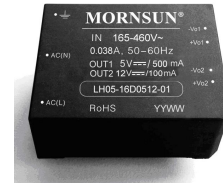


## LH05-16D0512-01

### PRODUCT FEATURES

1. Universal Input :165~460VAC, 50/60Hz
2. AC and DC all in one (input from the same terminal)
3. Low ripple and noise
4. Overload protection and short circuit protection
5. High efficiency, High power density
6. Low loss, green power
7. Industrial level specifications
8. For harsh EMC environment, this series of products must use the referred application circuit.



### SELECTION GUIDE

Model	Package	Output Power	Output Voltage (Vo1/Io1)	Output Voltage (Vo2/Io2)	Efficiency (Typ.)
LH05-16D0512-01	55X45X21.0mm	3.7W	5.0V/0.5A	12.0V/0.1A	70%

### INPUT SPECIFICATIONS

Input Voltage Range		165~460VAC
Input Frequency		47~63Hz
Input Current		38mA (277VAC )
Recommended External Input Fuse		3.15A/250V

### OUTPUT SPECIFICATIONS

Voltage Accuracy Vo1	(balanced load)	±2% (main output)	
Voltage Accuracy Vo2		±10% (supplement output)	
Input variation Vo1		±0.5% (main output)	
Input variation Vo2		±1.5% (supplement output)	
Load variation Vo1		±3%(main output)	
Load variation Vo2		±5%(supplement output)	
Minimum load		10%	
Ripple & noise(p-p)	(20MHz Bandwidth)	100mV (max) (main output)	150mV (max) (supplement output)
Short circuit protection	Continuous, and auto resume		
Over current protection	≥110%Io		

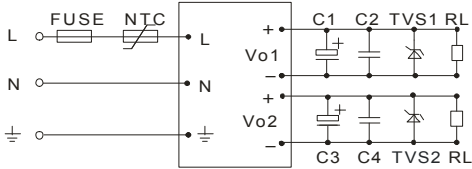
Note :

- 1.Start voltage(min) :150VAC(When the input voltage is under 150VAC, model can't work).
- 2.Ripple and Noise were measured by the method of parallel lines;
3. All date in the datasheet are measured according to nominal input voltage, rated output load, TA=25°C, humidity<75%, unless otherwise specified.

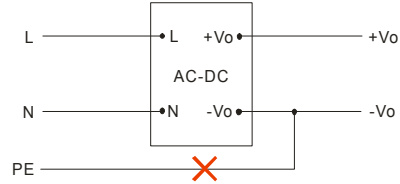
### COMMON SPECIFICATIONS

Temperature Specifications	Operating Temperature	-40°C~+70°C		
	Temperature Power derating	2.00%/°C (under -10°C), 3.75%/°C (above 55°C)		
	Storage Temperature	-40°C~+105°C		
		+90°C(max)		
Isolation Voltage	Vin -Out	3000VAC/1Min		
	Out - Out	1000VDC/1Min		
EMC	EMI	CE	CISPR22/EN55022, CLASS A (without external circuit ) CLASS B (with typical applications Figure 3)	
		RE	CISPR22/EN55022, CLASS A (without external circuit ) CLASS B (with typical applications Figure 3)	
	EMS	ESD	IEC/EN 61000-4-2 Contact ±6KV/ Air ±8KV	perf. Criteria B
		EFT	IEC/EN 61000-4-4 ±4KV(with typical applications Figure 3)	perf. Criteria B
		Surge	IEC/EN 61000-4-5 ±2KV/±4KV(with typical applications Figure 3)	perf. Criteria B
MTBF		>300,000h @25°C		

## TYPICAL APPLICATIONS

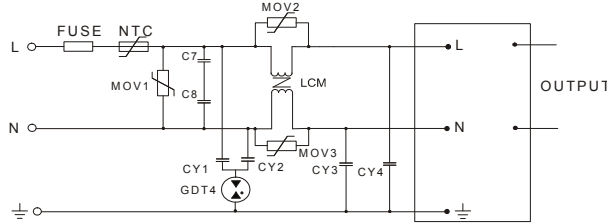


(Figure 1) LH05-16D0512-01

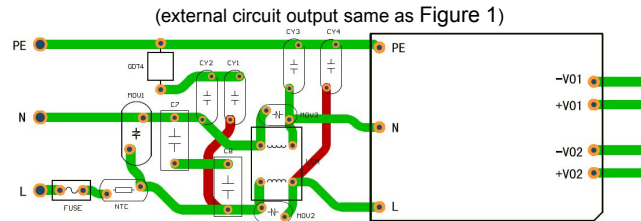


Note: This application is not supported for this series.

(Figure 2) LH05-16D0512-01



(Figure 3) LH05-16D0512-01 series Recommended circuit for application require higher EMC standard



(Figure 4) EMC application circuit PCB layout

Safety and recommend wiring: linewidth  $\geq 3\text{mm}$ , line-line distance  $\geq 6\text{mm}$ , line-ground distance  $\geq 6\text{mm}$

### EXTERNAL CAPACITORS TYPICAL VALUE

MODEL	C1	C2	C3	C4	TVS1	TVS2
LH05-16D0512-01	120 $\mu\text{F}$	0.1 $\mu\text{F}$	22 $\mu\text{F}$	0.1 $\mu\text{F}$	SMBJ7.0A	SMBJ20A

#### Note:

- C2 and C4 are ceramic capacitors, it is used to filter high frequency noise. Output filtering capacitors C1 and C3 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. TVS is a 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 or figure 2 if higher EMC requirement, please refer to figure 3

figure 3: MOV1: 821KD14;

MOV2、MOV3: 561KD07;

C7、C8: 0.1 $\mu\text{F}$ /275VAC;

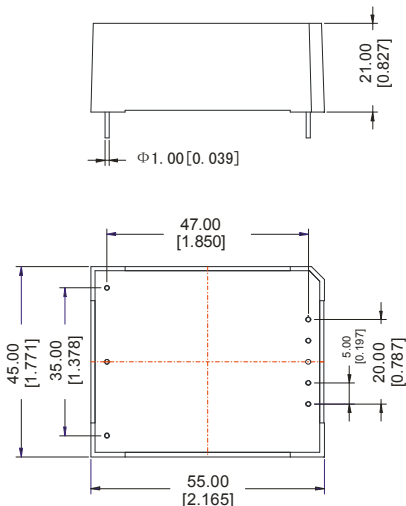
CY1、CY2、CY3、CY4: 2200pF/400VAC;

LCM: 2.2mH-15mH, can use MORNSUN's FL2D-Z5-103;

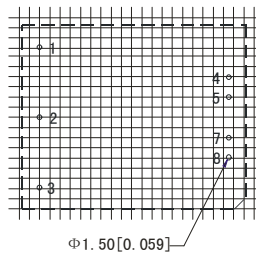
GDT4: B5G600L

FUSE: It must be connected to FUSE, LH05-16D0512-01 is recommended to use 3.15A/250V.

## OUTLINE DIMENSIONS, RECOMMENDED FOOTPRINT & PACKAGING



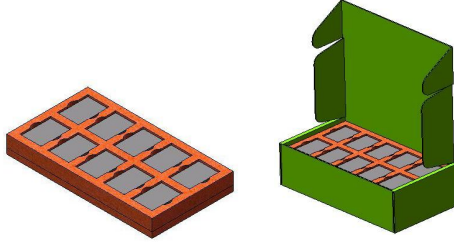
Note:  
Unit:mm[inch]  
Pin diameter tolerances: $\pm 0.10\text{mm}$  [ $\pm 0.004\text{inch}$ ]  
General tolerances: $\pm 0.50\text{mm}$  [ $\pm 0.020\text{inch}$ ]



Note: grid 2.54\*2.54mm.

FOOTPRINT DETAILS	
PIN	FUNCTION
1	
2	AC(N)
3	AC(L)
4	-Vo1
5	+Vo1
6	No Pin
7	-Vo2
8	+Vo2

## PACKAGE DIAGRAM



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

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