PL2303TA USB-to-Serial Bridge Controller Migration Guide Application Note

Introduction

This application note provides the latest important migration guidelines for Prolific's new PL2303TA USB-to-Serial Bridge Controller. Refer to this application note to migrate from PL-2303HX Chip Rev A (**also known as PL-2303HXA**) or from PL-2303X Chip Rev A (**also known as PL-2303XA**) to the new PL2303TA chip version.

PL2303TA Chip Main Differences

Following are the main differences of PL2303TA chip compared to previous PL2303 product family:

- 0.18um Chip Manufacturing Process
- Supports new USB-IF Logo Test Requirement: Suspend Current (Powered-State) < 2.5mA
- Supports USB Selective Suspend (Run-Time Power Management) without EEPROM
- Lower operating current (typical: 8mA) and suspend current (typical: 370uA)
- Pin-to-Pin Compatible with PL-2303HXA and PL-2303XA (minor PCB modification)
- PL2303TA will replace both PL-2303HXA and PL-2303XA chip.

Product Family Comparison Table

Following are the comparisons for PL-2303HXA, PL-2303XA, and PL2303TA controllers:

	PL-2303XA	PL-2303HXA	PL2303TA (New!)
Chip MFG Process	0.35um	0.35um	**0.18um**
USB VID/PID	VID_067B&PID_2303	VID_067B&PID_2303	VID_067B&PID_2303
Clock Source	External 12MHz Crystal	External 12MHz Crystal	External 12MHz Crystal
Core Voltage	3.3V	3.3V	3.3V
Option Initial Startup Device Configuration	External I^2C EEPROM (24C02)	External I^2C EEPROM (24C02)	External I^2C EEPROM (24C02)
RS-232 VDD	3.3V ~ 1.8V	3.3V ~ 1.8V	3.3V ~ 1.8V
GPIO	2 pins	2 pins	2 pins
Baud Rate Support	75 ~ 6M bps	75 ~ 6M bps	75 ~ 6M bps
Buffer Size	Configurable Upstream 256/384 bytes Downstream 256/128 bytes	Configurable Upstream 256/384 bytes Downstream 256/128 bytes	Configurable Upstream 256/384 bytes Downstream 256/128 bytes
Pin Differences	Pin 8 → VDD_3 Pin 19 → RESET_N Pin 24 → VDD_33A	Pin 8 → NC Pin 19 → NC Pin 24 → NC	**Pin 8 → NC** **Pin 19 → RESET_N** **Pin 24 → NC**
Circuit	XA Version	HXA Version	**Compatible with both XA and HXA versions***
PKG	SSOP28	SSOP28	SSOP28
Product Cycle	**Discontinued (EOL)**	**To Be Discontinued**	**Available**

*** - Might need some minor PCB modifications.**

PL2303TA Hardware Design Migration

The latest PL2303TA is pin-to-pin compatible with the PCB layout of PL-2303HXA and PL-2303XA chip versions. However, note some differences as shown in Figure-1 below:

- Pin 8 and 24 should be NC (floating).
  - These pins can also connect to VO_33 (+3.3V) but PCB should not mount previously written EEPROM for PL2303XA/HXA chip. Mount empty EEPROM if required and use PL2303TA EEPROM Writer program and driver to write EEPROM settings.
- Short R8, R7 of DP/DM (Pin 15 and 16).
- Remove R6 pull-up resistor of DP (Pin 16).
- Pin 19 (RESET_N) add optional pull-up resistor to VO_33.

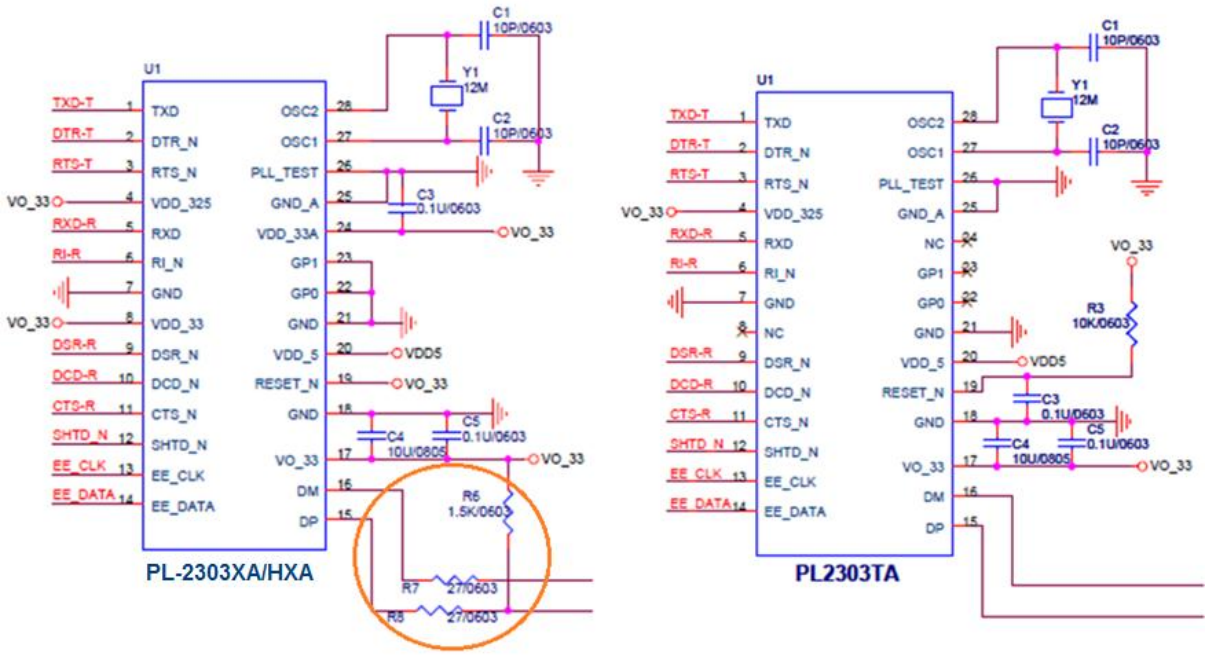


Figure-1: PL-2303XA/HXA and PL2303TA Schematic Diagram Reference Comparison

NOTE: Download the latest PL2303TA Datasheet and Reference Schematic from Prolific website for more information.

PL2303TA Software & Drivers

Following are the software and drivers support for PL2303TA chip:

Note: Please go to Prolific support website for the latest software and driver versions:

http://www.prolific.com.tw/US/CustomerLogin.aspx (Enter 'guest' on account and password)

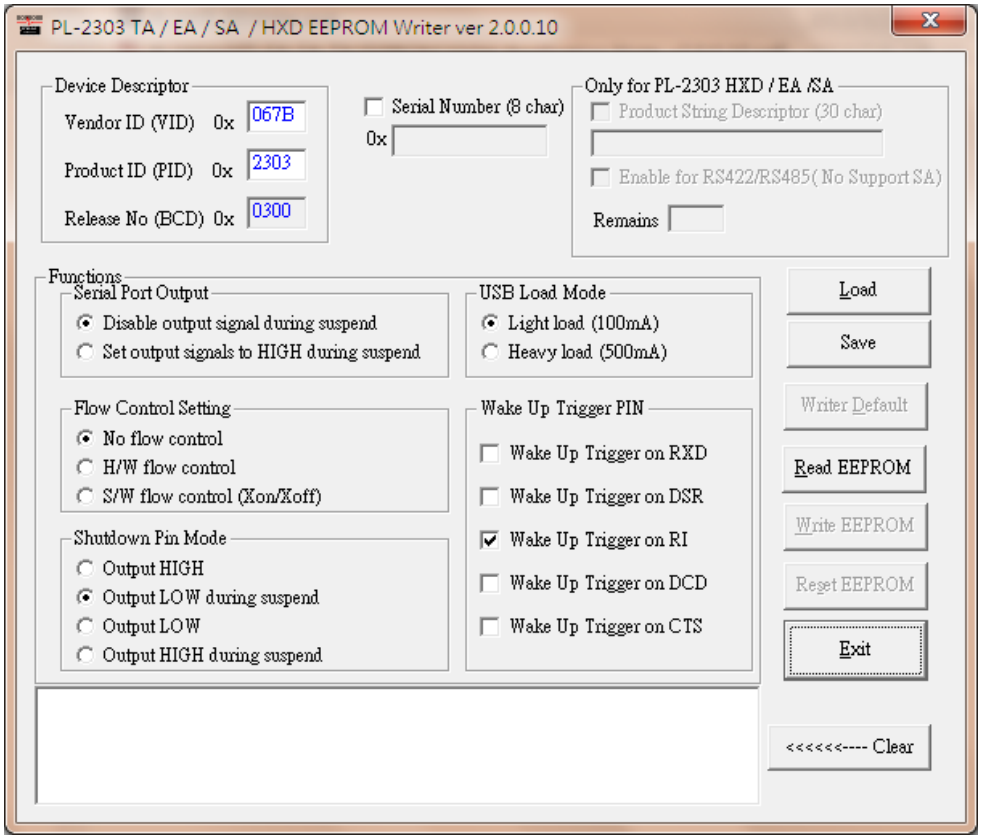
Chip Versions	Windows Driver Versions
PL2303HXD, PL2303TA	➢ 1.5.0 or above (Installshield Driver Installer program)
	➢ 3.4.25.218 or above (for Windows Vista/7/8 32/64 OS)
	➢ 2.1.27.185 or above (for Windows 2000/XP 32/64 OS)
Note: Older driver versions are not compatible with PL2303TA chip for using baud rates above 115200bps. Customers using customized drivers (different USB VID/PID) should request an update driver from Prolific. Prolific does not provide WHQL drivers for customized drivers and will charge NRE fee if WHQL is requested. http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=225&pcid=41	

Chip Version	Mac OS Driver Versions
PL-2303HXD, PL2303TA	➢ Mac OS 8 & 9 driver: v1.3.6 build 1
	➢ Mac OS X Universal Binary Driver v1.2.1r2 For Mac OS 10.1 and above for PowerPC based Mac For Mac OS 10.4.x and 10.5.x for PowePC and Intel based Mac
	➢ Mac OS X Universal Binary Driver v1.4.0 or above For Mac OS 10.6.x and above (32 and 64-bit kernel)
Note: All Mac OS drivers are compatible with PL-2303H, PL-2303HX, PL-2303X, and PL2303TA chip version. Mac OS Driver: http://www.prolific.com.tw/US/ShowProduct.aspx?p_id=229&pcid=41	

Chip Version	Linux Driver Versions
PL-2303HXD, PL2303TA	No need to install drivers for following: ➢ Linux Kernel 2.4.31 and above already includes built-in drivers for Prolific VID_067B&PID_2303.
NOTE: Google Android OS also uses Linux OS kernel so it also can support PL2303. Kernel Module Driver Source: http://lxr.free-electrons.com/source/drivers/usb/serial/pl2303.c http://lxr.free-electrons.com/source/drivers/usb/serial/pl2303.h	

Chip Version	Cable Test Program Version (for Windows)
PL-2303HX, PL-2303XA, PL2303TA	2.2.1.1

Chip Version	EEPROM Writer Program Version
PL-2303HXD	2.0.0.8 (all-in-one version program) or above
PL2303TA	
Note: It is required to add external EEPROM and use this version (or above) for PL2303TA chip if need to pass USB-IF Logo Dead-Battery Suspend Current (Powered-State) Test Procedure. **http://compliance.usb.org/index.asp?UpdateFile=Battery Charging#1**	



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