Typical Features

- ◆Fixed input voltage, isolated & regulated output,1W
- ◆Transfer efficiency up to 73%
- ◆Compact SIP package
- ◆No external component required
- ◆Isolation voltage: 3000VDC
- ◆Operating temperature range:-40℃～+85℃
- ◆Plastic case, meet UL94-V0 standard

Test Condition: Unless otherwise specified, data in the datasheet should be tested under the conditions of inputting nominal voltage, pure resistance rated load and Ta=25℃.

Product Named Method:

NW 1 - 05 S 05 B 3

- ⑦3: isoltage voltage 3KVdc, no means isolation voltage 1KVdc
- ⑥19.5*6.0*10mm Plastic packing
- ⑤Output voltage:5V
- ④S:single output; D: dual output
- ③Nominal input voltage 5V
- ②Output Power 1W
- ①±5% fixed input voltage, regulated output series

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Surge Voltage (1sec. max.)	5Vdc Input	-0.7	--	9	Vdc
	12Vdc Input	-0.7	--	18	
	15Vdc Input	-0.7	--	21	
	24Vdc Input	-0.7	--	30	
Input Filter		Filter capacitor			

Output Specifications

Item	Operating Condition		Min.	Typ.	Max.	Unit
Output Power			0.1	--	1	W
Output Voltage Accuracy	Nominal input, full load		--	±2	±5	%
Load Regulation	Nominal input, 10%-100% load	3.3Vdc output	--	--	1.2	
		Other output	--	--	1.0	
Line Regulation	Input voltage change:±5%, full load	3.3Vdc output	--	--	±0.3	
		Other output	--	--	±0.25	
Ripple & Noise*	Nominal input, full load, 20MHz bandwidth		--	75	100	mVp-p
Temperature Coefficient	100% load		--	--	±0.03	%/°C
Output Short Circuit Protection			no			

* Note: Ripple and noise are measured by twisted pair method.

General Specifications

Switching Frequency	typical	100KHz (Typ.)
Operating Temperature	Refer to temperature derating curve	-40℃ ~ +85℃
Storage Temperature		-55℃ ~ +125℃

Casing Temperature Rise	Within temperature derating curve	25℃(Typ.)
Storage Humidity	Non-condensing	5%~95%
Casing Material		Black flame-retardant and heat-resistant plastic(UL94 V-0)
Weight		2.4g (Typ.)
Isolation Voltage	Test 1 minute, leakage current＜0.5mA	3000VDC
Isolation Capacitor	Input/output ,100KHz/0.1V	20 (Typ.)
MTBF	MIL-HDBK-217F@25℃	$35X10^5$Hrs

Typical Product List

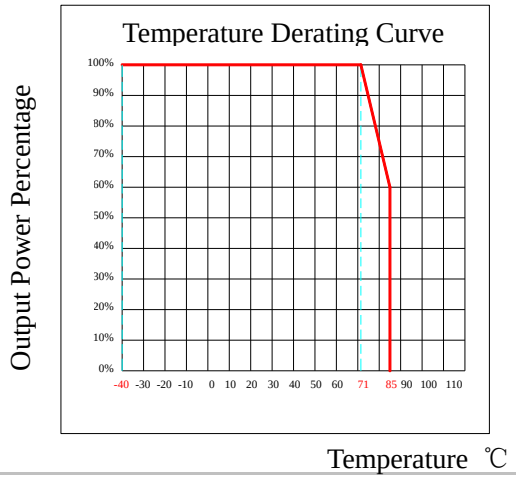
Part No.	Input Voltage Range(VDC)		Output Voltage/Current (Vo/Io)		Input Current(mA) Nominal Voltage		Max. Capacitive Load	Ripple & Noise (Max.)	Efficiency (%)
	Nominal	Range	Voltage (V)	Current (mA)	Full load Typ.	No load Typ.	uF	mVp-p	Typ.
Single Output:									
NW1-3V3S3V3B3	3.3	3.135 - 3.465	3.3	300	522	60	22	100	58
NW1-3V3S05B3			5	200	489		22		62
NW1-3V3S09B3			9	110	473		10		64
NW1-3V3S12B3			12	83	473		10		64
NW1-3V3S15B3			15	67	466		10		65
NW1-3V3S24B3			24	42	481		4.7		63
NW1-05S3V3B3	5	4.75 - 5.25	3.3	300	333	40	22		60
NW1-05S05B3			5	200	286		22		70
NW1-05S09B3			9	110	286		10		70
NW1-05S12B3			12	83	286		10		70
NW1-05S15B3			15	67	286		10		70
NW1-05S24B3			24	42	286	45	4.7		70
NW1-09S3V3B3	9	8.55 - 9.45	3.3	300	185	22	22		60
NW1-09S05B3			5	200	168		22		66
NW1-09S09B3			9	110	161		10		69
NW1-09S12B3			12	83	161		10		69
NW1-09S15B3			15	67	156		10		71
NW1-09S24B3			24	42	159	25	4.7		70
NW1-12S3V3B3	12	11.4 - 12.6	3.3	300	137	17	22		61
NW1-12S05B3			5	200	119		22		70
NW1-12S09B3			9	110	117		10		71
NW1-12S12B3			12	83	119		10		70
NW1-12S15B3			15	67	114		10		73
NW1-12S24B3			24	42	124	22	4.7		67
NW1-15S3V3B3	15	14.25 - 15.75	3.3	300	109	13	22		61
NW1-15S05B3			5	200	97		22		69
NW1-15S09B3			9	110	95		10		70
NW1-15S12B3			12	83	95		10		70
NW1-15S15B3			15	67	97		10		69
NW1-15S24B3			24	42	97	15	4.7		69

NW1-24S3V3B3	24	22.8 - 25.2	3.3	300	69	11	22	100	60
NW1-24S05B3			5	200	62		22		67
NW1-24S09B3			9	110	62		10		67
NW1-24S12B3			12	83	60		10		69
NW1-24S15B3			15	67	60		10		69
NW1-24S24B3			24	42	62	12	4.7		67

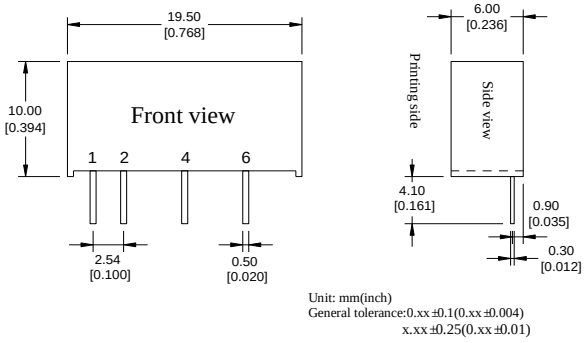
Note: 1.“*” is model under developing;

2. To ensure the module work efficiently and reliably, during the operation, the min. output load should be no less than 10% of the rated load. If the actual power is too low, please connect a resister to the output terminal in parallel, with a recommenced resistance which is 10% of the rated power.

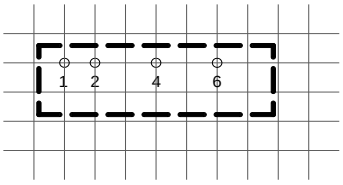
Temperature Curve



Packing Dimension, Pin Function, Recommended PCB layout



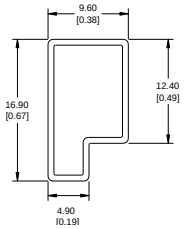
Packing Dimension



Printed board vertical view

Lattic spacing:2.54mm(0.1inch)

Recommended PCB layout



Unit:mm[inch]
General tolerance: x.x±0.5mm[x.x±0.020inch]
0.x±0.2mm[0.x±0.008inch]

Packing

Pin Function	Single(S)	1	2	3	4	5	6
		+Vin	GND	--	-Vo	--	+Vo

Note: If the definition of pin is not in accordance with the model selection manual, please refer to the label on actual item.

Packing Dimension

Packing Code	L x W x H	
B	19.50× 6.00 × 10.00mm	0.768 × 0.236 × 0.394inch

Design and Application Circuit Reference

1. Output load request

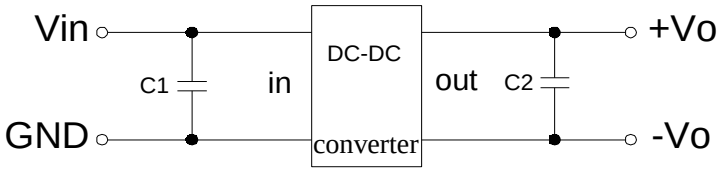
a. To ensure the module work efficiently and reliably, the minimum load should be no less than 10% of the nominal load ; If the actual output power is indeed low, please connect a resister to the output terminal in parallel, with a recommenced resistance which is 10% of the rated power.

b. The maximum capacitive load is tested under nominal input full load, and it cannot exceed the maximum capacitive load of output when using, otherwise it will make it difficult to startup and damage the product.

2. Recommended Circuit

In order to ensure the ripple and noise of input and output reduced, a filter capacitor net can be connected to the input and output terminals, application circuit see Photo 1. Moreover, choosing suitable filter capacitor is very important, start-up problems may be caused by too large capacitance. To ensured the modules running well, the recommended capacitive load values as shown in Table 1.(but for actual output power of application circuit less than 0.5W, recommend not to connect external capacitor)

Photo 1



Recommended capacitive load value(Table1)

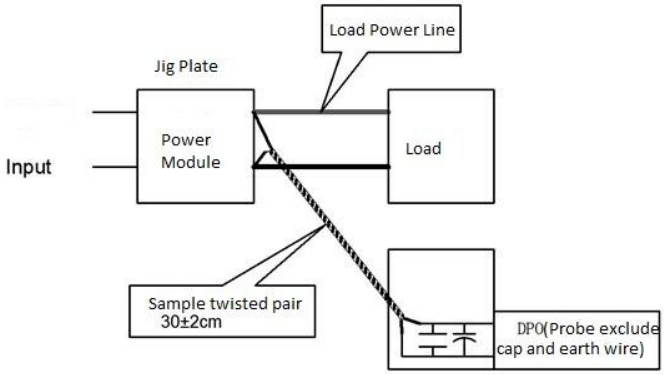
Vin (Vdc)	C1 (μF)	Vout (Vdc)	C2 (μF)
3.3/5	4.7	3.3/5	10
12	2.2	9	4.7
15	1	12	2.2
24	1	15	1
--	--	24	0.47

3.Ripple& Noise Test(20MHZ bandwidth)

Twisted Pair Test Method:

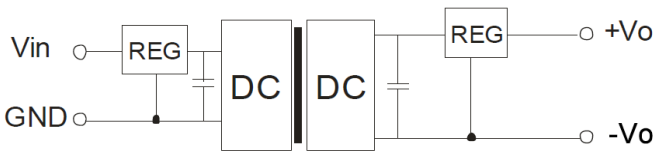
a.12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 47uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

b. Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



4.Output over voltage protection circuit

The simplest device to protect output over voltage and over current is, to cascade a linear regulator with overheat protection at input or output side, and connect a filter capacitor net(see picture below), filter capacitance recommended value see table 1, linear regulator is chosen according to the actual operating voltage and current needed.



Note:1.This product cannot be used in parallel, do not support hot-plug either;

2. If the product is operated below the required minimum load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;

3. All index testing methods in this datasheet are based on our Company's corporate standards;

4. Specifications are subject to change without prior notice.