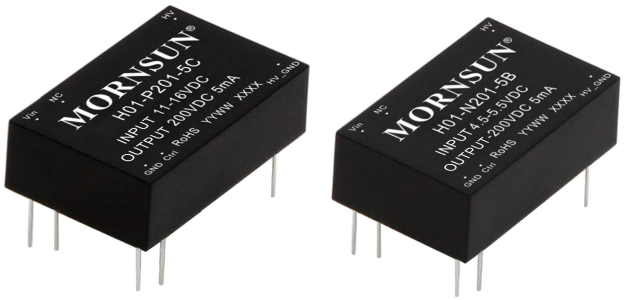
DC/DC Converter

HO1-P201-5C & HO1-N201-5B

MORNSUN®

Non-isolated DC-DC converter
Fixed input voltage and regulated single output



FEATURES

- Output ripple as low as 10mV
- Output voltage with high stability, low time coefficient and temperature coefficient
- Ultra wide operating ambient temperature range: -40℃ to +105℃
- Output short-circuit protection, over-current protection
- EMI meet CISPR32/EN55032 CLASS B
- Meet EN62368 standards

Patent Protection RoHS

HO1-P201-5C & HO1-N201-5B offer 1W of output, with ultra wide operating ambient temperature range -40℃ to +105℃, output short circuit protection, over-current protection, low ripple, low time coefficient and temperature coefficient, which are specifically designed for applications in board power systems where high voltages are required and output ripple requirements are high and output voltage stability is critical. Products are widely applicable to: abalanche photodiodes, mass spectrum, light spectrum, light spectrum, ion beam and other high voltage applications.

Selection Guide

Certification	Part No.	Input Voltage (VDC) Nominal (Range)	Input Current ①(mA) Full load/No-load Typ.	Input Current ①(mA) Full load/No-load Max.	Output Voltage (VDC) Nominal	Output Current (mA) Max./Min.
--	HO1-P201-5C	12 (11-16)	140/12	160/20	200	5/0
	HO1-N201-5B	5 (4.5-5.5)	365/15	385/30	-200	5/0

Note:
①At the nominal input voltage and nominal output voltage.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Reflected Ripple Current①	nominal input voltage		--	30	--	mA
Surge Voltage (1sec. max.)	nominal input voltage	HO1-P201-5C	--	--	18	VDC
		HO1-N201-5B	--	--	10	
Input Filter Type			PI filter			
Hot Plug			Unavailable			
Ctrl②	Power on		Ctrl open or low level (0-1.2VDC)			
	Power off		Ctrl connect with high level (1.55-10VDC)			
	Input current when off	HO1-P201-5C	--	--	15	mA
		HO1-N201-5B	--	--	25	

Note:
① Refer to DC-DC Converter Application Notes for detailed description of reflected ripple current test method;
② The level of the Ctrl end relative to the input GND.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Input voltage range, 0%-100% load	--	±2	±4	%
Linear Regulation	Input voltage range, nominal output voltage, full load	--	±0.01	±0.05	

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Load Regulation	Nominal input voltage, nominal output voltage, 10%-100% load		--	±0.01	±0.05	
Time Coefficient	Nominal input voltage, nominal output voltage, full load after warming up for 30 minutes		--	±0.03	±0.05	%/Hr
Temperature Coefficient	Nominal input voltage, nominal output voltage, full load		--	±300	--	PPM/℃
Ripple & Noise①	20MHz bandwidth, nominal input voltage, 0%-100% load	HO1-P201-5C	--	10	28	mVp-p
		HO1-N201-5B	--	15	30	
Over-current Protection / Short-circuit Protection	Input voltage range		105	110	120	%Io
			Constant current mode, continuous, self-recovery			

Note:
① Please refer to fig.2 for the test method of ripple and noise.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Operating Temperature	See Fig. 1	-40	--	+105	℃
Storage Temperature		-55	--	+125	
Storage Humidity	Non-condensing	5	--	85	%RH
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	℃
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Switching Frequency	Nominal input voltage, full load	--	200	--	kHz
MTBF	MIL-HDBK-217F@25℃	1000	--	--	k hours

Mechanical Specifications

Case Material	Black flame-retardant and heat-resistant plastic (UL94 V-0)
Dimensions	31.60 x 20.30 x 10.20 mm
Weight	12.30g (Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility

EMI	CE	CISPR32/EN55032 CLASS B (For HO1-P201-5C, with external 10uF/25V MLCC capacitor at the input) (For HO1-N201-5B, with external 47uF/25V MLCC capacitor at the input)	
	RE	CISPR32/EN55032 CLASS B (without extra components)	
EMS	ESD	IEC/EN61000-4-2 Contact ±4kV	perf. Criteria B
	RS	IEC/EN61000-4-3 10V/m	perf. Criteria B
	EFT	IEC/EN61000-4-4 100kHz ±2kV (see Fig.3 for recommended circuit)	perf. Criteria B
	Surge	IEC/EN61000-4-5 line to line ±2kV (see Fig.3 for recommended circuit)	perf. Criteria B
	CS	IEC/EN61000-4-6 3 Vr.m.s	perf. Criteria B

Product Characteristic Curve

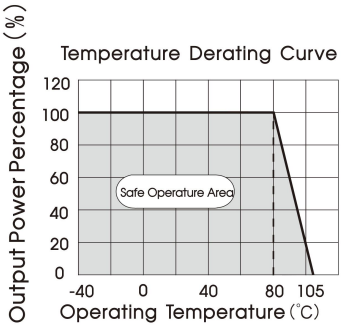


Fig. 1

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Design Reference

1. Ripple & Noise testing compliance circuit

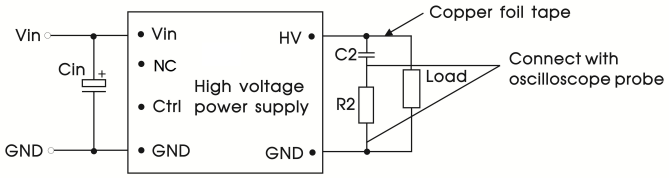


Fig.2 Ripple & Noise test recommended circuit

Parameter description:

Cin	100 μF/50V Aluminum electrolytic capacitor
R2	1kΩ/2W Resistance
C2	472K/2000V Capacitance

2. EMC compliance circuit

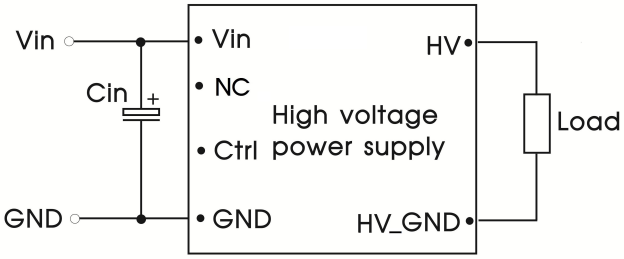


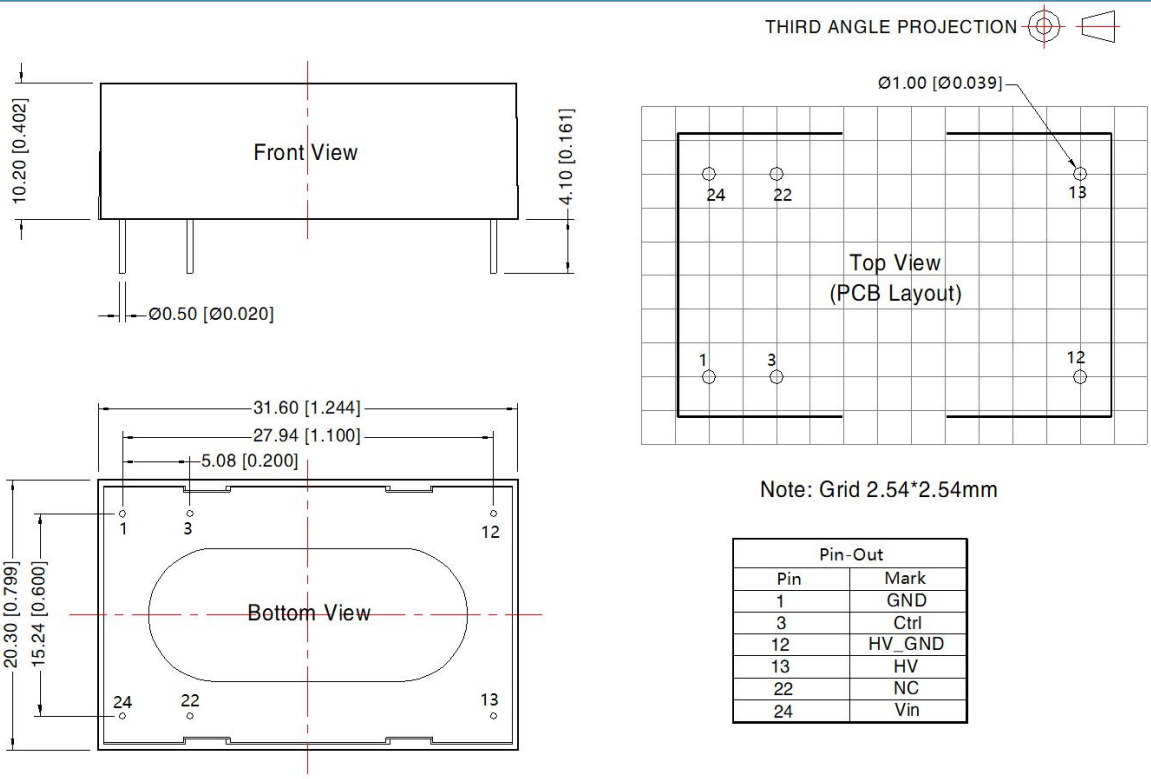
Fig. 3 EMC recommended circuit

Parameter description:

Cin	For HO1-P201-5C: 680uF/25V Aluminum electrolytic capacitor
	For HO1-N201-5B: 4700uF/25V Aluminum electrolytic capacitor

3. For additional information please refer to DC-DC converter application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Note: Grid 2.54*2.54mm

Pin-Out	
Pin	Mark
1	GND
3	Ctrl
12	HV_GND
13	HV
22	NC
24	Vin

Note:
Unit: mm[inch]
Pin diameter tolerances: ± 0.10[± 0.004]
General tolerances: ± 0.50[± 0.020]

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Notes:

1. For additional information please refer to Product Packaging Information. Packaging bag number: 58210008;
2. 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;
3. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
4. All index testing methods in this datasheet are based on our company corporate standards;
5. We can provide product customization service;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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