

# MCHQ250VxA series

250W LED Switching Power Supply (CV+CC) with output voltage and current level adjustment



## ■ 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
- Output voltage and constant current level adjustable by internal potentiometers



## ELECTRICAL SPECIFICATION

| MODEL   | MCHQ250V12A   | MCHQ250V24A          |
|---|---|----------------------|
| <b>OUTPUT</b>                                 |   |                      |
| Rated Voltage                                 | 12V   | 24V                  |
| Constant Current Region                       | [2] 7.2 ÷ 12V                                       | 14.4 ÷ 24V           |
| Rated Current                                 | 18A   | 10.4A                |
| Rated Power                                   | 216W  | 249.6W               |
| No Output Voltage (max.)                      | 15V   | 30V                  |
| Voltage Adjustment Range – Vadj potentiometer | 10 ÷ 13.5V  | 22 ÷ 27V             |
| Current Adjustment Range – Iadj potentiometer | 10.8 ÷ 18A  | 6 ÷ 10.4A            |
| Line Regulation                               | ± 1%  |                      |
| Load Regulation                               | ± 3%  |                      |
| Voltage Tolerance                             | [3] ± 3%  |                      |
| Current Tolerance                             | [3] ± 5%  |                      |
| Ripple & Noise (max.) [4]                     | 500mV <sub>p-p</sub>                                | 600mV <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.)                             | 92%   | 93.5%                |
| AC current (typ.)                             | 3.6A / 115VAC; 1.4A / 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 |
|                         | Type: shut down output voltage. Re-power on to recovery.  |          |
| <b>Over Temperature</b> | Range: 110°C ± 10°C   |          |
|                         | Type: shut down output voltage. After temperature goes down re-power on to recovery.  |          |

## 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, 2G, 10min / cycle, period 30min. each along X, Y, Z axes |

## SAFETY AND EMC REGULATIONS

|                             |  |
|-----------------------------|--|
| <b>Safet 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>         | 226 x 73.5 x 38.5mm (L x W x H)  |
| <b>Weight and Packing</b> | 1.1kg; 10pcs./box; box weight and dimensions: 11.6kg, 28 x 22.9 x 27cm |

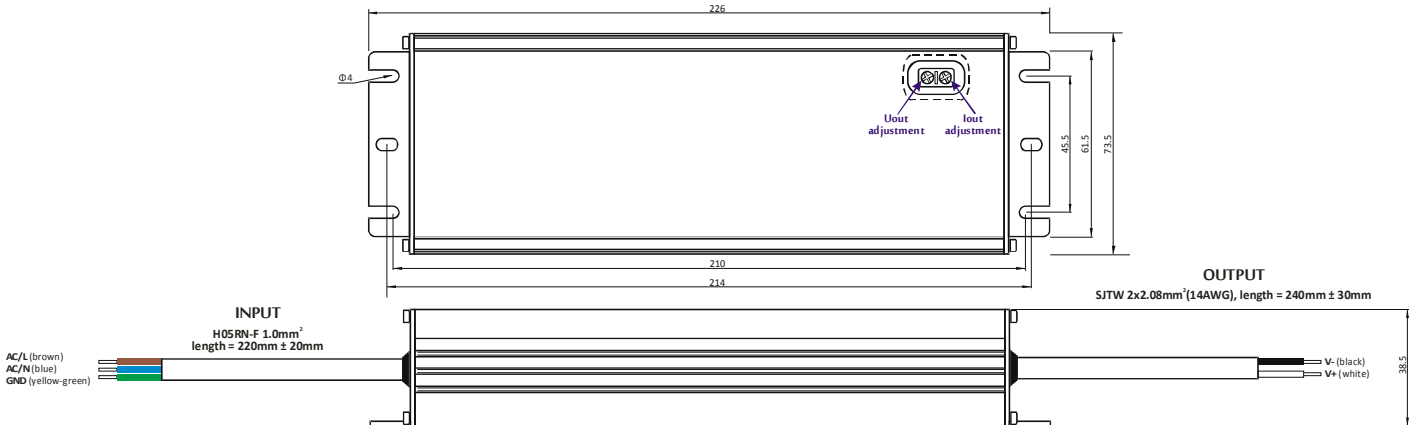
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.
2. Constant current operation region is within announced range. This is the suitable operation region for LED related applications, but please reconfirm special electrical requirements 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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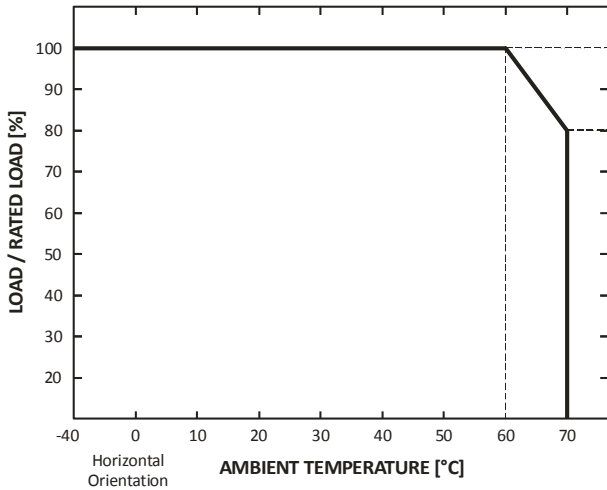
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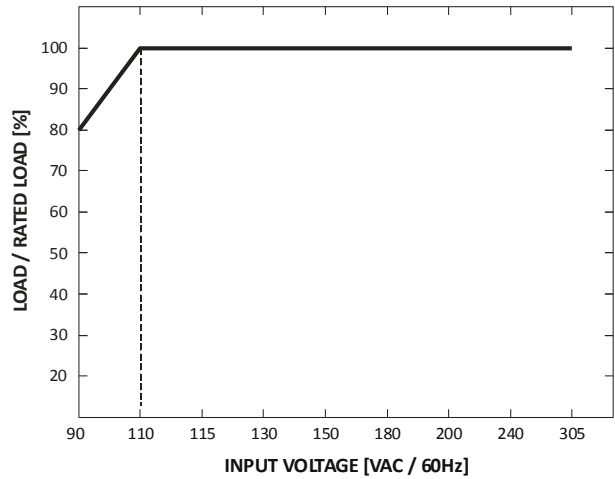
## MECHANICAL SPECIFICATION



### DERATING CURVE



### STATIC CHARACTERISTIC



## CONSTANT VOLTAGE + CONSTANT CURRENT MODE OPERATION

