DESCRIPTIONS

DC/DC Converter



RoHS

CE Report UKCA Report

EN62368-1 BS EN62368-1

FEATURES

- Ultra-wide input voltage range:60-750VDC(DPV20-7B-12) /80-745VDC(DPV20-7B-24)
- Operating ambient temperature range : -40℃ to +85℃
- High efficiency, high reliability
- Input reverse polarity protection, output short circuit/over-current/over-voltage protection
- I/O isolation test voltage up to 4000VAC

APPLICATIONS

- Power
- Instrument
- Home appliance energy storage

Selection Guide

Certification	Part No.*	Output power(w)**	Nominal output voltage and current (vo/io)	Efficiency at 300VDC (%) typ.	Capacitive Load (uF) MAX.
EN/BS EN	DPV20-7B-12	20	12V/1670mA	84	3000
	DPV20-7B-24		24V/833mA	86	800

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

Specifications

Product characteristics	Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Specifications	Input Voltage Range	Rated input (Certified voltage)	100	--	600	VDC
		12V	60	--	750	
		24V	80	--	745	
	Input Current	200VDC	--	--	0.25	A
		600VDC	--	--	0.08	
	Inrush Current	200VDC	--	30	--	
		600VDC	--	65	--	
	Leakage Current	600VDC/50Hz	0.5mA RMS Max.			

	Recommended External Input Fuse			4A/1100VDC, slow-blow, required			
	Input Reverse Polarity Protection			Available			
	Hot Plug			Unavailable			
Output Specifications	Output Voltage Accuracy			--	±2	--	%
	Line Regulation	Full load		--	±0.5	--	
	Load Regulation	0% - 100% load		--	±1.0	--	
	Ripple & Noise*	20MHz bandwidth (peak-to-peak value)		--	--	150	mV
	Temperature Coefficient			--	±0.02	--	%/℃
	Stand-by Power Consumption	300VDC		--	--	0.7	W
	Short Circuit Protection			Hiccup, continuous, self-recover			
	Over-current Protection			110 - 400% Io, self-recover			
	Over-voltage Protection	12V output		≤ 20V (Output voltage hiccup or clamp)			
		24V output		≤ 35V (Output voltage hiccup or clamp)			
	Minimum Load			0	--	--	%
	Hold-up Time	200VDC		--	3	--	ms
		600VDC		--	50	--	
General Specifications	Isolation Input-output	Electric Strength Test for 1min., leakage current < 5mA		4000	--	--	VAC
	Operating Temperature	Work in the power drating curve range		-40	--	+85	℃
	Storage Temperature			-40	--	+85	
	Storage Humidity	Non-condensing		--	--	95	%RH
	Soldering Temperature	Wave-soldering		260 ± 5℃; time: 5 - 10s			
		Manual-welding		360 ±10℃; time: 3 - 5s			
	Switching Frequency			--	65	--	kHz
	Power Derating	DPV20-7B-12	+55℃ to +85℃ (60-675VDC Input)	3.0	--	--	%/℃
			+55℃ to +80℃ (675-750VDC Input)	3.0	--	--	
			+80℃ to +85℃ (675-750VDC Input)	3.6	--	--	
			-40℃ to -10℃	1.0	--	--	
			60VDC-80VDC	0.75	--	--	%/VDC
			80VDC-155VDC	0.47	--	--	
			675VDC-745VDC	0.29	--	--	

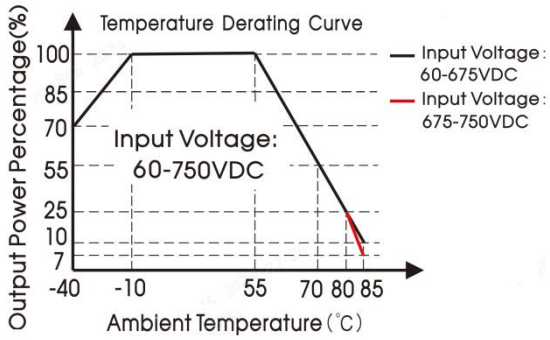
	Power Derating	DPV20-7B-24	+55℃ to +85℃ (80-675VDC Input)	3.0	--	--	%/℃
			+55℃ to +80℃ (675-745VDC Input)	3.0	--	--	
			+80℃ to +85℃ (675-745VDC Input)	3.6	--	--	
			-40℃ to -10℃	1.0	--	--	
			80VDC-155VDC	0.47	--	--	%/VDC
			675VDC-745VDC	0.29	--	--	
	Safety Class			CLASS I I			
	MTBF	MIL-HDBK-217F@25℃		≥300,000 h			
Mechanical Specifications	Case Material	Black plastic, flame-retardant and heat-resistant (UL94V-0)					
	Dimension	70.00 x 48.00 x 30.00mm					
	Weight	140g (Typ.)					
	Cooling Method	Free air convection					
Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 1uF ceramic capacitor;							

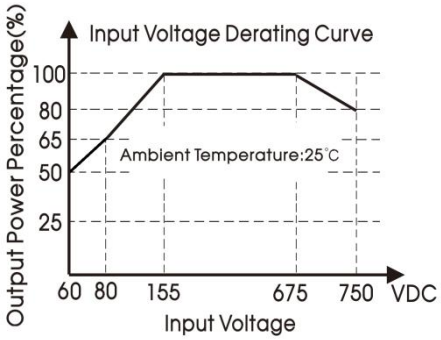
Electromagnetic Compatibility (EMC)

Electromagnetic Compatibility (EMC)	Emissions	CE	CISPR32/EN55032 CLASS B	
		RE	CISPR32/EN55032 CLASS B	
	Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria B
		RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
		EFT	IEC/EN61000-4-4 ±2KV	perf. Criteria B
		Surge	IEC/EN61000-4-5 line to line ±2KV	perf. Criteria B
		CS	IEC/EN61000-4-6 10Vr.m.s	perf. Criteria A

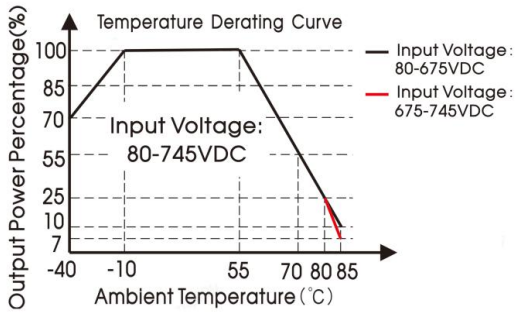
Product Characteristic Curve

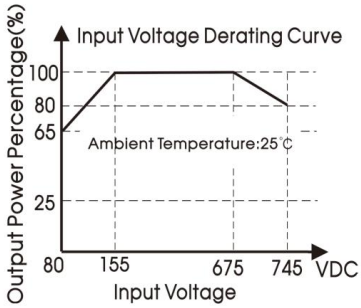
DPV20-7B-12 Derating Curve:





DPV20-7B-24 Derating Curve:

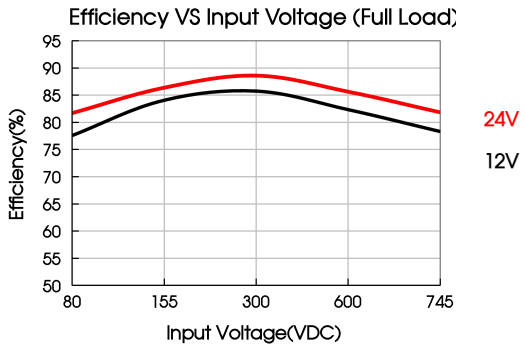


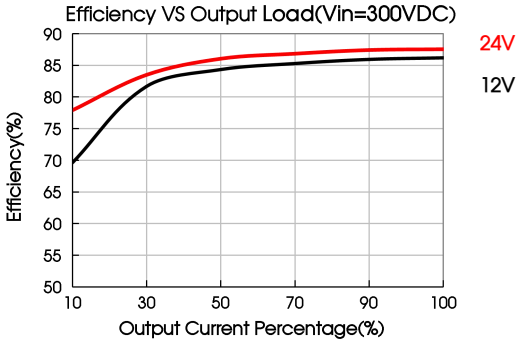


Note:

① DC input between 60-155VDC/675-750VDC(12V) or 80-155VDC/675-745VDC(24V), 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

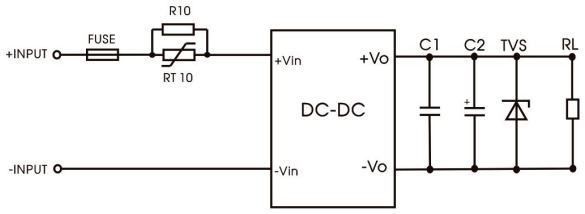


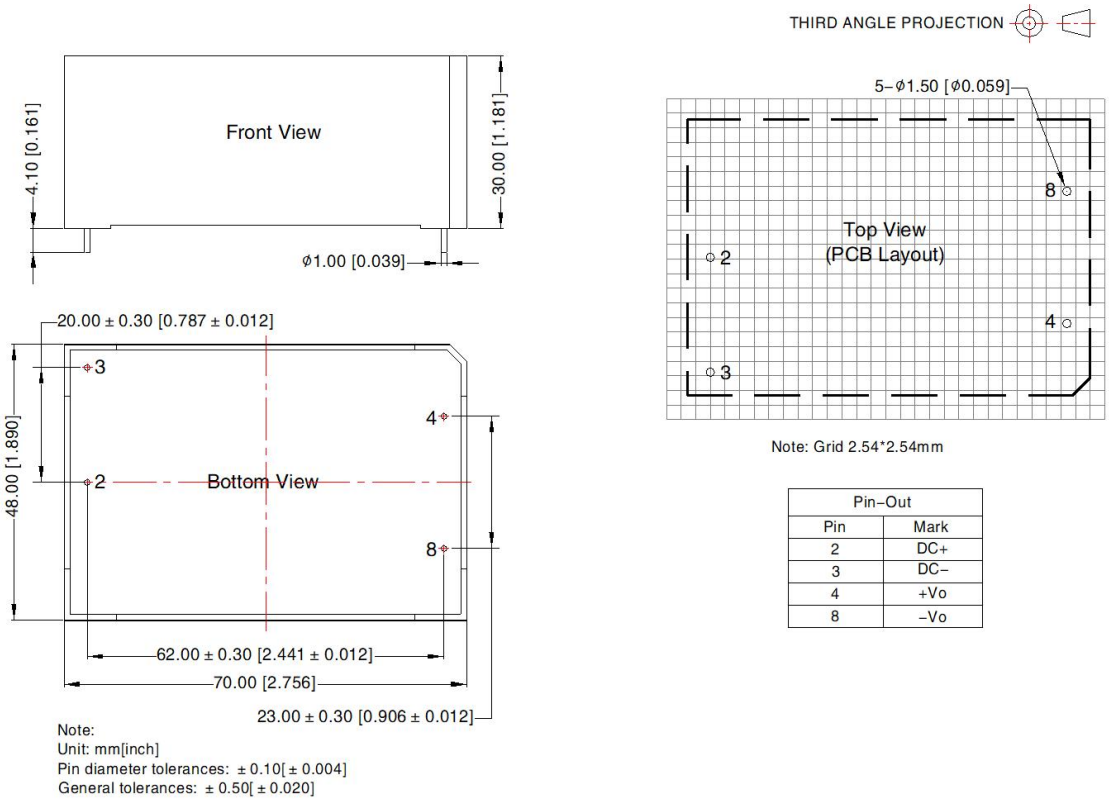
Fig. 1: Typical circuit diagram

Part no.	FUSE	RT10	R10	C1(uF)	C2(uF)	TVS
DPV20-7B-12	4A/1100VDC, slow-blow, required	15D-10	2W/12Ω (Wire-wound resistor)	1	220	SMBJ20A
DPV20-7B-24						SMBJ30A

Output Filter Components:

We recommend using an electrolytic capacitor with high frequency, and low ESR rating for C2 (refer to manufacture's datasheet). Choose a Capacitor voltage rating with at least 20% margin, in other words not exceeding 80%. C1 is a ceramic capacitor used for filtering high-frequency noise and TVS is a recommended suppressor diode to protect the application in case of a converter failure.

Dimensions and Recommended



Pin-Out	
Pin	Mark
2	DC+
3	DC-
4	+Vo
8	-Vo

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

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

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

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

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

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

3.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. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
2. 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;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. We can provide product customization service, please contact our technicians directly for specific information;
5. Products are related to laws and regulations: see "Features" and "EMC";
6. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units
7. The image certification marks are for reference only; please refer to the selection table for actual specifications. Certification is based on the physical mark or packaging label.