

## ■ Description

- √ Wide Input Voltage: 176~305Vac
- √ High Efficiency up to 91%
- √ APFC (Active Power Factor Correction): 0.99 Typical
- √ 0-10V/PWM/Resistor/Time 4 in 1 Dimmable
- √ Programmable Timing Dimming
- √ Lighting Protection
- √ 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

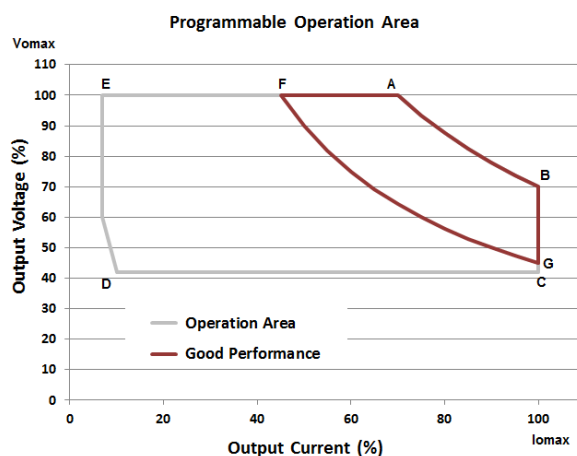
Outdoor Applications: Street Light, Tunnel Light, Landscape Light, Garden Light and others

## ■ Model Selection

| Programmable Model Number | Input Voltage Range | Output Power | Output Voltage Range | Full Power Output Current | Typical Eff. | Certification |
|---------------------------|---------------------|--------------|----------------------|---------------------------|--------------|---------------|
| PE-F120CC-C070-S-CS       | 176~305Vac          | 120W         | 103-240Vdc           | 500-700mA                 | 91%          | CCC CE RoHS   |
| PE-F120CC-C105-S-CS       | 176~305Vac          | 120W         | 68-171Vdc            | 700-1050mA                | 90.5%        | CCC CE RoHS   |
| PE-F120CC-C140-S-CS       | 176~305Vac          | 120W         | 52-114Vdc            | 1050-1400mA               | 90%          | CCC CE RoHS   |

## Programmable Operation Area

| Model | C070   |        | C105   |        | C140   |        |
|-------|--------|--------|--------|--------|--------|--------|
| Item  | Io(mA) | Vo (V) | Io(mA) | Vo (V) | Io(mA) | Vo (V) |
| A     | 500    | 240    | 700    | 171    | 1050   | 114    |
| B     | 700    | 171    | 1050   | 114    | 1400   | 86     |
| C     | 700    | 103    | 1050   | 68     | 1400   | 52     |
| D     | 70     | 103    | 105    | 68     | 140    | 52     |
| E     | 50     | 240    | 70     | 171    | 105    | 114    |
| F     | 300    | 240    | 420    | 171    | 630    | 114    |
| G     | 700    | 103    | 1050   | 68     | 1400   | 52     |



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

## ■ Specifications

| Items                   |                               | Specification  |
|-------------------------|-------------------------------|--|
| Input                   | Input Voltage                 | 176~305Vac   |
|                         | 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                 | 0.85Amax@230Vac & Full-Load  |
|                         | Inrush Current                | 65A peak, 1.2ms duration@230Vac 25°C<br>80A peak, 1.3ms duration@277Vac 25°C<br><5.0A <sup>2</sup> s@230Vac, 25°C Cold Start                   |
|                         | Leakage Current               | 1.0mAmax @240Vac 50Hz, IEC61347-1  |
| Output                  | Current Accuracy              | ±5%Io  |
|                         | Ripple Current <sup>[2]</sup> | Ip-p:5%Io LED 60%~100% Load  |
|                         | Setup Time                    | 1.2s max   |
|                         | Output Overshoot              | 10%Io max & LED Load   |
| 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℃~+70℃; 10%RH~100%RH (See Derating Curve for more details) <sup>[3]</sup>   |
|                         | Storage Temperature           | -40℃~+85℃; 5%RH~100%RH   |
| Others                  | MTBF                          | ≥320,000 hours, measured at 230Vac input, 80% load and 25℃ ambient temperature(MIL-HDBK-217F)  |
|                         | Lifetime                      | ≥58,000 hours, measured at 230Vac input, 80% load and 75℃ ambient temperature <sup>[4]</sup>   |
|                         | Case Temperature              | 90℃max <sup>[5]</sup>  |
|                         | 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.

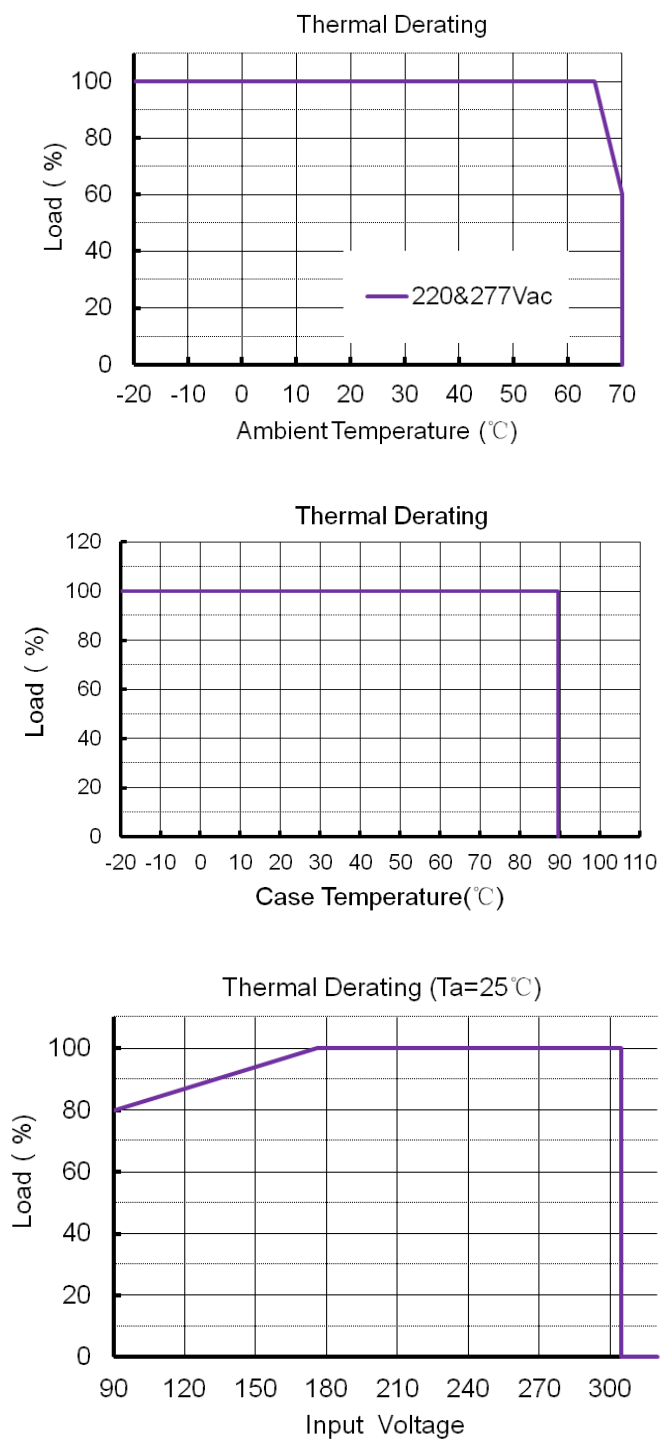
[4] refer to Lifetime vs. Tc curve .

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

## ■ Safety & EMC Compliance

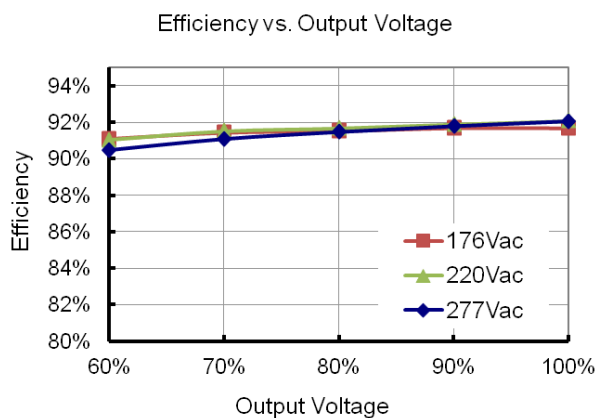
| Safety Category | Standard  |
|-----------------|---|
| UL8750          | Light Emitting Diode(LED) Equipment for Use in Lighting Products  |
| UL1012          | Power Unit Other Than Class 2   |
| IEC 61347-1     | Lamp Controlgear Part 1: General and Safety Requirements  |
| IEC 61347-2-13  | Lamp Controlgear Part 2-13: Particular Requirement for d.c. or a.c. Supplied Electronic Controlgear for LED Modules |
| EMI Standards   | Notes   |
| IEC 55015       | Conducted emission test & Radiated emission test  |
| IEC 61000-3-2   | Harmonic current emissions; Class C ( $\geq 75\%$ load)   |
| IEC 61000-3-3   | 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)



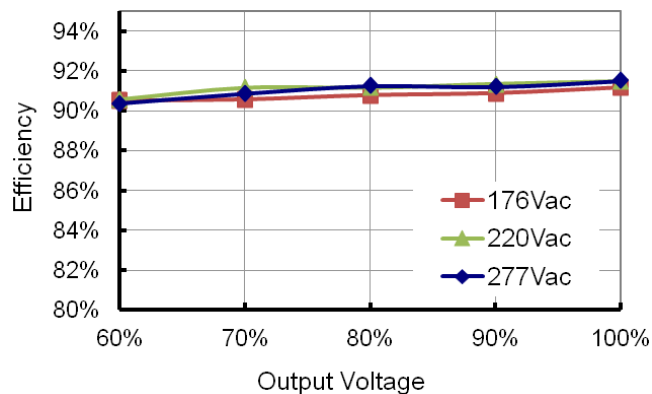
## ■ Efficiency vs. Load (Typical)

PE-F120CC-C070



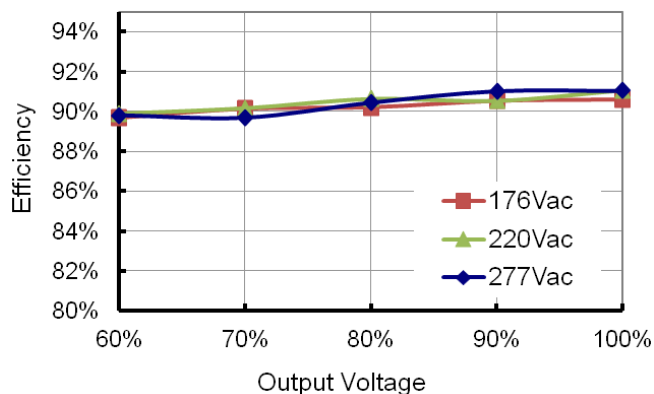
PE-F120CC-C105

Efficiency vs. Output Voltage



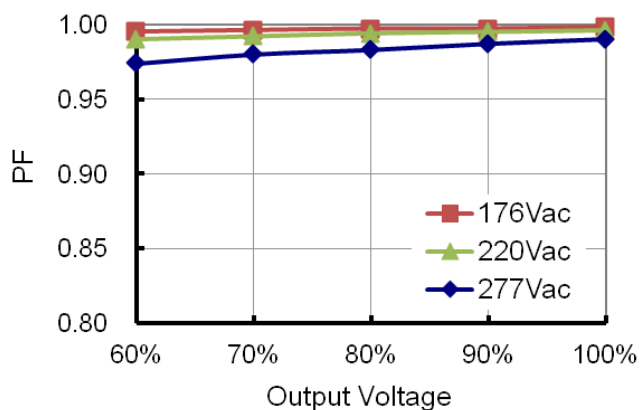
PE-F120CC-C140

Efficiency vs. Output Voltage

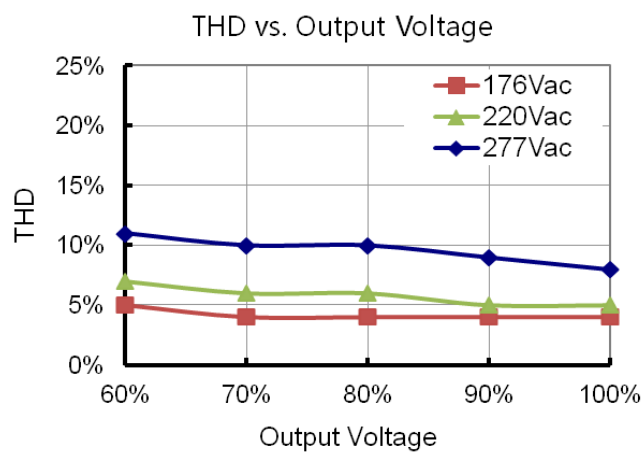


## ■ Power Factor Characteristics (Typical)

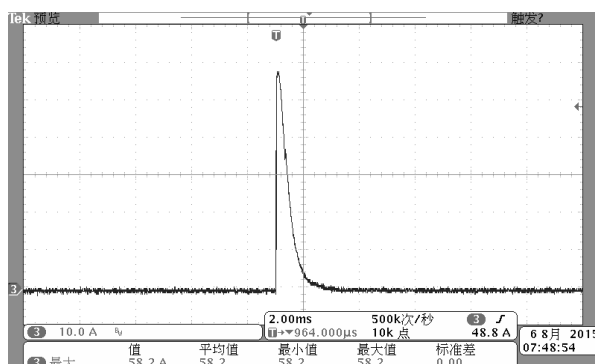
PF vs. Output Voltage



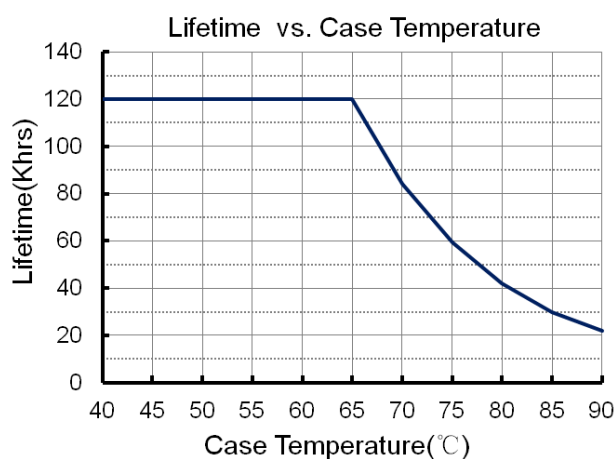
## ■ THD vs. Load (Typical)



## ■ Inrush Current Waveform (Typical)



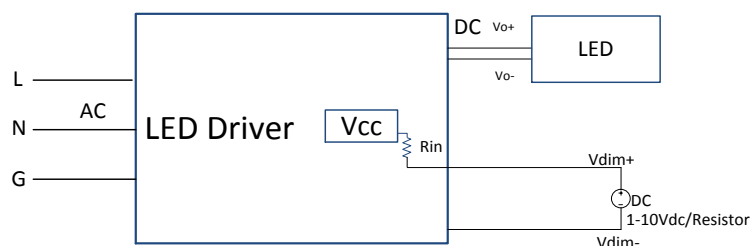
## ■ Lifetime vs. Case Temperature



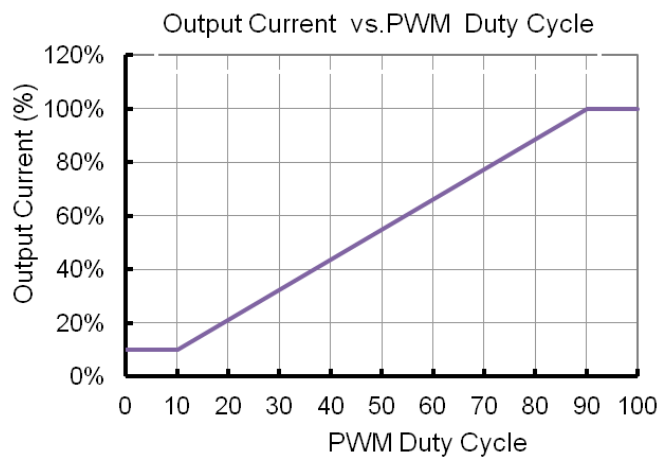
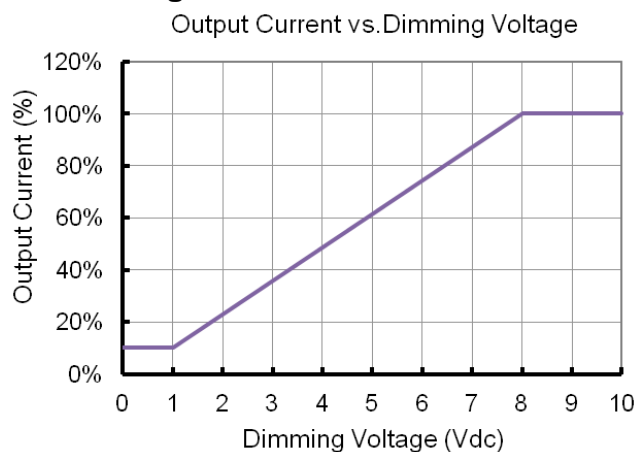
## ■ Dimming Section

| Parameter   | Min.                | Typ.    | Max.                   | Notes |
|---|---------------------|---------|------------------------|-------|
| Vcc   | -                   | 12.5 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%<br>(Vdim=0~1V)  | -       | 100%<br>(Vdim=8~10V)   |       |
| PWM Dimming Range                                   | 10%<br>(Duty=0-10%) | -       | 100%<br>(Duty=90-100%) |       |
| PWM High  | 3V                  | -       | 10V                    |       |
| PWM Low   | 0V                  | -       | 0.6V                   |       |
| PWM Frequency                                       | 300Hz               | -       | 2kHz                   |       |
| External PWM Controller Current Sinking Capability  | 300uA               | -       | -                      |       |

### Diagram

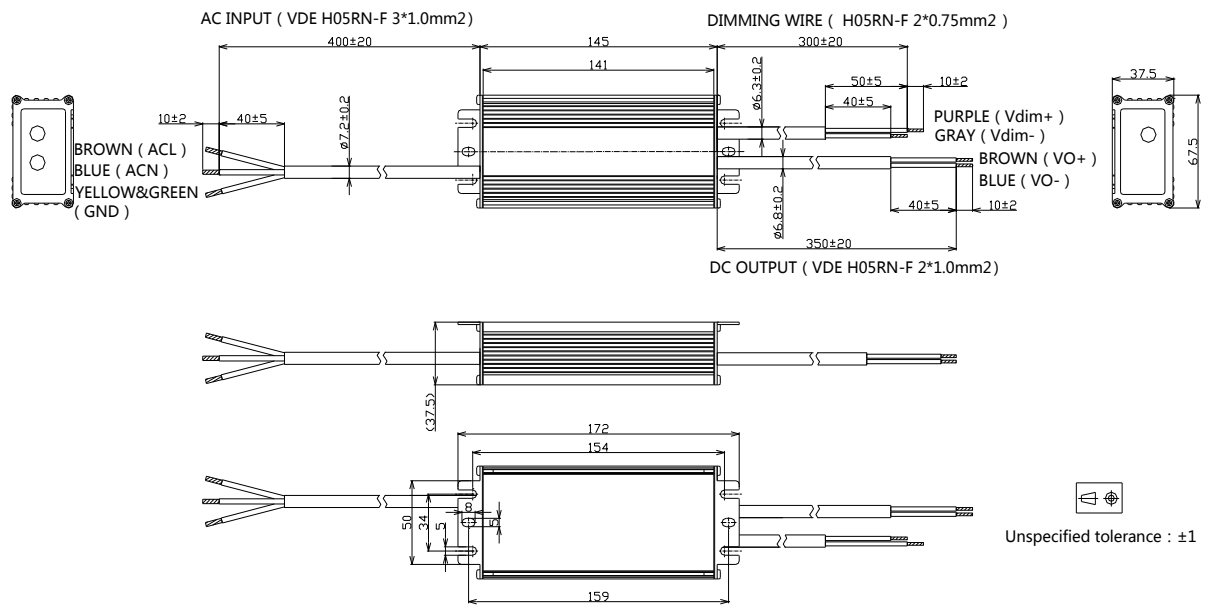


### Dimming Curve



## ■ Mechanical Outline (Unit: mm)

PE-F120CC-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.

## ■ Revision History

| Date       | Rev. | Description of Change |      |    |
|------------|------|-----------------------|------|----|
|            |      | Item                  | From | To |
| 2015-11-04 | A    | Release               | /    | /  |