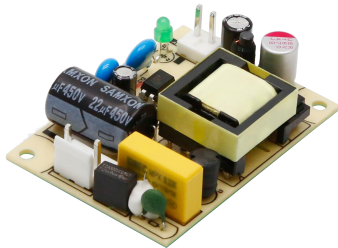


10W, AC-DC converter



**CE** **RoHS**  
EN62368-1

## FEATURES

- Universal 85-305VAC or 100-430VDC input voltage
- Operating ambient temperature range -25°C to +70°C
- Output short circuit, over-current & over-voltage protection
- High efficiency, high reliability
- Regulated output, low ripple & noise
- EMI performance meets CISPR32/EN55032 CLASS B
- 2 years warranty

LO10-13Bxx series is one of Mornsun's compact size power converter. It features universal AC input and at the same time accepts DC input voltage, low power consumption, high efficiency, high reliability, reinforced isolation. It offers good EMC performance compliant to IEC/EN61000-4 and CISPR32/EN55032 and meets UL/EN/IEC62368, EN/UL60335 standards. The converters are widely used in industrial, office and civil applications.

## Selection Guide

Certification	Part No.	Output Power	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
EN	LO10-13B03	6.6W	3.3V/2000mA	73	20000
	LO10-13B05	10W	5V/2000mA	78	12000
	LO10-13B09		9V/1100mA	79	3600
	LO10-13B12		12V/900mA	81	2000
	LO10-13B15		15V/700mA	81	1170
	LO10-13B24		24V/450mA	81	370

## Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	--	305	VAC
	DC input	100	--	430	VDC
Input Frequency		47	--	60	Hz
Input Current	115VAC	--	--	0.23	A
	230VAC	--	--	0.15	
Inrush Current	115VAC	--	20	--	
	230VAC	--	40	--	
Leakage current	305VAC	0.25mA RMS max.			
Hot Plug		Unavailable			

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	3.3V output	--	±3	--	%
	Other output	--	±2	--	
Line Regulation	Full load	--	±0.5	--	
Load Regulation	0%-100% load	--	±1	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	--	100	mV
Temperature Coefficient		--	--	±0.02	%/°C
Stand-by Power Consumption	3.3V/5V/9V	--	--	0.3	W
	12V/15V/24V	--	--	0.5	W
Short Circuit Protection		Hiccup, continuous, self-recovery			

Over-voltage Protection	3.3/5V output	≤7.5V	Output voltage clamp or hiccup		
	9V output	≤15V			
	12/15V output	≤20V			
	24V output	≤30V			
Over-current Protection		≥110%Io, self-recovery			
Minimum Load		0	--	--	%
Hold-up Time	115VAC input, Io=100%	--	8	--	
	230VAC input, Io=100%	--	75	--	

Note: \*The "Tip and barrel method" method is used for ripple and noise test, please refer to AC-DC Converter Application Notes for specific information.

### General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output Electric Strength Test for 1min., (leakage current <5mA)	3000	--	--	VAC
Operating Temperature		-25	--	+70	°C
Storage Temperature		-25	--	+85	
Storage Humidity		--	--	90	%RH
Altitude		--	--	2000	m
Power Derating	-25°C to -10°C	1	--	--	% / °C
	+50°C to +70°C	2.5	--	--	
	85VAC - 100VAC	1.67	--	--	% / VAC
	277VAC-305VAC	0.715	--	--	
Safety Standard		EN62368-1 (Report); Design refer to UL/IEC62368-1 & UL/EN60335-1			
Safety Class		CLASS II			
MTBF		MIL-HDBK-217F@25°C > 300,000 h			

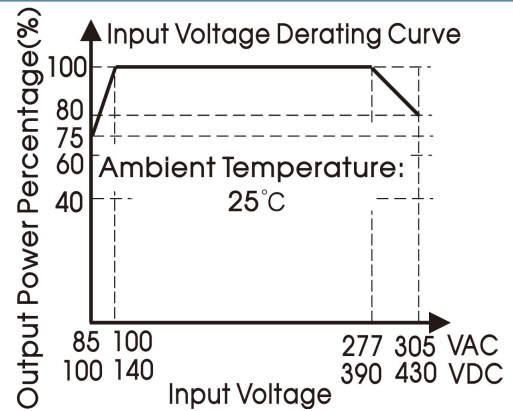
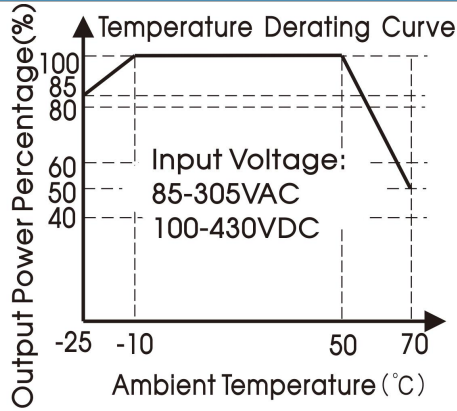
### Mechanical Specifications

Dimension	60.00 x 42.00 x 16.30 mm
Weight	34g (Typ.)
Cooling Method	Free air convection

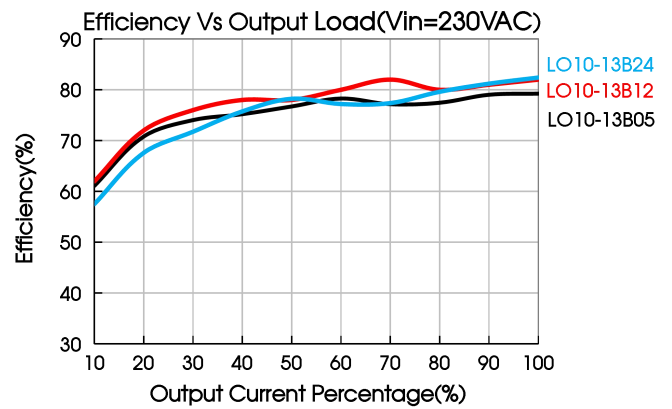
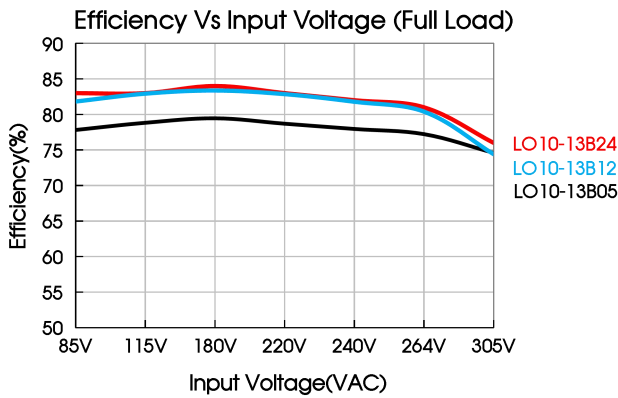
### Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m Perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV Perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±1KV Perf. Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s Perf. Criteria A
	Voltage dips, short interruptions and voltage variations Immunity	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods


Product Characteristic Curve

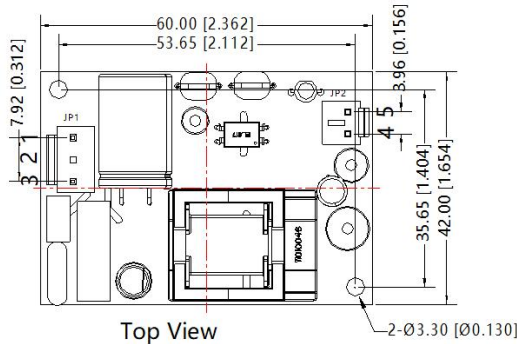


- Note:
- ① With an AC input voltage between 85-100VAC/277-305VAC and a DC input between 100-140VDC/390-430VDC the output power must be derated as per temperature derating curves;
  - ② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.

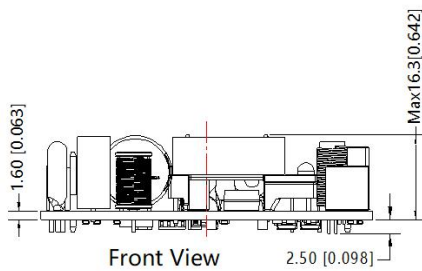


Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out			
Pin	Mark	Connector	Terminal
1	AC(L)	VH-3A or B2P3-VH or the same Spec.	VH-3Y or VHR-3N or the same Spec.
2	NoPin		
3	AC(N)		
4	+Vo	VH-2A or B2P-VH or the same Spec.	VH-2Y or VHR-2N or the same Spec.
5	-Vo		



Note:  
Unit: mm[inch]  
General tolerances:  $\pm 0.50[\pm 0.020]$   
In JP1 model: VH-3A, Recommend terminal: VH-3Y  
Out JP2 model: VH-2A, Recommend terminal: VH-2Y  
Mounting hole screwing torque: Max 0.4 N · m  
The layout of the device is for reference only, please refer to the actual product

Notes:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220091;
- If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of  $T_a=25\text{ }^\circ\text{C}$ , humidity<75% with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on our company corporate standards;
- The performance parameters of the product models listed in this manual are as above, but some parameters of non-standard model products may exceed the requirements mentioned above. Please contact our technicians directly for specific information;
- We can provide product customization service;
- Products are related to laws and regulations: see "Features" and "EMC";
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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