

FEATURES

- 165 - 264VAC or 180 - 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 up to 5000m altitude

LM35-22Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features 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, IEC62368, UL62368, EN62368, EN60335, GB4943 standards and they are widely used in 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)	LM35-22B05	35	5V/7A	4.5-5.5	82	8000
	LM35-22B12	36	12V/3A	10.2-13.8	86	1500
	LM35-22B15	36	15V/2.4A	13.5-18	87	1000
	LM35-22B24	36	24V/1.5A	21.6-28.8	88	750

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		165	--	264	VAC
	DC input		180	--	373	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	--	0.6	A
Inrush Current	230VAC	Cold start	--	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	--	
		12V/15V/24V	--	±0.5	--	
Output Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	5V	--	80	--	mV
		12V/15V	--	120	--	
		24V	--	180	--	

Temperature Coefficient		--	±0.03	--	%/°C
Minimum Load		0	--	--	%
Stand-by Power Consumption		--	--	0.3	W
Hold-up Time	230VAC	30	--	--	ms
Short Circuit Protection	Recovery time is less than 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	50	--	--	MΩ
	Input - output		50	--	--	
	output - 		50	--	--	
Operating Temperature			-30	--	+70	°C
Storage Temperature			-40	--	+85	
Storage Humidity	Non-condensing		--	--	95	%RH
Switching Frequency				65		kHz
Power Derating	Operating temperature derating	+50°C to +70°C	2			%/°C
	Input voltage derating	180VDC-200VDC	1			%/VDC
Safety Standard			Meet IEC/EN/UL62368/EN60335/GB4943			
Safety Class			CLASS I			
MTBF			MIL-HDBK-217F@25°C >300,000 h			

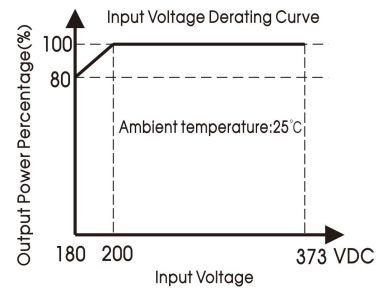
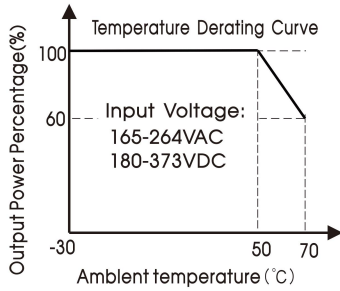
Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	99.00 x 82.00 x 30.00 mm
Weight	190g (Typ.)
Cooling Method	Free air convection

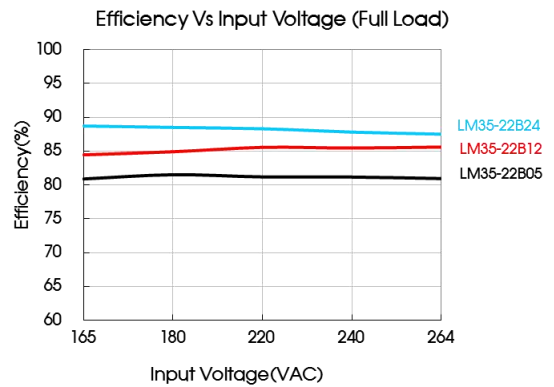
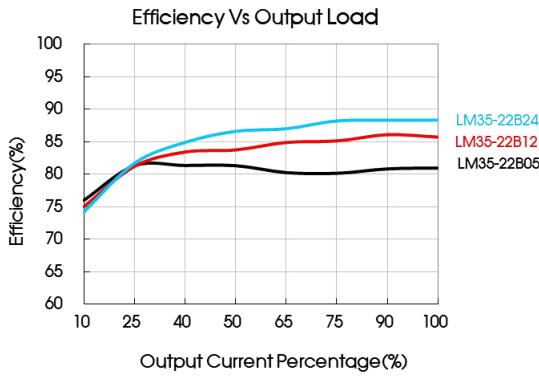
Electromagnetic Compatibility (EMC)

EMI	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
EMS	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
	DIP	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

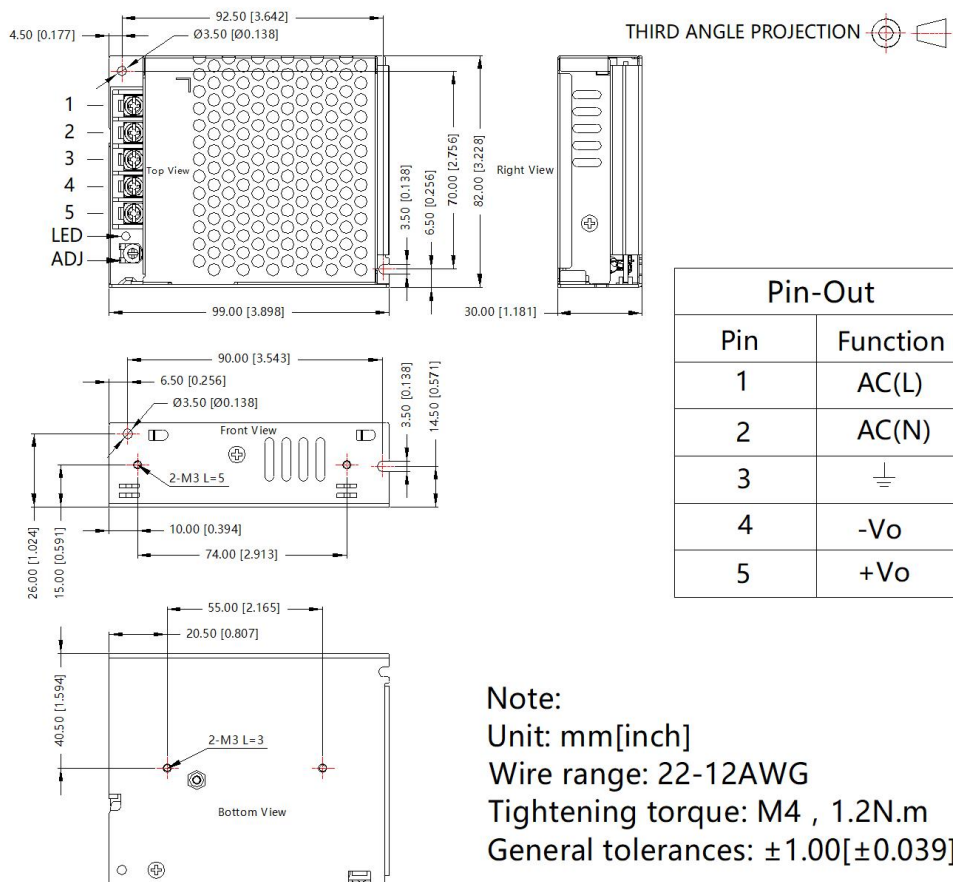
Product Characteristic Curve



Note: ① Input voltage reduction is required on the basis of temperature reduction for the input voltage is 180 - 200VDC;
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 ambient 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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