

LED Driver

Constant Current 40W 1-10V LED Driver Datasheet

Features

- Support 3 in 1 Dimming Function (1-10V, PWM, Resistor)
- Constant Current Output with Dim to Off Function
- Fully Protection with OVP, SCP, OTP
- High PF & Low THD Performances
- Class 2 Output
- RoHS Compliant
- 5 Years Warranty



Electrical Specification

Model Name	RA-1400-88B0	RA-1400-88AS	RA-1400-88AQ	RA-1400-88AN
Output Characteristics				
Output power	25 ~ 40W	22.5 ~ 36W	20 ~ 32W	17.5 ~ 28W
Output voltage range	25 ~ 40Vdc			
Output current range	1A	0.9A	0.8A	0.7A
Load regulation (note #10)	±5%			
Output current ripple (note #2)	≤ 20%			
Turn on delay time (note #5)	≤ 0.75 second for 110Vac ~ 230Vac / 0.5 second for 230 ~ 277Vac			
Standby Power	≤ 1W @ 240Vac			
Hold-up time	≥ 25ms			
Input Characteristics				
Rated AC input voltage	110 ~ 277Vac			
AC input voltage	99 ~ 305Vac			
AC input Frequency	50 / 60Hz (47Hz-63Hz)			
AC input current	≤0.55A @99Vac	≤0.49A @99Vac	≤0.44A @99Vac	≤0.38A @99Vac
Power factor (note #6)	≥ 0.9			
THD (note #6)	≤ 20%			
Inrush current (T of 50% Ipeak)	< 60A / 350 uS @ 230Vac / 60Hz & max. output wattage			
Maximum rated input power	55W	49W	44W	38W
Efficiency (note #3)	87%	87%	87%	87%
Protection Function				
Open load protection	Automatic recovering			
Short circuit protection	Automatic recovering			
Over temperature protection	Output current latch-off			
IP rating	IP20			
Environment				
Operating temperature	-25 ~ 50℃ / 10~85% RH (non-condensing)			
Storage temperature	-25 ~ 85℃ / 5~90% RH (non-condensing)			

Lifetime (@Max. load) (note #3)	>50,000 Hrs			
CMTBF(@Max. load) (note #5)	500,000 Hrs@230V.			
Cooling	Free air convection			
Tc-max	90℃	90℃	90℃	90℃
Mechanical				
Dimension	245x(L)*30(W)*21(H) (mm)			
Safety				
Standard	UL8750 Edition 2, CSA-C22.2 NO. 250.13 - Edition 3, FCC			
Hi-pot	Input - output port, dimming port, case: 2000 Vac Output-case / dimming port-case : 500 Vac			
Isolation	Insulation	AC Input Terminal	SELV Output Terminal	1-10 Terminal
	AC Input Terminal	-	Reinforced	Basic
	SELV Output Terminal	Reinforced	-	Reinforced
	1-10V Terminal	Basic	Reinforced	-
Leakage Current	≤0.7mA			
Protection Class	Class I			
EMC				
EMI (note #7)	FCC Part 15 Class B @ 120Vac/60Hz, FCC Part 15 Class A @ 240Vac/60Hz			
ESD(note #8)	ESD: ±4 kV contact discharge / ±8 kV air discharge, class B			
Low Energy Pulse Test	EN61000-4-5 : ±1KV (Dif.) ±2KV (Com.), 30 seconds < time interval ≤ 60 seconds, Class B			
Dimming				
Dimming (note #9)	1-10V / PWM / Resistor			
Dimming range	10 - 100%			
PWM Frequency	300Hz - 3KHz			
Resistor value	10 - 100KΩ			

Notes

#1: Above definition is based on 25℃ ambient if not specified mentioned specifically.

#2: To measure efficiency after burn-in 30 minutes with maximum output load@120Vac input condition.

#3: Life calculation is based on max. output load / Tc Max. < 80℃@120Vac.

#4: Under electrical LED load condition (Chroma 63113A + 6312A) with rated output current, Vo=40V, coefficient=0.1 (where Rd=Coefficient*Vo/Io), AC input 110~240Vac / 60Hz, ripple is defined under 120Hz with peak (+) / average or peak (-) / average.

#5: Read turn on delay time at 90% of max. output current / maximum output load / without dimmer.

#6: 277Vac/60Hz, 85~100% load, AC source - Chroma 6530, power meter - Chroma 66202, electrical load - Chroma 63113A + 6312A

#7: LED driver belongs to the partial of terminal equipment, its EMC performance might be varied while depends on wiring or assembly method. Terminal equipment manufacturer shall check EMC performance with whole terminal equipment. Complied with FCC Part 15 Class B @ 120Vac input, FCC Part 15 Class A @ 240Vac/60Hz.

#8: LED driver shall be installed well against with safety insulation requirement inside the LED system before ESD test

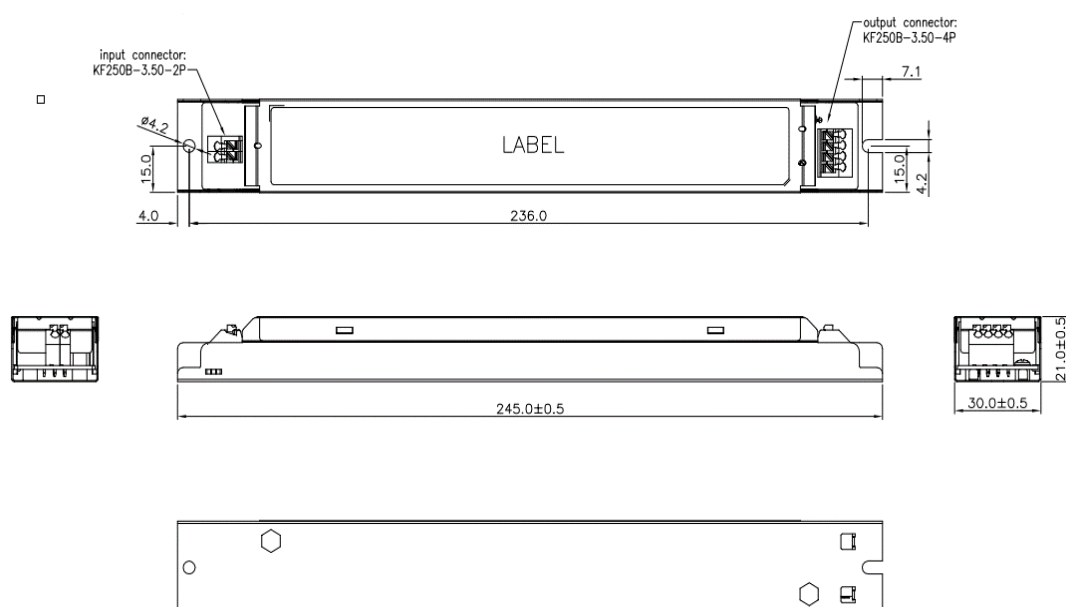
#9: Output terminal is under 20V when at dim to off mode

#10: To measure output current with 33V @120Vac input condition.

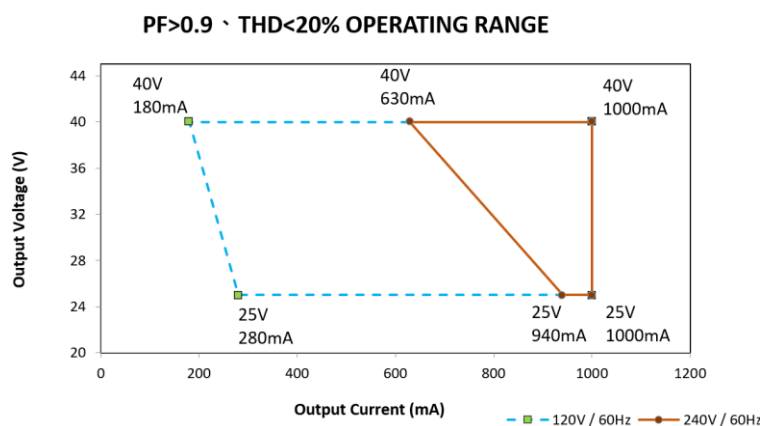
Mechanical Specification

Specification item	Value	Unit
Length	245(ref.)	mm
Mounting hole distance	236 (ref.)	mm
Width	30 (ref.)	mm
Height	21 (ref.)	mm
Weight	175/185/220 (ref.)	gram
AC Input Terminal	0.75 / 18 (ref.)	mm ² /AWG
DC Output Terminal	0.75 / 18 (ref.)	mm ² /AWG
1-10VTerminal	0.75 / 18 (ref.)	mm ² /AWG

Outline dimension



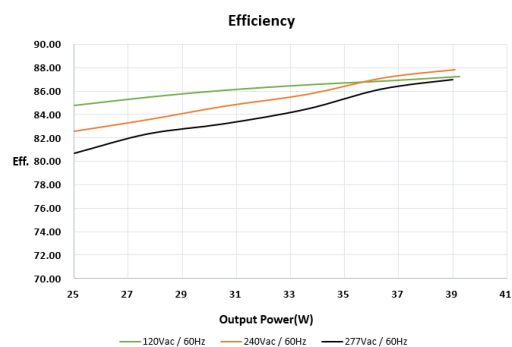
Operating Window: RA-1400-88B0



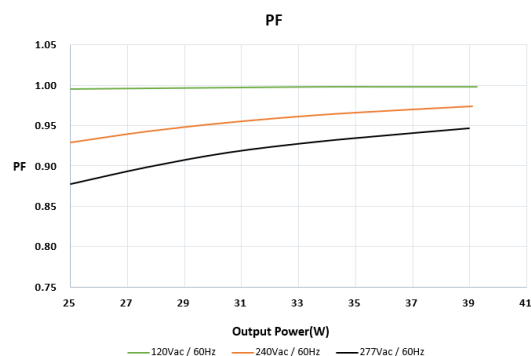
Performance Characteristics: RA-1400-88B0

All specifications are defined @230 Vac / 50 Hz rated power, and 25°C ambient temperature with 30 minutes burn-in.

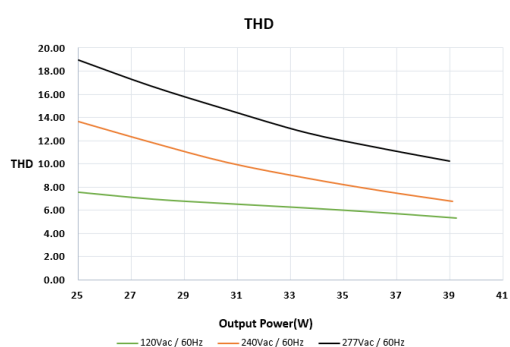
■ Efficiency (Eff. / Output Power)



■ Power Factor (PF / Output Power)

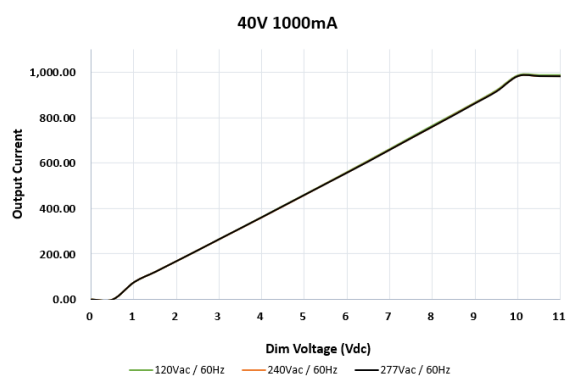


■ THD (THD / Output Power)

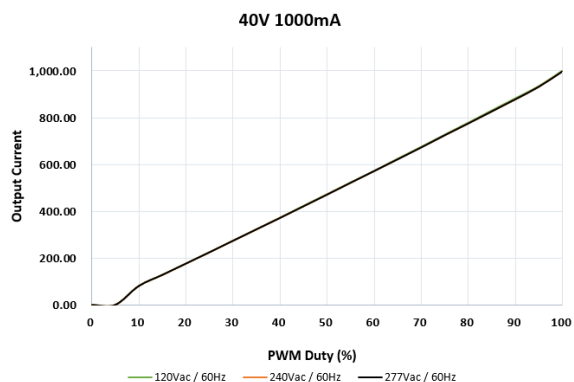


■ Dimming Function

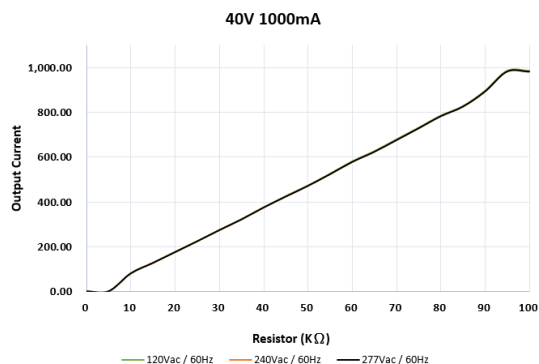
■ 1-10V



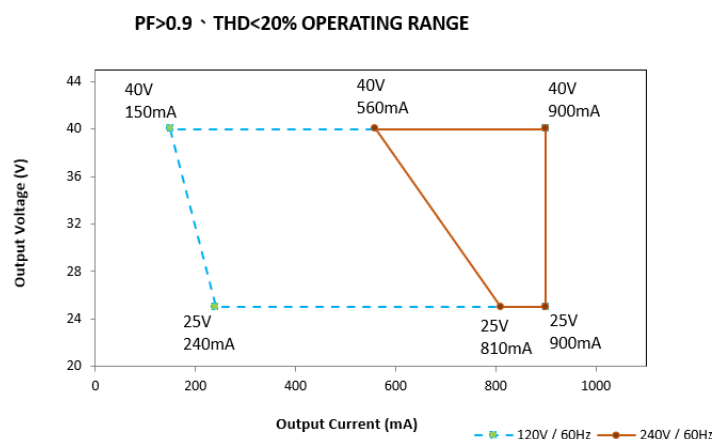
■ PWM



■ Resistor



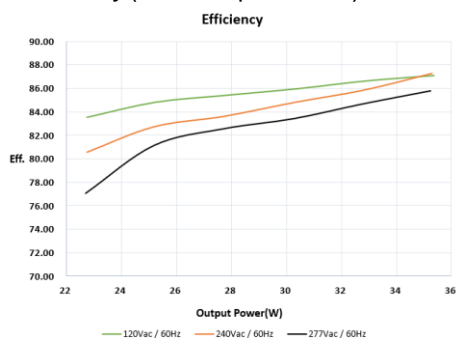
Operating Window: RA-1400-88AS



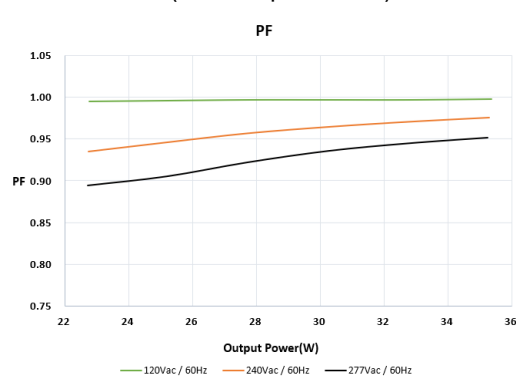
Performance Characteristics: RA-1400-88AS

All specifications are defined @230 Vac / 50 Hz rated power, and 25°C ambient temperature with 30 minutes burn-in.

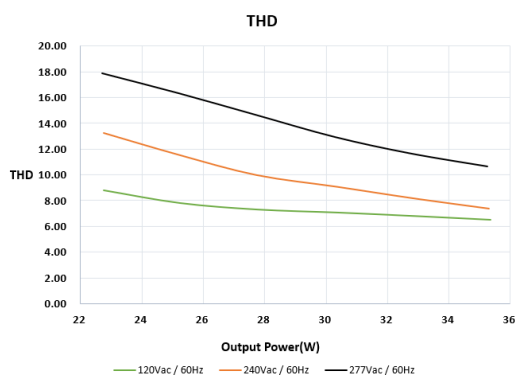
■ Efficiency (Eff. / Output Power)



■ Power Factor (PF / Output Power)

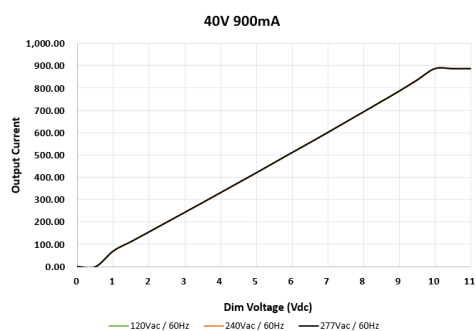


■ THD (THD / Output Power)

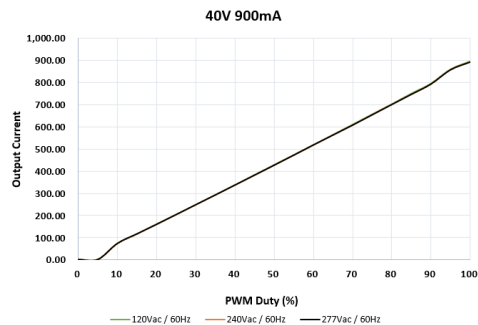


■ Dimming Function

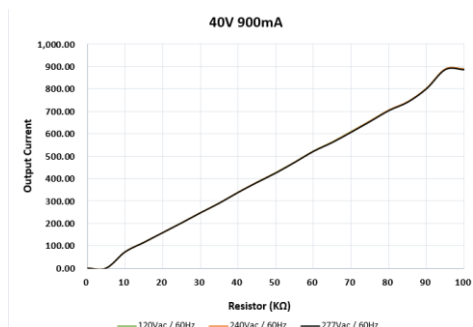
■ 1-10V



■ PWM

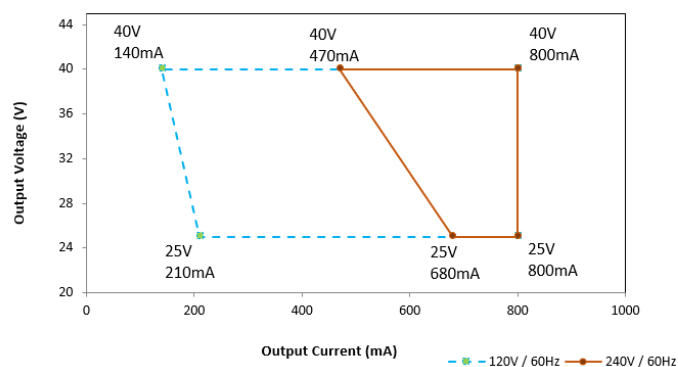


■ Resistor



Operating Window: RA-1400-88AQ

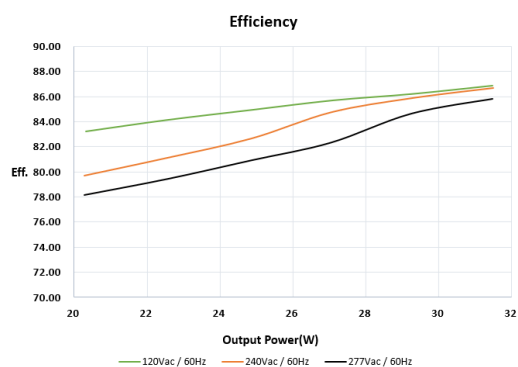
PF>0.9、THD<20% OPERATING RANGE



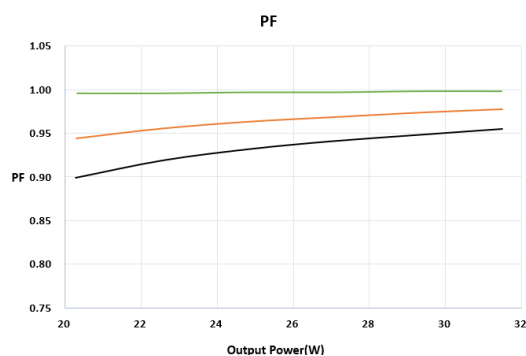
Performance Characteristics: RA-1400-88AQ

All specifications are defined@230 Vac / 50 Hz rated power, and 25°C ambient temperature with 30 minutes burn-in.

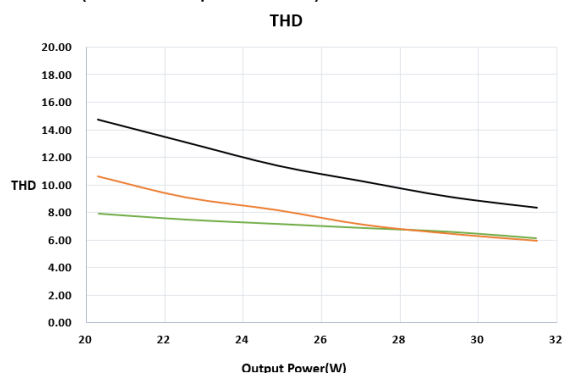
■ Efficiency (Eff. / Output Power)



■ Power Factor (PF / Output Power)

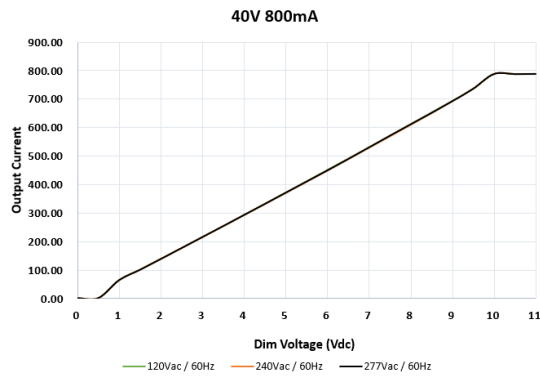


■ THD (THD / Output Power)

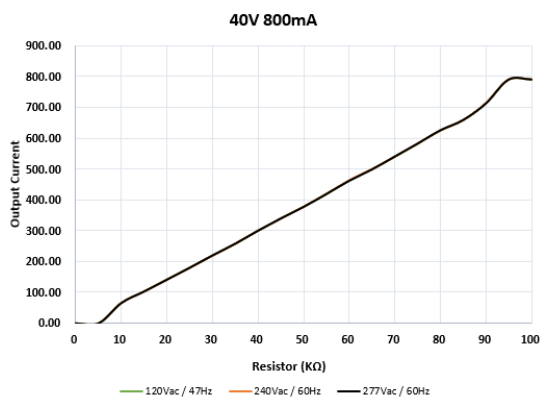


■Dimming Function

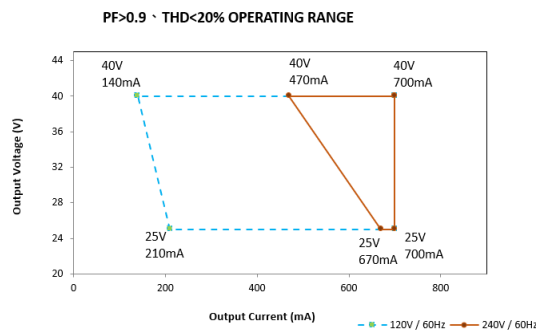
■1-10V



■Resistor



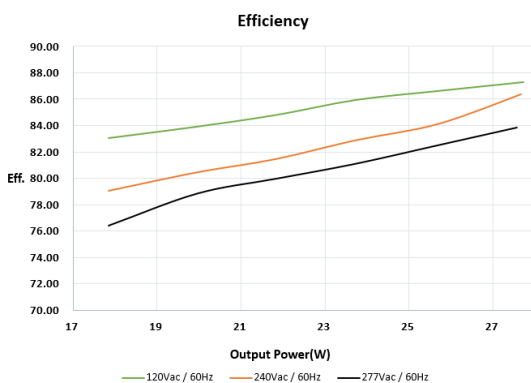
Operating Window: RA-1400-88AN



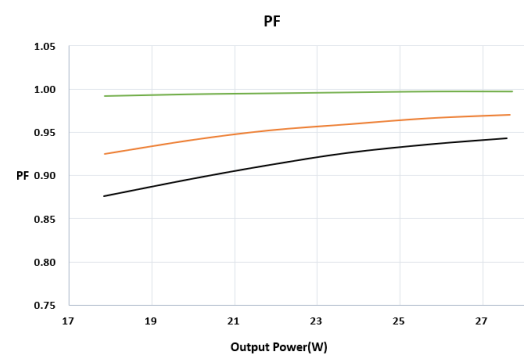
Performance Characteristics: RA-1400-88AN

All specifications are defined @230 Vac / 50 Hz rated power, and 25°C ambient temperature with 30 minutes burn-in.

■Efficiency (Eff. / Output Power)

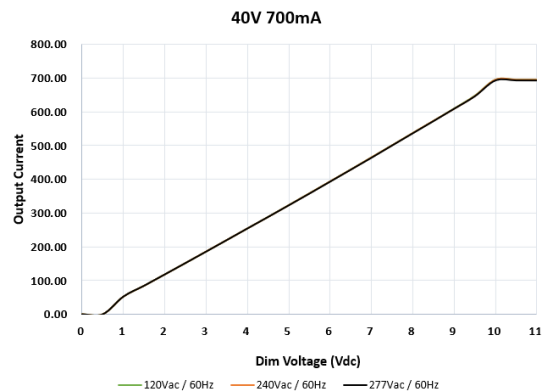


■Power Factor (PF / Output Power)

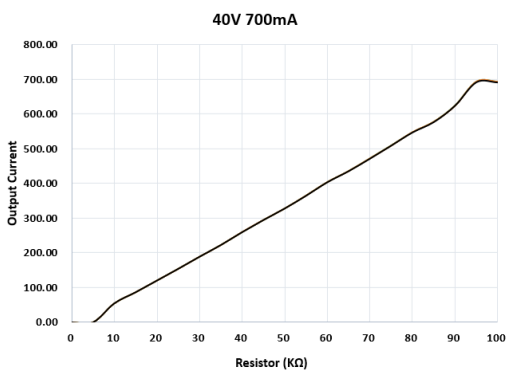


■Dimming Function

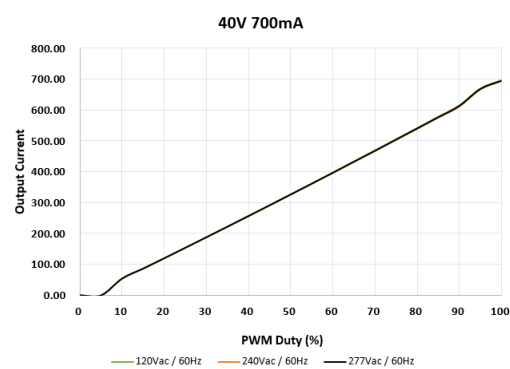
■1-10V



■Resistor



■PWM



Wiring Diagram

