



EN62368-1 BS EN 62368-1

FEATURES

- Universal 85 -264VAC or 120 - 370VDC Input voltage
- Operating ambient temperature range: -30℃ to +70℃
- High efficiency, high reliability, high life
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Safety according to IEC/UL62368, EN60335, GB4943

LM35-10Axx series products are designed with dual non-isolated output, which can supply power to two units in the system at the same time. It is the best power solution for industrial control equipment, instrumentation and other applications. It can work in the ambient temperature from -30 ℃ to +70 ℃ without adding a fan for heat dissipation. These converters offer excellent EMC performance and meet IEC/EN/UL62368, EN60335, GB4943 standards.

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)	
			Vo1/Io1	Vo2/Io2			Vo1	Vo2
EN/BS	LM35-10A0512-10	32	5V/4A	12V/1A	4.75-5.5V	79	4000	1000
	LM35-10A0524-10	35	5V/2.2A	24V/1A		80	2200	

Note: *When Vo1 working in the adjustable range, the output power please refer to power derating curve and should not be exceed the rated output power.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit	
Input Voltage Range	Rated input		100	--	240	VAC	
	AC input		85	--	264		
	DC input		120	--	370	VDC	
Input Voltage Frequency			47	--	63	Hz	
Input Current	115VAC		--	--	0.75	A	
	230VAC		--	--	0.5		
Inrush Current	115VAC	Cold start	--	30	--		
	230VAC		--	50	--		
Leakage Current	240VAC		<2mA				
Hot Plug			Unavailable				

Output Specifications

Item	Operating Conditions			Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range (balanced load)	Vo1		--	±2.0	--	%
		Vo2	12V	--	±6.0	--	
			24V	--	±5.0	--	
Line Regulation	Rated load	Vo1		--	±0.5	--	
		Vo2	12V	--	±1.5	--	
			24V	--	±1.0	--	
Load Regulation	0% - 100% load, balanced load	Vo1		--	±0.5	--	
		Vo2	12V	--	±3	--	
			24V	--	±2	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	Vo1		--	--	80	mV
		Vo2		--	--	150	
Hold-up Time	115VAC			--	5	--	ms
	230VAC			--	30	--	
Short Circuit Protection	Recovery time <5s after the short circuit disappear,			Hiccup, continuous, self-recovery			

	not available for Vo2		
Over-current Protection	Balanced load	Room temperature, high temperature	130% - 250% Io, self-recovery
		Low temperature	110% - 220% Io, self-recovery
Over-voltage Protection			5.75V≤Vo1≤6.75V (Hiccup, self-recovery)
Note: "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.			

General Specifications

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - $\oplus$	Electric strength test for 1min., leakage current <10mA		2000	--	--	VAC
	Input - output			3000	--	--	
	Output - $\oplus$			500	--	--	
Insulation Resistance	Input - $\oplus$	At 500VDC		100	--	--	M Ω
	Input - output			100	--	--	
	Output - $\oplus$			100	--	--	
Operating Temperature				-30	--	+70	$^{\circ}\text{C}$
Storage Temperature				-40	--	+85	
Operating Humidity		Non-condensing		--	--	95	%RH
Storage Humidity				20	--	90	
Switching Frequency				--	65	--	kHz
Power Derating		Operating temperature derating	+50 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$	2.5	--	--	%/ $^{\circ}\text{C}$
		Input voltage derating	85VAC-100VAC	1.34	--	--	%/VAC
			120VDC-140VDC	1.0	--	--	%/VDC
Safety Standard				EN62368-1, BS EN 62368-1 (Report) Design refer to IEC/UL62368-1, EN60335-1, GB4943.1			
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25 $^{\circ}\text{C}$		> 300,000h			

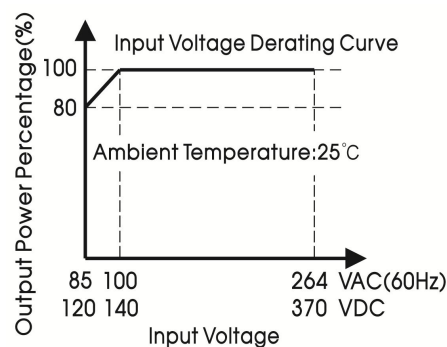
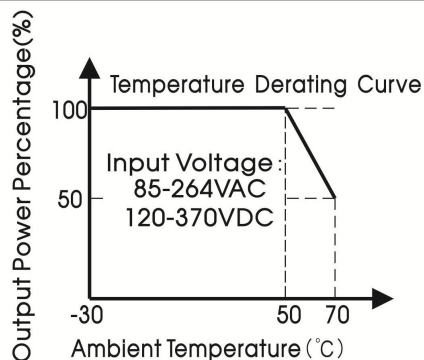
Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	99.00 x 97.00 x 30.00 mm
Weight	210g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

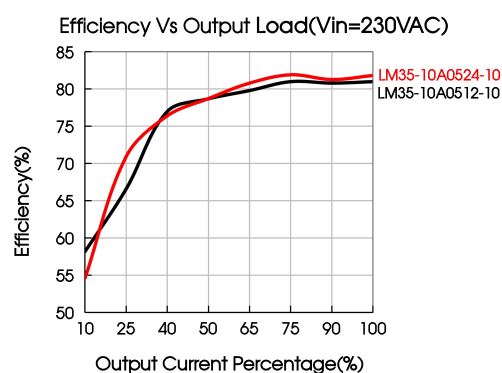
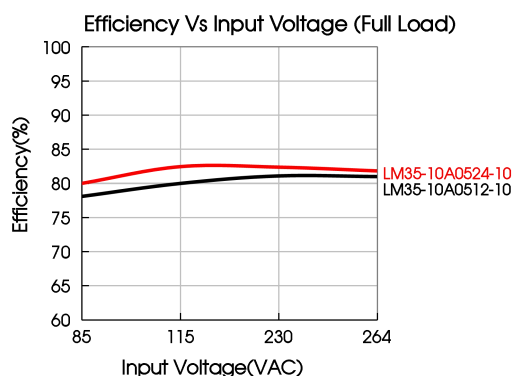
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	±2KV/±4KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10Vr.m.s	perf.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

Product Characteristic Curve



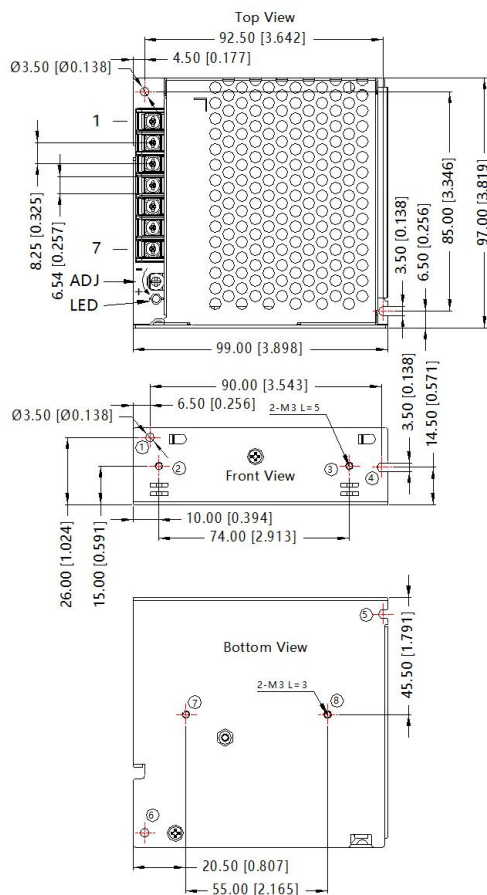
Note: 1. With an AC input voltage between 85-100VAC and a DC input between 120-140VDC the output power must be derated as per the temperature derating curves;

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

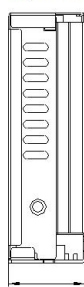


Dimensions and Recommended Layout

THIRD ANGLE PROJECTION



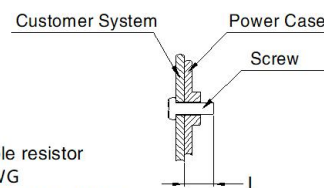
Right View



Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⊥
4	COM
5	+Vo2
6	COM
7	+Vo1

① - ⑧ any position must be connected to the earth(⊥)

Position	Screw Spec.	L(max)	Torque(max)
② - ③	M3	5mm	0.4N·m
⑦ - ⑧	M3	3mm	0.4N·m



Note:

Unit: mm[inch]

ADJ: Output adjustable resistor

Wire range: 22-14AWG

Tightening torque: M3, Max 0.5N.m

General tolerances: $\pm 1.00[\pm 0.039]$

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220066;
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. The out case needs to be connected to PE ($\perp$) of system when the terminal equipment in operating;
9. The output voltage can be adjusted by the ADJ, clockwise to decrease;
10. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
11. 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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