

FEATURES

- Universal 85 - 264VAC or 120 - 373VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -30°C ~ +70°C
- Low standby power consumption, high efficiency
- High I/O isolation test voltage up to 4000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Safety according to IEC/EN/UL62368, EN60335, GB4943 (CE/CCC pending)
- Withstand 300VAC surge input for 5s
- Over-voltage class III (designed to meet EN61558)
- Operating altitude up to 5000m



LM50-20Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, EN60335, GB4943 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.

Selection Guide

Certification	Part No.	Output Power(W)	Nominal Output Voltage and Current (Vo/Io)	Output Voltage Adjustable Range(V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)
CE/CCC (Pending)	LM50-20B05	50	5V/10A	4.5-5.5	83	8500
	LM50-20B12	50.4	12V/4.2A	10.2-13.8	86	2000
	LM50-20B15	51	15V/3.4A	13.5-18	88	1500
	LM50-20B24	52.8	24V/2.2A	21.6-28.8	88	1000

Input Specifications





Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Input Voltage Range	AC input	85	--	264	VAC	
	DC input	120	--	373	VDC	
Input Voltage Frequency		47	--	63	Hz	
Input Current	115VAC	--	--	1.2	A	
	230VAC	--	--	0.6		
Inrush Current	115VAC	Cold start	--	30		--
	230VAC		--	45		
Hot Plug		Unavailable				

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	5V	--	±2	--
		12V/15V/24V	--	±1	--
Line Regulation	Rated load	--	±0.5	--	%
Load Regulation	0% - 100% load	5V	--	±1	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V	--	80	--
		12V/15V	--	120	--
		24V	--	180	--
Temperature Coefficient		--	±0.03	--	%/°C
Minimum Load		0	--	--	%
Stand-by Power		--	--	0.3	W

Consumption					
Hold-up Time	115VAC	12	--	--	ms
	230VAC	30	--	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear.	Hiccup, continuous, self-recovery			
Over-current Protection		110%-150% Io, self-recovery			
Over-voltage Protection	5V	≤ 6.3VDC (Clamping protection)			
	12V	≤ 16.2VDC (Clamping protection)			
	15V	≤ 21.75VDC (Clamping protection)			
	24V	≤ 33.6VDC (Clamping protection)			
Note: The "Tip and barrel 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 Test	Input - 	Electric strength test for 1min., leakage current <10mA	2000	--	--	VAC	
	Input-output		4000	--	--		
	Output - 		1250	--	--		
Insulation Resistance	Input - 	At 500VDC	100	--	--	MΩ	
	Input - output		100	--	--		
	Output - 		100	--	--		
Operating Temperature		-30	--	+70	°C		
Storage Temperature		-40	--	+85			
Storage Humidity	Non-condensing	--	--	95	%RH		
Switching Frequency			65		kHz		
Power Derating	Operating temperature derating	-30°C ~ -25°C	85VAC-100VAC	5	--	% / °C	
		5V	+40°C ~ +70°C	85VAC- 165VAC	1.33		--
			+50°C ~ +70°C	165VAC-264VAC	2		--
	Input voltage derating	12V/15V/24V	+50°C to +70°C	2	--		--
		85VAC-100VAC		1.33	--	%/VAC	
Safety Standard		Meet IEC/EN/UL62368, EN60335, GB4943					
Safety Class		CLASS I					
MTBF	MIL-HDBK-217F@25°C	> 300,000 h					

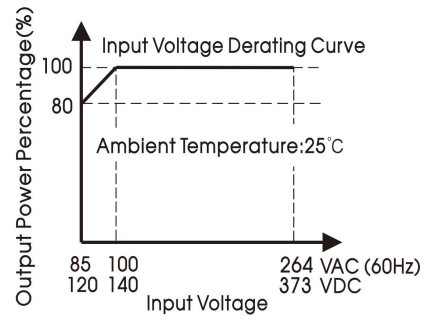
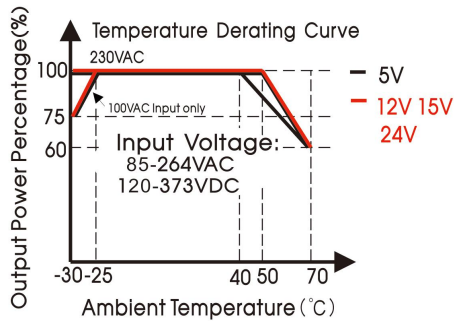
Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	99.00 x 82.00 x 30.00 mm
Weight	200g (Typ.)
Cooling Method	Free air convection

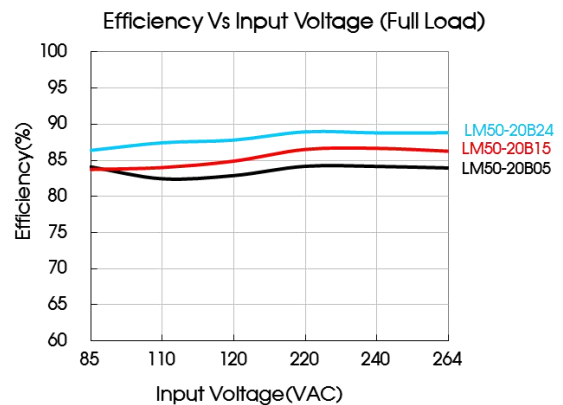
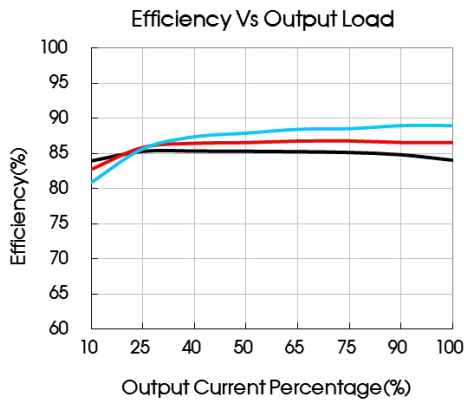
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B		
	RE	CISPR32/EN55032 CLASS B		
	Harmonic current	IEC/EN61000-3-2 CLASS A		
Immunity	ESD	IEC/EN 61000-4-2	Contact ±6KV /Air ±8KV	Perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±2KV/line to ground ±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

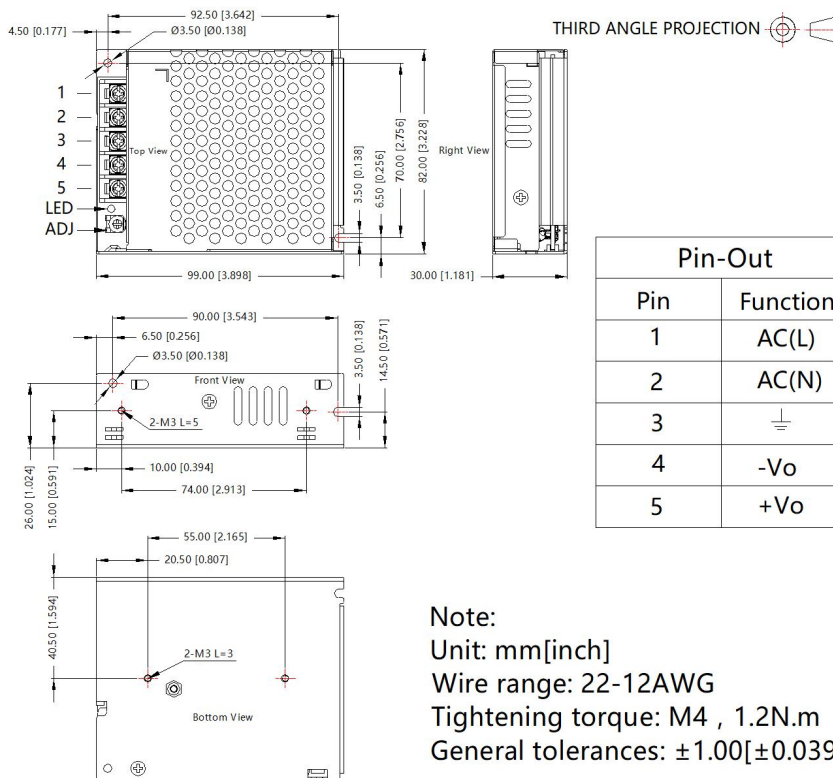
Product Characteristic Curve



Note: ① With an input voltage between 85 -100VAC and a DC input between 120-140VDC 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.



Dimensions and Recommended Layout



Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220067;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity<75%RH 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. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
6. We can provide product customization service, please contact our technicians directly for specific information;
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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