

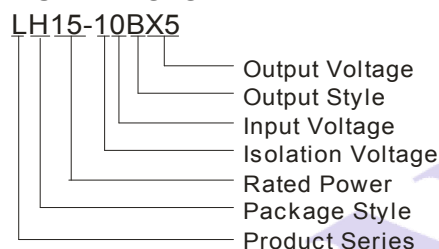


LH15-10BX5

----- is a compact size power converter offered by Mornsun. 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, this series of products must use the referred application circuit.

RoHS

PART NUMBER SYSTEM



PRODUCT FEATURES

- 1.Universal Input : 85~264VAC,120~370VDC
- 2.Regulated output, low ripple and noise
- 3.Efficiency up to 76%
- 4.Over-current, short circuit and over-temperature protection
- 5.Plastic case, certificate UL94V-0

SELECTION GUIDE

Model	Package	Power	Output (Vo/Io)	Ripple and Noise(Typ)	Efficiency (%) (Typ.)
LH15-10BX5	62X45X22.5mm	15W	5.3V/2800mA	50mV	76

INPUT SPECIFICATIONS

Input voltage range	85 ~ 264VAC, 120 ~ 370VDC	
Input frequency	47 ~ 63Hz	
Input current	110VAC 370mA,max	230VAC 220mA, max
Inrush current	110VAC 10A, typ	230VAC 20A, typ
Leakage current	0.3mA RMS typ./230VAC/50Hz	
Recommended External Input Fuse	2A/250V	Slow-Blow

OUTPUT SPECIFICATIONS

Voltage set accuracy	±2%	
Input variation	±0.5%	
Load variation (10-100%)	±1%	
Minimum load	0%	
Ripple & noise(p-p)	(20MHz Bandwidth)	50mV (Typ) 100mV (Max)
Short circuit protection	Continuous, and auto resume	
Over temperature protection	150℃(max)	
Over current protection	≥ 110% Io	
Output over-voltage protection	≤7.5VDC	

COMMON SPECIFICATIONS

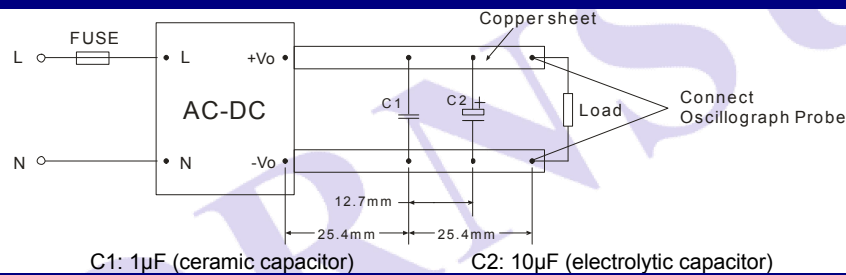
Temperature ranges	Operating temperature : Power derating (55℃~70℃) (-40℃~-10℃) Storage temperature: Case temperature:	-40℃~+70℃ 3.75% / °C 2% / °C -40℃~+105℃ +90℃ max
Hold-up time	(Vin=230VAC)	80ms(typ)
Humidity		95%(max)
Temperature coefficient		0.02%/°C
Switching frequency		65KHz(typ.)
I/O-isolation voltage		3000VAC/1Min

EMC	EMI	CE	CISPR22/EN55022, CLASS B(without external circuit)		
		RE	CISPR22/EN55022, CLASS B(without external circuit)		
	EMS	ESD	IEC/EN 61000-4-2	±6KV / ±8KV	perf. Criteria B
		RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
		EFT	IEC/EN 61000-4-4	±2KV(without external circuit)	perf. Criteria B
			IEC/EN 61000-4-4	±4KV(with typical applications Figure 3)	perf. Criteria B
		Surge	IEC/EN61000-4-5	±1KV/±2KV(without external circuit)	perf. Criteria B
			IEC/EN61000-4-5	±2KV/±4KV(with typical applications Figure 3)	perf. Criteria B
		CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
		PFM	IEC/EN61000-4-8	10A/m	perf. Criteria A
Voltage dips,short and interruptions immunity	IEC/EN61000-4-11	0%-70%	perf. Criteria B		
Safety standards			IEC60950,EN60950,UL60950		
Safety Class			CLASS II		
Case material			UL94V-0		
Install			PCB		
MTBF			>300,000H @25℃		
Weight			80g		

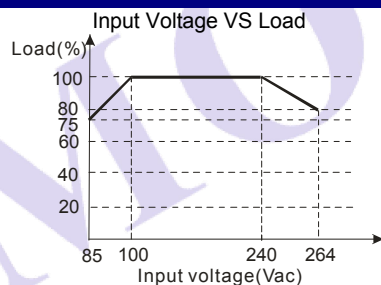
Note:

1. Ripple and Noise are measured by the method of parallel lines;
2. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified;
3. All characteristics are for listed model only, non-standard models may perform differently, please contact our technical person for more detail.

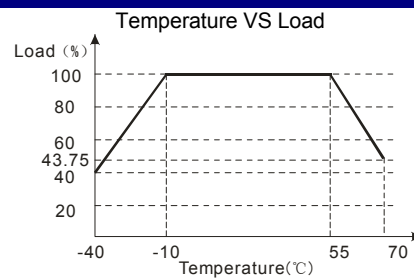
PARALLEL LINES MEASURE



PRODUCT TYPICAL CURVE



*Note: When input DC, $V_{dc}=1.414*V_{ac}-20$.



TYPICAL APPLICATIONS

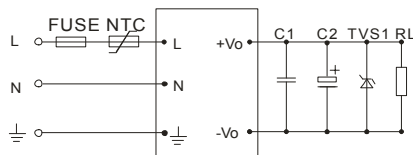


Figure 1

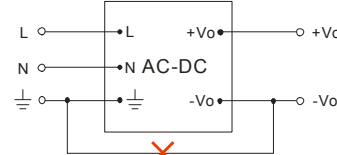


Figure 2:Note: This application is not supported for this series.

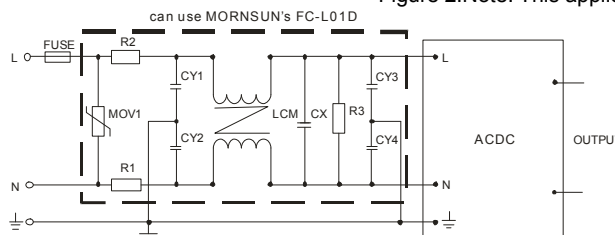


Figure 3: Recommended circuit for application require higher EMC standard (external circuit output same as above)

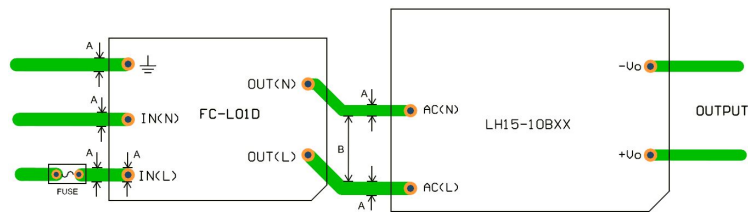


Figure 4: Recommended circuit for application require higher EMC standard
Safety and recommend wiring: $A \geq 3\text{mm}$, $B \geq 9\text{mm}$.

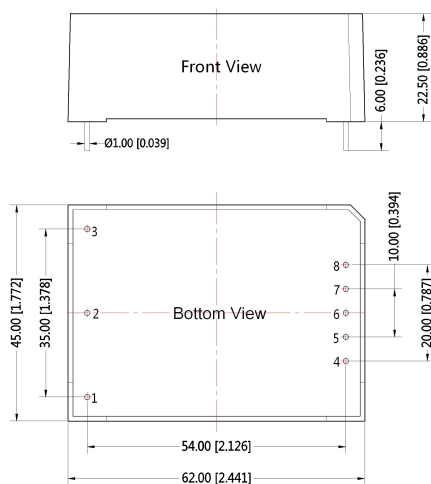
EXTERNAL CAPACITORS TYPICAL VALUE(Unit: μF)		
MODEL	C2	TVS1
LH15-10BX5	680	SMBJ7.0A

Note:

- Output filtering capacitors C2 are 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. C1 are use to filter high frequency noise, suggest choose $1\mu\text{F}$. TVS is recommended component to protect post-circuits (if converter fails). External input NTC is recommended to use 5D-9.
- For standard EMC requirement, please refer to figure 1, if higher EMC requirement, please refer to figure 3.
MOV: Varistor, model: 561KD14, it is used to protect the device under surge;
R1,R2: $2\Omega/3\text{W}$ Winding resistor;
R3: $1\text{M}\Omega/2\text{W}$;
CY1,CY2,CY3,CY4: $1000\text{pF}/400\text{VAC}$;
CX: $0.22\mu\text{F}/275\text{VAC}$;
LCM: $10\text{mH}-30\text{mH}$, recommended to use MORN SUN's FL2D-Z5-103;
FC-L01D: MORN SUN's $2\text{KV}/4\text{KV}$ Surge protector.
- FUSE: It must be connected to FUSE, recommended to use $2\text{A}/250\text{V}$.

PCB MOUNTING WITH SOLDER PINS

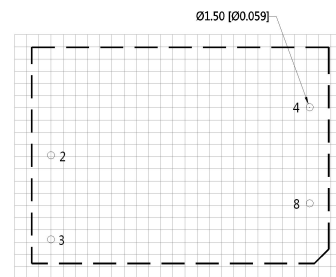
MECHANICAL DIMENSIONS



FOOTPRINT DETAILS	
Pin	Function
1	No Pin
2	AC(N)
3	AC(L)
4	-Vo
5	No Pin
6	No Pin
7	No Pin
8	+Vo

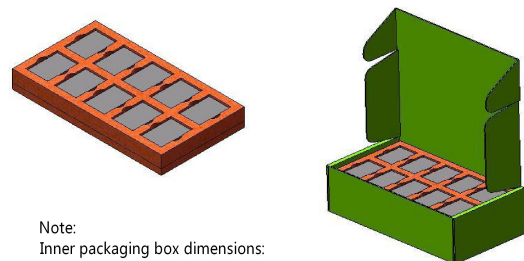
Note:
Unit :mm[inch]
Pin diameter tolerances : $\pm 0.1\text{mm}[\pm 0.004\text{inch}]$
General tolerances: $\pm 0.5\text{mm}[\pm 0.020\text{inch}]$

RECOMMENDED FOOTPRINT



Note: Grid 2.54*2.54mm

PACKAGE DIAGRAM



Note:
Inner packaging box dimensions:
L*W*H=355*192*93mm
Packaging quantity: 20pcs
Outer packaging box dimensions:
L*W*H=405*380*305mm
Packaging quantity: 120pcs

MORN SUN Science & Technology Co.,Ltd.

Address: No. 5, Kehui St. 1, Kehui development center, Science Ave., Guangzhou Science City, Luogang district, Guangzhou, P.R.China.

Tel: 86-20-38601850

Fax: 86-20-38601272

[Http://www.mornsun-power.com](http://www.mornsun-power.com)