DPV150-15B-xxSV2 Series

DESCRIPTIONS

150W, DC/DC Converter

RoHS

FEATURES

- Ultra-wide 250 - 1500VDC input voltage range (Transient 1700VDC last for 10s)
- Operating ambient temperature range: -40℃ to +85℃
- High I/O isolation voltage up to 4000VAC
- High reliability, efficiency up to 92%
- Input under-voltage protection, input reverse polarity protection, output short circuit, over-current, over-voltage protection
- Operating altitude up to 5000m
- Meets Class I (terminal/lead type), Class II (lead type)
- Design refer to UL1741, EN/IEC/BS EN62109

APPLICATIONS

- Photovoltaics
- High voltage frequency conversion
- Industrial control
- Charging station
- Charging pile

Selection Guide

Certification	Part No.*	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 1000VDC (%) Typ.	Capacitive Load (μF) Max.
--	DPV150-15B-12SV2	120	12V/10.0A	87	3500
	DPV150-15B-24SV2	150	24V/6.25A	90	2000
	DPV150-15B-28SV2		28V/5.36A	91	1500
	DPV150-15B-32SV2		32V/4.69A	91	1500
	DPV150-15B-36SV2	151.2	36V/4.20A	91	1500
	DPV150-15B-48SV2	150	48V/3.125A	92	1000

Note: 1.*Use suffix "W" for lead type version.
2.The product picture is for reference only. For details, please refer to the actual product.

Specifications

Specifications	Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	Transient (10s)		--	--	1700	VDC
				250	--	1500	
	Input Current	250VDC		--	--	0.8	A
		800VDC		--	--	0.4	
	Inrush Current	800VDC	Cold start	--	100	--	
		1500VDC		--	200	--	
	Input Under-voltage Protection	Under-voltage protection start		140	170	200	VDC
		Under-voltage protection release		190	210	250	
	Input Reverse Polarity Protection			Available			
	Start-up Delay Time*			--	1	3	s
	External Input Fuse			4A/1500VDC, required (brand:adler, models:A841400b00,Base:Bh200)			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy	All load range		--	±1.5	--	%
	Line Regulation	Rated load		--	±0.5	--	
	Load Regulation	1000VDC		--	±0.5	--	
	Stand-by Power Consumption	Room temperature, full voltage range		--	3	5	W
	Ripple & Noise**	20MHz bandwidth (peak-to-peak value)		--	--	300	mV
	Temperature Coefficient			--	±0.02	--	%/℃
	Short Circuit Protection			Hiccup, continuous, self-recovery			
	Over-current Protection			≥110% Io, hiccup, self-recovery			
	Over-voltage Protection	12V		≤20V	Output voltage clamp or hiccup		
		24V		≤32V			
		28V		≤35V			
		32V		≤45V			
		36V		≤48V			
		48V		≤60V			
	Minimum Load			0	--	--	%
	Hold-up Time	Room temperature, full load	1000VDC input	--	10	--	ms
General Specifications	Isolation	Input - output	Electric strength test for 1min., leakage current <5mA	4000	--	--	VAC
		Input - Shell		4000	--	--	
		Output - Shell		2000	--	--	

	Insulation Resistance	Input - output	Test voltage: 500VDC		100	--	--	MΩ
		Input - Shell						
		Output - Shell						
	Operating Temperature				-40	--	+85	℃
	Storage Temperature				-40	--	+85	
	Storage Humidity		Non-condensing		--	--	95	%RH
	Power Derating		Operating temperature derating	-40℃ to -25℃	3.33	--	--	%/℃
				+55℃ to +85℃	2.33	--	--	
			Input voltage derating	250 - 300VDC	0.4	--	--	%/VDC
				300 - 400VDC	0.2	--	--	
				1400 - 1500VDC	0.2	--	--	
			Altitude derating	2000 - 5000m	10	--	--	%/Km
	Safety Class				Class I (terminal/lead type), Class II (lead type)			
	MTBF		MIL-HDBK-217F@25℃		≥300,000 h			
Mechanical Specifications	Case Material		Metal					
	Dimensions		140.00 x 70.00 x 42.00mm					
	Weight		430g (Typ.)					
	Cooling Method		Free air convection					

Note: *Start-up delay time test conditions: full voltage input range, full output load range (the cooling-time between input power-off and power-on again is greater than 10s.)

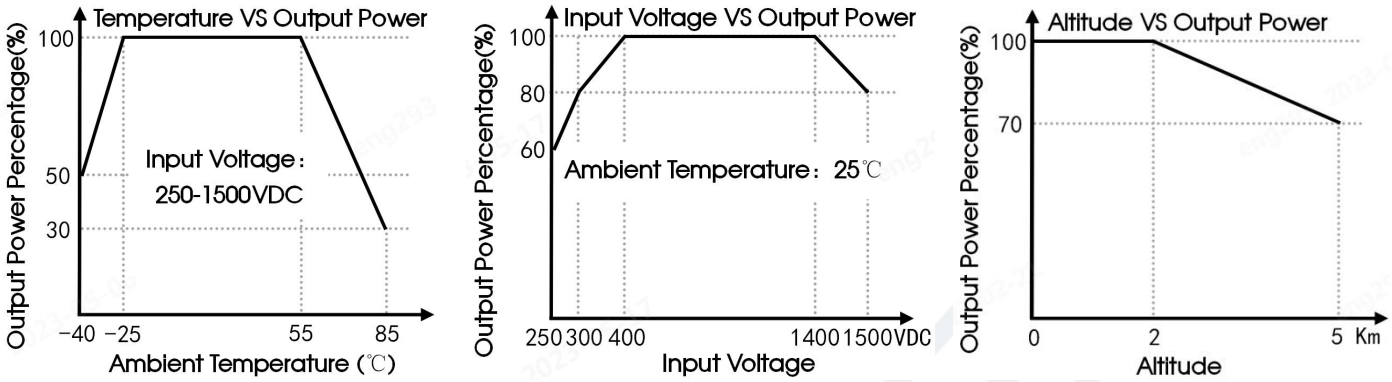
**The "Tip and barrel method" is used for ripple and noise test, please refer to HV Converter Application Notes for specific information.

Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions	CE	CISPR32/EN55032 CLASS A (See Fig. 2 for recommended circuit)	
		RE	CISPR32/EN55032 CLASS A (See Fig. 2 for recommended circuit)	
	Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	Perf. Criteria A
		RS	IEC/EN61000-4-3 10V/m	Perf. Criteria A
		EFT	IEC/EN61000-4-4 ±2KV	Perf. Criteria A
			IEC/EN61000-4-4 ±4KV (See Fig. 2 for recommended circuit)	Perf. Criteria A
		Surge	IEC/EN61000-4-5 Line to line ±1KV/ line to Shell ±2KV	Perf. Criteria B
			IEC/EN61000-4-5 Line to line ±1KV/ line to Shell ±2KV (See Fig. 2 for recommended circuit)	Perf. Criteria A
		CS	IEC/EN61000-4-6 10Vr.m.s	Perf. Criteria A
		PFMF	IEC/EN61000-4-8 30A/m	Perf. Criteria A

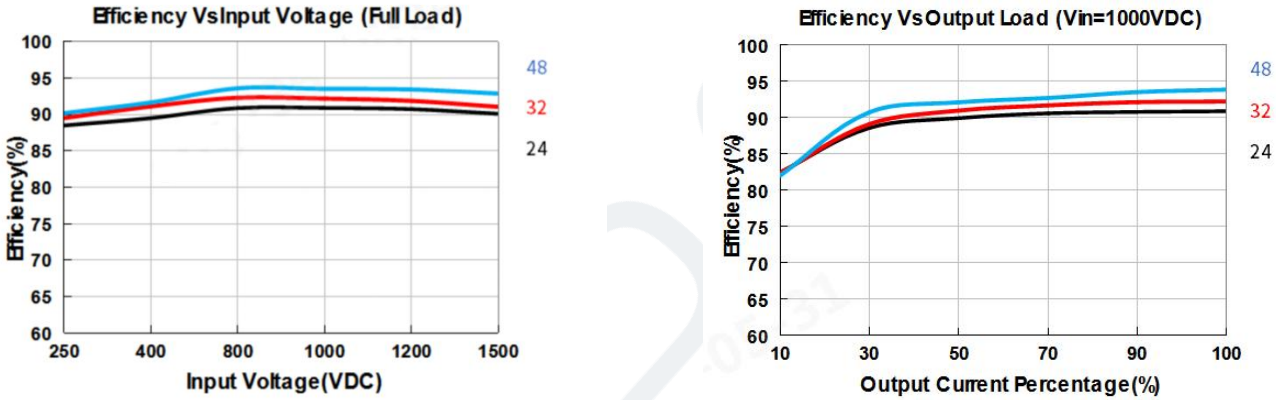
Note: PE connection is required for CLASS I (terminal/lead type) application; no PE connection is required for CLASS II (lead type) application.

Characteristic Curve



Note: 1.With an DC input between 250-400VDC/1400-1500VDC, the output power must be derated as per temperature derating curves;

2.This product is suitable for applications using natural air cooling.



Design Reference

1. Typical application

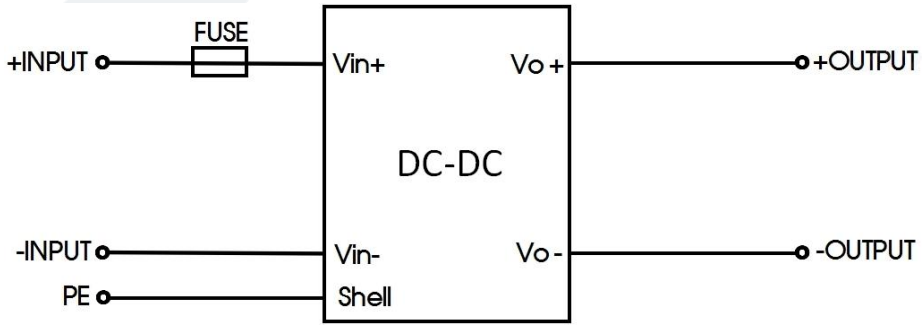


Fig. 1

Part No.	FUSE
DPV150-15B-xxSV2	4A/1500VDC, required
Note: No PE connection is required for **CLASS II** application.	

2. EMC compliance recommended circuit

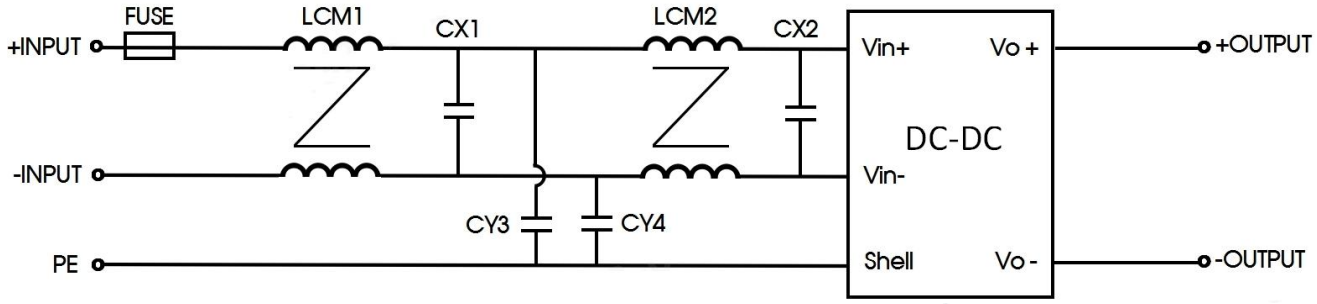


Fig. 2: CLASS I recommended circuit

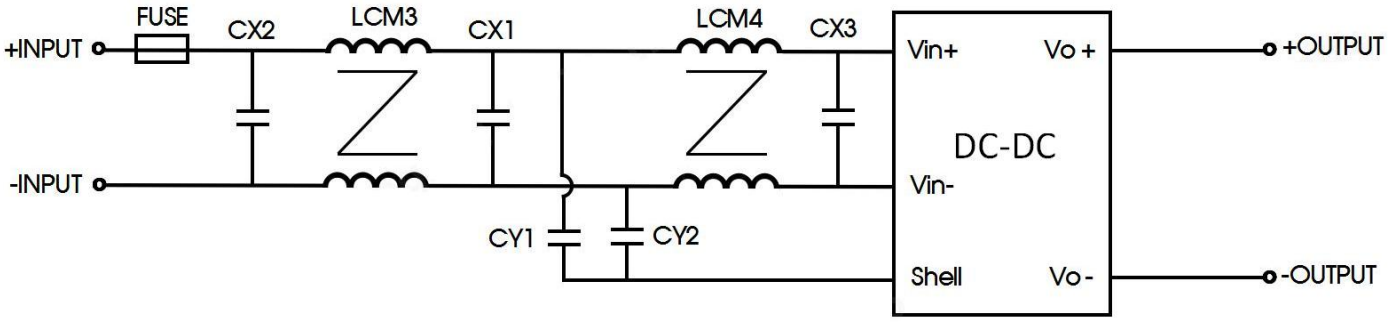


Fig. 3: CLASS II recommended circuit

Part No.	Component	Recommended value
DPV150-15B-12SV2	FUSE	4A/1500VDC, required
	CX1/CX2/CX3	Safety capacitor 105K/≥1500VDC
	CY1/CY2	471K/1500VDC
	CY3/CY4	222M/1500VDC
	LCM1/LCM3	20mH
	LCM2/LCM4	10mH
DPV150-15B-24/28/32/36/48 SV2	FUSE	4A/1500VDC, required
	CX1/CX2/CX3	Safety capacitor 105K/≥1500VDC
	CY1/CY2	471K/1500VDC
	CY3/CY4	102M/1500VDC
	LCM1/LCM4	10mH
	LCM2/LCM3	20mH

Note: 1. Please refer to Fig 1 for common applications;
2. If the electromagnetic compatibility environment is harsh, please refer to Fig 2, Fig 3 ;
3. This recommened list based on full input voltage, output load range. If it works under other input voltages, please consult FAE for parameter optimization;
4. The PE cable can be connected to any screw on the product housing;
5. No PE connection is required for CLASS II application.

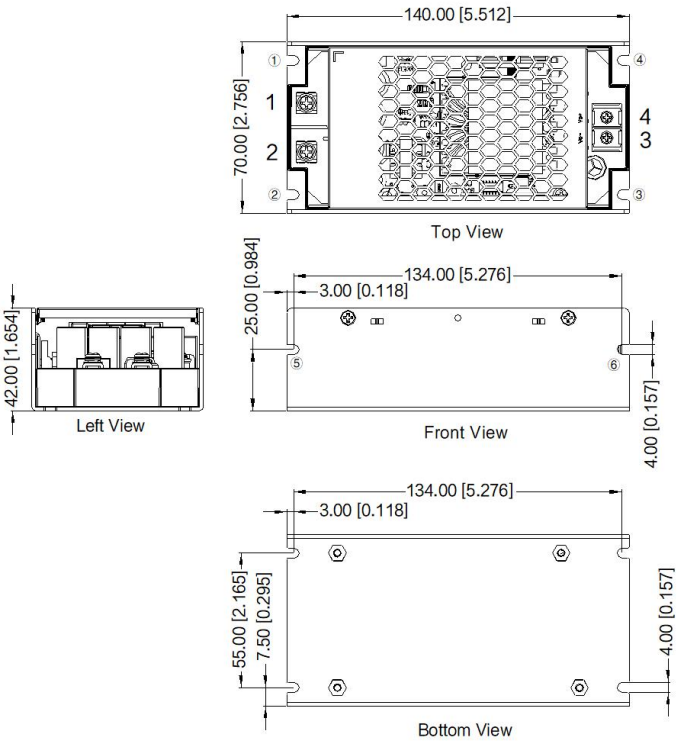
3. IMPORTANT SAFETY INSTRUCTIONS

Additional protective devices, such as lightning protector need to be added if there is an transient pulse voltage greater than 6KV at the input of products in system applications.

Dimensions and Recommended Layout

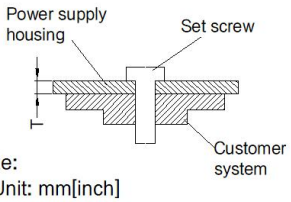
DPV150-15B-xxSV2 Series

THIRD ANGLE PROJECTION



Pin-Out	
Pin	Mark
1	Vin+
2	Vin−
3	Vo−
4	Vo+
Mounting hole	Shell

Installation position	Suggestion screw	T	Torsion (Max)
①-⑥	M3	1.5mm	0.4N・m

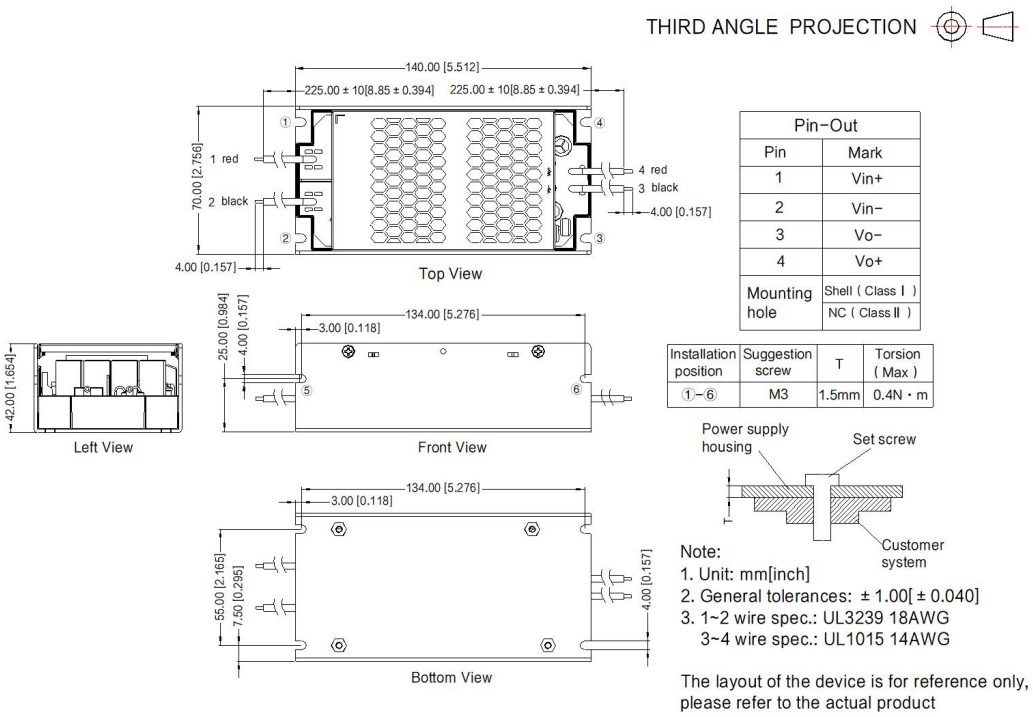


Note:

1. Unit: mm[inch]
2. General tolerances: ± 1.00[± 0.040]
3. Connection range: Input: 20-12 AWG
   Output: 16-12AWG
4. Input terminal torque: M4, 0.9N・m(Max)
   Torque of output terminal: M3, 0.4N・m(Max)
5. The layout of the device is for reference only, please refer to the actual product

-W Dimensions and Recommended Layout

DPV150-15B-xxSV2-W Series



Pin-Out	
Pin	Mark
1	Vin+
2	Vin−
3	Vo−
4	Vo+
Mounting hole	Shell (Class Ⅰ)
	NC (Class Ⅱ)

Installation position	Suggestion screw	T	Torsion (Max)
①−⑥	M3	1.5mm	0.4N・m

⚠WARNING:

1. CAUTION: "To reduce the risk of fire, connect only to a circuit provided with 4 amperes maximum branch-circuit over-current protection in accordance with the National Electrical Code, ANSI/NFPA70."
2. WARNING: REPLACE ONLY WITH THE SAME RATINGS AND TYPE OF FUSE.
3. DANGER – HIGH VOLTAGE.

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Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75% with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our company corporate standards;
3. We can provide product customization service, please contact our technicians directly for specific information;
4. Products are related to laws and regulations: see "Features" and "EMC";
5. Products shall be classified according to PE(⏚)of system when the terminal equipment in operating;
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
7. If the final product application is connected to a photovoltaic array, the array needs to be grounded and the voltage between the positive and negative poles of the product shall not be greater than 1500VDC.