

Constant Voltage LED Drivers

150W & 200W for Outdoor



DATA SHEET



Product information

TungSRAM's new Constant Voltage LED Drivers are designed for lighting used for signage and landscape illumination. The drivers have built-in active PFC, multiple protections, and 10KV surge immunity, with 12V, 24V, 36V, 48V output voltage. The range has a robust design with high reliability and long lifetime.

Product Features

- Constant voltage output for 12V/24V, with Programmable Constant Current for 36V/48V
- High power factor >0.96 (230VAC & full load)
- Universal input voltage 90~305VAC
- Protections: Short circuit, Over Temperature, Over Voltage, Over Current
- Surge immunity: line-line 5KV, line-earth 10KV
- IP67, fully potted with silicon glue, suitable for wet/damp & dry locations;
- Ambient temperature: -40°C - 60°C

Application area

- Suitable for landscape lighting

Specification summary

| Max Output Power(W) | Output Voltage Range (Vdc) | Output Current Range (A) | Typical Efficiency | Model | Product Code |
|---------------------|----------------------------|--------------------------|--------------------|------------------------------|--------------|
| 150 | 12 | 0~12.5 | 91% | LPS Sign 150/12 90-305V 67/B | 93106755 |
| | 24 | 0~6.25 | 92% | LPS Sign 150/24 90-305V 67/B | 93106754 |
| | 36 | 0~4.17 | 92% | LPS Sign 150/36 90-305V 67/B | 93110183 |
| | 48 | 0~3.13 | 92% | LPS Sign 150/48 90-305V 67/B | 93110182 |
| 200 | 12 | 0~16.67 | 91% | LPS Sign 200/12 90-305V 67/B | 93106753 |
| | 24 | 0~8.33 | 92% | LPS Sign 200/24 90-305V 67/B | 93106752 |
| | 36 | 0~5.56 | 92% | LPS Sign 200/36 90-305V 67/B | 93110179 |
| | 48 | 0~4.17 | 92% | LPS Sign 200/48 90-305V 67/B | 93110176 |

All performance parameters are measured at 25C ambient temperature, 230VAC input, full load conditions, except for those specified

INPUT SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Notes |
|---------------------------|-------|------------|--------|------------------------|
| Input Voltage | 90VAC | 100-277VAC | 305VAC | |
| Input Frequency | 47HZ | 50/60 | 63Hz | |
| Leakage Current | - | - | 0.75mA | 277VAC/50Hz |
| Input AC Current | 150W | - | 2.0A | 100-277VAC & full load |
| | 200W | - | 2.8A | |
| Power Factor | 0.95 | 0.96 | - | 230VAC, 100% load |
| Total Harmonic Distortion | - | 10% | 15% | 230VAC, 100% load |

OUTPUT SPECIFICATIONS

| Parameter | Min. | Typ. | Max. | Notes |
|--|------|------|------|---|
| Output Current Tolerance | -5% | - | 5% | Full load |
| Output Voltage Ripple Max (pk-pk, full load) | - | - | 10% | Full load with additional parallel 0.1uF ceramic and 10uF electrolytic capacitor. Measured by 20MHz bandwidth oscilloscope. |
| Output overshoot | - | - | 10% | When the power is on |
| Line Regulation | 150W | - | 1% | 25°C ±10°C ambient temperature, 100% load, change input from 90VAC to 305VAC |
| | 200W | - | 3% | |
| Load Regulation | - | - | 3% | 25°C±10C ambient temperature, 230VAC input voltage, change load from 50 % to 100 % |
| Turn-on Delay Time | 150W | - | 0.5S | 230VAC, 100% load |
| | 200W | - | 1S | |

GENERAL SPECIFICATIONS

| Parameter | Min. | | Typ. | | Max. | Notes |
|--|---|---|---|---|------|--|
| Efficiency 230VAC Vo=12V Vo=24V Vo=36V Vo=48V | 150W 86% 86% 86% 86% | 200W 90% 90% 90% 91% | 150W 87% 87% 87% 87% | 200W 91% 91% 92% 92% | | Measured at full load and 25C ambient temperature |
| Dielectric Strength | Input-Output | - | 3750VAC | | - | 10mA/60S |
| | Input-PE | - | 1600VAC | | - | |
| | Output- PE | - | 150W: 1600VAC 200W: 500VAC | | - | |
| Grounding Resistance | - | | - | | 0.1Ω | 25A/60S |
| Insulation Resistance | 150W: 100MΩ 200W: 50MΩ | | - | | - | Input-Output, Input-PE, Output-PE, 500VDC, 60S, 25C, 70%RH |
| MTBF | - | | 200000 Hours | | - | 230VAC, 80% load (MIL-HDBK-217F) |
| Lifetime | - | | 50000 Hours | | - | 230VAC & 100% load, 70°C Case temperature, see to Lifetime vs Tc curve |
| Tc_S - Operating Case Temperature for Safety | -40C | | - | | +85C | |
| Tc_W - Operating Case Temperature for Warranty | -40C | | - | | +60C | |
| Storage Temperature | -40C | | - | | +85C | 20%-95% RH, non-condensing |

RECOMMENDED NUMBER OF DRIVERS PER MCB TYPE

| Driver | Inrush Current (A) Measured at 230VAC | Inrush Current (A) Claimed Max at 230VAC | Inrush Current (A) 50% peak pulse duration (µs) | Input Current (A) at 230V | Proof factor (k) | Recommended number of Drivers per MCB | | | | | |
|--------|---------------------------------------|--|---|---------------------------|------------------|---------------------------------------|------------|------------|------------|------------|------------|
| | | | | | | Type B 10A | Type B 16A | Type B 25A | Type C 10A | Type C 16A | Type C 25A |
| 150W | 43.2 | 50 | 104 | 1.5 | 15 | 7 | 11 | 17 | 11 | 18 | 28 |
| 200W | 48.8 | 50 | 56 | 2.8 | 15 | 7 | 11 | 17 | 11 | 18 | 28 |

Recommended number of Drivers per MCB = $(I_{\text{hold}}/I_{\text{inrush}}) \times 25\%$ de-rating, where I_{hold} = Proof factor (k) x non-tripping current. 25% de-rating accounts for unknown variables of installation wiring, load, thermal conditions, etc.

Recommendations are a guide only and based on standard twin+earth installation cable at 1.5mm². Consideration has been made to ensure these data are conservative and safe, since other external factors may affect the number of drivers that can be connected to a circuit breaker and these factors are beyond the control of Tungsram. We accept no responsibility for consequential damages or losses resulting from using these guidelines.

FEATURES

| Parameter | Notes |
|-----------------------------|--|
| Over Temperature Protection | Driver into protection status when $T_c > 90C$. Automatic recovery when fault condition is removed |
| Short Circuit Protection | Driver Power is decreased if short-circuit on output side. Automatic recovery when fault condition is removed |
| Over Current Protection | Driver into Protection status at $> 1.1-1.5x$ (150W) or $> 1.1-2.0x$ (200W) Max Load Current. Automatic recovery when fault condition is removed |
| Over Voltage Protection | Driver into protection status at $> 1.1-1.3x$ Rated Load Voltage. Automatic recovery when fault condition is removed |
| Hot Wire | Yes |
| Insulation Class | Class I |

SAFETY STANDARDS

| Safety Category | Country / Territory | Standards |
|-----------------|---------------------|---------------------------|
| CE | Europe | EN61347-1, EN61347-2-13 |
| CB | CB Countries | IEC61347-1, IEC61347-2-13 |

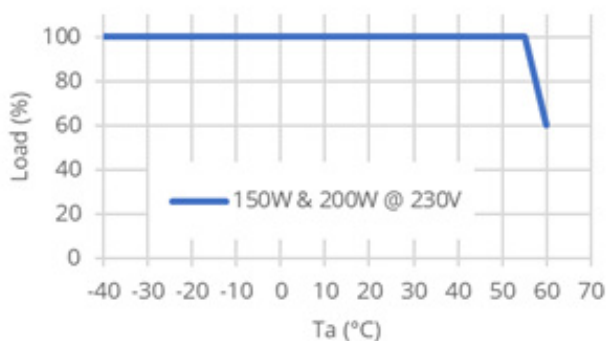
EMC COMPLIANCE

| Safety Category | Country / Territory | Standards |
|-----------------|---------------------|---|
| CE | Europe | EN 55015, EN 61000-3-2, EN 61000-3-3 |
| | | EN61000-4-2,3,4,5,6,8,11 |
| | | EN61547 |

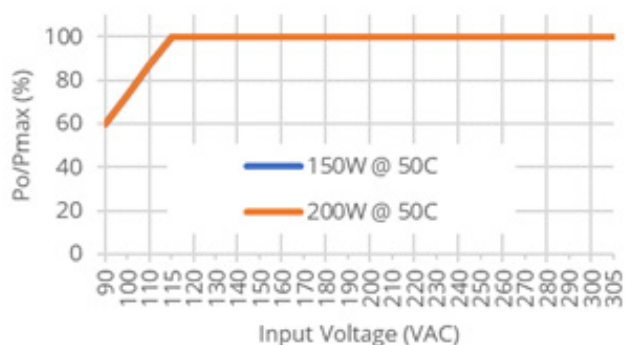
This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Charts

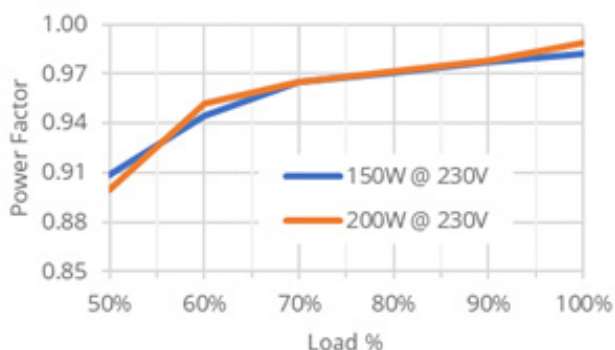
Load vs Ambient Temperature



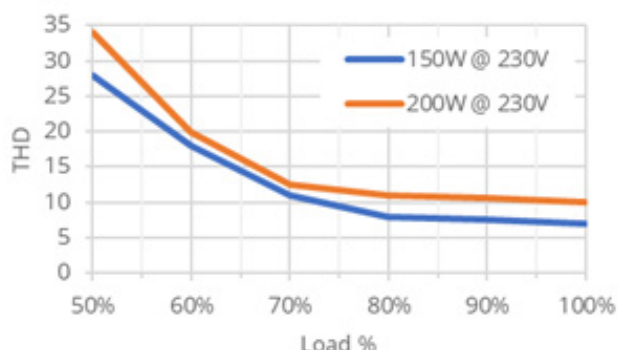
Output Power vs Input Voltage



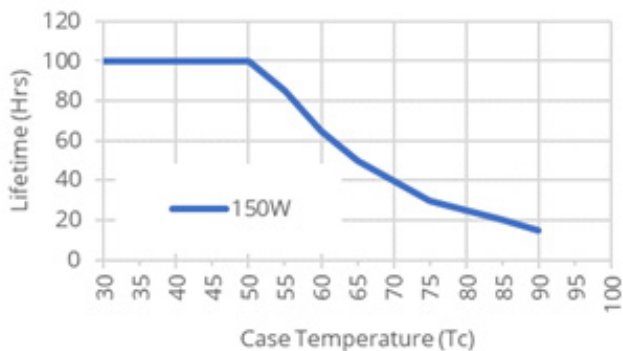
Power Factor vs Load



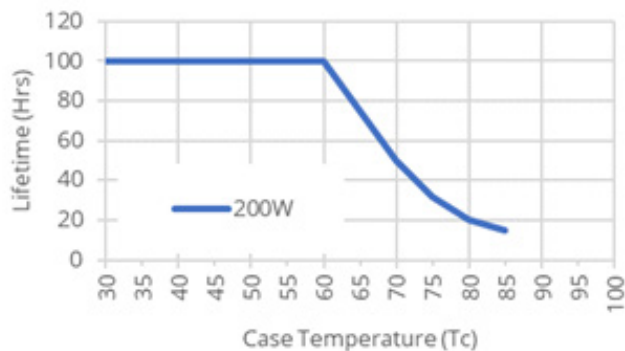
Total Harmonic Distortion vs Load



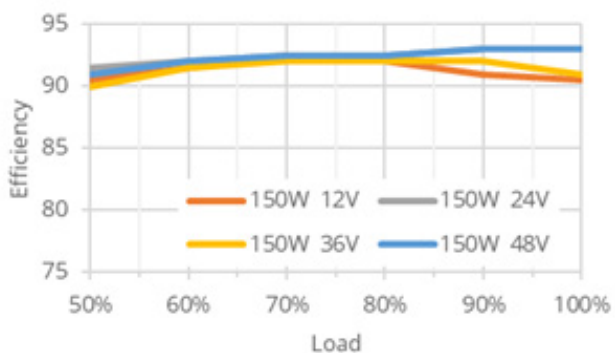
Lifetime vs Case Temperature



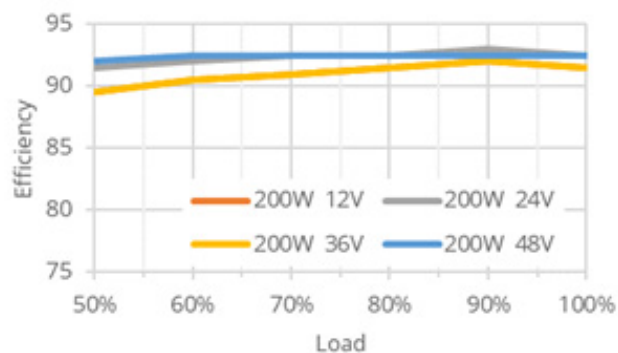
Lifetime vs Case Temperature



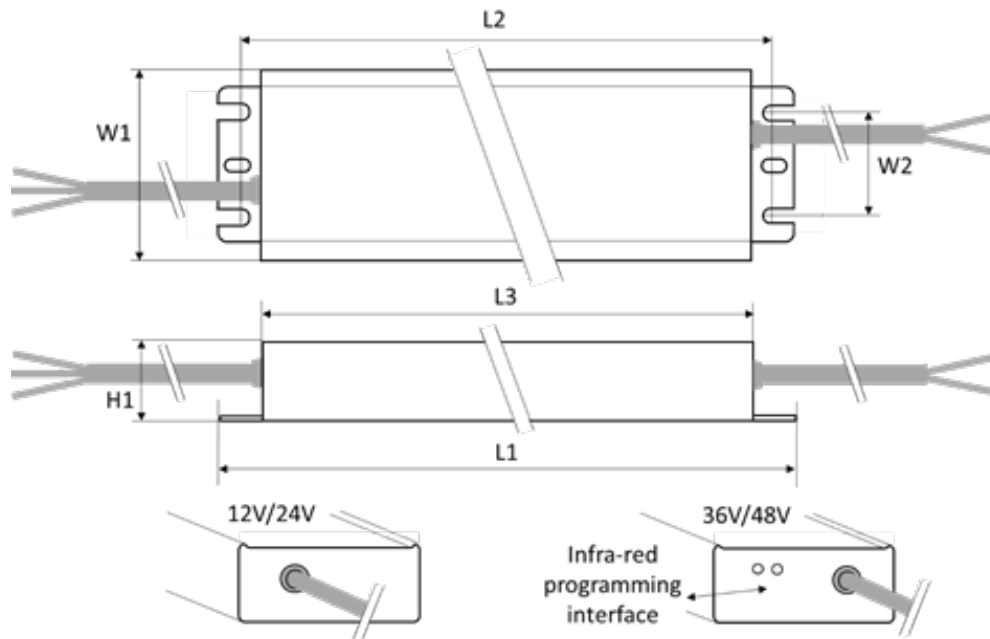
Efficiency vs Load



Efficiency vs Load



DIMENSIONS



| Parameter | Unit | 150W 12/24V | 150W 36/48V | 200W 12/24V | 200W 36/48V |
|----------------------------|-----------------|-------------|-------------|-------------|-------------|
| Total Length - L1 | mm | 207 | 207 | 232 | 247 |
| Total Width - W1 | mm | 58 | 68 | 68 | 68 |
| Total Height - H1 | mm | 39 | 39 | 43.5 | 43.5 |
| Screw-hole Min Length - L2 | mm | 192 | 192 | 215 | 232 |
| Screw-hole Max Length - L2 | mm | 200 | 200 | 225 | 240 |
| Screw-hole Width - W2 | mm | 34 | 34 | 34 | 34 |
| Housing length - L3 | mm | 183 | 183 | 208 | 223 |
| AC Input wire gauge | mm ² | 3x 1 | 3x 1 | 3x 1 | 3x 1 |
| AC Input wire length | mm | 300 | 300 | 300 | 300 |
| DC Output wire gauge | mm ² | 2x 1 | 2x 1 | 2x 1 | 2x 1 |
| DC Output wire length | mm | 300 | 300 | 300 | 300 |
| Default wire strip length | mm | 50 +/-3 | 50 +/-3 | 50 +/-3 | 50 +/-3 |
| Default bare wire length | mm | 5 +/-1 | 5 +/-1 | 5 +/-1 | 5 +/-1 |
| Net weight | grams | 900+/-50 | 900+/-50 | 1350+/-50 | 1350+/-50 |
| Shipping Carton quantity | units | 10 | 10 | 10 | 10 |
| Shipping Carton L*W*H | mm | 500*370*150 | 500*370*150 | 500*390*170 | 500*390*170 |