

## B\_YS-W2 Series

**FIXED INPUT ISOLATED & UNREGULATED**  
**0.25W SINGLE OUTPUT**  
**MINIATURE SIP PACKAGE**

multi-country patent protection **RoHS**

### FEATURES

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

### APPLICATIONS

The B\_YS-W2 Series are specially designed for applications where a single power supply is isolated from the input power supply in a distributed power supply system on a circuit board.

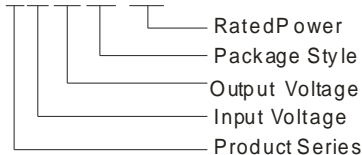
These products apply to:

- 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 and noise are not demanding.

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

### MODEL SELECTION

B0505YS-W2



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### PRODUCT PROGRAM

Part Number	Input		Output			Efficiency (% Typ)
	Voltage (VDC)		Voltage (VDC)	Current (mA)		
	Nominal	Range		Max	Min	
B0303YS-W2	3.3	2.97-3.63	3.3	76	7.6	62
B0305YS-W2			5	50	5	65
B0503YS-W2	5	4.5-5.5	3.3	76	7.6	62
B0505YS-W2			5	50	5	64
B0509YS-W2			9	28	3	65
B0512YS-W2			12	21	2.1	67
B0515YS-W2			15	17	1.7	65
B1203YS-W2			12	10.8-13.2	3.3	76
B1205YS-W2	5	50			5	65
B1209YS-W2	9	28			3	66
B1212YS-W2	12	21			2.1	67
B1215YS-W2	15	17			1.7	66
B2405YS-W2	24	21.6-26.4			5	50
B2409YS-W2			9	28	3	63
B2412YS-W2			12	21	2.1	65
B2415YS-W2			15	17	1.7	65

### ISOLATION SPECIFICATIONS

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

### OUTPUT SPECIFICATIONS

Item	Test Conditions	Min	Typ.	Max	Units
Line regulation	For Vin change of 1%(3.3V output)			1.5	%
	For Vin change of 1%(others)			1.2	
Load regulation	10% to 100% load (3.3V output)		15	20	%
	10% to 100% load (5V output)		12.8	15	
	10% to 100% load (9V output)		8.3	10	
	10% to 100% load (12V output)		6.8	10	
	10% to 100% load (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:

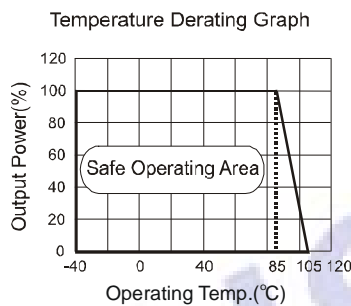
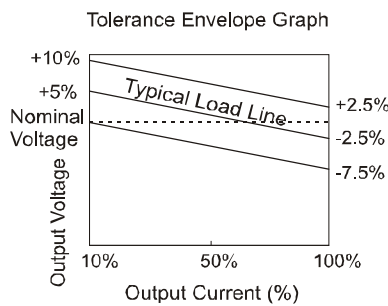
1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output load unless otherwise specified.
2. See the recommended circuits for more details.

## COMMON SPECIFICATION

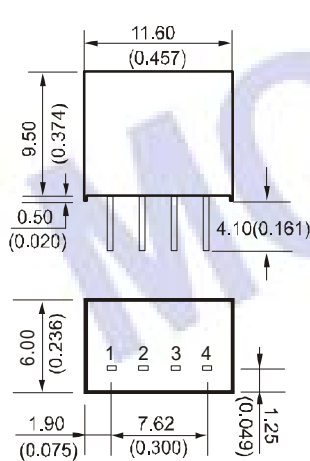
Item	Test Conditions	Min	Typ	Max	Units
Storage humidity				95	%
Operating temperature		-40		85	°C
Storage temperature		-55		125	
Temp. rise at full load			15	25	
Lead temperature	1.5mm from case for 10 seconds			300	
Short circuit protection*				1	S
Cooling	Free air convection				
Case material	Plastic(UL94-V0)				
MTBF		3500			K hours
Weight			1.6		g

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

## TYPICAL CHARACTERISTICS



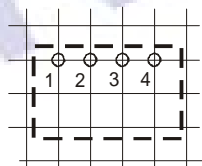
## OUTLINE DIMENSIONS & FOOTPRINT DETAILS



Note:  
 Unit: mm (inch)  
 Pin section: 0.50\*0.30mm (0.020\*0.012inch)  
 Pin tolerances: ±0.10mm (±0.004inch)  
 General tolerances: ±0.25mm (±0.010inch)

First Angle Projection

RECOMMENDED FOOTPRINT  
 Top view, grid: 2.54mm (0.1inch),  
 diameter: 1.00mm



### FOOTPRINT DETAILS

Pin	Function
1	Vin
2	GND
3	0V
4	+Vo

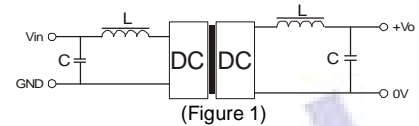
## APPLICATION NOTE

### 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.

### Recommended circuit

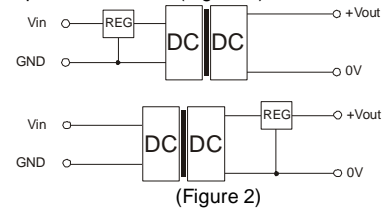
If you want to further decrease the input/output ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, see (Figure 1).



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).



### 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.

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