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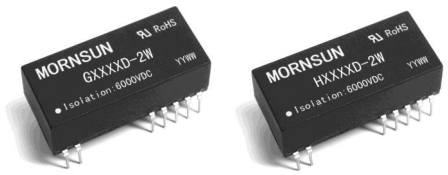


G_D-2W & H_D-2W Series

2W, FIXED INPUT, 6000V ISOLATED & UNREGULATED DUAL/SINGLE OUTPUT DC-DC CONVERTER

multi-country patent protection **RoHS**

FEATURES

- High Efficiency up to 81%
- 6KVDC Isolation
- DIP Package
- Low Isolation capacitance
- Temperature Range -40°C to +85°C
- No Heat Sink Require
- Internal SMD Construction
- No External Component Required
- Continuous short circuit protection
- Industry Standard Pinout
- RoHS Compliance

APPLICATIONS

The G_D-2W & H_D-2W 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:

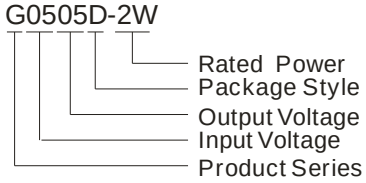
1) Where the voltage of the input power supply is fixed (voltage variation ≤±10%);

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 demanded.

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)	Certificate
	Voltage (VDC)		Voltage (VDC)	Current (mA)			
	Nominal	Range		Max	Min		
H0505D-2W	5	4.5-5.5	5	400	40	75	UL
H0509D-2W			9	222	23	76	UL
H0512D-2W			12	167	17	78	UL
H0515D-2W			15	133	13	77	UL
G0505D-2W			±5	±200	±20	75	UL
G0509D-2W			±9	±111	±12	77	UL
G0512D-2W			±12	±84	±9	79	UL
G0515D-2W			±15	±67	±7	78	UL
H1205D-2W	12	10.8-13.	5	400	40	75	UL
H1209D-2W			9	222	23	78	UL
H1212D-2W			12	167	17	80	UL
H1215D-2W			15	133	14	78	UL
G1205D-2W			±5	±200	±20	76	UL
G1209D-2W			±9	±111	±12	78	UL
G1212D-2W			±12	±84	±9	80	UL
G1215D-2W			±15	±67	±7	78	UL
H2405D-2W	24	21.6-26.4	5	400	40	77	
H2409D-2W			9	222	23	78	
H2412D-2W			12	167	17	81	
H2415D-2W*			15	133	14	80	
G2405D-2W*			±5	±200	±20	77	
G2409D-2W*			±9	±111	±12	78	
G2412D-2W*			±12	±84	±9	81	
G2415D-2W*			±15	±67	±7	80	

*Designing.
Note: The G_D-1W/H_D-1W series also are available in our company.

ISOLATION SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1mA max	6000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance			3.5		pF

COMMON SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			15	30	
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection		Continuous			
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
MTBF		3500			K hours
Weight			8.2		g

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

OUTPUT SPECIFICATIONS

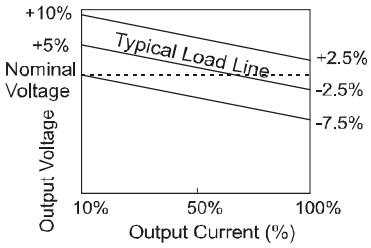
Item	Test conditions		Min	Typ	Max	Units
Output power			0.2		2	W
Line regulation	For Vin change of 1%				±1.2	%
Load regulation	10% to 100% load	5V output		10	15	%
		9V output		8.3	15	
		12V output		6.8	15	
		15V output		6.3	15	
Output voltage accuracy			See tolerance envelope graph			
Temperature drift	100% full load				0.03	%/°C
Ripple & Noise*	20MHz Bandwidth			150	250	mVp-p
Switching frequency	Full load, nominal input	5V input		35		KHz
		12V,24V input		50		

*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

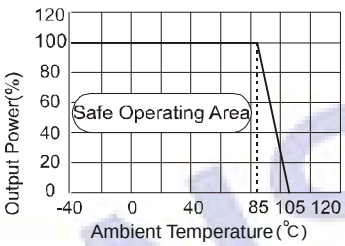
Note: Dual output models unbalanced load: ±5%.

TYPICAL CHARACTERISTICS

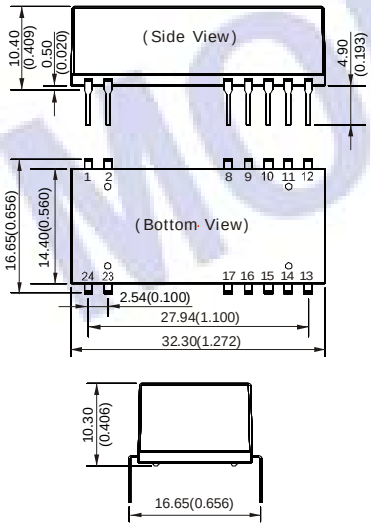
Tolerance Envelope Graph



Temperature Derating Graph



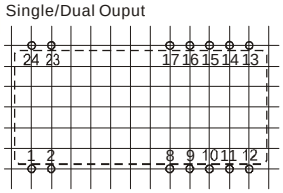
OUTLINE DIMENSIONS & PIN CONNECTIONS



First Angle Projection

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

Single/Dual Ouput



FOOTPRINT DETAILS

Pin	Single	Dual
1	Vin	Vin
2	GND	GND
8, 17	NC	-Vo
10, 15	0V	0V
12, 13	+Vo	+Vo
Others	NC	NC

NC: No connection

Note:
Unit:mm(inch)
Pin section:0.50*0.30mm(0.020*0.012inch)
Pin section tolerances:±0.10mm(±0.004inch)
General tolerances:±0.25mm(±0.010inch)

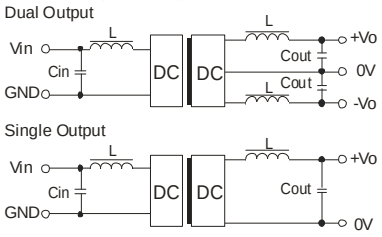
APPLICATION NOTE

Requirement on output load

To ensure this module can operate efficiently and reliably, During operation, 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(G/H_D-1W Series)

Recommended testing and application 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).



(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).

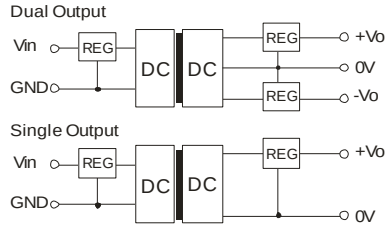
EXTERNAL CAPACITOR TABLE (Table 1)

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

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

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 regulator with overheat protection that is connected to the input or output end in series (Figure 2).



(Figure 2)

Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against overload. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

No parallel connection or plug and play.

Note:
1. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. Only typical models listed, other models may be different, please contact our technical person for more details.
3. Operation under minimum load will not damage the converter; However, they may not meet all specification listed.