New Energy DC-DC Converter
BK150-800SXXGA1D6 Series

Typical Features

- Wide input voltage range 250-1500VDC (6:1)
- Input voltage 1700VDC Max (transient, duration 2S)
- Efficiency 89% (Typ.)
- Operating temperature from -40℃ to +85℃
- Switching frequency 65KHz
- Input Anti-reverse connection, under-voltage protections
- Output over-voltage, over-current, short circuit protections
- Isolation voltage 4000VAC
- Application for Solar power generation, high-voltage frequency conversion
- Industry level design, standard size

Application Field

BK150-800SXXGA1D6 Series *----- High efficiency & reliability DC/DC converters with ultra-high input voltage & wide range 250-1500VDC. This series of products can be widely used for the Solar power generation and high voltage frequency conversion. The multiple protection functions can upgrade the safety performance and protect the load when the input power supply operates under abnormal condition.*

Typical Product List

Certificate	Part No.	Output Specifications			Max Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency @Full load 800VDC
		Power	Voltage	Current			
		(W)	Vo (V)	Io (mA)	uF	mVp-p	% (Typ.)
CE	BK150-800S24GA1D6	150	+24	6250	1500	300	88%
	BK150-800S28GA1D6	150	+28	5360	1500	300	89%
	BK150-800S32GA1D6	150	+32	4688	1000	300	90%
	BK150-800S35GA1D6	150	+35	4286	800	300	90%

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 is calculated by the way that the full output power is divided by the input power.

Note 3: Please contact Aipu sales for other output voltages requirements in this series but not in this table.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	DC input	250	800	1500	VDC
Input Current	250VDC input	-	-	0.8	A
	800VDC input	-	-	0.4	
	1500VDC input	-	-	0.3	
Input Under-voltage	Start protection	130	-	190	VDC

Protection		Recovery	160	-	220	
Recommended external fuse		-	4A/1500VDC Time-delay fuse (Necessary)			

Output Specifications

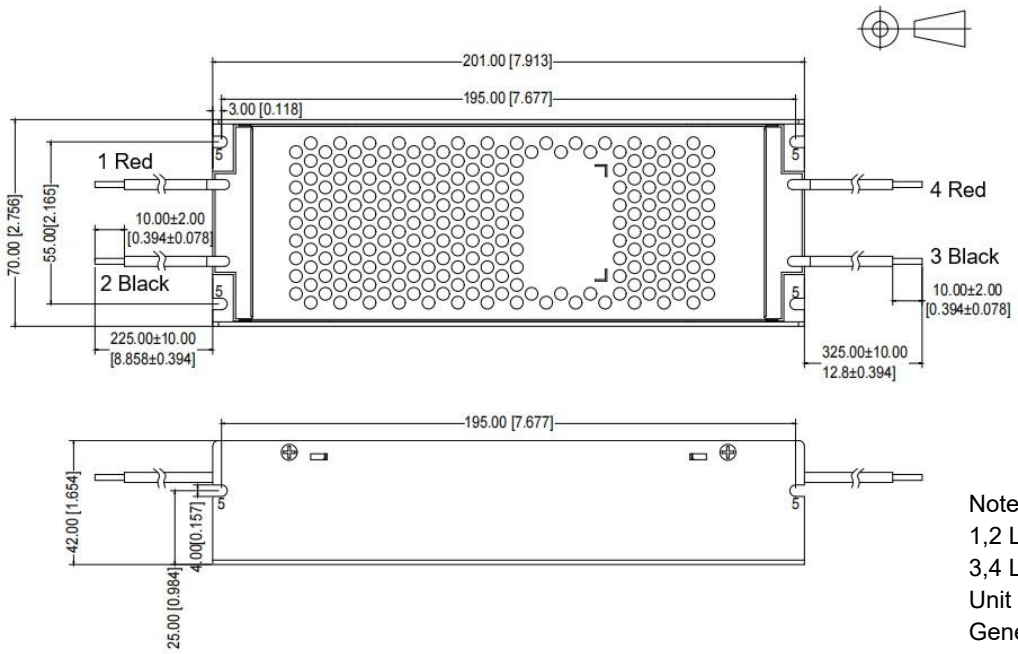
Item		Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, any load	-	±2.0	±3.0	%
Line regulation		Nominal load	-	±1.0	±1.5	
Load regulation		Nominal input voltage, 20%-100% load	-	±2.0	±3.0	
Minimum Load		Single output	10	-	-	%
Turn-on Delay Time		Input 800VDC (full load)	-	3000	-	mS
Power-off Hold up Time		Input 800VDC (full load)	-	50	-	
		Input 1500VDC (full load)	-		-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-	±5.0	±6.0	%
	Recovery time		-	-	500	mS
Output Overshoot		Full input voltage range	≤10%Vo			%
Short Circuit Protection			Continuous, self-recovery			Hiccup
Temperature Drift Coefficient		-	-	±0.03	-	%/℃
Over Current Protection		Full input voltage range	≥110% Io, self-recovery			Hiccup
Over Voltage Protection			Feedback-clamp amplitude limit			
Ripple & Noise		-	-	-	300	mV

Note: The Ripple and Noise is tested by the twisted pair method according to the following test instruction.

General Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		Refer to the temperature derating graph	-40	-	+85	℃
Storage Temperature		-	-40	-	+105	℃
Case Temperature Rise		Output 100% load @Ta=30°C	-	54	-	°
Soldering Temperature		Wave soldering	260±4℃, time 5-10S			
		Manual soldering	360±8℃, time 4-7S			
Storage Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	Dielectric test 5S, leakage current ≤5mA	4000	-	-	VAC
	Input-PE	Dielectric test 5S, leakage current ≤5mA	4000	-	-	
Insulation resistance		Between Input & Output @500VDC	100	-	-	MΩ
MTBF		-	SR-332@25℃＞250000H			
Case Material		-	Metal			
Unit Weight		-	550g (Typ.)			

Mechanical Dimensions



Terminals	Function
1(Red)	+Vin
2(Black)	-Vin
3(Black)	-Vout
4(Red)	+Vout
5(Case)	PE

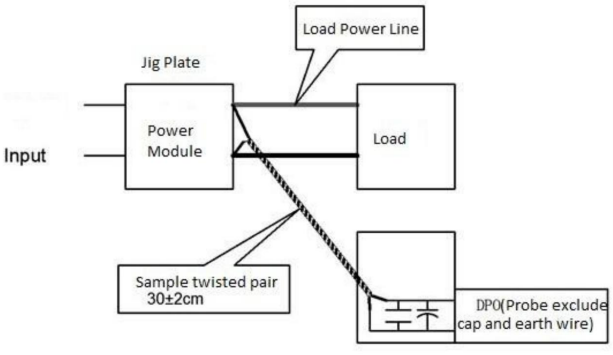
Note:
1,2 Lead wires: UL3239 18AWG
3,4 Lead wires: UL1015 14AWG
Unit mm[inch]
General tolerance: ±1.00[±0.039]

Package code	Dimensions L x W x H	
GA1D6	201.0X70.0X42.0 mm	7.913X2.756X1.654 inch

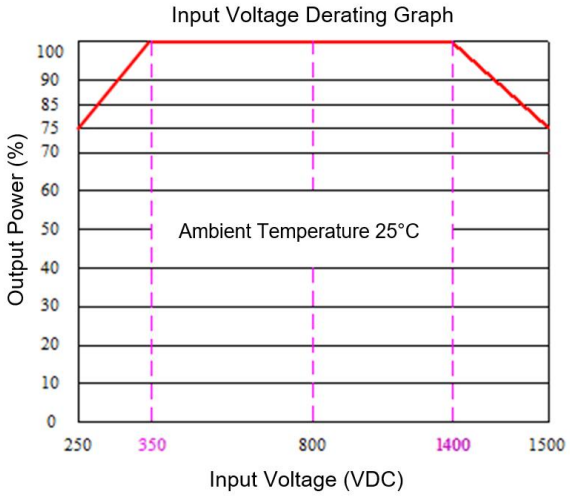
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHz bandwidth)

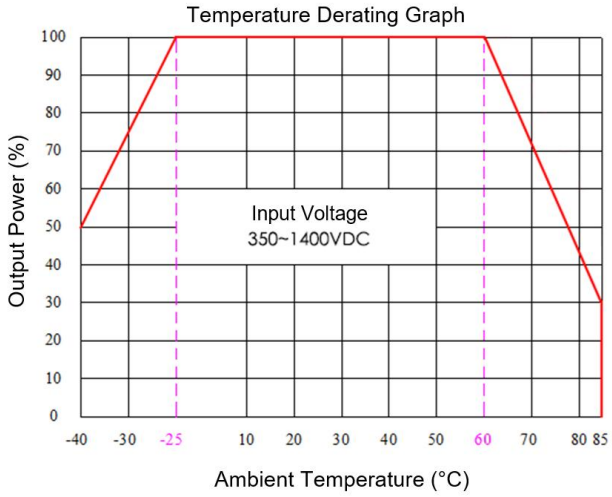
1) The Ripple & noise test needs 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the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

2) Please refer to the test diagram on the right. The power supply 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 start after input power on.



Product Characteristics Graphs

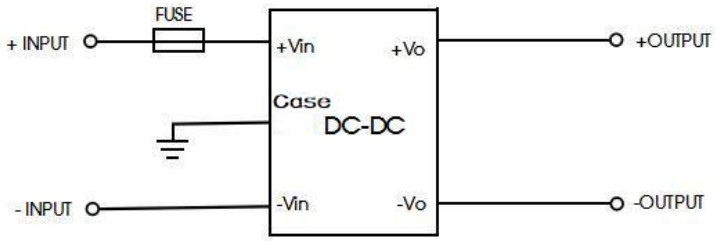




Note 1: The output power should be derated based on the input voltage derating graph at 250~350VDC/1400~1500VDC.

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

Typical Circuit Diagram for Application



Component	Recommended Value
FUSE	4A/1500VDC (Necessary)

Application Notices

1, The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2. A fuse should be connected at input.

3. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

4. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.

5. Unless otherwise specified, all values or indicators in this datasheet are tested at Ta=25℃, humidity<75%RH, nominal input voltage and rated load.

6. All values or indicators in this datasheet had been tested based on Aipupower test specifications.

7. 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

