

LD02-10BXX SERIES

2W, AC-DC CONVERTER

LD02-10BXXseries ---is a compact size power converter offered by Mornsun. It features 85-305VAC input voltage, compact size,3000VAC safer isolation. It offers good EMC performance, meets IEC61000, UL60950and IEC60950 standards, and widely used in industrial, electricity , instruments and civil applications.



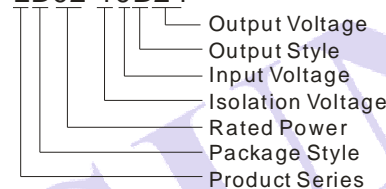
RoHS

PRODUCT FEATURES

1. Wide Input voltage Range: 85~305VAC/120~430VDC
2. AC and DC all in one (input from the same terminal)
3. Low Ripple and Noise
4. EMC meets EN55022、EN55024
5. Compact size
6. Low loss, green power
7. High efficiency
8. Over output current protection, short circuit protection
9. Meets IEC61000, UL60950and IEC60950 standards
10. Three years warranty

MODEL SELECTION

LD02-10B24



PRODUCT PROGRAM

Approval	Model	Package	Power	Output (Vo/Io)	Max. Capacitive Load(μF)	Ripple and Noise (Typ)	Efficiency (%.Typ)	Standby Power(Typ)
UL/CE	LD02-10B03	33.7x22.2x18mm	2W	3.3V/600mA	4000	100mV	65	0.1W
	LD02-10B05			5V/400mA	4000		70	
	LD02-10B09			9V/222mA	2200		72	
	LD02-10B12			12V/167mA	2200		76	
	LD02-10B15			15V/133mA	1000		76	
	LD02-10B24			24V/83mA	680		78	

Note:

1. Models listed with strike-through text have been officially discontinued.
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	85~305VAC, 120~430VDC
Input Frequency	47~63Hz
Input Current	110VAC 44mA, typ 230VAC 25mA, typ
Inrush Current	110VAC 5A, typ 230VAC 11A, typ
Leakage current	0.15mA (max)

OUTPUT SPECIFICATIONS

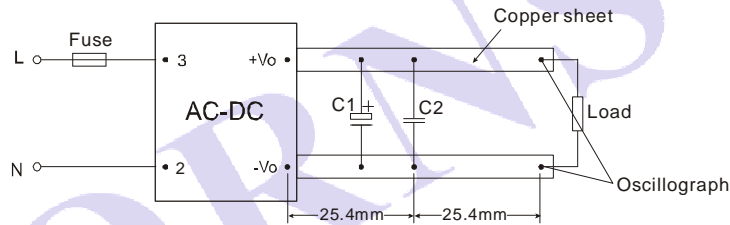
Output voltage accuracy(Max.)	±5% (max)	LD02-10B03 ±6% (max)
Linear regulation(Max.)	±2% (max)	
Load variation (10% to 100%)	±5% (max)	
Ripple& noise(p-p)	20MHz Bandwidth	100mV(typ) 200mV(max)
Short circuit protection	Continuous, and auto resume	
Over current protection	≥110% I _o can auto resume	

COMMON SPECIFICATIONS

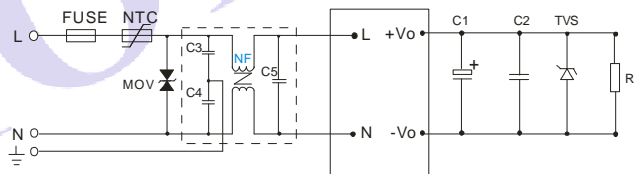
Temperature ranges	Operating	-25℃~+70℃ (55~70℃ derating)		
	Power derating (above 55℃)	3.3% / ℃		
	Storage	-40℃~+85℃		
Humidity	Operating humidity	30~90%RH		
	Storage humidity	20~95%RH		
Switching frequency		100kHz(max)		
I/O-isolation voltage		3000VAC/1Min		
EMC	CE/RE	EN55022, CLASS B		
	ESD	IEC/EN61000-4-2	±4kV/8kV	perf. Criteria B
	RS	IEC/EN61000-4-3	3V/m	perf. Criteria A
	EFT*	IEC/EN61000-4-4	±2KV	perf. Criteria B
	Surge*	IEC/EN61000-4-5	±1KV/2KV	perf. Criteria B
	CS	IEC/EN61000-4-6	3V	perf. Criteria A
Safety approvals		UL60950/EN60950 (Pending)		
Safety Class		CLASS II		
Case material		UL94V-0		
Install		PCB		
Cooling		Free air convection		
MTBF		>300,000h @25℃		
Weight		20g (typ)		

*Note: External circuit is required to models at inrush and electrical fast transients experiment, refer to typical application.

PARALLEL LINES MEASURE



TYPICAL APPLICATIONS



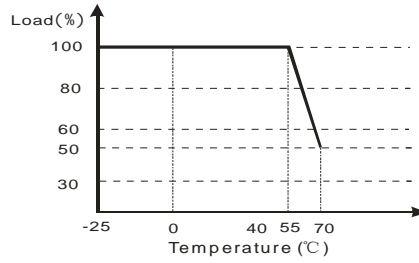
EXTERNAL CAPACITORS TYPICAL VALUE(Unit: mF)

Model	C1	C2	TVS
LD02-10B03	220	0.1μF/50V	P4KE6.8A
LD02-10B05	220	0.1μF/50V	P4KE6.8A
LD02-10B09	120	0.1μF/50V	P4KE12A
LD02-10B12	120	0.1μF/50V	P4KE20A
LD02-10B15	120	0.1μF/50V	P4KE20A
LD02-10B24	68	0.1μF/50V	P4KE30A

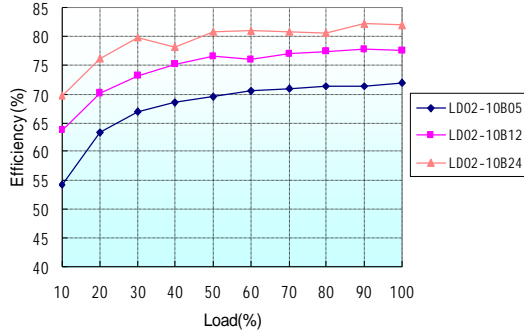
Note:

- Output filtering capacitor C1 is electrolytic capacitor, 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).
- It is recommended to connect FUSE, the parameter is 2A/250V slow blow.
- MOV: Varistor, model: 561KD14, it is used to protect the device under surge.
 C5:X capacitor, recommended parameter 0.1-0.33μF/300V;
 C3,C4:Y capacitor, recommended parameter 2200-4700pF/400V;
 NF: common model choke, recommended inductance is about 15mH-30mH.

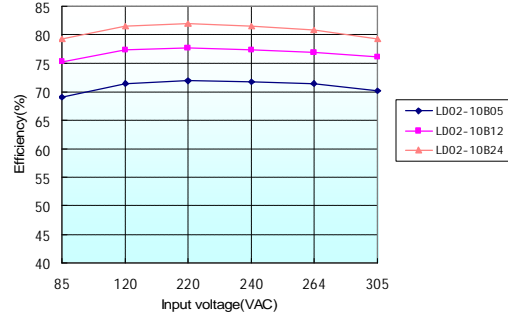
PRODUCT TYPICAL CURVE



Load VS Efficiency curve(Vin=220Vac)

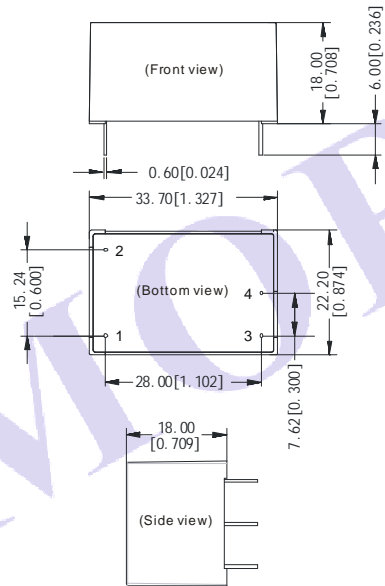


Input voltage VS Efficiency curve(Load=100%)



OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING

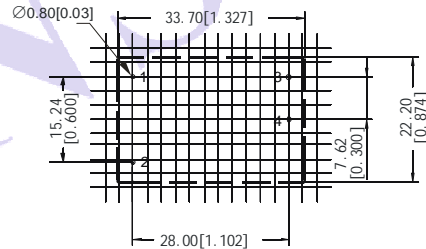
MECHANICAL DIMENSIONS



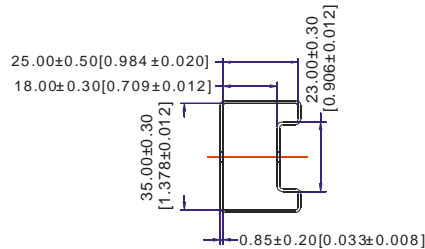
FOOTPRINT DETAILS	
Pin	Function
1	N
2	L
3	-Vo
4	+Vo

Note:
Unit:mm(inch)
Pinsection tolerances: ± 0.10mm (± 0.004inch)
General tolerances: ± 0.50mm (± 0.020inch)

RECOMMENDED FOOTPRINT(BOTTOM VIEW)



RECOMMENDED FOOTPRINT



Note:
Unit :mm[inch]
General tolerances: ± 0.50mm[± 0.020inch]
L=530mm[20.866inch] Tube Quantity: 22pcs
L=220mm[8.661inch] Tube Quantity: 8pcs
Short tube inner packaging dimensions: L*W*H=255*170*80mm;
Short tube outer packaging dimensions(with six inner packaging boxes):
L*W*H=375*280*270mm;
Long tube inner packaging dimensions: L*W*H=580*200*100mm;
Long tube outer packaging dimensions(with two inner packaging boxes) :
L*W*H=600*215*220mm;
Long tube outer packaging dimensions(with three inner packaging boxes) :
L*W*H=600*215*325mm.

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