



FEATURES

- Universal 90 - 264VAC or 120 - 370VDC Input voltage
- Operating ambient temperature range: -30°C to +70°C
- High efficiency, high reliability, long service life
- LED indicator for power on
- Output short circuit, over-current, over-voltage protection
- High I/O Isolation test voltage up to 3000VAC
- Emissions compliant to CISPR32/EN55032 CLASS B
- Withstand 5G vibration test
- Operating altitude up to 5000m

LM65-10D0524-20 series power converter design features two output versions, It can supply power to two units in the system. The product can be used in harsh working environments with an ambient temperature range from -30°C to +70°C, without the need of a 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 product also meet IEC/EN/UL62368, EN60335, GB4943 safety standards. The converters integrate a variety of protection features and offer a high-performance to low-cost ratio 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 (W)	Nominal Output Voltage and Current (Vo/Io)		Working Current Range*		Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)	
			Vo1/Io1	Vo2/Io2	Io1	Io2		Vo1	Vo2
EN	LM65-10D0524-20	68	+5VDC/4.0A	+24VDC/2.0A	0.5-5.2 A	0.2-2.60A	82	5000	2000
	LM65-10D0524-20-QL	68.4	+5.1VDC/4.0A						

Note: 1. * Working current range: If any one of the 2 outputs reach at the maximum current, the total output power cannot exceed the rated power and working time < 3s;
2. *Use suffix "Q" for conformal coating.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit	
Input Voltage Range	AC Input		90	--	264	VAC	
	DC Input		120	--	370	VDC	
Input Voltage Frequency			47	--	63	Hz	
Input Current	115VAC		--	--	1.7	A	
	230VAC		--	--	0.9		
Inrush Current	115VAC	Cold start	--	30	--		
	230VAC		--	45	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	--	
		Vo2	--	±8.0	--	
Line Regulation	Full load	Vo1	--	±0.5	±1.0	
		Vo2	--	±1.5	--	
Load Regulation	10% - 100% load (Balanced load)	Vo1	--	±0.5	--	%
		Vo2	--	±6.0	--	
Ripple & Noise*	20MHz bandwidth		--	--	80	mV

AC/DC 65W Enclosed Switching Power Supply

LM65-10D0524-20, LM65-10D0524-20-QL

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	(peak-peak value)	Vo2	--	--	150	
Temperature Coefficient	Vo1		--	±0.03	--	%/°C
Voltage Adjustable Range*	Rated input voltage		4.75	--	5.50	VDC
Switching Delay Time	115/230VAC		--	--	3.0	s
Output Voltage Rise Time			--	--	30	ms
Hold-up Time	115VAC		--	5	--	
	230VAC		--	14	--	
Min. Load			10	--	--	%Io
Short Circuit Protection	Recovery time <5s after the short circuit disappear		Hiccup, continuous, self-recovery			
Over-current Protection	Dual output with balanced load		110%≤Io, self-recovery			
Over-voltage Protection	Vo1		<15VDC (Output voltage hiccup)			

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. *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 Test	Input - output	Electric strength test for 1min., leakage current <10mA		3000	--	--	VAC	
	Input - ⊕			2000	--	--		
	Output - ⊕			500	--	--		
Insulation Resistance	Input - ⊕	Ambient temperature: 25 ± 5℃		100	--	--	M Ω	
	Input - output	Relative humidity: < 70%RH, no condensation		100	--	--		
	Output - ⊕	Test voltage: 500VDC		100	--	--		
Operating Temperature		Refer to the derating characteristic curve		-30	--	+70	℃	
Storage Temperature				-40	--	+85		
Storage Humidity		Non-condensing		--	--	95	%RH	
Power Derating		Operating temperature derating	100VAC - 264VAC	-30℃ to +40℃	0	--	--	% /℃
			90VAC - 100VAC	-20℃ to -15℃	5.0	--	--	
			40℃ to 70℃		2.0	--	--	
		Input voltage derating	90VAC - 115VAC		0.8	--	--	%/VAC
Safety Standard				EN62368-1 (Report) Design refer to IEC/EN/UL62368-1, EN60335-1, GB4943.1				
Safety Class				CLASS I				
MTBF		MIL-HDBK-217F@25℃		>300,000 h				

Mechanical Specifications

Case Material	Metal (AL1100, SGCC)
Dimensions	129.00mm x 97.00mm x 30.00mm
Weight	300g (Typ.)
Cooling Method	Air cooling

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		

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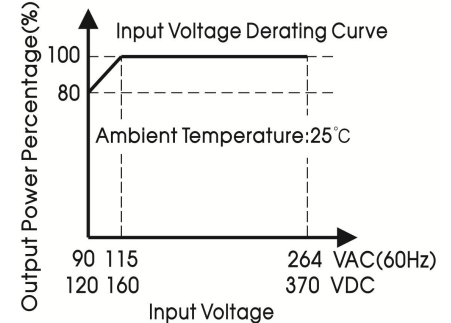
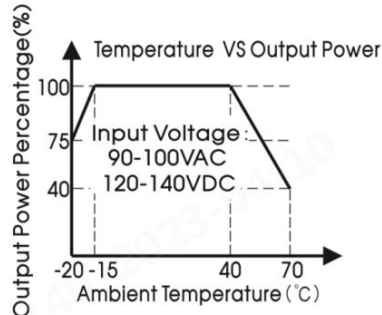
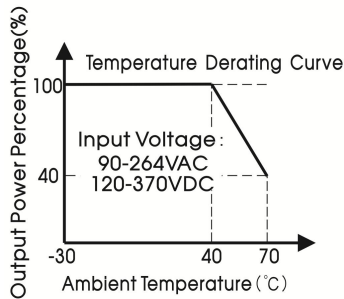
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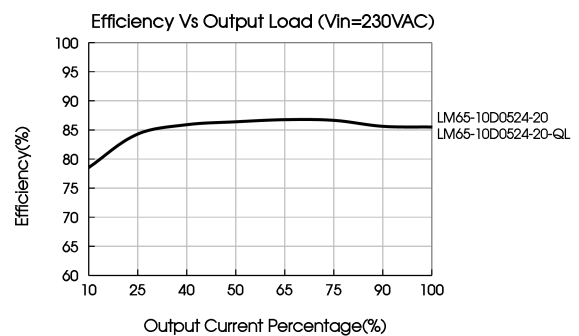
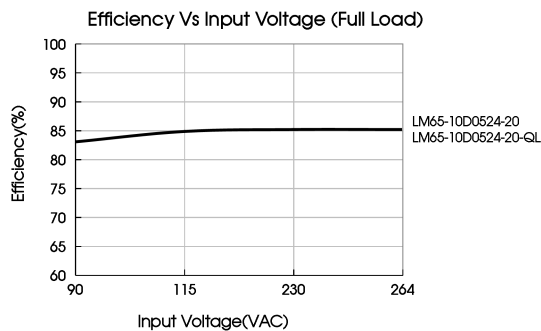
Surge	IEC/EN 61000-4-5 line to line $\pm 2\text{KV}$ /line to ground $\pm 4\text{KV}$	perf. Criteria A
CS	IEC/EN 61000-4-6 10 Vr.m.s	perf. Criteria A
Voltage dips, short interruptions and voltage variations	IEC/EN 61000-4-11 0%, 70%	perf. Criteria B

Product Characteristic Curve

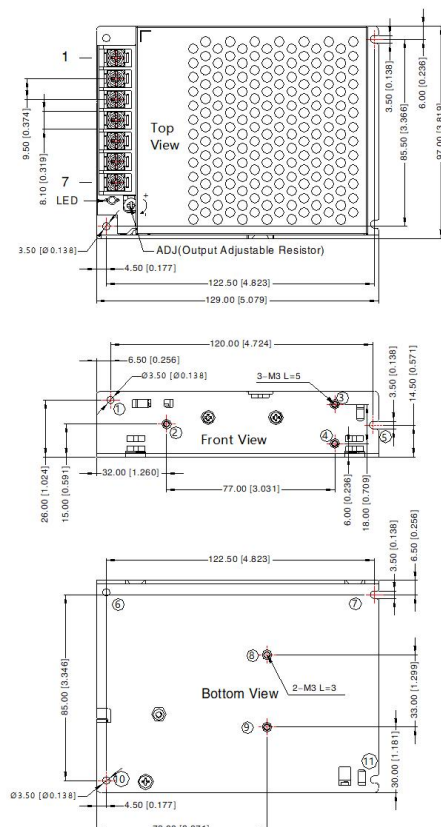


Note: 1. With an AC input voltage between 90-115VAC and a DC input between 120-160VDC the output power must be derated as per the temperature derating curves;

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



Dimensions and Recommended Layout

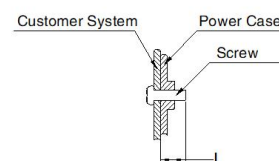


THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	$\oplus$
4	-Vo2
5	+Vo2
6	-Vo1
7	+Vo1

① - ⑪ any position must be connected to the earth ($\oplus$)

Position	Screw Spec.	L(max)	Torque(max)
② - ④	M3	5mm	0.4N·m
⑧ - ⑨	M3	3mm	0.4N·m



Note:

Unit: mm[inch]

Wire range: 22-12AWG

Connector tightening torque: M3.5, 0.8N·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: 58220383;
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 ($\oplus$) 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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