V·INFINITY

VWQBS2-SIP Series DC-DC Converter

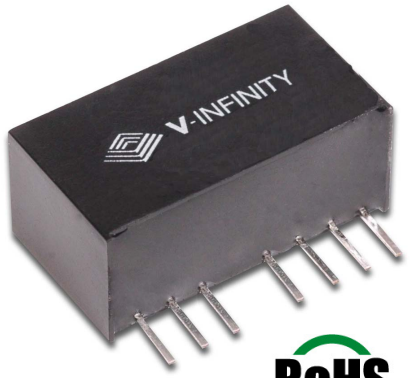
Rev. 07-2007

Description

Designed to convert a wide input voltage range into an isolated regulated voltage, the VWQBS2-SIP series is well suited for providing board-mount local supplies in a wide range of applications, including mixed analog/digital circuits, test & measurement equip., process/machine controls, datacom/telecom fields, etc...

Features

- **Ultrawide (4:1) input range**
- **High efficiency to 82%**
- **Regulated**
- **Single voltage output**
- **I/O Isolation 1500VDC**
- **No heatsink required**
- **Short circuit protection**
- **Remote on/off**
- **MTBF >1,000,000 hrs**
- **Temperature range: -40°C~+85°C**



RoHS

Model Number	Nominal	Input Voltage Range	Input Voltage Max.	Output Voltage	Output Current Max.	Output Current Min.	Efficiency	Package Style
VWQBS2-Q24-S3.3-SIP	24 Vdc	9.0~36.0 Vdc	40 Vdc	3.3 Vdc	500 mA	0 mA	73%	SIP
VWQBS2-Q24-S5-SIP	24 Vdc	9.0~36.0 Vdc	40 Vdc	5 Vdc	400 mA	0 mA	75%	SIP
VWQBS2-Q24-S9-SIP	24 Vdc	9.0~36.0 Vdc	40 Vdc	9 Vdc	222 mA	0 mA	78%	SIP
VWQBS2-Q24-S12-SIP	24 Vdc	9.0~36.0 Vdc	40 Vdc	12 Vdc	167 mA	0 mA	82%	SIP
VWQBS2-Q24-S15-SIP	24 Vdc	9.0~36.0 Vdc	40 Vdc	15 Vdc	133 mA	0 mA	81%	SIP
VWQBS2-Q48-S3.3-SIP	48 Vdc	18.0~72.0 Vdc	80 Vdc	3.3 Vdc	500 mA	0 mA	72%	SIP
VWQBS2-Q48-S5-SIP	48 Vdc	18.0~72.0 Vdc	80 Vdc	5 Vdc	400 mA	0 mA	76%	SIP
VWQBS2-Q48-S9-SIP	48 Vdc	18.0~72.0 Vdc	80 Vdc	9 Vdc	222 mA	0 mA	78%	SIP
VWQBS2-Q48-S12-SIP	48 Vdc	18.0~72.0 Vdc	80 Vdc	12 Vdc	167 mA	0 mA	81%	SIP
VWQBS2-Q48-S15-SIP	48 Vdc	18.0~72.0 Vdc	80 Vdc	15 Vdc	133 mA	0 mA	80%	SIP

Note:

1. All specifications measured at TA=25°C, humidity <75%, nominal input voltage and rated output load unless otherwise specified.

Output Specifications

Item	Test conditions	Min.	Typ.	Max.	Units
2W Output power		0.2		2	W
Output voltage accuracy	3.3, 5 V		±1	±3	%
	9, 12, 15 V		±1	±2	
Line Regulation	Input Voltage from low to high		±0.2	±0.75	%
Load Regulation	10% to 100% full load		±0.5	±1.5	%
Temperature drift	Refer to recommended circuit			±0.03	%/°C
Output ripple	20 Hz Bandwidth		15	30	mVp-p
Output noise	DC-20MHz Bandwidth		50	150	mVp-p
Switching frequency	100% load, nominal input	120		400	KHz

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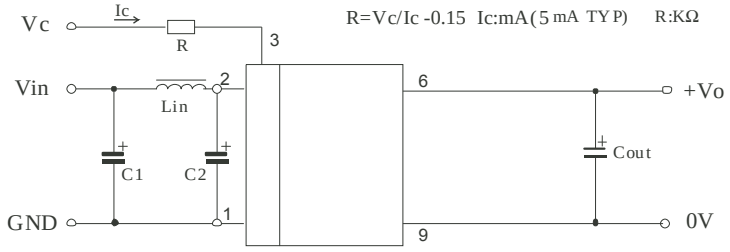
General Specifications

Output short circuit protection	Continuous (automatic recovery)
Temperature rise at full load	15°C typ., 35°C max.
Cooling	Free air convection
Operating temperature range	-40°C to +85°C
Storage temperature range	-50°C to +125°C
Soldering temperature	300°C (1.5mm from case for 10sec.)
Storage humidity range	≤95%
Case material	Plastic (UL94-V0)
MTBF	>1,000,000 hrs.
Weight	7 g

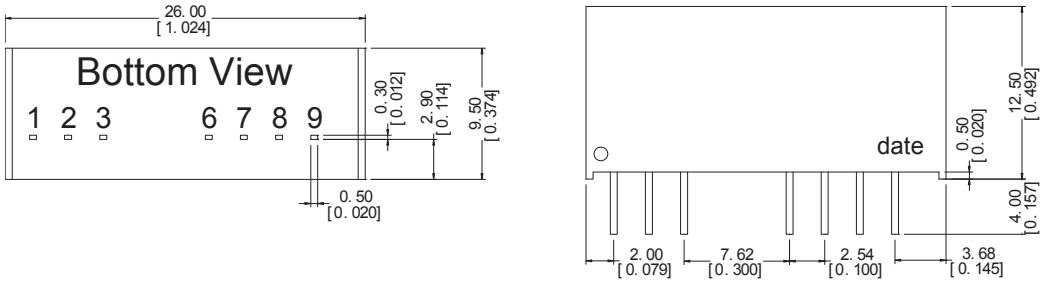
Isolation Specifications

Item	Test Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Flash tested for 1 min.	1500			Vdc
Isolation Resistance	Test at 500 Vdc	1000			M Ω
Isolation Capacitance	Input/Output		80		PF

Typical Characteristics



Outline Dimensions & Recommended Layout Pattern



Pin	1	2	3	6	7	8	9
Function	GND	Vin	CTRL	+Vo	NC	NC	0V

Note: Tolerances: (pin: ±0.1(0.004); others: ± 0.25(0.01))

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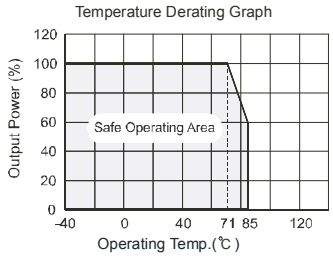
Application Notes:

- All of the VWQBS2-SIP Series have been tested according to the following recommended testing circuit before leaving the factory. This series should be tested under load(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(Table 2).

Table 2

Vout	Cout (Max)
3.3	820μF
5	680μF
9	470μF
12	330μF
15	220μF

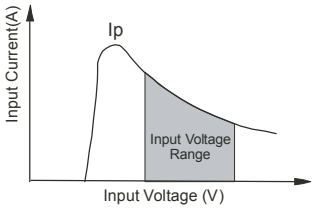
Figure 1



- NC Terminals
  Unless otherwise specified, NC terminals of all series are used for converter's interior circuit connection, and are not allowed connection of any external circuit.;

- CTRL Terminal
  When open or high impedance, the converter will work well; When this pin is ‘high’; the converter will shutdown; It should be noted that the input current should remain between 5-10mA,exceeding the maximum 20mA will cause permanent damage to the converter.

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



(Figure 2)

- Output Load
  In order to ensure the product operates efficiently and reliably, make sure the specified range of input voltage is not exceeded.

  No parallel connection or plug and play.