

# SOL3060

## Control Board Specification

### General Features

This specification applies to SOL3060 control board with the following general features:

- 1) Printing interface  
USB 2.0 + RS232 Serial
- 2) Paper width  
80mm.
- 3) Character  
ANK, Simplified Chinese, Traditional Chinese.
- 4) Printing speed  
160mm/s high speed
- 5) Software function
  - ◆ Command protocol is based on the ESC/POS standard.
  - ◆ Supports multiple bitmap (including NV Logo bitmap) storage and printing.
  - ◆ Support multiple bar-code printing.
  - ◆ Support for amplification, rotation, inversion and anti-white printing.
  - ◆ Support paper end copy mode.
  - ◆ Set font size by command.
  - ◆ Print density, buzzer alert function, serial baud rate, default character set can be set by panel button.

# Table of Contents

General Features .....	1
Table of Contents .....	2
1 General Specifications .....	3
1.1 Printing Specifications .....	3
1.2 Character Specifications .....	3
1.3 Internal Buffer .....	3
1.4 Self-test Information .....	3
1.5 USB Interface .....	3
1.6 RS232 Serial Interface .....	3
1.7 Auto Cutter .....	4
1.8 Power on Sequence .....	4
1.9 Shutdown sequence .....	4
1.10 Power Characteristics .....	4
1.11 EMC .....	5
1.12 Environment Conditions .....	5
2 Assembly .....	5
2.1 2D Assembly Drawing .....	5
2.2 Connector Pin Definition .....	5
3 Functions .....	6
3.1 Lists of Commands .....	6
3.2 Offline Settings Mode .....	7
3.3 Panel LED and Buzzer .....	7
3.4 Self-test .....	8
3.5 HEX Print Mode .....	8
3.6 Code page .....	8
3.7 Bar code .....	9

# 1 General Specifications

## 1.1 Printing Specifications

- (1) Printing method: Thermal line printing
- (2) Printing resolution: 203DPI
- (3) Printing direction: Unidirectional with friction feed
- (4) Default printing width: 72mm,576 dots
- (5) Default Characters per line(CPL):
  - Font A: 576/12=48
  - Font B: 576/9=64
  - CJK (Chinese,Japanese and Korean) : 576/24=24
- (6) Character spacing: default 0,Programmable by control command.
- (7) Printing speed: 160mm/s high speed
- (8) Paper feed speed: 160mm/s
- (9) Default ling spacing: 30 dots,Programmable by control command.

## 1.2 Character Specifications

- (1) Resident Character Sets:
  - 95 ASCII characters
  - 192 International characters
  - GB18030-2000 Simplified Chinese
  - BIG5 Traditional Chinese
  - Extended code page(Factory default PC437, can be changed as required)
- (2) Character size:
  - Font A: 12X24 dots
  - Font B: 9X17 dots
  - CJK (Chinese,Japanese and Korean) : 24X24 dots

## 1.3 Internal Buffer

- (1) Data receive buffer: 16KB
- (2) User-defined character buffer: 24KB
- (3) User-defined bit images buffer: 20KB
- (4) Non-volatile bit images buffer (NV bit images) : 128KB

## 1.4 Self-test Information

Model: SOL3060

Version&Date: ESL1.1.0,YYMMDD<sup>①</sup>

<sup>①</sup>YY=year,MM=month,DD=day.attention please,version information changes without notice.

## 1.5 USB Interface

USB VID: 0x0471

USB PID: 0x0055

USB Vendor String: SOL

USB Product String: SOL3060

USB protocol: USB Printer Class or USB CDC Class

## 1.6 RS232 Serial Interface

- (1) Transmission mode: Asynchronous
- (2) Handshaking signal: Hardware DTR/DSR, RTS/CTS or software XON/XOFF
- (3) Signal levels: Logic 1=-3~-15V,Logic 0=--+3~+15V

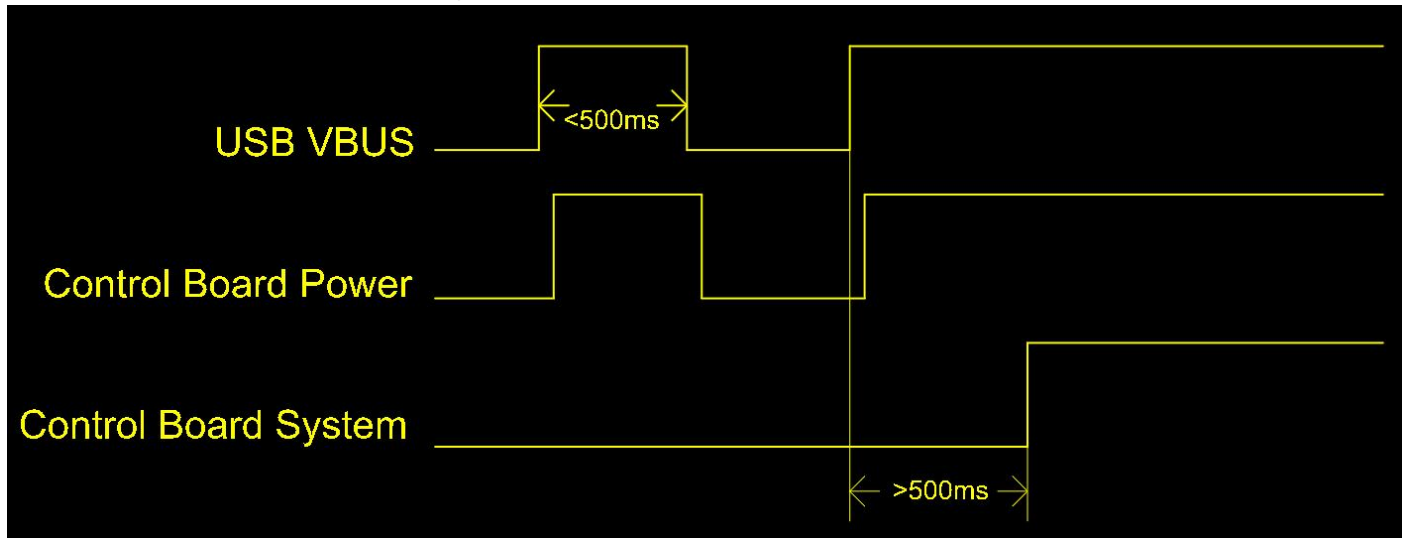
- (4) Baud rate: 1200/2400/480/9600/19200/38400/57600/115200, default 115200.
- (5) Data bits: 8
- (6) Parity setting: None
- (7) Stop bits: 1

### 1.7 Auto Cutter

Default partial cutting mode: Cutting with one point left uncut. To prevent dot displacement, after cutting, paper must be fed approximately 2 mm, can change to full cutting mode. As shown in the figure below

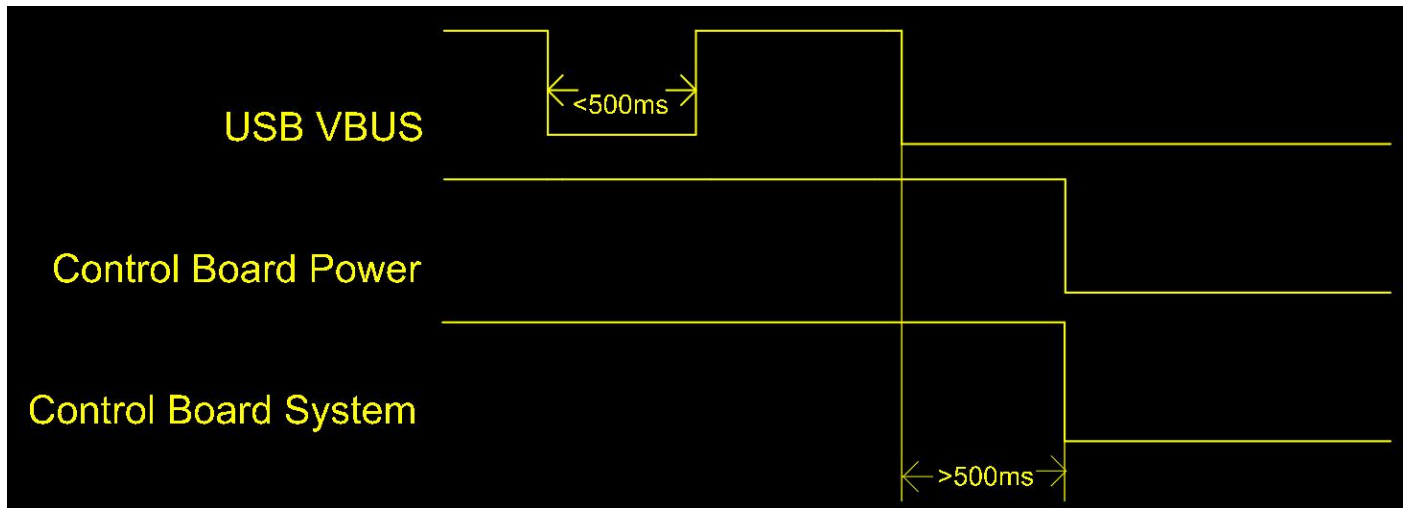
### 1.8 Power on Sequence

The SOL-E80C control board can only be started through USB VBUS signal, and the USB VBUS signal must be kept above 500ms. As shown in the figure below.



### 1.9 Shutdown sequence

When the USB VBUS signal disappears for more than 500ms, the SOL-E80C control board automatically shuts down. As shown in the figure below.



### 1.10 Power Characteristics

- (1) Supply voltage:  $+24V \pm 10\%$
- (2) Current consumption: approximately mean 1.5A (peak 7A) for high speed.  
 approximately 0.02A for standby.  
 Max 1A for drawer kick-out driving.

### 1.11 EMC

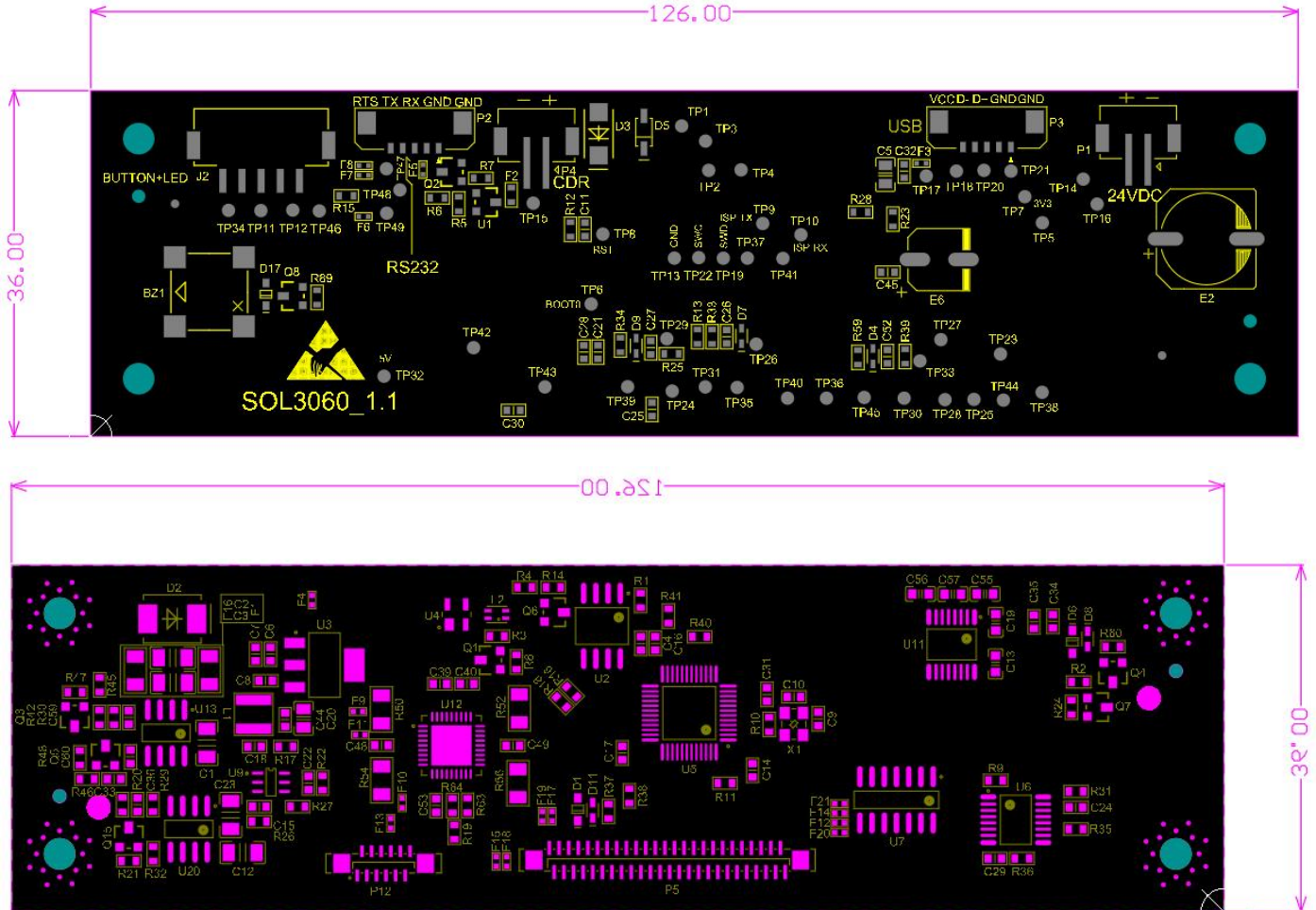
T.B.D.

## 1.12 Environment Conditions

- (1) Work: 0~50℃, 20%RH~85%RH (No condensation)
- (2) Storage: -20~60℃, 5%RH~95%RH (No condensation)

## 2 Assembly

### 2.1 2D Assembly Drawing



### 2.2 Connector Pin Definition

Please look at the silk printing of the control board, Connector specifications are listed in the following table:

Connector Silk Printing Name	Connector Specifications
USB	WF1.25-5P
RS232	WF1.25-5P
POWER	WF2.0-2P
Cash Drawer	WF2.0-2P
LED+KEY	WF2.0-5P

## 3 Functions

### 3.1 Lists of Commands


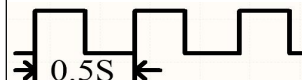
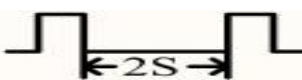
Command	Description(Please refer to the programming manual for details)
HT	Horizontal tab
LF	Print and line feed
CR	Print and carriage return
DLE EOT n	Real-time status transmission
DLE ENQ n	Real-time request to printer
DLE DC4 n	Generate pulse at real-time
ESC SP n	Set right-side character spacing
ESC ! n	Select print mode(s)
ESC \$ nL nH	Set absolute print position//设置绝对打印位置
ESC % n	Select/cancel user-defined character set//选择或取消自定义字符
ESC & y c1 c2	Define user-defined characters//用户自定义字符
ESC *	Select bit-image mode//选择位图模式
ESC - n	Turn underline mode on/off//选择或取消下划线模式
ESC 2 n	Select default line spacing//设置默认行间距
ESC 3 n	Set line spacing//设置行距
ESC ? n	Cancel user-defined characters//取消用户自定义字符
ESC @	Initialize printer//初始化打印机
ESC D	Set horizontal tab positions//设置水平制表位
ESC E n	Turn emphasized mode on/off//选择或取消加粗模式
ESC G n	Turn double-strike mode on/off//选择或取消双重打印模式
ESC J n	Print and feed paper//打印并进纸
ESC M n	Select character font//选择字符字体
ESC R n	Select an international character set//选择国际字符集
ESC V n	Turn 90°clockwise rotation mode on/off//选择或取消顺时针旋转 90°
ESC \ nL nH	Set relative print position//设置相对打印位置
ESC a n	Select justification//选择对齐方式
ESC c 3 n	Select paper sensor(s) to output paper-end signals//选择纸张传感器输出缺纸信号
ESC c 4 n	Select paper sensor(s) to stop printing//选择纸张传感器停止打印
ESC c 5 n	Enable/disable panel buttons//使能或禁止面板按钮
ESC d n	Print and feed n lines//打印并进纸 n 行
ESC p m t1 t2	General pulse//产生钱箱驱动脉冲
ESC t n	Select character code table//选择扩展代码页
ESC {	Turn upside-down printing mode on/off//选择或取消倒置打印模式
FS p n m	Print NV bit image//打印下载到 FLASH 存储的非易失性位图
FS q n...	Define NV bit image//定义下载到 FLASH 存储的非易失性位图
GS ! n	Select character size//选择字符大小
GS * x y...	Define download bit image//定义下载到 RAM 的位图
GS / m	Print download bit image//打印下载到 RAM 的位图


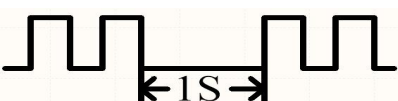

GS B n	Turn white/black reverse printing mode//选择或取消黑白反显示打印模式
GS H n	Select printing position for HRI characters//选择条形码 HRI 字符的打印位置
GS L nL nH	Set left margin//设置左边距
GS P x y	Set horizontal and vertical motion units//设置横向和纵向移动单位
GS W nL nH	Set printing area width//设置打印宽度
GS a n	Enable/Disable Automatic Status Back (ASB)//打开或关闭状态自动上传功能
GS f n	Select font for HRI characters//选择条形码 HRI 字符字体
GS h n	Select bar code height//选择条码高度
GS k m...	Print bar code//打印条形码
GS r n	Transmit status//上传状态
GS v 0 m...	Print raster bit image//打印光栅位图
GS w n	Set bar code width//设置条形码宽度
FS ! n	Set print mode(s) for Kanji characters//设置汉字字符模式
FS &	Select Kanji character mode//选择汉字模式
FS - n	Turn underline mode on/off for Kanji characters//选择或取消汉字下划线模式
FS .	Cancel Kanji character mode//取消汉字模式
FS 2 c1 c2...	Define user-defined Kanji characters//用户自定义汉字
FS S n1 n2	Set left-side and right-side Kanji character spacing//设置汉字字符左右间距
FS W n	Turn quadruple-size mode on/off for Kanji characters//选择或取消汉字倍高倍宽
GS V m	Select cut mode and cut paper//选择切纸模式并执行切纸
ESC B n t	Select buzzing number and time interval of the buzzer //选择蜂鸣器鸣叫次数与时间间隔并鸣叫
ESC C m t n	Select the working mode of LED and buzzer and work //选择 LED 和蜂鸣器的工作模式并工作
1D 28 6B 03 00 31 43 n	Set QRCODE module size//设置 QRCODE 模块大小
1D 28 6B 03 00 31 45 n	Set QRCODE Error Correction Level//设置 QRCODE 纠错等级
1D 28 6B pL pH 31 50 30 d1...dk	Storing character data to QRCODE cache//存储字符数据到 QRCODE 缓存
1D 28 6B 03 00 31 51 30	Print QRCODE//打印 QRCODE 二维码

### 3.2 Offline Settings Mode

Press the panel button and hold, power on, wait to print "Offline Settings" main menu, then set the printer according to the operation instructions, such as short press 2 times and long press (short short long), short press means that press button not more than 1 second, long press means that press button more than 1 second.

### 3.3 Panel LED and Buzzer

Status	Green LED	ERROR LED	PAPER LED	Buzzer
Paper end	ON	ON	ON	
Over heat	ON		OFF	

Open cover	ON	ON	ON	
Cutter error	OM		OFF	

### 3.4 Self-test

Press the panel button and hold, power on, wait for the printing "SELF-TEST INFORMATION", release the panel button.

### 3.5 HEX Print Mode

HEX Print Mode is used to debug the printer, you can view the original data received by the printer, refer to the Offline Settings Mode introduced in section 3.2, select the HEX menu to enter this mode.

### 3.6 Code page

- "C0-PC437(Std.Europe)",
- "C1-Katakana",
- "C2-PC850(Multilingual)",
- "C3-PC860(Portuguese)",
- "C4-PC863(Canadian)",
- "C5-PC865(Nordic)",
- "C6-West Europe\*\*",
- "C7-Greek\*\*",
- "C8-Hebrew\*\*",
- "C9-East Europe\*\*",
- "C10-Iran\*\*",
- "C16-WPC1252",
- "C17-PC866(Cyrillic #2)",
- "C18-PC852(Latin-2)",
- "C19-PC858",
- "C20-IranII\*\*",
- "C21-Latvian\*\*",
- "C22-Arabic\*\*",
- "C23-PT151,1251\*\*",
- "C24-PC747\*\*",
- "C25-WPC1257\*\*",
- "C27-Vietnam",
- "C28-PC864\*\*",
- "C29-PC1001\*\*",
- "C30-Uigur\*\*",
- "C31-Hebrew\*\*",
- "C32-WPC1255(Israel)\*\*",
- "C35-WPC1257(N)",
- "C255-Thai",
- "C50-PC437(Std.Europe)\*\*",
- "C51-Katakana\*\*",
- "C52-PC437(Std.Europe)\*\*",
- "C53-PC858(Multilingual)\*\*",

"C54-PC852(Latin-2)\*",  
"C55-PC860(Portuguese)\*",  
"C56-PC861(Icelandic)\*",  
"C57-PC863(Canadian)\*",  
"C58-PC865(Nordic)\*",  
"C59-PC866(Russian)\*",  
"C60-PC855(Bulgarian)\*",  
"C61-PC857(Turkey)",  
"C62-PC862(Hebrew)\*",  
"C63-PC864(Arabic)\*",  
"C64-PC737(Greek)\*",  
"C65-PC851(Greek)\*",  
"C66-PC869(Greek)\*",  
"C67-PC928(Greek)\*",  
"C68-PC772(Lithuanian)\*",  
"C69-PC774(Lithuanian)\*",  
"C70-PC874(Thai)\*",  
"C71-WPC1252(Latin-1)\*",  
"C72-WPC1250(Latin-2)\*",  
"C73-WPC1251(Cyrillic)\*",  
"C74-PC3840(IBM-Russian)\*",  
"C75-PC3841(Gost)\*",  
"C76-PC3843(Polish)\*",  
"C77-PC3844(CS2)\*",  
"C78-PC3845(Hungarian)\*",  
"C79-PC3846(Turkish)\*",  
"C80-PC3847(Brazil-ABNT)\*",  
"C81-PC3848(Brazil-ABICOMP)\*",  
"C82-PC1001(Arabic)\*",  
"C83-PC2001(Lithuanian-KBL)\*",  
"C84-PC3001(Estonian-1)\*",  
"C85-PC3002(Estonian-2)\*",  
"C86-PC3011(Latvian-1)\*",  
"C87-PC3012(Latvian-2)\*",  
"C88-PC3021(Bulgarian)\*",  
"C89-PC3041(Maltese)\*",

### **3.7 Bar code**

UPC-A/CODE39/CODABAR/UPC-E/CODE93/CODE128/ITF/EAN8(JAN8)/ EAN13(JAN13)/QRCode