

## A\_D-W25 & B\_LD-W25 Series

### 0.25W, FIXED INPUT, ISOLATED & UNREGULATED DUAL/SINGLE OUTPUT DC-DC CONVERTER



multi-country patent protection **RoHS**

#### FEATURES

1KVDC Isolation  
DIP Package  
Internal SMD Construction  
Temperature Range: -40°C to +85°C  
No Heat sink Required  
No External Component Required  
Industry Standard Pinout  
RoHS Compliance

#### APPLICATIONS

The A\_D-W25 & B\_LD-W25 Series are specially designed for applications where a group of polar power supplies are isolated from the input power supply in a distributed power supply system on a circuit board.

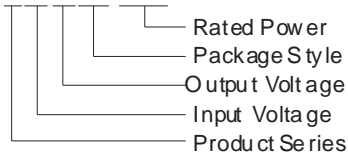
These products apply to:

- 1) Where the voltage of the input power supply is fixed (voltage variation  $\leq \pm 10\%$ );
- 2) Where isolation is necessary between input and output (isolation voltage  $\leq 1000\text{VDC}$ );
- 3) Where the regulation of the output voltage and the output ripple noise are not demanding.

Such as: purely digital circuits, ordinary low frequency analog circuits, and IGBT power device driving circuits.

#### MODEL SELECTION

B0505LD-W25



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#### PRODUCT PROGRAM

Part Number	Input		Output		Efficiency (% Typ)
	Voltage (VDC)		Voltage (VDC)	Current (mA) Max	
	Nominal	Range			
B0303LD-W25*	3.3	3.0-3.6	3.3	75.8	62
B0305LD-W25*			5	50	65
A0505D- W25	5	4.5-5.5	$\pm 5$	$\pm 25$	62
A0509D- W25*			$\pm 9$	$\pm 13.8$	64
A0512D- W25*			$\pm 12$	$\pm 10.4$	66
A0515D- W25*			$\pm 15$	$\pm 8.3$	65
B0505LD- W25			5	50	64
B0509 LD- W25*			9	27.8	65
B0512 LD- W25			12	20.8	67
B0515 LD- W25	15	16.7	65		
A1205D- W25*	12	10.8-13.2	$\pm 5$	$\pm 25$	62
A1209D- W25*			$\pm 9$	$\pm 13.8$	63
A1212D- W25*			$\pm 12$	$\pm 10.4$	64
A1215D- W25*			$\pm 15$	$\pm 8.3$	65
B1203 LD- W25*			3.3	75.8	62
B1205 LD- W25			5	50	65
B1209 LD- W25*			9	27.8	66
B1212 LD- W25	12	20.8	67		
B1215 LD- W25*	15	16.7	66		
A2405D- W25*	24	21.6-26.4	$\pm 5$	$\pm 25$	63
A2409D- W25*			$\pm 9$	$\pm 13.8$	64
A2412D- W25*			$\pm 12$	$\pm 10.4$	65
A2415D- W25*			$\pm 15$	$\pm 8.3$	65
B2405 LD- W25			5	50	63
B2409 LD- W25*			9	27.8	63
B2412 LD- W25*			12	20.8	65
B2415 LD- W25*	15	16.7	65		
B2424LD- W25*	24	10.4	64		

\*Designing

#### COMMON SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Operating Temp. Range		-40		85	°C
Storage Temp. Range		-55		125	
Storage humidity range				95	%
Cooling		Free air convection			
Temp. rise at full load			15	25	°C
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection*				1	s
Case material		Plastic (UL94-V0)			
MTBF		3500			K hours
Weight			2.1		g

\*Supply voltage must be discontinued at the end of short circuit duration.

## ISOLATION SPECIFICATIONS

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

## OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Output power				0.25	W
Line regulation	For Vin change of 1%	(3.3output)		±1.5	
		(others output)		±1.2	
Load regulation	10% to 100% load	(3.3 output)	12	20	%
		(5V output)	10.5	15	
		(9V output)	8.3	10	
		(12V output)	6.8	10	
		(15V output)	6.3	10	
Output voltage accuracy		See tolerance envelope graph			
Temperature drift	100% full load			0.03	%/°C
Ripple & Noise*	20MHz Bandwidth		50	75	mVp-p
Switching frequency	Full load, nominal input		100		KHz

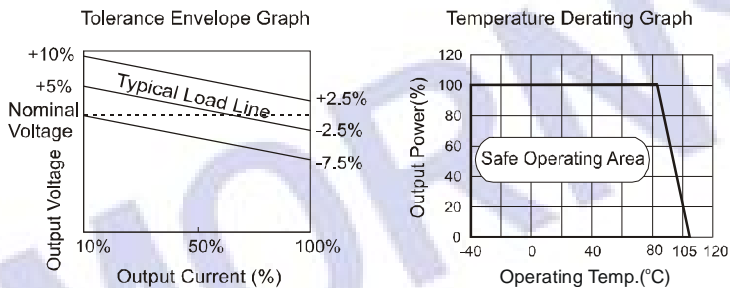
\*Test ripple and noise by "parallel cable" method. See detailed operation instructions at Testing of Power Converter section, application notes.

Note:

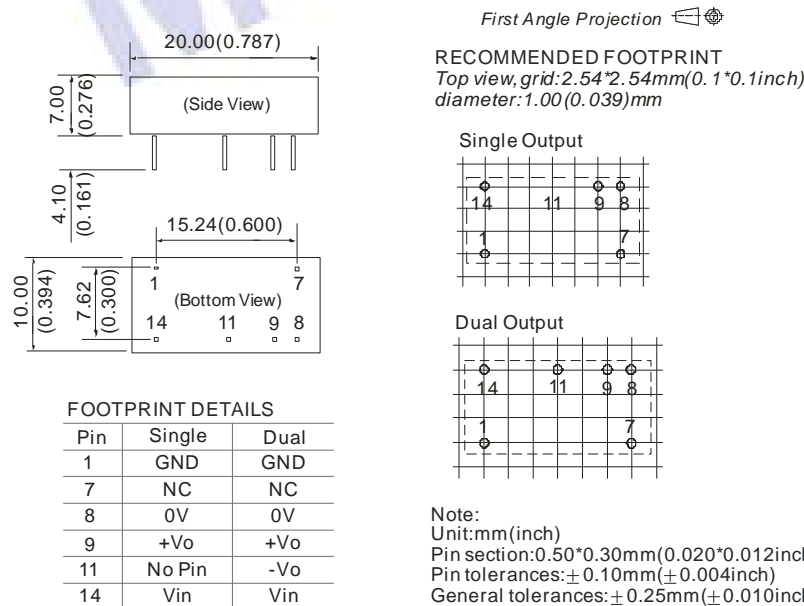
1.All specifications measured at  $T_A=25^{\circ}\text{C}$ , humidity<75%, nominal input voltage and rated output load unless otherwise specified.

2.Dual output models unbalanced load: ±5%.

## TYPICAL CHARACTERISTICS



## OUTLINE DIMENSIONS & PIN CONNECTIONS



## APPLICATION NOTE

### Requirement on output load

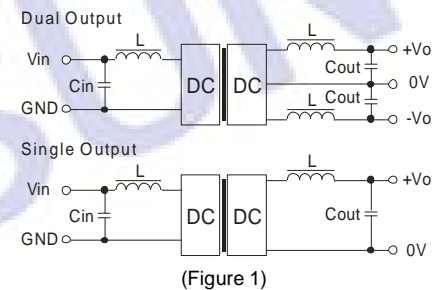
To ensure this module can operate efficiently and reliably, During operation, the minimum output load is **not less than 10%** of the full load, and that **this product should never be operated under no load!** If the actual output power is very small, please connect a resistor with proper resistance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

### Overload Protection

Under normal operating conditions, the output circuit of these products has no protection against overload. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

### Recommended circuit

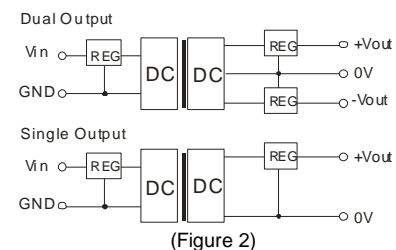
If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).



It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. It's not recommended to connect any external capacitor in the application field .

### Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (Figure 2).



**No parallel connection or plug and play.**