

75W, AC-DC converter



RoHS



FEATURES

- Universal 85-264VAC input voltage
- Operating ambient temperature range: -40°C to +70°C (-30°C full load)
- High I/O isolation voltage up to 4000VAC
- Operating altitude up to 5000m
- Very low leakage current < 100uA
- 135% peak load for 500ms (5V output)
145% peak load for 500ms (other output)
- Load up to 100W with external fan
- Output short circuit, over-current, over-voltage protection
- Efficiency up to 90%
- Meets 2 x MOPP safety class
- Suitable for BF application
- Installing in system of Safety Class I/II is available
- Design refer to IEC/EN/ES60601, UL/EN/IEC62368

LO75-20BxxMU 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 cost-effective, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC and safety performance, design refer to IEC/EN/ES60601, UL/EN/IEC/BS EN62368, 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)	23.5CFM (MIN) Output Current (A)	Output Voltage Adjustable Range ADJ (V)	Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.
/	LO75-20B05MU	50.0/60.0	5V/10.0A	12.0	4.5-5.5	84	10000
	LO75-20B12MU	75.6/99.6	12V/6.3A	8.3	11.4-12.6	88	6000
	LO75-20B15MU	75.0/100.5	15V/5.0A	6.7	14.3-15.8	88	5000
	LO75-20B19MU	76.0/100.7	19V/4.0A	5.3	18.0-20.0	88	3000
	LO75-20B24MU	76.8/100.8	24V/3.2A	4.2	22.8-25.2	89	1500
	LO75-20B36MU	75.6/100.8	36V/2.1A	2.8	34.2-37.8	89	1000
	LO75-20B48MU	76.8/100.8	48V/1.6A	2.1	45.6-50.4	90	470
	LO75-20B55MU	75.9/100.1	55V/1.38A	1.82	52.0-56.5	90	300

Note: *The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input	85	--	264	VAC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	2.0	A
	230VAC	--	--	1.5	
Inrush Current	115VAC	--	--	40	
	230VAC	--	--	70	
Leakage Current	264VAC	100uA Max.			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0% - 100% load	5V output	--	--	±2.0	%
		Other output	--	--	±1.0	
Line Regulation	Rated load		--	--	±0.5	
Load Regulation	230VAC	5V output	--	--	±1.5	
		Other output	--	--	±1.0	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V output	--	--	100	mV
		12V/15V/19V/24V output	--	--	120	
		36V/48V/55V output	--	--	150	
Stand-by Power Consumption (no fan)	5V/12V/15V/19V/24V output		--	0.15	0.3	W
	36V/48V/55V output		--	0.2	0.5	
Short Circuit Protection			Hiccup, continuous, self-recover			
Over-current Protection	5V output		≥ 130%Io, self-recover			
	Other output		≥ 140%Io, self-recover			
Over-voltage Protection	5VDC output		≤8.5V	Output voltage clamp or hiccup		
	12VDC output		≤16.2V			
	15VDC output		≤20.3V			
	19VDC output		≤30.0V			
	24VDC output		≤32.4V			
	36VDC output		≤50.0V			
	48VDC output		≤60.0V			
	55VDC output		≤60.0V			
Minimum Load			0	--	--	%
Hold-up Time	230VAC input		45	60	--	ms
Note: *The "Tip and barrel method" is used for ripple and noise test, with a 0.1uf & 47uf parallel capacitor, please refer to AC-DC Converter Application Notes for specific information.						

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General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input - output	Electric Strength Test for 1min., leakage current <5mA		4000	--	--	VAC
	Input - ⊕			2000	--	--	
	Output - ⊕			1500	--	--	
Insulation Resistance	Input - output	500VDC		100	--	--	MΩ
Operating Temperature				-40	--	+70	℃
Storage Temperature				-40	--	+70	
Altitude*				--	--	5000	m
Power Derating	Natural air cooling 100% load	-40℃ to -30℃		7.0	--	--	% /℃
		+40℃ to +70℃	5V output	1.67	--	--	
		+50℃ to +70℃	Other output	2.5	--	--	
	Forced cooling 120% load air flow 23.5CFM	-40℃ to -30℃	5V output	7.0	--	--	
		-30℃ to -20℃		2.0	--	--	
		+60℃ to +70℃		7.0	--	--	
	Forced cooling 133% load air flow 23.5CFM	-40℃ to -30℃	Other output	7.0	--	--	
		-30℃ to -20℃		3.3	--	--	
		+60℃ to +70℃		8.3	--	--	
	85VAC - 100VAC		1.34	--	--	%/VAC	
Safety Distance		Clearance		7.0	--	--	mm
		Creepage		8.0	--	--	

Safety Standard		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, UL/EN/IEC/BS EN62368-1, EN/IEC60335-1, EN61558-1, GB4943.1
Safety Class		CLASS I (connected PE)/ CLASS II (without PE)
MTBF		MIL-HDBK-217F@25°C > 300,000 h
Note: *For operation of altitude between 2000-5000m, please consult Mornsun FAE.		

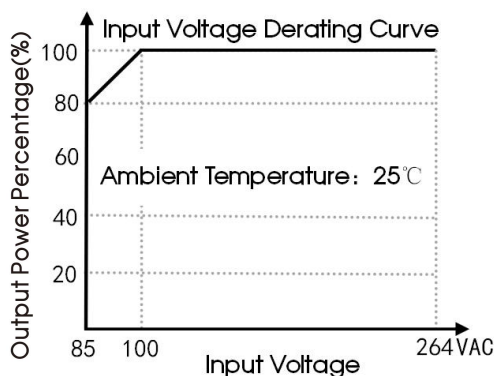
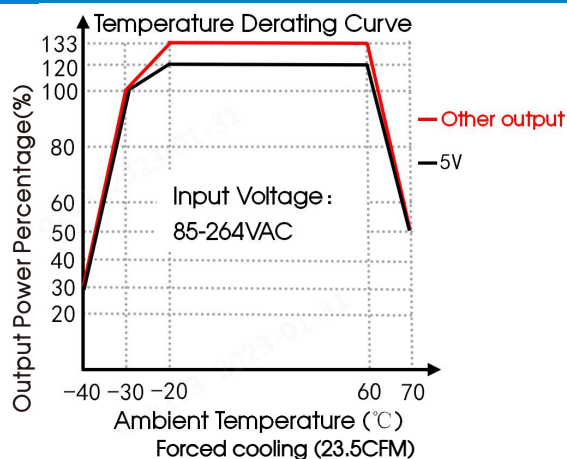
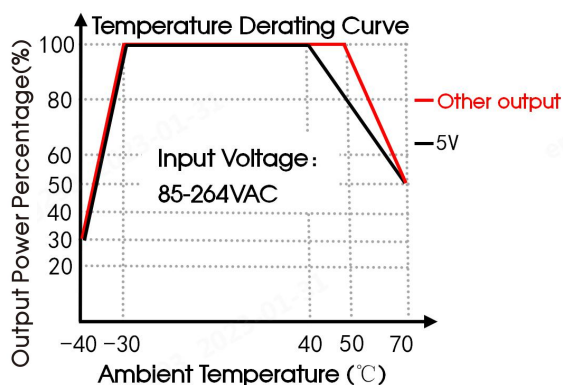
Mechanical Specifications

Dimension	101.60 x 50.80 x 32.00mm
Weight	125g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

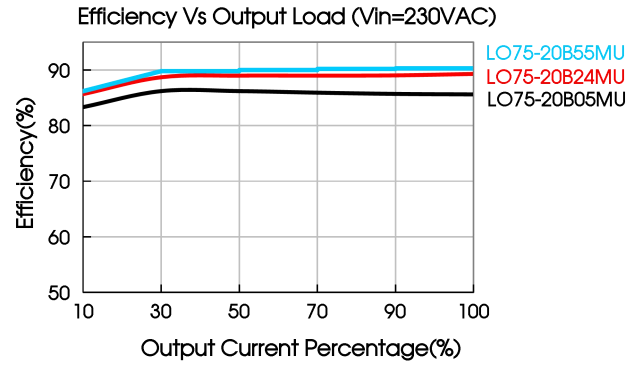
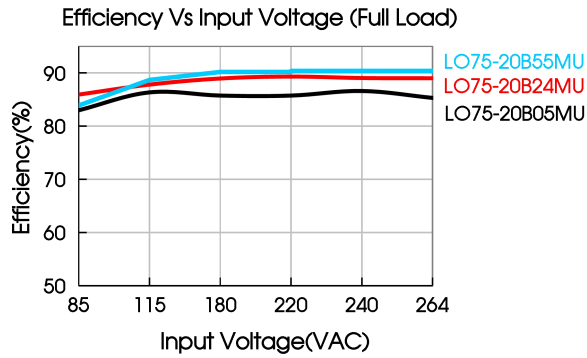
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	Perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	Perf. Criteria A
	Surge	IEC/EN61000-4-5	Line to line ±2KV/line to PE ±4KV	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

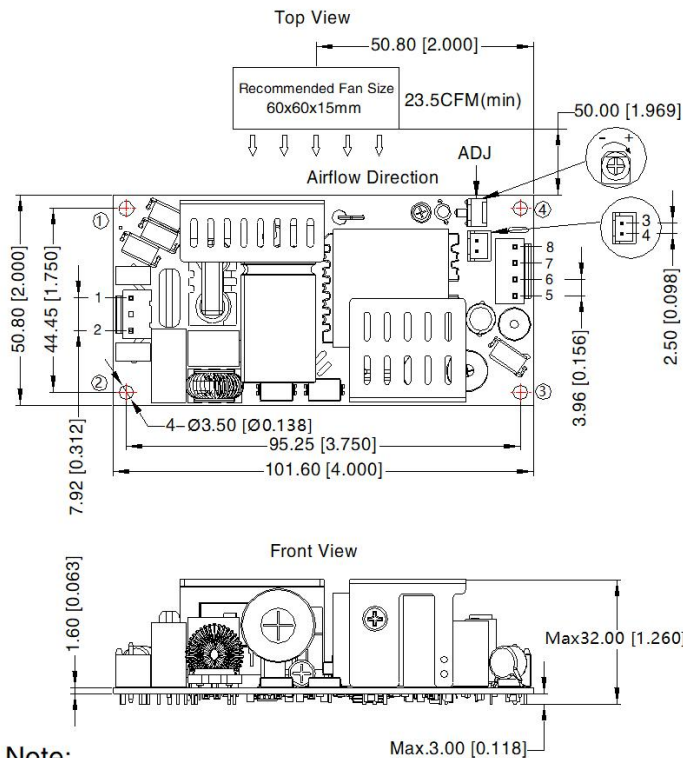


Note: ① With an AC input between 85-100VAC, the output power must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



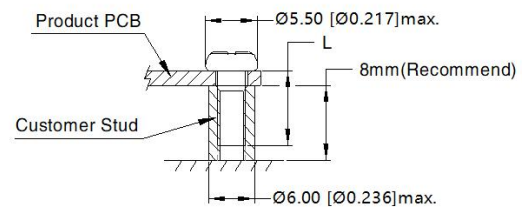
Dimensions and Recommended Layout



THIRD ANGLE PROJECTION

Pin-Out		
Pin	Mark	Customer Connector
1	AC(N)	Housing: JST VHR Terminal: JST SVH-21T-P1.1 or equivalent
2	AC(L)	
3	Fan-	Housing: PJA-006 Terminal: PJA-007 or equivalent
4	Fan+	
5, 6	-Vo	Housing: JST VHR Terminal: JST SVH-21T-P1.1 or equivalent
7, 8	+Vo	

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



Note:

- Unit: mm[inch]
- ADJ: Output adjustable resistor
- General tolerances: $\pm 1.00[\pm 0.039]$
- Do not use fan power to power other devices
- The layout of the device is for reference only, please refer to the actual product
- It is recommended 10mm distance between the PCB and other components for safety purpose
- Class I system ①, ③ positions must be connected to the earth($\oplus$)
- Class II system ①, ③ positions must be connected together

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220192;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75% with nominal input voltage and rated output load;
3. The room temperature derating of $5^{\circ}\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
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. The output voltage can be adjusted by the ADJ, clockwise to increase;
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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