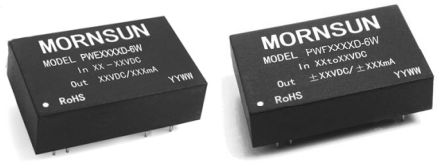
MORNSUN
Industrial DC&AC converter professional



PWE_D-6W & PWF_D-6W Series

6W, 4:1 WIDE INPUT, ISOLATED & REGULATED SINGLE/DUAL OUTPUT DIP DC/DC CONVERTER

multi-country patent protection **RoHS**

FEATURES

High Efficiency up to 86%
Operating Temperature: -40°C to +85°C
3KVDC Input/Output Isolation
Short Circuit Protection(Automatic recovery)
Internal SMD construction
No Heat Sink Required
Industry Standard Pinout
MTBF>1,000,000 hours
RoHS Compliance

APPLICATIONS

The PWE_D-6W & PWF_D-6W Series are specially designed for applications where a wide range input voltage 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 wide range (voltage range≤ 4:1);

2) Where isolation is necessary between input and output (Isolation Voltage≤3000VDC);

3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION

PWE2405D-6W

- Rated Power
- Package Style
- Output Voltage
- Input Voltage
- Product Series

PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (%, Typ)
	Voltage (VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max*		Max	Min	
PWE2405D-6W	24	9-36	40	±5	±600	±60	80
PWE 2412D-6W				±12	±250	±25	83
PWE 2415D-6W				±15	±200	±20	85
PWE 2424D-6W				±24	±125	±13	86
PWF2403D-6W				3.3	1500	150	78
PWF2405D-6W				5	1200	120	80
PWF2412D-6W				12	500	50	83
PWF2415D-6W				15	400	40	85
PWF2424D-6W				24	250	25	86
PWE4805D-6W	48	18-72	80	±5	±600	±60	80
PWE4812D-6W				±12	±250	±25	83
PWE4815D-6W				±15	±200	±20	85
PWE4824D-6W				±24	±125	±13	86
PWF4803D-6W				3.3	1500	150	78
PWF4805D-6W				5	1200	120	80
PWF4812D-6W				12	500	50	84
PWF4815D-6W				15	400	40	85
PWF4824D-6W				24	250	25	86

*Input voltage can't exceed this value, or will cause the permanent damage.
Note: The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
Operation under 10% load will not damage the converter; However, they may not meet all specification listed.

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	See below products program	0.6		6	W
Positive Voltage accuracy	Refer to recommended circuit		±1	±3	%
Negative Voltage accuracy	Refer to recommended circuit		±3	±5	
Load Regulation	From 10% to 100% load		±0.5	±2*	
Line Regulation(at full load)	Input voltage from low to high		±0.2	±0.5	
Temperature Drift(Vout)	Refer to recommended circuit		0.02		%/°C
Ripple**	20MHz bandwidth		20	50	mVp-p
Noise**	20MHz bandwidth		75	150	
Switching Frequency	100% load, nominal input voltage		300		KHz

*Dual output models unbalanced load: ±5%
**Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

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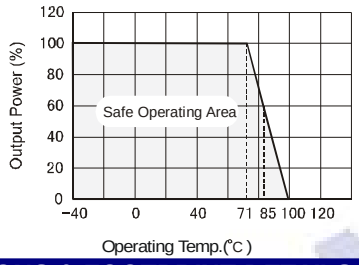
COMMON SPECIFICATION

Item	Test Conditions	Min	Typ	Max	Units
Storage Humidity				95	%
Operating Temperature		-40		85	°C
Storage Temperature		-55		125	
Temp. rise at full load			40		
Lead Temperature	1.5mm from case for 10 seconds			300	
Isolation voltage	Tested for 1 minute and 1mA max	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
No-load power consumption			500		mW
Cooling		Free air convection			
Case Material		Plastic(UL94-V0)			
Short Circuit Protection		Continuous, automatic recovery			
MTBF		1000			K hours
Weight			17		g

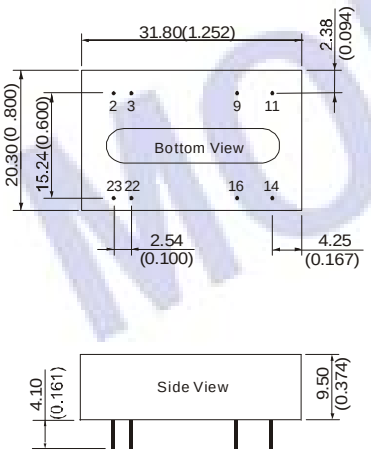
Note:
1. All specifications measured at T_A=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See below recommended circuits for more details.

TYPICAL CHARECTERISTICS

Temperature Derating Graph



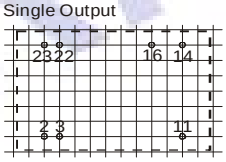
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



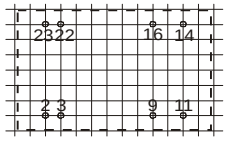
First Angle Projection

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

Single Output



Dual Output



FOOTPRINT DETAILS

Pin	Single	Dual
2,3	GND	GND
9	No Pin	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC:No connection

Note:
Unit:mm(inch)
Pin diameter:0.50mm(0.020inch)
Pin diameter tolerances:±0.05mm(±0.002inch)
General tolerances:±0.25mm(±0.010inch)

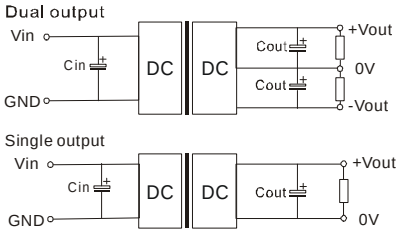
APPLICATION NOTE

Requirement Output Load

In order to ensure the product operate efficiently and reliably, in addition to a max load (namely full load), a minimum load is specified for this kind of DC/DC converter. Make sure the specified range of input voltage is not exceeded, the minimum output load no less than 10% load. If the actual load is less than the specified minimum load, the output ripple may increase sharply while its efficiency and reliability will reduce greatly. If the actual output power is very small, please add an appropriate resistor as extra loading, or contact our company for other lower output power products.

Recommended Circuit

All the PWE_D-6W & PWF_D-6W Series have been tested according to the following recommended testing circuit before leaving factory. (See Figure 1).



(Figure 1)

If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. 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). General:

Cin: 24V&48V 10μF-47μF

Cout: 10μF/100mA

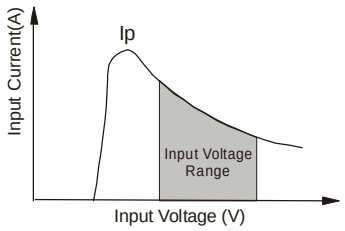
Output External Capacitor Table (Table 1)

Single Vout (VDC)	Cout (uF)	Daul Vout (VDC)	Cout (uF)
3.3	2200	±5	680
5	1000	±12	330
12	470	±15	220
15	330	±24	100
24	220	-	-

Input Current

When it is used in unregulated power supply, be sure that the fluctuating range of the power supply and the rippled voltage do not exceed the module standard. Input current of power supply should afford the startup current of this kind of DC/DC module (See figure 2), General:

Ip ≤1.4*Iin-max



(Figure 2)

No parallel connection or plug and play.