DC/DC Converter VPDI06 Series, DIP24 Package

Features

- **Ultra-wide 4:1 input voltage**
- **2 years warranty**
- **High efficiency up to 82%**
- **Industry Standard Pinout**
- **Input under-voltage protection**
- **Output short-circuit protection**
- **Output overload protection**
- **Output overvoltage protection**
- **1500VDC I/O isolation**
- **Without output electrolyte or tantalum capacitor**

VICTORYPOW VPDI06 series are 6W isolated DC/DC converter with an extreme wide input voltage range of 9-36VDC or 18-75VDC which provide precisely regulated output voltage of 3.3V, 5V, 12V, 15V, 24V, ±5V, ±12V, ±15 VDC. The isolation voltage of input to output is 1500VDC. Input under-voltage, continuous output short circuit, output overload and output overvoltage protection are provided.

Selection Guide

Part No.	Input voltage (VDC) (range)	Output			Max. capacitive load (μF)	Efficiency Typ.
		Voltage(VDC)	Current(mA)			
			Max	Min		
VPDI06-0936S33	24 (9-36)	3.3	1500	150	330	79
VPDI06-0936S05		5	1200	100		81
VPDI06-0936S12		12	500	50	47	82
VPDI06-0936S15		15	400	45	39	82
VPDI06-0936S24		24	250	35	15	81
VPDI06-0936D05		±5	±600	±50	150	82
VPDI06-0936D12		±12	±250	±25	22	82
VPDI06-0936D15		±15	±200	±23	18	82
VPDI06-1875S33	48 (18-75)	3.3	1500	150	330	79
VPDI06-1875S05		5	1200	100		81
VPDI06-1875S12		12	500	50	47	82
VPDI06-1875S15		15	400	45	39	82
VPDI06-1875S24		24	250	35	15	81
VPDI06-1875D05		±5	±600	±50	330	82
VPDI06-1875D12		±12	±250	±25	22	82
VPDI06-1875D15		±15	±200	±23	47	82

Input specification

Item	Model	Min.	Typ.	Max.	Unit
Start-up Voltage	9-36VDC input	8	8.6	9	VDC
	18-75VDC input	16	17	18	
Input surge voltage	9-36VDC input	-0.7		40	
	18-75VDC input	-0.7		90	
Under-voltage shutdown	9-36VDC input	7	7.5	8	
	18-75VDC input	15	16	17	
Short circuit input power	All Models			3000	mW

Output Specification

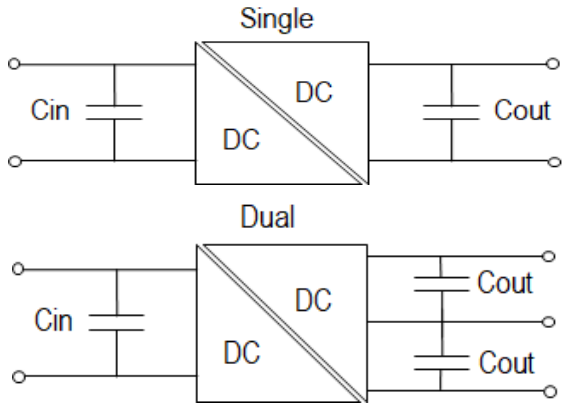
Item	Condition		Min.	Typ.	Max.	Unit
Voltage accuracy	At 50% Load & Nominal input voltage				± 1.5	$\%V_{nom.}$
Line regulation	Vin= min. to max.			0.5	0.75	%
Load regulation	Io=10% to 100%	Positive output		0.2	0.5	
		Negative output		1	2	
Cross regulation	Positive output 50% load and negative output 25% ~ 100% load				4	
Ripple & Noise	20MHz bandwidth			40	70	mV_{p-p}
Transient Recovery Time	25% Load step at nominal input voltage			200	300	μs
Transient Response deviation					6	$\%V_o$
Over-load protection	Foldback			120	140	$\%I_o$
Short circuit protection	Continuous					

General specification

Item	Condition	Min.	Typ.	Max.	Unit
Input-output isolation voltage	1 minute	1500			VDC
Input- output Resistance	500VDC	1			GΩ
Input-output capacitance			500		pF
Switching Frequency	PWM mode	320	340	370	KHz
Operating ambient temperature		-40		75	^0C
Storage temperature	Absolute Max. internal temp.			110	^0C
Case Temperature	Full load			70	^0C
Cooling	Free-Air cooling				

Design Reference

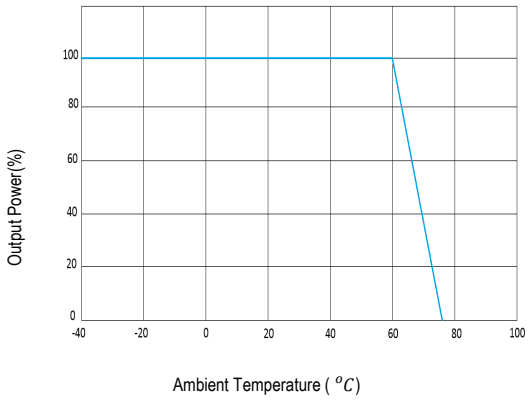
To reduce the output Ripple and Noise, it is recommended to use the circuit below. If further ripple and noise reduction is required, Cin and Cout can be increased appropriately. Also, it is hardly recommend to make sure that added capacitor is not exceeding max. capacitive load of product.



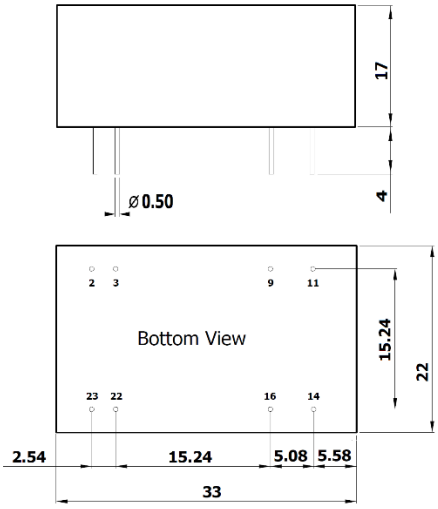
Vin(VDC)	Cin	Cout
9-36	$100\mu F$	$10\mu F$
18-75	$33\mu F$	$10\mu F$

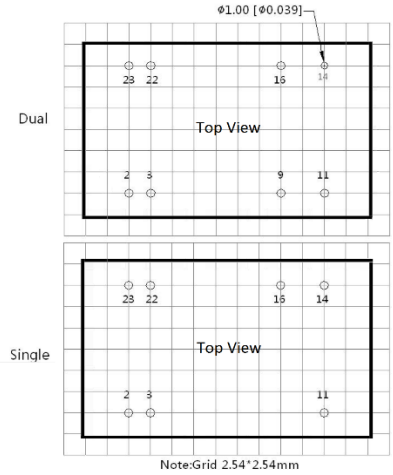
Power derating chart

- The curve is provided in natural convection condition.



Package and physical specification





- ✓ All dimensions in mm ± 0.1
- ✓ The case of converters is Non-conductive black plastic.

Pin-Out		
Pin	Single	Double
2,3	GND	GND
9	No Pin	GND-Out
11	NC	-Vout
14	+Vout	+Vout
16	GND-Out	GND-Out
22,23	Vin	Vin

Notes

- These DC/DC Converters require minimum load. Operating under No-load condition can't damage modules, however they can't meet above specification.
- Different input and output voltage is available depending order, please contact the company.
- The modules should be fused at front end for protection.
- An electrolyte capacitor at front end can improve modules operation.
- To use capacitor at output for decreasing ripple and noise, please note the maximum capacitance load.