

20W, AC-DC converter



RoHS

FEATURES

- 165 - 264V Universal AC or wide 230 - 370V DC Input
- High I/O isolation test voltage of up to 3000VAC
- Triple output, regulated, high output voltage accuracy
- High efficiency up to 78%
- Output short circuit, over-current, over-voltage protection
- Safety Class: CLASS II

LO20-10C0512-01 is one of Mornsun's compact size power converter. The product features high efficiency, high reliability and reinforced insulation. It offers excellent EMC performance, meets IEC62368 safety standard.

Selection Guide

Part No.	Output Power	Nominal Output Voltage and Current			Efficiency at 230VAC (%) Typ.	Capacitive Load (μ F) Max.		
		Vo1/Io1	Vo2/ Io2	-Vo2/ -Io2		Vo1	Vo2	-Vo2
LO20-10C0512-01	18.7W	5V/500mA	12V/1200mA	-12V/150mA	78	680	1000	330

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	165	--	264	VAC
	DC input	230	--	370	VDC
Input Frequency		47	--	63	Hz
Input Current	165VAC	--	--	0.4	A
	230VAC	--	--	0.3	
Inrush Current	165VAC	--	23	--	
	230VAC	--	30	--	
Recommended External Input Fuse		2A/250V, slow-blow, required			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Vo2	--	--	± 2	%
	-Vo2/Vo1	--	--	± 3	
Line Regulation	Full load	Vo2	± 0.5	--	
		-Vo2/Vo1	± 1.5	--	
Load Regulation	10% -100% load	Vo2	± 3	--	
		-Vo2/Vo1	± 5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	100	200	mV
Short Circuit Protection		Continuous, self-recovery -Vo2/Vo1 Short Circuit, other normal output; Vo2 Short Circuit, all Short Circuit Protection			
Over-current Protection		$\geq 150\% I_o$			
Over-voltage Protection	Vo2	$\leq 20VDC$ (-Vo2/Vo1 normal output)			
Minimum Load	Vo2	10	--	--	%
	-Vo2/Vo1	0	--	--	
Hold-up Time	165VAC input (Vo2)	--	10	--	ms
	230VAC input (Vo2)	--	35	--	

Note: * The "parallel cable" 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	Input-output	3000	--	--	VAC
	Vo2/(-Vo2)- Vo1	500	--	--	VDC
Operating Temperature		-25	--	+70	°C
Storage Temperature		-25	--	+85	
Storage Humidity	No condensation environment	--	--	90	%RH
Soldering Temperature	Wave-soldering	260 ± 5 °C; time:5 - 10s			
	Manual-welding	360 ±10 °C; time:3 - 5s			
Switching Frequency		--	65	--	kHz
Power Derating	+55°C to +70°C	2	--	--	%/°C
Safety Standard		UL62368/EN62368/IEC62368			
Safety Class		CLASS II			
MTBF		MIL-HDBK-217F@25°C ≥ 300,000 h			

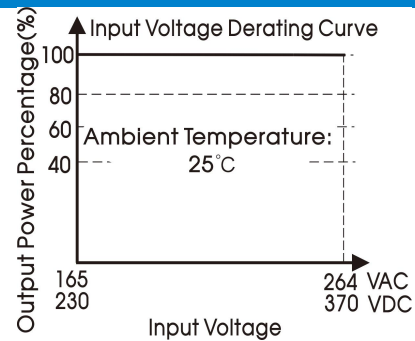
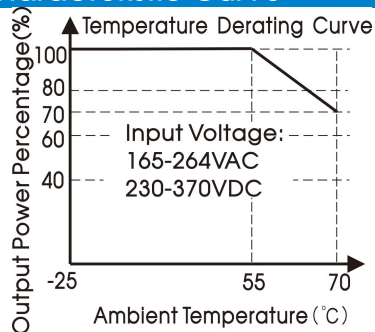
Mechanical Specifications

Dimension	70.00 x 48.00 x 23.00 mm
Weight	53g(Typ.)
Cooling method	Free air convection

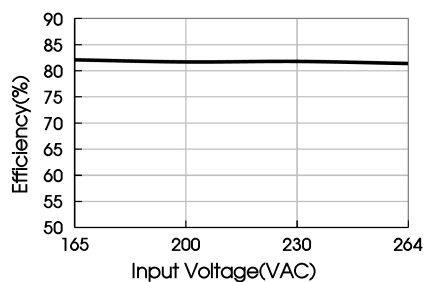
Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±4KV/Air ±6KV	Perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria B
	Surge	IEC/EN61000-4-5	±1KV	perf. Criteria B
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria B

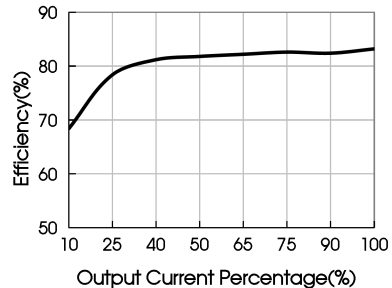
Product Characteristic Curve



Note: ① This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.
Efficiency Vs Input Voltage (Full Load)

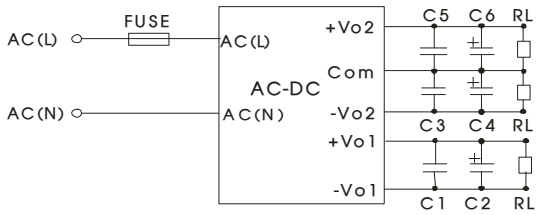


Efficiency Vs Output Load (Vin=230VAC)



Design Reference

1. Typical application



Model	C1, C3, C5	C2, C4, C6	FUSE
LO20-10C0512-01	1μF/25V	100μF/25V	2A/250V, slow-blow, required

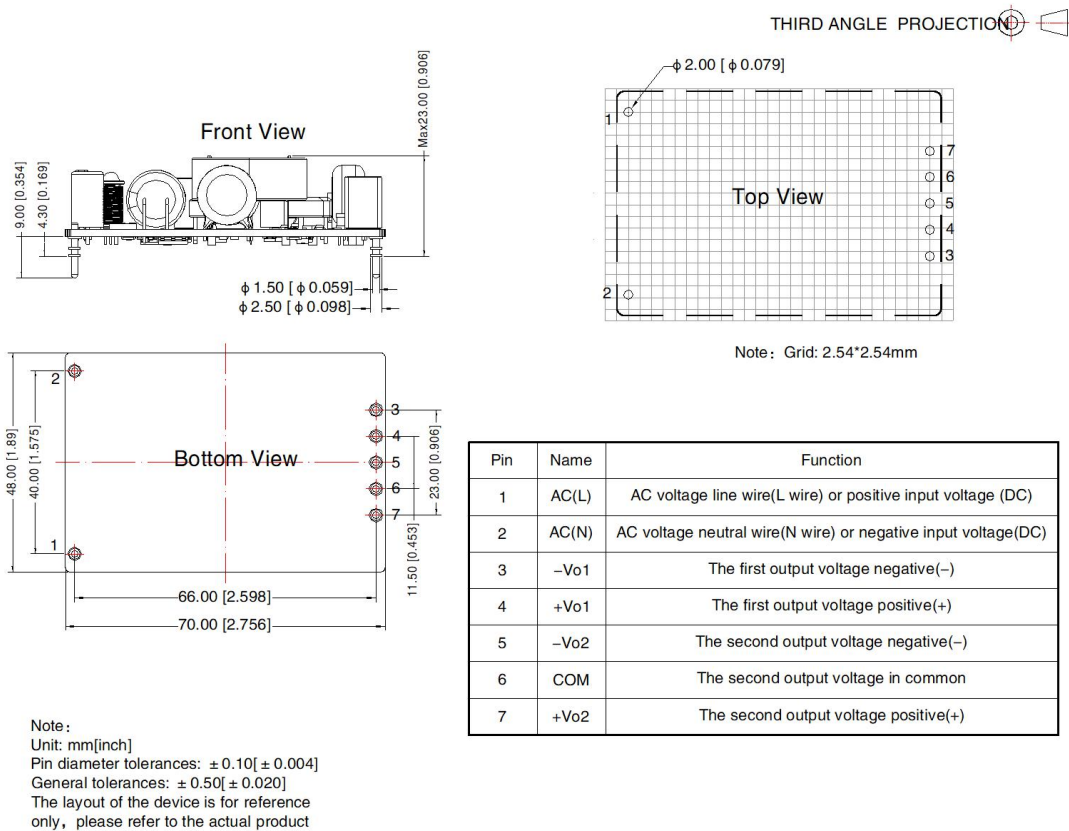
Fig. 1: Typical circuit diagram

External Filter Components:

We recommend using an electrolytic capacitor with high frequency and low ESR rating for C2, C4 and C6 (refer to manufacture’s datasheet). Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1, C3, C5 are ceramic capacitors, used for filter high-frequency noise. An external 2A/250V slow blow input FUSE is also required.

2. For additional information please refer to application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Notes:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220006;
- If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on our company corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- Specifications are subject to change without prior notice.

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