電氣規格書

ESD-00000635

FSP090-DBBN3

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全漢企業股份有限公司
FSP TECHNOLOGY INC.
台灣桃園市桃園區建國東路22號 統一編號：84239055
No. 22, Jianguo E. Rd., Taoyuan Dist., Taoyuan City 330, Taiwan (R.O.C)
TEL:+886-3-375-9888 Website:www.FSP-group.com
FAX:+886-3-375-6966 Email:sales@fsp-group.com.tw

Efficiency Testing Criteria

The Product Meet	Regulation	Output Power	Average Efficiency in Active Mode	Maximum Power in No Load
	Department of Energy Level VI	49W<PO≦250W	≧88%	≦0.21W
	Code of Conduct Tier 2	49W<PO≦250W	≧89%	≦0.15W

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SPECIFICATION

AC Adapter

FSP090-DBBN3

anticipate IEC 62368-1

P.E	R/D	APPROVED	REV.
Victor	Arthur	Shipu	1

全漢企業股份有限公司
FSP TECHNOLOGY INC.

Electrical Specification

REV.	Description	Date	E.E	Approved
1	SPEC ISSUE	SEP. 13,2017	Arthur	Shipu

Electrical Specification

Electrical Requirements

1. Input Characteristics:

ITEM	CONDITION	SPECIFICATION
1.1 Rated Input Voltage:		100Vac~240Vac
1.2 Input Voltage Range:		90Vac to 264Vac
1.3 Input Frequency Range:		47Hz to 63Hz
1.4 Input Current:	100Vac / Full Load(4.74A) 240Vac / Full Load(4.74A)	≤ 1.5A ≤ 0.8A
1.5 Input Current Harmonic:		IEC61000-3-2
1.6 Efficiency: (Warm up 10 min later)	100Vac / Full Load(4.74A) 240Vac / Full Load(4.74A)	≧87% ≧88%
1.7 Inrush Current:	100Vac,240Vac / Full load(Cold start)	Shall be less than the rating of Adapter critical component (including rectifiers, fuse surge And current limiting device)
1.8 Meet DoE(Level VI):	(1)115Vac / 0A load (2)115Vac / 25%,50%,75%,100% load (Average Active Mode Efficiency , Warm up 30 minutes later)	≦0.21W ≧88% (DC Cable≦1500 mm,18AWG)
1.9 Meet CoC(Tier 2):	(1)230Vac / 0A load (2)230Vac / 25%,50%,75%,100% load (Average Active Mode Efficiency ,Warm up 30 minutes later)	≦0.15W ≧89% (DC Cable≦1500 mm,18AWG)

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Electrical Requirements

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 4.74A
2.3 Output Voltage Setting:	at the output end of DC cable	19V ± 5%
2.4 Output Voltage Ripple and Noise: (0.1uF Ceramic Cap. and 35V 47uF Aluminum Cap. Paralleled between the end of output cable)	115Vac, 230Vac / 0A~4.74A load	≤ 380mVp-p
2.5 Turn-On Delay Time:	At 115Vac / 4.74A load, output voltage shall remain regulation	≤ 3.5Sec
2.6 Hold Up Time:	At 115Vac or 230Vac / 4.74A load, output voltage shall remain regulation	≥ 10ms
2.7 Rise Time:	At 115Vac / 4.74A load, DC output rise time from 10%~90% of VO	≤ 50ms
2.8 Dynamic Load Change:	(1) Output load step is： (a)10% ~50 % (b)50 %~90 % (2) S/R=0.5A/us (3) Frequency is 100Hz and 1KHz	19V ± 10%
2.9 Overshoot:	115Vac,230Vac / 0A and 4.74A	19V ± 10%
2.10 Connector Pin Designations:		Refer to Outline

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Electrical Specification

Electrical Requirements

3. Protection Characteristics:

ITEM	CONDITION	SPECIFICATION
3.1 Short Circuit Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload or short circuit is applied to the output, the power supply shall shut down and enter auto-recovery mode.	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 28 volts. Only internal test.	Shutdown and no damage
3.3 Over Current Protection:	When an internal fault occurs, or an external fault is applied to the power supply, such that an overload is applied to the output, the power supply shall shut down and enter auto-recovery mode. at 115Vac & 230Vac & C. C. Mode	Shutdown and no damage Output current limit : 8.0A(Max)
3.4 Over Temperature Protection:	The power supply will enter into shut down while the abnormal thermal rise occurs. That will be return to normal state by AC reset.	No fire , no smoke

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Electrical Specification

Electrical Requirements

4. Environmental Characteristics:

ITEM	CONDITION	SPECIFICATION
4.1 Electric Fast Transients: Refer to IEC61000-4-4	Impulse: ±1kV applied to L,N	Normal operation shall be continued
4.2 Lightning Surge: Refer to IEC61000-4-5	±1kV applied differential mode ±2kV applied common mode	Normal operation shall be continued Normal operation shall be continued
4.3 Electron Static Discharge: (Refer to IEC61000-4-2 Energy Storage Capacitor 150pF; Discharge Resistor 330Ω)	Contact Discharge: ± 4 KV Air Discharge: ± 8 KV	Normal operation shall be continued
4.4 Cooling:	Natural air cooling	
4.5 EMI: Adapter comply with the following national standards: EMI Conducted Emission EMI Radiated Emission	1.Full Load 2. The power supply with internal filter can meet.	FCC PART 15J CLASS B CISPR32 EN55032 CLASS B VCCI LEVEL Ⅱ
4.6 Safety conforming: 4.6.1 Energy-related Products(ErP) Department of Energe(DoE) Code of Conduct(CoC)		Regulated by customer Comply with ErP standard Comply with DoE standard Comply with CoC standard
4.7 Leakage Current:	264Vac / 50Hz	≤ 0.25mA
4.8 Dielectric Strength: (Hi-Pot)	Between AC input and secondary applied AC 1.5KV / test time 1 minute / cut off current shall be less than 10mA	
4.9 Insulation Resistance	Between AC input and secondary applied DC 500V/ test time 1 second	≥100 MΩ
4.10 Temperature:	Operating Storage	0 to 40°C(Safety) 40 to 70°C Linearly de-rate to 50% load at 70°C， need to check safety with system -20 to +80°C
4.11 Humidity:	Operating Storage	20% ~ 80% 10% ~ 90%

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Electrical Specification

Electrical Requirements

5. Mechanical Characteristics:

ITEM	CONDITION	SPECIFICATION
5.1 Dimension(Length x Width x Height)		129.0 X 51.0 X 30.9 mm
5.2 Adapter weight		200g (typical)
5.3 Input AC socket Type		IEC 320-C6 Type
5.4 Vibration Test:	（1）Non-operating, 0.01g^2/Hz at 5Hz slopping to 0.02g^2/Hz at 20Hz, And maintain 0.02g^2/Hz from 20Hz ~ 500Hz （2）PSD=3.13grms, 15 minutes/axis （3）Vibration duration : 15minutes （4）Vibrationwaveform : Random （5）Force Direction X,Y,Z	Normal operation shall be continued.
5.5 MTBF:	(1) Full Load (2) 230Vac (3) 25℃	300,000Hrs Min. Telcordia SR-332 Issue2
5.6 SEA Level:		5000 meters
5.7 RoHS:		Meet RoHS required
5.8 Acoustic Noise:	(1) Position the microphone 30 Centimeters above the x-y center Of the AC adapter (2) Input voltage: 110Vac/60Hz 220Vac/50Hz (3) Test Point: No load 20% load 40% load 60% load 80% load Full load	The EUT <30dB

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Electrical Specification

Note : Acoustic Noise