MORNSUN®

IB_S-2W Series

2W, fixed input voltage, isolated & regulated single output, DC-DC converter

CE Patent Protection RoHS

FEATURES

- Compact size
- Compact SIP package
- Isolation voltage: 1K VDC
- Operating temperature range: -40℃ to +85℃
- Good temperature characteristic
- Internal surface mounted design
- International standard pin-out
- No external component required
- RoHS Compliance
- EN60950 approval

MODEL SELECTION

IB0505S-2W

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

APPLICATIONS

The IB_S-2W 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 ≤±5%);
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 demanded.

PRODUCT PROGRAM

Certification	Model	Input Voltage (VDC)		Output Voltage (VDC)	Output Current (mA)		Input Current (mA)(Typ.)		Efficiency(%) @Max. Load	
		Nominal	Range		Max.	Min.	@Max. Load	@No Load	Min.	Typ.
CE	IB0505S-2W	5	4.75-5.25	5	400	40	580	25	65	69
	IB0512S-2W			12	150	15	507		67	71
	IB1205S-2W	12	11.4-12.6	5	400	40	238	20	66	70
	IB1212S-2W			12	167	16	228		73	77
	IB1215S-2W			15	133	13	231		68	72
	IB1505S-2W	15	14.25-15.75	5	400	40	190	15	66	70
	IB2405S-2W	24	22.8-25.2	5	400	40	119	8	66	70

OUTPUT SPECIFICATIONS

Item	Test condition		Min.	Typ.	Max.	Unit
Line regulation	For Vin change of ±1%	IB1212S-2W	--	--	±1	%
		Others	--	--	±0.5	
Load regulation	10% to 100% full load		--	±1	±2	
Output voltage accuracy	100% load		--	--	±3	
Temperature drift	100% load		--	--	±0.03	%/℃
Output ripple*	20MHz Bandwidth		--	20	30	mVp-p
Output Noise*	20MHz Bandwidth		--	50	150	

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at DC-DC Application Notes.

COMMON SPECIFICATION

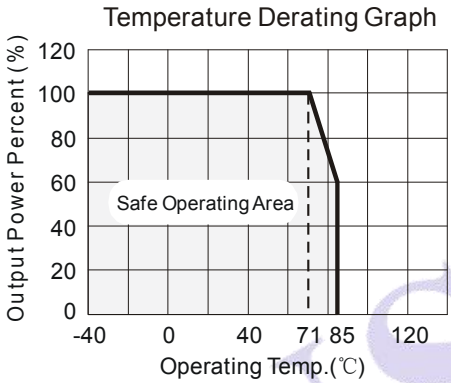
Item	Test Conditions	Min.	Typ.	Max.	Unit
Storage humidity range	Non condensing	--	--	95	%RH
Operating temperature		-40	--	85	℃
Storage temperature		-55	--	125	
Lead temperature	Ta=25℃	--	40	--	
Temp. rise at full load	1.5mm from case for 10 seconds	--	--	300	
Cooling Method		Free air convection			

Case material		Black flame-retardant and heat-resistant plastic (UL94 V-0)			
Short circuit protection		Continuous			
Switching Frequency	100% load, nominal input	--	100	300	KHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	K hours
Weight		--	2.4	--	g

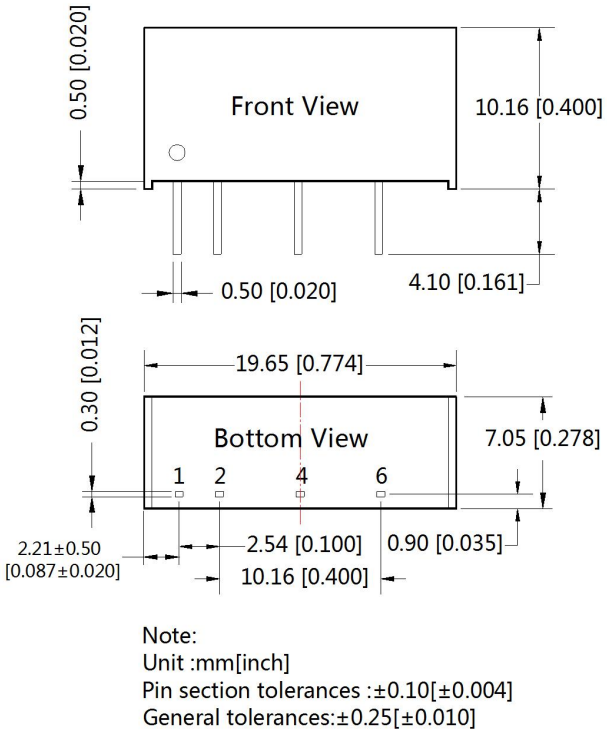
ISOLATION SPECIFICATIONS

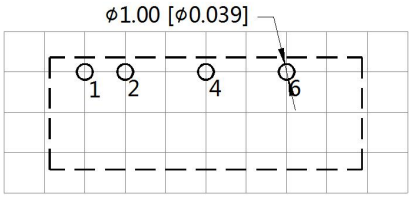
Item	Test condition	Min.	Typ.	Max.	Unit
Isolation voltage	Input-Output,tested for 1 minute and 1mA max	1000	--	--	VDC
Isolation resistance	Input-Output,test at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-Output,100KHz/0.1V	--	60	--	pF

TYPICAL CHARACTERISTICS



OUTLINE DIMENSIONS & pIN CONNECTIONS





Note : Grid 2.54*2.54mm

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

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

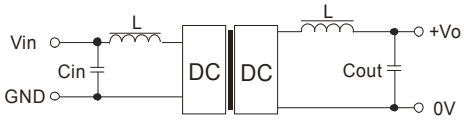
APPLICATION NOTE

1)Requirement on output load

In order to ensure the converter can work reliably with high efficiency, the minimum load should not less than 10% rated load when it is used. If the needed power is indeed small, please parallel a resistor on the output side (The sum of the efficient power and resistor consumption power is not less than 10%).

2)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 (μF)	Vout (VDC)	Cout (μF)
5	4.7	5	4.7
12	2.2	12	2.2
15	1	15	1
24	0.47	--	--

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

3)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.

4)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)

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

6)It is not recommended to increase the output power capability by connecting two or more converters in parallel. The product is not hot-swappable.

Note:

1. Operation under minimum load will not damage the converter; However, they may not meet all specifications.
2. Unless otherwise noted, All specifications are measured at Ta=25℃, humidity<75%RH, nominal input voltage and rated output load.
3. In this datasheet, all test methods are based on our corporate standards.
4. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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