Product Manual

P_IFS-1W

Data Sheet

Constant voltage input,isolated no-regulated single output



UL 62368-1 EN 62368-1 IEC 62368-1 RoHS

Product Series

Product Series	Temperature Range	Isolated Voltage	Package
P_IFS-1W	-40℃～+85℃	3000VDC	SIP

Features

- Efficiency up to 80%
- Isolated voltage 3000VDC
- Sustainable short circuit
- The shell meet the UL94 V-0 standard
- Package is pin-to-pin compatible with international and domestic similar product
- Unsuitable for the occasion where the fluctuation range of input voltage is greater than ±5%

Applications

- Communication bus isolation
- Digital and analog signal isolation
- IO signal power supply isolation
- General low frequency analog circuit
- DCS systems,instruments and meters
- ……

Product Model

Part Number	Certification	Input Nominal Voltage (Voltage Range) (VDC)	Output			Full Load Efficiency (%,Min/Typ)	Maximum Capacitive Load (μF)
			Nominal Voltage (VDC)	Min Current (mA)	Max Current (mA)		
P0503IFS-1W	UL/EN/IEC	5 (4.75-5.25)	3.3	30	300	70	2400
P0505IFS-1W			5	20	200	75	1200
P0512IFS-1W	--		12	8	83	76	220
P0524IFS-1W	--		24	4	42	70	100
P1205IFS-1W	UL/EN/IEC	12 (11.4-12.6)	5	20	200	76	2400
P1212IFS-1W			12	8	83	80	560
P1215IFS-1W			15	7	67	80	220
P1224IFS-1W	--		24	4	42	70	220
P2405IFS-1W	UL/EN/IEC	24 (22.8-25.2)	5	20	200	77	2400
P2412IFS-1W			12	8	83	80	220
P2415IFS-1W	--		15	7	67	80	560
P2424IFS-1W	--		24	4	42	70	220

Limit Characteristics

Parameter	Conditions	Min	Typ	Max	Unit
Input Surge Voltage (1s，max)	5VDC input	-0.7	--	8	VDC
	12VDC input	-0.7	--	18	
	15VDC input	-0.7	--	30	
Lead Soldering Temperature	1.5mm from case,10s	--	--	300	℃
Hot Plug		Unavailable			

Input Characteristics

Parameter	Conditions		Min	Typ	Max	Unit
No Load/Full Load Input Current	5VDC input	3.3V	--	7/285	12/294	mA
		5V	--	7/262	12/274	
		12V	--	12/262	16/274	
		24V	--	45/290	50/300	
	12VDC input		--	6/101	10/113	
	15VDC input		--	5/54	10/56	
Input Filter			Capacitor filter			

Output Characteristics

Parameter	Conditions		Min	Typ	Max	Unit
Line Regulation	Input voltage changes within ±1%		--	--	±0.25	--
Load Regulation	Load is from 10% to 100%		--	1	2	%
Output Voltage Accuracy			--	±2	±3	
Temperature Drift Coefficient	100% load		--	--	±0.03	%/℃
Output Ripple& Noise	20MHz bandwidth	5V	--	30	75	mVp-p
		Others	--	50	150	
Output Short-Circuit Protection			Sustainable short circuit, self-recovery			

General Characteristics

Parameter	Conditions	Min	Typ	Max	Unit
Isolation Voltage	Input-output, time 1 minute, leakage current less than 1mA	3000	--	--	VAC
Leakage Current	250VAC,50/60Hz	1	--	--	GΩ
Isolation Resistance	Input-output,isolation voltage 500VDC	--	20	30	pF
Isolation Capacitance	Input-output,100kHz,0.1V	--	250	380	kHz
Switching Frequency	Nominal input voltage, 100% load	3500	--	--	k hours
MTBF	MIL-HDBK-217F@25℃	19.65×6.00×10.16			mm
Package Size	--	Black flame retardant plastic shell, comply with UL94V-0 standard			

Environmental Characteristics

Parameter	Conditions	Min	Typ	Max	Unit
Operating Temperature	See the ambient temperature derating curve for details	-40	--	+85	℃
Storage Temperature	--	-55	--	+125	
Casing Temperature Rise	Ta=25℃	--	20	40	
Storage Humidity	No condensation	--	--	95	%
Cooling Method		Natural air cooling			
Vibration		10-150Hz, 5G, 0.75mm. along X, Y and Z			

EMC Characteristics

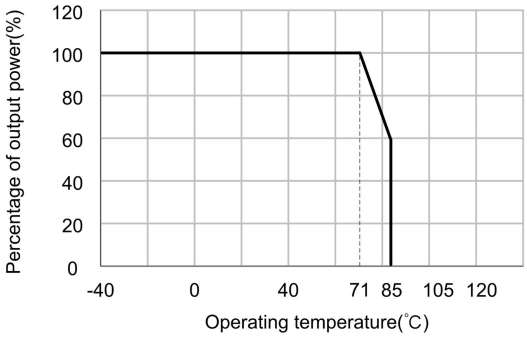
EMI	CE	CISPR32/EN55032 CLASS B (See Figure 2)	
	RE	CISPR32/EN55032 CLASS B (See Figure 2)	
EMS	ESD	IEC/EN61000-4-2 Contact±6kV Air±8kV	Perf.Criteria B

Notes:(1) The input voltage cannot exceed the specified range, otherwise it may cause permanent and irreversible damage.

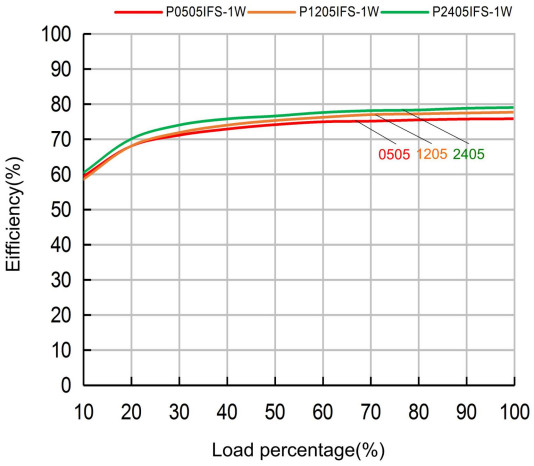
(2)Unless specified specially, parameters in this manual are measured under the conditions of 25℃, 40%~75% humidity, input nominal voltage and rated output load.

(3)Output ripple & noise tested by direct-probe method.

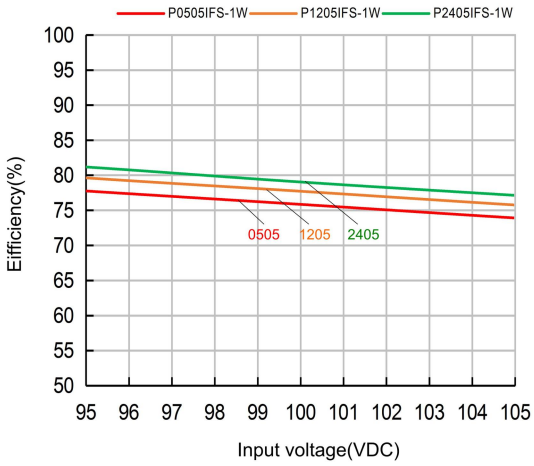
Product Characteristic Graph



Curve of relationship between output power and working temperature

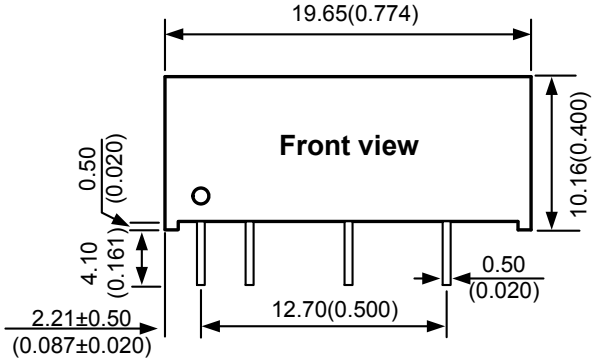


Efficiency VS load(Nominal input voltage)

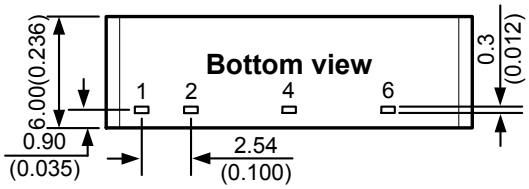


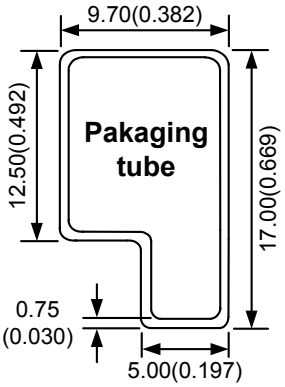
Eifficiency VS input voltage(Full load)

Outline and Footprint Dimensions

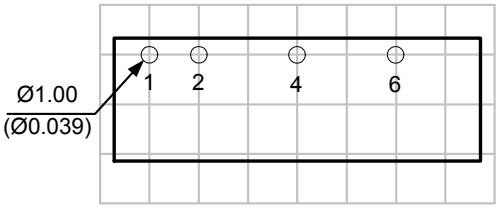


Pin	Function
1	Vin
2	GND
4	0V
6	+Vo





PCB Silkscreen Diagram
(Top View)



Notes：
Unit：mm(inch)
Unlabeled tolerance：±0.25(±0.010)
Grid distance：2.54×2.54mm

Notes：
Size：mm(inch)
Unlabeled tolerance:±0.50(±0.020)
L=282(11.102)，13pieces/pallet
Carton Size：304×120×40mm
286pieces/carton

Circuit Design and Application

1. Recommended circuit

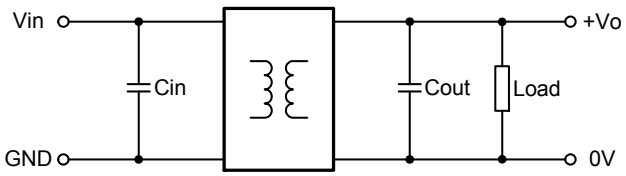


Figure 1　Recommended circuit

2. Filter capacitor

For the selection of filter capacitor, please refer to values in Table 1. If the ESR is less than 1 Ω (when the frequency is 100KHz), the ceramic or electrolytic capacitor is recommended to use, and the tantalum capacitor is not recommended to use. The value of input and output filter capacitor can not be too large,otherwise it may cause startup problem.

Table 1 The reference value of the external capacitor

Vin(VDC)	Cin(μF)	Vo(VDC)	Cout(μF)
5	4.7	3.3/5	4.7
		12/24	1
12	2.2	12/15	2.2
24	1		

3. EMC typical recommended circuit(CLASS B)

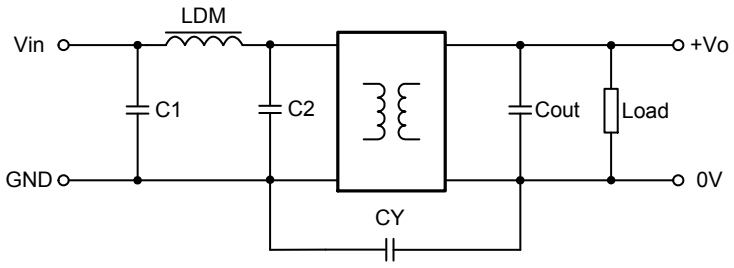


Figure 2 EMC recommended circuit diagram

Table 2 EMC recommended circuit external parameter values

EMC	Vin(VDC)	C1/C2(μF)	CY	LDM(μH)	Cout(μF)
EMI	5/12/24	4.7	1nF/3KVDC	6.8	Refer to table 1

Note：
1.The withstand voltage values of capacitors C1 and C2 are selected according to "input impulse voltage".
2.The maximum current of inductance LDM is selected according to the actual input current, and it is recommended to select 1.5 times the actual current.
3.It is recommended that the circuit wiring should not be long and be as close as possible to the module.

4. Protection function

Under normal conditions, this series of power modules is equipped with output short-circuit protection function.

5. Precautions

This product does not support parallel use.

Guangzhou ZHIYUAN Electronics Co.,Ltd.
Service Hotline: 400-888-4005
E-mail：power.sales@zlg.cn
Website：http://www.zlg.cn
Special statement：Guangzhou ZHIYUAN Electronics Co., Ltd. reserves all rights.
Without our consent, our company improperly uses our datasheet, and our company reserves the right to pursue its legal responsibility.The datasheet will be updated without notice. If you need to check the latest version of the information, please visit our official website or contact our personnel for it.