



全漢企業股份有限公司

SPI Electronic Co., Ltd.

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SPECIFICATION



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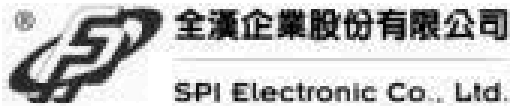
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SPECIFICATION

FSP230-5M01

P.E	R/D	APPROVED	REV.
	張忠傑	梁適安	01

表單編號：



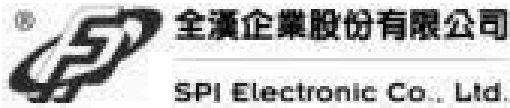
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History

REV.	Description	Date	Drawn	Mechanical	Electrical	Approved
	SPEC ISSUE	94/05/27	Leokuo	Kenshis	Leokuo	frank

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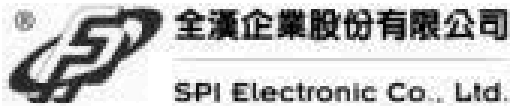
Electrical Specification

Electrical Requirements

1. Input Characteristics:		
ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage		100Vac - 240Vac (Nominal) 90Vac - 265Vac (Maximum)
1.2 Input Voltage Range		90VAC to 265VAC
1.3 Input Frequency Range		47Hz to 63Hz
1.4 Power Factor	DC output with full loading at 240Vac DC output with full loading at 100Vac	≥ 0.9 ≥ 0.95
1.5 Input Current	DC output with full loading at 90Vac DC output with full loading at 265Vac	3.5Amax 1.5Amax
1.6 Inrush Current	DC output with full loading at 115Vac and 25°C DC output with full loading at 230Vac and 25°C	75Amax 150Amax
1.7 Power Saving	It must be measured in power down condition	≤1.0W at 115Vac and no load ≤1.0W at 240Vac and no load
1.8 Efficiency	DC output with full Loading at nominal ac input Voltage range	≥ 80%

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Electrical Specification

2. Output Characteristics:		
ITEM	CONDITION	SPECIFICATION
2.1 Output Rated Voltage (Vo)		+24V +12V +24V(audio) +5V +5VSB
2.2 Output Current	+24V +12V +24V(audio) +5V +5VSB	0.5A to 4.5A 1A to 2A 1A to 2A 0.8A to 4.0A 0A to 1A
2.3 Output Voltage Setting	Measured at the output end of DC connector	24V ± 5% 12V ± 5% 24V ± 5%(audio) 5V ± 5% 5VSB ± 5%
2.4 Output Voltage Ripple and Noise:	+24V +12V +24V(audio) +5V +5VSB (0.1uF Ceramic Cap. and 10uF Electrolytic Cap. Paralleled between the end of DC loading side and Measured Band-Width with DC-20MHz)	≤ 240mVp-p ≤ 120mVp-p ≤ 240mVp-p ≤ 50mVp-p ≤ 50mVp-p
2.5 Output Over-shoot and under-shoot Voltage:		≤ 10% of Vo
2.6 Rise Time:	At 110Vac full load, DC output voltage rise from 0 volt and settle within regulation	≤ 200mS
2.7 Dynamic Load Change	I1=2.25A,I2=4.5A,Tset-max=10msec,S/R≥50mA/usec	24V± 2.4V
	I1=1A,I2=2A,Tset-max=10msec,S/R≥50mA/usec	12V± 1.2V
	I1=2.0A,I2=4.0A,Tset-max=10msec,S/R≥50mA/usec	5V ± 0.5V
	I1=1A,I2=2A,Tset-max=10msec,S/R≥50mA/usec	24V± 2.4V(audio)
	I1=0.5A,I2=1.0A,Tset-max=10msec,S/R≥50mA/usec	5VSB ± 0.5V
2.8 Power down signal	1. If H(3.3~5.0V) signal 2. If L(0~0.7V) signal	all output only 5VSB

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3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection (SCP):		+24V: latch mode +12V: latch mode +24V(audio) : latch mode +5V : latch mode +5VSB : auto-recovery mode
3.2 Over-Voltage Protection (OVP):	+24V: 36Vmax	+24V : latch mode
3.3 Over Current Protection (OCP):	+24V:10Amax at 115/230Vac	+24V : latch mode

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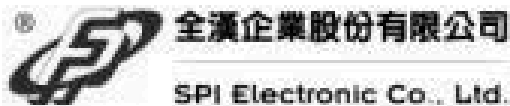
Electrical Specification

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4. Environmental Characteristics:		
ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients:	2KV on AC power line	
4.2 Lightning Surge:	L-N : 1KV on differential mode L-G/N-G : 2KV	
4.3 Electron Static Discharge:	Air Discharge: ± 15KV min. Contact Discharge: ±8KV min.	
4.4 Cooling	Natural air cooling	

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4.5 EMI:	FCC: PART 15J. CLASS B	Test with system.
EMI Conducted Emission	CISPR22: Pub22. CLASS B	
EMI Radiated Emission	VCCI: Level 2	
4.6 RF	Fr: 26MHz-1.0GHz,Field Strength: 3V/M	
4.7 Safety conforming:	UL 6500 2nd IEC 60065 6th	
4.8 Leakage Current:	Vin:254Vac/50Hz	≤ 0.75mA
4.9 Insulation Resistance:	At DC 500V	≥ 20MΩ
4.10 Dielectric Strength: (Hi-Pot)	1800Vac, 10mA, 3 sec between Primary to Secondary circuit and Chassis	
4.11 Grounding Test:	At ac 2~8V, 30A	≤0.1Ω of AC inlet ground to FG
4.12 Temperature:	Operating Storage	0 to 40°C -40 to 70°C
4.13 Humidity	Operating Storage	20% ~ 80% 10% ~ 90%
4.14 Altitude:	Operating Non Operation	Sea level to 10,000 Ft Sea level to 30,000 Ft

5.Reliability:		
ITEM	CONDITION	SPECIFCATION
5.1 MTBF	Continuous operation at 25°C	50,000 hours
5.2 Temperature Rise	At nominal AC input/DC output full Loading and Environment temperature 25+/-1°C	Internal components Less than Δ70°C
5.3 Burn-In	100% Burn-In with 80%~100% loading at Environment temperature 35~40°C	4 Hours
5.4 Vibration Test	No operation vibration	2G'S peak, 7~50Hz 4G'S peak, 50~500Hz
	Operation vibration	3 planes, 0.5G'S peak, 10~60Hz

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5.5 Drop-test	No define	
6.Mechanical Characteristics:		
ITEM	CONDITION	SPECIFICATION
6.1 Plastic Case:		None
6.2 Size:		Compare OAD

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