SPARKLE POWER INT'L LTD.

FSP120-AAC

19V@6.32A
Adapter
Switching Power Supply

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07/30/2007

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SPI Electronic Co., Ltd.

Electrical Specification

Electrical Requirements

1. Input Characteristics:

ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage		100V / 240V
1.2 Input Voltage Range	Continuously	90VAC to 264VAC
1.3 Input Frequency Range	Continuously	47Hz to 63Hz
1.4 Input Voltage Harmonic Distortion		≤ 8%
1.5 Input Current Harmonic	100Vac, 240Vac / 6.32A load	IEC1000-3-2
1.6 Efficiency (warm up after 1 hour):	100Vac / 6.32A 240Vac / 6.32A	≥ 86% ≥ 86%
1.7 Inrush Current:	100Vac / 240Vac	shall be less than the rating of adapter critical component (including rectifiers, fuse surge and current limiting device).
1.8 No Load Power Consumption (Power saving)	240Vac / 0A load	≤0.75W

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2. Output Characteristics:

※Measured at the end of DC cable.

ITEM	CONDITION	SPECIFICATION
2.1 Output Rated Voltage		19V
2.2 Output Current	at constant voltage mode	0A to 6.32A
2.3 Output Voltage Setting	at the output end of DC cable	18.05V~ 19.95V
2.4 Output Voltage Ripple and Noise: (0.1uF Ceramic Cap. and 35V 47uF Aluminum Cap. Paralleled between the end of output cable ,BW=20M Hz)	100Vac / 6.32A 240Vac / 6.32A	≤350mVp-p
2.5 Turn-On Delay Time:	at 100Vac/120W load, output voltage shall remain regulation	≤ 2Sec.
2.6 Hold Up Time:	at 100Vac or 240Vac / 120W load, output voltage shall remain regulation	≥8 mS
2.7 Rise Time:	at 100Vac or 240Vac / 120W load, DC output rise time from 5% to 95% of Vo	≤ 50mS
2.8 Load Transient Response:	Output load step from 10% to 90% of 120W, S/R=0.5A/us, 100Hz &1KHz 50% duty. Output voltage within	18.05V~19.95V

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3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Over Current Protection:	When an internal fault occurs, or an external fault is applied to the adapter, such that an overload or short circuit is applied to the output, the adapter shall shut down. It will enter into normal condition if the fault condition is removed.	Shutdown and no damage.
3.2 Over-Voltage Protection	The adapter will enter into shut down that means no output while over voltage happened at output terminal that caused by internal fault, the output trip voltage shall not exceed 25 volts with a maximum duration of 250 milliseconds. That will be return to normal state by AC reset.	Shutdown and no damage.
3.3 Over Temperature Protection:	The adapter have thermal protection for abnormal usage for/by parts failure. This protection shall operate before rising to reach to the cover-case's deformation and discoloration temperature. The adapter shall be shut down and enter latch-off mode. That will be return to normal state by AC reset.	No broken, no smoke

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4. Environmental Characteristics:

ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients : Refer to IEC1000-4-4 level 3	Impulse: ±1kV applied differential mode, pulse duration 50nS, period 5 min. Impulse: ±2kV applied common mode, pulse duration 50nS, period 5 min.	Normal operation shall be continued. Normal operation shall be continued.
4.2 Lightning Surge: Refer to IEC1000-4-5 level 3	±1kV applied differential mode, pulse rise time 1.2us and duty time 50uS ±2kV applied common mode, pulse rise time 1.2us and duty time 50uS	Normal operation shall be continued. Normal operation shall be continued.
4.4 Electron Static Discharge: (Refer to IEC1000-4-2 Energy Storage Capacitor 150pF; Discharge Resistor 330Ω)	Air Discharge: ± 15KV min. Contact Discharge: ±8KV min.	Normal operation shall be continued.
4.5 Cooling	Natural air cooling	
4.6 EMI: Adapter comply with the following national standards: EMI Conducted Emission EMI Radiated Emission	100Vac/240Vac; 6.32A load The adapter internal filter to meet	FCC CLASS B CISPR 22 CLASS B VCCI CLASS II
4.7 Safety conforming:	Regulated by customer	
4.10 Leakage Current	240Vac / 60Hz 100Vac / 60Hz	≤250uA ≤ 100uA
4.11 Insulation Resistance:	Between AC input and secondary applied 500Vdc, test time 1 minute. DC 500V, test time1 sec. for mass production	≥ 100MΩ
4.12 Dielectric Strength: (Hi-Pot)	Between AC input and secondary applied AC 3kV, test time 1 minute, and cut off current shall be less than 10mA AC 3kV, test time 1 sec. for mass production	

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ITEM	CONDITION	SPECIFICATION
4.13 Temperature:	Operating Storage	0 to 40℃ -20 to +80℃
4.14 Humidity:	Operating Storage	20% ~ 80% 10% ~ 90%
4.15 MTBF	By count method	> 100000 hours

Note: 1. Differential mode is defined as between line and neutral.
2. Common mode is defined as between phase and earth ground

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5. Mechanical Characteristics:

ITEM	CONDITION	SPECIFICATION
5.1 Dimension (Length x Width x Height)		167mm*65mm*37mm
5.2 Input AC socket Type		IEC 320 C8 Type
5.3 Output DC Cable Length		14# AWG L=1.8m
5.4 AC Cable Pulling Removal Strength	When the insert/withdraw force is between 2.5 ~ 3.0kgf, SPI should proceed the following test & submit samples to customer for confirmation: Insert the connector to the socket, no free falling of the adapter is allowed when the assembly is hanged vertically.	1 ~ 5Kgf
5.5 Plug Insert withdraw force		Pulling: 0.5 ~ 3.0kgf Removal: 0.5 ~ 2.0kgf
5.6 Shock	Storage: Shock acceleration 50G, sin, 10ms Directions of force: X, Y, Z One time at 6 directions Operating: Shock acceleration 30G, sin, 10ms Directions of force: X, Y, Z One time at 6 directions	After shock test, the adapter is no damage
5.7 Drop	Storage: Lift this unit a height of 1 meter onto a hardwood surface one time at 6 directions. There should be no damage.	After drop test, the adapter is no damage
5.8 Random Vibration	Storage:) 1) Frequency :5 to 100Hz 2) PSD:0.0563m^2/s^3(0.000586G^2/Hz) 3) Overall Grms:2.31 m/s^2 (0.236G) 4) Vibration duration:20minutes 5) Vibration waveform:Random 6) Force Direction X,Y,Z	After vibration test, the adapter will be turned on normally

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ITEM	CONDITION	SPECIFICATION
	Operating 1) Frequency :5 to 100Hz 2) PSD:0.0141m^2/s^3(0.000147G^2/Hz) 3) Overall Grms:1.16 m/s^2 (0.118G) 4) Vibration duration:20minutes 5) Vibration waveform:Random 6) Force Direction X,Y,Z	
	Pacting Freight 1) Frequency :5 to 200Hz 2) PSD: 5Hz 0.96m^2/s^3(0.01G^2/Hz) 100Hz 0.96m^2/s^3(0.01G^2/Hz) 200Hz 0.096m^2/s^3(0.001G^2/Hz) 3) Overall Grms:11.27m/s^2 (1.15G) 4) Vibration duration:20minutes 5) Vibration waveform:Random 6) Force Direction X,Y,Z	
5.9 Color		
Case		Black
DC Cable (including Molding Core)		Black

MODEL NO. **FSP120-AAC**

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