Victor Power Technologies

Global DC/DC Converter Manufacturer

VSA01(H6) Series

1 Watts

1W SINGLE AND DUAL OUTPUT
FIXED INPUT ISOLATED & UNREGULATED
6,000 VDC ISOLATION VOLTAGE
UTRALMINIATURE SIP PACKAGE
LOW COST
SHORT LEAD TIME

- Efficiency up to 82%
- Small Footprint
- Miniature SIP Package
- Single & Dual Output Voltage
- 6K(H) VDC Isolation Voltage
- Temperature Range: -40°C~+105°C
- Industry Standard Pin Configuration
- UL94-V0 Package
- No Heat Sink Required
- No External Component Required
- RoHS Compliance

APPLICATIONS

The VSA01(H6) series are specially designed for applications where a high isolation voltage power supplies.
These products apply to:
1) Where the voltage of the input power supply is 2:1 input range.
2) Where isolation is necessary between input and output (isolation 6KVDC).
3) Where the regulation of the output voltage and the output ripple noise are demanded.
Requirement on Output Load
To ensure this module operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum out put load is not less than 10% Of the full load, and that this product should never be operated under no load!!! If the actual load is less below the specified minimum load, the output ripple of this type of DC/DC converter will increase drastically and at the same time efficiency & reliability of the circuit will decrease deeply .If the actual output power from the load in your circuit is very small, please connect a resistor with proper resistance at the output end to in parallel to increase the load, or use our company's other products with a lower rated output power.

Product Program

Part Number	Input Voltage (VDC)		Output Voltage (VDC)	Output Current (mA)		Efficiency (%, Typ)	Package Style
	Nominal	Range		Max	Min		
VSA01-05S03(H)	5	4.5~5.5	3.3	303	30	72	SIP
VSA01-05S05(H6)	5	4.5~5.5	5	200	20	78	SIP
VSA01-05S09(H6)	5	4.5~5.5	9	111	12	79	SIP
VSA01-05S12(H6)	5	4.5~5.5	12	84	9	79	SIP
VSA01-05S15(H6)	5	4.5~5.5	15	67	7	79	SIP
VSA01-12S05(H6)	12	10.8~13.2	5	200	20	80	SIP
VSA01-12S09(H6)	12	10.8~13.2	9	111	12	82	SIP
VSA01-12S12(H6)	12	10.8~13.2	12	84	9	81	SIP
VSA01-12S15(H6)	12	10.8~13.2	15	67	7	82	SIP
VSA01-15S05(H6)	15	13.5~16.5	5	200	20	80	SIP
VSA01-15S09(H6)	15	13.5~16.5	9	111	11	80	SIP
VSA01-24S03(H6)	24	21.6~26.4	3.3	303	30	72	SIP
VSA01-24S05(H6)	24	21.6~26.4	5	200	20	80	SIP
VSA01-24S12(H6)	24	21.6~26.4	12	83	8	80	SIP
VSA01-24S15(H6)	24	21.6~26.4	15	67	7	80	SIP
VSA01-05D05(H6)	5	4.5~5.5	±5	±100	±10	78	SIP
VSA01-05D09(H6)	5	4.5~5.5	±9	±56	±6	79	SIP
VSA01-05D12(H6)	5	4.5~5.5	±12	±42	±5	79	SIP
VSA01-05D15(H6)	5	4.5~5.5	±15	±33	±4	79	SIP
VSA01-12D05(H6)	12	10.8~13.2	±5	±100	±10	80	SIP
VSA01-12D09(H6)	12	10.8~13.2	±9	±56	±6	82	SIP
VSA01-12D12(H6)	12	10.8~13.2	±12	±42	±5	81	SIP
VSA01-12D15(H6)	12	10.8~13.2	±15	±33	±4	82	SIP
VSA01-15D05(H)	15	13.5~16.5	±5	±100	±10	80	SIP
VSA01-24S12(H6)	24	21.6~26.4	±12	±42	±5	72	SIP

ISOLATION SPECIFICATIONS

Item	Test conditions	Min	Typ	Max	Units
Isolation voltage	Tested for 1 minute	1000	6000(H)		VDC
Isolation resistance	Test at 500VDC	1000			MΩ

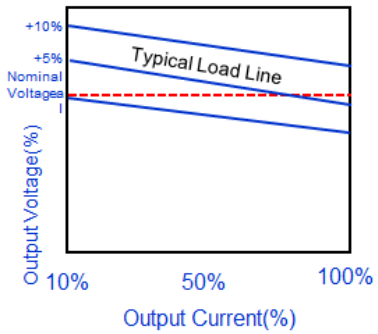
COMMON SPECIFICATION

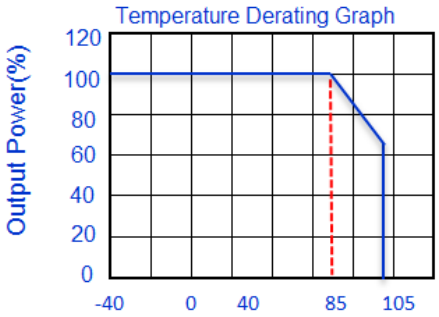
Short circuit protection	1 second
Temperature rise at full load	25°C MAX, 15°C TYP
Cooling	Free air convection
Operating temperature range	-40°C~+105°C
Storage temperature range	-55°C ~+125°C
Lead temperature	300°C (1.5mm from case for 10 seconds)
Storage humidity range	≤ 95%
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hours
Wight	4.2g

Output SPECIFICATION

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 (3.3V output)		15		%
	10% to 100% load (5V output)		12		
	10% to 100% load (9V output)		8		
	10% to 100% load (12V output)		7		
	10% to 100% load (15V output)		6		
Output voltage accuracy	See tolerance envelope graph				
Temperature drift	100% full load			±0.03	%°C
Output ripple	20MHz Bandwidth		100		mVp-p
Switching frequency	Full load, nominal input		50		KHz

TYPICAL CHARECTERISTICS





RECOMMENDED CIRCUIT

Overload Protection

The output circuit of this series has no protection against over-current and short-circuits. To connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit for protection purpose.

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).

External Capacitor Table

Vin	External capacitor	Vout	External capacitor
5VDC	4.7uF	5VDC	10uF
12VDC	2.2uF	9VDC	4.7uF
15VDC	2.2uF	12VDC	2.2uF
24VDC	1uF	15VDC	1uF

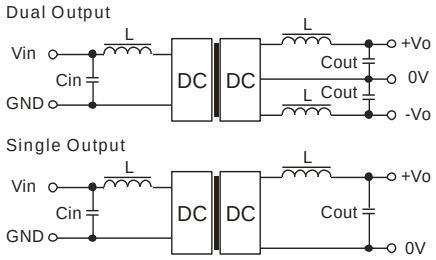


Figure 1

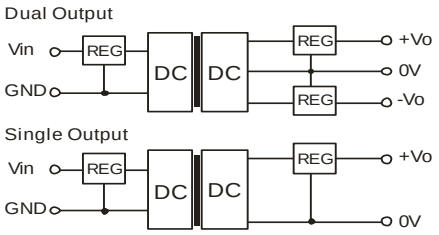
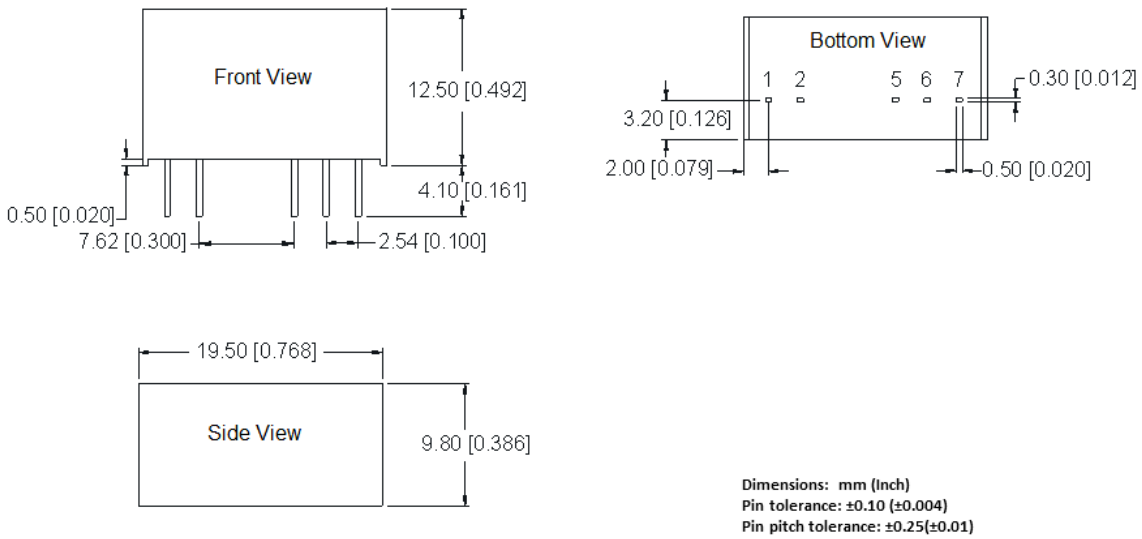


Figure 2

PIN	1	2	5	6	7
SINGLE	+Vin	-Vin	COMMON	NC	+Vout
DUAL	+Vin	-Vin	-Vount	COMMON	+Vout

OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT



Dimensions: mm (Inch)
Pin tolerance: ±0.10 (±0.004)
Pin pitch tolerance: ±0.25(±0.01)