

Features

- High Efficiency (up to 93.5%)
- Constant Voltage Output
- Input Surge Protection: DM 4kV , CM 6kV
- All-Around Protection: OCP, OVP, SCP, OTP
- IP67
- SELV Output
- 5 Years Warranty



Description

The EBV-350SxxxSV series is a 350W, constant-voltage IP67 LED driver that operates from 176-305 Vac input with excellent power factor. It is created for many lighting applications including architectural, decorative and signage. The high efficiency of the driver and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, over current, output over voltage, short circuit, and over temperature.

Models

| Output Voltage | Input Voltage Range(1)(2) | Output Current Range | Max. Output Power | Typical Efficiency (3) | Typical Power Factor | Model Number(4)(5) |
|----------------|--------------------------------|----------------------|-------------------|------------------------|----------------------|--------------------|
| | | | | | 220Vac | |
| 12 V | 176 ~ 305 Vac 190 ~ 250 Vdc | 0 ~ 25.0 A | 300 W | 91.5% | 0.96 | EBV-350S012SV |
| 24 V | 176 ~ 305 Vac 190 ~ 250 Vdc | 0 ~ 14.6 A | 350 W | 93.5% | 0.96 | EBV-350S024SV |
| 36 V | 176 ~ 305 Vac 190 ~ 250 Vdc | 0 ~ 9.8 A | 350 W | 93.5% | 0.96 | EBV-350S036SV |
| 48 V | 176 ~ 305 Vac 190 ~ 250 Vdc | 0 ~ 7.3 A | 350 W | 93.0% | 0.96 | EBV-350S048SV |

Notes: (1) CCC certified input voltage range: 220/230/240 Vac; other certified input voltage range except CCC: 200-240 Vac or 190-250Vdc (except BIS).

(2) Operating input voltage range: 90-305Vac, and 90-176Vac is for safety operation (see below “Derating” curve for details)

(3) Measured at 100% load and 220Vac input (see below “General Specifications” for details).

(4) SELV output.

(5) For BIS models add suffix -3000.

Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|------------------|---------|------|---------|--------------------------|
| Input AC Voltage | 176 Vac | - | 305 Vac | |
| Input DC Voltage | 190 Vdc | - | 250 Vdc | |
| Input Frequency | 47 Hz | - | 63 Hz | |
| Leakage Current | - | - | 0.70 mA | IEC60598-1; 240Vac/ 60Hz |

Input Specifications (Continued)

| Parameter | Min. | Typ. | Max. | Notes |
|----------------------------------|------|------|------------------------|--|
| Input AC Current | - | - | 1.91 A | Measured at 100% load and 220Vac input. |
| Inrush Current(I ² t) | - | - | 3.776 A ² s | At 220Vac input, 25°C cold start, duration=1.38ms, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details. |
| PF | 0.9 | - | - | At 220-240Vac, 50-60Hz, 60%-100% load (210~350W) |
| THD | - | - | 20% | |
| THD | - | - | 10% | At 220-240Vac, 50-60Hz, 75%-100% load (262.5~350W) |

Output Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|-------------------------------------|------------------|----------|--------|--|
| Output Voltage Tolerance | -2.5%Vo | - | 2.5%Vo | At 100% load condition |
| Total Output Voltage Ripple (pk-pk) | - | - | 2%Vo | Measured at 220-240Vac input, 0% - 100% load condition. Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 μF ceramic capacitor and a 10 μF electrolytic capacitor. |
| Startup Overshoot / Undershoot | - | - | 5%Vo | At 100% load condition |
| Line Regulation | - | - | ±0.5% | Measured at 100% load |
| Load Regulation | - | - | ±1% | |
| Turn-on Delay Time | - | - | 0.5 s | Measured at 220Vac input, 100% load |
| Load Dynamic Response | Output Deviation | - | 5%Vo | R/S: 1 A/μs Load: 25%~100% load |
| | Settling Time | - | 10 ms | |
| Temperature Coefficient of Vo | - | 0.03%/°C | - | Case temperature = 0°C~Tc max. |

General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|----------------------------------|----------------------------------|------------------|--|
| Efficiency at 220Vac input: EBV-350S012SV EBV-350S024SV EBV-350S036SV EBV-350S048SV | 89.5% 91.5% 91.5% 91.0% | 91.5% 93.5% 93.5% 93.0% | - - - - | Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.) |
| MTBF | - | 258,000 Hours | - | Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F) |
| Lifetime | - | 114,000 Hours | - | Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details |
| Operating Case Temperature for Safety Tc_s | -40 °C | - | +90 °C | |

General Specifications (Continued)

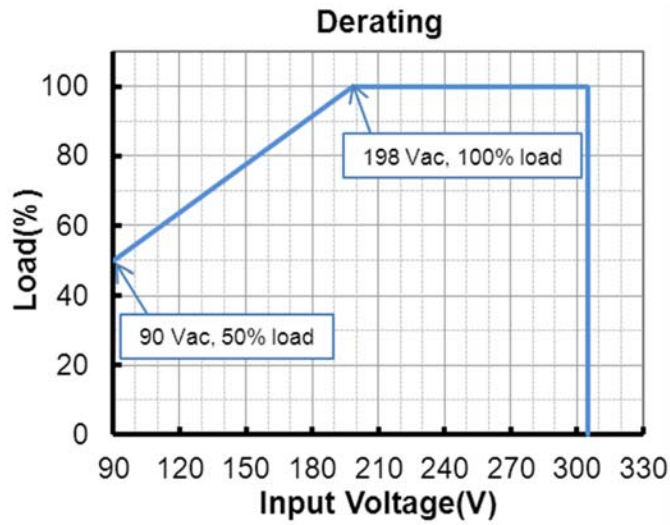
| Parameter | Min. | Typ. | Max. | Notes |
|--|-------------------------------------|--------|--------|--|
| Operating Case Temperature for Warranty T _{c_w} | -40 °C | - | +75 °C | Case temperature for 5 years warranty. Humidity: 10% RH to 95% RH. |
| Storage Temperature | -40 °C | - | +85 °C | Humidity: 5%RH to 95%RH |
| Dimensions Inches (L x W x H) Millimeters ((L x W x H) | 7.87 x 3.15 x 1.65 200 x 80 x 42 | | | With mounting ear 8.94 x 3.15 x 1.65 227 x 80 x 42 |
| Net Weight | - | 1350 g | - | |

Safety & EMC Compliance

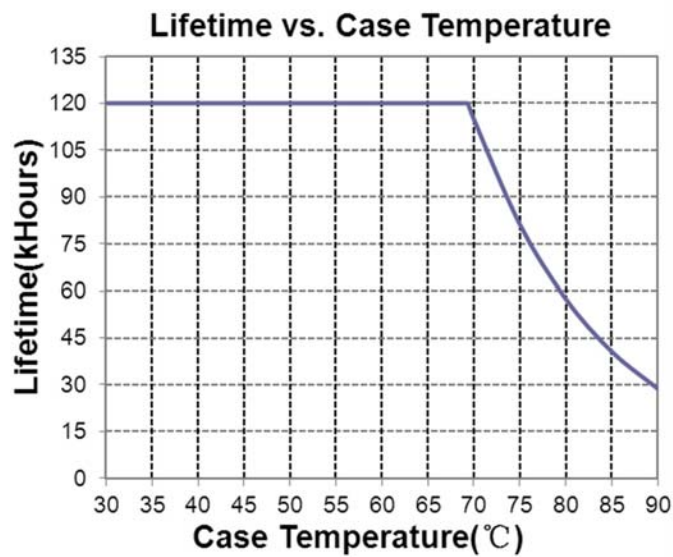
| Safety Category | Standard |
|--|--|
| CE & ENEC | EN 61347-1, EN 61347-2-13 |
| CB | IEC 61347-1, IEC 61347-2-13 |
| CCC | GB 19510.1, GB 19510.14 |
| KC | K 61347-1, K 61347-2-13 |
| BIS | IS 15885(PART2/SEC13) |
| EMI Standards | Notes |
| EN 55015/GB 17743/KN 15 ⁽¹⁾ | Conducted emission Test & Radiated emission Test |
| EN 61000-3-2/GB 17625.1 | 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: Differential Mode 4 kV, Common Mode 6 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 |

Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

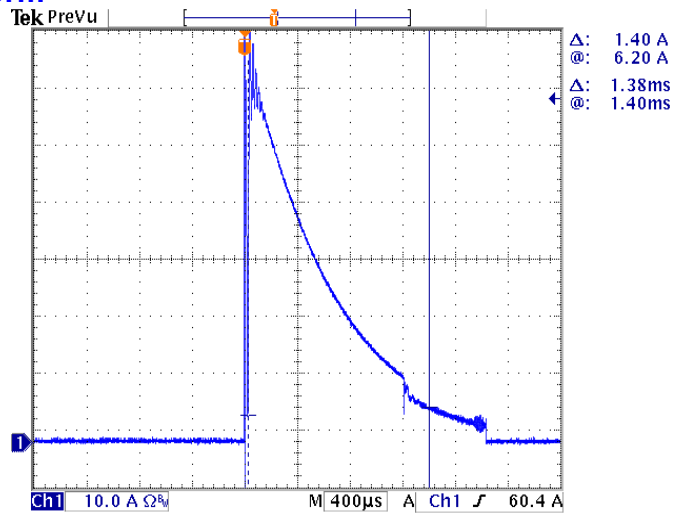
Derating



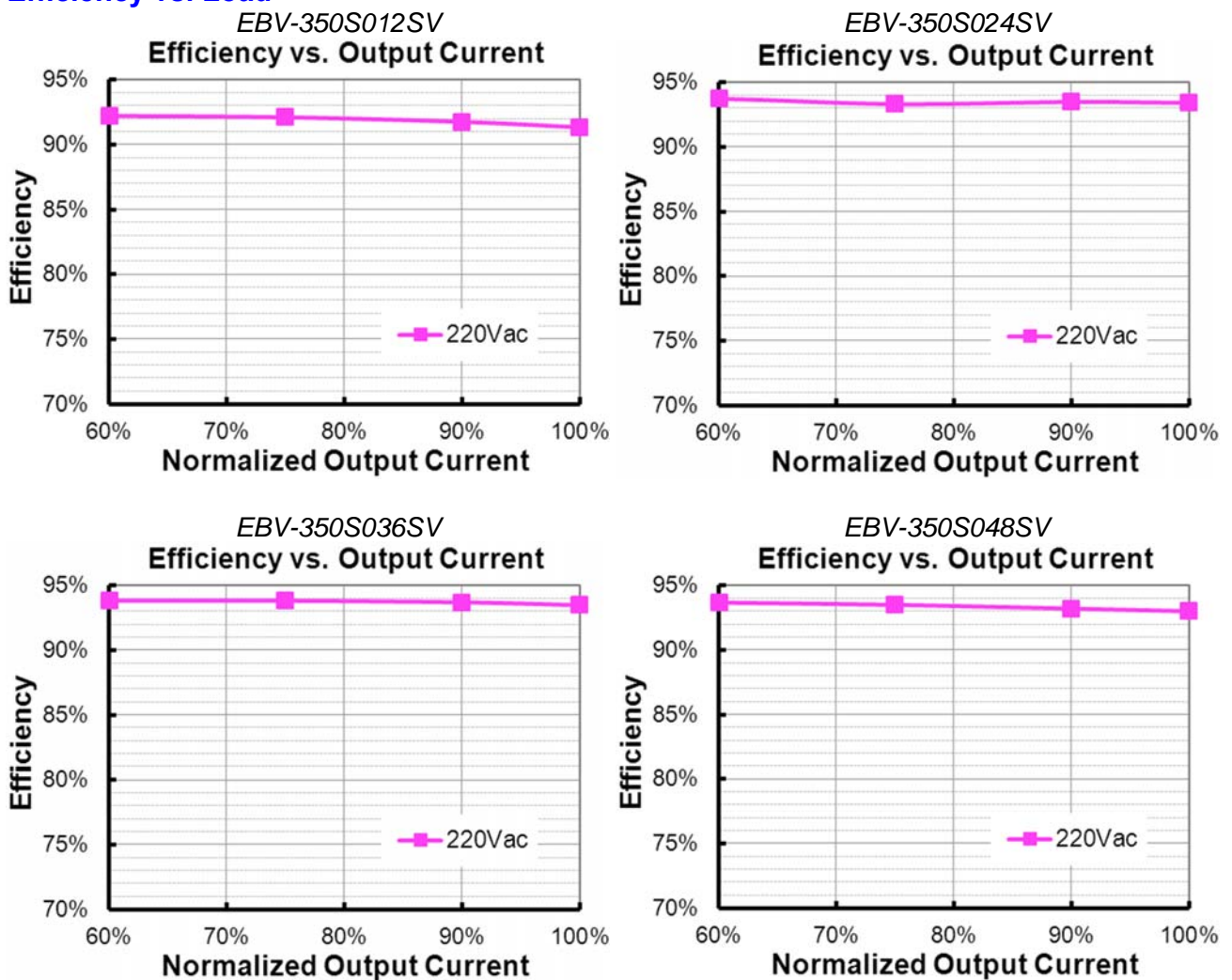
Lifetime vs. Case Temperature



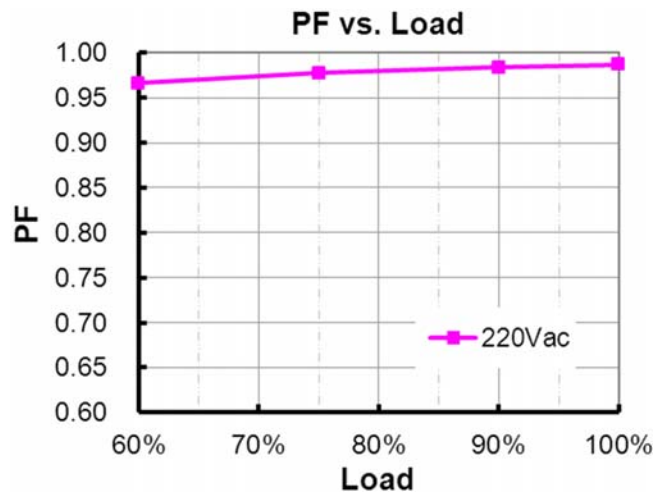
Inrush Current Waveform



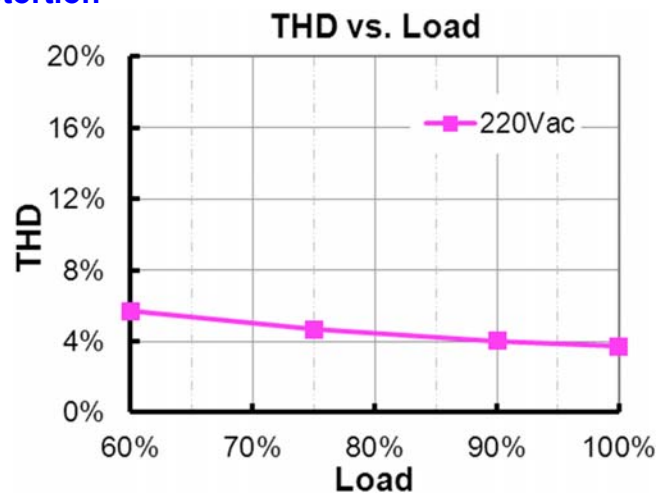
Efficiency vs. Load



Power Factor



Total Harmonic Distortion

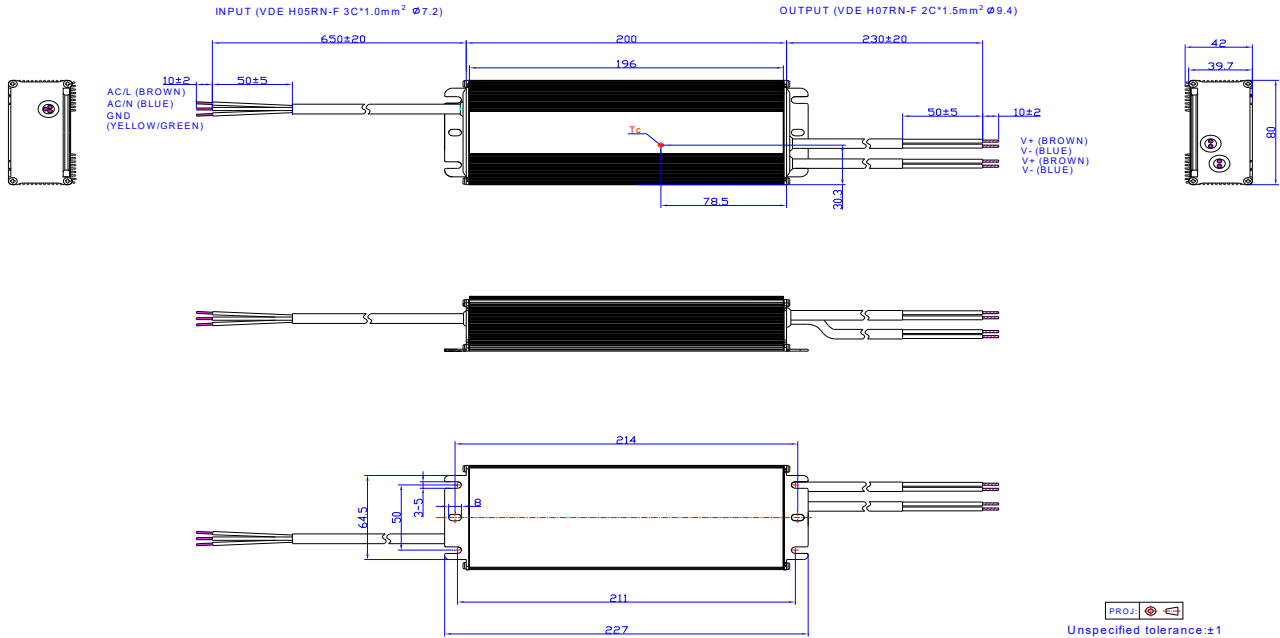


Protection Functions

| Parameter | Notes |
|-----------------------------|--|
| Over Current Protection | Auto Recovery. The driver shall be self-recovery when the fault condition is removed. |
| Over Voltage Protection | Limits output voltage at no load and in case the normal voltage limit fails. |
| Short Circuit Protection | Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed. |
| Over Temperature Protection | Auto Recovery. Returning to normal after over temperature is removed. |

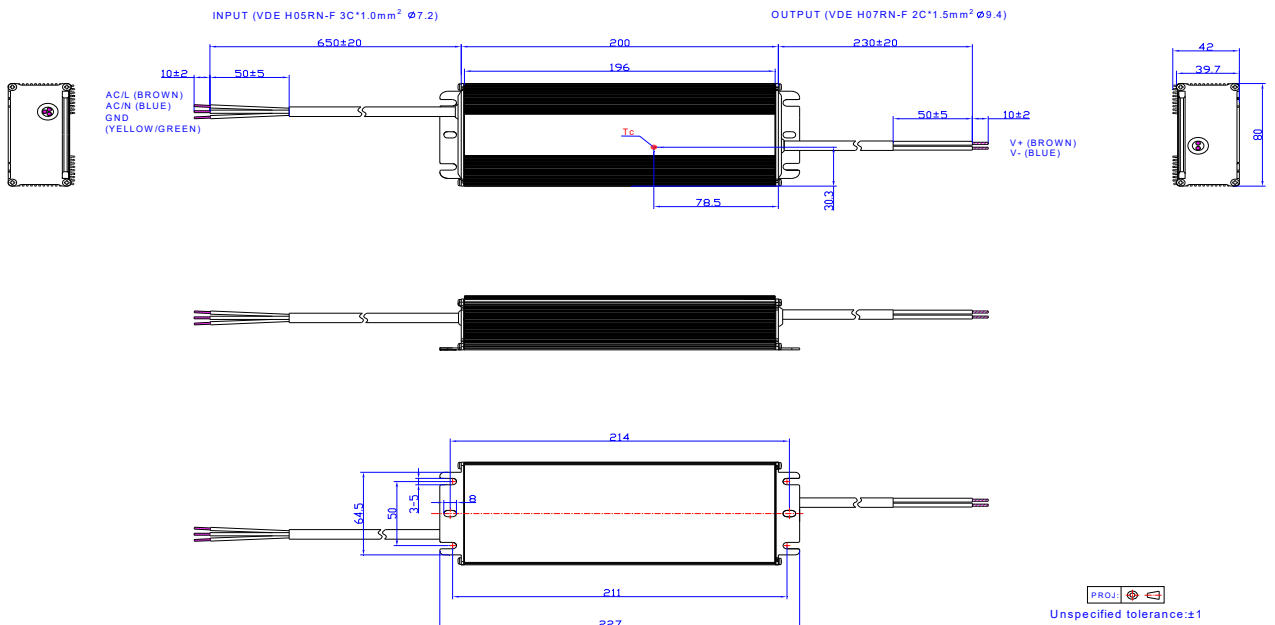
Mechanical Outline

EBV-350S012/024SV

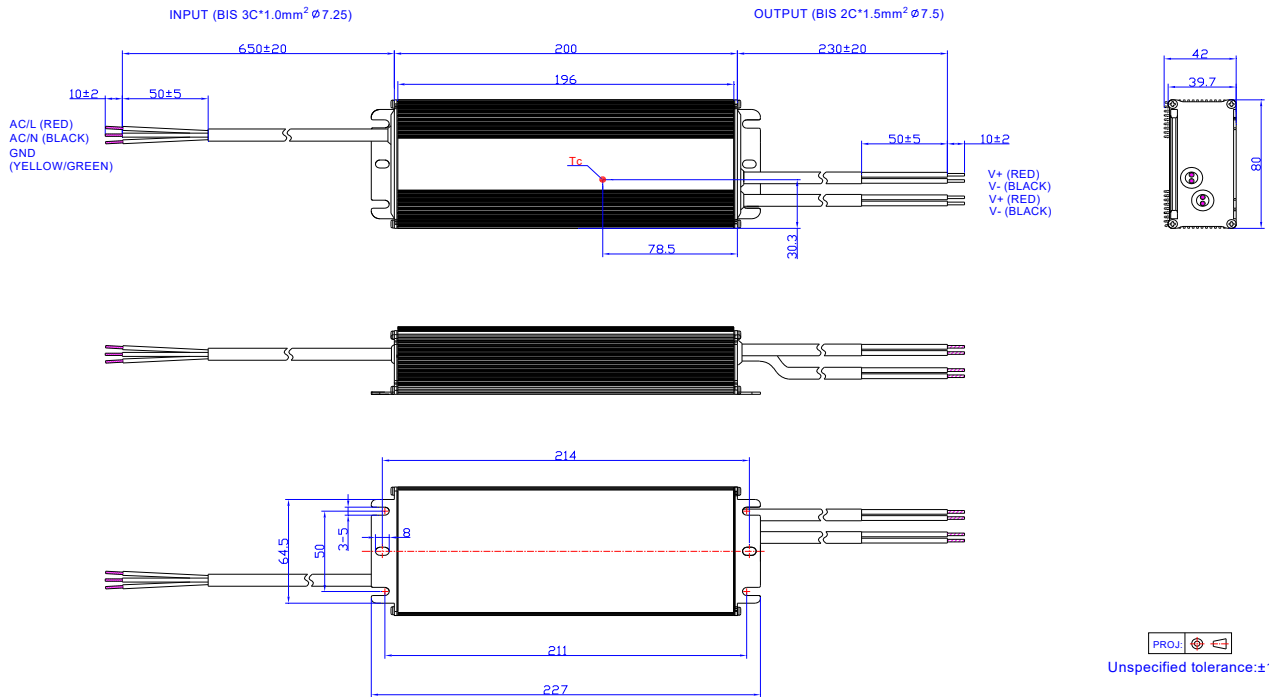


Note: The 2 DC output cables are connected in parallel internally because one 1.5mm² wire can only carry 14.5A. Please connect the 2 brown wires together and 2 blue wires together in application, or ensure each cable carries same current.

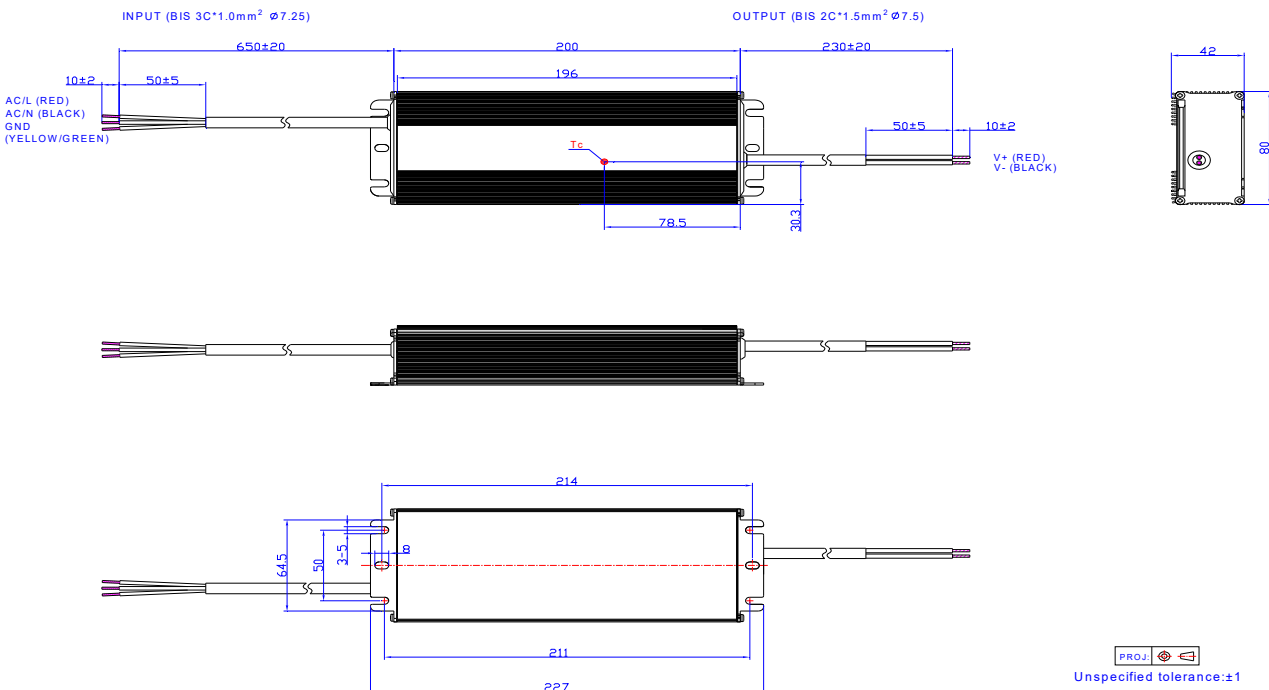
EBV-350S036/048SV



EBV-350S012/024SV-3000



EBV-350S036/048SV-3000



RoHS & Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products..

Revision History

| Change Date | Rev. | Description of Change | | |
|--|----------------------------------|---|---|---|
| | | Item | From | To |
| 2018-06-22 | A | Datasheet Release | / | / |
| 2018-12-29 | B | Product image | / | Updated |
| | | CE certificate | / | Added |
| | | CB certificate | / | Added |
| | | ENEC certificate | / | Added |
| | | BIS certificate | / | Added |
| | | Models | EBV-350S012SV EBV-350S036SV EBV-350S048SV | Added |
| | | Notes of Models | (1) Certified input voltage range: 200-240Vac or 190-250Vdc (except CCC, KS and BIS). | (1) CCC certified input voltage range: 220/230/240 Vac; other certified input voltage range except CCC: 200-240 Vac or 190-250Vdc (except BIS). |
| | | Notes of Models | (4) SELV output. | Added |
| | | Notes of Models | (5) For BIS models add suffix -3000. | Added |
| | | Input AC Current | 2.1 A | 1.91 A |
| | Inrush Current(I ² t) | 2.55 A ² s | 3.776 A ² s | |
| | Hold Up Time | / | Deleted | |
| | Efficiency at 220Vac input: | EBV-350S012SV EBV-350S036SV EBV-350S048SV | Added | |
| | MTBF | 285,000Hours | 258,000Hours | |
| | Safety & EMC Compliance | / | Updated | |
| | Inrush Current Waveform | / | Updated | |
| | Efficiency vs. Load curve | EBV-350S012SV EBV-350S036SV EBV-350S048SV | Added | |
| | Power Factor curve | / | Updated | |
| | Total Harmonic Distortion curve | / | Updated | |
| | Mechanical Outline | EBV-350S012SV EBV-350S024SV | Updated | |
| Mechanical Outline – note of EBV-350S012/024SV | / | Added | | |
| Mechanical Outline | EBV-350S036SV EBV-350S048SV | Added | | |

Revision History (Continued)

| Change Date | Rev. | Description of Change | | |
|-------------|------|-------------------------|--|---------|
| | | Item | From | To |
| 2021-08-26 | C | Features | / | Updated |
| | | General Specifications | Operating Case Temperature for Warranty Tc_w | Updated |
| | | General Specifications | Storage Temperature | Updated |
| | | Safety & EMC Compliance | EN 61000-4-5 | Updated |
| | | Mechanical Outline | EBV-350S012/024SV | Updated |
| | | Mechanical Outline | EBV-350S036/048SV | Updated |
| | | Mechanical Outline | EBV-350S012/024SV-3000 | Added |
| | | Mechanical Outline | EBV-350S036/048SV-3000 | Added |
| 2021-09-02 | D | KC logo | / | Added |
| | | Safety & EMC Compliance | KC | Added |
| | | Safety & EMC Compliance | EMI Standards | Updated |