

Features

- Ultra High Efficiency (Up to 94%)
- Constant Current Output
- Input surge protection: 6 kV line-line, 10 kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67)
- SELV Output
- Suitable for Independent Use



Description

The EBC-200SxxxSV-000x series is a 200W, constant-current LED driver that operates from 176-305 Vac input with excellent power factor. It is created for high bay, high mast, arena and roadway lights. The high efficiency of these drivers 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, output over voltage, short circuit, and over temperature.

Models

Output Current	Input Voltage Range (1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor (2)	Model Number (3)
700 mA	176~305 Vac	143-285 Vdc	200 W	94.0%	0.98	EBC-200S105SV-0007
860 mA	176~305 Vac	128-232 Vdc	200 W	93.5%	0.98	EBC-200S105SV-0004
1050 mA	176~305 Vac	128-190 Vdc	200 W	92.5%	0.98	EBC-200S105SV-0000
3500 mA	176~305 Vac	29-57 Vdc	200 W	93.0%	0.98	EBC-200S560SV-0006(4)
4200 mA	176~305 Vac	25-48 Vdc	200 W	92.5%	0.98	EBC-200S560SV-0004(4)
4900 mA	176~305 Vac	25-41 Vdc	200 W	92.0%	0.98	EBC-200S560SV-0002(4)
5600 mA	176~305 Vac	25-36 Vdc	200 W	90.5%	0.98	EBC-200S560SV-0000(4)

Notes: (1) CCC certified input voltage range: 220/230/240 Vac; Other certified input voltage range except CCC: 200-240 Vac

(2) Measured at full load and 220 Vac input.

(3) All the models are certificated to KS, except EBC-200S105SV-000x

(4) SELV Output

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	176 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz, grounding effectively
Input AC Current	-	-	1.1 A	Measured at full load and 220 Vac input.

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Inrush Current(I^2t)	-	-	2.16 A ² s	At 220Vac input, 25°C cold start, duration=1.8 ms, 10%I _{pk} -10%I _{pk} . See Inrush Current Waveform for the details.
PF	0.9	-	-	At 220-240Vac, 65%-100% Load (130-200W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%loset	-	5%loset	At full load condition
Total Output Current Ripple (pk-pk)	-	5%I _{omax}	10%I _{omax}	At full load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%I _{omax}	-	At full load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%loset	At full load condition
No Load Output Voltage EBC-200S105SV-000x x = 7,4,0	-	-	335 V	
EBC-200S560SV-000x x = 6,4,2,0	-	-	72 V	
Line Regulation	-	-	±0.5%	Measured at full load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	0.6 s	1.5 s	Measured at 220Vac input.
Temperature Coefficient	-	-	0.03%/°C	Case temperature = 0°C ~T _c max

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

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 220 Vac input: EBC-200S105SV-000x x=7: 700 mA x=4: 860 mA x=0: 1050 mA EBC-200S560SV-000x x=6: 3500 mA x=4: 4200 mA x=2: 4900 mA x=0: 5600 mA	92.0% 91.5% 90.5% 91.0% 90.5% 90.0% 88.5%	94.0% 93.5% 92.5% 93.0% 92.5% 92.0% 90.5%	- - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	204,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	88,000 Hours	-	Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. T _c curve for the details

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Operating Case Temperature for Safety Tc_s	-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+80°C	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	7.64 × 2.66 × 1.56 194 × 67.5 × 39.7			With mounting ear 8.46 × 2.66 × 1.56 215 × 67.5 × 39.7
Net Weight	-	1170 g	-	

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

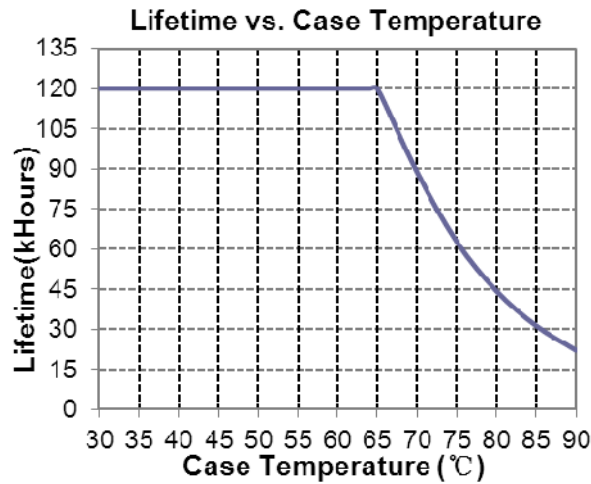
Safety & EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN61347-2-13
CCC	GB 19510.1, GB 19510.14
KS	KS C 7655 : 2011
EMI Standards	Notes
EN 55015/GB 17743 ⁽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: line to line 6 kV, line to earth 10 kV ⁽²⁾
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

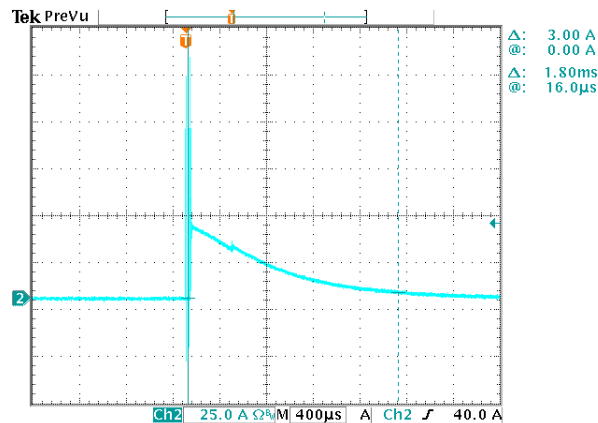
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(2) To perform electric strength (hi-pot) testing, the "GDT ground disconnect" (screw and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

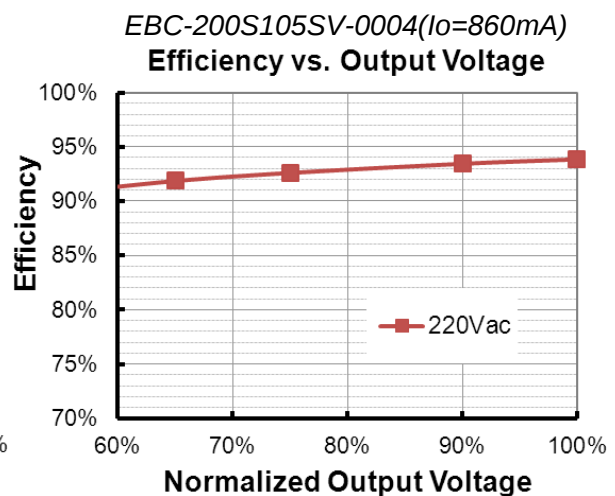
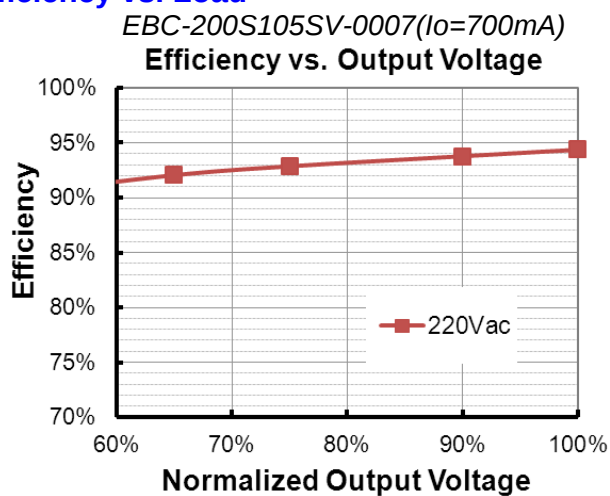
Lifetime vs. Case Temperature



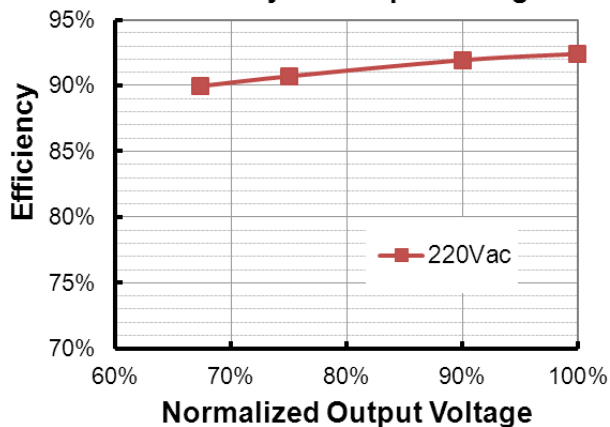
Inrush Current Waveform



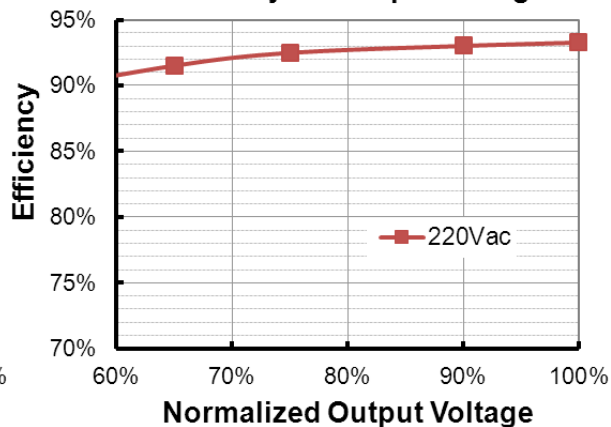
Efficiency vs. Load



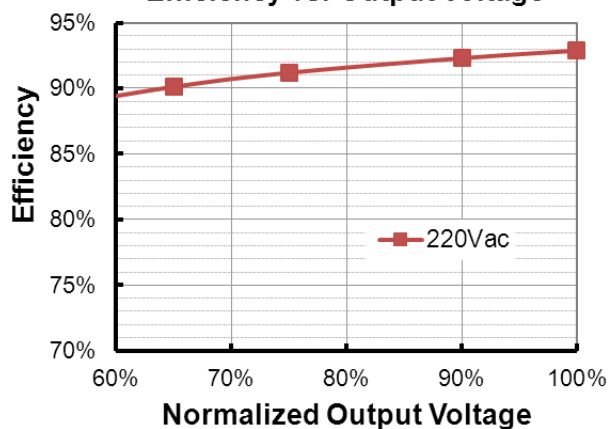
EBC-200S105SV-0000($I_o=1050\text{mA}$)
Efficiency vs. Output Voltage



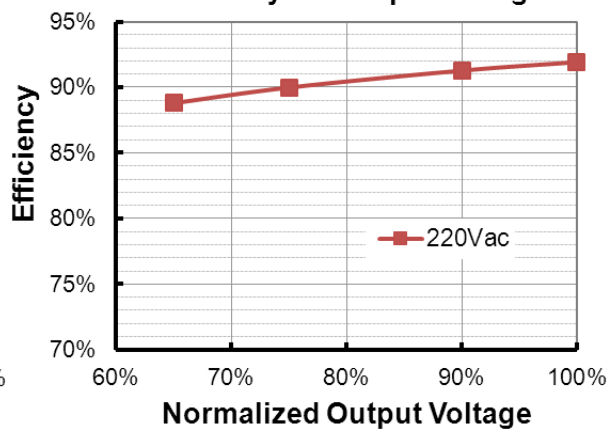
EBC-200S560SV-0006($I_o=3500\text{mA}$)
Efficiency vs. Output Voltage



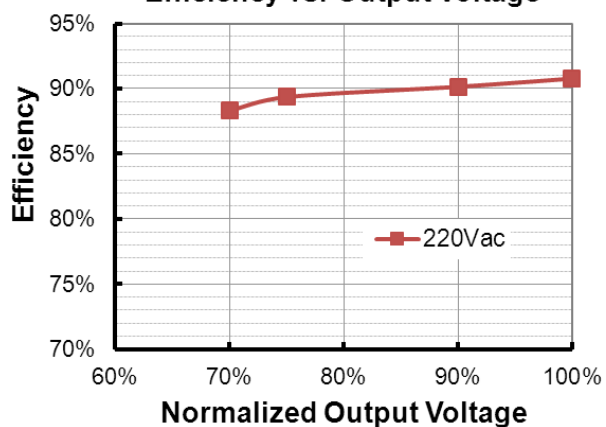
EBC-200S560SV-0004($I_o=4200\text{mA}$)
Efficiency vs. Output Voltage



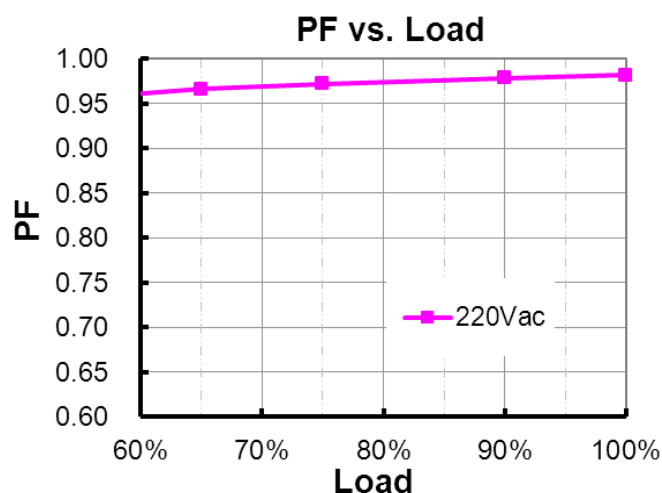
EBC-200S560SV-0002($I_o=4900\text{mA}$)
Efficiency vs. Output Voltage



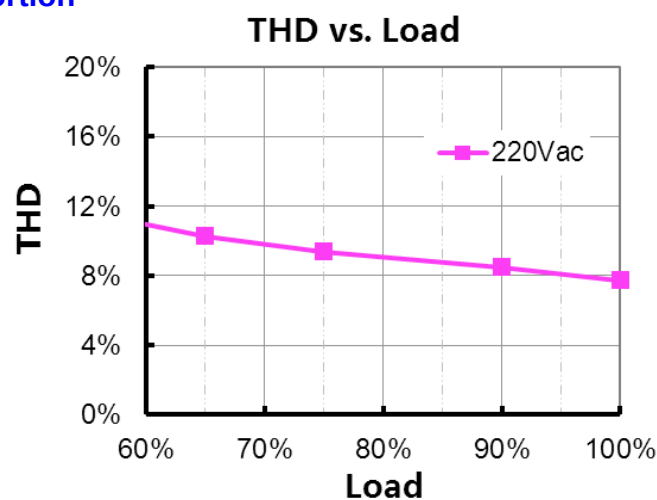
EBC-200S560SV-0000($I_o=5600\text{mA}$)
Efficiency vs. Output Voltage



Power Factor



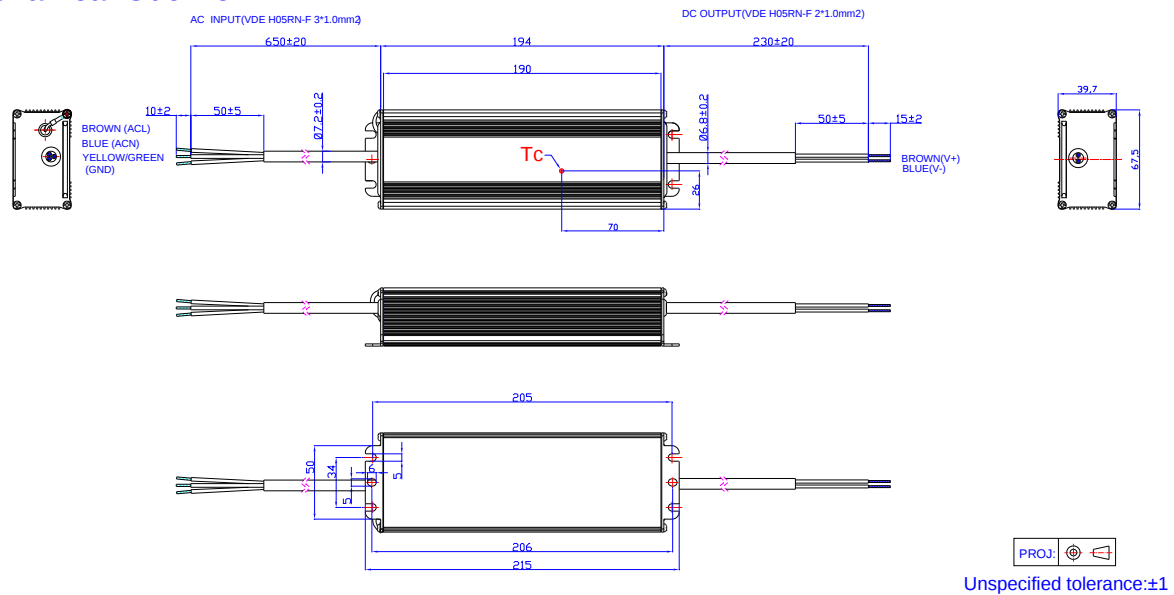
Total Harmonic Distortion



Protection Functions

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
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 Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

Mechanical Outline



Note: Waterproof connectors certified to CCC & CE are also available for these drivers; please contact Inventronics Sales.

RoHS Compliance

Our products comply with the European Directive 2011/65/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
2015-08-28	A	Datasheets Release	/	/
2015-12-08	B	KS	/	Added
		Input surge protection	/	Updated
2016-03-30	C	General Specifications	Lifetime	Updated
		General Specifications	With mounting ear	Added
		General Specifications	Net Weight	Updated
		Safety &EMC Compliance	/	Updated
		Mechanical Outline	/	Updated