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# SPECIFICATION



ESD06033359

FSP253-5M02

Released Date:2006/8/10-19:18:10



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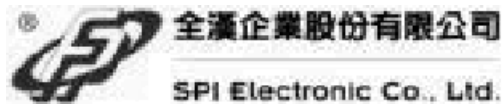
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# SPECIFICATION

**Customer : BenQ**  
**FSP Model : FSP253-5M02**  
**TYPE : G.P(Lead free )**  
**FSP P/N : 90C2530200**

P.E	R/D	APPROVED	REV.
Steven Kung	Steven Kung	Frank Liang	03

表單編號：



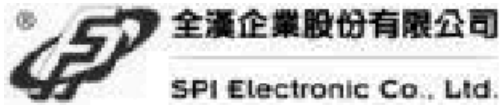
# Electrical Specification

## History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
<u>01</u>	SPEC ISSUE	Feb,13,2006	Steven Kung	Theoden Hu	Steven Kung	
<u>02</u>	2.7 Hold up time change input voltage from 100Vac to 180 Vac	MAY,26,2006	Steven Kung	Theoden Hu	Steven Kung	
	3.1 Short Circuit Protection (SCP) & 3.2 Over-Current Protection (OCP): When +12V SCP, +12V shutdown and autorecovery ,others normal					
	4.10 Grounding Test delete					
<u>03</u>	2.10 Power saving Stand by Power under 2W at 5Vsb output current 60mA at input voltage 180~264VAC and 47~63Hz ≤2W at 5Vsb/0.06A	AUG,03,2006	Steven Kung	Theoden Hu	Steven Kung	

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# Electrical Specification

## Electrical Requirements

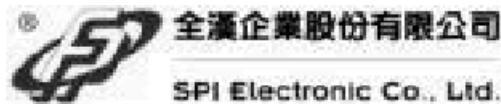
### 1. Input Characteristics:

※Measured the output voltage at the PCB

ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage		200Vac - 240Vac (Nominal) 180Vac - 264Vac (possible)
1.2 Input Voltage Range		180VAC to 264VAC
1.3 Input Frequency Range		47Hz to 63Hz (normal:50~60 Hz)
1.4 Power Factor		NO REQUIRMENT
1.5 Input Current	DC output with maximum loading at 180Vac	5Amax
1.6 Inrush Current	DC output with full loading at input 264Vac and 25°C Cold start	100Amax & no damage on power supply
1.7 Efficiency	DC output with full Loading at 180Vac input Voltage range	≥ 75%

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# Electrical Specification

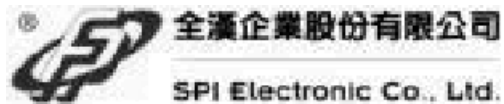
## 2. Output Characteristics:

※Measured the output voltage at the PCB

ITEM	CONDITION	SPECIFICATION
2.1 Output Rated Voltage (Vo)		+24V +5V +15V +12V +5Vsb
2.2 Output Current	+24V +5V +15V +12V +5Vsb	0.01A min. 7.2A max 0.4 A min. 1.5A max 0.1A min. 3.44A max 0.1 A min. 1A max 0.06 A min. 2A max
2.3 Output Voltage Setting	Measured at the output end of DC connector	+24V +5V +15V +12V +5Vsb
2.4 Output Voltage Ripple and Noise:	+24V +5V +15V +12V +5Vsb (0.1uF Ceramic Cap. and 10uf/50V Electrolytic Cap. Paralleled between the end of DC loading side and Measured Band-Width with DC-20MHz)	≤ 480mVp-p ≤ 100mVp-p ≤ 300mVp-p ≤ 240mVp-p ≤ 100mVp-p
2.5 Load regulation:	All DC output with minimum loading	+24V ± 5%
	All DC output with middle loading	+5V ± 5%
	All DC output with maximum loading	+15V± 5% +12V ± 5% +5Vsb± 5%
2.6 Turn on delay Time:	The power supply is in regulation within 2 seconds after specified rated input voltage had been applied .	≤ 2 seconds
2.7 Hold up time	This power supply is capable to maintain output voltage within regulation specified range and more than <b>10mS</b> after remove the input voltage that measured at <b>180Vac</b> and maximum load.	10ms min.
2.8 Dynamic Load Change	Step load : changed for a <b>25%</b> step load. The slew rate of load change: <b>1A</b> per us. Duty of step load: <b>50%</b> Transient frequency range: <b>100Hz to 1KHz</b>	24V± 1.2V
		5Vsb±0.25V
2.9 Power Down	Power-ON signal is L (<0.7V)	Only +5Vsb output ON
	Power-ON signal is H (3V~5.5V)	+5V,+12V,+24V,+15V and +5Vsb output ON
2.10 Power saving	Stand by Power under 2W at 5Vsb output current 60mA at input voltage 180~264VAC and 47~63Hz	≤2W at 5Vsb/0.06A

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# Electrical Specification

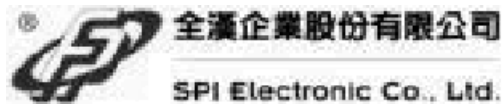
## 3. Protection Characteristics:

※Measured the output voltage at the PCB

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection (SCP):	+24V +12V +15V +5V +5Vsb	Power supply no damage and will be latched When +12V SCP, +12V shutdown and autorecovery ,others normal
3.2 Over-Voltage Protection (OVP): (以外灌方式量測)	+24V: 35Vmax +5Vsb: 7.5Vmax	Power supply no damage and will be latched
3.2 Over-Current Protection (OCP):	Input: 220V/60Hz Output: +24V/1A +12V/1A +15V/1A +5V/1A +5Vsb/1A	+24V≤14A, with latch mode +12V≤8A, with +12V shutdown and autorecovery ,others normal +15V≤12A, with latch mode +5V≤12A, with latch mode +5Vsb≤12A, with latch mode

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# Electrical Specification

## 4. Environmental Characteristics:

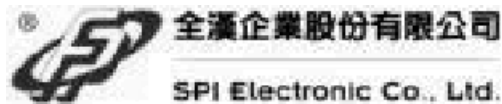
ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients:	in system	EN61000-4-4
4.2 Lightning Surge:	in system	EN61000-4-5
4.3 Electron Static Discharge:	Air Discharge: $\pm 15\text{KV}$ min.(with system) Contact Discharge: $\pm 8\text{KV}$ min. (with system)	
4.4 Cooling	Natural air cooling(follow system)	
4.5 EMI: EMI Conducted Emission EMI Radiated Emission	FCC: PART 15J. CLASS B	Test with system.
4.6 Safety conforming:		IEC60065
4.7 Leakage Current:	AC input 264Vac	$\leq 0.5\text{mA}$
4.8 Insulation Resistance:	At DC 500V	$\geq 20\text{M}\Omega$
4.9 Dielectric Strength: (Hi-Pot)	100% of line products of this power supply shall be applied <b>1500Vac</b> or <b>2121 Vdc</b> for a minimum of 1 second between line/neutral and PE(protective earth) and between line/neutral and DC/DC output terminals. The cut off current is specified as 20mA.	
4.10 Temperature:	Operating	0 to 50°C
	Storage	-20 to 60°C
4.11 Altitude:	Operating	Sea level to 10,000 Ft
	Non Operation	Sea level to 30,000 Ft

## 5. Reliability:

ITEM	CONDITION	SPECIFICATION
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# Electrical Specification

5.1 MTBF	Continuous operation at 25°C	100 K hours min.
5.2 Burn-In	220Vac input Burn-In with 80% loading at Environment temperature 55°C +/- 5°C	8 Hours
5.3 Vibration Test	No operation vibration	Sine, standalone Q <=5 1G control, 5Hz to 500Hz, all three primary axis 5 minutes sweep rate.
	Operation vibration	Random, standalone 0.015 g2/Hz 5Hz to 1000Hz, all primary axis 30 minutes per orientation
5.4 <u>Shock</u>	<u>Non- operating</u>	Standalone 50g 11ms half sine pulse, all primary axis, three shocks per orientation.
5.5 Components derating	All components derating should be meet BENQ'S components derating criteria.	
<b>6.Mechanical Characteristic:</b>		
Item	CONDITION	SPECIFICATION
6.1 Physical Size		260mm(L)x162mm(W)x43mm(H)

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