauge.         | 16...20 AWG               |
|                    | Input wire strip length   | 7...9mm                   |
| Output             | Output wire cross-section | 0.5...1.5 mm <sup>2</sup> |
|                    | Output wire gauge.        | 16...20 AWG               |
|                    | Output wire strip length  | 7...9mm                   |

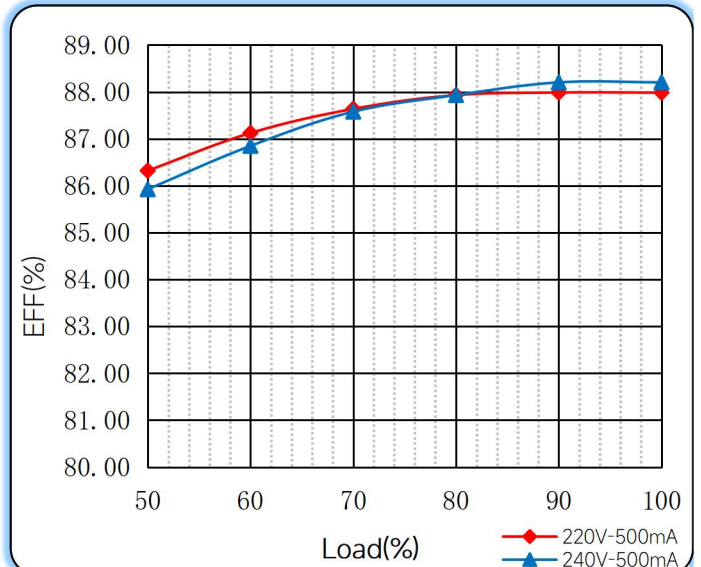
Note: Solid wire is risky to use on an angled terminal. Stranded wire is recommended for this kind of use.

## ◆ Curve for LS-21-XXX SI1 E, $I_o=500\text{mA}$

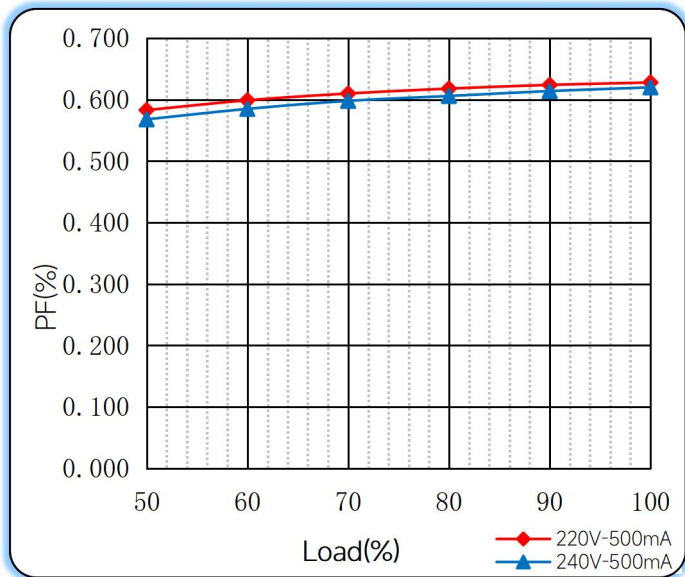
Lifetime vs. Temperature Curve



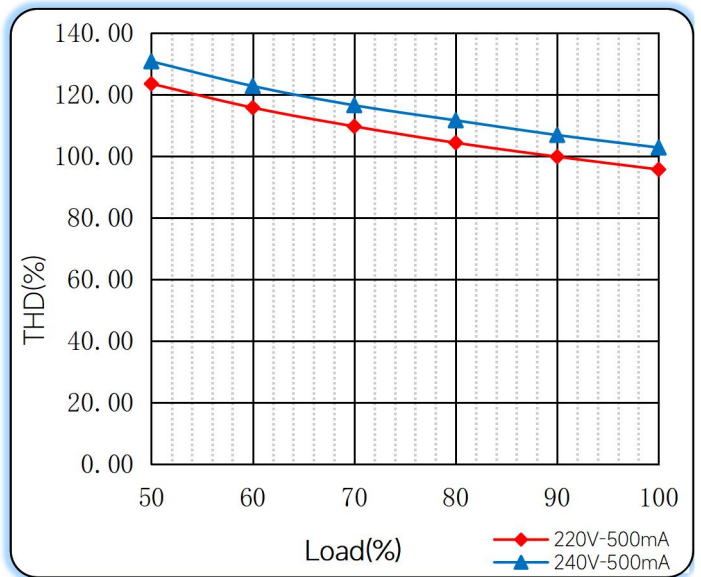
Efficiency vs. Load



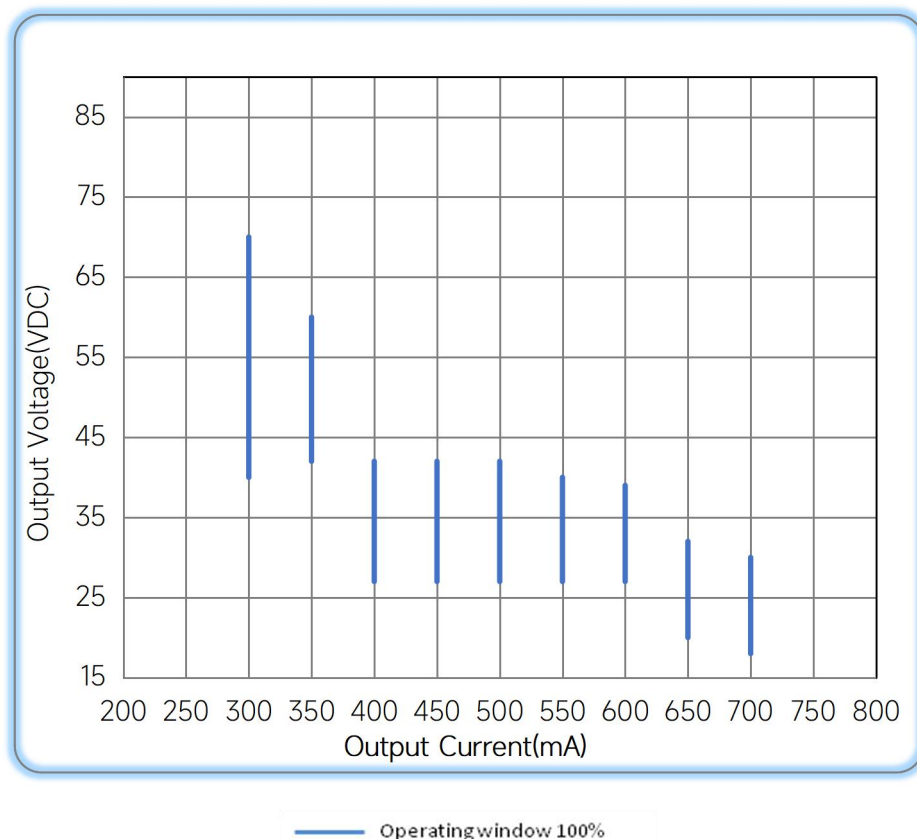
Power Factor Characteristics



THD vs. Load



## ◆ Operating window



## ◆ Revision Updates

| ITEM                | BEFORE | AFTER  | VERSION | DATE       |
|---------------------|--------|--------|---------|------------|
| Initial             |        |        | A       | 2023/12/22 |
| Unload voltage Max. | 60V    | 69V    | B       | 2024/02/02 |
| Voltage Range       |        | update | C       | 2024/03/25 |
| PF                  |        | update | D       | 2024/09/10 |

Remark: The final interpretation of the contents of the specification belongs to Astralux.

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