

PWE4812D-3W

**3W, 4:1 WIDE INPUT ISOLATED & REGULATED
DUAL OUTPUT DIP PACKAGE DC-DC CONVERTER**

multi-country patent protection **RoHS**

FEATURES

- Efficiency Up To 78%
- Operating Temperature: -40°C to +85°C
- 3000VDC Isolation
- Short Circuit Protection(automatic recovery)
- Internal SMD construction
- Industry standard pinout
- No Heat Sink Required
- MTBF>1,000,000 hours
- RoHS Compliance

APPLICATIONS

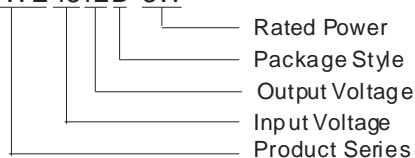
The PWE4812D-3W Series are specially designed for applications where a wide range input voltage power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

These products apply to:

- 1) Where the voltage of the input power supply is wide range (voltage range $\leq 4:1$);
- 2) Where isolation is necessary between input and output (isolation $\leq 3000\text{VDC}$);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION

PWE4812D-3W



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PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)
	Voltage (VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max*		Max	Min	
PWE4812D-3W	48	18-72	80	±12	±125	±12	76

* Input voltage over it may cause permanent damage to the device.
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.

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute and 1 mA max	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation Capacitance			100		pF

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output Power	See above products program	0.3		3	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	±1*	
Line Regulation	Input voltage from low to high		±0.2	±0.5	
Temperature Drift(Vout)	Refer to recommended circuit			±0.03	%/°C
Ripple & Noise**	20MHz Bandwidth		100	200	mVp-p
Switching Frequency	100% Load, Nominal Input voltage		300		KHz

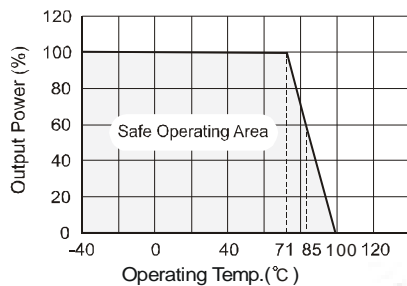
*Dual output models unbalanced load: ±5%.
**Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

- Note:
1. All specifications measured at $T_A=25^\circ\text{C}$, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
 2. See below recommended circuits for more details.

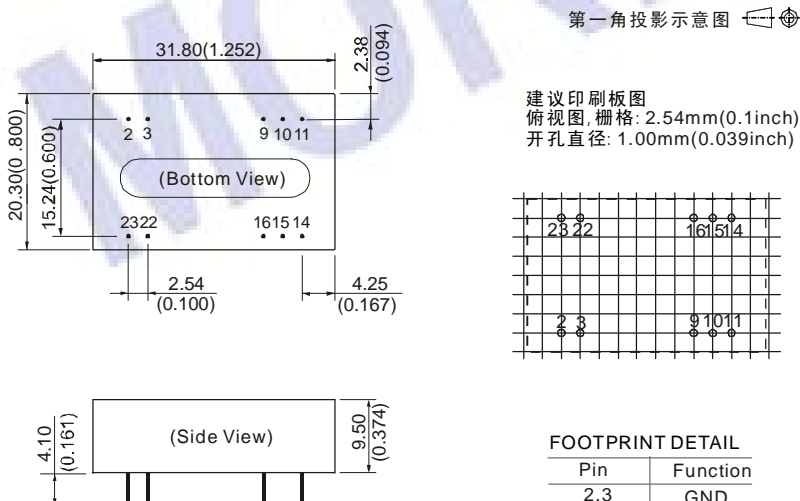
COMMON SPECIFICATION

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	
No-load power consumption			500		mW
Cooling	Free Air Convection				
Short Circuit Protection	Continuous, automatic recovery				
Case Material	Plastic (UL94-V0)				
MTBF		1000			K hours
Weight			15		g

TYPICAL TEMPERATURE CURVE



PACKAGE STYLE AND PINNING



FOOTPRINT DETAIL

Pin	Function
2,3	GND
9,16	0V
10,15	NC
11	-Vo
14	+Vo
22,23	Vin

NC: No Connection

Note: mm(inch)
Pin diameter: 0.50mm(0.020inch)
Pin diameter tolerance: $\pm 0.05\text{mm}(\pm 0.002\text{inch})$
General tolerance: $\pm 0.25\text{mm}(\pm 0.010\text{inch})$

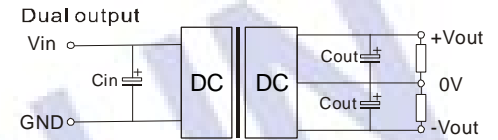
APPLICATION NOTE

Requirement On 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

The PWE4812D-3W 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: 48V 10-47 μF
Cout: 10 $\mu\text{F}/100\text{mA}$

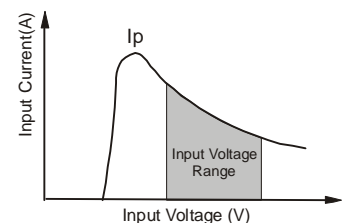
Output External Capacitor Table (Table 1)

Dual Vout (VDC)	Cout (μF)
± 12	330

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:

$$I_p \leq 1.4 * I_{in-max}$$



(Figure 2)

No parallel connection or plug and play.