MICRODC
Industry Power Family

H-XVD&G-XVD Series

1W,FIXED INPUT,6000V ISOLATED&UNREGULATED SINGLE/DUAL OUTPUT DC-DC CONVERTER

FEATURES

- Small Footprint
- DIP24 Package
- 6KVDC Isolation
- Temperature Range: -40℃～+85℃
- No Heat Sink Require
- No External Component Require
- Internal SMD Construction
- Industry Standard Pin out
- RoHS Compliance

MODEL SELECTION

H①05②05③X④V⑤D⑥

①Product Series ②Input Voltage
③Output Voltage ④Fixed Input
⑤Footprint Rank Shape ⑥DIP24 Package

APPLICATIONS

The G-XVD& H-XVD 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.

RoHS MICRODC Green Technology

CE REACH

PRODUCT PROGRAM

Order code	Input Voltage(VDC) Nominal	Input Voltage(VDC) Range	Output Voltage (VDC)	Output Current Max	Output Current Min	Efficiency (%,Typ)	Switching Frequency (KHz,Typ)
H0505XVD	5	4.5-5.5	5	200	20	70	UL
H0509XVD			9	111	12	72	UL
H0512XVD			12	84	9	73	UL
H0515XVD			15	67	7	74	UL
G0505XVD			±5	±100	±10	70	UL
G0509XVD			±9	±56	±6	71	UL
G0512XVD			±12	±42	±5	72	UL
G0515XVD			±15	±33	±4	73	UL
H1205XVD	12	10.8-13.2	5	200	20	70	UL
H1209XVD			9	111	12	71	UL
H1212XVD			12	84	9	72	UL
H1215XVD			15	67	7	74	UL
G1205XVD			±5	±100	±10	70	UL
G1209XVD			±9	±56	±6	71	UL
G1212XVD			±12	±42	±5	72	UL
G1215XVD			±15	±33	±4	75	UL

ISOLATION SPECIFICATIONS

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

COMMON SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Storage humidity range				95	%
Operating temperature		-40		85	℃
Storage temperature		-55		125	℃
Temp. rise at full load			15	30	℃
Lead temperature	1.5mm from case for 10 seconds			300	℃
Short circuit protection*	5V input voltage			1	S
	12V input voltage	Continuous			
Cooling		Free air convection			
Case material		Plastic(UL94-V0)			
MTBF		3500			K hours
Weight			8.2		g

* When input voltage (Nominal) is 5V, Supply voltage must be discontinued at the end of short circuit duration.

OUTPUT SPECIFICATIONS

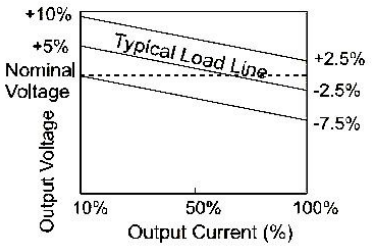
Item	Test conditions		Min	Typ	Max	Units
Output power			0.1		1	W
Line regulation	For Vin change of 1%				±1.2	%
Load regulation	10% to 100% load 5V output			10	15	
	10% to 100% load 9V output			8.3	15	
	10% to 100% load 12V output			6.8	15	
	10% to 100% load 15V output			6.3	15	
Output voltage accuracy	See tolerance envelope graph					
Temperature drift	100% full load				0.03	%/℃
Ripple & Noise*	20MHz Bandwidth			150	200	mVp-p
Switching frequency	Full load nominal input	5V input		250		KHz
		12V input		50		

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

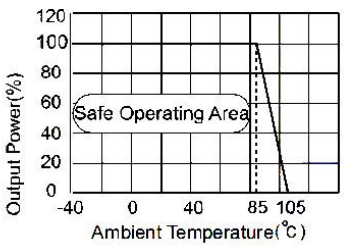
Note: Dual output models unbalanced load: ±5%.

TYPICAL CHARACTERISTICS

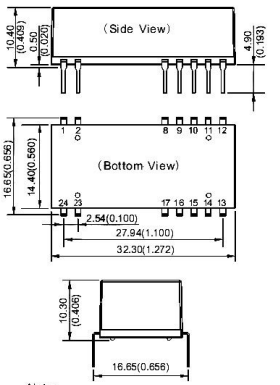
Tolerance Envelope Graph



Temperature Derating Graph



OUTLINE DIMENSIONS & PIN CONNECTIONS

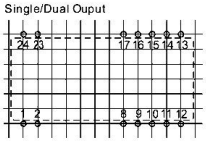


Note:
Unit:mm(inch)
Pin section:0.50*0.30mm(0.020*0.012inch)
Pin section tolerances:±0.10mm(±0.004inch)
General tolerances:±0.25mm(±0.010inch)

First Angle Projection

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

Single/Dual Ouput



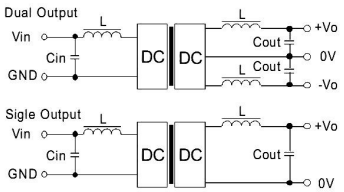
FOOTPRINT DETAILS

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

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).

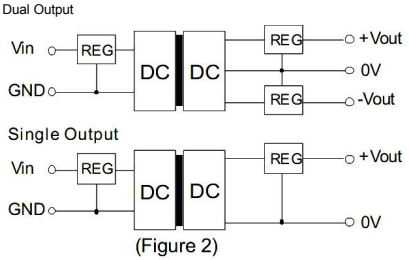
EXTERNAL CAPACITOR TABLE (Table 1)

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 not recommend 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, 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.

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RoHS COMPLIANT INFORMATION

This series is compatible with RoHS soldering systems with a peak wave solder temperature of 300° C for 10 seconds.
The pin termination finish on the SIP package type is Tin Plate, Hot Dipped over Matte Tin with Nickel Preplate. The DIP types are Matte Tin over Nickel Preplate. Both types in this series are backward compatible with Sn/Pb soldering systems.

REACH COMPLIANT INFORMATION

This series has proven that this product does not contain harmful chemicals, it also has harmful chemical substances through the registration, inspection and approval.