



## VSB01(H) Series

## 1 Watt

**1W SINGLE OUTPUT**  
**FIXED INPUT ISOLATED & UNREGULATED**  
**ULTRAMINIATURE SIP PACKAGE**  
**LOW COST**  
**SHORT LEAD TIME**

U.S.A



RoHS

### FEATURES

- Efficiency up to 81%
- Small Footprint
- Miniature SIP Package
- Single Output Voltage
- 3KVDC Isolation
- Temperature Range: -40°C~+85°C
- Industry Standard Pin Configuration
- UL94-V0 Package
- No Heat sink Required
- No External Component Required
- PCB Mounting
- RoHS Compliance

### APPLICATIONS

The VSB01-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 = 3000VDC);
- 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.

These products don't apply to:

- 1) Where the input supply voltage is varied (variation  $\geq \pm 10\%$ ), otherwise Victor Power VSB series is recommended;
- 2) Where the isolation voltage between input and output is required to be  $> 3000\text{VDC}$ , otherwise Victor Power VSA01 Series of products are recommended;
- 3) Circuits in which the output voltage regulation is demanding, otherwise our company's IF Series or VPA- Series are recommended;

### PRODUCT PROGRAM

Part Number	Nominal	Input Voltage (VDC)		Output			Efficiency (% Typ)	Package Style
		Nominal	Range	Voltage (VDC)	Current (mA) Max	Min		
VSB01-03S33(H)	3.3	3.0~3.6	3.3	300	30	72	SIP	
VSB01-03S05(H)	3.3	3.0~3.6	5	200	20	73	SIP	
VSB01-05S33(H)	5	4.5~5.5	5	300	30	74	SIP	
VSB01-05S05(H)	5	4.5~5.5	5	200	20	78	SIP	
VSB01-05S09(H)	5	4.5~5.5	9	111	12	79	SIP	
VSB01-05S12(H)	5	4.5~5.5	12	83	9	80	SIP	
VSB01-05S15(H)	5	4.5~5.5	15	67	7	78	SIP	
VSB01-12S05(H)	12	10.8~13.2	5	200	20	78	SIP	
VSB01-12S09(H)	12	10.8~13.2	9	111	12	80	SIP	
VSB01-12S12(H)	12	10.8~13.2	12	83	9	81	SIP	
VSB01-12S15(H)	12	10.8~13.2	15	67	7	79	SIP	
VSB01-24S05	24	21.6~26.4	5	200	20	79	SIP	
VSB01-24S09	24	21.6~26.4	9	111	12	80	SIP	
VSB01-24S12	24	21.6~26.4	12	83	9	81	SIP	
VSB01-24S15	24	21.6~26.4	15	67	7	79	SIP	

### COMMON SPECIFICATION

Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operation 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	$\leq 95\%$
Case material	Plastic (UL94-V0)
Dimensions	11.7x6.0 x10mm
MTBF	$> 3,500,000$ hours

### ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	3000			VDC
Isolation resistance	Test at 500VDC	1000			MΩ

### OUTPUT SPECIFICATIONS

Item	Test conditions	MIN	TYP	MAX	Units
Output power		0.1		1	W
Line regulation	For Vin change of 1%			1.2	%
Load regulation	10% to 100% load			15	%
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			0.03	%°C
Output ripple	20MHz Bandwidth		50	75	mVp-p
Switching frequency	Full load, nominal input		100		KHz

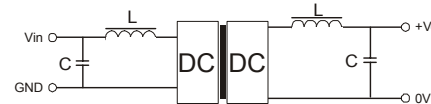
Note:

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

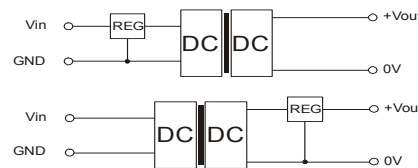
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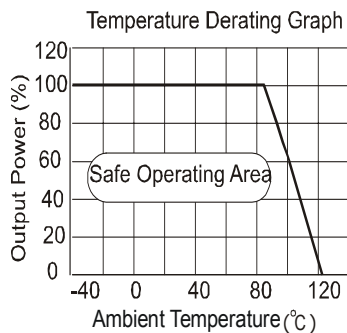
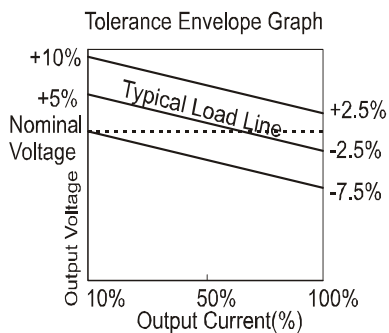


<Figure 1>



<Figure 2>

## TYPICAL CHARACTERISTICS



### Overload Protection

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

### 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 (see Figure 2).

## FOOTPRINT DETAILS

PIN	1	2	3	4
SINGLE	-Vin	+Vin	-Vout	+Vout

### External Capacitor Table

V <sub>in</sub>	External capacitor	V <sub>out</sub>	External capacitor
5VDC	4.7uF	5VDC	10uF
12VDC	2.2uF	9VDC	4.7uF
24VDC	1uF	12VDC	2.2uF
--	--	15VDC	1uF

## OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT

