

Typical Features	
◆	Wide input voltage range: 85-900VAC
◆	No load power consumption ≤ 1W
◆	Transfer Efficiency up to 89%(TYP.)
◆	Switching Frequency: 65KHz
◆	Protections: short circuit, over current, over voltage
◆	Isolation voltage: 4000Vac
◆	Comply with CE and RoHS certification standards
◆	Designed specifically for coal mine electrical equipment



Application Field

FA50-500SXXG2D4 series ----- is a special high-voltage power supply designed and developed by Aipu for coal mine electrical customers, with the development requirements of equipment power supply safety, convenient installation, reliable application, and technological innovation. This series of power supplies has the advantages of global input voltage range, low ripple, low temperature rise, low power consumption, high efficiency, high reliability, and high safety isolation. This series of products can be widely used in coal mine monitoring and security industries. When the product is used in an environment with relatively harsh electromagnetic compatibility, please refer to the application circuit provided by our company.

Typical Product List

Certificate	Part No.	Output Specifications			Max. Capacitive Load	Ripple & Noise 20MHz (Max)	Efficiency@ Full Load, 220Vac (Typical)
		Power	Voltage	Current			
		(W)	Vo (V)	Io (mA)			
-	FA50-500S24G2D4	50	24	2080	4000	100	85
	FA50-500S28G2D4	50	28	1785	3000	100	87
	FA50-500S28V5G2D4	50	28.5	1754	3000	100	87
	FA50-500S35G2D4	50	35	1428	1000	100	88
	FA50-500S37G2D4	50	37	1350	1000	100	88

Note 1: The typical value of output efficiency is based on the product being aged at full load for half an hour.
 Note 2: The full load efficiency (% , TYP) in the table fluctuates by ±2%. The full load efficiency is the total output power divided by the input power of the module.
 Note 3: The ripple and noise test method uses the twisted pair test method. For specific test methods and matching, please refer to the following (Ripple & Noise Test Instructions).

Input Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Input Voltage Range	AC input	85	330	900	VAC
	DC input	-	-	-	VDC
Input Frequency range	-	47	50	63	Hz
Input Current	100VAC	-	-	1.2	A

	330VAC	-	-	0.6	
Surge Current	330VAC	-	-	180	
	900VAC	-	-		
Leakage Current	-	0.5mA TYP/230VAC/50Hz			
Hot Plug	-	unavailable			
Remote Control Terminal	-	unavailable			
Recommended External Input Fuse	-	5A/1000VAC, necessary			

Output Specifications

Item		Operating Condition		Min	Typ.	Max	Unit
Voltage Accuracy		Full input voltage range, any load	Vo	-	±1.0	±2.0	%
Line Regulation		Nominal load	Vo	-	-	±1.0	%
Load Regulation		Nominal input voltage, 10%~100% load	Vo	-	-	±1.0	%
No Load Consumption		Input 85VAC		-	-	1.0	W
		Input 900VAC		-	-		
Minimum Load		Single Output		0	-	-	%
Start up Delay Time		Nominal input voltage (full load)		-	3000	-	mS
Power-off Holding Time		Input 300VAC (full load)		-	150	-	mS
		Input 660VAC (full load)		-	350	-	
Dynamic Response	Overshoot range	25%~50%~25%		-5.0	-	+5.0	%
	Recovery time	50%~75%~50%		-5.0	-	+5.0	mS
Output Overshoot		Full input voltage range		≤10%Vo			%
Short circuit Protection				self-recovery after short circuit is eliminated			Hiccup
Temperature Drift		-		-	±0.03%	-	%/°C
Over Current Protection		Input nominal voltage		≥110% Io self-recovery			Hiccup
Over Voltage Protection		Input 24Vdc		≤30			VDC
		Input 28Vdc		≤35			
		Input 28.5Vdc		≤35			
		Input 35Vdc		≤42			
		Input 37Vdc		≤45			

General Specifications

Item	Operating Condition	Min	Typ.	Max	Unit
Switching Frequency	-	-	65	-	KHz
Operating Temperature	-	-25	-	+70	°C

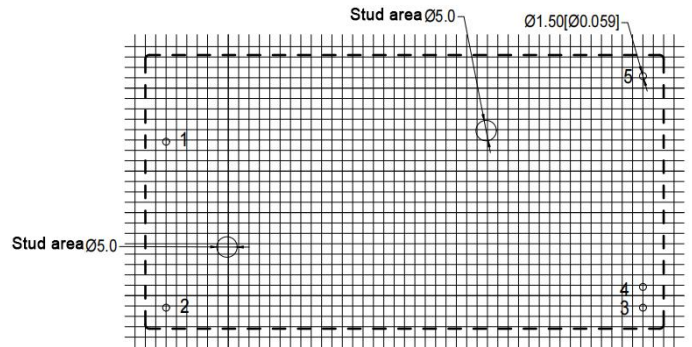
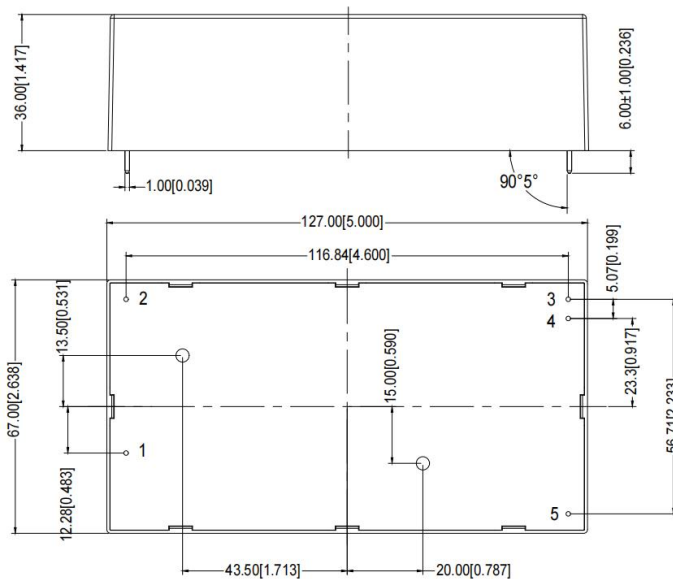
Storage Temperature		-	-40	-	+85	
Soldering Temperature		Wave soldering		260±4℃, time 5-10S		
		Manual soldering		360±8℃, time 4-7S		
Relative Humidity		-	10	-	90	%RH
Isolation Voltage	I/P-O/P	≤3.0mA/1Min	4000	-	-	VAC
Insulation Resistance	I/P-O/P	500VDC	50	-	-	MΩ
Vibration		-	10-55Hz, 10G, 30Min, along X, Y, Z			
Safety Standard		-	CLASS I			
MTBF		-	MIL-HDBK-217F@25℃ > 300,000H			

EMC Characteristics

Total Item	Sub Item	Test Standard	Class	
EMS	ESD	IEC/EN61000-4-2	Contact ±6KV Perf.Criteria B	
	RS	IEC/EN61000-4-3	10V/m	Perf.Criteria A
	Surge	IEC/EN61000-4-5	±2KV	Perf.Criteria B
	EFT	IEC/EN61000-4-4	±4KV	Perf.Criteria B
	CS	IEC/EN61000-4-6	10Vr.m.s	Perf.Criteria A

Dimension

Third Angle Projection



Note:
 Grid spacing: 2.54*2.4mm
 Terminal diameter tolerance: ±0.10mm [±0.004inch]
 Unmarked tolerance: ±1.00mm [±0.039inch]
 This product must be fixed with M3 screws in an environment with severe vibration.
 Please refer to the dimension diagram for the fixing hole size.

Packing Code	L x W x H	
-	127.0X67.0X36.0mm	5.000X2.638X1.417inch

Pin Specification

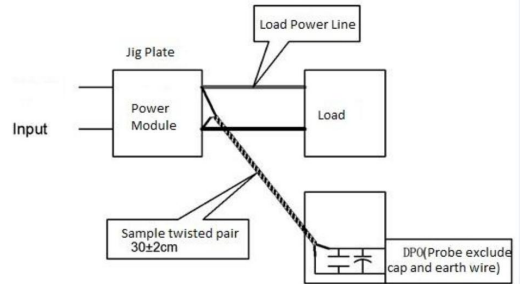
Pin	1	2	3	4	8
Single(S)	AC(L)	AC(N)	+Vo	-Vo	NC

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

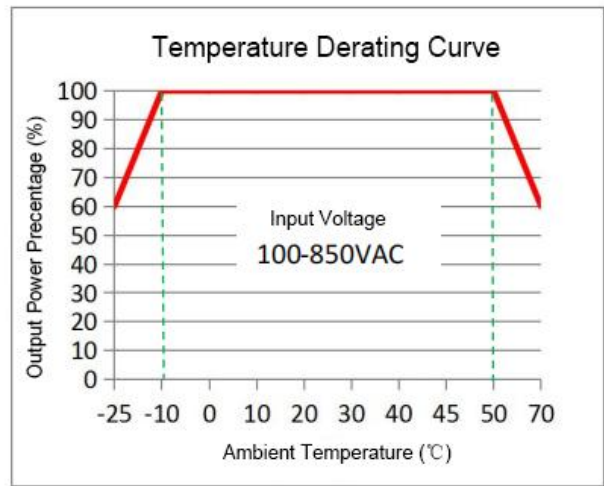
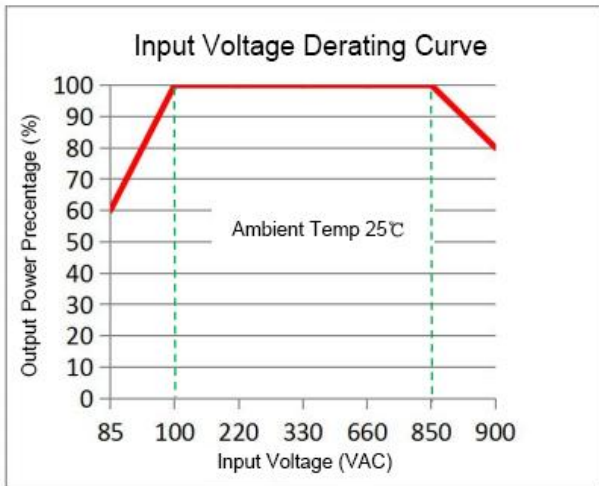
Test Method:

(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.



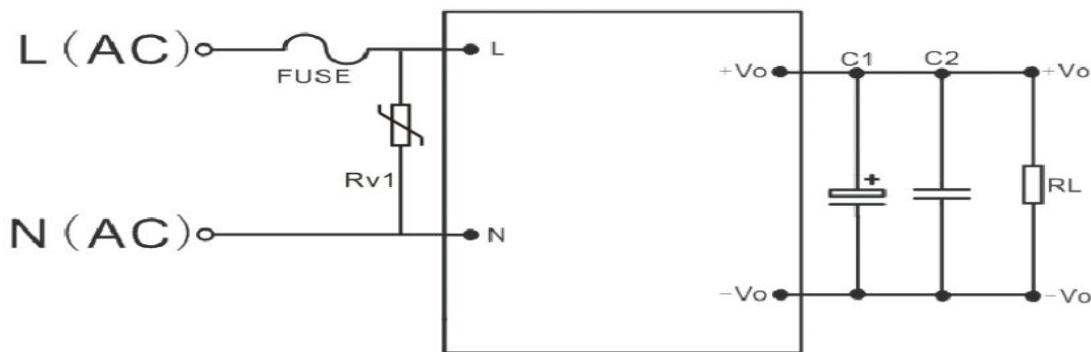
Product Characteristic Curve



Note 1: The input voltage is 85~100VAC/850~900VAC, 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



Component Code	Component Name	Recommended Value
FUSE	Fuse	5A/1000VAC, necessary
RV1	Varistor	14D182K
C1	High frequency electrolytic capacitors	10uF/50V
C2	Ceramic capacitors	1uF/50V

Note:

1. The product should be used within the specification range, or it will cause permanent damage to it;
2. The input terminal should connect to fuse;
3. If the product is worked under the minimum requested load, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
4. If the product is not operated within the required load range, the product performance cannot be guaranteed to comply with all parameters in the datasheet;
5. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% with nominal input voltage and rated output 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 product customization service,
9. Specifications are subject to change without prior notice, please follow up with our website for newest manual.

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