Descriptions

200W，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 93%
- 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)
- Design refer to UL1741, EN/IEC/BS EN62109

Applications

- Photovoltaic inverter
- Energy storage systems
- Charging pile
- Industrial control

Selection Guide

Certification	Part No.	Output Power (W)	Nominal Output Voltage and Current (Vo/Io)	Efficiency at 850VDC (%) Typ.	Capacitive Load (μF) Max.
--	DPV200-15B-12SV2	150	12V/12.5A	88	5000
	DPV200-15B-24SV2	200	24V/8.33A	91	5000
	DPV200-15B-28SV2		28V/7.143A	91	3500
	DPV200-15B-48SV2		48V/4.167A	93	1250

Note:The product picture is for reference only. For details, please refer to the actual product.

Specifications

Product Specifications	Item		Operating Conditions		Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range		Transient (10s)		--	--	1700	VDC
					250	--	1500	
	Input Current		300VDC		--	--	1.2	A
			850VDC		--	--	0.45	
	Inrush Current		850VDC	Cold start	--	100	150	
			1500VDC		--	180	250	
	Input Under-voltage Protection		Under-voltage protection start (Input voltage drops from high to low)		130	160	190	VDC
			Under-voltage protection release (Input voltage rises from low to high)		180	210	250	
	Input Reverse Polarity Protection				Available			
	Start-up Delay Time*				--	1	3	s
	External Input Fuse				1500VDC/6A, required (Recommended brand: Adler models: A851600b00 base models: BH300)			
	Hot Plug				Unavailable			
Output Specifications	Output Voltage Accuracy		All load range		--	±1.5	--	%
	Line Regulation		Rated load		--	±0.5	--	
	Load Regulation		850VDC		--	±0.5	--	
	Stand-by Power Consumption		Room temperature, full voltage range		--	3	5	W
	Ripple & Noise*		20MHz bandwidth (peak-to-peak value)		--	150	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			
			48V		≤58V			
	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	Input - output	Ambient temperature: 25 ± 5℃		100	--	--	MΩ

	Resistance	Input - Shell	Relative humidity: < 95%RH, no condensation Test voltage: 500VDC				
		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	0.40	--	--	%/VDC
				300 - 400VDC	0.20	--	--	
				1400 - 1500VDC	0.20	--	--	
			Altitude derating	2000m - 5000m	10.00	--	--	%/Km
	Safety Class				Class I (terminal)			
	MTBF		MIL-HDBK-217F@25℃		≥300,000h		
Mechanical Specifications	Case Material		Metal				
	Dimensions	Hrizontal package	171.00 x 70.00 x 42.00mm				
		Din-Rail mounting	179.00 x 70.00 x 55.00mm				
	Weight	Hrizontal package	550g (Typ.)				
		Din-Rail mounting	715g (Typ.)				
	Cooling Method		Free air convection				

Note:

1.*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.);

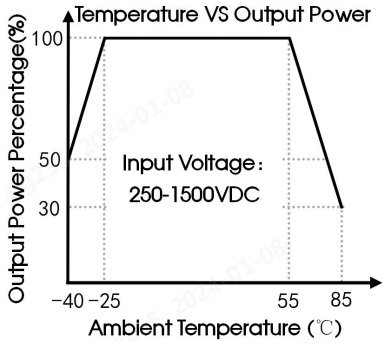
2.*The "Tip and barrel method" is used for ripple and noise test,

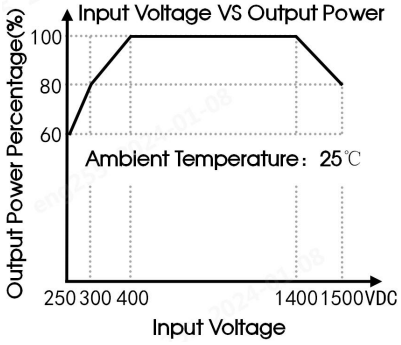
Electromagnetic Compatibility (EMC)

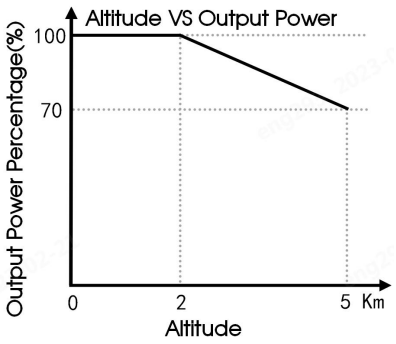
Electromagnetic Compatibility (EMC)	Emissions	CE	CISPR32/EN55032 CLASS A (See Fig. 2 for recommended circuit)	
		RE	CISPR32/EN55032 CLASS A (See Fig. 2 for recommended circuit)	
	Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	Perf. Criteria A
		RS	IEC/EN61000-4-3 10V/m	Perf. Criteria A
		EFT	IEC/EN61000-4-4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

Product Characteristic Curve



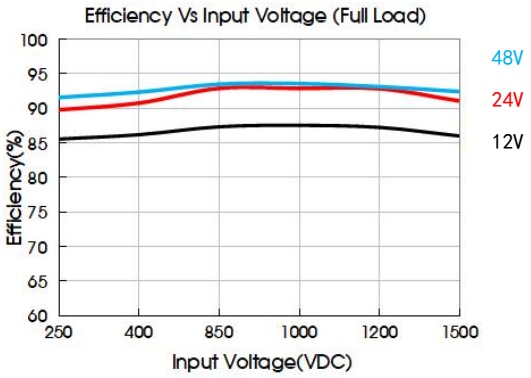


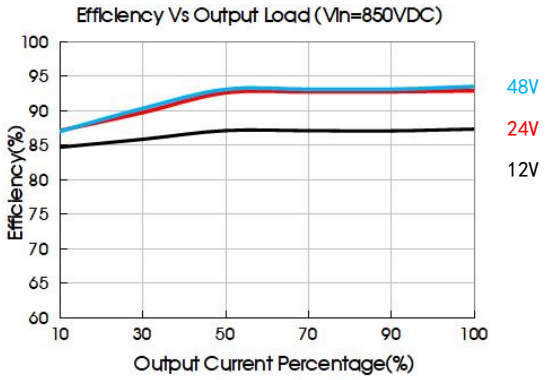


Note:

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 free air cooling; for applications in closed environment please consult FAE.





Design Reference

1. Typical application circuit

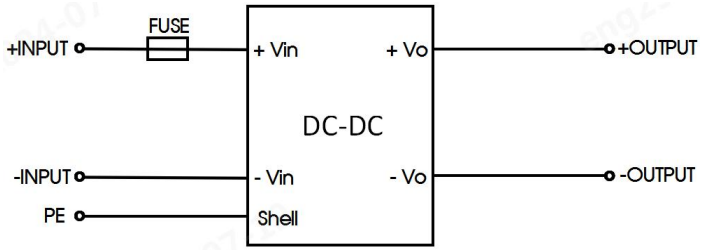


Fig. 1

Model	Recommended value
FUSE	1500VDC/6A, required (Recommended brand: Adler models: A851600b00 base models: BH300)

2. EMC compliance recommended circuit

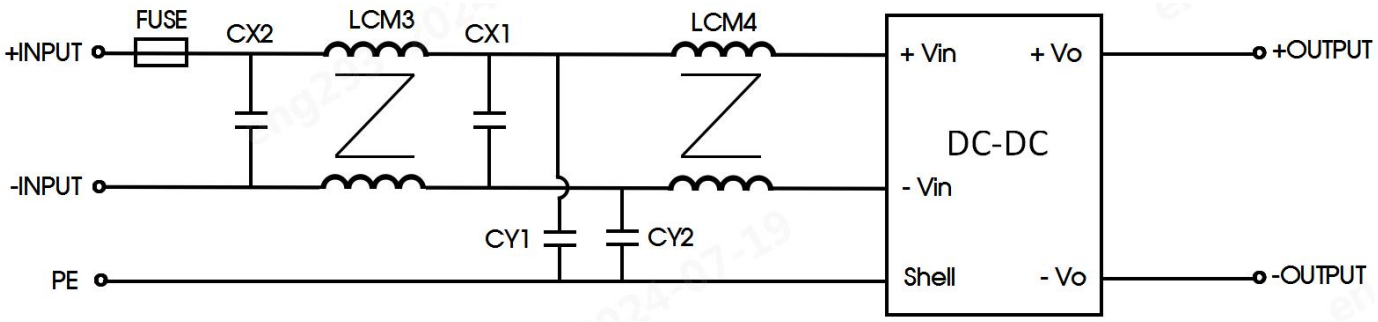


Fig. 2: CLASS I recommended circuit

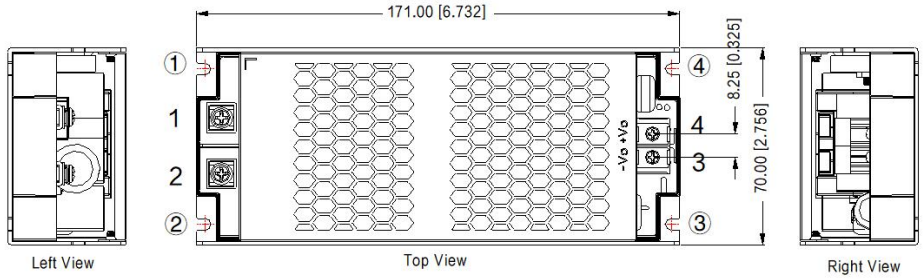
Component	Recommended value
FUSE	1500VDC/6A, required (Recommended brand: Adler models: A851600b00 base models: BH300)
CX1/CX2	Safety capacitor 105K/≥1500VDC
CY1/CY2	222M/1500VDC
CY3/CY4	471K/1500VDC
LCM2	7mH(Recommend our company's common mode choke EFL2D-1-702B)
LCM3	20mH (Recommend our company's common mode choke EFL2D-1-203B)
LCM4	1mH(Recommend our company's common mode choke EFL2D-1-102B)
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;	

3. IMPORTANT SAFETY INSTRUCTIONS

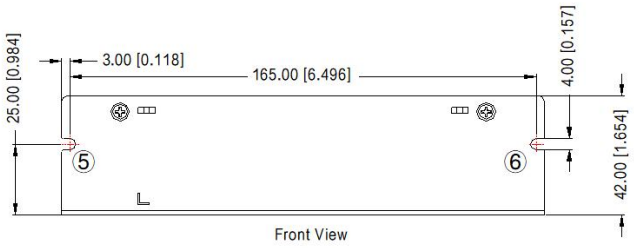
Additional protective devices, such as lightning protector need to be added if there is an transient pulse voltage greater than 6KV at the input of products in system applications.

Dimensions and Recommended Layout

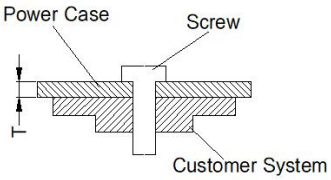
THIRD ANGLE PROJECTION

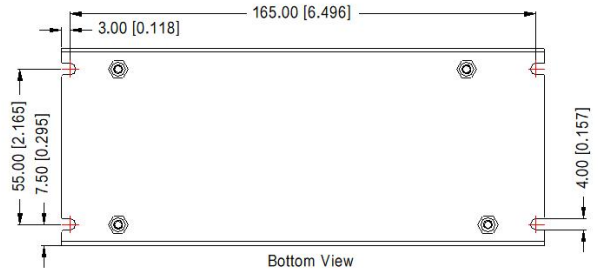


Pin-Out	
Pin	Mark
1	+Vin
2	-Vin
3	-Vo
4	+Vo
①-⑥	PE



Position	Screw Spec.	T	Torque(max)
①-⑥	M3	1.5mm	0.4N・m





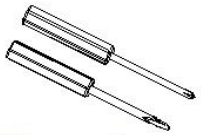
Note:
1. Unit: mm[inch]
2. General tolerances: ± 1.00 [± 0.040]
3. Wire range: Input: 20-12AWG
   Output: 16-12AWG
4. Input connector tightening torque: M4, 0.9N・m(Max)
   Output connector tightening torque: M3, 0.4N・m(Max)

Installation Diagram

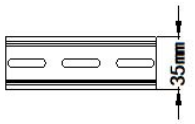
Bill Of Material		
1	Product	1 PCS
2	Phillips screwdriver Slotted screwdriver	1 PCS
3	TS35/7.5 or TS35/15	1 PCS
All above is only for reference, the actual connecting wire and locking torque refer to the appearance size diagram		



Product

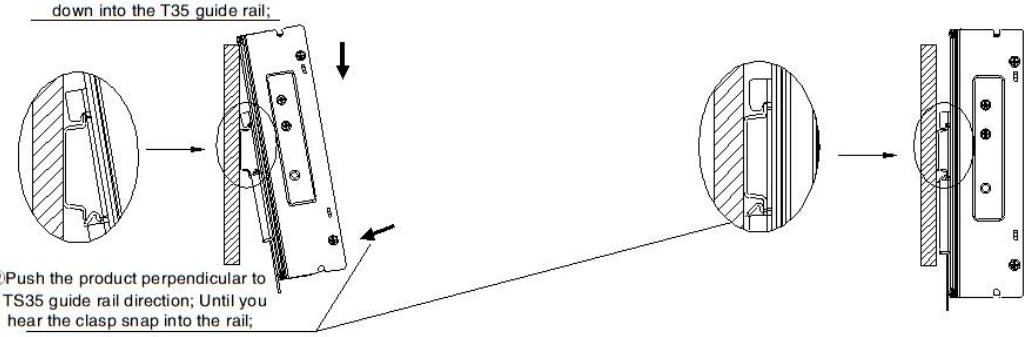


Phillips screwdriver
Slotted screwdriver
Diameter of the cutting tools: 3mm

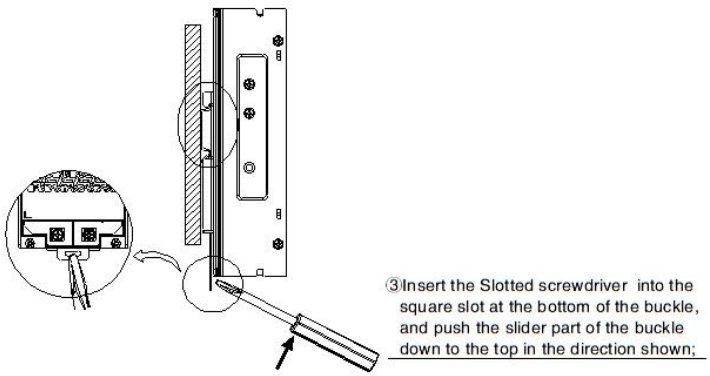


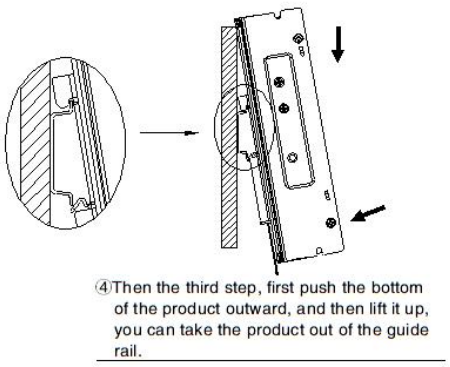
TS35/7.5 or TS35/15

Installation procedure ①–②



Remove the step ③–④





Note: Keep the following installation clearances: 20mm on top, 20mm on the bottom, 5mm on the left and right sides are recommended when the device is loaded permanently with more than 50% of the rated power. Increase this clearance to 15mm in case the adjacent device is a heat source (e.g. another power supply).

⚠WARNING:

AVERTISSEMENT:

1.CAUTION: "To reduce the risk of fire, connect only to a circuit provided with 6 amperes maximum branch-circuit over-current protection in accordance with the National Electrical Code, ANSI/NFPA70."

1. Avertissement: Pour réduire le risque d'incendie, veuillez connecter uniquement à des circuits de dérivation avec protection contre les surintensités conformes au code électrique national ANSI/ NFPA 70.

2.WARNING: REPLACE ONLY WITH THE SAME RATINGS AND TYPE OF FUSE.

2. AVERTISSEMENT : N'UTILISER QUE DES FUSIBLES DE MÊMECALIBRE ET DE MÊME TYPE QUE LE FUSIBLE DORIGINE.

3. DANGER – HIGH VOLTAGE.

3. DANGER ： HAUTE TENSION.

4.CAUTION: RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE.

4.ATTENTION: RISQUES D'ÉLECTROCUTION. NE PAS RETIRER LE COUVERCLE. NE CONTIENT AUCUNE PIÈCE POUVANT ÊTRE RÉPARÉE PAR L'UTILISATEUR.

5.CAUTION: DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING.

5.ATTENTION: COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT DE FAIRE L'ENTRETIEN ET LESL RÉPARATIONS.

6.CAUTION: RISK OF ELECTRIC SHOCK FROM STORED ENERGY. WAIT 5 MIN AFTER DISCONNECTING ALL SOURCES OF SUPPLY BEFORE ACCESSING.

6.ATTENTION:RISQUE D'ÉLECTROCUTION EN RAISON DE L'ÉLECTRICITÉ EMMAGASINÉE. ATTENDRE 5 MINUTES APRÈS AVOIR DÉBRANCHÉ TOUTES LES SOURCES D'ALIMENTATION AVANT D'Y ACCÉDER.

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. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
6. 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.