45W, AC-DC converter



FEATURES

- Universal 85-264VAC or 100-370VDC input voltage
- 3×2 inch high power density
- 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
- 2 years warranty
- UL/EN/IEC62368 safety approval

LO45-10Bxx 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 standards. The converters are widely used in industrial, office and civil applications. For extremely harsh EMC environment, we recommend using the application circuit show in Design Reference of this datasheet.

Selection Guide							
Certification	Part No.	Output Power	Nominal Output Voltage and Current	Efficiency at 230VAC (%) Typ.	Capacitive Load (µF) Max.		
	LO45-10B03	26.4W	3.3V/8000mA	76	30000		
	LO45-10B05	40W	5V/8000mA	82	20000		
	LO45-10B09		9V/4444mA	84	6000		
UL/CE/CB	LO45-10B12		12V/3750mA	84	4000		
	LO45-10B15	45W	15V/3000mA	86	3500		
	LO45-10B24	4500	24V/1875mA	86	1000		
	LO45-10B48		48V/940mA	87	600		

Input Specifications						
Item	Operating Conditions	Min.	Тур.	Max.	Unit	
Input Voltago Dango	AC input	85		264	VAC	
Input Voltage Range	DC input	100		370	VDC	
Input Frequency		47		63	Hz	
la d O d	115VAC			1200	mA	
Input Current	230VAC			700	IIIA	
la	115VAC		35	-	_	
Inrush Current	230VAC		50		Α	
Hot Plug			Unavailable			

Output Specifications							
Item	Operating Conditions	Min.	Тур.	Max.	Unit		
	3.3V output	-	±3	-			
Output Voltage Accuracy	Other output	±2					
Line Regulation	Full load	_	±0.5		%		
Load Regulation	0% to 100% Load	-	±1	-			
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	-	50	100	mV		
Stand-by Power Consumption				0.5	W		
Temperature Coefficient			±0.02		%/°C		
Short Circuit Protection		Hiccup, continuous, self-recovery			very		
Over-current Protection ≥150%lo, self-reco			elf-recovery				

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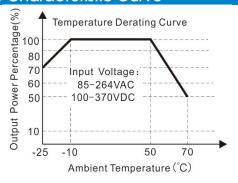
Hold-up Time	230VAC input		50		ms		
Minimum Load		0			%		
	48VDC Output	≤60VDC (0	≤60VDC (Output voltage clamp or turn off)				
	24VDC Output	≤35VDC (0	\leq 35VDC (Output voltage clamp or turn off)				
	15VDC Output	≤24VDC (0	\leq 24VDC (Output voltage clamp or turn off)				
Over-voltage Protection	12VDC Output	≤20VDC (0	\leq 20VDC (Output voltage clamp or turn off)				
	9VDC Output	≤16VDC (0	≤16VDC (Output voltage clamp or turn off)				
	5VDC Output	≤9VDC (≤9VDC (Output voltage clamp or turn off				
	3.3VDC Output	≤7.5VDC (<7.5VDC (Output voltage clamp or turn				

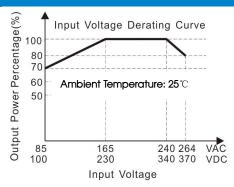
General Sp	pecifications						
Item		Operating Conditions	Min.	Тур.	Max.	Unit	
Isolation Test	Input-output	Electric Strength Test for 1min., leakage current <5mA	3000			VAC	
Operating Temp	perature		-25		+70	°C	
Storage Temper	ature		-25		+85		
Storage Humidity			-		90	%RH	
Switching Frequ	ency			65		kHz	
		-25°C to -10°C	2.0			%/°C	
		+50°C to +70°C	2.5				
Power Derating		85VAC - 165VAC	0.375				
		240VAC - 264VAC	0.833			%/VAC	
Safety Standard			UL/EN/IEC62368				
Safety Certification			UL/EN/IEC62368				
Safety Class			CLASS II				
MTBF			MIL-HDBK-21	MIL-HDBK-217F@25°C > 300,000 h			

Mechanical Specifications					
Dimension	76.20 x 50.80 x 30.00 mm				
Weight	90g(Typ.)				
Cooling method	Free air convection				

Electromagnetic Compatibility (EMC)						
Emissions	CE	CISPR32/EN55032	CLASS B			
ETTISSIOTIS	RE	CISPR32/EN55032	CLASS B			
	ESD	IEC/EN61000-4-2	Contact ±6 KV	perf. Criteria B		
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A		
	EFT	IEC/EN61000-4-4	± 2KV	perf. Criteria B		
Immunity	Surge	IEC/EN61000-4-5	line to line ±1 KV	perf. Criteria B		
,	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A		
	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11	0%, 70%	perf. Criteria B		

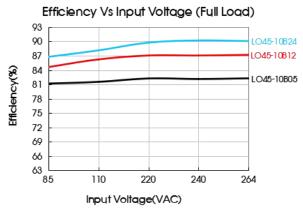
Product Characteristic Curve

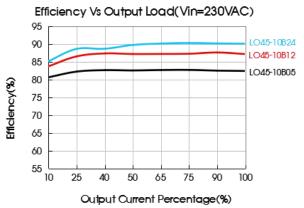




Note: ① With an AC input between 85-165V/240-264VAC and a DC input between 100-230V/340-370VDC, the output power must be derated as per temperature derating curves;

2 This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.





Design Reference

1. Typical application

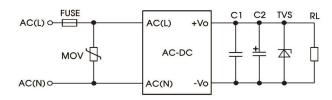


Fig. 1: Typical circuit diagram

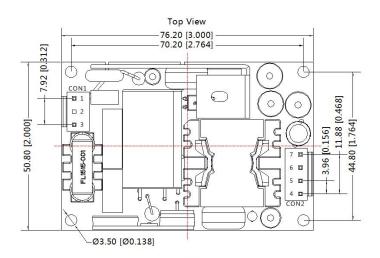
Part no.	FUSE	MOV	C1(µF)	C2(µF)	TVS	
LO45-10B03				490uF/14\/	SMBJ7.0A	
LO45-10B05	3.15A/250V slow-blow	luF/16V		680uF/16V	SMBJ7.0A	
LO45-10B09				47 uF/16V	SMBJ12A	
LO45-10B12		S14K300	1uF/25V	47 (25.)	SMBJ20A	
LO45-10B15			Tur/25V	47 uF/25V	SMBJ20A	
LO45-10B24				1uF/50V	47uF/35V	SMBJ30A
LO45-10B48			luF/100V	47 uF/63V	SMBJ64A	

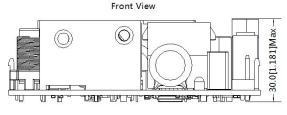
Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). C1 is a ceramic capacitor used for filtering high-frequency noise. Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. And TVS is a recommended suppressor diode to protect the application in case of a converter failure.

2. For additional information please refer to application notes on www.mornsun-power.com.

Dimensions and Recommended Layout





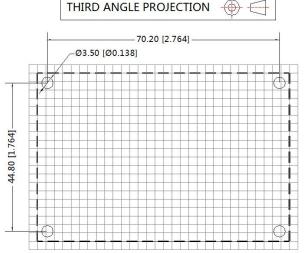
Note:

Unit: mm[inch]

General tolerances: ±0.50[±0.020]

In CON1 model: VH-3A, Recommend terminal: VH-3Y Out CON2 model: VH-4A, Recommend terminal: VH-4Y

Mounting hole screwing torque: Max 0.4 N m



Note: Grid 2.54*2.54mm

		Pin-Out			
Pin	Function	Connector	Terminal		
1	AC(L)	VH-3A	VH-3Y		
2	NoPin	or B2P3-VH	or VHR-3N		
3	AC(N)	or the same Spec.	or the same Spec.		
4	-Vo				
5	-Vo	VH-4A or B4P-VH	VH-4Y or VHR-4N		
6	+Vo	or the same Spec.	or the same Spec.		
7	+Vo				

Note:

- 1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220060;
- 2. There will be noise generated when product working at light load, but it does not affect the performance and reliability;
- 3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, 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. We can provide product customization service, please contact our technicians directly for specific information;
- 6. Products are related to laws and regulations: see "Features" and "EMC";
- 7. 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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