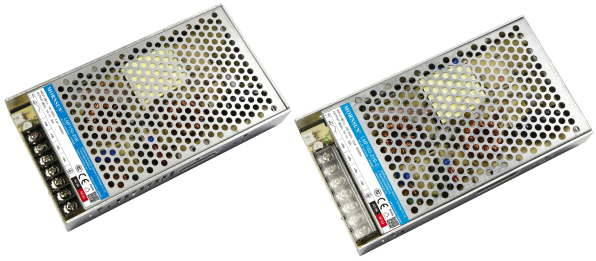
AC/DC Enclosed Switching Power Supply

LMF150-20Bxx, LMF150-20Bxx-C, LMF150-20Bxx-Q Series

MORNSUN®



CE CCC CB RoHS 3 years Warranty

FEATURES

- Universal 85 - 264V AC or 120 - 370VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating temperature range: -30℃ to +70℃
- Built-in active PFC function
- High I/O isolation test voltage up to 4000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage, over-temperature protection (Built-in constant current limiting circuit)
- Remote ON-OFF control
- IEC/EN62368, EN60335, GB4943 safety approved, safety according to IUL62368
- Over-voltage class Ⅲ (designed to meet EN61558)

LMF150-20Bxx 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, built-in active PFC function, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC62368, UL62368, 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/CB	LMF150-20B05	150	5V/30A	4.75-5.5	87	5000
	LMF150-20B12	150	12V/12.5A	11.4-13.2	88	5000
	LMF150-20B15	150	15V/10A	14.3-16.5	88.5	5000
	LMF150-20B24	151.2	24V/6.3A	22.8-26.4	89	5000
	LMF150-20B48	153.6	48V/3.2A	45.6-52.8	90	3000

Note: *Use suffix "C" for terminal with protective cover and suffix "Q" for conformal coating.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		85	--	264	VAC
	DC input		120	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	85VAC		--	--	2.5	A
	115VAC		--	--	2.0	
	230VAC		--	--	1.0	
Inrush Current	115VAC	Cold Start	--	--	30	
	230VAC		--	--	45	
Power Factor	115VAC	At full Load	--	0.99	--	--
	230VAC		--	0.93	--	
Leakage Current	240VAC		<2mA			
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full Load Range	5V/12V/15V	--	±2	--	%
		24V/48V	--	±1	--	
Line Regulation	Rated Load		--	±0.5	--	
Load Regulation	0% - 100% load	5V	--	±1	--	
		12V/15V/24V/48V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V/12V/15V	--	100	--	mV
		24V	--	150	--	
		48V	--	250	--	
Temperature Coefficient			--	±0.05	--	%/℃
Minimum Load			0	--	--	%
Hold-up Time	230VAC		16	--	--	ms
Short Circuit Protection	Recovery time <3s after the short circuit disappear.		Constant current, continuous, self-recovery			
Over-current Protection			110%-150% Io, constant current mode, self-recovery			
Over-voltage Protection	5V		⩽7.5V (Output voltage turn off, re-power on for recovery)			
	12V		⩽16.8V (Output voltage turn off, re-power on for recovery)			
	15V		⩽20.25V (Output voltage turn off, re-power on for recovery)			
	24V		⩽32.6V (Output voltage turn off, re-power on for recovery)			
	48V		⩽60V (Output voltage turn off, re-power on for recovery)			
Over-temperature Protection*	Over-temperature Protection Activation		--	--	85	℃
	Over-temperature Protection Deactivation		50	--	--	
Remote Control	0 - 0.8VDC Power ON		0	--	0.8	VDC
	4 - 10VDC Power OFF		4	--	10	

Note: 1.*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information;
2.*Over-temperature Protection needs to be tested under rated full load conditions.

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 - ⏚	Electric Strength Test for 1min., leakage current <5mA		500	--	--	
Insulation Resistance	Input - ⏚	500VDC, 25±5℃, Humidity < 70%RH, non-condensing		100	--	--	MΩ
	Input - output			100	--	--	
	Output - ⏚			100	--	--	
Operating Temperature				-30	--	+70	℃
Storage Temperature				-40	--	+85	
Storage Humidity		Non-condensing		--	--	95	%RH
Switching Frequency				--	--	--	kHz
Power Derating		5V output	+40℃ to +60℃	2	--	--	%/℃
		Other output	+50℃ to +70℃	2	--	--	
		all	-30℃ to -20℃	4	--	--	
		85VAC-100VAC		1.3	--	--	%/VAC
Safety Standard				Meet IEC/EN/UL62368/EN60335/GB4943			
Safety Certification				IEC/EN62368/EN60335/GB4943			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25℃		>300,000 h			

Mechanical Specifications

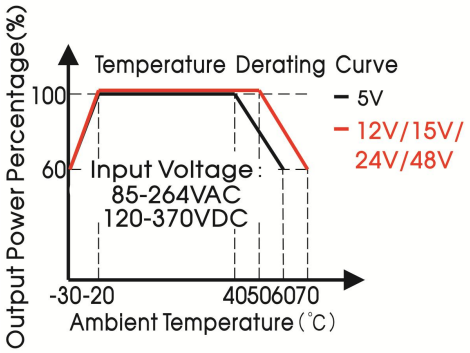
Case Material	Metal (AL1100, SGCC)
Dimensions	179.00 × 99.00 × 30.00mm
Weight	550g (Typ.)
Cooling Method	Free air convection

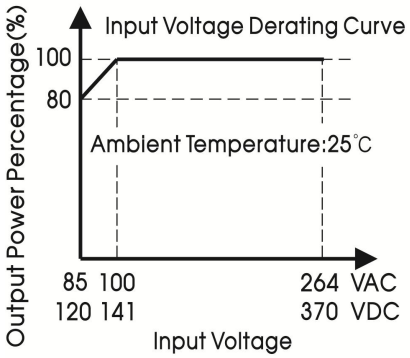
Electromagnetic Compatibility (EMC)

Emissions(EMI)	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A	
	Voltage flicker	IEC/EN61000-3-3	
Immunity(EMS)	ESD	IEC/EN 61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN 61000-4-3 3V/m	perf. Criteria B
	EFT	IEC/EN 61000-4-4 ±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5 ±1KV/±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6 10 Vr.m.s	perf. Criteria A
	DIP	IEC/EN61000-4-11 0%, 70%	perf. Criteria B

Note: One magnetic bead(nickel-zinc ferrite)should be coupled with the output load line during CE/RE testing.

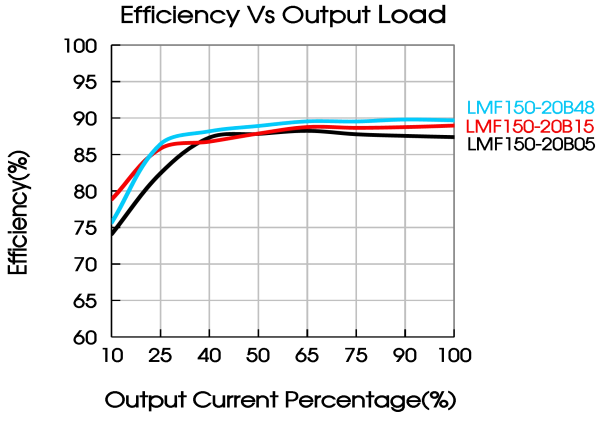
Product Characteristic Curve

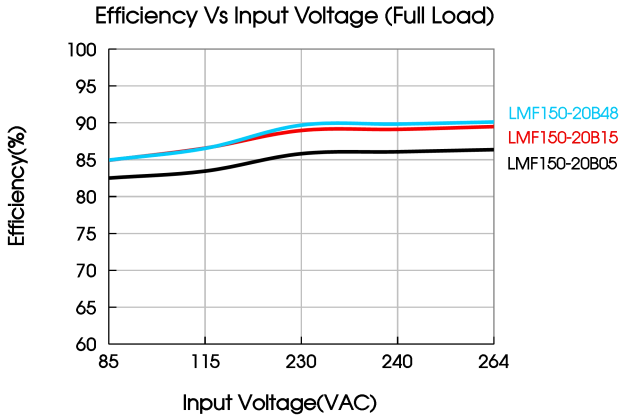




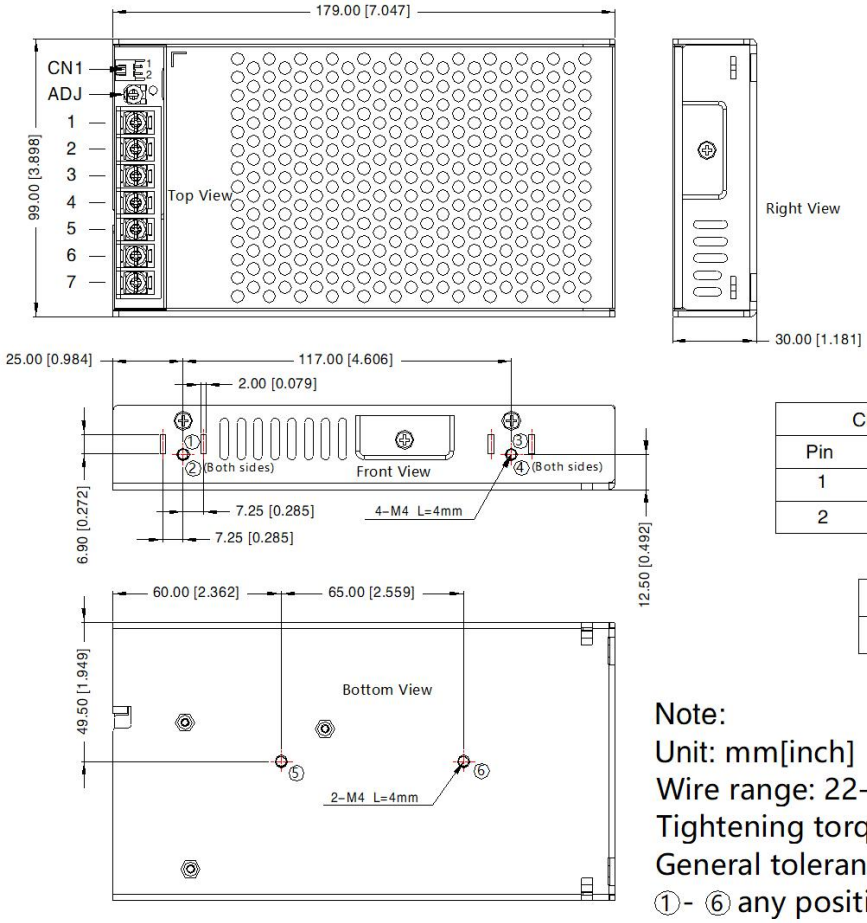
Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-141VDC the output power must be derated as per the temperature derating curves;

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





Dimensions and Recommended Layout

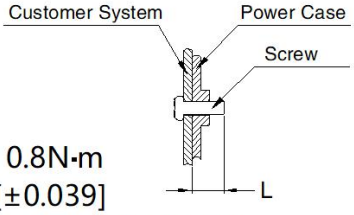


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Function
1	+Vo
2	+Vo
3	-Vo
4	-Vo
5	⏚
6	AC(N)
7	AC(L)

CN1:KANGDAO TJC3-NAWD-2P or the same spec.			
Pin	Function	Connector	Terminal
1	RC+	KANGDAO XH25001-2Y or the same spec.	KANGDAO XH2.54-TE or the same spec.
2	RC-		

Position	Screw Spec.	L(max)	Torque(max)
① – ⑥	M4	4mm	0.9N·m



Note:
Unit: mm[inch]
Wire range: 22-12AWG
Tightening torque: M3.5 , 0.8N·m
General tolerances: ±1.00[±0.039]
①- ⑥ any position must be connected to PE

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220068;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. 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;
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 out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
9. The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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