MORNSUN®

LH10-10B05-RU

10W，AC-DC CONVERTER

LH10-10B05-RU---- 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, and widely used in industrial, office and civil applications. For harsh EMC environment, this series of products must use the refered application circuit.

RoHS

FEATURES

1. Universal Input :85 ~ 264VAC,50/60Hz
2. Regulated output, low ripple and noise
3. Over-current, short circuit and over-voltage protection
4. Three years warranty
5. Mounting:PCB mounting
6. Ultrathin height

PART NUMBER SYSTEM

LH10-10B05-RU

- Output Voltage
- Output Style
- Input Voltage
- Isolation Voltage
- Rated Power
- Package Style
- Product Series

SELECTION GUIDE

Model	Power	Output (Vo/Io)	Max. Capacitive Load (μF)	Ripple and Noise (Max.)	Efficiency (230VAC,Typ.)	Standby Power Consumption (Max.)
LH10-10B05-RU	10W	5V/2000mA	9000	100mV	76	0.5W

INPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	--	264	V
	DC Input	120	--	370	
Input Frequency		47	--	63	Hz
Input Current	110VAC	--	--	0.26	A
	230VAC	--	--	0.16	
Inrush Current	110VAC	--	10	--	
	230VAC	--	20	--	

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy		--	±2	--	%
Line Regulation		--	±0.5	--	
Load Regulation		--	±1	--	
Ripple& Noise(p-p)	20MHz bandwidth	--	50	100	mV
Min. Load		0	--	--	%
Hold-up Time	110VAC	--	16	--	ms
	230VAC	--	80	--	
Over Current Protection		≥110			%
Over Voltage Protection		--	--	7.5	V
Short Circuit Protection		Continuous, and auto recovery			

COMMON SPECIFICATIONS

Item	Test Conditions	Min.	Typ.	Max.	Unit
Operating Temperature		-40	--	+70	℃
Storage Temperature		-40	--	+105	
Max. Case Temperature		--	--	90	
Storage Humidity		--	--	95	%RH

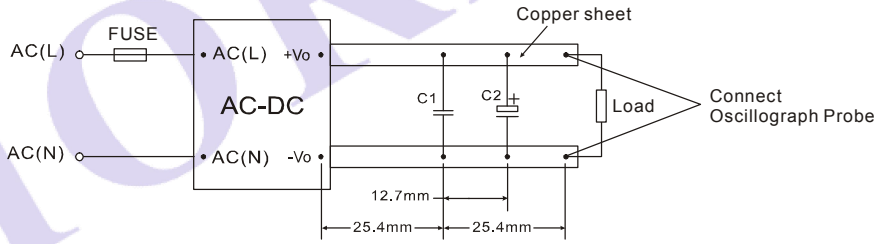
Temperature coefficient			--	--	0.02	%/℃
Power derating	-40℃~-10℃		2	--	--	
	+55℃~+70℃		3.75	--	--	
Isolation Resistance			100	--	--	MΩ
Isolation Voltage	Input-Output	Tested for 1 minute	3000	--	--	VAC
Switching Frequency			--	65	--	kHz
Weight			--	73	--	g
Safety Class			CLASS Ⅰ			
Safety standards			UL60950/EN60950/IEC60950			
Hot swap			Forbid			
Case Material Grade			UL 94V-0			
Install			PCB			
Cooling			Free air convection			
MTBF			＞300,000 h @ 25℃			

Note: 1. Ripple and Noise were measured by the method of parallel lines measure;
2. All date in the datasheet are measured according to nominal input voltage, rated output load, TA=25℃, humidity<75%, 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.

EMC SPECIFICATIONS

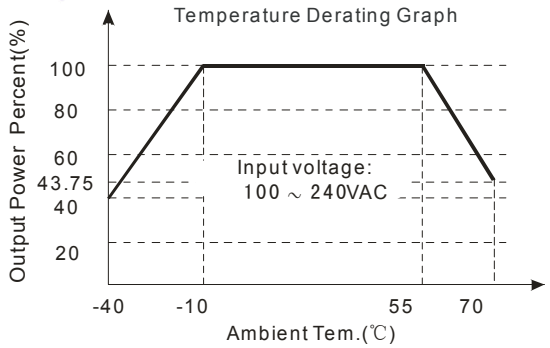
EMI	CE	CISPR22/EN55022, CLASS B(without external circuit)	
	RE	CISPR22/EN55022, CLASS B(without external circuit)	
EMS	ESD	IEC/EN61000-4-2 Contact ±6KV / Air ±8KV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4 ±2KV (without external circuit)	perf. Criteria B
		IEC/EN61000-4-4 ±4KV (Recommended Circuit Refer to Figure 3)	perf. Criteria B
	Surge	IEC/EN61000-4-5 ±1KV/±2KV (without external circuit)	perf. Criteria B
		IEC/EN61000-4-5 ±2KV/±4KV (Recommended Circuit Refer to Figure 3)	

PARALLEL LINES MEASURE

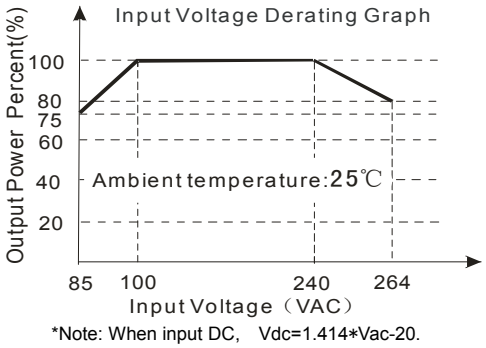


C1: 1μF (ceramic capacitor) C2: 10μF (electrolytic capacitor)

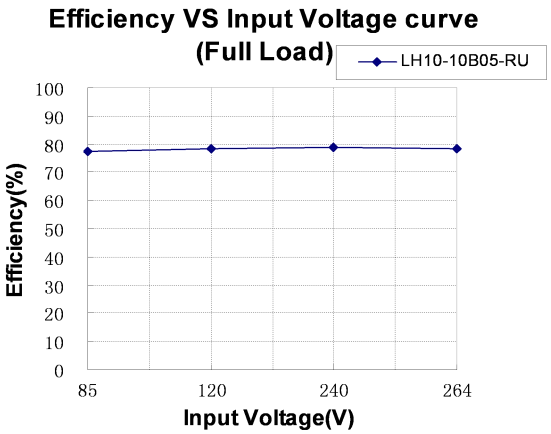
PRODUCT TYPICAL CURVE

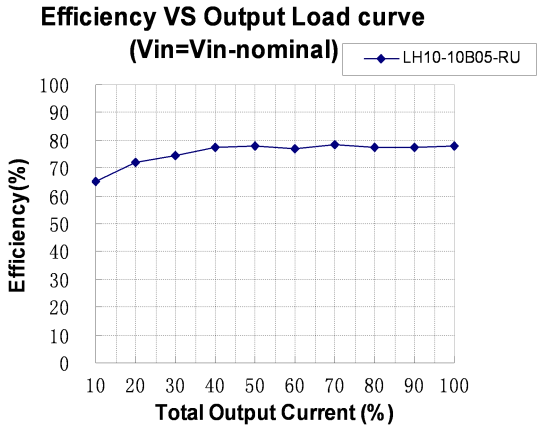


Note: When input 85~100VAC/240~264VAC, it need to be voltage derated on basis of temperature derating.

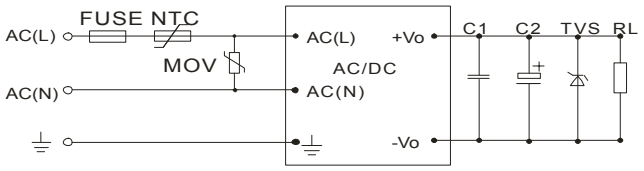


*Note: When input DC, Vdc=1.414*Vac-20.

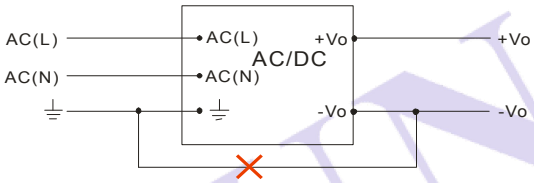




TYPICAL APPLICATIONS

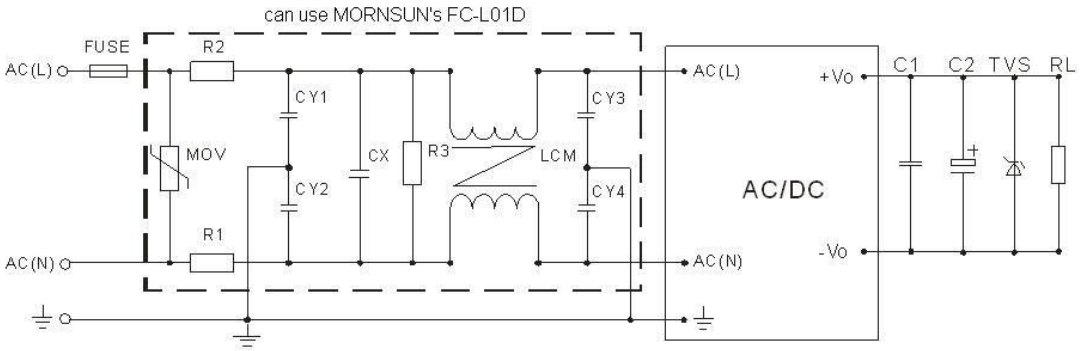


(Figure 1): LH10-10B05-RU Typical application circuit



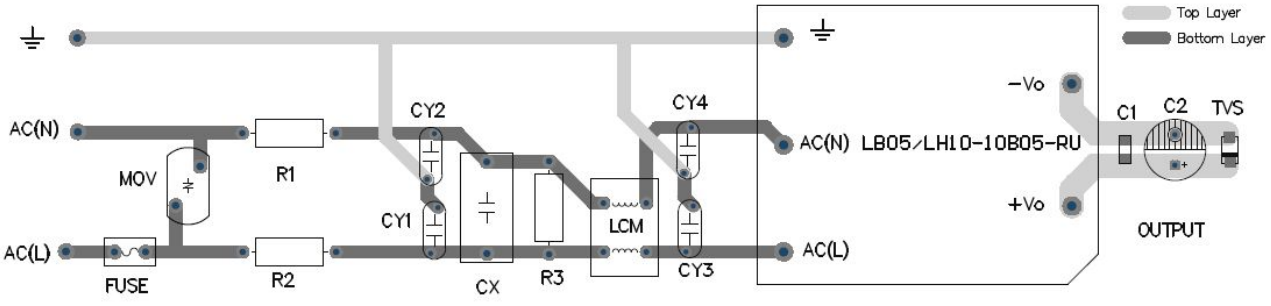
(Figure 2): This application is not available for this series.
Note: If you have such application, please consult to our FAE department.

EMC RECOMMENDED CIRCUIT



(Figure 3):Recommended circuit for applications which require higher EMC standard (external circuit output is the same as figure 1)

EMC RECOMMENDED CIRCUIT PCB LAYOUT



(figure 4): EMC application circuit PCB layout
Safety and recommend wiring: line-width ≥3mm, line-line distance≥6mm, line- ground distance≥6mm

EXTERNAL CIRCUIT PARAMETERS			
Model	C1	C2	TVS
LH10-10B05-RU	1μF	330μF	SMBJ7.0A

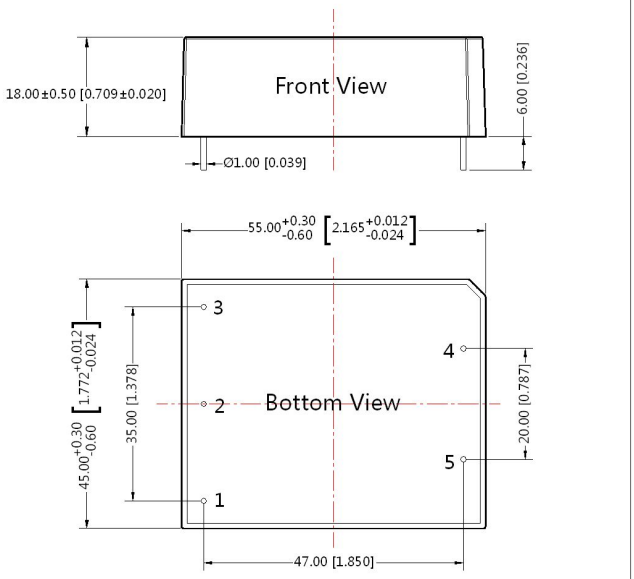
Note:

1. Output filtering capacitors C2 is electrolytic capacitors, It is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current c capacitor please refer to manufacture's datasheet. Voltage derating of capacitor should be 80% or above. C1 is use to filter high frequency noise. TVS is recommende component to protect post-circuits (if converter fails).
2. For standard EMC requirement, please refer to figure 1.If higher EMC requirement ,please refer to figure 3, recommended parameters are shown in the table below.

Recommend Parameter For Higher EMC Standard Circuit	
Components	Recommend Parameter
MOV	S14K350
CY1, CY2, CY3, CY4	1nF/400VAC
CX	0.22μF/275VAC
R1, R2	2Ω/3W Winding resistor
R3	1MΩ/2W
LCM	10mH, recommended to use MORNSUN's FL2D-Z5-103
NTC	5D-9
FC-L01D	2KV/4KV Surge protector
FUSE	2A/250V, slow blow, it must be connected to FUSE

OUTLINE DIMENSIONS,RECOMMENDED FOOTPRINT&PACKAGING

MECHANICAL DIMENSIONS

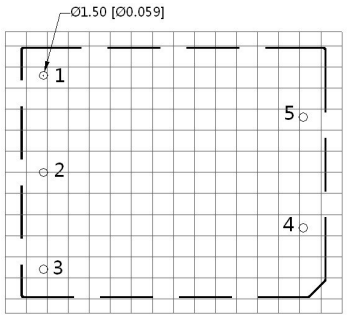


PIN CONNECTION	
Pin	Function
1	⏚
2	AC(N)
3	AC(L)
4	+Vo
5	-Vo

Note:
Unit:mm[inch]
Pin diameter tolerances:±0.10[±0.004]
Pin distance tolerances:±1.00[±0.039]
General tolerances:±0.50[±0.020]

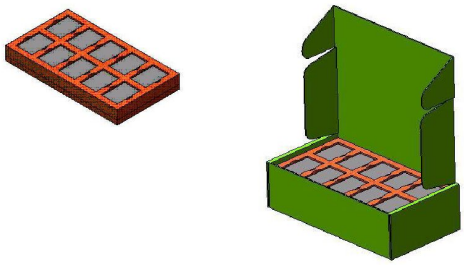
THIRD ANGLE PROJECTION

RECOMMENDED FOOTPRINT DETAILS



Note : grid : 2.54*2.54mm

PACKAGE DIAGRAM



Note:
Unit:mm[inch]
Inner carton:L*W*H=355*192*93
Packaging quantity:20pcs
Outer carton:L*W*H=405*380*305
Packaging quantity:120pcs

Note: Because without lower cover, the undersurface of product may be not smooth and flat, and may have other un-beautiful phenomenon. But this does not affect th normal performance and reliability of products.

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