AC/DC 10W Open Frame Power Supply

LO10-13BxxS Series

MORNSUN®

RoHS

FEATURES

- Universal 85-305VAC or 100-430VDC input voltage
- Operating ambient temperature range -25℃ to +70℃
- Output short circuit, over-current & over-voltage protection
- High efficiency, high reliability
- Regulated output, low ripple & noise
- EMI performance meets CISPR32/EN55032 CLASS B
- Design refer to UL/EN/IEC62368, EN60335

LO10-13BxxS 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, EN60335 standards. The converters are widely used in industrial, office and civil applications.

Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
/	LO10-13B05S	10	5V/2.0A	77	12000
	LO10-13B12S		12V/0.9A	81	2000

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		--	±2	--	%
Line Regulation	Full load	--	±0.5	--	
Load Regulation	0%-100% load	--	±1	--	
Minimum Load		0	--	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	--	100	mV
Temperature Coefficient		--	±0.02	--	%/℃
Stand-by Power Consumption	5V	--	--	0.3	W
	12V	--	--	0.5	
Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-voltage Protection	5V	≤7.5V	Output voltage clamp or hiccup		
	12V	≤20V			
Over-current Protection		110% - 300% Io, Hiccup, self-recovery			
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
Insulation Resistance	Input - output	Test voltage: 500VDC		50	--	--	MΩ
Operating Temperature				-25	--	+70	℃
Storage Temperature				-25	--	+85	
Storage Humidity		Non-condensing		--	--	90	%RH
Altitude				--	--	2000	m
Output Power Derating		Operating temperature derating	-25℃ to -10℃	1.0	--	--	%/℃
			+50℃ to +70℃	2.5	--	--	
		Input voltage derating	85VAC - 100VAC	1.67	--	--	%/VAC
			277VAC-305VAC	0.715	--	--	
Safety Standard				Design refer to UL/EN/IEC62368-1, EN60335-1			
Safety Class				CLASS II			
MTBF		MIL-HDBK-217F@25℃		≥300,000 h			

Mechanical Specifications

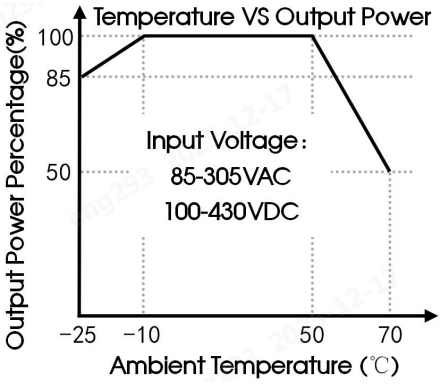
Dimension	60.00 x 42.00 x 18.80mm
Weight	27g (Typ.)
Cooling Method	Free air convection

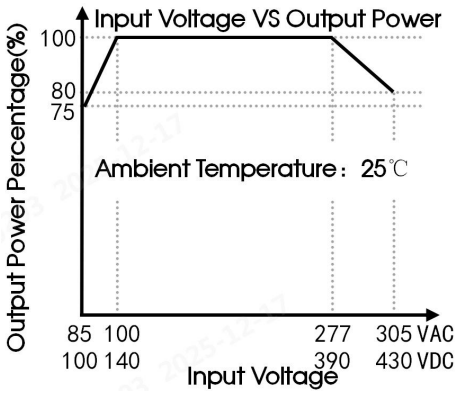
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±4KV	Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line ±1KV	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	PFMF	IEC/EN61000-4-8	30A/m	Perf. Criteria A
	Voltage Variations*	IEC/EN 61000-4-11	0% U_n, 0.5 cycle; 0° /45° /90° /135° /180° /225° /270° /315°	Perf. Criteria B
			0% U_n, 1 cycle; 70% U_n, 25/30 cycle (50/60Hz); Monophase: 0	
	Short interruptions*	IEC61000-4-11	0% U_n, 250/300 cycle (50/60Hz)	Perf. Criteria C

Note: *U_n Maximum input nominal voltage.

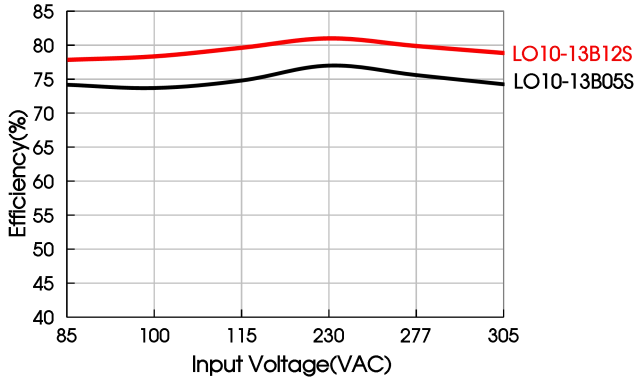
Product Characteristic Curve



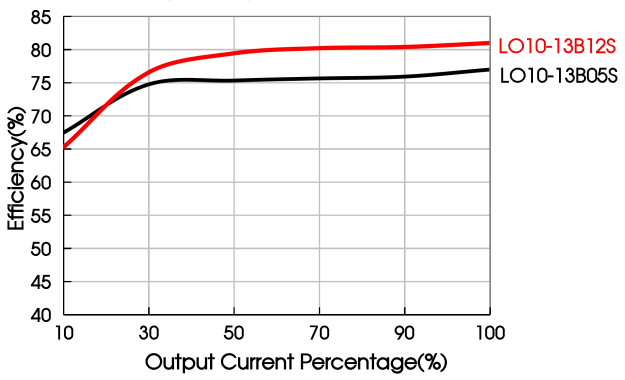


Note: 1.With an AC input voltage between 85-100VAC/277-305VAC and a DC input between 100-140VDC/390-430VDC the output power must be derated as per the temperature derating curves;
2.This product is suitable for applications using natural air cooling; for applications in closed environment please consult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

Efficiency Vs Input Voltage (Full Load)

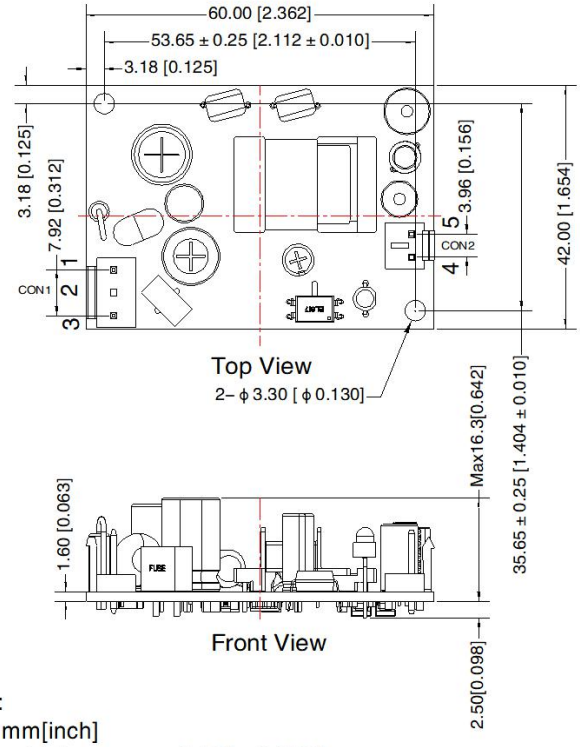


Efficiency Vs Output Load (Vin=230VAC)



Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Note:
Unit: mm[inch]
General tolerances: ± 0.50[± 0.020]
The layout of the device is for reference only, please refer to the actual product

Pin-Out				
Pin		Function	Connector	Terminal
CON1	1	AC(L)	JST VH-3A or B2P3-VH or the same Spec.	JST VH-3Y or VHR-3N or the same Spec.
	2	NC		
	3	AC(N)		
CON2	4	-Vo	JST VH-2A or B2P-VH or the same Spec.	JST VH-2Y or VHR-2N or the same Spec.
	5	+Vo		

Notes:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220091;
2. 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;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25 ℃, humidity<75% with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. 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;
6. We can provide product customization service;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. 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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