



### FEATURES

- Universal 85 - 264VAC or 120 - 373VDC Input voltage
- Operating ambient temperature range: -30°C to +70°C
- High efficiency, high reliability and long lifetime
- LED indicator for power on
- Output short circuit, over-current, over-voltage protection
- Withstand 300VAC surge input for 5s
- High I/O isolation test voltage up to 3000VAC
- Safety according to IEC/EN/UL62368, EN60335, GB4943
- Emissions compliant to CISPR32/EN55032 CLASS B
- Withstand 5G vibration test
- Operating altitude up to 5000m

This LM35-10Cxx series of power converter design features triple output versions, which can independently supply 3 different loads in the system. The products can be used in harsh working environments with an ambient temperature range from -30°C to +70°C, without the need of the fan for further heat dissipation. In addition, the converters EMC immunity performance meets the requirements of IEC61000 standard and meet emission standard CISPR32/EN55032, class B without any external components, thus providing excellent EMC protection. The products also meet IEC/EN/UL62368, EN60335, GB4943 safety standards. The converters integrate a variety of protection features and offer a high-performance and high cost-effective providing the best power solution for a variety of industries such as industrial control equipment, instrumentation and smart home and building equipment application.

### Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current			Working Current Range*			Efficiency * (%) Typ.	Max. Capacitive Load(μF)		
			Vo1/Io1	Vo2/Io2	Vo3/Io3	Io1	Io2	Io3		Vo1	Vo2	Vo3
CE	LM35-10C051212-10	33W	+5V/3.0A	+12V/1.0A	-12V/0.5A	0.3-4.0A	0.1-1.5A	0.05-0.5A	81	3000	1000	470
	LM35-10C051515-10	35W	+5V/2.5A	+15V/1.0A	-15V/0.5A	0.25-3.5A	0.1-1.5A	0.05-0.5A	81	2500	1000	470
	LM35-10C052412-05	36.5W	+5V/2.5A	+24V/0.5A	+12V/1.0A	0.25-3.5A	0.05-1.0A	0.1-1.0A	81	2500	470	1000

Note: 1.\*Working current range: If any one of the 3 outputs arrive at the maximum current, the total output power cannot exceed the rated power and working time < 3s.  
 2.\*The typical efficiency tested under input voltage at 230VAC.  
 3.\*Use 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	--	373	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	0.75	A
	230VAC	--	--	0.5	
Inrush Current	115VAC	--	30	--	
	230VAC	--	50	--	
Leakage Current	240VAC	<2.0mA			
Hot Plug		Unavailable			

### Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit		
Output Voltage Accuracy	Full load range	Vo1	--	±2.0	--	%	
		Vo2	LM35-10C051212-10	--	±6.0		--
			LM35-10C051515-10	--	±8.0		--
		Vo3	LM35-10C052412-05	--	±8.0		--
			LM35-10C051212-10	--	±6.0		--
		LM35-10C051515-10	--	±8.0	--		

			LM35-10C052412-05	--	±8.0	--	
Line Regulation	Full load	Vo1		--	±0.5	--	%
			Vo2	LM35-10C051212-10	--	±1.0	
		LM35-10C051515-10		--	±1.0	--	
		LM35-10C052412-05		--	±1.0	--	
		Vo3		LM35-10C051212-10	--	±1.0	
			LM35-10C051515-10	--	±1.0	--	
Load Regulation	10% - 100% load (Balanced load)	Vo1		--	±1.5	--	%
			Vo2	LM35-10C051212-10	--	±3.0	
		LM35-10C051515-10		--	±3.0	--	
		LM35-10C052412-05		--	±3.0	--	
		Vo3		LM35-10C051212-10	--	±3.0	
			LM35-10C051515-10	--	±3.0	--	
Ripple & Noise*	20MHz bandwidth (peak-peak value)	Vo1		--	80	--	mV
			Vo2	LM35-10C051212-10	--	120	
		LM35-10C051515-10		--	150	--	
		LM35-10C052412-05		--	150	--	
		Vo3		LM35-10C051212-10	--	120	
			LM35-10C051515-10	--	150	--	
LM35-10C052412-05		--	120	--			
		--	120	--			
Temperature Coefficient			--	±0.03	--	%/°C	
Voltage Adjustable Range (Vo1) *	Rated input voltage		4.75	--	5.50	VDC	
Start-up Delay Time	Rated input voltage		--	--	2.0	S	
Output Voltage Rise Time	The output Vo1/Vo2/Vo3 rise time from 10%Vo to 90%Vo at rated voltage 115V/60Hz & 230V/50Hz, rated output load, ambient temperature		--	--	30	mS	
Hold-up Time	115VAC		--	5	--		
	230VAC		--	30	--		
Minimum Load			Refer to the working current range				
Short Circuit Protection	Recovery time <5s after the short circuit disappear		Hiccup, continuous, self-recovery				
Over-current Protection	3 outputs with equal-scale load		110%-180%Io, self-recovery				
Over-voltage Protection			5.75VDC ≤ Vo1 ≤ 6.75VDC, output clamped				

Note: 1.\*The "Tip and barrel method" is used for ripple and noise test, (47uF electrolytic capacitor and 104 ceramic capacitor) please refer to AC-DC Converter Application Notes for specific information.  
2.\*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.

## General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Isolation Voltage	Input - Output	3000	--	--	VAC	
	Input - 	2000	--	--		
	Output - 	500	--	--		
Insulation Resistance	Input - Output	100	--	--	MΩ	
	Input - 	100	--	--		
	Output - 	100	--	--		
Operating Temperature	Refer to derating curve	-30	--	+70	°C	
Storage Temperature		-40	--	+85		
Storage Humidity	Non-condensing	--	--	95	%RH	
Power Derating	Input voltage derating	85VAC - 115VAC	0.667	--	--	%VAC
		115VAC - 264VAC	0	--	--	
		120VDC - 160VDC	0.5	--	--	%VDC
		160VDC - 373VDC	0	--	--	

	Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
Safety Standard			Meet IEC/EN/UL62368/EN60335/GB4943			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		>300,000 h			

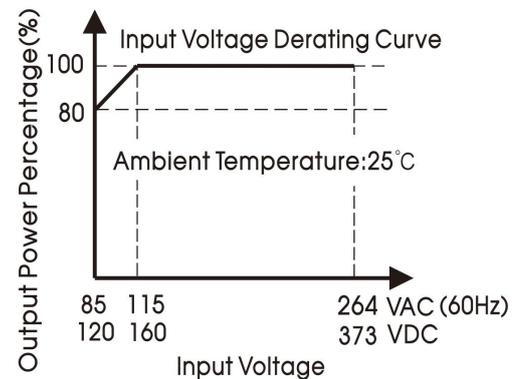
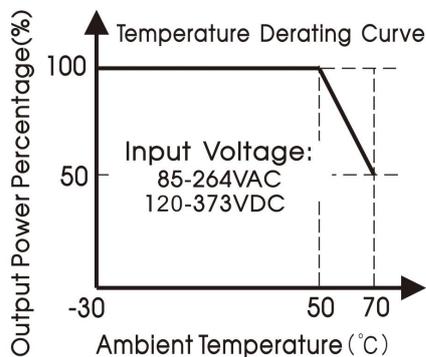
### Physical Specifications

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

### EMC Specifications

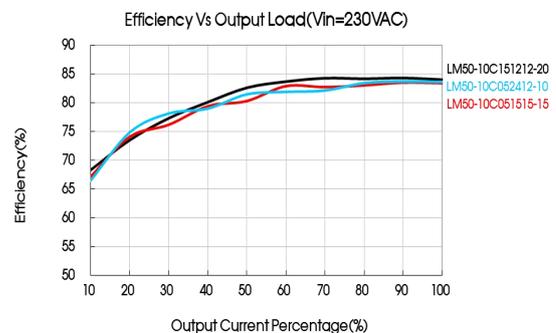
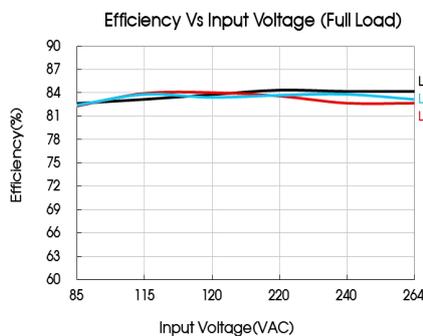
Emissions	CE	CISPR32/EN55032 CLASS B		
	RE	CISPR32/EN55032 CLASS B		
	Harmonic current	IEC/EN61000-3-2 CLASS A		
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV /Air ±8KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	Line to Line ±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

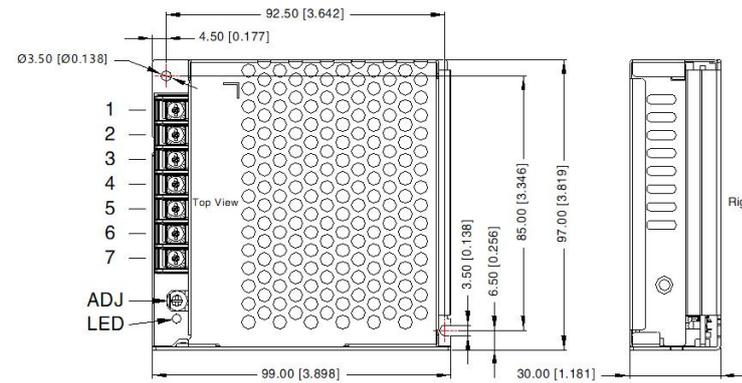


Note: ① With an input voltage between 85 - 115VAC and a DC input between 120 - 160VDC the output power must be derated as per the temperature derating curves;

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

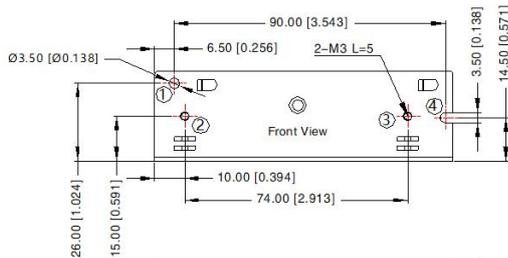


Dimensions and Recommended Layout

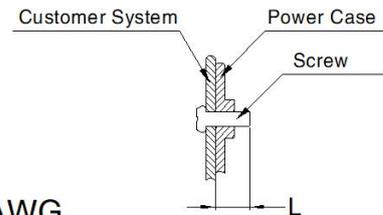
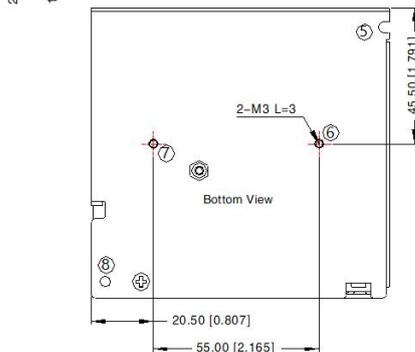


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⊥
4	Vo3
5	Vo2
6	COM
7	Vo1



Position	Screw Spec.	L(max)	Torque(max)
② ③	M3	5mm	0.4N·m
⑥ ⑦	M3	3mm	0.4N·m



Note:  
Unit: mm[inch]  
Wire range: 22-14AWG  
Tightening torque: M3, 0.5N·m  
General tolerances: ± 1.00[ ± 0.039]  
①-⑧ any position must be connected to PE

- Note:
- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220066;
  - 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;
  - The ambient temperature derating of  $5^{\circ}\text{C}/1000\text{m}$  is needed for operating altitude greater than 2000m;
  - All index testing methods in this datasheet are based on our company corporate standards;
  - 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;
  - We can provide product customization service, please contact our technicians directly for specific information;
  - Products are related to laws and regulations: see "Features" and "EMC";
  - The out case needs to be connected to PE(⊥)of system when the terminal equipment in operating;
  - Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.
  - 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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