1. DESCRIPTION

MT2801 is a highly integrated System on Chip (SoC) based multi-protocol controller. It supports USB PD3.2 R1.0, functioning as a downstream facing port (DFP) with programmable power supply (PPS) or as a dual- role port (DRP) via CC1/CC2 pins. It also supports multiple fast charging protocols like BC1.2, QC2.0, QC3.0, SCP, UFCS, AFC etc.

MT2801 integrates a high-resolution regulator, constant voltage (CV) loop and constant current (CC) loop, utilizing a digital-to-analog converter (DAC) for accurate reference voltage. It can also regulate the external DC-DC controller through FB pin with CV and CC loop.

MT2801 can share the output power through master/slave I²C communication. The chip features multiple configurable general-purpose I/Os (GPIO), enabling flexible application customization.

Designed with ARM Cortex M0 processor, 32kB ROM and 16kB MTP, the chip is applicable to various applications.

MT2801 is embedded with various protection features, such as over-voltage protection (OVP), over-current protection (OCP) and over-temperature protection (OTP) to ensure the system reliability.

2. APPLICATIONS

- Power adapter
- Car charger
- Power bank, etc.

3. FEATURES

- ARM-M0 with 4kB SRAM, 32kB ROM and 16kB MTP
- Wide input voltage range: 3V to 22V
- Supports 6-channel DMA
- 24MHz oscillator with ±1.5% trimming precision
- 12-bit 100ksps SAR ADC
- Dedicated debug port with SWD and supports I²C
- Supports PD3.2 R1.0 (DFP with PPS, DRP) and BC1.2, QC, SCP, UFCS, AFC
- 2 UART interfaces
- Supports I²C master/slave interface
- 3 advanced timers with PWM generation and capture functions
- 1 basic timer with 2 channels
- Incorporates high-side and low-side current sense circuits
- Supports hardware CRC
- Supports hardware OVP/UVP/OTP
- Integrated with Limited Power Source (LPS) protection
- Supports firmware update
- Supports VCONN power supply and E-marker detection
- Low-power design:
  - Sleep mode: ≤1mA
  - Normal mode: ≤5mA
- Halogen free and RoHS compliant
- Available in 4mm x 4mm QFN24 package

4. TYPICAL APPLICATION CIRCUIT

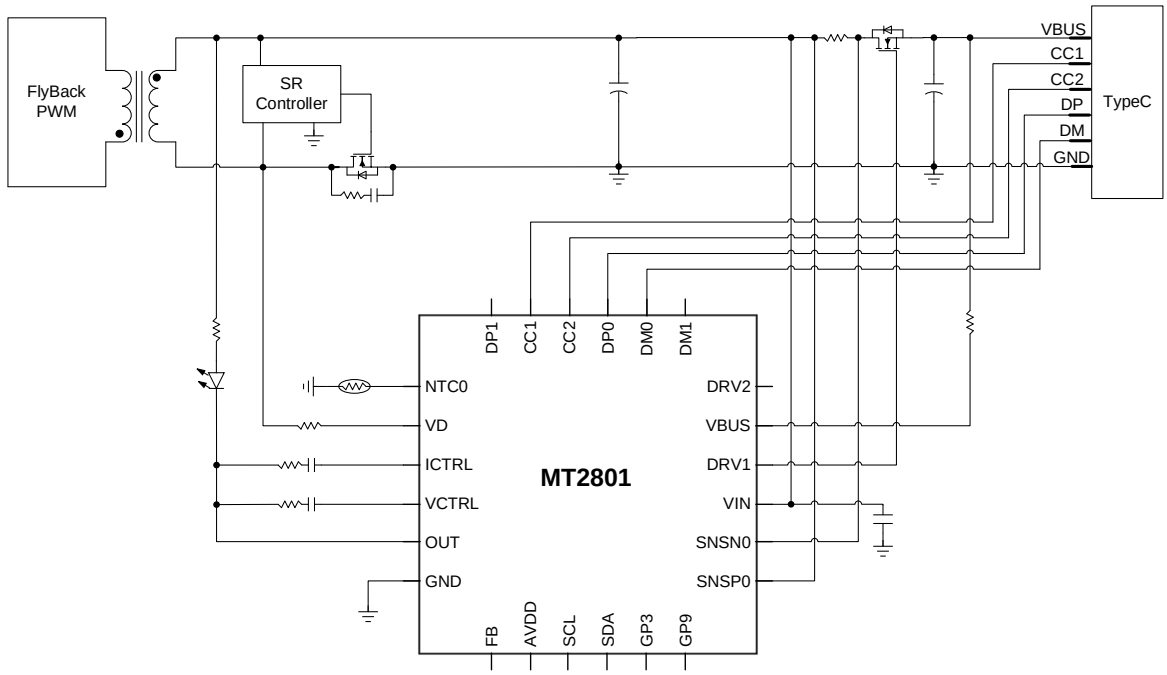

Figure 1 Typical Application Circuit