

32W isolated DC-DC converter with ultra-wide, ultra-high 250-3300V DC input for Renewable Energy



FEATURES

- Ultra-wide 250 - 3300VDC input voltage range
- Operating ambient temperature range: -40°C to +85°C
- High I/O isolation voltage up to 6000VAC (Input-output)
- High I/O isolation voltage up to 4000VAC (Vo1-Vo2)
- High efficiency, high reliability, long service life
- Input under-voltage protection, input reverse polarity protection
- Vo1: output short circuit, over-current, over-voltage protection
- Immunity, EFT/Surge: ±4kV perf. Criteria B
- Operating up to 5000m altitude

PV75-36D15400-01 is a regulated DC-DC converter with an ultra-wide and ultra-high DC input of 250-3300VDC. This type of power supply is widely used in renewable energy industries such as photovoltaic, power generation, energy storage, inverters and high-voltage DC conversions. The converters provide multiple protection features and guarantee stable and safe operating environments even under abnormal working conditions.

Selection Guide

Part No.	Output Power		Nominal Output Voltage and Current			Efficiency (%) Typ.	Capacitive Load (μF) Max.			
	Steady state	Transient*	Vo1/Io1 (Constant voltage mode)	Vo2/Io2**			1500VDC	Vo1	Vo2	
				Transient* (Constant current mode)	Steady state (Constant voltage mode)					
PV75-36D15400-01	32W	75W	15V/2000mA	20-400V/112.5mA	400V/5mA	70	2000	560		

Note: * The working time of constant current mode is ≤2s (Typ.), the interval is 1.5s (Typ.).

**At room temperature, 560μF capacitor can be charged to 400V in 2 seconds; The output current of the Vo2 constant current mode is 112.5mA (Typ.), the output voltage of constant voltage mode is 400V (Typ.).

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range		250	--	3300	VDC
Input Current	250VDC	--	--	180	mA
	1500VDC	--	--	35	
	3300VDC	--	--	15	
Inrush Current	3300VDC	--	--	150	A
Under-voltage Protection		Lockout activation range: 100 - 190VDC Lockout deactivation range: 190 - 240VDC			
External input fuse		6.3A/3600VDC, required			
Hot Plug		Unavailable			

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	All load range	Vo1	--	±2	--
		Vo2	--	±2	--
Line Regulation	Full load	Vo1	--	±1	--
		Vo2	--	±1	--
Load Regulation	10% - 100% load	Vo1	--	±2	--
		Vo2	--	±2	--
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	Vo1	--	--	0.3
		Vo2 (Add 560μF capacitance load)	--	--	1
Temperature Drift Coefficient		--	±0.02	--	%/°C

Short Circuit Protection	Hiccup, continuous, self-recovery			
Over-current Protection	$\geq 120\%Io$, hiccup, self-recovery			
Over-voltage Protection	Vo1	$\leq 25\text{VDC}$		Output voltage clamp
Minimum Load	Vo1	Balanced load	0	--
	Vo2		0	--
Hold-up Time	Room temperature, full load	250VDC input	5	--
		3300VDC input	5	--
Start-up Delay Time **	250VDC	Vo2 without capacitive load, 25°C	--	5
	1500VDC		--	2

Note: * The "Tip and barrel method" is used for ripple and noise test, please refer to PV Converter Application Notes for specific information.
** Start-up delay time test: the cooling-time between input power-off and power-on again is greater than 15s.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit	
Isolation	Input - output	Electric Strength Test for 1min., leakage current $\leq 10\text{mA}$	6000	--	--	VAC	
	Input - shell		6000	--	--		
	Vo1 - Vo2		4000	--	--		
	Output - shell		6000	--	--		
Insulation Resistance	Input - output	500VDC	50	--	--	$\text{M}\Omega$	
	Input - shell		50	--	--		
	Output - shell		50	--	--		
Partial Discharge	3.5kVac@60s, 2.6kVac@30s, test the discharge capacity in the last 5s		--	--	50	pC	
Operating Temperature			-40	--	+85	°C	
Storage Temperature			-40	--	+85		
Storage Humidity			--	--	95	%RH	
Power Derating	-40°C to +25°C	250VDC - 300VDC	1.35	--	--	%/°C	
	+60°C to +70°C		4.0	--	--		
	+70°C to +85°C		2.0	--	--		
	250VDC - 300VDC		0.4	--	--	%/VDC	
	3000VDC - 3300VDC		0.067	--	--		
	2000m - 5000m		6.67	--	--	%/Km	
Switching Frequency			--	400	--	kHz	
Altitude*			--	--	5000	m	
MTBF			MIL-HDBK-217F@25°C $\geq 100,000$ h				

Note: * If the product is used above 2000m above sea level, please consult Mornsun FAE.

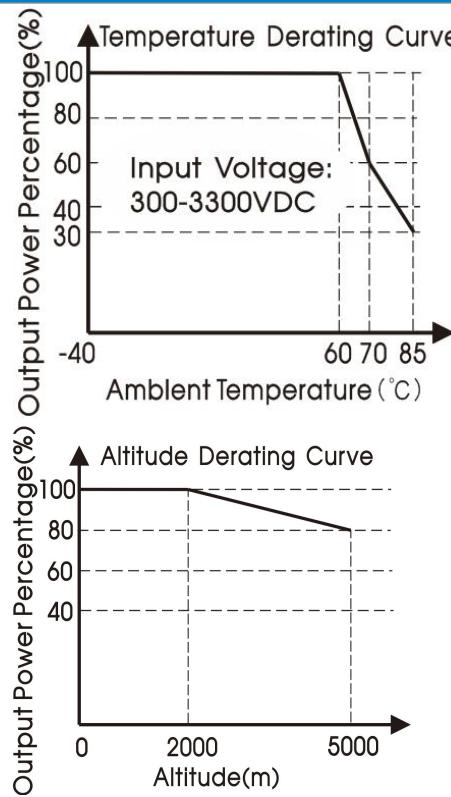
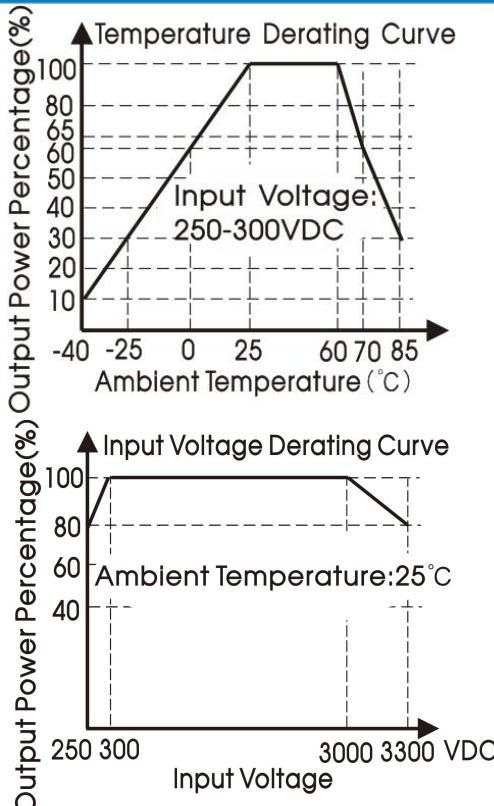
Mechanical Specifications

Case Material	Metal			
Dimensions	220.00 x 157.00 x 40.00 mm			
Weight	900g (Typ.)			
Cooling Method	Free air convection			

Electromagnetic Compatibility (EMC)

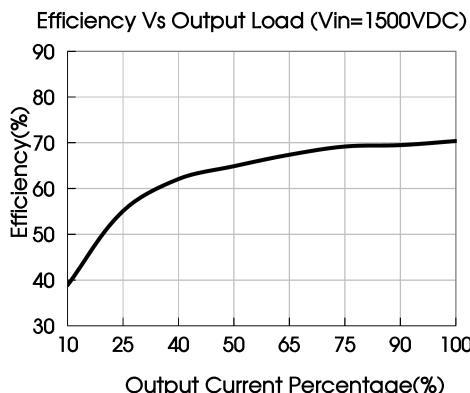
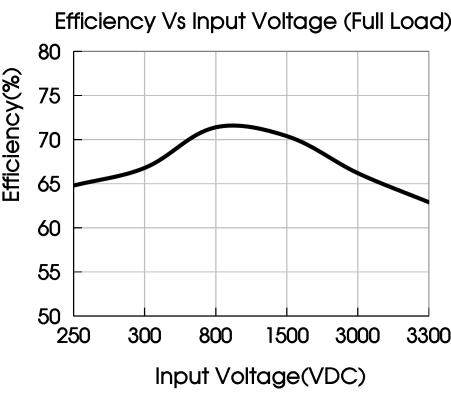
Immunity	ESD	IEC/EN61000-4-2	Contact $\pm 6\text{kV}$ /Air $\pm 8\text{kV}$	Perf. Criteria B
	RS	IEC/EN61000-4-3	30V/m	Perf. Criteria B
	EFT	IEC/EN61000-4-4	$\pm 4\text{kV}$	Perf. Criteria B
	Surge	IEC/EN61000-4-5	Line to line $\pm 2\text{kV}$ / line to ground $\pm 4\text{kV}$	Perf. Criteria B
	CS	IEC/EN61000-4-6	10V.r.m.s	Perf. Criteria B

Product Characteristic Curve

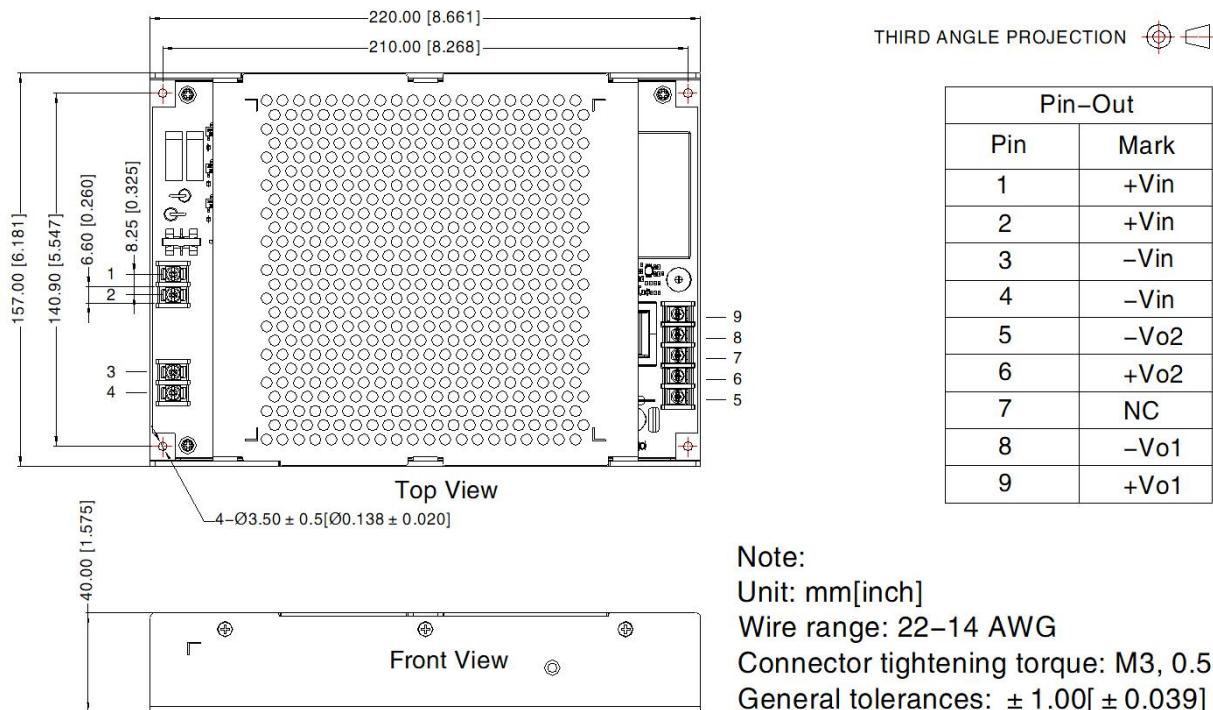


Note: ① With an input between 250 - 300VDC or 3000VDC - 3300VDC, the output power of PV75-36D15400-01 parts must be derated as per temperature derating curves;

② This product is suitable for applications using natural air cooling; for applications in closed environment please consult Mornsun FAE.



Dimensions and Recommended Layout



Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220070;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output load;
- All index testing methods in this datasheet are based on our company corporate standards;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- 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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