

■ Description

- √ Wide Input Voltage: 90~305Vac
- √ 0-10V/PWM/Resistor/Time 4 in 1 Dimmable
- √ APFC (Active Power Factor Correction): 0.99 Typical
- √ All-Around Protection: OVP/OTP/SHORT
- √ Programmable Output Current and Timing Dimming
- √ Lighting Protection up to 6kV
- √ Waterproof: IP67
- √ 100% Full Load Aging Test for 4 Hours @Ta=45℃
- √ Safety Design Compliant to UL8750/IEC61347
- √ Thermal Optimized Aluminum Case with Potting



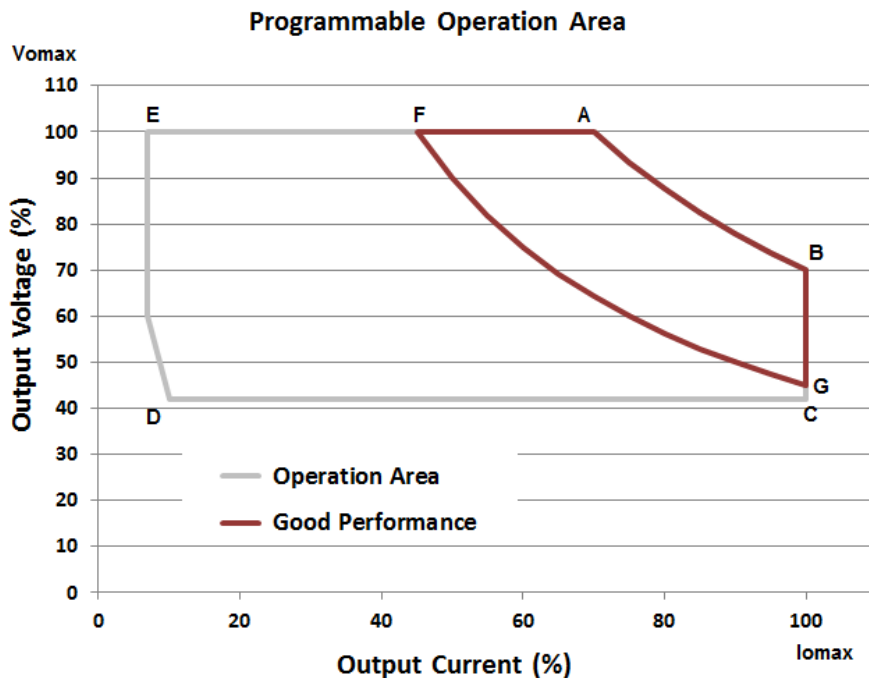
■ Application

Outdoor Applications: Street Light, Tunnel Light, Landscape Light, Garden Light and others

■ Model Selection

| Model Number | Input Voltage Range | Output Power | Output Voltage Range | Full Power Output Current | Typical Eff. | Certification |
|---------------------|---------------------|--------------|----------------------|---------------------------|--------------|---------------------|
| PE-P090CC-C060-S-CS | 90 ~ 305Vac | 90W | 90-191Vdc | 470-600mA | 91.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C060-U-CS | 90 ~ 305Vac | 90W | 90-191Vdc | 470-600mA | 91.0% | UL SAA CE RoHS |
| PE-P090CC-C085-S-CS | 90 ~ 305Vac | 90W | 64-150Vdc | 600-850mA | 90.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C085-U-CS | 90 ~ 305Vac | 90W | 64-150Vdc | 600-850mA | 90.0% | UL SAA CE RoHS |
| PE-P090CC-C120-S-CS | 90 ~ 305Vac | 90W | 45-106Vdc | 850-1200mA | 88.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C120-U-CS | 90 ~ 305Vac | 90W | 45-106Vdc | 850-1200mA | 88.0% | UL SAA CE RoHS |
| PE-P090CC-C190-S-CS | 90 ~ 305Vac | 90W | 28-69Vdc | 1300-1900mA | 88.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C190-U-CS | 90 ~ 305Vac | 90W | 28-69Vdc | 1300-1900mA | 88.0% | UL SAA CE RoHS |
| PE-P090CC-C260-S-CS | 90 ~ 305Vac | 90W | 22-48Vdc | 2000-2600mA | 88.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C260-U-CS | 90 ~ 305Vac | 90W | 22-48Vdc | 2000-2600mA | 88.0% | UL SAA CE RoHS |
| PE-P090CC-C350-S-CS | 90 ~ 305Vac | 90W | 14-35Vdc | 2600-3500mA | 86.0% | CCC ENEC CB CE RoHS |
| PE-P090CC-C350-U-CS | 90 ~ 305Vac | 90W | 14-35Vdc | 2600-3500mA | 86.0% | UL SAA CE RoHS |

■ Programmable Operation Area



Here points of ABCDE form the operation area, while ABGF form the good performance area

| Model | C060 | | C085 | | C120 | | C190 | | C260 | | C350 | |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Item | Io(mA) | Vo (V) | Io(mA) | Vo (V) | Io(mA) | Vo (V) | Io(mA) | Vo (V) | Io(mA) | Vo (V) | Io(mA) | Vo (V) |
| A | 470 | 191 | 600 | 150 | 850 | 106 | 1300 | 69 | 2000 | 45 | 2600 | 35 |
| B | 600 | 150 | 850 | 106 | 1200 | 75 | 1900 | 47 | 2600 | 35 | 3500 | 26 |
| C | 600 | 90 | 850 | 64 | 1200 | 45 | 1900 | 28 | 2600 | 21 | 3500 | 15 |
| D | 60 | 90 | 85 | 64 | 120 | 45 | 190 | 28 | 260 | 21 | 350 | 15 |
| E | 47 | 191 | 60 | 150 | 85 | 106 | 130 | 69 | 200 | 45 | 260 | 35 |
| F | 282 | 191 | 360 | 150 | 510 | 106 | 780 | 69 | 1200 | 45 | 1560 | 35 |
| G | 600 | 90 | 850 | 64 | 1200 | 45 | 1900 | 28 | 2600 | 21 | 3500 | 15 |

■ Specifications

| Items | | Specification | |
|-------------------------|-------------------------------|--|-----------------|
| Input | Input Voltage | 90~305Vac | |
| | Input Frequency | 47~63Hz | |
| | Power Factor | >0.9@60-100%load, refer to PF vs. Load curve. | |
| | THD | <20%@60-100%load, refer to THD vs. Load curve. | |
| | Input Current | 1.1Amax@110Vac & Full-Load; 0.55Amax@230Vac & Full-Load | |
| | Inrush Current | 65A peak, 1.2ms duration@230Vac 25°C 80A peak, 1.3ms duration@277Vac 25°C <5.0A ² s@230Vac, 25°C Cold Start | |
| | Leakage Current | 1mAmax @277Vac 60Hz, UL8750 0.75mAmax @240Vac 50Hz, IEC61347-1 | |
| Output | Rated Power | 90W | |
| | Current Accuracy | ±5%Io | |
| | Ripple Current ^[2] | Ip-p: 5%LED 60%-100% Load | |
| | Setup Time | 1.2s max | |
| | Output Overshoot | 10%Io | |
| Protection | Output Over Voltage | 135%Vomax, The unit will latch off when OVP. The product will deliver output power after unplugged the AC input and wait 10s and then plug in. | |
| | Over Temperature | Decrease output current until over temperature state is removed | |
| | Short Circuit | Auto recovery. The output recovers when short is removed. | |
| | Over Power | The output power can be limited if the load exceed rated output load. | |
| Environmental Condition | Operating Temperature | -40°C~+70°C; 10%RH~100%RH (See Derating Curve for more details) ^[3] | |
| | Storage Temperature | -40°C~+85°C; 5%RH~100%RH | |
| Others | MTBF | ≥320,000 hours, measured at 230Vac input, 80% load and 25°C ambient temperature(MIL-HDBK-217F) | |
| | Lifetime | ≥58,000 hours, measured at 230Vac input, 80% load and 75°C Case temperature ^[4] | |
| | Case Temperature | 90°C max ^[5] | |
| | Dimensions | Inch(L x W x H) | 6.77x2.66x1.48 |
| | | Millimeter(L x W x H) | 172.0x67.5x37.5 |
| | Net Weight | 720g | |

Notes:

[1] Unless specified, all the test results are measured in the 25DegC room temperature.

[2] The result differs according to different LED load characteristic.

[3] Please confirm working conditions according to the derating curve of output power vs. input voltage and temperature. Beyond the safety work condition will not be recommended.

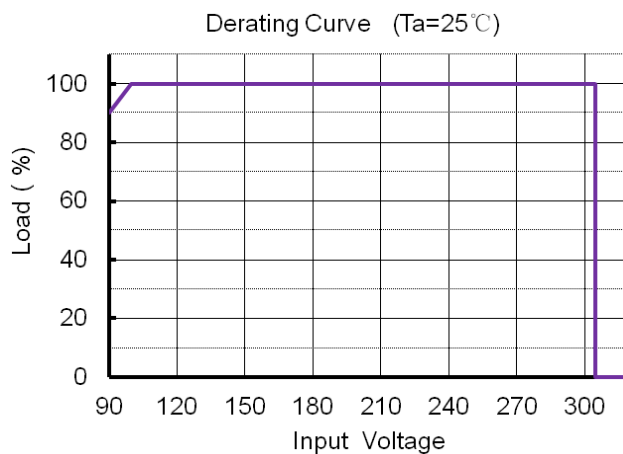
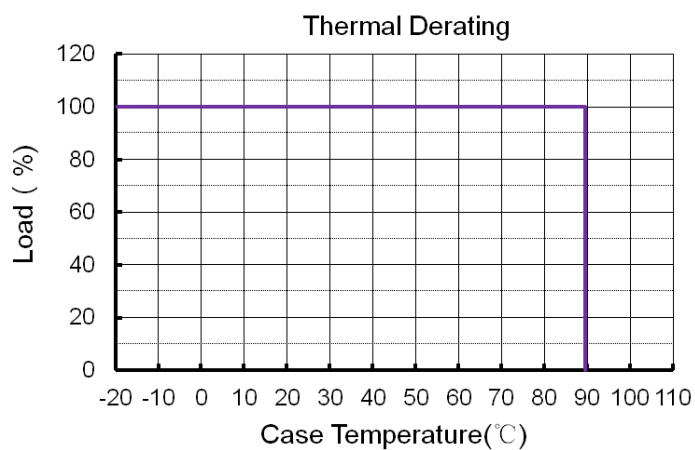
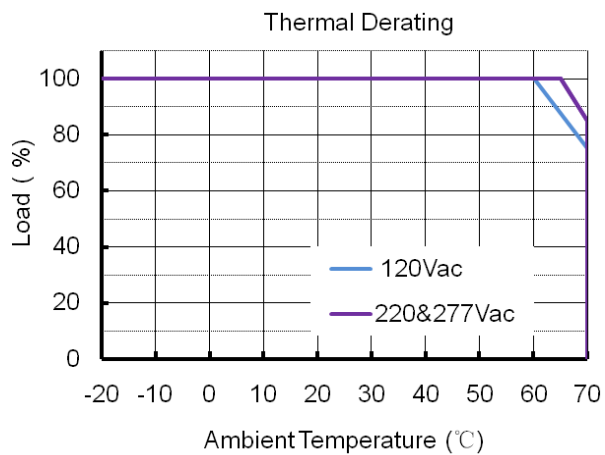
[4] refer to Lifetime vs. Tc curve .

[5] Tc point is marked on the product label. The label is also listed in the specification for approval.

■ Safety & EMC Compliance

| Safety Category | Standard |
|-----------------|---|
| UL8750 | Light Emitting Diode(LED) Equipment for Use in Lighting Products |
| UL1012 | Power Unit Other Than Class 2 |
| Safety Category | Standard |
| UL1310 | Class 2 Power Units |
| IEC 61347-1 | Lamp Control gear Part 1: General and Safety Requirements |
| IEC 61347-2-13 | Lamp Control gear Part 2-13: Particular Requirement for d.c. or a.c. Supplied Electronic Control gear for LED Modules |
| EMI Standards | Notes |
| IEC55015 | Conducted emission test & Radiated emission test |
| IEC61000-3-2 | Harmonic current emissions; Class C ($\geq 75\%$ load) |
| IEC61000-3-3 | Voltage fluctuations & flicker |
| FCC Part 15 | Class B |
| EMS Standards | Notes |
| IEC 61000-4-2 | Electrostatic discharge (ESD) |
| IEC 61000-4-3 | Radio frequency electromagnetic field susceptibility test (RS) |
| IEC 61000-4-4 | Electrical fast transient (EFT) |
| IEC 61000-4-5 | Surge immunity test L-N: 4kV; LN-PE: 6kV |
| IEC 61000-4-6 | Conducted radio frequency disturbances test (CS) |
| IEC 61000-4-8 | Power frequency magnetic field test |
| IEC 61000-4-11 | Voltage dips |
| IEC 61547 | Electromagnetic immunity requirements applies to lighting equipment |

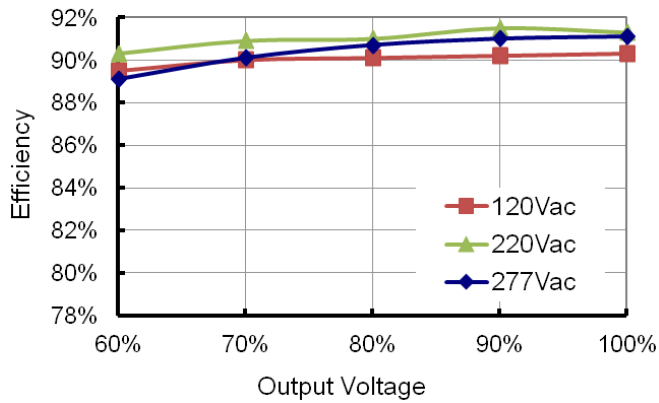
■ Derating Curve (Typical)



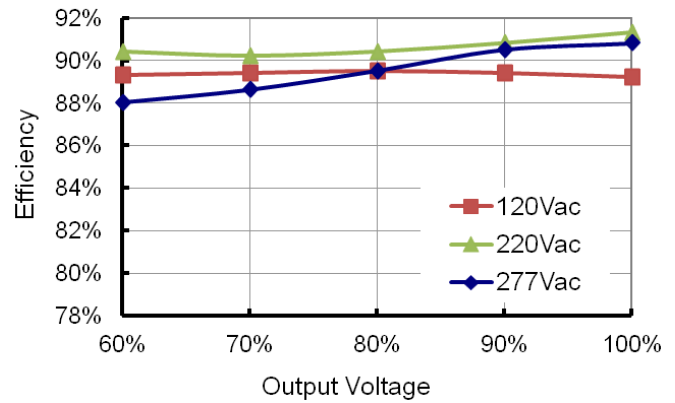
■ Efficiency vs. Load (Typical)

PE-P090CC-C060

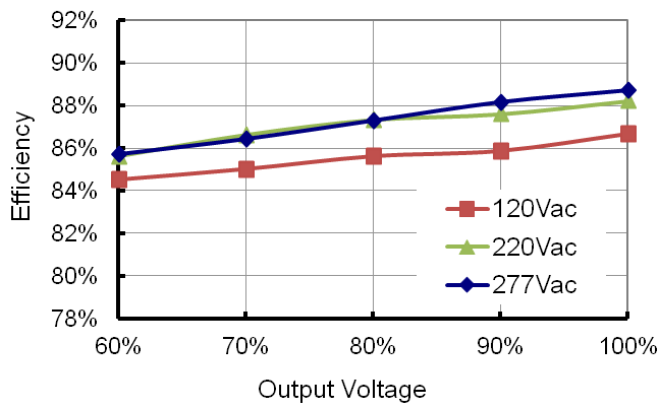
Efficiency vs. Output Voltage


PE-P090CC-C085

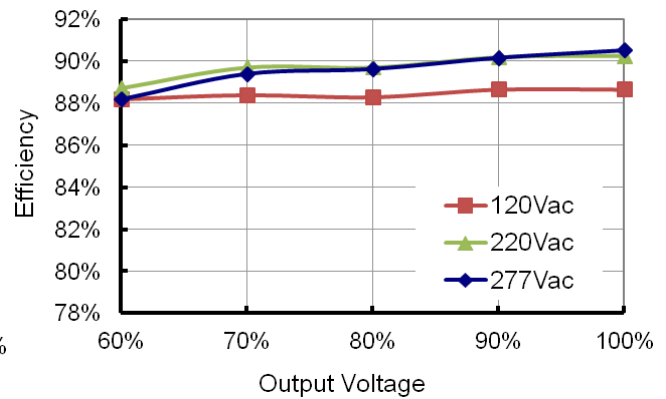
Efficiency vs. Output Voltage


PE-P090CC-C120

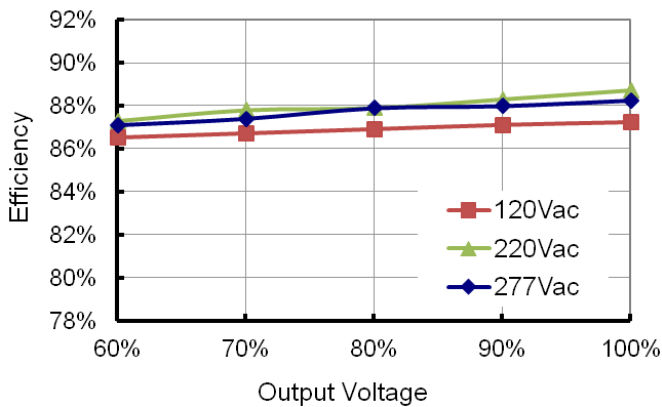
Efficiency vs. Output Voltage


PE-P090CC-C190

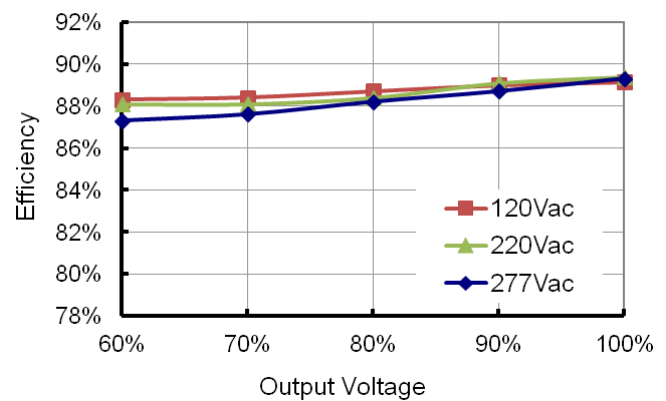
Efficiency vs. Output Voltage


PE-P090CC-C260

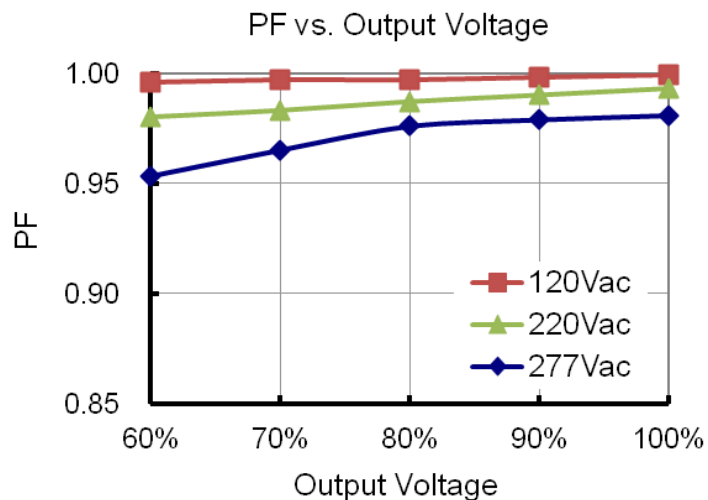
Efficiency vs. Output Voltage


PE-P090CC-C350

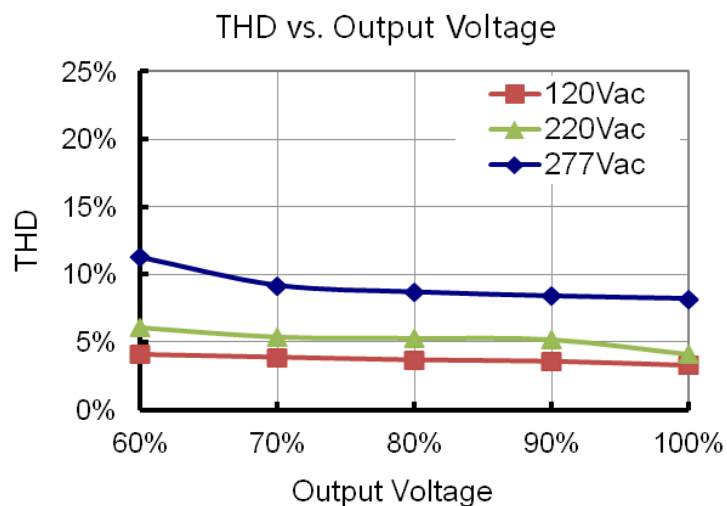
Efficiency vs. Output Voltage



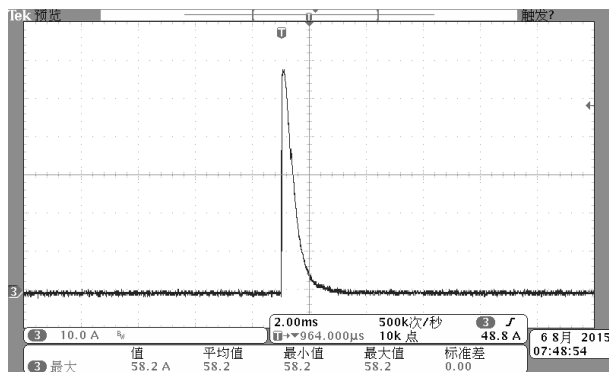
■ Power Factor Characteristics (Typical)



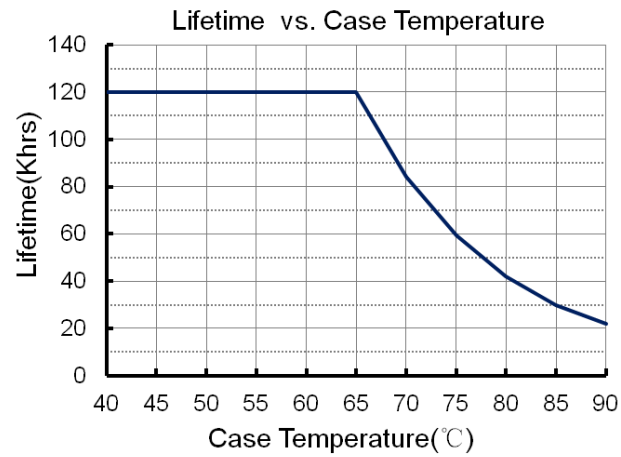
■ THD vs. Load (Typical)



■ Inrush Current Waveform (Typical)



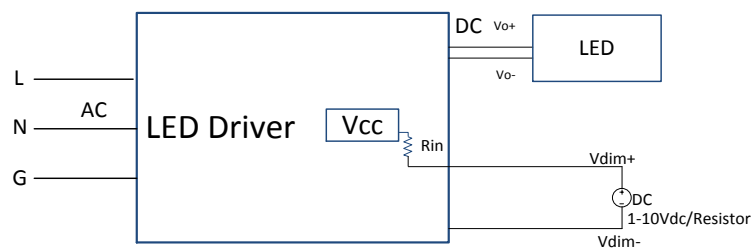
■ Lifetime vs. Case Temperature



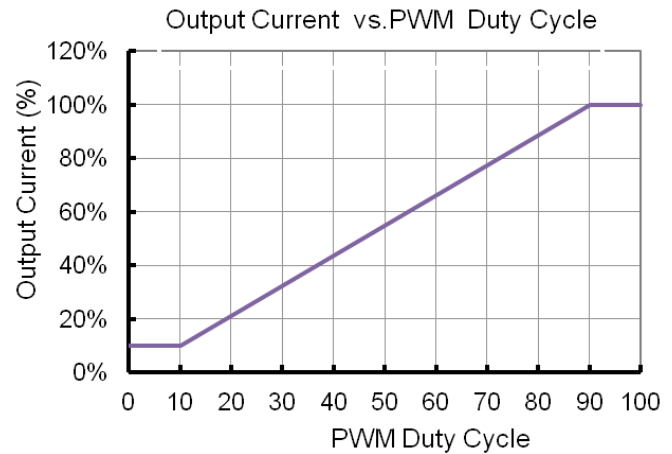
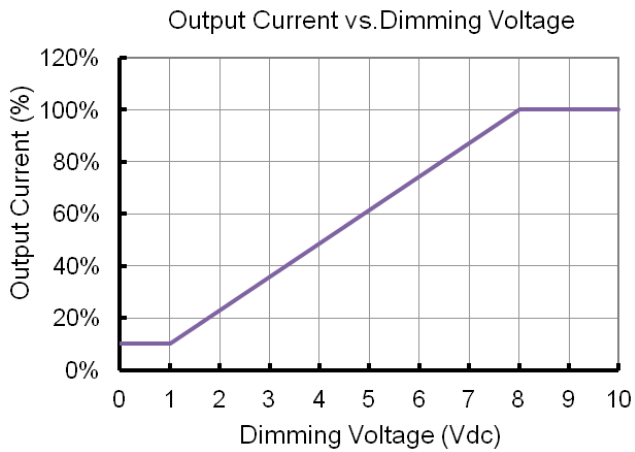
■ Dimming Section

| Parameter | Min. | Typ. | Max. | Notes |
|---|---------------------|---------|------------------------|-------|
| Vcc | - | 12 V | - | |
| Pull-up Resistance (Rin) | - | 50 kOhm | - | |
| Absolute Maximum Voltage on the 0~10V/PWM input pin | -20 V | - | 20 V | |
| 0-10V Dimming Range | 10% (Vdim=0~1V) | - | 100% (Vdim=8~10V) | |
| PWM Dimming Range | 10% (Duty=0-10%) | - | 100% (Duty=90-100%) | |
| PWM High | 3V | - | 10V | |
| PWM Low | 0V | - | 0.6V | |
| PWM Frequency | 300Hz | - | 2kHz | |
| External PWM Controller Current Sinking Capability | 300uA | - | - | |

Diagram

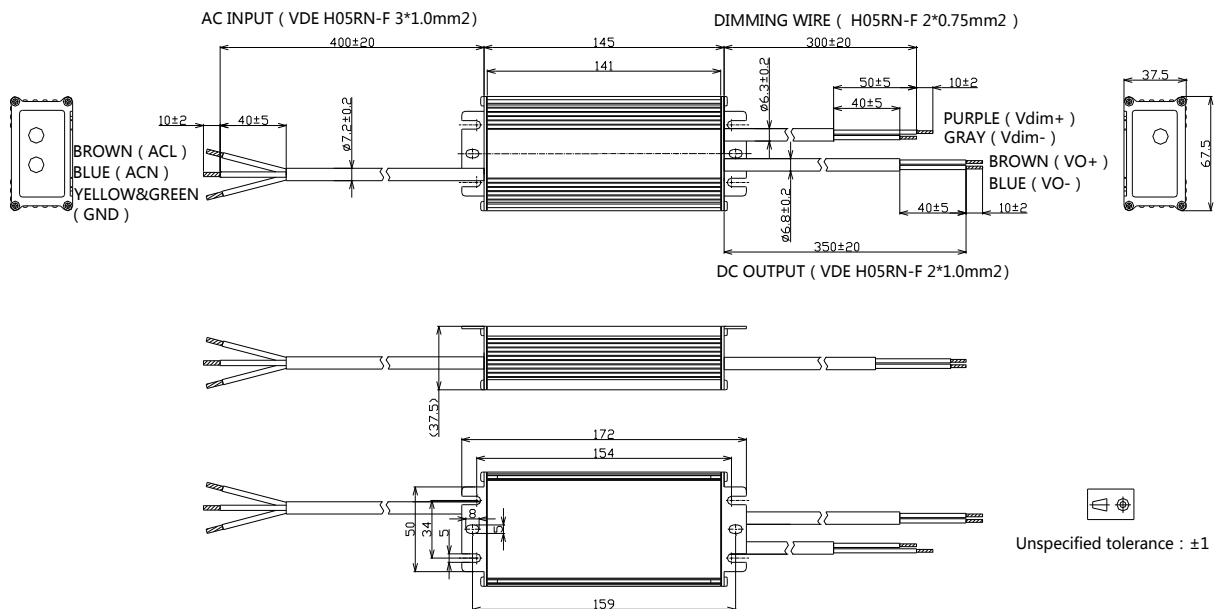


Dimming Curve

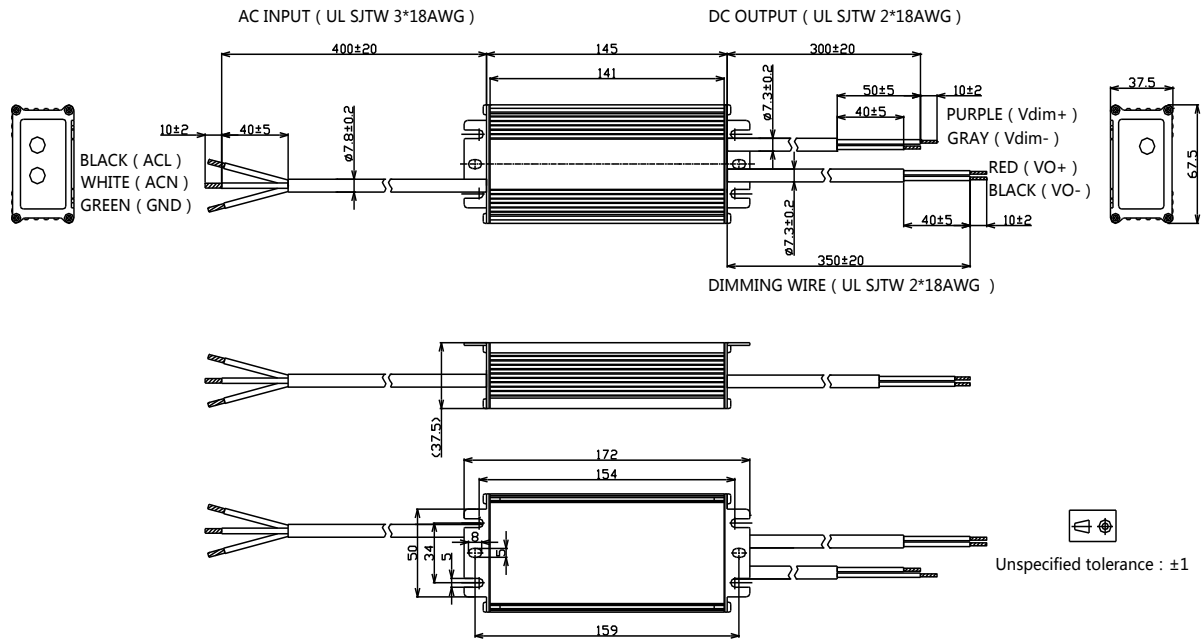


■ Mechanical Outline (Unit: mm)

PE-P090CC-Cxxx-S-CS



Note: Please make sure the output cable does not connect to dimming cable or the cables of other drivers until 20 seconds after being tested because of the remained voltage in the output capacitor.



Note: Please make sure the output cable does not connect to dimming cable or the cables of other drivers until 20 seconds after being tested because of the remained voltage in the output capacitor.

■ Revision History

| Date | Rev. | Description of Change | | |
|------------|------|--------------------------|------|----|
| | | Item | From | To |
| 2015-09-05 | A | Release | / | / |
| 2016-11 | B | Update Performance Curve | | |