



VSB02 - Series **2 Watts**

2W SINGLE AND DUAL OUTPUT
2:1 INPUT ISOLATED & UNREGULATED
MINATURE SIP PACKAGE
LOW COST
SHORT LEAD TIME

U.S.A

RoHS

FEATURES

- Wide (2:1) Input Range
- Efficiency Up To 82%
- Operating Temperature: -40°C~+85°C
- Single and dual output
- UL94-V0 Package
- SIP8 Package
- Industry Standard Pinout
- MTBF>1,000,000 hours
- Remote ON/OFF
- RoHS Compliance

The VSB02 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: 2:1);
- 2) Where isolation is necessary between input and output
(Isolation Voltage =1500VDC);
- 3) Where the regulation of the output voltage and the output ripple noise are demanded.

APPLICATIONS

Recommended Circuit

All the VSB02Series 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 should not be too high.(See Table 1).If you want to use the products in high EMI, please choose our metal packaged products.

CS Pin

By connecting a low ESR capacitor between this terminal and the pin-7 (connecting to the anode of the capacitor), the output ripple and noise may be further improved. Generally, the capacitance is no greater than 47uF,

CTRL When open or high impedance, converter work well.; When control pin positive referenced to the negative input (equal to import to earth), converter shutdown; Please note that the input current should between 5-10mA,exceeding the maximum 20mA will cause permanence damage to converter

VICTOR POWER TECHNOLOGIES



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PRODUCT PROGRAM

Part Number	Input Voltage (VDC)		Output Voltage (VDC)	Output Current (mA)		Efficiency (%. Typ)	Package Style
	Nominal	Range		Max	Min		
VSB02-12S05	12	9~18	5	400	40	75	SIP
VSB02-12S09	12	9~18	9	222	22	80	SIP
VSB02-12S12	12	9~18	12	167	16	82	SIP
VSB02-12S15	12	9~18	15	133	13	81	SIP
VSB02-24S05	24	18~36	5	400	40	77	SIP
VSB02-24S09	24	18~36	9	222	22	80	SIP
VSB02-24S12	24	18~36	12	167	16	82	SIP
VSB02-24S15	24	18~36	15	133	13	81	SIP
VSB02-48S05	48	36~72	5	400	40	73	SIP
VSB02-48S09	48	36~72	9	222	22	79	SIP
VSB02-48S12	48	36~72	12	167	16	80	SIP
VSB02-48S15	48	36~72	15	133	13	81	SIP
VSB02-12D05	12	9~18	±5	200	20	73	SIP
VSB02-12D09	12	9~18	±9	110	11	76	SIP
VSB02-12D12	12	9~18	±12	83	8	78	SIP
VSB02-12D15	12	9~18	±15	33	3	78	SIP
VSB02-24D05	24	18~36	±5	200	20	76	SIP
VSB02-24D09	24	18~36	±9	110	11	78	SIP
VSB02-24D12	24	18~36	±12	83	8	78	SIP
VSB02-24D15	24	18~36	±15	33	3	77	SIP
VSB02-48D05	48	36~72	±5	200	20	71	SIP
VSB02-48D09	48	36~72	±9	110	11	78	SIP
VSB02-48D12	48	36~72	±12	83	8	80	SIP
VSB02-48D15	48	36~72	±15	33	3	80	SIP

COMMON SPECIFICATIONS

Short circuit protection	Continuous
Temperature rise at full load	20 °C (TYP)
Cooling	Free air convection
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	Plastic (UL94-V0)
MTBF	>1,500,000 hours
Weigh	5.5g
***Lead Temperature 1.5mm from case for 10 seconds.	

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1500			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

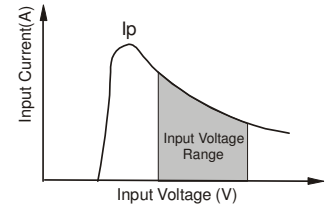
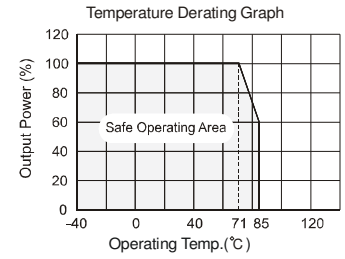
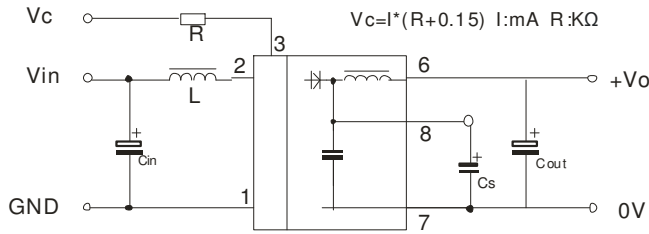
OUTPUT SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Output Voltage Accuracy	Refer To Recommended Circuit		±1	±2	
Line regulation	From 10% To 100% Load		±0.5	±0.75	%
Line Regulation	Input Voltage From Low To High		±0.2	±0.5	
Temperature Drift(Vout)	Refer To Recommended Circuit			±0.03	%/°C
Ripple	20Hz-400KHz Bandwidth		10	30	mVp-p
Noise	DC-20MHz Bandwidth		50	150	
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			0.03	%/°C
Switching Frequency	100% Load, Nominal Input Voltage	80-550(PFM)			KHz
Isolation Capacitance			85		PF

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.

TYPICAL CHARACTERISTICS



(Figure 2)

PIN CONNECTIONS

PIN	1	2	3	4	5	6	7	8
SINGLE	-Vin	+Vin	CTL(Optional)	NP	NC	+Vout	-Vout	CS
DUAL	-Vin	+Vin	CTL(Optional)	NP	NC	+Vout	COMMON	-Vout

Input Current

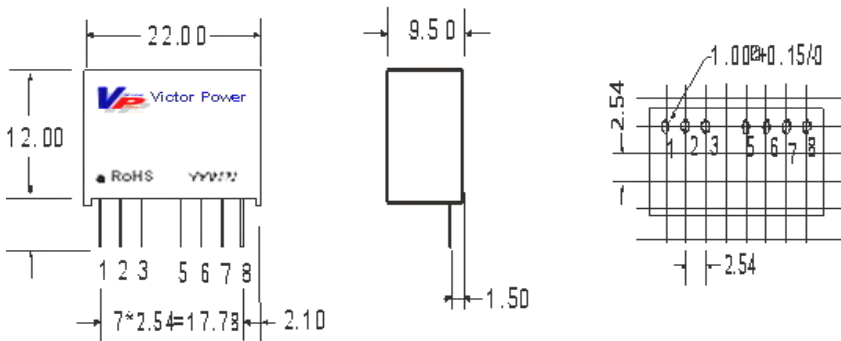
Nominal input voltage range. The input current of the power supply must be sufficient to the startup current (I_p) of the DC/DC module (see Figure 2)

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% full load, the product never work under no load!** If the actual load is less than the specified minimum load, the output ripple will increase sharply while its efficiency and reliability will reduce greatly. If the actual output power is very small, a proper resistor is needed at the output end in order to increasing the load, or contact our company for other lower output power products.

No parallel connection or plug and play.

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS



EXTERNAL CAPACITOR TABLE

Vout	Cout (Max)
5	1000uF
9	470uF
12	220uF
15	100uF
24	47uF

The dual output information will be available upon request.

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