

# MORNSUN®

## Miniature All-rounder

### 3-10W Cost-effective AC/DC Converter

LSxx-13BxxR3



Less Layout  
Space



Controllable  
Cost



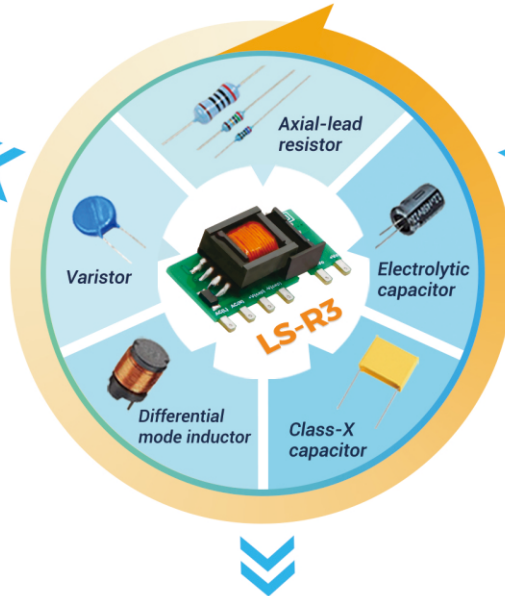
Reliable  
Performance

# Flexible Peripheral Designs for a Wide Range of Applications

Simplify design with flexible peripheral circuits, provides with 4 selectable temperature levels and optional EMC levels for a wide range of applications working in diverse environmental conditions.

## 4 Temperature levels

Class I	-5 to 45°C
Class II	-25 to 55°C
Class III	-40 to 70°C
Class IV	-40 to 85°C



## Optional EMC levels

### EMS(EFT&SURGE)

EFT:  $\pm 2\text{KV}$   
Surge: line to line  $\pm 1\text{KV}$   
EFT:  $\pm 4\text{KV}$   
Surge: line to line  $\pm 2\text{KV}$

### EMI

Class A  
Class B

## A Wide Range of Applications



IoT



Electric power



Smart household appliances



Instrument



Intelligent building



Industrial control



And more...

## Build Your Own Personalized Power Supply

### Instrument



Smart meters

### IoT



Intelligent switch

### New energy

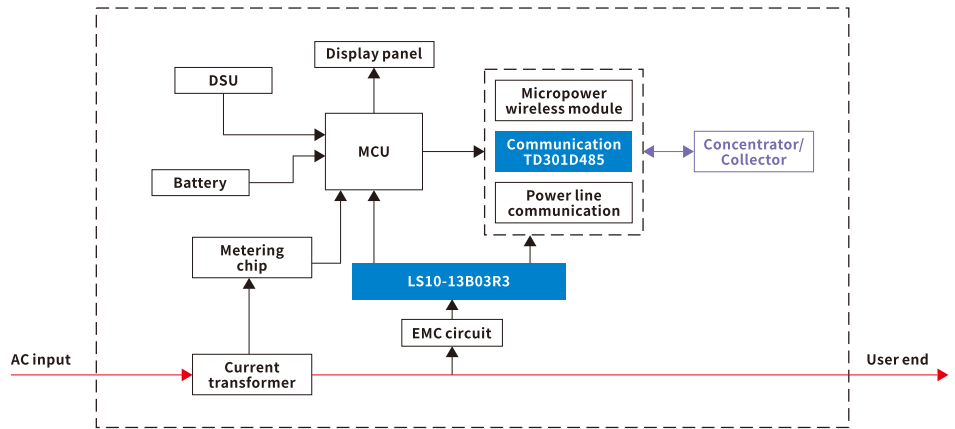


EV charging box

# Instrument Application Solution



Smart meters

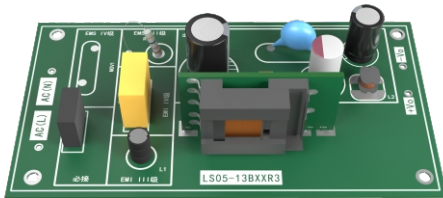


## Peripheral Design Recommendation

(Applicable for LS05-13B12R3, for the other models it requires changes in the specification of the peripheral components accordingly)

## IoT Application

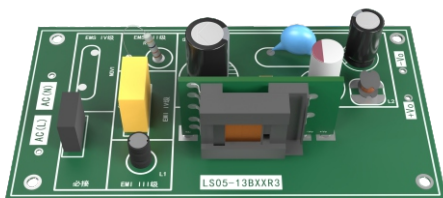
◀ Typical application: Intelligent Switch



EMI	Class B
EMS	EFT: ±2KV Surge: line to line ±1KV
Operating temperature	-25 to 55°C

	Recommended value
Electrolytic capacitor	10μF/450V
Differential mode inductor	1.2mH/Max: 4.0Ω/Min: 0.2A
X capacitor	0.1μF/310VAC
Y capacitor	1nF/400VAC
Wirewound Resistor	12Ω/3W
Fuse	1A/300V, slow-blow

## Smart Household Appliances



◀ Typical application: smart coffee maker

EMI	Class B
EMS	EFT: ±2KV Surge: line to line ±1KV
Operating temperature	-25 to 55°C

	Recommended value
Electrolytic capacitor	10μF/450V
Differential mode inductor	1.2mH/Max: 4.0Ω/Min: 0.2A
X capacitor	0.1μF/310VAC
Y capacitor	1nF/400VAC
Wirewound Resistor	12Ω/3W
Fuse	1A/300V, slow-blow

Note: Customer can DIY with double Y capacitors

## 3 Intelligent Building

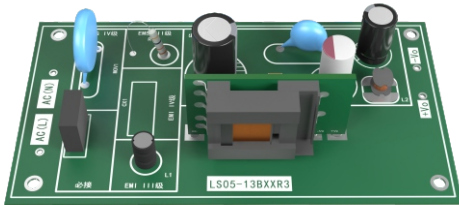


◀ Typical application: panel switch

EMI	Class B
EMS	EFT: ±2KV Surge: line to line ±1KV
Operating temperature	-25 to 55°C

	Recommended value
Electrolytic capacitor	10μF/450V
Differential mode inductor	1.2mH/Max: 4.0Ω/Min: 0.2A
X capacitor	0.1μF/310VAC
Y capacitor	1nF/400VAC
Wirewound Resistor	12Ω/3W
Fuse	1A/300V, slow-blow

## 4 Security

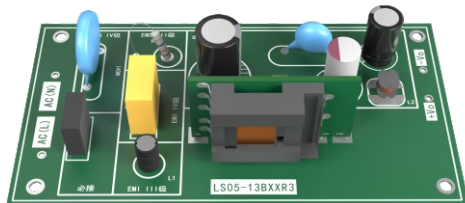


◀ Typical application: fire alarm device

EMI	Class A
EMS	EFT: ±4KV Surge: line to line ±2KV
Operating temperature	-25 to 55°C

	Recommended value
Electrolytic capacitor	10μF/450V
Differential mode inductor	4.7mH/Max: 15Ω/Min: 0.2A
Varistor	14D561K
Y capacitor	1nF/400VAC
Wirewound Resistor	12Ω/2W
Fuse	2A/300V, slow-blow

## 5 New Energy



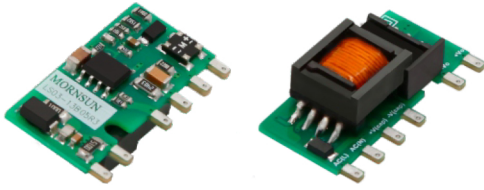
◀ Typical application: EV charging box

EMI	Class B
EMS	EFT: ±4KV Surge: line to line ±2KV
Operating temperature	-40 to 85°C

	Recommended value
Electrolytic capacitor	22μF/450V
Differential mode inductor	1.2mH/Max: 4.0Ω/Min: 0.2A
X capacitor	0.1μF/310VAC
Y capacitor	1nF/400VAC
Varistor	14D561K
Wirewound Resistor	12Ω/2W
Fuse	2A/300V, slow-blow



# Technical Specifications (LSXX-13BxxR3)



## Features

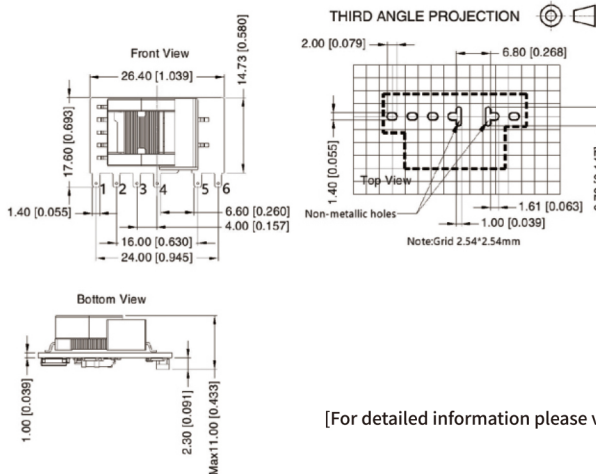
- Compact size: 26.4x14.73x11mm(5W)
- Wide input: 85-305VAC, accepting AC or DC input
- Operating temperature range: -40°C to +85°C
- No-load power consumption as low as 0.1W
- Output short circuit, over-current protection
- IEC/EN/UL62368 approval

## Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 230VAC (%)Typ.	Capacitive Load (μF) Max.
CE/UL/CB	LS03-13B03R3	3W	3.3V/600mA	67	820
	LS03-13B05R3		5V/600mA	72	680
	LS03-13B09R3		9V/333mA	76	470
	LS03-13B12R3		12V/250mA	77	470
	LS03-13B15R3		15V/200mA	78	330
	LS03-13B24R3		24V/125mA	80	200
CE/UL/CB	LS05-13B03R3	5W	3.3V/1000mA	69	2200
	LS05-13B05R3		5V/1000mA	76	1500
	LS05-13B09R3		9V/560mA	77	680
	LS05-13B12R3		12V/420mA	79	470
	LS05-13B15R3		15V/340mA	79	330
	LS05-13B24R3		24V/210mA	81	100
CE/UL/CB	LS10-13B03R3	10W	3.3V/2000mA	73	1500
	LS10-13B05R3		5V/2000mA	77	1500
	LS10-13B09R3		9V/1100mA	80	1000
	LS10-13B12R3		12V/830mA	82	680
	LS10-13B15R3		15V/670mA	82	470
	LS10-13B24R3		24V/420mA	83	330

Note: 1. The nominal output voltage refers to the voltage applied to the load terminal after adding external circuits.  
2. If the product is used in a severe vibration application, it needs to be glued and fixed.

## Dimensions (Below is for LS05-13BxxR3, for LS03/10-13BxxR3 please refer to the datasheet)



Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	+V(cap)
4	-V(cap)
5	-Vo
6	+Vo

Note:  
Unit: mm[inch]  
General tolerances: ±1.00[±0.039]  
The layout of the device is for reference only,  
please refer to the actual product

[For detailed information please visit [www.mornsun-power.com](http://www.mornsun-power.com) to download the product datasheet.]

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