

## ■ Description

- √ Wide Input Voltage: 176 ~ 305Vac
- √ High Efficiency up to 91.5%
- √ APFC (Active Power Factor Correction): 0.99 Typical
- √ 0-10V/PWM/Resistor/Time 4 in 1 Dimmable
- √ Lighting Protection
- √ Waterproof: IP67
- √ 100% Full Load Aging Test for 4 Hours @Ta=45°C
- √ 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-xx	176 ~ 305Vac	120W	103-171Vdc	700mA	91.5%	CCC CE RoHS
PE-F120CC-C105-S-xx	176 ~ 305Vac	120W	69-114Vdc	1050mA	91.0%	CCC CE RoHS
PE-F120CC-C140-S-xx	176 ~ 305Vac	120W	51-86Vdc	1400mA	91%	CCC CE RoHS
PE-F120CC-C210-S-xx	176 ~ 305Vac	120W	34-57Vdc	2100mA	91%	CCC CE RoHS

Note: xx = ND means non-dimming; xx = DM means 0-10V dimmable; xx = TS means timer dimming;

## ■ Specifications

Items		Specification		
Input	Input Voltage	176~305Vac		
	Input Frequency	47~63Hz		
	Power Factor	>0.96@ 220Vac& Full-Load		
	Input Current	0.85Amax@230Vac & Full-Load		
	THD	<20%@60-100%load, refer to THD vs. Load curve.		
	Inrush Current	65A peak, 1.2ms duration@230Vac 25℃ 80A peak, 1.3ms duration@277Vac 25℃ <5.0A²s@230Vac, 25℃ Cold Start		
	Leakage Current	0.75mAmax @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.

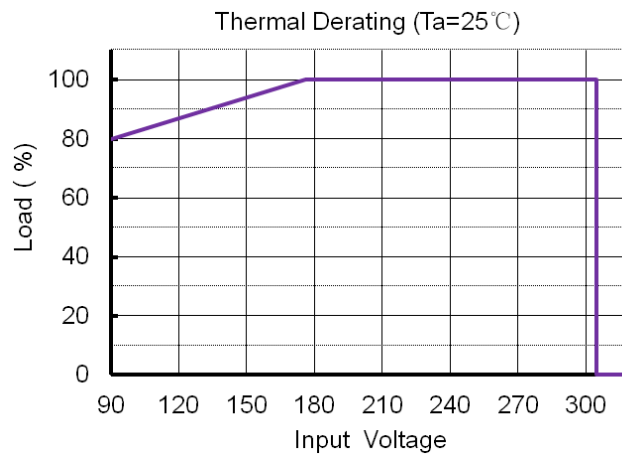
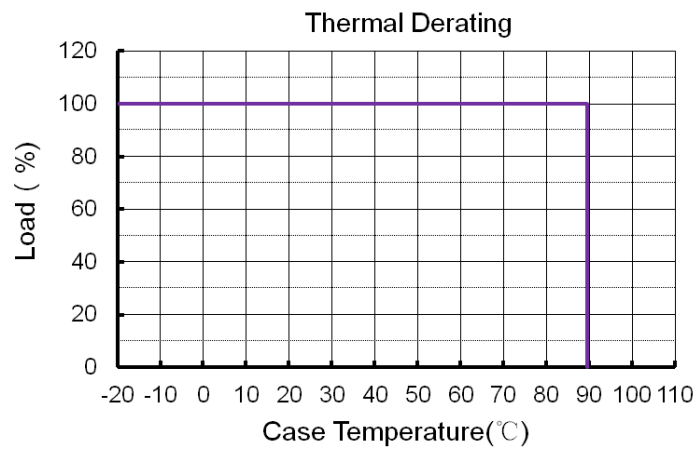
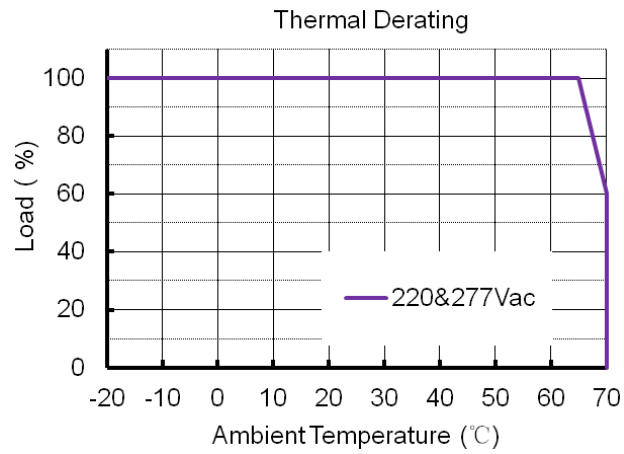
[4] refer to Lifetime vs. Tc curve .

[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

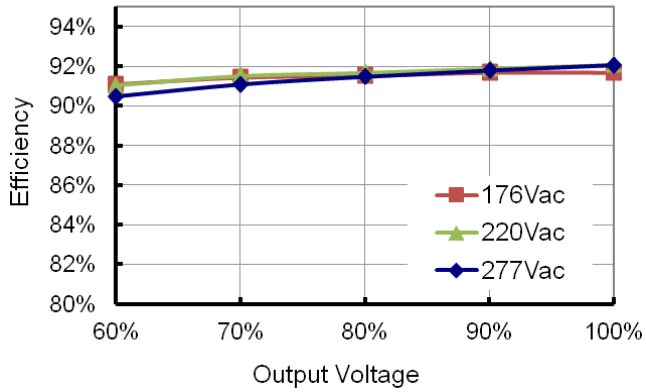
## ■ Derating Curve (Typical)



## ■ Efficiency vs. Load (Typical)

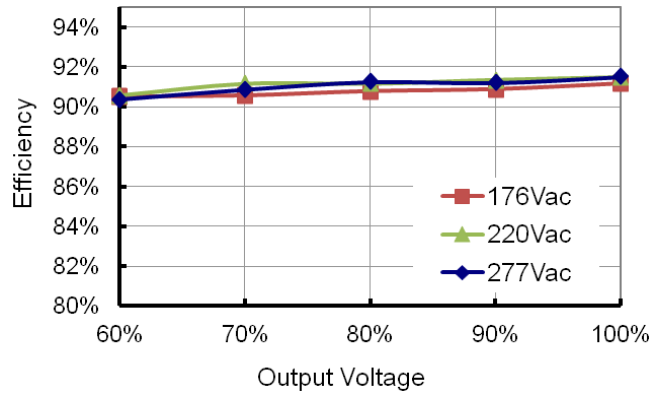
PE-F120CC-C070

Efficiency vs. Output Voltage



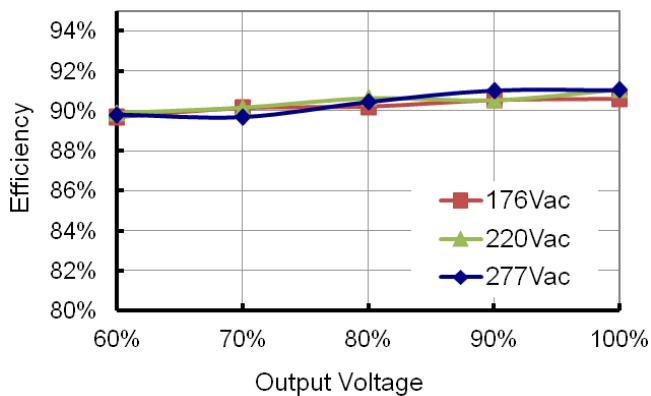
PE-F120CC-C105

Efficiency vs. Output Voltage



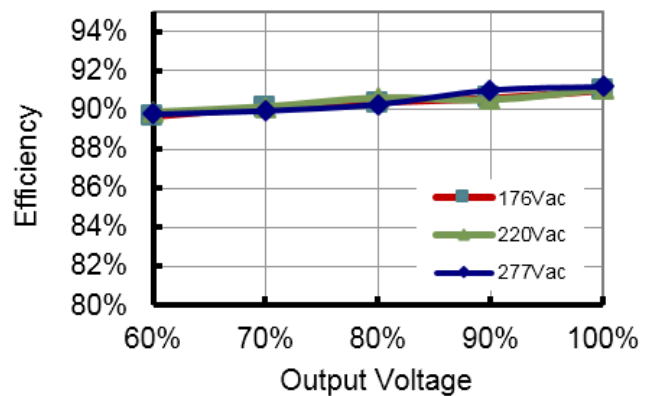
PE-F120CC-C140

Efficiency vs. Output Voltage

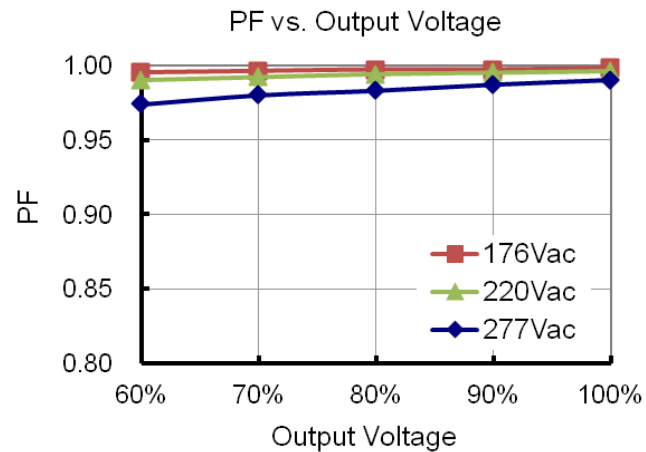


PE-F120CC-C210

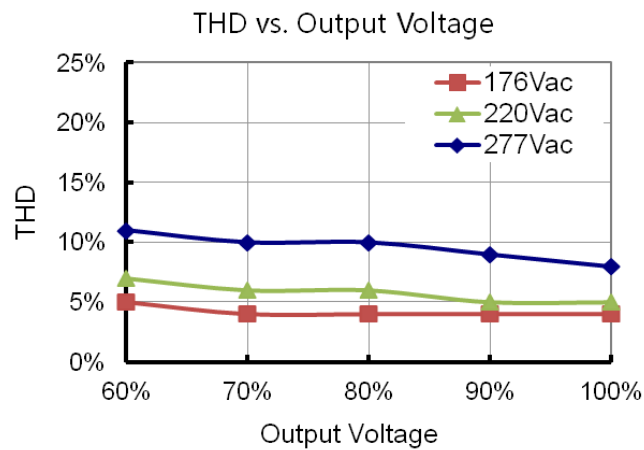
Efficiency vs. Output Voltage



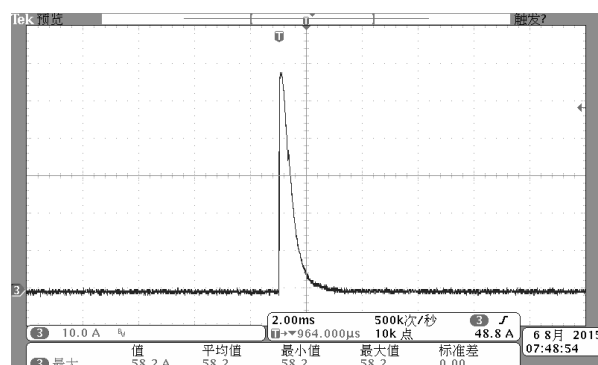
## ■ Power Factor Characteristics (Typical)



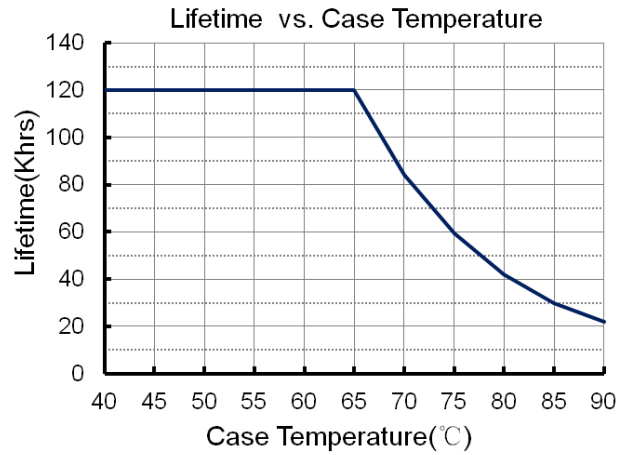
## ■ THD vs. Load (Typical)



## ■ Inrush Current Waveform (Typical)



## ■ Lifetime vs. Case Temperature

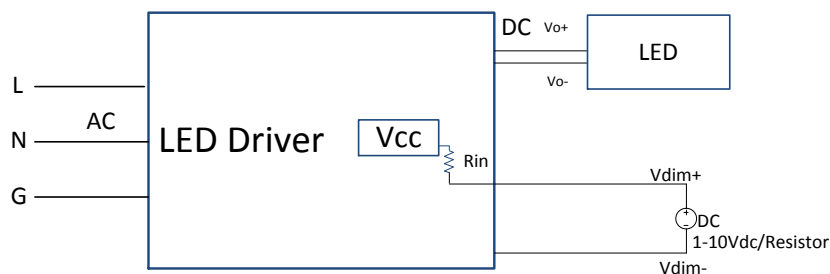


## ■ Dimming Section

Parameter	Min.	Typ.	Max.	Notes
Vcc	-	12.5 V	-	
Rin	-	51 kOhm	-	
Absolute maximum voltage range on the 0~10V input pin	-20 V	-	20 V	
Dimming range	10%	-	100%	
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	-	-	

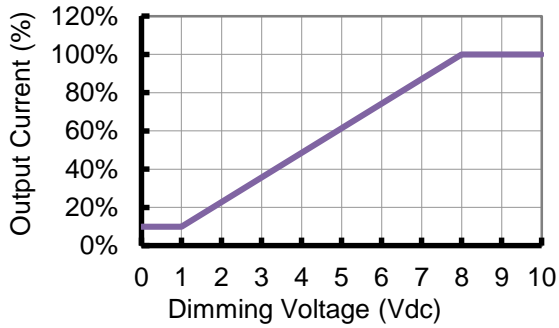
The dimmer control is operated from an input signal of 0 – 10Vdc. Recommended implementations are provided below.

## Diagram

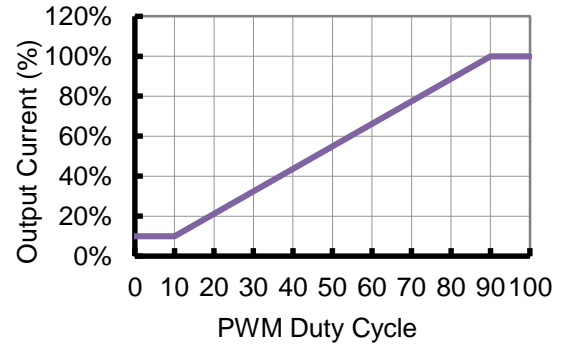


## Dimming Curve

Output Current vs. Dimming Voltage

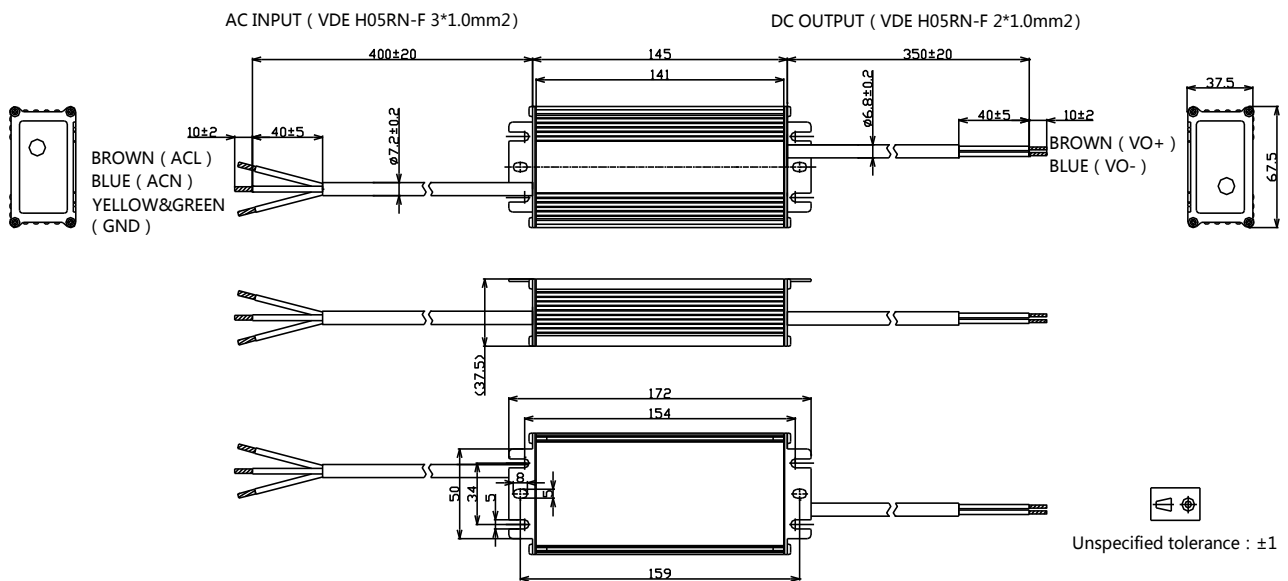


Output Current vs. PWM Duty Cycle

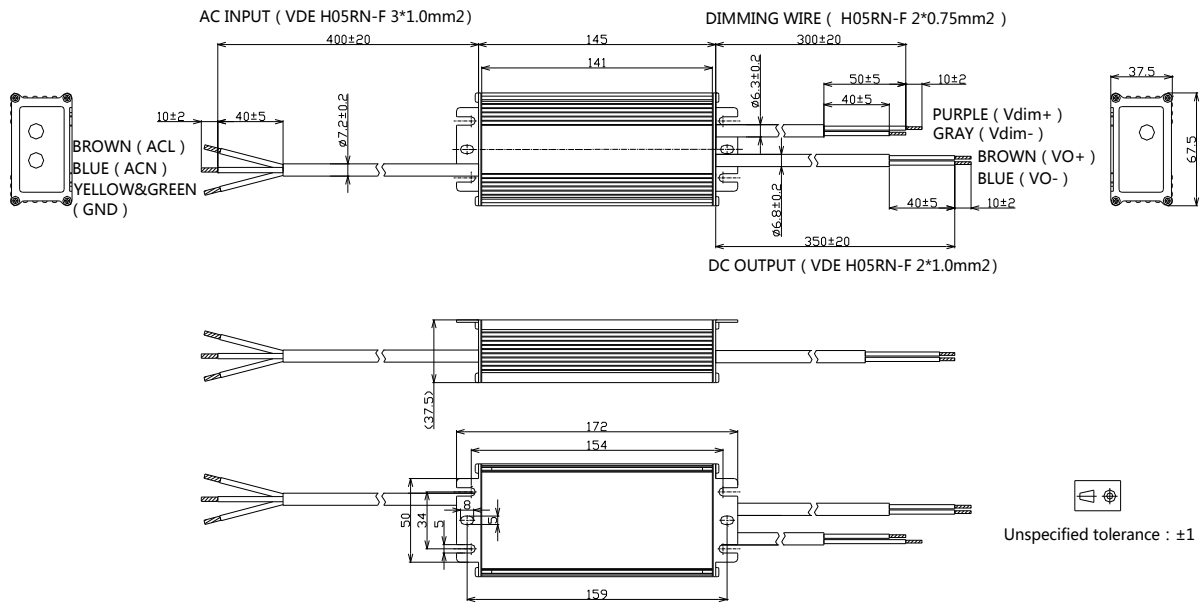


## ■ Mechanical Outline (Unit: mm)

PE-F120CC-Cxxx-S-ND/TS







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
2015-12-04	A	Release	/	/
2016-2-11	B	Update Performance Curve		