

1W isolated DC-DC converter  
Fixed input voltage, regulated single output



Patent Protection RoHS



## FEATURES

- Continuous short-circuit protection
- No-load input current as low as 8mA
- Operating ambient temperature range: -40°C to +85°C
- High efficiency up to 73%
- I/O isolation test voltage 3k VDC
- Industry standard pin-out
- DIP package

IF0505D-1WR3 is specially 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.		
--	IF0505D-1WR3	5 (4.75-5.25)	5	200/20	69/73	2400

## Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)		--	274/8	290/--	mA
Reflected Ripple Current*		--	15	--	
Input Filter			Capacitance 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		--	--	±0.25	
Load Regulation	10%-100% load		±2		
Ripple & Noise*	20MHz bandwidth	--	50	100	mVp-p
Temperature Coefficient	100% load	--	±0.02	--	%/°C
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.	3000	--	--	VDC
Insulation Resistance	Input-output resistance at 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output capacitance at 100kHz/0.1V	--	20	--	pF
Operating Temperature	Derating when operating temperature $\geq 71^{\circ}\text{C}$ (see Fig. 1)	-40	--	85	°C
Storage Temperature		-55	--	125	
Case Temperature Rise	T <sub>a</sub> =25°C	--	25	--	
Pin Soldering Resistance Temperature	Soldering spot is 1.5mm away from case for 10 seconds	--	--	300	

Storage Humidity	Non-condensing	5	--	95	%RH
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			
Switching Frequency	100% load, nominal input voltage	--	300	--	kHz
MTBF	MIL-HDBK-217F@25°C	3500	--	--	k hours

### Mechanical Specifications

Case Material	Black plastic; flame-retardant and heat-resistant (UL94-V0)
Dimensions	20.00 x 10.00 x 7.00 mm
Weight	2.4g(Typ.)
Cooling Method	Free air convection

### Electromagnetic Compatibility (EMC)

Emissions	CE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
	RE	CISPR32/EN55032 CLASS B (see Fig. 3 for recommended circuit)
Immunity	ESD	IEC/EN61000-4-2 Air $\pm 8$ kV, Contact $\pm 6$ kV perf. Criteria B

### Typical Characteristic Curves

Temperature Derating Curve

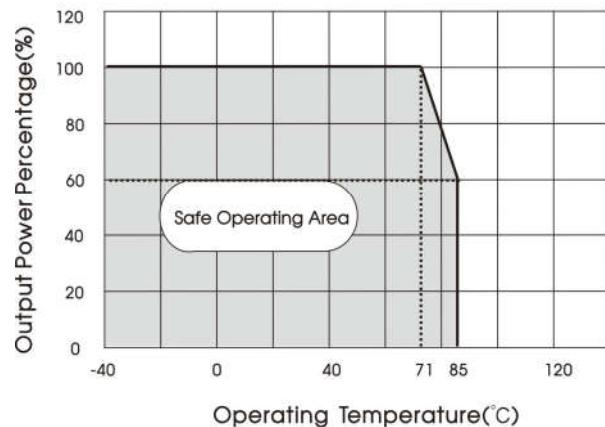
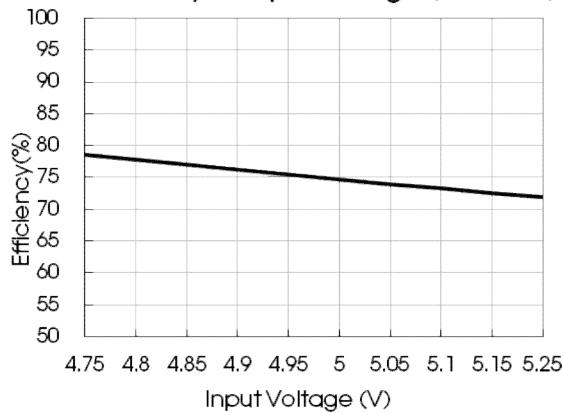
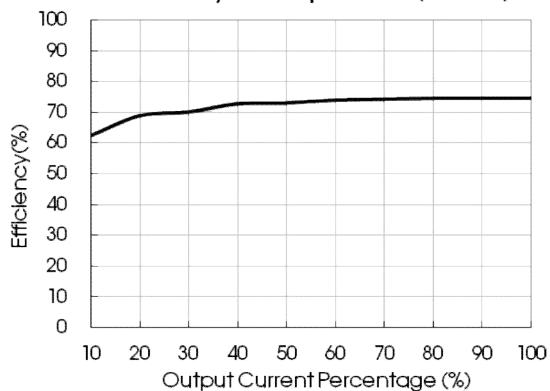


Fig. 1

Efficiency Vs Input Voltage (Full Load)



Efficiency Vs Output Load(Vin=5V)



## Design Reference

### 1. Typical application

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.

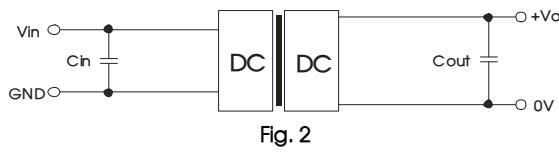


Table 1: Recommended input and output capacitor values

Vin	Cin	Vo	Cout
5VDC	4.7μF/16V	5VDC	10μF/16V

### 2. EMC compliance circuit

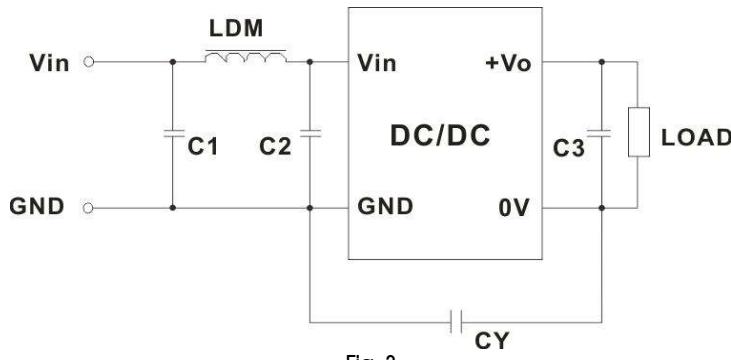
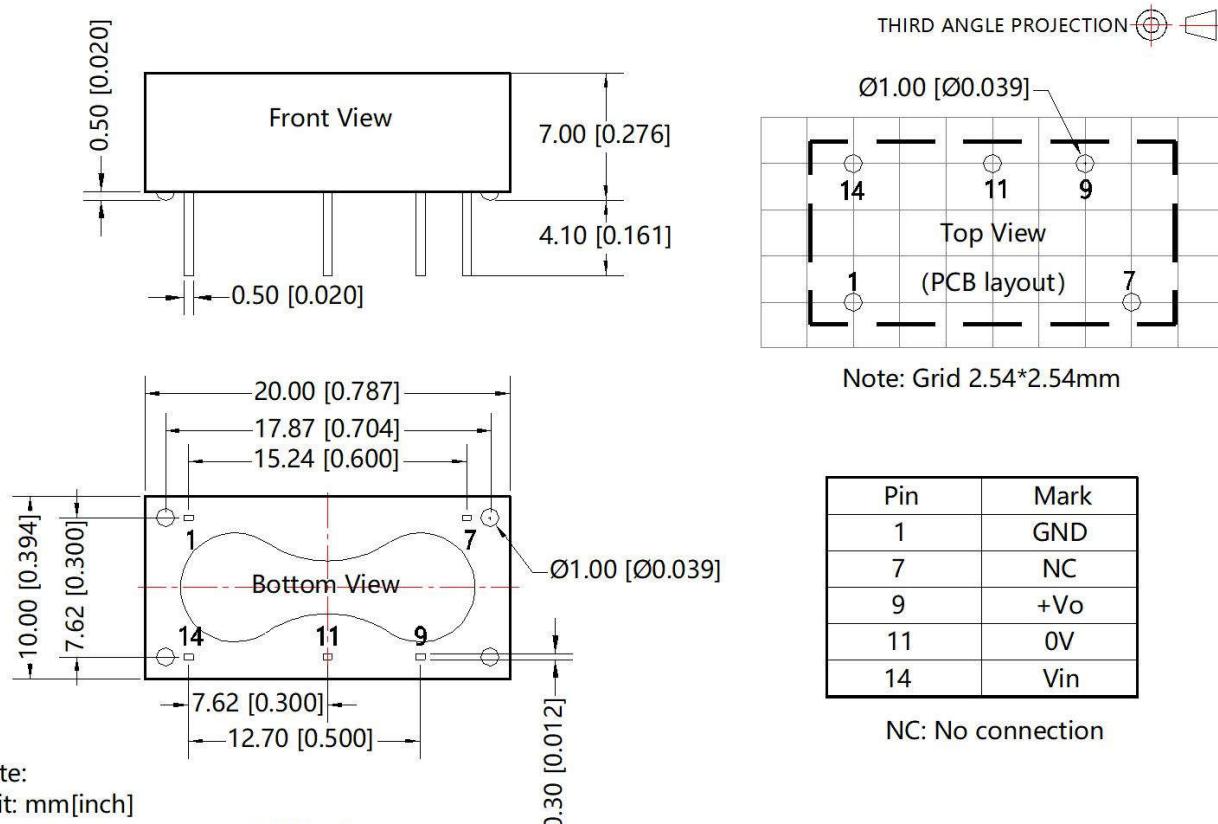


Table 2: Recommended EMC filter values

Emissions	C1/C2	4.7μF /25V
	CY	100pF /3kVDC
	C3	Refer to the Cout in table 1
	LDM	6.8μH

3. For additional information please refer to DC-DC converter application notes on  
[www.mornsun-power.com](http://www.mornsun-power.com)

Dimensions and Recommended Layout



Note:  
Unit: mm[inch]  
Pin section tolerances:  $\pm 0.10[\pm 0.004]$   
General tolerances:  $\pm 0.25[\pm 0.010]$

Notes:

1. For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number 58200009;
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  $T_a=25^\circ\text{C}$ , 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.

**MORNSUN Guangzhou Science & Technology Co., Ltd.**

Address: No. 5, Kehui St. 1, Kehui Development Center, Science Ave., Guangzhou Science City, Huangpu District, Guangzhou, P. R. China

Tel: 86-20-38601850

Fax: 86-20-38601272

E-mail: [info@mornsun.cn](mailto:info@mornsun.cn)

[www.mornsun-power.com](http://www.mornsun-power.com)