

## 承认书

## SPECIFICATION FOR APPROVAL

Part No. MIP260B  
Description: LCD Power Supply And Inverter (2 In 1) Specification  
Revision: 1.2  
Customer. \_\_\_\_\_  
Customer Approval No. : \_\_\_\_\_

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# 1. Power Supply Overview 电性能指标:

## 1.1 Table 1 Input Electrical Characteristics Overview (输入特性)

Input voltage range 输入电压	90Vac to 264Vac
Normal voltage range 标称输入	100Vac to 240Vac
Frequency range 频率范围	50Hz/60Hz
Max input ac current 满载输入电流	1.8Amax at full load condition
Inrush current (cold start) 浪涌电流	50Atyp peak, 120Vac; 100Atyp peak, 220Vac
Efficiency(full load) 效率	80%min at 90Vac
Harmonic current 谐波电流	Meet GB17625.1-1998/IEC61000-3-2 class D
Leakage Current 泄漏电流	Less Than 0.7mA, 240Vac input(class II)
Standby Power Loss 待机功耗	≤1W @240Vac input ,output 30mA

## 1.2 Output Electrical Characteristics Overview (输出特性)

### 1.2.1 Table 2 Output Voltage ,Current & Regulation. (输出调整率)

Output Voltage 输出电压	Regulation 调整率	Min. current 最小电流	Rated current 最大电流	Peak current 峰值电流
+12V	10. 8V-13. 2V	0.1A	3A*	4A**
+5V	4. 8V-5. 3V	0.05A	3.5A*	4A**
+VS	4. 8V-5. 3V	0.02A	2A*	

Note:\*total output power≤100w, +5V and +VS Output current≤ 4A(BK action).

\* \*\*pulse width within 100ms 脉宽小于 100 毫秒

### 1.2.2 Table 3 DC Output Ripple & Noise. (输出纹波和噪声)

Output Voltage	Ripple & Noise (Max.)
+12V	700mVp-p-typ@25℃ ;
+5V	100mVp-p@25℃ ; Io ≥0. 5A
+VS	150mVp-p@25℃ ; Io ≤0. 5A

Note: 1) Measurements shall be made with an oscilloscope with 20MHz bandwidth.

示波器须设置在 20 兆赫兹带宽

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

输出须并联 0.1uF 的陶瓷电容和 10uF 的电解电容来模拟负载

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### 1.2.3 Output Transient Response. (输出动态响应)

Table 4. Test condition.测试条件

Voltage Tolerance Limit		Slew Rate	Load Change
+5V,+VS	4.75V-5.3V	0.2A/uS	50% to Max load
+12V	10.8V-13.2V	0.2A/uS	50% to Max load

Note: Transient response measurements shall be made with a load changing repetition rate of 50Hz to 1kHz. 以 50~1KHz 的频率跳变负载来测试。

### 1.2.4 Table 5 DC Output Hold-Up Time. (输出保持时间)

Output Voltage	110Vac input	220Vac input
+12V	$\geq 10$ mStyp	$\geq 10$ mStyp
+5V	$\geq 20$ mS	$\geq 20$ mS
+VS	$\geq 20$ mS	$\geq 20$ mS

Note: All of dc output at full load. 所有输出带满载

### 1.2.5 Table 6 DC Output Overshoot At Turn On & Turn Off. (输出超调)

Output (V)	Over shoot voltage (V) 超调电压	
	Turn on 开机	Turn off 关机
+ 12V	10%	10%
+5V	5%	5%
+VS	5%	5%

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

### 1.2.6 Table 7 DC output voltage rise time (输出上升时间)

Output Voltage	110Vac input & Full Load	230Vac input & Full Load
+12V	$\leq 30$ mS	$\leq 30$ mS
+5V	$\leq 30$ mS	$\leq 30$ mS
+VS	$\leq 30$ mS	$\leq 30$ mS

Note: The output voltages shall rise from 10% to 90% of their output voltage.

输出从 10% 上升到 90% 的时间

## 1.3 Remote On/Off Control: (遥控功能)

The power supply DC outputs shall be enable with an active-high TTL( $\geq 2.5V/2.0mA$ )-compatible signal(SB). The +VS is on whenever the AC power is present.  
除+VS 外, 其余输出受控于一个 TTL 电平兼容的信号 ( $SB \geq 2.5V/2.0mA$ ),  
+VS 上电就存在。

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- \* When SB is pulled to high, the 5V and 12V outputs are to be enabled.  
SB 高电平, 输出 5V 和 12V
- \* When SB is pulled to TTL low or open circuit, the DC outputs are to be disabled.  
SB 低电平, 关闭输出
- \* CCFL-VOL. Output shall be enable with BK signal ( 4. 5V-5. 5V).
- \* 背光由 BK 信号控制, 高电平有效。

Table 8.

Ps-on Signal	Comments	Outputs
SB- high	$\geq 2.5V \& 2.0mA$ ( source)	Output
SB- low	$\leq 0.8V$	X
SB-open	--	X

## 1.4 Protection: (保护功能)

### 1.4.1 Table 9 DC output Over Voltage Protection. (输出过压保护)

Output Voltage	Max. Over Voltage	Comments
+12V	15Vtyp	Power supply latch into shutdown state 输出锁机
+5V	7Vtyp	--
+VS	7Vtyp	--

Note: The power supply shall be test at max AC voltage (270Vac) and min load or no load.  
应该在最大交流输入电压 270 伏和轻载、空载下测试。

### 1.4.2 Table 10 DC Output Over current Protection. (输出过流保护)

Output Voltage	Over Current	Comments
+5V	$\geq 4A$	Hiccup
+VS	$\geq 4A$	Hiccup

Note: +VS and +5V total output current  $\leq 4A$ .

### 1.4.3 Table 11 DC Output Short Circuit Protection. (输出短路保护)

Output Voltage	Comments
+12V	Shutdown 关机
+5V	Hiccup
+VS	Hiccup

### 1.4.4 Reset After Shutdown. (保护功能复位)

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1. Recycle the SB signal or restart AC input, the power supply will restart after the fault removed.

故障去除后，关掉 SB 信号（或交流电）再打开，电源即可恢复。

## 1.5 Inverter Electrical Specification（逆变器规格）

1.5.1 Table 1

Parameter	Symbol	Min.	Max.	Note
Backlight Control Section				
Backlight On	BK	2.5V	5.5V	
Backlight Off		0V	≤0.8V	
Lamp Operating Section				
Lamp Frequency	FL	45KHz	75KHz	
Lamp RMS current	IL	7.0mA	8.0mA	
Lamp Operating Voltage	Vw	1920Vrms typ		
Lamp Starting Voltage	Vs	3180Vrms	3800Vrms	Ta=0℃
		--	--	
Protection Section				
Lamp OCP	IM	10mA	14mA	
CCFL-Vol. Short	--	--	--	yes

Note: Ta=25℃, And after 30 minutes warm up unless otherwise specified.

### 1.5.2 Timing Sequence（时序）

## 2. Isolation（绝缘性能）

2.1 Table 12（绝缘阻抗）

Input To Output	DC500V 50MΩmin (at room temperature)
Input To FG	DC500V 50MΩmin (at room temperature)
Output To FG	Non Isolated

Note:

2.2 Table 13（绝缘耐压）

Input To Output	3000Vac 50Hz 1minute ≤10mA
Input To GND	1500Vac 50Hz 1minute ≤10mA

Note:。

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### 3. Safety （安全规格）

The power supply shall compliance with the following Criterion:

电源安全性满足下列标准

- 1) UL60065
- 2) EN60065
- 3) GB8898

### 4. EMC （电磁兼容性）

#### 4.1 EMI （电磁干扰）

The power supply shall compliance with the following Criterion:

电源电磁干扰满足下列规则:

1) Conduction Emission : （传导干扰度）

- \*EN55022, CLASS B
- \*GB9254, CLASS B
- \*FCC PART15 CLASS B

2) Radiated Emission : （辐射干扰度）

- \*EN55022, CLASS B
- \*GB9254, CLASS B
- \*FCC PART15 CLASS B

#### 4.2 EMS （电磁抗扰）

The power supply shall compliance with the following Criterion:

电源电磁抗扰满足下列规则:

1) ESD （静电抗扰度）

\*GB17626.2-1998/IEC61000-4-2

2) EFT （脉冲群抗扰度）

\*GB17626.4-1998/IEC61000-4-4 3KV

3) Surge （雷击浪涌）

\*GB17626.5-1998/IEC61000-4-5 1.5KV / 3KV

### 5. Environmental Requirement （工作环境）

#### 5.1 Temperature （环境温度）

\* Operating: 0℃ to +50℃.

\* Store: -20℃ to +80℃.

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## 5.2 Humidity (环境湿度)

\* Operating: From 10%to90% relative humidity (non-condensing).

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

## 5.3 Altitude (海拔高度)

\* Operating: to10,000 ft.

\* Store: to 20,000ft.

## 5.4 Cooling Method (冷却方式)

\* Ventilation cooling . 自然冷却

## 5.5 Vibration (振动耐受)

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

## 5.6 Impact (冲击耐受)

\* 49m/s<sup>2</sup> (5G),11ms, once each X, Y and Z axis.

## 6. Dimension (物理尺寸)

\* 300mm X 115mm X 21mm (长 L \*宽 W \* 元件高 H).

## 7. Weight (重量)

● 400g

## 8. Pin Connection (连接器脚位定义)

**Table 15 Pin-CN3 Connection And Function**

NO.	Pin Connection	Function
1	+5VSB	STANDBY OUTPUT
2. 3	+12V	+12V OUTPUT
4. 5	GND	GND RETURN
6. 7	5V	+5V OUTPUT
8. 9	GND	GND RETURN
10	SB	SMPS ON/OFF CONTROL (ON = HIGH)
11	BK	BACKLIGHT ON
12	DM	INTERNAL PWM DIMMING

Note: CN3 -- JST VA CONNEETION, TYPE : pitch2.5mm

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**Table 16 Pin-CN10 Connection And Function**

NO.	Pin Connection	Function
1	GND	+5V RETURN
2	GND	+5V RETURN
3. 4. 7. 8	+5V	+5V OUTPUT
5	SB	SMPS ON/OFF CONTROL (ON = HIGH)
6	+VS	STANDBY OUTPUT
9. 10. 11	GND	+VS. +12V RETURN
12. 13	+12V	+12V OUTPUT

Note: CN10 -- JST VA CONNEETION, TYPE : pitch2.5mm

**Table 17 Pin-CN11 Connection And Function**

NO.	Pin Connection	Function
1	GD	GND
2	SB	SMPS ON/OFF CONTROL (ON = HIGH)
3	DM	INTERNAL PWM DIMMING
4	BK	BACKLIGHT ON
5	PM	EXTERNAL PWM DIMMING DUTY

Note: CN11 -- JST VA CONNEETION, TYPE : pitch2.0mm

**Table 18 Pin-CN4; CN5; CN6; CN7 Connection And Function**

NO.	Pin Connection	Function
1、 2	CCFL	CCFL-VOL. Output

Note:

**Table 19 Pin-CN2 Connection And Function**

NO.	Pin Connection	Function
1	AC-N2009	AC INPUT NUTURE FROM SW
2	NC	NC
3	AC-L2	AC INPUT LINE FROM SW
4	NC	NC
5	AC- N1	AC INPUT LINE TO SW
6	NC	NC
7	AC- L1	AC INPUT NUTURE TO SW

Note: CN2 -- JST VA CONNEETION, TYPE : pitch3.96mm

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**Table 20 Pin-CN1 Connection And Function**

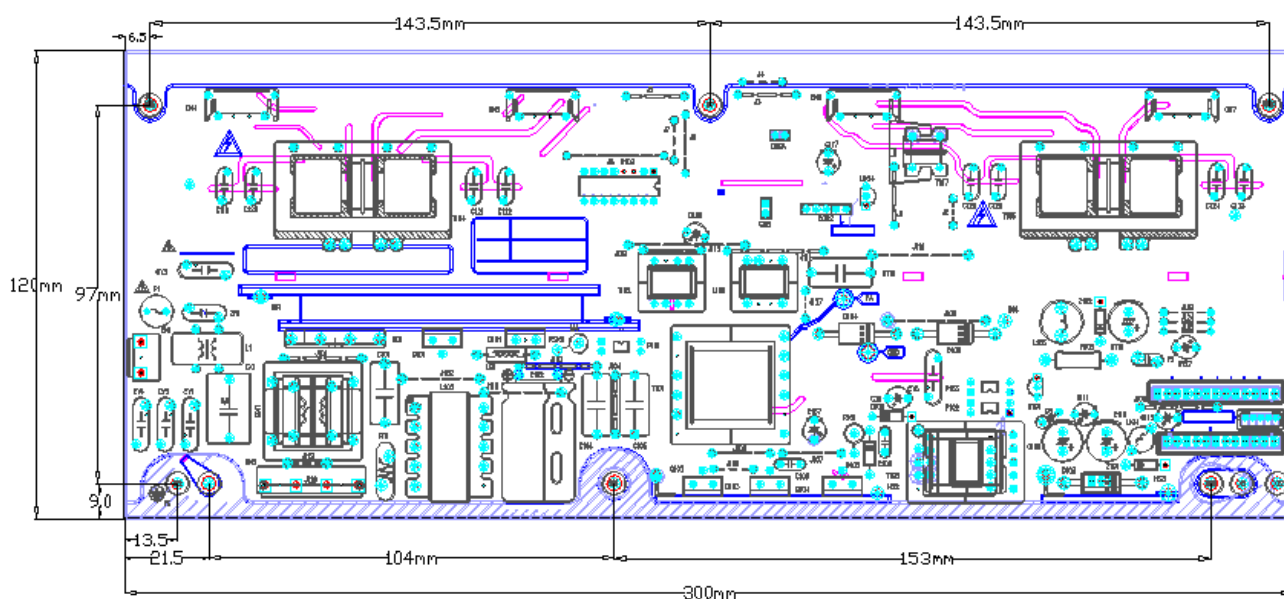
N0.	Pin Connection	Function
①	AC-N	AC INPUT NUTURE
②	NC	NC
③	AC-L	AC INPUT LINE

Note: CN1 -- JST VA CONNEETION, TYPE : pitch3.96mm

**Table 21 Pin-CN8 Connection And Function**

Pin Connection	Function
PIN① AND PIN② SHORT	EXTERNAL PWM DIMMING DUTY ENABLE
PIN①AND PIN② OPEN	INTERNAL PWM DIMMING

Note: CN8 -- JST VA CONNEETION, TYPE : pitch2.54mm

**Fig.8.1 Pin Connection (Top View)**

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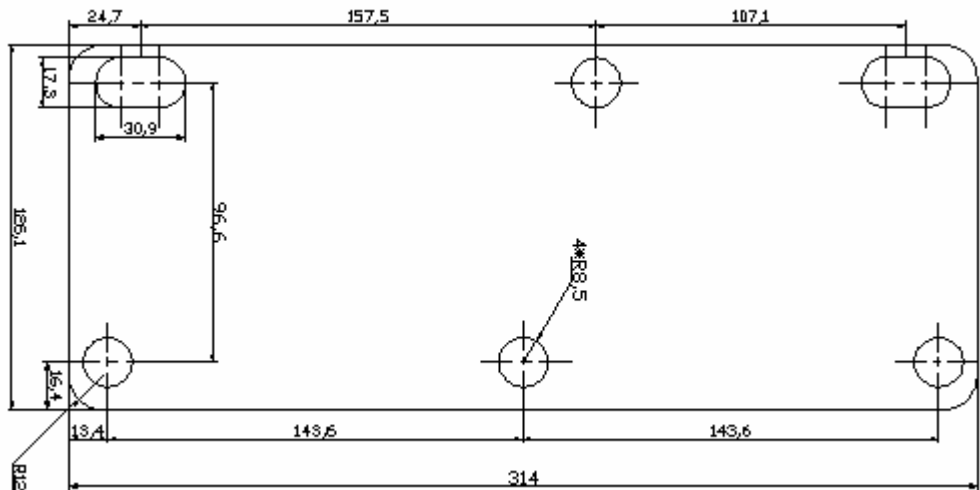
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9. Power Supply Mounting （安装尺寸）

见:Fig.8.1

Mount Method( 装配注意事项 )

整机装配时, 电源底部须加麦拉片, 建议麦拉片的材料为耐高压、高温, 防火。  
麦拉片尺寸参考:



10. Package 包装

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