DC/DC Converter

BK150-800SXXGB1N6 Series

Typical Features

- Input voltage range: 250-1500VDC (6:1)
- Input anti-reverse, under-voltage protections
- Output over-voltage, over-current, short circuit protections
- Isolation Voltage：4000Vac
- High efficiency & reliability, low ripple & noise
- Application in solar power generation, high-voltage inverter
- Operating Temperature: -40℃- +70℃
- Altitude during operation 5000m Max
- Industrial design, international standard dimensions

Application Field

BK150-800SXXGB1N6 *Series*----- *are ultra-wide input voltage from 250 to1500VDC, high efficiency & reliability DC/DC converters provided by Aipu. They can be widely used in solar power system, high-voltage inverter and so on, performance with stable voltage output and multi-protections to keep the load safety while operating at abnormal conditions.*

Typical Product List

Certification	Part No.	Output Specifications			Max. Capacitive Load	Ripple& Noise 20MHz（MAX）	Efficiency @Full Loads 800VDC(Typ.)
		Power	Voltage	Current			
		（W）	Vo（V）	Io（mA）	u F	mVp-p	%
-	BK150-800S24GB1N6	150	24	6250	3000	300	88
-	BK150-800S28GB1N6	150	28	5360	2000	300	89

Note 1: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 2: The full load efficiency should be in ±2% of the typical value in this table. The efficiency= full output power / input power*100%

Note 3: The ripple and noise are tested by the twisted pair method according to the Ripple & Noise Test Instructions in the manual.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input	250	800	1500	VDC
Input Current	250VDC@75% load	-	-	1.0	A
	800VDC@100% load	-	-	0.4	
	1500VDC@100% load	-	-	0.3	
No Load Power	No load	-	-	2	W
Input under voltage protection	Start protection	150	-	220	VDC
	Recovery	160	-	250	
Recommended external fuse	-	4A/1500VDC(Time-delay fuse, Necessary)			
Hot Plug	-	NA			
Remote Control	-	NA			

Output Specifications

Item		Operating condition	Min.	Typ.	Max.	Unit
Voltage accuracy		Input full voltage range, any load	-	±2.0	±3.0	%
Linear regulation		Rated load	-	±1.0	±1.5	
Load regulation		Input rated voltage, 20%~100% load	-	±2.0	±3.0	
Minimum load		Single output	10	-	-	%
Turn on delay		Input 800VDC (full load)	-	3000	-	mS
Power-off hold up time		Input 800VDC (full load)	-	50	-	
		Input 1500VDC (full load)	-	50	-	
Dynamic response	Over-shoot	25%~50%~25%	-	±5.0	±6.0	%
	Recovery time	50%~75%~50%	-	-	500	mS
Output overshoot		Input full voltage range	≤10%Vo			%
Short circuit protection			continuous, self-recovery			Hiccup
Drift coefficient		-	-	±0.03	-	%/℃
Over-current protection		Input full voltage range	≥110% Io, self-recovery			Hiccup
Over-voltage protection		-	Feedback-clamp amplitude limit			

General Specifications

Item	Operating condition	Min.	Typ.	Max.	Unit
Switching frequency	-	-	65	-	KHz
Operating temperature	-	-40	-	+70	℃
	Please refer to the temperature derating curve				
Storage temperature	-	-40	-	+85	
Soldering temperature	Wave soldering	260±5℃, time 5-10S			
	Manual soldering	380±10℃, time 4-7S			
Storage humidity	-	-	-	95	%RH
Isolation voltage	Input-Output,1 Min, Leakage current≤5mA	4000	-	-	VAC
Insulation resistance	Input-Output @ 500VDC	-	100	-	MΩ
Altitude for operating	-	-	-	5000	m
MTBF	MIL-HDBK-217F@ 25℃	＞100KH			

Physical Characteristics

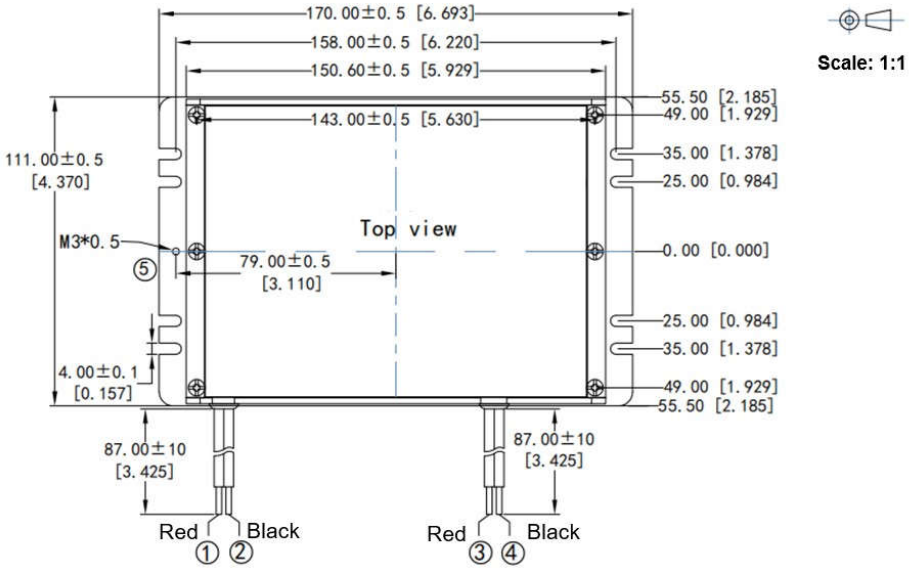
Case Material		Metal + Plastic case
Dimension	Horizontal package	170.0 x 111.0 x 41.0mm
Weight		945g
Cooling Method		Nature air

EMC Performances

Total Item		Sub Item	Testing standard	Performance/CLASS
EMC	EMI	CE	CISPR32/EN55032	-
		RE	CISPR32/EN55032	-
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria A

		CS	IEC/EN61000-4-6	10Vr.m.s Perf.Criteria A
		ESD	IEC/EN61000-4-2	Contact ±6KV / Air ±8KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	Line to line ±1KV / line to ground ±2KV Perf.Criteria B
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B

Mechanical dimensions



Note:
1-2 lead wires: UL3239 AWG18
3-4 lead wires: UL1015 AWG16
Unit: mm[inch]
General tolerance: ±0.50[±0.020]
Warning: Please connect input with ANSI/NFPA70 qulified power source with OCP to avoid the fire risk

Packaging code	L x W x H	
GB1N6	170.0X111.0X41.0mm	6.693X4.370X1.614 inch

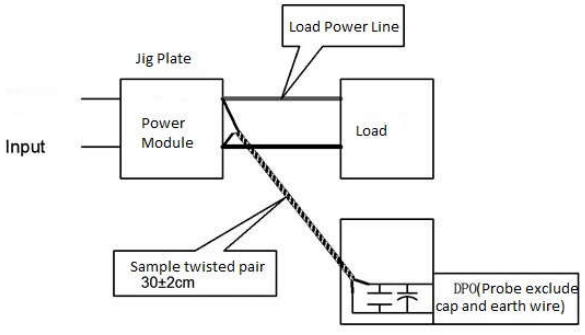
Lead Wire Definition

No.	1(Red)	2(Black)	3(Red)	4(Black)	5(Case)
Single（S）	Vin+	Vin-	Vo+	Vo-	PE

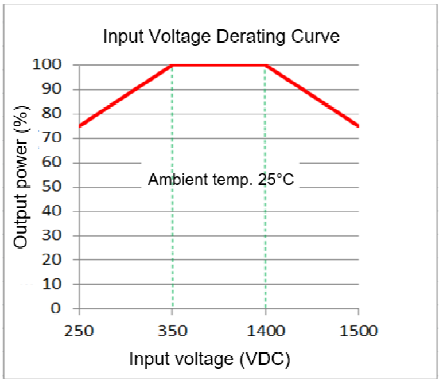
Ripple & Noise Test Instruction: (Twisted Pair Method, 20MHZ bandwidth)

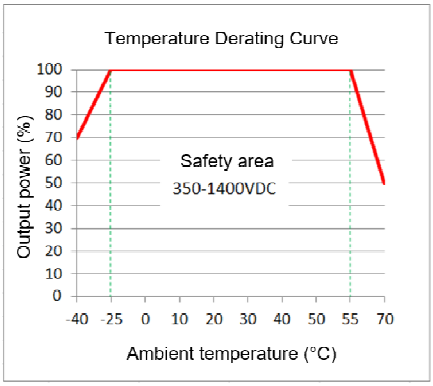
1) Ripple noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set on the Sample Mode.

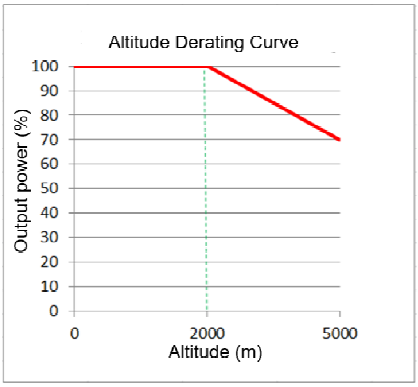
2) The output ripple noise test diagram is shown on the right. The converter output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close as possible to the output pins or terminals. The test can be started after input power on.



Product Performance Curves





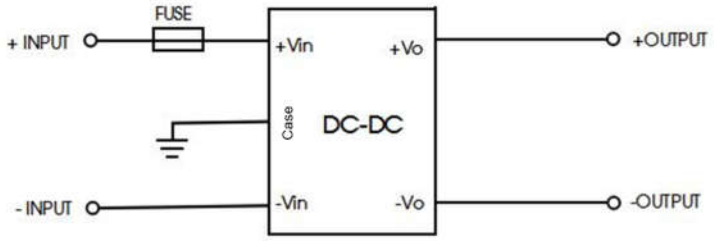


Note 1：The output power should be derated based on the input voltage derating curve at 250 to 350VDC / 1400 to 1500VDC.

Note 2：This product should operate at a natural air condition, please contact us if it need be used at a closed space.

Recommended Circuit for Application

1. Typical Application Circuit



Model	FUSE
BK150-800S24GB1N6	4A /1500VDC Necessary
BK150-800S28GB1N6	4A /1500VDC Necessary

2. Recommended EMC Circuit

TBD in next update

Note：

1. The products should be used according to the specifications in this manual, otherwise it could be permanently damaged.
2. A fuse should be used at input.
3. The product performances in this manual cannot be guaranteed if it works at a lower load than the minimum load defined.
4. The product performances in this manual cannot be guaranteed if it works at over-load condition.
5. Unless otherwise specified, all values or indicators in this manual are tested at Ta=25℃, humidity<75%RH, rated input voltage and rated load (pure resistance load).
6. All values or indicators in this manual had been tested based on Aipupower test specifications.
7. The specifications are specially for the parts listed in this manual, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirement.
8. Aipupower can provide customization service.

Guangzhou Aipu Electron Technology Co., Ltd
Address: Building 4, HEDY Park, No.63, Punan Road, Huangpu Dist, Guangzhou, China.
Tel: 86-20-84206763 Fax: 86-20-84206762 HOTLINE: 400-889-8821
E-mail: sales@aipu-elec.com Website: https://www.aipupower.com