

USB Single Pin MOSFET Drive and Discharge

■ USB MOSFET Drive and Discharge

- ▶ A three state switch function for USB power delivery (PD) system, controlled by a single pin
- ▶ External bleeder circuit for quick discharge of V_{BUS}

■ Benefits

- ▶ Reduction in the number of pins required for controlling the external MOSFET for USB PD
- ▶ **Could be used with:**
InnoSwitch3-Pro10,141,765



Figure 1. Typical USB Power Delivery System Configuration

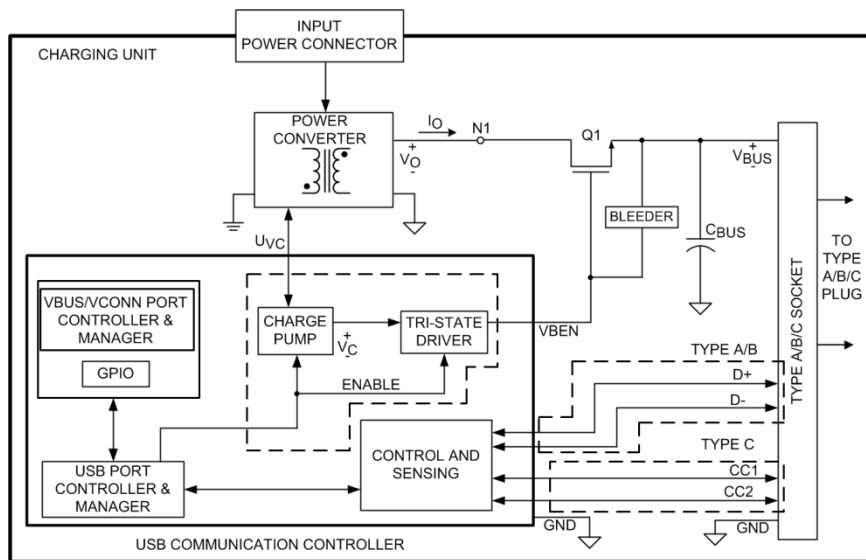


Figure 2. USB Type A/B/C Controller with a single pin MOSFET drive/discharge function

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■ Bleeder Circuit – Option 1

- ▶ A single external resistor coupled between the gate and the source of the MOSFET

■ Benefits

- ▶ Minimum number of components
- ▶ Fewer pins

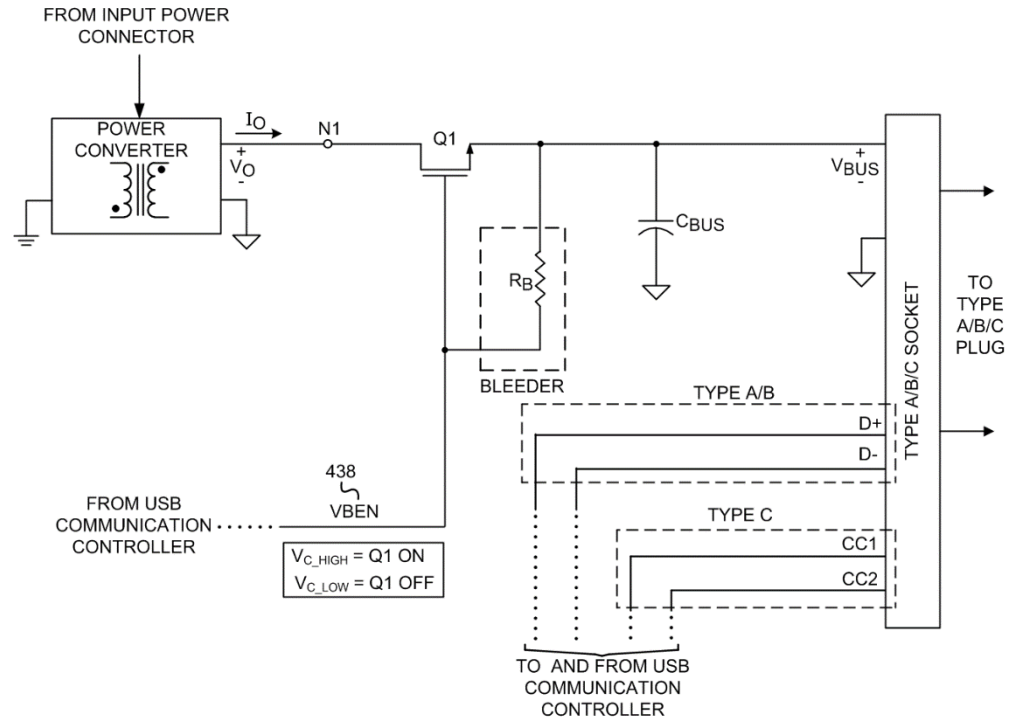


Figure 3. USB charging unit with bleeder circuit - option 1

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■ Bleeder Circuit – Option 2

- ▶ An external resistive divider coupled between the gate and the source of the MOSFET

■ Benefits

- ▶ Allows for a smaller charge pump

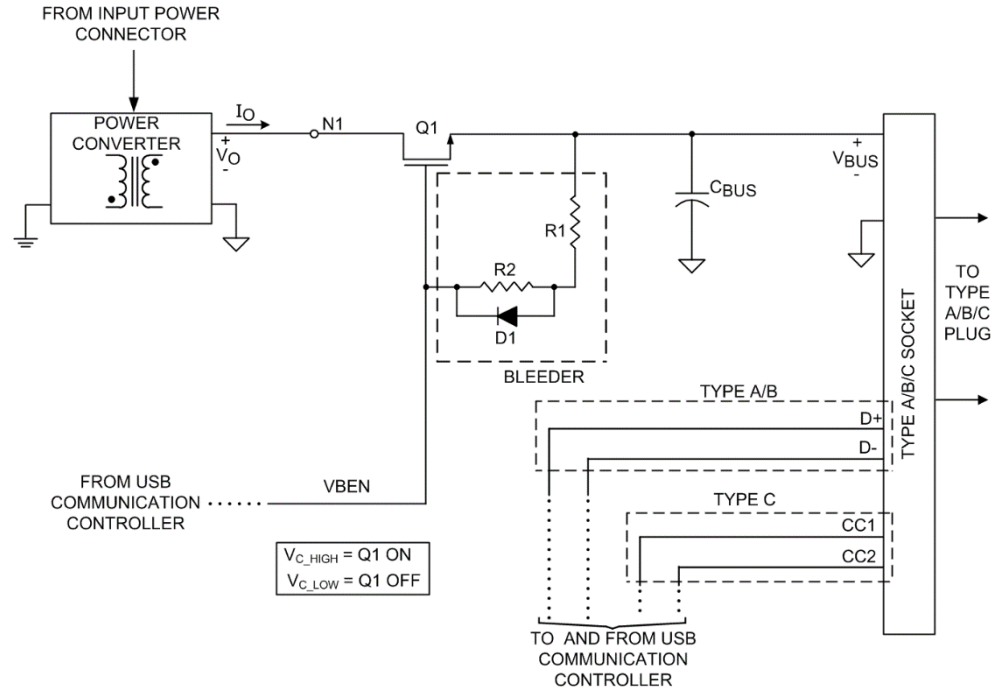


Figure 4. USB charging unit with bleeder circuit - option 2