MORNSUN®

IF_S-1W & IF_D-1W Series

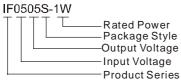
1W, FIXED INPUT, ISOLATED & REGULATED SINGLE OUTPUT DC-DC CONVERTER





Patent Protection RoHS

MODEL SELECTION



FEATURES

- I Small Footprint
- SIP/DIP Package
- 3KVDC Isolation
- I Temperature Range: -40°C to +85°C
- I No Heat sink Required
- I Internal SMD Construction
- I No External Component Required
- Industry Standard Pinout
- I RoHS Compliance

APPLICATIONS

The IF_S-1W & IF_D-1W 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%);
- Where isolation is necessary between input and output (isolation voltage ≤3000VDC);
- Where the regulation of the output voltage and the output ripple noise are demanded.

Model	Input Voltage (VDC)		Output Voltage	Output Current (mA)		Input Current (mA)(Typ.)		Efficiency(%) @Max. Load	
	Nominal	Range	(VDC)	Max.	Min.	@Max. Load	@No Load	Min.	Тур.
F0505S-1W		4.75-5.25	5	200	20	303	30	62	66
F0509S-1W			9	111	12	286		66	70
F0512S-1W			12	83	9	278		68	72
F0515S-1W	5		15	67	7	274		69	73
F0505D-1W			5	200	20	303		62	66
F0512D-1W			12	83	9	278		68	72
F1205S-1W		11.4-12.6	5	200	20	124	15	63	67
F1212S-1W	12		12	83	9	114		69	73
F1215S -1W	12		15	67	7	113		70	74
F1205D-1W			5	200	20	124		63	67
F2405S-1W			5	200	20	62	8	63	67
F2412S-1W	24	24 22.8-25.2	12	83	9	57		69	73
-2415S-1W			15	67	7	56		70	74
-2405D-1W			5	200	20	62		63	67

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

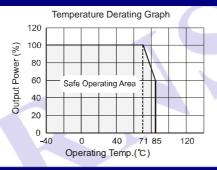
Item	Test condition	Min.	Тур.	Max.	Unit	
TIGHT	Test condition	IVIII I.	тур.	IVIAA.	Offic	
Line regulation	For Vin change of ±5%			±0.25		
Load regulation	10% to 100% load		±1	±2	%	
Output voltage accuracy	100% load			±3		
Temperature drift	100% load		-	0.03	%/°C	
Output ripple*	20MHz Bandwidth		10	20	> (
Output Noise*	20MHz Bandwidth		50	100	mVp-p	

COMMON SPECIFICATION							
Item	Test Conditions	Min.	Тур.	Max.	Unit		
Storage humidity range	Non condensing			95	%		

Operating temperature		-40		85		
Storage temperature		-55		125	•	
Lead temperature	Ta=25°C		15	25	_ ℃	
Temp. rise at full load	1.5mm from case for 10 seconds			300		
Cooling			Free air o	convection	'	
Case material			Plastic(UL94-V0)			
01	*IFXX05S/D-1W			1	S	
Short circuit protection	Others		Continuous			
Switching Frequency	100% load, Input voltage range		120	300	KHz	
MTBF		3500			K hours	
NA	IF_S-1W / IF_S-W75		2.1		g	
Weight	IF_D-1W / IF_D-W75		2.4		g	
*Supply voltage must be disconting	ued at the end of short circuit duration.		1	1	'	

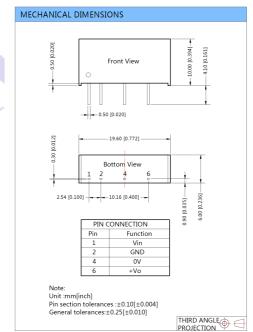
ISOLATION SPECIFICATIONS							
Item	Test condition	Min.	Тур.	Max.	Unit		
Isolation voltage	Input-Output, tested for 1 minute and leakage current less than 1 mA	3000			VDC		
Isolation resistance	Input-Output, test at 500VDC	1000		-	ΜΩ		
Isolation Capacitance	Input-Output,100KHz/0.1V		60		pF		

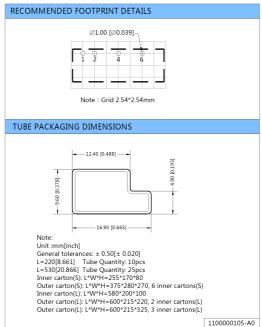
TYPICAL CHARACTERISTICS



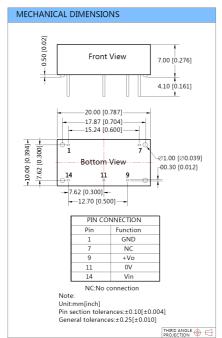
OUTLINE DIMENSIONS & PIN CONNECTIONS

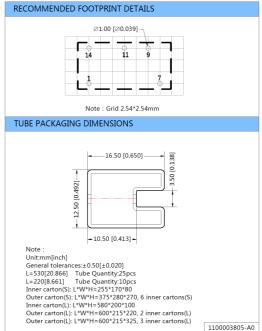
IF_S-1W / IF_S-W75





IF_S-1W / IF_S-W75





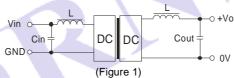
APPLICATION NOTE

1)Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load could not be less than 10% of the full 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.

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).



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

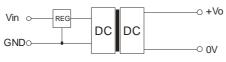
It's not recommend to connect any external capacitor in the application field with less than 0.5 watt output.

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. Max. Capacitive Load is tested at nominal input voltage and full load.
- 3. Unless otherwise noted, All specifications are measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load.
- 4. In this datasheet, all test methods are based on our corporate standards.
- 5. All characteristics are for listed models, and non-standard models may perform differently. Please contact our technical support for more detail.
- 6. Please contact our technical support for any specific requirement.
- 7. Specifications of this product are subject to changes without prior notice.

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