

Report NO: 14I0A0002\_I

# FSP250-50LC of PER-C36L Power Electronics Test Report

Summary	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail <b>Note : There are <u>0</u> defect(s) not list in the report, please check it in the DTS Website.</b> <input type="checkbox"/> Pass with Deviation <b>Comment:</b> _____			
<b>Test Result Summary</b>				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date	Approval	Test Engineer
<b>02/26/2014</b>	<b>Tom Lin</b>	<b>Sean Hsu</b>

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**1. Project**

FSP250-50LC AC-DC Power Supply for PER-C36L

**2. Power Manufacturer**

FSP

**3. Team Member**

Randy Chang ; H/W : Steven Yu

**4. Test Equipment**

- 4.1. LCD Monitor : DELL , Model : U2410W
- 4.2. USB Mouse : Logitech , Model : M-BT85
- 4.3. USB Keyboard : Logitech , Model : Y-BL49
- 4.4. CPU : INTEL , CORE I7-4770S 3.1GHz
- 4.5. HDD : TOSHIBA , MK2576GSXZ , 250GB\*2
- 4.6. HDD : WD , WD3200BEVT , 320GB
- 4.7. Memory : Transcend , DDR3-1600 4GB\*2
- 4.8. LAN Riser Card : AAEON , PER-C36L
- 4.9. Power Supply : FSP , M/N : FSP250-50LC , O/P : 250Watt

**5. AC Adapter Spec**

4.1.1. OUTPUT RATING

Output	Nominal	Regulation	Ripple/Noise	Min	Max
1	+3.3V	±5%	50mV	0.3A	12.0 A
2	+5V	±5%	50mV	0.5A	14.0 A
3	+12V	±5%	120mV	0.8A	18.0 A
4	-12V	±10%	120mV	0.0 A	0.3A
5	+5VSB	±5%	50mV	0.0 A	2.5A

※ -12V,+3.3V, +5V,+12V will have the regulation to ±10% when all load take off.

4.4. EFFICIENCY

	Full load (100%)	Typical load (50%)	Light load (20%)
115VAC	82%	85%	82%
230VAC	82%	85%	82%

(loading shown in Amps)

Loading	+12V	+5V	+3.3V	-12V	+5Vsb
Full (100%)	14.42	8.19	7.02	0.24	2.00
Typical (50%)	7.21	4.09	3.51	0.12	1.00
Light (20%)	2.88	1.64	1.40	0.05	0.40

## 6. Test Item

Test Item	Test Condition / Specification		Sanction	
			Measured	Result
6.1. AC Input Current	I/P:115VAC	4A	2.67A	PASS
6.2. MAX Inrush Current	I/P:115VAC	A	8.55A	-
	I/P:230VAC	A	9.54A	-
6.3. Input Frequency & Voltage	I/P:90VAC/47HZ	■ON □ OFF	-	PASS
	I/P:90VAC/63HZ	■ON □ OFF	-	PASS
	I/P:264VAC/47HZ	■ON □ OFF	-	PASS
	I/P:264VAC/63HZ	■ON □ OFF	-	PASS
6.4. Switching Test	Switching Time: 0.5 Sec MIN Load / Full Load	@90VAC ■ON □ OFF	-	PASS
	Switching Time: 0.5 Sec MIN Load / Full Load	@115VAC ■ON □ OFF	-	PASS
	Switching Time: 0.5 Sec MIN Load / Full Load	@230VAC ■ON □ OFF	-	PASS
	Switching Time: 0.5 Sec MIN Load / Full Load	@264VAC ■ON □ OFF	-	PASS
6.5. Efficiency	I/P:115VAC O/P:20% LOAD	@82%Min	83.978	PASS
	I/P:230VAC O/P:20% LOAD	@82%Min	84.138	PASS
	I/P:115VAC O/P:50% LOAD	@85%Min	85.965	PASS
	I/P:230VAC O/P:50% LOAD	@85%Min	87.719	PASS
	I/P:115VAC O/P:100% LOAD	@82%Min	82.834	PASS
	I/P:230VAC O/P:100% LOAD	@82%Min	85.379	PASS
6.6. Line Regulation	I/P:90VAC~264VAC	<±5%	0.4%	PASS
6.7. Load Regulation	I/P:115VAC O/P:MIN~FULL LOAD	<±5%	2.5%	PASS
	I/P:230VAC O/P:MIN~FULL LOAD	<±5%	2.5%	PASS
6.8. Over-Voltage Protection	I/P:230VAC O/P:MIN LOAD	V1 : 13~18 (MAX)	-	-
6.9. Over-Circuit Protection	O/P: 5V	45A(MAX)	22A	PASS
6.10. Over-Load Protection	I/P:115VAC O/P:MIN LOAD	150%	127%	PASS
	I/P:230VAC O/P:MIN LOAD	150%	128%	PASS
6.11. Short Circuit Protect	I/P:115VAC O/P:MIN LOAD	12V&GND Short	-	PASS
	I/P:230VAC O/P:MIN LOAD	12V&GND Short	-	PASS

<b>6.12. Line Voltage Surge</b>	O/P: FULL LOAD	Surge voltage from 132VAC to 147VAC (0.5sec), back to 132VAC	-	PASS
	O/P: FULL LOAD	Surge voltage from 264VAC to 293VAC (0.5sec), back to 264VAC	-	PASS
<b>6.13. Line Voltage Sag</b>	O/P: FULL LOAD	Sag voltage from 108VAC to 80VAC (0.5sec), back to 108VAC	-	PASS
	O/P: FULL LOAD	Sag voltage from 198VAC to 161VAC (0.5sec), back to 198VAC	-	PASS
<b>6.14. Ripple &amp; Noise</b>	I/P:115VAC O/P:5V FULL LOAD	$\leq 50\text{mv}$	24.4mv	PASS
	I/P:230VAC O/P:5V FULL LOAD	$\leq 50\text{mv}$	24.6mv	PASS
<b>6.15. Setup Time</b>	I/P:90VAC O/P:FULL LOAD	S(MAX)	215.8ms	-
	I/P:230VAC O/P:FULL LOAD	S(MAX)	200.0ms	-
<b>6.16. Hold up Time</b>	I/P:115VAC O/P:FULL LOAD	14mS(MIN)	21.5ms	PASS
	I/P:230VAC O/P:FULL LOAD	14mS(MIN)	20.0ms	PASS
<b>6.17. Rise Time</b>	I/P:115VAC O/P:FULL LOAD	20mS(MAX)	13.366ms	PASS
	I/P:230VAC O/P:FULL LOAD	20mS(MAX)	13.656ms	PASS
<b>6.18. Turn on Overshoot</b>	Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD		-	PASS
	Turn on overshoot shall not exceed 10% over nominal voltages@ 20 % LOAD		-	PASS
<b>6.19. Turn off Undershoot</b>	Turn off undershoot shall not exceed 10% over nominal voltages		-	PASS
	Turn off undershoot shall not exceed 10% over nominal voltages		-	PASS

<b>6.20. Remote ON/OFF</b>	Simulate TTL signal to test this function			-
<b>6.21. Power Good Signal</b>	Shall go high level with a delay of 100~500ms		-	-
<b>6.22. Power On In Low Temperature</b>	I/P:115VAC ( 0°C ) After 2HR Power On			-
<b>6.23. Power On In High Temperature</b>	I/P:115VAC ( °C )After 2HR Power On			-
<b>6.24. System Power Consumption Test</b>	No Run Prime95	I/P:100VAC 0.42A 40.9W	O/P: 3.3V/4A 5V/1.56A 12V/0.4A -12V/0.03A 5VSB/0.12A 26.76W	PASS
	Run Prime95	I/P:100VAC 1.27A 127.2W	O/P: 3.3V/2.94A 5V/2.65A 12V/5.75A -12V/0.03A 5VSB/0.12A 92.912W	PASS
	Sleep Mode(S3)	I/P:100VAC 3.6W		PASS
	Standby Mode	I/P:100VAC 1.7W		PASS