Typical Features

- Wide range input 250-1500VDC
- Standby power consumption ≤2W
- Efficiency up to 89% (Typ.)
- Input reverse polarity protection
- Output short circuit, over current & over voltage protections
- Isolation voltage 4000VAC
- Operating temperature from -40℃ to +70℃
- Application for Solar power generation & high voltage conversion
- Industrial grade design, standard size

Application Field

BK150-800SXXGB1D6(-1)(-2) Series ---- Compact size and high efficiency modular DC-DC converters with very high input voltage (full range from 250 to 1500VDC), high efficiency, high reliability & regulated single output. This series of products can be used for solar power generation and high voltage conversion, etc. The multi-protection functions can keep the power supply and the load safety under abnormal conditions.

Typical Product List

Certification	Part No.	Input Voltage Range		Input Specification			Max. Capacitive Load	Ripple & noise 20MHz (Max)	Efficiency @full load 800VDC (Typ.)
		Nominal	Range	Power	Voltage	Current			
		(VDC)	(VDC)	P(W)	Vo(VDC)	Io(mA)	(uF)	mVp-p	%
-	BK150-800S12GB1D6(-1)(-2)	800	250 - 1500	120	12	10000	3500	120	84
-	BK150-800S24GB1D6(-1)(-2)			150	24	6250	2000	240	88
-	BK150-800S28GB1D6(-1)(-2)			150	28	5360	2000	300	89

The part No. suffix -1 & -2 indicate the parts with lead wires by different length, electrical performances can be kept same.

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: The Ripple and Noise is tested by the Parallel-line method. Please refer to the following test instructions.

Note 4: Please contact Aipu sales for other output voltages requirements of this series but not listed in this table.

Input Specifications

Item	Test Condition	Min.	Typ.	Max.	Unit
Input voltage range	DC input	250	800	1500	VDC
Input current	Input 250VDC, full load	-	-	1.0	A
	Input 800VDC, full load	-	-	0.4	
	Input 1500VDC, full load	-	-	0.3	

Inrush current	Input 1500VDC	-	-	200	A
Under voltage protection	Start Protection	150	-	220	VDC
	Recovery	160	-	250	
Standby power consumption	Input 1500VDC	-	-	2.0	W
External fuse recommended		4A/1500VDC, required			
Hot plug	-	Unavailable			

Output Specifications

Item		Test Condition	Min.	Typ.	Max.	Unit
Voltage accuracy		Input full voltage range, any load	-	-	±2.0	%
Line regulation		Rated load	-	-	±1.0	
Load regulation		Nominal input voltage, 0%~100% load	-	-	±2.0	
Ripple & noise		20MHz bandwidth (peak-to-peak)	-	-	300	mV
Temperature drift coefficient		-	-	±0.02%	-	%/℃
Output overshoot		Full input voltage range	≤10%Vo			%
Short circuit protection			Self-recovery			Hiccup
Over current protection		Nominal input voltage	≥110% Io, self-recovery			
Over voltage protection		Output 12VDC	≤20			VDC
		Output 24VDC	≤32			
		Output 28VDC	≤35			
Minimum load		Single output	0	-	-	%
Turn-on delay time		Input 800VDC (full load)	-	3000	-	mS
Power-off hold-up time		Input 800VDC (full load)	-	50	-	
Dynamic response	Overshoot range	25%~50%~25%	-5.0	-	+5.0	%
	Recovery time	50%~75%~50%	-	-	5.0	mS

General specifications

Item		Test Condition	Min.	Typ.	Max.	Unit
Switching frequency		-	-	65	-	KHz
Operating temperature		Refer to the Temperature Derating Graph	-40	-	+70	℃
Storage temperature		-	-40	-	+85	
Soldering temperature		Wave-soldering	260±4℃, time 5-10S			
		Manual-welding	360±8℃, time 4-7S			
Storage humidity		-	-	-	95	%RH
Isolation voltage	I/P-O/P	Test 1 minute, leakage current ≤5mA	4000	-	-	VAC
	I/P-PE		2000			
	O/P-PE		2000			
Insulation resistance	I/P-O/P	@DC500V	50	-	-	MΩ
MTBF		MIL-HDBK-217F@25℃	300	-	-	K hours

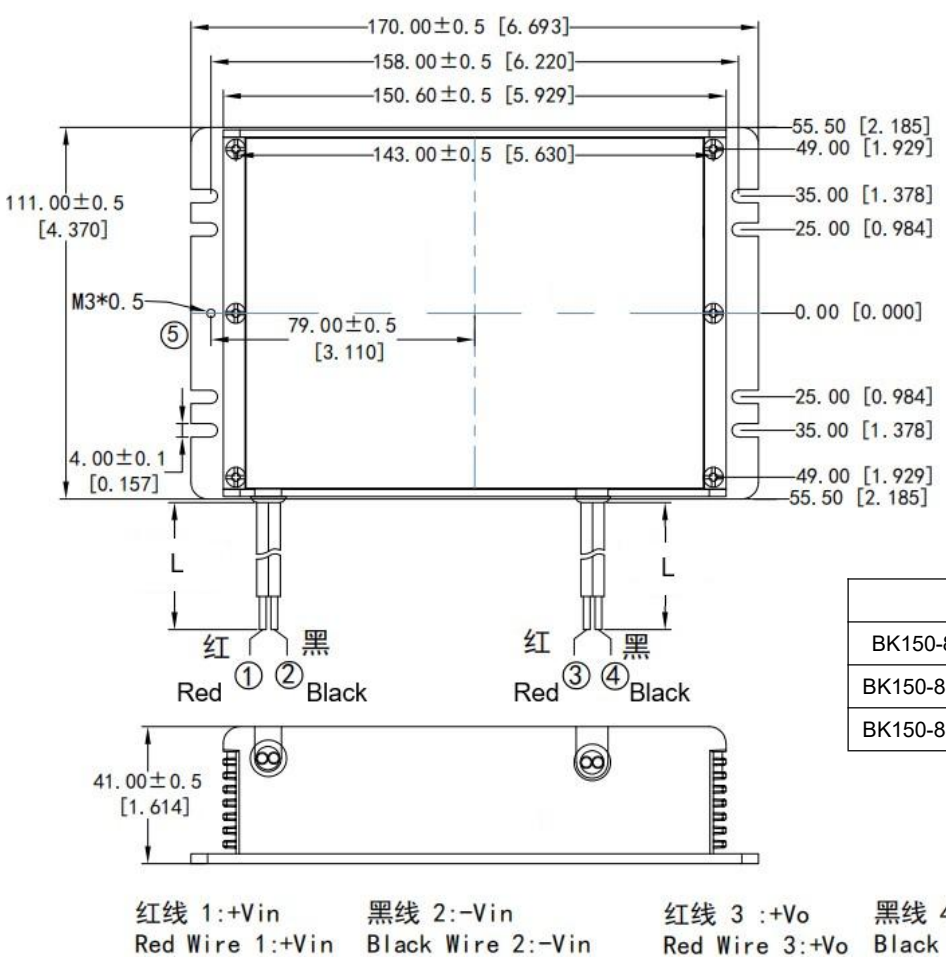
Physical Characteristics

Case material	Metal base + Plastic cover
Unit dimensions	170.0X111.0X41.0 mm
Unit weight	950g（TYP）
Cooling method	Nature air

EMC Performance

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

Mechanical Dimensions



Note:
Unit: mm[inch]
Lead wire 1 & 2: UL3239 AWG18
Lead wire 3 & 4: UL1015 AWG16
General tolerance: ±0.50[±0.020]
WARNING: To void the risk of fire, the Electric power source should be compliant with ANSI/NFPA 70 (National Electrical Code).

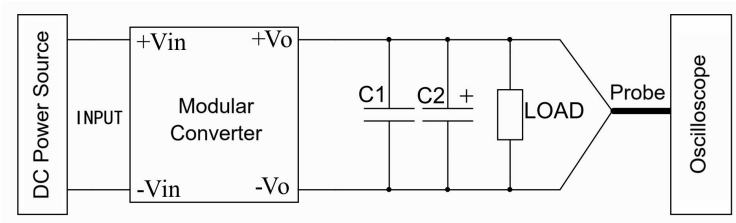
Part No.	Lead wire length
BK150-8800SXXGB1D6	L=87±10mm
BK150-8800SXXGB1D6-1	L=220±15mm
BK150-8800SXXGB1D6-2	L=550±15mm

Packaging Code	Dimensions L x W x H	
G	170.0X111.0X41.0 mm	6.693X4.370X1.614 inch

Terminals Function Description

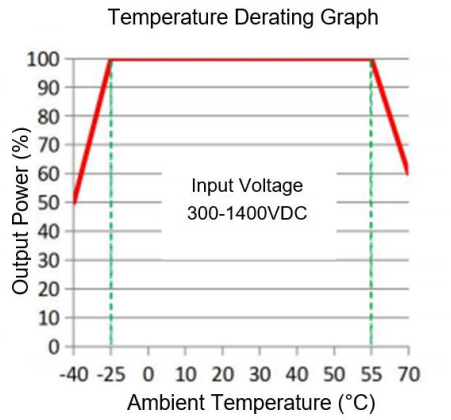
Terminal No.	1 (Red)	2(Black)	3(Red)	4(Black)	5
Single (S)	Vin+	Vin-	+Vo	-Vo	PE(GND)

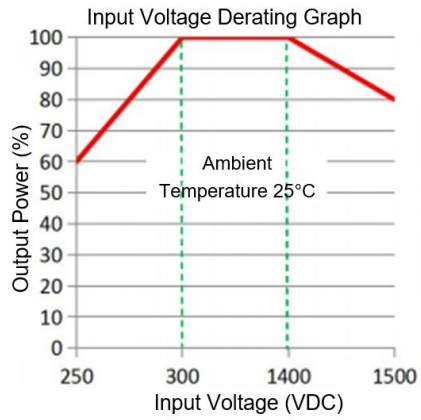
Ripple & Noise Test Instructions (Parallel-line Method, 20MHz Bandwidth)

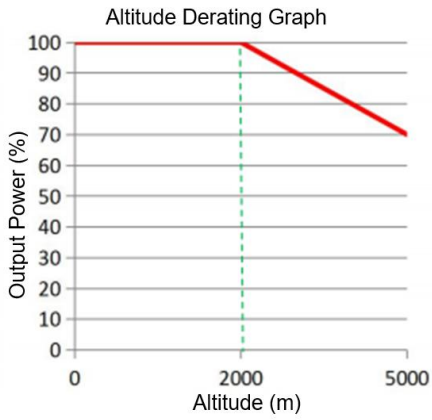


1. The Ripple & Noise test needs the cables in parallel, an oscilloscope that should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. One polypropylene capacitor C1(0.1uF) and one high frequency low impedance electrolytic capacitor C2(10uF) are connected in 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.

Product Characteristics Graphs





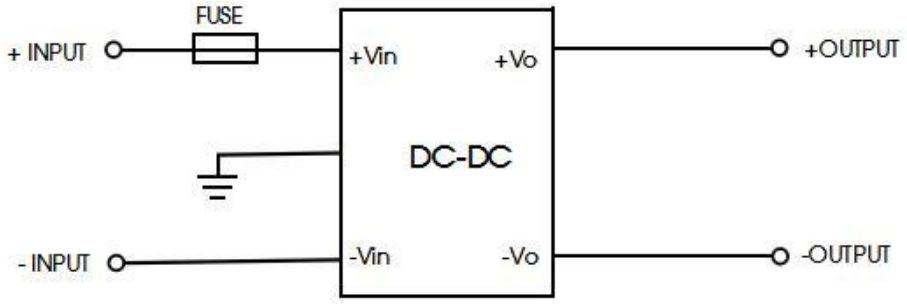


Note 1: The output power should be derated based on the input voltage derating graph at 250-300VDC & 1400-1500VDC.

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

Typical application

Typical application circuit diagram



Component	Recommended value
FUSE	4A/1500VDC, required

Application Notice

1.The product should be used according to the specifications, otherwise it could be permanently damaged.

2. A fuse should be used at the input.

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

4. The product performance cannot be guaranteed if it works under over-load condition.

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

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

7.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.

8. Aipupower can provide customization service.

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