



全漢企業股份有限公司

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# SPECIFICATION



ESD07018555

FSP201-3M01

Released Date:2007/6/8-10:43:42



**全漢企業股份有限公司**  
**FSP TECHNOLOGY INC.**

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# SPECIFICATION

**FSP201-3M01**  
**PN:90C2010100**

P.E	R/D	APPROVED	REV.
KennyCheng	AL	Steven	2.3

表單編號：



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FSP TECHNOLOGY INC.

# Electrical Specification

## History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
<u>1.0</u>	Spec issue	MAR/03/2007	AL	VivianHung	AL	Frank
<u>2.0</u>	01. Item 1.2 Max. AC input change to 265Vac, add Item 1.3 rated Freq. range 50-60Hz. 02. Item 1.6 Input current change to 3.5A max. 03. Item 1.7 115Vac Inrush current, cold start change to 100A. 04. Item 1.8 No Load Power Consumption change to $\leq 0.7W$ . 05. Item 1.9 Eff% test condition change to 115Vav/50Hz. 06. Item 2.1 Output Rated, add System load. 07. Item 2.1 +12V Vpp change to 120mV. 08. Item 2.3 Dynamic load change, current step change to Max. load~35% load. 09. Item 2.4 Hold-up time AC input condition change to 110Vac/50Hz. 10. Item 3.2 OVP, +5Vsb change to 7Vmax, +12V change to 17Vmax, +24V change to 30Vmax. 11. Item 3.2 OCP, +5Vsb change to 6.0 ~ 10A, +12V change to 6.5 ~ 9A, +24V change to 7.5 ~ 11A.  12. Add Item 3.4 OTP. 13. Item 4.1 E.F.T. change to $\pm 2KV$ . 14. Item 4.2 Lightning Surge change to $\pm 3KV$ , add $\pm 5KV$ condition. 15. Item 4.3 E.S.D. change to air $\pm 15KV$ and contact $\pm 8KV$ . 16. Item 4.7 Leakage Current test condition change to 100Vac/60Hz. 17. Item 4.8 Insulation Resistance change to $\geq 25M\Omega$ . 18. Item 4.9 HI-POT test condition change to 2 sec. 19. Item 4.10 Storage Temp. change to $-40^{\circ}C$ to $+70^{\circ}C$ . 20. Item 4.11 Relative Humidity, Operating change to 20% ~ 90%, Storage change to 5% ~ 95%. 21. Item 5.1 MTBF change to 80,000 hours. 22. Item 5.2 Burn-In Env.-Temp. change to $40\pm 5^{\circ}C$ . 23. Add Item 5.5 Cap-Life. 24. Item 1.6 add 265Vac condition and specification. 25. Item 4.5 EMI Cond., add VCCI Class B. 26. Item 5.3、5.4 add specification description. 27. Add Item 2.5、2.6、2.7、3.5、3.6、4.12 and 6.Mechanical specification. 28. Item 5.4 Drop-test change to No define.	APR/10/2007	AL	VivianHung	AL	Steven
<u>2.1</u>	Item 2.6 and 2.7 Turn on/off delay time, timing of AC ~ 5Vsb Output Volt..	MAY/16/2007	AL	VivianHung	AL	Steven
<u>2.2</u>	Item 2.7 Turn off delay time 200mSec. Max..	MAY/21/2007	AL	VivianHung	AL	Steven

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# Electrical Specification

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
<u>2.3</u>	Item 2.1 update System Load condition.	MAY/31/2007	AL	VivianHung	AL	Steven

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# Electrical Specification

## Electrical Requirements

### 1. Input Characteristics:

ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage		100Vac - 240Vac (Nominal)
1.2 Input Voltage Range		90VAC to 265VAC
1.3 Rated Frequency Range		50Hz - 60Hz (Nominal)
1.4 Input Frequency Range		47Hz to 63Hz
1.5 Power Factor	DC output with full loading at 100Vac.	≥ 0.95
	DC output with full loading at 240Vac.	≥ 0.9
1.6 Input Current	90Vac/full load. 265Vac/full load.	3.5Amax 1.5Amax
1.7 Inrush Current	230Vac input at max. load condition.	Cold start(ambient Temperature:25°C) 150A. Hot start: no component damaged.
	115Vac input at max. load condition.	Cold start(ambient Temperature:25°C) 100A. Hot start: no component damaged.
1.8 No Load Power Consumption (Power Saving)	Power down pin is low (Remote off) and the loading of +5Vsb Is 0A at 240Vac.	≤ 0.7W
1.9 Efficiency	At 115Vac/50Hz Input voltage ,DC output with full Loading.	≥ 85%

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# Electrical Specification

## 2. Output Characteristics:

ITEM			CONDITION				SPECIFICATION
2.1 Output Rated :							
NO	Output	Output Voltage	Min.	System	Max.	Peak	Ripple & noise
1	+5Vsb	4.84V ~ 5.36V	0.2A	3.2A	4.0A	--	100mV
2	+12V	11.4V ~ 12.6V	0.1A	2.7A	3.5A	--	120mV
3	+24V	22.8V ~ 25.2V	0.1A	5.5A	5.8A	--	240mV
Note: Output Voltage Ripple and Noise			( 0.1uF Ceramic Cap. and 47uF Aluminum Cap. Paralleled between the end of DC loading side , Measured Band-Width=20M Hz)				
2.2 Rise Time:			At 100Vac full load, DC output voltage rise from 0 volt and settle within regulation.				≤ 100mS
2.3 Dynamic Load Change			Current step Max. load ~ 35%, slew rate 100mA/us.				+24V ± 1.2V +12V ± 1.0V +5Vsb ± 0.5V
2.4 Hold-up Time			At 110Vac/50Hz with full loading.				≥10ms.
2.5 Overshoot							Any overshoot at turn on or turn off shall be less than 10% of the normal value
2.6 Turn on delay time			110Vac/50Hz condition. Timing of [ <u>AC on ~ 5Vsb 95% Output Volt.</u> ].				1 Sec. Max.
2.7 Turn off delay time			110Vac/50Hz condition. Timing of [ <u>AC off ~ 5Vsb 95% Output Volt.</u> ].				200 mSec. Max.

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# Electrical Specification

## 3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection (SCP)	+5Vsb +12V +24V	Auto-recovery latch mode latch mode
3.2 Over-Voltage Protection (OVP)	+ 5Vsb : 7Vmax +12V : 17Vmax +24V : 30Vmax	latch mode latch mode latch mode
3.3 Over-Current Protection (OCP)	+ 5Vsb : 6.0 ~ 10A +12V : 6.5 ~ 9A +24V : 7.5 ~ 11A	Auto-recovery latch mode latch mode
3.4 Over-Temperature Protection (OTP)	The AC power supply will enter into latch while the abnormal thermal rise occurs . It will enter into normal condition if the fault condition is removed and AC or main power ON/OFF.	No broken, no smoke Latch mode
3.5 No Load Operation		No damage or hazardous condition will occur
3.6 Fuse protection		The fuse inside the power supply shall open when the ac input current is over the rated current of fuse



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# Electrical Specification

## 4. Environmental Characteristics:

ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients: Refer to EN61000-4-4	Impulse: $\pm 2\text{KV}$ applied to AC line , pulse Duration 50ns period 5 min.	Normal operation shall be Continued.
4.2 Lightning Surge: Refer to EN61000-4-5	$\pm 3\text{KV}$ applied between L and FG, N and FG , $\pm 3\text{KV}$ applied between L and N , pulse rise time 1.2us and duty time 50uS.	Power shall be no damaged
	$\pm 5\text{KV}$ /common mode. ( L to secondary Gnd (FG) and N to secondary Gnd (FG))	no safety issue and PS unit could auto recovery to normal operation or recover to normal operation with remote on/off
4.3 Electron Static Discharge: (Refer to IEC1000-4-2 Energy Storage Capacitor 150pF;Discharge Resistor 330ohm)	Air Discharge: $\pm 15\text{KV}$ . Contact Discharge: $\pm 8\text{KV}$ . (Note : combine with customer's system)	Normal operation shall be Continued
4.4 Cooling	Natural air cooling.	
4.5 EMI: EMI Conducted Emission EMI Radiated Emission	FCC:PART 15J. CLASS B, VCCI:CLASS B. CISPR22: Pub22. CLASS B.	Test with system.
4.6 Safety conforming:	CE,TUV EN60950 IEC EN60950 UL60950	
4.7 Leakage Current:	100Vac/60Hz.	$\leq 0.35\text{mA}$
4.8 Insulation Resistance:	At DC 500V.	$\geq 25\text{M}\Omega$
4.9 Dielectric Strength: (Hi-Pot)	3000Vac(4242Vdc) 2 second between Primary to Secondary circuit and Chassis.	$\leq 10\text{mA}$ ,
4.10 Temperature:	Operating: $0^{\circ}\text{C} \sim 50^{\circ}\text{C}$  	Storage : $-40^{\circ}\text{C}$ to $+70^{\circ}\text{C}$
4.11 Humidity (Relative Humidity)	Operating Storage	20% ~ 90% 5% ~ 95%
4.12 Operation and storage altitude		From sea level to 2,000m

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# Electrical Specification

## 5. Reliability:

ITEM	CONDITION	SPECIFICATION
5.1 MTBF	Continuous operation at 25°C.	80,000 hours
5.2 Burn-In	100% Burn-In with 80 ~ 100% loading at Environment temperature 40±5°C.	8 Hours
5.3 Vibration Test	Non operation vibration.	2G'S peak, 7~50Hz 4G'S peak, 50~500Hz after test no abnormally to be found.
	Operation vibration.	3 planes, 0.5G'S peak, 10~60Hz after test no abnormally to be noted.
5.4 Drop-test	No define.	
5.5 Cap-Life	At system load, 90Vac input and ambient temperature 35°C.	30,000 hurs

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# Electrical Specification

## 6.Mechanical:

6.1 Physical Size	220.00mm(L) x 136.00mm(W) x 30.00mm(H)
6.2 Weight	less 750g

**Pin assignment**

REF. ID.	PIN NO.	SIGNAL	CONNECTOR TYPE
CN1	1	GAC2N	JWT A3963WV2 -5P-A or E001V.
	2	NC	
	3	FG	
	4	NC	
CN2	5	GAC2L	JWT A2543WV0 -12P or E001V.
	1	+24V	
	2	+24V	
	3	+24V	
	4	+24V	
	5	+24V	
	6	GND	
	7	GND	
	8	GND	
	9	GND	
CN3	10	GND	JWT A2543WV0 -13P or E001V.
	11	A	
	12	B	
	1	power on/off CTL	
	2	+12V	
	3	+12V	
	4	+12V	
	5	GND	
	6	GND	
	7	GND	
	8	GND	
	9	+5V	
	10	+5V	
11	+5V		
12	A		
13	B		

1	+24V
2	+24V
3	+24V
4	+24V
5	GND
6	GND
8	GND
9	GND
10	GND
11	A
12	B

**P/N: 90C2010100**

MODEL NO. : FSP201-3M01	TITLE: OUTLINE DRAWING	SHEET: 1 OF 1	REV:04
R&D(RD9)	PE	DRAWN	DATE
		洪文君	2007/05/17
INTERIOR COUNTERSIGN:			

Mechanical Drawing (外單/機繪圖) 表單編號: 7000P-0111