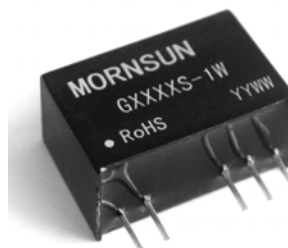


## G\_S-1W Series

FIXED INPUT ISOLATED & UNREGULATED  
1W OUTPUT DUAL OUTPUT  
MINIATURE SIP PACKAGE



RoHS

multi-country patent protection

### FEATURES

- Efficiency to 78%
- Dual Output
- Small Footprint
- SIP Package
- Industry Standard Pinout
- UL94-V0 Package
- No Heat sink Required
- 6kVDC Isolation
- Temperature Range: -40°C ~+85°C
- No External Components Required
- RoHS Compliance

### APPLICATIONS

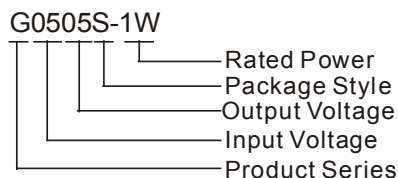
The G\_S-1W Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ );
- 2) Where isolation is necessary between input and output (isolation voltage = 6000VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

### MODEL SELECTION



PRODUCT PROGRAM							
Part Number	Input		Output			Efficiency (% , Typ.)	Package Style
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max.	Min.		
G0505S-1W	5	4.5~5.5	±5	±100	±10	72	SIP
G0507S-1W	5	4.5~5.5	±7.2	±69	±7	72	SIP
G0509S-1W	5	4.5~5.5	±9	±56	±6	72	SIP
G0512S-1W	5	4.5~5.5	±12	±42	±5	75	SIP
G0515S-1W	5	4.5~5.5	±15	±33	±4	75	SIP
G1205S-1W	12	10.8~13.2	±5	±100	±10	75	SIP
G1207S-1W	12	10.8~13.2	±7.2	±69	±7	75	SIP
G1209S-1W	12	10.8~13.2	±9	±56	±6	76	SIP
G1212S-1W	12	10.8~13.2	±12	±42	±5	78	SIP
G1215S-1W	12	10.8~13.2	±15	±33	±4	78	SIP

### COMMON SPECIFICATIONS

Short circuit protection	1 second
Temperature rise at full load	25°C Max., 15°C Typ.
Cooling	Free air convection
Operating temperature range	-40°C ~ +85°C
Storage temperature range	-55°C ~ +125°C
Lead temperature*	300°C (1.5mm from case for 10 seconds)
Storage humidity range	$\leq 95\%$
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hours
*Lead temperature 1.5mm from case for 10 seconds.	

### ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	1 minute	6000			VDC
Isolation resistance	500VDC	1000			MΩ

### OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
1W Out put power	See above product program	0.1		1	W
Linear regulation**	For Vin change of 1%			$\pm 1.2$	%
Load regulation	10% to 100% (5V output)			15	%
Load regulation	10% to 100% (12V output)			10	%
Output voltage accuracy	full load	See tolerance envelope graph			
Efficiency at full load	Nominal input voltage		75		%
Temperature drift	full load			0.03	%/°C
1W Output ripple	20MHz Bandwidth		75	150	mVp-p
Switching frequency	Full load, nominal input		250		KHz

Notes:

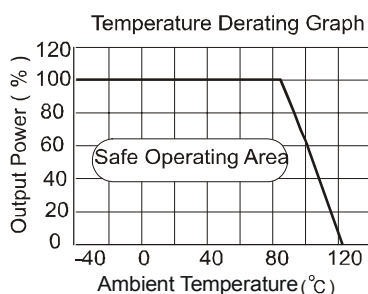
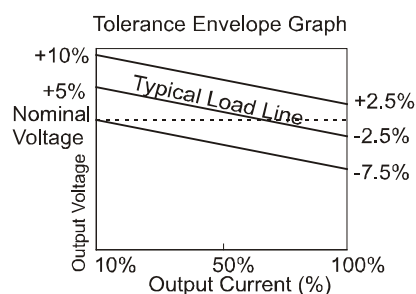
1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.



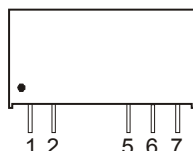
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## TYPICAL CHARACTERISTICS

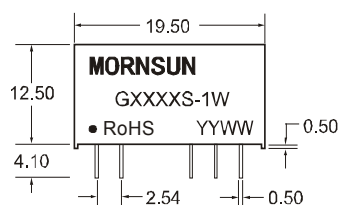


## PIN CONNECTIONS

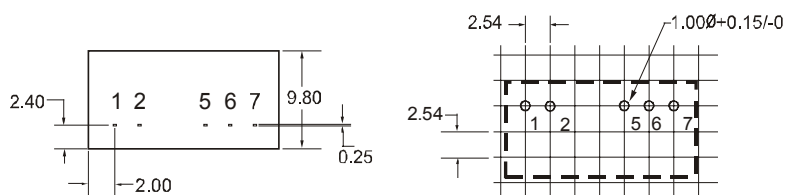


Pin	Function
1	V <sub>in</sub>
2	GND
5	-V <sub>o</sub>
6	0V
7	+V <sub>o</sub>

## OUTLINE DIMENSIONS& RECOMMENDED FOOTPRINT DETAILS



Side View



Bottom View

Note: All Pins on a 2.54mm pitch; all Pin diameters are 0.50mm; all dimensions in mm.

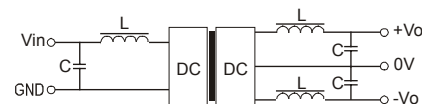
## APPLICATION NOTE

### Filtering

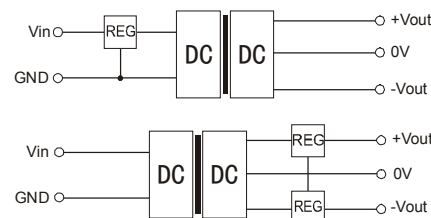
In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For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

### 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 **not be operated under no load**!



<Figure 1>



<Figure 2>

### 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.

### Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage stabilizer with overheat protection that is connected to the input or output end in series (see Figure 2).

### External Capacitor Table

V <sub>in</sub>	External capacitor	V <sub>out</sub>	External capacitor
5VDC	4.7uF	5VDC	4.7uF
12VDC	2.2uF	9VDC	2.2uF
24VDC	1uF	12VDC	1uF
--	--	15VDC	0.47uF

When the output power is lower than 0.5W, it's recommended no external capacitor needed.



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