

LD10 SERIES 10W, AC-DC CONVERTER

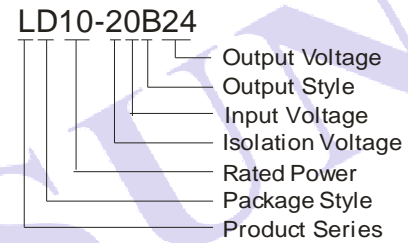
LD series ----is a compact size power converter offered by Mornsun for PCB mount installation applications. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, meets IEC61000,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



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. Over output voltage protection , short circuit protection and Over temperature
5. High efficiency, High power density
6. Low loss, green power
7. Multiple models available
8. Industrial, medical level specifications

MODEL SELECTION



PRODUCT PROGRAM

Approval	Model	Package	Power	Output (Vo1/Io1)	Ripple and Noise (TYP)	Efficiency (%) (TYP)	Standby Power
UL/CE	LD10-20B03	53.5X28.5X19.0mm	6.6W	3.3V/2000mA	50mV	70	0.4W
	LD10-20B05		5V/2000mA	74		0.4W	
	LD10-20B09		9V/1100mA	76		0.45W	
	LD10-20B12		12V/900mA	76		0.4W	
	LD10-20B15		15V/700mA	78		0.5W	
	LD10-20B24		24V/450mA	80		0.6W	

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 230mA, typ	230VAC 150mA, typ
Inrush Current	110VAC 10A, typ	230VAC 20A, typ
External input fuse(Recommended)	2A/250V	Slow blow

OUTPUT SPECIFICATIONS

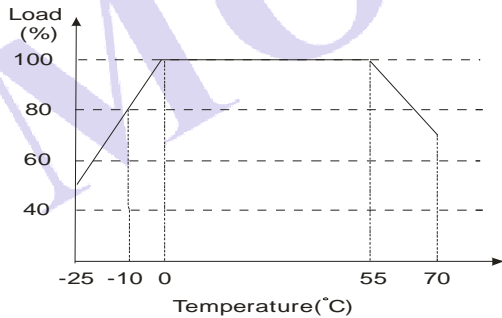
Voltage set accuracy	±2% (3.3V: ±3%)(typ)	
Input variation	±0.5% (typ)	
Load variation (10% to 100%)	±1% (typ)	
Ripple& noise(p-p) (20MHz Bandwidth)	50mV(typ)	100mV(max)
Short circuit protection	Continuous, and auto resume	
Over current protection	≥110% Io	

COMMON SPECIFICATIONS

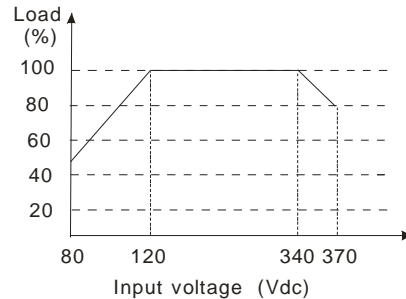
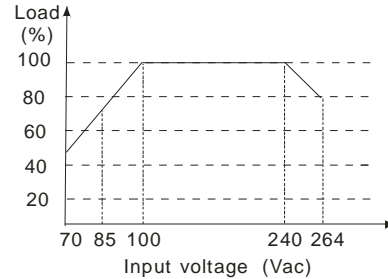
Temperature ranges	Operating Power derating (above 55°C): (below 0°C): Storage: Case temperature:	-25°C ~ +70°C 2%/°C 2%/°C -40°C ~ +105°C +95°C max
Hold-up time	(Vin=230VAC)	50ms(typ)
Humidity		95%(max)
Temperature coefficient		0.02%/°C
Switching frequency		60kHz(typ)
I/O-isolation voltage		4000VAC/1Min
Leakage current		0.1mA (typ)
EMI/RFI conducted		EN55011, levelB
EMC compliance	Electrostatic discharge ESD RF field susceptibility *Electrical fast transients/bursts on mainsline *Surge	IEC/EN 61000-4-2 level 4 8kV/15kV IEC/EN 61000-4-3 IEC/EN 61000-4-4 level 4 4kV IEC/EN 61000-4-5 level 4 2kV/4kV
Safety standards		IEC60601,EN60601,UL60950
Safety approvals		EN60601,UL60950
Safety Class		CLASS II
Case material		UL94V-0
Install		PCB
MTBF		>300,000h @25°C
Package		53.5X28.5X19mm

Note: * EMC application circuit is required.

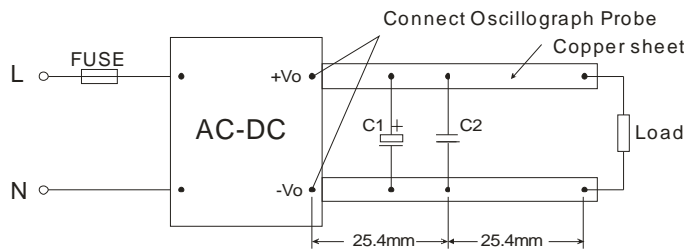
TEMPERATURE VS LOAD



INPUT VOLTAGE VS LOAD



ANEAR MEASURE



TYPICAL APPLICATIONS

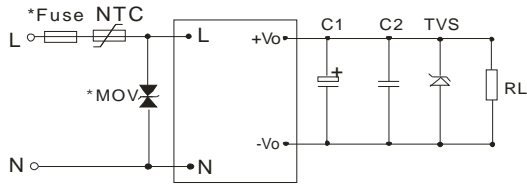


Figure 1 EMC Application Figure 1

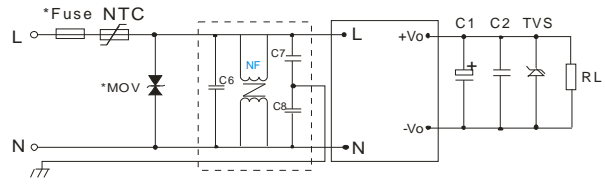


Figure 2 LD10 EMC Application Figure 2

EXTERNAL CAPACITORS TYPICAL VALUE(Unit: mF)

model	C1	C2	TVS
LD10-20B03	220 μ F/10V	0.1 μ F/50V	P6KE6.8A
LD10-20B05	220 μ F/10V	0.1 μ F/50V	P6KE6.8A
LD10-20B09	120 μ F/25V	0.1 μ F/50V	P6KE12A
LD10-20B12	120 μ F/25V	0.1 μ F/50V	P6KE20A
LD10-20B15	120 μ F/25V	0.1 μ F/50V	P6KE20A
LD10-20B24	68 μ F/35V	0.1 μ F/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).
- MOV is required to LD10 models, model: 471KD05, it is used to protect the device under surge.
- It is recommended to connect FUSE, the parameter is 2A/250V slow blow. External input NTC model is recommended to use 5D-9.
- If common requirement to EMC performance, refer to figure 1, if higher requirement to EMC performance, refer to figure 2.

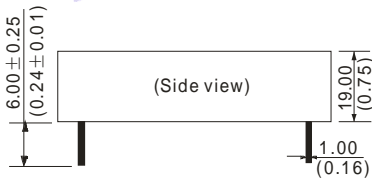
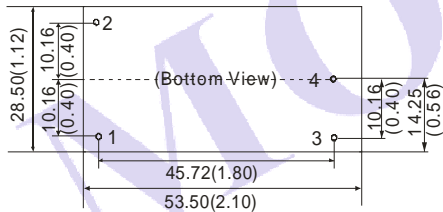
C6:X capacitor, recommended parameter 0.1uF/275V;

C7,C8:Y capacitor, recommended parameter 2200pF/400V;

NF: common model choke, recommended inductance is about 10mH-30mH.

OUTLINE DIMENSIONS & PIN CONNECTIONS

PACKAGE DIAGRAM



Note:

Unit:mm (inch)

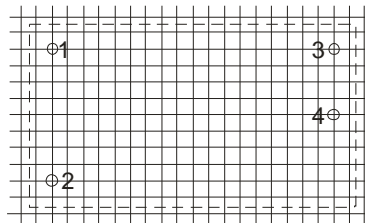
Pin diameter:1.00 \pm 0.10mm

General tolerances: \pm 0.50mm

Weight: 50 \pm 3g

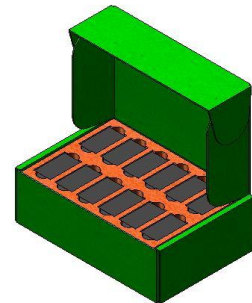
First Angle Projection

RECOMMENDED FOOTPRINT
Top view,grid:2.54mm(0.1inch),
diameter:1.60mm(0.063inch)



FOOTPRINT DETAILS

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



Inside package box dimensions:
L*W*H=255*170*80mm
Package quantity: 24pcs
Outside package box dimensions:
L*W*H=405*380*305mm