

3W, AC/DC converter



FEATURES

- Wide input voltage range: 85 - 264VAC/120 - 373VDC
- Operating ambient temperature range:-25℃- +70℃
- Low standby power consumption: 0.2W
- high isolation voltage up to 4000VAC
- Output short circuit, over-current, over-voltage protections
- Full plastic case, meet UL94V-0
- Approved EN60335, EN62368 standards, meets UL60335, UL62368 standards
- EMI meets CISPR32/EN55032 CLASS B
- Operating up to 5000m altitude

LD03-20BxxWG series - is one of Mornsun AC/DC power modules for white goods. The size, pin and package of this products are in line with the white goods series. It features compact size, high efficiency and high reliability and meet EMI Class B(EN55032) with built-in filter. They are widely used in industrial electronic equipment, commercial office, consumer electronics and white goods area like smart home. The product integrates various protection functions and cost-effective.

Selection Guide

| Certification | Part No. | Output Power (W) | Nominal Output Voltage and Current(Vo/Io) | Efficiency (230VAC, %/Typ.) | Max. Capacitive Load (μF) |
|---------------|--------------|------------------|---|-----------------------------|---------------------------|
| CE | LD03-20B05WG | 3.0 | 5V/0.6A | 72 | 470 |
| | LD03-20B12WG | | 12V/0.25A | 74 | 330 |
| | LD03-20B24WG | | 24V/0.125A | 75 | 220 |

Input Specifications

| Item | Operating Conditions | Min. | Typ. | Max. | Unit |
|---------------------|----------------------|-----------------------------|------|------|------|
| Input Voltage Range | AC input | 85 | -- | 264 | VAC |
| | DC input | 120 | -- | 373 | VDC |
| Input Frequency | | 47 | -- | 63 | Hz |
| Input Current | 115VAC | -- | -- | 150 | mA |
| | 230VAC | -- | -- | 75 | |
| Inrush Current | 115VAC | -- | 15 | -- | A |
| | 230VAC | -- | 30 | -- | |
| Leakage Current | | 0.25mA RMS typ. 240VAC/50Hz | | | |
| Hot Plug | | Unavailable | | | |

Output Specifications

| Item | Operating Conditions | Min. | Typ. | Max. | Unit | |
|----------------------------|-----------------------------------|-----------------------------------|-------|------|------|----|
| Output Voltage Accuracy | Full load, input voltage range | -- | ±2 | -- | % | |
| Line Regulation | Full load | -- | ±0.3 | -- | | |
| Load Regulation | 0%-100% load | -- | ±0.5 | -- | | |
| Ripple & Noise* | 20MHz bandwidth (peak-peak value) | 5V | -- | -- | 100 | mV |
| | | 12V | -- | -- | 150 | |
| | | 24V | -- | -- | 240 | |
| Temperature Coefficient | | -- | ±0.03 | -- | %/℃ | |
| Stand-by Power Consumption | | -- | -- | 0.2 | W | |
| Short Circuit Protection | | Hiccup, continuous, self-recovery | | | | |
| Over-current Protection | | ≥ 110%Io self-recovery | | | | |
| Over-voltage Protection | 5V | ≤ 9VDC | | | | |
| | 12V | ≤ 20VDC | | | | |
| | 24V | < 35VDC | | | | |

| | | | | | |
|--------------|--------------|----|----|----|----|
| Min. Load | | 0 | -- | -- | % |
| Hold-up Time | 115VAC input | -- | 5 | -- | ms |
| | 230VAC input | -- | 10 | -- | |

Note: * Ripple and noise are measured by "tip and barrel method", output in parallel with a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor.

General Specifications

| Item | Operating Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|----------------------|--------------------------------|------|------|------|
| Isolation Voltage | Input-output | 4000 | -- | -- | VAC |
| Operating Temperature | | -25 | -- | +70 | °C |
| Storage Temperature | | -40 | -- | +85 | |
| Storage Humidity | | -- | -- | 90 | %RH |
| Welding Temperature | Wave-soldering | 260 ± 5°C; time:5 - 10s | | | |
| | Manual-welding | 360 ± 10°C; time:3 - 5s | | | |
| Switching Frequency | | -- | 100 | -- | KHz |
| Safety Standard | | EN60335/EN62368 | | | |
| Safety Certification | | EN60335/EN62368 | | | |
| Safety Class | | CLASS II | | | |
| MTBF | | MIL-HDBK-217F@25°C > 300,000 h | | | |

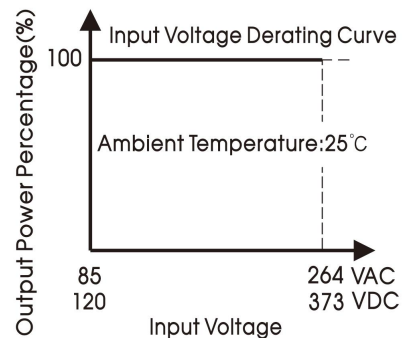
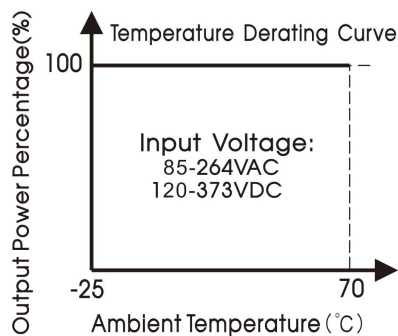
Physical Specifications

| | |
|----------------|--|
| Case Material | Black flame-retardant and heat-resistant plastic (UL94-V0) |
| Dimension | 32.3 x 27.3 x 21.8 mm |
| Weight | 26g (Typ.) |
| Cooling Method | Free air convection |

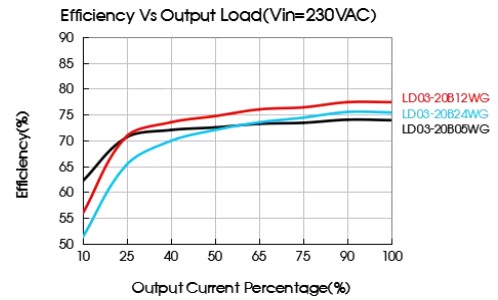
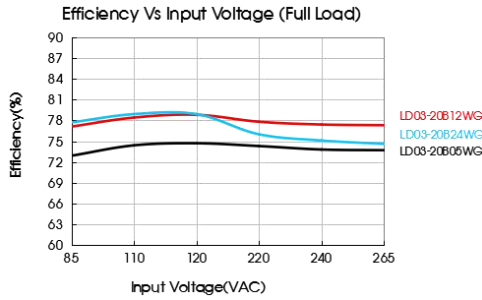
EMC Specifications

| | | | | |
|-----|---|-------------------------|-----------|------------------|
| EMI | CE | CISPR32/EN55032 CLASS B | | |
| | RE | CISPR32/EN55032 CLASS B | | |
| EMS | ESD | IEC/EN61000-4-2 | ±6KV/8KV | Perf. Criteria B |
| | RS | IEC/EN61000-4-3 | 10V/m | perf. Criteria B |
| | EFT | IEC/EN61000-4-4 | ±2KV | perf. Criteria B |
| | Surge | IEC/EN61000-4-5 | ±1KV | perf. Criteria B |
| | CS | IEC/EN61000-4-6 | 10 Vr.m.s | perf. Criteria B |
| | Voltage dips, short interruptions and voltage variations immunity | IEC/EN61000-4-11 | 0%, 70% | perf. Criteria B |

Product Characteristic Curve

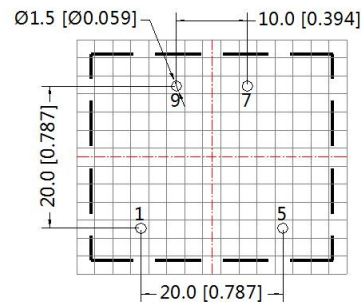
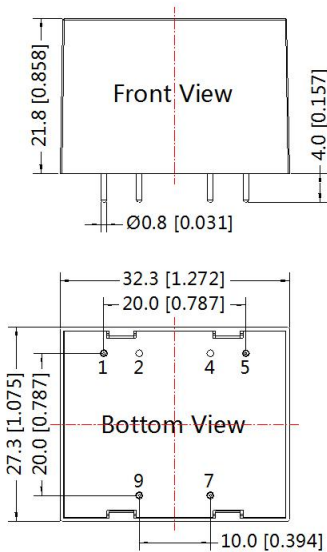


Note: This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Note: Grid 2.54*2.54mm

Note:
Unit: mm[inch]
Connect pin size: Ø0.8[0.031]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

| Pin-Out | | | |
|---------|----------|-----|----------|
| Pin | Function | Pin | Function |
| 1 | -Vin(N) | 5 | +Vin(L) |
| 2 | Nopin | 7 | +Vo |
| 4 | Nopin | 9 | 0V |

Notes:

1. Packaging information please refer to Product Packaging Information which can be downloaded from www.mornsun-power.com. Packaging bag number: 58220059;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our company corporate standards;
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. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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