

MORNSUN®

LS03-15B12SR2K

FEATURES

1. Wide input voltage:100 ~ 400VDC(85 ~ 264VAC)
2. Over current protection and short circuit protection
3. High efficiency, high density
4. Low loss, green power
5. Ultra-Miniature package



SELECTION GUIDE

Model	Package (Typ.)	Power	Output (Vo/Io)	Efficiency (%) (Typ.)
LS03-15B12SR2K	43.0*19.0*11mm	3W	12V/250mA	78

INPUT SPECIFICATIONS

Input voltage range	100~400VDC(85~264VAC)		
Input current	120mA (Max)		
Inrush current	40A		
External input fuse (recommended)	1A/250V	Slow blow	

OUTPUT SPECIFICATIONS

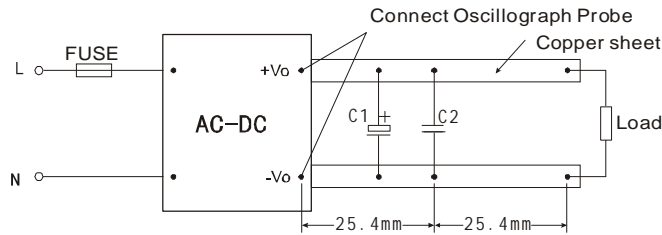
Voltage set accuracy	-20°C ~+55°C	±5%	
Input variation	-40°C ~+85°C	±8%	
Input variation		±1.5% (Typ.)	
Load variation (10%~100%)		±2.5% (Typ.)	
Ripple & noise(p-p) (20MHz Bandwidth)	(External Circuit Refer to Figure 1)	100mV(Typ.)	150mV(Max.)
	(External Circuit Refer to Figure 2)	50mV(Typ.)	100mV(Max.)
Short circuit protection	Continuous, automatic resume		
Over temperature protection	No		

COMMON SPECIFICATIONS

Temperature ranges	Operating	-40°C ~+85°C			
	Power derating	(55~85°C)	1.33%/ °C		
		(-40°C~20°C)	2%/ °C		
	Storage	-40°C ~+105°C			
	The Max. Case Temperature	+90°C (Max.)			
Humidity		85% (Max.)			
Temperature coefficient		0.15%/°C			
Switching frequency		Variational Frequency 50KHz (Max.)			
I/O-isolation voltage	Input and Output	3000VAC/1Min			
EMC	EMI	CE	CISPR22/EN55022, CLASS A (with typical application Circuit)		
		RE	CISPR22/EN55022, CLASS A (with typical application Circuit)		
	EMS	ESD	IEC/EN61000-4-2	Contact ±4KV	perf. Criteria B
		EFT	IEC/EN61000-4-4	±2KV	perf. Criteria B (with typical application Circuit)
		Surge	IEC/EN61000-4-5	±1KV/±2KV	perf. Criteria B (with typical application Circuit)
		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	

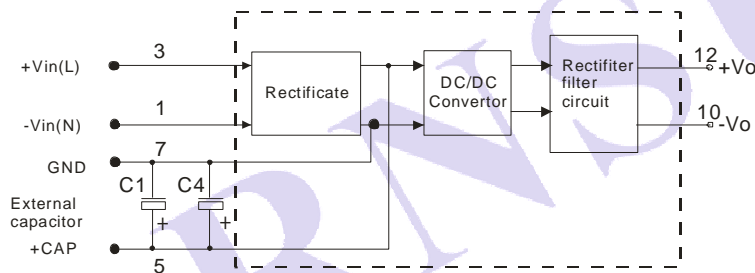
Case material	UL94V-0
Install	PCB
MTBF	>300,000h @25°C
Note:	
1. External electrolytic capacitor are required to models when AC input, more details refer to typical applications.	
2. Ripple and Noise were measured by the method of anear measure (more details refer to the anear measure).	
3. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.	
4. In this datasheet, all the test methods of indications are based on corporate standards.	
5. Recommended applications layout is as shown in the Recommend layout. Module required dispensing fixed after assembled, dispensing advice position refer to recommended layout .	
6. It does not affect products' performance and reliability,that there are part of the PCB edge and resin bare out near the edge of Module pin,because of the less envelope of the PCB edge.	

ANEAR MEASURE

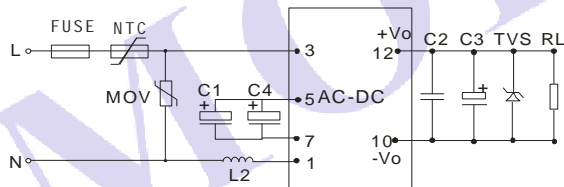


Note: C1: 1 μ F (Ceramic capacitor) C2: 10 μ F (Electrolytic capacitor).

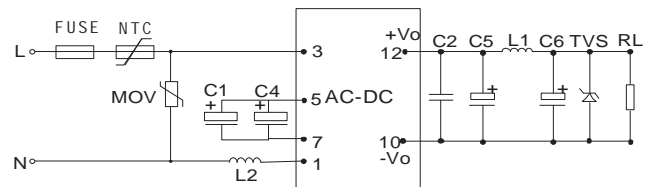
STRUCTURE FIGURE



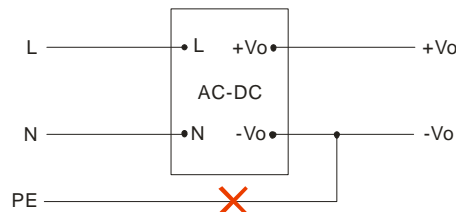
TYPICAL APPLICATIONS



(Figure 1): Typical Application Circuit



(Figure 2): Typical Application Circuit



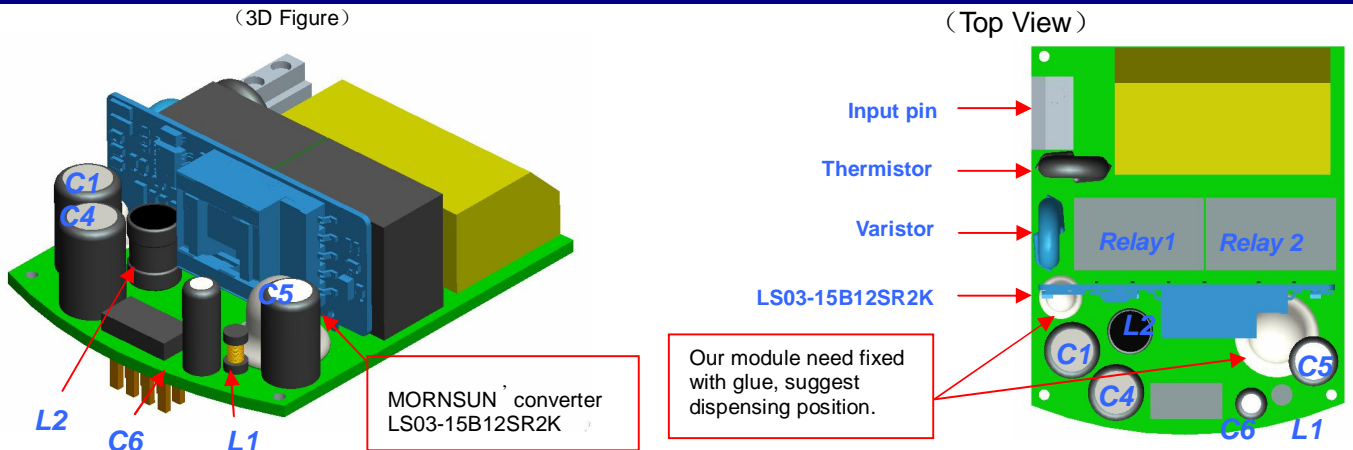
(Figure 3): Note: This application is not supported for this series.

EXTERNAL CAPACITORS TYPICAL VALUE								
C1、C4	C2	C3	FUSE	C5	C6	L1	L2	TVS
4.7 μ F/400V	1 μ F/50V (Ceramic capacitor)	150 μ F/35V	1A/250V	120 μ F/25V	47 μ F/25V	10 μ H	5 mH -10mH	SMBJ20A

Note:

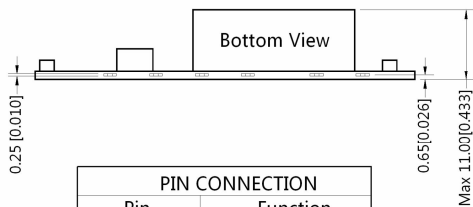
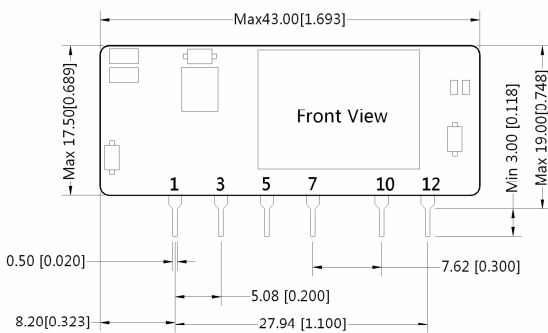
- C1, C4 : is filtering electrolytic capacitor (which is required), and the value of C1 is 4.7 μ F/400V. when input voltage is above 370VDC, and the value of C1 is 4.7 μ F/450V.
- Output filtering capacitor C3 of figure 1 or C5, C6 of figure 2 (which is required) is recommended to use high frequency and low impedance electrolytic capacitors. For capacitance and current of capacitor please refer to manufacturer's datasheet. Voltage derating of capacitor should be 80% or above. C2 is ceramic capacitor; it is used to filter high frequency noise. 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 typical application circuit, if higher EMC requirement ,please contact our technical person for more detail.MOV:Varistor, model: 471KD10, it is used to protect the device under surge.
- L2 is H inductor, must connected to 1pin of module.

RECOMMEND LAYOUT



OUTLINE DIMENSIONS & FOOTPRINT DETAILS

MECHANICAL DIMENSIONS



PIN CONNECTION	
Pin	Function
1	-Vin(N)
3	+Vin(L)
5	+CAP
7	GND
10	-Vo
12	+Vo

Note:

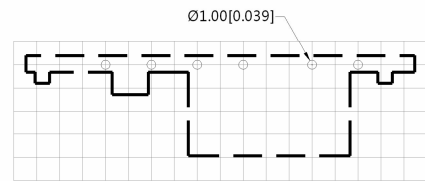
Unit :mm[inch]

Pin diameter tolerances :±0.1mm[±0.004inch]

General tolerances:±0.50mm[±0.020inch]

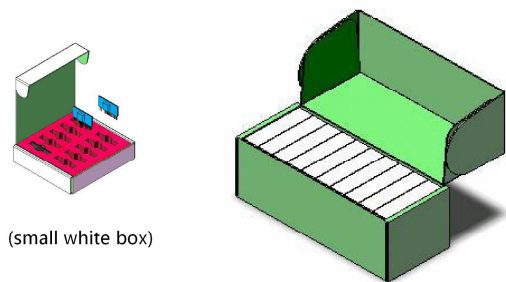
THIRD ANGLE PROJECTION

RECOMMENDED FOOTPRINT DETAILS



Note:Grid 2.54*2.54mm

PACKAGE DIAGRAM



Note:

Small white box dimensions: L*W*H=163*150*35mm

Packaging quantity: 10PCS

Inner carton dimensions: L*W*H=430*175*160mm

Packaging quantity : 100PCS

Outer carton dimensions : L*W*H=560*450*520mm

Packaging quantity: 900PCS

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