AC/DC Converter

LO30-20BxxMU Series

MORNSUN®

30W, AC-DC converter



CE Report EN62368-1 UK CA BS EN62368-1 RoHS

FEATURES

- Universal 80-264VAC or 100-370VDC input voltage
- Operating ambient temperature range: -30℃ to +85℃
- High I/O isolation voltage up to 4000VAC
- Meets 5000m altitude requirements
- Extremely low leakage current＜75uA
- Stand-by power consumption＜0.25W
- Output short circuit, over-current, over-voltage protection
- Efficiency up to 90%
- Meets 2 x MOPP safety class
- Suitable for BF application
- OVC Ⅲ (EN61558-1 standards)
- Safety according to IEC/EN/ES60601, IEC62368

LO30-20BxxMU series is one of Mornsun's AC-DC miniaturize open frame power supply and suitable for all kinds of BF type (be accessible to patients) medical system equipment. It features universal AC input and at the same time accepts DC input voltage, cost-effective, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC and safety performance, which meet EN60601, EN/IEC62368, IEC/EN60335, EN61558 standards and GB4943 they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home, medical, etc.

Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
EN	LO30-20B05MU	30	5V/6.00A	4.50-5.50	85	20000
	LO30-20B12MU		12V/2.50A	10.20-13.80	88	8000
	LO30-20B15MU		15V/2.00A	13.50-18.00	89	7000
	LO30-20B19MU		19V/1.58A	17.10-20.90	88	2500
	LO30-20B24MU		24V/1.25A	21.60-28.50	89	1500
	LO30-20B36MU		36V/0.833A	32.40-39.60	90	1000

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	80	--	264	VAC
	DC input	100	--	370	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	1.0	A
	230VAC	--	--	0.5	
Inrush Current	115VAC	--	--	30	
	230VAC	--	--	60	
Leakage Current	240VAC	75uA Max.			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	Other output	--	--	±2.0	%
		24V/36V	--	--	±1.0	
Line Regulation	Rated load		--	--	±0.5	
Load Regulation	230VAC		--	--	±1.0	
Ripple & Noise*	20MHz bandwidth	5V output	--	--	80	mV

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		Other output	--	--	100	
Stand-by Power Consumption	5V/12V/15V output		--	0.10	0.15	W
	19V/24V/36V output		--	0.20	0.25	
Temperature Coefficient			--	--	±0.03	%/℃
Short Circuit Protection			Hiccup, continuous, self-recover			
Over-current Protection			⩾115%Io, self-recover			
Over-voltage Protection	5VDC output		⩽7V	Output voltage hiccup		
	12VDC output		⩽16V			
	15VDC output		⩽22V			
	19VDC output		⩽28V			
	24VDC output		⩽32.4V			
	36VDC output		⩽42.4V			
Minimum Load			0	--	--	%
Hold-up Time	115VAC input		--	16	--	ms
	230VAC input		--	30	--	

Note: *The "Tip and barrel method" is used for ripple and noise test: Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor, 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		4000	--	--	VAC
Insulation Resistance	Input - output	500VDC		100	--	--	MΩ
Operating Temperature				-30	--	+85	℃
Storage Temperature				-40	--	+85	
Storage Humidity				--	--	95	%RH
Altitude*				--	--	5000	m
Power Derating		+50℃ to +70℃	Other output	2.50	--	--	%/℃
		+50℃ to +70℃	24V/36V	1.00	--	--	
		+70℃ to +85℃	Other output	1.35	--	--	
		+70℃ to +85℃	24V/36V	3.33	--	--	
		80VAC - 100VAC		1.00	--	--	%/VAC
Safety Distance		Clearance		7.4	--	--	mm
		Creepage		8.0	--	--	
Safety Standard				EN62368-1, BS EN62368-1 (Report); Design refer to IEC/EN60601-1, ES60601-1 (3.1 version), CAN/CSA-C22.2 No.60601-1:14-Edition 3, EN60601-1-2 Edition 4, IEC62368-1, EN/IEC60335-1, EN61558-1, GB4943.1			
Safety Class				CLASS II			
MTBF				MIL-HDBK-217F@25℃＞300,000 h			

Note: *For operation of altitude between 2000-5000m, please consult factory or one of our FAE.

Mechanical Specifications

Dimension	76.20 x 50.80 x 24.00 mm (Substrate + Plug-in height, see the external dimension drawing for details)
Weight	80g (Typ.)
Cooling method	Free air convection

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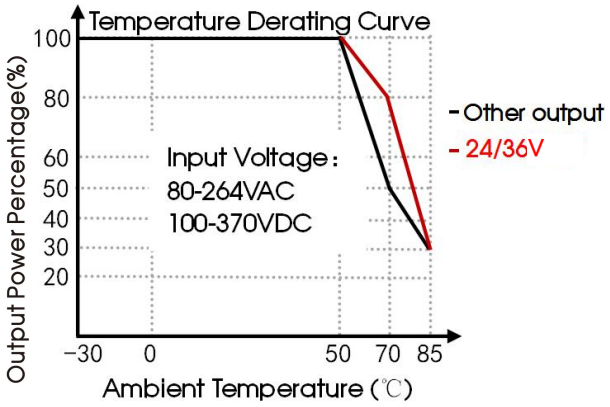
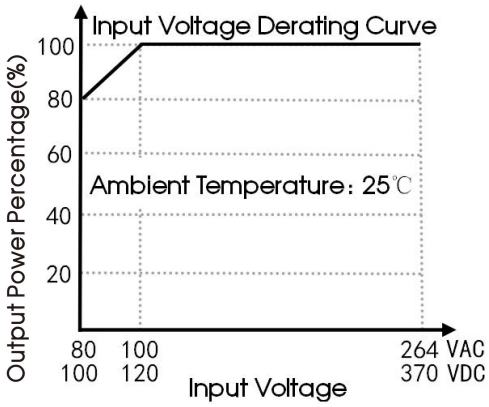
Electromagnetic Compatibility (EMC)

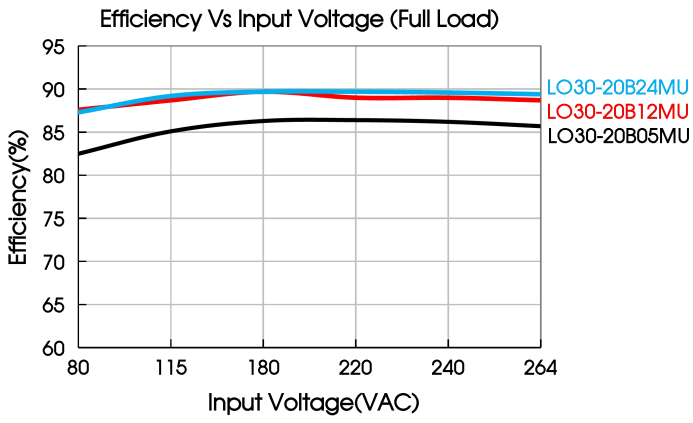
Emissions	CE	CISPR32/EN55032/EN55011	CLASS B	
	RE	CISPR32/EN55032/EN55011	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	Perf. Criteria A
	Surge	IEC/EN61000-4-5	line to line ±2KV	Perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf. Criteria A
	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods,100% interruptions 250 periods	Perf. Criteria B

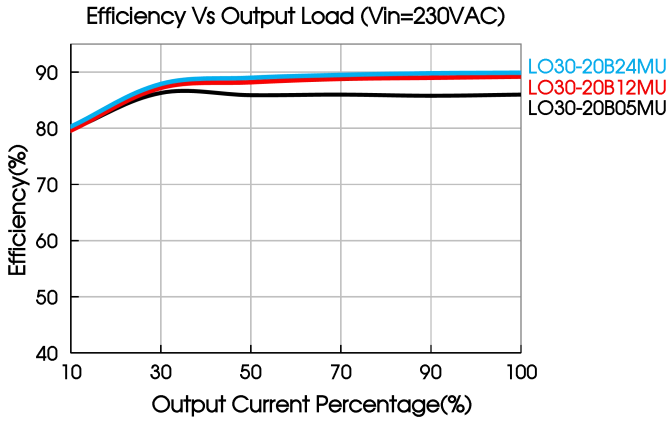
Product Characteristic Curve





Note: ① With an AC input between 80-100VAC and a DC input between 100-120VDC, 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.





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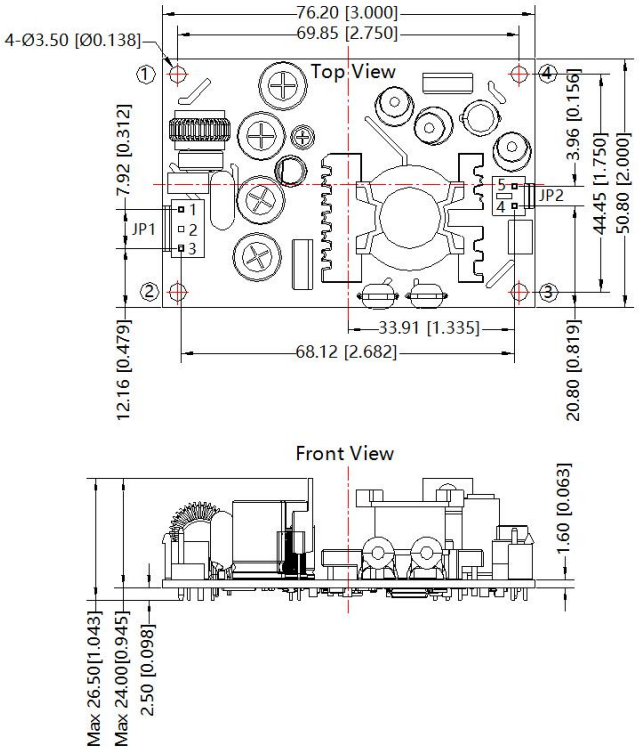
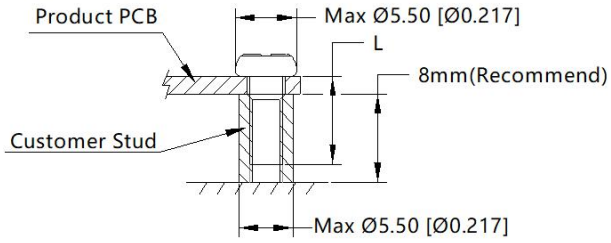
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



Pin-Out			
Connectors	Pin	Mark	Client Connectors
JP1	1	AC(L)	Housing: JST VHR Contact: JSTSVH-21T-P1.1 or equivalent
	2	No Pin	
	3	AC(N)	
JP2	4	-Vo	Housing: JST VHR Contact: JSTSVH-21T-P1.1 or equivalent
	5	+Vo	

Position	Screw Spec.	L(Recommend)	Torque(max)
① - ④	M3	6mm	0.4N·m



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

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220060;
2. 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;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. 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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