DC/DC Converter
PBK150-800SXXGB1D6 series

Patron
Passive Elektronic

Typical Features

- Wide range input：250-1500VDC
- No-load power consumption≤2W
- No-load power consumption（typical 88%）
- Type of protection1：Input anti-reverse protection
- Type of protection2：Output short circuit, over-current, over-voltage protection
- Isolation voltage：4000VAC
- Operating temperature：-40℃- +70℃
- Used in photovoltaic power generation and high voltage frequency conversion
- Industrial product technical design, international standard volume

Application Field

PBK150-800SXXGB1D6 series-----It is a small volume and high efficiency module power supply for customers.
This series of power supply has 250-1500VDC ultra-wide ultra-high voltage input, high efficiency, high reliability DC-DC switching voltage regulator power module, can be widely used in photovoltaic power generation and high voltage frequency conversion and other occasions, to provide stable working voltage for load equipment. In addition, the built-in multiple protection function can improve the safety performance of the power supply and its load when the power module is abnormal.

Typical Product List

certification	Model number	Input the gauge cell			Max. Capacitive Load（MAX）	Ripple & noise 20MHz（MAX）	Efficiency full load800VDC（Typ.）
		power	voltage	current	u F	mVp-p	%
		（W）	Vo（V）	Io（m A）			
-	PBK150-800S12GB1D6	120	12	10000	3500	120	84
-	PBK150-800S24GB1D6	150	24	6250	2000	240	88
-	PBK150-800S28GB1D6	150	28	5360	2000	300	89

Note 1: The typical value of output efficiency is based on the product full load aging for half an hour.
Note 2: The fluctuation range of full-load efficiency (%,TYP) in the table is ±2%, and the full-load output efficiency is equal to the total output power divided by the input power of the power module.
Note 3: The test method of ripple and noise adopts the twisted pair test method. The specific test method and collocation can be seen in the following (Ripple & Noise test instructions).
Note 4: Due to limited space, the above is only a partial list of products, if you need products other than the list, please contact our sales department.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	Dc input	250	800	1500	VDC
Input Current	Input 250VDC, output full load	-	-	1.0	A

	Input 800VDC, output full load	-	-	0.4	
	Input 1500VDC, output full load	-	-	0.3	
Impulse current	Input 1500VDC	-	-	200	
Input Under-Voltage Protection	Undervoltage protection start point	150	--	220	VDC
	Undervoltage protection release point	160	--	250	
External Fuse Recommend		4A1500VDC			
Hot plug	-	Not supported			

Output Specification

Item		Operating Condition		Min.	Typ.	Max.	Unit
Voltage accuracy		Input any load in the full voltage range	Vo	-	-	±2.0	%
Linear regulation		Nominal load	Vo	-	-	±1.0	
Load regulation ratio		Input nominal voltage 0%~100% load	Vo	-	-	±2.0	
No-load power consumption		Input 1500VDC (no load)		-	-	1.0	W
Ripple noise		20MHz bandwidth (peak-to-peak value)		-	-	300	mV
Drift coefficient		-		-	±0.02%	-	%/℃
Output overshoot		Input full voltage range		≤10%Vo			%
Short circuit protection				With, self-recovery after short-circuit elimination			Hiccup
Overcurrent protection		Input nominal voltage		≥110% Io self recovery			
Overvoltage protection		Output 12VDC		≤20			VDC
		Output 24VDC		≤32			
		Output 28VDC		≤35			
Minimum load		Single output		0	-	-	%
Start delay time		Input 800VDC (full load)		-	3000	-	mS
Power-off hold time		Input 800VDC (full load)		-	50	-	
Dynamic Response	Overshoot Range	25%~50%~25% 50%~75%~50%		-5.0	-	+5.0	%
	Recovery time			-5.0	-	+5.0	mS

General specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-40	-	+70	℃
	Perform temperature derating based on the temperature derating curve. For the derating curve, see the following (product feature curve)				
Storage Temperature	-	-40	-	+85	
Soldering Temperature	Wave-soldering	260±4℃, time5-10S			
	Manual-welding	360±8℃, time4-7S			

Storage humidity		-	-	-	95	%RH
Isolation Voltage	I/P-O/P	Test for 1 minute, leakage current≤5mA	4000	-	-	VAC
	I/P-PE		2000			
	O/P-PE		2000			
Insulation Resistance	Input-Output	@DC500V	50	-	-	MΩ
MTBF		-	MIL-HDBK-217F 25℃＞300,000H			

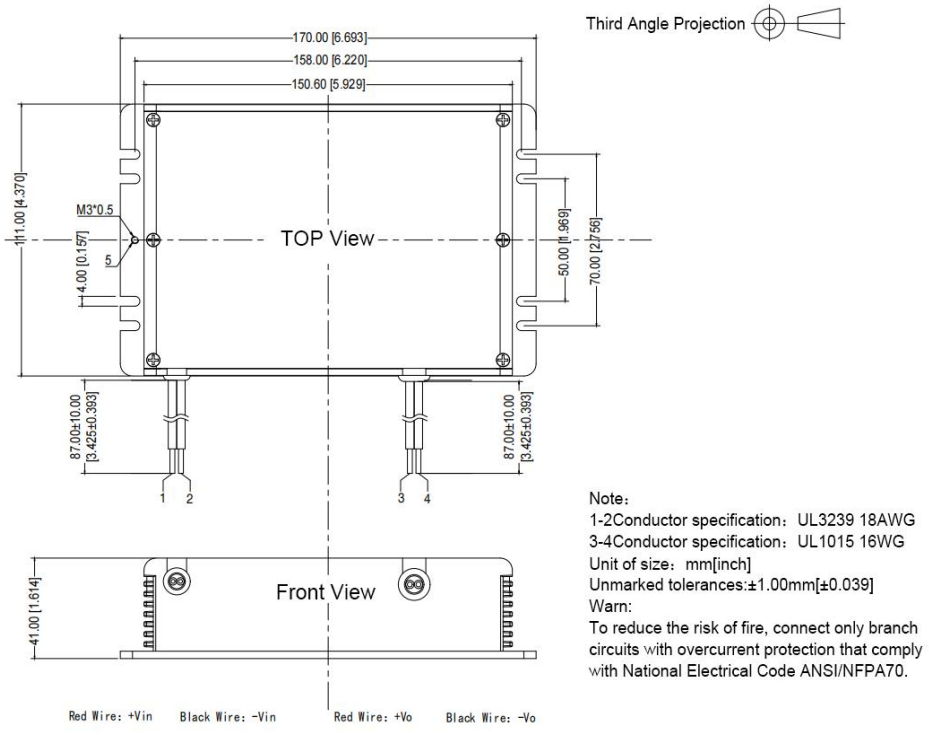
Physical Characteristics

Case Material		-
Package Dimensions	Horizontal package	170.0X111.0X41.0mm
Product Weight		950g（TYP）
Cooling method		Free air convection

EMC Characteristics

Total Item		Sub Item	Test Standard	Class
EMC	EMI	CE	CISPR32/EN55032	-
		RE	CISPR32/EN55032	-
	EMS	RS	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV Perf. Criteria B
		CS	IEC/EN61000-4-3	10V/m Perf. Criteria A
		Surge	IEC/EN61000-4-4	±2KV Perf. Criteria B
		ESD	IEC/EN61000-4-5	line to line ±1KV/ line to ground ±2KV Perf. Criteria B
		EFT	IEC/EN61000-4-6	10Vr.m.s Perf. Criteria A

Dimension



Note:
1-2Conductor specification: UL3239 18AWG
3-4Conductor specification: UL1015 16WG
Unit of size: mm[inch]
Unmarked tolerances:±1.00mm[±0.039]
Warn:
To reduce the risk of fire, connect only branch circuits with overcurrent protection that comply with National Electrical Code ANSI/NFPA70.

Package code	L x W x H	
G	170.0X111.0X41.0mm	6.693X4.370X1.614inch

Pin Definition

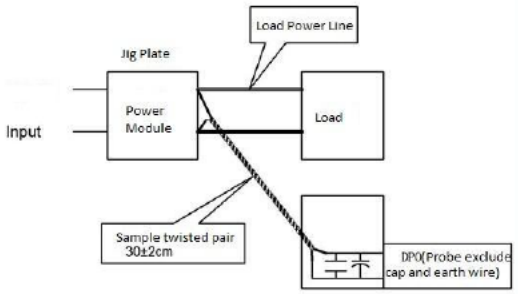
Pins	1	2	3	4	5
Single output（S）	Vin+	Vin-	+Vo	-Vo	PE

Ripple& Noise Test: (Twisted Test Method 20MHz bandwidth)

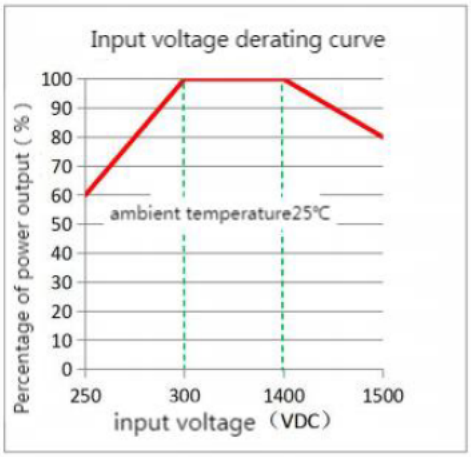
Test Method:

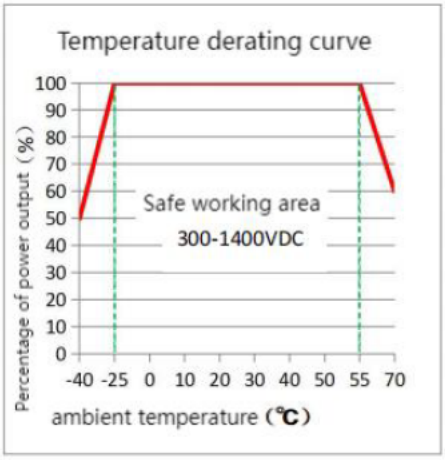
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

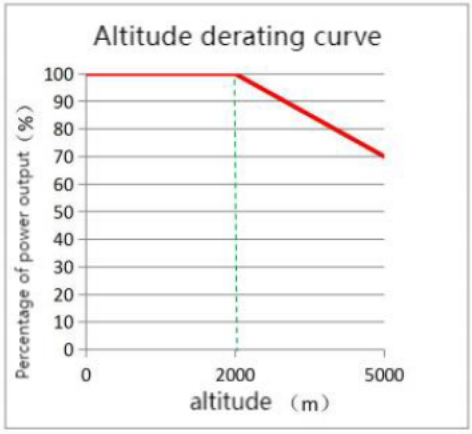
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product Characteristic Curve





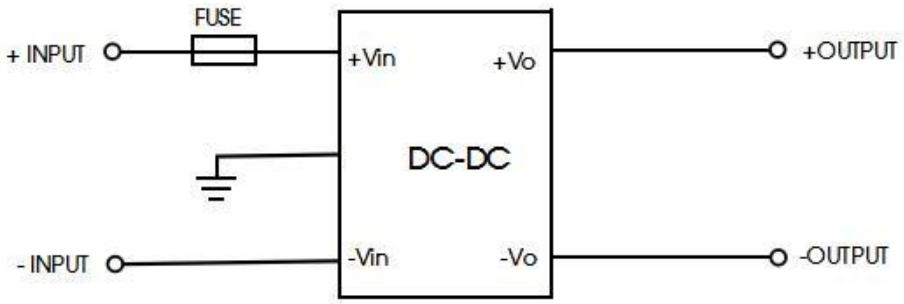


Note 1: The input voltage ranges from 250 to 300VDC/1400 to 1500VDC. The voltage derating should be performed based on the input voltage derating curve.

Note 2: This product is suitable for use in natural wind cooling environment, if used in a closed environment, please contact us.

Design reference application

1. Typical application circuit



Component type	Recommended value
FUSE	4A1500VDC(UL/VDE)、necessary

Note:

1. The product should be used within the specification range, otherwise it will cause permanent damage to the product;
2. The product input terminal must be connected to a fuse;
3. If the product works below the minimum required load, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
4. If the product works beyond the product load range, it cannot be guaranteed that the product performance meets all the performance indicators in this manual;
5. Unless otherwise specified, the above data are measured at Ta=25℃, humidity<75%, input nominal voltage and output rated load (pure resistance load);
6. All the above index test methods are based on our company's standards;
7. The above are the performance indicators of the product models listed in this manual. Some indicators of non-standard model products will exceed the above requirements. For specific details, please contact our technical personnel directly;
8. Product specifications are subject to change without prior notice. Please pay attention to the latest manual.