

added at the connector for ESD protection. Use Littelfuse p/n SP0503BAHT or equivalent.

Note 2: An external pull-up is not required, but can be added for noise immunity.

Note 3: VIO can be connected directly to VDD or to a supply as low as 1.8 V to set the I/O interface

voltage. **Note 4**: If configuration ROM is to be programmed via USB, a 4.7 μ F capacitor must be added between VPP and ground. During a programming operation, the pin should not be

connected to other circuitry, and VDD must be at least 3.3 V.

Note 5: For self-powered systems where VDD and VIO may be unpowered when VBUS is connected to 5 V, a resistor divider (or functionally-equivalent circuit) on VBUS is required to meet the absolute maximum voltage on VBUS specification in the Electrical Characteristics section.

Typical Self-Powered Connection Diagram (Regulator Bypass)