

Typical Features

- ◆ Fixed input voltage, Isolated & regulated, output power 1W
- ◆ Mini SIP packaging
- ◆ Efficiency up to 78% Typ.
- ◆ Isolation Voltage 3000VDC
- ◆ Operating Temperature -40°C~+85°C
- ◆ Plastic Case, flame class UL94 V-0



Test Condition: Unless otherwise specified, all parameter values had been tested at rated input voltage, pure resistive rated load, and at room temperature 25°C.

Application Field

This series products can be widely used for instrument, communication, pure digital circuit, general low frequency analog circuit, relay drive circuit, data exchange circuit, etc.

Typical Product List

Certificate	Part No.	Input Voltage Range (VDC)		Output Voltage/Current (Vo/Io)		Input Current (mA) Typ. Rated Voltage		Max. Capacitive Load uF	Ripple & Noise① (20MHz) Max/Typ mVp-p	Efficiency (%) @full load/rated voltage	
		Rated	Range	Vo (VDC)	Io(mA) Max/Min	Full load	No Load			Min	Typ
-	NW1-3V3S15B3A	3.3	3.135 - 3.465	15	67	400	15	560	100/50	68	70
-	NW1-05S3V3B3A	5	4.5 - 5.5	3.3	250	280	10	2400	100/50	64	66
-	NW1-05S05B3A			5	200	279	10	2400	100/50	70	72
-	NW1-05S12B3A			12	83	256	15	560	100/50	76	78
-	NW1-05S15B3A			15	67	256	18	560	100/50	75	77
-	NW1-05S24B3A			24	42	276	18	220	100/50	71	73
-	NW1-12S05B3A	12	10.8 - 13.2	5	200	109	10	2400	100/50	75	77
-	NW1-12S09B3A			9	111	110	12	1000	100/50	75	77
-	NW1-12S12B3A			12	83	107	10	560	100/50	75	77
-	NW1-12S15B3A			15	67	103	10	560	100/50	72	74
-	NW1-12S24B3A			24	42	124	10	220	100/50	65	67
-	NW1-15S05B3A	15	14.25 - 15.75	5	200	94	10	2400	100/50	68	70
-	NW1-15S15B3A			15	67	85	11	560	100/50	76	78
-	NW1-24S3V3B3A	24	22.8 - 25.2	3.3	250	60	10	2400	100/50	67	69
-	NW1-24S05B3A			5	200	57	10	2400	100/50	72	74
-	NW1-24S12B3A			12	83	54	10	560	100/50	74	76
-	NW1-24S15B3A			15	67	53	10	560	100/50	75	77
-	NW1-24S24B3A			24	42	63	10	220	100/50	65	67

Note ①: The Ripple and Noise are tested by the twisted pair method.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Inrush Voltage (1Second.max.)	3.3Vdc Input	-0.7	--	7	Vdc
	5Vdc Input	-0.7	--	9	
	9Vdc Input	-0.7	--	12	
	12Vdc Input	-0.7	--	18	
	15Vdc Input	-0.7	--	21	
	24Vdc Input	-0.7	--	30	
Input Filter	Capacitor Filter				
Hot Plug	Unavailable				

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Power		0.1	--	1	W
Output Voltage Accuracy	Rated input, Full load	--	±2	±3	%
Load Regulation	10%-100% load	--	--	±3	
Line Regulation	Input Voltage Change ±1%	--	--	±0.25	
Temperature Drift Coefficient	100% Load	--	--	±0.03	%/°C
Output Short Circuit Protection	Continuous, self-recovery				

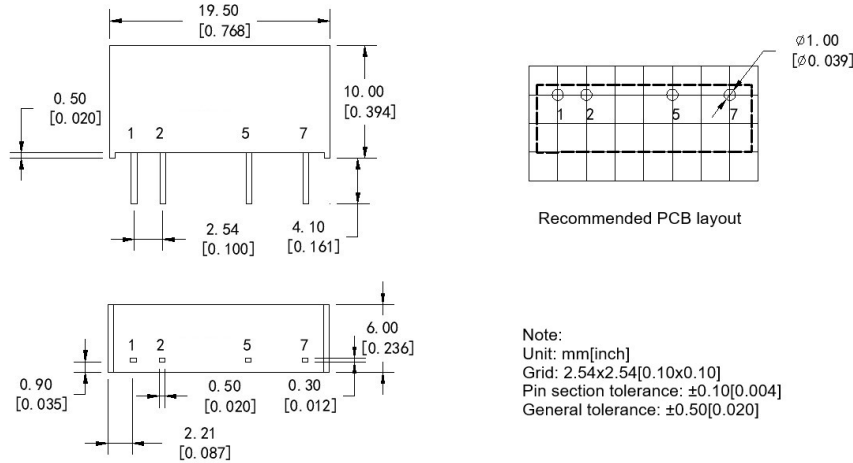
General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Switching Frequency	Rated input voltage, full load	--	260	--	KHz
Operating Temperature	Refer to the temperature derating curve	-40	--	+85	°C
Storage Temperature		-55	--	+125	
Case temperature rise	Operating at Ta =25°C	--	30° K	--	
Pin Soldering Temperature	1.5mm from the case, 10S	--	--	300	
Relative humidity	No condensation	5	--	95	%RH
Isolation Voltage	Input-Output, 1min/leakage current<1mA	3000	--	--	VDC
Insulation Resistance	Input-Output, @ 500Vdc	1000	--	--	MΩ
Isolation Capacitor	Input/Output, 100KHz/0.1V	--	20	--	pF
Vibration		10-150Hz, 5G, 30 Min. along X, Y and Z			
MTBF	MIL-HDBK-217F@25°C	3500	--	--	K hours
Case Material	Plastic in Black, flame class UL94 V-0				
Product Weight	2.1 g (Typ.)				
Cooling Method	Natural air				
Packing	Tube(525*18*10mm)	25PCS			
	Carton(542*110*155mm)	2000PCS (Total 80 Tubes)			
Unit Package Size	L x W x H	19.50× 6.00 × 10.00 mm		0.768 × 0.236 × 0.394 inch	

EMC Performance

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

Mechanical Dimensions



Pin Function

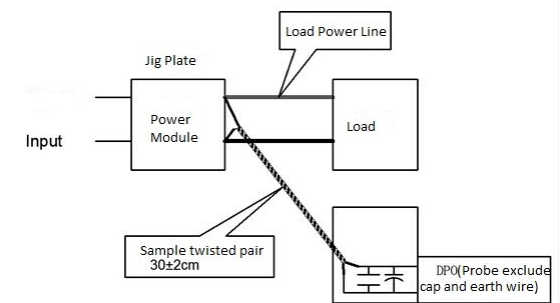
Pin No.	1	2	3,4	5	6	7
Single(S)	+Vin	GND	No Pin	-Vo	No Pin	+Vo

Note: Please take the pin definition on the product label as the right one if there is any difference than the data sheet.

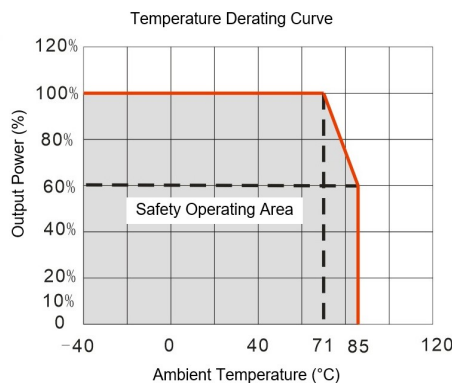
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHz bandwidth)

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 at the Sample Mode.

2) The output ripple noise test diagram is shown on the right. The converter 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



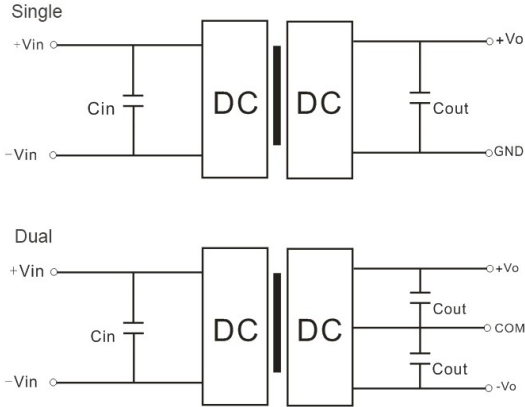
Recommended circuit for Application

1. Requirement for Output load

The maximum capacitive load of the product was tested at the Rated full load. The converter may not start or be damaged if the capacitor exceeds this value.

2. Recommended application circuit

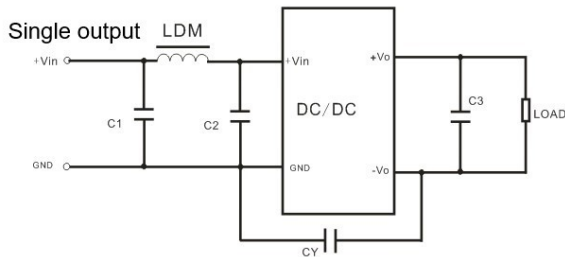
To ensure effectively decrease the input and output ripple and noise, a capacitor filter can be connected at the input and output, the application circuit is shown in the figure below. The suitable filter capacitors should be chosen as the recommended capacitive load values in Table 1. The converter could not start if the capacitance is too big.



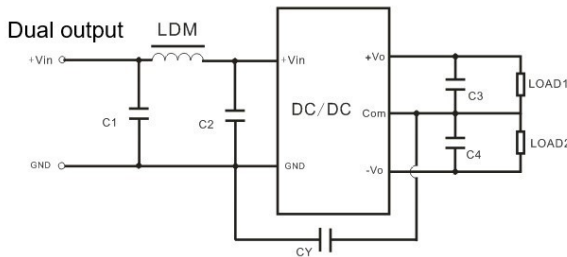
Recommended Capacitive Load Value Table (Table 1)

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 typical EMC circuit



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



Input voltage		5VDC	12/15/24VDC
EMI	C1/C2	4.7μF/16V	4.7μF/50V
	CY	270pF/2KVdc	270pF/2KVdc
	C3/C4	Refer to Cout in Table 1	
	LDM	6.8 μH	6.8 μH

Note:

1. This product cannot be used in parallel, and it does not support hot-plugging.
2. The product performance 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 manual had been tested based on Aipupower test specifications.

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