



深圳市方信泰科技有限公司

Shenzhen FORSUN-TECH CO., LTD.

承认书

Specification for Approval

Part NO. : FSE040A2, FSE060A2, FES040A3, FSE060A3

Description : 40W, 50W Power supply module

Revision :

Customer :

Customer approval NO. :

签章后请回传本正本一份

Please send us on original of this Specification with your approved signatures.

承认书 APPROVED SIGNATURES	
核准人 APPROVED BY :	日期 DATE :
盖章签署 CHOP & SIGNATURES	

深圳市方信泰科技有限公司

SHENZHEN FORSUN TECH CO.,LTD

Add : Suit 306A, Zhongshen Building, Jingtianbei ,

Futian District, Shenzhen, P,R, China

ZIP Code : 518034

TEL : 0755-83948458

FAX : 0755-83940008

FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2 , FSE060A2 , FES040A3 , FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

目录 Section

1 电源性能指标 POWER SUPPLY OVERVIEW	4
1.1 输入特性 INPUT ELECTRICAL CHARACTERISTICS OVERVIEW	4
1.2 输出特性 OUTPUT ELECTRICAL CHARACTERISTICS OVERVIEW	4
1.2.1 输出调整率 Output Voltage ,Current & Regulation	4
1.2.2 输出纹波噪声 DC Output Ripple & Noise.	4
1.2.3 输出动态响应 Output Transient Response.....	5
1.2.4 输出保持时间 DC Output HOLD-UP TIME.....	5
1.2.5 输出超调 DC Output OvershootAt Turn On & Turn Off.	5
1.2.6 输出上升时间 DC output voltage rise time	5
1.3 保护功能 Protection	6
1.3.1 输出过压保护 Output over voltage protection.....	6
1.3.2 输出过流保护 Output Over current protection.....	6
1.3.3 输出短路保护 DC Output short circuit protection.....	6
2 绝缘性能 Isolation	7
2.1 绝缘阻抗.....	7
2.2 绝缘耐压.....	7
3 安全规格 Safety.....	7
4 电磁兼容 EMC	7
5 工作环境 Envirnmmental Requirement	8
6 物理尺寸 Dimension	8
7 重量 Weight	8
8 连接器脚位定义 Pin Connection.....	8
9 结构图.....	9-10

FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2, FSE060A2, FES040A3, FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

1.0 电源性能指标 POWER SUPPLY OVERVIEW

1.1 输入特性 INPUT ELECTRICAL CHARACTERISTICS OVERVIEW

输入电压 AC input range	150Vac to 264Vac
标称输入 Normal voltage range	160Vac to 240Vac
AC 频率范围 Frequency range	50Hz/60Hz +/-5%
满载输入电流 Max input ac current	1.0Amax at full load condition
浪涌电流 Inrush current (cold start)	30Atp peak, 120Vac; 60Atp peak, 220Vac
效率 Efficiency(full load)	80%min at 100Vac; 84%min at 220Vac
谐波电流 Harmonic current	Meet EN60065-2002/IEC61000-3-2 class D
泄漏电流 Leakage Current	Less Than 0.5mA, 230Vac input
待机功耗 Standby Power Loss	<1W 240Vac input ,12V Output current 40mA,
输入保险 Input Fuse	T3.15A L / 250Vac

1.2 输出特性 Output Electrical Characteristics Overview

1.2.1 输出调整率 Output Voltage ,Current & Regulation

输出电压 Output voltage	调整率 Regulation	最小电流 Min. current	带载电流范围 Load current range	峰值电流 Peak current
12V	12V +/- 5%	0.01A	0.01~3A, (FSE040); 0.01~4A, (FSE060)	3.5A, (FSE040); 4.5A, (FSE060)

1.2.2 输出纹波噪声 DC Output Ripple & Noise.

输出电压 Output voltage	纹波加噪声 Ripple & Noise.
12V	<60mV

Note: 1.示波器需设置在 20M 带宽

Measurements shall be made with an oscilloscope with 20MHz bandwidth.

2.在输出端并联 0.1uf 瓷片电容加 10uf 电解电容来模拟负载

Outputs shall be bypassed at the connector with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading.

FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2 , FSE060A2 , FSE040A3, FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

1.2.3 输出动态响应 Output Transient Response.

Voltage tolerance range	Slew rate	Load change
+/- 10%	0.2A/uS	Min ~ 50% and 50%~100% load

Note: 以 50 至 10K 赫兹频率测试

Transient response measurements shall be made with a load changing repetition rate of 50Hz to 10kHz.

1.2.4 输出保持时间 DC Output HOLD-UP TIME

Output Voltage	110V AC input	220V AC input
12V	> 10mS	> 10mS

Note: 输出满载 All of dc output at full load.

1.2.5 输出超调 DC Output OvershootAt Turn On & Turn Off.

Output Voltage	开机 Turn -on	关机 Turn -off
12V	5%	<5%

Note: 测试时负载电流范围最小到最大 All of dc output current from Min. to Max.

1.2.6 输出上升时间 DC output voltage rise time

Output Voltage	-	220V AC input
12V	-	<100mS

Note: 输出电压从 10%输出电压爬升至 90%输出电压的时间

The output rise time from 10% of normal output to 90% of output voltage

FORSUN-TECH
深圳市方信泰科技有限公司

DISCRIPTION:
承认书 SPECIFICATION

MODEL NO: FSE040A2 , FSE060A2 , FES040A3, FSE060A3

DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

1.3 保护功能 Protection

1.3.1 输出过压保护 Output over voltage protection

Voltage	TYP. Protect voltage	comments
12V	21V	打嗝 hiccup

Note: 应在输出轻载、空载下测试
Should be test at light or no load condition

1.3.2 输出过流保护 Output Over current protection

Voltage	TYP. Protect Current	comments
12V	6A	打嗝 hiccup

Note: 应在额定负载下测试[AC INPUT 100V]
Should be test at full load condition [AC INPUT 100V]

1.3.3 输出短路保护 DC Output short circuit protection

Output Voltage	comments
12V	打嗝 hiccup

Note: 测试时负载电流范围最小到最大 All of dc output current from Min. to Max.

FORSUN-TECH
深圳市方信泰科技有限公司

DISCRIPTION:
承认书 SPECIFICATION

**MODEL NO: FSE040A2 , FSE060A2 ,
FSE040A3, FSE060A3**

DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

2. 绝缘性能 Isolation

2.1 绝缘阻抗

输入对输出 Input to out put	DC500V 50MΩ min (at room temperature)
Input to FG	DC500V 50MΩ min (at room temperature)

2.2 绝缘耐压

输入对输出 Input to out put	3000V AC 50HZ 1 minute <10mA
Input to FG	1500V AC 50HZ 1 minute <10mA

3. 安全规格 Safety

电源安全满足下列标准

The power supply shall compliance with the following Criterion:

1. UL60950 2. EN60950 3. GB4943-1995

4. 电磁兼容 EMC

电磁兼容满足下列标准

The power supply shall compliance with the following Criterion:

4.1 电磁干扰 EMI

4.1.1.传导干扰 Conduction Emission :

*EN55022, CLASS B

*GB9254, CLASS B

*FCC PART15 CLASS B

4.1.2.辐射干扰 Radiated Emission :

*EN55022, CLASS B

*GB9254, CLASS B

*FCC PART15 CLASS B

Note: 需配合整机通过上述规则

The power module should be assembled in customer's product to test for passing the regulations

4.2 电磁抗扰度 EMS

4.2.1 ESD :GB17626.2-1998/IEC61000-4-2

4.2.2 EFT : GB17626.4-1998/IEC61000-4-4 3KV

4.2.3 Surge : GB17626.5-1998/IEC61000-4-5 1.5KV / 3KV

FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2 , FSE060A2 , FSE040A3, FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

5. 工作环境 Environmental Requirement

5.1 环境温度 Temperature

* Operating : -10 to 40 °C

* Store : -20 to 80 °C

5.2 环境湿度 Humidity

* Operating : From 10% to 90% relative humidity (non-condensing).

* Store : From 5% to 95% relative humidity (non-condensing).

5.3 海拔高度 Altitude

* Operating : to 10000 ft

* Store : to 20000 ft

5.4 冷却方式 Cooling Method

* Ventilation cooling

5.5 机械震动耐受 Vibration

* 10-55Hz, 19.6m/s (2G), 3minutes period, 60minutes each along X, Y and Z axis.

5.6 机械冲击耐受 Impact

* 49m/s(5G), 11ms, once each X, Y and Z axis.

6. 物理尺寸 Dimension

* 165mm X 65mm x 21mm (FSE040A2, FSE060A2);

160mm X 60mm x 15mm (FSE040A3); 165mm X 65mm x 15mm (FSE060A3)

7. 重量 Weight

120g

8. 连接器脚位定义 Pin Connection

CN1

NO.	Pin connection	function
1	AC-L	AC input line
2	NC	
3	AC-N	AC input line

CN2

NO.	Pin connection	function
1,2,3	GND	Output return
4,5,6	12V DC OUT	Output +12V

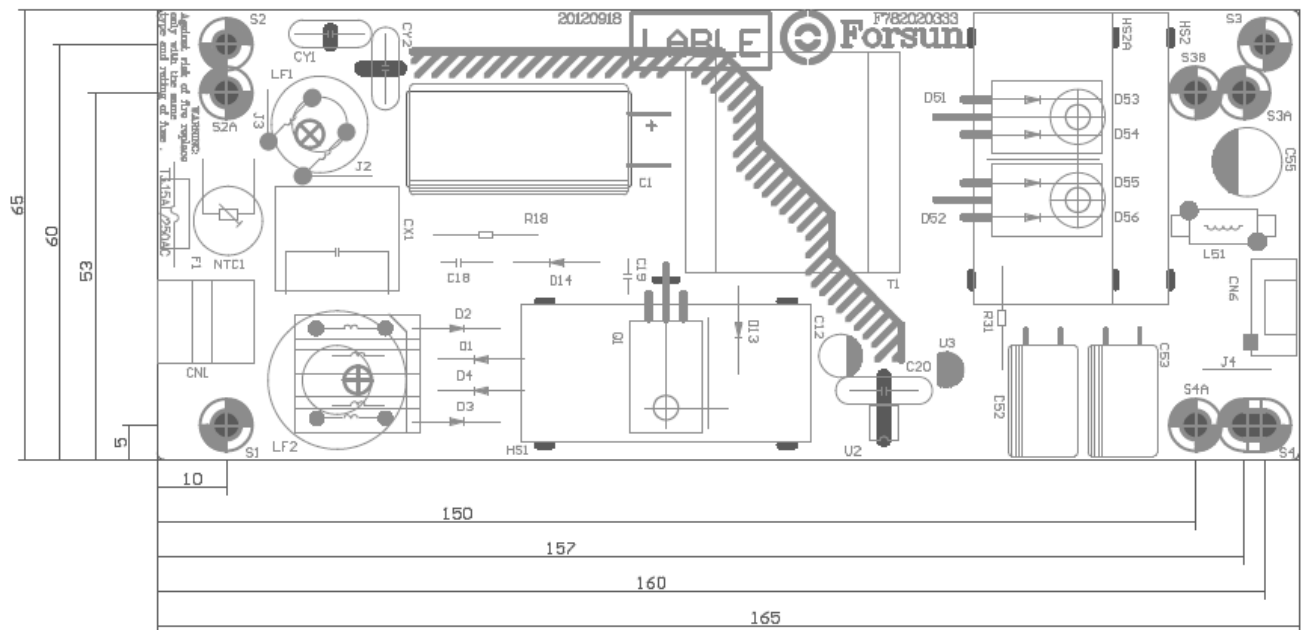
FORSUN-TECH
深圳市方信泰科技有限公司

DISCRIPTION:
承认书 SPECIFICATION

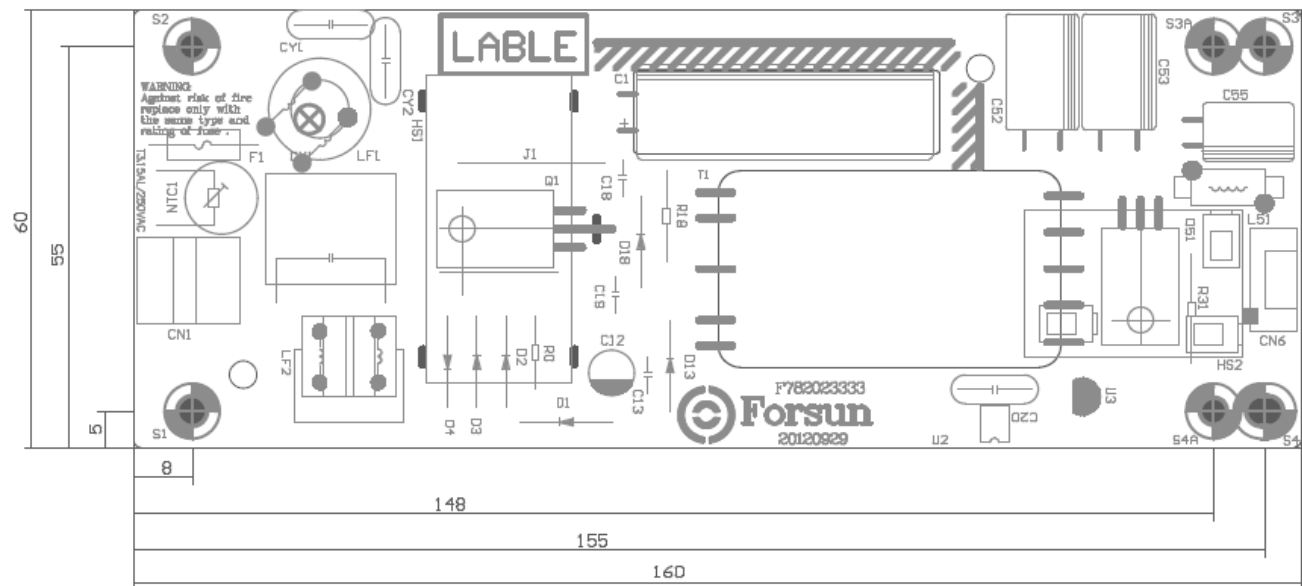
MODEL NO: FSE040A2 , FSE060A2 ,
FSE040A3, FSE060A3

DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

9. 结构图:
FSE040A2, FSE060A2

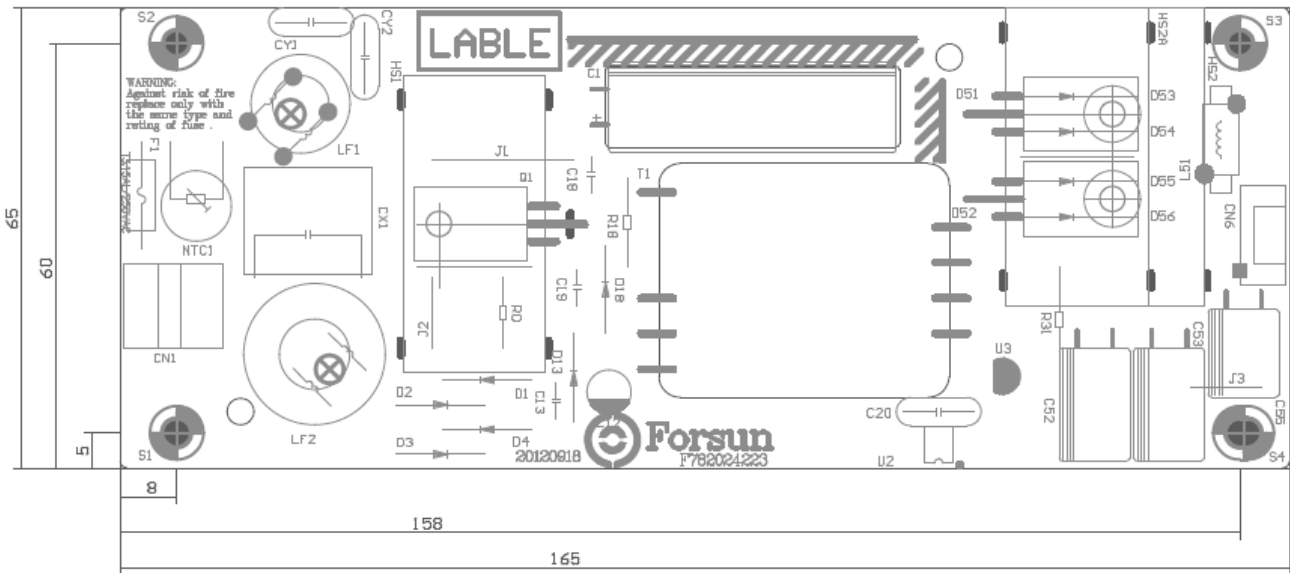


FSE040A3



FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2 , FSE060A2 , FSE040A3, FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0

FSE060A3



FORSUN-TECH 深圳市方信泰科技有限公司			DISCRIPTION: 承认书 SPECIFICATION		
			MODEL NO: FSE040A2 , FSE060A2 , FSE040A3, FSE060A3		
DATE	PREPARED	CHECKED	APPROVED	Doc. NO.	REV.
11.12.8	RZL	TL	ZB		1.0