BK25-600DXXH1N4
Solar Energy Series DC/DC Converter

Typical Features

- ◆ Ultra Wide input voltage range 200-1200VDC（6:1）
- ◆ Against reverse protection, output over-voltage protection, short circuit protection
- ◆ No load input current as low as 2.5mA
- ◆ Input output isolation: 4000VDC
- ◆ Efficiency up to 85%(TYP.)
- ◆ Widely used in photovoltaic power generation, high-voltage inverter
- ◆ Operating Temperature: -30℃- +70℃
- ◆ Industrial design, international standard dimension

Application Field

BK25-600DXXH1N4 *series -- are regulated output DC/DC converters offered by Aipu.*
It features ultra-high voltage input of 200-1200VDC , high efficiency and high reliability. It can be widely used in photovoltaic power generation, high-voltage inverter and so on, which provide stable operating voltage to the equipment and improve the power and the load's safety performance with multiple protection when working under abnormal conditions.

Typical Product List

Model	Power（W）	Input Current（Input Nominal）		Output Voltage/Current		Output Efficiency	Max. Capacitive Load
		Output no load	Output full load	Voltage	Current	（Input Nominal）%/TYP	（u F）
		（mA）		（V）	（mA）		
*BK25-600D05H1N4	25	1.0	52	±5	±2500	80	1000
BK25-600D12H1N4		1.5	50	±12	±1042	83	680
BK25-600D15H1N4		2.5	49.6	±15	±833	84	470
BK25-600D24H1N4		2.5	49	±24	±521	85	330

Note 1: Due to space limitations, above is only a part of our product list, please contact our sales team for more items.
Note 2:."*" is model under developing.
Note 3: The typical output efficiency is based on that product is full loaded and burned-in after half an hour.
Note 4: The fluctuation range of full load efficiency(%,TYP) is ±2%, full load output efficiency= total output power/module's input power.
Note 5: Input 300-1200 VDC testing, it should add a current limiting resistance (370Ω/10W,metal oxide film) at the input end of the module in series to suppress the surge current. The specific connection method is detailed in EMC External Recommended Circuit.

Input Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	--	200	600	1200	VDC
		Please refer to the Input Voltage Dearting Curve at back			

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Current	200VDC@100% load	--	150	--	mA
	600VDC@100% load	--	50	--	
	1200VDC@100% load	--	27	--	
Stand-by Consumption	Output no load, nominal input	--	--	0.8	W
Input Filter	Π type Filter				

Output Specification

Item	Operating Condition	Min.	Typ.	Max.	Unit
Output Voltage Accuracy	0%~100% load	--	±2.0	±3.0	%
Minimum Load	--	10	--	--	
Line Regulation	Input full load range	--	±0.5	±1.2	
Load Regulation	20%~100% nominal load, balance load	--	±1.0	±2.0	
Ripple & Noise	20MHz bandwidth（peak peak value）	--	120	200	mV
Temperature Coefficient	--	--	--	±0.03	%
Turn-on delay time	200VDC	--	4000	--	mS
	600VDC	--	1000	--	
	1200VDC	--	600	--	
Power off Holding time	1200VDC	--	5	--	
Turn on overshoot	0%~100% load	--	-	10	%
Output Over- current protection	Input full voltage range	110	150	--	
Dynamic Response Overshoot Range	25%-50%-25% 50%-75%-50%	--	±5.0	±6.0	
Dynamic Response recovery time		--	300	500	mS
Short circuit protection	Input 300-1000VDC	Output continuous short circuit protection, after removing the short circuit fault, could be self-recovery			

General Specification

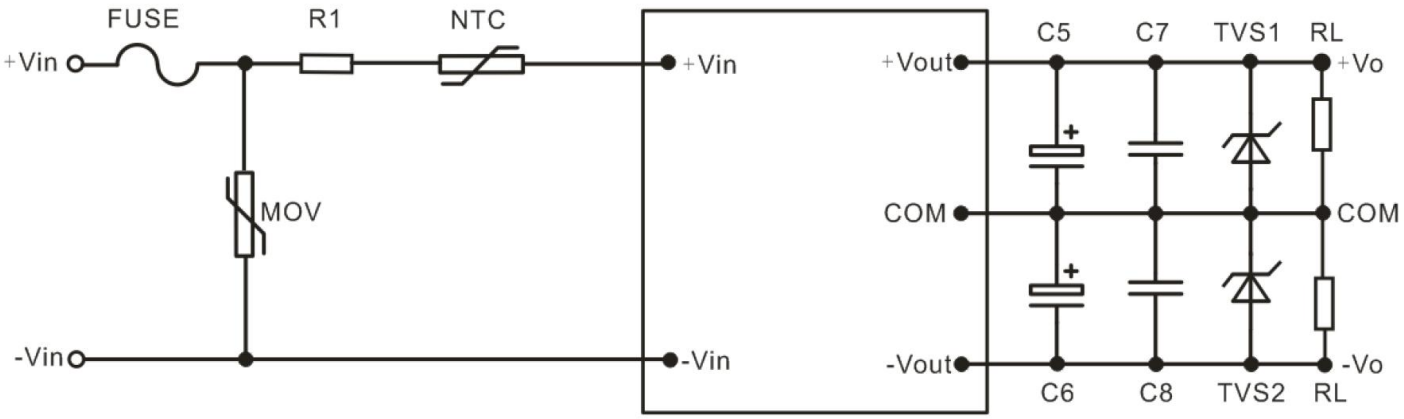
Item	Operating Condition	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-Output, Test time: 1min, leak current≤5mA	4000	--	--	VDC
Operating Temperature	--	-30	--	+70	℃
	Refer to Temperature Derating Curve, details see the Product Character Curve at back				
Storage Temperature	--	-25	--	+85	
Soldering Temperature	Wave-soldering	260±5℃，time: 5-10S			
	Manual-welding	380±10℃，time: 4-10S			
Switching Frequency	--	--	65	70	KHz

Max. Case Temperature	Within operating Curve	--	--	+100	℃
Shortage Humidity	No condensing	--	--	95	%RH
Insulation Resistance	Input-Output	--	--	500	VDC
		--	--	100	MΩ

Physical Specifications

Case Material		Black Aluminum Case
Package Dimensions	Horizontal package	70.0X48.0X23.5mm
Product Weight		152g（TYP）
Cooling Method		Free Air Convention

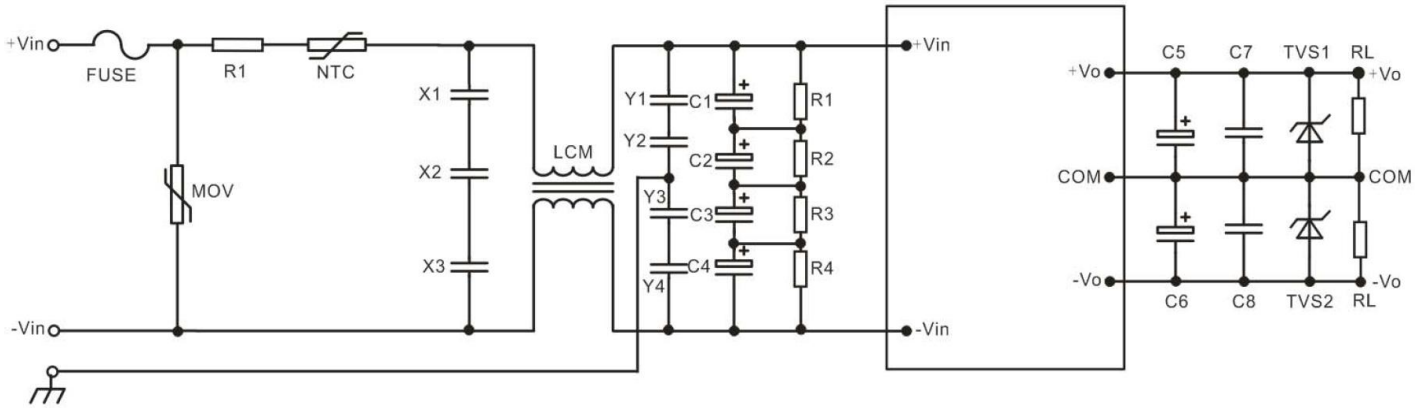
Typical Application Circuit



Output Voltage	C5/C6	C7/C8	TVS1/TVS2
±5V	680uF/16V	4.7uF/16V/1206	SMBJ10A
±12V	330uF/25V	1.0uF/25V/1206	SMBJ15A
±15V	220uF/50V	0.2uF/50V/1206	SMBJ18A

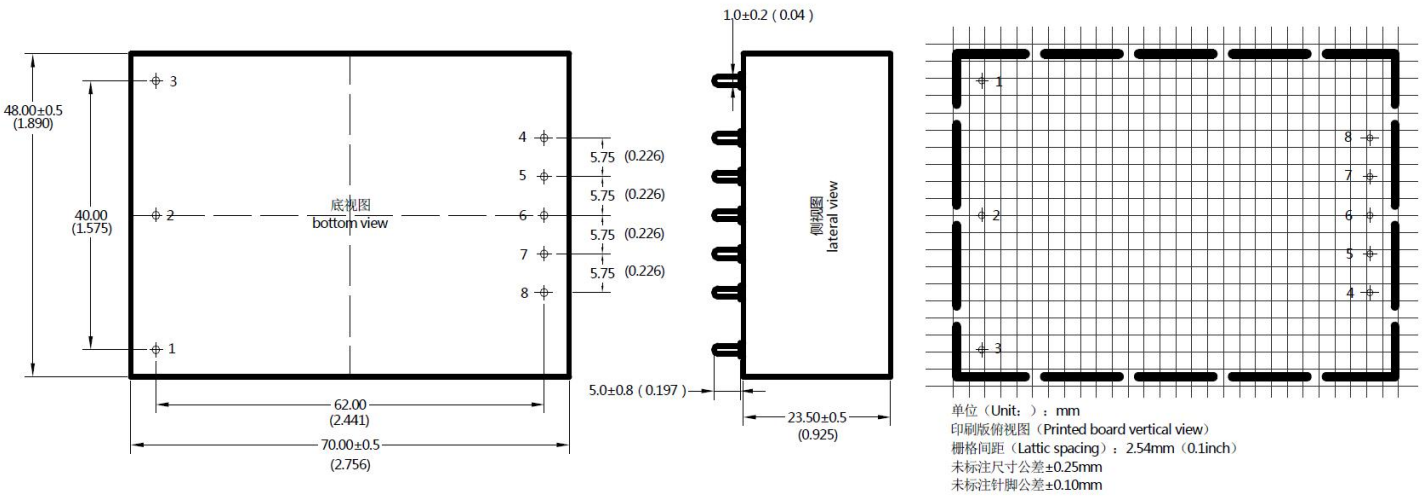
Note: The output filer capacitor C5/C6 is electrolytic capacitor, recommended high frequency and low resistance electrolytic capacitor. For capacitance and current of capacitor please refer to the manufacture's datasheet. The capacitance withstand voltage value should be higher 80%. C7/C8 is ceramic capacitor, to recommended high frequency noise. TVS is a recommended component to protect post-circuits(if converter fails).

EMC External Recommended Circuit



Component	Recommended Value	Remark
FUSE	According to customer's request	Necessary
R1	370Ω/10W Metal Oxide film	
NTC	5D-15	
MOV	20D152K	
X1/X2/X3 (X Capacitor)	Using 3pcs capacitance:0.22μF capacitor in series connection	
LCM (common mode inductor)	8mH/0.8A	
Y1/Y2/Y3/Y4 (Y capacitor)	Using 3pcs capacitance:2.2nF/400V in series connection	
C1/C2/C3/C4 (electrolytic capacitor)	220uF/450V	
R2/R3/R4/R5 (chip capacitor)	1MΩ/2W	

Dimension and Pin out Specifications



Pin out Specification:

Pin-out	1	2	3	4	5	6	7	8
Dual（D）	NC	-Vin	+Vin	+Vo	NC	COM	NC	-Vo

Dimension

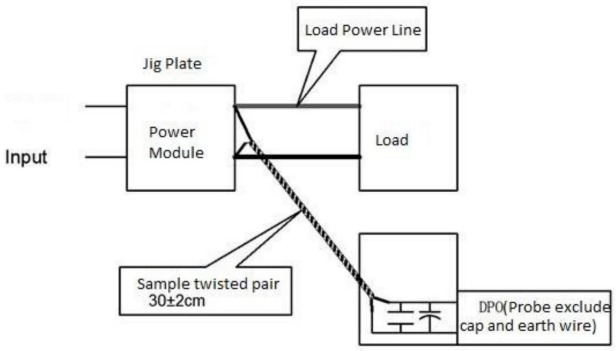
Packing code	L x W x H	
H1N4	70.0X48.0X23.5 mm	2.756X1.890X0.925inch

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

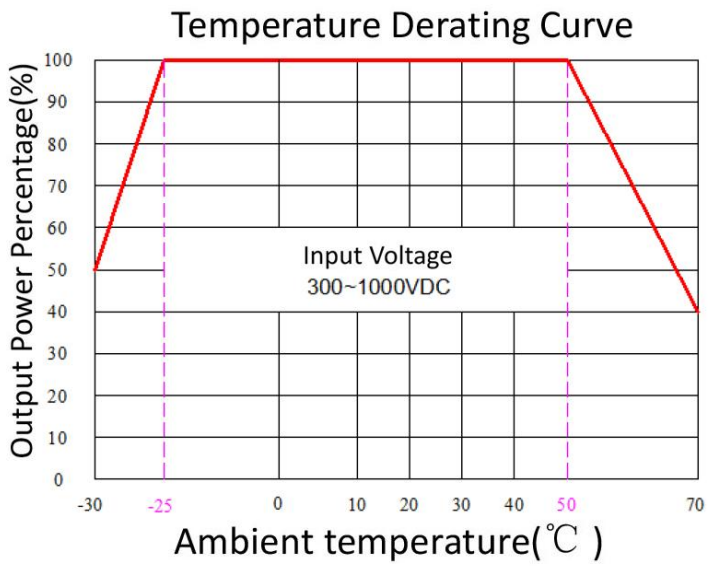
Test Method:

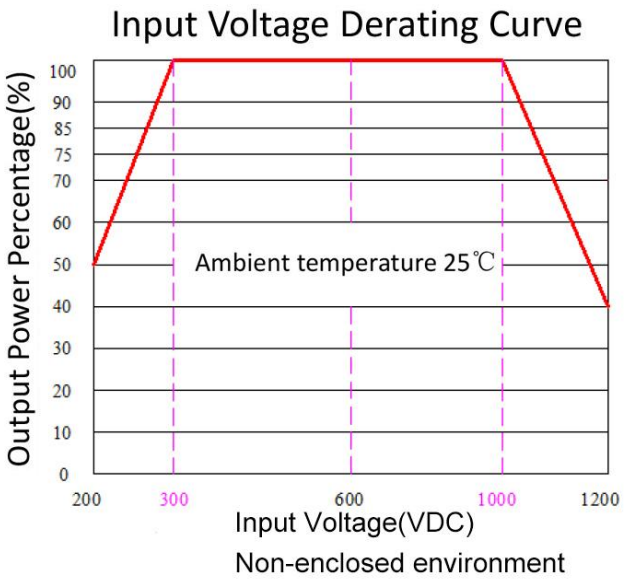
(1) 12# twisted pair to connect, Oscilloscope bandwidth set as 20MHz, 100M bandwidth probe, terminated with 0.1uF polypropylene capacitor and 10uF high frequency low resistance electrolytic capacitor in parallel, oscilloscope set as Sample pattern.

(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 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.