MORNSUN
Industrial DC&AC converter professional

PWA_(M)D-3W Series

4:1 WIDE INPUT ISOLATED & REGULATED 3W OUTPUT DUAL OUTPUT 24 DIP PACKAGE

multi-country patent protection **RoHS**

FEATURES

- Wide (4:1) Input Range
- Operating Temperature: -40°C~+85°C
- 1.5KVDC Isolation
- UL94-V0 Package
- No Heat Sink Required
- MTBF>1,000,000 hours
- Short Circuit Protection
- RoHS Compliance

APPLICATIONS

The PWA_(M)D-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: 4:1);

2) Where isolation is necessary between input and output (isolation =1500VDC);

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

MODEL SELECTION

PWA2405MD-3W

- 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	
PWA2405(M)D-3W	24	9~36	40	±5	±300	±30	72
PWA2412(M)D-3W				±12	±125	±12	78
PWA2415(M)D-3W				±15	±100	±10	76
PWA4805(M)D-3W	48	18~72	80	±5	±300	±30	72
PWA4812(M)D-3W				±12	±125	±12	78
PWA4815(M)D-3W				±15	±100	±10	76

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Flash tested for 60 seconds	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
3W output power	See below products program	0.3		3	W
Voltage accuracy	Refer to recommended circuit		±1	±3	%
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	20MHz bandwidth			50	mVp-p
Noise	20MHz bandwidth		50	150	
Switching frequency	100% load, nominal input voltage		300（PFM）		KHz

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.

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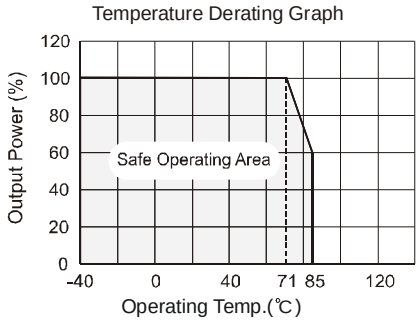
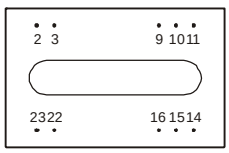
COMMON SPECIFICATION

Output Short Circuit Protection	Continuous Automatic Recovery
Temperature Rise at Full Load	15°C (typ)
Cooling	Free Air Convection
No-load Power Consumption	200mW (typical)
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	≤ 95%
Case Material	D: Plastic (UL94-V0) MD:Metal
MTBF	>1,000,000 hours
***Lead Temperature 1.5mm from case for 10 seconds.	

TYPICAL CHARECTERISTICS

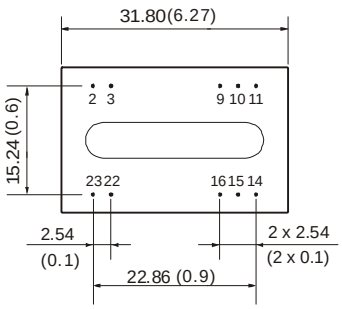


FOOTPRINT DETAILS

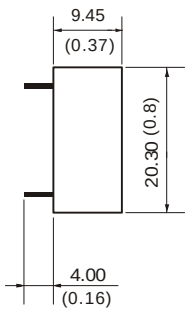


Pin	Function
2,3	GND
10,15	NC
14	+Vo
11	-Vo
9,16	0V
22,23	Vin

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



(Bottom View)



(Side View)

Note:All Pin diameter :0.8±0.05(0.03)±0.002; Tolerances:± 0.5(0.02).

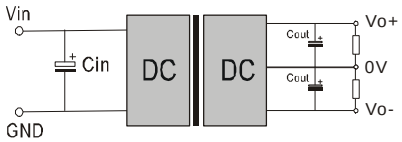
APPLICATION NOTE

Requirement on Output Load

To ensure this module 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 out put load is not less than **10%** Of the full load, If the actual load is less below the specified minimum load, the output ripple of this type of DC/DC converter may increase drastically.If the actual output power from the load in your circuit is very small, please connect a resistor with proper resistance at the output end to in parallel to increase the load, or use our company's other products with a lower rated output power.

Recommended Circuit

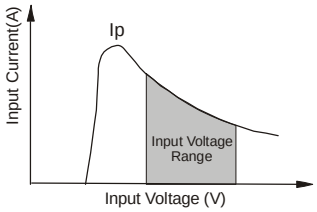
All the PWA_(M)D-3W Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. (Figure 1). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high.(See table 1).If you want to use the products in high EMI, please choose our metal packaged products.



(Figure1)

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)



(Figure 2)

External Capacitor

Although this series of DC/DC converter can work without external capacitor, in order to keep an optimum performance, however, it needs external capacitor. (See Table 1)

The products cannot be used in parallel and in plug and play.

External Capacitor Table(Table 1)

Vin	C_{in}	C_{out} (0+70°C)	C_{out} (-40+85°C)
24V & 48V	10uF~ 47uF	100uF (electrolytic capacitor)	47uF (tantalum capacitor)