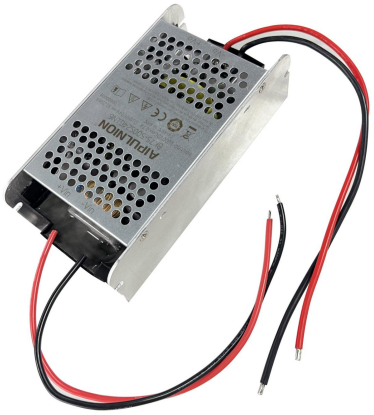
Typical Features

- ◆ Wide input voltage range 80-1000VDC
- ◆ No load power consumption ≤1W@500VDC
- ◆ Efficiency up to 89%(Typ.)
- ◆ Input reverse polarity 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)
- ◆ Compliant with IEC/EN62477-1
- ◆ OVC II
- ◆ Pollution degree II
- ◆ Altitude during operation 3000m Max



EN 62477-1

EN 62477-1

Application Field

BK75-500SXXG(A)1N6 Series ---- Compact size, high efficiency DC/DC converters 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.	Input Voltage Range		Output Specifications			Max Capacitive Load @500VDC	Ripple & Noise 20MHz (Max)	Efficiency @full load 500VDC (Typ.)
		Nominal	Range	Power	Voltage	Current			
		(VDC)	(VDC)	P(W)	Vo (VDC)	Io (mA)	uF	mVp-p	%
TUV/CE	BK75-500S12G(A)1N6	500	80 - 1000	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 the derivative models, 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 is tested by the Parallel-line method (please refer to the following test instruction).

Input Specifications

Item	Test Condition	Min.	Typ.	Max.	Unit
Input voltage range	DC Input	80	500	1000	VDC
Input current	Input 150VDC	-	-	0.70	A
	Input 750VDC	-	-	0.15	
Surge current	Input 1000VDC	-	-	150	
Standby power consumption	Input 80VDC	-	-	1.0	W
	Input 500VDC	-	-		
Under voltage protection	Start protection	20	-	70	VDC
	Recovery	30	-	80	
Hot plug	-	N/A			
ON/OFF Control	-	N/A			
Recommended external fuse	-	4A/Rated volt. >Max input volt. (Required)			

Output Specifications

Item		Test Condition	Min.	Typ.	Max.	Unit
Output 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, 0%-100% load	-	±2.0	±2.5	
Minimum load		Single Output	0	-	-	%
Temperature drift coefficient		-	-	±0.02	-	%/℃
Turn-on delay time		Nominal input voltage (full load)	-	-	2000	mS
Power-off hold 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	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		Output 12VDC	≤22			VDC
		Output 15VDC	≤27			
		Output 24VDC	≤47			
		Output 28VDC	≤47			
		Output 32VDC	≤67			
		Output 35VDC	≤67			
Over temperature protection		Start protection @ full load	60	-	75	℃
		Recovery @ full load	55	-	70	
Ripple & Noise		5%-100% load, 20MHz bandwidth	-	-	350	mV

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

General Specifications

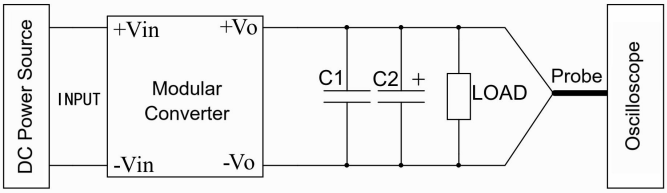
Item		Test Condition	Min.	Typ.	Max.	Unit
Switching frequency		-	-	65	-	KHz
Operating temperature		Refer to the temperature derating graph	-40	-	+85	℃
Storage temperature		-	-40	-	+105	℃
Soldering temperature		Wave soldering	-			
		Manual soldering	-			
Storage humidity		-	-	-	95	%RH
Isolation voltage	I/P - O/P	Dielectric test 1 Min, leakage current ≤10mA	4000	-	-	VAC
	I/P - PE	Dielectric test 1 Min, leakage current ≤10mA	4000	-	-	
	O/P - PE	Dielectric test 1 Min, leakage current ≤5mA	2000	-	-	
Insulation resistance	I/P - O/P	@500VDC	100	-	-	MΩ
	I/P - PE		100	-	-	
	O/P - PE		100	-	-	
MTBF		MIL-HDBK-217F @ 25℃	300	-	-	K hours
Vibration		-	10-55Hz,10G, 30 Min, along X, Y, Z			
Case material		-	Metal			
Safety class		-	Class I			

Weight & Dimensions	Part No.	Weight (Typ.)	Dimensions L x W x H	
	BK75-500SXXG(A)1N6	550g	140.0X70.0X42.0 mm	5.512X2.756X1.654 inch

EMC Performances

Items			Test Standard	Performance/Class
EMC	EMI	CE	CISPR32/EN55032	CLASS A @100% load
		RE	CISPR32/EN55032	CLASS A @100% 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 Ground ±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

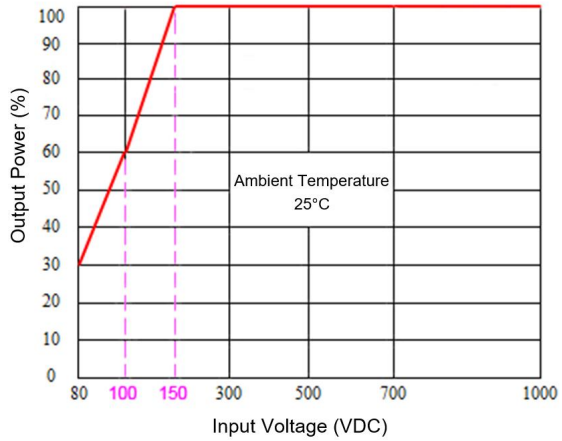
Ripple & Noise Test Instruction (Parallel-line Method, 20MHz bandwidth)



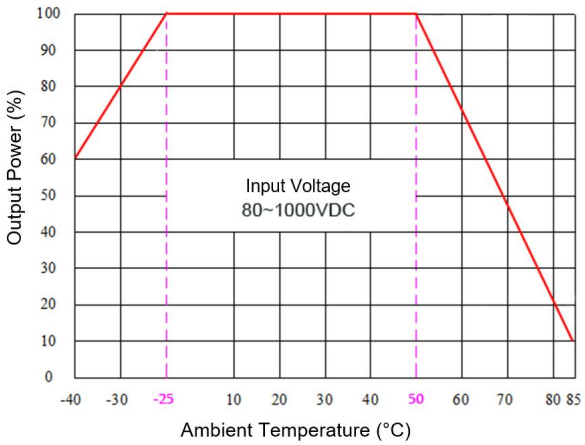
1. The Ripple & Noise test needs the cables in parallel, an oscilloscope that should be set at the Sample Mode, bandwidth 20MHz. 100M bandwidth probe with cap and ground removed. One polypropylene capacitor C1(0.1uF) & one high frequency low impedance electrolytic capacitor C2(10uF) are connected in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

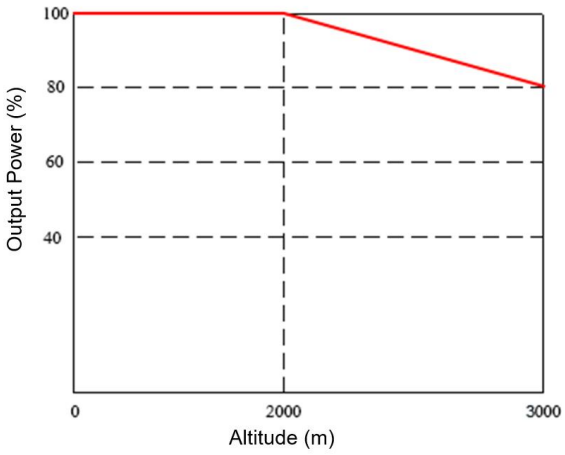
Input Voltage Derating Graph



Temperature Derating Graph



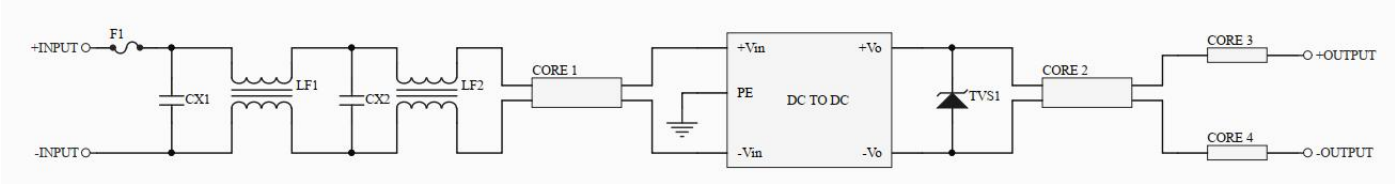
Altitude Derating Graph



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

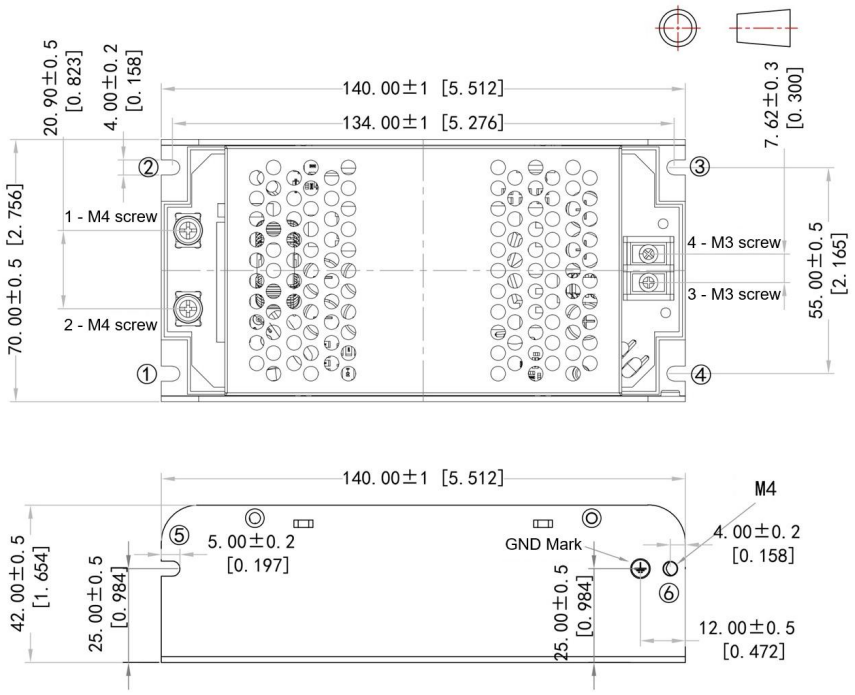
Note 2: This product should operate under the condition of natural air, please contact us if it could be used at a closed space.

Recommended Typical EMC Circuit

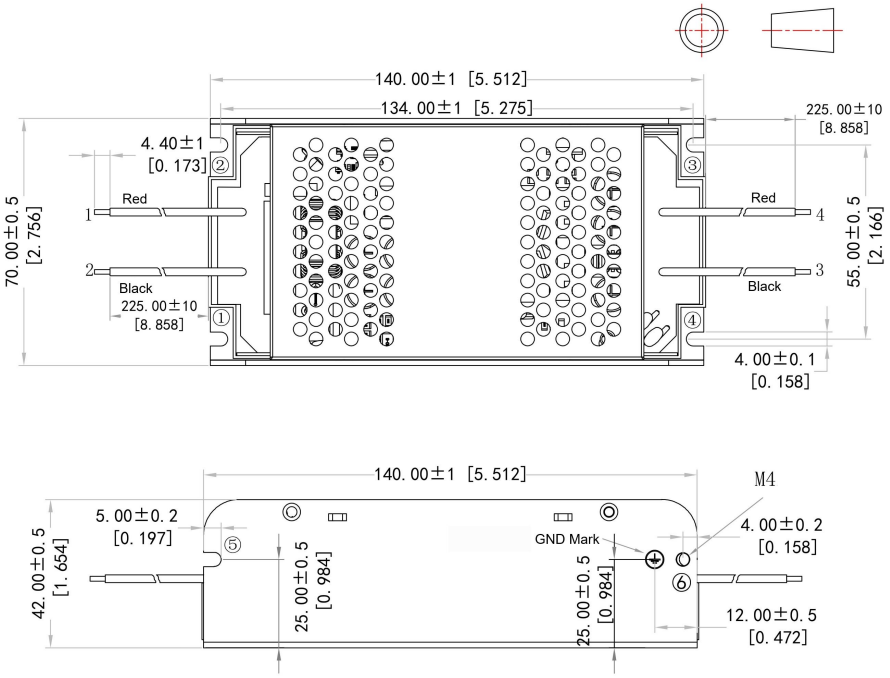


Part No.	F1(Required)	CX1	LF1	CX2	LF2	TVS1	CORE 1	CORE 2	CORE 3	CORE 4
BK75-500SX XG(A)1N6	4A/ Rated volt. >Actual input voltage Max, Time-delay fuse	X1 104K 1500V	TD Flat-wire CMC ≥8mH	X1 104K 1500V	TD Flat-wire CMC ≥8mH	12V:1.5SMC20A 15V:1.5SMC24A 24V:1.5SMC43A 28V:1.5SMC43A 32V:1.5SMC62A 35V:1.5SMC62A	VIIP V18024, 1ST/ Equival ent	Jinghong N8RT31* 16*19, 3ST/ Equivale nt	VIIP V18024, 1ST/ Equivale nt	VIIP V18024, 1ST/ Equivale nt

Mechanical Dimensions



BK75-500SXXG1N6



BK75-500SXXGA1N6

Note:

1, Unit: mm[inch]

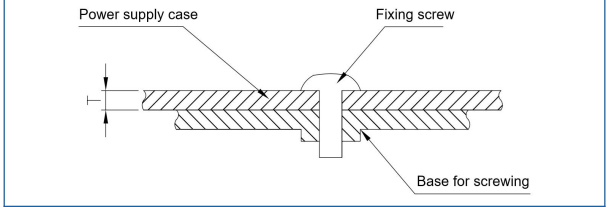
2, Input wire gauge 18AWG Min, Temp grade 200℃ Min, (BK75-500SXXGA1N6)

3, Output wire gauge 14AWG Min, Temp grade 105℃ Min, (BK75-500SXXGA1N6)

4, Screwing torque: 0.4N.m Max (location ①~⑤), 1.2N.m Max (⑥)
Input terminals screwing torque 1.2N.m Max, output terminals screwing Torque 0.4N.m Max. (BK75-500SXXG1N6)

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

Screwing location	Screw size	T	Screwing torque (Max)
①~⑤	M3	1.5mm	0.4N・m
⑥	M4	1.5mm	1.2N・m



Terminal Function Description					
Terminal No.	1(Red)	2(Black)	3(Black)	4(Red)	Screw hoes①~⑥
Function	+Vin	-Vin	-Vo	+Vo	PE (GND)

Warning & Notices

1. The product should be used according to the specification, otherwise it could be permanently damaged.
2. Please don't repair the failed converter.
3. The converter must be Grounded 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 consumer's system.
5. The housing inside which the converter will be fixed should be flameproof for fire risk.
6. A fuse should be used at the input.
7. The product performance cannot be guaranteed if it works at a lower load than the minimum load defined.
8. The product performance cannot be guaranteed if it works under over-load condition.
9. 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).
10. All values or indicators on this datasheet have been tested based on Aipupower test specifications.
11. 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.
12. Aipupower can provide customization service.

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