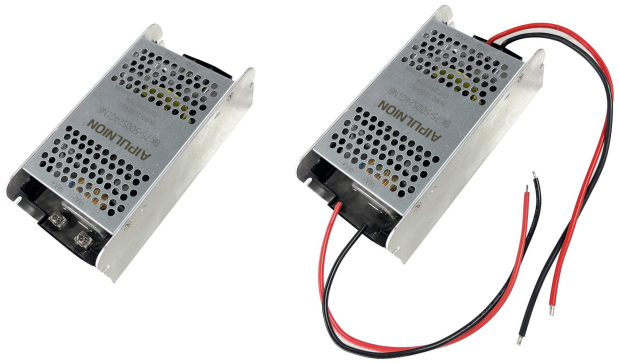
DC-DC Converter
BK75-500SXXG(A)1N6 Series

Typical Features

- Wide input voltage range 80-1000VDC
- No load power consumption ≤1W@500VDC
- Efficiency 87%(Typ.)
- Input Anti-reverse connection protection
- Output over-voltage, over-current, short circuit protections
- Operating temperature from -40℃ to +85℃
- Isolation voltage 4000VAC
- Transient output power 120W (3S)
- Input voltage 1100VDC Max (transient, duration 3S)
- OVC II
- Pollution degree 2
- Altitude during operation 3000m Max
- Compliant with IEC/EN62477-1



Please read the data sheet before using the converter

Application Field

BK75-500SXXG(A)1N6 Series *----- Small size, high efficiency DC/DC power supplies with ultra-high input voltage and wide range of 80-1000VDC, high efficiency, high reliability, safety isolated and compliance with IEC/EN62477-1. This series of products can be widely used in the fields of Electric power, Instrumentation, Solar power generation & Home energy storage, etc. 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 Specifications			Max Capacitive Load@500VDC	Ripple & Noise 20MHz (Max)	Efficiency @Full load, 500VDC
		Power	Voltage	Current			
		(W)	Vo (V)	Io (mA)	u F	mVp-p	%(Typ.)
TUV/CE	BK75-500S12G(A)1N6	75	12	6250	3000	300	87
TUV/CE	BK75-500S15G(A)1N6	75	15	5000	3000	300	87
TUV/CE	BK75-500S24G(A)1N6	75	24	3125	3000	300	89
TUV/CE	BK75-500S28G(A)1N6	75	28	2679	2000	300	89
TUV/CE	BK75-500S32G(A)1N6	75	32	2344	1500	350	89
TUV/CE	BK75-500S35G(A)1N6	75	35	2143	1500	350	89

Note 1: All parts have a derivative model, series No. BK75-500SXXG**A**1N6, which input and output include lead wires, all the other performances are the same as BK75-500SXXG1N6.

Note 2: The typical value of efficiency is based on the product tested after half an hour burn-in at full load.

Note 3: 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 4: The Ripple and Noise are tested by the twisted pair method according to the test instruction in the datasheet.

Input Specifications

Item	Operating Condition	Min.	Typ.	Max.	Unit
Input Voltage Range	DC Input	80	500	1000	VDC
Input Current	150VDC	-	-	0.70	A
	750VDC	-	-	0.15	
Surge Current	1000VDC	-	-	150	
Input under-voltage Protection	Start protection	20	-	70	VDC
	Recovery	30	-	80	
Hot Plug	-	N/A			
Remote Control	-	N/A			
Recommended external fuse	-	4A/ >Max input Volt. (Necessary)			

Output Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Voltage Accuracy		Full input voltage range, any load	-	±2.0	-	%
Line regulation		Rated load	-	±1.0	-	
Load regulation		Nominal input voltage, 0%-100% load	-	±2.0	-	
Minimum Load		Single Output	0	-	-	%
Turn-on Delay Time		Nominal input voltage (full load)	-	2000	-	mS
Holding Up Time		Input 150VDC (full load)	-	5	-	
		Input 750VDC (full load)	-	20	-	
Dynamic Response	Overshoot range	25%~50%~25% 50%~75%~50%	-5.0	-	+5.0	%
	Recovery time		-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range	≤10%Vo			%
Short Circuit Protection			Continuous, self-recovery			Hiccup
Drift Coefficient		-	-	±0.02%	-	%/℃
Over Current Protection		Nominal input voltage	≥110% Io, self-recovery			Hiccup
Over Voltage Protection		Output 12VDC	≤20			VDC
		Output 15VDC	≤23			
		Output 24VDC	≤32			
		Output 28VDC	≤35			
		Output 32VDC	≤40			
		Output 35VDC	≤45			
Over Temperature Protection		Start protection	60	-	75	℃
		Recovery	55	-	70	
Ripple & Noise		20MHz bandwidth (Peak-Peak)	-	-	350	mV

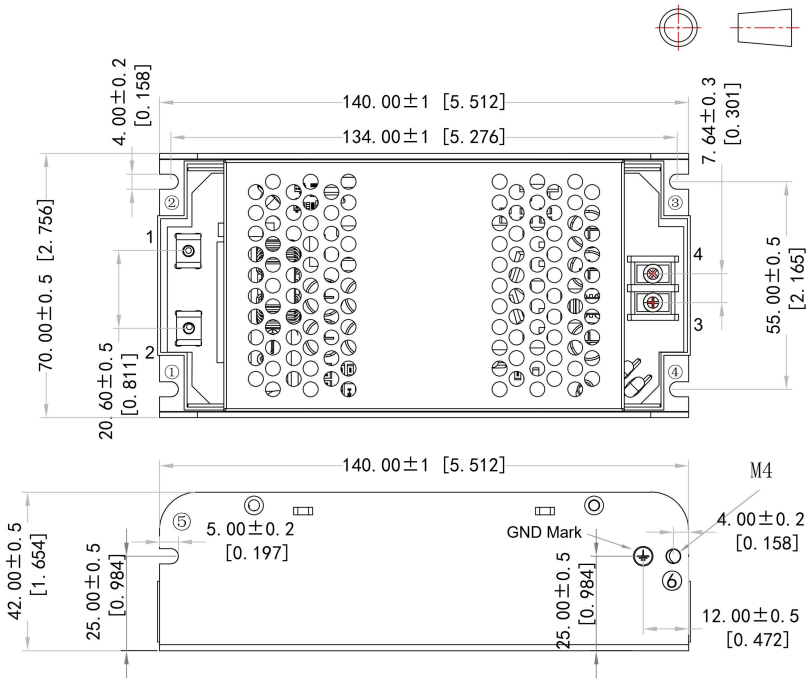
General Specifications

Item		Operating Condition	Min.	Typ.	Max.	Unit
Switching Frequency		-	-	65	-	KHz
Operating Temperature		Refer to the temperature derating graph	-40	--	+85	℃
Storage Temperature		-	-40	--	+85	℃
Soldering Temperature		Wave soldering	260±4℃, time 5-10S			
		Manual soldering	360±8℃, time 4-7S			
Storage Humidity		-	-	-	95	%RH
Isolation Voltage	I/P-O/P	Dielectric test 1 Min, leakage current ≤10mA	4000	-	-	VAC
	Input-PE	Dielectric test 1 Min, leakage current ≤10mA	4000	-	-	
	Output-PE	Dielectric test 1 Min, leakage current ≤5mA	2000	-	-	
Insulation resistance	I/P-O/P	@500VDC	100	-	-	MΩ
	Input-PE		100	-	-	
	Output-PE		100	-	-	
Vibration		-	10-55Hz,10G, 30Min, along X, Y, Z			
Case Material		-	Metal			
Safety Standard		-	IEC/EN62477-1			
MTBF		MIL-HDBK-217F @ 25℃	＞300,000 Hours			
Unit Weight		-	450g (Typ.)			

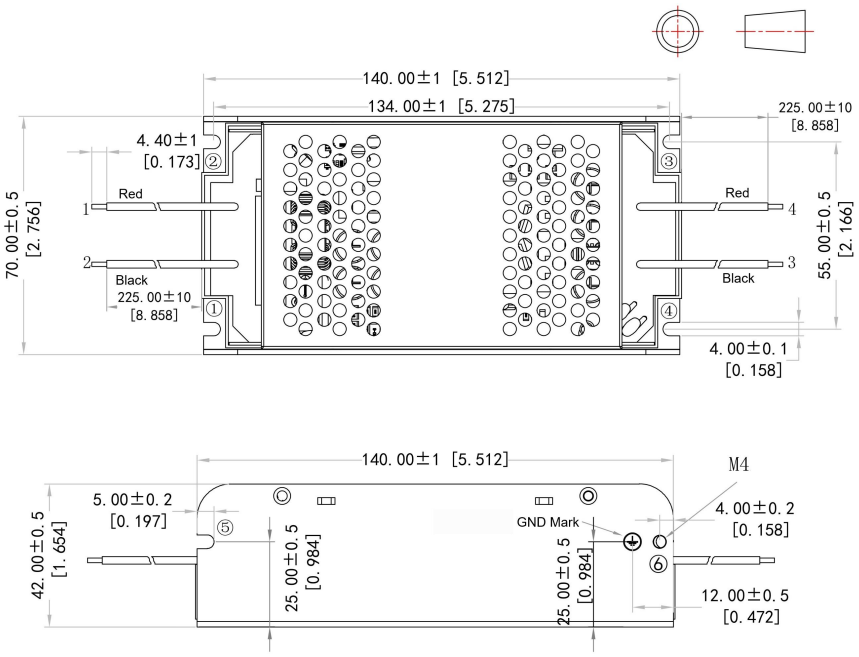
EMC Performances

Total Item		Sub Item	Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS A @100% load CLASS B @60% load
		RE	CISPR32/EN55032	CLASS A @100% load CLASS B @60% load
	EMS	ESD	IEC/EN61000-4-2	Contact ±6KV, Air ±8KV Perf. Criteria A
		RS	IEC/EN61000-4-3	10V/m Perf. Criteria A
		Surge	IEC/EN61000-4-5	Line to line ±1KV, line to PE ±2KV Perf. Criteria B
		EFT	IEC/EN61000-4-4	±4KV Perf. Criteria B
		CS	IEC/EN61000-4-6	10V r.m.s Perf. Criteria A

Mechanical Dimensions



BK75-500SXXG1N6	
Terminal No.	Function
1	+Vin
2	-Vin
3	-Vout
4	+Vout
①~⑥	PE



BK75-500SXXGA1N6	
Terminal No.	Function
1(Red)	+Vin
2(Black)	-Vin
3(Black)	-Vout
4(Red)	+Vout
①~⑥	PE

Note:

1, Unit: mm

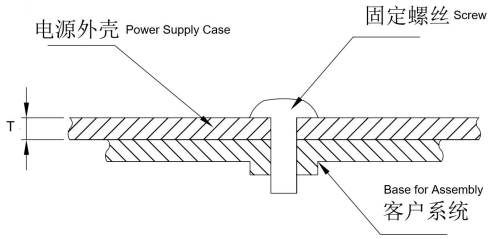
2, Input lead wire 18AWG Min, Temperature grade ≥200℃ (BK75-500SXXG1N6), screwing torque 1.2 N.m Max

3, Output lead wire 14AWG Min, Temperature grade ≥105℃ (BK75-500SXXG1N6), screwing torque 0.4 N.m Max

4, Screwing torque 0.4 N.m Max (①-⑤),1.2 N.m Max ⑥

5, All the screwing holes can be connected to PE ⏚

Screwing location	Screw size	T	Torque(max)
①~⑤	M3	1.5mm	0.4N·m
⑥	M4	1.5mm	1.2N·m

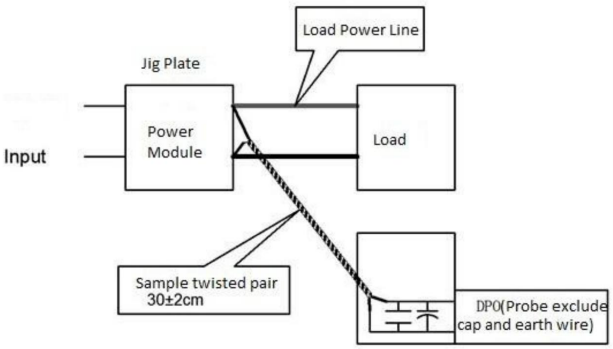


Package code	Dimensions L x W x H	
G	140.0X70.0X42.0 mm	5.512X2.756X1.654 inch

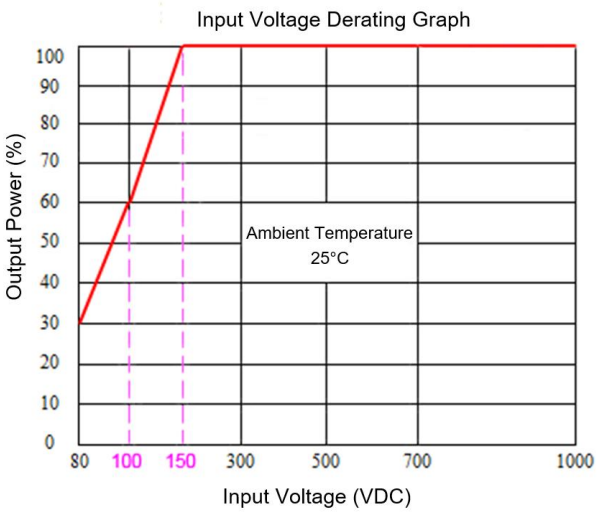
Ripple & Noise Test Instruction (Twisted Pair Method, 20MHz bandwidth)

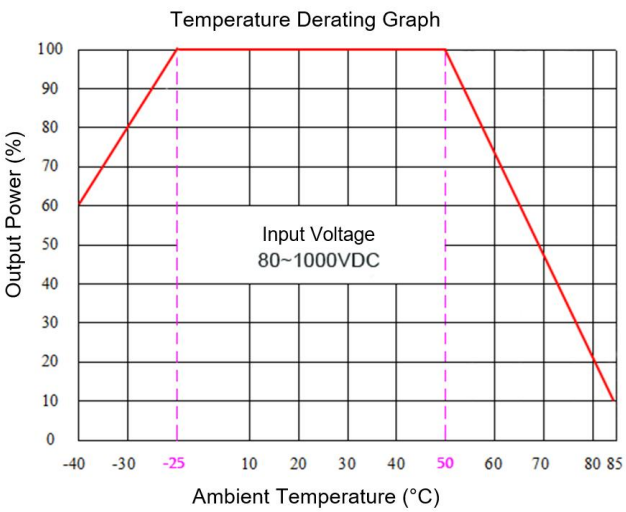
1) The Ripple & noise test need 12# twisted pair cables, an oscilloscope which bandwidth should be set to 20MHz, 0.1uF polypropylene capacitor and 10uF high-frequency low-resistance electrolytic capacitor are connected in parallel with the probes (100M bandwidth). The oscilloscope should be set at the Sample Mode.

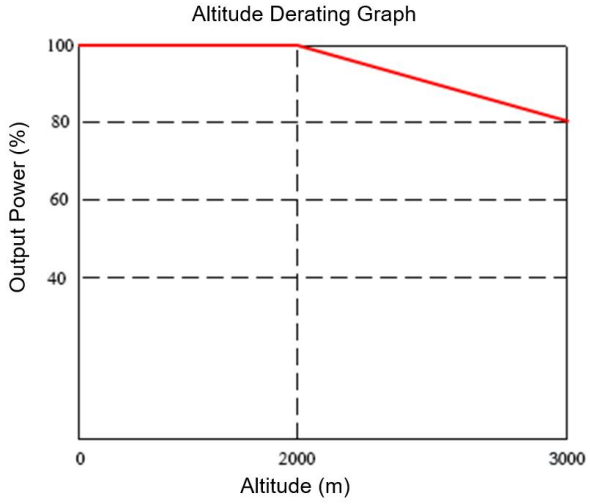
2) Please refer to the test diagram on the right. The power supply output connects to the electronic load by the jig with cables which size should be defined according to the output current value. The twisted pair (length 30cm±2 cm) should be connected in parallel with the load, the location is as close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



Product Characteristics Graphs



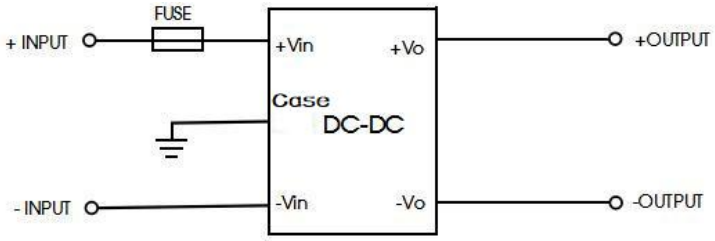




Note 1: The output power should be derated based on the input voltage derating graph at 80~150VDC.

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

Typical Circuit Diagram for Application



Component	Recommended Value
FUSE	4A/Rated voltage >Max input Volt. (Necessary)

Warning & Notices

1, The products should be used according to the specifications in this datasheet, otherwise it could be permanently damaged.

2, Please don't repair the failed converter.

3, The converter must be connected to GND before using with power on, grounding safety standard should be met.

4, The converter case is not insulated, electric shock proof should be done at customer system.

5, The housing inside which the converter will be fixed should be flameproof for fire risk.

6. A fuse should be connected at input.

7. The product performance in this datasheet cannot be guaranteed if it works at a lower load than the minimum load defined.

8. The product performance in this datasheet cannot be guaranteed if it works at over-load condition.

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

10. All values or indicators in this datasheet had been tested based on Aipupower test specifications.

11.The specifications are specially for the parts listed in this datasheet, any other non-standard model performances could be out of the specifications. Please contact our technician for specific requirements.

12. Aipupower can provide customization service.

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