

## J\_N-1W Series

# FIXED INPUT ISOLATED & UNREGULATED 1W OUTPUT QUAD OUTPUT MINIATURE DIP PACKAGE



## RoHS multi-country patent protection

## **FEATURES**

- Small Footprint
- Super miniature DIP Package
- 1kVDC Isolation
- Temperature Range: -40°C~+85°C
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- No External Component Required
- MTBF>3,500,000 hours
- RoHS Compliance

## **APPLICATIONS**

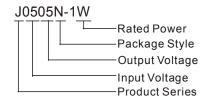
The J\_N-1W Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation ≤±10%);
- 2) Where isolation is necessary between input and output (isolation voltage =1000VDC);
- 3) Where the regulation of the output voltage and the output ripple and noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits and IGBT power device driven circuits, etc.

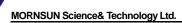
### **MODEL SELECTION**



PRODUCT PROGRAM							
Part Number	Input		Output			⊏#:sisses	Daaltana
	Voltage (VDC)		Vo1, Vo2	lo1, lo2 (mA)		Efficiency (%, Typ)	Package Style
	Nominal	Range	(VDC)	Max	Min	(70, 197)	Ciyio
J0505N-1W	5	4.5~5.5	5	50	5	73	DIP
J1205N-1W	12	4.5~5.5	5	50	5	74	DIP

COMMON SPECIFICATION				
Short circuit protection	1 second			
Temperature rise at full load	25°C MAX, 15°C TYP			
Cooling	Free air convection			
No load power consumption	10% nominal power (typical)			
Operation temperature range	-40°C~+85°C			
Storage temperature range	-55°C ~+125°C			
Lead temperature*	300°C (1.5mm from case for 10 seconds)			
Storage humidity range	≤95%			
Case material	Plastic(UL94-V0)			
MTBF	>3,500,000 hours			

ISOLATION SPECIFICATIONS						
Item	Test condition	Min	Тур	Max	Units	
Isolation voltage	Tested for 1 minute	1000			VDC	
Isolation resistance (Vin/Vout)	Test at 500VDC	1000			ΜΩ	
Isolation resistance (Vo/Vo)	Test at 500VDC 1				ΜΩ	
OUTPUT SPECIFICATIONS						
Item	Test condition Min		Тур	Max	Units	
Output power		0.1		1	W	
Line regulation	For Vin change of 1%			1.2	%	
Load regulation	10% to 100% full load			15	%	
Output voltage accuracy	See tolerance envelope graph					
Temperature drift	100% full load	100% full load		0.03	%/°C	
Output ripple	20MHz Bandwidth	50		75	mVp-p	
Switching frequency	Full load, nominal input		100		KHz	

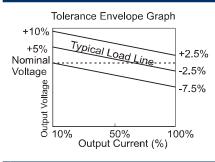


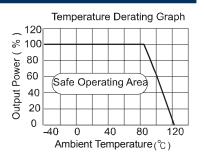
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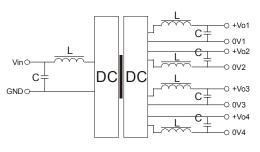
Fax: 86-20-38601272 Http://www.mornsun-power.com Note

- All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
- See below recommended circuits for more details

## TYPICAL CHARECTERISTICS







<Figure 1>

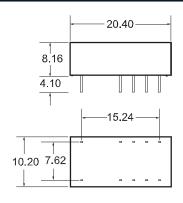
## **FOOTPRINT DETAILS**

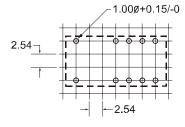
Pin	Function
1	GND
4	0V3
5	+Vo3
6	0V4
7	+Vo4

Top View				
14	11	10	9	8
1	4	5	6	7

Pin	Function
8	+Vo2
9	0V2
10	+Vo1
11	0V1
14	+Vin

## OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT





Note: All Pins on a 2.54mm pitch; All Pin diameters are 0.50 mm; all dimensions in mm.

#### +Vo1 0V1 • +Vo2 Vin REG ∘ 0V2 DC DC • +Vo3 GND ∘ 0V3 → +Vo4 - 0V4 REG -⊙ -Vout ⊙ 0V -0 0V Vin C -O +Vout RFG DC DC → -Vout **GND**O RFC -0 0V -○ 0V · +Vout REG

## **Overload Protection**

Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

## Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (see Figure 2).

## **APPLICATION NOTE**

## **Filtering**

In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees the external capacitor table. To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference (see Figure 1).

## **Requirement On Output Load**

To ensure this module can operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum output load is not less than 10% of the full load, and that this product should never be operated under no load!

## **External Capacitor Table**

V <sub>in</sub>	External capacitor	V <sub>out</sub>	External capacitor
5VDC	4.7uF	5VDC	10uF
12VDC	2.2uF	9VDC	4.7uF
24VDC	1uF	12VDC	2.2uF
		15VDC	1uF

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