



PWA_(C)D-10W & PWB_(C)D-10W Series 10W, 4:1 WIDE INPUT, ISOLATED & REGULATED DUAL/SINGLE OUTPUT DC-DC CONVERTER

RoHS

FEATURES

- 4:1 wide input voltage range
- DIP package
- Operating Temperature: -40°C ~ +85°C
- 1500VDC isolation
- Short circuit protection (automatic recovery)
- Metal shielding package
- Industry Standard Pinout
- MTBF>1,000,000 hours
- RoHS compliance

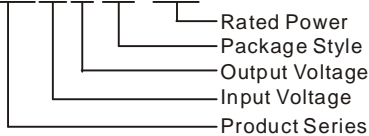
APPLICATIONS

The PWA_(C)D-10W & PWB_(C)D-10W 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 ≤ 1500 VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

MODEL SELECTION

PWA2405CD-10W



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PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ.)
	Voltage (VDC)			Voltage (VDC)	Current (mA)		
	Nominal	Range	Max*		Max.	Min.	
PWA2405(C)D-10W	24	9-36	40	±5	±1000	±100	80
PWA2412(C)D-10W				±12	±416	±42	82
PWA2415(C)D-10W				±15	±333	±33	83
PWB2405(C)D-10W				5	2000	200	79
PWB2412(C)D-10W				12	833	83	81
PWB2415(C)D-10W				15	666	67	82
PWA4812(C)D-10W				48	18-72	80	±12
PWA4815(C)D-10W	±15	±333	±33				83
PWB4812(C)D-10W	12	833	83				82
PWB4815(C)D-10W	15	666	67				83

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

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			40		
Lead temperature	1.5mm from case for 10 seconds			300	
Cooling		Free air convection			
Short circuit protection		Continuous, automatic recovery			
Case Material		Aluminium alloy			
MTBF		1000			k hours
Weight			23.5		g

ISOLATION SPECIFICATIONS

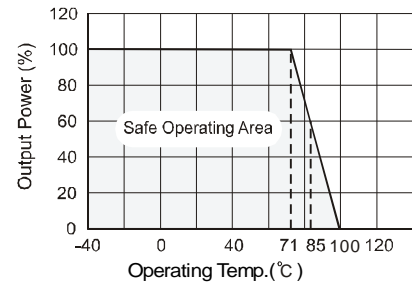
Item	Test conditions	Min.	Typ.	Max.	Units
Isolation voltage	Tested for 1 minute and 1 mA max	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ
Isolation capacitance	Input/output		1000		pF

OUTPUT SPECIFICATIONS

Item	Test conditions	Min.	Typ.	Max.	Units
Output power	See below products program	1		10	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**	20MHz bandwidth		20	50	mVp-p
Noise**	20MHz bandwidth		85	150	
Switching frequency	100% load, input voltage range		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.

TYPICAL TEMPERATURE CURVE



APPLICATION NOTE

1) 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.

2) Recommended Circuit

All the PWA_(C)D-10W & PWB_(C)D-10W series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (see 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: 10µF~47µF
 Cout:10µF/100mA

3) CTRL Terminal

When open or high impedance, the converter work well; When this pin is 'high'; the converter shutdown; It should be note that the input current (Ic) should between 5-10mA, exceeding the maximum 20mA will cause permanence damage to the converter. The value of R Can be derived as follows :

$$R = \frac{V_C - V_D - 1.0}{I_C}$$

4) Input current

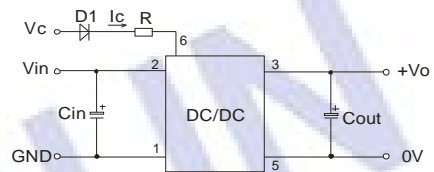
While using unstable power source, please ensure the output voltage and ripple voltage do not exceed indexes of the converter. The preceding power source must be able to provide for converter sufficient starting current Ip (Figure 2).

General: Ip ≤ 1.6 * Iin-max

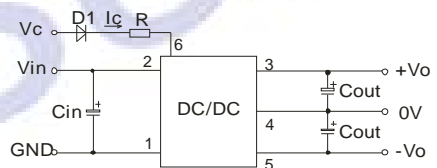
5) No parallel connection or plug and play

RECOMMENDED CIRCUIT

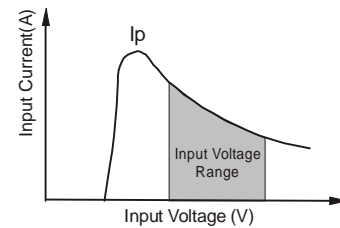
Single Output



Dual Output



(Figure 1)

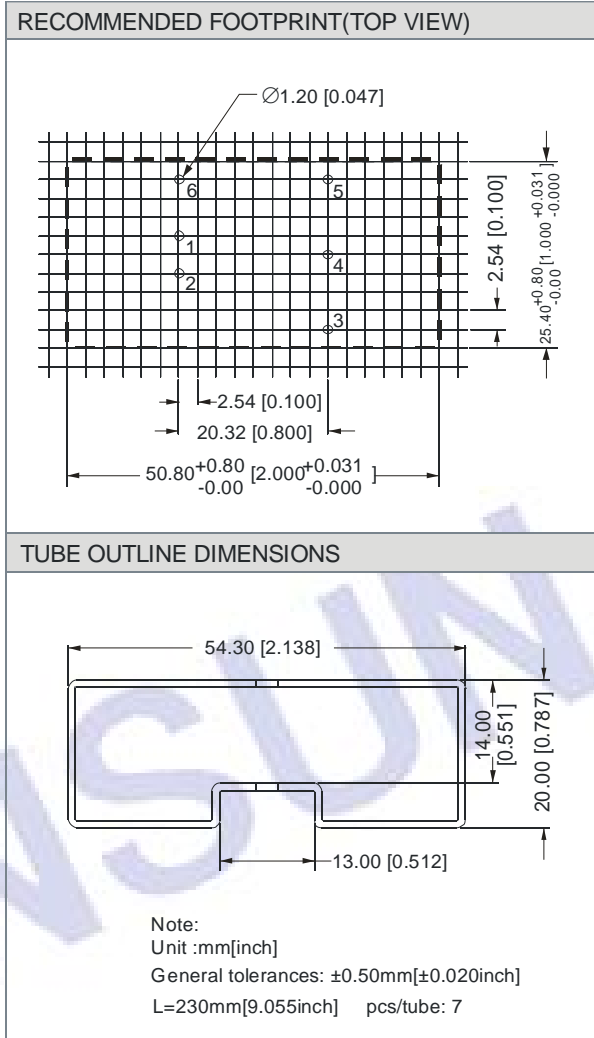
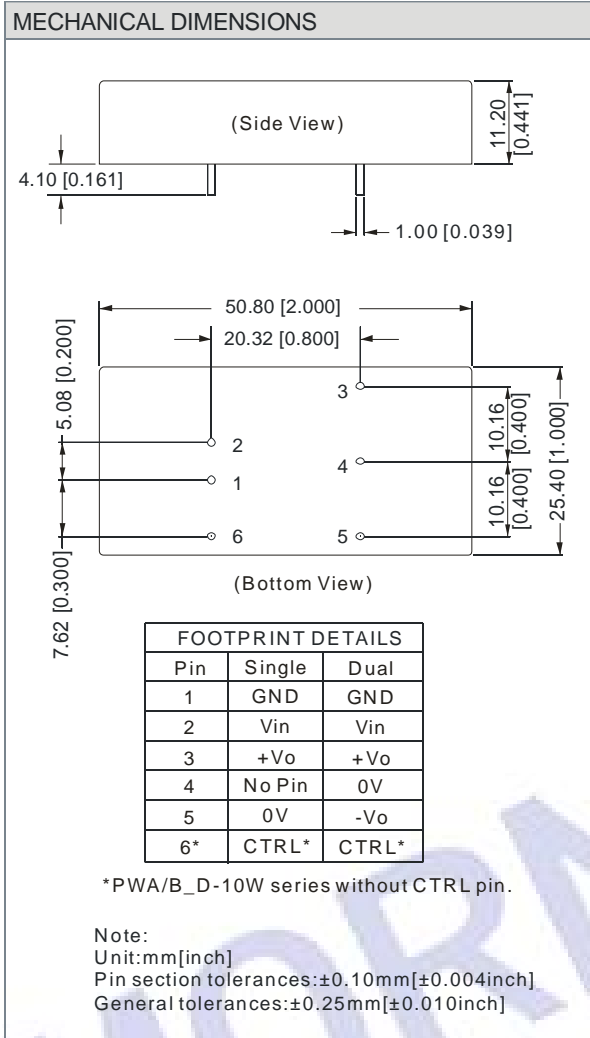


(Figure 2)

External Capacitor Table (Table 1)

Single Vout (VDC)	Cout (µF)	Dual Vout (VDC)	Cout (µF)
5	680	±5	680
12	470	±12	330
15	330	±15	220

OUTLINE DIMENSIONS & FOOTPRINT DETAILS



Note:

1. The load shouldn't be less than 10%, otherwise ripple will increase dramatically.
2. Operation under 10% load will not damage the converter; However, they may not meet all specification listed.
3. Capacitor MAX load tested at input voltage range and full load.
4. All specifications measured at Ta=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
5. Only typical models listed, other models may be different, please contact our technical person for more details.
6. In this datasheet, all the test methods of indications are based on corporate standards.