Typical Features

- ◆ Ultra Wide input voltage range 200-1500VDC
- ◆No load power consumption ≤ 0.5W
- ◆ Conversion efficiency (typical 82%)
- ◆Switching frequency: 65KHz
- ◆ Protection type 1: Input anti reverse connection and under voltage protection
- ◆ Protection type 2: Output over voltage, over current, and short circuit protection
- ◆ Isolation voltage: 4000VDC
- ◆High efficiency, high reliability, and low ripple noise
- ◆ Applied to photovoltaic power generation and high-voltage frequency conversion

Application Field

BK15-800SXXW2N6 *series ----- is a small volume, high efficiency module power supply for customers. It has the advantages of wide input voltage range, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, high safety isolation, and good EMC performance. This series of products have a wide range of applications in photovoltaic power generation, home appliance energy storage, industrial control and other fields, and its multiple protection functions can improve the safety performance of the power supply and its load in the case of abnormal power supply. When the product is used in a harsh electromagnetic compatibility environment, it is necessary to refer to the application circuit given by our company.*

Typical Product List

Certification	Model	Output Specification			Max. Capacitive Load	Noise & Ripple 20MHz (MAX)	Efficiency @ Full Load, 800VDC (Typ.)
		Power	Voltage	Current			
		(W)	Vo（V）	Io（mA）	u F	mVp-p	%
-	BK15-800S12W2N6	15	12	1250	1000	250	82
-	BK15-800S15W2N6	15	15	1000	680	250	83
-	BK15-800S24W2N6	15	24	625	470	250	85

Note 1: The typical value of output efficiency is based on the product full load aging for half an hour.

Note 2: The fluctuation range of full-load efficiency (%,TYP) in the table is ±2%, and the full-load output efficiency is equal to the total output power divided by the input power of the power module.

Note 3: The test method of ripple and noise adopts the twisted pair test method. The specific test method and collocation can be seen in the following (Ripple & Noise test instructions).

Note 4: Due to limited space, the above is only a partial list of products, if you need products other than the list, please contact our sales department.

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	DC input	200	800	1500	VDC

Input Current	200VDC	-	-	0.090	A
	800VDC	-	-	0.025	
	1500VDC	-	-	0.015	
No-load power consumption	1500VDC	--	--	0.5	W
Input undervoltage	Undervoltage protection starts	80	-	130	VDC
	Undervoltage protection release	90	-	150	
External safety tube	-	2A/1500VDC must be connected			
Input anti reverse connection	-	Available			
Hot Plug	-	Unavailable			

Output Specification

Item		Operating Condition		Min.	Typ.	Max.	Unit
Voltage accuracy		Input any load within the full voltage range	Vo	-	±2.0	±3.0	%
Line Regulation		Nominal load	Vo	-	±1.0	-	
Load Regulation		Input nominal voltage 0%~100% load	Vo	-	±2.0	-	
Minimum load		Single Output		0	--	--	%
Start delay time		Input 800VDC		--	2000	--	mS
Power-off protection time		Input 800VDC		--	100	--	mS
Dynamic response	overshoot amplitude	25%-50%-25% 50%-75%-50%		-5.0	-	+5.0	%
	Recovery time			-5.0	-	+5.0	mS
Output overshoot		Input full voltage range		≤10%Vo			%
Short circuit protection				Long-term short circuit, self-recovery			hiccup
Drift coefficient		-		-	±0.02%	-	%/℃
Over current protection		Input full voltage range		≥110% Io, self-recovery			hiccup
Over voltage protection		Output 12VDC		≤18			V
		Output 15VDC		≤20			
		Output 24VDC		≤32			

General Specification

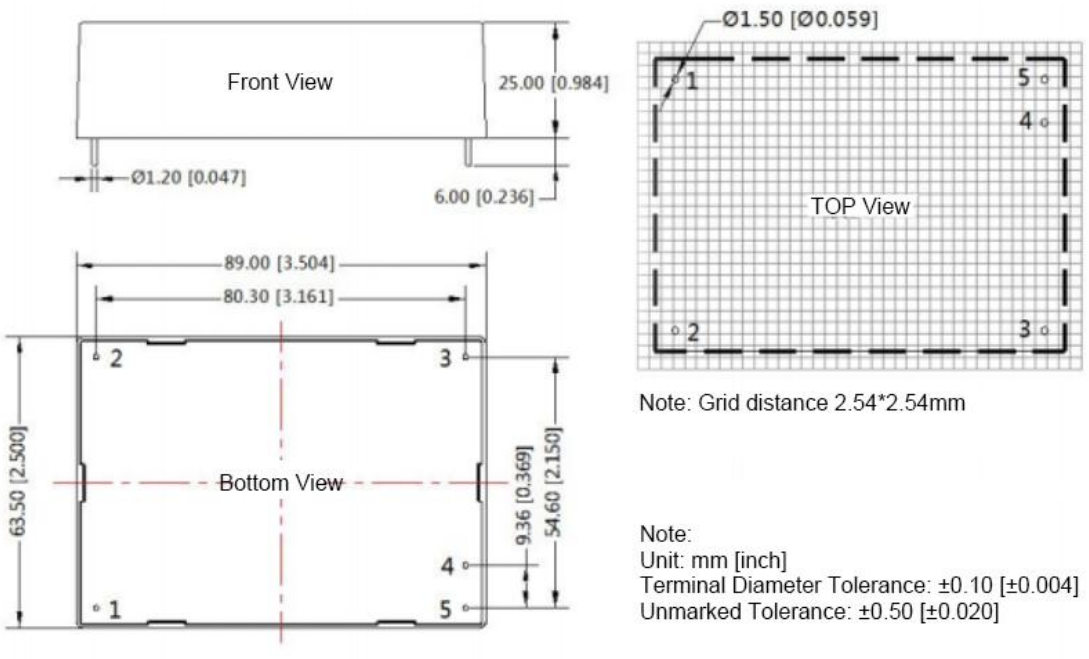
Item	Operating Condition	Min.	Typ.	Max.	Unit
Switching frequency	-	-	65	-	KHz
Operation Temperature	-	-30	-	+70	℃
	The temperature derating needs to be performed based on the temperature derating curve. The derating curve can be found in the following (product characteristic curve).				

Storage Temperature		--	-40	--	+85	
Shell Temperature Rise		Ta=30 ℃ @ output 100% load	-	55	-	
Soldering Temperature		Wave-soldering	260±4℃， time: 5-10S			
		Manual-welding	360±8℃， time: 4-7S			
Storage Humidity		-	-	-	95	%RH
Isolation Voltage	input-output	Test for 1 minute, leakage current ≤ 5mA	4000	-	-	VDC
insulation resistance	input-output	@ DC500V	100	-	-	MΩ
Altitude		-	-	-	5000	m
Vibration		-	10-55Hz,10G,30Min,along X,Y,Z			
Security level		-	CLASS Ⅱ			
Mean Time Between Failure		-	MIL-HDBK-217F 25℃＞300,000H			

Physical Specifications

Case Material		plastic case
Package Dimensions	Horizontal package	89.00 x 63.50 x 25.00mm
Product Weight		230g（TYP）
Cooling Method		Free Air Convention

Dimension



Packing code	L x W x H	
W2	89.00 x 63.500 x 25.00mm	3.504 × 2.500 × 0.984inch

Pin Definition

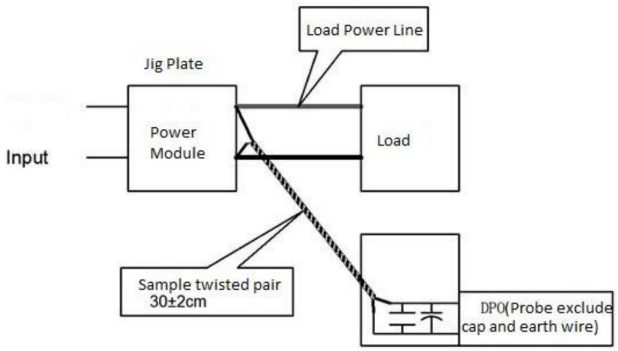
Pin	1	2	3	4	5
Single	-Vin	+Vin	NP	-Vo	+Vo

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

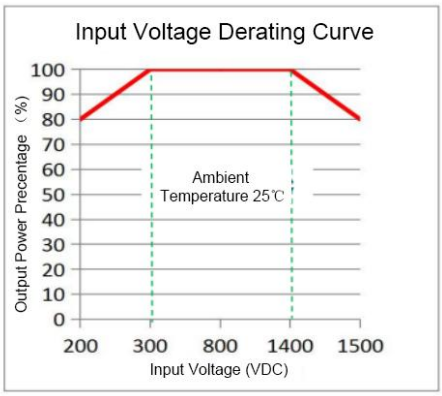
Test Method:

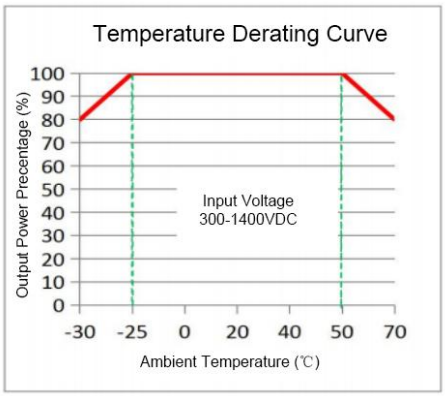
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

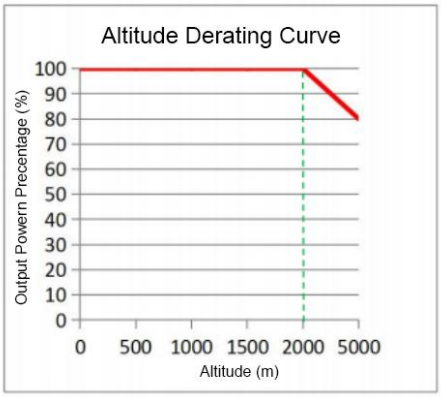
(2) Input terminal connect to power supply, output terminal connect to electronic load through jig plate, Use 30cm±2 cm sampling line, Power line selected from corresponding diameter wire with insulation according to the flow of output current.



Product Characteristic Curve



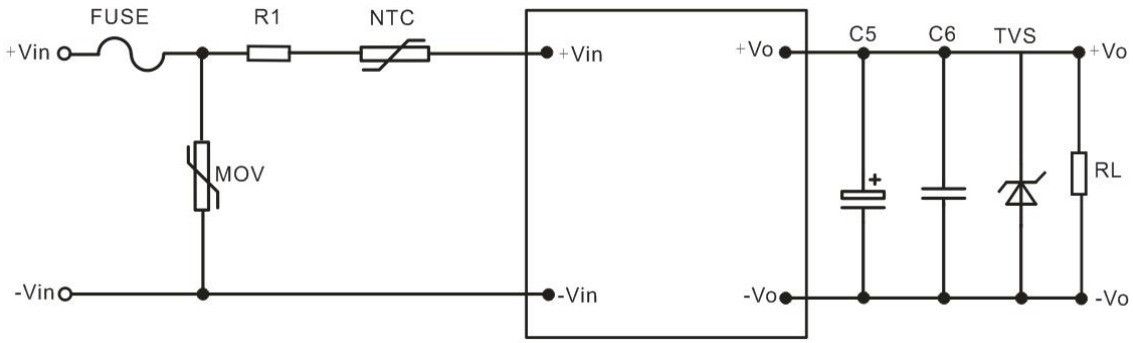




Note 1: The input voltage is 200~300VDC/1400~1500VDC, and the voltage must be derated based on the input voltage derating curve.

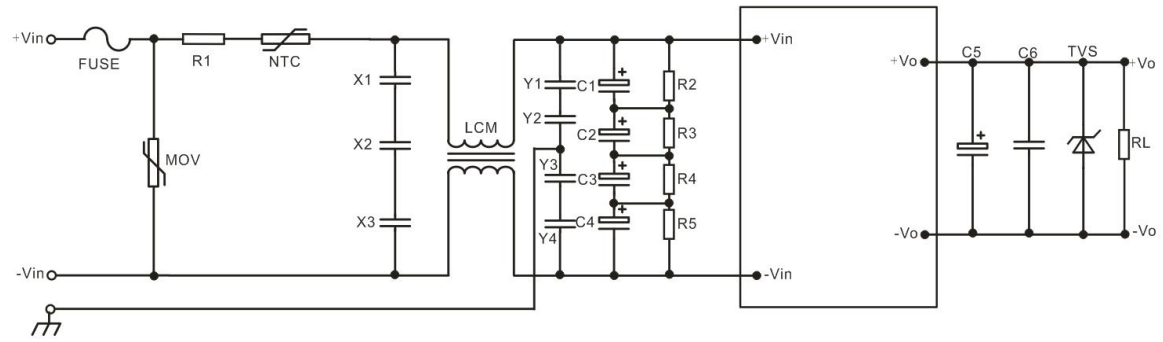
Note 2: This product is suitable for use in a natural air cooling environment. Please contact us if it is used in a closed environment.

Typical Application Circuit



Output voltage	FUSE	MOV	R1	NTC	C5	C6	TVS
12V	2A/1500DC Must be connected	20D182K	4.7Ω/10W	5D-15	100uF/25V	1uF/50V 1206	SMBJ18A
15V					100uF/25V		SMBJ20A
24V					100uF/50V		SMBJ30A

EMC External Recommended Circuit



Component	Function	Recommended Value	Note
FUSE	Protect circuit when circuit fails	According to customer's request	Must add
R1	Reject surge current at startup	4.7 Ω/10W metal oxide film resistance	
NTC	Reject Surge Current	5D-15	
MOV	Absorb lightning surge	20D182K	According to the actual application requirements to select additional
X1/X2/X3	Reject different mode interference	Using 3pcs 1.0μF/630V capacitors in series	
LCM	Reject the common mode interference	10mH/0.8A	
Y1/Y2/Y3/Y4		Using 4pcs 2.2nF/400V capacitors in series	
C1/C2/C3/C4	Low frequency Filter	47uF/450V	
R2/R3/R4/R5	Average Voltage,ensure the equal voltage of capacitance	1MΩ/1W	

Note:

1.The product should be used under the specification range, otherwise it will cause permanent damage to it.

2.Product's input terminal should connect to fuse;

3.If the product operated below the minimum load request, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;

4.If the product worked beyond the load range, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;

5.Unless otherwise specified, data in this datasheet are tested under conditions of Ta=25℃, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);

6.All index testing methods in this datasheet are based on our Company's corporate standards.

7.The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, please directly contact our technician for specific information;

8.We can provide customized product service;

9.The product specification may be changed at any time without prior notice.

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

