

LD20 SERIES 20W, AC-DC CONVERTER

LD20 series ----is a compact size power converter offered by Mornsun for 20W PCB mount installation applications, small volume. It features universal input voltage, taking both DC and AC input voltage, low power consumption, low ripple& noise, high efficiency, high reliability, safer isolation. It offers good EMC performance, meet IEC61000, UL60950 and IEC60950 standards, and is UL60950 and EN60950 certified, and widely used in industrial, medical, electricity, instruments, telecommunication and civil applications.

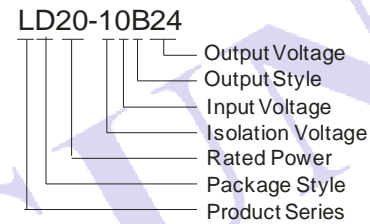


RoHS

PRODUCT FEATURES

1. Universal Input :85 ~ 264VAC,50/60Hz
2. AC and DC all in one (input from the same terminal)
3. Low Ripple and Noise
4. EMC meet EN55022、EN55024
5. Super small volume
6. Low loss, green environmental protection
7. High efficiency
8. Output short circuit protection, over-current protection and over-voltage protection
9. Meet UL60950 and EN60950 certification standards
10. Three years warranty

MODEL SELECTION



PRODUCT PROGRAM

| Approval | Model | Package | Power | Output (Vo1/Io1) | Ripple and Noise (typ.) | Efficiency (%) (typ.) | Standby Power (max.) |
|----------|------------|------------------|-------|------------------|-------------------------|-----------------------|----------------------|
| UL/CE | LD20-10B03 | 53.5X28.5X23.5mm | 11.8W | 3.3V/3600mA | 50mV | 74 | 0.5W |
| | LD20-10B05 | | 18W | 5V/3600mA | | 78 | 0.5W |
| | LD20-10B12 | | 20W | 12V/1660mA | | 82 | 0.5W |
| | LD20-10B15 | | | 15V/1330mA | | 83 | 0.5W |
| | LD20-10B24 | | | 24V/833mA | | 83 | 0.5W |

Remarks :

1. Ripple and Noise were measured by the method of parallel lines;
2. Unless otherwise specified, all specifications above are measured at rated input voltage and rated output load, TA=25°C, humidity < 75%.

INPUT SPECIFICATIONS

| | |
|-----------------------------------|--|
| Input voltage range | 85~264VAC, 120~370VDC |
| Input frequency | 47~440Hz |
| Input current | 110VAC 230VAC 370mA, typ 240mA, typ |
| Inrush current | 110VAC 230VAC 20A, typ 40A, typ |
| Leakage current | 0.75mA (max.)@Vin=220VAC |
| External input fuse (recommended) | 3.15A/250V Slow blow |

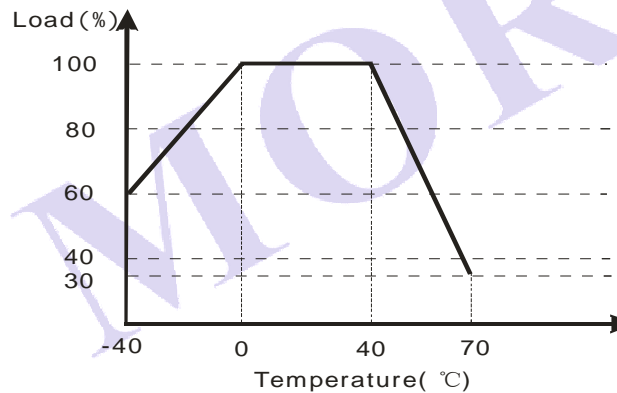
OUTPUT SPECIFICATIONS

| | |
|------------------------------|--|
| Voltage set accuracy | ±2% (3.3V: ±3%) (typ) |
| Input variation | ±0.5% (typ) |
| Load variation (10% to 100%) | ±1% (typ) |
| Ripple& noise(p-p) | (20MHz Bandwidth) 120mV (max) |
| Short circuit protection | Continuous, and auto resume |
| Over current protection | ≥110% I _O , and auto resume |
| Over voltage protection | Zener diode clamp |

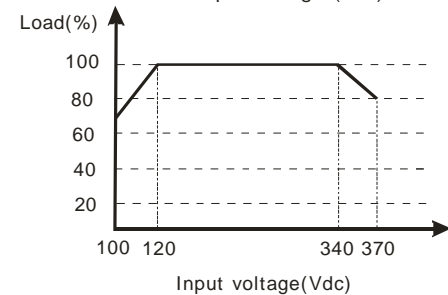
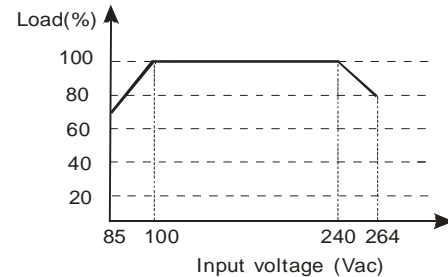
COMMON SPECIFICATIONS

| | | | |
|-----------------------------------|--|---|-----------|
| Temperature ranges | Operating | -40°C ~ +70°C | |
| | Power derating | (above 40°C) | 2.5% / °C |
| | | (below 0°C) | 1% / °C |
| | Storage: | -40°C ~ +105°C | |
| Case temperature: | +95°C max | | |
| Hold-up time | (Vin=230VAC) | 50ms(typ) | |
| | (Vin=115VAC) | 10ms(typ) | |
| Humidity | | 95%(max) | |
| Temperature coefficient | | ± 0.02%/°C | |
| Switching frequency | | 100kHz(typ) | |
| Isolation voltage(Input-Output) | | 3000VAC/1Min | |
| EMI/RFI conducted | | EN55022, CLASS B | |
| EMC compliance | Electrostatic discharge | EN55024/IEC/EN 61000-4-2 level 4 8kV/15kV | |
| | RF field susceptibility | EN55024/IEC/EN 61000-4-3 level 4 10V/m | |
| | Electrical fast transients/bursts on mainsline | EN55024/IEC/EN 61000-4-4 level 4 4kV | |
| | Surge | EN55024/IEC/EN 61000-4-5 level 4 2kV/4kV | |
| Safety standards | | IEC60950/EN60950/UL60950 | |
| Safety approvals | | EN60950/UL60950 (Pending) | |
| Safety class | | CLASS II | |
| Case material | | UL94V-0 | |
| Install | | PCB | |
| Cooling | | Free air convection | |
| MTBF | | >300,000h @25°C | |
| Package | | 53.5X28.5X23.5mm | |

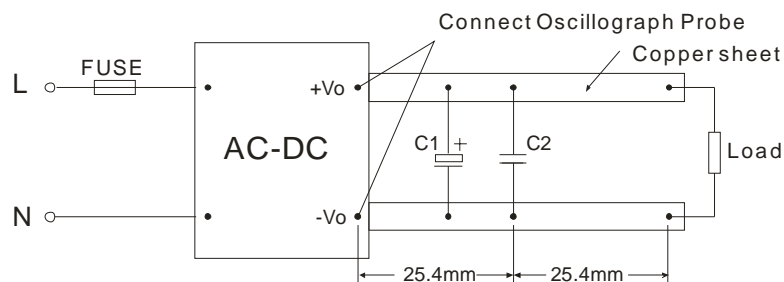
TEMPERATURE VS LOAD



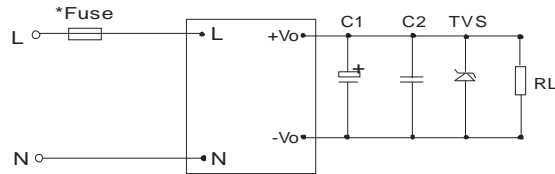
INPUT VOLTAGE VS LOAD



ANEAR MEASURE



TYPICAL APPLICATIONS



EXTERNAL CAPACITORS TYPICAL VALUE(Unit: μF)

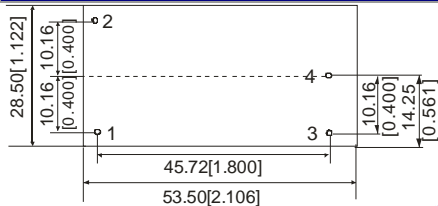
| Model | C1 | C2 | TVS |
|------------|------------------------|------------------------|----------|
| LD20-10B03 | 220 μF /10V | 0.1 μF /50V | P6KE6.8A |
| LD20-10B05 | 220 μF /10V | 0.1 μF /50V | P6KE6.8A |
| LD20-10B12 | 120 μF /25V | 0.1 μF /50V | P6KE20A |
| LD20-10B15 | 120 μF /25V | 0.1 μF /50V | P6KE20A |
| LD20-10B24 | 68 μF /35V | 0.1 μF /50V | P6KE30A |

Note:

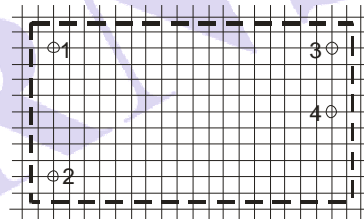
- Output filtering capacitors C1 is electrolytic capacitors, It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C2 is ceramic capacitor, it is used to filter high frequency noise. TVS is a recommended component to protect post-circuits (if converter fails).
- External connect FUSE, recommended the parameter is 3.15A/250V slow blow.

OUTLINE DIMENSIONS & PIN CONNECTIONS

PACKAGE DIAGRAM



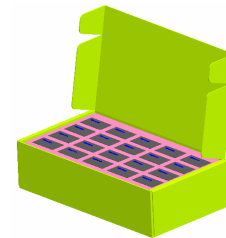
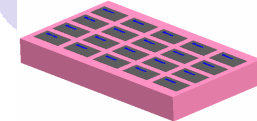
RECOMMENDED FOOTPRINT
Top view, grid: 2.54mm [0.100inch],
diameter: 1.60mm [0.063inch]



Note:
First Angle Projection
Unit:mm[inch]
Pin diameter: 1.00 \pm 0.10mm
General tolerances: \pm 0.50mm
Weight: 50 \pm 3g

FOOTPRINT DETAILS

| PIN | FUNCTION |
|-----|----------|
| 1 | N |
| 2 | L |
| 3 | +Vo |
| 4 | -Vo |



Inner packaging dimensions:
L*W*H=355*192*93mm
Packaging quantity: 40pcs
Outer packaging dimensions:
L*W*H=405*380*305mm
Packaging quantity: 240pcs

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