



PWA_CS-2W & PWB_CS-2W Series

2W, ULTRAWIDE INPUT, ISOLATED & REGULATED DUAL/SINGLE OUTPUT, DC/DC CONVERTER

multi-country patent protection **RoHS**

FEATURES

- High Efficiency up to 82%
- I/O Isolation 1500VDC
- 4:1 wide input range
- Short Circuit Protection(automatic recovery)
- Operating Temperature: -40°C to +85°C
- Remote ON/OFF control
- Internal SMD construction
- Low Ripple and Noise
- RoHS Compliance

APPLICATIONS

The PWA_CS-2W & PWB_CS-2W 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.
- 2) Where isolation is necessary between input and output.
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

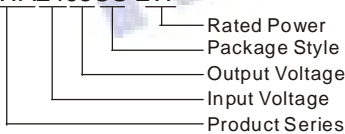
PRODUCT PROGRAM

Part Number	Input			Output			Efficiency (% Typ)			
	Voltage (VDC)			Voltage (VDC)	Current (mA)					
	Nominal	Range	Max*		Max	Nominal				
PWA2405CS-2W	24	9-36	40	±5	±200	±20	76			
PWA2409CS-2W				±9	±111	±11	78			
PWA2412CS-2W				±12	±83	±8	82			
PWA2415CS-2W				±15	±67	±7	81			
PWB2403CS-1W6				3.3	500	50	73			
PWB2405CS-2W				5	400	40	75			
PWB2409CS-2W				9	222	22	78			
PWB2412CS-2W				12	167	16	82			
PWB2415CS-2W				15	133	13	81			
PWA4805CS-2W				48	18-72	80	±5	±200	±20	75
PWA4809CS-2W							±9	±111	±11	77
PWA4812CS-2W							±12	±83	±8	81
PWA4815CS-2W	±15	±67	±7				80			
PWB4803CS-1W6	3.3	500	50				72			
PWB4805CS-2W	5	400	40				76			
PWB4809CS-2W	9	222	22				78			
PWB4812CS-2W	12	167	16				81			
PWB4815CS-2W	15	133	13	80						

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

MODEL SELECTION

PWA2405CS-2W



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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
Isolation Capacitance	Input/Output		80		PF

OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ	Max	Units
Output power	See Below Products Program	0.2		2	W
Output voltage accuracy	Refer To Recommended Circuit		±1	±3	%
Line regulation	From 10% To 100% Load		±0.5	±1.5	
Load regulation	Input Voltage From Low To High		±0.2	±0.75	
Temperature drift	Refer To Recommended Circuit			±0.03	%/°C
Ripple & Noise	20MHz Bandwidth		20	100	mVp-p
Switching frequency	100% Load, Nominal Input Voltage	100-550(PFM)			KHz

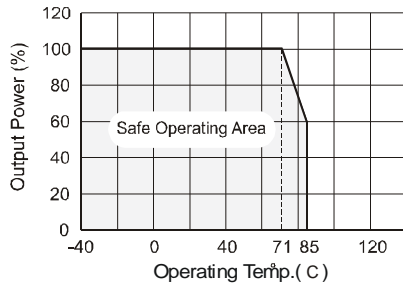
Note:

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

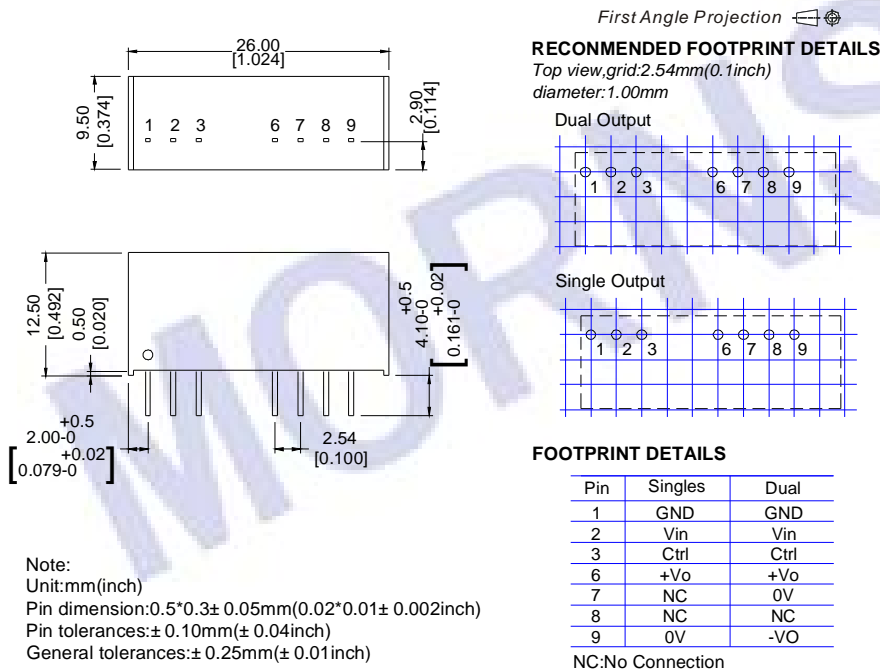
COMMON SPECIFICATION

Item	Test Conditions	Min	Typ	Max	Units
Storage humidity			95		%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			15	35	
Lead temperature	1.5mm from case for 10 seconds			300	
Cooling		Free air convection			
Short circuit protection		Continuous ,Automatic Recovery			
Case material		Plastic(UL94-V0)			
MTBF		1000			K Hours
Weigh			5.8		g

TYPICAL TEMPERATURE CURVE



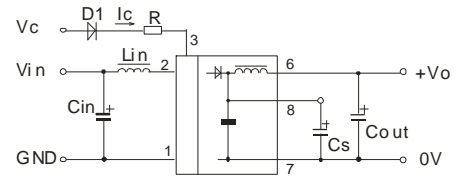
OUTLINE DIMENSIONS & FOOTPRINT DETAILS



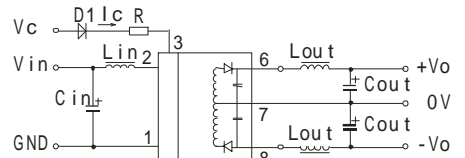
Recommended Circuit

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).

Single output



Dual output



(Figure 1)

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: 10-100uF

Cout: 100uF

Lin: 4.7-120uH

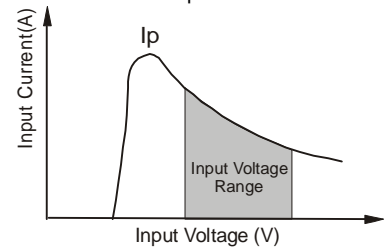
External Capacitor Table (Table 1)

Single Vout (VDC)	Cout (uF)	Dual Vout (VDC)	Cou (uF)
3.3	1200	--	--
5	820	±5	330
9	680	±9	270
12	170	±12	220
15	330	±15	180

Input current

Nominal input voltage range. The input current of the power supply must be sufficient to the startup current (Ip) of the DC/DC module (Figure 2)

General: $I_p \leq 1.4 \cdot I_{in-max}$



(Figure 2)

APPLICATION NOTE

Output Load

To ensure this module can operate efficiently and reliably, During operation, the minimum output load is not less than 10% of the full load, and that this product should never be operated under no load! If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power.

TRL Terminal

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

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

No parallel connection or plug and play.