

IB_S-2W Series

2W, FIXED INPUT, ISOLATED & REGULATED SINGLE OUTPUT DC-DC CONVERTER



multi-country patent protection **RoHS**

FEATURES

- Small Footprint
- SIP Package
- 1KVDC Isolation
- Temperature Range: -40°C to +85°C
- No External Component Required
- Internal SMD construction
- Continuous Short Circuit Protection
- Industry Standard Pinout
- RoHS Compliance

PRODUCT PROGRAM

Part Number	Input		Output			Efficiency (% Typ)	Switching frequency (KHz)
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max	Min		
IB0505S-2W	5	4.75-5.25	5	400	40	70	333
IB1205S-2W	12	11.40-12.60	5	400	40	71	58
IB1505S-2W*	15	14.25-15.75	5	400	40	71	-
IB2405S-2W	24	22.8-25.2	5	400	40	71	66

* Designing.

APPLICATIONS

The IB_S-2W Series are specially designed for applications where a single power supply is highly isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

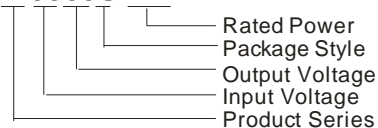
- Where the voltage of the input power supply is fixed (voltage variation $\leq \pm 5\%$);
- Where isolation is necessary between input and output (isolation voltage $\leq 1000\text{VDC}$);
- Where the regulation of the output voltage and the output ripple and noise are demanded.

ISOLATION SPECIFICATIONS

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	1000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance			100		pF

MODEL SELECTION

IB0505S-2W



MORNSUN Science & Technology co., Ltd.

Address: 2th floor 6th building, Hangzhou Industrial District, Guangzhou, China
 Tel: 86-20-38601850
 Fax: 86-20-38601272
<http://www.mornsun-power.com>

COMMON SPECIFICATION

Item	Test condition	Min	Typ	Max	Units
Output power		0.2		2	W
Line regulation	For Vin change of 5%			±0.5	%
Load regulation	10% to 100% load			±1.5	
Output voltage accuracy	100% full load			±3	%/°C
Temperature drift	100% full load			0.03	
Ripple*	20MHz Bandwidth		20	30	mVp-p
Noise*	20MHz Bandwidth		50	150	

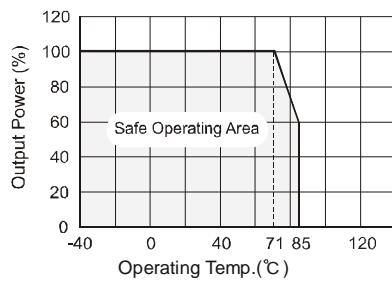
Note:

- 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.

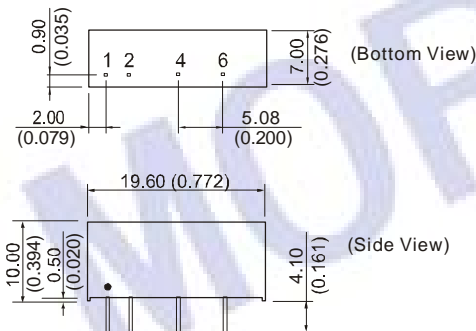
OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			40	58	
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection		Continuous			
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
MTBF		3500			K hours
Weight			2.8		g

TYPICAL TEMPERATURE CURVE

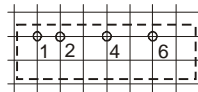


OUTLINE DIMENSION & PIN CONNECTIONS



First Angle Projection

RECOMMENDED FOOTPRINT
 Top view, grid: 2.54mm (0.1inch),
 diameter: 1.00mm (0.039inch)



FOOTPRINT DETAILS

Pin	Function
1	Vin
2	GND
4	0V
6	+Vo

Note:

Unit:mm(inch)
 Pin section: 0.50*0.30mm (0.020*0.012inch)
 Pin section tolerances: ±0.10mm (±0.004inch)
 General tolerances: ±0.25mm (±0.010inch)

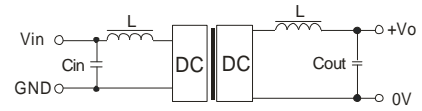
APPLICATION NOTE

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load is **not less than 10%** of the full load, and that **this product should never be operated under no 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.

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)	Cou (uF)
5	4.7	5	4.7
12	2.2	-	-
15	1	-	-
24	0.47	-	-

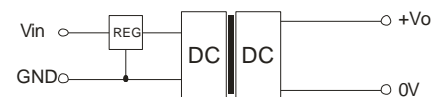
It's not recommended to connect any external capacitor in the application field with less than 0.5 watt output.

Overload Protection

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

Input Over-voltage Protection Circuit

The simplest device for input over-voltage protection is a linear voltage regulator with overheat protection that is connected to the input end in series (Figure 2).



(Figure 2)

When the environment temperature is higher than 71°C, the product output power should be less than 60% of the rated power.

No parallel connection or plug and play.