15W, AC-DC converter

CE EN62368-1 RoHS 3 years Warranty

FEATURES

- 85-264 VAC and 100 - 370VDC input voltage range
- Operating ambient temperature range: -25℃ to +70℃
- Output short circuit, over-current, over-voltage protection
- High reliability, regulated output, low output ripple & noise
- EMI performance meets CISPR32 / EN55032 CLASS B

LO15-10A/Dxx series is one of Mornsun's compact size power converter. It features universal AC input and at the same time accepts DC input voltage, low power consumption, high efficiency, high reliability, reinforced isolation. It offers good EMC performance compliant to IEC/EN61000-4, CISPR32/EN55032, UL/EN/IEC62368, and meets IEC/EN60335 standards. The converters are widely used in industrial, office and civil applications. For extremely harsh EMC environment, we recommend using the application circuit show in Design Reference of this datasheet.

Selection Guide

Certification	Part No.*	Output Power	Nominal Output Voltage and Current		Efficiency at 230VAC (%) Typ.	Capacitive Load (μF) Max.	
			(Vo1/Io1)	(Vo2/Io2)		Vo1	Vo2
EN	LO15-10D0512-07	15W	5V/1260mA	12V/720mA	80	10000	1200
	LO15-10D0524-05		5V/720mA	24V/480mA	80	3000	1000
	LO15-10D0505-15		5V/1500mA	5V/1500mA	76	10000	2000
	LO15-10A12		+12V/625mA	-12V/625mA	79	2600	2600
	LO15-10A15		+15V/500mA	-15V/500mA	81	2400	2400

Note: *LO15-10AXX takes positive and negative output as sampling feedback; LO15-10DXX takes Vo1 as sampling feedback and is defined as the main output.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	AC input	85	--	264	VAC
	DC input	100	--	370	VDC
Input Frequency		47	--	63	Hz
Input Current	115VAC	--	--	370	mA
	230VAC	--	--	220	
Inrush Current	115VAC	--	20	--	A
	230VAC	--	30	--	
Leakage Current	240VAC	0.25mA Max.			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions			Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Vo1			--	±2	--	%
	Vo2 (LO15-10Axx)			--	±4	--	
	Vo2 (LO15-10Dxx)			--	±6	--	
Line Regulation	Vo1	LO15-10D0505-15		--	±1	--	
		others		--	±0.5	--	
	Vo2			--	±2	--	
Load Regulation	Balanced load	LO15-10Axx		--	±2	--	
		LO15-10Dxx	Vo1	--	±1	--	
			Vo2	--	±4	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value), room temperature		Vo1	--	--	50	mV
			Vo2	--	--	200	
Stand-by Power Consumption	230VAC			--	--	0.5	W

Temperature Coefficient	Vo1	--	±0.02	--	%/℃
Short Circuit Protection		Hiccup, continuous, self-recovery			
Over-current Protection		≥110%Io, self-recovery			
Over-voltage Protection	5VDC output	≤7.5V		Output voltage hiccup or clamp	
	12VDC output	≤20V			
	15VDC output	≤22V			
Minimum Load		10	--	--	%
Hold-up Time	115VAC input	--	10	--	ms
	230VAC input	--	60	--	

Note: *The "Tip and barrel method" is used for ripple and noise test, with a 0.1uf ceramic capacitor & 47uf parallel capacitor, please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output	Electric Strength Test for 1min., leakage current <5mA	3000	--	--	VAC
	Vo1-Vo2 (LO15-10Dxx)		500	--	--	VDC
Operating Temperature			-25	--	+70	℃
Storage Temperature			-25	--	+85	
Storage Humidity			--	--	90	%RH
Altitude			--	--	2000	m
Power Derating		-25℃ to -10℃	1.0	--	--	%/℃
		+50℃ to +70℃	3.0	--	--	
		85VAC-100VAC	1.67	--	--	%/VAC
Safety Standard			EN62368-1 (Report); Design refer to UL/IEC62368-1, EN/ IEC60335-1			
Safety Class			CLASS Ⅱ			
MTBF			MIL-HDBK-217F@25℃ >300,000 h			

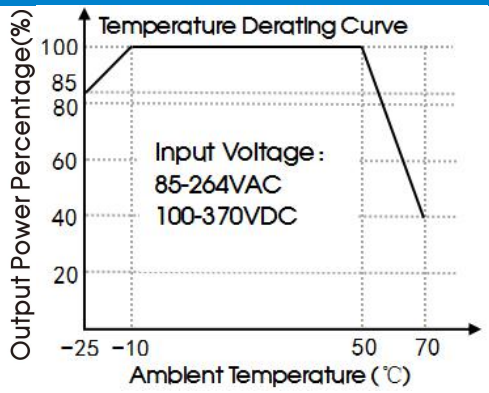
Mechanical Specifications

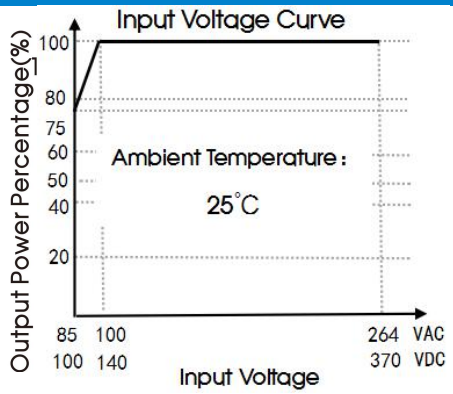
Dimension	63.50 x 45.70 x 21.00mm
Weight	40g (Typ.)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

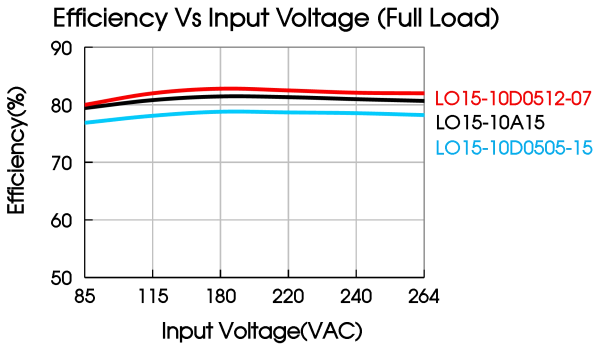
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV	perf. Criteria B
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria B
	Surge	IEC/EN61000-4-5	line to line ±1KV	perf. Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
	Voltage dips, short interruption and voltage variations	IEC/EN61000-4-11	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods	perf. Criteria B

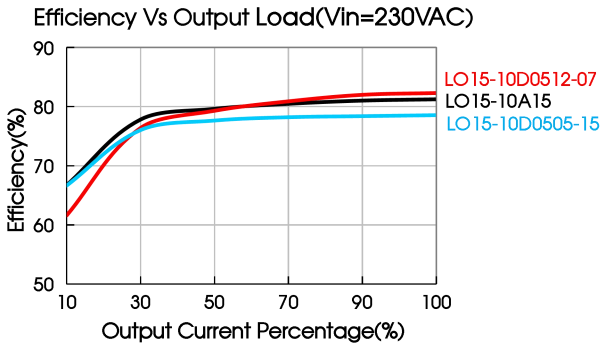
Product Characteristic Curve





Note: ① With an AC input between 85-100VAC and a DC input between 100-140VDC, the output power must be derated as per temperature derating curves;
② This product is suitable for applications using natural air cooling; for applications in closed environment please consult factory or one of our FAE.





Design Reference

1. Typical application

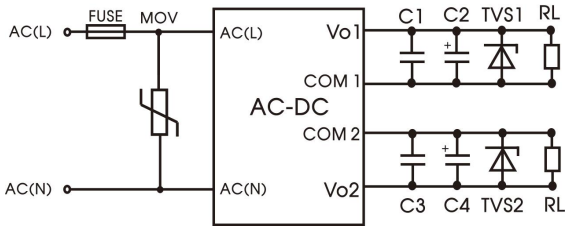


Fig. 1: Typical circuit diagram (LO15-10Axx Series)

Part No.	FUSE	MOV	C1, C3 (μF)	C2, C4 (μF)	TVS1, TVS2
LO15-10A12	2A/250V slow-blow	S14K300	0.1	47	SMBJ20A
LO15-10A15					SMBJ20A

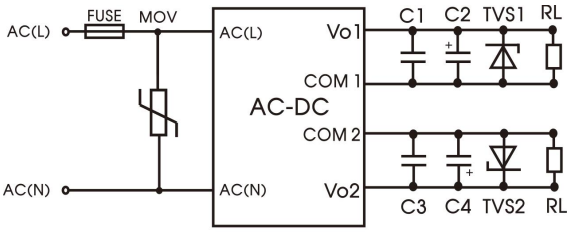


Fig. 2: Typical circuit diagram (LO15-10Dxx Series)

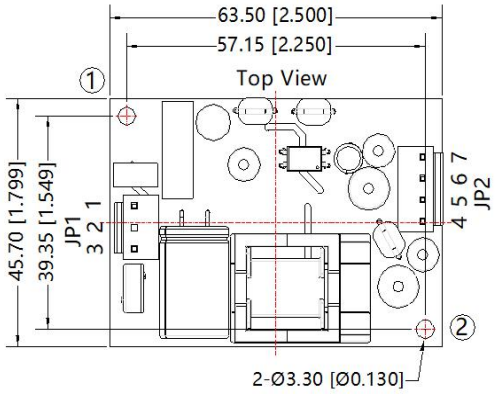
Part No.	FUSE	MOV	C1, C3 (μF)	C2, C4 (μF)	TVS1	TVS2
LO15-10D0505-15	2A/250V slow-blow	S14K300	0.1	47	SMBJ7.0A	SMBJ7.0A
LO15-10D0512-07					SMBJ7.0A	SMBJ20A
LO15-10D0524-05					SMBJ7.0A	SMBJ30A

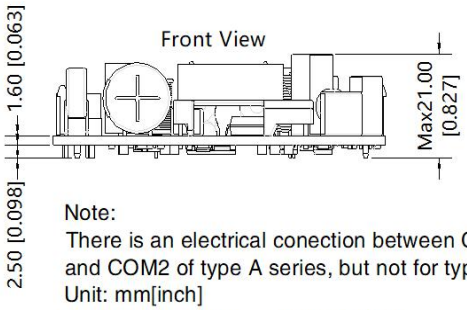
Output Filter Components:
1.We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2, C4 (refer to manufacture's datasheet). C1, C3 are ceramic capacitors used for filtering high-frequency noise. Choose a capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. And TVS is a recommended suppressor diode to protect the application in case of a converter failure.
2. For LO15-10Axx series, COM1 and COM2 are electrically connected, but not for LO15-10Dxx series.

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

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION

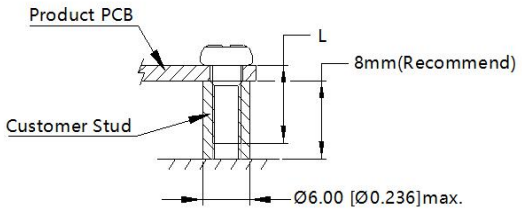




Note:
There is an electrical conection between COM1 and COM2 of type A series, but not for type D series
Unit: mm[inch]
General tolerances: ±0.50[±0.020]
The layout of the device is for reference only, please refer to the actual product

Pin-Out			
Connectors	Pin	Mark	Client Connectors
JP1	1	AC(L)	Housing: JST VHR Contact:JSTSVH-21T-P1.1 or equivalent
	2	No Pin	
	3	AC(N)	
JP2	4	Vo2	Housing: JST VHR Contact: JSTSVH-21T-P1.1 or equivalent
	5	COM2	
	6	COM1	
	7	Vo1	

Position	Screw Spec.	L(Recommend)	Torque(max)
① - ②	M3	6mm	0.4N·m



Note:
1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220006;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

Mornsun Guangzhou Science & Technology Co., Ltd.
Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China
Tel: 86-20-38601850 Fax: 86-20-38601272 E-mail: info@mornsun.cn www.mornsun-power.com