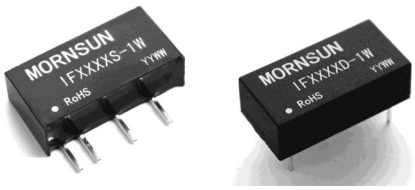
MORNSUN
Industrial DC&AC converter professional

IF_S-1W/ IF_D-1W Series

1W, FIXED INPUT ISOLATED & REGULATED SINGLE OUTPUT MINIATURE SIP/DIP PACKAGE



multi-country patent protection **RoHS**

FEATURES

- SIP/DIP Package
- 3KVDC Isolation
- Temperature Range: -40°C to +85°C
- Industry Standard Pinout
- No Heat sink Required
- No External Component Required
- PCB Mounting
- RoHS Compliance
- Short Circuit Protection

APPLICATIONS

The IF_S(D)-1W 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:

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 ≤3000VDC);
3) Where the regulation of the output voltage and the output ripple and noise are demanding.

MODEL SELECTION

IF0505S-1W

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

PRODUCT PROGRAM

Part Number	Input		Output			Efficiency (%, Typ)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max	Min		
IF0505S/D-W75	5	4.75-5.25	5	150	15	68	SIP/DIP
IF0505S/D-1W			5	200	20	66	SIP/DIP
IF0509S/D-1W			9	111	12	70	SIP/DIP
IF0512S/D-1W			12	83	9	72	SIP/DIP
IF0515S/D-1W			15	67	7	73	SIP/DIP
IF1205S/D-W75	12	11.4-12.6	5	150	15	68	SIP/DIP
IF1205S/D-1W			5	200	20	67	SIP/DIP
IF1209S/D-1W			9	111	12	71	SIP/DIP
IF1212S/D-1W			12	83	9	73	SIP/DIP
IF1215S/D-1W			15	67	7	74	SIP/DIP
IF2405S/D-W75	24	22.8-25.2	5	150	15	68	SIP/DIP
IF2405S/D-1W			5	200	20	67	SIP/DIP
IF2409S/D-1W			9	111	12	72	SIP/DIP
IF2412S/D-1W			12	83	9	73	SIP/DIP
IF2415S/D-1W			15	67	7	74	SIP/DIP

Note: The IF_S(D)-W25 Series also available in our company.

ISOLATION SPECIFICATIONS

Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

OUTPUT SPECIFICATIONS

Item	Test condition	Min	Typ	Max	Units
Output power		0.1		1	W
Line regulation	For Vin change of ±5%			±0.25	%
Load regulation	10% to 100% full load			±1	
Output voltage accuracy	100% full load			±3	
Temperature drift	100% full load			0.03	%/°C
Output ripple*	20MKHz bandwidth		10	20	mVp-p
Output noise*	20MKHz bandwidth		50	100	
Switching frequency	Full load, nominal input voltage		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.

MORNSUN Science& Technology co.,Ltd.
Address: 2th floor 6th building, Huangzhou Industrial District, Guangzhou, China
Tel: 86-20-38601850
Fax:86-20-38601272
Http://www.mornsun-power.com

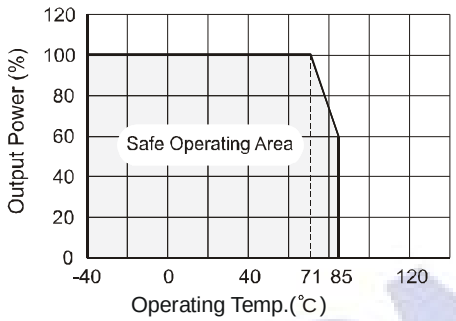
COMMON SPECIFICATION

Item	Test condition	Min	Typ	Max	Units
Storage humidity range				95	%
No-load power consumption			10		
Storage humidity range		-55		125	°C
Operating temp. range		-40		85	
Temp. rise at full load			15	25	
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection	IFXX05S/D-1W*			1	S
	Others	Continuous			
Cooling		Free air convection			
Case material		Plastic (UL94-V0)			
MTBF		3500			K hours

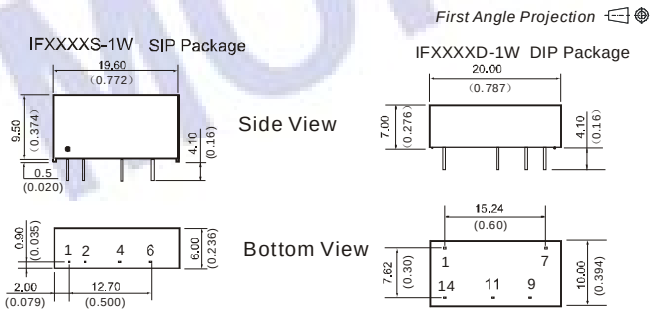
*Supply voltage must be discontinued at the end of short circuit duration.

TYPICAL CHARECTERISTICS

Temperature Derating Graph



OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT



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

FOOTPRINT DETAILS

PIN	FUNCTION
1	Vin
2	GND
4	0V
6	+Vo

PIN	FUNCTION
1	GND
7	NC
9	+Vo
11	0V
14	Vin

Note:
Unit:mm(inch)
Pin section:0.50*0.30mm(0.020*0.012inch)
Pin 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, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, 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 (IF_S(D) –W25 Series).

Filtering

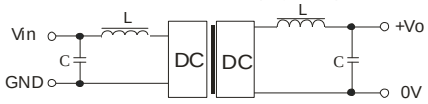
In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must proper. If the capacitance is too big, a startup problem might arise. For every channel of output, providing the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor refer to (Table 1).

EXTERNAL CAPACITOR TABLE (Table 1)

Vin (VDC)	Cin (uF)	Vout (VDC)	Cout (uF)
5	4.7	5	10
12	2.2	9	4.7
24	1	12	2.2
-	-	15	1

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

To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. 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 (Figure 1).



(Figure 1)

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.

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

No parallel connection or plug and play.