


Typical Features	
◆	Fixed input voltage, isolated & unregulated, output power 0.25W
◆	Efficiency up to 82%
◆	Mini SIP package
◆	Isolation Voltage 1500VDC
◆	Operating Temperature: -40°C~+105°C
◆	Plastic Case flame class UL94 V-0



Test Condition: Unless otherwise specified, data in the datasheet should be tested at inputting rated voltage, rated load /Ta=25°C

Application Field

This series convertors could be widely used for instrument, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchanging circuit, etc.

Typical Product List

Part No.	Input Voltage Range (VDC)		Output Voltage/Current (Vo/Io)		Input Current(mA) Rated Voltage		Max. Capacitive Load uF	Ripple & Noise (Max.) mVp-p	Efficiency (%)@full load, rated input voltage	
	Rated	Range	Voltage (VDC)	Current(mA) MAX./Min.	Full load Typ.	No Load Typ.			Min.	Typ.
NNV25-05S05AN	5	4.5 - 5.5	5	50/5	56	8	2400	100	80	82

To ensure that the convertor can work efficiently and reliably, its minimum load should not be less than 10% of the rated load. It is recommended to connect a resistor in parallel at the output when the real load is less than 10% (the sum of the power consumed should be bigger than or equal to 10% of the rated power).

Input Specifications

Item	Test Condition	Min.	Typ.	Max.	Unit
Input Overshoot Voltage (1Second.max.)	5Vdc Input	-0.7	-	9	VDC
Input Filter	Capacitor Filter				

Output Specifications

ITEM	Working Conditions	Min.	Typ.	Max.	Unit
Output Power		0.025	--	0.25	W
Output Voltage Accuracy	Nominal input, Full load	--	±2	±5	%
Load Regulation	10% ~ 100% nominal load	3.3Vdc output	--	20	
		Other output	--	15	

Line Voltage Regulation	Input Voltage at ±1%	3.3Vdc output	--	--	±1.5	%
		Other output	--	--	±1.2	
Ripple & Noise①	Rated input, full load,20MHZ bandwidth		--	75	100	mVp-p
Temperature Drift Coefficient	100% Load		--	--	±0.03	%/°C
Output Short Circuit Protection	Continuous, self-recovery					

NOTE:① Ripple & Noise Tested by twisted-pair method.

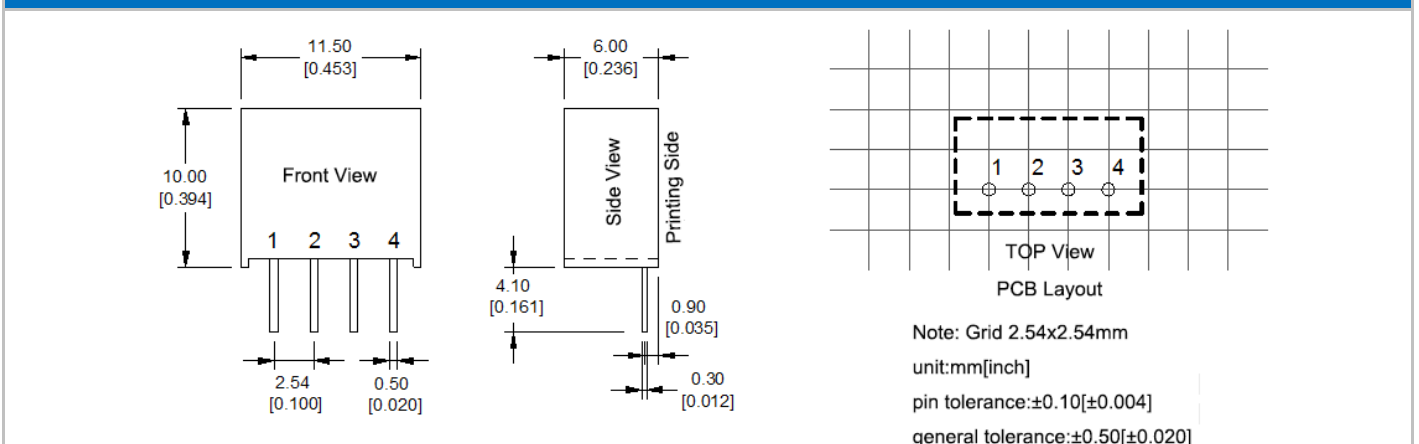
General Specifications

Switching Frequency	Full load	330KHz (Typ.)
Operating Temperature	Refer to Temperature Derating Curve	-40°C ~ +105°C
Storage Temperature		-55°C ~ +125°C
Shell temperature rise during work	Within Temperature Derating Curve	25°K(Typ.)
Relative Humidity	No condensing	5%~95%
Case Material		Plastic in Black, flame class UL94 V-0
Pin soldering temperature	Distance to case 1.5mm, 10S	300°C MAX
Isolation Voltage	Test 1 minute, leakage current<0.5mA	1500Vdc
Isolation Capacitor	Input/Output, 100KHz/0.1V	20 pF (Typ.)
MTBF	MIL-HDBK-217F@25°C	35X10 ⁵ Hrs
Product Weight		1.4g (Typ.)
Package	Tube size (525*18*10mm)	43PCS
	Carton size (542*110*155mm)	3440PCS (Total 80 Tubes)

EMC Performance

EMI	CE	CISPR32/EN55032 CLASS B (EMC recommended circuit)
	RE	CISPR32/EN55032 CLASS B (EMC recommended circuit)
EMS	ESD	IEC/EN61000-4-2 Air±8kV, Contact±6kV perf.Criteria B

Mechanical Dimensions



Packing Code	L x W x H	
A	11.50× 6.00 × 10.00 mm	0.453 × 0.236 × 0.394 inch

Pin Function

Single(S)	1	2	3	4
	GND	+Vin	-Vo	+Vo

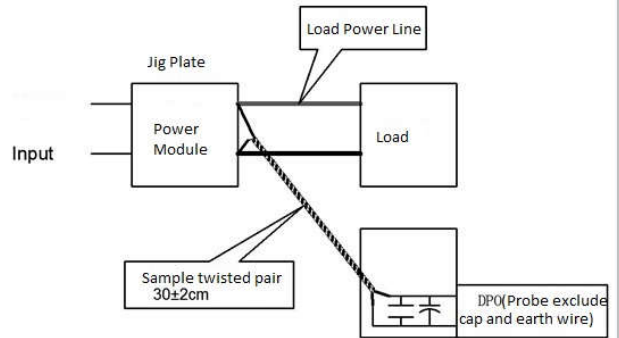
Note: The marking on the converter label shall be available if the actual pins definitions are not identical with those in the manual.

Ripple& Noise Test Instruction (Twisted Pair Method, 20MHZ bandwidth)

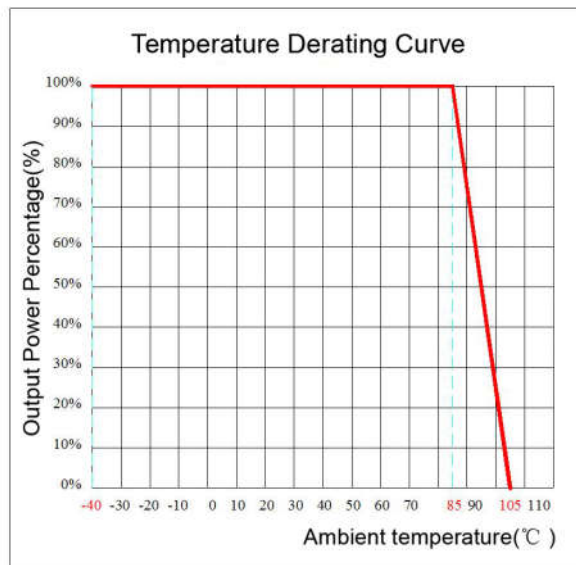
Test Method:

1) Ripple noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHZ, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set on the Sample Mode.

2) Please refer to the output ripple noise test diagram. The convertor output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



Product Performance Curve



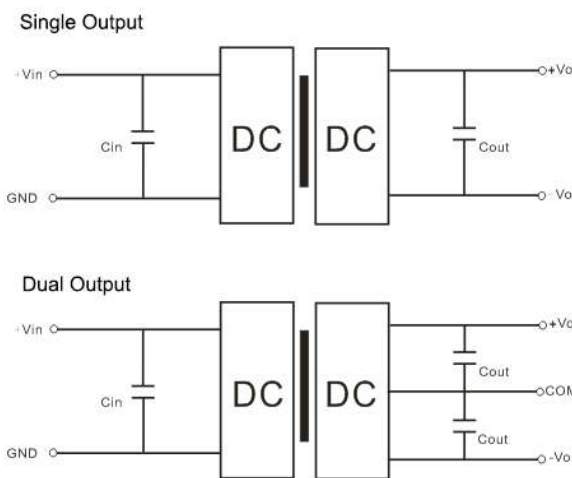
Recommended Circuits for application

1. Output load requirements

- a. To ensure that the converter module can work efficiently and reliably, its minimum load should not be less than 10% of the rated load. It is recommended to connect a resistor in parallel at the output when the real load is less than 10% (the sum of the power consumed should be bigger than or equal to 10% of the rated power).
- b. The maximum capacitive load is tested at rated input and full load. The converter could not start up or be damaged if a capacitive over-load is used.

2. Recommended circuit for application

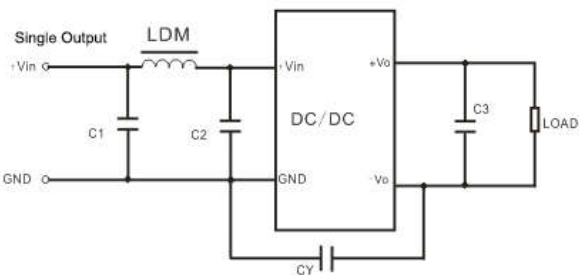
a. In order to improve the output ripple and noise, capacitor filters can be connected to the input and output. The application circuit is shown in below figure; a suitable capacitor should be selected. If the capacitance is too large, it may affect the product startup. The capacitive load values in Table 1 are recommended (The external capacitor is unnecessary for application circuit with output power less than 0.5W)



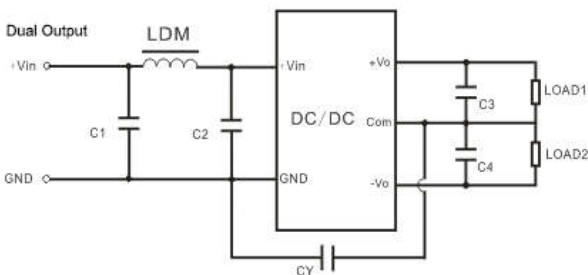
Recommended capacitive load value (Table 1)

Vin (Vdc)	Cin	Single Vout Vdc	Cout (μF)	Dual Vout (Vdc)	Cout (μF)
5	10 μF/16V	3.3	10 μF/16V	±3.3	4.7 μF/16V
12	2.2 μF/25V	5	10 μF/16V	±5	4.7 μF/16V
15	2.2 μF/25V	9	2.2 μF/25V	±9	2.2 μF/25V
24	1 μF/50V	12	2.2 μF/25V	±12	1 μF/25V
--	--	15	1 μF/25V	±15	1 μF/16V
--	--	24	1 μF/50V	±24	0.47 μF/50V

3 Recommended circuits for EMC



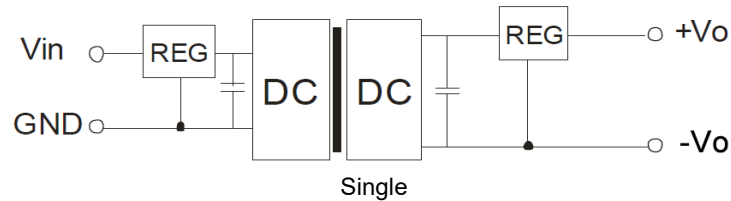
Input Voltage		5VDC	12/15/24VDC
EMI	C1/C2	4.7 μF/16V	4.7 μF/50V
	CY	270pF/2kV	270pF/2kV
	C3	Refer to Cout Spes according to Table 1	
	LDM	6.8 μH	6.8 μH



Input Voltage		5VDC	12/15/24VDC
EMI	C1/C2	4.7 μF/16V	4.7 μF/50V
	CY	270pF/3kVdc	270pF/3kVdc
	C3/C4	Refer to Cout Spes according to Table 1	
	LDM	6.8 μH	6.8 μH

4. Output voltage regulation and overvoltage protection circuit

The simplest device for output voltage regulation, overvoltage and overcurrent protection is to connect a linear voltage regulator with overheat protection in series at its input or output, a capacitor filter is also needed(see the figure below). The recommended value of the filter capacitor can be chosen from Table 1. The linear voltage regulator should be selected according to the actual voltage and current condition. Or Aipu NW series product can be used instead.



Note:

1. This product cannot be used in parallel, and do not support hot-plug.
2. The product performances in this manual cannot be guaranteed if it works at a lower load than the minimum load condition.
3. All values or indicators in this data sheet had been tested based on Aipupower test specifications.
4. The product specifications may be modified without a prior notice. Please refer to the published data sheet in Aipupower website.

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