2W, Fixed input voltage , 6000VDC isolated & unregulated positive-negative dual/single output

Patent Protection RoHS

FEATURES

- SIP package
- Efficiency up to 86%
- Isolation voltage: 6K VDC
- Operating temperature range:-40℃～+105℃
- Continuous short circuit protection
- Internal SMD Construction
- International standard pin-out

G_S-2W & H_S-2W series is specially designed for applications where an isolated voltage is required in a distributed power supply system. It is suitable for:

1.Where the voltage of the input power supply is stable (voltage variation: ±10%Vin);

2.Where isolation is necessary between input and output (isolation voltage ≤6000VDC);

3.Where do not has high requirement of line regulation and the ripple & noise of the output voltage;

Such as: pure digital circuits, low frequency analog circuits, IGBT-driven circuits, etc.

Selection Guide

Part No.	Input Voltage (VDC)	Output		Efficiency (%,Min./Typ.) @ Full Load	Max. Capacitive Load* (μF)
	Nominal(Range)	Output Voltage(VDC)	Output Current (mA)(Max./Min.)		
G0505S-2W	5 (4.5-5.5)	±5	200/20	72/76	100
G0509S-2W		±9	111/12	76/80	
G0512S-2W		±12	83/9	73/77	
G0515S-2W		±15	67/7	76/80	
G0524S-2W		±24	±42/±4	76/80	
H0503S-2W		3.3	500/50	70/74	220
H0505S-2W		5	400/40	72/76	
H0509S-2W		9	222/23	75/79	
H0512S-2W		12	167/17	77/81	
H0515S-2W		15	133/14	78/82	
G1205S-2W	12 （10.8-13.2）	±5	200/20	76/80	100
G1209S-2W		±9	111/12	79/83	
G1212S-2W		±12	83/9	77/81	
G1215S-2W		±15	67/7	80/84	
H1205S-2W		5	400/40	76/80	220
H1209S-2W		9	222/23	80/84	
H1212S-2W		12	167/17	81/85	
H1215S-2W		15	133/14	82/86	
G2405S-2W	24 （21.6-26.4）	±5	±200/±20	76/80	100
G2412S-2W		±12	±83/±9	77/81	
G2415S-2W		±15	±67/±7	78/82	
H2405S-2W		5	400/40	76/80	220
H2409S-2W		9	222/23	77/81	
H2412S-2W		12	167/17	80/84	
H2415S-2W		15	133/14	81/85	

Note:* The capacitive loads of positive and negative outputs are identical.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (no-load/full load)	5V input	--	40/500	--	mA
	12V input	--	16/200	--	
	24V input	--	9/100	--	
Surge Voltage (1sec. max.)	5V input	-0.7	--	9	VDC
	12V input	-0.7	--	18	
	24V input	-0.7	--	30	
Input Filter		Capacitor filter			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			See tolerance envelope graph (Fig. 1)			
Line Regulation	Input voltage change: ±1%		--	--	±1.2	--
Balance of Output Voltage*	Dual output, balanced load		--	±0.5	±1	%
Load Regulation	10%-100% load	3.3VDC output	--	--	20	
		5VDC output	--	--	15	
		9VDC output	--	--	15	
		12VDC output	--	--	15	
		15VDC output	--	--	15	
		24VDC output	--	--	15	
Ripple & Noise*	20MHz bandwidth		--	150	250	mVp-p
Temperature Drift Coefficient	100% full load		--	--	±0.03	%/℃
Output Short Circuit Protection			Continuous, self-recovery			

Note: 1.*Unbalanced load of positive-negative dual output module: ±5%.
2.*Ripple and noise tested with "parallel cable" method, please see *DC-DC Converter Application Notes* for specific operation methods.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA		6000	--	--	VDC
Isolation Resistance	Input-output, isolation voltage 500VDC		1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V		--	5	--	pF
Operating Temperature	Derating when operating temperature ⩾ 85℃ (see Fig. 2)		-40	--	105	℃
Storage Temperature			-55	--	125	
Casing Temperature Rise	Ta=25℃		--	25	--	
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds		--	--	300	
Storage Humidity	Non-condensing		--	--	95	%
Switching Frequency	100% load, nominal input voltage	5V input	--	60	--	KHz
		12V/24V input	--	80	--	
MTBF	MIL-HDFK-217F@25℃		3500	--	--	K hours

Physical Specifications

Casing Material	Black flame-retardant and heat-resistant plastic (UL94-V0)
Package Dimensions	19.50*9.80*12.50 mm
Weight	4.2g(Typ.)
Cooling Method	Free air convection

EMC Specifications

EMI	Conducted emission	CISPR22/EN55022	CLASS B (see Fig. 5 for recommended circuit)
	Radiated emission	CISPR22/EN55022	CLASS B (see Fig. 5 for recommended circuit)
EMS	Electrostatic discharge	IEC/EN61000-4-2	Contact ±6KV perf. Criteria B

Product Characteristic Curve

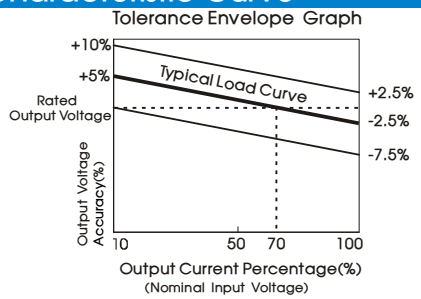


Fig. 1

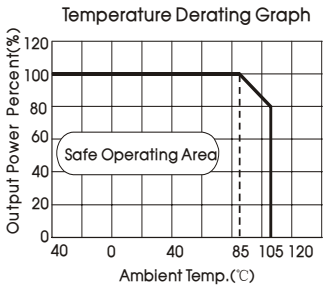
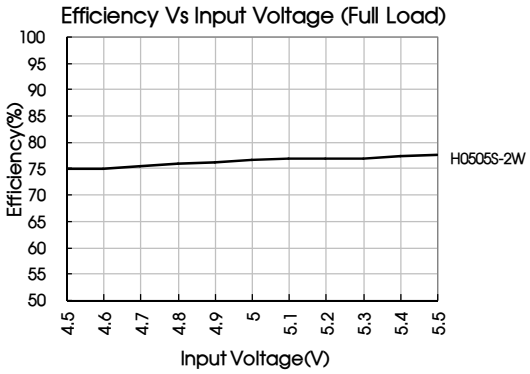
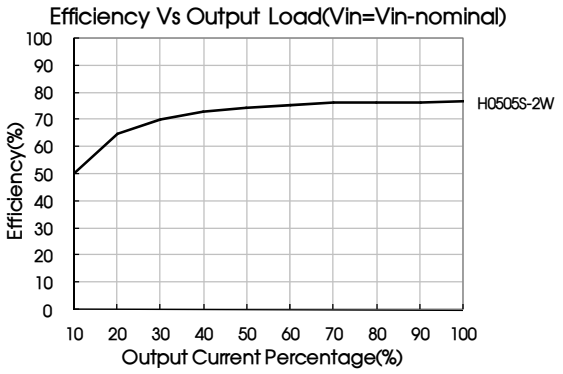
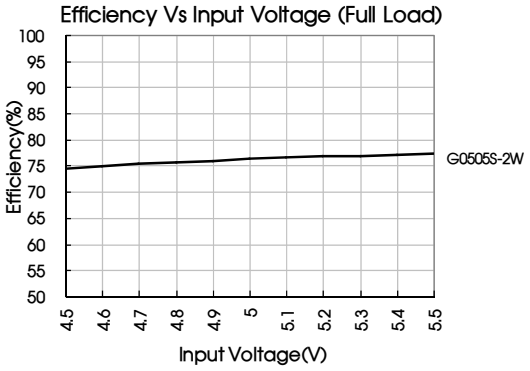
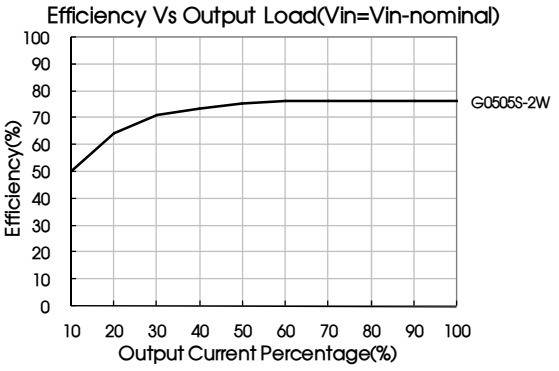


Fig. 2









Design Reference

1. Typical application

If it is required to further reduce input and output ripple, a filter capacitor can be connected to the input and output terminals, see Fig.3.

Moreover, choosing suitable filter capacitor is very important, start-up problems may be caused by too large capacitance. To ensured the modules running well, the recommended capacitive load values as shown in Table 1.

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (see Fig. 4).

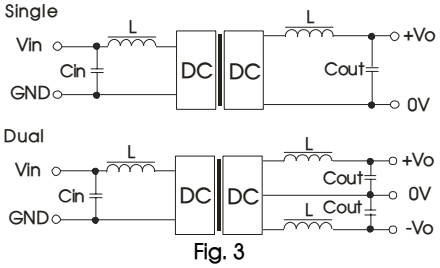


Fig. 3

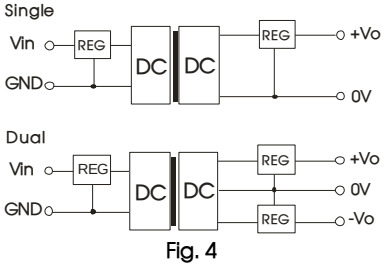


Fig. 4

Recommended capacitive load value table (Table 1)

Vin (VDC)	Cin (μF)	Single Vout (VDC)	Cout (μF)	Dual Vout (VDC)	Cout (μF)
5	10	3.3/5	10	±5	4.7
12	4.7	9	4.7	±9	2.2
24	2.2	12	2.2	±12	1
--	--	15	1	±15/±24	0.47

It is not recommended to connect any external capacitor when output power is less than 0.5W.

2. EMC typical recommended circuit (CLASS B)

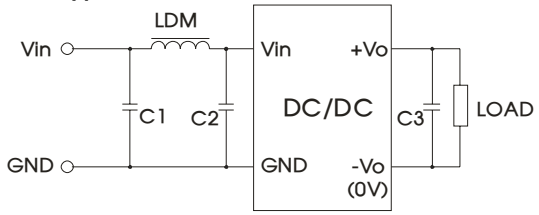


Fig. 5

Recommended typical circuit parameters:

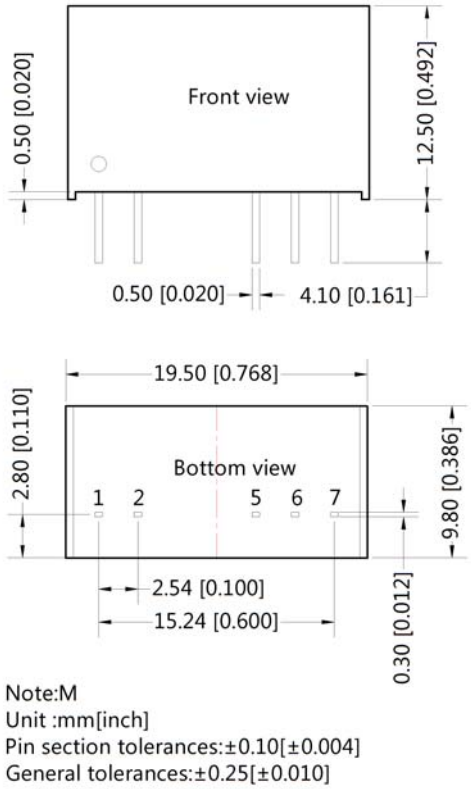
Input voltage (V)		5/12/24
EMI	C1,C2	4.7μF /50V
	C3	Refer to the Cout in Fig.3
	LDM	6.8μH

3. Output load requirements

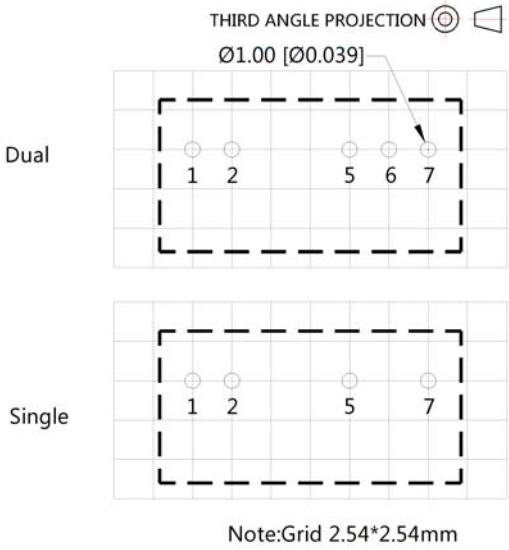
To ensure the module work efficiently and reliably, during the operation, the min. output load should be no less than 10% of the full load. If the actual output power is low, please connect a resister to the output terminal in parallel, with a recommenced resistance which is 10% of the rated power, and derating is required during operation.

4. For more information please find the application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Note:M
Unit :mm[inch]
Pin section tolerances:±0.10[±0.004]
General tolerances:±0.25[±0.010]



Note:Grid 2.54*2.54mm

Pin-Out		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
5	0V	-Vo
6	No Pin	0V
7	+Vo	+Vo

Notes:

1. Packing Information please refer to 'Product Packing Information'. Packing bag number: 58200013;
2. If the product is operated under the min. required load, the product performance cannot be guaranteed to comply with all performance indexes in this datasheet;
3. The max. capacitive load should be tested within the input voltage range and under full load conditions;
4. Unless otherwise specified, data in this datasheet should be tested under the conditions of Ta=25°C, humidity<75% when inputting nominal voltage and outputting rated load;
5. All index testing methods in this datasheet are based on our Company's corporate standards;
6. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technicians for specific information;
7. We can provide product customization service;
8. Specifications of this product are subject to changes without prior notice.

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