

# MORNSUN®

## LD10-20BK17

### 10W, AC-DC CONVERTER

LD10-20BK17---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, and widely used in industrial,medical,electricity, instruments, telecommunication and civil applications.

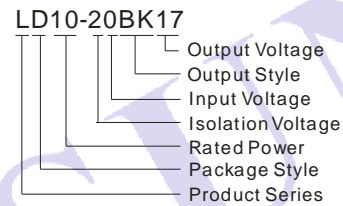


RoHS

### 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. Output over current protection , short circuit protection and thermal protection
5. High efficiency, High power density
6. Low loss, green power
7. Multiple models available
8. Industrial, medical level specifications

### MODEL SELECTION



### PRODUCT PROGRAM

Model	Package	Power	Output (Vo/Io1)	Ripple and Noise (typ)	Efficiency (%) (typ)	Standby Power (typ)
LD10-20BK17	53.5x28.5x19.0mm	10W	17.5V/600mA	50mV	78	0.5W

Note :  
 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
Leakage current	0.1mA (typ)@ Vin=230Vac	
External input fuse(recommended)	2A/250V	Slow blow

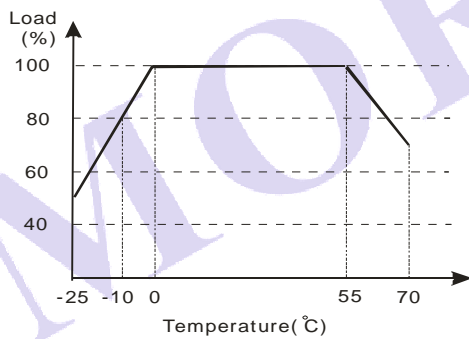
### OUTPUT SPECIFICATIONS

Voltage set accuracy	±2% (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	
Maximum capacitive load (µF)	1000	

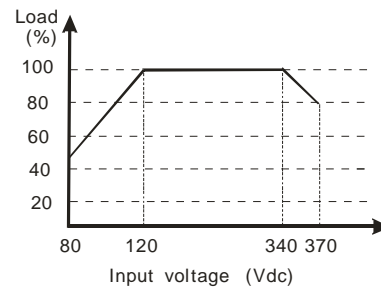
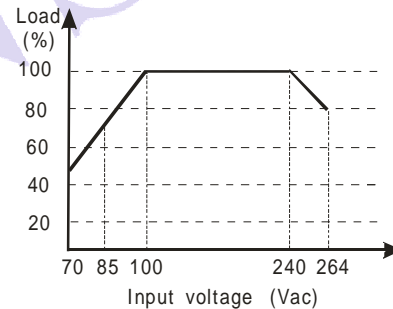
## COMMON SPECIFICATIONS

Temperature ranges	Operating	-25°C ~ +70°C	
	Power derating	(above 55°C)	2% / °C
		(below 0°C)	2% / °C
	Storage	-40°C ~ +105°C	
Case	+95°C max		
Hold-up time	(Vin=230VAC)	50ms(typ)	
Humidity		95%(max)	
Temperature coefficient		0.02%/°C	
Switching frequency		60kHz(typ)	
Isolation voltage( Input-Output )		4000VAC/1Min	
EMC compliance	Electrostatic discharge	IEC/EN 61000-4-2 level 4 8kV/15kV	
	RF field susceptibility	IEC/EN 61000-4-3	
	*Electrical fast transients	IEC/EN 61000-4-4 level 4 4kV	
	*Surge	IEC/EN 61000-4-5 level 4 2kV/4kV	
Safety Class		CLASS II	
Case material		UL94V-0	
Install		PCB	
MTBF		>300,000h @25°C	
Package		53.5X28.5X19mm	
Remarks: Need to external EMC application circuit.			

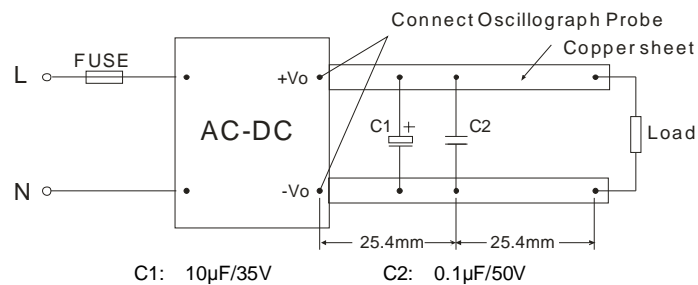
## TEMPERATURE VS LOAD



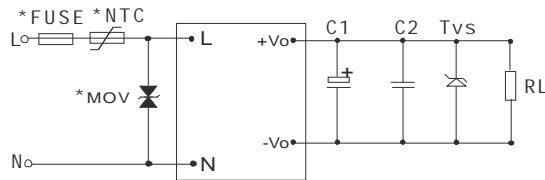
## INPUT VOLTAGE VS LOAD



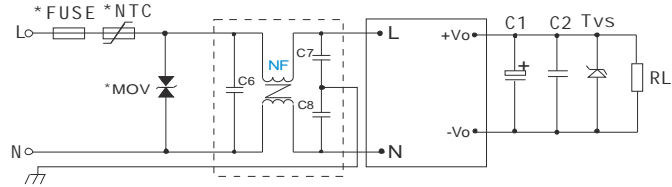
## PARALLEL LINES MEASURE



## TYPICAL APPLICATIONS



EMC typical applications(Figure 1)



EMC typical applications(Figure 2)

### EXTERNAL CAPACITORS TYPICAL VALUE(Unit: mF)

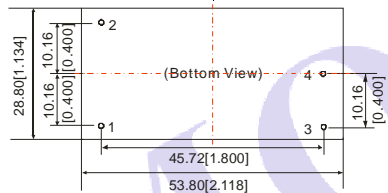
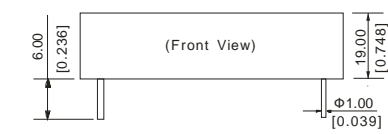
Model	C1	C2	TVS
LD10-20BK17	120 $\mu$ F /25V	0.1 $\mu$ F /50V	P6KE20A

Note:

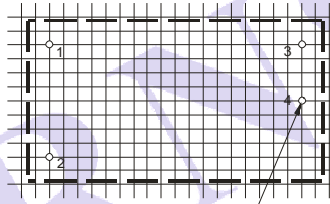
- Output filtering capacitors C1 is electrolytic capacitors, It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C2 is use to filter high frequency noise. TVS is recommended component to protect post-circuits (if converter fails).
- MOV is external varistor, model: 471KD07, 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 (EN55011,Level A) , refer to figure 1, if higher requirement to EMC performance (EN55011,Level B) ,refer to figure 2.  
C6:X capacitor, recommended parameter 0.1 $\mu$ F /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



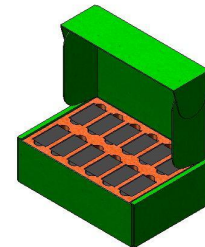
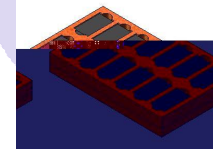
Note:  
Unit: mm[inch]  
Pin diameter tolerances:  $\pm 0.10$ mm[ $\pm 0.004$ inch]  
General tolerances:  $\pm 0.50$ mm[ $\pm 0.020$ inch]



Note: grid 2.54\*2.54mm.

### FOOTPRINT DETAILS

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



Inner packaging box dimensions:  
L\*W\*H=255\*170\*80mm  
Packaging quantity: 24pcs  
Outer packaging box dimensions:  
L\*W\*H=405\*380\*305mm  
Packaging quantity: 144pcs

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