

Typical Features

- ◆ Wide input voltage range 250-1500VDC
- ◆ Input voltage up to 1700VDC (transient, duration 2S)
- ◆ Efficiency up to 90% (Typ.)
- ◆ Operating temperature from -40°C to +85°C
- ◆ Switching frequency 65KHz (Typ.)
- ◆ Input anti-reverse & under voltage protections
- ◆ Output over voltage, over current & short circuit protections
- ◆ Isolation voltage 4000VAC
- ◆ Altitude during operation 2000m Max
- ◆ 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 from 250 to 1500VDC. This series of products can be widely used for 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.	Input Voltage Range		Output Specifications			Max Capacitive Load @800VDC (uF)	Ripple & Noise 20MHz (Max) mVp-p	Efficiency @full load 800VDC (Typ.) %
		Nominal	Range	Power	Voltage	Current			
		(VDC)	(VDC)	P(W)	Vo(VDC)	Io(mA)			
-	BK150-800S24GA1D6	800	250 - 1500	150	24	6250	1500	300	88
-	BK150-800S28GA1D6			150	28	5360	1500	300	89
-	BK150-800S28GA1D6-1			150	28	5360	1500	300	89
-	BK150-800S28GA1D6-2			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 minimum efficiency could be -2% of the typical value in this table.

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

Input Specifications

Item	Test Conditions	Min.	Typ.	Max.	Unit
Input voltage range	DC Input	250	800	1500	VDC

Input current	250VDC	-	-	0.8	A
	800VDC	-	-	0.4	
	1500VDC	-	-	0.3	
Under voltage protection	Start protection	130	-	190	VDC
	Recovery	160	-	220	
Recommended external fuse	-	4A/1500VDC time-delay fuse, required			
Input Anti-reverse protection	-	Available			

Output Specifications

Item		Test Conditions	Min.	Typ.	Max.	Unit
Voltage accuracy		Full input voltage range, any load	-	±2.0	±3.0	%
Line regulation		Rated load	-	±1.0	±1.5	
Load regulation		Nominal input voltage, 20%-100% load	-	±2.0	±3.0	
Ripple & Noise		5%-100% load, 20MHz bandwidth	-	-	300	mVp-p
Minimum load		Single Output	10	-	-	%
Temperature drift coefficient		-	-	±0.03	-	%/°C
Turn-on delay time		Input 800VDC (full load)	-	3000	-	mS
Power-off hold up time		Input 800VDC (full load)	-	50	-	mS
		Input 1500VDC (full load)	-		-	
Dynamic Response	Overshoot range	25%~50%~25%	-10	-	+10	%
	Recovery time	50%~75%~50%	-	-	+500	mS
Output overshoot		Full input voltage range	≤10			%Vo
Short circuit protection			Continuous, self-recovery			Hiccup
Over current protection			110%Io	-	200%Io	Hiccup
Over voltage protection			Feedback-clamp amplitude limit			

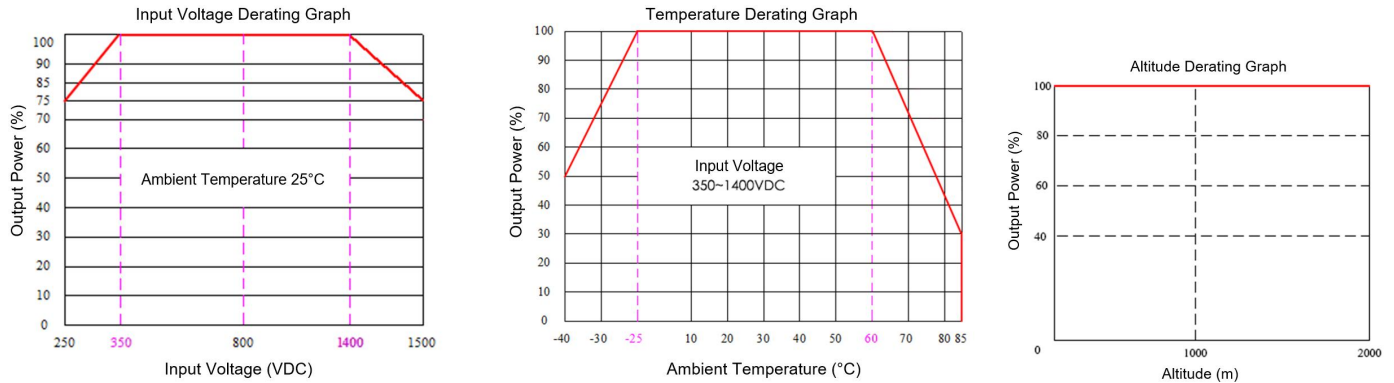
Note: The Ripple and Noise is tested by the Parallel-line method, please refer to the following test instruction.

General Specifications

Item	Test Conditions		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	Ta=30℃@100% load		-	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 1 Min, leakage current ≤5mA	4000	-	-	VAC
	I/P-PE		4000	-	-	
Insulation resistance	I/P-O/P	@500VDC	100	-	-	MΩ
MTBF	MIL-HDBK-217F@25℃		250	-	-	K Hours

Vibration	-	10-55Hz, 10G, 30 Min, along X, Y, Z		
Safety class	-	CLASS I		
Weight & Dimensions	Part No.	Weight (Typ.)	Dimensions L x W x H	
	BK150-800SXXGA1D6	550g	201.00x 70.00 x 42.00 mm	7.913X2.756X1.654 inch

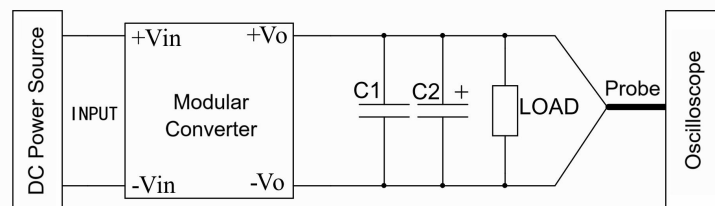
Product Characteristics Graphs



Note 1: The output power should be derated based on the input voltage derating graph at 250~300VDC&1400~1500VDC.

Note 2: This product should operate under the condition of nature air, please contact us if it could be used at a closed space.

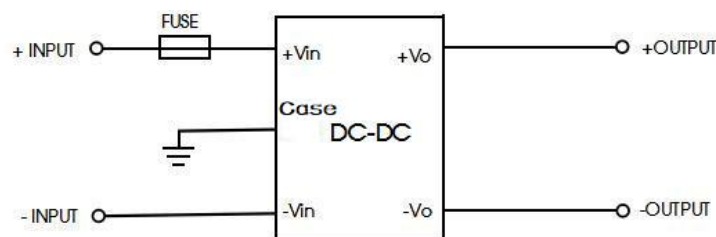
Ripple & Noise Test Instructions (Parallel-line method, 20MHz Bandwidth)



1. The Ripple & Noise test needs the cables in parallel, an oscilloscope that should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. One polypropylene capacitor C1(0.1uF) and one high-frequency low-resistance electrolytic capacitor C2(10uF) are connected in parallel with the probe.
2. Refer to the test diagram, 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 test can start at the converter output terminals after the input power on.

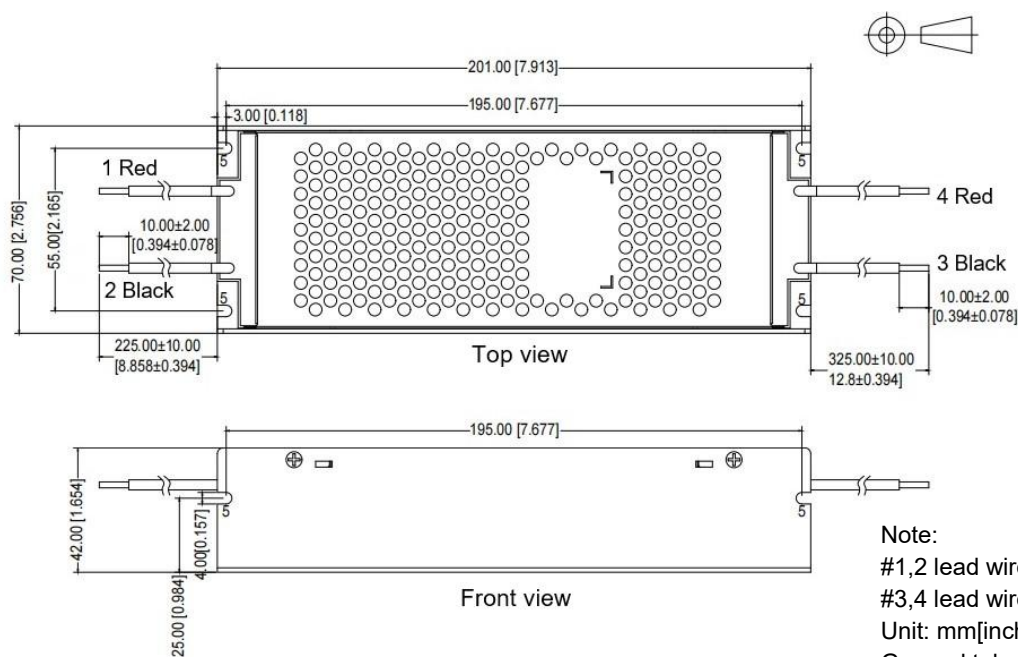
Recommended Circuit for Application

Typical application circuit diagram



Component	Function	Recommended value	Remarks
FUSE	Cut-off input under abnormal condition	6A /1500VDC	Required

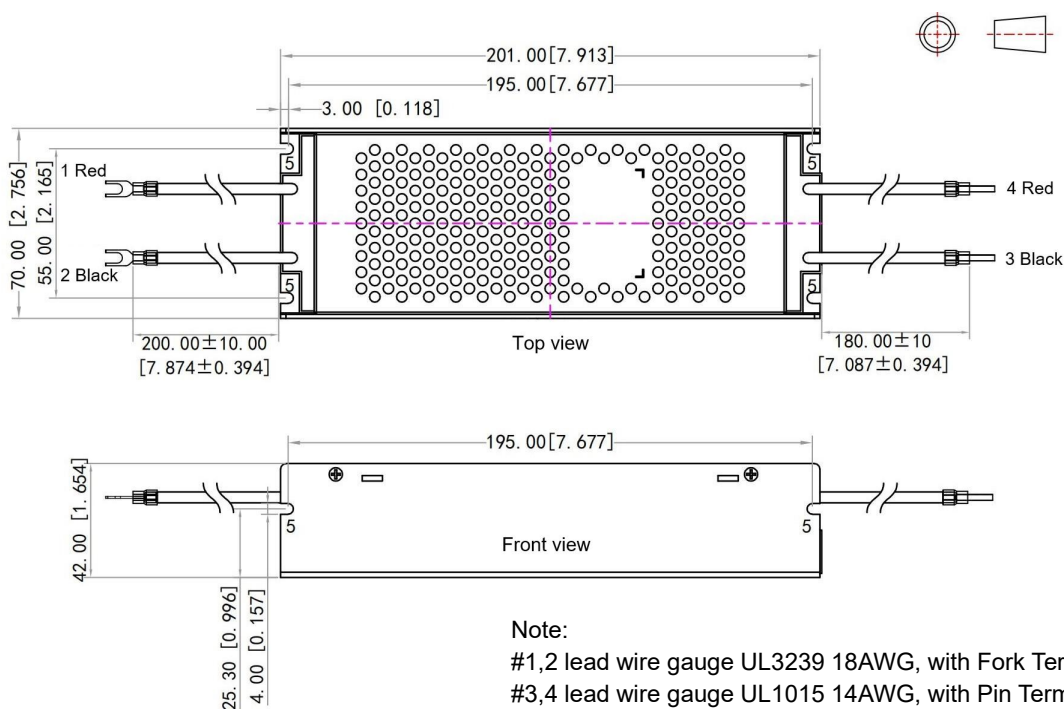
Mechanical Dimensions (BK150-800SXXGA1D6)



Terminal Function Description

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

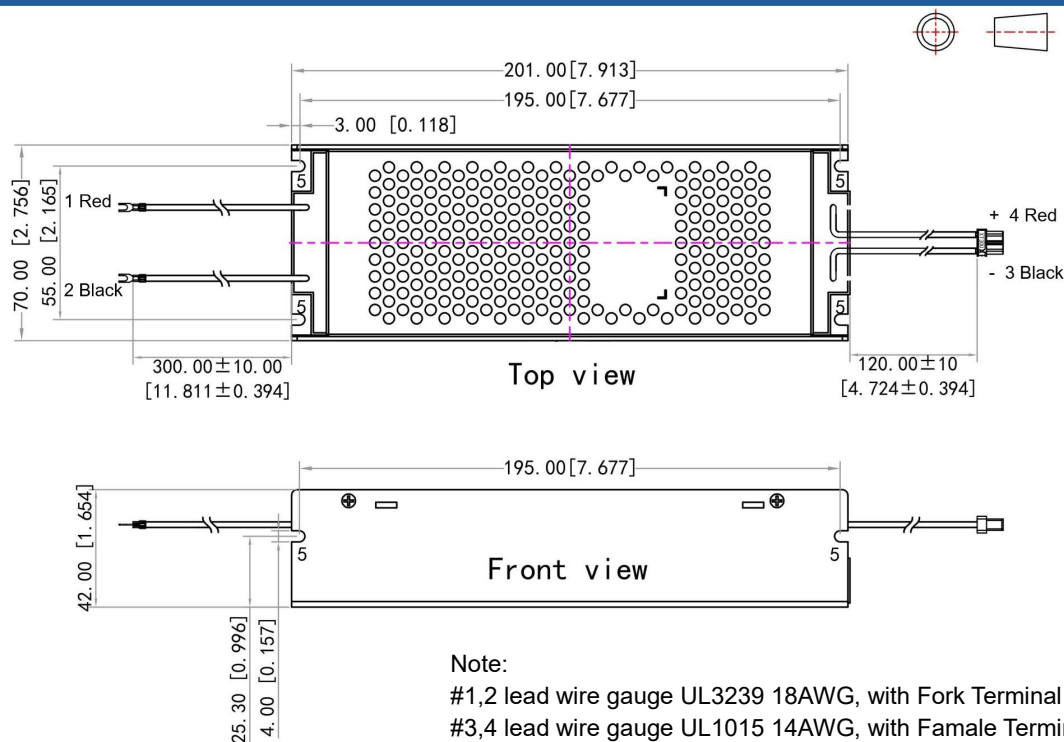
Mechanical Dimensions (BK150-800S28GA1D6-1)



Terminal Function Description

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

Mechanical Dimensions (BK150-800S28GA1D6-2)



Terminal Function Description

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

Application Notice

1. The product should be used according to the specifications, otherwise it could be permanently damaged.
2. The product performance cannot be guaranteed if it works at a lower load than the minimum load defined.
3. The product performance cannot be guaranteed if it works under over-load condition.
4. Unless otherwise specified, all values or indicators on this datasheet are tested at $T_a=25^{\circ}\text{C}$, humidity < 75%RH, nominal input voltage and rated load (pure resistance load).
5. All values or indicators on this datasheet have been tested based on Aipupower test specifications.
6. The specifications are specially for the parts listed on this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.
7. Aipupower can provide customization service.

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