# AC/DC 75W Enclosed Switching Power Supply

LM75-10Cxx, LM75-10Cxx-Q Series

MORNSUN®

CE RoHS 3 years Warranty

## FEATURES

- Universal 90 - 264VAC or 120 - 370VDC Input voltage
- Operating ambient temperature range: -30℃ to +70℃
- High efficiency, high reliability, long service life
- LED indicator for power on
- Output short circuit, over-current, over-voltage protection
- High I/O isolation test voltage up to 3000VAC
- EN62368 safety approved, safety according to IEC/UL62368, EN60335, GB4943
- Emissions compliant to CISPR32/EN55032 CLASS B
- Withstand 5G vibration test
- Operating altitude up to 5000m

*This LM75-10Cxx series of power converter design features 3 output versions, which can independently supply 3 different loads in the system. The products can be used in harsh working environments with an room temperature range from -30℃ to +70℃, without the need of a fan for further heat dissipation. In addition, the converters EMC immunity performance meets the requirements of IEC61000 standard and meet emission standard CISPR32/EN55032, class B without any external components, thus providing excellent EMC protection. The products also meet IEC/EN/UL62368, EN60335, GB4943 safety standards. The converters integrate a variety of protection features and offer a high-performance to low-cost ratio providing the best power solution for a variety of industries such as industrial control equipment, instrumentation and smart home and building equipment application.*

## Selection Guide

| Certification | Part No. | Output Power | Nominal Output Voltage and Current (Vo/Io) | | | Working Current Range* | | | Efficiency at 230VAC (%) Typ. | Max. Capacitive Load (μF) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Vo1/Io1 | Vo2/Io2 | Vo3/Io3 | Io1 | Io2 | Io3 | | Vo1 | Vo2 | Vo3 |
| CE | LM75-10C051212-28 | 69.6W | +5V/6.0A | +12V/2.8A | -12V/0.5A | 0.6-7.0A | 0.28-3.5A | 0.05-1.0A | 82 | 6000 | 2800 | 470 |
| | LM75-10C051515-23 | 72W | +5V/6.0A | +15V/2.3A | -15V/0.5A | 0.6-7.0A | 0.23-3.5A | 0.05-1.0A | | 6000 | 2300 | 470 |
| | LM75-10C052412-15 | 73W | +5V/5.0A | +24V/1.5A | +12V/1.0A | 0.5-6.0A | 0.15-2.0A | 0.1-1.5A | 84 | 5000 | 1500 | 1000 |

Note: 1.*Working current range: If any one of the 3 outputs arrive at the maximum current, the total output power cannot exceed the rated power and working time < 3s.
2.*Use suffix "Q" for conformal coating.

## Input Specifications

| Item | Operating Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Input Voltage Range | AC input | | 90 | -- | 264 | VAC |
| | DC input | | 120 | -- | 370 | VDC |
| Input Frequency | | | 47 | -- | 63 | Hz |
| Input Current | 115VAC | | -- | -- | 1.7 | A |
| | 230VAC | | -- | -- | 0.9 | |
| Inrush Current | 115VAC | Cold start | -- | 30 | -- | |
| | 230VAC | | -- | 45 | 50 | |
| Leakage Current | 240VAC | | <2.0mA | | | |
| Hot Plug | | | Unavailable | | | |

## Output Specifications

| Item | Operating Conditions | | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Output Voltage Accuracy | Full load range | Vo1 | | -- | ±2.0 | -- | % |
| | | Vo2 | LM75-10C051212-28 | -- | ±6.0 | -- | |
| | | | LM75-10C051515-23 | -4.0 | -- | +8.0 | |
| | | | LM75-10C052412-15 | -- | ±6.0 | -- | |
| | | Vo3 | LM75-10C051212-28 | -- | ±5.0 | -- | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | LM75-10C051515-23 | -- | ±5.0 | -- | |
| | | | LM75-10C052412-15 | -- | ±6.0 | -- | |
| Line Regulation | Full load | Vo1 | | -- | ±1.0 | -- | % |
| | | Vo2 | LM75-10C051212-28 | -- | ±1.0 | -- | |
| | | | LM75-10C051515-23 | -- | ±1.0 | -- | |
| | | | LM75-10C052412-15 | -- | ±1.0 | -- | |
| | | Vo3 | LM75-10C051212-28 | -- | ±1.0 | -- | |
| | | | LM75-10C051515-23 | -- | ±1.0 | -- | |
| | | | LM75-10C052412-15 | -- | ±2.0 | -- | |
| Load Regulation | 10% - 100% load (Balanced load) | Vo1 | | -- | ±1.0 | -- | |
| | | Vo2 | LM75-10C051212-28 | -- | ±5.0 | -- | |
| | | | LM75-10C051515-23 | -- | ±5.0 | -- | |
| | | | LM75-10C052412-15 | -- | ±5.0 | -- | |
| | | Vo3 | LM75-10C051212-28 | -- | ±1.0 | -- | |
| | | | LM75-10C051515-23 | -- | ±1.0 | -- | |
| | | | LM75-10C052412-15 | -- | ±5.0 | -- | |
| Ripple & Noise* | 20MHz bandwidth (peak-peak value) | Vo1 | | -- | 80 | -- | mV |
| | | Vo2 | LM75-10C051212-28 | -- | 120 | -- | |
| | | | LM75-10C051515-23 | -- | 150 | -- | |
| | | | LM75-10C052412-15 | -- | 150 | -- | |
| | | Vo3 | LM75-10C051212-28 | -- | 80 | -- | |
| | | | LM75-10C051515-23 | -- | 80 | -- | |
| | | | LM75-10C052412-15 | -- | 150 | -- | |
| Temperature Coefficient | Vo1 | | | -- | ±0.03 | -- | %/℃ |
| Voltage Adjustable Range* | Vo1 | | | 4.75 | -- | 5.50 | VDC |
| Switching Delay Time | Rated input voltage | | | -- | -- | 3.0 | s |
| Output Voltage Rise Time | 115/230VAC | | | -- | -- | 100 | ms |
| Hold-up Time | 115VAC | | | 5 | -- | -- | |
| | 230VAC | | | 30 | -- | -- | |
| Min. Load | | | | Refer to the working current range | | | |
| Short Circuit Protection* | Recovery time <5s after the short circuit disappear | | | Hiccup, continuous, self-recovery | | | |
| Over-current Protection | 3 outputs with balanced load | | | 110%≤ Io, self-recovery | | | |
| Over-voltage Protection | | | | 5.75VDC≤Vo1≤6.75VDC (Output hiccup) | | | |

Note: 1.The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information;
2.*When Vo1 working in the adjustable range, the output power please refer to power derating curve and should not be exceed the rated output power;
3.*Vo3 cannot stay in short circuit for long time.

## General Specifications

| Item | | Operating Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| Isolation Voltage | Input - output | Electric Strength Test for 1min., leakage current <10mA | | 3000 | -- | -- | VAC |
| | Input - ⏚ | | | 2000 | -- | -- | |
| | Output - ⏚ | | | 500 | -- | -- | |
| Insulation Resistance | Input - output | At 500VDC | | 100 | -- | -- | MΩ |
| | Input - ⏚ | | | 100 | -- | -- | |
| | Output - ⏚ | | | 100 | -- | -- | |
| Operating Temperature | | Refer to derating curve | | -30 | -- | +70 | ℃ |
| Storage Temperature | | | | -40 | -- | +85 | |
| Storage Humidity | | Non-condensing | | -- | -- | 95 | %RH |
| Power Derating | | Input voltage derating | 90VAC - 115VAC | 0.8 | -- | -- | %/VAC |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 115VAC - 264VAC | 0 | -- | -- | |
| | | 120VDC - 160VDC | 0.5 | -- | -- | %/VDC |
| | | 160VDC - 370VDC | 0 | -- | -- | |
| | Operating temperature derating | -30℃ to +40℃ | 0 | -- | -- | %/℃ |
| | | +40℃ to +70℃ | 2.0 | -- | -- | |
| Safety Standard | | | Meet IEC/EN/UL62368/EN60335/GB4943 | | | |
| Safety Certification | | | EN62368 | | | |
| Safety Class | | | CLASS I | | | |
| MTBF | MIL-HDBK-217F@25℃ | | >300,000 h | | | |

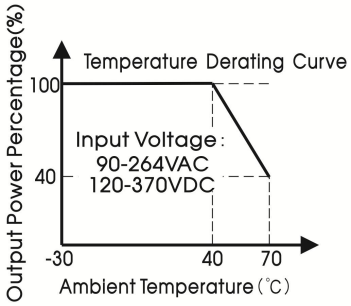
## Physical Specifications

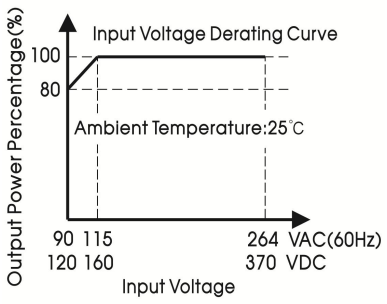
| | |
|---|---|
| Case Material | Metal (AL1100, SGCC) |
| Dimension | 129.00 x 97.00 x 30.00 mm |
| Weight | 320g (Typ.) |
| Cooling Method | Free air convection |

## EMC Specifications

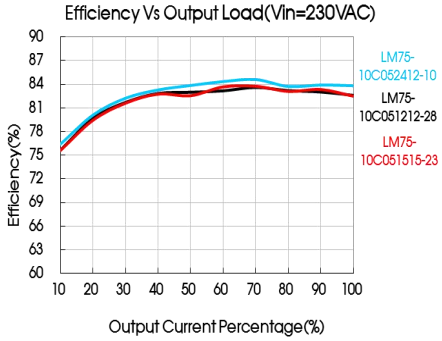
| | | | |
|---|---|---|---|
| Emissions | CE | CISPR32/EN55032 CLASS B | |
| | RE | CISPR32/EN55032 CLASS B | |
| | Harmonic current | IEC/EN61000-3-2 CLASS A | |
| Immunity | ESD | IEC/EN61000-4-2 Contact ±6KV/Air ±8KV | perf. Criteria A |
| | RS | IEC/EN61000-4-3 10V/m | perf. Criteria A |
| | EFT | IEC/EN61000-4-4 ±2KV | perf. Criteria A |
| | Surge | IEC/EN 61000-4-5 line to line ±2KV/line to ground±4KV | perf. Criteria A |
| | CS | IEC/EN61000-4-6 10 Vr.m.s | perf. Criteria A |
| | Voltage dips, short interruptions and voltage variations | IEC/EN61000-4-11 0%,70% | perf. Criteria B |

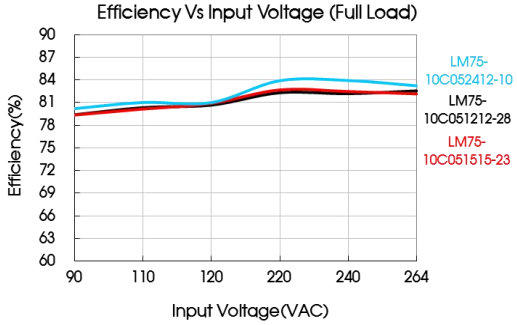
## Product Characteristic Curve



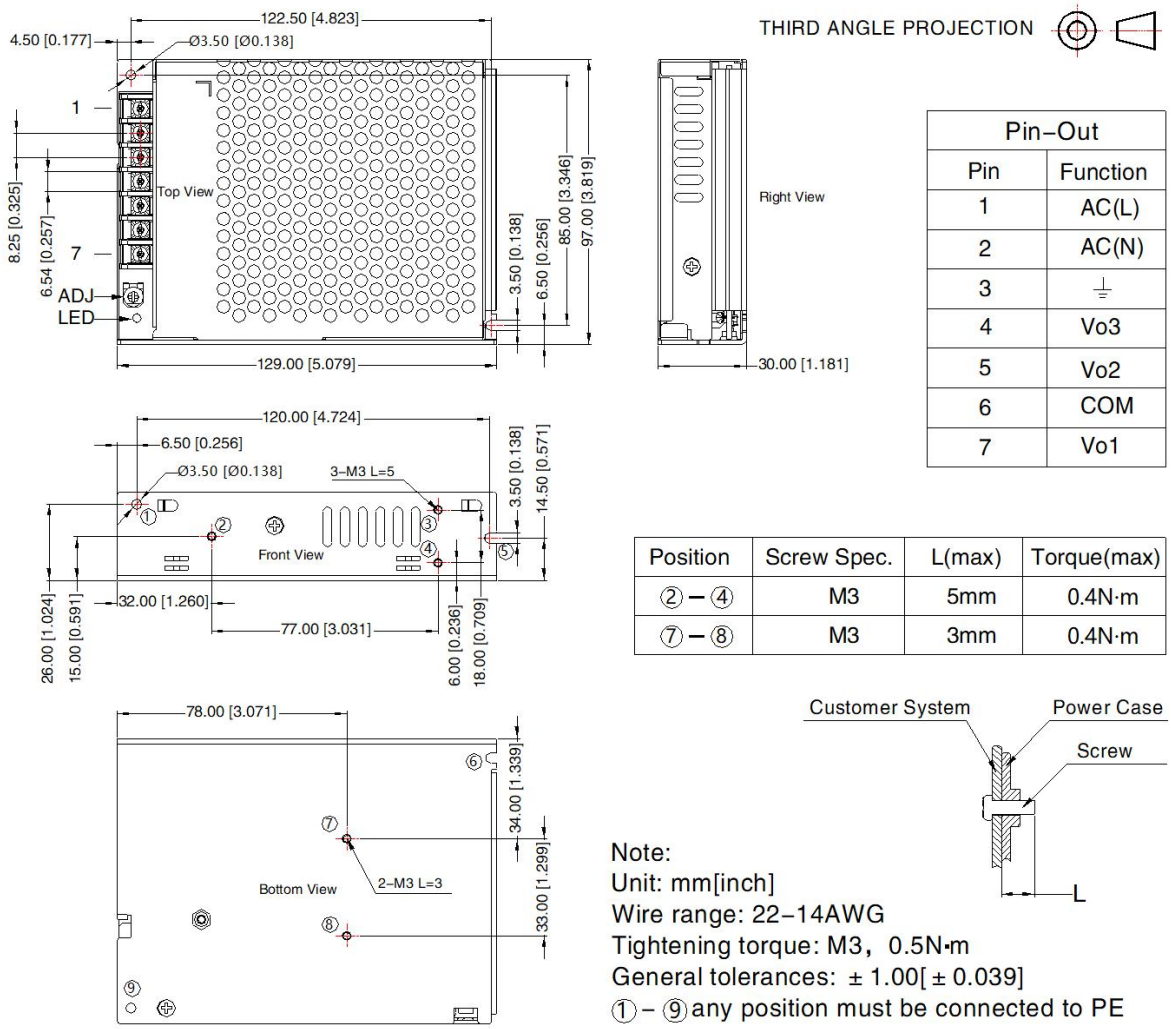




Note: 1. With an AC input voltage between 90 -115VAC and a DC input between 120 -160VDC the output power must be derated as per the temperature derating curves,
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



## Dimensions and Recommended Layout




| Pin-Out | |
|---|---|
| Pin | Function |
| 1 | AC(L) |
| 2 | AC(N) |
| 3 | ⏚ |
| 4 | Vo3 |
| 5 | Vo2 |
| 6 | COM |
| 7 | Vo1 |

| Position | Screw Spec. | L(max) | Torque(max) |
|---|---|---|---|
| ② – ④ | M3 | 5mm | 0.4N·m |
| ⑦ – ⑧ | M3 | 3mm | 0.4N·m |




Note:
Unit: mm[inch]
Wire range: 22-14AWG
Tightening torque: M3, 0.5N·m
General tolerances: ± 1.00[ ± 0.039]
① – ⑨ any position must be connected to PE

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220065;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
3. The room temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
10. The power supply is considered a component which will be installed into a final equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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