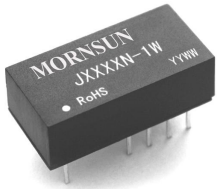
MORNSUN®

J_N-1W Series

1W, FIXED INPUT, ISOLATED & NON-REGULATED QUAD OUTPUT,DIP PACKAGE DC-DC CONVERTER



Patent Protection RoHS

FEATURES

1KVDC Isolation
DIP Package
Temperature Range: -40°C to +85°C
Internal SMD construction
UL94-V0 Package
No Heat sink Required
No External Component Required
Industry Standard Pinout
RoHS Compliance

APPLICATIONS

J_N-1W Series is 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 noise are not demanding.

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

MODEL SELECTION

J0505N-1W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

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PRODUCT PROGRAM

Part Number	Input		Output			Efficiency (%, Typ)
	Voltage (VDC)		Voltage (VDC)S	Current (mA)		
	Nominal	Range		Max	Min	
J0505N-1W	5	4.5-5.5	5	50	5	73

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max(Vin/Vout)	1000			VDC
	Tested for 1 minute and 1mA max(Vout/Vout)	1000			
Isolation resistance	Test at 500VDC(Vin/Vout)	1000			MΩ
	Test at 500VDC(Vout/Vout)	1000			
Isolation capacitance			40		pF

COMMON SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			15	25	
Lead temperature	1.5mm from case for 10 seconds			300	
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
Short circuit protection*				1	S
MTBF		3500			K hours
Weight			1.05		g

*Supply voltage must be discontinued at the end of short circuit duration.

OUTPUT SPECIFICATIONS

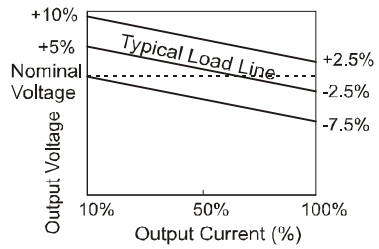
Item	Test conditions	Min	Typ	Max	Units
Output power		0.1		1	W
Line regulation	For Vin change of 1%			±1.2	%
Load regulation	10% to 100% load			15	
Output voltage accuracy		See tolerance envelope graph			
Temperature drift	100% full load			0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		50	75	mVp-p
Switching frequency	Full load, nominal input		100		KHz

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

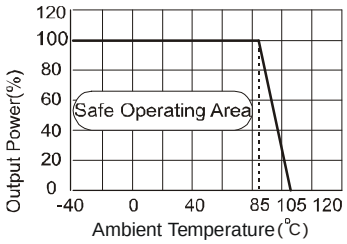
Note:
1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.
3. Operation under minimum load will not damage the converter; However, they may not meet all specification listed, and that will reduce the life of product.

TYPICAL CHARACTERISTICS

Tolerance Envelope Graph

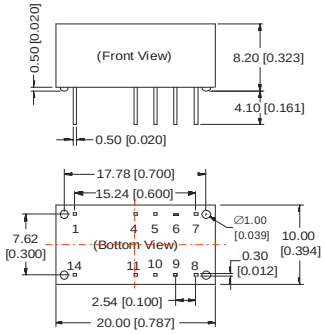


Temperature Derating Graph



OUTLINE DIMENSIONS & PIN CONNECTIONS

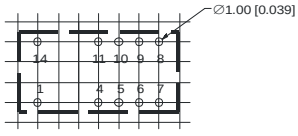
MECHANICAL DIMENSIONS



FOOTPRINT DETAILS	
Pin	Function
1	GND
4	0V3
5	+Vo3
6	0V4
7	+Vo4
8	+Vo2
9	0V2
10	+Vo1
11	0V1
14	+Vin

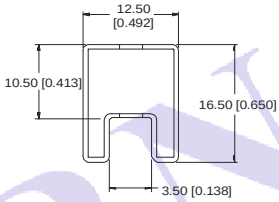
Note:
Unit:mm[inch]
Pin section tolerances:± 0.10mm[± 0.004inch]
General tolerances:± 0.25mm[± 0.010inch]

RECOMMENDED FOOTPRINT



Note: grid 2.54*2.54mm.

TUBE OUTLINE DIMENSIONS

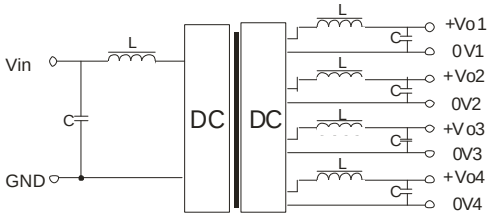


Note:
Unit :mm[inch]
General tolerances: ±0.50mm[±0.020inch]
L=530mm[20.866inch] Tube Quantity: 25pcs
L=220mm[8.661inch] Tube Quantity: 10pcs
Short tube inner package dimensions: L*W*H= 255*170*80mm
Short tube outer package dimensions(with six inner package boxes):
L*W*H= 375*280*270mm
Long tube inner package dimensions: L*W*H= 580*200*100mm
Long tube outer package dimensions(with two inner package boxes):
L*W*H= 600*215*220mm
Long tube outer package dimensions(with three inner package boxes):
L*W*H= 600*215*325mm

APPLICATION NOTE

Recommended circuit

If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).



(Figure 1)

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. 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 (Table 1).

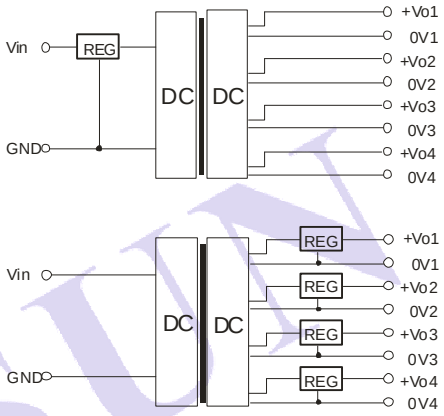
EXTERNAL CAPACITOR TABLE (TABLE 1)

Vin(VDC)	Cin(uF)	Vout(VDC)	Cout(uF)
5	4.7	5	1

It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

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 (Figure 2).



(Figure 2)

Overload Protection

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

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load ***could not be less than 10% of the full load.*** If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power.

No parallel connection or plug and play.