V·INFINITY

VIAS2-SIP Series DC-DC Converter

Rev. 06-2006

Description

Designed to convert fixed voltages into an isolated regulated voltage, the VIAS2-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

- **Isolated 2 W output**
- **Regulated**
- **High efficiency to 74%**
- **Dual voltage output**
- **Small footprint**
- **SIP package style**
- **Industry standard pinout**
- **UL94-V0 package**
- **No heatsink required**
- **1K VDC isolation**
- **Temperature range: -40°C~+85°C**
- **No external component required**
- **Low cost**

RoHS

Model Number	Input Voltage Nominal	Input Voltage Range	Output Voltage	Output Current Max.	Output Current Min.	Efficiency	Package Style
VIAS2-S5-D5-SIP	5 Vdc	4.75~5.25 Vdc	±5 Vdc	±150 mA	±15 mA	70%	SIP
VIAS2-S5-D9-SIP	5 Vdc	4.75~5.25 Vdc	±9 Vdc	±100 mA	±10 mA	72%	SIP
VIAS2-S5-D12-SIP	5 Vdc	4.75~5.25 Vdc	±12 Vdc	±83 mA	±9 mA	72%	SIP
VIAS2-S5-D15-SIP	5 Vdc	4.75~5.25 Vdc	±15 Vdc	±67 mA	±7 mA	73%	SIP
VIAS2-S12-D5-SIP	12 Vdc	11.4~12.4 Vdc	±5 Vdc	±150 mA	±15 mA	70%	SIP
VIAS2-S12-D9-SIP	12 Vdc	11.4~12.4 Vdc	±9 Vdc	±100 mA	±10 mA	71%	SIP
VIAS2-S12-D12-SIP	12 Vdc	11.4~12.4 Vdc	±12 Vdc	±83 mA	±9 mA	72%	SIP
VIAS2-S12-D15-SIP	12 Vdc	11.4~12.4 Vdc	±15 Vdc	±67 mA	±7 mA	74%	SIP
VIAS2-S24-D5-SIP	24 Vdc	22.8~25.2 Vdc	±5 Vdc	±150 mA	±15 mA	71%	SIP
VIAS2-S24-D9-SIP	24 Vdc	22.8~25.2 Vdc	±9 Vdc	±100 mA	±10 mA	72%	SIP
VIAS2-S24-D12-SIP	24 Vdc	22.8~25.2 Vdc	±12 Vdc	±83 mA	±9 mA	73%	SIP
VIAS2-S24-D15-SIP	24 Vdc	22.8~25.2 Vdc	±15 Vdc	±67 mA	±7 mA	73%	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
Output power		0.2		2	W
Line Regulation	For Vin change of 1%			0.25	%
Load Regulation	10% to 100% full load			1	%
Output voltage accuracy	100% full load			±3	%
Temperature drift	100% full load			0.03	%/°C
Output ripple	20 MHz Bandwidth		20	30	mVp-p
Output noise	20 MHz Bandwidth		75	150	mVp-p
Switching frequency	Full load, nominal input		75		KHz

V·INFINITY

VIAS2-SIP Series DC-DC Converter

Rev. 06-2006

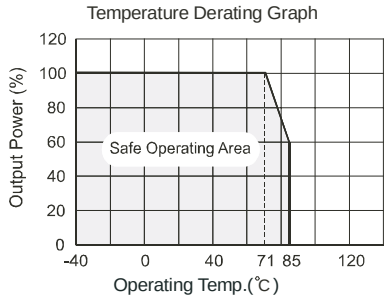
General Specifications

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 to +85°C
Storage temperature range	-55°C to +125°C
Soldering temperature	300°C (1.5mm from case for 10 sec.)
Storage humidity range	<95%
Case material	Plastic (UL94-V0)
MTBF	>3,500,000 hrs.
Burn-in	At +85°C, for 4 hours at no-load and 4 hours at full load.

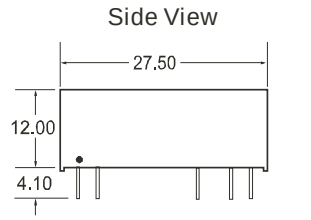
Isolation Specifications

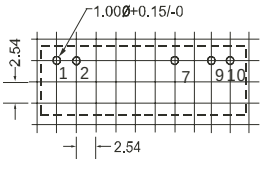
Item	Test Conditions	Min.	Typ.	Max.	Units
Isolation Voltage	Tested for 1 min.	1000			Vdc
Insulation Resistance	Test at 500 Vdc	1000			MΩ

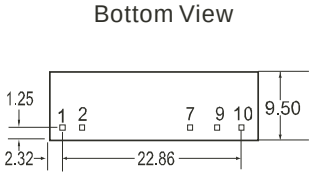
Typical Characteristics



Outline Dimensions & Recommended Layout Pattern







1	+Vin
2	-Vin
7	+Vout
9	-Vout
10	COM

Note: All Pins on a 2.54mm pitch; all pin diameters are 0.50mm; all dimensions in mm.

V·INFINITY

VIAS2-SIP Series DC-DC Converter

Rev. 06-2006

Application Notes:

- Input filtering

  To reduce the reflected ripple current and minimize EMI, especially when the converter input is more than 2" away from the DC source, it is recommended to connect a low ESR electrolytic capacitor between Vin and Gnd. The values suggested are as shown in Table 1. If additional filtering is required, the capacitance may be increased, or expanded to an LC network as shown in Figure 1.

Table 1

Input Voltage	External Input Capacitance
5 V	4.7 µF
12 V	2.2 µF
24 V	1.0 µF

- Output filtering

  An output capacitor as shown in Table 2 may be used to reduce output ripples and noise.
  requirements as shown in Table 2.
  Output capacitance may be increased for additional filtering, but should not exeed 10µF. It can also be expanded to an LC network as in Figure 1.

Table 2

Vout	External Ouput Capacitance
5 V	4.7 µF
9 V	2.2 µF
12 V	1.0 µF
15 V	0.47 µF

- Minimum loading

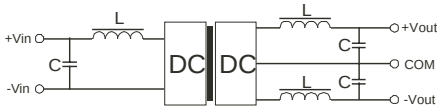
  The converter needs a minimum of 10% loading to maintain output regulation. Operation under no-load conditions will not cause immediate damages but may reduce reliability, and cause performance not to meet specifications.

- Protection

  The converter has minimal protection against input over-voltage or output over-load, and may be permanently damaged if exposed to these conditions. An input clamping device can be used for input voltage limiting. An input fuse or an output fuse can also be used to protect against over-loading.

- Unregulated input

  As fixed input converters, this series can accept voltages within a limited range of the nominal input. Otherwise the converter may not function properly or may be damaged.



<Figure 1>