

# MCHQ185VxB series

185W LED Switching Power Supply (CV+CC) with 3 in 1 dimming function



## ■ Features:

- Universal AC input / Full range (Max. 305VAC)
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- Built-in active PFC function
- IP65 design for indoor and outdoor appliances
- Compliance to worldwide regulations for lighting
- Built-in 3 in 1 dimming function: 0-10V or PWM or resistance



## ELECTRICAL SPECIFICATION

MODEL	MCHQ185V12B	MCHQ185V24B	MCHQ185V36B
<b>OUTPUT</b>			
Rated Voltage	12V	24V	36V
Constant Current Region [2]	7.2 ÷ 12V	14.4 ÷ 24V	21.6 ÷ 36V
Rated Current	14A	7.7A	5.1A
Rated Power	168W	185W	185W
No Output Voltage (max.)	15V	30V	44V
Line Regulation	± 1%		
Load Regulation	± 1%		
Voltage Tolerance [3]	± 3%		
Current Tolerance [3]	± 5%		
Ripple & Noise (max.) [4]	400mV <sub>p-p</sub>	800mV <sub>p-p</sub>	800mV <sub>p-p</sub>
Setup, Rise, Holdup time [5]	500ms, 30ms, 30ms		
<b>INPUT</b>			
Voltage Range	90 ÷ 305VAC		
Frequency Range	47 ÷ 63Hz		
Power Factor (typ.)	PF > 0.98 / 115VAC; PF > 0.95 / 230VAC at full load		
Efficiency (typ.)	91%	93%	94%
AC current (typ.)	2.7A / 115VAC; 1.5A / 230VAC		
Inrush current (max.)	45A / 230VAC(25°C)		

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## PROTECTIONS

<b>Over Current</b>	Range: 110 ÷ 160%		
	Type: constant current limiting to 60% rated voltage next hiccup mode. Recovers automatically after fault condition is removed.		
<b>Short Circuit</b>	Type: hiccup mode. Recovers automatically after fault condition is removed.		
<b>Over Voltage</b>	Max. 18V	Max. 35V	Max. 44V
	Type: shut down output voltage. Re-power on to recovery.		
<b>Over Temperature</b>	Range: 110°C ± 10°C		
	Type: shut down output voltage. Auto-recovery after temperature goes down.		

## WORKING ENVIRONMENT

<b>Working Temperature</b>	-40°C ÷ 70°C (refer to Derating Curve)
<b>Working Humidity</b>	15 ÷ 95% RH non-condensing
<b>Storage Temperature and Humidity</b>	-40°C ÷ 80°C, 10 ÷ 95% RH non-condensing
<b>Temperature Coefficient</b>	± 0.05% / °C (-10°C ÷ 45°C)
<b>Vibration</b>	10 ÷ 500Hz, 5G, 10min / cycle, period 30min. each along X, Y, Z axes

## SAFETY AND EMC REGULATIONS

<b>Safety Standards</b>	Compliance to EN61347-1, EN61347-2-13
<b>Withstand Voltage</b>	IN/OUT: 5.3kVDC/1min
<b>Isolation Resistance</b>	IN/OUT; IN/GND; OUT/GND: 50MΩ/500VDC/25°C/70%
<b>EMC Emission</b>	Compliance to EN55015
<b>EMC Immunity</b>	Compliance to EN61547; EN61000-4-2, -3, -4, -5, -6, -8, -11; EN55024
<b>Harmonic Current</b>	Compliance to EN61000-3-3; EN61000-3-2 class C ( ≥ 100% load)

## OTHERS

<b>MTBF</b>	225 000h MIL-HDBK-217F (25°C)
<b>Dimensions</b>	195 x 73 x 38mm (L x W x H)
<b>Weight and Packing</b>	1.0kg; 10pcs./box; box weight and dimensions: 11.6kg, 24.7 x 23 x 27cm

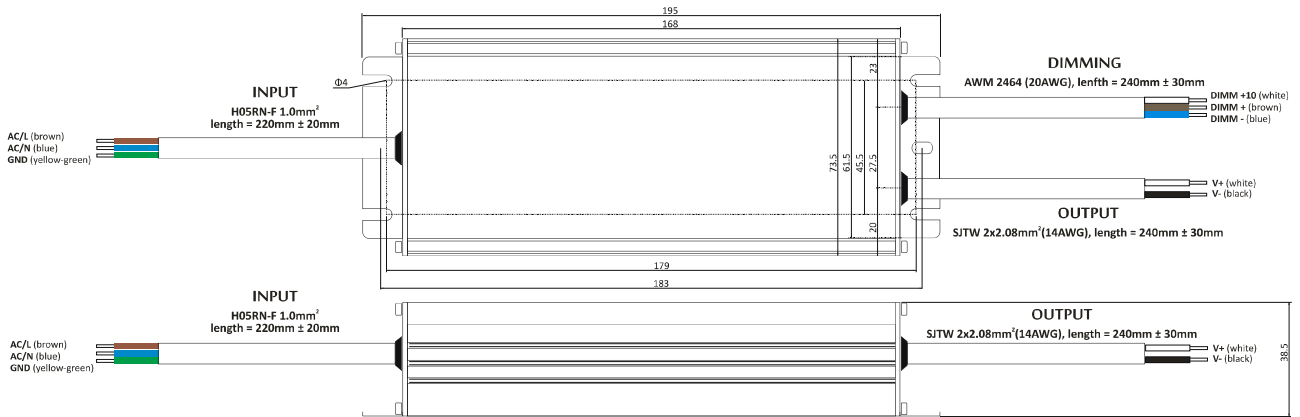
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Constant current operation region is within announced range. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements for some specific system design.
3. Tolerance includes set up tolerance, line regulation and load regulation.
4. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1μF i 47μF parallel capacitor.
5. Setup and rise time is measured from 0 to 90% rated output voltage.
6. Power supply is considered as a component that will be operated in combination with final equipment. Since EMC performance will be affected by the complete installation, the final equipment must be re-qualify to comply with EMC Directives.

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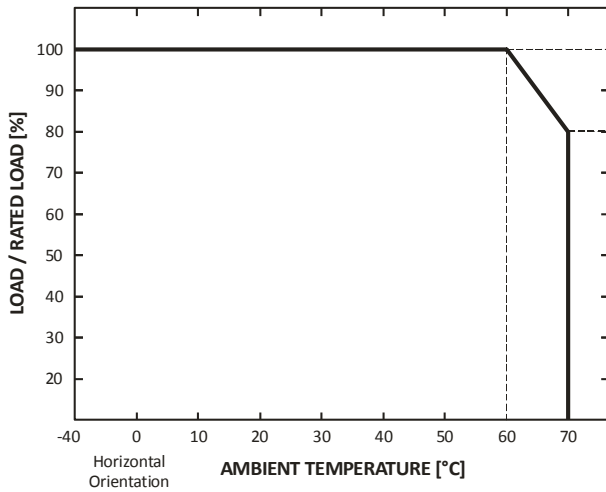
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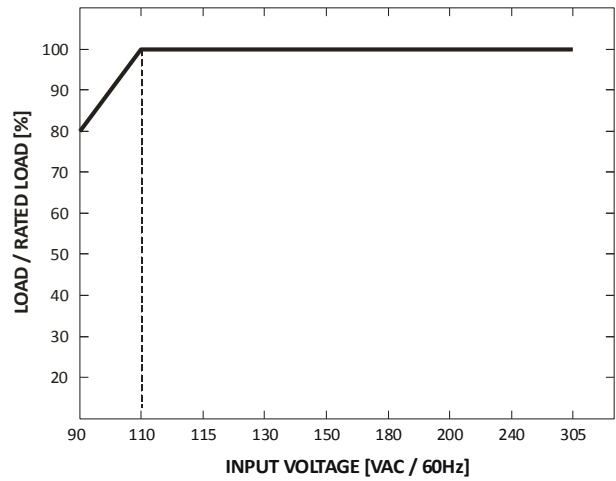
## MECHANICAL SPECIFICATION



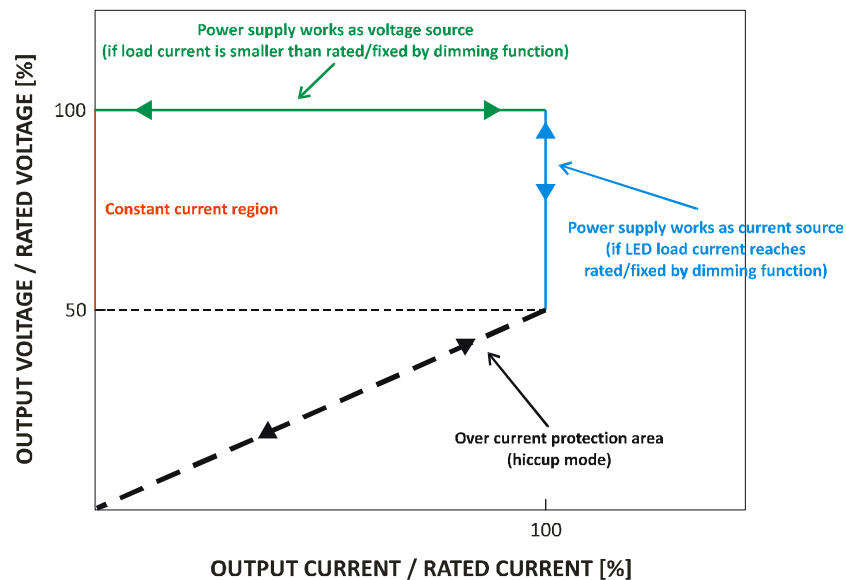
## DERATING CURVE



## STATIC CHARACTERISTIC



## CONSTANT VOLTAGE + CONSTANT CURRENT MODE OPERATION



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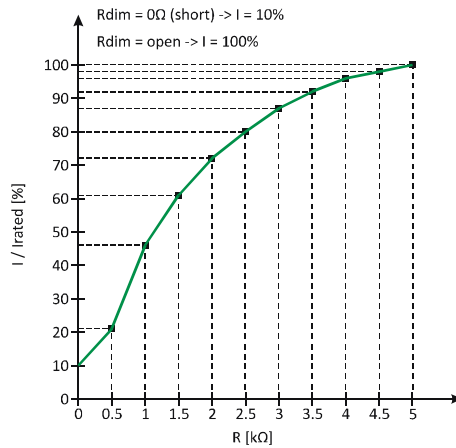
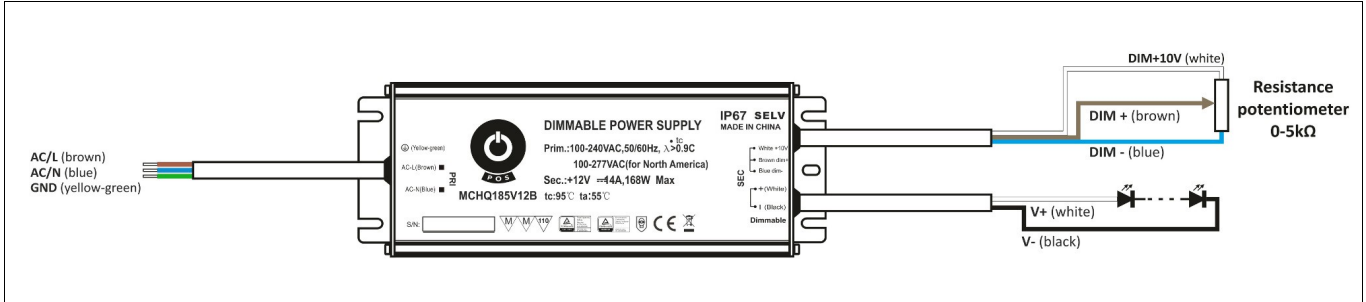
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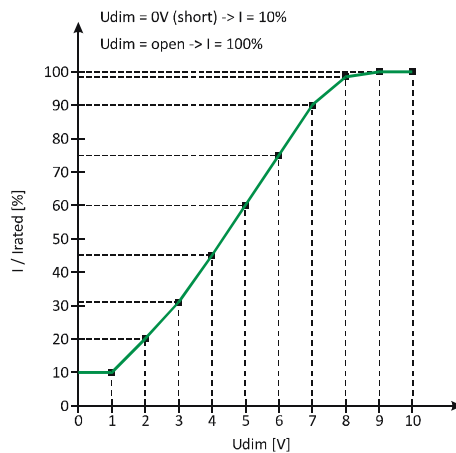
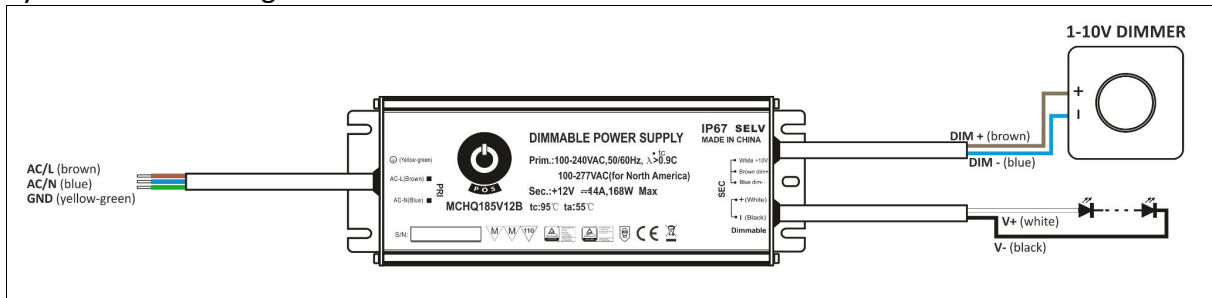
## DIMMING OPERATION

For use dimming function connect dimmer to DIM+ and DIM- terminals. Dimming effect is achieved by changing output constant current level in 10%÷100% range. You can use dimming function by one of three ways:

### 1. By variable resistance 0kΩ÷5kΩ:



### 2. By variable DC voltage 1÷10V.

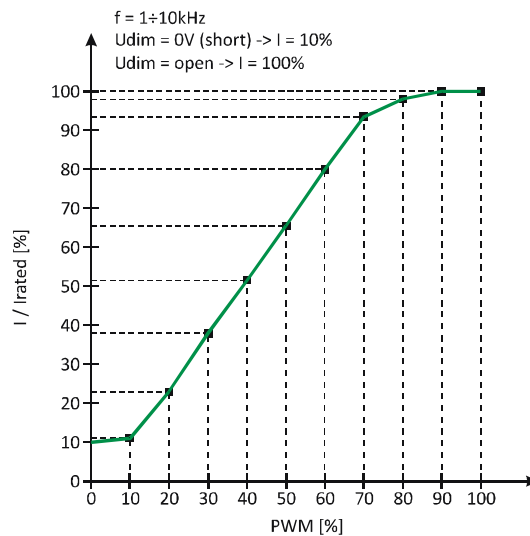
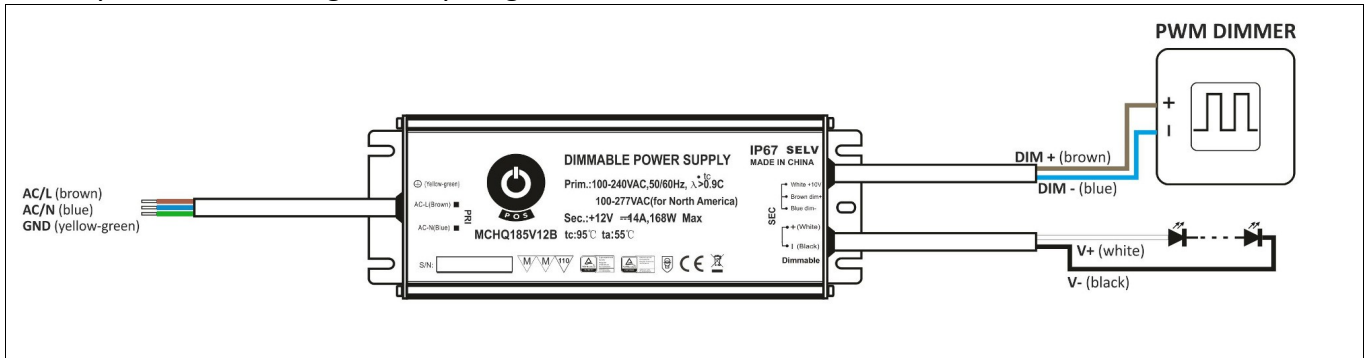


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3. By variable PWM signal, duty range = 10% ÷ 100%,  $f = 1\text{kHz} \div 10\text{kHz}$ ,  $U = 10\text{V}$ .



## Compatible dimmers

- OSRAM DIM MCU
- BERKER 2891 10
- Other 1-10V dimmers