DC/DC Converter
IB2405S-2WR3

MORNSUN®

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

Patent Protection RoHS

3 years Warranty

Continuous Short Circuit Protection

FEATURES

- SIP package
- High efficiency up to 73%
- I/O isolation test voltage 1500 VDC
- Operating ambient temperature range: -40℃ to +85℃
- Industry standard pin-out
- Continuous short-circuit protection

IB2405S-2WR3 is especially designed for distributed power supply systems where an isolated voltage is required. They are suitable for occasions of: pre-interference isolation, ground interference elimination, pure digital circuit, voltage isolation conversion, general low frequency analog circuit, relay drive circuit, etc.

Selection Guide

Certification	Part No.	Input Voltage (VDC)	Output		Full Load Efficiency (%) Min./Typ.	Capacitive Load (μF) Max.
		Nominal (Range)	Voltage (VDC)	Current (mA) Max./Min.		
--	IB2405S-2WR3	24 (22.8-25.2)	5	400/40	69/73	680

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	24V input	--	111/5	117/--	mA
Surge Voltage (1sec. max.)	24V input	-0.7	--	30	VDC
Reflected Ripple Current*		--	200	--	mA
Input Filter		Capacitor Filter			
Hot Plug		Unavailable			

Note: * Refer to DC-DC Converter Application Notes for detailed description of reflected ripple current test method.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Voltage Accuracy		--	--	±3	%
Linear Regulation	Input voltage change: ±1%	--	--	±0.25	--
Load Regulation	10%-100% load	--	--	±2	%
Ripple & Noise*	20MHz bandwidth	--	100	150	mVp-p
Temperature Coefficient	100% load	--	±0.02	--	%/℃
Short-circuit Protection		Continuous, self-recovery			

Note: * The "parallel cable" method is used for Ripple and Noise test, please refer to DC-DC Converter Application Notes for specific information.

General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Isolation	Input-output electric strength test for 1 minute with a leakage current of 1mA max.	1500	--	--	VDC
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output capacitance at 100kHz/0.1V	--	20	--	pF
Operating Temperature		-40	--	85	℃
Storage Temperature		-55	--	125	
Case Temperature Rise	Ta=25℃	--	25	--	
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	

Storage Humidity	Non-condensing	5	--	95	%RH
Switching Frequency	100% load, nominal input voltage	--	250	--	kHz
MTBF	MIL-HDBK-217F@25℃	3500	--	--	k hours

Mechanical Specifications

Case Material	Black plastic; flame-retardant and heat-resistant (UL94V-0)
Dimensions	19.65 x 7.05 x 10.16mm
Weight	2.4g(Typ.)
Cooling Method	Free air convection

Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B
	RE	CISPR32/EN55032 CLASS B
Immunity	ESD	IEC/EN61000-4-2 Contact ±6kV, Air ±8kV perf. Criteria B
Note: Refer to Figure 3 for recommended circuit testing.		

Typical Characteristic Curves

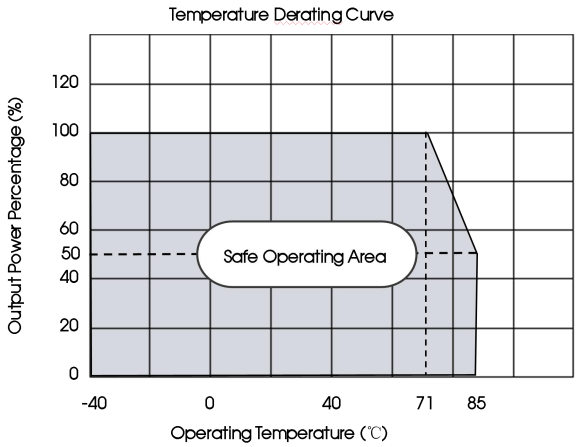
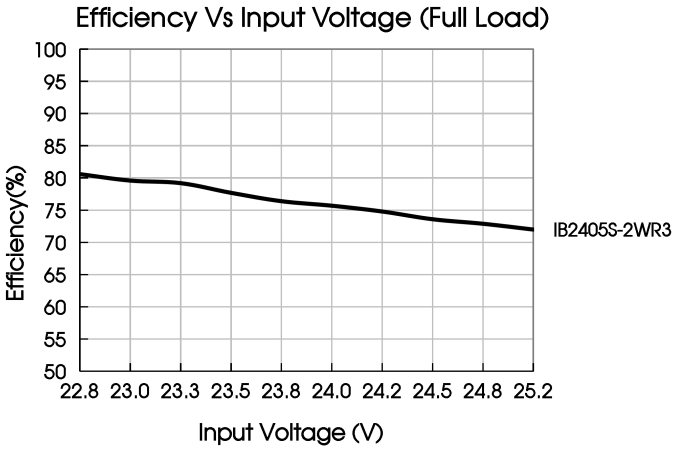
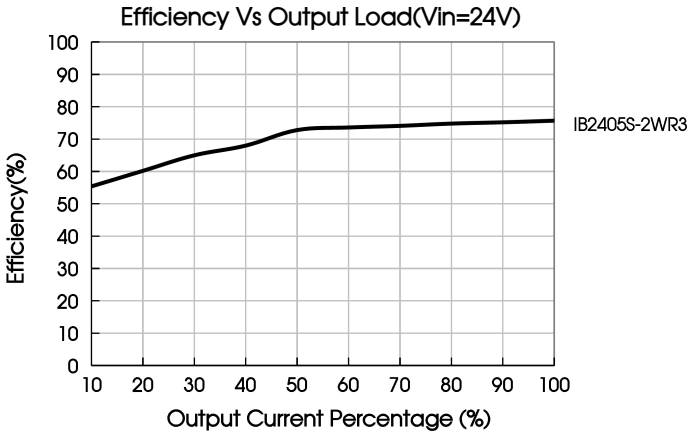


Fig. 1





Design Reference

1. Typical application circuit

Input and/or output ripple can be further reduced, by connecting a filter capacitor from the input and/or output terminals to ground as shown in Fig. 2.

Choosing suitable filter capacitor values is very important for a smooth operation of the modules, particularly to avoid start-up problems caused by capacitor values that are too high. For recommended input and output capacitor values refer to Table 1.

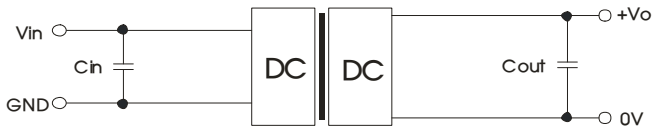


Fig. 2

Table 1: Recommended input and output capacitor values

Vin	Cin	Vo	Cout
24VDC	47μF/50V	5VDC	4.7μF/16V

2. EMC compliance circuit

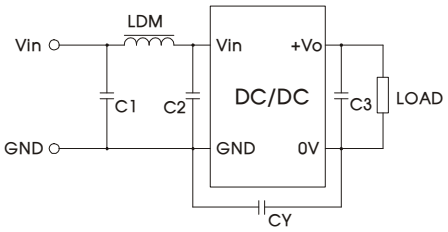


Fig. 3

Input voltage	24VDC
C1/C2	4.7μF /50V
C3	Refer to the Cout in table 1
LDM	6.8μH
CY	270pF/2kV

3. Minimum Output Load Requirement

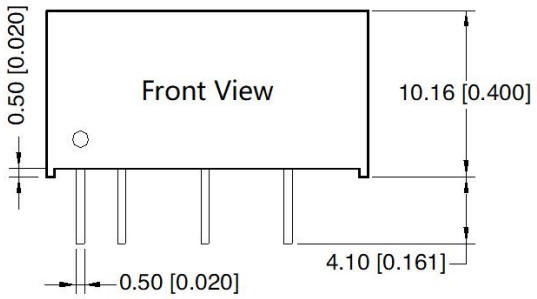
For a reliable and efficient operation of the converter, the minimum load should never be less than 10% of the rated output load. If the total required output power is below 10%, a parallel bleeding resistor is required on the output, ensuring that the sum of the power consumption is always maintained at 10% minimum

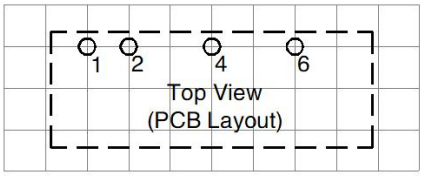
4. For additional information please refer to DC-DC converter application notes on

www.mornsun-power.com

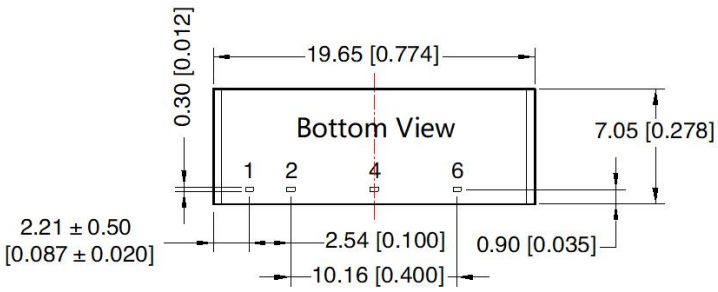
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Note: Grid 2.54*2.54mm



Pin–Out	
Pin	Mark
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]

Notes:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58200001;
2. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
3. The maximum capacitive load offered were tested at input voltage range and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on our company corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. 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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