DC/DC Converter

UWD240512D-20W

MORNSUN®

23.5W, Ultra wide input isolated & regulated
Dual output DC/DC converter

Patent Protection RoHS

FEATURES

- Ultra Wide input voltage range (10:1)
- High efficiency up to 85%
- No-load power consumption as low as 0.3W
- Isolation voltage :1.5K VDC
- Operating temperature range: -40℃ to +85℃
- Input under-voltage, over-voltage protection, output short circuit , over-current, over–voltage protection

UWD240512D-20W products is of 23.5W output power, ultra wide range of voltage input of 6-60VDC, isolation voltage of 1500VDC, input over-voltage, under-voltage protection, output short circuit, over-current and over–voltage protection, these products are widely used in fields such as industrial control, electric power, instruments; communication and bus swipe system.

Selection Guide

Part No.	Input Voltage (VDC)		Output Voltage (VDC) & Output Current (mA)		Efficiency③ (%,Min./Typ.) @ Full Load	Max. Capacitive Load (μF)④
	Nominal① (Range)	Max②	Vo1/Io1	Vo2/Io2		
UWD240512D-20W	24 (6-60)	70	5/3500	12/500	83/85	2200/220

Note:
① The input voltage to work in low-voltage power derating power, specific reference products derating chart;
② Absolute maximum rating without damage on the converter, but it isn't recommended;
③ Efficiency is measured In nominal input voltage and rated output load.
④ The capacitor loads of main outputs Vo1 are 2200μF and Supplement outputs Vo2 are220μF.

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Current (full load / no-load)	Nominal input voltage	--	1152/8	1180/15	mA
Reflected Ripple Current	Nominal input voltage, Full load	--	30	--	
Surge Voltage (1sec. max.)		-0.7	--	70	VDC
Input Under-voltage Protection	Starting Voltage	--	--	6	
	Under-Voltage Shutdown	2	--	--	
Input Over-voltage Protection	Starting Voltage	--	64	67	
	over-voltage Shutdown	60	62	--	
Starting Time	Nominal input voltage & constant resistance load	--	50	--	ms
Input Filter		Pi filter			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Ta=25℃,10% -100% load		--	±1/±1	±3/±5	%
Line Regulation	Full load, the input voltage is from low voltage to high voltage, Ta=25℃	+Vo1	--	±0.2	±0.5	
		+Vo2	--	±2	--	
Load Regulation	Ta=25℃, nominal input voltage, 10% -100% load	+Vo1	--	±0.5	±1	
		+Vo2	--	±3	±5	
Temperature Coefficient	Full load		--	±0.02	--	%/℃
Ripple & Noise①	20MHz bandwidth		--	40	80	mVp-p
Over-voltage Protection	Input voltage range		110	--	160	%Vo
Over-current Protection②			110	--	250	%Io
Short circuit Protection			Hiccup, continuous, self-recovery			

Note:
①lean to the pin to test the ripple and noise.
②The input voltage to work in low-voltage power derating power, specific reference products derating chart;

General Specifications

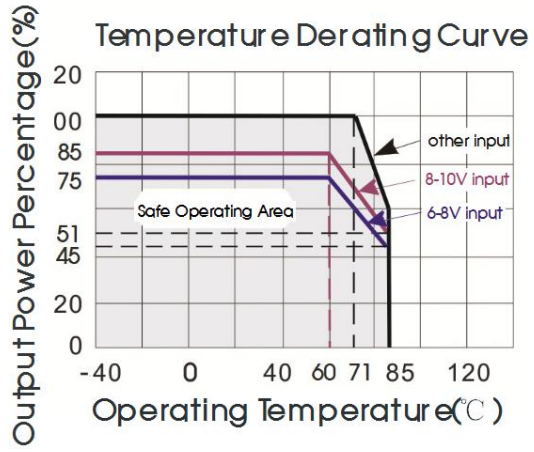
Item	Operating Conditions	Min.	Typ.	Max.	Unit
Insulation Voltage	Input-output, with the test time of 1 minute and the leak current lower than 1mA	1500	--	--	VDC
Insulation Resistance	Input-output, insulation voltage 500VDC	1000	--	--	MΩ
Isolation Capacitance	Input-output, 100KHz/0.1V	--	2000	--	pF
Operating Temperature	see Fig. 1	-40	--	+85	℃
Storage Temperature		-55	--	+125	
Storage Humidity	Non-condensing	5	--	95	%RH
Pin Welding Resistance Temperature	Welding spot is 1.5mm away from the casing, 10 seconds	--	--	+300	℃
Vibration		10-55Hz, 2G, 30 Min. along X, Y and Z			
Switching Frequency*	PWM mode	--	270	--	KHz
MTBF	MIL-HDBK-217F@25℃	1000	--	--	K hours

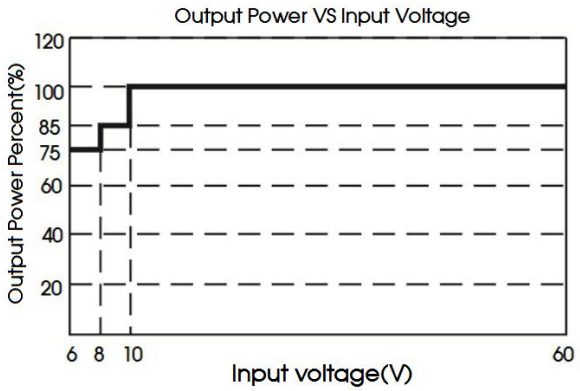
Note:* This series of products using reduced frequency technology, the switching frequency is test value of full load,When the load is reduced to below 50%, the switching frequency decreases with decreasing load.

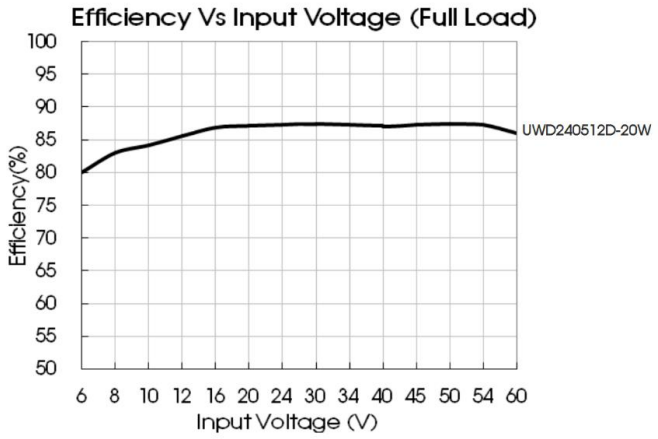
Physical Specifications

Casing Material	Aluminum alloy
Package Dimensions	50.80*40.60*11.80 mm
Weight	40g(Typ.)
Cooling Method	Free air convection

Product Characteristic Curve







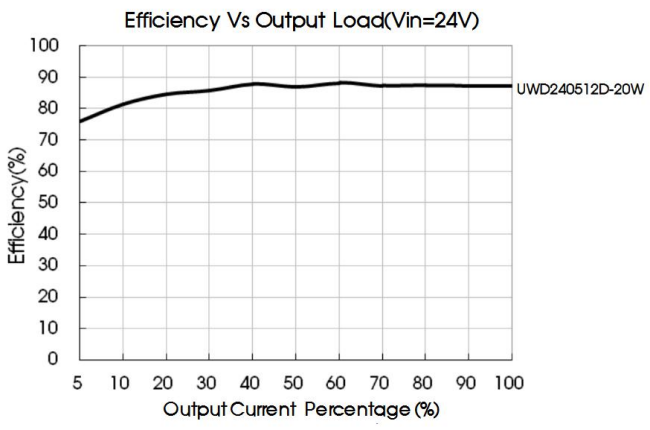


Fig. 1

Design Reference

1.Typical application

All the DC/DC converters of this series are tested according to the recommended circuit (see Fig. 2) before delivery.
If it is required to further reduce input and output ripple, properly increase the input & output of additional capacitors Cin and Cout or select capacitors of low equivalent impedance provided that the capacitance is no larger than the max. capacitive load of the product.

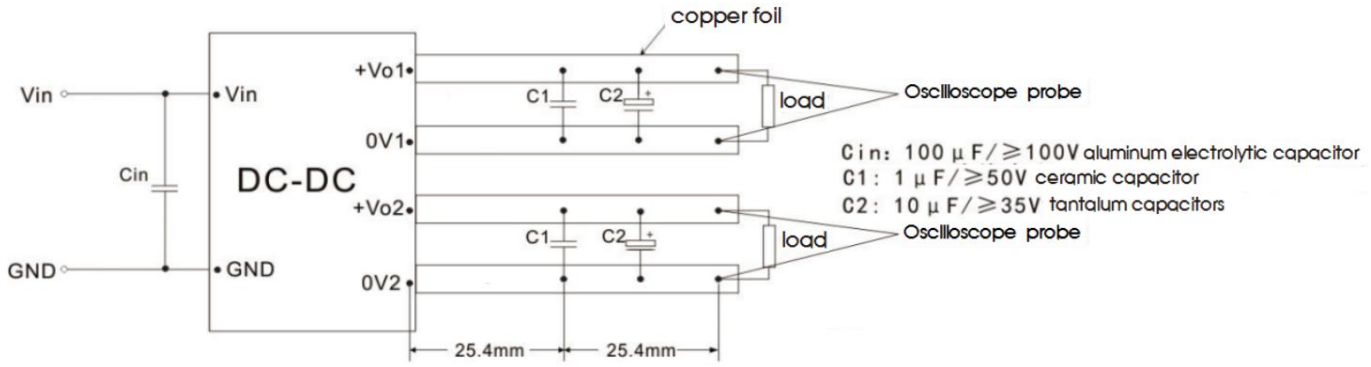
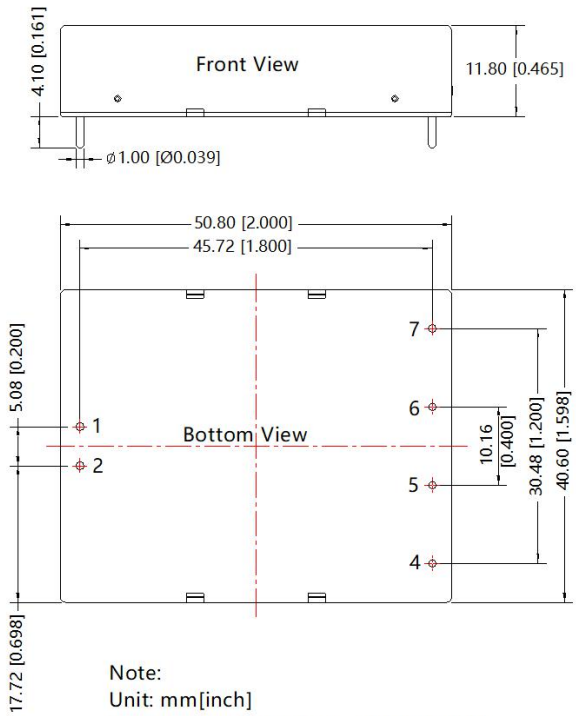


Fig. 2

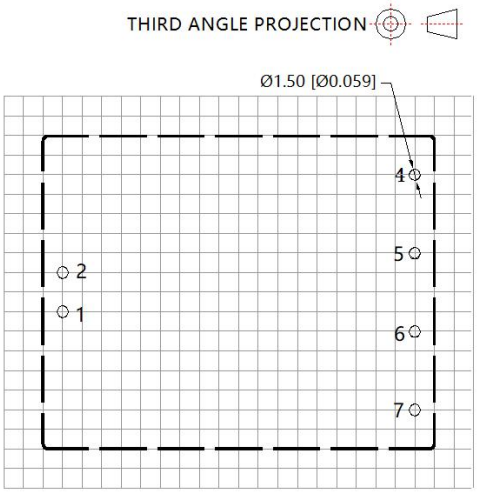
2. It is not allowed to connect modules output in parallel to enlarge the power

3.For more information please find the application notes on www.mornsun-power.com

Dimensions and Recommended Layout



Note:
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]



Note : Grid 2.54*2.54mm

Pin-Out	
Pin	Function
1	Vin
2	GND
4	0V1
5	+Vo1
6	0V2
7	+Vo2

Notes:

1. Packing information please refer to Product Packing Information which can be downloaded from www.mornsun-power.com. Packing bag number :58200024;
2. Recommend to use module with more than 5% load, if not, the ripple of the product may exceeds the specification, but does not affect the reliability of the product;
3. The maximum capacitive load offered were tested at input voltage range and full load;
4. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
5. All index testing methods in this datasheet are based on Company's corporate standards;
6. We can provide product customization service, please contact our technicians directly for specific information;
7. Products are related to laws and regulations: see "Features" and "EMC";
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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