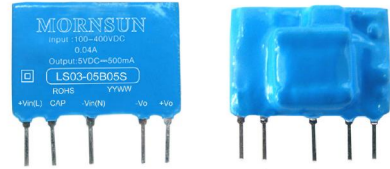


## LS03 Series

### 3W, HIGH VOLTAGE DC-DC(AC-DC) CONVERTER

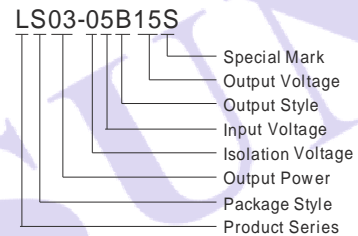
LS03 Series ----- are high efficiency green power modules with miniature packaging provided by Mornsun. The features of this series are: wide input voltage, DC and AC all in one, high efficiency, high reliability, low loss, safety isolation etc. They are widely used in industrial, office and civil equipments, as well as applications where no special requirement for EMC performance. It is recommended to add EMI suppression circuit or take measure to shield when there is strict requirement for EMC performance.



### PRODUCT FEATURES

1. Wide input voltage: 100 ~ 400VDC(85 ~ 264VAC)
2. Over temperature protection and short circuit protection
3. High efficiency, high density
4. Low loss, green power
5. Multiple models available
6. Industrial level specifications

### MODEL SELECTION



### PRODUCT PROGRAM

Model	Package	Power	Output (Vo/Io)	Ripple and Noise (typ.)	Efficiency (%) (typ.)
LS03-05B03S	35.0X22.5X10.5mm	1.65W	3.3V/500mA	50mV	70
LS03-05B05S		2.5W	5V/500mA		70
LS03-05B09S		9V/330mA	75		
LS03-05B12S		3W	12V/250mA	60mV	78
LS03-05B15S		15V/200mA	75mV	78	
LS03-05B24S		24V/125mA	120mV	78	

### INPUT SPECIFICATIONS

Input voltage range	100~400VDC(85~264VAC)
Input current	40mA(typ)
Leakage current	None
External input fuse (recommended)	0.5A/250V

Note: External electrolytic capacitor are required to models when AC input, more details refer to typical applications.

### OUTPUT SPECIFICATIONS

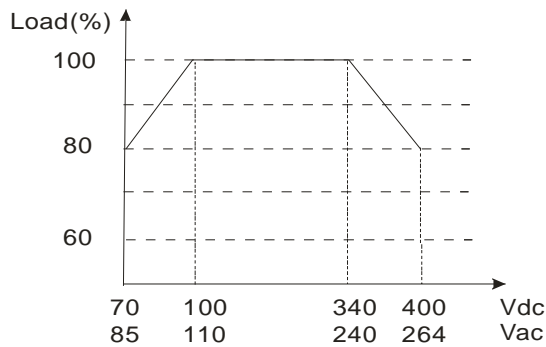
Voltage set accuracy		±2%	
Input variation		±0.5% (typ)	
Load variation (10%~100%)		±1% (typ)	
Ripple & noise(p-p) (20MHz Bandwidth)	3.3 /5/9VDC models 12VDC models 15VDC models 24VDC models	50mV(typ) 60mV(typ) 75mV(typ) 120mV(typ)	100mV( max) 120mV( max) 150mV(max) 240mV( max)
Short circuit protection		Continuous, automatic resume	
Over temperature protection		150°C (max)	

Note: Ripple and Noise were measured by the method of anear measure (more details refer to the anear measure).

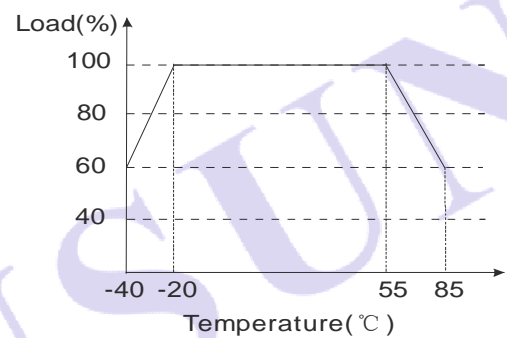
## COMMON SPECIFICATIONS

Temperature ranges	Operating:	-40°C ~ +85°C
	Power derating (above 55°C)	1.33%/°C
	Storage	-40°C ~ +105°C
	Case temperature	+90°C (max)
Humidity		85%(max)
Temperature coefficient		0.02%/°C
Switching frequency		100kHz(typ)
I/O-isolation voltage		2000VAC/1Min
Case material		UL94V-0
Install		PCB
MTBF		>300,000h @25°C

## INPUT VOLTAGE VS LOAD

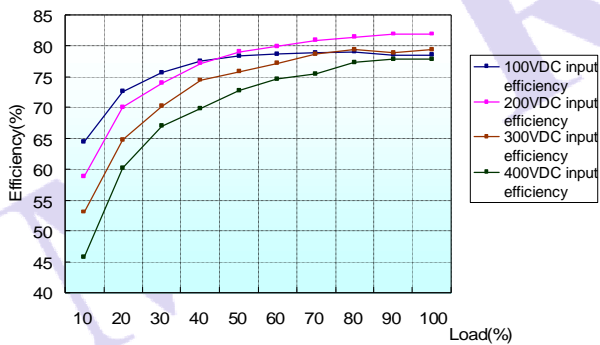


## TEMPERATURE VS LOAD

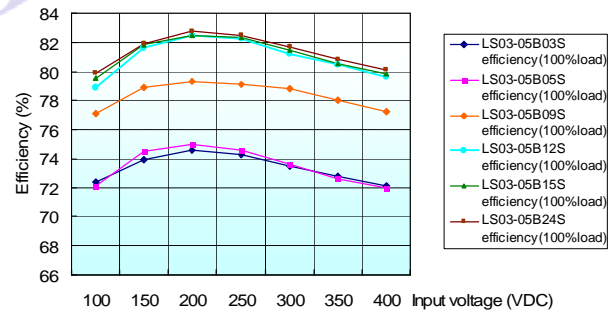


## TYPICAL EFFICIENCY CURVE

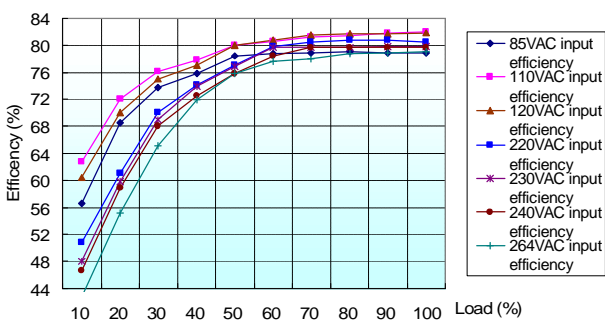
LS03 DC input efficiency cure



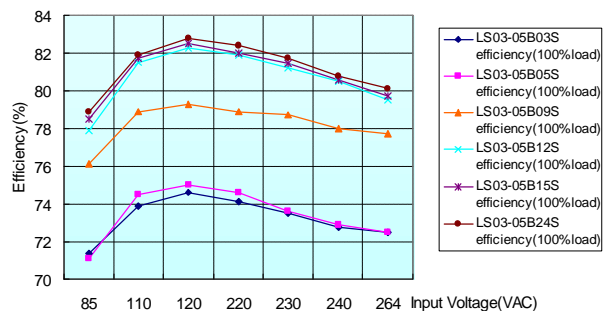
LS03 DC input rated load efficiency cure



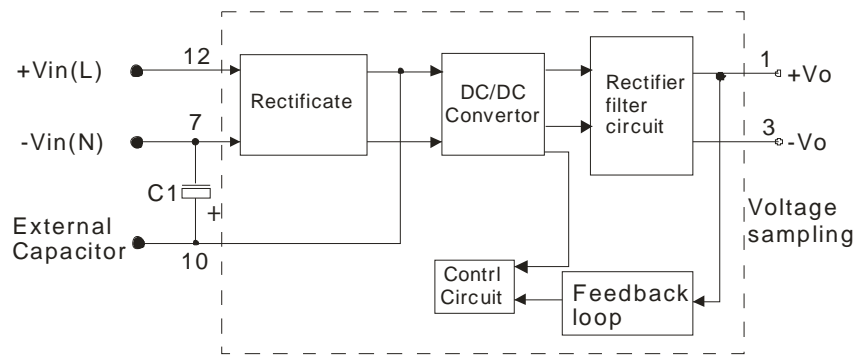
LS03 AC input efficiency cure



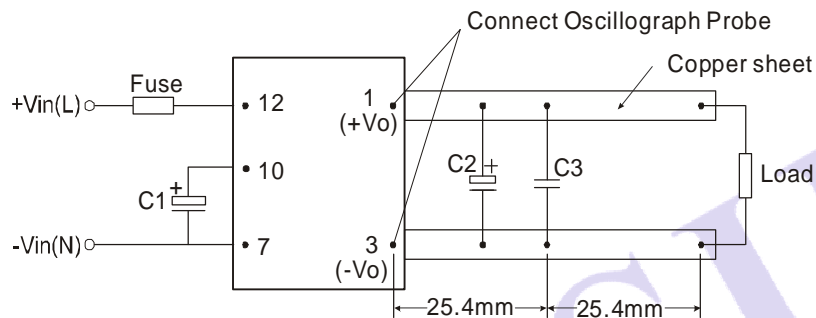
LS03 AC input rated load efficiency cure



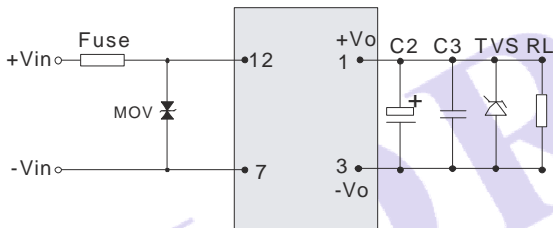
## STRUCTURE FIGURE



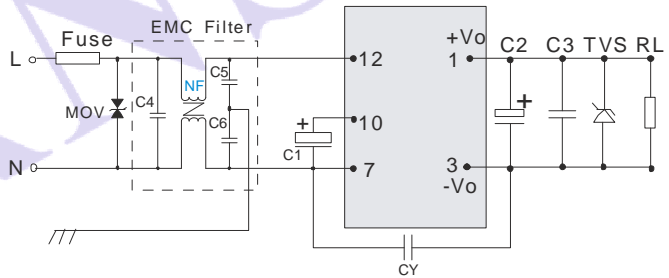
## ANEAR MEASURE



## TYPICAL APPLICATIONS



LS03 DC input typical application



LS03 AC input typical application

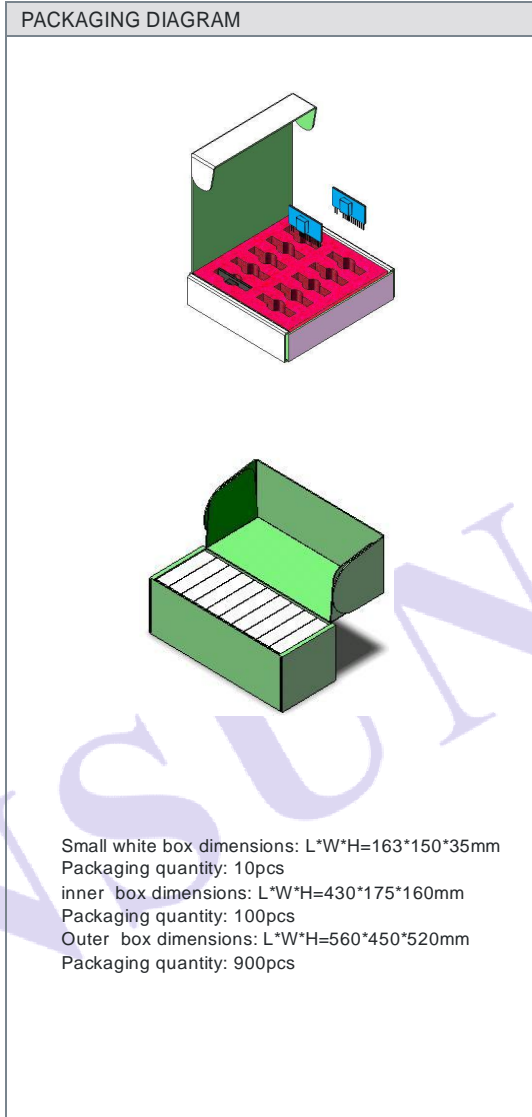
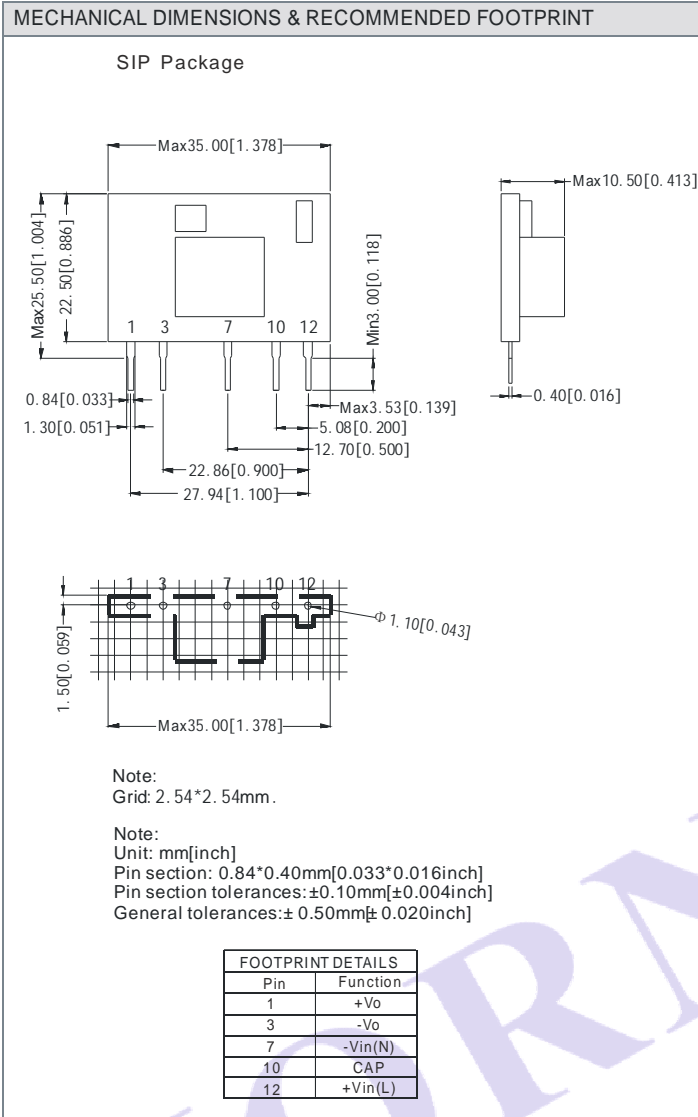
## EXTERNAL CAPACITORS TYPICAL VALUE

Output Voltage	C1	C2	C3	FUSE	TVS
3.3V	10 $\mu$ F/400V	150 $\mu$ F/25V	0.1 $\mu$ F/50V (Ceramic Capacitor)	0.5A/250V	P4KE6.8A
5V					P4KE12A
9V					P4KE20A
12V		100 $\mu$ F/35V			P4KE33A
15V					
24V					

### Note:

- Filtering capacitors C1 is electrolytic capacitor (which is required when AC input), C1 is used in AC input, when input voltage is below 100VAC, and the value of C1 is 22 $\mu$ F/400V. output filtering capacitor C2(which is required when AC input or DC input) 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. C3 is ceramic capacitor, it is used to filter high frequency noise. TVS is a recommended component to protect post-circuits (if converter fails).
- If EMC performance is required, recommended to add "EMC filter" at the input end.  
C4: X capacitor, recommended parameter: 0.1 $\mu$ F/275V  
C5,C6: Y capacitor, recommended parameter: 220pF/400V  
CY: Y capacitor, recommended parameter: 102K/400V  
NF: Common-mode choke, recommended parameter: 10mH-30mH
- MOV: Voltage dependent resistor, model 471KD07. It is used to protect converter in lightning strike and surge.

# OUTLINE DIMENSIONS & FOOTPRINT DETAILS



Note:

1. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. In this datasheet, all the test methods of indications are based on corporate standards.

**MORNSUN 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: 86-20-28203030

Fax:86-20-28203068

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