
AN1155

PI5USB2546/A Application Note

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Introduction

The PI5USB2546 and PI5USB2546A are USB charging port controllers and power switches with an integrated USB 2.0 high-speed data line (D+/ D-) switch. The PI5USB2546 and PI5USB2546A provide the electrical signatures on D+/D- to support charging schemes listed under the device feature section. These parts are compatible with both popular BC1.2 compliant and non-BC1.2 compliant devices. System wake up (from S3) with a mouse/keyboard (both low speed and full speed) is fully supported in the devices. Additionally, the devices support two distinct power management features, namely power wake and port power management (PPM) through /STATUS pin. Power wake allows for power supply control in S4/S5 charging and PPM manages port power in a multi-port application. The PI5USB2546 and PI5USB2546A 73-mΩ power-distribution switches are intended for applications where heavy capacitive loads and short circuits are likely to be encountered. Two programmable current thresholds provide flexibility for setting current limits and load detect thresholds.

Wake-on-USB Feature (Mouse/Keyboard Wake Feature)

Wake-on-USB is the ability of a wake-configured USB device to wake a computer system from its S3 sleep state back to its S0 working state. Wake-on-USB requires the data lines to be connected to the system USB host before the system is placed into its S3 sleep state and remain continuously connected until they are used to wake the system.

The PI5USB2546 and PI5USB2546A support low and full-speed HID (human interface device), such as a mouse/key board wake function. There are two scenarios under which wake-on-mouse is supported by the PI5USB2546 and PI5USB2546A. The specific CTL pin changes that the PI5USB2546/A will override are shown below. The information is presented as CTL1, CTL2 and CTL3. The ILIM_SEL pin plays no role.

1. 111 (CDP/SDP2) to 011 (DCP-Auto)
2. 110/010 (SDP1) to 011 (DCP-Auto)

PLEASE NOTE THAT PI5USB2546 AND PI5USB2546A DO NOT SUPPORT HIGH-SPEED HID WAKE FUNCTION.

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