

Typical Features

- ◆ Wide input voltage range 250-1500VDC (6:1)
- ◆ Input Anti-reverse connection, under-voltage protections
- ◆ Output over-voltage, over-current, short circuit protections
- ◆ Operating temperature from -40°C to +85°C
- ◆ Isolation voltage 4000VAC
- ◆ Input voltage 1700VDC Max (transient, duration 2S)
- ◆ Application for Solar power generation, high-voltage frequency conversion
- ◆ Industry level design, standard size
- ◆ With ETL certificate (UL1741)



Application Field

BK150-800SXXGA1N6 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 Power	Output Voltage & Current		Efficiency @800VDC	Capacitive Load
		(W)	Vo (V)	Io (mA)	% (Typ.)	uF (Max)
ETL/CE	BK150-800S24GA1N6	150	24	6250	88%	1500
	BK150-800S28GA1N6		28	5360	89%	1500
	BK150-800S32GA1N6		32	4690	90%	1000
	BK150-800S35GA1N6		35	4290	90%	1000

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 $\pm 2\%$ 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	Refer to the input voltage derating graph	250	800	1500	VDC
Input Current	250VDC@75% load	-	-	800	mA
	800VDC@100% load	-	-	400	
	1500VDC@100% load	-	-	300	
Input Under-voltage Protection	Start protection	130	-	190	VDC
	Recovery	160	-	220	
Recommended external fuse	-	4A/1500VDC Time-delay fuse (Necessary)			

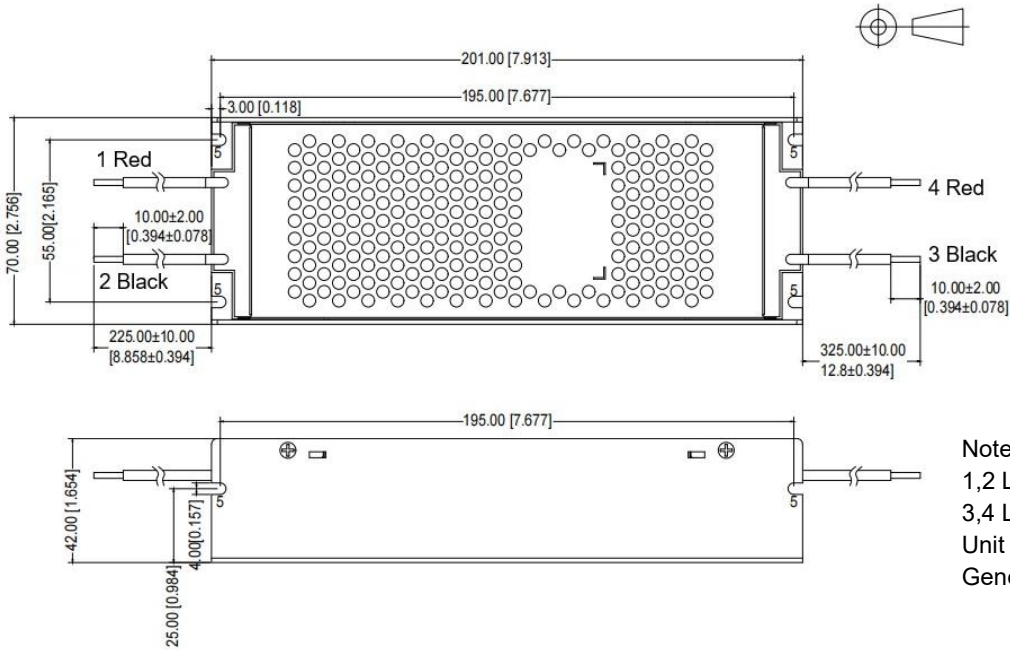
Output Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit	
Voltage Accuracy		0%~100% load	-	±2.0	±3.0	%	
Line regulation		Full input voltage range	-	±1.0	±1.5		
Load regulation		20%-100% load	-	±2.0	±3.0		
Minimum Load		Full input voltage range	10	-	-	%	
Ripple & Noise		20MHz bandwidth (Peak-Peak)	-	-	300	mV	
Temperature Drift Coefficient		-	-	±0.03	-	%/°C	
Turn-on Delay Time		Full load, at room temperature	-	3000	-	mS	
Power-off Hold up Time		Full load, at room temperature	800VDC input	-	50		-
			1500VDC input	-	50		-
Start-up Overshoot		0%~100% load	-	-	10	%Vo	
Dynamic Response	Overshoot range	25%~50%~25%	-	±5.0	±6.0	%	
	Recovery time	50%~75%~50%	-	-	500	mS	
Over Current Protection		Full input voltage range	≥110% Io, Hiccup, self-recovery				
Over Voltage Protection			Feedback-clamp amplitude limit				
Short Circuit Protection			Continuous, Hiccup, self-recovery				

General Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		Refer to the temperature derating graph	-40	--	+85	°C
Storage Temperature		-	-40	--	+105	°C
Soldering Temperature		Wave soldering	260±5°C, time 5-10S			
		Manual soldering	400±10°C, time 4-10S			
Storage Humidity		-	-	-	95	%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
Altitude		-	-	-	2000	m
Protection Level		-	IP20			
MTBF		-	SR-332@25°C > 250000H			
Case Material		-	Metal			
Cooling Method		-	Nature air			
Unit Weight		-	550g (Typ.)			

Mechanical Dimensions



Package code	Dimensions L x W x H	
GA1N6	201.0X70.0X42.0 mm	7.913X2.756X1.654 inch

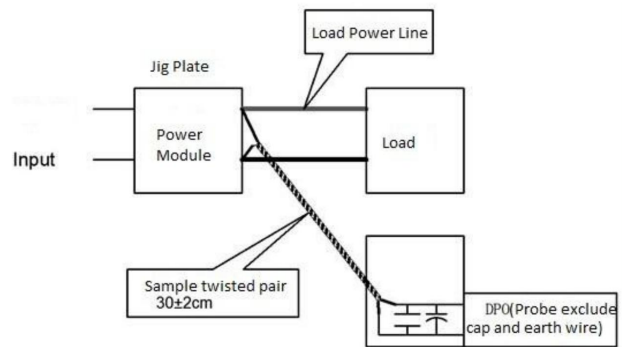
Terminals Function Description

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

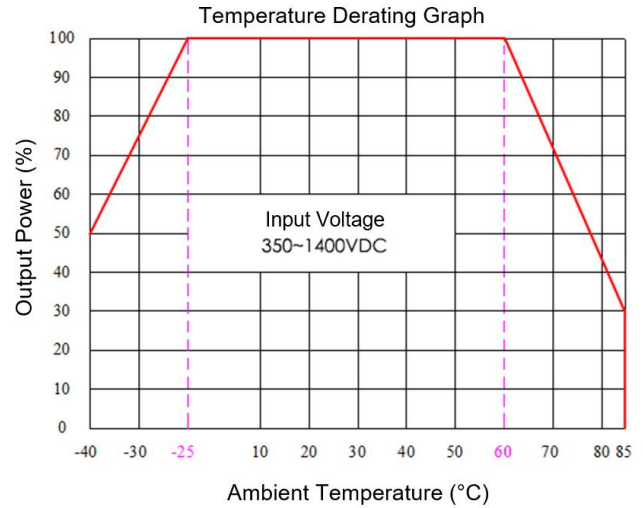
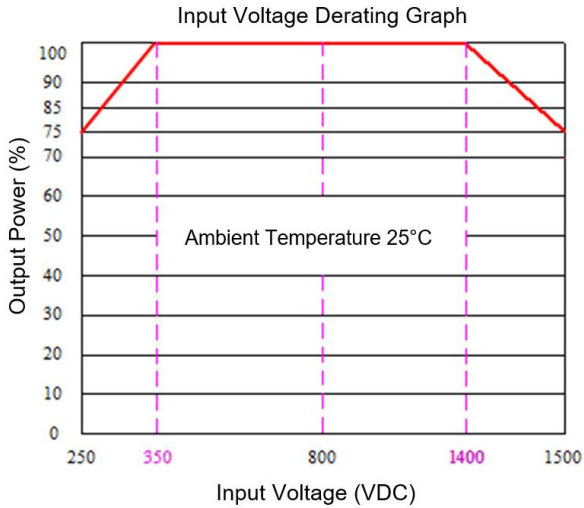
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHz bandwidth)

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.

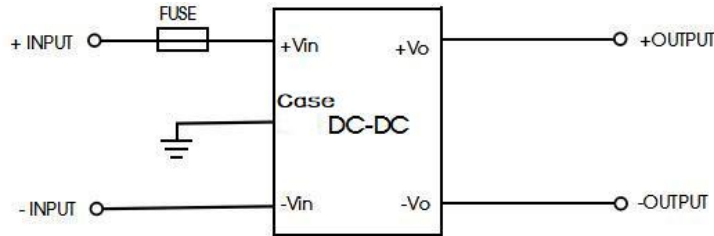
2) Please refer to the test diagram on the right. The power supply output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm \pm 2 cm) should be connected in parallel with the load, the location is as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



Product Characteristics Graphs



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 °C , 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.

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